PHASE II/III ENVIRONMENTAL SITE ASSESSMENT

FINAL REPORT

RESOLUTE BAY AIRPORT LANDFILL SITES, RESOLUTE BAY, NUNAVUT



Prepared for:

Public Works & Government Services Canada

800 Burrard Street

Vancouver, BC

V6Z 2V8

On behalf of Transport Canada

Prepared by:

Franz Environmental Inc.

308-1080 Mainland Street

Vancouver, BC

V6B 2T4

Project No. 1747-0901

March 2010

FRANZ ENVIRONMENTAL INC.

♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

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EXECUTIVE SUMMARY

Franz Environmental Inc. (FRANZ) was retained by Public Works and Government Services Canada (PWGSC) Pacific Region and Transport Canada (TC), Prairie and Northern Region and Environmental Affairs Division to complete a Phase II/III Environmental Site Assessment (ESA) at three landfill/waste disposal sites at the Resolute Airport, Resolute Bay, Nunavut.

The three waste disposal sites were identified as: APEC 1 - Solid Waste Landfill, APEC 2 - Historic Landfill, and APEC 3 - Vehicle Storage Area. Solid waste disposal originates from military and airport activities, and the community.

Soil, groundwater, sediment, water, and vegetation samples were collected for analysis at the three sites and compared to federal guidelines, and when needed, provincial standards. Environmental impacts were primarily associated with disposal of metallic debris and disposal of items containing hydrocarbons (i.e, drums). Generally, hydrocarbons, PAHs, and BTEX were localized to small areas near the source area/landfill. Apparent contamination from metals was more widespread, particularly downgradient of the Solid Waste Landfill. The areal distribution of the contamination appears to be concentrated mostly at the toe of the landfills in the sediment and boggy/pond areas. Contaminants were compliant with the applicable guidelines, and in many cases, below the detection limit at the discharge point to the nearest water body.

Waste disposal practices have attributed to a slow release of metals and other contaminants into the environment. It was concluded that the leaching of contaminants from the waste debris represents a measureable loading risk to the aquatic environment on site and possibly nearby surface water bodies. Further studies are recommended to measure seasonal variances in order to better understand the contaminant migration pathway and receptor relationship.

It is our opinion that remediation/risk management priorities should be based on the removal of physical hazards and source area impacts, consolidation of wastes and capping, and containment and control of contaminants in the surface water pathways.

For all the options, indicative cost estimates were calculated. Based on our evaluation, the cost estimates range from approximately $3.5 M to $4.5 M.

The CCME National Classification System for Contaminated Sites (NCSCS) was used to score the sites in terms of priority ranking.

- The site score for APEC 1 (now AEC 1) was 81.8 which classifies the Solid Waste Landfill as a Class 1 site (High Priority for Action);
- The site score for APEC 2 (now AEC 2) was 75.9 which classifies the Historic Landfill as a Class 1 site (High Priority for Action); and
- The site score for APEC 3 (now AEC 3) was 59.0 which classifies the Boneyard/Scrap Metal Storage Area as a Class 2 site (Medium Priority for Action).

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1.0 INTRODUCTION

Franz Environmental Inc. (FRANZ) was retained by Public Works and Government Services Canada (PWGSC) and Transport Canada (TC), Prairie & Northern Region and Environmental Affairs Division to complete a Phase II/III Environmental Site Assessment (ESA) at three waste disposal sites at the Resolute Airport, Resolute Bay, Nunavut (see Figure 1).

This project was completed based on discussions with PWGSC/Transport Canada, a review of the Terms of Reference (ToR), and our July 2009 proposal titled "Proposal for Environmental Site Investigation – Resolute Bay Airport Landfills, Resolute Bay, Nunavut".

1.1 Purpose and Project Objectives

The purpose of this project was to undertake a Phase II and Phase III Environmental Site Assessment (ESA) in three areas of potential concern (APECs): the solid waste and historic landfills, as well as a vehicle storage area/boneyard, at the Resolute Bay Airport (see Figure 1). Transport Canada will use this report to demonstrate due diligence and reduce liabilities in order to direct remediation and/or risk management activities at these sites.

To accomplish this goal, the objectives include the following:

- Review of previous studies and reports for the three APECs;
- Characterize the materials at each APEC including the type and volume of material, where possible
- Obtain representative samples of soil, surface water, groundwater, sediment, and vegetation in all three areas;
- Determine the source, type, and nature of contamination in soil, water, sediment, and vegetation;
- Complete the National Classification Score (NCS) for this site and each APEC based on: CCME, 2008 National Classification System for Contaminated sites: Guidance Document. Canadian Council of Ministers of the Environment, Winnipeg; and

- Develop a detailed remedial action plan and provide indicative cost estimates for three (3) different options to remediate/manage the site.

1.2 Site Features and Background

Resolute Bay is on Cornwallis Island, in an arm of Parry Channel along the Northwest Passage, in the Qikiqtaaluk Region, Nunavut. The Inuit hamlet, Resolute (Qausuittuq – place with no dawn), is approximately 5 km northeast from the airport (see Figure 1). The population is approximately 230 people, and is comprised mostly of Inuit people. Resolute operates as a centre for transportation, communications and administration for the Arctic.

The airport was originally built in 1949 by the Royal Canadian Air Force. From 1964 to July 1, 1995, Resolute Bay Airport was owned by the Government of Canada and operated by Transport Canada. In July 1995, ownership was transferred to the Government of Northwest Territories. From July 1, 1995 until April 1, 1999, the airport was operated by the Arctic Airport Division of the Department of Transportation. Since April 1, 1999, the airport has been owned by the Government of Nunavut (GN) and operated by the Nunavut Airports Division of the Nunavut Department of Community Government, Housing and Transportation.

Past activities for transportation, communications and administration in the Arctic have resulted in the generation of solid waste. Solid waste disposal both from military activities and the community itself have resulted in the creation of several landfill sites. Two landfills, the Solid Waste Landfill and the Historic Landfill, are present near the airport. A third disposal site, known as the “Vehicle Storage Area” (as identified in the 1993 TC/PWGSC Audit), is north of the Solid Waste Landfill.

Waste material was dumped on the Solid Waste Landfill around the 1960s and the 1970s (Jacques Whitford, 2006). This landfill has not been officially used since 1995, when a new landfill was constructed southeast of the hamlet. However, as recently as the summer of 2005, there was evidence of recent dumping of wastes in the landfill (Jacques Whitford, 2006).

The Historic Landfill was used from 1947 to 1996. The Canadian and American military

forces used this landfill between 1947 and 1964. Transport Canada and various airport tenants used the landfill between 1964 and 1995. Although air photographs recorded the end of activity in the early 1970s, it was in 1996 when the use of the Historic Landfill officially stopped (Jacques Whitford, 2006).

The major concern associated with landfills is the production and subsequent loss of contaminants in landfill leachate which can result in significant surface water contamination. Although there is no "typical leachate", there is evidence that some chemical parameters are consistently found within a similar concentration range at most landfills. Research completed at several landfills in Canada concluded that the similarity in leachate contaminants must reflect the common waste types placed in domestic solid waste landfills. Inorganic parameters include such elements as zinc, chromium, copper, lead, arsenic, aluminum, and mercury. Leachate can also contain petroleum, paints, household chemicals, solvents, glues, and inks. Due to the historic nature and types of materials in these landfills, PAHs, PCBs and pesticides could be considered potential chemicals of concern.

1.3 Project Team

This project was undertaken by a multi-disciplinary team. Key individuals and their respective roles are summarized below:

- Steve Livingstone, M.Sc., P.Geo(I), Senior Hydrogeologist, Project Director
- Michael Shum, Ph.D., P.Ag., R.P.Bio., Senior Risk Assessor and Project Manager
- Jordi Helsen, M.Sc., GIT, Hydrogeologist
- Miguel Madrid, M.Sc., Environmental Scientist
- Jennifer Keenliside, HBSc., CEPIT, Junior Environmental Scientist
- Elliot Tonasket, Environmental Technician, *Columbia Environmental Ltd.*

2.0 STUDY AREA CHARACTERISTICS

2.1 Site Overview

The study area is divided into three distinct areas (see Figure 1):

- APEC 1 - Solid Waste Landfill, which is on the west side of the service road approximately 2 km north of the airport;
- APEC 2 - Historic Landfill, west of the service road, across from Parcel 9; and
- APEC 3 - Vehicle Storage Area, along the northwest branch of the service road.

The Solid Waste Landfill (APEC 1) is built at the top of a ridge near the service road. The landfill is approximately 40,000 m² in area and rises approximately 10 m above sea level. Various types of waste material including drums, plastic and scrap metal are scattered across the tundra near the site. The area beyond the toe of the landfill is boggy, with pools of standing water. The water from the area flows west in a small stream to Allen Bay, approximately 2 km from the site. Evidence of leaching from the landfill includes discoloured water at the toe, hydrocarbon sheens, and solvent odours during test pitting. There is significant vegetation growth at the below the landfill and along the stream leading to Allen Bay. Resolute Bay Airport's sewage disposal lagoons are immediately adjacent to the landfill and contribute to the quality and quantity of water entering the boggy area.

The Historic Landfill (APEC 2) is approximately 5 km from the hamlet of Resolute Bay, and approximately 300 m southwest of the airport terminal building. The landfill is approximately 145,000 m². Most of the buried waste is covered by soil, however, various types of debris were observed at the surface, including drums, lumber, metal wire, plastic and an airplane fuselage. The area at the toe of the landfill is boggy and significant vegetative growth relative to the surrounding area was observed. There is a hotel under development in the northeast corner of the landfill, along the service road. The ground surface at the historical landfill slopes gently to the west, towards the ocean. The community water supply, Strip Lake, is located several kilometres to the south. Groundwater and surface water are not used for any purpose in this area.

The Vehicle Storage Area (APEC 3) was identified in an audit in 1993 but has not been investigated. The Vehicle Storage Area is on the raised south edge of the McMaster River valley, approximately 1 km and 3 km northwest of APEC 1 and the airport terminal, respectively. There are two areas (approximately 3,750 m^2 and 900 m^2) which have been used for disposal of vehicles, as well as other equipment (drums, tanks, tires, fencing, glass, shingles, etc.).

2.2 Current Permit Information and Future Land Use

FRANZ understands that uses at APECs 1 and 3 remain unchanged and that there are no known proposed changes. The use at APEC 2 remains unchanged, however, a hotel is being developed along the northeastern boundary of the historic landfill. A request put in to INAC mining records department on August 20, 2009, to search for past and present mineral claims on the property, turned up no records. No land claims have been made on the subject property.

2.3 Climate

Resolute Bay is in the high arctic and the climatic is characteristic of the Arctic Circle. The average daily temperature ranges from –32.4 ºC to 4.3 ºC. The average monthly temperature is below 0°C for ten months of the year. Snowfall that accumulates over the winter generally melts over a relatively short period of time of about 1 – 2 weeks at the start of the summer in June. The active warm months are July and August, with daily average temperatures of 4.3 ºC and 1.5 ºC, respectively. Polar desert conditions limit vegetation to prostrate dwarf trees, grasses, lichens and mosses.

Most months receive less than 10 mm precipitation, with only summer months experiencing more. The majority of rainfall during the summer can be characterized as low rainfall events (0.2 - 5 mm). Many of the rainfall events likely only wet the ground surface and do not result in significant infiltration. The average annual precipitation is 150 mm, with 50.3 mm of annual rainfall and 110.3 mm of annual snowfall (www.climate.weatheroffice.ec.gc.ca).

The site is in the zone of continuous permafrost. Permafrost was encountered in previous investigations at depths starting at 1m.

3.0 PHYSICAL SITE CHARACTERISTICS

3.1 Regional and Local Topography

Cornwallis Island, Nunavut, is relatively flat with low-lying terrain, and a maximum elevation of 312 metres above sea level in the eastern part of the island (http://atlas.nrcan.gc.ca). Cornwallis Island is characterized by extensive rolling upland plateau areas incised by river channels (Edlund, 1991).

The study areas are characterized, for the most part, by flat to gently sloping terrain. The Solid Waste Landfill (APEC 1) and Historic Landfill (APEC 2) are both characterized by gently sloping terrain, with elevations that range from 35 to 60 m above sea level (asl) and 40 to 60 m asl, respectively. The Vehicle Storage Area (APEC 3) is on the top of the south slope of the McMaster River Valley at an elevation of approximately 30 to 35 m asl. Where present, plant cover is sparse, irregular, and discontinuous.

3.2 Regional and Local Drainage

Drainage on Cornwallis Island appears to be topographically controlled. Rivers and creeks on the island discharge into the Arctic Ocean from upland areas in the central and eastern parts of the island (see Figure 1).

Drainage from both the Solid Waste Landfill (APEC 1) and the Vehicle Storage Area (APEC 3) discharges towards the west into Allen Bay (Figure 2 and 4). The area beyond the toe of the Solid Waste Landfill (APEC 1) is drained by a small unnamed creek, and several small ponds. The localized boggy area/wetland, indicative of saturated conditions likely due to an abundant water supply and shallow permafrost, has developed along the creek downgradient from the Landfill. Surficial flows in the Vehicle Storage Area (APEC 3) drain into the McMaster River valley; however, surface water was not observed in the immediate vicinity of the APEC.

The Historical Landfill (APEC 2) is drained by a complex sequence of interconnected lakes and drainage channels that ultimately discharge towards the south into Resolute Bay (Figure 3). Three small lakes west of the landfill capture runoff and drainage from the landfill. These lakes drain approximately 1km into Meretta Lake and then to

Resolute Lake, and finally Resolute Bay. A patchy, discontinuous wetland has developed at the toe of the Historic Landfill (APEC 2) along its southern extent.

3.3 Geological Characterization

3.3.1 Regional Bedrock Geology

Cornwallis Island is comprised predominantly of Ordovician to Devonian carbonates (limestone and dolomite), shales, siltstones and sandstones (Edlund, 1991 and Okulitch, 1991).

3.3.2 Regional Surficial Soils

Cornwallis Island is characterized by a predominantly mineral surface. The surficial geology of the island is dominated by bedrock and Quaternary colluvial deposits. The surficial geology on the island has been strongly influenced by periglacial processes and to a lesser degree by alluvial processes. Like much of the region, glaciation has had a minor influence on the surficial geology of Cornwallis Island. Late Wisconsinan glacial activity on Cornwallis Island had a limited and localized physiographic effect (Edlund, 1991).

3.3.3 Local Scale Geology

The study areas are underlain by carbonates of the Allen Bay Formation to the west, and dolomite of the Cape Storm Formation to the east and to the south (Okulitch, 1991). Surficial geology consists predominantly of weathered bedrock debris.

Soils in the study areas are generally poorly developed and granular, ranging from sand to gravel. Permafrost was encountered during intrusive investigation in the native soils at the Solid Waste Landfill (APEC 1) and the Historical Landfill at approximately 0.6 m depth.

3.4 Hydrogeological Characterization

3.4.1 Regional Hydrogeology

Cornwallis Island lies within the continuous permafrost zone. Permafrost occurs on the earth's surface where the ground has remained below 0°C continuously for a minimum of two years. In the continuous permafrost zone the ground remains frozen during the entire year, except for the uppermost soil layer which thaws out during the short summer. This upper layer of soil that is subjected to the annual freeze-thaw cycle is known as the active layer.

Groundwater in the continuous permafrost zone is confined to the shallow active layer. Based on the regional geology and the presence of permafrost, the groundwater flow is likely complex and controlled by topography, surface water bodies and bedrock structure. Vertical groundwater flow is limited by the shallow permafrost. It is expected that the surface water bodies are expressions of the water table.

3.4.2 Site Hydrogeology

Groundwater at the study areas is limited in quantity and ephemeral, being confined to a shallow active soil layer which is frozen up to ten months of the year. Shallow groundwater was encountered at the toe of both landfills.

Surface water flow is likely the principal mode of water transport in the study areas. Surface water runoff due to the annual snow melt is considered to play a significant role.

4.0 HISTORICAL REVIEW

4.1 Sources of Information

The main sources of information for this report were obtained from previous environmental reports. The historical information reviewed is listed below.

- PWC, 1993. Resolute Bay Airport Environmental Audit Documentation. December 1993.
- Dillon Consulting Ltd., 1995. Environmental Baseline Study Resolute Bay Airport. April 6, 1995.
- Dillon Consulting Ltd, 1999. Resolute Bay Airport Landfill Environmental Site Investigation. April 1999.
- Dillon Consulting Ltd, 1999. Environmental Baseline Study Reaudit Resolute Bay, NT. Final Report. June 1999.
- Transport Canada, 2000. Resolute Bay Airport Landfill 2000 Summary Report. March 2000.
- Transport Canada, 2000. Resolute Bay Airport Landfill. July 2000.
- Jacques Whitford Environment Ltd, 2006. Resolute Bay Airport Environmental Site Investigation. Resolute Bay, Nunavut. Final Report. March 31, 2006.

4.2 Aerial Photographs

Aerial photographs (recent and historical) of the study area(s) were obtained from the National Air Photo Library in Ottawa, Ontario. Aerial photographs of the area taken in 1949, 1964, 1969, 1973, 1977, 1985 and 1992 were available and are presented in Appendix B. The following table describes observations about current and historical land use for the subject properties and surrounding properties that were noted during the review of aerial photographs.

Table 4-1: Summary of Aerial Photograph Review

Date	Roll # (Scale)	Review
1949	A12244 – 49, 50, 51, 58 (1:15,000) A12244 - 97 (1:5,000)	Photo 97 shows that Historical Landfill (APEC 2) with evidence of debris and disturbed land. The natural drainage away from the landfill is undisturbed. The road north of airport has not been built. No evidence of Solid Waste Landfill (APEC 1) or Vehicle Storage Area (APEC 3).
1964	A18645 -5,6,23 (1:10,000)	Construction of government buildings and ASTs north and east of Historical Landfill occurred between 1949 and 1964, as well as the construction of roads to the north of the Historical Landfill and airport. The natural drainage downgradient of Historical Landfill is undisturbed. The Historical Landfill is ¼ of present size, and area has been graded. There is no evidence of Solid Waste Landfill (APEC 1) or Vehicle Storage Area (APEC 3).
1969	A21179 – 40, 42 (1:12,000)	A trail was constructed on the south half of the Historical Landfill, heading west towards Allen Bay; this trail disturbed drainage patterns. The Historical Landfill has significantly more garbage on top, but similar area. Use of the Solid Waste Landfill (APEC 1) began between 1964 & 1969, and was constructed along a drainage swale.
1973	A30946 – 27,28 (1:5,000)	The Historical Landfill (APEC 2) was capped between 1969 & 1973, with exposed face evident along the western edge. No aerial coverage of Solid Waste Landfill (APEC 1) & Vehicle Storage Area (APEC 3).
1977	A24716 – 6 (1:10,000)	The Historical Landfill appears to have been regraded, and the area north of landfill was graded. The drainage downgradient gradually changed after construction of trail, and now flows north & west. No aerial coverage of Solid Waste Landfill (APEC 1) or Vehicle Storage Area (APEC 3).
1985	A26855 – 31, 32, 33, 39, 40 (1:6,000) A26855 – 165 (1:10,000)	The Solid Waste Landfill (APEC 1) has significantly increased in size and has been partially capped. No significant change in Historical Landfill. The Vehicle Storage Area (APEC 3) appeared between 1977 & 1985 and appears to be only vehicles – no large ASTs
1992	A27860 – 75, 76, 77, 88, 89 (1:15,000)	A sewage lagoon with 2 cells was constructed between 1985 and 1992, immediately southeast of the Solid Waste Landfill (APEC 1). A berm was also constructed along the southwest side of exposed face of the Solid Waste Landfill (APEC 1). There was no evidence of asbestos piles in the Solid Waste Landfill (APEC 1). The drainage from the Solid Waste Landfill (APEC 1) follows natural drainage to northwest (to Allen Bay) The Vehicle Storage Area (APEC 3) may have been extended to its second area by 1992 (Subareas 1 and 2). Grading was done in area north of Historical Landfill between 1985 and 1990.

Based on a review of the aerial photographs, the Solid Waste Landfill (APEC 1) was created between 1964 and 1969, the Historical Landfill (APEC 2) was capped between 1969 and 1973, and use of the Vehicle Storage Area (APEC 3) began between 1977 and 1985.

4.3 Previous Environmental Investigations and Outcomes

Environmental investigations have been carried out including chemical analysis of selected media. To date, much of the work has focused on historical review and the potential for impacted soil and surface water with metals, polychlorinated biphenyls (PCBs), and to a lesser degree with petroleum hydrocarbons (PHCs), pesticides, and polycyclic aromatic hydrocarbons (PAHs).

The government of Northwest Territories started recording spills in the Resolute Bay area around 1971 for spills of petroleum, oil and lubricant products in and around the airport and landfills.

The following is a brief description of the previous environmental investigations reviewed as well as information obtained from the historical environmental investigations used to support this report at APEC 1, 2, and 3.

Public Works Canada/Transport Canada, 1993

Architectural and Engineering Services of Public Works Canada (PWC) and Transport Canada (TC) conducted an environmental audit of the Resolute Bay Airport in order to substantiate compliance with environmental regulations. Several sites were inspected, including the Historic Landfill (formerly known as Garbage Dump) and the Vehicle Storage Area (APEC 3). Although the Fire Training Area was addressed in detail, the nearby Solid Landfill (APEC 1) was not mentioned on the audit.

Massive accumulation of garbage was found piled in the embankment in the Historic Landfill (APEC 2), up to 15 m high. Debris in the embankment was comprised of old trucks, barrels, miscellaneous rubbish, plus some other hazardous materials such as light ballasts. Buried asbestos were observed on the west side of the landfill whereas more recent waste materials were observed on the south side. Assorted 200 L barrels

were also found scattered over the tundra up to 500 m west of the landfill. According to the audit documentation, sewage outfall was dumped onto the surrounding tundra as per license approval.

As a result of the audit, a table of recommended mitigation and monitoring action plans was developed by TC. It was recommended to provide additional earth material to cover refuse material at the historical landfill, provide a designated area for asbestos disposal and cover products with soil. It was also recommended to collect the barrels that have migrated onto the tundra beyond the defined garbage dump limit and to establish procedures to ensure that hazardous materials such as ballasts and waste oil are not placed in the landfill.

In the Vehicle Storage Area (APEC 3), several vehicles and vehicle parts were found at the bottom of the river valley. It was recommended to retrieve these vehicles and place them in the Storage Area or in the Historical Landfill (APEC 2).

Dillon Consulting Ltd , 1995

An Environmental Baseline Study (EBS) was conducted at the Resolute Airport by Dillon Consulting Ltd (Dillon) to examine environmental issues at the site. The document relies largely on the PWC/TC (1993) audit supplemented by additional in-depth review of the information, and on site discussions and interviews. This EBS was required to define potential environmental liabilities associated with the airport facilities prior to the transfer from TC to the Government of Northwest Territories in 1995.

At the time of the PWC/TC site visit, scattered empty drums were collected, crushed and disposed at the dump site, referred as to Solid Waste Landfill (APEC 1). It was found, however, that TC's solid waste disposal practices and management of hazardous materials such as light ballasts and asbestos were still inadequate and that appropriate documentation, infrastructure, and operating and maintenance procedures were still required.

Dillon Consulting Ltd, 1999 (Environmental Site Investigation)

Dillon Consulting Ltd (Dillon) conducted an Environmental Site Investigation of the Solid Waste Landfill (APEC 1) in 1998-99 to determine the extent and nature of subsurface contamination. The study included a review of historical aerial photographs of the area, a geophysical investigation to identify the lateral extent of waste material in the landfill, and soil and water sampling from shallow test holes.

Significant environmental concerns in soil and water resulting from wastes in the landfill were not identified from the analytical results. Concerns were raised about the potential presence of *Rhodamine Blue* in water because these dyes are generally toxic and soluble in water. Blue water and staining on soil/bedrock downgradient of the landfill was attributed to *Rhodamine Blue*, which was used to mark the airport runway in the winter. At a community consultation meeting, local residents of Resolute Bay expressed concern over the potential of contamination downgradient of the landfill site and near the ocean.

Dillon Consulting Ltd , 1999 (Baseline Study Reaudit)

Dillon carried out an EBS reaudit to confirm the status of the 1995 EBS recommended mitigation activities, as there had been no formal review of the status of remedial actions undertaken by TC or the airport tenants to address the inefficiencies highlighted at that time.

In general, the majority of the noncompliance issues requiring remedial action that were not addressed since the completion of the 1995 EBS were associated to bulk storage tanks. Numerous empty barrels were still present with unknown contents, asbestos-containing materials were not disposed of properly according to regulations, and soil cover materials were not regularly placed over the refuse.

Dillon carried out an investigation and identification of the level of environmental risk posed by the disposed materials at the Solid Waste Landfill (APEC 1), and the result was to be utilized to assess landfill closure options in the short term.

Transport Canada, 2000

Transport Canada Prairie and Northern Region (TC-PNR) implemented an environmental monitoring program at the decommissioned Solid Waste Landfill (APEC 1) as a follow-up to the 1999 ESI conducted by Dillon. The investigation included sampling soil, water and sediments at the landfill site and downgradient of the landfill.

Microtox tests, TEH, metal concentrations, and pesticides in soil, sediment, freshwater and saltwater samples were all below the CCME criteria. PCB's and phenols in soil and sediment samples were within the CCME guidelines. PCB's and Glycol analyses in freshwater and saltwater samples were also found to be at the lowest detectable limits.

Laboratory results indicated that all contaminants found in the samples were significantly lower than the levels set by federal and territorial regulatory standards and the CCME guidelines.

Jacques Whitford Environment Ltd, 2006

Jacques Whitford Environment Ltd conducted an Environmental Site Investigation at the Resolute Bay Airport. The work consisted on a document review of previous environmental reports, a spills database search, and intrusive investigations at several sites located at and near the airport, including the Solid Waste Landfill (APEC 1) and the Historic Landfill (APEC 2). The objective of the intrusive investigations was to delineate the vertical and horizontal extent of soil and melt water impacts at the investigated sites.

Soil, sediment and water samples were collected near the toe of the Solid Waste Landfill (APEC 1), 100-150 m downgradient of the landfill. Soil and water samples were collected at the north end and near the toe of the Historic Landfill (APEC 2). Samples from both sites were analysed for PHC's, metals, PCB, PAH, VOC, and Glycol.

Site observations and the analytical results indicated that there appeared to be some leaching of PHC's and metals from the Solid Waste Landfill (APEC 1), and some leaching of PHC's from the Historic Landfill (APEC 2). Although they did not appear to be a significant concern, both sites were reported as containing wastes from unknown historic sources, having no leachate collection or monitoring plans, and being unlined and lacking sufficient soil cover.

Jacques Whitford recommended developing and implementing a plan to continue monitoring leachate at both landfill sites. It was also recommended to remove scattered waste, and capping the exposed waste material with additional soil cover.

4.4 Present Conditions

The Solid Waste Landfill (APEC 1) is capped by soil and appears to be used irregularly by local residents for unauthorized disposal, although there is a community landfill on the other side of the bay. Recent refuse is not limited to residential waste, and may include commercial and industrial waste. Several used batteries were observed on the top of the landfill during the site visit. Surficial water near the toe of the landfill had a hydrocarbon sheen and was a turquoise colour in some areas. Visual inspection of the sewage lagoon suggested that at certain times it may overflow and drain into the wetland at the toe of the landfill. Also present on the northeast side of the landfill, near the service road, are two asbestos piles. Both piles have been marked with small signs; however, there are no other warnings for local residents to stay away from the piles.

The Historic Landfill (APEC 2) is capped with soil and there is no evidence of leaching either at the surface or during test pitting at toe.

The Vehicle Storage Area (APEC 3) is not on airport property and appears to be used by local residents and airport companies. Recently dumped refuse includes trucks, empty fuel tanks, appliances, batteries, etc.

4.5 APECs and PCOCs

Based on the previous environmental assessment activities completed to date, historical records review and our site observations, the following APECs (see Figures 1 to 4) and potential contaminants of concern (PCOCs) formed the basis for the Phase II/III ESA sampling plan.

Table 4-2: Summary of APECs and PCOCs

APEC	PCOCs
APEC 1- Solid Waste Landfill	PHCs, PAHs, Volatile Organic Compounds (VOCs), Metals, PCBs, and Pesticides
APEC 2 – Historic Landfill	PHCs, PAHs, Volatile Organic Compounds (VOCs), Metals, PCBs, and Pesticides
APEC 3 – Vehicle Storage Area	PHCs, PAHs, Volatile Organic Compounds (VOCs), Metals, PCBs, and Pesticides

5.0 REGULATORY REVIEW AND ENVIRONMENTAL QUALITY CRITERIA

5.1 Regulatory Framework

The Contaminated Sites Management Working Group for federal government departments has defined a contaminated site as a site at which substances occur in concentrations that either: 1) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment; or 2) exceed concentrations specified in guidelines and/or regulations. For the latter, the Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CCME, 1999 and annual updates), including the Canada-Wide Standards for Petroleum Hydrocarbons in Soil (CCME, 2001 and updates) were applied in the numerical comparison of laboratory data to determine whether any of the APECs should be deemed as contaminated.

In Nunavut, environmental site assessments and site remediation projects are typically based on the use of federally developed generic guidelines. Risk assessment principles have been used extensively in developing federal generic clean-up criteria for contaminated sites. However, as the term “generic” implies, they are intended for broad applications and are usually over-protective to avoid underestimating potential risks associated with a wide range of site conditions and potential land uses.

The CCME guidelines were derived based on potential impacts to humans and ecological receptors. The chemical data obtained during this assessment were preferentially compared to established CCME guidelines. The federal guidelines are relevant since the site(s) is currently federally managed and Nunavut has adopted the CCME approach.

5.1.1 Federal Guidance

The CCME Canadian Environmental Quality Guidelines (1999) publication compiled all previously released soil and groundwater criteria and guidelines into one publication. Updates have been issued for selected chemicals over the past several years. These guidelines for soil, sediment and water are numerical limits intended to maintain, improve or protect environmental quality and human health at contaminated sites and have been derived using toxicological data. There are four separate sets of guidelines

for soil quality and five sets of guidelines for water quality. The guidelines are separated into groups for different types of land and water use.

Soil

The soil analytical results were compared to the Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines, specifically the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CSQG), and with the Canada-Wide Standards (CWS) for Petroleum Hydrocarbons (PHC) in soil. The guidelines are numerical limits intended to maintain, improve or protect environmental quality and human health at contaminated sites and were derived using toxicological data and aesthetic considerations.

The standards and guidelines adopted for this evaluation are as follows:

- Canadian Environmental Quality Guidelines (CEQGs; CCME, 2007) for commercial/industrial land use;
- Canada-Wide Standards for Petroleum Hydrocarbon (CWS) in soil (CCME, 2008a) – Tier 1 Levels for commercial land use; and
- Residential/Parkland use guidelines/standards were applied to offsite areas.

Sediment

Sediment quality guidelines are scientific tools that synthesize information regarding the relationships between sediment concentrations of chemicals and any adverse biological effects resulting from exposure to these chemicals. Federally, the CCME has established Interim Sediment Quality Guidelines (ISQG) and Probable Effect Level (PEL). Sediment chemical concentrations below ISQG values are not expected to be associated with any adverse biological effects, while concentrations above PEL values are expected to be frequently associated with biological effects. Chemical concentrations between the ISQG and PELs represent the range in which effects are occasionally observed. CCME ISQGs were used to evaluate the sediment quality data in this report.

Surface Water / Shallow Groundwater

Canadian water quality guidelines are intended to provide protection of freshwater and marine life from anthropogenic stressors such as chemical inputs or changes to physical

conditions. The Freshwater Aquatic Life (FWAL) water quality guidelines were applied to the surface waters and shallow groundwater at the site.

The guidelines adopted for this evaluation are summarized as follows:

- Surface water and shallow groundwater quality was compared to the CCME guidelines for the protection of freshwater aquatic life (FWAL; 2007 Update).
- One surface water sample collected in Allen Bay was compared to the CCME guidelines for the protection of marine life (2007 Update).
- Groundwater samples with elevated Petroleum Hydrocarbon concentrations were compared to Alberta Environment's *Tier 1 Groundwater Remediation Guidelines* (Feb. 2009).

5.1.2 Chemical Evaluation – Process for Selection of Environmental Criteria

The chemical evaluation was conducted by comparing the detected concentrations for each substance to the CCME guideline for commercial land (CL) use within the airport property (APEC 1 and 2) and CCME guideline for residential land/parkland (RL/PL) use beyond the airport property (APEC 3).

The following selection process was used to identify the applicable environmental quality guideline:

- If only one guideline was available from the CCME for a chemical, then it was adopted for use;
- If background concentrations for a chemical in the study area were higher than CCME criteria, then the background concentration was selected as the appropriate point of comparison.

5.2 Designated Substances

5.2.1 Selection of Environmental Quality Guidelines

Criteria, rationale and regulatory jurisdictions for each component of the designated substances property survey are presented below.

Table 5-1: Summary of Criteria for the Selection of Environmental Quality Guidelines

Material Type	Classifications	Evaluation Criteria
PCBs in Soils	PCBs in soils are regulated under the Canadian Environmental Protection Act (CEPA) and transported according to CEPA and Transportation of Dangerous Goods Act (TDGA).	PCB content >50 ug/g (CEPA) is considered a hazardous waste. Materials with PCBs above the CCME soil criteria (e.g., 1.3 ug/g) but below 50 ug/g is not hazardous waste
Liquids/Chemicals	Waste solvents and liquids are a contaminant under the EPA of Nunavut and must be managed as a hazardous waste.	Absence/presence of liquids/chemicals in containers.
Batteries	Waste batteries are contaminants under the EPA of Nunavut and must be managed as a hazardous waste	Absence/presence of waste batteries.

5.3 Vegetation Evaluation Guidelines

The Ontario Ministry of the Environment (MOE) “Upper Limit of Normal” contaminant guidelines (ULN) represent the expected maximum concentrations of contaminants in surface soil (non-agricultural), foliage (deciduous and current year coniferous trees and shrubs), grass, moss bags and/or snow from areas of Ontario not subject to the influence of point sources of emissions. Rural guidelines are based upon samples collected from undeveloped areas.

These guidelines do not represent maximum desirable or allowable levels of contaminants. Rather, they serve as levels which, if exceeded, would prompt further investigation on a case-by-case basis to determine the significance, if any, of above-normal concentrations. Concentrations which exceed the guidelines are not necessarily toxic to plants, animals or humans. Concentrations below the guidelines would not normally be considered toxic (MOEE HCB Phytotoxicology Field Investigation Manual – 014-3511-93).

6.0 FIELD INVESTIGATION

6.1 Field Reconnaissance

Detailed site visits to all three APECs were conducted by FRANZ personnel on August 13-14, 2009. Photographs of each APEC can be found in Appendix C and the following observations were compiled during the site visits:

APEC 1 - Solid Waste Landfill

- Approximately 2 km north of the airport terminal building and west of the service road, the Solid Waste Landfill is approximately 40,000 m², including the sewage lagoons and the asbestos piles;
- Visible waste debris consists of scrap metal, fuel/oil drums, electronics equipment, wood, plastics, rubber, glass, appliances, furniture, fuel storage tanks, helicopter fuselage, residential garbage, batteries and areas of recently burned refuse. The debris is partially covered by 20-50 cm of sand and gravel , with the edges of the landfill uncovered;
- The sewage lagoon consists of three cells, and an overflow pipe that drains to the toe of the landfill where runoff mixes with drainage from the landfill;
- The landfill drains through a series of ponds to a channel then to Allen Bay approximately 1 km to the west.

APEC 2 - Historical Landfill

- The Historical Landfill (APEC 2), southwest of the airport terminal building, is approximately 145,000 m²;
- Visible waste debris consists of scrap metal, fuel/oil drums, wood, plastics, rubber, airport beacon equipment, antenna towers and cables, vehicle parts and areas of recently burned refuse;
- The landfill drains initially to the west, ultimately to the south, discharging into Resolute Bay;
- The landfill has been capped with 1-2 m of sand and gravel, and large amounts of sand and gravel have been moved in and around the site, making it difficult to determine the north and south extents of the landfill.

- Some exposed refuse and debris is on the west face of the landfill and scattered to the west.

APEC 3 - Vehicle Storage Area

- The Vehicle Storage Area is on the south edge of the McMaster River valley, approximately 1 km northwest of APEC 1;
- The Storage Area consists of construction vehicles, government vehicles, boilers, drill rigs, fuel drums and large storage tanks, tires, airport beacon equipment, antenna towers and cables, electronic equipment, fencing, vehicle parts, metal siding and appliances;
- Two smaller areas to the east of the vehicle dump, noted as Subareas 1 and 2 (Figure 4), consist of scrap metal, vehicle parts, batteries, communications equipment, antenna towers, paint, glass, shingles, transformers and radiators.

The site visits to each APEC also included:

- An inventory of waste debris;
- Identification of historical sample locations;
- Identification of potential and observed contaminant source areas;
- Mapping of drainage pathways, waste debris areas, seepage and leachate, and pooling surface water bodies;
- Mapping of bedrock outcrops and geologically dependent surface water pathways; and
- Mapping of stained areas and any areas used for open burning.

The information collected above, in combination with the complete historical records review, was used in the design of the detailed sampling plan.

6.2 Detailed Sampling Plan including Background Sampling

A sampling plan was prepared and designed to perform a detailed assessment of the site with respect to soil, sediment, shallow groundwater, surface water, vegetation sampling and waste material inventory. It was based on discussions with PWGSC/Transport Canada, a review of the Terms of Reference (ToR) dated June 2009

for an Environmental Site Assessment (ESA) Resolute Bay Airport Landfill and a review of available historical reports. The sampling plan described our sampling methods and types of measurements/tests to be conducted, including:

- Proposed sampling locations and quantities
- Proposed sampling or measurement methods
- Parameters being sampled
- Description of objectives with rationale
- Proposed QA/QC methods
- Proposed background sampling protocols
- Proposed health and safety plan (separate)

During the field activities, areas of environmental concern were prioritized and assessed in accordance with the proposed scope of work. In addition, based on visual observations at the time of the field program, sampling locations were refined from the initial sampling plan to target the most likely impacted areas and/or to attempt coarse delineation of impacts.

6.3 Health and Safety Procedures

FRANZ field programs are always subject to a site-specific Health and Safety Plan (HSP). We use a Corporate Health and Safety Plan as a general guide in developing the site-specific plan to which all team members and subcontractors must adhere. Protection of the public and personnel from exposure to any contaminated materials at the site was priority during the field program.

Prior to conducting any of the onsite work, a site-specific health and safety plan was developed, distributed and discussed with all field personnel (see Appendix D). As a minimum, full personal protective equipment (e.g., hard hats, safety glasses, reflective vests and Nitrile gloves) was worn at all times during field activities. Tyvek overalls and respirators were available to all field personnel.

6.4 Waste Debris Inventory

For the purpose of future landfill decommissioning and potential removal of debris, an inventory of site waste in each APEC was completed. The waste materials were

identified as hazardous or non-hazardous to assist in characterizing materials for potential disposal considerations.

A complete summary of waste material characterization and associated inventories categorized by APEC and location is provided in Appendix E. Photographs of the site waste can be found in Appendix C.

6.5 Sampling Methodology

6.5.1 Test Pit Excavations/Borehole Drilling

Test-pitting was considered the appropriate method for conducting observations of soil conditions and collecting near-surface soil samples at APECs. Between August 14 to 20, 2009, twenty (20) test pits were excavated by FRANZ personnel to a maximum depth of 2 m. Soil samples from test pits were collected and analyzed for various potential contaminants of concern. All test pits in APECs 1 and 2 were completed with a backhoe to the maximum achievable depth. Several of these test pits intersected refuse or encountered permafrost. Test pits at APEC 3 were completed with a trowel or spade shovel to the maximum achievable depth.

Four boreholes were drilled and completed as monitoring wells by FRANZ personnel on August 15, 2009 at APECs 1 and 2. Boreholes were drilled with a posthole auger to a maximum depth of 0.66 m where they encountered permafrost. Soil samples were collected from each borehole and analyzed for various contaminants of concern.

At each test pit and borehole location, composite soil samples were collected using a decontaminated trowel. Depending on the depth of the test pit or borehole, the nature of the stratigraphy, and any evidence of contamination, composite samples generally were collected over a range of about 40-60 cm at APECs 1 and 2. Soil samples at APEC 3 were collected from the top 10-20 cm. Prior to sampling, soil descriptions including approximate grain size, colour, moisture content, stratigraphy and any evidence of contamination were recorded.

Following the completion of the test pit or borehole field log and prior to backfilling the test pit to grade or completing the borehole, soil samples were collected and stored in sealable polyethylene bags (for soil vapour headspace analysis) and dedicated glass

sample containers (for laboratory analysis). Following sample collection, jarred soils were refrigerated and/or stored on ice in laboratory-supplied coolers until delivery to the project laboratory.

Test pit and borehole locations are shown on the site plans for APEC 1, 2 and 3 (Figures 2, 3, and 4). Borehole and/or test pit logs were prepared for all APECs (Appendix F). The number of test pits and boreholes was sufficient to provide adequate coverage of the stratigraphy (which appears to be fairly constant over the site and over the depths tested).

6.5.2 Soil Sampling Field Vapour Screening

Vapour screening is a frequently used method for detecting and measuring the quantity of volatile organic compounds present in soil. When taken continuously from the ground surface to the end of a test pit, vapour readings can provide an indication of the relative level of contamination and whether it derived from a localized source or migrated from a more distant one. As a result, field screening is a useful tool to facilitate selection of samples to be submitted for laboratory analysis.

During the investigation, field vapour screening was completed in-situ by partially filling and sealing standard volumes of soil into dedicated polyethylene bags. When stored at room temperature, headspace vapours were allowed to develop and equilibrate in the sealed bag. Gas samples retrieved by inserting a small tube into the bag were then analyzed with an RKI Eagle organic vapour meter (OVM), and the concentration of combustible gases present (other than methane) by volume (ppm) of the calibrating gas (hexane) was measured. Only those soil samples suspected of hydrocarbon contamination were tested for head space vapours. The results of the soil vapour headspace analyses are included in the test pit logs, and can be found in Appendix F.

6.5.3 Selection Criteria for Soil Chemical Analyses

Soils were analyzed based upon three distinct rationales:

1) To delineate, confirm or refute potential soil impacts related to land filling procedures;
2) To provide a better understanding of contaminant concentrations in the soil and other native materials across the site; and

3) To generate a thorough understanding of environmental receptors, as well as fate and transport of contaminants of concern (COCs).

All samples were screened for soil vapour concentrations. In general, soil samples submitted for VOC or hydrocarbon analysis were based on their location, odour and/or staining.

Contaminant analyses for all samples were selected based on historical site usage and visual impacts. Background samples were based on areas that appeared to be free of influence by human activities or land filling.

6.5.4 Shallow Groundwater Characterization

A total of five (5) shallow groundwater samples were collected from APECs 1 and. Two samples were collected in APEC 1 and three samples were collected in APEC 2. No downgradient or background groundwater samples were collected.

The groundwater samples were collected from the monitoring wells in each APEC. Each well was purged using a dedicated plastic bailer (3X the volume), and allowed to sit for approximately 24 hours before sampling. The monitoring well locations used during the field program corresponded with the borehole locations. Specific sample locations for each site are indicated on Figures 2 and 3.

The samples were collected from the monitoring wells into laboratory-supplied sample containers. Field parameters including pH, temperature and conductivity were measured at each monitoring well. Each sample was labelled and refrigerated and/or kept on ice until they were delivered to the project laboratory. The results of the field parameters are presented in Appendix H.

6.5.5 Surface Water Characterization

A total of twenty-one (21) surface water samples were collected from the three (3) APECs . Six (6) samples were collected in APEC 1, seven (7) samples were collected in APEC 2, two (2) samples were collected in APEC 3, and six (6) samples were collected from down-gradient receptors and background sampling locations.

The surface water samples were collected from the ponds and/or flow areas. The surface water sampling locations in the field program corresponded with sediment sampling locations. Specific sample locations for each site are indicated on Figures 2, 3 and 4.

The samples were collected from a depth of 0-15 cm below the water surface, into laboratory supplied sample containers. Field parameters including pH, temperature and conductivity were measured at each surface water station at a later date. Each sample was labelled and refrigerated and/or kept on ice until they were delivered to the project laboratory.

6.5.6 Site Survey

A complete site survey for the APECs investigated was carried out during the field program. The site survey consisted of geo-referencing site features and sample locations with the use of a DGPS unit horizontally accurate to <30 cm.

The survey data was placed on a 2009 Google Earth image and orthorectified to correspond with data points collected during the field survey.

A site survey was provided by Jason Brown (airport manager) to determine the airport property boundaries. These boundaries are shown on Figure 1 to 9. The survey information is found in Appendix G.

6.6 Stream Flow Measurements

Measurements of stream flow were taken downgradient of APEC 1, the Solid Waste Landfill, during the investigation.

Simple stream flow estimates were conducted using the Q=VkA method, where Q = total rate of discharge, V = velocity, A = area and k = correction factor. The site of the field measurements was selected based on the following available criteria:

- Slope of the stream not too great;
- Roughness of the channel bottom; and
- Not in proximity to backwater effects, eddy currents, or other influencing factors.

The selected site was prepared by first removing any debris or large cobbles from the stream bed and clearing any obstructions from the stream walls.

Velocity measurements were conducted using float methodology, where a float was timed on a given (measured) portion of the stream five times and averaged to gain distance/time. A correction factor of 0.85 (k) was applied to the velocity calculations to account for faster moving water at the surface of the stream in comparison to that moving in the middle or bottom of the stream.

The area of the stream cross-section was obtained by collecting depth measurements at four (4) locations (APEC 1) across the stream transect and averaging out the depth and multiplying that by the stream width. Stream flow measurements can be found in Appendix H.

6.7 Sediment Characterization

A total of twenty-two (22) pond and stream sediment samples were collected from the three (3) APECs. Seven (7) samples were collected at APEC 1, seven (7) samples were collected at APEC 2, two samples were collected at APEC 3, and six(6) samples were collected at down-gradient receptors and background sample locations. Sediment sample locations close to the APECs were selected based on the most likely contaminant entry point to the targeted water feature .

The sediment sampling was completed using a stainless steel hand trowel. For each sample collected, a depth measurement, GPS coordinates, and description of the sediment (including colour, odour, sheens, staining, water depth, grain size, sample recovery and % natural organic material), the presence of debris and any unusual characteristics were recorded. Sediment samples at each location were collected from the top 0-15 cm of pond and stream sediments into laboratory-supplied containers with the aid of a hand trowel and nitrile gloves. The samples were refrigerated and/or kept on ice until they could be delivered to the project laboratory. Specific sample locations for each APEC are indicated on Figures 2, 3 and 4 and sediment logs are summarized in Appendix F.

6.8 Vegetation Sampling

The field investigation included the collection of seven (7) vegetation samples at APECs 1 and 2. Five (5) samples were collected in APEC 1, one (1) background sample was collected south of APEC 1, and one (1) background sample was collected southwest of APEC 2. Vegetation samples were not taken from same species due to the lack of vegetation and only aboveground foliage from each sample location was submitted for analysis. Each sampled location was photographed and mapped. The samples were refrigerated and/or kept on ice until they could be delivered to the project laboratory. Vegetation sample locations are indicated on Figures 2 and 3.

6.9 Background Sampling Program

A background quality program was implemented to determine the natural physical and chemical characteristics of soil, sediment, surface water and vegetation in areas not impacted by the APECs. The purpose of the program was to obtain data regarding natural conditions that could be used for analytical comparison to conditions within the APECs. Background soil, sediment, surface water and vegetation samples were collected and analyzed for metals, while sediment and surface water samples were also analyzed for Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs).

The background soil samples were collected using a stainless steel shovel or hand trowel, to a depth of approximately 15 cm. Background sediment and surface water samples were collected as per the methodologies described in preceding sections.

6.10 Chemical and Physical Analysis

6.10.1 Chemical and Physical Analysis Program

Maxxam Analytics (Maxxam) was selected to complete the analytical testing for this project. Maxxam is certified by the Canadian Association of Laboratory Accreditation (CALA), and follows strict internal quality assurance/quality control (QA/QC) protocols. Maxxam's quality control program includes replicate analyses, blank spikes, matrix spikes, instrument calibration, internal standards, method blanks and internal QC checks. The standard Maxxam analytical quality control protocols meet or exceed the

requirements of all Canadian and American regulators. A copy of the chain-of-custody forms used for sample submission is provided with the certified laboratory reports in Appendix I.

6.10.2 Chemical Analytical Program

The sampling and analytical program is summarized in Table 6.1. Sample locations and analytical parameters were selected on the basis of a review of previous results and site history. Samples were analyzed for three reasons:

(1) to document pesticide, PCB, metal, VOC, PAH, PHC and glycol concentrations across the sites;

(2) to delineate the spatial distribution of impacts for the identified contaminants of concern; and

(3) to determine the current environmental and physical conditions which represent the most important potential risks to human and environmental health.

Table 6-1: Summary of the Chemical Analytical Sampling

Analysis	Medium					
	Soil	**Sediment**	**Surface Water**	**Ground Water**	**Vegetation**	**Totals**
PHCs	19 (1)	21 (1)	22 (1)	5		**67**
Metals	23 (1)	22 (1)	22 (1)	5	7 (1)	**79**
VOCs	14 (1)	9 (1)	10 (1)	5		**38**
PAHs	17 (1)	17 (1)	15 (1)	5		**54**
PCBs	14 (1)	15 (1)	9 (1)	5		**43**
Pesticides	8 (1)	8 (1)	6 (1)	5		**27**
Glycols			3 (1)	1		**4**
Total Organic Carbon	2	2				**4**
Grain Size	4	2				**6**
Total number of analyses	**101**	**96**	**87**	**31**	**7**	**322**

(XX) Denotes number of QA/QC samples.

6.10.3 Physical Testing Program

Grain size analyses (+/- 0.075 mm) were completed on six (6) composite soil samples representative of the area surrounding the landfill and two sediment samples. Grain size analyses (fine/coarse) was conducted to aid in the selection of a site-specific

environmental criteria and for use in consideration of future landfill capping solutions. Grain size analysis results in both soil and sediment are presented in Appendix J (Table 6-2).

6.11 Quality Assurance/Quality Control

The purpose of the quality assurance/quality control (QA/QC) program was to confirm that field sampling methods and laboratory analyses were reliable. In implementing the QA/QC program, FRANZ verified that the quality of the reported results were suitable to support the environmental impact conclusion drawn from the data.

The field program included the following QA/QC protocol elements:

- Decontamination (TSP wash and distilled water rinse) of sampling equipment / instrumentation between all sample locations;
- Fresh, chemical-resistant nitrile gloves at each sampling location;
- Proper documentation of all aspects of the sampling program, with particular detail to the introduction of potential bias;
- Elimination of headspace for all volatile parameters (soils and water);
- Collection of one blind analytical duplicate for approximately every 10 samples of environmental media;
- Calculation of the relative percent difference between a sample and its duplicate; and
- Calibration of field instruments.

6.12 Data Reduction and Validation

Data reduction of the investigation results primarily involved summary tabulation of analytical results and transcription of field observations. Following data reduction, data validation was performed to ensure that the raw data was not altered and that an audit trail was developed for managing the data. Data validation was also performed to verify that the quantitative and qualitative reliability of the information. A comparative review of sample collection records, chain-of-custody records, holding times, dilution factors, Estimated Quantitation Limits (EQLs), and laboratory and field QC sample records were evaluated against original laboratory reports.

6.13 Quality Assurance/Quality Control Samples

Laboratory reports detailing the handling and secure storage of samples, and the significant dates with respect to sample delivery, extraction, and analysis were reviewed by FRANZ and found to be within control limits.

External QA/QC samples in the form of blind duplicates were submitted by FRANZ for laboratory analysis. The nomenclature of each duplicate ensured that the sample number corresponding to the blind duplicate was not evident to the lab, allowing the external verification of laboratory accuracy and precision.

6.14 Data Validation of QA/QC Samples

Sampling procedures and laboratory analytical precision were evaluated by calculating the relative percent difference (RPD) for a sample and duplicate pair according to the following equation:

$$RPD = | X_1 – X_2 | / X_{avg} \text{ X } 100$$

Where X_1 and X_2 are the concentrations and X_{avg} is the mean of these two values.

The duplicate results were evaluated using criteria developed by Zeiner (1994), which draw from several data validation guidelines developed by the United Stated Environmental Protection Agency (USEPA). According to these criteria, the RPD for duplicate samples should be less than 20% for aqueous samples and less than 40% for solid samples. RPDs can only be calculated when the compound is detected in both the original and the duplicate sample at a concentration five times above the reportable detection limit (or method detection limit – MDL).

The results of the data validation are presented in the Tables section of this report along with the analytical results. The precision is considered acceptable when evaluation criteria are met, or when both results are below the MDL. When the evaluation criteria are not satisfied, the following apply:

- ND vs positive – unacceptable imprecision: the positive result is considered an estimate and the ND result is considered inconclusive.

- Positive vs positive – unacceptable imprecision: the results are considered an estimate.

6.15 Duplicate Analysis Results

Blind field duplicates were collected and submitted for PHC (1), PAHs (1), VOCs (1), metals (1) and PCBs (1) analyses in soils. Blind field duplicates were collected and submitted for PHC (1), PAHs (1) and metals (1) analyses in sediment. For surface water, blind field duplicates were collected and submitted for PHC (1), PAHs (1), VOCs (1), metals (1), PCBs (1), pesticides (1) and glycol (1) analyses. For vegetation, blind field duplicates were collected and submitted for metals (1) analyses.

In general, the results show satisfactory precision. The following discussion presents the results of the RPD calculations.

In the comparison of soil test samples and their duplicates, all concentrations were within the acceptable precision. Therefore, the sample results are considered valid and were kept as part of the assessment.

In the sediment samples, the duplicate pair (1-SD-15 / FR-3) displayed unsatisfactory results for two parameters (nickel and vanadium) at values higher than the criteria for acceptance. The two metal concentrations did not exceed the CCME guidelines. The other parameters remained within the acceptable precision and therefore the concentrations do not change the outcome of the assessment and have been kept as part of the assessment.

Surface water and groundwater duplicate analysis was completed for PHCs, metals, VOCs, PAHs, PCBs, pesticides and glycols, and all concentration were within acceptable precision. Therefore, all sample results are considered valid and were kept as part of the assessment.

Duplicate analysis was completed on the vegetation samples for metals analysis. More than half of the parameters analysed were within acceptable precision. Variations were likely due to differences in the plant types, as the vegetation collected and submitted for analysis in the area of APEC 1 and 2 was quite variable.

All analytical results and duplicate analyses can be found in Appendix J.

7.0 INVESTIGATION RESULTS

Samples from soil, shallow groundwater, surface water, sediment and vegetation were collected at the APECs and analyzed for selected parameters including metals, benzene, toluene, ethylbenzene and xylenes (BTEX), PHC fractions F1 to F4, metals, PAHs, VOCs, PCBs, pesticides and glycols. The analytical data is summarized in Figures 5 to 9 (Appendix A), and the tabulated analytical results can be found in Appendix J. Historical data from Jacques Whitford Environment Ltd (2006) has been included in this discussion for comparison purposes.

7.1 Background Samples

Ten (10) background samples of soil, sediment, surface water and vegetation were collected across the three (3) APECs. Laboratory analysis included metals, PHCs, PAHs, and VOCs. Table 7-1, found in Appendix J, shows the analysis completed for each sample.

The analytical results showed that the concentrations in all the background samples were less than the applicable guideline/standard for each media and/or less than the method detection limit, except for:

- aluminum in the background sample from APEC 2 (2-SW-17). Aluminum concentration was 9 ug/L at 2-SW-17 and the CCME Freshwater AW Standard is 5 ug/L.
- sodium in the background vegetation samples collected at APEC 1 (1-VG-15) and APEC 2 (2-VG-16). The sodium concentrations were 158 ug/g and 235 ug/g for 1-VG-15 and 2-VG-16, respectively, and the MOE guideline is 50 ug/g.

7.2 APEC 1 – Solid Waste Landfill

The sampling program at APEC 1 included soil, sediment, surface water, shallow groundwater, and vegetation samples. Based on site activities, the potential contaminants of concern were identified as BTEX, PHCs, metals, VOCs, PAHs, PCBs, pesticides and glycols.

Representative sediment and surface water samples were taken along the main drainage pathway between the toe of the landfill and Allen Bay to the west. At the four test pit locations on the top of the landfill, the soil profile from 0.0 m to 0.3 m bgs was described as sand and gravel with some debris. The debris included fuel/oil, wood, plastic, rubber and scrap metal.

Background samples were collected for soil, surface water, sediment, and vegetation, and downgradient samples were collected in sediment and surface water for both freshwater and saltwater.

Soil

Six (6) representative samples of soil were collected at APEC 1 and submitted for analysis, including BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. Results showed:

- copper concentrations exceeded the CCME guideline at 1-TP-9 and 1-TP-11,
- benzene exceedences were found in 1-BH-13 and 1-BH-14, and
- other PCOCs were below the CCME guidelines.

Several soil samples were taken by Jacques Whitford (2006). One sample, SWF-TP2 in the vicinity of 1-BH-13, had PHC F2 and F3 exceedences for the CCME PHC-CWS. Sample locations and analytical results for soil are presented in Figure 5.

Sediment

Seven (7) representative sediment samples were collected at APEC 1 (at the same locations as surface water samples) and submitted for analysis, including BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. Results showed:

- PAH exceedences (ie acenaphthene, fluorene, 2-methlynaphthalene and naphthalene) of the CCME guidelines in 1-SD-6, and
- other PCOCs were below the CCME guidelines.

Jacques Whitford (2006) collected one sediment sample downgradient of the landfill (SWF-SED1) and it was compliant for the analyses conducted.

Sample locations and analytical results for sediment are presented in Figure 5.

Surface Water

Water quality analyses were completed for seven (7) surface water samples collected at APEC 1, and submitted for various analyses, including BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. Results showed:

- metal concentrations (ie cadmium, copper, iron, and zinc) above the CCME guidelines at four (4) sampling locations (1-SW-4, -5, -6, and -7), and
- other PCOCs were below the CCME guidelines.

Jacques Whitford (2006) collected several surface water samples downgradient of the Solid Waste Landfill. Exceedences of CCME guidelines were found for cadmium, copper, iron and zinc in SWF-SW2 (near 1-SW-7). No other exceedences were found in surface water samples.

Sample locations and analytical results for surface water at APEC 1 are presented on Figure 6.

Shallow Groundwater

Shallow groundwater samples were collected from two monitoring wells (1-MW-13 and 1-MW-14 and were analyzed for BTEX, PHCs, metals, VOCs, PAHs, PCBs, and pesticides. Results showed:

- iron in groundwater at 1-MW-13 and 1-MW-14 above the CCME guideline, however, less than the background concentrations,
- naphthalene was above the CCME guideline in 1-MW-13, and
- other PCOCs were below the CCME and/or Alberta Tier 1 guidelines (for PHC F1 and F2).

Jacques Whitford (2006) sampled the shallow groundwater (identified as meltwater in the JWEL report) at several locations in APEC. CCME exceedences were found at (1) SWF-TP2 (near 1-MW-14) for PHC F2, toluene, copper and lead, (2) SWF-TP4 for aluminum and iron, and (3) SWF-TP6 for cadmium.

Sample locations and analytical results for groundwater at APEC 1 are presented in Figure 6.

Vegetation

Five (5) representative samples of vegetation from APEC 1 were submitted for metals analysis, as well as one background sample. All of the results were below the Ontario "Upper Limits of Normal" Contaminant Guidelines, with the exception of sodium. Sodium concentrations were elevated above the guidelines in all of the samples, including the background samples. Vegetation observed onsite was abundant in boggy areas and appeared unstressed. Studies undertaken in Nunavut, investigating the elemental composition of vegetation (lichen, mosses, vascular plant leaves) indicated mean Na concentrations of 783.1 ppm, 1475.3 ppm, and 50.4 ppm for sampled lichen, mosses, and vascular plant leaves, respectively (Chiarenzelli et al., 2001). The sodium concentration in vegetation collected onsite (range 61-920 ppm) falls within this range of concentrations.

No vegetation samples were taken by Dillon (1999) or Jacques Whitford (2006).

Sample locations for vegetation are presented in Figure 2 and analytical results can be found in Appendix J.

7.3 APEC 2 – Historic Landfill

The sampling program at APEC 2 included soil, shallow groundwater, surface water and sediment samples. Based on historical site activities, the potential contaminants of concern were identified as being BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. At the five (5) test pit locations on the top of the Historical Landfill, the soil profile from 0.0 m to 1.6 m bgs was described as sand and gravel, sometimes mixed with debris with hydrocarbon odour(s). The debris included wood, plastic and scrap metal. Permafrost was found at depths ranging between 0.9 and 1.6 m across the top of the Historical Landfill.

Background samples were collected near APEC 2, including 2 vegetation samples, and 1 sample each for soil, sediment and surface water. Two (2) samples were also

collected downgradient of APEC 2, with one sample for sediment and one sample for surface water.

Soil

Six (six) representative samples of soil were collected at APEC 2 and submitted for analysis, including BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. Results showed:

- benzene above the CCME guideline at 2-BH-2, 2-TP-12, and 2-TP-20,
- ethylbenzene above the CCME guideline at 2-TP-20 and toluene at 2-TP-12,
- PHC F2 above the CCME CWS-PHC guideline in 2-TP-8, and
- other PCOCs were below the CCME guidelines.

Jacques Whitford (2006) identified CCME exceedences for (1) PHC F2 at three soil sampling locations, FL-TP1, FL-TP6 and FL-TP8, and (2) copper and zinc at FL-TP4.

Sample locations and analytical results for soil are presented in Figure 7.

Sediment

Seven (7) representative sediment samples were collected at APEC 1 and submitted for various analyses, including BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. No exceedences were found at any sampling locations.

Sample locations and analytical results for soil are presented in Figure 7.

Surface Water

Seven (7) surface water samples collected at APEC 2 were submitted for various analyses including PHCs, metals, VOCs, PAHs, PCBs and pesticides. The analytical results showed that the only exceedence was aluminum at 2-SW-6 and 2-SW-17.

Sample locations and analytical results for surface water at APEC 2 are presented on Figure 8.

Shallow Groundwater

Shallow groundwater samples were collected from three monitoring wells (2-MW-1, 2-MW-2 and 2-MW-8) installed by Franz in August 2009. Samples were analyzed for BTEX, PHCs, metals, VOCs, PAHs and PCBs, pesticides and glycols. Results showed:

- cadmium above the CCME guideline in 2-MW-1; however, it was not significantly higher than the background concentration, and
- cadmium, toluene, and naphthalene, above the CCME guideline at 2-MW-8, at the toe of the landfill, and at 2-MW-1, downgradient of an airplane fuselage .

Shallow groundwater (meltwater) samples were taken by Jacques Whitford in 2006. Exceedence of CCME guidelines were found for (1) toluene at FL-MW8, (2) cadmium at FL-MW3 and FL-MW6, and (3) aluminum and copper at FL-MW4.

Sample locations and analytical results for groundwater water at APEC 2 are presented in Figure 8.

Vegetation

One background sample of vegetation from APEC 2 was submitted for metals analysis. All of the results were below the Ontario “Upper Limits of Normal” Contaminant Guidelines, with the exception of sodium. Sodium concentrations were elevated above the guidelines, however, are within the range of vegetation studies undertaken in Nunavut investigating the elemental composition of vegetation (Chiarenzelli et al. 2001; see Section 7.2 for more discussion).

Sample locations for vegetation are presented in Figure 3 and analytical results can be found in Appendix J.

7.4 APEC 3 – Vehicle Storage Area

The sampling program at APEC 3 included soil, surface water and sediment samples. Two background soil samples were also collected, as well as one downgradient sediment sample and one downgradient surface water sample. Soil samples were compared to the CCME guidelines for residential/parkland land (RL/PL) use, as the APEC is not on airport property.

Soil

Five representative samples of soil were collected at APEC 3 and submitted for various analyses, including BTEX, PHCs, metals, VOCs, PAHs, PCBs and pesticides. Results showed:

- benzo(a)anthracene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene and copper above the CCME guidelines in 3-TP-3,
- PHC F3 above the CCME CWS-PHC in 3-TP-3 and 3-TP-4, and
- other PCOCs were below the CCME guidelines.

Sample locations and analytical results for soil are presented in Figure 9.

Sediment

Two representative sediment samples were collected at APEC 3 and submitted for various analyses, including BTEX, PHCs, metals, VOCs, PAHs and PCBs. No exceedences were found in either sample.

Sample locations and analytical results for soil are presented in Figure 4.

Surface Water

BTEX, PHCs, metals, VOCs, PAHs, PCBs and glycols were analyzed from two surface water samples collected at APEC 3. No exceedences were found in either of the samples.

Sample locations for surface water at APEC 3 are presented on Figure 4.

7.5 Areas of Environmental Concern

Based on the findings of the investigations, the three disposal areas can be considered Areas of Environmental Concern (AECs). Because dumps/landfills may have a variety of substances that may be present, but are yet to be released, we have listed the contaminants of concern (COCs) and the remaining PCOCs.

Area of Environmental Concern (AEC)	COCs	PCOCs
AEC 1- Solid Waste Landfill	Metals, PHC, PAHs, Benzene, and Toluene	VOCs, PCBs, and Pesticides

Area of Environmental Concern (AEC)	COCs	PCOCs
AEC 2 – Historic Landfill	Metals, PHCs, PAHs, Benzene, Toluene, and Ethylbenzene	VOCs, PCBs, and Pesticides
AEC 3 – Vehicle Storage Area	Metals, PHCs, and PAHs	VOCs, PCBs, and Pesticides

8.0 CHEMICAL SPATIAL ANALYSES

Chemical spatial analyses were conducted in order to infer the connectivity and distribution of previously identified COCs in soil, surface water, shallow groundwater, and sediments. Representative parameters, based on concentration and mobility, were selected to demonstrate the transport and fate of contaminants from source areas present in AECs 1, 2 and 3.

8.1 Leachate Chemistry Control Mechanisms

A major concern associated with landfills is the production of leachate which can result in environmental impairment. Leachate is produced when moisture enters landfill waste and dissolves contaminants found in the refuse. The chemical composition (contaminant types and concentrations) and production rate of leachate are influenced by several factors including: physical and chemical composition of the wastes, refuse density, placement sequence and depth, moisture loading, temperature, and time.

It is generally accepted that there is a finite mass of contaminants which can be leached from the solid wastes in landfills. Leachate contaminant concentrations generally reach a peak and then decline over time as a result of different physical, chemical and biological processes including dissolution, dilution, and biodegradation. The more soluble contaminants (including inorganic and organic components) appear first in the leachate, reach peak concentrations after shorter amounts of time, and then slowly decrease in concentration with time. Less soluble contaminants take longer to dissolve completely and reach peak concentrations, typically remaining in the leachate over longer periods of time. The biodegradation of an organic component acts to decrease its aqueous concentration with time. Biodegradation causes the concentrations of readily biodegradable contaminants to decrease quicker than those of less biodegradable contaminants. Consequently, it is the low solubility, poorly biodegradable contaminants (that take the longest to reach peak concentrations and are most resistant to biodegradation) that typically are the most persistent in landfill leachates.

The impacts to sediments are likely a result of mass loading events over the contaminating lifespan of the landfills and storage area. The low solubility/poorly biodegradable contaminants such as PHCs (F3-F4), PCBs, PAHs, and pesticides are

likely to be trapped in the more organic-rich sediments and would contribute only minor concentrations to surface water. These chemicals are considered to be poorly mobile. The more soluble contaminants, such as certain metals, are expected to be present in both sediments and surface water. As such, these chemicals would be more mobile and would contribute to impacts along the flow path. It would also be expected that the metals would attenuate along the flow path as a result of adsorption or chemical precipitation.

At Resolute Bay, local conditions such as the climate and the presence of continuous permafrost can act as strong controls on the production of landfill leachate. The cold dry climate characterized by short cool summer and long cold winters results in:

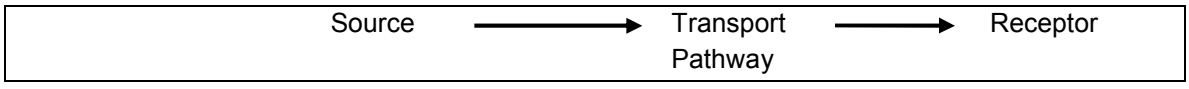
- little infiltration by precipitation, and thus limited contact with water and waste,
- limited and confined runoff during the annual snowmelt, and
- continuous permafrost which minimizes the quantity of leachate produced, prolongs its production, and slows the release of contaminants to the environment.

8.2 Site Conceptual Models

Site conceptual models were developed for selected COC parameters where the analytical data indicated that contamination was mobile and had migrated downgradient. The conceptual models illustrate the connection between upgradient and downgradient contaminant impacts.

8.2.1 AEC 1 – Solid Waste Landfill

Metals, PHC, PAHs, and VOCs are the contaminants of concern (COCs) at AEC 1. Metals, PHC, and VOCs were typically associated with soil (ie greater than the guideline). PAHs and metals were found in downgradient areas in sediment and water along the transport path. All COCs were less than the applicable guideline, and in most cases, less than the detection limit at the discharge point to Allen Bay.



AEC 1 – Solid Waste Landfill		soil	groundwater	sediment	surface water along flow path	surface water/sediment at receptor
	metals	√	√	√	√	•
	BTEX	√	•	•	o	na
	PHC	√	o	o	o	o
	PAH	o	√	√	o	o

√ = greater than the applicable guideline
• = less than the applicable guideline, and if no guideline exists, then greater than the detection limit
o = less than the detection limit
na = not analyzed

Copper and benzene concentration gradients in soil, surface water and groundwater are plotted and presented on Figures 10 and 11.

Copper Spatial Analysis

Concentrations of most metals including copper in sediments were within background levels, and all were below the CCME guidelines. Consequently the following discussion focuses on copper concentrations in soil, surface water and groundwater.

A copper soil source was identified at 1-TP-9 (870 µg/g) and 1-TP-11 (150 µg/g) at the Solid Waste Landfill. The copper concentrations at both locations exceeded the CCME guideline for commercial land use (91 µg/g). A copper exceedance in surface water was encountered at 1-SW-4 (5 µg/L) downgradient from the landfill. This exceedance is likely a result of leaching from the landfill. Copper contamination was not encountered in groundwater, however the highest concentration in groundwater was identified at 1-MW-14 (3 µg/L), close to the surface water exceedance. Copper concentrations at the remaining downgradient surface water and groundwater locations were below the CCME freshwater guideline (4 µg/L). Upgradient copper impacts do not appear to be reaching Allen Bay, and are likely attenuating along the transport pathway prior to discharging into Allen Bay. All surface water samples collected at APEC 1 were alkaline, with pH values ranging from 7.90 to 8.82. Dissolved copper is likely precipitating downgradient from the source area as a result of the high pH.

Benzene Spatial Analysis

Benzene contamination was not encountered in the source zone at the Solid Waste Landfill, however a benzene soil source was identified immediately downgradient from the landfill at 1-BH-13 (0.031 µg/g) and 1-BH-14 (0.032 µg/g). The benzene concentrations at both locations exceeded the CCME guideline for commercial land use (0.03 µg/g). Benzene was detectable in the groundwater at the toe of the landfill and in the sediments from ponding areas downgradient. Benzene concentrations were below the laboratory MDL in downgradient surface water. As a result, benzene contamination appears to be restricted to soils, groundwater, and sediments in the upgradient near-landfill areas (including the ponds) and and does not appear to be impacting downgradient surface water at the point of discharge into Allen Bay.

Although the discussion above focuses on benzene, the data indicates the analysis is consistent for BTEX and PAHs. For PAHs, concentrations are above the standard in the groundwater at the toe of the landfill and in sediment from the ponds, but are not detectable in the surface water and sediments beyond the pond area.

8.2.2 AEC 2 – Historic Landfill

Similar to AEC 1, metals, PHC, PAHs, and BTEX are the contaminants of concern (COCs) at AEC 2. In downgradient areas, concentrations of metals, PHCs, PAHs, and BTEX decreased and were less than the applicable guideline, and in most cases, less than the detection limit at the sampling location representing the receptor.

		Source →		Transport Pathway →		Receptor
AEC 1 – Solid Waste Landfill		soil	groundwater	sediment	surface water along flow path	surface water/sediment at receptor
	metals	√	√	•	•	•
	BTEX	√	√	•	•	•
	PHC	√	o	•	o	o
	PAH	√	√	√	o	o

√ = greater than the applicable guideline
• = less than the applicable guideline, and if no guideline exists, then greater than the detection limit
o = less than the detection limit
na = not analyzed

Toluene concentration gradients in soil, surface water and groundwater were plotted and presented on Figure 12.

Toluene Spatial Analysis

Toluene concentration gradients in soil, surface water and groundwater were plotted and presented on Figure 12.

A toluene soil source was identified at 2-TP-12 (1.4 µg/g) at the Historic Landfill, exceeding the CCME guideline for commercial land use (0.37 µg/g). A toluene exceedance in groundwater was identified at 2-MW-8 (17.0 µg/L) downgradient from the landfill. Toluene concentrations at the remaining surface water and groundwater locations were below the CCME freshwater guideline (2µg/L). The toluene contamination appears to be limited to soil in the source-zone (Historic Landfill) and groundwater in the near-source zone. The toluene contamination does not appear to be significantly impacting downgradient areas, or reaching Merreta Lake.

The data indicates a similar trend for BTEX and metals in groundwater and sediments at the toe of the landfill and the pond areas. For PAHs, concentrations are above the standard in the groundwater at the toe of the landfill, but are below detection limit in sediment from the ponds, and downgradient surface water.

8.2.3 AEC 3 – Vehicle Storage Area

Metals, PHC, and PAHs are the contaminants of concern (COCs) at AEC 3. Metals, PHC, PAHs, and BTEX were typically associated with soil (ie greater than the guideline), however, all COCs were less than the detection limit at the discharge point to Allen Bay.

		Source →		Transport Pathway →		Receptor
AEC 1 – Solid Waste Landfill		soil	groundwater	sediment	surface water along flow path	surface water/sediment at receptor
	metals	√	na	•	o	o
	BTEX	•	na	o	o	o
	PHC	√	na	o	o	o
	PAH	√	na	o	o	o

√ = greater than the applicable guideline
• = less than the applicable guideline, and if no guideline exists, then greater than the detection limit
o = less than the detection limit
na = not analyzed

The analytical data indicates that PHC F3 and PAH soil contamination at AEC 3 have not migrated down gradient reaching surface water and sediment receptors, and appears to be restricted to the shallow source zones previously identified in the Vehicle Storage Area and Subarea 1. These compounds (PHC F3 and PAHs) typically are characterized by low solubility and strong adsorption, and lightly mobile. This suggests little potential for contaminant migration, and supports the analytical data. Although it is possible that copper may have migrated from the source zone at the Vehicle Storage Area, it is not considered to be a significant environmental concern since all surface water and sediment samples contained copper concentrations below CCME guidelines. Spatial analysis figures were not developed for AEC 3.

9.0 GEOTECHNICAL AND STABILITY EVALUATION

9.1 Scope

The scope of the geotechnical and stability evaluation was limited to a qualitative assessment of the landfill (AEC 1 and 2) and disposal (AEC 3) sites to identify potential physical hazards and stability issues related to human health and safety. The evaluation was based on field observations and a review of previous environmental reports. Field observations were made regarding the site conditions, including the type and distribution of debris, the presence of cover material, the presence and depth of the soil active layer, and the presence and depth to bedrock. Field observations were also used to help explain landfill operation practices, such as dumping and capping.

The purpose of the qualitative assessment is to identify issues related to human health and safety so that these issues can be incorporated into the proposed landfill decommissioning plans. Additional work may be required to quantify the likelihood of occurrence and the risk associated with the identified stability or hazard issues.

9.2 Assessment Areas

To facilitate the geotechnical and stability evaluation, the landfill and disposal areas at AECs 1, 2 and 3 were divided into separate geotechnical assessment areas as shown in **Figures 13 - 15,** . Four separate assessment areas were identified as follows:

- **Upper Bench** – the upper portions of AECs 1 and 2 as well as AEC 3 (the Vehicle Storage Area and Subareas 1 and 2);
- **Main Slope** – the area that connects the toe of the slope with the upper bench area. This area is located to the west of the landfills at AECs 1 and 2;
- **Drainage Channel** – the peripheral drainage channels located to the north and south of the landfill at AEC 1, and which extend from the upper bench to the toe of the slope; and
- **Toe of the Slope** – the lower portion of AEC 1.

9.3 Upper Bench

The upper bench area at AEC 1 and 2 consists a partial cap with fill (sand and gravel) overlying debris. The observed debris consists of domestic and industrial refuse (see Appendix E for a more detailed description). The principal physical hazard identified at AECs 1 and 2 is the potential settlement of landfill debris as a result of the weathering, decomposition, and/or consolidation of the debris. This could create voids within the landfill which may collapse when subjected to foot or vehicular traffic. Hazard mitigation can be accomplished by posting warning signs and/or using fences to limit public access.

AEC 3 consists primarily of metal debris (see Appendix E for a detailed description of the debris) scattered on the ground surface at the Vehicle Storage Area and Subareas 1 and 2. The risk from physical hazards as this site is considered to be low.

9.4 Main Slope

The main slope at AEC 1 consists of a mixture of fill and refuse, with significant variability in the ratio of fill to refuse, and is relatively steep. The main slope at AEC 2 is covered with sand and gravel fill. The angle of the slope is more variable, ranging from gentle to moderately steep. Buried refuse is partially exposed in several areas, but is generally capped.

Field observations suggest that the material was either dumped over or pushed over the slopes at AEC 1 with heavy equipment. There were likely many episodes of material deposition on the slope. This method of depositing the material from the top of the slope and allowing the material to accumulate causes the material to be deposited at or near its natural angle of repose. If this is indeed the case, the factor of safety can be inferred to be 1.0. This is significantly less than the preferred conservative factor of safety for slope stability of 1.5. Consequently, the main slope at AEC 1 may represent a significant stability hazard.

The factor of safety could decrease as a result of changes to material properties, increased loads on the slope, or due to the weathering and decomposition of debris. Currently the factor of safety is likely lower than preferable; any future decreases in the factor of safety could result in slope failure.

9.5 Drainage Channel & Gully

Scattered debris was observed in the drainage channel and gully at AEC 1, particularly on the south side. Run-off generated during the annual snowmelt (freshet) could potentially move some of this scattered debris, however, peak flows are not expected to be significant and consequently the potential for entraining and transporting scattered debris is likely low. Aeolian action also has the potential to transport or move some of the isolated scattered debris. The risk from physical hazards from these areas of the site are considered to be low.

9.6 Toe of the Slope

The physical hazard and stability concerns associated with the toe of the slope are primarily related to the potential for slope failure on the main slope. Slope failure could result in the sudden deposition of new debris in this area. Hazard mitigation for these issues was discussed previously.

10.0 CONCEPTUAL REMEDIAL OR RISK MANAGEMENT ACTION PLANS

This Conceptual Remedial Action Plan outlines the strategies that can be used to mitigate potential physical risks and exposure of human and ecological receptors to contaminants. A Preliminary Quantitative Risk Assessment (PQRA) and qualitative Ecological Risk Assessment (ERA) are being completed as part of this contract (provided as a separate report). The PQRA/ERA will identify the potential risks to human health and environmental receptors based on the appropriate pathways, concentrations and chemicals of concern. The extent of impacts, impacted media and final risk management approaches may be guided by the outcomes of the PQRA/ERA or a higher level Site Specific Risk Assessment (if required). As such, the PQRA/ERA coupled with this conceptual Remediation/Risk Management Plan (Rem/RM Plan) could be used as the basis for a more detailed Remedial/Risk Management Plan.

10.1 Contaminant Impacts

Within the study area, there are known and discrete impacted soils associated with up-gradient waste burial, vehicle dump, and filling activities. Elevated metals, PHC, BTEX, and PAHs exist on site and are heterogeneous in terms of spatial distribution and concentrations. Based on the spatial analysis model, the source area for each of the COC's remains consistent with each parameter tested. It is our opinion that the soil, groundwater, surface water and sediment chemistry reflect the environmental impacts associated with waste disposal and land filling activities on site. Our evaluation indicates that the buried and exposed debris imparts a slow release of contaminants into the environment. Contaminants originating from the source areas (landfill), are present in the groundwater, sediments, and surface water in the ponding areas beyond the landfills. These substances decrease to concentrations below the guidelines and/or near the detection limit in downgradient areas.

A summary of the contaminant impacts is provided in the table below:

Area Identification	AEC	Identified Contaminant	Impacted Media
Solid Waste Landfill	AEC 1	higher priority – metal, PAHs, PHC, BTEX impacts	Soil, sediments and surface water
		higher priority- slope stability hazard	
Historical Landfill	AEC 2	moderate priority – metal, BTEX, PHC, PAH	discrete near source impacts - soil and

		impacts	stream sediments
		lower priority	slope stability hazard
Vehicle Storage Area	AEC 3	moderate to low priority-metal, PHC, PAH impacts	Soil and waste material

10.2 Approach

The remediation/risk management priorities should be based on the removal of physical hazards (i.e., slope stabilization and debris removal and/or capping), consolidation of waste and scatter debris, and the containment and control of contaminants in the surface water pathways prior to leaving the site and ultimately, discharging to receiving water bodies.

The specific approach to remediation/risk management in soil, sediment, and surface water will depend on the outcomes of the PQRA/ERA. Essentially contaminants found at discrete locations and close to the source areas (i.e., PAHs, PHCs) would need to be addressed but are considered a lower priority.

The long-term strategy for the study area should be based on the following goals, in order of priority:

- Removal of Physical Hazards and Hazardous Waste;
- Removal and/or Consolidation of Wastes, including capping;
- Containment and control, including risk management through surface water management (passive treatment systems and/or wetland enhancement with monitoring;
- Risk management/remediation of impacted soils/sediments; and
- Site monitoring/inspections.

Evaluation Criteria

Criteria used to evaluate the remedial/risk management options were:

- Overall protection of human health and the environment;
- Removal of hazards;
- Long term effectiveness;
- Ease of implementation;

- Maximal level of confidence in remediation results;
- Minimal remediation time;
- Minimal site disruption;
- Regulatory acceptance; and
- Cost effectiveness.

It should be noted that our responses to the criteria have been established based on our professional opinion and available information. A more detailed analysis would be required in a specific Remedial/Risk Management Plan.

10.3 Mitigation of Geotechnical Hazards

The main slope at the Solid Waste Landfill (AEC 1) may represent a significant stability hazard. Based on the qualitative geotechnical assessment the main slope appears to be at or close to its maximum angle of repose.

Slope stability of the main slope at AEC 1 can be improved by:

- Counter weighting or reinforcing the toe of the slope. Counter weighting should be appropriately designed to achieve the required factor of safety; and,
- Decreasing the angle of the slope so that it is less than its natural angle of repose to achieve the require factor of safety.

Another option may be to limit access to the Solid Waste Landfill, in particular to the main slope area and a suitable run-out distance at the base of the slope. The run-out distance should be calculated by a suitably qualified professional.

FRANZ recommends conducting a quantitative geotechnical evaluation of the landfills at AECs 1 to establish appropriate specifications for the long-term closure of the landfills and to facilitate the development of a management plan.

10.4 Removal of Hazardous Waste

A small quantity of hazardous waste exists at AEC 3, and possibly at AECs 1 and 2. Potential hazardous material identified on site includes asbestos, batteries, transformers (light ballasts), paint, waste oils and possibly other unknown liquids, and electronic telecommunications equipment. The total volume of potentially hazardous waste is

currently unknown. Due to the nature of the landfills, future mitigation work could expose additional hazardous materials not visible during the site inspection. It is likely that residual fluids from fuel tanks, drums, and discarded vehicles and equipment will have to be drained and collected. All hazardous waste should be consolidated, packaged appropriately and shipped south for proper disposal.

10.5 Mitigation of Waste Materials

Waste materials were identified at all three AECs, and include contaminated soils at AECs 1 and 2, PHC/PAH/metals contaminated soil at AEC 3, and exposed waste and scattered debris. Scattered debris encountered at AECs 1, 2 and 3 includes scrap metal, fuel/oil drums, electronics equipment, wood, plastics, rubber, glass, appliances, furniture, fuel storage tanks, helicopter fuselage, residential garbage, batteries and other building materials.

FRANZ proposes three options to mitigate impacts from these waste materials. These options are:

- **Option 1**: Removal, Consolidation, and Disposal of Surface Waste Materials at new Engineered On-Site Landfill.
- **Option 2**: Removal, Consolidation, and Disposal of Surface Waste Materials at the Solid Waste Landfill (AEC 1)
- **Option 3**: Off-Site Recycling of Selected Surface Materials, and Removal, Consolidation, and Disposal of Waste Materials at the Solid Waste Landfill (AEC 1)

Specific equipment may be necessary to facilitate debris management (recovery, removal, consolidation and disposal) at AECs 1 and 3. Larger metal debris at AEC 3 will need to be cut into smaller, more manageable pieces. Equipment such as a truck mounted or a stationary anchored crane with a magnetic attachment for metallic debris and a clam attachment for non-metallic debris may be required to load larger debris or to manage (recover and consolidate) surface waste materials in areas with difficult site access such as AEC 1. Based on our research, a truck mounted crane is available in Resolute Bay. The stationary anchored crane and attachments are specialized pieces of

equipment which would have to be shipped in from the south.

10.5.1 Option 1 – Removal, Consolidation, and Disposal of Waste Materials at Engineered On-Site Landfill

In this option, surface waste materials from AECs 1, 2 and 3 would be removed, consolidated and disposed of in an engineered landfill. The landfill would be constructed at a suitable location, as close as possible to AECs 1 and 3, to minimize the handling and transport of waste materials. Surface waste materials would be placed in the engineered landfill and covered with a geotextile (or equivalent), soil and if possible re-vegetated. This option would require some monitoring over time to ensure the cover materials remain stable and any potential leachate remains contained within the landfill area. The existing buried waste in AEC 1 and 2 would be re-capped and closed. All surface waste materials would be recovered from AEC 3; then subsequently closed.

The main slope at AEC 1 would be re-worked as specified by a qualified professional to ensure a stable slope with an acceptable factor of safety. Exposed waste would be covered with a geotextile and approximately 1m of available fill material. The Solid Waste Landfill should be shaped so that overland drainage is properly managed and surface water is directed away from landfill.

10.5.2 Option 2 - Removal, Consolidation, and Disposal of Waste Materials at the Solid Waste Landfill (AEC 1)

This option involves the removal of surface waste material from AECs 2 and 3, and its subsequent transport to the Solid Waste Landfill at AEC 1. Surface waste material would be consolidated and placed on the main slope, extending down the toe of the slope. Waste material would be placed on the main slope at AEC 1 as per specifications by a qualified professional to ensure a stable slope with an acceptable factor of safety. Exposed waste would be covered with a geotextile and available fill material. The Solid Waste Landfill should be shaped so that overland drainage is properly managed and surface water is directed away from landfill. AEC 2 landfill would be closed and re-capped at required areas. All surface waste materials would be recovered from AEC 3; then subsequently closed.

10.5.3 Option 3 – Off-Site Recycling, and Removal, Consolidation, and Disposal of Waste Materials

This option involves off-site recycling of selected metal debris. A detailed material recycling evaluation would be conducted to determine the feasibility of recycling metal debris from AECs 1, 2 and 3. The remaining surface waste material would be removed from AECs 2 and 3 and transported to the Solid Waste Landfill at AEC 1. Surface waste material would be consolidated and placed on the main slope, extending down the toe of the slope. Waste material would be placed on the main slope at AEC 1 as per specifications by a qualified professional to ensure a stable slope with an acceptable factor of safety. Exposed waste would be covered with a geotextile and available fill material. The Solid Waste Landfill should be shaped so that overland drainage is properly managed and surface water is directed away from landfill.

10.5.4 Mitigation Options Analysis

These options provide long-term solutions to remediating non-hazardous wastes and would be consistent with other aesthetic clean-ups in the region. An options analysis based on several evaluation criteria is presented below. Indicative cost estimates supporting the proposed options are provided in **Table 10-1**, Mitigation of Waste Materials Options Analysis. A summary of the options is provided as follows:

Table 10-1: Mitigation of Waste Materials Options Analysis

OPTIONS	Option 1 Disposal of Waste at New On-site Engineered Landfill	Option 2 Disposal of Waste at Solid Waste Landfill (AEC 1)	Option 3 Off-Site Recycling and Disposal of Waste at Solid Waste Landfill (AEC 1)
Project Goals	Remove waste materials and provide a permanent solution		
Operating Principle	All excess surface waste material would be consolidated and placed in an on-site engineered waste landfill. Wastes would be placed in lined landfill and covered with linear and locally sourced fill.	All excess surface waste material would be consolidated and placed in the Solid Waste Landfill (AEC 1).	Selected metallic debris would be removed and recycled off-site. The remaining waste and debris would be consolidated and placed in the Solid Waste Landfill (AEC 1).
Protection of Human Health and the Environment	Yes	Yes	Yes

Degree of Site Disruption	High	Moderate to High	Moderate to High
Confidence Level	Moderate to High	Moderate	Moderate
Estimated Time for Implementation	2.5 - 3 months to prepare/construct disposal area and recover, consolidate and transport waste to disposal area. Includes covering exposed face of solid waste landfill at AEC 1 and any necessary geotechnical and drainage mitigation work at AECs 1 and 2.	2.5 months to recover, consolidate, transport, and dispose of waste. Includes covering exposed waste and any necessary geotechnical and drainage mitigation work at AECs 1 and 2.	2.5 – 3 months to recover, consolidate, transport, and dispose of waste materials. Includes recovering and preparing recyclable materials for shipment, covering exposed waste at AEC 1, and any necessary geotechnical and drainage mitigation work at AECs 1 and 2.
Long-term Effectiveness	Yes additional monitoring required	Yes additional monitoring required	Yes additional monitoring required
Ease of Implementation	Moderate	Low-Moderate	Moderate
Regulatory and Community Acceptance	Moderate	Moderate	Moderate
Estimated Capital Cost	$3,000,000	$2,000,000	$2,400,000
Total Estimated Remediation Cost +/-	$3.0M	$2.0M	$2.4M

Assumptions

For all the options, the following assumptions have been made:

- Individual options have been provided with cost estimates. Some options require heavy equipment. As such, there will be common costs (e.g., permitting, and mobilization, health and safety) associated with a remedial approach. These common costs are included in each options.
- Depending on the final option or strategy selected, several excavators, cranes, dump trucks and bulldozers, may be required. At this point, it is difficult to determine the exact equipment list as it would vary depending on the final plan. However, order-of-magnitude costs have been provided in this analysis.
- General costs for the preparation of tenders, laboratory analysis and reporting have been incorporated into the individual cost estimate spreadsheets.
- The estimated costs for recycling were based on shipping approximately 1150 m^3 of materials in shipping containers (about 40).
- Based on the site topography and access, options to recover the waste, via

heavy equipment and trucks at the toe of the bedrock escarpment are limited. For this analysis, we have not estimated costs for the construction of a temporary road or assessed the ability to construct a winter road (which would likely require access through the Territorial Park).

- To estimate the amount of cap required and debris to be handled, the total volume of debris at all three AECs is estimated to be on the order of approximately 3,000 m^3.
- Work required recovering, preparing and consolidating surface waste materials for disposal and/or recycling is considered to be about the same for each of the three options. That is the same amount of work and handling would be required whether materials are disposed of at a new landfill or at AEC 1, or some is to be recycled.
- Locally sourced fill (sand and gravel) represents a significant proportion of estimated costs associated with waste disposal and landfill capping. A large amount of fill is required for each of the three options, to build and cap the new engineered landfill, and to cap surface waste materials and exposed waste at the existing landfills. The difference between the amounts of fill required for each of the options is small.

10.6 Surface Water Management

The historical contaminant release and loading (from metals) associated with the debris deposited on-site have resulted in impacted surface waters and sediments downgradient of the Solid Waste Landfill (AEC 1). Additionally, an isolated toluene impact was identified in shallow groundwater at AEC 2. Downgradient impacts will likely continue for some time due to the presence of scattered and landfilled waste debris. Contaminant loading from the landfill and the associated downgradient impacts could be managed through the implementation of an in-situ remediation and surface water management system. The outcomes of the PQRA/ERA or a higher level SSRA, can be used to guide the long-term strategies for the site. Two possible management options are proposed as follows:

- **Option 1** –Passive In-situ Leachate Collection and Treatment; and
- **Option 2** – Wetland Enhancement and Monitored Natural Attenuation.

Option 1 consists of a passive leachate collection and treatment system whereby

leachate produced by the landfill would be captured and directed through an engineered treatment system designed to attenuate contaminant impacts. Selection of an appropriate passive system is based on water chemistry, flow rate, local topography and site characteristics.

Option 2 consists of enhancing the existing wetland downgradient from the landfill. Enhancements to the wetland could include surface water flow controls, increasing water retention times, and the addition of organic material or aquatic plants to augment natural attenuation in the wetland. Treatment depends on dynamic biogeochemical interactions as contaminated water travels through the constructed wetland. Optimal plant species or organic materials would have to be investigated as part of the design process.

Implementation: Prior to implementation, this approach requires that the site be well characterized and that the processes which affect surface water and sediment chemistry be well understood. For this option to be successful, an in-depth evaluation of the chemical, biological and physical characteristics of the site should be conducted through seasonal monitoring, detailed hydrology studies and bench-scale treatment tests.

A summary of the options is provided as follows:

Table 10-2: Surface Water Management Options

OPTIONS	Option 1 Passive In-situ Leachate Collection and Treatment	Option 2 Wetland Enhancement and Monitored Natural Attenuation
Project Goals	Ensure the protection of human health and environment from exposure to chemicals of concern associated with surface waters, and sediments.	
Operating Principle	Engineered system to enhance the attenuation of contaminants migrating in sediment and water.	Enhance the existing natural removal of metals and other contaminants along the surface water flow systems prior to discharge to receiving bodies.
Protection of Human Health and the Environment	Yes	Yes
Degree of Site Disruption	Moderate	Low
Confidence Level	Moderate	Moderate

OPTIONS	Option 1 Passive In-situ Leachate Collection and Treatment	Option 2 Wetland Enhancement and Monitored Natural Attenuation
Estimated Time for Implementation	Medium-term (2-5 years)	2-3 years
Long-term Effectiveness	Moderate-High	Moderate-High
Ease of Implementation	Moderate, studies required	Moderate, studies required
Regulatory and Community Acceptance	High	Moderate
Estimated Capital Cost	**$300,000**	**$200,000**
Estimated Operating Cost (5 years)	**$350,000**	**$300,000**
Total Estimated Remediation Cost	**$650,000**	**$500,000**

10.7 Risk Assessment

A screening level risk assessment is currently being completed to determine the potential risks to human and ecological receptors. The outcomes of the screening level risk assessment will be used to guide the long-term strategies for the site.

10.8 Supplemental Investigations - Remedial Options Feasibility Study

Impacts to the site have been identified. Additional assessment work would enhance quantity estimates, confidence and understanding of the overall distributions of the impacts. The remedial options feasibility study should include investigation of the following:

- Quantitative geotechnical evaluation of the landfills to provide guidance and specifications for the long-term closure of the landfills and for the development of management plans;
- Detailed Material Recycling Evaluation/Inventory to contribute to the development of a remedial or risk management plan;
- Annual snow melt and its effect on surface water flows, to obtain a better

understanding of the surface water hydrology and its potential influence on contaminant transport; and

- Contaminant attenuation at AECs 1 and 2 to better understand mechanisms involved in the transport of contaminant, and to assist in the design of an in-situ remedial system (passive leachate collection and treatment, wetland enhancement). This would involve a study of seasonal flow and chemistry changes at the beginning of the active season/snow melt, during the summer, and at the end of the summer.

10.9 Post Mitigation & Remediation Monitoring

A multi-year surface water and sediment monitoring program is recommended to verify the presence/absence of new impacts as a result of mitigation and remedial activities at AECs 1 and 2.

10.10 Summary of Mitigation and Management Costs

Based on the discussion provided above, a summary of the mitigation of waste materials and in-situ remediation/surface water management options and associated costs is presented as follows. Indicative cost estimates supporting the options are provided in **Table 10-**3.

Table 10-3: Summary of Mitigation Options and Management Costs

AEC	Option	Costs
		Total
Removal of Hazardous Waste Materials	Off-site disposal of ACM and other hazardous materials (estimate)	$350,000
Mitigation of Waste Materials	Option 1: On-Site Engineered Landfill	$3,000,000 (high)
	Option 2: Disposal at AEC 1	$2,000,000 (low)
	Option 3: Recycling (off-site) and Disposal at AEC 1	$2,400,000 (mid)
Remedial Options Feasibility	1. Quantitative geotechnical evaluation 2. Detailed Material Recycling Evaluation/Inventory 3. Snow-melt effect 4. Contaminant attenuation	$350,000
In-situ Remediation/Surface Water Management	Passive leachate collection and treatment system	$650,000 (high)
	Enhanced wetland	$500,000 (low)

AEC	Option	Costs
		Total
Post Mitigation and Remediation Monitoring	Surface Water and Sediment Monitoring (5 years)	$300,000
Lowest estimate		**$3,500,000 ($3.5M)**
Highest estimate		**$4,500,000 ($4.5M)**

Lowest estimate= selecting the lowest cost option per AEC

Highest estimate = selecting the highest cost option per AEC

It is our understanding that more detailed cost estimates would be completed as part of a future Remediation/Risk Management Plan, as the relevant strategies and options are carried forward.

11.0 CCME NCSCS SCORE

The NCSCS is a tool to aid in the evaluation of contaminated sites. The CCME National Classification System for Contaminated Sites (NCSCS) was revised in 2008 to supersede the 1992 NCS system and also the Federal Contaminated Sites Action Plan (FCSAP) scoring system (2005 version, developed by Franz Environmental Inc.). The revised system retains the general classification structure of Class 1, 2, 3, "I" or "N" based on the site's current or potential adverse impact on human health and/or the environment.

A NCSCS score was generated for each site/APEC (see Appendix K).

- The site score for APEC 1 (now AEC 1) is 81.8 which classifies the Solid Waste Landfill as a Class 1 site (High Priority for Action);
- The site score for APEC 2 (now AEC 2) is 75.9 which classifies the Historic Landfill as a Class 1 site (High Priority for Action); and
- The site score for APEC 3 (now AEC 3) is 59.0 which classifies the Boneyard/Scrap Metal Storage Area as a Class 2 site (Medium Priority for Action).

12.0 SUMMARY AND CONCLUSIONS

12.1 Introduction and Purpose

Franz Environmental Inc. (FRANZ) was retained by Public Works and Government Services Canada (PWGSC) Pacific Region and Transport Canada (TC), Prairie and Northern Region and Environmental Affairs Division to complete a Phase II/III Environmental Site Assessment (ESA) at three Landfill Sites adjacent to the Resolute Airport, Resolute Bay, Nunavut. This project was completed based on discussions with PWGSC/Transport Canada, a review of the Terms of Reference (ToR), and our July 2009 proposal titled "Proposal for Environmental Site Investigation – Resolute Bay Airport Landfills, Resolute Bay, Nunavut".

12.2 Study Area

Resolute Bay is on an arm of Parry Channel, in the Northwest Passage and is part of the Qikiqtaaluk Region. The Resolute Bay Airport is situated approximately 5 km northwest of the hamlet of Resolute. Solid waste disposal from military and airport activities, and the community have resulted in the creation of several landfill sites.

The study area is divided into three distinct Areas of Potential Environmental Concern (APECs):

- APEC 1 - Solid Waste Landfill, which is on the west side of the service road approximately 2 km north of the airport;
- APEC 2 - Historic Landfill, west of the service road, across from Parcel 9; and
- APEC 3 - Vehicle Storage Area, along the northwest branch of the service road.

12.3 Site Investigation

FRANZ conducted a Phase II/III ESA targeting the APECs and potential Contaminants of Concern (COCs) based on the historical review. The field investigation included test pit excavation and soil sampling, surface water sampling, sediment sampling, vegetation sampling and chemical analysis of soil, sediment, surface water, and vegetation. The field program was completed from August 13 to 20, 2009.

12.4 Site Characteristics

Cornwallis Island, Nunavut, is relatively flat with low-lying terrain, and a maximum elevation of 312 metres above sea level in the eastern part of the island (http://atlas.nrcan.gc.ca). It is characterized by extensive rolling upland plateau areas incised by river channels.

The Solid Waste Landfill and Historic Landfill are both characterized by gently sloping terrain, with elevations that range from approximately 35 to 60 m asl and 40 to 60 m asl, respectively. The Vehicle Storage Area is on the top of the south slope of the McMaster River Valley at an elevation of approximately 30 to 35 m asl.

Drainage on Cornwallis Island appears to be topographically controlled. Rivers and creeks on the island discharge into the Arctic Ocean from upland areas in the central and eastern parts of the island

Drainage from both the Solid Waste Landfill and the Vehicle Storage Area discharges towards the west into Allen Bay. Surficial flows in the Vehicle Storage Area drain into the McMaster River valley; however, surface water is not observed in the immediate vicinity.

12.5 Environmental Quality Guidelines (EQG)

The chemical data obtained through the Phase II/III ESA were compared to established commercial and residential/parkland guidelines from the federal CCME. Shallow groundwater samples with elevated Petroleum Hydrocarbon concentrations were compared to Alberta Environment's *Tier 1 Groundwater Remediation Guideline.*

12.6 Summary of Impacts

Environmental impacts were primarily associated with disposal of metallic debris and disposal of items containing hydrocarbons (i.e, drums). Hydrocarbons were localized to small areas near their original sources. Apparent contamination from metals was more widespread, particularly downgradient the Solid Waste Landfill.

12.6.1 PHCs and PAHs

PHCs and PAHs were identified in all three AECs. These impacts appeared to be localized to discrete areas. The PHC fractions were primarily associated with the F2 and F3 fractions in AECs 2 and 3, respectively. Benzene and BTEX (no xylenes) were identified in AECs 1 and 2, respectively.

PAHs in sediment were identified in AEC 1, in shallow groundwater in AECs 1 and 2, and in soil in AEC 3. Testing was completed further downstream and no evidence of contaminant migration was present. Impacts appear to be localized.

12.6.2 Metal Impacts and Evaluation

Leaching of metals from buried and exposed metallic debris has impacted soil and surface water on site.

Since the creation of the landfills (i.e., late 1960's), concentrations of metals and metalloids in environmental media (e.g., soil, sediments) have likely been accumulating slowly over time. Based on analysis conducted on background samples collected in the vicinity and up-gradient of the site, only aluminum can likely be attributed to naturally occurring geological elements.

Site conceptual models were created and showed that metal concentrations decrease down-gradient from the source areas. A degree of natural attenuation and/or entrapment is currently being demonstrated on site.

12.6.3 Geotechnical Hazard

The major geotechnical hazard observed during the FRANZ field program was related to the slope stability of the Solid Waste Landfill (AEC 1). It was found that the Solid Waste Landfill slope, in its current state, remains at its maximum angle of repose and presents a hazard. The main slope at AEC 1 may represent a significant stability hazard.

12.6.4 Conceptual Remedial or Risk Management Action Plans

The remedial/risk management plan proposes the following three options to mitigate waste materials:

- **Option 1**: Removal, Consolidation, and Disposal of Waste Materials at Engineered On-Site Landfill
- **Option 2**: Removal, Consolidation, and Disposal of Waste Materials at the Solid Waste Landfill (AEC 1)
- **Option 3**: Off-Site Recycling of Selected Materials, and Removal, Consolidation, and Disposal of Waste Materials at the Solid Waste Landfill (AEC 1)

Measures to mitigate geotechnical hazards would be implemented as part of each of the above waste mitigation options. Additionally hazardous waste would be recovered, consolidated and shipped south to be disposed of at an appropriate facility.

Two different in-situ remedial measures have been proposed to manage surface water impacts at AECs 1 and 2. Post mitigation monitoring programs would verify the presence/absence of new impacts as a result of mitigation and remedial activities in the short and mid-term at AECs 1 and 2.

A remedial options feasibility study which includes a quantitative geotechnical evaluation, a detailed material recycling evaluation/inventory, and examination of the effect of the annual snowmelt and contaminant attenuation at the sites has been proposed to better understand site conditions and controls, and to help develop and guide future action.

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14.0 LIMITATIONS

The conclusions in this report are based on information collected from the investigation locations chosen for this study. The locations were selected based on the best information available to us at the time of this study. This does not preclude the possibility that different conditions may be present elsewhere on the property. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce this possibility to an acceptable level.

Professional judgement was exercised in gathering and analysing the information obtained. Like all professional persons rendering advice, we cannot act as absolute insurers of the conclusions we reach; we commit ourselves to care and competence in reaching those conclusions. Our undertaking therefore, is to perform our work, within the limits prescribed by our client, with the usual thoroughness and competence of the profession. No other warranty or representation, expressed or implied, is included or intended in this report.

Sincerely,

Franz Environmental Inc.



Jennifer Keenliside, B.Sc., CEPIT



Jordi Helsen, M.Sc., GIT



Miguel Madrid, M.Sc.



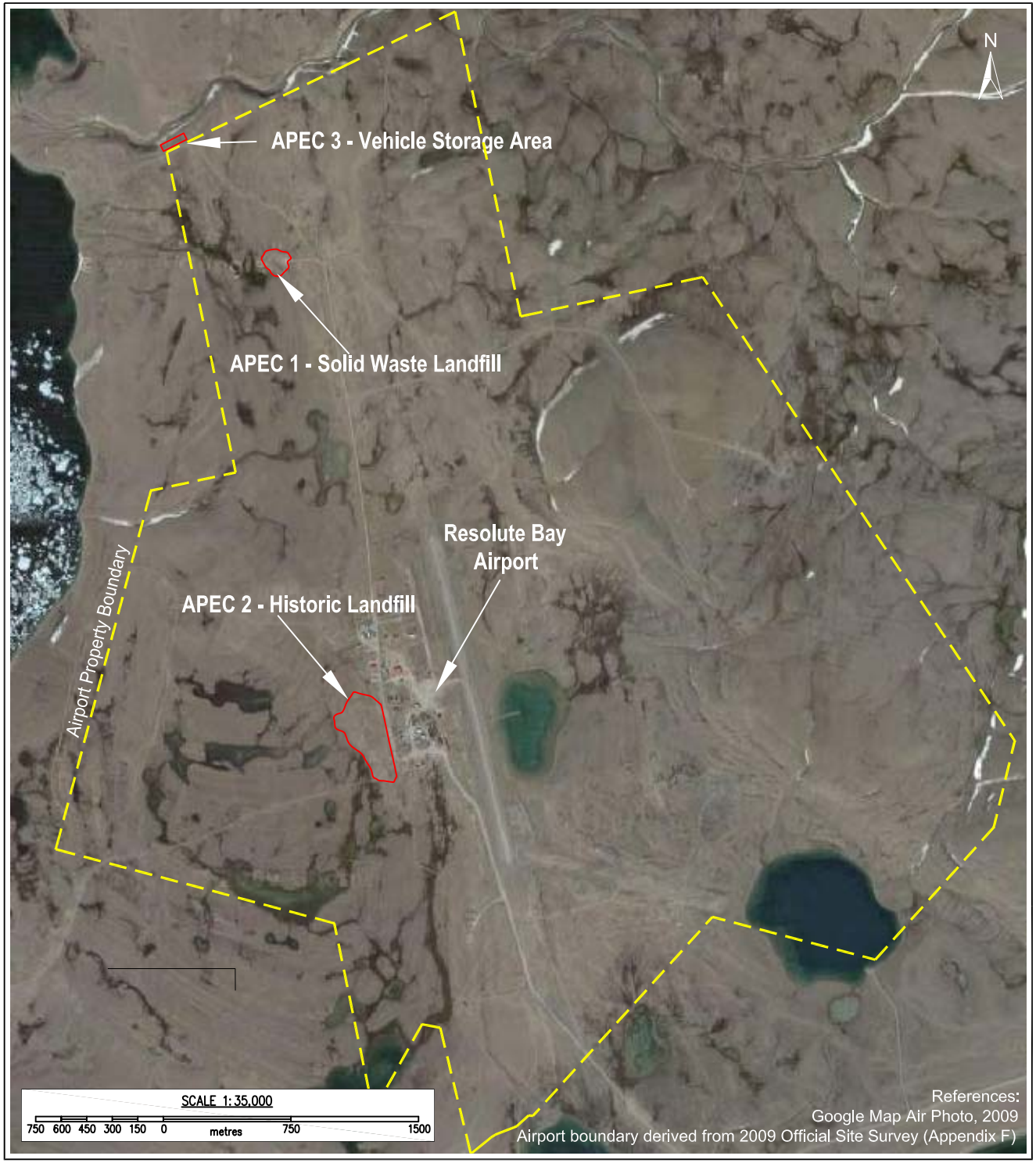
Steve Livingstone, M.Sc., P.Geol.



Michael Shum, Ph.D., P.Ag., R.P.Bio.

Appendix A

Figures







Title:
STUDY AREA AND APECS

Project:
RESOLUTE BAY AIRPORT LANDFILLS ENVIRONMENTAL SITE ASSESSMENT - FINAL REPORT

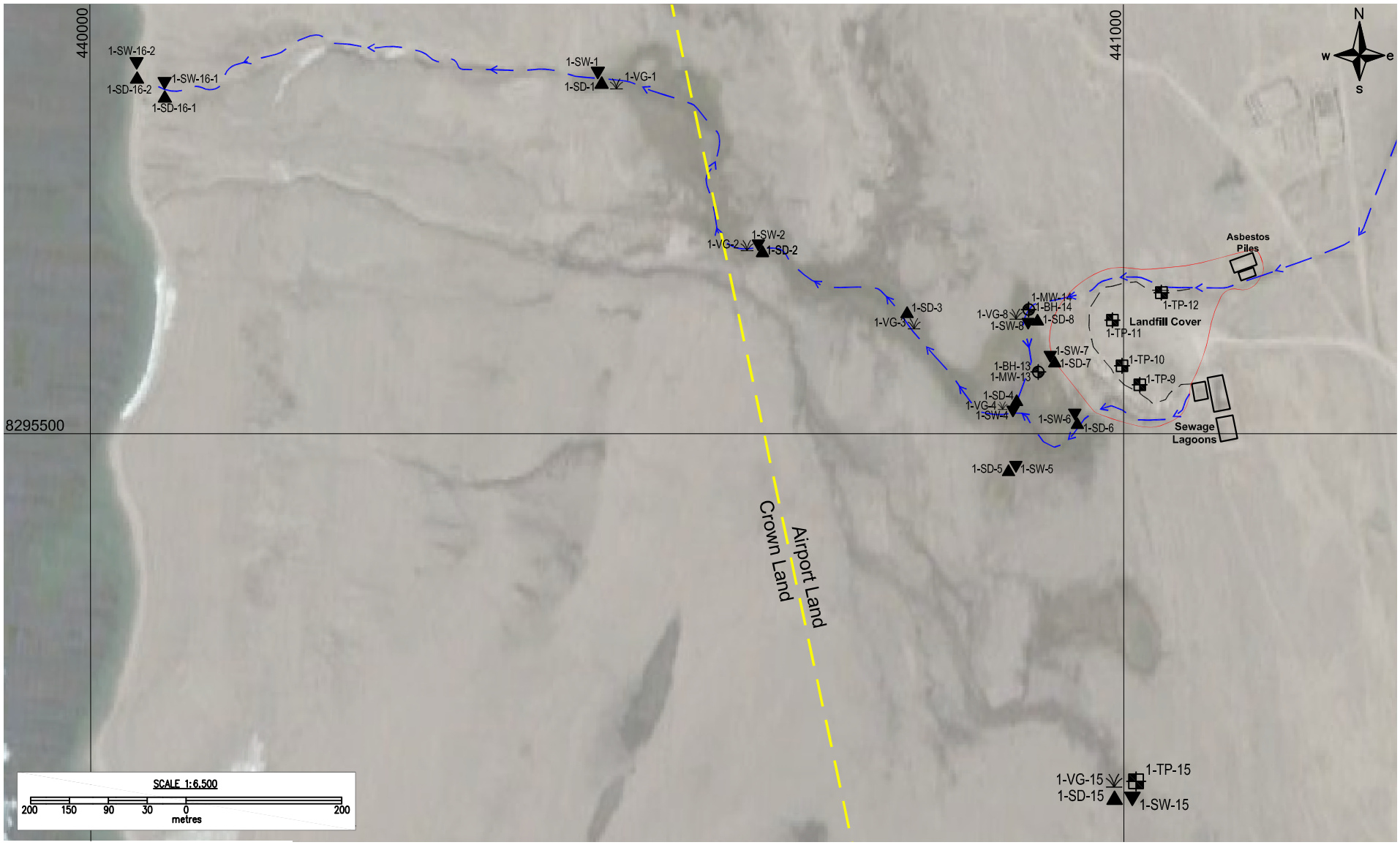
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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
TRANSPORT CANADA

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

Date:
MARCH 2010

FIGURE 1

1747-0901/CAD/Resolute Bay ESA Feb 10/10



LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water & Direction of Flow
- Top edge of landfill
- Soil Sample (TP)
- Borehole / Monitoring Well
- Surface Water (SW)
- Sediment Sample (SD)
- Vegetation Sample (VG)

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Airport boundary derived from 2009 Official Site Survey (Appendix F)

Title: APEC 1 - Sampling Locations

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Project: RESOLUTE BAY AIRPORT LANDFILLS ENVIRONMENTAL SITE ASSESSMENT FINAL REPORT

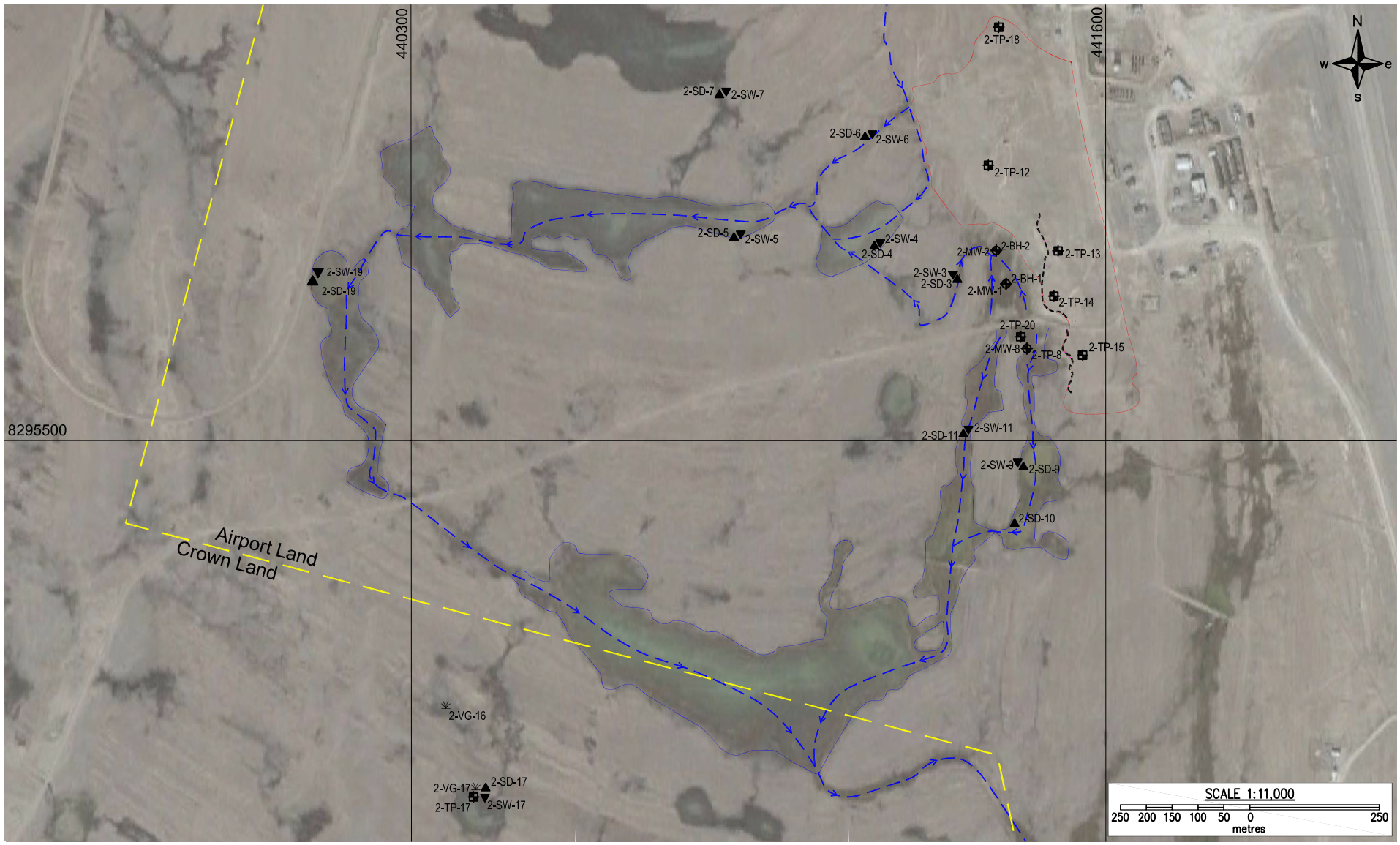
Date: MARCH 2010

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA / TRANSPORT CANADA

Scale: 1 : 6,500

FIGURE 2

1747-0901/CAD/Resolute Bay ESA Feb 22/10



LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water Body
- Surface Water & Direction of Flow
- Top edge of landfill
- Borehole / Monitoring Well
- Surface Water (SW)
- Sediment Sample (SD)
- Vegetation Sample (VG)
- Soil Sample (TP)

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Airport boundary derived from 2009 Official Site Survey (Appendix F)

Title: APEC 2 - Sampling Locations

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Project: RESOLUTE BAY AIRPORT LANDFILLS ENVIRONMENTAL SITE ASSESSMENT FINAL REPORT

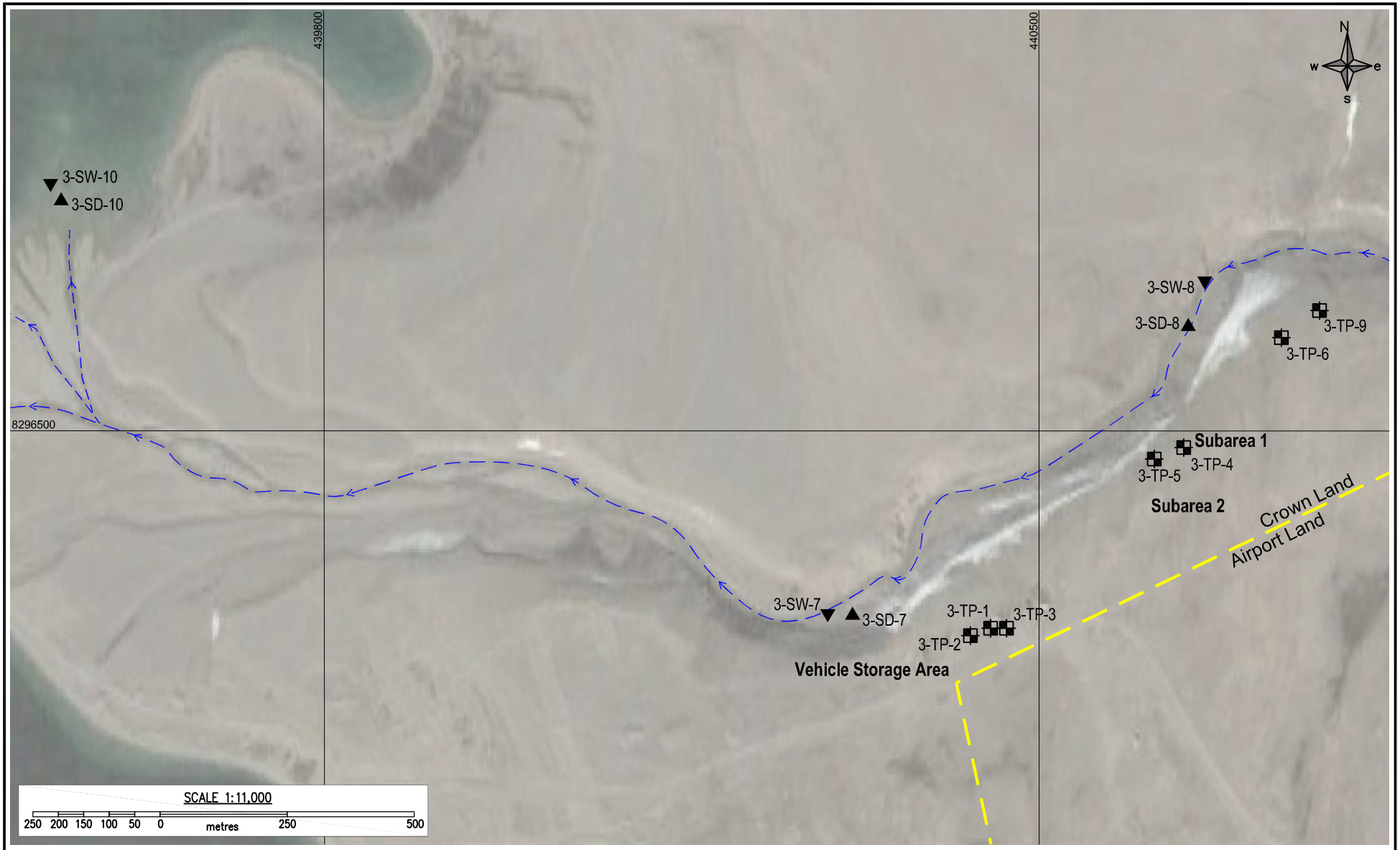
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Scale: 1 : 11,000

FIGURE 3

1747-0901/CAD/Resolute Bay ESA Feb 10/10



LEGEND

- Extent of APEC
- Airport Property Boundary
- Surface Water & Direction of Flow
- Soil Sample (TP)
- Surface Water Sample (SW)
- Sediment Sample (SD)

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Airport boundary derived from 2009 Official Site Survey (Appendix F)

Title: APEC 3 - Sampling Locations

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Scale: 1 : 11,000

FIGURE 4

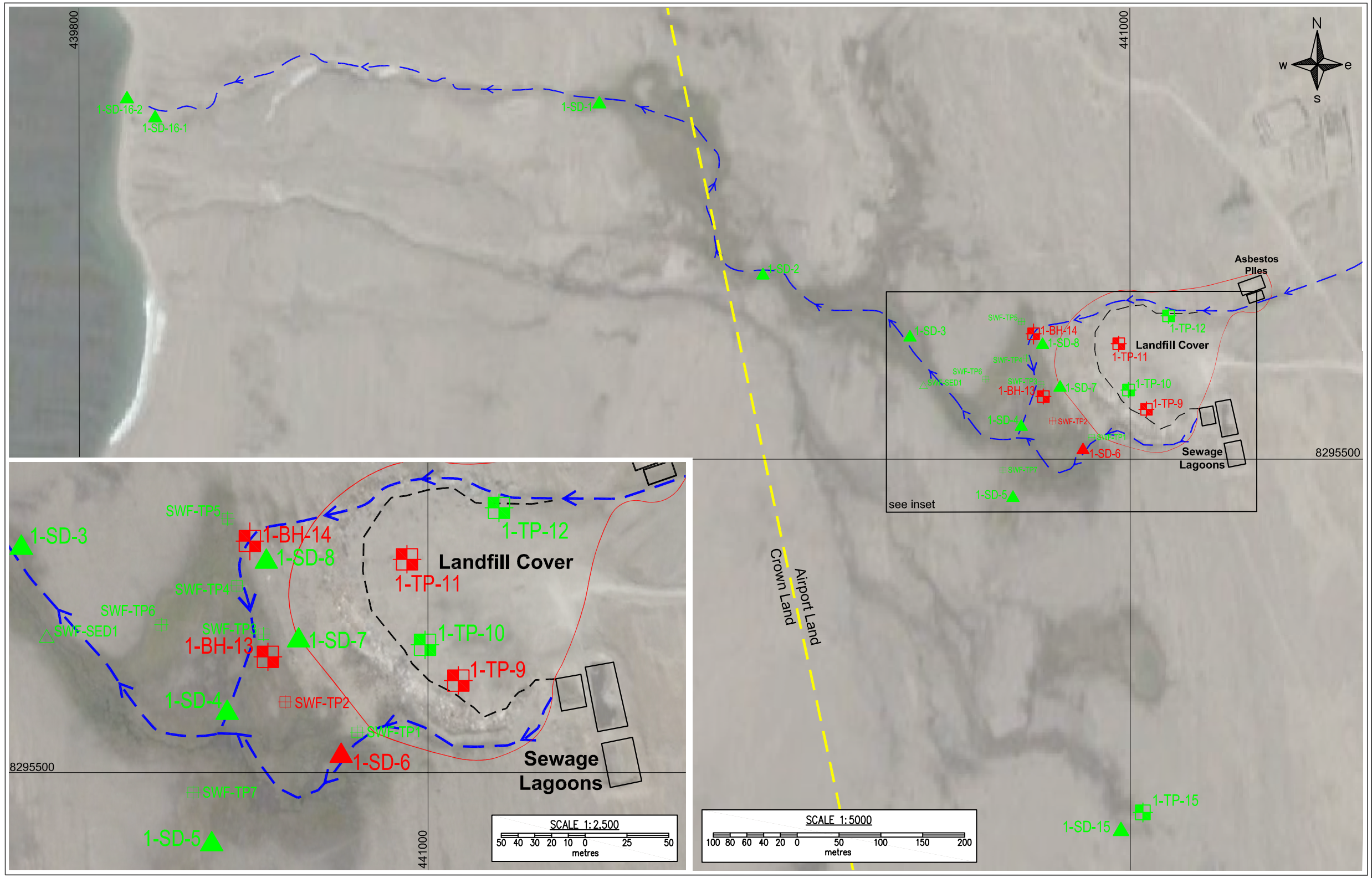
1747-0901/CAD/Resolute Bay ESA Feb 4/10

Station ID	CCME Soil CL (coarse, surface)	1-MW-13	1-MW-14	SWF-TP2
Field label		1-BH-13	1-BH-14	SWF-TP2
Sampled By		FRANZ 2009	FRANZ 2009	JWEL 2006
Date		15/Aug/09	15/Aug/09	-
Lab report ID		A9A8737	A9A8737	-
Depth (m)		0.05 – 0.66	0.1 – 0.62	-
BTEX/PHCs				
Benzene	0.03	0.031	0.032	-
F2 Hydrocarbons	260	-	-	827
F3 Hydrocarbons	1700	-	-	1840

Station ID	CCME Soil CL (coarse, surface)	1-TP-9	1-TF-11
Field label		1-TP-9	1-TF-11
Date		16/Aug/09	15/Aug/09
Sampled By		FRANZ 2009	FRANZ 2009
Lab report ID		A9A7367	A9A7367
Depth (m)		0.5 – 0.95	0 – 0.15
Metals			
Copper	91	870.0	150.0

SEDIMENT

Station ID	CCME ISQG (freshwater)	1-SD-6
Field label		1-SD-6
Date		17-Aug-09
Sampled By		FRANZ 2009
Lab report ID		A9A8632
Depth (m)		0.05 - 0.15
PAHs		
Acenaphthene	0.00671	0.02
Fluorene	0.0212	0.028
2-Methylnaphthalene	0.0202	0.39
Naphthalene	0.0346	0.11



LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water Flow
- Top edge of landfill
- FRANZ soil sample (2009); compliant with CCME guidelines
- FRANZ soil sample (2009); exceeds CCME guidelines
- FRANZ sediment sample (2009); compliant w/ CCME guidelines
- FRANZ sediment sample (2009); exceeds CCME guidelines
- JWEL soil sample (2006); compliant with CCME guidelines
- JWEL soil sample (2006); exceeds CCME guidelines
- JWEL sediment sample (2006); compliant with CCME guidelines

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Jacques Whitford (JWEL) analytical results for soil and sediment are in ug/g
JWEL sampling locations are shown for comparison purposes only.
For more detail, see the Jacques Whitford (2006) report
Airport boundary derived from 2009 Official Site Survey (Appendix F)
CCME Soil Guidelines for commercial land use in coarse soil (2008)
CCME Canada-Wide Standards for PHCs in soil (2008)
CCME Interim Sediment Quality Guidelines (ISQG, 2009)
FRANZ (2009) analytical results for soil and sediment are in ug/g and can be found in Appendix H & I.

Title: APEC 1 - Analytical Results for Soil & Sediment

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Scale: See figures for scale

FIGURE 5

1747-0901/CAD/Resolute Bay ESA Feb 25/10

SURFACE WATER

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 1	APEC 1
Station ID		1-SW-4	1-SW-5	1-SW-6	1-SW-7
Field label		1-SW-4	1-SW-5	1-SW-6	1-SW-7
Duplicate ID					FR-4
Date/Time		19-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09
Sampled By		FRANZ 2009	FRANZ 2009	FRANZ 2009	FRANZ 2009
Lab report ID		A9A9300	A9A9300	A9A8511	A9A8511
Metals					
Cadmium	0.017	<0.1	<0.1	<0.1	0.4
Copper	2 - 4*	5	2	2	4
Iron	300	250	370	590	<100
Zinc	30	16	<5	13	110

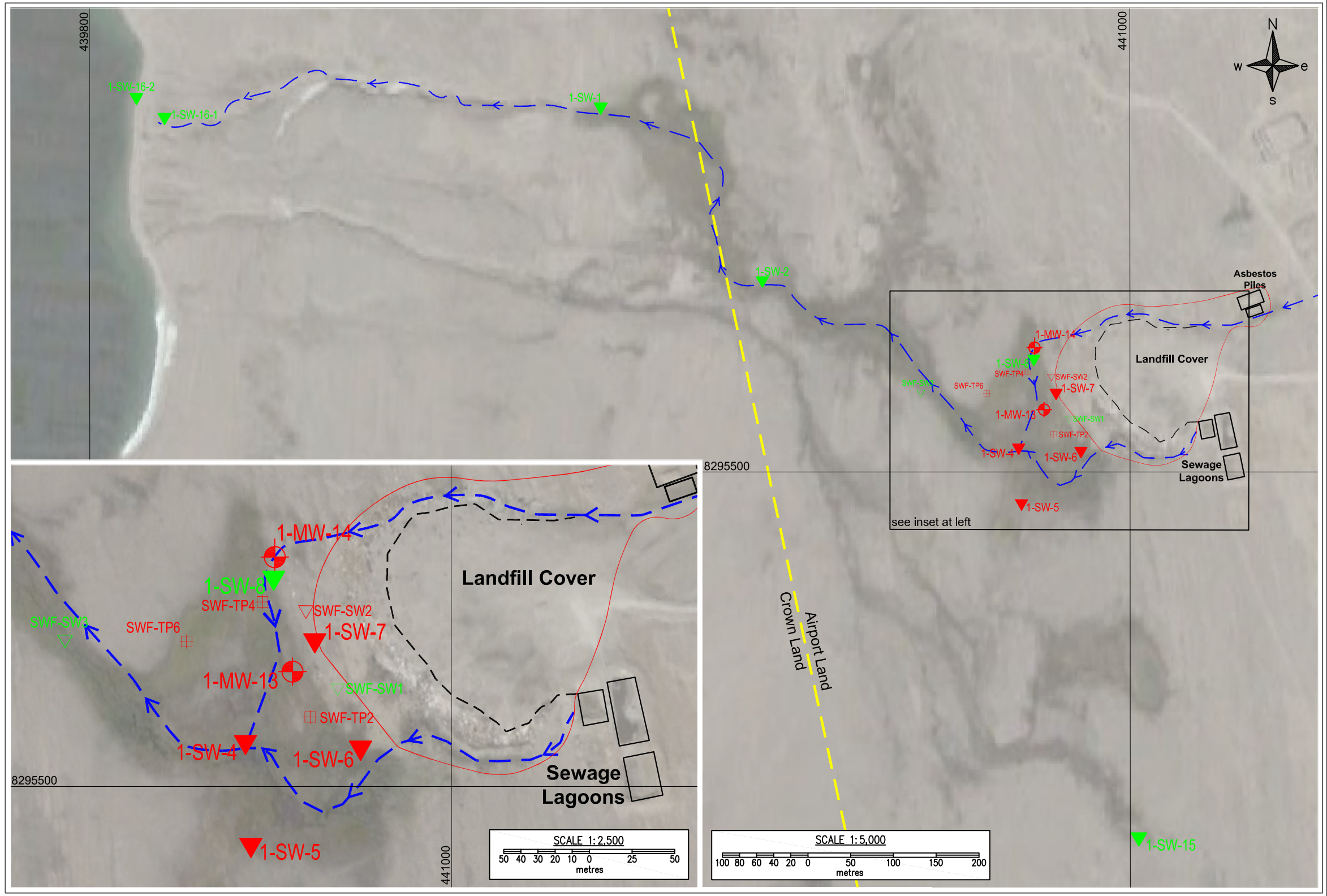
APEC ID	CCME AW (Freshwater)	APEC 1
Station ID		SWF-SW2
Field label		SWF-SW2
Date/Time		-
Sampled By		JWEL 2006
Lab report ID		-
Metals		
Cadmium	0.017	0.24
Copper	2-4*	10.9
Lead	7	472
Iron	300	66

* Copper guideline is hardness dependent - see Appendix I

GROUNDWATER

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1
Station ID		1-MW-13	1-MW-14
Field label		1-MW-13	1-MW-14
Sampled By		FRANZ 2009	FRANZ 2009
Date/Time		22-Aug-09	22-Aug-09
Lab report ID		A9A9979	A9A9979
Metals			
Iron	300	1100	1100
PAHs			
Naphthalene	1.1	5.2	

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 1
Station ID		SWF-TP2	SWF-TP4	SWF-TP6
Field label		SWF-TP2	SWF-TP4	SWF-TP6
Sampled By		JWEL 2006	JWEL 2006	JWEL 2006
Date/Time		-	-	-
Lab report ID		-	-	-
BTEX/PHCs				
Fraction F2	1100	9600	-	-
Toluene	2	13.1	-	-
Metals				
Cadmium	0.017	-	-	0.07
Copper	4	5	-	-
Lead	7	23.6	-	-
Iron	300	-	391	-



LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water & Direction of Flow
- Top Edge of Landfill
- FRANZ surface water sample (2009); compliant with CCME guidelines
- FRANZ surface Water sample (2009); exceeds CCME guidelines
- FRANZ groundwater sample (2009); exceeds CCME guidelines
- FRANZ groundwater sample (2009); compliant with CCME guidelines
- JWEL groundwater sample (2006); compliant with CCME guidelines
- JWEL groundwater sample (2006); exceeds CCME guidelines
- JWEL surface water sample (2006); compliant with CCME guidelines
- JWEL surface water sample (2006); exceeds CCME guidelines

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Jacques Whitford (JWEL) analytical results for water are in ug/L
JWEL sampling locations are shown for comparison purposes only
For more detail, see the Jacques Whitford (2006) report
Airport boundary derived from 2009 Official Site Survey (Appendix F)
CCME Water Quality Guidelines for the Protection of Aquatic Life (2009)
FRANZ (2009) analytical results for water are in ug/L
and can be found in Appendix H & I

Title: APEC 1 - Analytical Results for Surface Water & Groundwater

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Scale: See figures for scale

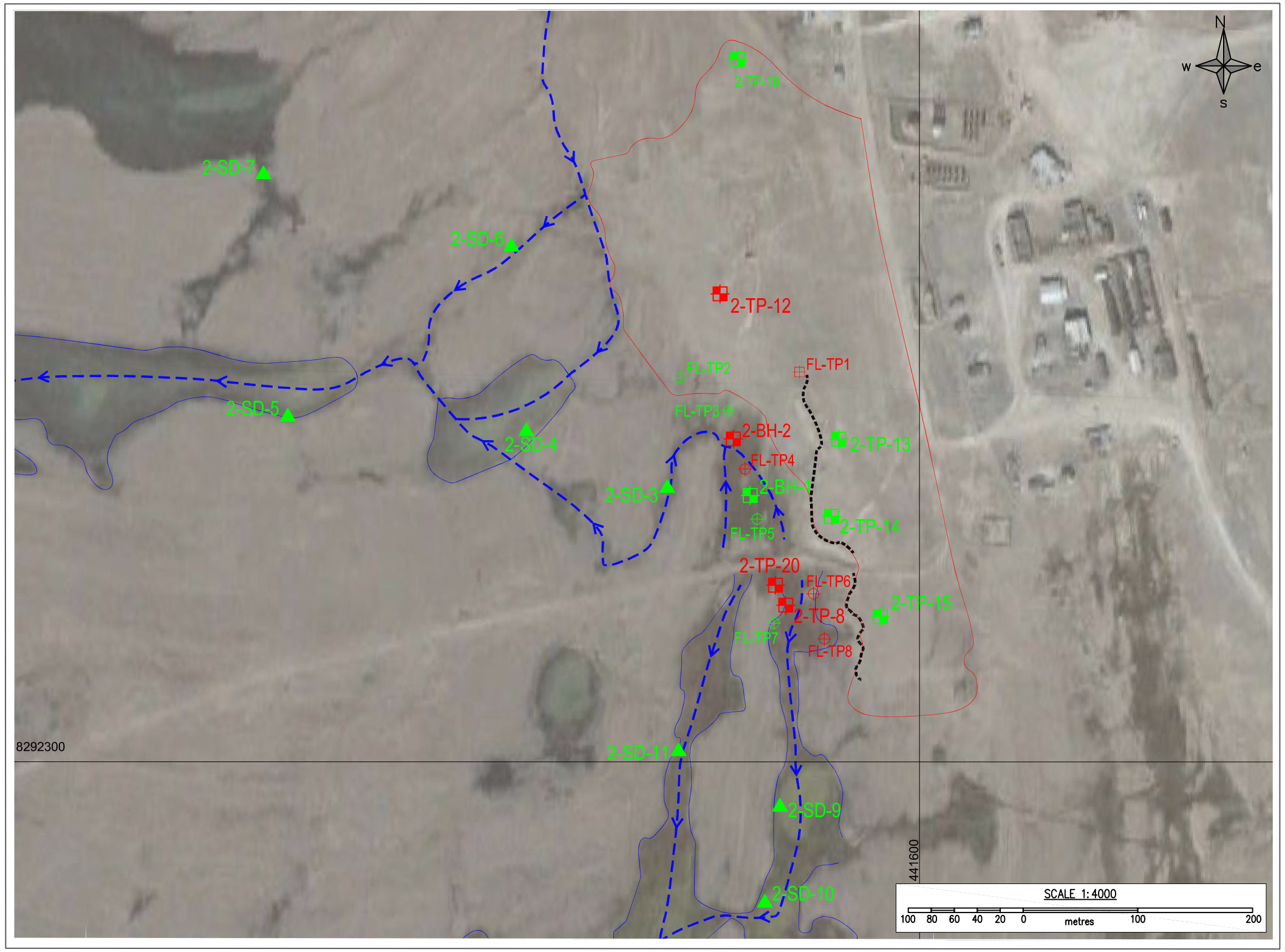
FIGURE 6

1747-0901/CAD/Resolute Bay ESA Feb 25/10

SOIL

Station ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	2-MW-2	2-TP-12	2-TP-20	2-TP-20
Field label			2-BH-2	2-TP-12	2-TP-20	FR-6
Duplicate ID					FR-6	2-TP-20
Sampled By			FRANZ 2009	FRANZ 2009	FRANZ 2009	FRANZ 2009
Date			15/Aug/09	15/Aug/09	20/Aug/09	20/Aug/09
Lab report ID			A9A8737	A9A7367	A9A9979	A9A9979
Depth (m)			0.05 – 0.64	0.6 – 1.2	0.1 – 0.6	0.1 – 0.6
BTEX						
Benzene	0.03	0.03	0.037	0.69	0.056	0.051
Ethylbenzene	0.082	0.082	0.053	0.70	0.085	0.087
Toluene	0.37	0.37	0.12	1.4	0.19	0.17

Station ID	CWS for PHC		2-TP-8	FL-TP1	FL-TP4	FL-TP6	FL-TP8
Field label	Residential / Parkland (coarse, surface)	Commercial (coarse, surface)	2-TP-8	FL-TP1	FL-TP4	FL-TP6	FL-TP8
Sampled By			FRANZ 2009	JWEL 2006	JWEL 2006	JWEL 2006	JWEL 2006
Date			15/Aug/09	-	-	-	-
Lab report ID			A9A7367	-	-	-	-
Depth (m)			0.1 – 0.6	-	-	-	-
PHCs							
F2 (C10-C16)	150	260	6100	528	-	3780	2110
Metals							
Copper	63	91	-	-	851	-	-
Zinc	250	360	-	-	385	-	-



LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water Body
- Surface Water Flow
- Top edge of landfill
- FRANZ soil sample (2009); compliant with CCME guidelines
- FRANZ soil sample (2009); exceeds CCME guidelines
- FRANZ sediment sample (2009); compliant with CCME guidelines
- FRANZ sediment sample (2009); exceeds CCME guidelines
- JWEL soil sample (2006); compliant with CCME guidelines
- JWEL soil sample (2006); exceeds CCME guidelines
- JWEL borehole sample (2006); compliant w/ CCME guidelines
- JWEL borehole sample (2006); exceeds CCME guidelines

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Jacques Whitford (JWEL) analytical results for soil and sediment are in ug/g
JWEL sampling locations are shown for comparison purposes only
For more detail, see the Jacques Whitford (2006) report
Airport boundary derived from 2009 Official Site Survey (Appendix F)
CCME Soil Guidelines for commercial land use (coarse soil)
CCME Interim Sediment Quality Guidelines (ISQG, 2009)
FRANZ (2009) analytical results for soil and sediment are in ug/g
and can be found in Appendix H & I

Title: APEC 2 - Analytical Results for Soil and Sediment

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FIGURE 7

1747-0901/CAD/Resolute Bay ESA Feb 26/10

FRANZ (2009) SURFACE WATER

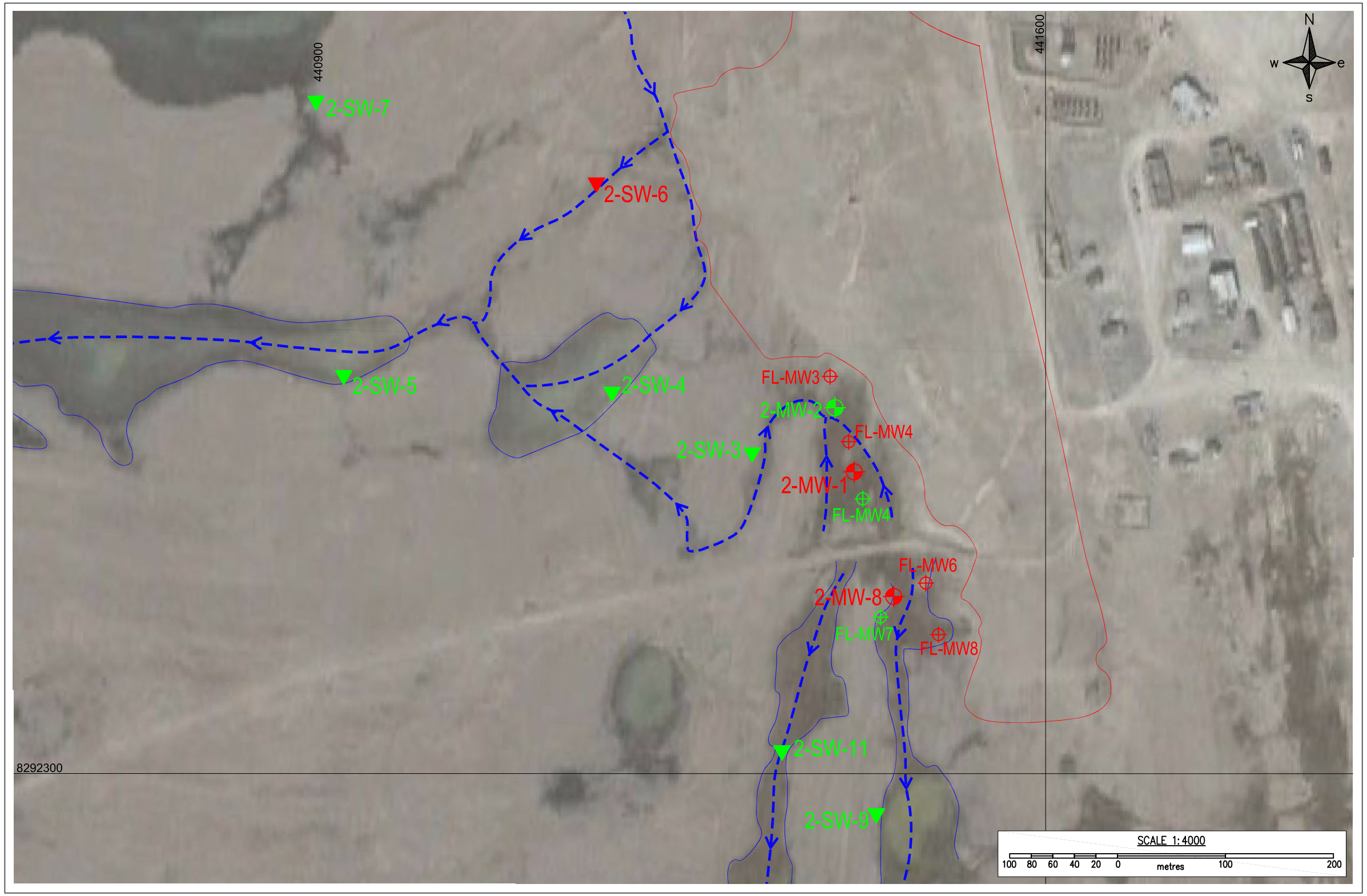
APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1
Station ID		2-SW-6	2-SW-17
Field label		2-SW-6	2-SW-17
Sampled By		FRANZ 2009	FRANZ 2009
Date		18-Aug-09	18-Aug-09
Lab report ID		A9A8511	A9A8632
Aluminum	5	12	9

FRANZ (2009) GROUNDWATER

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1
Station ID		2-MW-1	2-MW-8
Field label		2-MW-1	2-MW-8
Sampled By		FRANZ 2009	FRANZ 2009
Date		22-Aug-09	22-Aug-09
Lab report ID		A9A9979	A9A9979
Metals			
Cadmium	0.017	0.1	0.1
BTEX & PHCs			
Toluene	2	<0.2	17.0
PAHs			
Naphthalene	1.1	0.15	39.00

JWEL (2006) GROUNDWATER

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 1	APEC 1
Station ID		FL-MW3	FL-MW4	FL-MW6	FL-MW8
Field label		FL-MW3	FL-MW4	FL-MW6	FL-MW8
Sampled By		JWEL 2006	JWEL 2006	JWEL 2006	JWEL 2006
BTEX/PHCs					
Toluene	2				79.1
Metals					
Aluminum	5		8		
Cadmium	0.017	0.02		0.02	
Copper	4		5		



LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water Body
- Surface Water Flow
- FRANZ surface water sample (2009); compliant w/ CCME guidelines
- FRANZ surface water sample (2009); exceeds CCME guidelines
- FRANZ groundwater sample (2009); compliant with CCME guidelines
- FRANZ groundwater sample (2009); exceeds CCME guidelines
- JWEL groundwater sample (2006); compliant w/ CCME guidelines
- JWEL groundwater sample (2006); exceeds CCME guidelines

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Jacques Whitford (JWEL) analytical results for water are in ug/L and are shown for comparison purposes only
For more detail, see the Jacques Whitford (2006) report
Airport boundary derived from 2009 Official Site Survey (Appendix F)
CCME Water Quality Guidelines for the Protection of Aquatic Life (2009)
FRANZ (2009) analytical results for water are in ug/L and can be found in Appendix H & I

Title:
APEC 2 - Analytical Results for Surface Water & Groundwater

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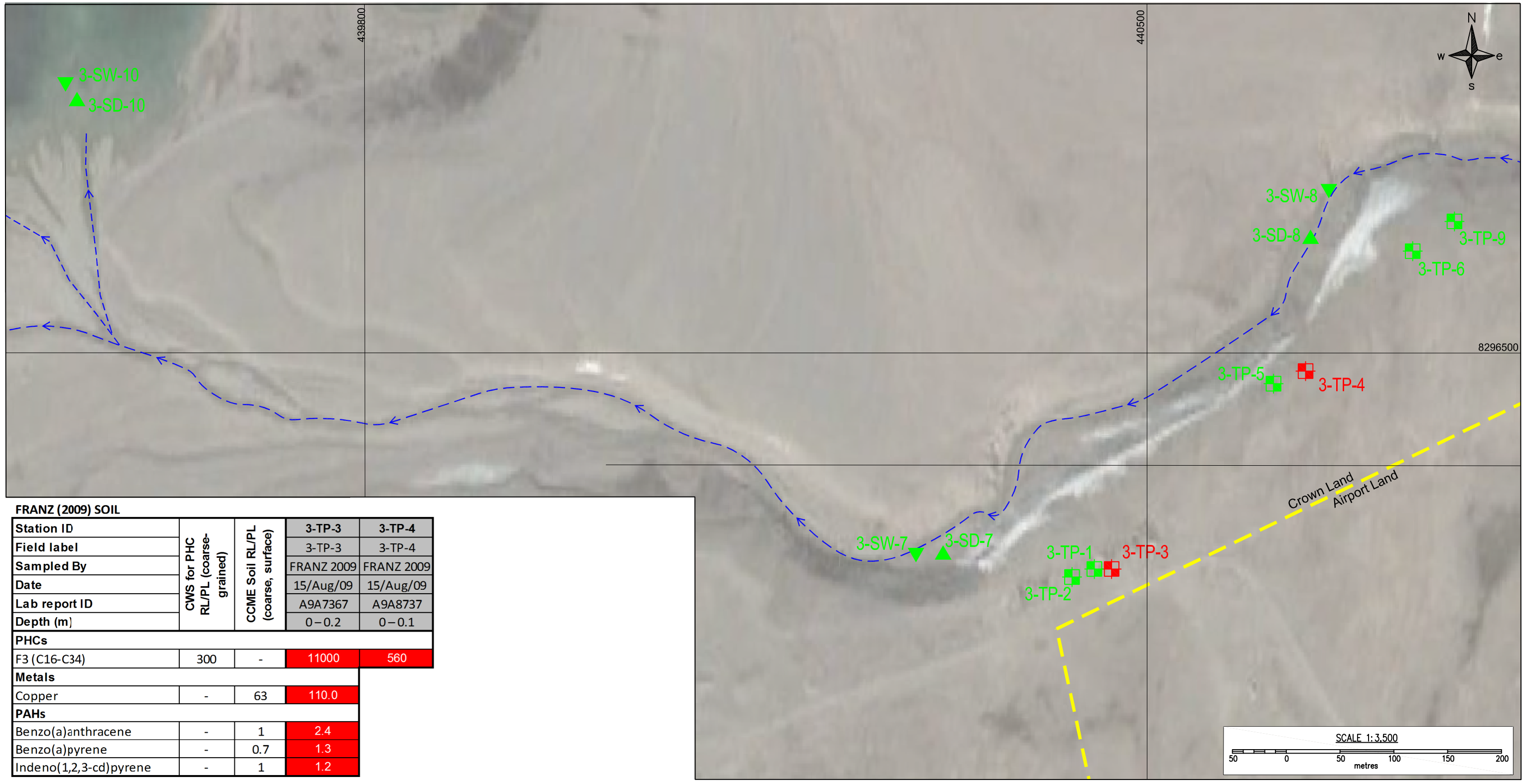
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FIGURE 8

1747-0901/CAD/Resolute Bay ESA Feb 26/10



FRANZ (2009) SOIL

Station ID	CWS for PHC RL/PL (coarse-grained)	CCME Soil RL/PL (coarse, surface)	3-TP-3	3-TP-4
Field label			3-TP-3	3-TP-4
Sampled By			FRANZ 2009	FRANZ 2009
Date			15/Aug/09	15/Aug/09
Lab report ID			A9A7367	A9A8737
Depth (m)			0 – 0.2	0 – 0.1
PHCs				
F3 (C16-C34)	300	-	11000	560
Metals				
Copper	-	63	110.0	
PAHs				
Benzo(a)anthracene	-	1	2.4	
Benzo(a)pyrene	-	0.7	1.3	
Indeno(1,2,3-cd)pyrene	-	1	1.2	

LEGEND

- Landfill Extent
- Airport Property Boundary
- Surface Water Flow
- FRANZ (2009) Soil Sample (TP); compliant with CCME guidelines
- FRANZ (2009) Soil Sample; exceeds CCME guidelines
- FRANZ (2009) Sediment Sample (SD); compliant with CCME guidelines
- FRANZ (2009) Surface Water Sample (SW); compliant with CCME guidelines

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Airport boundary derived from 2009 Official Site Survey (Appendix F)
CCME Soil Guidelines for residential land use (coarse soil)
FRANZ (2009) analytical results for soil and sediment are in ug/g and can be found in Appendix H & I

Title:
APEC 3 - Analytical Results for Soil, Sediment, Surface Water

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FINAL REPORT

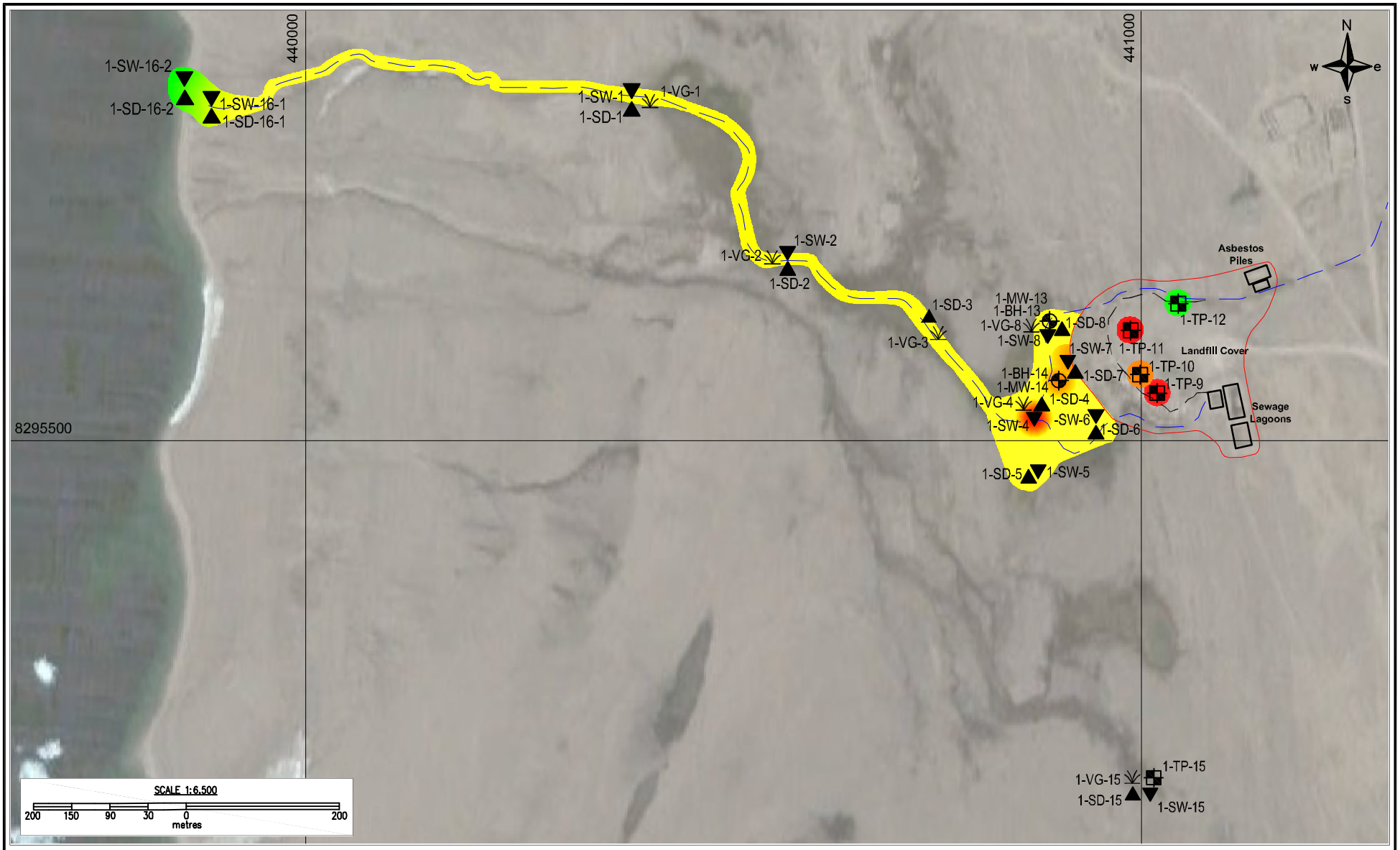
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FIGURE 9

1747-0901/CAD/Resolute Bay ESA Feb 26/10



LEGEND

- Landfill Extent
- Surface Water Flow
- Soil Sample (TP)
- Borehole / Monitoring Well
- Surface Water (SW)
- Sediment Sample (SD)
- Vegetation Sample (VG)

	CONCENTRATIONS		
	SOIL (ug/g)	SURFACE WATER (ug/L)	GROUNDWATER (ug/L)
	> 63	> 4	> 4
	40 - 63	2 - 4	2 - 4
	20 - 40	1 - 2	1 - 2
	< 20	< 1	< 1

APPLICABLE GUIDELINES		
SOIL CCME Commercial	SURFACE WATER CCME Freshwater	GROUNDWATER CCME Freshwater
63 ug/g	4 ug/L	4 ug/L

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
All analytical results can be found in Appendices H & I

Title: APEC 1 - Copper Spatial Analysis

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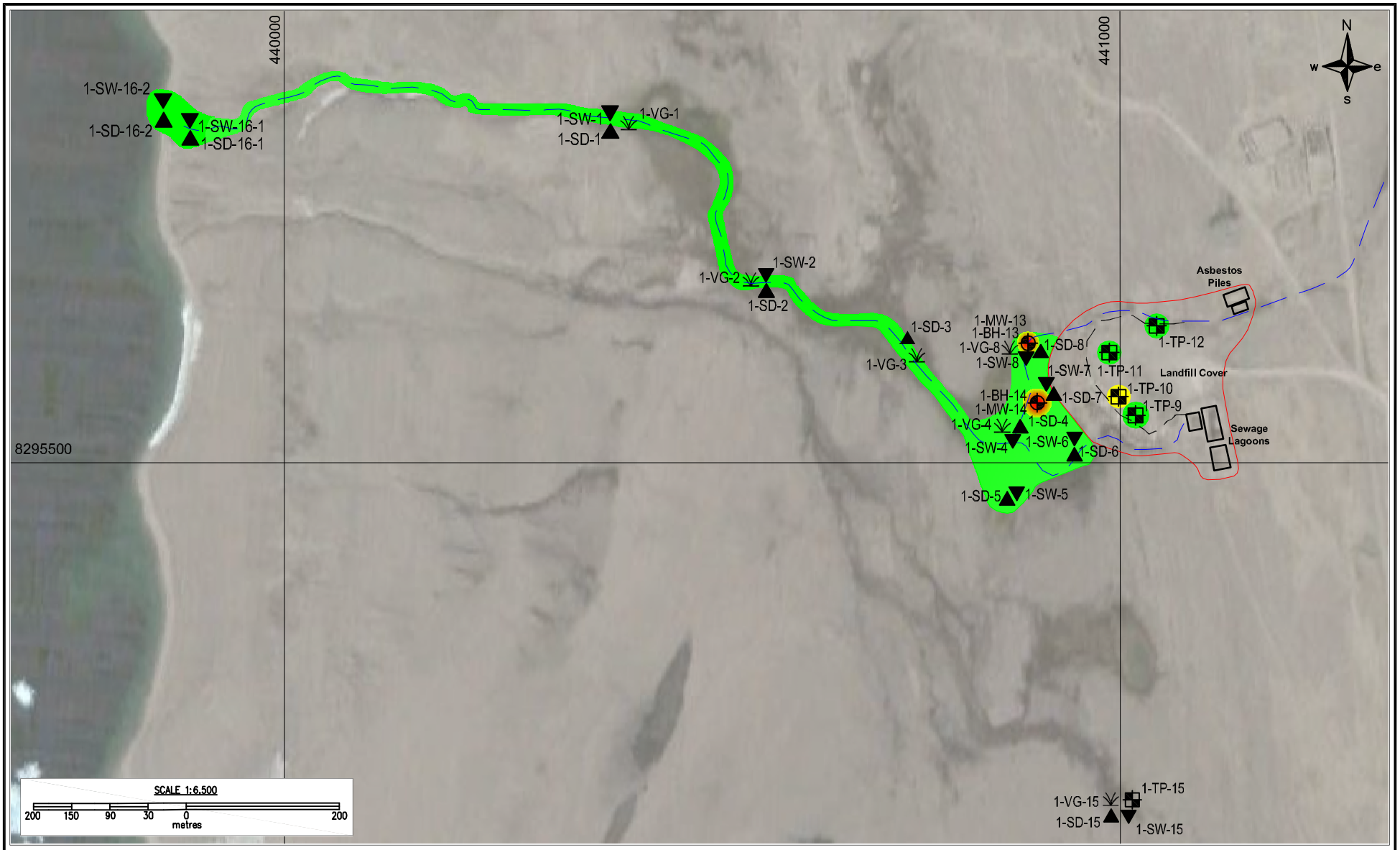
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Scale: 1 : 6,500

FIGURE 10



LEGEND

- Landfill Extent
- Surface Water Flow
- Soil Sample (TP)
- Borehole / Monitoring Well
- Surface Water (SW)
- Sediment Sample (SD)
- Vegetation Sample (VG)

CONCENTRATIONS	SOIL (ug/g)	SURFACE WATER (ug/L)	GROUNDWATER (ug/L)
	> 0.03	>370	>370
	0.02 - 0.03	200 - 370	200 - 370
	0.01 - 0.02	100 - 200	100 - 200
	< 0.01	< 100	< 100

APPLICABLE GUIDELINES	SOIL CCME Commercial	SURFACE WATER CCME Freshwater	GROUNDWATER CCME Freshwater
	0.03 ug/g	370 ug/L	370 ug/L

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
All analytical results can be found in Appendices H & I

Title: APEC 1 - Benzene Spatial Analysis

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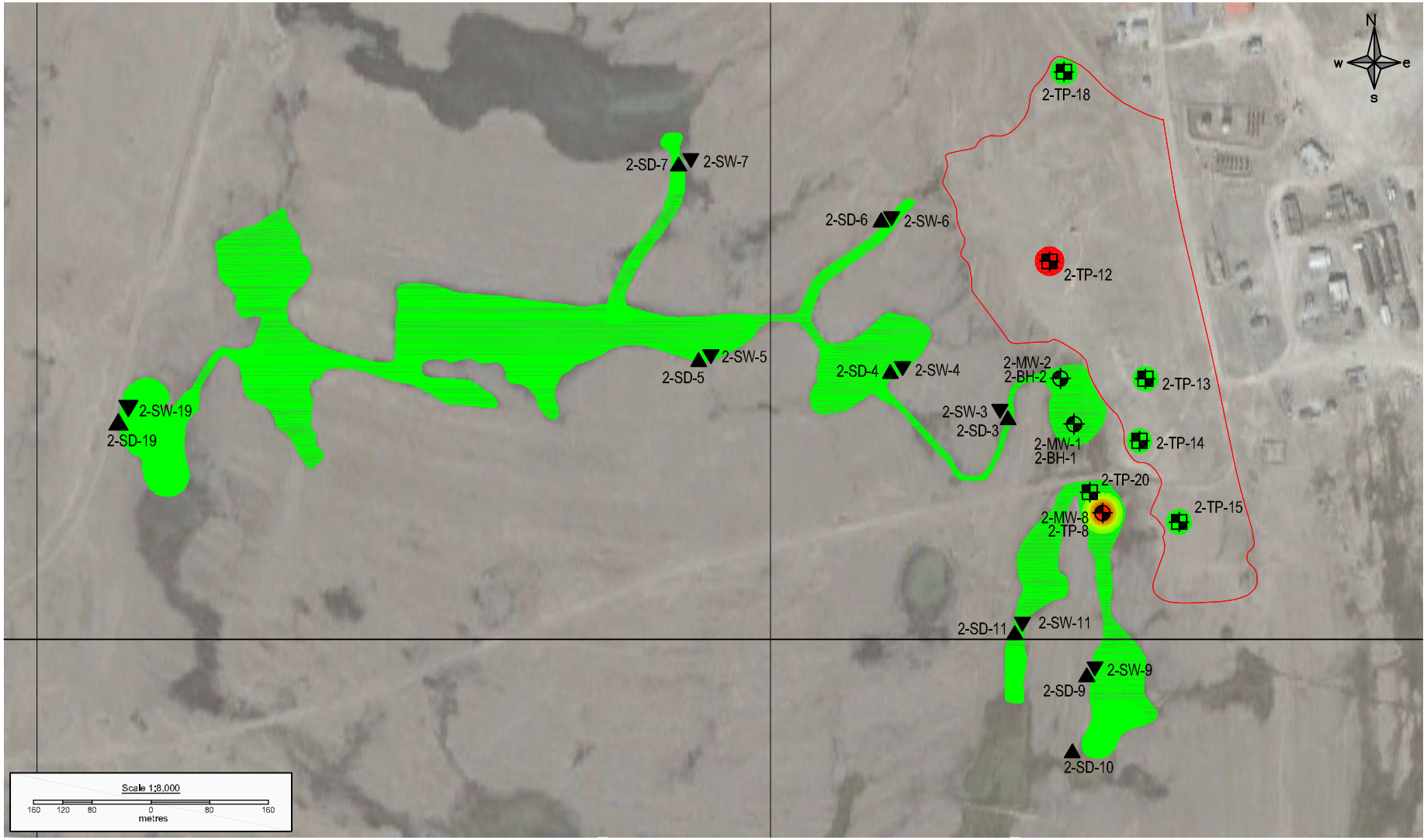
Date: MARCH 2010

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Scale: 1 : 6,500

FIGURE 11

1747-0901 Resolute Bay Spatial Analysis Mar 2/10



LEGEND

- Landfill Extent
- Surface Water Flow
- Soil Sample (TP)
- Borehole / Monitoring Well
- Surface Water (SW)
- Sediment Sample (SD)
- Vegetation Sample (VG)

	CONCENTRATIONS		
	SOIL (ug/g)	SURFACE WATER (ug/L)	GROUNDWATER (ug/L)
	> 0.37	> 2	> 2
	0.2 - 0.37	1 - 2	1 - 2
	0.1 - 0.2	0.5 - 1	0.5 - 1
	< 0.1	< 0.5	< 0.5

APPLICABLE GUIDELINES		
SOIL CCME Commercial	SURFACE WATER CCME Freshwater	GROUNDWATER CCME Freshwater
0.37 ug/g	2 ug/L	2 ug/L

References:
Google Earth satellite Image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
All analytical results can be found in Appendices H & I

Title: APEC 2 - Toluene Spatial Analysis

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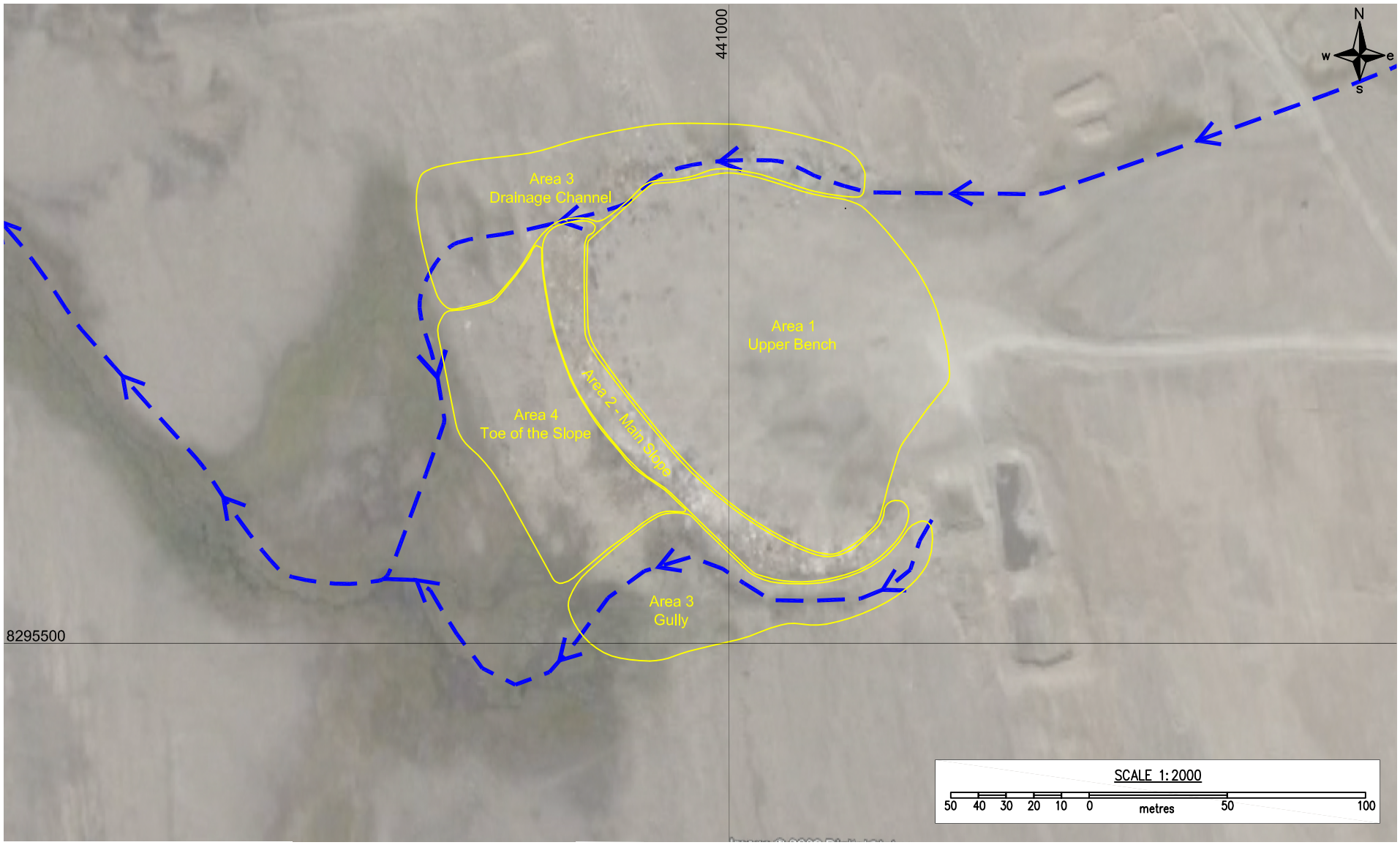
Date: MARCH 2010

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA; TRANSPORT CANADA

Scale: 1 : 5,500

FIGURE 12

170-0701/CAD/ES/Resolute Bay Spatial Analysis (2007).dwg



LEGEND

Geotechnical Assessment Area

Surface Water & Direction of Flow

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)

Title: AEC 1 - Geotechnical Assessment Areas

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Scale: 1 : 2,000

FIGURE 13

1747-0901/CAD/Resolute Bay ESA Feb 16/10



LEGEND

- Geotechnical Assessment Area
- Surface Water & Direction of Flow

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Airport boundary derived from 2009 Official Site Survey (Appendix F)

Title: AEC 2 - Geotechnical Assessment Areas

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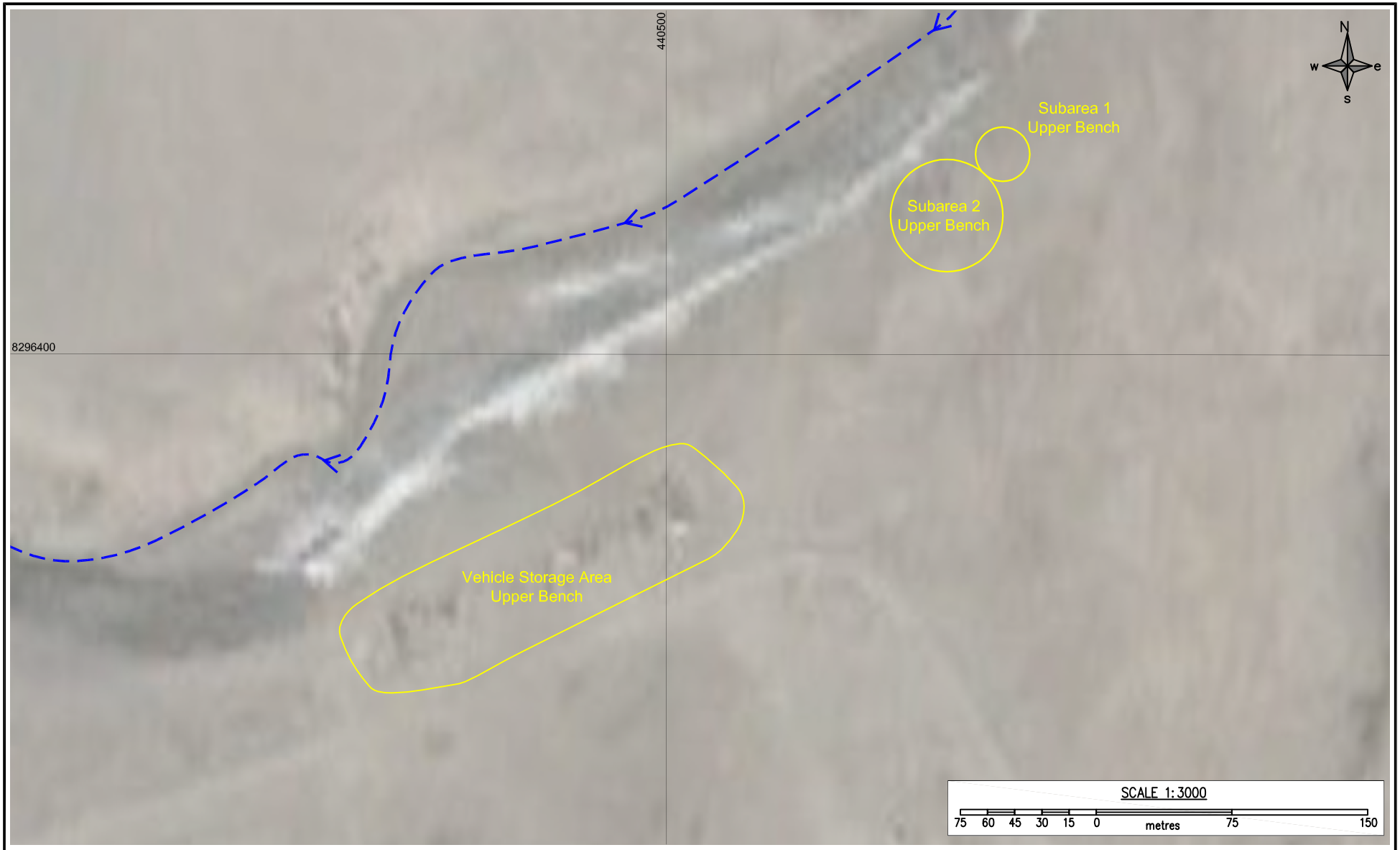
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Scale: 1 : 3,000

FIGURE 14

1747-0901/CAD/Resolute Bay ESA Feb 17/10



LEGEND

Geotechnical Assessment Area

Surface Water & Direction of Flow

References:
Google Earth satellite image, 2009
Site locations based on dGPS coordinates (UTM - NAD 83)
Airport boundary derived from 2009 Official Site Survey (Appendix F)

Title: AEC 3 - Geotechnical Assessment Areas

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

Project: RESOLUTE BAY AIRPORT LANDFILLS ENVIRONMENTAL SITE ASSESSMENT FINAL REPORT

Date: MARCH 2010

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA / TRANSPORT CANADA

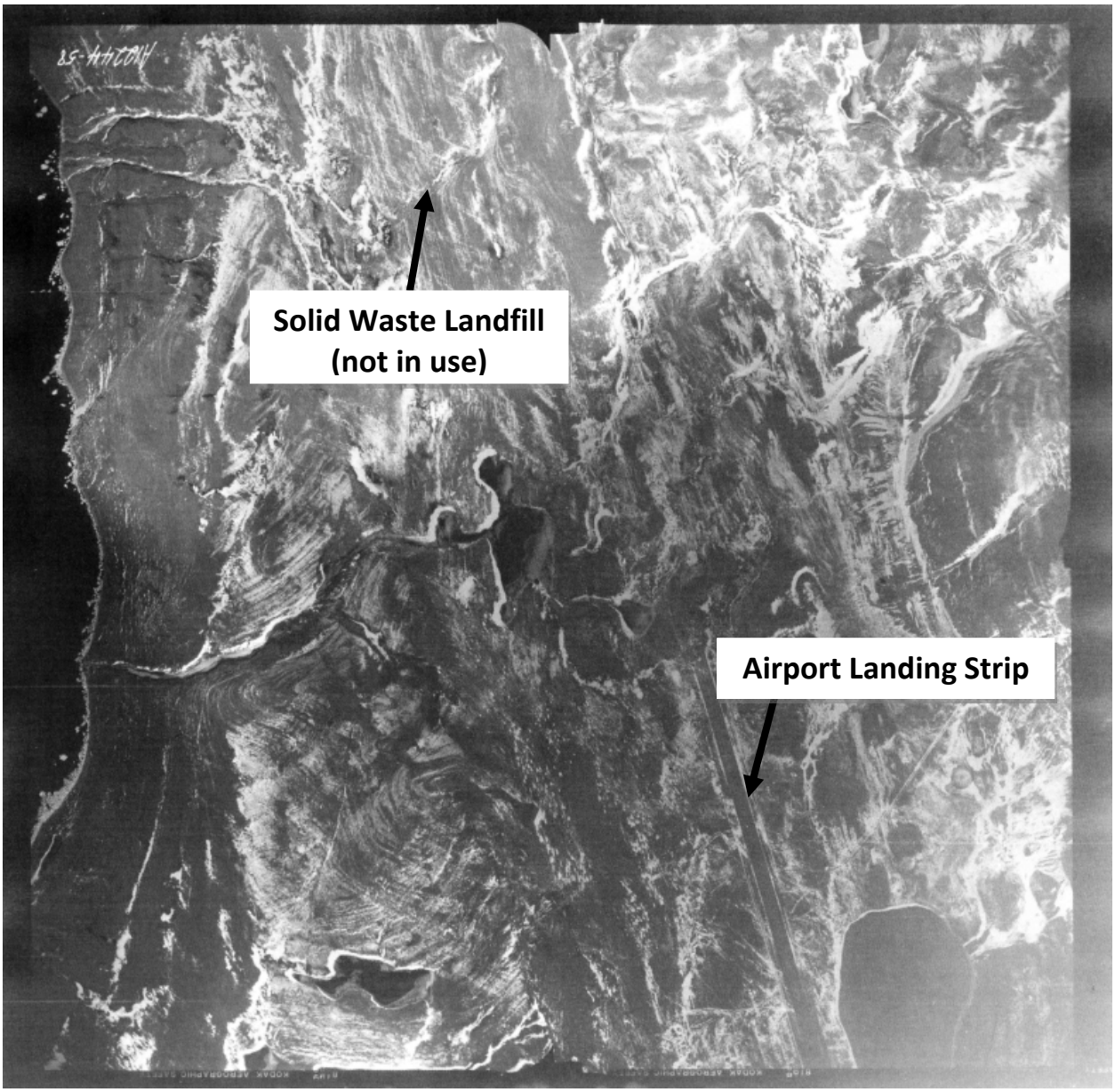
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FIGURE 15

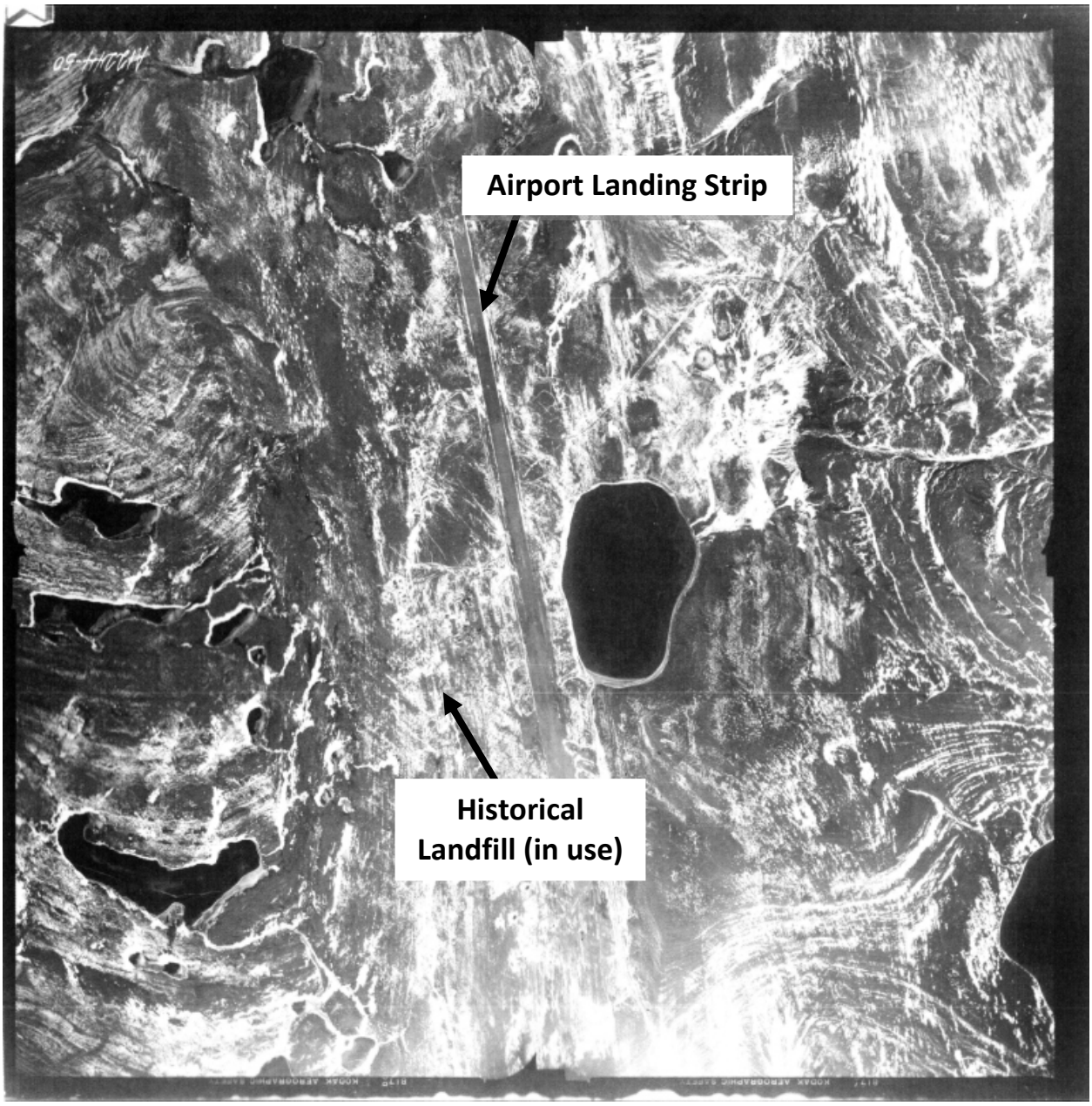
1747-0901/CAD/Resolute Bay ESA Feb 17/10

Appendix B

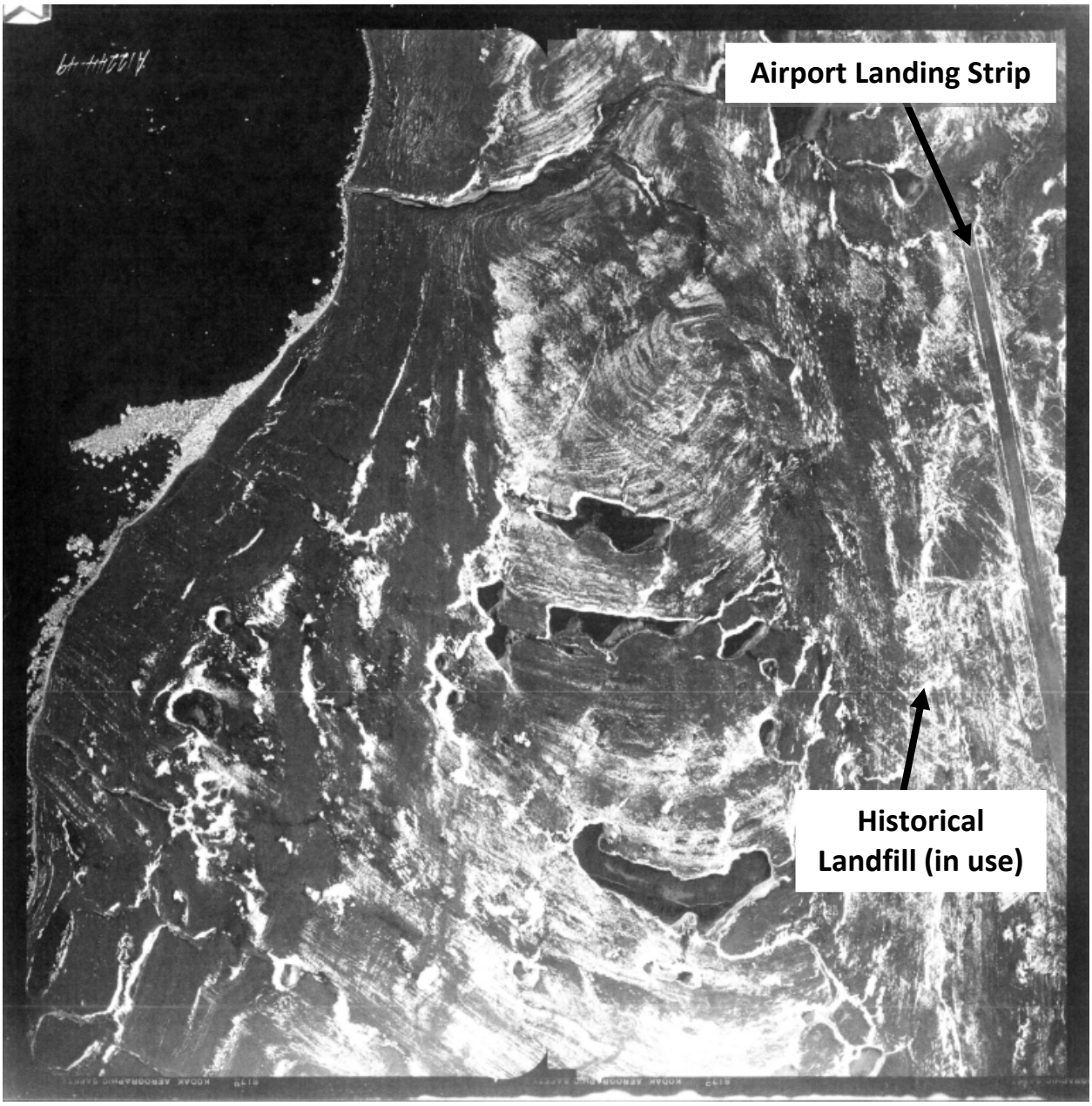
Aerial Photographs



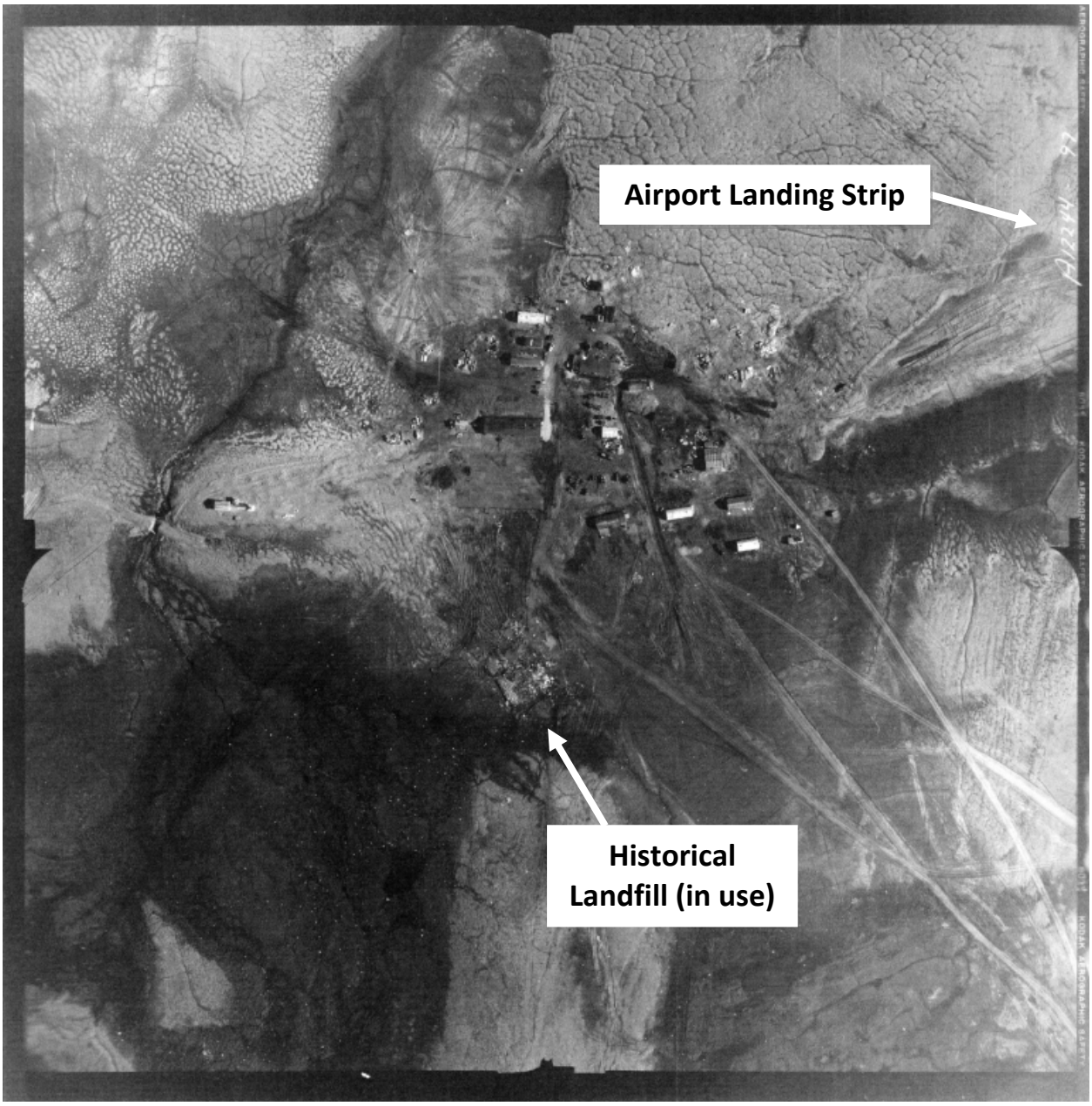
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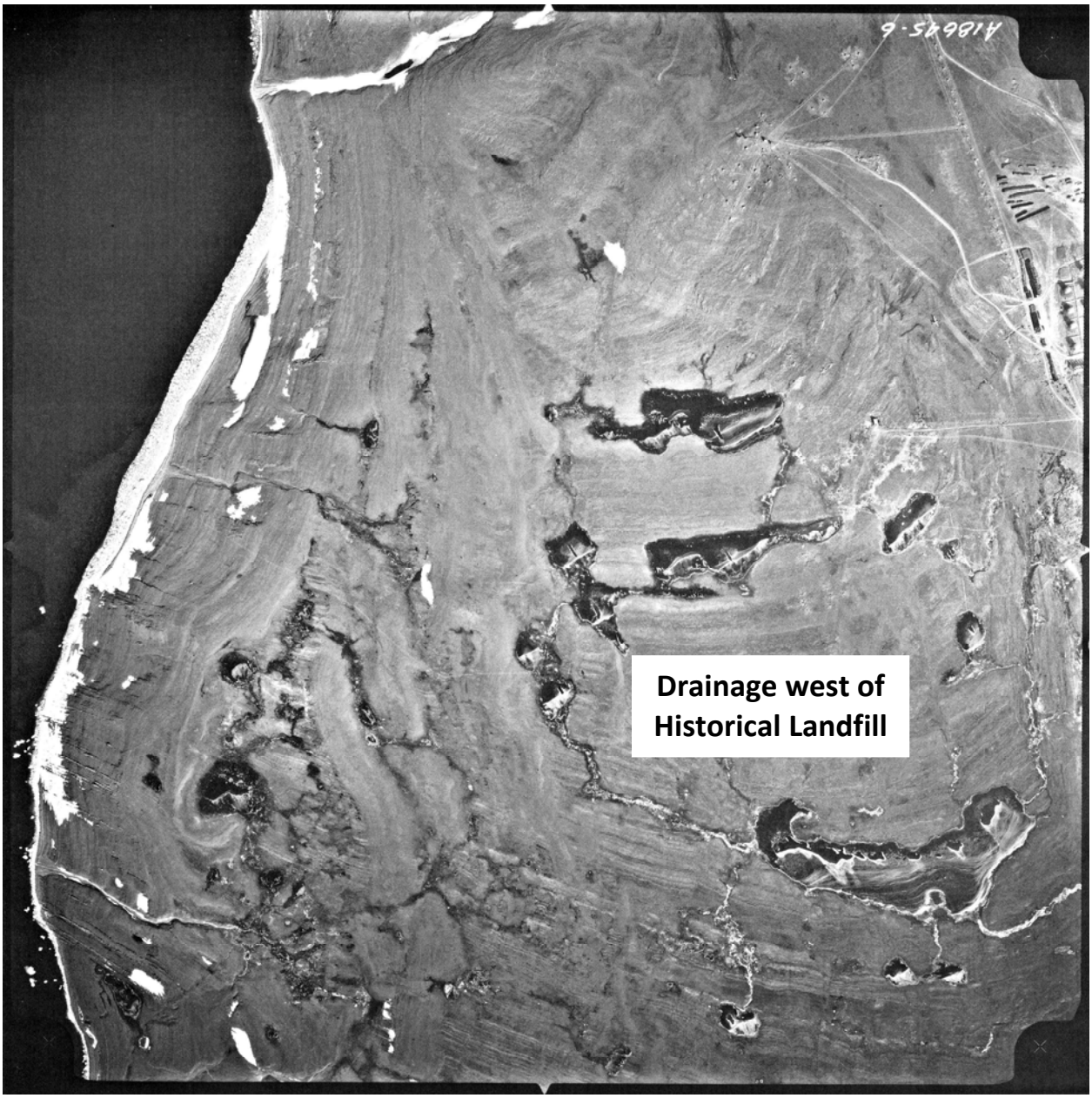
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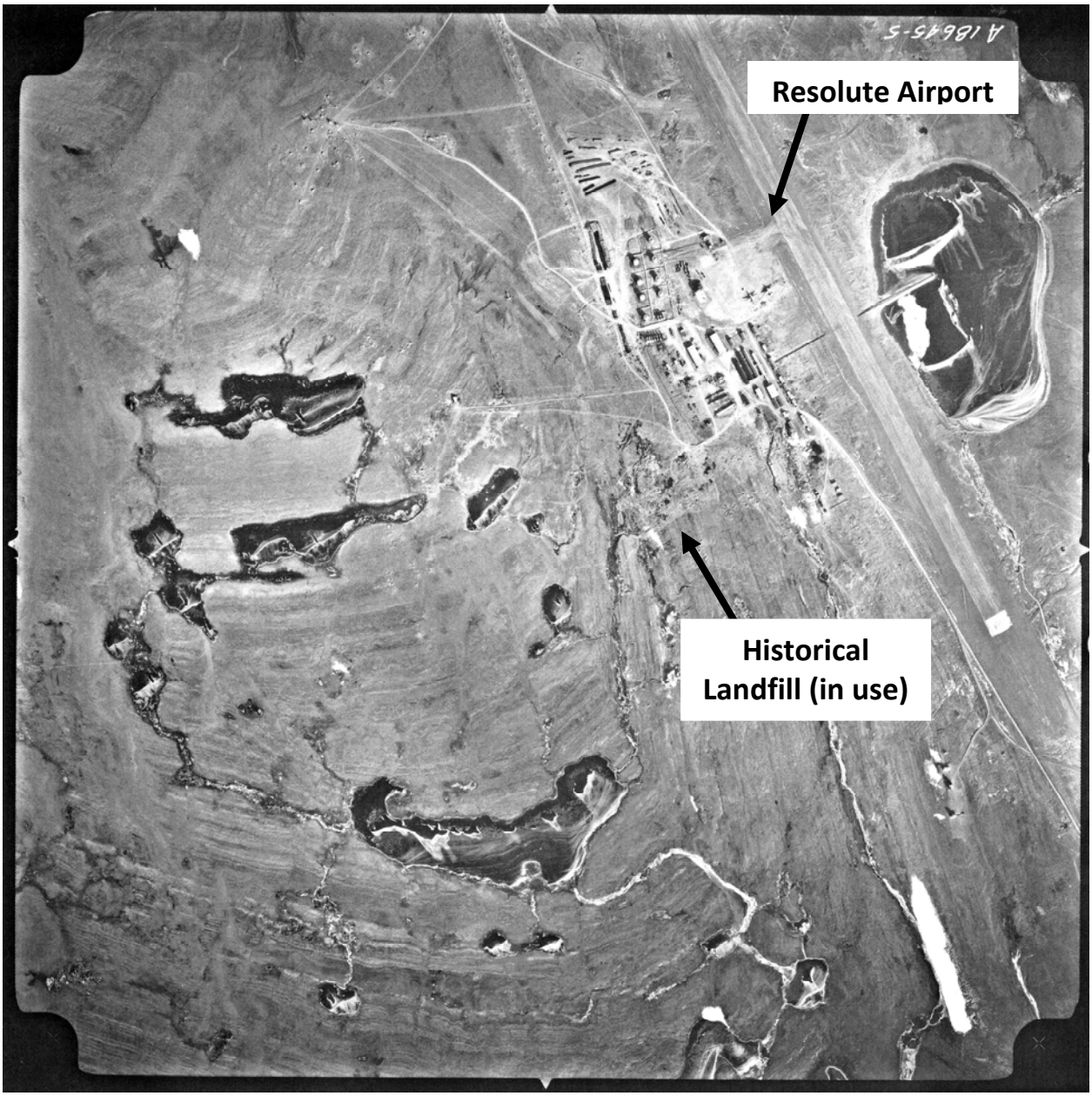
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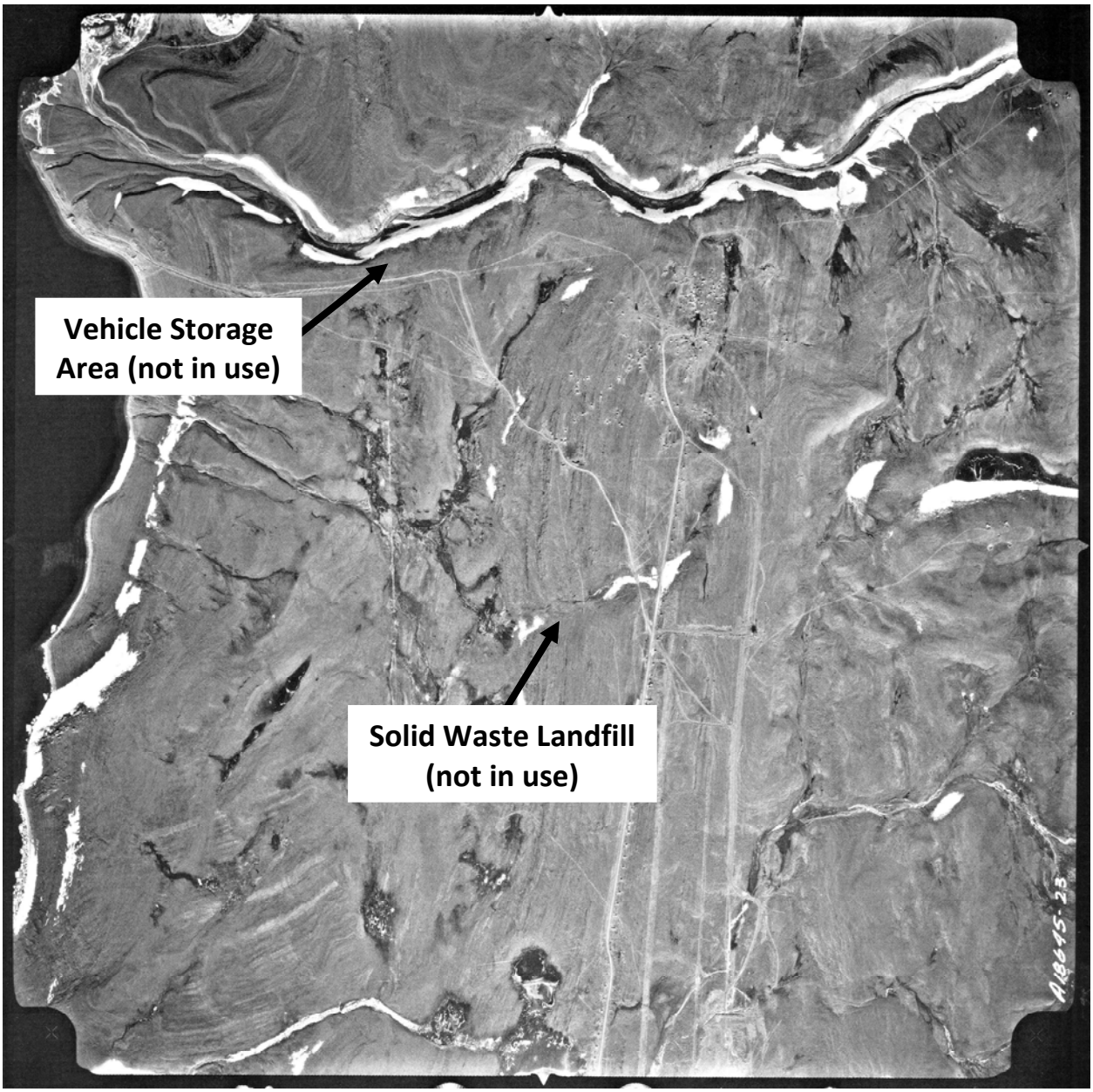
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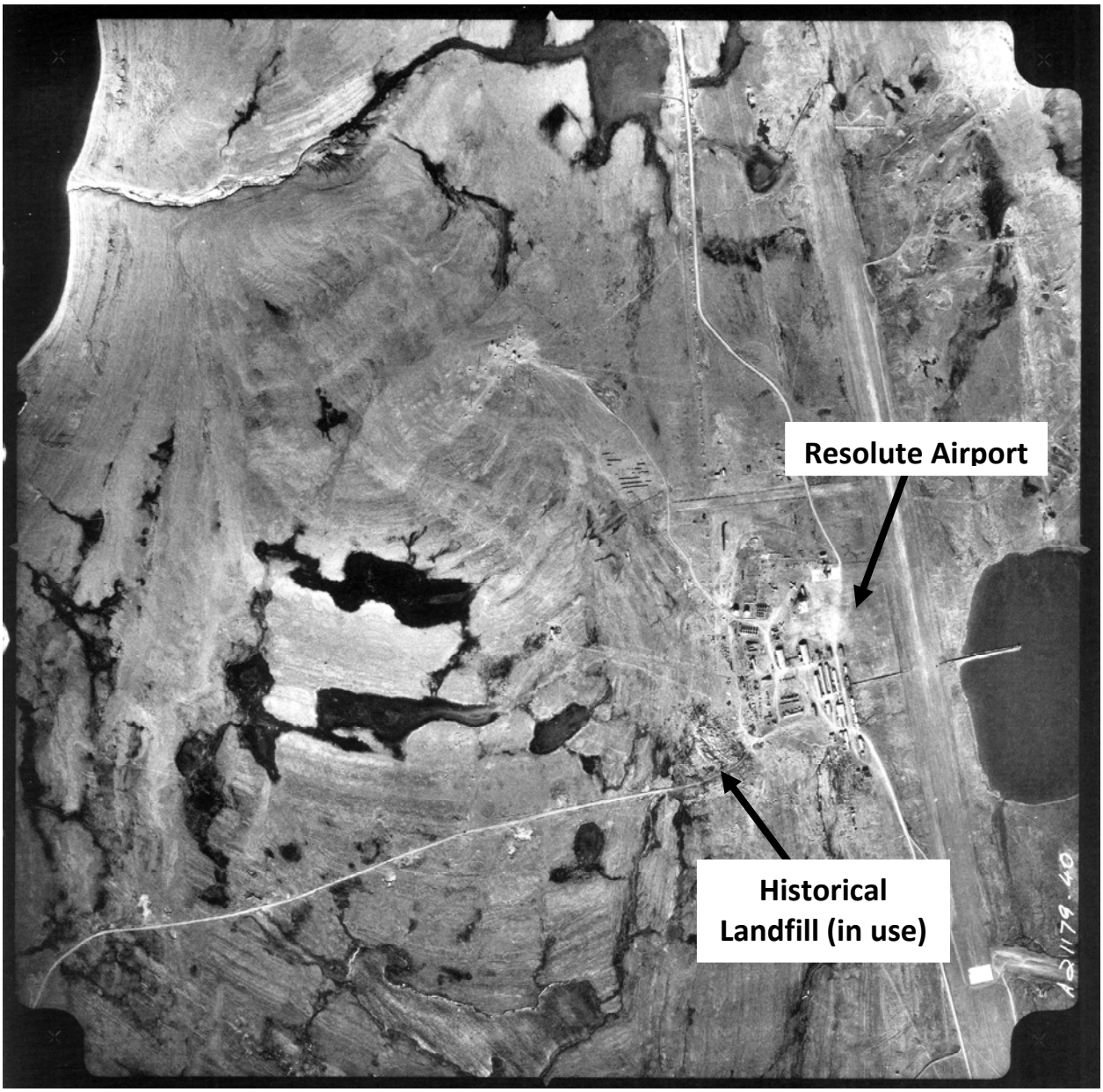
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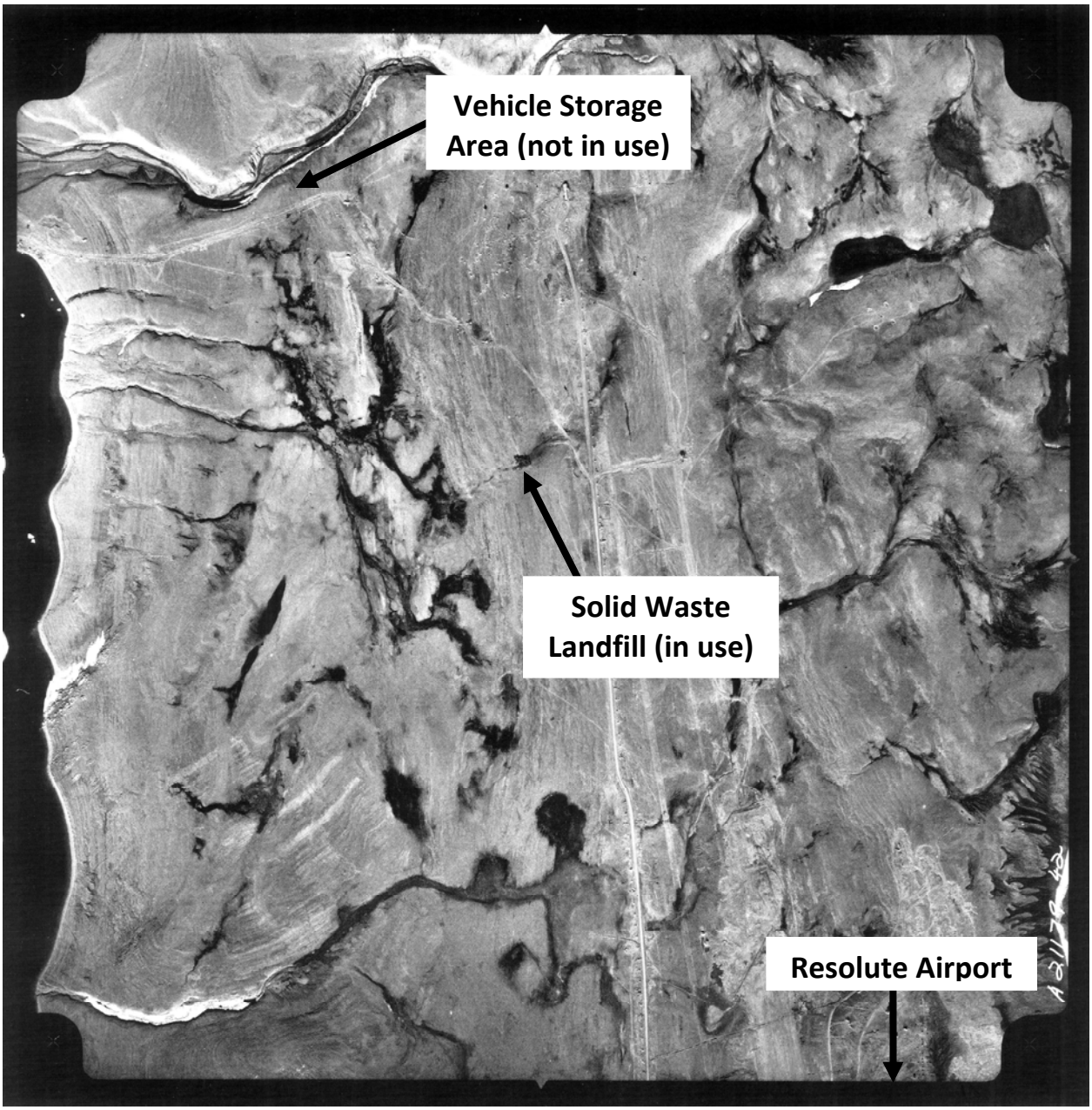
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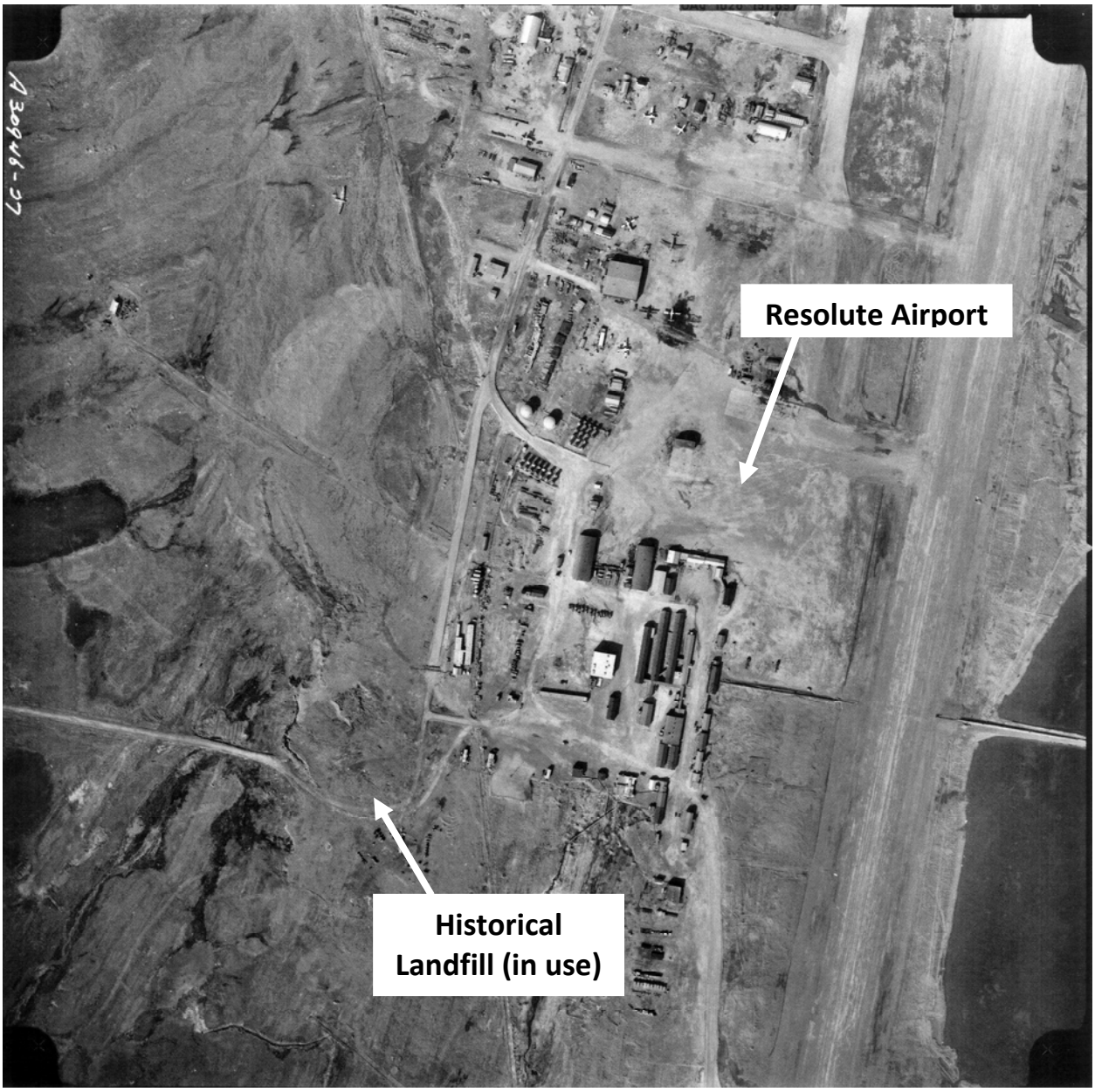
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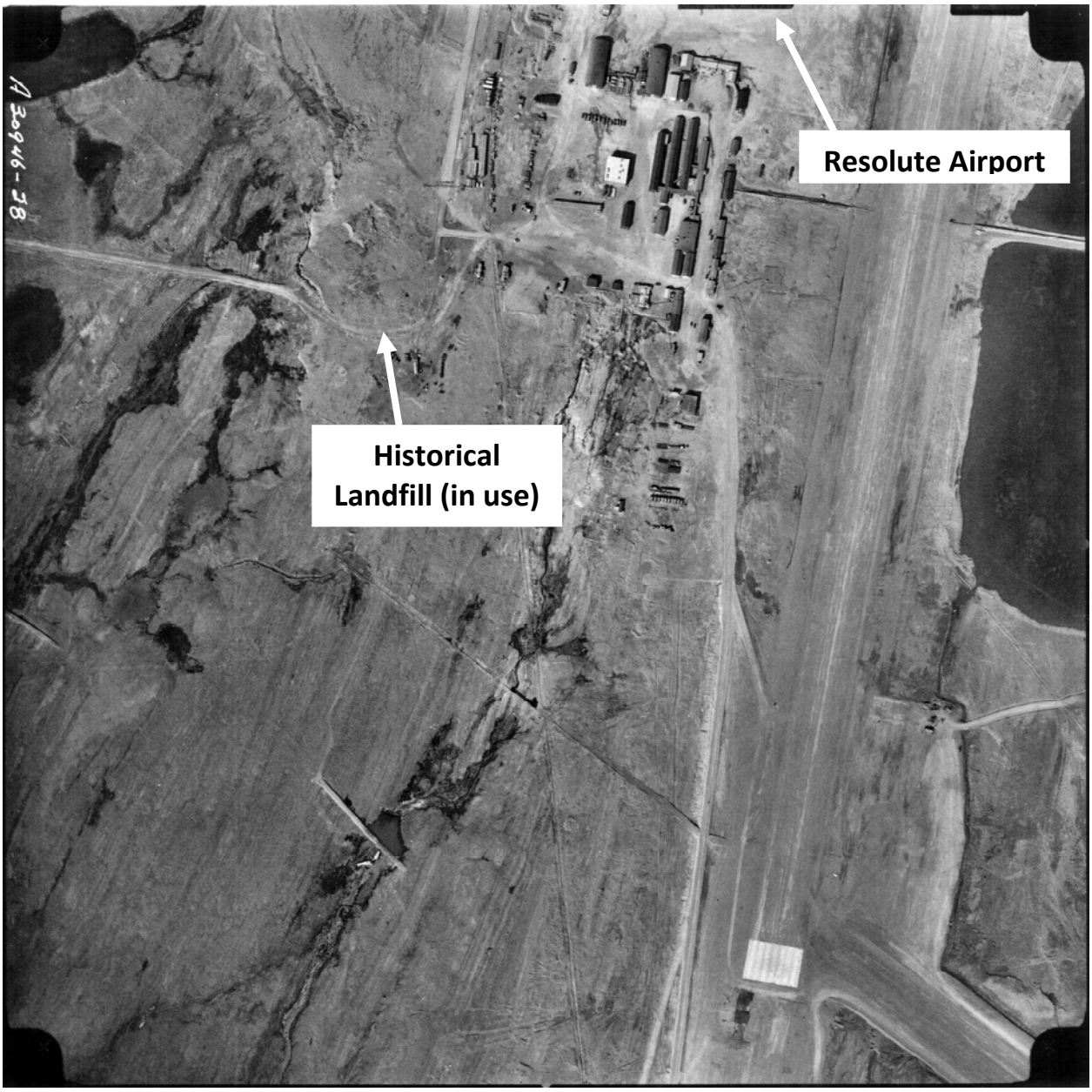
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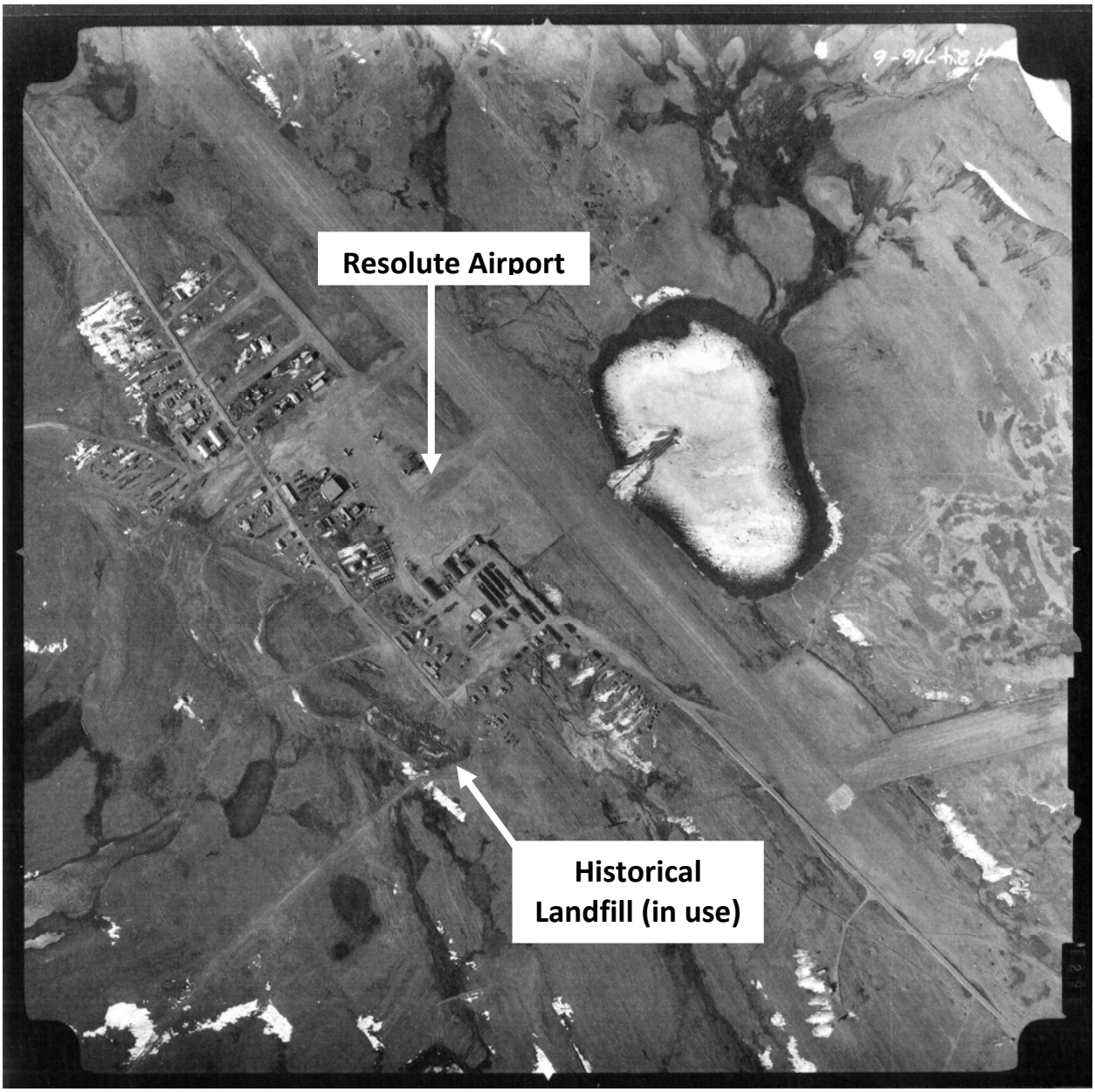
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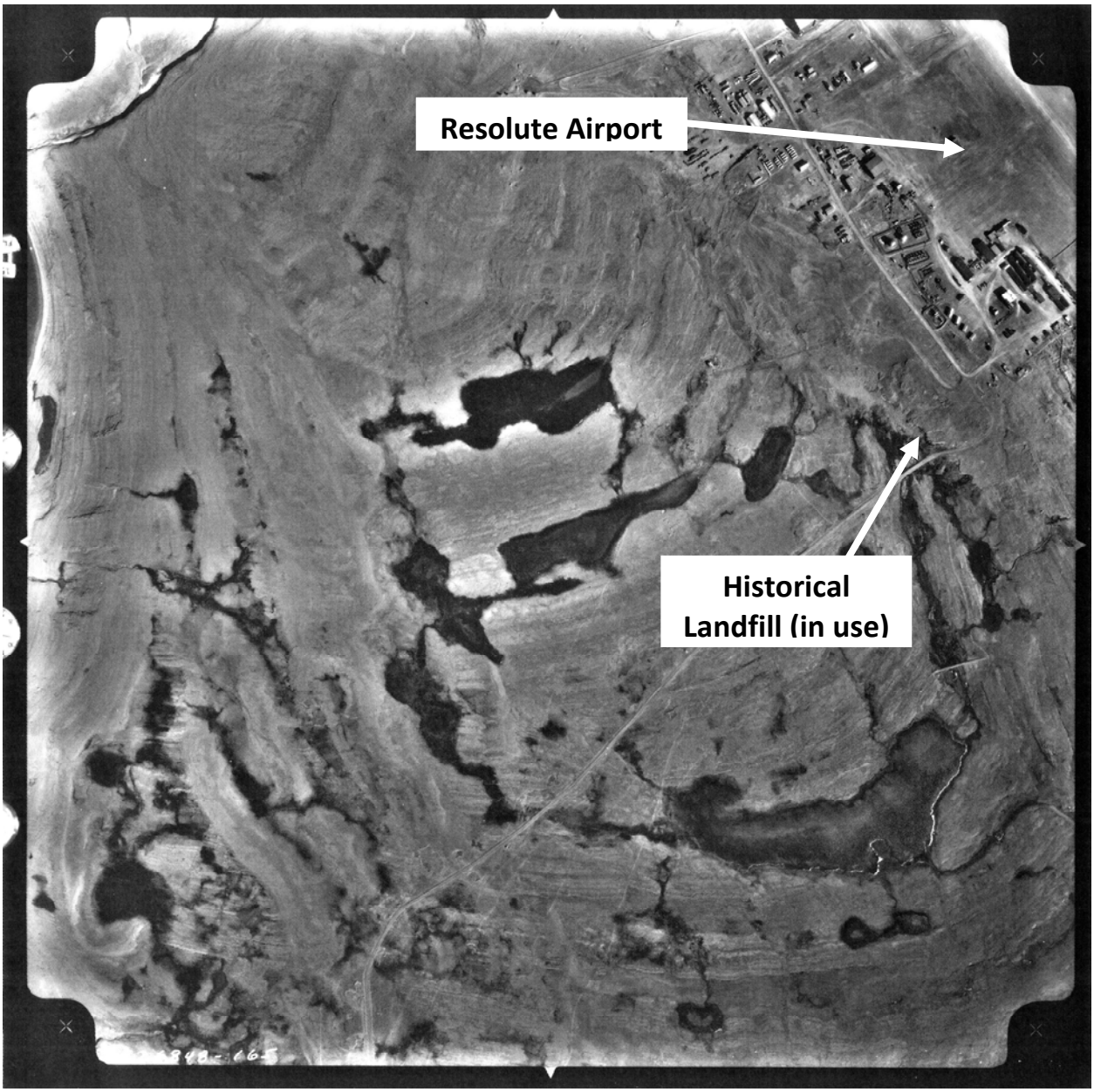
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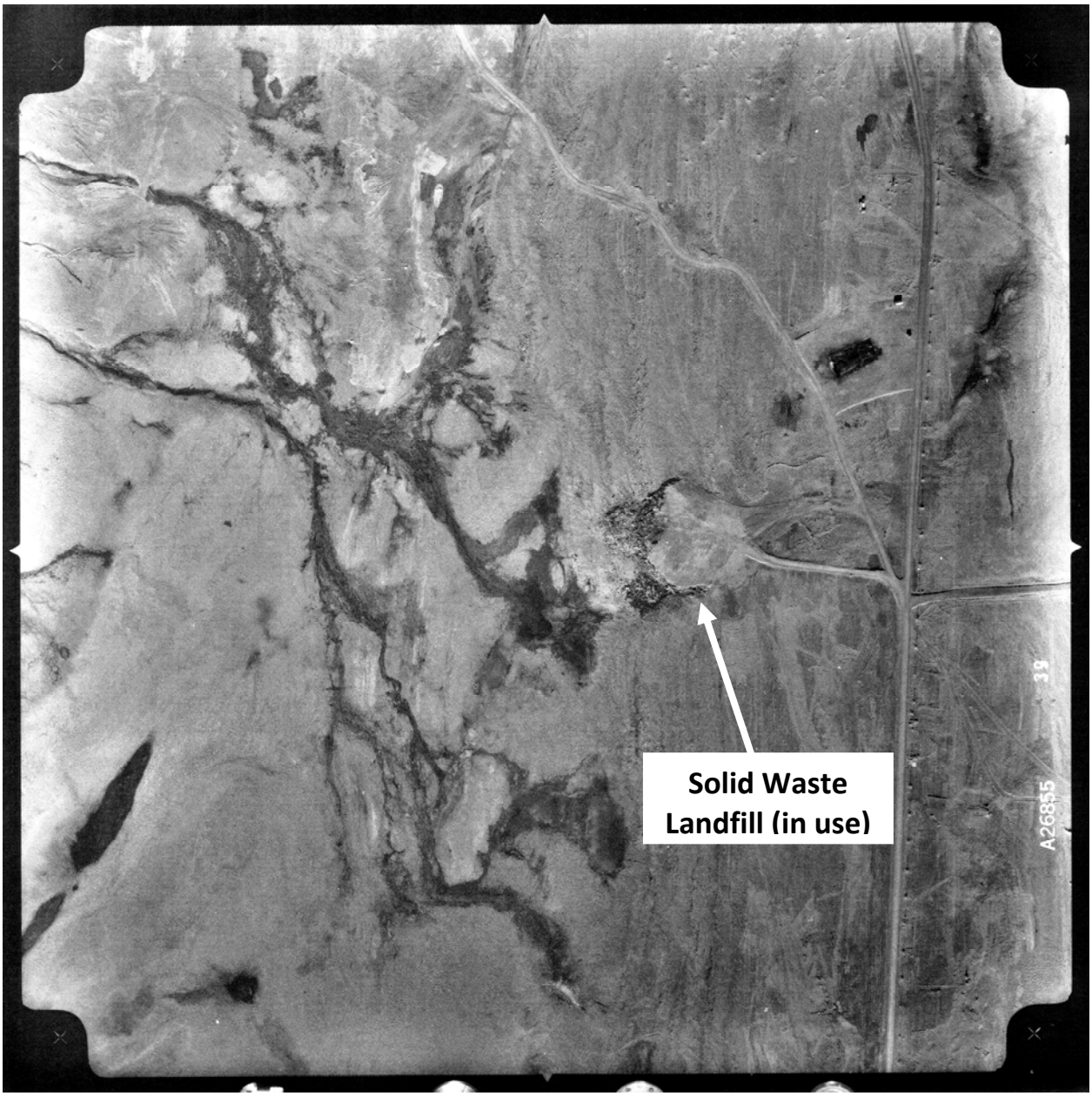
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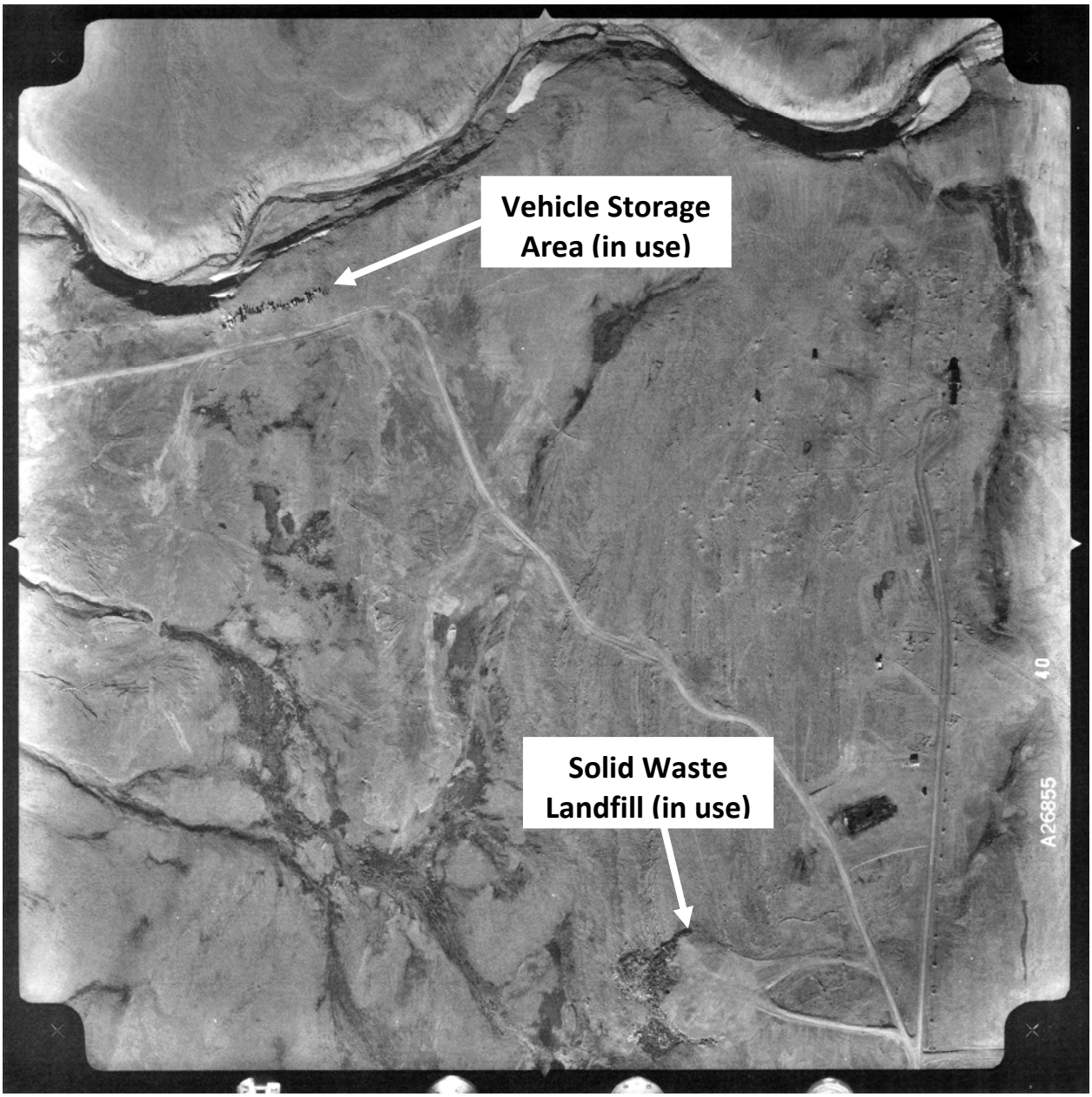
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Aerial Photograph Date: 1985
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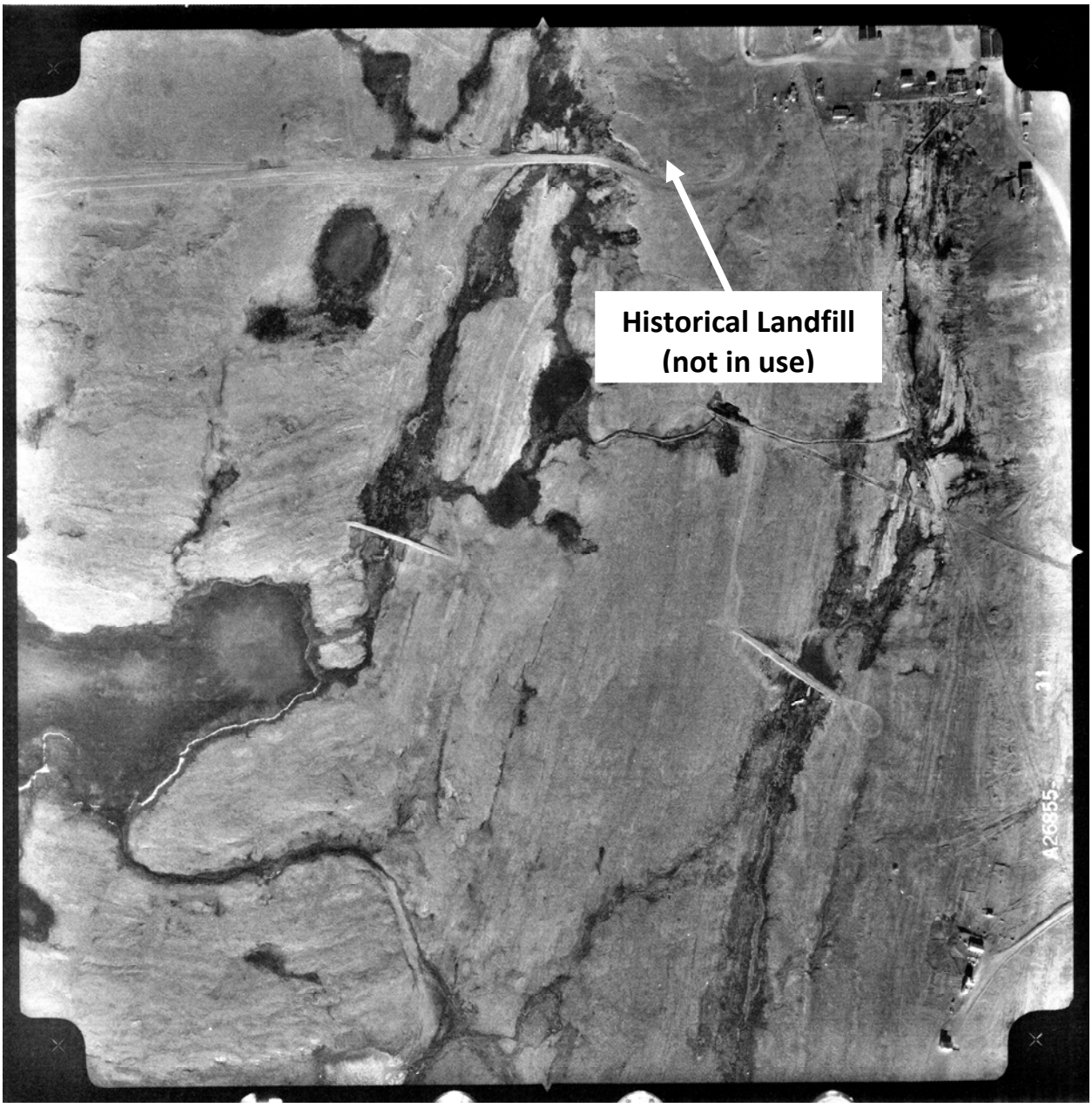
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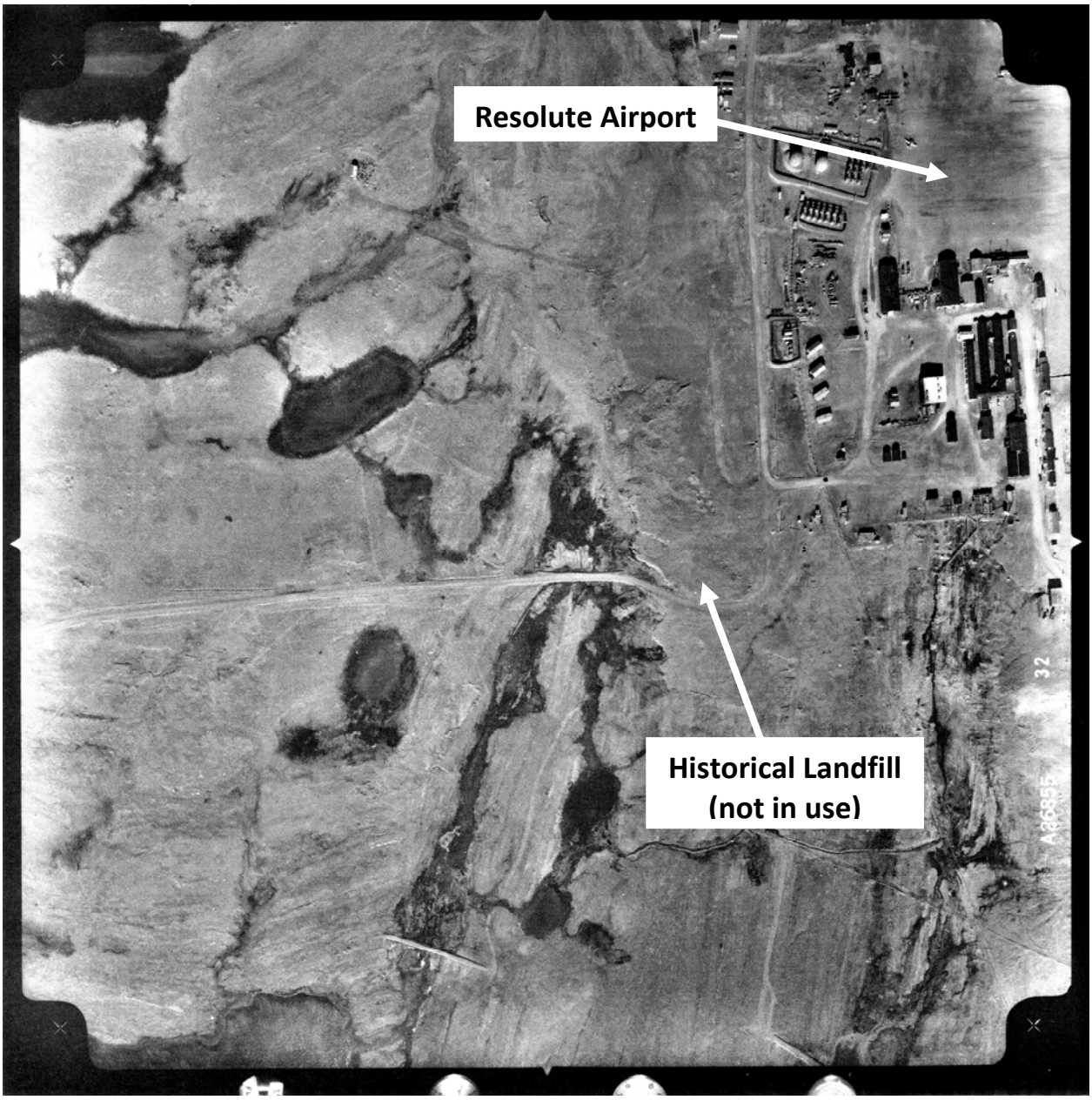
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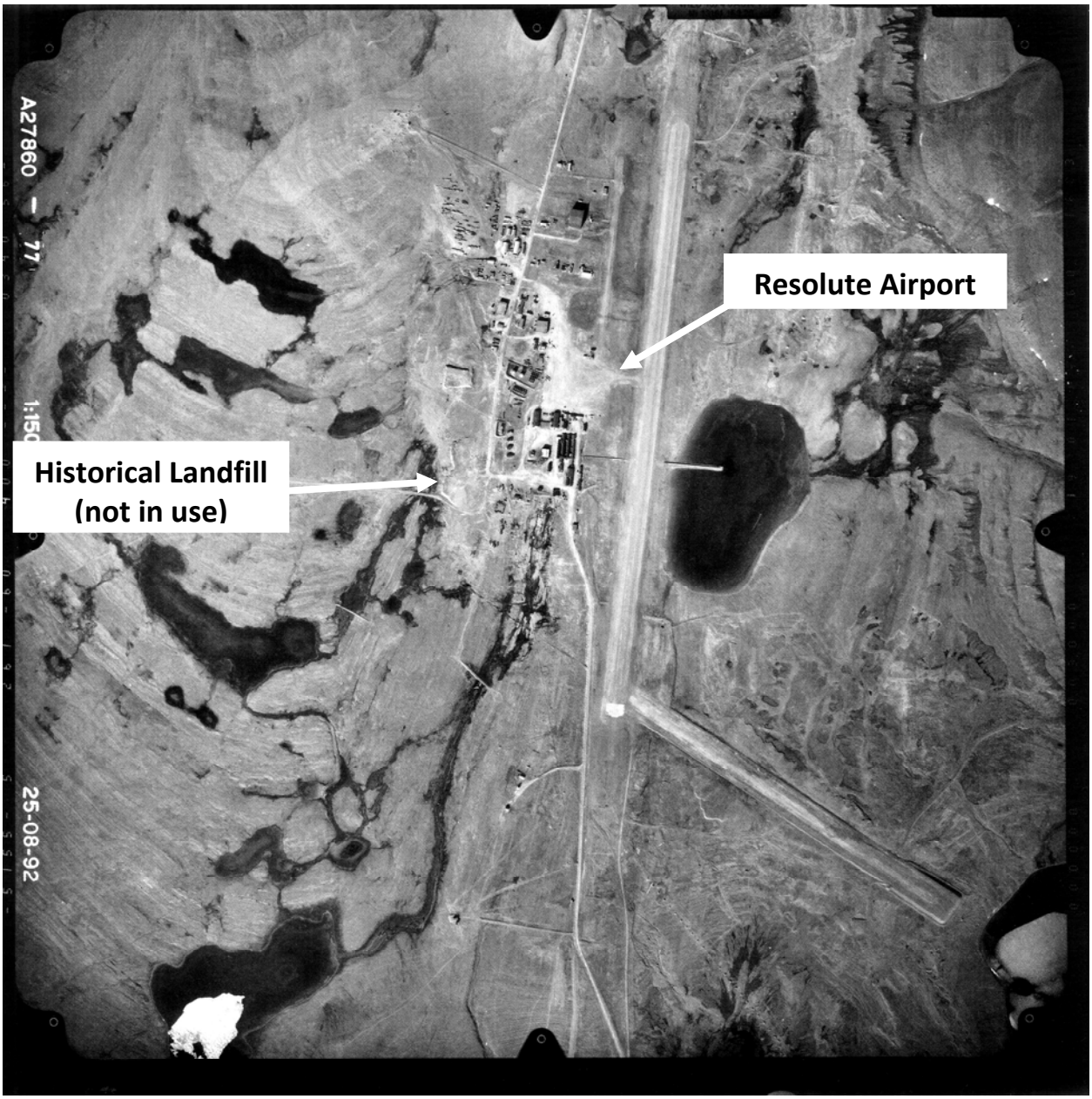
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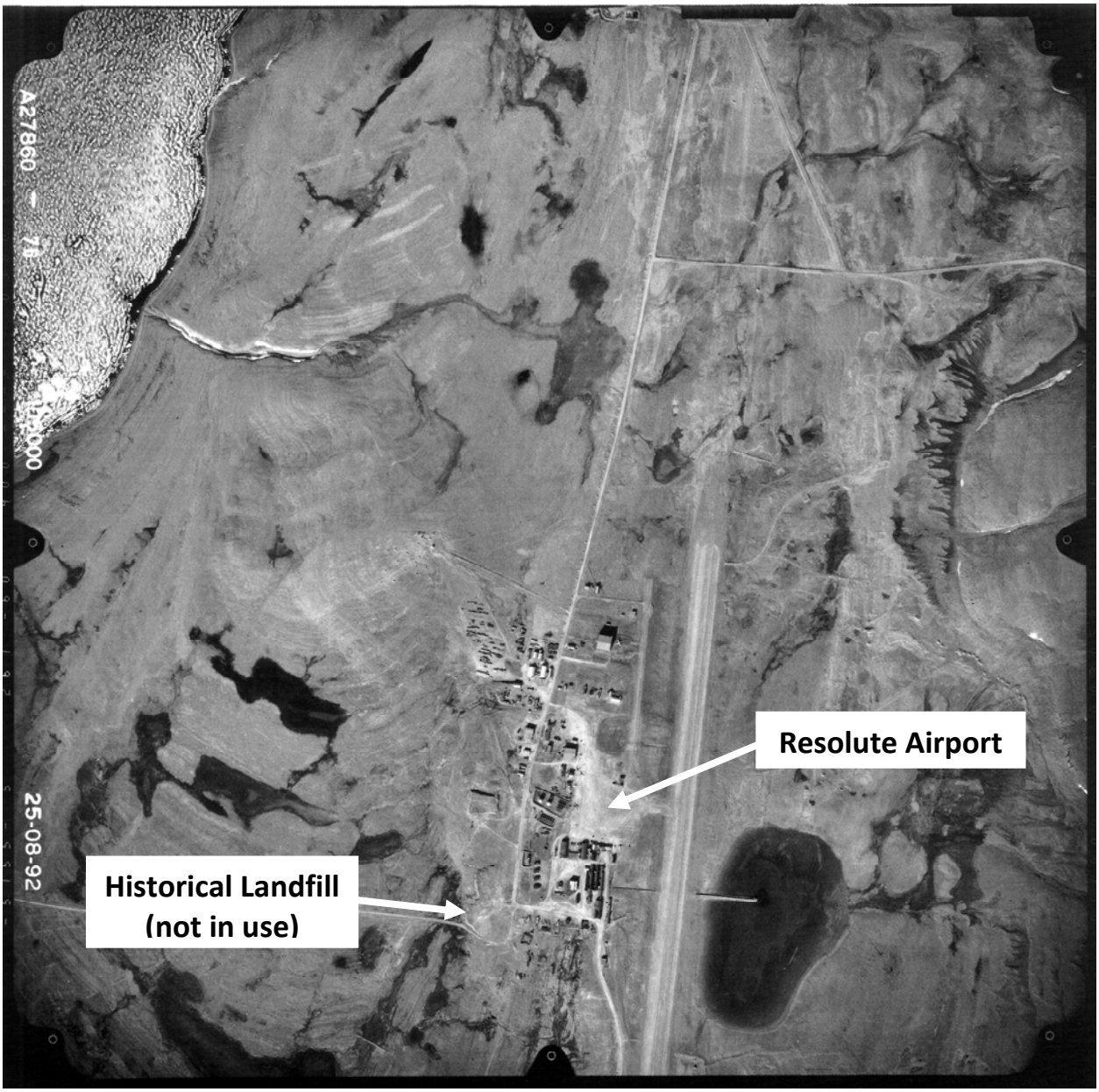
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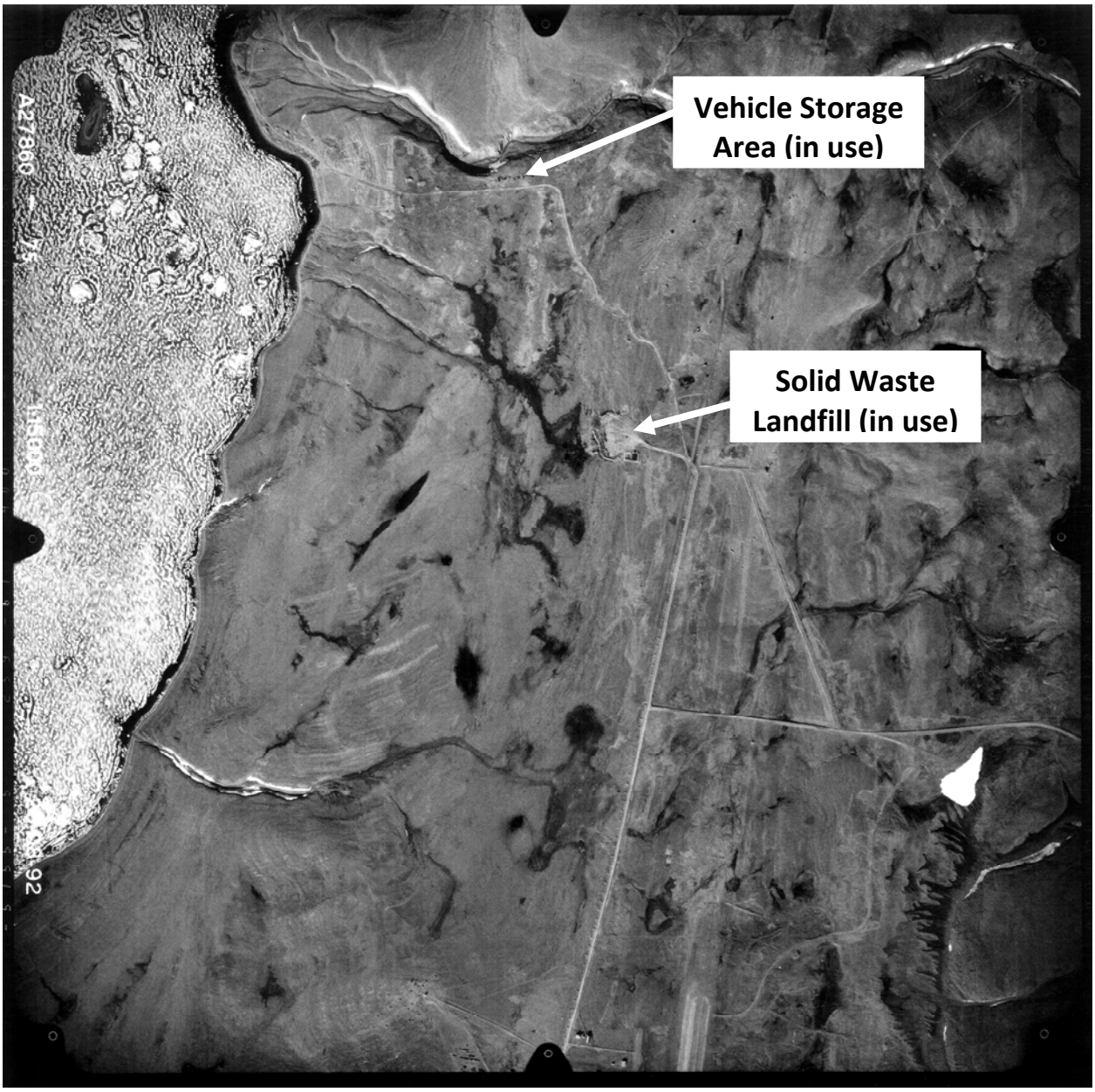
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Aerial Photograph Date: 1992
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Scale: 1: 15,000



Aerial Photograph Date: 1992
Photo Number: A27860-76
Scale: 1: 15,000



Aerial Photograph Date: 1992
Photo Number: A27860-75
Scale: 1: 15,000

Appendix C

APEC Site Photographs

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-1		
Date: 14/09/09		
Direction: SW		
Description: Southwest view from the top of the Solid Waste Landfill, looking towards Allen Bay		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-2		
Date: 14/09/09		
Direction: N		
Description: The toe of the Solid Waste Landfill, showing the exposed waste debris and the drainage from the sewage lagoon		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-3		
Date: 14/09/09		
Direction: N		
Description: The toe of the Solid Waste Landfill, showing the extent of the waste debris and the drainage from the sewage lagoon		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-4		
Date: 14/09/09		
Direction: E		
Description: Looking east towards the landfill from the boggy drainage area to the west		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-5		
Date: 14/09/09		
Direction: E		
Description: Looking east towards the landfill from the boggy drainage area		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-6		
Date: 14/09/09		
Direction: E		
Description: Looking east towards the landfill from the boggy drainage area		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-7		
Date: 14/09/09		
Direction: SE		
Description: Sewage lagoon situated to the southeast, adjacent to the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-8		
Date: 14/09/09		
Direction: S		
Description Overflow from the sewage lagoon situated to the southeast, adjacent to the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-9		
Date: 14/09/09		
Direction: SE		
Description: Southwest side of the landfill, showing the berm (on the left) and the drainage from the sewage lagoon		

APEC 1 – Solid Waste Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 1-10 **Date:** 14/09/09 **Direction:** SE **Description:** Southwest side of the landfill, showing the berm (on the left) and the drainage from the sewage lagoon		

APEC 1 – Solid Waste Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 1-11 **Date:** 14/09/09 **Direction:** SW **Description:** Looking along the southeast side of the landfill		

APEC 1 – Solid Waste Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 1-12 **Date:** 14/09/09 **Direction:** NW **Description:** Looking northwest from the top of the Solid Waste Landfill, showing the edge of the exposed face, waste debris and the drainage area beyond		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-13		
Date: 14/09/09		
Direction: N/A		
Description: A closeup of the waste debris in the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-14		
Date: 14/09/09		
Direction: W		
Description: A closeup of the waste debris in the landfill, along the south side		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-15		
Date: 14/09/09		
Direction: W		
Description: Waste debris on the southwest side of the landfill, showing the partial berm		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-16		
Date: 14/09/09		
Direction: SE		
Description: Waste debris on the southwest side of the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-17		
Date: 14/09/09		
Direction: N/A		
Description: Fuel / oil drums along the west side of the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-18		
Date: 14/09/09		
Direction: NW		
Description: Waste debris and the partial berm, along the southwest face of the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901

Photo ID: 1-19

Date: 14/09/09

Direction: SW

Description: Looking southwest from the toe of the landfill, showing waste debris and pond/drainage areas



APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901

Photo ID: 1-20

Date: 14/09/09

Direction: SW

Description: Looking southwest from the top of the landfill edge, showing the extent of waste debris and pond/drainage areas



APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901

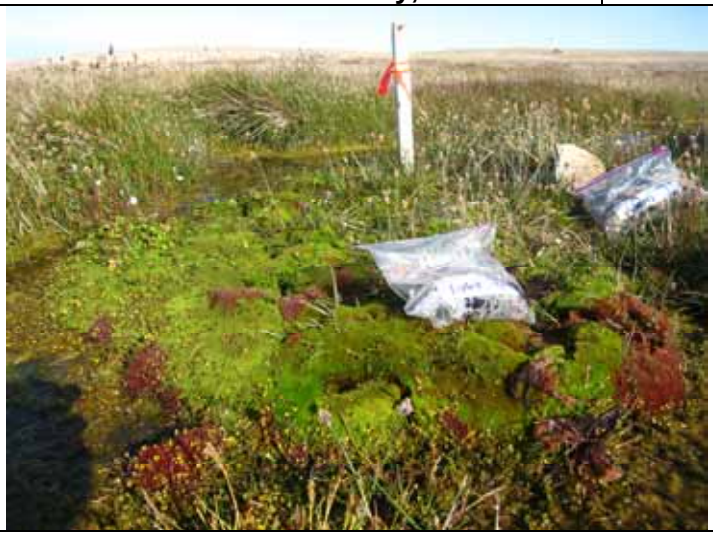
Photo ID: 1-21

Date: 14/09/09

Direction: N/A

Description: Mosses and small vegetation along drainage path from landfill & sewage lagoon



APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-22		
Date: 14/09/09		
Direction: W		
Description: Sampling location 1-VG-1, located approximately 650 m downgradient of landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-23		
Date: 14/09/09		
Direction: W		
Description: Sampling location 1-VG-1, located approximately 650 m downgradient of landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-24		
Date: 14/09/09		
Direction: N/A		
Description: Sampling location 1-VG-4, located approximately 100 m downgradient of landfill		

APEC 1 – Solid Waste Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 1-25 **Date:** 14/09/09 **Direction:** NE **Description:** Sampling location 1-SW-6, located directly downgradient of the landfill		

APEC 1 – Solid Waste Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 1-26 **Date:** 14/09/09 **Direction:** N/A **Description:** Installation of one of two monitoring wells directly downgradient of the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-27 **Date:** 14/09/09 **Direction:** W **Description:** Background sampling location 1-VG-15, located approximately 450 m south of the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-28 **Date:** 14/09/09 **Direction:** NW **Description:** Looking west from the top of the landfill, showing the extent of waste debris and drainage path from landfill & sewage lagoon		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-29 **Date:** 14/09/09 **Direction:** W **Description:** Showing the alluvial fan that drains from landfill & sewage lagoon to Allen Bay		

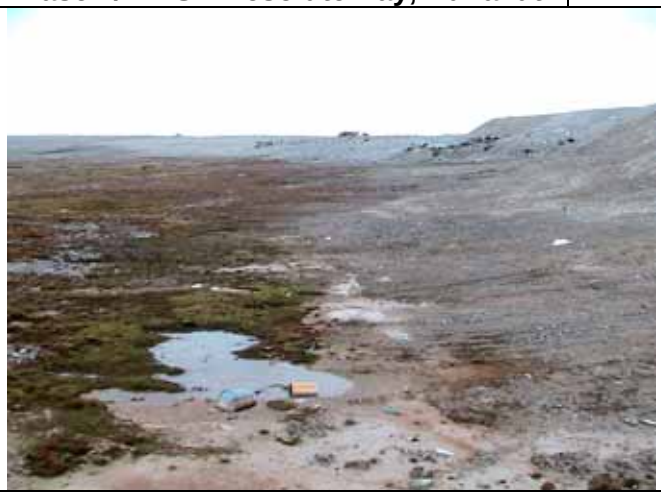
APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-30		
Date: 14/09/09		
Direction: E		
Description: Showing the alluvial fan that drains from landfill & sewage lagoon to Allen Bay		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-31		
Date: 19/09/09		
Direction: W		
Description: A view of sample location 1-09-16-1, where the landfill drainage path meets Allen Bay		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-32		
Date: 19/09/09		
Direction: S		
Description: A view of sample location 1-09-16-2, where the landfill drainage path meets Allen Bay		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-33		
Date: 19/09/09		
Direction: N		
Description: Two asbestos piles, located on the east side of the landfill		

APEC 1 – Solid Waste Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 1-34		
Date: 19/09/09		
Direction: W		
Description: Two asbestos piles, located on the east side of the landfill, and the natural drainage path that flows into the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-1 **Date:** 14/09/09 **Direction:** N **Description:** Looking north along the toe of the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-2 **Date:** 14/09/09 **Direction:** N **Description:** Looking north along the toe of the landfill, with the fuselage in the foreground (near 2-TP-8)		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-3 **Date:** 14/09/09 **Direction:** SW **Description:** Looking southwest from the north end of the landfill, waste debris in the foreground, with drainage pathways in the background		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-4		
Date: 14/09/09		
Direction: S		
Description: Looking south from the top edge of the landfill, near 2-TP-14, with the fuselage in the mid-ground		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-5		
Date: 14/09/09		
Direction: SW		
Description: Looking southwest from the top edge of the landfill, near 2-TP-14		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-6		
Date: 14/09/09		
Direction: N		
Description: Looking north from the top edge of the landfill, near 2-TP-14		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-7		
Date: 14/09/09		
Direction: S		
Description: Looking south, showing the western edge of the landfill in the background, with a monitoring well in the mid-ground		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-8		
Date: 14/09/09		
Direction: SW		
Description: Looking southwest, showing the drainage from the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-9		
Date: 14/09/09		
Direction: NW		
Description: Waste debris along the north edge of the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-10		
Date: 14/09/09		
Direction: N/A		
Description: Waste debris at the toe of the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-11		
Date: 14/09/09		
Direction: E		
Description: Waste debris on the top edge of the landfill, near 2-TP-14 (?)		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-12		
Date: 14/09/09		
Direction: NW		
Description: Waste debris on the top edge of the landfill, near 2-TP-12		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-13 **Date:** 14/09/09 **Direction:** S **Description:** Looking south from 2-TP-12, showing the western edge of the landfill and waste debris		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-14 **Date:** 14/09/09 **Direction:** NE **Description:** Waste debris along the western edge of the landfill		

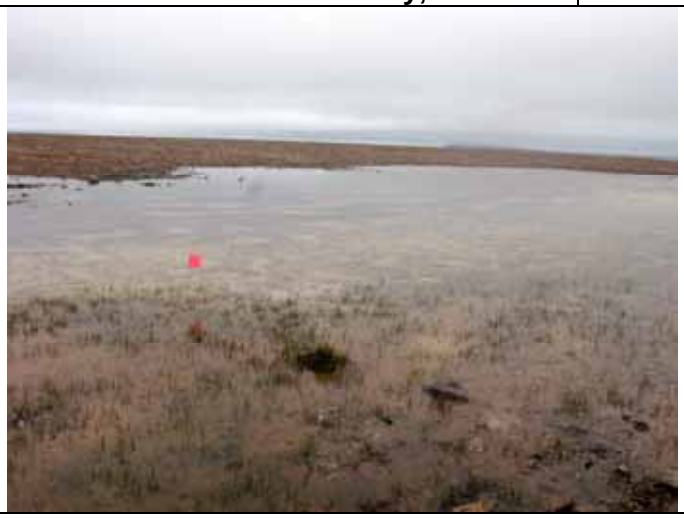
APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-15 **Date:** 14/09/09 **Direction:** NE **Description:** Waste debris along the western edge of the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-16		
Date: 14/09/09		
Direction: N/A		
Description: Waste debris along the western edge of the landfill		

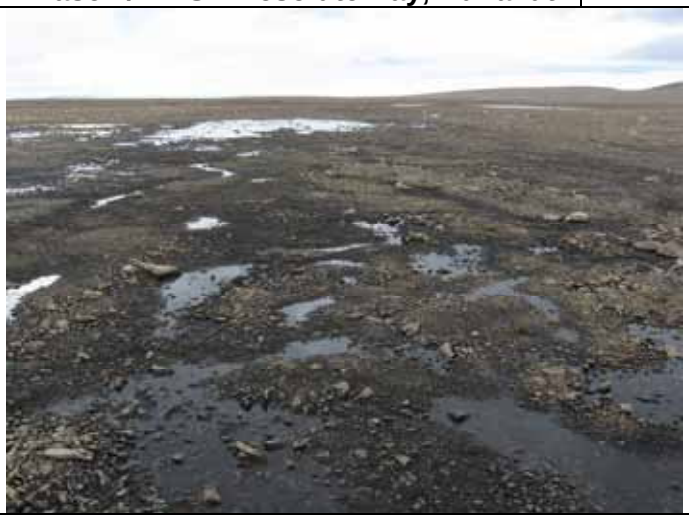
APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-17		
Date: 14/09/09		
Direction: W		
Description: Looking west from the north end of the landfill, showing waste debris		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-18		
Date: 14/09/09		
Direction: W		
Description: Waste debris at the north end of the landfill		

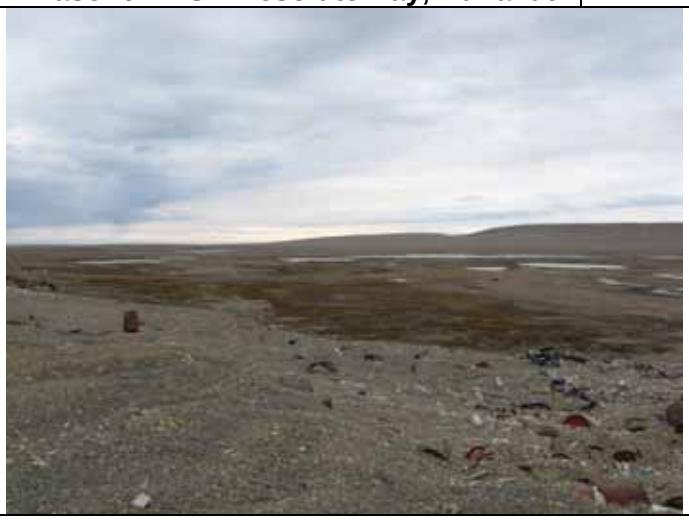
APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-19		
Date: 14/09/09		
Direction: W		
Description: Looking west from the top edge of the landfill		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-20		
Date: 14/09/09		
Direction: W		
Description: Sampling location 2-SW-6		

APEC 2 – Historical Landfill	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 2-21		
Date: 14/09/09		
Direction: N/A		
Description: Debris in wet area near the toe of the landfill		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-22 **Date:** 14/09/09 **Direction:** SE **Description:** Background sampling location – 2-SW-17		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-23 **Date:** 14/09/09 **Direction:** W **Description:** Looking west from the northeast side of the landfill		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-24 **Date:** 14/09/09 **Direction:** S **Description:** Overlooking the toe of the landfill and showing some of the landfill debris		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-25 **Date:** 14/09/09 **Direction:** N/A **Description:** Test pit hole on the top of the landfill.		

APEC 2 – Historical Landfill	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 2-26 **Date:** 14/09/09 **Direction:** S **Description:** Showing monitoring well 2-MW-8, at the toe of the southern portion of the landfill and immediately west of the fuselage		

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PHOTOGRAPHIC LOG

APEC 3 – Vehicle Storage Area	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 3-1	**Description:** General view of the Vehicle Storage Area, not including subareas 1 and 2	
Date: 14/09/09		
Direction: N		



APEC 3 – Vehicle Storage Area	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 3-2		
Date: 14/09/09		
Direction: W		
Description: General view of APEC 3, as viewed from the east, from subarea 1		



APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-3 **Date:** 14/09/09 **Direction:** W **Description**: Looking west along the length of APEC 3		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-4 **Date:** 14/09/09 **Direction:** NW **Description**: Various debris and vehicle parts in the centre of the APEC		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-6 **Date:** 14/09/09 **Direction:** N/A **Description:** Various types of storage tanks		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-7 **Date:** 14/09/09 **Direction:** N/A **Description:** Several local businesses have dumped their old vehicles		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-8 **Date:** 14/09/09 **Direction:** SE **Description:** Residential appliances such as freezers and stoves		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-9 **Date:** 14/09/09 **Direction:** SE **Description:** Various construction vehicles, above-ground storage tanks (ASTs), and antenna towers		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-10		
Date: 14/09/09		
Direction: NW		
Description: Machinery		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-11		
Date: 14/09/09		
Direction: W		
Description: Communications equipment		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-12		
Date: 14/09/09		
Direction: W		
Description: Construction equipment		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-13		
Date: 14/09/09		
Direction: SE		
Description: Various types of tanks, previously used to store fuel or oil		

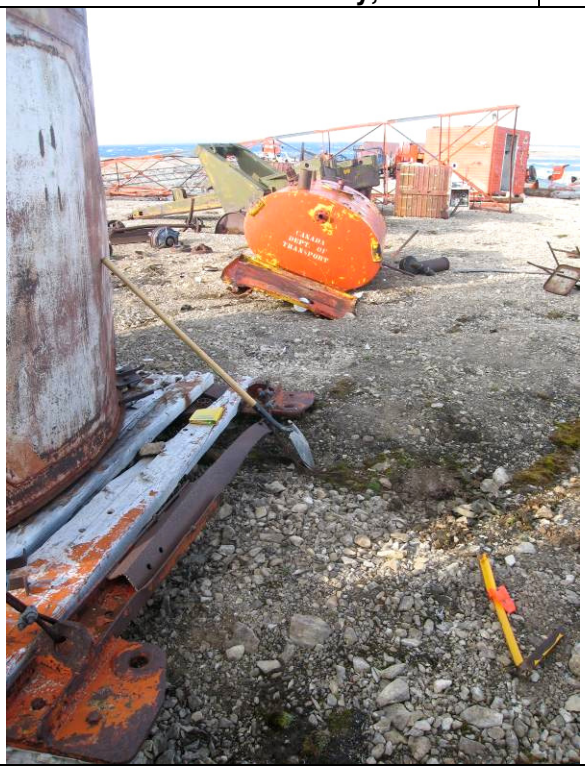
APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-14		
Date: 14/09/09		
Direction: SE		
Description: Drilling rig		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-15		
Date: 14/09/09		
Direction: SE		
Description: Fuel storage tanks		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-16		
Date: 14/09/09		
Direction: SE		
Description: Fuel storage tank		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-17		
Date: 14/09/09		
Direction: SE		
Description: Vehicle parts, scrap metal and antenna towers		

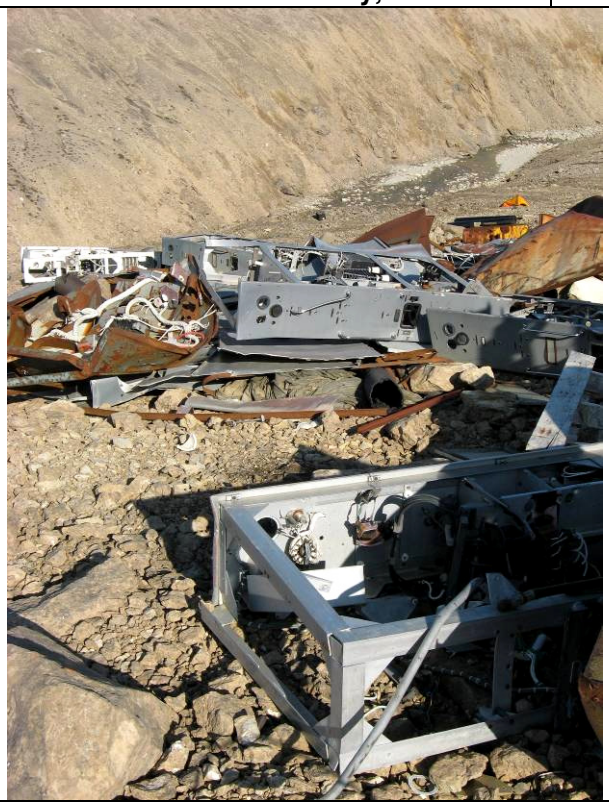
APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-18 **Date:** 14/09/09 **Direction:** E **Description:** Sampling location 3-TP-1		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-19 **Date:** 14/09/09 **Direction:** S **Description:** Sampling location 3-TP-2		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-20		
Date: 14/09/09		
Direction: N/A		
Description: Sampling location 3-TP-3		

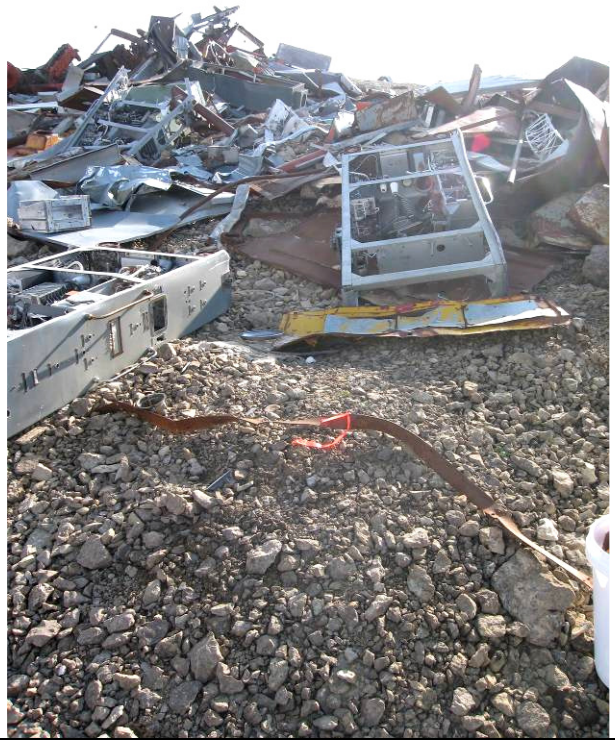
APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-21		
Date: 14/09/09		
Direction: N/A		
Description: Subarea 1 – scrap metal and vehicle part		

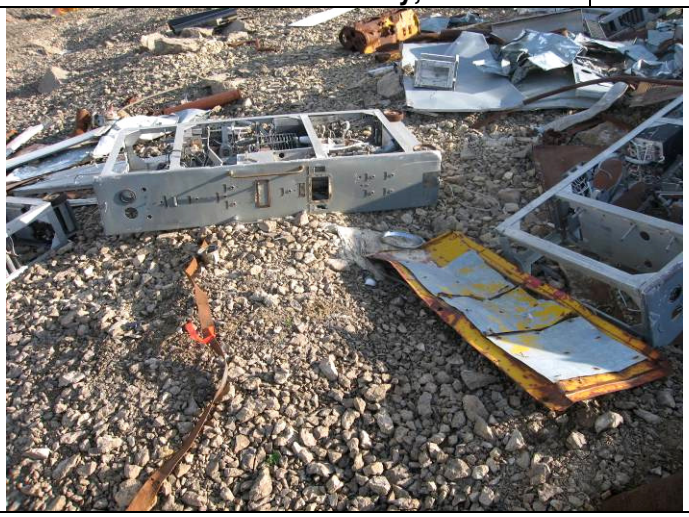
APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-22		
Date: 14/09/09		
Direction: SE		
Description: Subarea 1 – communications equipment		

APEC 3 – Vehicle Storage Area	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 3-23 **Date:** 14/09/09 **Direction:** SE **Description: S**ubarea 1		

APEC 3 – Vehicle Storage Area	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**
Photo ID: 3-24 **Date:** 14/09/09 **Direction:** SE **Description:** Subarea 2 - transformer		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-25		
Date: 14/09/09		
Direction: N/A		
Description: Subarea 2 - Sampling location 3-TP-4		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-26		
Date: 14/09/09		
Direction: N/A		
Description: Subarea 1 - Sampling location 3-TP-5		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-27 **Date:** 14/09/09 **Direction:** N/A **Description:** Subarea 1 - Sampling location 3-TP-5		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-28 **Date:** 14/09/09 **Direction:** NE **Description:** Subarea 1		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901
Photo ID: 3-29 **Date:** 14/09/09 **Direction:** N/A **Description:** Background sampling location 3-TP-6		

APEC 3 – Vehicle Storage Area	Phase II/III ESA Resolute Bay, Nunavut	1747-0901

Photo ID: 3-30 **Date:** 14/09/09 **Direction:** W **Description:** Waste debris found downgradient of APEC 3 in the stream valley	

APEC 3 – Vehicle Storage Area	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**

Photo ID: 3-31 **Date:** 14/09/09 **Direction:** E **Description:** Waste debris found downgradient of APEC 3 in the stream valley	

APEC 3 – Vehicle Storage Area	**Phase II/III ESA Resolute Bay, Nunavut**	**1747-0901**

Photo ID: 3-32 **Date:** 14/09/09 **Direction:** W **Description:** Viewing the debris in the stream valley, downgradient of APEC 3.	

Appendix D

Health and Safety Program

SITE SAFETY PLAN

SAFETY POLICY STATEMENT

All operations will comply with all applicable Territorial guidelines and other specified safety protocols and/or operating procedure specified by the site owner and/or operator. Operations will be conducted in a safe and professional manner. No site work will be undertaken prior to the safety meeting, which will be conducted on the site prior to commencement of work.

Site Name	Resolute Bay Solid Waste Landfill & Historical Landfill
Site Location	Solid Waste Landfill is located 2 km north of Resolute Bay airport; Historical Landfill is located west of Service Road, directly west of Parcel 9.
Site Description	Airport, industrial, commercial and residential wastes; solid waste landfill includes asbestos-containing materials
Owner/Operator	Hamlet of Resolute Bay, Nunavut Territory

SITE LOCATION MAP ATTACHED

LOCAL EMERGENCY AND PROJECT TELEPHONE NUMBERS

EMERGENCY NUMBERS	**Name**	**Telephone Number**
Hospital	Nursing Station	867-252-3844
Ambulance		867-252-1111
Police	RCMP	867-252-0123
Fire		867-252-3333
UTILITY EMERGENCY NUMBERS		
Site Health and Safety Officer	Jordi Helsen	Office: (604) 632-9941 Cell: (604)
Project Manager Project Manager (Back-up)	Michael Shum Steve Livingstone	Office: (604) 632-9941 Cell: (604) 808-9606 Office: (613) 721-0555
Site Contacts	Micheal Molinski	204-984-0440
Client Contacts	Raman Birk	Tel 604-775-6810 Cel. 604-317-2750
Regulatory Agency	Env. Canada / DFO	
NWT Spills Hotline		1-867-920-8130

EMERGENCY ROUTES

Route from off-site property to health centre

Solid Waste Landfill – head east from landfill to Service Road; take Service Road south past airport, turn east for 0.25km, then continue southeast to Hamlet of Resolute.

Historical Landfill – head east from landfill to Service Road; take Service Road east for 0.25km, then continue southeast to Hamlet of Resolute.

HOSPITAL LOCATION MAP ATTACHED

PERSONAL PROTECTIVE EQUIPMENT

Hard hat	☒	Steel toed boots	☒
Safety glasses	☒	Visible vest	☒
Hearing protection	☒		

SAFETY EQUIPMENT

Fire extinguisher	☒	First aid kit	☒
Eye wash	☒	Kill switch	

Note: Fire Extinguisher and First Aid Kit supplied by Drilling/Excavating Contractor.

POTENTIAL CONTAMINANTS OF CONCERN

Petroleum hydrocarbons, paints, household chemicals, solvents, glues & inks.
Inorganic contaminants may include zinc, chromium, copper, lead, arsenic, aluminum and mercury.

Hazard	dermal contact, and inhalation
Mitigation	Wear the appropriate protective equipment and avoid skin contact with soil samples.

SCOPE OF WORK AND HEALTH AND SAFETY RESPONSIBILITY

Scope of Work

To obtain representative samples of soil, water and vegetation in suspect areas. To determine the source, type, nature and extent (vertical & horizontal) of contamination or contaminant plumes in soil, surface/groundwater and vegetation.

Responsibilities

The Site Health and Safety Officer will implement the Plan. He/She has the authority to stop work or prohibit any personnel from working on the site at any time for not complying with any aspect of the Plan.

The Sub-contractor Field Supervisor is directly responsible for implementing the Plan for his/her own employees.

Each person on the site has responsibility for their own health and safety, as well as, assisting others in carrying out the Plan. Any person observed to be in violation of the Plan should be assisted in complying with the Plan, or reported to the Site Health and Safety Officer or the Subcontractor Field Supervisor.

Any site personnel may shut down field activities if there is a real or perceived immediate danger to life or health.

SITE HAZARDS AND MITGATION

TYPE OF HAZARD	DESCRIPTION OF HAZARD	MITIGATION	YES	NO
Overhead Hazards	Overhead power lines	locate and ensure equipment maintains safe distance from all overhead hazards	☒	❑
Underground Hazards	Water and storm lines and High Pressure Gas and Fluid lines	Do not excavate until all utilities have been located	☒	❑
Equipment Hazards	Trucks	Stay out of equipment work zone or inform the operator before entering work zone.	☒	❑
Drilling Hazards	Utilities and u/g fuel tanks.	Conduct utility locates prior to drilling	☒	❑
Excavation Hazards	Underground and overhead utilities	Conduct utility locates prior to drilling	☒	❑
Machinery Hazards	Drilling/Excavating Equipment	Stay out of equipment work zone or inform the operator before entering work zone. Discuss hand signals and approach protocols with operator.	☒	❑
Heat Exposure	Warm temperatures are not very likely during the project duration.	If temperatures are warm, use sunscreen and drink fluids to prevent dehydration.	❑	☒
Cold Exposure	Cold temperatures or raining	Dress appropriately	☒	❑
Electrical Hazards	Underground and overhead utilities	Conduct utility locates prior to drilling	☒	❑
Oxygen Deficiency	Not expected		❑	☒

SITE SAFETY PLAN

TYPE OF HAZARD	DESCRIPTION OF HAZARD	MITIGATION	YES	NO
Noise Hazards	Excavating Equipment	Wear proper personal protective equipment and/or maintain a safe distance from operating equipment.	☒	❑
Ionizing Radiation	Not expected		❑	☒
Non-Ionizing Radiation	Not expected		❑	☒
Fire/Explosion Hazards	Drilling abandoned fuel tanks, or pipelines.	Conduct utility locates prior to drilling	☒	❑
Biological Hazards	Not expected		❑	☒
Chemical Hazards (MSDS if available)	Petroleum Hydrocarbons, PAHs, Metals	Wear appropriate PPE, nitrile gloves	☒	❑
Water Hazards	Not expected	Wear appropriate PPE while working on or near water, including personal floatation device	❑	☒
Holes/Ditches	Open excavations	Mark clearly and avoid working in close proximity. Do not enter excavations over 1.5 m in depth.	☒	❑
Steep Grades	Rocks, debris, piping, steep terrain	Walk slowly and steadily	☒	❑
Slippery Surfaces	Snow and ice	Walk slowly and steadily	☒	❑
Uneven Terrain	Piping and associated infrastructure	Walk slowly and steadily	☒	❑
Unstable Surfaces		Walk slowly and steadily	☒	❑
Elevated Work Surfaces	Excavator working on elevated surfaces	Do not exceed mechanical limits of rig. Maintain a safe distance from equipment during operation.	☒	❑
Shoring/Scaffolding	Not expected		❑	☒
Public Risk	Workers moving around site	Watch for public entering the work site and warm of dangers.	☒	❑
Vehicular	Moving traffic and rig	Watch for traffic at all times, wear PPE, avoid excavating in high traffic areas	☒	❑
Groundwater well installation	Pinch points using slide hammer	Wear gloves while installing vapour probes. Take care that slide hammer is in good condition.	☒	❑

POTENTIAL WASTE GENERATION

Waste Generation (Types and Quantities Expected) **Not expected**

TYPE	QUANTITY	TYPE	QUANTITY	TYPE	QUANTITY
N/A	N/A	N/A	N/A	N/A	N/A

Other (describe)

N/A

CHARACTERISTICS EXPECTED

Waste Generation (Types and Quantities Expected)

TYPE	QUANTITY	TYPE	QUANTITY
Corrosive	N/A		
Reactive	N/A		
Toxic	N/A		

Other (describe)

PACKAGING REQUIREMENT FOR WASTE MATERIAL EXPECTED

Open head 55 gallon drum	N/A
Closed head 55 gallon drum	N/A
Overpack drum	N/A
Baker tanks	N/A
Lined waste bins	N/A
Other (Specify)	N/A

DISPOSAL AND/OR TREATMENT METHODS PROPOSED

Soil from test pits is to be replaced in test pit.
Groundwater (if collected) will be left in test pit.

The person signing will be responsible for characterizing, packaging, labelling, storing and disposing of suspected or known waste
Signature

RISKS FROM THE PUBLIC

This section is for any personal risks from the public at secluded site, high profile sites etc.

Work areas will be cordoned off and will be restricted to authorized personnel.

UNDERGROUND AND OVERHEAD UTILITIES AND INSTALLATIONS

Utility locate undertaken	❑ Yes	❑ No	Information attached	❑ Yes	☒ No
Private locate undertaken	❑ Yes	❑ No	Information attached	❑ Yes	☒ No

Sewer mains	❑ Yes	❑ No	❑ n/a
Water mains	❑Yes	❑ No	❑ n/a
Underground telecommunications and telephone utilities	❑ Yes	❑ No	❑ n/a
Cable utilities	❑ Yes	❑ No	❑ n/a
Electrical utilities	❑ Yes	❑ No	❑ n/a
Gas mains	❑ Yes	❑ No	❑ n/a
Steam heat mains	❑ Yes	❑ No	❑ n/a
Transit utilities	❑ Yes	❑ No	❑ n/a
Street lights and traffic signals incl. connections and appurtenances	❑ Yes	❑ No	❑ n/a
All pipes, cables, valves, and all facilities associated	❑ Yes	❑ No	❑ n/a
Equipment incidental thereto located in the roads	❑ Yes	❑ No	❑ n/a

Location cleared by Site Owner/Operator ❑ Yes ❑ No

Name of Locator	N/A
Hazard	
Mitigation	Do not drill/excavate where utilities are located (maintain proper
clearance from utilities).	

SITE SAFETY PLAN

SITE SAFETY PLAN REVIEWED BY

Project Manager	Date
Senior Review	Date

SIGNATURES OF AGREEMENT

By signing below, I have read and understood the safety policy statement and site hazards and mitigation as outlined above

FRANZ . Representative	Date
Site Owner/Operator Representative	Date
Contractor	Date
Contractor Representative	Date
Contractor Representative	Date
Contractor Representative	Date
Contractor Representative	Date

Appendix E
Waste Debris Inventory

Waste Debris Inventory

AREA	DIMENSIONS / SIZE / AREA	ITEM(S)	DESCRIPTION OF WASTE - COMPONENTS	PAINTED (Y/N)	COLOUR	POTENTIALHAZARDOUS MATERIALS	OTHER COMMENTS
APEC 1 - Solid Waste Landfill							
Area 1 - Upper Bench	13,625 m²	Buried & exposed debris	Exposed debris includes burnt batteries, burnt residential garbage, appliances, scrap metal, plastics, wood, electronics, PVC tubing,	N/A	Various	Fuel/oil, heavy metals	The majority of the waste is buried below the upper bench, under 0.5-1 m of sand/gravel. All metal debris was rusted, however it is unknown if there was fuel, oil or paint remaining.
Area 2 - Main Slope	2,713 m²	Buried & exposed debris	Exposed debris includes metal drums (whole & crushed), paint buckets, scrap metals, fibreglass, communications equipment, sheet metals, metal pipes, wire coils, wood planks, wood pallets, construction & demolition waste, sinks, bathtubs, coffee containers, plastics, rubber, glass, appliances, furniture, electronics, PVC tubing, steel scaffolding, small antenna towers, burnt batteries, vehicle body parts, steel buildings (some crushed), back half of helicopter, cement bags, large galvanized steel tank, residential waste, rubber tires (various sizes)	N/A	Various	Fuel/oil, heavy metals, lead-based paints	The majority of the waste is buried below the upper bench, under 0.5-1 m of sand/gravel
Area 3 - Gullies	4,867 m² (north) 3,935 m² (south)	Exposed debris	Exposed debris includes metal drums, scrap metals, plastic, wood, rubber tires	N/A	Various	Fuel/oil, heavy metals	The north gully had scattered debris. It carried the natural surface water flow to the Lower Bench, and on to Allen Bay. The south gully had some scattered debris, and carried the sewage lagoon overflow to the Lower Bench, and on to Allen Bay.
Area 4 - Lower Bench	4,934 m²	Exposed debris	Exposed debris includes metal drums, scrap metals, plastic, wood, rubber tires	N/A	Various	Fuel/oil, heavy metals	The Lower Bench had scattered debris,
APEC 2 - Historical Landfill							
Area 1 - Upper Bench	47,290 m²	Buried & exposed debris	Exposed debris includes scrap metal, airport antenna and lights, plastics, wood, rubber, construction vehicle parts	N/A	Various	Heavy metals	The majority of the Upper Bench is clear of debris, with the exception of the area near 2-TP-12, which has a scattered collection of airport antenna, airport lighting equipment and several few construction vehicle parts.
Area 2 - Main Slope	11,108 m² (north) 3,081 m² (south)	Buried & exposed debris	Exposed debris includes scrap metals, vehicle parts, plastics, wood, rubber. Exposed plane fuselage at toe of south slope	N/A	Various	Fuel/oil from fuselage, heavy metals	The majority of the debris is buried.
APEC 3 - Vehicle Storage Area							
Subarea 1	78 m²	Exposed debris	Exposed debris consists of wood pallets, wall heating units (radiators), small transformers	N/A	Various	PCBs, metals	No waste debris is believed to be buried
Subarea 2	336 m²	Exposed debris	Exposed debris consists of wood (planks, posts & pallets), steel fencing, vehicle parts, steel pipes, radiators, Marconi equipment (circuit boards, wiring, steel frame, etc), batteries, burner unit, steel cabinets for radio-transmitting equipment, vehicle air cleaning parts, sheet metal, glass, wiring, small white antenna towers, flares, plastic bags, metal winter tracks for construction equipment, fire extinguisher, box of paints, steel culvert, shingles, small steel plates.	Y	Various	Fuel/oil, heavy metals, lead-based paints, PCBs	No waste debris is believed to be buried
Vehicle Storage Area	1,608 m²	Exposed debris	Exposed debris consists of glass, various construction & maintenance vehicles, vehicle parts, wood pallets, propane cyclinders, wood walls w/ insulation, fibreglass, wire fencing, scrap steel (ladders, antennas, light towers), steel door w/ peeling paint, scrap metal pipes, antenna circuit boxes, circuit boards, freight container, generators, fuel/oil drums and various sizes of water/fuel/oil tanks, blue boiler furnace, filing cabinets, exposed batteries, copper wire coil, metal siding, metal drums, transformers, steel cables & scaffolding, fuel units, computer equipment, radiators, garbage cans, steel auger, utility shed, steel & cement counterweights, antenna dish, radar equipment, airplane window, cement bags, steel skid w/ wood wall segments & red siding, drilling platform, tarps and appliances	Y	Various	Fuel/oil, heavy metals, lead-based paints, PCBs	No waste debris is believed to be buried. Several pieces of debris and vehicle parts were found in the stream valley, downgradient of the Vehicle Storage Area.

Appendix F

Test Pit, Borehole and Sediment Logs

TEST PIT, BOREHOLE and SEDIMENT LOGS
Resolute Bay, Nunavut

Date:	16-Aug-09	**Easting:**	**440385**		Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295907**				
Method:	Hand Trowel			**Sediment: 1-SD-1**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**Downgradient of APEC 1; approximately 650 m northwest**						
Depth (m)	Description					Metals, PHC	
0.0-0.15	GRAVEL - greyish brown, trace sand, wet				-		
	EOH @ 0.15 m						

Date:	16-Aug-09	**Easting:**	**440573**		Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8295715**				
Method:	Hand Trowel			**Sediment: 1-SD-2**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**Downgradient of APEC 1; approximately 400 m northwest**						
Depth (m)	Description					Metals, PHC, PCB/Pesticides, VOC, PAH, TOC, Grain size	Sample collected 7m downgradient from GPS point (west), at inlet of
0.0-0.15	SAND - grey, fine-grained with silt, organics				-		
	EOH @ 0.15 m						

Date:	19-Aug-09	**Easting:**	**440751**		Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295624**				
Method:	Hand trowel			**Sediment: 1-SD-4**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**Downgradient of APEC 1**						
Depth (m)	Description					Metals, PHC, PCB/Pesticides, VOC, PAH	Sample taken from pond west of landfill toe
0.0-0.05	ORGANICS - algae				-		
0.05-0.1	ORGANICS - black				-		
0.0-0.3	SANDY SILT - dark grey with gravel; sampled				-		
	EOH @ 0.3 m						

Date:	19-Aug-09	**Easting:**	**440872**		Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295534**				
Method:	Hand trowel			**Sediment: 1-SD-5**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**Downgradient of APEC 1**						
Depth (m)	Description					Metals, PHC	Sampled 10m NW of GPS point in larger soil area of pond
0.0-0.05	SANDY SILT - light brown, wet				-		
0.05-0.1	SANDY SILT - dark brown, fine sand w/ pebbles & gravel, wet; sampled				-		
	EOH @ 0.1 m						

Date:	17-Aug-09	**Easting:**	**440870**		Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8295456**				
Method:	Hand trowel			**Sediment: 1-SD-6**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**At toe of Solid Waste Landfill, on southwest edge of exposed waste**						
Depth (m)	Description					Metals, PHC, PCB, VOC, PAH	Sheen was produced in lower layer during sample collection
0.0-0.05	SAND & GRAVEL				-		
0.05-0.15	SILTY SAND - some gravel, light brown/grey; sampled				-		
	EOH @ 0.15 m						

Date:	17-Aug-09	**Easting:**	**440915**		Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8295588**				
Method:	Hand trowel			**Sediment: 1-SD-7**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**At toe of landfill, on west edge of exposed waste**						
Depth (m)	Description					Metals, PHC, PCB/Pesticides, VOC, PAH	Collected 5m south of GPS point
0.0-0.1	SAND - gravel; collected at ground surface; very little sediment in pond				-		
	EOH @ 0.1 m						

Date:	17-Aug-09	**Easting:**	**440884**		Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295628**				
Method:	Hand trowel			**Sediment: 1-SD-8**	OVM (ppm)	Analysis	
Location:	Resolute APEC 1 - Solid Waste Landfill						
Work area:	**At toe of landfill, on northwest edge of exposed waste**						
Depth (m)	Description						
0.0-0.1	SANDY GRAVEL - greyish brown, wet				-	Metals, PHC	
	EOH @ 0.1 m						

Notes:
GR= Grab sample
EOH= End of testpit
OVM = Organic Vapour Measurement

TEST PIT, BOREHOLE and SEDIMENT LOGS
Resolute Bay, Nunavut

Date:	16-Aug-09	**Easting:**	**441016**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295557**	OVM (ppm)	Analysis	
Method:	Backhoe		**Test Pit: 1-TP-9**			
Location:	Resolute APEC 1 - Solid Waste Landfill					
Work area:	**Top of Solid Waste Landfill, on southwest side**					
Depth (m)	Description					
0.0-0.05	Burned material			-	Metals, PHC, PCB/Pesticides, VOC, PAH	Test pit was not deepened below 0.95m because of garbage
0.05-40	GRAVELLY SAND - light brown			-		
0.4-0.95	GRAVELLY SAND - grey brown, garbage w/ smell; sampled between 0.50 - 0.95 m			0		
	EOH @ 0.95 m					

Date:	16-Aug-09	**Easting:**	**440996**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295579**	OVM (ppm)	Analysis	
Method:	Backhoe		**Test Pit: 1-TP-10**			
Location:	Resolute APEC 1 - Solid Waste Landfill					
Work area:	**Top of Solid Waste Landfill, on west side**					
Depth (m)	Description					
0.0-0.25	SAND & GRAVEL - mutilple colours (brown, black, maroon), garbage near surface@5cm (metal, wood, plastic), slight hydrocarbon smell; sampled between 0.1 - 0.25 m			0	Metals, PHC, Grain size	
	EOH @ 0.25 m					

Date:	15-Aug-09	**Easting:**	**440985**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295632**	OVM (ppm)	Analysis	
Method:	Backhoe		**Test Pit: 1-TP-11**			
Location:	Resolute APEC 1 - Solid Waste Landfill					
Work area:	**Top of Solid Waste Landfill, on northwest side**					
Depth (m)	Description					
0.0-0.15	SAND & GRAVEL - garbage at surface; sampled between 0.05-0.15 m			10	Metals, PHC, PCB/Pesticides, VOC, PAH	Leaking black fluid at flagged point - moved excavator east by 2m
	EOH @ 0.15 m					

Date:	15-Aug-09	**Easting:**	**441042**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295663**	OVM (ppm)	Analysis	
Method:	Backhoe		**Test Pit: 1-TP-12**			
Location:	Resolute APEC 1 - Solid Waste Landfill					
Work area:	**Top of Solid Waste Landfill, on northeast side**					
Depth (m)	Description					
0.0-1.1	GRAVEL w/ medium grain sand, brown, garbage at 1.1m (wood, metal, plastic, cans, cables, pipes), no hydrocarbon smell; sampled between 0.05 - 0.5 m			0	Metals, PHC, PCB, VOC, PAH	
	EOH @ 1.1 m					

Date:	15-Aug-09	**Easting:**	**440888**	Sample		NOTES/COMMENT
Logged by:	ET/JH	**Northing:**	**8295644**	OVM (ppm)	Analysis	
Method:	Posthole Auger		**Borehole: 1-BH-13**			
Location:	Resolute APEC 1 - Solid Waste Landfill					
Work area:	**At toe of Solid Waste Landfill, on northwest edge of exposed waste**					
Depth (m)	Description					
0.0-0.05	MOSS			-	Metals, PHC, PCB/Pesticide, VOC, PAH	Borehole drilled to permafrost
0.05-0.66	SAND & GRAVEL - light brown-grey, wet; groundwater at 0.1m; sampled 0.55 m		0.05-	-		
	EOH @ 0.66 - permafrost					

Date:	15-Aug-09	**Easting:**	**440899**	Sample		NOTES/COMMENT
Logged by:	ET/JH	**Northing:**	**8295571**	OVM (ppm)	Analysis	
Method:	Posthole Auger		**Borehole: 1-BH-14**			
Location:	Resolute APEC 1 - Solid Waste Landfill					
Work area:	**At toe of Solid Waste Landfill, on west edge of exposed waste**					
Depth (m)	Description					
0.0-0.05	MOSS			-	Metals, PHC, PCB/Pesticide, VOC, PAH	Borehole drilled to permafrost; screened at 0.1 m to bottom of borehole
0.05-0.1	SAND - fine			-		
0.1-0.62	GRAVELLY SAND - light brown/grey, moist; sampled between 0.1-0.62 m			-		
	EOH @ 0.62 m - permafrost					

Date:	19-Aug-09	**Easting:**	**440998**	Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8295087**	OVM (ppm)	Analysis	
Method:	Hand trowel		**Sediment: 1-SD-15**			
Location:	South of APEC 1 (Solid Waste Landfill)					
Work area:	**Background Sample**					
Depth (m)	Description					
0.0-0.05	SILT - fine, light brown			-	Metals, PHC, PAH	Sample taken from shallow pond approx. 450 m south of APEC 1
0.05-0.1	SAND - fine, black, with some gravel; sulphur smell; sampled between 0.05-0.1 m			-		
	EOH @ 0.1 m					

Notes:
GR= Grab sample
EOH= End of testpit
OVM = Organic Vapour Measurement

TEST PIT, BOREHOLE and SEDIMENT LOGS
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Date:	19-Aug-09	**Easting:**	**440998**	Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8295087**			
Method:	Hand trowel	**Test Pit:**	**1-TP-15**	OVM (ppm)	Analysis	
Location:	South of APEC 1 (Solid Waste Landfill)					
Work area:	**Background Sample**					
Depth (m)	Description					Sample taken east of pin flag by approx. 8m; 450 m south of APEC 1
0.0-0.05	SILT - light brown			-	Metals	
0.05-0.2	SAND - fine, black, with some silt and gravel			-		
	EOH @ 0.2 m					

Date:	19-Aug-09	**Easting:**	**439884**	Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8295899**			
Method:	Hand trowel	**Sediment:**	**1-SD-16-1**	OVM (ppm)	Analysis	
Location:	West of APEC 1, near Allen Bay					
Work area:	**Downgradient Receptor**					
Depth (m)	Description					
0.0-0.03	SAND - coarse with fine sand and gravel			-	Metals, PHC, PCB, Pesticide, PAH	
0.03-0.15	SAND - coarse with fine sand and gravel, sea shells; sampled between 0.03-0.15 m			-		
	EOH @ 0.15 m					

Date:	19-Aug-09	**Easting:**	**439583**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8295922**			
Method:	Hand trowel	**Sediment:**	**1-SD-16-2**	OVM (ppm)	Analysis	
Location:	West of APEC 1, along shore of Allen Bay					
Work area:	**Downgradient Receptor**					
Depth (m)	Description					Sample taken in high tide area; limited sediment in low tide area
0.0-0.1	GRAVEL - with coarse sand; sample taken on south side of drainage area; sampled between 0.0 - 0.1 m			-	Metals, PHC, PCB, Pesticide, PAH	
	EOH @ 0.1 m					

Date:	15-Aug-09	**Easting:**	**441413**	Sample		NOTES/COMMENT
Logged by:	ET/JH	**Northing:**	**8292593**			
Method:	Posthole Auger	**Borehole:**	**2-BH-1**	OVM (ppm)	Analysis	
Location:	Resolute APEC 2 - Historic Landfill					
Work area:	**West of landfill, north of trail**					
Depth (m)	Description					Screened from 0.1-0.57 m; annulus backfilled with augered material (sand & gravel)
0.0-0.05	MOSS and grass			-	Metals, PHC, PCB/Pesticide, VOC, PAH, TOC, grain size	
0.05-0.2	SAND & GRAVEL			-		
0.2-0.57	SAND - some gravel; sampled between 0.2 - 0.57 m			-		
	EOH @ 0.57 m - permafrost					

Date:	15-Aug-09	**Easting:**	**441394**	Sample		NOTES/COMMENT
Logged by:	ET/JH	**Northing:**	**8292655**			
Method:	Posthole Auger	**Borehole:**	**2-BH-2**	OVM (ppm)	Analysis	
Location:	Resolute APEC 2 - Historic Landfill					
Work area:	**West of Historic Landfill, north of 2-BH-1**					
Depth (m)	Description					Screened from 0.05-0.64 m; annulus backfilled with augered material
0.0-0.05	MOSS			-	Metals, PHC, PCB/Pesticide, VOC, PAH	
0.05-0.64	SAND & GRAVEL - grey/brown, wet; sampled between 0.05 - 0.64 m.			-		
	EOH @ 0.64 m - permafrost					

Date:	18-Aug-09	**Easting:**	**441323**	Sample		NOTES/COMMENT
Logged by:	JK/ET	**Northing:**	**8292608**			
Method:	Hand trowel	**Sediment:**	**2-SD-3**	OVM (ppm)	Analysis	
Location:	Resolute APEC 2 - Historic Landfill					
Work area:	**West of Historic Landfill, in drainage area**					
Depth (m)	Description					Duplicate sample: FR-2 Sample collected 1.5 m north of flagged (GPS) point
0.0-0.2	SAND - very fine, some gravel, light brown/grey; sampled between 0.05 - 0.2 m			-	Metals, PHC, PCB/Pesticides, VOC, PAH	
	EOH @ 0.2 m					

Notes:
GR= Grab sample
EOH= End of testpit
OVM = Organic Vapour Measurement

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Date:	18-Aug-09	**Easting:**	**441170**		Sample		
Logged by:	JK/ET	**Northing:**	**8292667**				
Method:	Hand trowel			**Sediment: 2-SD-4**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic Landfill						
Work area:	**West of landfill, in drainage area (ponded water)**						
Depth (m)		Description					
0.0-0.2		SANDY GRAVEL - light brown, wet; sampled between 0.05 - 0.2 m			-	Metals, PHC, PCB, VOC, PAH, TOC, grain size	Sample collected approx. 1.5 m south of flagged (GPS) point
		EOH @ 0.2 m					

Date:	18-Aug-09	**Easting:**	**440910**		Sample		
Logged by:	JK/ET	**Northing:**	**8292683**				
Method:	Hand trowel			**Sediment: 2-SD-5**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic Landfill						
Work area:	**West of Historic Landfill, in large drainage pond**						
Depth (m)		Description					
0.0-0.05		COBBLES - black organic layer under cobbles			-	Metals, PHC	Sample collected approx. 1.25m north of flagged (GPS) point
0.05-0.1		SAND - fine, brown w/ gravel; sampled between 0.05 - 0.1 m			-		
		EOH @ 0.1 m					

Date:	18-Aug-09	**Easting:**	**441157**		Sample		
Logged by:	JK/ET	**Northing:**	**8292869**				
Method:	Hand trowel			**Sediment: 2-SD-6**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic Landfill						
Work area:	**West of Historic Landfill toe (north section), in drainage pond**						
Depth (m)		Description					
0.0-0.1		SAND - light brown, fine-medium grained,			-	Metals, PHC, PCB/Pesticides, VOC, PAH	Moss, algae & vegetation in area
0.1-0.2		SAND - light grey/brown, fine grained, wet			-		
		EOH @ 0.2 m					

Date:	18-Aug-09	**Easting:**	**440882**		Sample		
Logged by:	JK/ET	**Northing:**	**8292952**				
Method:	Hand trowel			**Sediment : 2-SD-7**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic Landfill						
Work area:	**West of Historic Landfill toe (north section), in drainage area**						
Depth (m)		Description					
0.0-0.05		ORGANICS - with algae			-	Metals	
0.05-0.15		SAND - yellow-brown, fine grained with gravel & some silt			-		
		EOH @ 0.15 m					

Date:	15-Aug-09	**Easting:**	**441451**		Sample		
Logged by:	ET/JH	**Northing:**	**8292472**				
Method:	Backhoe			**Test Pit: 2-TP-8**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic landfill						
Work area:	**West of landfill (south end), south of trail**						
Depth (m)		Description					
0.0-0.1		ORGANICS - black, moss, some grasses			-	Metals, PHC, PCB, VOC, PAH	Monitoring well (2-MW-8) installed to permafrost
0.1-0.6		SAND - grey, very moist; slight solvent/hydrocarbon odour			45		
		EOH @ 0.6 m - permafrost					

Date:	18-Aug-09	**Easting:**	**441427**		Sample		
Logged by:	JK	**Northing:**	**8292143**				
Method:	Hand trowel			**Sediment: 2-SD-10**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic landfill						
Work area:	**West of landfill (south end), south of 2-TP-8**						
Depth (m)		Description					
0.0-0.05		ORGANICS - black, wet			-	Metals, PHC, PCB, VOC, PAH	Sample taken in pond, near edge
0.05-0.2		SAND & GRAVEL - light brown, wet			-		
		EOH @ 0.2 m					

Date:	18-Aug-09	**Easting:**	**441337**		Sample		
Logged by:	JK/ET	**Northing:**	**8292317**				
Method:	Hand trowel			**Sediment: 2-SD-11**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic landfill						
Work area:	**Southwest of landfill (south end), northwest of 2-SD-10**						
Depth (m)		Description					
0.0-0.1		GRAVEL - light brown with sand & cobbles, wet				Metals, PHC, PCB, VOC, PAH	
		EOH @ 0.1					

Notes:
GR= Grab sample
EOH= End of testpit
OVM = Organic Vapour Measurement

TEST PIT, BOREHOLE and SEDIMENT LOGS
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Date:	15-Aug-09	**Easting:**	**441380**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8292815**	OVM (ppm)	Analysis	
Method:	Backhoe	**Test Pit:**	**2-TP-12**			
Location:	Resolute APEC 2 - Historic landfill					
Work area:	**Top of Historic Landfill**					
Depth (m)	Description					
0.0-0.3	SAND & GRAVEL - brown, dry, no vegetation			-	Metals, PHC, PCB/Pesticide, VOC, PAH	Test pit deepened to permafrost @ 1.2 m
0.3-1.0	SAND & GRAVEL - dark brown, dry			-		
1.0-1.2	SAND & GRAVEL - dark brown, moist; garbage (wood, plastic); light hydrocarbon smell between 0.6-1.2 m; sample taken below 0.3 m			15		
	EOH @ 1.2 m - permafrost					

Date:	16-Aug-09	**Easting:**	**441510**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8292655**	OVM (ppm)	Analysis	
Method:	Backhoe	**Test Pit:**	**2-TP-13**			
Location:	Resolute APEC 2 - Historic landfill					
Work area:	**Top of Historic Landfill, south of 2-TP-12**					
Depth (m)	Description					
0.0-0.6	SAND & GRAVEL - brown, no vegetation			-	Metals, PHC, Pesticides	Test pit deepened to permafrost at 1.2 m
0.6-0.8	SAND & GRAVEL - grey, wet			-		
0.8-1.2	SAND & GRAVEL - some silt; garbage (wire, cans, wood); light hydrocarbon smell; sample taken between 0.2-0.8 m			0		
	EOH @ 1.2 m - permafrost					

Date:	16-Aug-09	**Easting:**	**441502**	Sample		NOTES/COMMENT
Logged by:	JK	**Northing:**	**8292570**	OVM (ppm)	Analysis	
Method:	Backhoe	**Test Pit:**	**2-TP-14**			
Location:	Resolute APEC 2 - Historic landfill					
Work area:	**Top of Historic Landfill, south of 2-TP-13**					
Depth (m)	Description					
0.0-1.1	SAND & GRAVEL - light grey/brown, dry, no vegetation on surface; no garbage in test pit; sample taken below 0.5 m			0	Metals, PHC, PCB/Pesticides, VOC, PAH	Test pit deepened to permafrost @ 1.1 m
	EOH @ 1.1 m - permafrost					

Date:	16-Aug-09	**Easting:**	**441556**	Sample		NOTES/COMMENT
Logged by:	JK/JH	**Northing:**	**8292460**	OVM (ppm)	Analysis	
Method:	Backhoe	**Test Pit:**	**2-TP-15**			
Location:	Resolute APEC 2 - Historic landfill					
Work area:	**Top of Historic Landfill, south end**					
Depth (m)	Description					
0.0-0.3	GRAVEL - coarse with some light brown sand			-	Metals, PHC, PCB/Pesticides, VOC, PAH	Test pit deepened to permafrost @ 0.9 m
0.3-0.9	SAND - light brown, fine to medium grained with gravel pockets; no garbage; sampled taken between 0.3-0.7 m			0		
	EOH @ 0.9 m - permafrost					

Date:	18-Aug-09	**Easting:**	**440428**	Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8291639**	OVM (ppm)	Analysis	
Method:	Hand trowel	**Sediment:**	**2-SD-17**			
Location:	Resolute APEC 2 - Historic landfill					
Work area:	**Background Sample**					
Depth (m)	Description					
0.0-0.05	ORGANIC - black, wet			-	Metals, PHC, PAH	Sample collected in shallow pond
0.0-0.25	SAND - fine with gravel, brown/black, wet			-		
	EOH @ 0.25 m					

Date:	18-Aug-09	**Easting:**	**440428**	Sample		NOTES/COMMENT
Logged by:	ET	**Northing:**	**8291639**	OVM (ppm)	Analysis	
Method:	Hand trowel	**Test Pit:**	**2-TP-17**			
Location:	Resolute APEC 2 - Historic landfill					
Work area:	**Background Sample**					
Depth (m)	Description					
0.0-0.25	SANDY GRAVEL - fine with some gravel, light brown			-	Metals	Sampled collected 1.5 m west of pin flag
	EOH @ 0.25 m					

Notes:
GR= Grab sample
EOH= End of testpit
OVM = Organic Vapour Measurement

Date:	15-Aug-09	**Easting:**	**441400**		Sample		
Logged by:	JK	**Northing:**	**8293072**				
Method:	Backhoe			**Test Pit: 2-TP-18**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic landfill						
Work area:	**On top of landfill, at northern extent**						
Depth (m)		Description					
0.0-0.25		GRAVEL - some vegetation & roots			-	Metals, PHC, PCB/Pesticides, VOC, PAH	Test pit deepened to permafrost @ 1.2 m
0.25-0.6		SAND & GRAVEL - brown			-		
0.6-1.2		SAND - light brown w/ some grey, fine grained, moist; hydrocarbon smell between 0.6-1.2 m; no garbage; sample taken from 0.6-1.2 m			0		
		EOH @ 1.2 m - permafrost					

Date:	20-Aug-09	**Easting:**	**440118**		Sample		
Logged by:	ET	**Northing:**	**8292609**				
Method:	Hand trowel			**Sediment: 2-SD-19**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historical landfill						
Work area:	**Downgradient receptor**						
Depth (m)		Description					
0.0-0.2		SAND - brown, fine grained with black organics, gravel & cobbles, wet, slight sulphur smell			-	Metals, PHC, PCB/Pesticides, PAH	
		EOH @ 0.2 m					

Date:	20-Aug-09	**Easting:**	**441441**		Sample		
Logged by:	ET	**Northing:**	**8292494**				
Method:	Hand trowel			**Test Pit: 2-TP-20**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 2 - Historic landfill						
Work area:	**West of landfill (south end), south of trail**						
Depth (m)		Description					
0.0-0.1		ORGANICS - black, moss, grasses			-	Metals, PHC, PCB/Pesticide, VOC, PAH	Sample collected 2 m from pinflag
0.1-0.25		SAND - fine, grey-brown, very moist; sulphur smell			20		
		EOH @ 0.25 m					

Date:	16-Aug-09	**Easting:**	**440452**		Sample		
Logged by:	JK/JH	**Northing:**	**8296306**				
Method:	Hand trowel			**Test Pit: 3-TP-1**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3A - Vehicle Storage Area						
Work area:	**Center of APEC 3A**						
Depth (m)		Description					
0.0-0.05		GRAVEL - coarse grained with some moss on top			-	Metals, PHC, PCB, VOC, PAH, TOC, grain size	Electronics scattered in area - sample collected in middle of electronics pile
0.05-0.1		SANDY GRAVEL - light grey/brown with some silt, no noticeable odour; used as sample			-		
0.1-0.2		SANDY GRAVEL - coarse grained			-		
		EOH @ 0.2 m					

Date:	15-Aug-09	**Easting:**	**440432**		Sample		
Logged by:	JK/JH	**Northing:**	**8296299**				
Method:	Hand trowel			**Test Pit: 3-TP-2**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3A - Vehicle Storage Area						
Work area:	**West end of APEC 3A**						
Depth (m)		Description					Sample collected 1.5 m downgradient of large tank (use unknown)
0.0-0.01		TOPSOIL - dark brown with moss			-	Metals, PHC, Pesticides, PAH	
0.01-0.2		SANDY GRAVEL - light grey/brown with some silt, humid, no noticeable odour; sampled			-		
		EOH @ 0.2 m					

Date:	15-Aug-09	**Easting:**	**440468**		Sample		
Logged by:	JK/JH	**Northing:**	**8296306**				
Method:	Hand trowel			**Test Pit: 3-TP-3**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3A - Vehicle Storage Area						
Work area:	**East end of APEC 3A**						
Depth (m)		Description					Sample collected in area of black staining beside large generator and near electronics pile
0.0-0.03		GRAVEL - coarse, black			-	Metals, PHC, PAH	
0.03-0.1		GRAVEL - coarse, black with sand; sample taken between 0 - 0.1 m; light oil smell			-		
0.1-0.2		SANDY GRAVEL - light grey/brown			-		
		EOH @ 0.2 m					

Notes:
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OVM = Organic Vapour Measurement

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Date:	14-Aug-09	**Easting:**	**440642**		Sample		
Logged by:	JK/JH	**Northing:**	**8296484**				
Method:	Hand trowel			**Test Pit: 3-TP-4**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3B - Small waste storage area						
Work area:	**Subarea 1**						
Depth (m)		Description					
0.0-0.05		GRAVEL - coarse			-	Metals, PHC, PAH	Sample collected within 1 m of small transformers in east pile
0.05-0.1		SANDY GRAVEL - light brown, slightly humid; sampled collected between 0.05-0.1 m			-		
		EOH @ 0.1 m					

Date:	16-Aug-09	**Easting:**	**440613**		Sample		
Logged by:	JK/JH	**Northing:**	**8296472**				
Method:	Hand trowel			**Test Pit: 3-TP-5**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3B - Small waste storage area						
Work area:	**Subarea 2**						
Depth (m)		Description					
0.0-0.05		GRAVEL - on surface; SAND - light brown w/ trace silt			-	Metals, PHC, PCB, VOC, PAH	Sample collected downgradient of electronics pile
0.05-0.2		SANDY GRAVEL - light brown, slightly moist; sample collected from 0 - 0.1 m			-		
		EOH @ 0.2 m					

Date:	16-Aug-09	**Easting:**	**440738**		Sample		
Logged by:	JK/JH	**Northing:**	**8296591**				
Method:	Hand trowel			**Test Pit: 3-TP-6**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3 - Background Sample						
Work area:	**Approx. 200m east of APEC 3B**						
Depth (m)		Description					
0.0-0.05		GRAVEL - coarse grained			-	Metals	Sample taken approx. 200 m east of APEC 3B
0.05-0.1		SAND - light brown, fine grained with gravel & trace silt, some humidity; sample collected from 0.05 - 0.1 m			-		
		EOH @ 0.1 m					

Date:	16-Aug-09	**Easting:**	**440299**		Sample		
Logged by:	JK	**Northing:**	**8296321**				
Method:	Hand trowel			**Sediment: 3-SD-7**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3						
Work area:	**Downgradient of APEC 3 in stream, upstream of debris**						
Depth (m)		Description					
0.0-0.05		MOSS			-	PHC, metals, PCBs, VOC, PAH	
0.05-0.2		SAND - light greyish brown, fine to medium grained, wet; sampled between		0.05 - 0.2	-		
		EOH @ 0.2 m					

Date:	16-Aug-09	**Easting:**	**440646**		Sample		
Logged by:	JH	**Northing:**	**8296603**				
Method:	Hand trowel			**Sediment: 3-SD-8**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3						
Work area:	**Downgradient of APEC 3 in stream, downstream of debris**						
Depth (m)		Description					
0.0-0.2		SAND - light brown, medium-grained, moist; fluvial deposit in elevated water flow areas; sampled between 0.05 - 0.2 m				PHC, metals, PCB, VOC, PAH	
		EOH @ 0.2 m					

Date:	14-Aug-09	**Easting:**	**440776**		Sample		
Logged by:	JK/JH	**Northing:**	**8296618**				
Method:	Hand trowel			**Test Pit: 3-TP-9**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3 - Background soil sample						
Work area:	**Approx. 250 m east of APEC 3B; approx. 50 m east of 3-TP-6**						
Depth (m)		Description					
0.0-0.05		GRAVEL - coarse				Metals	Sample taken approx. 250 m east of APEC 3B, 50 m east of 3-TP-6
0.05-0.1		SANDY GRAVEL - light brown, slightly humid; sampled between 0.05 - 0.1 m					
		EOH @ 0.1 m					

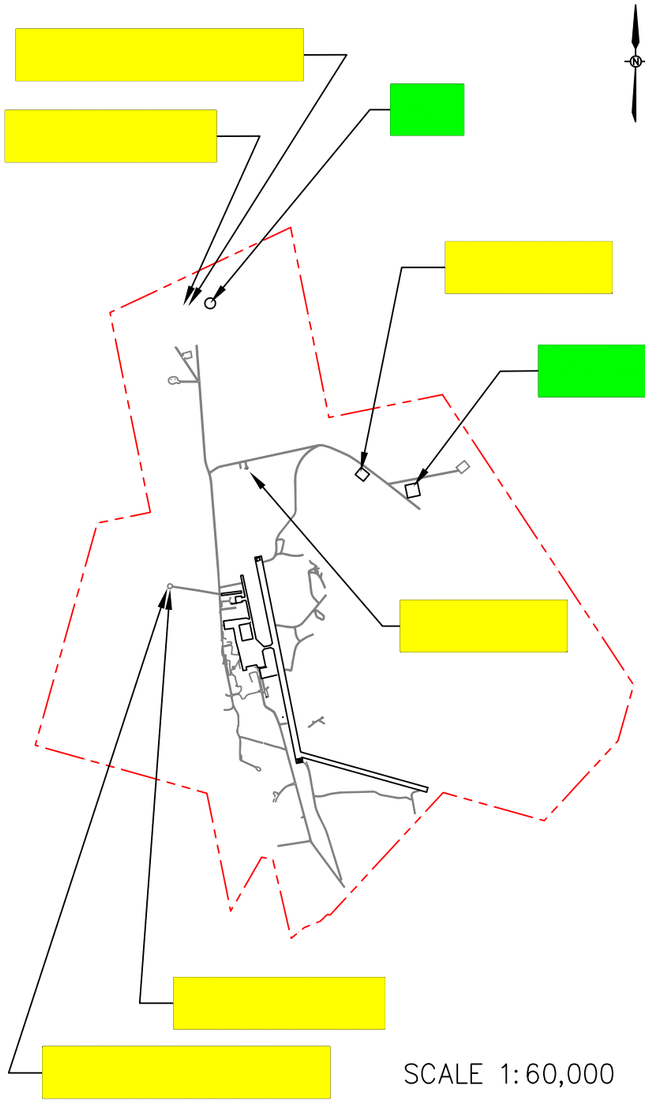
Date:	19-Aug-09	**Easting:**	**439535**		Sample		
Logged by:	JK/ET	**Northing:**	**8296735**				
Method:	Hand trowel			**Sediment: 3-SD-10**	OVM (ppm)	Analysis	NOTES/COMMENT
Location:	Resolute APEC 3 - downgradient receptor						
Work area:	**At mouth of stream, in Allen Bay**						
Depth (m)		Description					
0.0-0.15		GRAVEL - pockets of fine sand & organics; sampled between 0.05-0.15 m				Metals, PHC, PCB/Pesticides, PAH	Sample collected 5 m from shore in Allen Bay during low tide.
		EOH @ 0.15 m					

Notes:
GR= Grab sample
EOH= End of testpit
OVM = Organic Vapour Measurement

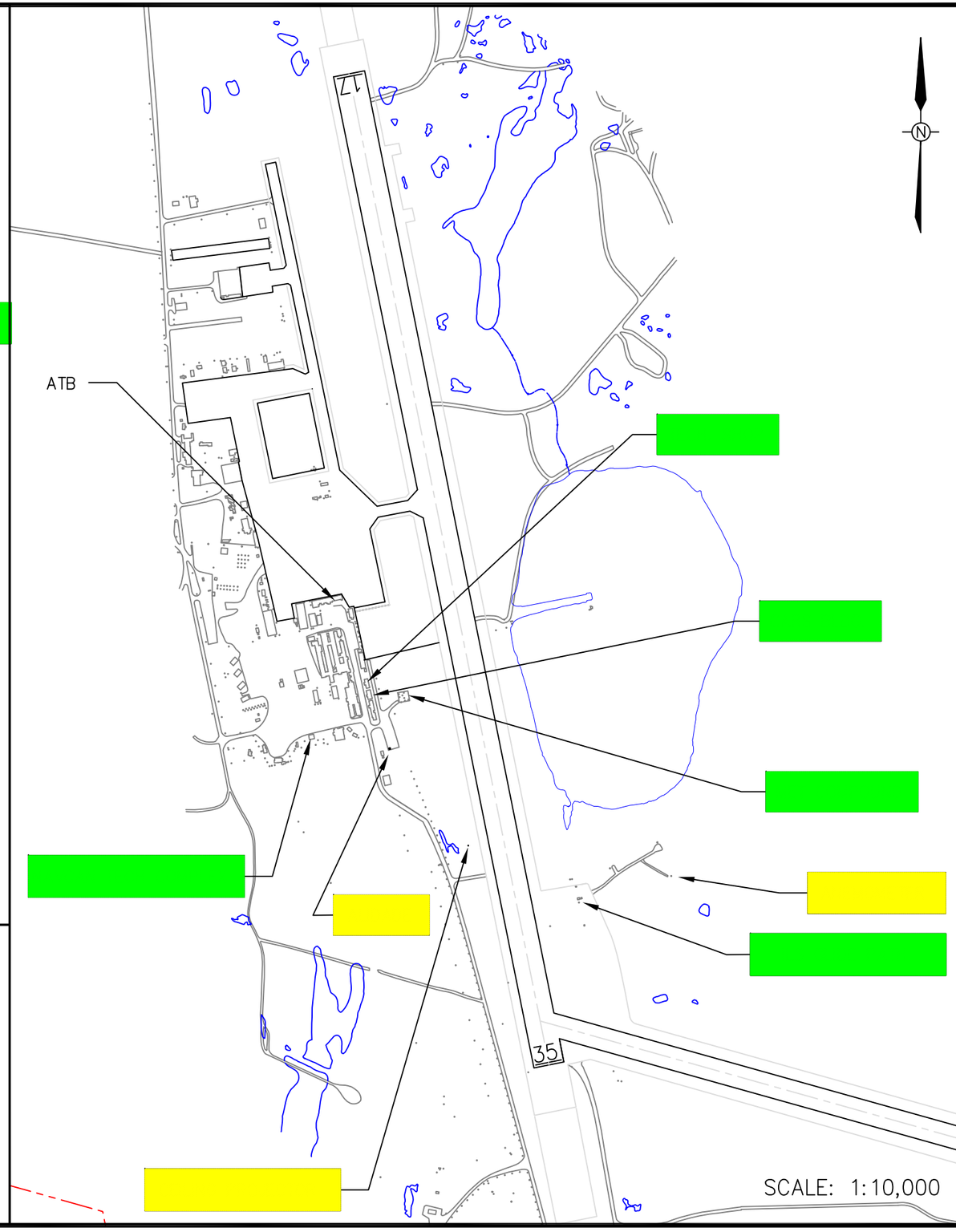
Appendix G

Official Site Survey

FILE NAME: NAVCAN/704-001.DWG



SCALE 1:60,000



SCALE: 1:10,000

RESOLUTE BAY AIRPORT LEGAL DESCRIPTION

LOT 1001 QUAD 58/11
PLAN 77590 C.L.S.R. 2549 L.T.O.

Northwest Territories Transportation

Arctic Airports Division

NOTES:

1. VALUES SHOWN ARE NAD83 AND SHOULD NOT BE USED FOR NAV-AID PURPOSES.

LEGEND:

LEASED AIR NAVIGATION FACILITIES

LICENSED AIR NAVIGATION FACILITIES, INCL. ALL CABLES.

AIRPORT BOUNDARY

FACILITY	UTM COORDINATES	
	NORTHING	EASTING
ALIDADE	8 292 672.5	441 932.9
ANEMOMETER	8 292 364.9	442 507.6
ATB	8 292 904.7	442 507.6
CARS ANTENNA TOWER 1	8 296 302.2	441 169.8
CARS ANTENNA TOWER 2	8 295 597.5	441 077.3
CARS BLDG	8 292 721.6	441 916.3
CEILING PROJECTOR	8 292 904.7	442 507.6
ILS GLIDE PATH	8 292 321.4	442 325.1
LOCALIZER	8 294 768.5	441 769.4
MET COMPOUND	8 292 714.8	441 980.5
NAVCAN STAFF HOUSE	8 292 638.2	441 802.9
NDB	8 296 325.8	441 423.7
RECIEVER SITE	8 295 597.5	441 077.3
TECH SHOP	8 292 741.9	441 910.5
TRANSMITTER SITE	8 296 302.2	441 169.8
VHF/DF SITE	8 294 564.0	443 329.8
VOR/DME	8 294 711.7	442 855.9

Modified A- Occupancy Agreement

Schedule A

Title:

RESOLUTE BAY AIRPORT SITE PLAN NAVCANADA FACILITIES INVENTORY

Approved by: DIRECTOR, ARCTIC AIRPORTS DIVISION	
Signature:	
Drawn/Drafted by: LL	Checked by: BM
Scale: AS_SHOWN	Date: 01/02/99
Drawing No. NAVCAN/704-001	Sheet No. 1/2

Appendix H
Field Measurements

Horiba Field Measurements
Resolute Bay, Nunavut

Site	pH	Cond	Turb	D.O.	Temp	ORP	TDS
1-SW-1	7.93	1.00	6.4	8.75	3.06	171	0.64
1-SW-2	7.98	0.96	14.3	9.41	3.02	154	0.60
1-SW-4	8.71	1.01	52.0	9.11	3.83	100	0.70
1-SW-5	8.76	0.69	28.3	8.36	3.12	96	0.44
1-SW-6	8.82	1.27	49.8	8.59	1.73	43	0.80
1-SW-7	7.90	1.28	13.4	9.00	2.49	185	0.80
1-SW-8	8.61	1.03	35.9	8.89	1.69	126	0.70
1-SW-15	8.29	1.05	6.9	9.46	2.57	139	0.70
1-SW-16-1	8.11	1.10	6.9	10.13	2.79	165	0.70
1-SW-16-2	7.82	58.20	60.9	9.58	1.65	194	34.00
2-SW-19-1	8.03	0.54	29.0	9.46	5.80	2.57	0.34
2-SW-17	8.20	0.41	9.6	9.00	2.53	154	0.27
2-SW-11	8.21	0.86	36.2	9.08	1.29	154	0.56
2-SW-9	8.20	1.04	22.3	9.35	0.89	156	0.70
2-SW-7	8.21	1.25	7.2	9.15	2.15	173	0.80
2-SW-6	8.20	0.85	24.1	9.24	2.07	184	0.54
2-SW-5	8.18	0.57	22.4	9.08	2.62	168	0.36
2-SW-4	8.17	0.90	11.1	8.78	1.86	176	0.48
2-SW-3	8.11	1.06	51.5	9.12	1.92	198	0.24
3-SW-7	8.30	0.72	10.9	9.44	4.00	193	0.46
3-SW-8	8.19	0.71	7.6	9.37	3.85	184	0.45
3-SW-10-1	8.01	27.10	12.7	9.54	3.35	197	17.00

Highlighted cells indicate marine samples

Stream Flow Measurements at 1-SW-2 (APEC 1)
Resolute Bay, Nunavut

Distance (m)	Time (sec)	Area (m^2)*	Flow (m^3/sec)	Flow (L/s)
1.5	9.8	0.0175	0.0027	2.7
1.2	5.8	0.0144	0.003	3.0
0.56	2.9	0.0105	0.002	2.0
0.54	2.6	0.0105	0.0022	2.2
0.54	2.6	0.0105	0.0022	2.2

*All areas found using AutoCAD
Average flow volume = 0.00242 m^3/sec
= 2.42 L/sec

Appendix I

Certified Laboratory Reports

Your Project #: MA9B4545

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS INC.
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2009/09/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A947884
Received: 2009/09/03, 8:25

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Texture by Hydrometer	2	N/A	2009/09/10	CAL SOP-00033	MMFSPA Ch9
Texture Class	2	N/A	2009/09/10	CAL SOP-00033	MMFSPA Ch9

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

LINSAY DAME, Project Manager Assistant
Email: Linsay.Dame@MaxxamAnalytics.com
Phone# (403) 291-3077

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A947884
Report Date: 2009/09/10

MAXXAM ANALYTICS INC.
Client Project #: MA9B4545

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		Q57368	Q57373		
Sampling Date		2009/08/19	2009/08/19		
	Units	**1-5 (DO5850)**	**3-1 (DO5851)**	**RDL**	**QC Batch**
Physical Properties					
% sand by hydrometer	%	66	70	2	3408315
% silt by hydrometer	%	26	22	2	3408315
Clay Content	%	8	8	2	3408315
Texture	N/A	SANDY LOAM	SANDY LOAM	N/A	3394653

RDL = Reportable Detection Limit

MAXXAM ANALYTICS INC.
Maxxam Job #: A947884
Client Project #: MA9B4545
Report Date: 2009/09/10

Package 1	10.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS INC.
Attention: SUB CONTRACTOR
Client Project #: MA9B4545
P.O. #:
Site Reference:

Quality Assurance Report

Maxxam Job Number: CA947884

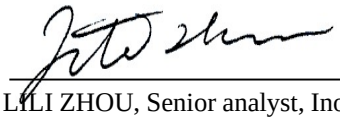
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3408315	SMB	QC Standard	% sand by hydrometer	2009/09/10		104	%	75 - 125
			% silt by hydrometer	2009/09/10		99	%	75 - 125
			Clay Content	2009/09/10		87	%	75 - 125
		RPD	% sand by hydrometer	2009/09/10	7.0		%	35
			% silt by hydrometer	2009/09/10	12.2		%	35
			Clay Content	2009/09/10	1.9		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Validation Signature Page

Maxxam Job #: A947884

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



LILI ZHOU, Senior analyst, Inorganic department.

==========

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Your P.O. #: 1747-0901
Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15953318, 159533-1, 159561-0

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2009/09/01

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A7367
Received: 2009/08/20, 07:30

Sample Matrix: Soil
Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	19	2009/08/28	2009/08/28	CAM SOP-00408	EPA 3050B
Chromium (VI) in Soil	4	2009/08/26	2009/08/27	CAM SOP-00420	EPA 3060A
Chromium (VI) in Soil	2	2009/08/27	2009/08/27	CAM SOP-00420	EPA 3060A
Chromium (VI) in Soil	13	2009/08/27	2009/08/28	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2009/08/21	2009/08/26	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil ⓓ	16	2009/08/21	2009/08/22	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2009/08/22	2009/08/23	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil ⓓ	4	2009/08/21	2009/08/21	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil ⓓ	12	2009/08/21	2009/08/22	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	19	2009/08/28	2009/08/28	CAM SOP-00447	EPA 6020
MOISTURE ⓓ	16	N/A	2009/08/24	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	1	N/A	2009/08/24	CAM SOP-00445	McKeague 2nd ed 1978
MOISTURE	1	N/A	2009/08/27	CAM SOP-00445	McKeague 2nd ed 1978
MOISTURE	1	N/A	2009/08/28	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB ⓓ	5	2009/08/26	2009/08/27	CAM SOP-00307	SW846 8081, 8082
PAH Compounds in Soil by GC/MS (SIM)	13	2009/08/24	2009/08/25	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	2	2009/08/24	2009/08/26	CAM SOP - 00318	EPA 8270
Polychlorinated Biphenyl in Soil	7	2009/08/24	2009/08/26	CAM SOP-00309	SW846 8082
Polychlorinated Biphenyl in Soil	3	2009/08/26	2009/08/26	CAM SOP-00309	SW846 8082
Total Organic Carbon in Soil	2	N/A	2009/08/28	CAM SOP-00468	LECO Combustion
Volatile Organic Compounds in Soil ⓓ	2	2009/08/21	2009/08/21	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Soil ⓓ	7	2009/08/21	2009/08/22	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Soil ⓓ	1	2009/08/21	2009/08/24	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Soil ⓓ	2	2009/08/21	2009/08/28	CAM SOP-00226	EPA 8260 modified

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dissolved Aluminum (0.2 u, clay free)	4	N/A	2009/08/28	CAM SOP-00447	SW846, 6020
Chromium (VI) in Water	3	N/A	2009/08/25	BRL SOP-00106	EPA 7199
Chromium (VI) in Water	1	N/A	2009/08/27	BRL SOP-00106	EPA 7199
Petroleum Hydro. CCME F1 & BTEX in Water ⓓ	4	N/A	2009/08/21	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water ⓓ	4	2009/08/21	2009/08/21	CAM SOP-00316	CCME Hydrocarbons
Glycols in Water by GC/FID	2	N/A	2009/08/24	CAM SOP-00322	based on EPA 8015
Mercury	4	2009/08/24	2009/08/24	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	4	N/A	2009/08/31	CAM SOP-00447	EPA 6020
OC Pesticides (Selected) & PCB ⓓ	1	2009/08/24	2009/08/26	CAM SOP-00307	SW846 8081,8082
PAH Compounds in Water by GC/MS (SIM)	3	2009/08/21	2009/08/22	CAM SOP-00318	EPA 8270
Polychlorinated Biphenyl in Water	2	2009/08/21	2009/08/24	CAM SOP-00309	SW846 8082

../2

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Total Phosphorus (Colourimetric)	4	2009/08/27	2009/08/28	CAM SOP-00407	APHA 4500 P,B,F
Volatile Organic Compounds in Water (1)	3	N/A	2009/08/26	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 2

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		DK9256	DK9367		
Sampling Date		2009/08/16 16:25	2009/08/15		
	Units	**1-SD-1**	**3-TP-2**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	20		0.2	1917020
BTEX & F1 Hydrocarbons					
Benzene	ug/g	ND	ND	0.02	1918758
Toluene	ug/g	ND	ND	0.02	1918758
Ethylbenzene	ug/g	ND	ND	0.02	1918758
o-Xylene	ug/g	ND	ND	0.02	1918758
p+m-Xylene	ug/g	ND	ND	0.04	1918758
Total Xylenes	ug/g	ND	ND	0.04	1918758
F1 (C6-C10)	ug/g	ND	ND	10	1918758
F1 (C6-C10) - BTEX	ug/g	ND	ND	10	1918758
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	10	1915865
F3 (C16-C34 Hydrocarbons)	ug/g	ND	ND	10	1915865
F4 (C34-C50 Hydrocarbons)	ug/g	ND	ND	10	1915865
Reached Baseline at C50	ug/g	YES	YES		1915865
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	93	91		1918758
4-Bromofluorobenzene	%	98	101		1918758
D10-Ethylbenzene	%	103	100		1918758
D4-1,2-Dichloroethane	%	78	85		1918758
o-Terphenyl	%	90	87		1915865

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DK9256			DK9257			DK9258		DK9259		
Sampling Date		2009/08/16 16:25			2009/08/16 16:50			2009/08/16 14:51		2009/08/16 15:35		
	Units	**1-SD-1**	**RDL**	**QC Batch**	**1-SD-2**	**RDL**	**QC Batch**	**3-SD-7**	**RDL**	**3-SD-8**	**RDL**	**QC Batch**
Metals												
Hot Water Ext. Boron (B)	ug/g	1.3	0.01	1921632	0.36	0.01	1921892	0.48	0.01	0.41	0.01	1921892
Chromium (VI)	ug/g	ND	0.2	1920775	ND	0.2	1919164	ND	0.2	ND	0.2	1920928
Acid Extractable Antimony (Sb)	ug/g	ND	0.2	1921637	ND	0.2	1921637	ND	0.2	ND	0.2	1921637
Acid Extractable Arsenic (As)	ug/g	1	1	1921637	2	1	1921637	2	1	2	1	1921637
Acid Extractable Barium (Ba)	ug/g	28	0.5	1921637	9.1	0.5	1921637	12	0.5	5.2	0.5	1921637
Acid Extractable Beryllium (Be)	ug/g	ND	0.2	1921637	ND	0.2	1921637	ND	0.2	ND	0.2	1921637
Acid Extractable Cadmium (Cd)	ug/g	0.2	0.1	1921637	0.1	0.1	1921637	ND	0.1	ND	0.1	1921637
Acid Extractable Chromium (Cr)	ug/g	8	1	1921637	5	1	1921637	7	1	4	1	1921637
Acid Extractable Cobalt (Co)	ug/g	2.2	0.1	1921637	1.0	0.1	1921637	3.0	0.1	1.4	0.1	1921637
Acid Extractable Copper (Cu)	ug/g	9.9	0.5	1921637	3.9	0.5	1921637	6.5	0.5	1.7	0.5	1921637
Acid Extractable Lead (Pb)	ug/g	10	2	1921637	ND	5	1921637	9	2	ND	5	1921637
Acid Extractable Molybdenum (Mo)	ug/g	ND	0.5	1921637	0.5	0.5	1921637	ND	0.5	ND	0.5	1921637
Acid Extractable Nickel (Ni)	ug/g	5	1	1921637	3	1	1921637	6	1	3	1	1921637
Acid Extractable Selenium (Se)	ug/g	ND	0.5	1921637	ND	0.5	1921637	ND	0.5	ND	0.5	1921637
Acid Extractable Silver (Ag)	ug/g	ND	0.2	1921637	ND	0.2	1921637	ND	0.2	ND	0.2	1921637
Acid Extractable Thallium (Tl)	ug/g	ND	0.05	1921637	ND	0.05	1921637	ND	0.05	ND	0.05	1921637
Acid Extractable Vanadium (V)	ug/g	8	5	1921637	10	5	1921637	12	5	8	5	1921637
Acid Extractable Zinc (Zn)	ug/g	39	5	1921637	16	5	1921637	18	5	12	5	1921637
Acid Extractable Mercury (Hg)	ug/g	ND	0.05	1921637	ND	0.05	1921637	ND	0.05	ND	0.05	1921637

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DK9282		DK9283		DK9284	DK9285	DK9286			DK9362		
Sampling Date		2009/08/16		2009/08/16		2009/08/16	2009/08/16	2009/08/16			2009/08/15		
	Units	**2-TP-15**	**QC Batch**	**3-TP-5**	**QC Batch**	**3-TP-1**	**2-TP-13**	**3-TP-6**	**RDL**	**QC Batch**	**1-TP-11**	**RDL**	**QC Batch**
Inorganics													
Moisture	%							9.9	0.2	1920588			
Metals													
Hot Water Ext. Boron (B)	ug/g	0.19	1921892	0.42	1921632	0.27	0.74	0.15	0.01	1921632	1.5	0.01	1921892
Chromium (VI)	ug/g	ND	1920775	ND	1920928	ND	ND	ND	0.2	1919164	ND	0.2	1919164
Acid Extractable Antimony (Sb)	ug/g	ND	1921727	ND	1921727	ND	ND	ND	0.2	1921727	3.0	0.2	1921637
Acid Extractable Arsenic (As)	ug/g	ND	1921727	2	1921727	2	2	2	1	1921727	3	1	1921637
Acid Extractable Barium (Ba)	ug/g	6.8	1921727	9.6	1921727	11	20	6.4	0.5	1921727	40	0.5	1921637
Acid Extractable Beryllium (Be)	ug/g	ND	1921727	ND	1921727	ND	ND	ND	0.2	1921727	ND	0.2	1921637
Acid Extractable Cadmium (Cd)	ug/g	ND	1921727	0.3	1921727	0.1	0.1	ND	0.1	1921727	3.3	0.1	1921637
Acid Extractable Chromium (Cr)	ug/g	2	1921727	5	1921727	5	7	5	1	1921727	12	1	1921637
Acid Extractable Cobalt (Co)	ug/g	0.3	1921727	1.9	1921727	1.7	2.9	1.8	0.1	1921727	3.2	0.1	1921637
Acid Extractable Copper (Cu)	ug/g	1.2	1921727	3.3	1921727	5.5	16	3.4	0.5	1921727	150	0.5	1921637
Acid Extractable Lead (Pb)	ug/g	5	1921727	7	1921727	11	10	5	1	1921727	170	2	1921637
Acid Extractable Molybdenum (Mo)	ug/g	ND	1921727	ND	1921727	ND	ND	ND	0.5	1921727	2.1	0.5	1921637
Acid Extractable Nickel (Ni)	ug/g	ND	1921727	4.7	1921727	4.0	7.7	4.7	2.5	1921727	7	1	1921637
Acid Extractable Selenium (Se)	ug/g	ND	1921727	ND	1921727	ND	ND	ND	0.5	1921727	ND	0.5	1921637
Acid Extractable Silver (Ag)	ug/g	ND	1921727	ND	1921727	ND	ND	ND	0.2	1921727	ND	0.2	1921637
Acid Extractable Thallium (Tl)	ug/g	ND	1921727	ND	1921727	ND	0.05	ND	0.05	1921727	ND	0.05	1921637
Acid Extractable Vanadium (V)	ug/g	ND	1921727	5	1921727	ND	6	5	5	1921727	9	5	1921637
Acid Extractable Zinc (Zn)	ug/g	11	1921727	23	1921727	15	32	20	5	1921727	300	5	1921637
Acid Extractable Mercury (Hg)	ug/g	ND	1921727	ND	1921727	ND	ND	ND	0.05	1921727	0.43	0.05	1921637

ND = Not detected
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QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DK9363		DK9364		DK9365		DK9366		DK9367		
Sampling Date		2009/08/15		2009/08/15		2009/08/15		2009/08/15		2009/08/15		
	Units	**1-TP-12**	**QC Batch**	**2-TP-18**	**QC Batch**	**2-TP-12**	**QC Batch**	**2-TP-8**	**QC Batch**	**3-TP-2**	**RDL**	**QC Batch**
Metals												
Hot Water Ext. Boron (B)	ug/g	0.77	1921892	0.16	1921632	0.14	1921632	0.96	1921632	0.47	0.01	1921632
Chromium (VI)	ug/g	ND	1920775	ND	1920928	ND	1920775	ND	1920928	ND	0.2	1920775
Acid Extractable Antimony (Sb)	ug/g	ND	1921727	ND	1921727	ND	1921727	ND	1921727	ND	0.2	1921727
Acid Extractable Arsenic (As)	ug/g	2	1921727	ND	1921727	ND	1921727	2	1921727	3	1	1921727
Acid Extractable Barium (Ba)	ug/g	46	1921727	4.5	1921727	33	1921727	19	1921727	43	0.5	1921727
Acid Extractable Beryllium (Be)	ug/g	ND	1921727	ND	1921727	ND	1921727	0.3	1921727	ND	0.2	1921727
Acid Extractable Cadmium (Cd)	ug/g	0.6	1921727	0.2	1921727	0.2	1921727	0.2	1921727	0.1	0.1	1921727
Acid Extractable Chromium (Cr)	ug/g	6	1921727	3	1921727	2	1921727	7	1921727	7	1	1921727
Acid Extractable Cobalt (Co)	ug/g	2.0	1921727	0.4	1921727	0.2	1921727	2.1	1921727	2.6	0.1	1921727
Acid Extractable Copper (Cu)	ug/g	5.8	1921727	1.8	1921727	1.5	1921727	5.2	1921727	6.1	0.5	1921727
Acid Extractable Lead (Pb)	ug/g	13	1921727	11	1921727	7	1921727	6	1921727	12	1	1921727
Acid Extractable Molybdenum (Mo)	ug/g	ND	1921727	ND	1921727	ND	1921727	ND	1921727	ND	0.5	1921727
Acid Extractable Nickel (Ni)	ug/g	4.7	1921727	ND	1921727	ND	1921727	6.0	1921727	6.3	2.5	1921727
Acid Extractable Selenium (Se)	ug/g	ND	1921727	ND	1921727	ND	1921727	ND	1921727	ND	0.5	1921727
Acid Extractable Silver (Ag)	ug/g	ND	1921727	ND	1921727	ND	1921727	ND	1921727	ND	0.2	1921727
Acid Extractable Thallium (Tl)	ug/g	ND	1921727	ND	1921727	ND	1921727	ND	1921727	ND	0.05	1921727
Acid Extractable Vanadium (V)	ug/g	5	1921727	ND	1921727	ND	1921727	9	1921727	8	5	1921727
Acid Extractable Zinc (Zn)	ug/g	39	1921727	43	1921727	15	1921727	22	1921727	24	5	1921727
Acid Extractable Mercury (Hg)	ug/g	ND	1921727	ND	1921727	ND	1921727	ND	1921727	ND	0.05	1921727

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DK9368		DK9369		DK9370			DK9371		
Sampling Date		2009/08/15		2009/08/16		2009/08/16			2009/08/16		
	Units	**3-TP-3**	**QC Batch**	**1-TP-10**	**QC Batch**	**1-TP-9**	**RDL**	**QC Batch**	**2-TP-14**	**RDL**	**QC Batch**
Metals											
Hot Water Ext. Boron (B)	ug/g	0.81	1922184	0.94	1922184	1.7	0.01	1921892	0.38	0.01	1921892
Chromium (VI)	ug/g	ND	1919164	ND	1920928	ND	0.2	1920928	ND	0.2	1920775
Acid Extractable Antimony (Sb)	ug/g	0.4	1921634	1.9	1921727	1.0	0.2	1921727	ND	0.2	1921637
Acid Extractable Arsenic (As)	ug/g	2	1921634	2	1921727	2	1	1921727	2	1	1921637
Acid Extractable Barium (Ba)	ug/g	21	1921634	49	1921727	34	0.5	1921727	16	0.5	1921637
Acid Extractable Beryllium (Be)	ug/g	ND	1921634	ND	1921727	ND	0.2	1921727	ND	0.2	1921637
Acid Extractable Cadmium (Cd)	ug/g	0.3	1921634	13	1921727	0.3	0.1	1921727	ND	0.1	1921637
Acid Extractable Chromium (Cr)	ug/g	11	1921634	19	1921727	10	1	1921727	5	1	1921637
Acid Extractable Cobalt (Co)	ug/g	2.5	1921634	2.4	1921727	1.3	0.1	1921727	1.8	0.1	1921637
Acid Extractable Copper (Cu)	ug/g	110	1921634	55	1921727	870	0.5	1921727	3.4	0.5	1921637
Acid Extractable Lead (Pb)	ug/g	74	1921634	110	1921727	32	1	1921727	4	2	1921637
Acid Extractable Molybdenum (Mo)	ug/g	0.6	1921634	2.7	1921727	1.4	0.5	1921727	ND	0.5	1921637
Acid Extractable Nickel (Ni)	ug/g	6.0	1921634	4.7	1921727	4.0	2.5	1921727	4	1	1921637
Acid Extractable Selenium (Se)	ug/g	ND	1921634	ND	1921727	ND	0.5	1921727	ND	0.5	1921637
Acid Extractable Silver (Ag)	ug/g	ND	1921634	ND	1921727	ND	0.2	1921727	ND	0.2	1921637
Acid Extractable Thallium (Tl)	ug/g	ND	1921634	ND	1921727	ND	0.05	1921727	ND	0.05	1921637
Acid Extractable Vanadium (V)	ug/g	5	1921634	ND	1921727	ND	5	1921727	9	5	1921637
Acid Extractable Zinc (Zn)	ug/g	66	1921634	140	1921727	56	5	1921727	15	5	1921637
Acid Extractable Mercury (Hg)	ug/g	ND	1921634	0.06	1921727	0.19	0.05	1921727	ND	0.05	1921637

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

PWQO METALS (WATER)

Maxxam ID		DK9390	DK9391		DK9392		DK9393		
Sampling Date		2009/08/16 16:25	2009/08/16 16:50		2009/08/16 14:51		2009/08/16 15:35		
	Units	**1-SW-1**	**1-SW-2**	**QC Batch**	**3-SW-7**	**QC Batch**	**3-SW-8**	**RDL**	**QC Batch**
Inorganics									
Total Phosphorus	mg/L	0.051	0.067	1920667	0.004	1920667	0.004	0.002	1920667
Metals									
Dissolved (0.2u) Aluminum (Al)	ug/L	ND	ND	1922189	ND	1922189	ND	5	1922189
Chromium (VI)	ug/L	ND	ND	1917051	ND	1917052	ND	0.5	1917051
Mercury (Hg)	ug/L	ND	ND	1916238	ND	1916238	ND	0.1	1916238
Total Antimony (Sb)	ug/L	ND	ND	1922458	ND	1922458	ND	0.5	1922458
Total Arsenic (As)	ug/L	ND	ND	1922458	ND	1922458	ND	1	1922458
Total Beryllium (Be)	ug/L	ND	ND	1922458	ND	1922458	ND	0.5	1922458
Total Boron (B)	ug/L	36	55	1922458	30	1922458	32	10	1922458
Total Cadmium (Cd)	ug/L	ND	ND	1922458	ND	1922458	ND	0.1	1922458
Total Chromium (Cr)	ug/L	ND	ND	1922458	ND	1922458	ND	5	1922458
Total Cobalt (Co)	ug/L	ND	ND	1922458	ND	1922458	ND	0.5	1922458
Total Copper (Cu)	ug/L	2	2	1922458	ND	1922458	ND	1	1922458
Total Iron (Fe)	ug/L	ND	ND	1922458	ND	1922458	ND	100	1922458
Total Lead (Pb)	ug/L	ND	ND	1922458	ND	1922458	ND	0.5	1922458
Total Molybdenum (Mo)	ug/L	ND	ND	1922458	ND	1922458	ND	1	1922458
Total Nickel (Ni)	ug/L	2	2	1922458	ND	1922458	ND	1	1922458
Total Selenium (Se)	ug/L	ND	ND	1922458	ND	1922458	ND	2	1922458
Total Silver (Ag)	ug/L	ND	ND	1922458	ND	1922458	ND	0.1	1922458
Total Thallium (Tl)	ug/L	ND	ND	1922458	ND	1922458	ND	0.05	1922458
Total Tungsten (W)	ug/L	ND	ND	1922458	ND	1922458	ND	1	1922458
Total Uranium (U)	ug/L	0.2	0.3	1922458	0.4	1922458	0.4	0.1	1922458
Total Vanadium (V)	ug/L	ND	ND	1922458	ND	1922458	ND	1	1922458
Total Zinc (Zn)	ug/L	7	8	1922458	ND	1922458	6	5	1922458
Total Zirconium (Zr)	ug/L	ND	ND	1922458	ND	1922458	ND	1	1922458

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DK9257	DK9258	DK9259	DK9282	DK9283	DK9284	DK9285	DK9362	DK9363	DK9364		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35	2009/08/16	2009/08/16	2009/08/16	2009/08/16	2009/08/15	2009/08/15	2009/08/15		
	Units	**1-SD-2**	**3-SD-7**	**3-SD-8**	**2-TP-15**	**3-TP-5**	**3-TP-1**	**2-TP-13**	**1-TP-11**	**1-TP-12**	**2-TP-18**	**RDL**	**QC Batch**
Inorganics													
Moisture	%	17	23	18	18	11	10	7.4	13	8.8	17	0.2	1914709
Total Organic Carbon	mg/kg	81000					69000					500	1920872

Maxxam ID		DK9365	DK9366		DK9367		DK9368	DK9369	DK9370	DK9371		
Sampling Date		2009/08/15	2009/08/15		2009/08/15		2009/08/15	2009/08/16	2009/08/16	2009/08/16		
	Units	**2-TP-12**	**2-TP-8**	**QC Batch**	**3-TP-2**	**QC Batch**	**3-TP-3**	**1-TP-10**	**1-TP-9**	**2-TP-14**	**RDL**	**QC Batch**
Inorganics												
Moisture	%	14	23	1914709	19	1921999	16	5.9	7.5	5.0	0.2	1914709

RDL = Reportable Detection Limit
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Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DK9257		DK9258		DK9259	DK9282	DK9283	DK9284		
Sampling Date		2009/08/16 16:50		2009/08/16 14:51		2009/08/16 15:35	2009/08/16	2009/08/16	2009/08/16		
	Units	**1-SD-2**	**QC Batch**	**3-SD-7**	**QC Batch**	**3-SD-8**	**2-TP-15**	**3-TP-5**	**3-TP-1**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons											
Acenaphthene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.01	1916976
Acenaphthylene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.005	1916976
Anthracene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.005	1916976
Benzo(a)anthracene	ug/g	ND	1916976	ND	1916109	ND	ND	0.02	ND	0.01	1916976
Benzo(a)pyrene	ug/g	ND	1916976	ND	1916109	ND	ND	0.015	ND	0.005	1916976
Benzo(b/j)fluoranthene	ug/g	ND	1916976	ND	1916109	ND	ND	0.02	ND	0.01	1916976
Benzo(g,h,i)perylene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.02	1916976
Benzo(k)fluoranthene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.01	1916976
Chrysene	ug/g	ND	1916976	ND	1916109	ND	ND	0.02	ND	0.01	1916976
Dibenz(a,h)anthracene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.02	1916976
Fluoranthene	ug/g	ND	1916976	ND	1916109	ND	ND	0.031	ND	0.005	1916976
Fluorene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.005	1916976
Indeno(1,2,3-cd)pyrene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.02	1916976
1-Methylnaphthalene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.005	1916976
2-Methylnaphthalene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.005	1916976
Naphthalene	ug/g	ND	1916976	ND	1916109	ND	ND	ND	ND	0.005	1916976
Phenanthrene	ug/g	ND	1916976	ND	1916109	ND	ND	0.014	ND	0.005	1916976
Pyrene	ug/g	ND	1916976	ND	1916109	ND	ND	0.023	ND	0.005	1916976
Surrogate Recovery (%)											
D10-Anthracene	%	65	1916976	82	1916109	110	114	94	107		1916976
D14-Terphenyl (FS)	%	60	1916976	86	1916109	107	108	92	106		1916976
D7-Quinoline	%	53	1916976	74	1916109	88	82	73	90		1916976
D8-Acenaphthylene	%	49	1916976	65	1916109	87	80	85	93		1916976

ND = Not detected
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Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DK9362		DK9363		DK9364	DK9365		DK9366		
Sampling Date		2009/08/15		2009/08/15		2009/08/15	2009/08/15		2009/08/15		
	Units	**1-TP-11**	**QC Batch**	**1-TP-12**	**QC Batch**	**2-TP-18**	**2-TP-12**	**RDL**	**2-TP-8**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons											
Acenaphthene	ug/g	ND	1916976	ND	1916109	ND	ND	0.01	0.2	0.1	1916976
Acenaphthylene	ug/g	ND	1916976	ND	1916109	ND	ND	0.005	ND	0.05	1916976
Anthracene	ug/g	ND	1916976	ND	1916109	ND	ND	0.005	ND	0.05	1916976
Benzo(a)anthracene	ug/g	ND	1916976	ND	1916109	ND	ND	0.01	ND	0.1	1916976
Benzo(a)pyrene	ug/g	ND	1916976	ND	1916109	ND	ND	0.005	ND	0.05	1916976
Benzo(b/j)fluoranthene	ug/g	ND	1916976	ND	1916109	ND	ND	0.01	ND	0.1	1916976
Benzo(g,h,i)perylene	ug/g	ND	1916976	ND	1916109	ND	ND	0.02	ND	0.2	1916976
Benzo(k)fluoranthene	ug/g	ND	1916976	ND	1916109	ND	ND	0.01	ND	0.1	1916976
Chrysene	ug/g	ND	1916976	ND	1916109	ND	ND	0.01	ND	0.1	1916976
Dibenz(a,h)anthracene	ug/g	ND	1916976	ND	1916109	ND	ND	0.02	ND	0.2	1916976
Fluoranthene	ug/g	0.007	1916976	ND	1916109	ND	ND	0.005	ND	0.05	1916976
Fluorene	ug/g	ND	1916976	ND	1916109	ND	ND	0.005	0.74	0.05	1916976
Indeno(1,2,3-cd)pyrene	ug/g	ND	1916976	ND	1916109	ND	ND	0.02	ND	0.2	1916976
1-Methylnaphthalene	ug/g	0.006	1916976	ND	1916109	ND	ND	0.005	13	0.05	1916976
2-Methylnaphthalene	ug/g	0.009	1916976	ND	1916109	ND	ND	0.005	14	0.05	1916976
Naphthalene	ug/g	0.014	1916976	ND	1916109	ND	ND	0.005	ND(1)	1	1916976
Phenanthrene	ug/g	0.022	1916976	ND	1916109	ND	ND	0.005	0.18	0.05	1916976
Pyrene	ug/g	0.011	1916976	ND	1916109	ND	ND	0.005	ND	0.05	1916976
Surrogate Recovery (%)											
D10-Anthracene	%	73	1916976	85	1916109	97	108		60		1916976
D14-Terphenyl (FS)	%	77	1916976	85	1916109	91	126		76		1916976
D7-Quinoline	%	64	1916976	73	1916109	61	95		66		1916976
D8-Acenaphthylene	%	71	1916976	70	1916109	54	97		84		1916976

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DK9367		DK9368			DK9370	DK9371		
Sampling Date		2009/08/15		2009/08/15			2009/08/16	2009/08/16		
	Units	**3-TP-2**	**RDL**	**3-TP-3**	**RDL**	**QC Batch**	**1-TP-9**	**2-TP-14**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	ND	0.01	ND	0.4	1916109	ND	ND	0.01	1916976
Acenaphthylene	ug/g	ND	0.005	ND	0.2	1916109	ND	ND	0.005	1916976
Anthracene	ug/g	ND	0.005	0.3	0.2	1916109	ND	ND	0.005	1916976
Benzo(a)anthracene	ug/g	ND	0.01	2.4	0.4	1916109	ND	ND	0.01	1916976
Benzo(a)pyrene	ug/g	ND	0.005	1.3	0.2	1916109	ND	ND	0.005	1916976
Benzo(b/j)fluoranthene	ug/g	ND	0.01	2.6	0.4	1916109	ND	ND	0.01	1916976
Benzo(g,h,i)perylene	ug/g	ND	0.02	1.3	0.8	1916109	ND	ND	0.02	1916976
Benzo(k)fluoranthene	ug/g	ND	0.01	0.7	0.4	1916109	ND	ND	0.01	1916976
Chrysene	ug/g	ND	0.01	2.8	0.4	1916109	ND	ND	0.01	1916976
Dibenz(a,h)anthracene	ug/g	ND	0.02	ND	0.8	1916109	ND	ND	0.02	1916976
Fluoranthene	ug/g	ND	0.005	1.3	0.2	1916109	0.006	ND	0.005	1916976
Fluorene	ug/g	ND	0.005	ND	0.2	1916109	ND	ND	0.005	1916976
Indeno(1,2,3-cd)pyrene	ug/g	ND	0.02	1.2	0.8	1916109	ND	ND	0.02	1916976
1-Methylnaphthalene	ug/g	ND	0.005	ND	0.2	1916109	0.006	ND	0.005	1916976
2-Methylnaphthalene	ug/g	ND	0.005	ND	0.2	1916109	0.013	ND	0.005	1916976
Naphthalene	ug/g	ND	0.005	0.3	0.2	1916109	0.007	ND	0.005	1916976
Phenanthrene	ug/g	ND	0.005	0.4	0.2	1916109	0.005	ND	0.005	1916976
Pyrene	ug/g	ND	0.005	6.0	0.2	1916109	0.013	ND	0.005	1916976
Surrogate Recovery (%)										
D10-Anthracene	%	73		128		1916109	68	95		1916976
D14-Terphenyl (FS)	%	73		128		1916109	66	91		1916976
D7-Quinoline	%	62		72		1916109	60	61		1916976
D8-Acenaphthylene	%	60		104		1916109	62	78		1916976

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DK9257	DK9258	DK9259	DK9282	DK9283	DK9284	DK9362	DK9364		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35	2009/08/16	2009/08/16	2009/08/16	2009/08/15	2009/08/15		
	Units	**1-SD-2**	**3-SD-7**	**3-SD-8**	**2-TP-15**	**3-TP-5**	**3-TP-1**	**1-TP-11**	**2-TP-18**	**RDL**	**QC Batch**
Volatile Organics											
Acetone (2-Propanone)	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1914546
Benzene	ug/g	0.015	0.007	0.010	0.017	0.006	0.005	0.005	0.016	0.002	1914546
Bromodichloromethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Bromoform	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Bromomethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.003	1914546
Carbon Tetrachloride	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Chlorobenzene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Chloroform	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Dibromochloromethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,2-Dichlorobenzene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,3-Dichlorobenzene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,4-Dichlorobenzene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,1-Dichloroethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,2-Dichloroethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,1-Dichloroethylene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
cis-1,2-Dichloroethylene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
trans-1,2-Dichloroethylene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,2-Dichloropropane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
cis-1,3-Dichloropropene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
trans-1,3-Dichloropropene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Ethylbenzene	ug/g	0.018	0.008	0.011	0.028	0.012	0.008	0.004	0.021	0.002	1914546
Ethylene Dibromide	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Methylene Chloride(Dichloromethane)	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.003	1914546
Methyl Isobutyl Ketone	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.03	1914546
Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.03	1914546
Methyl t-butyl ether (MTBE)	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Styrene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,1,1,2-Tetrachloroethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
1,1,2,2-Tetrachloroethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Tetrachloroethylene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Toluene	ug/g	0.046	0.024	0.026	0.060	0.023	0.018	0.013	0.051	0.002	1914546
1,1,1-Trichloroethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DK9257	DK9258	DK9259	DK9282	DK9283	DK9284	DK9362	DK9364		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35	2009/08/16	2009/08/16	2009/08/16	2009/08/15	2009/08/15		
	Units	**1-SD-2**	**3-SD-7**	**3-SD-8**	**2-TP-15**	**3-TP-5**	**3-TP-1**	**1-TP-11**	**2-TP-18**	**RDL**	**QC Batch**
1,1,2-Trichloroethane	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Trichloroethylene	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
Vinyl Chloride	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	0.002	1914546
p+m-Xylene	ug/g	0.020	0.010	0.008	0.038	0.012	0.009	0.006	0.026	0.002	1914546
o-Xylene	ug/g	0.009	0.004	0.004	0.018	0.007	0.004	0.003	0.012	0.002	1914546
Xylene (Total)	ug/g	0.029	0.014	0.013	0.056	0.018	0.013	0.009	0.038	0.002	1914546
Surrogate Recovery (%)											
4-Bromofluorobenzene	%	93	99	97	89	91	95	94	92		1914546
D4-1,2-Dichloroethane	%	106	105	107	102	99	103	101	100		1914546
D8-Toluene	%	98	97	97	91	96	98	102	91		1914546

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DK9365			DK9366			DK9370	DK9371		
Sampling Date		2009/08/15			2009/08/15			2009/08/16	2009/08/16		
	Units	**2-TP-12**	**RDL**	**QC Batch**	**2-TP-8**	**RDL**	**QC Batch**	**1-TP-9**	**2-TP-14**	**RDL**	**QC Batch**
Volatile Organics											
Acetone (2-Propanone)	ug/g	ND	0.2	1915682	ND	5	1917641	ND	ND	0.1	1914546
Benzene	ug/g	0.69	0.004	1915682	ND	0.1	1917641	0.009	0.004	0.002	1914546
Bromodichloromethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Bromoform	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Bromomethane	ug/g	ND	0.006	1915682	ND	0.2	1917641	ND	ND	0.003	1914546
Carbon Tetrachloride	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Chlorobenzene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Chloroform	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Dibromochloromethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,2-Dichlorobenzene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,3-Dichlorobenzene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,4-Dichlorobenzene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,1-Dichloroethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,2-Dichloroethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,1-Dichloroethylene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
cis-1,2-Dichloroethylene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
trans-1,2-Dichloroethylene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,2-Dichloropropane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
cis-1,3-Dichloropropene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
trans-1,3-Dichloropropene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Ethylbenzene	ug/g	0.70	0.004	1915682	ND	0.1	1917641	0.009	0.006	0.002	1914546
Ethylene Dibromide	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Methylene Chloride(Dichloromethane)	ug/g	ND	0.006	1915682	ND	0.2	1917641	ND	ND	0.003	1914546
Methyl Isobutyl Ketone	ug/g	ND	0.05	1915682	ND	1	1917641	ND	ND	0.03	1914546
Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	0.05	1915682	ND	1	1917641	ND	ND	0.03	1914546
Methyl t-butyl ether (MTBE)	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Styrene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,1,1,2-Tetrachloroethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,1,2,2-Tetrachloroethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Tetrachloroethylene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Toluene	ug/g	1.4	0.004	1915682	ND	0.1	1917641	0.027	0.016	0.002	1914546
1,1,1-Trichloroethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
1,1,2-Trichloroethane	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DK9365			DK9366			DK9370	DK9371		
Sampling Date		2009/08/15			2009/08/15			2009/08/16	2009/08/16		
	Units	**2-TP-12**	**RDL**	**QC Batch**	**2-TP-8**	**RDL**	**QC Batch**	**1-TP-9**	**2-TP-14**	**RDL**	**QC Batch**
Trichloroethylene	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
Vinyl Chloride	ug/g	ND	0.004	1915682	ND	0.1	1917641	ND	ND	0.002	1914546
p+m-Xylene	ug/g	0.58	0.004	1915682	0.6	0.1	1917641	0.015	0.011	0.002	1914546
o-Xylene	ug/g	0.32	0.004	1915682	1.7	0.1	1917641	0.007	0.005	0.002	1914546
Xylene (Total)	ug/g	0.90	0.004	1915682	2.3	0.1	1917641	0.021	0.016	0.002	1914546
Surrogate Recovery (%)											
4-Bromofluorobenzene	%	73		1915682	90		1917641	89	94		1914546
D4-1,2-Dichloroethane	%	109		1915682	91		1917641	104	90		1914546
D8-Toluene	%	77		1915682	85		1917641	98	100		1914546

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DK9257	DK9258	DK9259	DK9282	DK9283	DK9284	DK9285	DK9362	DK9363	DK9364		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35	2009/08/16	2009/08/16	2009/08/16	2009/08/16	2009/08/15	2009/08/15	2009/08/15		
	Units	**1-SD-2**	**3-SD-7**	**3-SD-8**	**2-TP-15**	**3-TP-5**	**3-TP-1**	**2-TP-13**	**1-TP-11**	**1-TP-12**	**2-TP-18**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons													
Benzene	ug/g							ND				0.02	1915143
Toluene	ug/g							ND				0.02	1915143
Ethylbenzene	ug/g							ND				0.02	1915143
o-Xylene	ug/g							ND				0.02	1915143
p+m-Xylene	ug/g							ND				0.04	1915143
Total Xylenes	ug/g							ND				0.04	1915143
F1 (C6-C10)	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	1915143
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	1915143
F2-F4 Hydrocarbons													
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	1914733
F3 (C16-C34 Hydrocarbons)	ug/g	29	ND	ND	ND	ND	ND	ND	75	30	ND	10	1914733
F4 (C34-C50 Hydrocarbons)	ug/g	ND	ND	ND	ND	ND	ND	ND	41	27	ND	10	1914733
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES		1914733
Surrogate Recovery (%)													
1,4-Difluorobenzene	%	110	99	101	104	117	102	99	111	103	99		1915143
4-Bromofluorobenzene	%	111	111	111	111	108	110	109	111	113	107		1915143
D10-Ethylbenzene	%	82	89	88	89	99	90	104	87	72	79		1915143
D4-1,2-Dichloroethane	%	87	91	92	97	92	86	89	93	101	90		1915143
o-Terphenyl	%	86	90	79	90	83	77	83	81	72	76		1914733

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DK9365	DK9366	DK9368	DK9369	DK9370	DK9371		
Sampling Date		2009/08/15	2009/08/15	2009/08/15	2009/08/16	2009/08/16	2009/08/16		
	Units	**2-TP-12**	**2-TP-8**	**3-TP-3**	**1-TP-10**	**1-TP-9**	**2-TP-14**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g			ND	ND			0.02	1915143
Toluene	ug/g			ND	ND			0.02	1915143
Ethylbenzene	ug/g			ND	ND			0.02	1915143
o-Xylene	ug/g			ND	ND			0.02	1915143
p+m-Xylene	ug/g			ND	ND			0.04	1915143
Total Xylenes	ug/g			ND	ND			0.04	1915143
F1 (C6-C10)	ug/g	ND	ND	ND	ND	ND	ND	10	1915143
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	ND	ND	ND	10	1915143
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	27	6100	45	ND	ND	ND	10	1914733
F3 (C16-C34 Hydrocarbons)	ug/g	690	260	11000	230	150	ND	10	1914733
F4 (C34-C50 Hydrocarbons)	ug/g	ND	ND	360	ND	93	ND	10	1914733
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES	YES		1914733
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	120	121	117	115	118	115		1915143
4-Bromofluorobenzene	%	108	110	110	110	113	111		1915143
D10-Ethylbenzene	%	86	86	83	79	80	67		1915143
D4-1,2-Dichloroethane	%	91	92	89	91	110	99		1915143
o-Terphenyl	%	85	82	91	74	81	77		1914733

ND = Not detected
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Maxxam Job #: A9A7367
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Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		DK9258		DK9259	DK9282		DK9283		DK9284		DK9363		
Sampling Date		2009/08/16 14:51		2009/08/16 15:35	2009/08/16		2009/08/16		2009/08/16		2009/08/15		
	Units	**3-SD-7**	**QC Batch**	**3-SD-8**	**2-TP-15**	**QC Batch**	**3-TP-5**	**QC Batch**	**3-TP-1**	**QC Batch**	**1-TP-12**	**RDL**	**QC Batch**
PCBs													
Aroclor 1262	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1016	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1221	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1232	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1242	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1248	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1254	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1260	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Aroclor 1268	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Total PCB	ug/g	ND	1919149	ND	ND	1916933	ND	1919149	ND	1919820	ND	0.01	1916933
Surrogate Recovery (%)													
2,4,5,6-Tetrachloro-m-xylene	%	93	1919149	67	46	1916933	91	1919149	91	1919820	63		1916933
Decachlorobiphenyl	%	118	1919149	102	101	1916933	120	1919149	115	1919820	104		1916933

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		DK9364	DK9365		DK9366		DK9371		
Sampling Date		2009/08/15	2009/08/15		2009/08/15		2009/08/16		
	Units	**2-TP-18**	**2-TP-12**	**QC Batch**	**2-TP-8**	**QC Batch**	**2-TP-14**	**RDL**	**QC Batch**
PCBs									
Aroclor 1262	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1016	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1221	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1232	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1242	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1248	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1254	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1260	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Aroclor 1268	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Total PCB	ug/g	ND	ND	1916933	ND	1919820	ND	0.01	1916933
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	59	79	1916933	85	1919820	66		1916933
Decachlorobiphenyl	%	103	109	1916933	117	1919820	107		1916933

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DK9257	DK9285	DK9362	DK9367		DK9370		
Sampling Date		2009/08/16 16:50	2009/08/16	2009/08/15	2009/08/15		2009/08/16		
	Units	**1-SD-2**	**2-TP-13**	**1-TP-11**	**3-TP-2**	**RDL**	**1-TP-9**	**RDL**	**QC Batch**
Pesticides & Herbicides									
Aroclor 1262	ug/g	ND		ND		0.02	ND	0.02	1919450
Aroclor 1268	ug/g	ND		ND		0.02	ND	0.02	1919450
Aldrin	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
a-BHC	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
b-BHC	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
d-BHC	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
a-Chlordane	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
g-Chlordane	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Chlordane (Total)	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
o,p-DDD	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
p,p-DDD	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
o,p-DDD + p,p-DDD	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
o,p-DDE	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
p,p-DDE	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
o,p-DDE + p,p-DDE	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
o,p-DDT	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
p,p-DDT	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
o,p-DDT + p,p-DDT	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
DDT+ Metabolites	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Dieldrin	ug/g	ND	ND	ND	ND	0.002	0.002	0.002	1919450
Endosulfan I	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Endosulfan II	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Endosulfan sulfate	ug/g	ND	ND	ND	ND	0.002	ND(1)	0.01	1919450
Total Endosulfan	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Endrin	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Endrin aldehyde	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Endrin ketone	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Heptachlor	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Heptachlor epoxide	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Hexachlorobenzene	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Lindane	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection limit was raised due to matrix interferences.

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DK9257	DK9285	DK9362	DK9367		DK9370		
Sampling Date		2009/08/16 16:50	2009/08/16	2009/08/15	2009/08/15		2009/08/16		
	Units	**1-SD-2**	**2-TP-13**	**1-TP-11**	**3-TP-2**	**RDL**	**1-TP-9**	**RDL**	**QC Batch**
Methoxychlor	ug/g	ND	ND	ND	ND	0.008	ND	0.008	1919450
Mirex	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Octachlorostyrene	ug/g	ND	ND	ND	ND	0.002	ND	0.002	1919450
Total PCB	ug/g	ND	ND	ND	ND	0.03	ND	0.03	1919450
Aroclor 1016	ug/g	ND		ND		0.02	ND	0.02	1919450
Aroclor 1221	ug/g	ND		ND		0.03	ND	0.03	1919450
Aroclor 1232	ug/g	ND		ND		0.02	ND	0.02	1919450
Aroclor 1242	ug/g	ND		ND		0.02	ND	0.02	1919450
Aroclor 1248	ug/g	ND		ND		0.02	ND	0.02	1919450
Aroclor 1254	ug/g	ND		ND		0.02	ND	0.02	1919450
Aroclor 1260	ug/g	ND		ND		0.02	ND	0.02	1919450
Toxaphene	ug/g	ND	ND	ND	ND	0.08	ND	0.08	1919450
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	59	66	70	63		59		1919450
Decachlorobiphenyl	%	108	82	82	82		84		1919450

GLYCOLS BY GC-FID (WATER)

Maxxam ID		DK9392	DK9393		
Sampling Date		2009/08/16 14:51	2009/08/16 15:35		
	Units	**3-SW-7**	**3-SW-8**	**RDL**	**QC Batch**
Glycols					
Diethylene Glycol	mg/L	ND	ND	5	1916397
Ethylene Glycol	mg/L	ND	ND	5	1916397
Propylene Glycol	mg/L	ND	ND	5	1916397
Total Glycol	mg/L	ND	ND	5	1916397

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DK9391	DK9392	DK9393		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35		
	Units	**1-SW-2**	**3-SW-7**	**3-SW-8**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons						
Acenaphthene	ug/L	ND	ND	ND	0.05	1914928
Acenaphthylene	ug/L	ND	ND	ND	0.05	1914928
Anthracene	ug/L	ND	ND	ND	0.05	1914928
Benzo(a)anthracene	ug/L	ND	ND	ND	0.05	1914928
Benzo(a)pyrene	ug/L	ND	ND	ND	0.01	1914928
Benzo(b/j)fluoranthene	ug/L	ND	ND	ND	0.05	1914928
Benzo(g,h,i)perylene	ug/L	ND	ND	ND	0.1	1914928
Benzo(k)fluoranthene	ug/L	ND	ND	ND	0.05	1914928
Chrysene	ug/L	ND	ND	ND	0.05	1914928
Dibenz(a,h)anthracene	ug/L	ND	ND	ND	0.1	1914928
Fluoranthene	ug/L	ND	ND	ND	0.05	1914928
Fluorene	ug/L	ND	ND	ND	0.05	1914928
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	0.1	1914928
1-Methylnaphthalene	ug/L	ND	ND	ND	0.05	1914928
2-Methylnaphthalene	ug/L	ND	ND	ND	0.05	1914928
Naphthalene	ug/L	ND	ND	ND	0.05	1914928
Phenanthrene	ug/L	ND	ND	ND	0.05	1914928
Pyrene	ug/L	ND	ND	ND	0.05	1914928
Surrogate Recovery (%)						
D10-Anthracene	%	89	93	88		1914928
D14-Terphenyl (FS)	%	92	97	91		1914928
D7-Quinoline	%	75	73	73		1914928
D8-Acenaphthylene	%	79	81	74		1914928

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DK9391	DK9392	DK9393		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35		
	Units	**1-SW-2**	**3-SW-7**	**3-SW-8**	**RDL**	**QC Batch**
Volatile Organics						
Acetone (2-Propanone)	ug/L	ND	ND	ND	10	1914578
Benzene	ug/L	ND	ND	ND	0.1	1914578
Bromodichloromethane	ug/L	ND	ND	ND	0.1	1914578
Bromoform	ug/L	ND	ND	ND	0.2	1914578
Bromomethane	ug/L	ND	ND	ND	0.5	1914578
Carbon Tetrachloride	ug/L	ND	ND	ND	0.1	1914578
Chlorobenzene	ug/L	ND	ND	ND	0.1	1914578
Chloroform	ug/L	ND	ND	ND	0.1	1914578
Dibromochloromethane	ug/L	ND	ND	ND	0.2	1914578
1,2-Dichlorobenzene	ug/L	ND	ND	ND	0.2	1914578
1,3-Dichlorobenzene	ug/L	ND	ND	ND	0.2	1914578
1,4-Dichlorobenzene	ug/L	ND	ND	ND	0.2	1914578
1,1-Dichloroethane	ug/L	ND	ND	ND	0.1	1914578
1,2-Dichloroethane	ug/L	ND	ND	ND	0.2	1914578
1,1-Dichloroethylene	ug/L	ND	ND	ND	0.1	1914578
cis-1,2-Dichloroethylene	ug/L	ND	ND	ND	0.1	1914578
trans-1,2-Dichloroethylene	ug/L	ND	ND	ND	0.1	1914578
1,2-Dichloropropane	ug/L	ND	ND	ND	0.1	1914578
cis-1,3-Dichloropropene	ug/L	ND	ND	ND	0.2	1914578
trans-1,3-Dichloropropene	ug/L	ND	ND	ND	0.2	1914578
Ethylbenzene	ug/L	ND	ND	ND	0.1	1914578
Ethylene Dibromide	ug/L	ND	ND	ND	0.2	1914578
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	ND	0.5	1914578
Methyl Isobutyl Ketone	ug/L	ND	ND	ND	5	1914578
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	ND	ND	5	1914578
Methyl t-butyl ether (MTBE)	ug/L	ND	ND	ND	0.2	1914578
Styrene	ug/L	ND	ND	ND	0.2	1914578
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	ND	0.1	1914578
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	ND	0.2	1914578
Tetrachloroethylene	ug/L	ND	ND	ND	0.1	1914578
Toluene	ug/L	ND	ND	ND	0.2	1914578
1,1,1-Trichloroethane	ug/L	ND	ND	ND	0.1	1914578
1,1,2-Trichloroethane	ug/L	ND	ND	ND	0.2	1914578

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DK9391	DK9392	DK9393		
Sampling Date		2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35		
	Units	**1-SW-2**	**3-SW-7**	**3-SW-8**	**RDL**	**QC Batch**
Trichloroethylene	ug/L	ND	ND	ND	0.1	1914578
Vinyl Chloride	ug/L	ND	ND	ND	0.2	1914578
p+m-Xylene	ug/L	ND	ND	ND	0.1	1914578
o-Xylene	ug/L	ND	ND	ND	0.1	1914578
Xylene (Total)	ug/L	ND	ND	ND	0.1	1914578
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	98	96	99		1914578
D4-1,2-Dichloroethane	%	93	88	103		1914578
D8-Toluene	%	88	88	86		1914578

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DK9390	DK9391	DK9392	DK9393		
Sampling Date		2009/08/16 16:25	2009/08/16 16:50	2009/08/16 14:51	2009/08/16 15:35		
	Units	**1-SW-1**	**1-SW-2**	**3-SW-7**	**3-SW-8**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons							
Benzene	ug/L	ND				0.2	1913669
Toluene	ug/L	ND				0.2	1913669
Ethylbenzene	ug/L	ND				0.2	1913669
o-Xylene	ug/L	ND				0.2	1913669
p+m-Xylene	ug/L	ND				0.4	1913669
Total Xylenes	ug/L	ND				0.4	1913669
F1 (C6-C10)	ug/L	ND	ND	ND	ND	100	1913669
F1 (C6-C10) - BTEX	ug/L	ND	ND	ND	ND	100	1913669
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	ND	ND	ND	ND	100	1914401
F3 (C16-C34 Hydrocarbons)	ug/L	ND	ND	ND	ND	100	1914401
F4 (C34-C50 Hydrocarbons)	ug/L	ND	ND	ND	ND	100	1914401
Reached Baseline at C50	ug/L	YES	YES	YES	YES		1914401
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	115	110	112	108		1913669
4-Bromofluorobenzene	%	111	109	110	112		1913669
D10-Ethylbenzene	%	77	78	91	94		1913669
D4-1,2-Dichloroethane	%	103	89	89	97		1913669
o-Terphenyl	%	82	84	84	87		1914401

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		DK9392	DK9393		
Sampling Date		2009/08/16 14:51	2009/08/16 15:35		
	Units	**3-SW-7**	**3-SW-8**	**RDL**	**QC Batch**
PCBs					
Aroclor 1016	ug/L	ND	ND	0.05	1915196
Aroclor 1221	ug/L	ND	ND	0.05	1915196
Aroclor 1232	ug/L	ND	ND	0.05	1915196
Aroclor 1242	ug/L	ND	ND	0.05	1915196
Aroclor 1248	ug/L	ND	ND	0.05	1915196
Aroclor 1254	ug/L	ND	ND	0.05	1915196
Aroclor 1260	ug/L	ND	ND	0.05	1915196
Aroclor 1262	ug/L	ND	ND	0.05	1915196
Aroclor 1268	ug/L	ND	ND	0.05	1915196
Total PCB	ug/L	ND	ND	0.05	1915196
Surrogate Recovery (%)					
2,4,5,6-Tetrachloro-m-xylene	%	76	73		1915196
Decachlorobiphenyl	%	84	84		1915196

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DK9391		
Sampling Date		2009/08/16 16:50		
	Units	**1-SW-2**	**RDL**	**QC Batch**
Pesticides & Herbicides				
Aldrin	ug/L	ND	0.005	1917044
a-BHC	ug/L	ND	0.005	1917044
b-BHC	ug/L	ND	0.005	1917044
d-BHC	ug/L	ND	0.005	1917044
a-Chlordane	ug/L	ND	0.005	1917044
g-Chlordane	ug/L	ND	0.005	1917044
Chlordane (Total)	ug/L	ND	0.005	1917044
o,p-DDD	ug/L	ND	0.005	1917044
p,p-DDD	ug/L	ND	0.005	1917044
o,p-DDD + p,p-DDD	ug/L	ND	0.005	1917044
o,p-DDE	ug/L	ND	0.005	1917044
p,p-DDE	ug/L	ND	0.005	1917044
o,p-DDE + p,p-DDE	ug/L	ND	0.005	1917044
o,p-DDT	ug/L	ND	0.005	1917044
p,p-DDT	ug/L	ND	0.005	1917044
o,p-DDT + p,p-DDT	ug/L	ND	0.005	1917044
DDT+ Metabolites	ug/L	ND	0.005	1917044
Dieldrin	ug/L	ND	0.005	1917044
Endosulfan I	ug/L	ND	0.005	1917044
Endosulfan II	ug/L	ND	0.005	1917044
Endosulfan sulfate	ug/L	ND	0.005	1917044
Total Endosulfan	ug/L	ND	0.005	1917044
Endrin	ug/L	ND	0.005	1917044
Endrin aldehyde	ug/L	ND	0.005	1917044
Endrin ketone	ug/L	ND	0.005	1917044
Heptachlor	ug/L	ND	0.005	1917044
Heptachlor epoxide	ug/L	ND	0.005	1917044
Hexachlorobenzene	ug/L	ND	0.005	1917044
Lindane	ug/L	ND	0.003	1917044
Methoxychlor	ug/L	ND	0.01	1917044
Mirex	ug/L	ND	0.005	1917044
Octachlorostyrene	ug/L	ND	0.005	1917044
Total PCB	ug/L	ND	0.1	1917044

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DK9391		
Sampling Date		2009/08/16 16:50		
	Units	**1-SW-2**	**RDL**	**QC Batch**
Aroclor 1016	ug/L	ND	0.05	1917044
Aroclor 1221	ug/L	ND	0.1	1917044
Aroclor 1232	ug/L	ND	0.05	1917044
Aroclor 1242	ug/L	ND	0.05	1917044
Aroclor 1248	ug/L	ND	0.05	1917044
Aroclor 1254	ug/L	ND	0.05	1917044
Aroclor 1260	ug/L	ND	0.05	1917044
Toxaphene	ug/L	ND	0.2	1917044
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	35(1)		1917044
Decachlorobiphenyl	%	93		1917044

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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Package 1	8.3°C
Package 2	9.7°C
Package 3	9.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Sample DK9257-01: VOCs analysis- Duplicate results exceeded RPD acceptance criteria. This may be due to sample heterogeneity.

Sample DK9365-01: VOCs analysis- Due to the sample matrix, sample required diluton. Detection limits were adjusted accordingly.

Sample DK9366-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

VOC analysis: Due to sample matrix effect, the sample could not be analysed by the low level direct purge method. The sample was preextracted in methanol and the extract analysed by high level purge & trap (US EPA 5035) gas chromatography using Method 8260C (modified). The DLs were adjusted accordingly.

Sample DK9368-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1913669	1,4-Difluorobenzene	2009/08/21	113	70 - 130	109	70 - 130	107	%				
1913669	4-Bromofluorobenzene	2009/08/21	110	70 - 130	111	70 - 130	111	%				
1913669	D10-Ethylbenzene	2009/08/21	84	70 - 130	71	70 - 130	79	%				
1913669	D4-1,2-Dichloroethane	2009/08/21	107	70 - 130	92	70 - 130	91	%				
1913669	Benzene	2009/08/21	107	70 - 130	94	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1913669	Toluene	2009/08/21	92	70 - 130	71	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1913669	Ethylbenzene	2009/08/21	90	70 - 130	70	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1913669	o-Xylene	2009/08/21	95	70 - 130	73	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1913669	p+m-Xylene	2009/08/21	101	70 - 130	78	70 - 130	ND, RDL=0.4	ug/L	NC	40		
1913669	F1 (C6-C10)	2009/08/21	94	70 - 130	106	70 - 130	ND, RDL=100	ug/L	NC	40		
1913669	Total Xylenes	2009/08/21					ND, RDL=0.4	ug/L	NC	40		
1913669	F1 (C6-C10) - BTEX	2009/08/21					ND, RDL=100	ug/L	NC	40		
1914401	o-Terphenyl	2009/08/21	78	30 - 130	79	30 - 130	77	%				
1914401	F2 (C10-C16 Hydrocarbons)	2009/08/21	87	60 - 130	77	60 - 130	ND, RDL=100	ug/L	NC	50		
1914401	F3 (C16-C34 Hydrocarbons)	2009/08/21	87	60 - 130	77	60 - 130	ND, RDL=100	ug/L	NC	50		
1914401	F4 (C34-C50 Hydrocarbons)	2009/08/21	87	60 - 130	77	60 - 130	ND, RDL=100	ug/L	NC	50		
1914546	4-Bromofluorobenzene	2009/08/21	99	60 - 140	101	60 - 140	107	%				
1914546	D4-1,2-Dichloroethane	2009/08/21	105	60 - 140	103	60 - 140	106	%				
1914546	D8-Toluene	2009/08/21	95	60 - 140	99	60 - 140	96	%				
1914546	Acetone (2-Propanone)	2009/08/22	65	24 - 171	106	60 - 140	ND, RDL=0.1	ug/g	NC	50		
1914546	Benzene	2009/08/22	80	39 - 137	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Bromodichloromethane	2009/08/22	84	45 - 131	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Bromoform	2009/08/22	60	44 - 131	116	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Bromomethane	2009/08/22	83	20 - 146	92	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1914546	Carbon Tetrachloride	2009/08/22	99	40 - 139	109	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Chlorobenzene	2009/08/22	72	45 - 140	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Chloroform	2009/08/22	87	48 - 128	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Dibromochloromethane	2009/08/22	71	52 - 135	111	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,2-Dichlorobenzene	2009/08/22	43	39 - 145	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,3-Dichlorobenzene	2009/08/22	52	38 - 158	98	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,4-Dichlorobenzene	2009/08/22	51	35 - 159	99	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,1-Dichloroethane	2009/08/22	89	48 - 131	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,2-Dichloroethane	2009/08/22	77	43 - 123	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,1-Dichloroethylene	2009/08/22	95	50 - 134	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	cis-1,2-Dichloroethylene	2009/08/22	89	45 - 136	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	trans-1,2-Dichloroethylene	2009/08/22	94	45 - 138	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,2-Dichloropropane	2009/08/22	85	51 - 130	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	cis-1,3-Dichloropropene	2009/08/22	88	39 - 143	112	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	trans-1,3-Dichloropropene	2009/08/22	81	33 - 135	113	60 - 140	ND, RDL=0.002	ug/g	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1914546	Ethylbenzene	2009/08/22	80	46 - 150	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Ethylene Dibromide	2009/08/22	67	48 - 136	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	MethyleneChloride(Dichloromethane)	2009/08/22	87	47 - 124	105	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1914546	Methyl Isobutyl Ketone	2009/08/22	76	48 - 133	115	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1914546	Methyl Ethyl Ketone (2-Butanone)	2009/08/22	67	39 - 160	111	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1914546	Methyl t-butyl ether (MTBE)	2009/08/22	88	37 - 150	115	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Styrene	2009/08/22	55	27 - 148	105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,1,1,2-Tetrachloroethane	2009/08/22	75	51 - 140	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,1,2,2-Tetrachloroethane	2009/08/22	54	46 - 128	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Tetrachloroethylene	2009/08/22	87	45 - 154	97	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Toluene	2009/08/22	71	30 - 158	102	60 - 140	ND, RDL=0.002	ug/g	67.6(1)	50		
1914546	1,1,1-Trichloroethane	2009/08/22	93	44 - 136	103	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	1,1,2-Trichloroethane	2009/08/22	67	56 - 135	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Trichloroethylene	2009/08/22	91	39 - 146	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Vinyl Chloride	2009/08/22	90	34 - 136	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	p+m-Xylene	2009/08/22	76	29 - 161	99	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	o-Xylene	2009/08/22	83	45 - 150	108	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1914546	Xylene (Total)	2009/08/22					ND, RDL=0.002	ug/g	82.6(1)	50		
1914578	4-Bromofluorobenzene	2009/08/25			99	70 - 130	95	%				
1914578	D4-1,2-Dichloroethane	2009/08/25			98	70 - 130	79	%				
1914578	D8-Toluene	2009/08/25			98	70 - 130	87	%				
1914578	Acetone (2-Propanone)	2009/08/26			91	60 - 140	ND, RDL=10	ug/L	NC	40		
1914578	Benzene	2009/08/26			105	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Bromodichloromethane	2009/08/26			109	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Bromoform	2009/08/26			106	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	Bromomethane	2009/08/26			84	60 - 140	ND, RDL=0.5	ug/L	NC	40		
1914578	Carbon Tetrachloride	2009/08/26			101	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Chlorobenzene	2009/08/26			102	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Chloroform	2009/08/26			99	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Dibromochloromethane	2009/08/26			105	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,2-Dichlorobenzene	2009/08/26			99	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,3-Dichlorobenzene	2009/08/26			110	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,4-Dichlorobenzene	2009/08/26			97	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,1-Dichloroethane	2009/08/26			108	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	1,2-Dichloroethane	2009/08/26			105	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,1-Dichloroethylene	2009/08/26			97	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	cis-1,2-Dichloroethylene	2009/08/26			96	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	trans-1,2-Dichloroethylene	2009/08/26			98	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	1,2-Dichloropropane	2009/08/26			117	70 - 130	ND, RDL=0.1	ug/L	NC	40		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1914578	cis-1,3-Dichloropropene	2009/08/26			80	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	trans-1,3-Dichloropropene	2009/08/26			88	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	Ethylbenzene	2009/08/26			101	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Ethylene Dibromide	2009/08/26			112	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	Methylene Chloride(Dichloromethane)	2009/08/26			104	70 - 130	ND, RDL=0.5	ug/L	NC	40		
1914578	Methyl Isobutyl Ketone	2009/08/26			98	60 - 140	ND, RDL=5	ug/L	NC	40		
1914578	Methyl Ethyl Ketone (2-Butanone)	2009/08/26			99	60 - 140	ND, RDL=5	ug/L	NC	40		
1914578	Methyl t-butyl ether (MTBE)	2009/08/26			110	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	Styrene	2009/08/26			109	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,1,1,2-Tetrachloroethane	2009/08/26			100	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	1,1,2,2-Tetrachloroethane	2009/08/26			82	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	Tetrachloroethylene	2009/08/26			98	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Toluene	2009/08/26			105	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	1,1,1-Trichloroethane	2009/08/26			98	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	1,1,2-Trichloroethane	2009/08/26			101	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	Trichloroethylene	2009/08/26			NC	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Vinyl Chloride	2009/08/26			94	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1914578	p+m-Xylene	2009/08/26			98	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	o-Xylene	2009/08/26			97	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1914578	Xylene (Total)	2009/08/26					ND, RDL=0.1	ug/L	NC	40		
1914709	Moisture	2009/08/24							5.6	50		
1914733	o-Terphenyl	2009/08/21	83	30 - 130	96	30 - 130	91	%				
1914733	F2 (C10-C16 Hydrocarbons)	2009/08/21	97	60 - 130	109	60 - 130	ND, RDL=10	ug/g	NC	50		
1914733	F3 (C16-C34 Hydrocarbons)	2009/08/21	97	60 - 130	110	60 - 130	ND, RDL=10	ug/g	NC	50		
1914733	F4 (C34-C50 Hydrocarbons)	2009/08/21	97	60 - 130	109	60 - 130	ND, RDL=10	ug/g	NC	50		
1914928	D10-Anthracene	2009/08/22	79	30 - 130	88	30 - 130	90	%				
1914928	D14-Terphenyl (FS)	2009/08/22	87	30 - 130	94	30 - 130	97	%				
1914928	D7-Quinoline	2009/08/22	75	30 - 130	92	30 - 130	77	%				
1914928	D8-Acenaphthylene	2009/08/22	70	30 - 130	83	30 - 130	78	%				
1914928	Acenaphthene	2009/08/22	75	30 - 130	88	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Acenaphthylene	2009/08/22	70	30 - 130	82	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Anthracene	2009/08/22	76	30 - 130	84	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Benzo(a)anthracene	2009/08/22	103	30 - 130	112	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Benzo(a)pyrene	2009/08/22	91	30 - 130	100	30 - 130	ND, RDL=0.01	ug/L	NC	40		
1914928	Benzo(b/j)fluoranthene	2009/08/22	94	30 - 130	102	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Benzo(g,h,i)perylene	2009/08/22	94	30 - 130	103	30 - 130	ND, RDL=0.1	ug/L	NC	40		
1914928	Benzo(k)fluoranthene	2009/08/22	98	30 - 130	111	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Chrysene	2009/08/22	103	30 - 130	111	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Dibenz(a,h)anthracene	2009/08/22	94	30 - 130	105	30 - 130	ND, RDL=0.1	ug/L	NC	40		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1914928	Fluoranthene	2009/08/22	93	30 - 130	101	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Fluorene	2009/08/22	84	30 - 130	96	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Indeno(1,2,3-cd)pyrene	2009/08/22	86	30 - 130	96	30 - 130	ND, RDL=0.1	ug/L	NC	40		
1914928	1-Methylnaphthalene	2009/08/22	65	30 - 130	79	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	2-Methylnaphthalene	2009/08/22	61	30 - 130	75	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Naphthalene	2009/08/22	51	30 - 130	60	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Phenanthrene	2009/08/22	80	30 - 130	89	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1914928	Pyrene	2009/08/22	91	30 - 130	99	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1915143	1,4-Difluorobenzene	2009/08/22	109	60 - 140	123	60 - 140	119	%				
1915143	4-Bromofluorobenzene	2009/08/22	109	60 - 140	109	60 - 140	110	%				
1915143	D10-Ethylbenzene	2009/08/22	81	30 - 130	71	30 - 130	83	%				
1915143	D4-1,2-Dichloroethane	2009/08/22	81	60 - 140	98	60 - 140	91	%				
1915143	Benzene	2009/08/22	120	60 - 140	96	60 - 140	ND, RDL=0.02	ug/g				
1915143	Toluene	2009/08/22	92	60 - 140	73	60 - 140	ND, RDL=0.02	ug/g				
1915143	Ethylbenzene	2009/08/22	98	60 - 140	79	60 - 140	ND, RDL=0.02	ug/g				
1915143	o-Xylene	2009/08/22	96	60 - 140	76	60 - 140	ND, RDL=0.02	ug/g				
1915143	p+m-Xylene	2009/08/22	104	60 - 140	83	60 - 140	ND, RDL=0.04	ug/g				
1915143	F1 (C6-C10)	2009/08/22	98	60 - 140	102	60 - 140	ND, RDL=10	ug/g	NC	50		
1915143	Total Xylenes	2009/08/22					ND, RDL=0.04	ug/g				
1915143	F1 (C6-C10) - BTEX	2009/08/22					ND, RDL=10	ug/g	NC	50		
1915196	2,4,5,6-Tetrachloro-m-xylene	2009/08/24	73	40 - 130	93	40 - 130	70	%				
1915196	Decachlorobiphenyl	2009/08/24	78	40 - 130	88	40 - 130	60	%				
1915196	Aroclor 1260	2009/08/24	97	30 - 130	114	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1915196	Total PCB	2009/08/24	97	30 - 130	114	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1016	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1221	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1232	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1242	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1248	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1254	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1262	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915196	Aroclor 1268	2009/08/24					ND, RDL=0.05	ug/L	NC	40		
1915682	4-Bromofluorobenzene	2009/08/24	89	60 - 140	100	60 - 140	111	%				
1915682	D4-1,2-Dichloroethane	2009/08/24	120	60 - 140	100	60 - 140	138	%				
1915682	D8-Toluene	2009/08/24	111	60 - 140	100	60 - 140	97	%				
1915682	Acetone (2-Propanone)	2009/08/25	131	24 - 171	102	60 - 140	ND, RDL=0.1	ug/g	NC	50		
1915682	Benzene	2009/08/25	115	39 - 137	96	60 - 140	ND, RDL=0.002	ug/g	7.0	50		
1915682	Bromodichloromethane	2009/08/25	116	45 - 131	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Bromoform	2009/08/25	104	44 - 131	113	60 - 140	ND, RDL=0.002	ug/g	NC	50		

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Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1915682	Bromomethane	2009/08/25	90	20 - 146	97	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1915682	Carbon Tetrachloride	2009/08/25	127	40 - 139	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Chlorobenzene	2009/08/25	105	45 - 140	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Chloroform	2009/08/25	116	48 - 128	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Dibromochloromethane	2009/08/25	117	52 - 135	110	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,2-Dichlorobenzene	2009/08/25	89	39 - 145	95	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,3-Dichlorobenzene	2009/08/25	99	38 - 158	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,4-Dichlorobenzene	2009/08/25	99	35 - 159	97	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1-Dichloroethane	2009/08/25	108	48 - 131	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,2-Dichloroethane	2009/08/25	117	43 - 123	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1-Dichloroethylene	2009/08/25	112	50 - 134	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	cis-1,2-Dichloroethylene	2009/08/25	119	45 - 136	103	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	trans-1,2-Dichloroethylene	2009/08/25	116	45 - 138	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,2-Dichloropropane	2009/08/25	110	51 - 130	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	cis-1,3-Dichloropropene	2009/08/25	108	39 - 143	112	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	trans-1,3-Dichloropropene	2009/08/25	113	33 - 135	111	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Ethylbenzene	2009/08/25	124	46 - 150	100	60 - 140	ND, RDL=0.002	ug/g	19.0	50		
1915682	Ethylene Dibromide	2009/08/25	115	48 - 136	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Methylene Chloride(Dichloromethane)	2009/08/25	119	47 - 124	122	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1915682	Methyl Isobutyl Ketone	2009/08/25	NC	48 - 133	114	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1915682	Methyl Ethyl Ketone (2-Butanone)	2009/08/25	134	39 - 160	108	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1915682	Methyl t-butyl ether (MTBE)	2009/08/25	NC	37 - 150	78	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Styrene	2009/08/25	98	27 - 148	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1,1,2-Tetrachloroethane	2009/08/25	116	51 - 140	105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1,2,2-Tetrachloroethane	2009/08/25	101	46 - 128	105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Tetrachloroethylene	2009/08/25	123	45 - 154	94	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Toluene	2009/08/25	130	30 - 158	102	60 - 140	ND, RDL=0.002	ug/g	8.0	50		
1915682	1,1,1-Trichloroethane	2009/08/25	118	44 - 136	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1,2-Trichloroethane	2009/08/25	114	56 - 135	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Trichloroethylene	2009/08/25	107	39 - 146	98	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Vinyl Chloride	2009/08/25	115	34 - 136	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	p+m-Xylene	2009/08/25	116	29 - 161	97	60 - 140	ND, RDL=0.002	ug/g	21.5	50		
1915682	o-Xylene	2009/08/25	121	45 - 150	107	60 - 140	ND, RDL=0.002	ug/g	27.7	50		
1915682	Xylene (Total)	2009/08/25					ND, RDL=0.002	ug/g	23.4	50		
1915865	o-Terphenyl	2009/08/22	95	30 - 130	97	30 - 130	102	%				
1915865	F2 (C10-C16 Hydrocarbons)	2009/08/22	80	60 - 130	80	60 - 130	ND, RDL=10	ug/g	NC	50		
1915865	F3 (C16-C34 Hydrocarbons)	2009/08/22	80	60 - 130	80	60 - 130	ND, RDL=10	ug/g	NC	50		
1915865	F4 (C34-C50 Hydrocarbons)	2009/08/22	80	60 - 130	80	60 - 130	ND, RDL=10	ug/g	NC	50		
1916109	D10-Anthracene	2009/08/25	88	30 - 130	91	30 - 130	86	%				

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1916109	D14-Terphenyl (FS)	2009/08/25	89	30 - 130	90	30 - 130	86	%				
1916109	D7-Quinoline	2009/08/25	72	30 - 130	95	30 - 130	81	%				
1916109	D8-Acenaphthylene	2009/08/25	76	30 - 130	90	30 - 130	79	%				
1916109	Acenaphthene	2009/08/25	81	30 - 130	90	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916109	Acenaphthylene	2009/08/25	79	30 - 130	88	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Anthracene	2009/08/25	83	30 - 130	85	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Benzo(a)anthracene	2009/08/25	116	30 - 130	114	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916109	Benzo(a)pyrene	2009/08/25	107	30 - 130	104	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Benzo(b/j)fluoranthene	2009/08/25	106	30 - 130	103	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916109	Benzo(g,h,i)perylene	2009/08/25	98	30 - 130	96	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1916109	Benzo(k)fluoranthene	2009/08/25	114	30 - 130	118	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916109	Chrysene	2009/08/25	107	30 - 130	105	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916109	Dibenz(a,h)anthracene	2009/08/25	106	30 - 130	102	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1916109	Fluoranthene	2009/08/25	98	30 - 130	97	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Fluorene	2009/08/25	88	30 - 130	95	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Indeno(1,2,3-cd)pyrene	2009/08/25	119	30 - 130	115	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1916109	1-Methylnaphthalene	2009/08/25	85	30 - 130	98	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	2-Methylnaphthalene	2009/08/25	77	30 - 130	90	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Naphthalene	2009/08/25	78	30 - 130	94	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Phenanthrene	2009/08/25	80	30 - 130	83	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916109	Pyrene	2009/08/25	97	30 - 130	95	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916238	Mercury (Hg)	2009/08/24	103%	75 - 125	106%	84 - 113	ND, RDL=0.1	ug/L	NC	25		
1916397	Diethylene Glycol	2009/08/24	96	30 - 130	95	30 - 130	ND, RDL=5	mg/L	NC	40		
1916397	Ethylene Glycol	2009/08/24	109	30 - 130	101	30 - 130	ND, RDL=5	mg/L	NC	40		
1916397	Propylene Glycol	2009/08/24	109	30 - 130	105	30 - 130	ND, RDL=5	mg/L	NC	40		
1916397	Total Glycol	2009/08/24					ND, RDL=5	mg/L	NC	40		
1916933	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	69	40 - 130	80	40 - 130	81	%				
1916933	Decachlorobiphenyl	2009/08/26	104	40 - 130	102	40 - 130	99	%				
1916933	Aroclor 1260	2009/08/26	104	30 - 130	99	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916933	Total PCB	2009/08/26	104	30 - 130	99	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1262	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1016	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1221	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1232	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1242	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1248	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1254	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916933	Aroclor 1268	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916976	D10-Anthracene	2009/08/25	81	30 - 130	96	30 - 130	91	%				

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1916976	D14-Terphenyl (FS)	2009/08/25	86	30 - 130	94	30 - 130	90	%				
1916976	D7-Quinoline	2009/08/25	58	30 - 130	96	30 - 130	76	%				
1916976	D8-Acenaphthylene	2009/08/25	83	30 - 130	90	30 - 130	84	%				
1916976	Acenaphthene	2009/08/25	86	30 - 130	98	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916976	Acenaphthylene	2009/08/25	78	30 - 130	94	30 - 130	ND, RDL=0.005	ug/g	15.7	50		
1916976	Anthracene	2009/08/25	82	30 - 130	94	30 - 130	ND, RDL=0.005	ug/g	3.4	50		
1916976	Benzo(a)anthracene	2009/08/25	123	30 - 130	122	30 - 130	ND, RDL=0.01	ug/g	12.1	50		
1916976	Benzo(a)pyrene	2009/08/25	85	30 - 130	107	30 - 130	ND, RDL=0.005	ug/g	5.1	50		
1916976	Benzo(b/j)fluoranthene	2009/08/25	89	30 - 130	104	30 - 130	ND, RDL=0.01	ug/g	10.3	50		
1916976	Benzo(g,h,i)perylene	2009/08/25	66	30 - 130	115	30 - 130	ND, RDL=0.02	ug/g	13.9	50		
1916976	Benzo(k)fluoranthene	2009/08/25	89	30 - 130	110	30 - 130	ND, RDL=0.01	ug/g	5.5	50		
1916976	Chrysene	2009/08/25	116	30 - 130	119	30 - 130	ND, RDL=0.01	ug/g	9.2	50		
1916976	Dibenz(a,h)anthracene	2009/08/25	86	30 - 130	121	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1916976	Fluoranthene	2009/08/25	NC(2)	30 - 130	107	30 - 130	ND, RDL=0.005	ug/g	8.3	50		
1916976	Fluorene	2009/08/25	93	30 - 130	105	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1916976	Indeno(1,2,3-cd)pyrene	2009/08/25	72	30 - 130	104	30 - 130	ND, RDL=0.02	ug/g	13.0	50		
1916976	1-Methylnaphthalene	2009/08/25	NC(2)	30 - 130	103	30 - 130	ND, RDL=0.005	ug/g	17.0	50		
1916976	2-Methylnaphthalene	2009/08/25	NC(2)	30 - 130	99	30 - 130	ND, RDL=0.005	ug/g	18.4	50		
1916976	Naphthalene	2009/08/25	125	30 - 130	92	30 - 130	ND, RDL=0.005	ug/g	32.2	50		
1916976	Phenanthrene	2009/08/25	NC(2)	30 - 130	95	30 - 130	ND, RDL=0.005	ug/g	1.8	50		
1916976	Pyrene	2009/08/25	128	30 - 130	105	30 - 130	ND, RDL=0.005	ug/g	7.7	50		
1917020	Moisture	2009/08/24							0	50		
1917044	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	44	40 - 130	61	40 - 130	45	%				
1917044	Decachlorobiphenyl	2009/08/26	115	40 - 130	87	40 - 130	79	%				
1917044	Aldrin	2009/08/26	79	30 - 130	68	30 - 130	ND, RDL=0.005	ug/L				
1917044	a-BHC	2009/08/26	78	30 - 130	71	30 - 130	ND, RDL=0.005	ug/L				
1917044	b-BHC	2009/08/26	91	30 - 130	82	30 - 130	ND, RDL=0.005	ug/L				
1917044	d-BHC	2009/08/26	80	30 - 130	73	30 - 130	ND, RDL=0.005	ug/L				
1917044	a-Chlordane	2009/08/26	103	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	g-Chlordane	2009/08/26	101	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDD	2009/08/26	105	40 - 130	97	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDD	2009/08/26	95	30 - 130	89	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDE	2009/08/26	104	40 - 130	92	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDE	2009/08/26	94	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDT	2009/08/26	111	40 - 130	99	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDT	2009/08/26	100	30 - 130	93	30 - 130	ND, RDL=0.005	ug/L				
1917044	Dieldrin	2009/08/26	105	36 - 130	95	36 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan I	2009/08/26	104	30 - 130	83	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan II	2009/08/26	101	30 - 130	77	30 - 130	ND, RDL=0.005	ug/L				

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1917044	Endosulfan sulfate	2009/08/26	112	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin	2009/08/26	96	30 - 130	92	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin aldehyde	2009/08/26	83	40 - 130	65	40 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin ketone	2009/08/26	112	40 - 130	99	40 - 130	ND, RDL=0.005	ug/L				
1917044	Heptachlor	2009/08/26	23(3)	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L				
1917044	Heptachlor epoxide	2009/08/26	128	30 - 130	97	30 - 130	ND, RDL=0.005	ug/L				
1917044	Hexachlorobenzene	2009/08/26	88	30 - 130	103	30 - 130	ND, RDL=0.005	ug/L				
1917044	Lindane	2009/08/26	91	30 - 130	86	30 - 130	ND, RDL=0.003	ug/L	NC	40		
1917044	Methoxychlor	2009/08/26	107	40 - 130	105	40 - 130	ND, RDL=0.014	ug/L				
1917044	Mirex	2009/08/26	121	40 - 130	103	40 - 130	ND, RDL=0.005	ug/L				
1917044	Octachlorostyrene	2009/08/26	109	30 - 130	90	30 - 130	ND, RDL=0.005	ug/L				
1917044	Total PCB	2009/08/26					ND, RDL=0.1	ug/L	NC	40		
1917044	Aroclor 1242	2009/08/26					ND, RDL=0.05	ug/L	NC	40		
1917044	Toxaphene	2009/08/26					ND, RDL=0.2	ug/L	NC	40		
1917044	Chlordane (Total)	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDD + p,p-DDD	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDE + p,p-DDE	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDT + p,p-DDT	2009/08/26					ND, RDL=0.005	ug/L				
1917044	DDT+ Metabolites	2009/08/26					ND, RDL=0.005	ug/L				
1917044	Total Endosulfan	2009/08/26					ND, RDL=0.005	ug/L				
1917044	Aroclor 1016	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1221	2009/08/26					ND, RDL=0.1	ug/L				
1917044	Aroclor 1232	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1248	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1254	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1260	2009/08/26					ND, RDL=0.05	ug/L				
1917051	Chromium (VI)	2009/08/25	107	75 - 125	102	75 - 125	ND, RDL=0.5	ug/L	NC	25		
1917052	Chromium (VI)	2009/08/27	101	75 - 125	94	75 - 125	ND, RDL=0.5	ug/L	NC	25		
1917641	4-Bromofluorobenzene	2009/08/28	92	60 - 140	101	60 - 140	103	%				
1917641	D4-1,2-Dichloroethane	2009/08/28	111	60 - 140	110	60 - 140	94	%				
1917641	D8-Toluene	2009/08/28	80	60 - 140	99	60 - 140	98	%				
1917641	Acetone (2-Propanone)	2009/08/28	89	24 - 171	101	60 - 140	ND, RDL=5	ug/g	8.3	50		
1917641	Benzene	2009/08/28	102	39 - 137	98	60 - 140	ND, RDL=0.1	ug/g	9.5	50		
1917641	Bromodichloromethane	2009/08/28	120	45 - 131	114	60 - 140	ND, RDL=0.1	ug/g	10.1	50		
1917641	Bromoform	2009/08/28	87	44 - 131	106	60 - 140	ND, RDL=0.1	ug/g	24.1	50		
1917641	Bromomethane	2009/08/28	104	20 - 146	105	60 - 140	ND, RDL=0.2	ug/g	3.5	50		
1917641	Carbon Tetrachloride	2009/08/28	114	40 - 139	117	60 - 140	ND, RDL=0.1	ug/g	1.4	50		
1917641	Chlorobenzene	2009/08/28	79	45 - 140	96	60 - 140	ND, RDL=0.1	ug/g	12.3	50		
1917641	Chloroform	2009/08/28	104	48 - 128	107	60 - 140	ND, RDL=0.1	ug/g	5.7	50		

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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1917641	Dibromochloromethane	2009/08/28	85	52 - 135	106	60 - 140	ND, RDL=0.1	ug/g	18.7	50		
1917641	1,2-Dichlorobenzene	2009/08/28	81	39 - 145	98	60 - 140	ND, RDL=0.1	ug/g	6.8	50		
1917641	1,3-Dichlorobenzene	2009/08/28	94	38 - 158	103	60 - 140	ND, RDL=0.1	ug/g	9.9	50		
1917641	1,4-Dichlorobenzene	2009/08/28	90	35 - 159	109	60 - 140	ND, RDL=0.1	ug/g	6.1	50		
1917641	1,1-Dichloroethane	2009/08/28	110	48 - 131	108	60 - 140	ND, RDL=0.1	ug/g	3.2	50		
1917641	1,2-Dichloroethane	2009/08/28	112	43 - 123	110	60 - 140	ND, RDL=0.1	ug/g	11.2	50		
1917641	1,1-Dichloroethylene	2009/08/28	107	50 - 134	110	60 - 140	ND, RDL=0.1	ug/g	2.8	50		
1917641	cis-1,2-Dichloroethylene	2009/08/28	97	45 - 136	100	60 - 140	ND, RDL=0.1	ug/g	11.5	50		
1917641	trans-1,2-Dichloroethylene	2009/08/28	108	45 - 138	110	60 - 140	ND, RDL=0.1	ug/g	1.8	50		
1917641	1,2-Dichloropropane	2009/08/28	115	51 - 130	111	60 - 140	ND, RDL=0.1	ug/g	11.5	50		
1917641	cis-1,3-Dichloropropene	2009/08/28	108	39 - 143	89	60 - 140	ND, RDL=0.1	ug/g	19.8	50		
1917641	trans-1,3-Dichloropropene	2009/08/28	107	33 - 135	97	60 - 140	ND, RDL=0.1	ug/g	17.3	50		
1917641	Ethylbenzene	2009/08/28	89	46 - 150	106	60 - 140	ND, RDL=0.1	ug/g	8.6	50		
1917641	Ethylene Dibromide	2009/08/28	90	48 - 136	104	60 - 140	ND, RDL=0.1	ug/g	21.9	50		
1917641	MethyleneChloride(Dichloromethane)	2009/08/28	110	47 - 124	112	60 - 140	ND, RDL=0.2	ug/g	2.4	50		
1917641	Methyl Isobutyl Ketone	2009/08/28	126	48 - 133	99	60 - 140	ND, RDL=1	ug/g	26.2	50		
1917641	Methyl Ethyl Ketone (2-Butanone)	2009/08/28	90	39 - 160	95	60 - 140	ND, RDL=1	ug/g	21.5	50		
1917641	Methyl t-butyl ether (MTBE)	2009/08/28	102	37 - 150	104	60 - 140	ND, RDL=0.1	ug/g	22.2	50		
1917641	Styrene	2009/08/28	82	27 - 148	102	60 - 140	ND, RDL=0.1	ug/g	13.7	50		
1917641	1,1,1,2-Tetrachloroethane	2009/08/28	82	51 - 140	107	60 - 140	ND, RDL=0.1	ug/g	14.6	50		
1917641	1,1,2,2-Tetrachloroethane	2009/08/28	116	46 - 128	105	60 - 140	ND, RDL=0.1	ug/g	17.9	50		
1917641	Tetrachloroethylene	2009/08/28	79	45 - 154	99	60 - 140	ND, RDL=0.1	ug/g	8.1	50		
1917641	Toluene	2009/08/28	83	30 - 158	102	60 - 140	ND, RDL=0.1	ug/g	10.4	50		
1917641	1,1,1-Trichloroethane	2009/08/28	109	44 - 136	112	60 - 140	ND, RDL=0.1	ug/g	1.8	50		
1917641	1,1,2-Trichloroethane	2009/08/28	81	56 - 135	102	60 - 140	ND, RDL=0.1	ug/g	17.9	50		
1917641	Trichloroethylene	2009/08/28	99	39 - 146	105	60 - 140	ND, RDL=0.1	ug/g	9.7	50		
1917641	Vinyl Chloride	2009/08/28	111	34 - 136	111	60 - 140	ND, RDL=0.1	ug/g	2.8	50		
1917641	p+m-Xylene	2009/08/28	83	29 - 161	107	60 - 140	ND, RDL=0.1	ug/g	10.1	50		
1917641	o-Xylene	2009/08/28	65	45 - 150	90	60 - 140	ND, RDL=0.1	ug/g	15.8	50		
1917641	Xylene (Total)	2009/08/28					ND, RDL=0.1	ug/g				
1918758	1,4-Difluorobenzene	2009/08/26	100	60 - 140	99	60 - 140	92	%				
1918758	4-Bromofluorobenzene	2009/08/26	109	60 - 140	101	60 - 140	100	%				
1918758	D10-Ethylbenzene	2009/08/26	117	30 - 130	110	30 - 130	107	%				
1918758	D4-1,2-Dichloroethane	2009/08/26	89	60 - 140	99	60 - 140	86	%				
1918758	Benzene	2009/08/26	86	60 - 140	80	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918758	Toluene	2009/08/26	96	60 - 140	95	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918758	Ethylbenzene	2009/08/26	112	60 - 140	104	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918758	o-Xylene	2009/08/26	117	60 - 140	109	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918758	p+m-Xylene	2009/08/26	108	60 - 140	106	60 - 140	ND, RDL=0.04	ug/g	NC	50		

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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1918758	F1 (C6-C10)	2009/08/26	100	60 - 140	107	60 - 140	ND, RDL=10	ug/g	NC	50		
1918758	Total Xylenes	2009/08/26					ND, RDL=0.04	ug/g	NC	50		
1918758	F1 (C6-C10) - BTEX	2009/08/26					ND, RDL=10	ug/g	NC	50		
1919149	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	82	40 - 130	81	40 - 130	78	%				
1919149	Decachlorobiphenyl	2009/08/26	108	40 - 130	106	40 - 130	98	%				
1919149	Aroclor 1260	2009/08/27	122	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919149	Total PCB	2009/08/27	122	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	4.4	50		
1919149	Aroclor 1262	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1016	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1221	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1232	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1242	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1248	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1254	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1268	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919164	Chromium (VI)	2009/08/27	20(4)	75 - 125	99	75 - 125	ND, RDL=0.2	ug/g	NC	35	93	85 - 115
1919450	2,4,5,6-Tetrachloro-m-xylene	2009/08/27	84	40 - 130	75	40 - 130	86	%				
1919450	Decachlorobiphenyl	2009/08/27	111	40 - 130	102	40 - 130	105	%				
1919450	Aldrin	2009/08/27	67	40 - 130	72	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	a-BHC	2009/08/27	56	40 - 130	46	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	b-BHC	2009/08/27	81	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	d-BHC	2009/08/27	66	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	a-Chlordane	2009/08/27	85	40 - 130	67	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	g-Chlordane	2009/08/27	83	40 - 130	64	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	o,p-DDD	2009/08/27	93	40 - 130	65	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	p,p-DDD	2009/08/27	85	40 - 130	65	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	o,p-DDE	2009/08/27	94	40 - 130	76	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	p,p-DDE	2009/08/27	94	40 - 130	77	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	o,p-DDT	2009/08/27	82	40 - 130	62	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	p,p-DDT	2009/08/27	68	40 - 130	60	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Dieldrin	2009/08/27	77	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Endosulfan I	2009/08/27	78	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Endosulfan II	2009/08/27	85	40 - 130	69	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Endosulfan sulfate	2009/08/27	93	40 - 130	83	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Endrin	2009/08/27	79	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Endrin aldehyde	2009/08/27	60	40 - 130	51	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Endrin ketone	2009/08/27	91	40 - 130	73	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Heptachlor	2009/08/27	25(5)	40 - 130	58	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Heptachlor epoxide	2009/08/27	79	40 - 130	60	40 - 130	ND, RDL=0.002	ug/g	NC	50		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1919450	Hexachlorobenzene	2009/08/27	101	20 - 130	86	20 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Lindane	2009/08/27	71	40 - 130	57	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Methoxychlor	2009/08/27	96	40 - 130	76	40 - 130	ND, RDL=0.008	ug/g	NC	50		
1919450	Mirex	2009/08/27	113	40 - 130	92	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Octachlorostyrene	2009/08/27	113	40 - 130	88	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919450	Total PCB	2009/08/27					ND, RDL=0.03	ug/g	NC	50		
1919450	Aroclor 1242	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Toxaphene	2009/08/27					ND, RDL=0.08	ug/g	NC	50		
1919450	Aroclor 1262	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Aroclor 1268	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Chlordane (Total)	2009/08/27					ND, RDL=0.002	ug/g	NC	50		
1919450	o,p-DDD + p,p-DDD	2009/08/27					ND, RDL=0.002	ug/g	NC	50		
1919450	o,p-DDE + p,p-DDE	2009/08/27					ND, RDL=0.002	ug/g	NC	50		
1919450	o,p-DDT + p,p-DDT	2009/08/27					ND, RDL=0.002	ug/g	NC	50		
1919450	DDT+ Metabolites	2009/08/27					ND, RDL=0.002	ug/g	NC	50		
1919450	Total Endosulfan	2009/08/27					ND, RDL=0.002	ug/g	NC	50		
1919450	Aroclor 1016	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Aroclor 1221	2009/08/27					ND, RDL=0.03	ug/g	NC	50		
1919450	Aroclor 1232	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Aroclor 1248	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Aroclor 1254	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919450	Aroclor 1260	2009/08/27					ND, RDL=0.015	ug/g	NC	50		
1919820	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	94	40 - 130	89	40 - 130	94	%				
1919820	Decachlorobiphenyl	2009/08/26	118	40 - 130	108	40 - 130	106	%				
1919820	Aroclor 1260	2009/08/27	113	30 - 130	109	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919820	Total PCB	2009/08/27	113	30 - 130	109	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1262	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1016	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1221	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1232	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1242	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1248	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1254	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919820	Aroclor 1268	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1920588	Moisture	2009/08/27							4.4	50		
1920667	Total Phosphorus	2009/08/28	109	75 - 125	110	75 - 125	ND, RDL=0.002	mg/L	9.3	25	110	85 - 115
1920775	Chromium (VI)	2009/08/28	16(4)	75 - 125	101	75 - 125	ND, RDL=0.2	ug/g	NC	35	97	85 - 115
1920872	Total Organic Carbon	2009/08/28					ND, RDL=500	mg/kg	2.0	50	96	80 - 120
1920928	Chromium (VI)	2009/08/28	95	75 - 125	100	75 - 125	ND, RDL=0.2	ug/g	NC	35	99	85 - 115

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1921632	Hot Water Ext. Boron (B)	2009/08/28					ND, RDL=0.01	ug/g			96	77 - 121
1921634	Acid Extractable Antimony (Sb)	2009/08/28	85	75 - 125			ND, RDL=0.2	ug/g	NC	35	85	75 - 125
1921634	Acid Extractable Arsenic (As)	2009/08/28	101	75 - 125			ND, RDL=1	ug/g	NC	35	91	75 - 125
1921634	Acid Extractable Barium (Ba)	2009/08/28	90	75 - 125			ND, RDL=0.5	ug/g	6.4	35	88	75 - 125
1921634	Acid Extractable Beryllium (Be)	2009/08/28	96	75 - 125			ND, RDL=0.2	ug/g	NC	35	94	75 - 125
1921634	Acid Extractable Cadmium (Cd)	2009/08/28	96	75 - 125			ND, RDL=0.1	ug/g	NC	35	88	75 - 125
1921634	Acid Extractable Chromium (Cr)	2009/08/28	95	75 - 125			ND, RDL=1	ug/g	21.4	35	87	75 - 125
1921634	Acid Extractable Cobalt (Co)	2009/08/28	96	75 - 125			ND, RDL=0.1	ug/g	1.4	35	86	75 - 125
1921634	Acid Extractable Copper (Cu)	2009/08/28	NC	75 - 125			ND, RDL=0.5	ug/g	8.2	35	97	75 - 125
1921634	Acid Extractable Lead (Pb)	2009/08/28	NC	75 - 125			ND, RDL=1	ug/g	15.7	35	96	75 - 125
1921634	Acid Extractable Molybdenum (Mo)	2009/08/28	96	75 - 125			ND, RDL=0.5	ug/g	NC	35	78	75 - 125
1921634	Acid Extractable Nickel (Ni)	2009/08/28	98	75 - 125			ND, RDL=0.5	ug/g	NC	35	91	75 - 125
1921634	Acid Extractable Selenium (Se)	2009/08/28	94	75 - 125			ND, RDL=0.5	ug/g	NC	35	85	50 - 150
1921634	Acid Extractable Silver (Ag)	2009/08/28	85	75 - 125			ND, RDL=0.2	ug/g	NC	35	90	75 - 125
1921634	Acid Extractable Thallium (Tl)	2009/08/28	86	75 - 125			ND, RDL=0.05	ug/g	NC	35	82	75 - 125
1921634	Acid Extractable Vanadium (V)	2009/08/28	93	75 - 125			ND, RDL=5	ug/g	NC	35	94	75 - 125
1921634	Acid Extractable Zinc (Zn)	2009/08/28	NC	75 - 125			ND, RDL=5	ug/g	5.9	35	86	75 - 125
1921634	Acid Extractable Mercury (Hg)	2009/08/28	102	75 - 125			ND, RDL=0.05	ug/g	NC	35	83	75 - 125
1921637	Acid Extractable Antimony (Sb)	2009/08/28	94	75 - 125			ND, RDL=0.2	ug/g	NC	35	75	75 - 125
1921637	Acid Extractable Arsenic (As)	2009/08/28	95	75 - 125			ND, RDL=1	ug/g	NC	35	91	75 - 125
1921637	Acid Extractable Barium (Ba)	2009/08/28	NC	75 - 125			ND, RDL=0.5	ug/g	0.1	35	91	75 - 125
1921637	Acid Extractable Beryllium (Be)	2009/08/28	99	75 - 125			ND, RDL=0.2	ug/g	NC	35	79	75 - 125
1921637	Acid Extractable Cadmium (Cd)	2009/08/28	98	75 - 125			ND, RDL=0.1	ug/g	NC	35	93	75 - 125
1921637	Acid Extractable Chromium (Cr)	2009/08/28	99	75 - 125			ND, RDL=1	ug/g	0.6	35	89	75 - 125
1921637	Acid Extractable Cobalt (Co)	2009/08/28	97	75 - 125			ND, RDL=0.1	ug/g	0.7	35	103	75 - 125
1921637	Acid Extractable Copper (Cu)	2009/08/28	96	75 - 125			ND, RDL=0.5	ug/g	0.7	35	103	75 - 125
1921637	Acid Extractable Lead (Pb)	2009/08/28	96	75 - 125			ND, RDL=1	ug/g	0.2	35	98	75 - 125
1921637	Acid Extractable Molybdenum (Mo)	2009/08/28	101	75 - 125			ND, RDL=0.5	ug/g	NC	35	81	75 - 125
1921637	Acid Extractable Nickel (Ni)	2009/08/28	97	75 - 125			ND, RDL=0.5	ug/g	2.0	35	92	75 - 125
1921637	Acid Extractable Selenium (Se)	2009/08/28	97	75 - 125			ND, RDL=0.5	ug/g	NC	35	104	50 - 150
1921637	Acid Extractable Silver (Ag)	2009/08/28	88	75 - 125			ND, RDL=0.2	ug/g	NC	35	80	75 - 125
1921637	Acid Extractable Thallium (Tl)	2009/08/28	93	75 - 125			ND, RDL=0.05	ug/g	NC	35	81	75 - 125
1921637	Acid Extractable Vanadium (V)	2009/08/28	NC	75 - 125			ND, RDL=5	ug/g	2.7	35	102	75 - 125
1921637	Acid Extractable Zinc (Zn)	2009/08/28	NC	75 - 125			ND, RDL=5	ug/g	1.9	35	94	75 - 125
1921637	Acid Extractable Mercury (Hg)	2009/08/28	98	75 - 125			ND, RDL=0.05	ug/g	NC	35	102	75 - 125
1921727	Acid Extractable Antimony (Sb)	2009/08/28	96	75 - 125			ND, RDL=0.2	ug/g	NC	35	79	75 - 125
1921727	Acid Extractable Arsenic (As)	2009/08/28	100	75 - 125			ND, RDL=1	ug/g	NC	35	93	75 - 125
1921727	Acid Extractable Barium (Ba)	2009/08/28	99	75 - 125			ND, RDL=0.5	ug/g	0.1	35	91	75 - 125
1921727	Acid Extractable Beryllium (Be)	2009/08/28	102	75 - 125			ND, RDL=0.2	ug/g	NC	35	74(6)	75 - 125

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1921727	Acid Extractable Cadmium (Cd)	2009/08/28	99	75 - 125			ND, RDL=0.1	ug/g	NC	35	86	75 - 125
1921727	Acid Extractable Chromium (Cr)	2009/08/28	96	75 - 125			ND, RDL=1	ug/g	NC	35	91	75 - 125
1921727	Acid Extractable Cobalt (Co)	2009/08/28	96	75 - 125			ND, RDL=0.1	ug/g	NC	35	90	75 - 125
1921727	Acid Extractable Copper (Cu)	2009/08/28	92	75 - 125			ND, RDL=0.5	ug/g	NC	35	103	75 - 125
1921727	Acid Extractable Lead (Pb)	2009/08/28	95	75 - 125			ND, RDL=1	ug/g	9.7	35	97	75 - 125
1921727	Acid Extractable Molybdenum (Mo)	2009/08/28	103	75 - 125			ND, RDL=0.5	ug/g	NC	35	76	75 - 125
1921727	Acid Extractable Nickel (Ni)	2009/08/28	97	75 - 125			0.6, RDL=0.5	ug/g	NC	35	92	75 - 125
1921727	Acid Extractable Selenium (Se)	2009/08/28	95	75 - 125			ND, RDL=0.5	ug/g	NC	35	89	50 - 150
1921727	Acid Extractable Silver (Ag)	2009/08/28	86	75 - 125			ND, RDL=0.2	ug/g	NC	35	89	75 - 125
1921727	Acid Extractable Thallium (Tl)	2009/08/28	94	75 - 125			ND, RDL=0.05	ug/g	NC	35	89	75 - 125
1921727	Acid Extractable Vanadium (V)	2009/08/28	95	75 - 125			ND, RDL=5	ug/g	NC	35	87	75 - 125
1921727	Acid Extractable Zinc (Zn)	2009/08/28	NC	75 - 125			ND, RDL=5	ug/g	5.3	35	89	75 - 125
1921727	Acid Extractable Mercury (Hg)	2009/08/28	116	75 - 125			ND, RDL=0.05	ug/g	NC	35	77	75 - 125
1921892	Hot Water Ext. Boron (B)	2009/08/28					ND, RDL=0.01	ug/g			96	77 - 121
1921999	Moisture	2009/08/28							0	50		
1922184	Hot Water Ext. Boron (B)	2009/08/28					ND, RDL=0.01	ug/g	NC	35	107	77 - 121
1922189	Dissolved (0.2u) Aluminum (Al)	2009/08/28	100	80 - 120	98	90 - 110	ND, RDL=5	ug/L	NC	25		
1922458	Total Antimony (Sb)	2009/08/31	107	80 - 120	104	82 - 120	ND, RDL=0.5	ug/L				
1922458	Total Arsenic (As)	2009/08/31	99	80 - 120	99	86 - 119	ND, RDL=1	ug/L				
1922458	Total Beryllium (Be)	2009/08/31	98	75 - 125	98	85 - 132	ND, RDL=0.5	ug/L				
1922458	Total Boron (B)	2009/08/31	96	75 - 125	95	78 - 133	ND, RDL=10	ug/L				
1922458	Total Cadmium (Cd)	2009/08/31	100	80 - 120	98	85 - 116	ND, RDL=0.1	ug/L				
1922458	Total Chromium (Cr)	2009/08/31	96	80 - 120	97	80 - 120	ND, RDL=5	ug/L				
1922458	Total Cobalt (Co)	2009/08/31	98	80 - 120	99	82 - 117	ND, RDL=0.5	ug/L				
1922458	Total Copper (Cu)	2009/08/31	95	80 - 120	98	80 - 117	ND, RDL=1	ug/L				
1922458	Total Iron (Fe)	2009/08/31	98	80 - 120	98	80 - 120	ND, RDL=100	ug/L				
1922458	Total Lead (Pb)	2009/08/31	103	80 - 120	103	80 - 120	ND, RDL=0.5	ug/L	2.6	25		
1922458	Total Molybdenum (Mo)	2009/08/31	101	80 - 120	100	82 - 117	ND, RDL=1	ug/L				
1922458	Total Nickel (Ni)	2009/08/31	98	80 - 120	97	81 - 117	ND, RDL=1	ug/L				
1922458	Total Selenium (Se)	2009/08/31	100	75 - 125	100	82 - 118	ND, RDL=2	ug/L				
1922458	Total Silver (Ag)	2009/08/31	95	80 - 120	96	80 - 120	ND, RDL=0.1	ug/L				
1922458	Total Thallium (Tl)	2009/08/31	104	80 - 120	104	80 - 129	ND, RDL=0.05	ug/L				
1922458	Total Tungsten (W)	2009/08/31	106	75 - 125	104	81 - 123	ND, RDL=1	ug/L				
1922458	Total Uranium (U)	2009/08/31	108	80 - 120	106	82 - 120	ND, RDL=0.1	ug/L				
1922458	Total Vanadium (V)	2009/08/31	99	80 - 120	100	82 - 118	ND, RDL=1	ug/L				

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A7367
Report Date: 2009/09/01

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1922458	Total Zinc (Zn)	2009/08/31	98	80 - 120	99	80 - 120	ND, RDL=5	ug/L				
1922458	Total Zirconium (Zr)	2009/08/31	103	75 - 125	100	84 - 118	ND, RDL=1	ug/L				

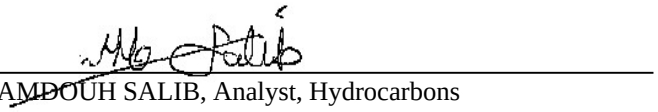
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - The recovery in the matrix spike was not calculated (NC). Because of the high concentration of this analyte in the parent sample, the relative difference between the spiked and unspiked concentrations is not sufficiently significant to permit a reliable recovery calculation.
(3) - The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.
(4) - The recovery was below the lower control limit. This may be due in part to the reducing environment of the sample.
(5) - Recovery in the matrix spike was below the lower control limit. This may represent a low bias in some results for this specific analyte.
(6) - The recovery was below the lower control limit. This may represent a low bias in some results for flagged analytes.

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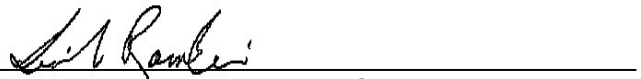
Validation Signature Page

Maxxam Job #: A9A7367

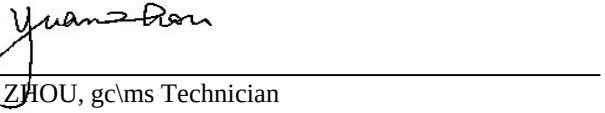
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



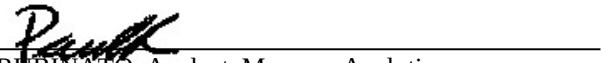
MAMDOUH SALIB, Analyst, Hydrocarbons



LINCOLN RAMDAHIN, Senior Analyst



YUAN ZHOU, gc\ms Technician



PAUL RUBINATO, Analyst, Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

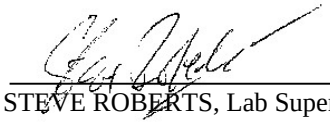
Validation Signature Page

Maxxam Job #: A9A7367

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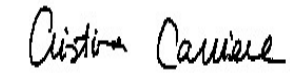
CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst



STEVE ROBERTS, Lab Supervisor, Ottawa



JEEVARAJ JEEVARATRNAM, Senior Analyst



CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

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Your Project #: MA9A7367

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS INC.
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2009/08/28

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A945485
Received: 2009/08/25, 8:40

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Moisture	3	N/A	2009/08/26	CAL SOP-00023	McKeague MSSMA 2.411
Moisture	1	N/A	2009/08/28	CAL SOP-00023	McKeague MSSMA 2.411
Particle Size by Sieve (Dry) (1)	4	N/A	2009/08/27	CAL SOP-00025	SSMA #47

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Result indicates % of sample retained on the sieve.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

BRIAN ISSLER, Project Manager
Email: BRIAN.ISSLER@MaxxamAnalytics.com
Phone# (403) 291-3077

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For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

MAXXAM ANALYTICS INC.

Maxxam Job #: A945485
Report Date: 2009/08/28

Client Project #: MA9A7367

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		Q40632	Q40632	Q40633	Q40634		
Sampling Date		2009/08/16	2009/08/16	2009/08/16	2009/08/16		
	Units	**1-SD-2 (DK9257-06R)**	**1-SD-2 (DK9257-06R) Lab-Dup**	**3-TP-1 (DK9284-06R)**	**1-TP-10 (DK9369-03R)**	**RDL**	**QC Batch**
Physical Properties							
Moisture	%	21	N/A	7.4	4.2	0.3	3374059
Sieve - #4 (>4.75mm)	%	4.9	5.9	15.1	12.8	0.2	3376555
Sieve - #10 (>2.00mm)	%	13.2	9.9	16.7	24.7	0.2	3376555
Sieve - #40 (>0.425mm)	%	4.4	6.2	10.4	16.5	0.2	3376555
Sieve - #200 (>0.075mm)	%	28.0	35.2	25.6	19.8	0.2	3376555
Sieve - Pan	%	49.5	42.8	32.2	26.2	0.2	3376555

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam ID		Q45071	Q45071		
Sampling Date		2009/08/15	2009/08/15		
	Units	**2-TP-8 (DK9366-03R)**	**2-TP-8 (DK9366-03R) Lab-Dup**	**RDL**	**QC Batch**
Physical Properties					
Moisture	%	17	16	0.3	3381166
Sieve - #4 (>4.75mm)	%	3.2	N/A	0.2	3376555
Sieve - #10 (>2.00mm)	%	7.5	N/A	0.2	3376555
Sieve - #40 (>0.425mm)	%	6.8	N/A	0.2	3376555
Sieve - #200 (>0.075mm)	%	33.5	N/A	0.2	3376555
Sieve - Pan	%	49.1	N/A	0.2	3376555

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: A945485
Report Date: 2009/08/28

MAXXAM ANALYTICS INC.
Client Project #: MA9A7367

Package 1	4.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS INC.
Attention: SUB CONTRACTOR
Client Project #: MA9A7367
P.O. #:
Site Reference:

Quality Assurance Report

Maxxam Job Number: CA945485

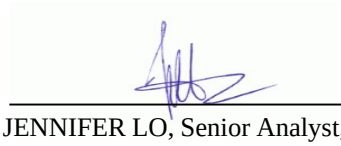
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3374059	FV	RPD	Moisture	2009/08/26	1		%	20
3376555	PP1	QC Standard	Sieve - #200 (>0.075mm)	2009/08/27		104	%	75 - 125
			Sieve - Pan	2009/08/27		98	%	89 - 111
		RPD [Q40632-01]	Sieve - #4 (>4.75mm)	2009/08/27	18.9		%	35
			Sieve - #10 (>2.00mm)	2009/08/27	28.9		%	35
			Sieve - #40 (>0.425mm)	2009/08/27	33.9		%	35
			Sieve - #200 (>0.075mm)	2009/08/27	22.6		%	35
			Sieve - Pan	2009/08/27	14.4		%	35
3381166	HN	RPD [Q45071-01]	Moisture	2009/08/28	6.0		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

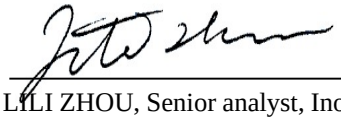
Validation Signature Page

Maxxam Job #: A945485

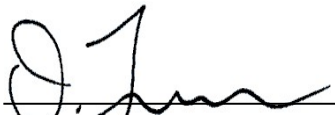
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



JENNIFER LO, Senior Analyst, Organics Department



LILI ZHOU, Senior analyst, Inorganic department.



ORLA JORGENSEN, Organics Supervisor

==========

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Your P.O. #: 1747-0901
Site: RESOLUTE BAY
Your C.O.C. #: 16033702, 160337-0

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2009/08/28

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A8375
Received: 2009/08/21, 11:30

Sample Matrix: Soil
Samples Received: 20

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	17	2009/08/23	2009/08/24	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	3	2009/08/23	2009/08/26	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1)	11	2009/08/22	2009/08/24	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1)	6	2009/08/22	2009/08/25	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1)	3	2009/08/22	2009/08/26	CAM SOP-00316	CCME CWS
MOISTURE (1)	20	N/A	2009/08/24	CAM SOP-00445	MOE HANDBOOK(1983)
PAH Compounds in Soil by GC/MS (SIM)	1	2009/08/24	2009/08/25	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	16	2009/08/24	2009/08/26	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	1	2009/08/26	2009/08/26	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	2	2009/08/26	2009/08/27	CAM SOP - 00318	EPA 8270

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

==========

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For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DL4101	DL4102	DL4103		DL4104	DL4105	DL4106	DL4107	DL4108		
Sampling Date		2009/08/19	2009/08/19	2009/08/19		2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19		
	Units	**1-1**	**1-2**	**1-3**	**QC Batch**	**1-4**	**1-5**	**1-6**	**1-7**	**1-8**	**RDL**	**QC Batch**
Inorganics												
Moisture	%	9.7	6.6	7.3	1915340	7.2	7.4	7.8	8.5	8.1	0.2	1915413

Maxxam ID		DL4109	DL4110	DL4117	DL4118	DL4119	DL4120		
Sampling Date		2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19		
	Units	**2-1**	**2-2**	**2-3**	**2-4**	**2-5**	**2-6**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	9.6	8.0	8.9	8.1	9.2	9.1	0.2	1915413

Maxxam ID		DL4121	DL4122	DL4123	DL4124	DL4125	DL4126		
Sampling Date		2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19		
	Units	**2-7**	**2-8**	**3-1**	**3-2**	**4-1**	**4-2**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	7.7	8.4	7.8	7.6	9.3	7.2	0.2	1915413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL4101		DL4102		DL4103		DL4104		DL4105		DL4106		
Sampling Date		2009/08/19		2009/08/19		2009/08/19		2009/08/19		2009/08/19		2009/08/19		
	Units	**1-1**	**RDL**	**1-2**	**RDL**	**1-3**	**RDL**	**1-4**	**RDL**	**1-5**	**RDL**	**1-6**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons														
Acenaphthene	ug/g	ND	0.01	0.05	0.01	0.10	0.01	0.14	0.01	ND	0.01	ND	0.01	1917227
Acenaphthylene	ug/g	ND(1)	0.05	ND(1)	0.05	ND(1)	0.1	0.021	0.005	ND	0.005	ND	0.005	1917227
Anthracene	ug/g	ND(1)	0.01	0.020	0.005	0.025	0.005	0.015	0.005	ND	0.005	ND	0.005	1917227
Benzo(a)anthracene	ug/g	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	ND	0.01	ND	0.01	1917227
Benzo(a)pyrene	ug/g	0.011	0.005	0.012	0.005	0.016	0.005	ND(1)	0.05	ND	0.005	0.005	0.005	1917227
Benzo(b/j)fluoranthene	ug/g	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	ND	0.01	ND	0.01	1917227
Benzo(g,h,i)perylene	ug/g	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	ND	0.02	ND	0.02	1917227
Benzo(k)fluoranthene	ug/g	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	1917227
Chrysene	ug/g	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.01	ND	0.01	ND	0.01	1917227
Dibenz(a,h)anthracene	ug/g	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	1917227
Fluoranthene	ug/g	0.017	0.005	0.046	0.005	0.054	0.005	0.045	0.005	ND	0.005	ND	0.005	1917227
Fluorene	ug/g	0.006	0.005	0.17	0.005	0.23	0.005	0.021	0.005	ND	0.005	ND	0.005	1917227
Indeno(1,2,3-cd)pyrene	ug/g	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	1917227
1-Methylnaphthalene	ug/g	ND(1)	0.05	0.99	0.005	1.5	0.005	0.053	0.005	0.010	0.005	ND	0.005	1917227
2-Methylnaphthalene	ug/g	ND(1)	0.05	0.82	0.005	1.5	0.005	ND(1)	0.05	ND(1)	0.05	ND	0.005	1917227
Naphthalene	ug/g	ND(1)	0.05	0.17	0.005	0.46	0.005	ND(1)	0.1	0.007	0.005	ND	0.005	1917227
Phenanthrene	ug/g	0.005	0.005	0.19	0.005	0.24	0.005	0.025	0.005	ND	0.005	ND	0.005	1917227
Pyrene	ug/g	0.065	0.005	0.066	0.005	0.078	0.005	0.082	0.005	0.031	0.005	0.030	0.005	1917227
Surrogate Recovery (%)														
D10-Anthracene	%	80		79		91		88		83		77		1917227
D14-Terphenyl (FS)	%	84		82		96		93		84		79		1917227
D7-Quinoline	%	84		77		97		92		78		66		1917227
D8-Acenaphthylene	%	59		88		102		94		84		75		1917227

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL4107			DL4108			DL4109		DL4110		DL4117		
Sampling Date		2009/08/19			2009/08/19			2009/08/19		2009/08/19		2009/08/19		
	Units	**1-7**	**RDL**	**QC Batch**	**1-8**	**RDL**	**QC Batch**	**2-1**	**RDL**	**2-2**	**RDL**	**2-3**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons														
Acenaphthene	ug/g	ND	0.01	1917227	ND	0.01	1918895	ND	0.02	ND	0.02	0.11	0.01	1917227
Acenaphthylene	ug/g	ND	0.005	1917227	ND	0.005	1918895	ND(1)	0.1	ND(1)	0.1	ND(1)	0.05	1917227
Anthracene	ug/g	ND	0.005	1917227	ND	0.005	1918895	0.01	0.01	0.02	0.01	ND(1)	0.05	1917227
Benzo(a)anthracene	ug/g	ND	0.01	1917227	ND	0.01	1918895	ND	0.02	0.03	0.02	0.02	0.01	1917227
Benzo(a)pyrene	ug/g	0.008	0.005	1917227	0.005	0.005	1918895	0.03	0.01	0.05	0.01	0.011	0.005	1917227
Benzo(b/j)fluoranthene	ug/g	0.01	0.01	1917227	ND	0.01	1918895	0.04	0.02	0.08	0.02	0.02	0.01	1917227
Benzo(g,h,i)perylene	ug/g	0.02	0.02	1917227	ND	0.02	1918895	0.04	0.04	0.07	0.04	ND	0.02	1917227
Benzo(k)fluoranthene	ug/g	ND(1)	0.01	1917227	ND	0.01	1918895	ND	0.02	0.02	0.02	ND	0.01	1917227
Chrysene	ug/g	ND	0.01	1917227	ND	0.01	1918895	ND	0.02	ND	0.02	0.01	0.01	1917227
Dibenz(a,h)anthracene	ug/g	ND	0.02	1917227	ND	0.02	1918895	ND	0.04	ND	0.04	ND	0.02	1917227
Fluoranthene	ug/g	ND	0.005	1917227	ND	0.005	1918895	ND	0.01	0.01	0.01	0.038	0.005	1917227
Fluorene	ug/g	ND	0.005	1917227	ND	0.005	1918895	ND	0.01	ND	0.01	0.11	0.005	1917227
Indeno(1,2,3-cd)pyrene	ug/g	ND	0.02	1917227	ND	0.02	1918895	ND	0.04	0.06	0.04	ND	0.02	1917227
1-Methylnaphthalene	ug/g	0.007	0.005	1917227	ND	0.005	1918895	0.02	0.01	ND(1)	0.1	ND(1)	0.5	1917227
2-Methylnaphthalene	ug/g	ND(1)	0.01	1917227	ND	0.005	1918895	ND(1)	0.05	0.09	0.01	ND(1)	0.05	1917227
Naphthalene	ug/g	ND(1)	0.005	1917227	ND	0.005	1918895	0.02	0.01	0.04	0.01	ND(1)	0.5	1917227
Phenanthrene	ug/g	ND	0.005	1917227	ND	0.005	1918895	ND	0.01	0.02	0.01	0.062	0.005	1917227
Pyrene	ug/g	0.053	0.005	1917227	0.025	0.005	1918895	0.11	0.01	0.21	0.01	0.074	0.005	1917227
Surrogate Recovery (%)														
D10-Anthracene	%	85		1917227	79		1918895	88		87		96		1917227
D14-Terphenyl (FS)	%	88		1917227	76		1918895	85		86		102		1917227
D7-Quinoline	%	78		1917227	66		1918895	87		92		103		1917227
D8-Acenaphthylene	%	86		1917227	67		1918895	87		87		122		1917227

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL4118			DL4119		DL4120			DL4121		
Sampling Date		2009/08/19			2009/08/19		2009/08/19			2009/08/19		
	Units	**2-4**	**RDL**	**QC Batch**	**2-5**	**RDL**	**2-6**	**RDL**	**QC Batch**	**2-7**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons												
Acenaphthene	ug/g	0.02	0.01	1918895	0.13	0.01	0.18	0.01	1917227	0.05	0.01	1918895
Acenaphthylene	ug/g	ND(1)	0.05	1918895	ND(1)	0.1	ND(1)	0.1	1917227	ND(1)	0.05	1918895
Anthracene	ug/g	0.008	0.005	1918895	ND(1)	0.05	0.030	0.005	1917227	0.011	0.005	1918895
Benzo(a)anthracene	ug/g	0.03	0.01	1918895	0.03	0.01	0.03	0.01	1917227	0.04	0.01	1918895
Benzo(a)pyrene	ug/g	0.021	0.005	1918895	0.027	0.005	0.023	0.005	1917227	0.031	0.005	1918895
Benzo(b/j)fluoranthene	ug/g	0.04	0.01	1918895	0.04	0.01	0.04	0.01	1917227	0.04	0.01	1918895
Benzo(g,h,i)perylene	ug/g	0.02	0.02	1918895	0.04	0.02	0.03	0.02	1917227	0.03	0.02	1918895
Benzo(k)fluoranthene	ug/g	0.01	0.01	1918895	0.02	0.01	ND(1)	0.02	1917227	0.01	0.01	1918895
Chrysene	ug/g	0.02	0.01	1918895	0.03	0.01	0.03	0.01	1917227	0.03	0.01	1918895
Dibenz(a,h)anthracene	ug/g	ND	0.02	1918895	ND	0.02	ND	0.02	1917227	ND	0.02	1918895
Fluoranthene	ug/g	0.044	0.005	1918895	0.089	0.005	0.087	0.005	1917227	0.067	0.005	1918895
Fluorene	ug/g	0.009	0.005	1918895	0.16	0.005	0.23	0.005	1917227	ND(1)	0.05	1918895
Indeno(1,2,3-cd)pyrene	ug/g	0.02	0.02	1918895	0.03	0.02	0.02	0.02	1917227	0.03	0.02	1918895
1-Methylnaphthalene	ug/g	ND(1)	0.1	1918895	ND(1)	0.5	ND(1)	0.5	1917227	ND(1)	0.05	1918895
2-Methylnaphthalene	ug/g	ND(1)	0.05	1918895	ND(1)	0.1	ND(1)	0.1	1917227	ND(1)	0.05	1918895
Naphthalene	ug/g	0.069	0.005	1918895	ND(1)	0.5	ND(1)	1	1917227	0.18	0.005	1918895
Phenanthrene	ug/g	ND(1)	0.01	1918895	0.091	0.005	0.093	0.005	1917227	0.013	0.005	1918895
Pyrene	ug/g	0.10	0.005	1918895	0.15	0.005	0.15	0.005	1917227	0.14	0.005	1918895
Surrogate Recovery (%)												
D10-Anthracene	%	79		1918895	83		86		1917227	75		1918895
D14-Terphenyl (FS)	%	86		1918895	89		93		1917227	90		1918895
D7-Quinoline	%	97		1918895	91		87		1917227	84		1918895
D8-Acenaphthylene	%	75		1918895	92		97		1917227	72		1918895

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL4122		DL4123		DL4124		DL4125		DL4126		
Sampling Date		2009/08/19		2009/08/19		2009/08/19		2009/08/19		2009/08/19		
	Units	**2-8**	**RDL**	**3-1**	**RDL**	**3-2**	**RDL**	**4-1**	**RDL**	**4-2**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons												
Acenaphthene	ug/g	0.01	0.01	0.02	0.01	0.05	0.01	ND	0.01	0.03	0.01	1917227
Acenaphthylene	ug/g	ND(1)	0.05	ND(1)	0.05	0.020	0.005	ND(1)	0.01	ND(1)	0.05	1917227
Anthracene	ug/g	0.046	0.005	ND(1)	0.01	0.053	0.005	ND	0.005	ND(1)	0.05	1917227
Benzo(a)anthracene	ug/g	0.03	0.01	ND	0.01	0.18	0.01	ND	0.01	ND	0.01	1917227
Benzo(a)pyrene	ug/g	0.024	0.005	ND	0.005	0.046	0.005	ND	0.005	ND	0.005	1917227
Benzo(b/j)fluoranthene	ug/g	0.04	0.01	ND	0.01	0.09	0.01	ND	0.01	ND	0.01	1917227
Benzo(g,h,i)perylene	ug/g	0.04	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	1917227
Benzo(k)fluoranthene	ug/g	0.01	0.01	ND	0.01	0.04	0.01	ND	0.01	ND	0.01	1917227
Chrysene	ug/g	0.03	0.01	ND	0.01	0.10	0.01	ND	0.01	ND	0.01	1917227
Dibenz(a,h)anthracene	ug/g	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	1917227
Fluoranthene	ug/g	0.038	0.005	0.009	0.005	1.3	0.005	ND	0.005	0.014	0.005	1917227
Fluorene	ug/g	0.006	0.005	ND(1)	0.01	ND(1)	0.05	ND	0.005	0.045	0.005	1917227
Indeno(1,2,3-cd)pyrene	ug/g	0.03	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.02	1917227
1-Methylnaphthalene	ug/g	ND(1)	0.05	ND(1)	0.05	ND(1)	0.05	ND(1)	0.01	ND(1)	0.1	1917227
2-Methylnaphthalene	ug/g	0.037	0.005	ND(1)	0.05	ND(1)	0.05	ND	0.005	ND(1)	0.05	1917227
Naphthalene	ug/g	0.070	0.005	ND(1)	0.05	ND(1)	0.1	ND(1)	0.01	ND(1)	0.5	1917227
Phenanthrene	ug/g	0.008	0.005	ND	0.005	0.011	0.005	ND	0.005	0.012	0.005	1917227
Pyrene	ug/g	0.13	0.005	0.030	0.005	0.87	0.005	0.006	0.005	0.024	0.005	1917227
Surrogate Recovery (%)												
D10-Anthracene	%	84		84		86		96		91		1917227
D14-Terphenyl (FS)	%	91		87		89		97		92		1917227
D7-Quinoline	%	89		82		87		83		91		1917227
D8-Acenaphthylene	%	89		90		89		97		94		1917227

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL4101	DL4102	DL4103		DL4104	DL4105	DL4106	DL4107	DL4108		
Sampling Date		2009/08/19	2009/08/19	2009/08/19		2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19		
	Units	**1-1**	**1-2**	**1-3**	**QC Batch**	**1-4**	**1-5**	**1-6**	**1-7**	**1-8**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons												
Benzene	ug/g	ND	ND	ND	1915961	ND	ND	ND	ND	ND	0.02	1915962
Toluene	ug/g	ND	ND	0.04	1915961	ND	ND	ND	ND	ND	0.02	1915962
Ethylbenzene	ug/g	ND	ND	ND	1915961	ND	ND	ND	ND	ND	0.02	1915962
o-Xylene	ug/g	ND	0.04	0.20	1915961	ND	ND	ND	ND	ND	0.02	1915962
p+m-Xylene	ug/g	ND	0.06	0.23	1915961	ND	ND	ND	ND	ND	0.04	1915962
Total Xylenes	ug/g	ND	0.10	0.43	1915961	ND	ND	ND	ND	ND	0.04	1915962
F1 (C6-C10)	ug/g	19	ND	34	1915961	24	ND	ND	ND	ND	10	1915962
F1 (C6-C10) - BTEX	ug/g	19	ND	34	1915961	24	ND	ND	ND	ND	10	1915962
F2-F4 Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	ug/g	750	640	1200	1915684	1000	190	99	160	64	10	1915685
F3 (C16-C34 Hydrocarbons)	ug/g	610	750	650	1915684	760	340	360	460	320	10	1915685
F4 (C34-C50 Hydrocarbons)	ug/g	290	360	290	1915684	390	210	220	270	200	10	1915685
Reached Baseline at C50	ug/g	YES	YES	YES	1915684	YES	YES	YES	YES	YES		1915685
Surrogate Recovery (%)												
1,4-Difluorobenzene	%	119	116	115	1915961	121	117	117	117	113		1915962
4-Bromofluorobenzene	%	111	111	112	1915961	112	111	111	112	111		1915962
D10-Ethylbenzene	%	80	83	84	1915961	89	94	92	94	92		1915962
D4-1,2-Dichloroethane	%	91	84	94	1915961	99	85	93	95	83		1915962
o-Terphenyl	%	98	96	101	1915684	76	75	81	73	75		1915685

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL4109	DL4110	DL4117	DL4118	DL4119	DL4120		
Sampling Date		2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19		
	Units	**2-1**	**2-2**	**2-3**	**2-4**	**2-5**	**2-6**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	ND	ND	ND	ND	ND	ND	0.02	1915962
Toluene	ug/g	ND	0.03	ND	ND	0.03	0.03	0.02	1915962
Ethylbenzene	ug/g	ND	ND	ND	ND	ND	ND	0.02	1915962
o-Xylene	ug/g	ND	ND	ND	ND	ND	0.02	0.02	1915962
p+m-Xylene	ug/g	ND	ND	ND	ND	ND	0.04	0.04	1915962
Total Xylenes	ug/g	ND	ND	ND	ND	ND	0.07	0.04	1915962
F1 (C6-C10)	ug/g	11	18	31	270	55	290	10	1915962
F1 (C6-C10) - BTEX	ug/g	11	18	31	270	55	290	10	1915962
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	870	880	1100	1800	2900	3200	10	1915685
F3 (C16-C34 Hydrocarbons)	ug/g	1100	1300	850	870	1800	1100	10	1915685
F4 (C34-C50 Hydrocarbons)	ug/g	590	950	460	450	740	540	10	1915685
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES	YES		1915685
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	122	120	120	117	118	115		1915962
4-Bromofluorobenzene	%	112	112	113	114	116	116		1915962
D10-Ethylbenzene	%	96	97	92	101	97	97		1915962
D4-1,2-Dichloroethane	%	95	88	92	89	92	89		1915962
o-Terphenyl	%	79	78	76	81	92	85		1915685

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL4121	DL4122	DL4123	DL4124	DL4125	DL4126		
Sampling Date		2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19	2009/08/19		
	Units	**2-7**	**2-8**	**3-1**	**3-2**	**4-1**	**4-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	ND	ND	ND	ND	ND	ND	0.02	1915962
Toluene	ug/g	ND	0.04	ND	ND	ND	ND	0.02	1915962
Ethylbenzene	ug/g	ND	ND	ND	ND	ND	ND	0.02	1915962
o-Xylene	ug/g	ND	ND	ND	ND	ND	ND	0.02	1915962
p+m-Xylene	ug/g	ND	ND	ND	ND	ND	ND	0.04	1915962
Total Xylenes	ug/g	ND	ND	ND	ND	ND	ND	0.04	1915962
F1 (C6-C10)	ug/g	24	21	ND	ND	ND	ND	10	1915962
F1 (C6-C10) - BTEX	ug/g	24	21	ND	ND	ND	ND	10	1915962
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	1300	830	1000	860	120	2000	10	1915685
F3 (C16-C34 Hydrocarbons)	ug/g	1400	1200	190	170	69	280	10	1915685
F4 (C34-C50 Hydrocarbons)	ug/g	840	680	ND	ND	ND	ND	10	1915685
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES	YES		1915685
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	118	121	118	118	120	116		1915962
4-Bromofluorobenzene	%	113	113	113	116	113	116		1915962
D10-Ethylbenzene	%	93	95	92	89	91	91		1915962
D4-1,2-Dichloroethane	%	92	94	93	96	94	91		1915962
o-Terphenyl	%	84	79	84	72	81	84		1915685

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

Package 1	9.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Sample DL4109-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample DL4110-01: PAH Analysis: Due to high concentrations of the target analytes, sample required dilution. Detection limits were adjusted accordingly.

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Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
1915340	Moisture	2009/08/24							6.8	50
1915413	Moisture	2009/08/24							6.7	50
1915684	o-Terphenyl	2009/08/25	87	30 - 130	86	30 - 130	90	%		
1915684	F2 (C10-C16 Hydrocarbons)	2009/08/25	80	60 - 130	85	60 - 130	ND, RDL=10	ug/g	NC	50
1915684	F3 (C16-C34 Hydrocarbons)	2009/08/25	80	60 - 130	85	60 - 130	ND, RDL=10	ug/g	16.9	50
1915684	F4 (C34-C50 Hydrocarbons)	2009/08/25	80	60 - 130	85	60 - 130	ND, RDL=10	ug/g	NC	50
1915685	o-Terphenyl	2009/08/24	71	30 - 130	76	30 - 130	76	%		
1915685	F2 (C10-C16 Hydrocarbons)	2009/08/24	104	60 - 130	86	60 - 130	ND, RDL=10	ug/g	1.1	50
1915685	F3 (C16-C34 Hydrocarbons)	2009/08/24	104	60 - 130	86	60 - 130	ND, RDL=10	ug/g	1.1	50
1915685	F4 (C34-C50 Hydrocarbons)	2009/08/24	104	60 - 130	86	60 - 130	ND, RDL=10	ug/g	1.3	50
1915961	1,4-Difluorobenzene	2009/08/25	117	60 - 140	110	60 - 140	115	%		
1915961	4-Bromofluorobenzene	2009/08/25	109	60 - 140	111	60 - 140	110	%		
1915961	D10-Ethylbenzene	2009/08/25	78	30 - 130	78	30 - 130	88	%		
1915961	D4-1,2-Dichloroethane	2009/08/25	85	60 - 140	94	60 - 140	82	%		
1915961	Benzene	2009/08/25	104	60 - 140	99	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915961	Toluene	2009/08/25	78	60 - 140	76	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915961	Ethylbenzene	2009/08/25	83	60 - 140	80	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915961	o-Xylene	2009/08/25	81	60 - 140	79	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915961	p+m-Xylene	2009/08/25	88	60 - 140	85	60 - 140	ND, RDL=0.04	ug/g	NC	50
1915961	F1 (C6-C10)	2009/08/25	98	60 - 140	88	60 - 140	ND, RDL=10	ug/g	NC	50
1915961	Total Xylenes	2009/08/25					ND, RDL=0.04	ug/g	NC	50
1915961	F1 (C6-C10) - BTEX	2009/08/25					ND, RDL=10	ug/g	NC	50
1915962	1,4-Difluorobenzene	2009/08/24	112	60 - 140	113	60 - 140	113	%		
1915962	4-Bromofluorobenzene	2009/08/24	111	60 - 140	110	60 - 140	110	%		
1915962	D10-Ethylbenzene	2009/08/24	93	30 - 130	98	30 - 130	98	%		
1915962	D4-1,2-Dichloroethane	2009/08/24	85	60 - 140	86	60 - 140	85	%		
1915962	Benzene	2009/08/24	102	60 - 140	107	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915962	Toluene	2009/08/24	78	60 - 140	79	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915962	Ethylbenzene	2009/08/24	81	60 - 140	82	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915962	o-Xylene	2009/08/24	82	60 - 140	83	60 - 140	ND, RDL=0.02	ug/g	NC	50
1915962	p+m-Xylene	2009/08/24	88	60 - 140	88	60 - 140	ND, RDL=0.04	ug/g	NC	50
1915962	F1 (C6-C10)	2009/08/24	91	60 - 140	90	60 - 140	ND, RDL=10	ug/g	NC	50
1915962	Total Xylenes	2009/08/24					ND, RDL=0.04	ug/g	NC	50
1915962	F1 (C6-C10) - BTEX	2009/08/24					ND, RDL=10	ug/g	NC	50
1917227	D10-Anthracene	2009/08/25	90	30 - 130	80	30 - 130	94	%		
1917227	D14-Terphenyl (FS)	2009/08/25	95	30 - 130	74	30 - 130	86	%		
1917227	D7-Quinoline	2009/08/25	82	30 - 130	80	30 - 130	81	%		
1917227	D8-Acenaphthylene	2009/08/25	92	30 - 130	73	30 - 130	79	%		
1917227	Acenaphthene	2009/08/25	97	30 - 130	81	30 - 130	ND, RDL=0.01	ug/g	NC	50

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Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
1917227	Acenaphthylene	2009/08/25	97	30 - 130	78	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Anthracene	2009/08/25	89	30 - 130	78	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Benzo(a)anthracene	2009/08/25	110	30 - 130	93	30 - 130	ND, RDL=0.01	ug/g	NC	50
1917227	Benzo(a)pyrene	2009/08/25	115	30 - 130	98	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Benzo(b/j)fluoranthene	2009/08/25	101	30 - 130	89	30 - 130	ND, RDL=0.01	ug/g	NC	50
1917227	Benzo(g,h,i)perylene	2009/08/25	100	30 - 130	81	30 - 130	ND, RDL=0.02	ug/g	NC	50
1917227	Benzo(k)fluoranthene	2009/08/25	113	30 - 130	99	30 - 130	ND, RDL=0.01	ug/g	NC(1)	50
1917227	Chrysene	2009/08/25	109	30 - 130	96	30 - 130	ND, RDL=0.01	ug/g	NC	50
1917227	Dibenz(a,h)anthracene	2009/08/25	103	30 - 130	81	30 - 130	ND, RDL=0.02	ug/g	NC	50
1917227	Fluoranthene	2009/08/25	95	30 - 130	80	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Fluorene	2009/08/25	104	30 - 130	84	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Indeno(1,2,3-cd)pyrene	2009/08/25	114	30 - 130	88	30 - 130	ND, RDL=0.02	ug/g	NC	50
1917227	1-Methylnaphthalene	2009/08/25	101	30 - 130	89	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	2-Methylnaphthalene	2009/08/25	99	30 - 130	80	30 - 130	ND, RDL=0.005	ug/g	NC(1)	50
1917227	Naphthalene	2009/08/25	90	30 - 130	79	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Phenanthrene	2009/08/25	91	30 - 130	79	30 - 130	ND, RDL=0.005	ug/g	NC	50
1917227	Pyrene	2009/08/25	95	30 - 130	78	30 - 130	ND, RDL=0.005	ug/g	6.4	50
1918895	D10-Anthracene	2009/08/26	89	30 - 130	87	30 - 130	90	%		
1918895	D14-Terphenyl (FS)	2009/08/26	90	30 - 130	84	30 - 130	84	%		
1918895	D7-Quinoline	2009/08/26	81	30 - 130	82	30 - 130	77	%		
1918895	D8-Acenaphthylene	2009/08/26	81	30 - 130	76	30 - 130	74	%		
1918895	Acenaphthene	2009/08/26	74	30 - 130	71	30 - 130	ND, RDL=0.01	ug/g	NC	50
1918895	Acenaphthylene	2009/08/26	73	30 - 130	69	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Anthracene	2009/08/26	73	30 - 130	73	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Benzo(a)anthracene	2009/08/26	95	30 - 130	95	30 - 130	ND, RDL=0.01	ug/g	NC	50
1918895	Benzo(a)pyrene	2009/08/26	82	30 - 130	86	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Benzo(b/j)fluoranthene	2009/08/26	81	30 - 130	90	30 - 130	ND, RDL=0.01	ug/g	NC	50
1918895	Benzo(g,h,i)perylene	2009/08/26	70	30 - 130	62	30 - 130	ND, RDL=0.02	ug/g	NC	50
1918895	Benzo(k)fluoranthene	2009/08/26	92	30 - 130	103	30 - 130	ND, RDL=0.01	ug/g	NC	50
1918895	Chrysene	2009/08/26	85	30 - 130	89	30 - 130	ND, RDL=0.01	ug/g	NC	50
1918895	Dibenz(a,h)anthracene	2009/08/26	75	30 - 130	65	30 - 130	ND, RDL=0.02	ug/g	NC	50
1918895	Fluoranthene	2009/08/26	83	30 - 130	81	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Fluorene	2009/08/26	78	30 - 130	74	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Indeno(1,2,3-cd)pyrene	2009/08/26	83	30 - 130	70	30 - 130	ND, RDL=0.02	ug/g	NC	50
1918895	1-Methylnaphthalene	2009/08/26	78	30 - 130	79	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	2-Methylnaphthalene	2009/08/26	71	30 - 130	71	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Naphthalene	2009/08/26	70	30 - 130	76	30 - 130	ND, RDL=0.005	ug/g	NC	50

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Maxxam Job #: A9A8375
Report Date: 2009/08/28

Franz Environmental Inc

Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
1918895	Phenanthrene	2009/08/26	69	30 - 130	67	30 - 130	ND, RDL=0.005	ug/g	NC	50
1918895	Pyrene	2009/08/26	83	30 - 130	80	30 - 130	ND, RDL=0.005	ug/g	NC	50

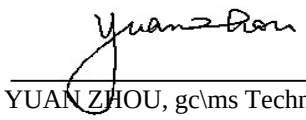
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Detection Limit was raised due to matrix interferences.

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Validation Signature Page

Maxxam Job #: A9A8375

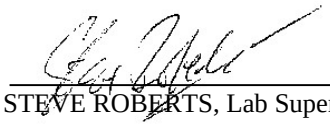
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



YUAN ZHOU, gc\ms Technician



PAUL RUBINATO, Analyst, Maxxam Analytics



STEVE ROBERTS, Lab Supervisor, Ottawa

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

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Your P.O. #: 1747-0901
Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15956107, 159561-0

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2009/09/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A8511
Received: 2009/08/21, 07:30

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dissolved Aluminum (0.2 u, clay free)	5	N/A	2009/08/26	CAM SOP-00447	SW846, 6020
Dissolved Aluminum (0.2 u, clay free)	2	N/A	2009/08/27	CAM SOP-00447	SW846, 6020
Chromium (VI) in Water	7	N/A	2009/08/27	BRL SOP-00106	EPA 7199
Petroleum Hydro. CCME F1 & BTEX in Water (1)	7	N/A	2009/08/27	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water (1)	7	2009/08/24	2009/08/25	CAM SOP-00316	CCME Hydrocarbons
Glycols in Water by GC/FID	1	N/A	2009/08/26	CAM SOP-00322	based on EPA 8015
Mercury	7	2009/08/26	2009/08/27	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	7	N/A	2009/09/03	CAM SOP-00447	EPA 6020
OC Pesticides (Selected) & PCB (2)	2	2009/08/24	2009/08/26	CAM SOP-00307	SW846 8081,8082
PAH Compounds in Water by GC/MS (SIM)	4	2009/08/26	2009/08/27	CAM SOP-00318	EPA 8270
Polychlorinated Biphenyl in Water	1	2009/08/24	2009/08/25	CAM SOP-00309	SW846 8082
Total Phosphorus (Colourimetric)	7	2009/08/27	2009/08/27	CAM SOP-00407	APHA 4500 P,B,F
Volatile Organic Compounds in Water (1)	2	N/A	2009/08/31	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

PWQO METALS (WATER)

Maxxam ID		DL4833		DL4834		DL4987		
Sampling Date		2009/08/18 12:40		2009/08/18 13:10		2009/08/17 16:00		
	Units	**2-SW-5**	**QC Batch**	**2-SW-6**	**QC Batch**	**1-SW-7**	**RDL**	**QC Batch**
Inorganics								
Total Phosphorus	mg/L	0.017	1920229	0.026	1920229	0.12	0.002	1920229
Metals								
Dissolved (0.2u) Aluminum (Al)	ug/L	ND	1919517	12	1920432	ND	5	1919517
Chromium (VI)	ug/L	ND	1920274	0.8	1920274	ND	0.5	1920274
Mercury (Hg)	ug/L	ND	1919573	ND	1919573	ND	0.1	1919573
Total Antimony (Sb)	ug/L	ND	1927383	ND	1927383	1.1	0.5	1927383
Total Arsenic (As)	ug/L	ND	1927383	ND	1927383	ND	1	1927383
Total Beryllium (Be)	ug/L	ND	1927383	ND	1927383	ND	0.5	1927383
Total Boron (B)	ug/L	36	1927383	53	1927383	150	10	1927383
Total Cadmium (Cd)	ug/L	ND	1927383	ND	1927383	0.4	0.1	1927383
Total Chromium (Cr)	ug/L	ND	1927383	ND	1927383	ND	5	1927383
Total Cobalt (Co)	ug/L	ND	1927383	ND	1927383	0.6	0.5	1927383
Total Copper (Cu)	ug/L	ND	1927383	ND	1927383	4	1	1927383
Total Iron (Fe)	ug/L	ND	1927383	180	1927383	ND	100	1927383
Total Lead (Pb)	ug/L	0.6	1927383	0.9	1927383	1.2	0.5	1927383
Total Molybdenum (Mo)	ug/L	ND	1927383	ND	1927383	2	1	1927383
Total Nickel (Ni)	ug/L	2	1927383	ND	1927383	4	1	1927383
Total Selenium (Se)	ug/L	ND	1927383	ND	1927383	ND	2	1927383
Total Silver (Ag)	ug/L	ND	1927383	ND	1927383	ND	0.1	1927383
Total Thallium (Tl)	ug/L	ND	1927383	ND	1927383	ND	0.05	1927383
Total Tungsten (W)	ug/L	ND	1927383	ND	1927383	ND	1	1927383
Total Uranium (U)	ug/L	0.3	1927383	0.4	1927383	0.4	0.1	1927383
Total Vanadium (V)	ug/L	ND	1927383	ND	1927383	ND	1	1927383
Total Zinc (Zn)	ug/L	ND	1927383	7	1927383	110	5	1927383
Total Zirconium (Zr)	ug/L	ND	1927383	ND	1927383	ND	1	1927383

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

PWQO METALS (WATER)

Maxxam ID		DL4988		DL4989		DL4990		DL4991		
Sampling Date		2009/08/17 17:00		2009/08/17 14:45		2009/08/17 18:30		2009/08/17		
	Units	**1-SW-8**	**RDL**	**1-SW-6**	**RDL**	**1-SW-15**	**QC Batch**	**FR-1**	**RDL**	**QC Batch**
Inorganics										
Total Phosphorus	mg/L	0.041	0.002	1.1(1)	0.02	0.013	1920229	0.008	0.002	1920229
Metals										
Dissolved (0.2u) Aluminum (Al)	ug/L	ND	5	7	5	ND	1919517	ND	5	1920435
Chromium (VI)	ug/L	0.7	0.5	ND	0.5	ND	1920274	ND	0.5	1920274
Mercury (Hg)	ug/L	ND	0.1	ND	0.1	ND	1919573	ND	0.1	1919573
Total Antimony (Sb)	ug/L	0.7	0.5	1.2	0.5	ND	1927383	ND	0.5	1927383
Total Arsenic (As)	ug/L	ND	1	3	1	ND	1927383	ND	1	1927383
Total Beryllium (Be)	ug/L	ND	0.5	ND	0.5	ND	1927383	ND	0.5	1927383
Total Boron (B)	ug/L	86	10	250	10	130	1927383	130	10	1927383
Total Cadmium (Cd)	ug/L	ND	0.1	ND	0.1	ND	1927383	ND	0.1	1927383
Total Chromium (Cr)	ug/L	ND	5	ND	5	ND	1927383	ND	5	1927383
Total Cobalt (Co)	ug/L	ND	0.5	2.7	0.5	ND	1927383	ND	0.5	1927383
Total Copper (Cu)	ug/L	3	1	2	1	ND	1927383	ND	1	1927383
Total Iron (Fe)	ug/L	ND	100	590	100	ND	1927383	ND	100	1927383
Total Lead (Pb)	ug/L	1.0	0.5	1.1	0.5	ND	1927383	ND	0.5	1927383
Total Molybdenum (Mo)	ug/L	1	1	2	1	1	1927383	1	1	1927383
Total Nickel (Ni)	ug/L	1	1	12	1	ND	1927383	ND	1	1927383
Total Selenium (Se)	ug/L	ND	2	ND	2	ND	1927383	ND	2	1927383
Total Silver (Ag)	ug/L	ND	0.1	ND	0.1	ND	1927383	ND	0.1	1927383
Total Thallium (Tl)	ug/L	ND	0.05	ND	0.05	ND	1927383	ND	0.05	1927383
Total Tungsten (W)	ug/L	ND	1	ND	1	ND	1927383	ND	1	1927383
Total Uranium (U)	ug/L	0.3	0.1	0.2	0.1	0.4	1927383	0.4	0.1	1927383
Total Vanadium (V)	ug/L	ND	1	ND	1	ND	1927383	ND	1	1927383
Total Zinc (Zn)	ug/L	20	5	13	5	ND	1927383	ND	5	1927383
Total Zirconium (Zr)	ug/L	ND	1	ND	1	ND	1927383	ND	1	1927383

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method.

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

GLYCOLS BY GC-FID (WATER)

Maxxam ID		DL4987		
Sampling Date		2009/08/17 16:00		
	Units	**1-SW-7**	**RDL**	**QC Batch**
Glycols				
Diethylene Glycol	mg/L	ND	5	1919328
Ethylene Glycol	mg/L	ND	5	1919328
Propylene Glycol	mg/L	ND	5	1919328
Total Glycol	mg/L	ND	5	1919328

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DL4834	DL4987	DL4989	DL4990		
Sampling Date		2009/08/18 13:10	2009/08/17 16:00	2009/08/17 14:45	2009/08/17 18:30		
	Units	**2-SW-6**	**1-SW-7**	**1-SW-6**	**1-SW-15**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons							
Acenaphthene	ug/L	ND	ND	ND	ND	0.05	1918861
Acenaphthylene	ug/L	ND	ND	ND	ND	0.05	1918861
Anthracene	ug/L	ND	ND	ND	ND	0.05	1918861
Benzo(a)anthracene	ug/L	ND	ND	ND	ND	0.05	1918861
Benzo(a)pyrene	ug/L	ND	ND	ND	ND	0.01	1918861
Benzo(b/j)fluoranthene	ug/L	ND	ND	ND	ND	0.05	1918861
Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	0.1	1918861
Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	0.05	1918861
Chrysene	ug/L	ND	ND	ND	ND	0.05	1918861
Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	0.1	1918861
Fluoranthene	ug/L	ND	ND	ND	ND	0.05	1918861
Fluorene	ug/L	ND	ND	ND	ND	0.05	1918861
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	0.1	1918861
1-Methylnaphthalene	ug/L	ND	ND	ND	ND	0.05	1918861
2-Methylnaphthalene	ug/L	ND	ND	ND	ND	0.05	1918861
Naphthalene	ug/L	ND	ND	ND	ND	0.05	1918861
Phenanthrene	ug/L	ND	ND	ND	ND	0.05	1918861
Pyrene	ug/L	ND	ND	ND	ND	0.05	1918861
Surrogate Recovery (%)							
D10-Anthracene	%	86	85	77	94		1918861
D14-Terphenyl (FS)	%	86	86	76	91		1918861
D7-Quinoline	%	76	76	79	75		1918861
D8-Acenaphthylene	%	70	73	68	69		1918861

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
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Sampler Initials: JK

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DL4987	DL4989		
Sampling Date		2009/08/17 16:00	2009/08/17 14:45		
	Units	**1-SW-7**	**1-SW-6**	**RDL**	**QC Batch**
Volatile Organics					
Acetone (2-Propanone)	ug/L	ND	ND	10	1916661
Benzene	ug/L	ND	ND	0.1	1916661
Bromodichloromethane	ug/L	ND	ND	0.1	1916661
Bromoform	ug/L	ND	ND	0.2	1916661
Bromomethane	ug/L	ND	ND	0.5	1916661
Carbon Tetrachloride	ug/L	ND	ND	0.1	1916661
Chlorobenzene	ug/L	ND	ND	0.1	1916661
Chloroform	ug/L	ND	ND	0.1	1916661
Dibromochloromethane	ug/L	ND	ND	0.2	1916661
1,2-Dichlorobenzene	ug/L	ND	ND	0.2	1916661
1,3-Dichlorobenzene	ug/L	ND	ND	0.2	1916661
1,4-Dichlorobenzene	ug/L	ND	ND	0.2	1916661
1,1-Dichloroethane	ug/L	ND	ND	0.1	1916661
1,2-Dichloroethane	ug/L	ND	ND	0.2	1916661
1,1-Dichloroethylene	ug/L	ND	ND	0.1	1916661
cis-1,2-Dichloroethylene	ug/L	ND	ND	0.1	1916661
trans-1,2-Dichloroethylene	ug/L	ND	ND	0.1	1916661
1,2-Dichloropropane	ug/L	ND	ND	0.1	1916661
cis-1,3-Dichloropropene	ug/L	ND	ND	0.2	1916661
trans-1,3-Dichloropropene	ug/L	ND	ND	0.2	1916661
Ethylbenzene	ug/L	ND	ND	0.1	1916661
Ethylene Dibromide	ug/L	ND	ND	0.2	1916661
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	0.5	1916661
Methyl Isobutyl Ketone	ug/L	ND	ND	5	1916661
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	ND	5	1916661
Methyl t-butyl ether (MTBE)	ug/L	ND	ND	0.2	1916661
Styrene	ug/L	ND	ND	0.2	1916661
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	0.1	1916661
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	0.2	1916661
Tetrachloroethylene	ug/L	ND	ND	0.1	1916661
Toluene	ug/L	ND	ND	0.2	1916661
1,1,1-Trichloroethane	ug/L	ND	ND	0.1	1916661
1,1,2-Trichloroethane	ug/L	ND	ND	0.2	1916661

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8511
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Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DL4987	DL4989		
Sampling Date		2009/08/17 16:00	2009/08/17 14:45		
	Units	**1-SW-7**	**1-SW-6**	**RDL**	**QC Batch**
Trichloroethylene	ug/L	ND	ND	0.1	1916661
Vinyl Chloride	ug/L	ND	ND	0.2	1916661
p+m-Xylene	ug/L	ND	ND	0.1	1916661
o-Xylene	ug/L	ND	ND	0.1	1916661
Xylene (Total)	ug/L	ND	ND	0.1	1916661
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	75	83		1916661
D4-1,2-Dichloroethane	%	105	88		1916661
D8-Toluene	%	96	85		1916661

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL4833	DL4834	DL4987	DL4988	DL4989	DL4990	DL4991		
Sampling Date		2009/08/18 12:40	2009/08/18 13:10	2009/08/17 16:00	2009/08/17 17:00	2009/08/17 14:45	2009/08/17 18:30	2009/08/17		
	Units	**2-SW-5**	**2-SW-6**	**1-SW-7**	**1-SW-8**	**1-SW-6**	**1-SW-15**	**FR-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/L	ND	ND	ND	ND	ND	ND	ND	0.2	1919066
Toluene	ug/L	ND	ND	ND	ND	ND	ND	ND	0.2	1919066
Ethylbenzene	ug/L	ND	ND	ND	ND	ND	ND	ND	0.2	1919066
o-Xylene	ug/L	ND	ND	ND	ND	ND	ND	ND	0.2	1919066
p+m-Xylene	ug/L	ND	ND	ND	ND	ND	ND	ND	0.4	1919066
Total Xylenes	ug/L	ND	ND	ND	ND	ND	ND	ND	0.4	1919066
F1 (C6-C10)	ug/L	ND	ND	ND	ND	ND	ND	ND	100	1919066
F1 (C6-C10) - BTEX	ug/L	ND	ND	ND	ND	ND	ND	ND	100	1919066
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	ND	ND	100	1916139
F3 (C16-C34 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	ND	ND	100	1916139
F4 (C34-C50 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	ND	ND	100	1916139
Reached Baseline at C50	ug/L	YES	YES	YES	YES	YES	YES	YES		1916139
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	97	100	96	99	99	100	99		1919066
4-Bromofluorobenzene	%	101	99	100	98	99	99	100		1919066
D10-Ethylbenzene	%	106	107	109	106	106	105	105		1919066
D4-1,2-Dichloroethane	%	98	96	90	94	103	95	94		1919066
o-Terphenyl	%	79	77	78	75	77	75	73		1916139

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
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Your P.O. #: 1747-0901
Sampler Initials: JK

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		DL4834		
Sampling Date		2009/08/18 13:10		
	Units	**2-SW-6**	**RDL**	**QC Batch**
PCBs				
Aroclor 1016	ug/L	ND	0.05	1916993
Aroclor 1221	ug/L	ND	0.05	1916993
Aroclor 1232	ug/L	ND	0.05	1916993
Aroclor 1242	ug/L	ND	0.05	1916993
Aroclor 1248	ug/L	ND	0.05	1916993
Aroclor 1254	ug/L	ND	0.05	1916993
Aroclor 1260	ug/L	ND	0.05	1916993
Aroclor 1262	ug/L	ND	0.05	1916993
Aroclor 1268	ug/L	ND	0.05	1916993
Total PCB	ug/L	ND	0.05	1916993
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	35(1)		1916993
Decachlorobiphenyl	%	92		1916993

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

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Your P.O. #: 1747-0901
Sampler Initials: JK

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DL4987		DL4989		
Sampling Date		2009/08/17 16:00		2009/08/17 14:45		
	Units	**1-SW-7**	**RDL**	**1-SW-6**	**RDL**	**QC Batch**
Pesticides & Herbicides						
Aldrin	ug/L	ND	0.005	ND	0.005	1917044
a-BHC	ug/L	ND	0.005	ND	0.005	1917044
b-BHC	ug/L	ND	0.005	ND(1)	0.01	1917044
d-BHC	ug/L	ND	0.005	ND	0.005	1917044
a-Chlordane	ug/L	ND	0.005	ND	0.005	1917044
g-Chlordane	ug/L	ND	0.005	ND	0.005	1917044
Chlordane (Total)	ug/L	ND	0.005	ND	0.005	1917044
o,p-DDD	ug/L	ND	0.005	ND	0.005	1917044
p,p-DDD	ug/L	ND	0.005	ND	0.005	1917044
o,p-DDD + p,p-DDD	ug/L	ND	0.005	ND	0.005	1917044
o,p-DDE	ug/L	ND	0.005	ND	0.005	1917044
p,p-DDE	ug/L	ND	0.005	ND	0.005	1917044
o,p-DDE + p,p-DDE	ug/L	ND	0.005	ND	0.005	1917044
o,p-DDT	ug/L	ND	0.005	ND	0.005	1917044
p,p-DDT	ug/L	ND	0.005	ND	0.005	1917044
o,p-DDT + p,p-DDT	ug/L	ND	0.005	ND	0.005	1917044
DDT+ Metabolites	ug/L	ND	0.005	ND	0.005	1917044
Dieldrin	ug/L	ND	0.005	ND	0.005	1917044
Endosulfan I	ug/L	ND	0.005	ND	0.005	1917044
Endosulfan II	ug/L	ND	0.005	ND	0.005	1917044
Endosulfan sulfate	ug/L	ND	0.005	ND	0.005	1917044
Total Endosulfan	ug/L	ND	0.005	ND	0.005	1917044
Endrin	ug/L	ND	0.005	ND	0.005	1917044
Endrin aldehyde	ug/L	ND	0.005	ND	0.005	1917044
Endrin ketone	ug/L	ND	0.005	ND	0.005	1917044
Heptachlor	ug/L	ND	0.005	ND	0.005	1917044
Heptachlor epoxide	ug/L	ND	0.005	ND	0.005	1917044
Hexachlorobenzene	ug/L	ND	0.005	ND	0.005	1917044
Lindane	ug/L	ND	0.003	ND	0.003	1917044
Methoxychlor	ug/L	ND	0.01	ND	0.01	1917044
Mirex	ug/L	ND	0.005	ND	0.005	1917044
Octachlorostyrene	ug/L	ND	0.005	ND	0.005	1917044

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

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Sampler Initials: JK

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DL4987		DL4989		
Sampling Date		2009/08/17 16:00		2009/08/17 14:45		
	Units	**1-SW-7**	**RDL**	**1-SW-6**	**RDL**	**QC Batch**
Total PCB	ug/L	ND	0.1	ND	0.1	1917044
Aroclor 1016	ug/L	ND	0.05	ND	0.05	1917044
Aroclor 1221	ug/L	ND	0.1	ND	0.1	1917044
Aroclor 1232	ug/L	ND	0.05	ND	0.05	1917044
Aroclor 1242	ug/L	ND	0.05	ND	0.05	1917044
Aroclor 1248	ug/L	ND	0.05	ND	0.05	1917044
Aroclor 1254	ug/L	ND	0.05	ND	0.05	1917044
Aroclor 1260	ug/L	ND	0.05	ND	0.05	1917044
Toxaphene	ug/L	ND	0.2	ND	0.2	1917044
Surrogate Recovery (%)						
2,4,5,6-Tetrachloro-m-xylene	%	32(1)		32(1)		1917044
Decachlorobiphenyl	%	89		89		1917044

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Package 1	6.3°C
Package 2	8.0°C
Package 3	7.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

OC Pesticide Analysis: Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

Sample DL4834-: Total Chromium < Hexavalent Chromium: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

Sample DL4988-: Total Chromium < Hexavalent Chromium: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

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Your P.O. #: 1747-0901
Sampler Initials: JK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1916139	o-Terphenyl	2009/08/25	80	30 - 130	81	30 - 130	81	%				
1916139	F2 (C10-C16 Hydrocarbons)	2009/08/25	84	60 - 130	80	60 - 130	ND, RDL=100	ug/L	NC	50		
1916139	F3 (C16-C34 Hydrocarbons)	2009/08/25	84	60 - 130	80	60 - 130	ND, RDL=100	ug/L	NC	50		
1916139	F4 (C34-C50 Hydrocarbons)	2009/08/25	84	60 - 130	80	60 - 130	ND, RDL=100	ug/L	NC	50		
1916661	4-Bromofluorobenzene	2009/08/30	88	70 - 130	89	70 - 130	80	%				
1916661	D4-1,2-Dichloroethane	2009/08/30	89	70 - 130	90	70 - 130	96	%				
1916661	D8-Toluene	2009/08/30	112	70 - 130	114	70 - 130	92	%				
1916661	Acetone (2-Propanone)	2009/08/31	62	60 - 140	65	60 - 140	ND, RDL=10	ug/L	NC	40		
1916661	Benzene	2009/08/31	100	70 - 130	96	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Bromodichloromethane	2009/08/31	89	70 - 130	90	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Bromoform	2009/08/31	79	70 - 130	81	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	Bromomethane	2009/08/31	133	60 - 140	122	60 - 140	ND, RDL=0.5	ug/L	NC	40		
1916661	Carbon Tetrachloride	2009/08/31	93	70 - 130	92	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Chlorobenzene	2009/08/31	97	70 - 130	102	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Chloroform	2009/08/31	94	70 - 130	93	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Dibromochloromethane	2009/08/31	88	70 - 130	90	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,2-Dichlorobenzene	2009/08/31	94	70 - 130	102	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,3-Dichlorobenzene	2009/08/31	82	70 - 130	91	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,4-Dichlorobenzene	2009/08/31	88	70 - 130	99	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,1-Dichloroethane	2009/08/31	105	70 - 130	97	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	1,2-Dichloroethane	2009/08/31	87	70 - 130	87	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,1-Dichloroethylene	2009/08/31	103	70 - 130	98	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	cis-1,2-Dichloroethylene	2009/08/31	86	70 - 130	83	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	trans-1,2-Dichloroethylene	2009/08/31	100	70 - 130	97	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	1,2-Dichloropropane	2009/08/31	105	70 - 130	104	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	cis-1,3-Dichloropropene	2009/08/31	90	70 - 130	88	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	trans-1,3-Dichloropropene	2009/08/31	72	70 - 130	72	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	Ethylbenzene	2009/08/31	97	70 - 130	102	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Ethylene Dibromide	2009/08/31	95	70 - 130	96	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	MethyleneChloride(Dichloromethane)	2009/08/31	102	70 - 130	98	70 - 130	ND, RDL=0.5	ug/L	NC	40		
1916661	Methyl Isobutyl Ketone	2009/08/31	73	60 - 140	69	60 - 140	ND, RDL=5	ug/L	NC	40		
1916661	Methyl Ethyl Ketone (2-Butanone)	2009/08/31	73	60 - 140	70	60 - 140	ND, RDL=5	ug/L	NC	40		
1916661	Methyl t-butyl ether (MTBE)	2009/08/31	74	70 - 130	70	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	Styrene	2009/08/31	95	70 - 130	95	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,1,1,2-Tetrachloroethane	2009/08/31	91	70 - 130	94	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	1,1,2,2-Tetrachloroethane	2009/08/31	96	70 - 130	98	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	Tetrachloroethylene	2009/08/31	109	70 - 130	104	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Toluene	2009/08/31	112	70 - 130	112	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	1,1,1-Trichloroethane	2009/08/31	96	70 - 130	94	70 - 130	ND, RDL=0.1	ug/L	NC	40		

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Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1916661	1,1,2-Trichloroethane	2009/08/31	93	70 - 130	93	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	Trichloroethylene	2009/08/31	101	70 - 130	101	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Vinyl Chloride	2009/08/31	113	70 - 130	104	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916661	p+m-Xylene	2009/08/31	93	70 - 130	97	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	o-Xylene	2009/08/31	84	70 - 130	88	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916661	Xylene (Total)	2009/08/31					ND, RDL=0.1	ug/L	NC	40		
1916993	2,4,5,6-Tetrachloro-m-xylene	2009/08/25	42	40 - 130	50	40 - 130	66	%				
1916993	Decachlorobiphenyl	2009/08/25	126	40 - 130	95	40 - 130	119	%				
1916993	Aroclor 1260	2009/08/25	121	30 - 130	106	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1916993	Total PCB	2009/08/25	121	30 - 130	106	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1016	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1221	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1232	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1242	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1248	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1254	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1262	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1916993	Aroclor 1268	2009/08/25					ND, RDL=0.05	ug/L	NC	40		
1917044	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	44	40 - 130	61	40 - 130	45	%				
1917044	Decachlorobiphenyl	2009/08/26	115	40 - 130	87	40 - 130	79	%				
1917044	Aldrin	2009/08/26	79	30 - 130	68	30 - 130	ND, RDL=0.005	ug/L				
1917044	a-BHC	2009/08/26	78	30 - 130	71	30 - 130	ND, RDL=0.005	ug/L				
1917044	b-BHC	2009/08/26	91	30 - 130	82	30 - 130	ND, RDL=0.005	ug/L				
1917044	d-BHC	2009/08/26	80	30 - 130	73	30 - 130	ND, RDL=0.005	ug/L				
1917044	a-Chlordane	2009/08/26	103	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	g-Chlordane	2009/08/26	101	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDD	2009/08/26	105	40 - 130	97	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDD	2009/08/26	95	30 - 130	89	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDE	2009/08/26	104	40 - 130	92	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDE	2009/08/26	94	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDT	2009/08/26	111	40 - 130	99	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDT	2009/08/26	100	30 - 130	93	30 - 130	ND, RDL=0.005	ug/L				
1917044	Dieldrin	2009/08/26	105	36 - 130	95	36 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan I	2009/08/26	104	30 - 130	83	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan II	2009/08/26	101	30 - 130	77	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan sulfate	2009/08/26	112	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin	2009/08/26	96	30 - 130	92	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin aldehyde	2009/08/26	83	40 - 130	65	40 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin ketone	2009/08/26	112	40 - 130	99	40 - 130	ND, RDL=0.005	ug/L				

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1917044	Heptachlor	2009/08/26	23(1)	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L				
1917044	Heptachlor epoxide	2009/08/26	128	30 - 130	97	30 - 130	ND, RDL=0.005	ug/L				
1917044	Hexachlorobenzene	2009/08/26	88	30 - 130	103	30 - 130	ND, RDL=0.005	ug/L				
1917044	Lindane	2009/08/26	91	30 - 130	86	30 - 130	ND, RDL=0.003	ug/L	NC	40		
1917044	Methoxychlor	2009/08/26	107	40 - 130	105	40 - 130	ND, RDL=0.014	ug/L				
1917044	Mirex	2009/08/26	121	40 - 130	103	40 - 130	ND, RDL=0.005	ug/L				
1917044	Octachlorostyrene	2009/08/26	109	30 - 130	90	30 - 130	ND, RDL=0.005	ug/L				
1917044	Total PCB	2009/08/26					ND, RDL=0.1	ug/L	NC	40		
1917044	Aroclor 1242	2009/08/26					ND, RDL=0.05	ug/L	NC	40		
1917044	Toxaphene	2009/08/26					ND, RDL=0.2	ug/L	NC	40		
1917044	Chlordane (Total)	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDD + p,p-DDD	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDE + p,p-DDE	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDT + p,p-DDT	2009/08/26					ND, RDL=0.005	ug/L				
1917044	DDT+ Metabolites	2009/08/26					ND, RDL=0.005	ug/L				
1917044	Total Endosulfan	2009/08/26					ND, RDL=0.005	ug/L				
1917044	Aroclor 1016	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1221	2009/08/26					ND, RDL=0.1	ug/L				
1917044	Aroclor 1232	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1248	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1254	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1260	2009/08/26					ND, RDL=0.05	ug/L				
1918861	D10-Anthracene	2009/08/26	84	30 - 130	89	30 - 130	89	%				
1918861	D14-Terphenyl (FS)	2009/08/26	84	30 - 130	86	30 - 130	84	%				
1918861	D7-Quinoline	2009/08/26	77	30 - 130	87	30 - 130	82	%				
1918861	D8-Acenaphthylene	2009/08/26	72	30 - 130	80	30 - 130	77	%				
1918861	Acenaphthene	2009/08/26	68	30 - 130	75	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Acenaphthylene	2009/08/26	68	30 - 130	74	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Anthracene	2009/08/26	74	30 - 130	77	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Benzo(a)anthracene	2009/08/26	88	30 - 130	89	30 - 130	ND, RDL=0.05	ug/L				
1918861	Benzo(a)pyrene	2009/08/26	92	30 - 130	94	30 - 130	ND, RDL=0.01	ug/L				
1918861	Benzo(b/j)fluoranthene	2009/08/26	97	30 - 130	97	30 - 130	ND, RDL=0.05	ug/L				
1918861	Benzo(g,h,i)perylene	2009/08/26	62	30 - 130	66	30 - 130	ND, RDL=0.1	ug/L				
1918861	Benzo(k)fluoranthene	2009/08/26	95	30 - 130	97	30 - 130	ND, RDL=0.05	ug/L				
1918861	Chrysene	2009/08/26	89	30 - 130	90	30 - 130	ND, RDL=0.05	ug/L				
1918861	Dibenz(a,h)anthracene	2009/08/26	73	30 - 130	78	30 - 130	ND, RDL=0.1	ug/L				
1918861	Fluoranthene	2009/08/26	74	30 - 130	75	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Fluorene	2009/08/26	70	30 - 130	77	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Indeno(1,2,3-cd)pyrene	2009/08/26	97	30 - 130	104	30 - 130	ND, RDL=0.1	ug/L				

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1918861	1-Methylnaphthalene	2009/08/26	71	30 - 130	72	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	2-Methylnaphthalene	2009/08/26	64	30 - 130	64	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Naphthalene	2009/08/26	64	30 - 130	66	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Phenanthrene	2009/08/26	71	30 - 130	75	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1918861	Pyrene	2009/08/26	74	30 - 130	74	30 - 130	ND, RDL=0.05	ug/L				
1919066	1,4-Difluorobenzene	2009/08/26	97	70 - 130	96	70 - 130	104	%				
1919066	4-Bromofluorobenzene	2009/08/26	108	70 - 130	101	70 - 130	97	%				
1919066	D10-Ethylbenzene	2009/08/26	91	70 - 130	104	70 - 130	102	%				
1919066	D4-1,2-Dichloroethane	2009/08/26	90	70 - 130	87	70 - 130	94	%				
1919066	Benzene	2009/08/26	72	70 - 130	85	70 - 130	ND, RDL=0.2	ug/L				
1919066	Toluene	2009/08/26	82	70 - 130	103	70 - 130	ND, RDL=0.2	ug/L				
1919066	Ethylbenzene	2009/08/26	82	70 - 130	103	70 - 130	ND, RDL=0.2	ug/L				
1919066	o-Xylene	2009/08/26	89	70 - 130	111	70 - 130	ND, RDL=0.2	ug/L				
1919066	p+m-Xylene	2009/08/26	82	70 - 130	104	70 - 130	ND, RDL=0.4	ug/L				
1919066	F1 (C6-C10)	2009/08/26	93	70 - 130	92	70 - 130	ND, RDL=100	ug/L	NC	40		
1919066	Total Xylenes	2009/08/26					ND, RDL=0.4	ug/L				
1919066	F1 (C6-C10) - BTEX	2009/08/26					ND, RDL=100	ug/L	NC	40		
1919328	Diethylene Glycol	2009/08/26	74	30 - 130	89	30 - 130	ND, RDL=5	mg/L	NC	40		
1919328	Ethylene Glycol	2009/08/26	76	30 - 130	86	30 - 130	ND, RDL=5	mg/L	NC	40		
1919328	Propylene Glycol	2009/08/26	75	30 - 130	85	30 - 130	ND, RDL=5	mg/L	NC	40		
1919328	Total Glycol	2009/08/26					ND, RDL=5	mg/L	NC	40		
1919517	Dissolved (0.2u) Aluminum (Al)	2009/08/26	97	80 - 120	96	90 - 110	ND, RDL=5	ug/L	2.8	25		
1919573	Mercury (Hg)	2009/08/27	102%	75 - 125	101%	84 - 113	ND, RDL=0.1	ug/L	NC	25		
1920229	Total Phosphorus	2009/08/27	106	75 - 125	109	75 - 125	ND, RDL=0.002	mg/L	NC	25	107	85 - 115
1920274	Chromium (VI)	2009/08/27	111	75 - 125	99	75 - 125	ND, RDL=0.5	ug/L	NC	25		
1920432	Dissolved (0.2u) Aluminum (Al)	2009/08/27	95	80 - 120	94	90 - 110	ND, RDL=5	ug/L	NC	25		
1920435	Dissolved (0.2u) Aluminum (Al)	2009/08/27	94	80 - 120	94	90 - 110	ND, RDL=5	ug/L	0.4	25		
1927383	Total Antimony (Sb)	2009/09/03	110	80 - 120	111	82 - 120	ND, RDL=0.5	ug/L	NC	25		
1927383	Total Arsenic (As)	2009/09/03	105	80 - 120	105	86 - 119	ND, RDL=1	ug/L	NC	25		
1927383	Total Beryllium (Be)	2009/09/03	106	75 - 125	105	85 - 132	ND, RDL=0.5	ug/L	NC	25		
1927383	Total Boron (B)	2009/09/03	108	75 - 125	116	78 - 133	ND, RDL=10	ug/L	NC	25		
1927383	Total Cadmium (Cd)	2009/09/03	106	80 - 120	104	85 - 116	ND, RDL=0.1	ug/L	NC	25		
1927383	Total Chromium (Cr)	2009/09/03	108	80 - 120	106	80 - 120	ND, RDL=5	ug/L	NC	25		
1927383	Total Cobalt (Co)	2009/09/03	106	80 - 120	106	82 - 117	ND, RDL=0.5	ug/L	NC	25		
1927383	Total Copper (Cu)	2009/09/03	102	80 - 120	104	80 - 117	ND, RDL=1	ug/L	1.4	25		
1927383	Total Iron (Fe)	2009/09/03	108	80 - 120	108	80 - 120	ND, RDL=100	ug/L	NC	25		
1927383	Total Lead (Pb)	2009/09/03	102	80 - 120	102	80 - 120	ND, RDL=0.5	ug/L	NC	25		
1927383	Total Molybdenum (Mo)	2009/09/03	104	80 - 120	105	82 - 117	ND, RDL=1	ug/L	NC	25		
1927383	Total Nickel (Ni)	2009/09/03	106	80 - 120	105	81 - 117	ND, RDL=1	ug/L	NC	25		

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Maxxam Job #: A9A8511
Report Date: 2009/09/03

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1927383	Total Selenium (Se)	2009/09/03	104	75 - 125	104	82 - 118	ND, RDL=2	ug/L	NC	25		
1927383	Total Silver (Ag)	2009/09/03	102	80 - 120	99	80 - 120	ND, RDL=0.1	ug/L	NC	25		
1927383	Total Thallium (Tl)	2009/09/03	102	80 - 120	102	80 - 129	ND, RDL=0.05	ug/L	NC	25		
1927383	Total Tungsten (W)	2009/09/03	103	75 - 125	106	81 - 123	ND, RDL=1	ug/L	NC	25		
1927383	Total Uranium (U)	2009/09/03	104	80 - 120	104	82 - 120	ND, RDL=0.1	ug/L	NC	25		
1927383	Total Vanadium (V)	2009/09/03	109	80 - 120	109	82 - 118	ND, RDL=1	ug/L	NC	25		
1927383	Total Zinc (Zn)	2009/09/03	104	80 - 120	105	80 - 120	ND, RDL=5	ug/L	NC	25		
1927383	Total Zirconium (Zr)	2009/09/03	104	75 - 125	105	84 - 118	ND, RDL=1	ug/L	NC	25		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

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Validation Signature Page

Maxxam Job #: A9A8511

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst

CRISTINA CARRIERE, Scientific Services

FLOYD MAYEDE, Senior Analyst

LINCOLN RAMDAHIN, Senior Analyst

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

PAUL RUBINATO, Analyst, Maxxam Analytics

STEVE ROBERTS, Lab Supervisor, Ottawa

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

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Your P.O. #: 1747-0901
Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15956105, 159533-1, 159533-0, 159561-0

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2009/09/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A8632
Received: 2009/08/21, 11:30

Sample Matrix: Soil
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	14	2009/08/27	2009/08/27	CAM SOP-00408	EPA 3050B
Chromium (VI) in Soil	13	2009/08/26	2009/08/27	CAM SOP-00420	EPA 3060A
Chromium (VI) in Soil	1	2009/08/27	2009/08/27	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil	3	2009/08/23	2009/08/24	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	8	2009/08/23	2009/08/26	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	3	2009/08/22	2009/08/25	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	8	2009/08/22	2009/08/26	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	14	2009/08/27	2009/08/27	CAM SOP-00447	EPA 6020
MOISTURE	3	N/A	2009/08/24	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	8	N/A	2009/08/26	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	3	N/A	2009/08/26	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB	4	2009/08/26	2009/08/31	CAM SOP-00307	SW846 8081, 8082
PAH Compounds in Soil by GC/MS (SIM)	3	2009/08/24	2009/08/26	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	6	2009/08/26	2009/08/27	CAM SOP - 00318	EPA 8270
Polychlorinated Biphenyl in Soil	2	2009/08/24	2009/08/26	CAM SOP-00309	SW846 8082
Polychlorinated Biphenyl in Soil	1	2009/08/24	2009/08/29	CAM SOP-00309	SW846 8082
Polychlorinated Biphenyl in Soil	1	2009/08/26	2009/08/27	CAM SOP-00309	SW846 8082
Total Organic Carbon in Soil	3	N/A	2009/08/28	CAM SOP-00468	LECO Combustion
Volatile Organic Compounds in Soil	5	2009/08/22	2009/08/24	CAM SOP-00226	EPA 8260 modified
Volatile Organic Compounds in Soil	3	2009/08/22	2009/08/25	CAM SOP-00226	EPA 8260 modified

Sample Matrix: Vegetation
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Metals in Vegetation by ICPMS	8	N/A	2009/08/26	CAM SOP-00447	EPA SW846, 6020

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dissolved Aluminum (0.2 u, clay free)	2	N/A	2009/08/26	CAM SOP-00447	SW846, 6020
Dissolved Aluminum (0.2 u, clay free)	4	N/A	2009/08/27	CAM SOP-00447	SW846, 6020
Chromium (VI) in Water	5	N/A	2009/08/25	BRL SOP-00106	EPA 7199
Chromium (VI) in Water	1	N/A	2009/08/27	BRL SOP-00106	EPA 7199
Petroleum Hydro. CCME F1 & BTEX in Water	6	N/A	2009/08/27	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	6	2009/08/24	2009/08/25	CAM SOP-00316	CCME Hydrocarbons
Mercury	6	2009/08/26	2009/08/27	CAM SOP-00453	EPA 7470

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Total Metals Analysis by ICPMS	6	N/A	2009/08/27	CAM SOP-00447	EPA 6020
OC Pesticides (Selected) & PCB (1)	2	2009/08/24	2009/08/26	CAM SOP-00307	SW846 8081,8082
OC Pesticides (Selected) & PCB (1)	1	2009/08/24	2009/08/29	CAM SOP-00307	SW846 8081,8082
PAH Compounds in Water by GC/MS (SIM)	4	2009/08/25	2009/08/26	CAM SOP-00318	EPA 8270
Total Phosphorus (Colourimetric)	6	2009/08/27	2009/08/27	CAM SOP-00407	APHA 4500 P,B,F
Volatile Organic Compounds in Water (1)	4	N/A	2009/08/31	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 2

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DL5490		DL5491		DL5492		DL5493	DL5494	DL5495		
Sampling Date		2009/08/18 11:30		2009/08/18 12:40		2009/08/18		2009/08/18 13:10	2009/08/17 17:00	2009/08/17 17:00		
	Units	**2-SD-3**	**QC Batch**	**2-SD-5**	**QC Batch**	**FR-3**	**QC Batch**	**2-SD-6**	**1-SD-8**	**1-SD-7**	**RDL**	**QC Batch**
Metals												
Hot Water Ext. Boron (B)	ug/g	0.75	1920861	1.5	1920564	0.48	1920564	0.53	1.7	0.70	0.01	1920564
Chromium (VI)	ug/g	ND	1919105	ND	1919105	ND	1919164	ND	ND	ND	0.2	1919105
Acid Extractable Antimony (Sb)	ug/g	ND	1920684	ND	1920684	ND	1920684	ND	ND	ND	0.2	1920684
Acid Extractable Arsenic (As)	ug/g	1	1920684	3	1920684	1	1920684	2	3	2	1	1920684
Acid Extractable Barium (Ba)	ug/g	14	1920684	3.5	1920684	29	1920684	36	18	4.4	0.5	1920684
Acid Extractable Beryllium (Be)	ug/g	ND	1920684	ND	1920684	0.3	1920684	ND	ND	ND	0.2	1920684
Acid Extractable Cadmium (Cd)	ug/g	ND	1920684	ND	1920684	0.1	1920684	0.1	0.3	ND	0.1	1920684
Acid Extractable Chromium (Cr)	ug/g	3	1920684	2	1920684	8	1920684	8	13	3	1	1920684
Acid Extractable Cobalt (Co)	ug/g	0.6	1920684	0.3	1920684	2.3	1920684	2.6	0.8	0.6	0.1	1920684
Acid Extractable Copper (Cu)	ug/g	1.4	1920684	1.4	1920684	6.5	1920684	5.5	9.3	1.0	0.5	1920684
Acid Extractable Lead (Pb)	ug/g	13	1920684	8	1920684	6	1920684	9	8	3	1	1920684
Acid Extractable Molybdenum (Mo)	ug/g	ND	1920684	ND	1920684	ND	1920684	ND	ND	ND	0.5	1920684
Acid Extractable Nickel (Ni)	ug/g	2	1920684	2	1920684	6	1920684	7	2	2	1	1920684
Acid Extractable Selenium (Se)	ug/g	ND	1920684	ND	1920684	ND	1920684	ND	ND	ND	0.5	1920684
Acid Extractable Silver (Ag)	ug/g	ND	1920684	ND	1920684	ND	1920684	ND	ND	ND	0.2	1920684
Acid Extractable Thallium (Tl)	ug/g	ND	1920684	ND	1920684	ND	1920684	0.05	ND	ND	0.05	1920684
Acid Extractable Vanadium (V)	ug/g	8	1920684	6	1920684	15	1920684	18	7	9	5	1920684
Acid Extractable Zinc (Zn)	ug/g	15	1920684	22	1920684	22	1920684	24	57	10	5	1920684
Acid Extractable Mercury (Hg)	ug/g	ND	1920684	ND	1920684	ND	1920684	ND	ND	ND	0.05	1920684

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DL5496	DL5497		DL5608		DL5609		
Sampling Date		2009/08/17	2009/08/17 17:00		2009/08/18 18:00		2009/08/18 11:00		
	Units	**1-SD-2**	**1-SD-6**	**QC Batch**	**2-SD-17**	**QC Batch**	**2-SD-4**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	21		1919963				0.2	
Metals									
Hot Water Ext. Boron (B)	ug/g	0.44	0.88	1920861	0.50	1920564	0.70	0.01	1920564
Chromium (VI)	ug/g	ND	ND	1919105	ND	1919105	ND	0.2	1919164
Acid Extractable Antimony (Sb)	ug/g	ND	ND	1920684	ND	1920684	ND	0.2	1920315
Acid Extractable Arsenic (As)	ug/g	2	3	1920684	2	1920684	ND	1	1920315
Acid Extractable Barium (Ba)	ug/g	7.1	42	1920684	2.0	1920684	3.3	0.5	1920315
Acid Extractable Beryllium (Be)	ug/g	ND	0.3	1920684	ND	1920684	ND	0.2	1920315
Acid Extractable Cadmium (Cd)	ug/g	0.1	0.2	1920684	ND	1920684	ND	0.1	1920315
Acid Extractable Chromium (Cr)	ug/g	4	8	1920684	2	1920684	2	1	1920315
Acid Extractable Cobalt (Co)	ug/g	0.9	2.7	1920684	ND	1920684	0.1	0.1	1920315
Acid Extractable Copper (Cu)	ug/g	2.7	6.0	1920684	ND	1920684	1.5	0.5	1920315
Acid Extractable Lead (Pb)	ug/g	3	12	1920684	ND	1920684	9	1	1920315
Acid Extractable Molybdenum (Mo)	ug/g	0.6	0.6	1920684	ND	1920684	ND	0.5	1920315
Acid Extractable Nickel (Ni)	ug/g	2	7	1920684	ND	1920684	ND(1)	1	1920315
Acid Extractable Selenium (Se)	ug/g	ND	ND	1920684	ND	1920684	ND	0.5	1920315
Acid Extractable Silver (Ag)	ug/g	ND	ND	1920684	ND	1920684	ND	0.2	1920315
Acid Extractable Thallium (Tl)	ug/g	ND	0.07	1920684	ND	1920684	ND	0.05	1920315
Acid Extractable Vanadium (V)	ug/g	10	15	1920684	6	1920684	ND	5	1920315
Acid Extractable Zinc (Zn)	ug/g	14	35	1920684	ND	1920684	14	5	1920315
Acid Extractable Mercury (Hg)	ug/g	ND	ND	1920684	ND	1920684	ND	0.05	1920315

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DL5610		DL5611	DL5612		DL5613		
Sampling Date		2009/08/18 17:30		2009/08/18 18:00	2009/08/18 18:15		2009/08/18		
	Units	**2-SD-10**	**QC Batch**	**2-SD-11**	**2-TP-17**	**QC Batch**	**2-SD-7**	**RDL**	**QC Batch**
Inorganics									
Moisture	%				15	1919963	11	0.2	1919963
Metals									
Hot Water Ext. Boron (B)	ug/g	1.3	1920861	0.36	0.13	1920861	0.14	0.01	1920861
Chromium (VI)	ug/g	ND	1919105	ND	ND	1919164	ND	0.2	1919105
Acid Extractable Antimony (Sb)	ug/g	ND	1920684	0.3	ND	1920684	ND	0.2	1920684
Acid Extractable Arsenic (As)	ug/g	2	1920684	1	1	1920684	2	1	1920684
Acid Extractable Barium (Ba)	ug/g	10	1920684	10	3.9	1920684	9.2	0.5	1920684
Acid Extractable Beryllium (Be)	ug/g	ND	1920684	ND	ND	1920684	ND	0.2	1920684
Acid Extractable Cadmium (Cd)	ug/g	0.1	1920684	ND	ND	1920684	0.1	0.1	1920684
Acid Extractable Chromium (Cr)	ug/g	4	1920684	3	2	1920684	3	1	1920684
Acid Extractable Cobalt (Co)	ug/g	0.9	1920684	0.4	0.2	1920684	0.6	0.1	1920684
Acid Extractable Copper (Cu)	ug/g	2.7	1920684	1.1	0.7	1920684	1.6	0.5	1920684
Acid Extractable Lead (Pb)	ug/g	6	1920684	7	ND	1920684	5	1	1920684
Acid Extractable Molybdenum (Mo)	ug/g	ND	1920684	0.6	ND	1920684	ND	0.5	1920684
Acid Extractable Nickel (Ni)	ug/g	3	1920684	2	ND	1920684	2	1	1920684
Acid Extractable Selenium (Se)	ug/g	ND	1920684	ND	ND	1920684	ND	0.5	1920684
Acid Extractable Silver (Ag)	ug/g	ND	1920684	ND	ND	1920684	ND	0.2	1920684
Acid Extractable Thallium (Tl)	ug/g	ND	1920684	ND	ND	1920684	ND	0.05	1920684
Acid Extractable Vanadium (V)	ug/g	11	1920684	7	6	1920684	7	5	1920684
Acid Extractable Zinc (Zn)	ug/g	16	1920684	16	ND	1920684	15	5	1920684
Acid Extractable Mercury (Hg)	ug/g	ND	1920684	ND	ND	1920684	ND	0.05	1920684

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

PWQO METALS (WATER)

Maxxam ID		DL5576		DL5577		DL5578	DL5579		DL5580		DL5582		
Sampling Date		2009/08/17 18:00		2009/08/17 17:00		2009/08/18 11:30	2009/08/18 14:15		2009/08/18 11:00		2009/08/18 17:30		
	Units	**2-SW-11**	**QC Batch**	**2-SW-9**	**QC Batch**	**2-SW-3**	**2-SW-7**	**QC Batch**	**2-SW-4**	**QC Batch**	**2-SW-17**	**RDL**	**QC Batch**
Inorganics													
Total Phosphorus	mg/L	0.009	1920229	0.014	1920229	0.008	0.007	1920229	0.009	1920229	0.003	0.002	1920229
Metals													
Dissolved (0.2u) Aluminum (Al)	ug/L	ND	1920435	ND	1920432	ND	ND	1919517	ND	1920432	9	5	1920435
Chromium (VI)	ug/L	ND	1917051	ND	1917051	ND	ND	1917051	ND	1917052	ND	0.5	1917051
Mercury (Hg)	ug/L	ND	1919573	ND	1919573	ND	ND	1919573	ND	1919573	ND	0.1	1919573
Total Antimony (Sb)	ug/L	0.6	1920402	0.8	1920402	ND	ND	1920402	ND	1920402	ND	0.5	1920402
Total Arsenic (As)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	1	1920402
Total Beryllium (Be)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	0.5	1920402
Total Boron (B)	ug/L	26	1920402	30	1920402	59	59	1920402	40	1920402	ND	10	1920402
Total Cadmium (Cd)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	0.1	1920402
Total Chromium (Cr)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	5	1920402
Total Cobalt (Co)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	0.5	1920402
Total Copper (Cu)	ug/L	ND	1920402	1	1920402	ND	ND	1920402	ND	1920402	ND	1	1920402
Total Iron (Fe)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	100	1920402
Total Lead (Pb)	ug/L	ND	1920402	ND	1920402	0.7	ND	1920402	ND	1920402	ND	0.5	1920402
Total Molybdenum (Mo)	ug/L	ND	1920402	ND	1920402	ND	1	1920402	ND	1920402	ND	1	1920402
Total Nickel (Ni)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	1	1920402
Total Selenium (Se)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	2	1920402
Total Silver (Ag)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	0.1	1920402
Total Thallium (Tl)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	0.05	1920402
Total Tungsten (W)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	1	1920402
Total Uranium (U)	ug/L	0.3	1920402	0.7	1920402	0.3	0.7	1920402	0.5	1920402	0.1	0.1	1920402
Total Vanadium (V)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	1	1920402
Total Zinc (Zn)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	5	1920402
Total Zirconium (Zr)	ug/L	ND	1920402	ND	1920402	ND	ND	1920402	ND	1920402	ND	1	1920402

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DL5490	DL5491	DL5492		DL5493	DL5494	DL5495		
Sampling Date		2009/08/18 11:30	2009/08/18 12:40	2009/08/18		2009/08/18 13:10	2009/08/17 17:00	2009/08/17 17:00		
	Units	**2-SD-3**	**2-SD-5**	**FR-3**	**QC Batch**	**2-SD-6**	**1-SD-8**	**1-SD-7**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	21	26	15	1915413	17	31	19	0.2	1915964
Total Organic Carbon	mg/kg			72000	1920413				500	

Maxxam ID		DL5496	DL5497	DL5608	DL5609	DL5610	DL5611		
Sampling Date		2009/08/17	2009/08/17 17:00	2009/08/18 18:00	2009/08/18 11:00	2009/08/18 17:30	2009/08/18 18:00		
	Units	**1-SD-2**	**1-SD-6**	**2-SD-17**	**2-SD-4**	**2-SD-10**	**2-SD-11**	**RDL**	**QC Batch**
Inorganics									
Moisture	%		15	24	18	24	21	0.2	1915964
Total Organic Carbon	mg/kg	89000			94000			500	1920413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL5490	DL5492	DL5493	DL5495		DL5497		
Sampling Date		2009/08/18 11:30	2009/08/18	2009/08/18 13:10	2009/08/17 17:00		2009/08/17 17:00		
	Units	**2-SD-3**	**FR-3**	**2-SD-6**	**1-SD-7**	**RDL**	**1-SD-6**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	ND	ND	ND	ND	0.01	0.02	0.01	1919602
Acenaphthylene	ug/g	ND	ND	ND	ND	0.005	ND(1)	0.01	1919602
Anthracene	ug/g	ND	ND	ND	ND	0.005	ND	0.005	1919602
Benzo(a)anthracene	ug/g	ND	ND	ND	ND	0.01	ND	0.01	1919602
Benzo(a)pyrene	ug/g	ND	ND	ND	ND	0.005	ND	0.005	1919602
Benzo(b/j)fluoranthene	ug/g	ND	ND	ND	ND	0.01	ND	0.01	1919602
Benzo(g,h,i)perylene	ug/g	ND	ND	ND	ND	0.02	ND	0.02	1919602
Benzo(k)fluoranthene	ug/g	ND	ND	ND	ND	0.01	ND	0.01	1919602
Chrysene	ug/g	ND	ND	ND	ND	0.01	ND	0.01	1919602
Dibenz(a,h)anthracene	ug/g	ND	ND	ND	ND	0.02	ND	0.02	1919602
Fluoranthene	ug/g	ND	ND	ND	ND	0.005	ND	0.005	1919602
Fluorene	ug/g	ND	ND	ND	ND	0.005	0.028	0.005	1919602
Indeno(1,2,3-cd)pyrene	ug/g	ND	ND	ND	ND	0.02	ND	0.02	1919602
1-Methylnaphthalene	ug/g	ND	ND	ND	ND	0.005	0.40	0.005	1919602
2-Methylnaphthalene	ug/g	ND	ND	ND	0.009	0.005	0.39	0.005	1919602
Naphthalene	ug/g	ND	ND	ND	ND	0.005	0.11	0.005	1919602
Phenanthrene	ug/g	ND	ND	ND	ND	0.005	0.011	0.005	1919602
Pyrene	ug/g	ND	ND	ND	ND	0.005	ND	0.005	1919602
Surrogate Recovery (%)									
D10-Anthracene	%	80	69	70	74		69		1919602
D14-Terphenyl (FS)	%	79	82	83	85		70		1919602
D7-Quinoline	%	66	69	73	70		35		1919602
D8-Acenaphthylene	%	65	68	72	78		72		1919602

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - PAH Analysis: Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL5608			DL5609	DL5610		DL5611		
Sampling Date		2009/08/18 18:00			2009/08/18 11:00	2009/08/18 17:30		2009/08/18 18:00		
	Units	**2-SD-17**	**RDL**	**QC Batch**	**2-SD-4**	**2-SD-10**	**RDL**	**2-SD-11**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	ND	0.01	1919602	ND	ND	0.02	ND	0.01	1917021
Acenaphthylene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Anthracene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Benzo(a)anthracene	ug/g	ND	0.01	1919602	ND	ND	0.02	ND	0.01	1917021
Benzo(a)pyrene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Benzo(b/j)fluoranthene	ug/g	ND	0.01	1919602	ND	ND	0.02	ND	0.01	1917021
Benzo(g,h,i)perylene	ug/g	ND	0.02	1919602	ND	ND	0.04	ND	0.02	1917021
Benzo(k)fluoranthene	ug/g	ND	0.01	1919602	ND	ND	0.02	ND	0.01	1917021
Chrysene	ug/g	ND	0.01	1919602	ND	ND	0.02	ND	0.01	1917021
Dibenz(a,h)anthracene	ug/g	ND	0.02	1919602	ND	ND	0.04	ND	0.02	1917021
Fluoranthene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Fluorene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Indeno(1,2,3-cd)pyrene	ug/g	ND	0.02	1919602	ND	ND	0.04	ND	0.02	1917021
1-Methylnaphthalene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
2-Methylnaphthalene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Naphthalene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Phenanthrene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Pyrene	ug/g	ND	0.005	1919602	ND	ND	0.01	ND	0.005	1917021
Surrogate Recovery (%)										
D10-Anthracene	%	74		1919602	109	112		90		1917021
D14-Terphenyl (FS)	%	80		1919602	90	95		82		1917021
D7-Quinoline	%	71		1919602	78	92		68		1917021
D8-Acenaphthylene	%	75		1919602	80	90		64		1917021

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL5490	DL5492	DL5493		
Sampling Date		2009/08/18 11:30	2009/08/18	2009/08/18 13:10		
	Units	**2-SD-3**	**FR-3**	**2-SD-6**	**RDL**	**QC Batch**
Volatile Organics						
Acetone (2-Propanone)	ug/g	ND	ND	ND	0.1	1915682
Benzene	ug/g	0.050	0.008	0.008	0.002	1915682
Bromodichloromethane	ug/g	ND	ND	ND	0.002	1915682
Bromoform	ug/g	ND	ND	ND	0.002	1915682
Bromomethane	ug/g	ND	ND	ND	0.003	1915682
Carbon Tetrachloride	ug/g	ND	ND	ND	0.002	1915682
Chlorobenzene	ug/g	ND	ND	ND	0.002	1915682
Chloroform	ug/g	ND	ND	ND	0.002	1915682
Dibromochloromethane	ug/g	ND	ND	ND	0.002	1915682
1,2-Dichlorobenzene	ug/g	ND	ND	ND	0.002	1915682
1,3-Dichlorobenzene	ug/g	ND	ND	ND	0.002	1915682
1,4-Dichlorobenzene	ug/g	ND	ND	ND	0.002	1915682
1,1-Dichloroethane	ug/g	ND	ND	ND	0.002	1915682
1,2-Dichloroethane	ug/g	ND	ND	ND	0.002	1915682
1,1-Dichloroethylene	ug/g	ND	ND	ND	0.002	1915682
cis-1,2-Dichloroethylene	ug/g	ND	ND	ND	0.002	1915682
trans-1,2-Dichloroethylene	ug/g	ND	ND	ND	0.002	1915682
1,2-Dichloropropane	ug/g	ND	ND	ND	0.002	1915682
cis-1,3-Dichloropropene	ug/g	ND	ND	ND	0.002	1915682
trans-1,3-Dichloropropene	ug/g	ND	ND	ND	0.002	1915682
Ethylbenzene	ug/g	0.055	0.012	0.011	0.002	1915682
Ethylene Dibromide	ug/g	ND	ND	ND	0.002	1915682
Methylene Chloride(Dichloromethane)	ug/g	ND	ND	ND	0.003	1915682
Methyl Isobutyl Ketone	ug/g	ND	ND	ND	0.03	1915682
Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	ND	ND	0.03	1915682
Methyl t-butyl ether (MTBE)	ug/g	ND	ND	ND	0.002	1915682
Styrene	ug/g	ND	ND	ND	0.002	1915682
1,1,1,2-Tetrachloroethane	ug/g	ND	ND	ND	0.002	1915682
1,1,2,2-Tetrachloroethane	ug/g	ND	ND	ND	0.002	1915682
Tetrachloroethylene	ug/g	ND	ND	ND	0.002	1915682
Toluene	ug/g	0.15	0.031	0.029	0.002	1915682
1,1,1-Trichloroethane	ug/g	ND	ND	ND	0.002	1915682
1,1,2-Trichloroethane	ug/g	ND	ND	ND	0.002	1915682

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL5490	DL5492	DL5493		
Sampling Date		2009/08/18 11:30	2009/08/18	2009/08/18 13:10		
	Units	**2-SD-3**	**FR-3**	**2-SD-6**	**RDL**	**QC Batch**
Trichloroethylene	ug/g	ND	ND	ND	0.002	1915682
Vinyl Chloride	ug/g	ND	ND	ND	0.002	1915682
p+m-Xylene	ug/g	0.057	0.015	0.014	0.002	1915682
o-Xylene	ug/g	0.026	0.005	0.007	0.002	1915682
Xylene (Total)	ug/g	0.083	0.020	0.021	0.002	1915682
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	86	91	90		1915682
D4-1,2-Dichloroethane	%	102	115	96		1915682
D8-Toluene	%	93	108	101		1915682

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL5495		DL5497		DL5609	DL5610	DL5611		
Sampling Date		2009/08/17 17:00		2009/08/17 17:00		2009/08/18 11:00	2009/08/18 17:30	2009/08/18 18:00		
	Units	**1-SD-7**	**RDL**	**1-SD-6**	**RDL**	**2-SD-4**	**2-SD-10**	**2-SD-11**	**RDL**	**QC Batch**
Volatile Organics										
Acetone (2-Propanone)	ug/g	ND	0.1	ND	0.1	ND	ND	ND	0.1	1915682
Benzene	ug/g	0.040	0.002	0.010	0.002	0.097	0.031	0.043	0.002	1915682
Bromodichloromethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Bromoform	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Bromomethane	ug/g	ND	0.003	ND	0.003	ND	ND	ND	0.003	1915682
Carbon Tetrachloride	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Chlorobenzene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Chloroform	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Dibromochloromethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,2-Dichlorobenzene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,3-Dichlorobenzene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,4-Dichlorobenzene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,1-Dichloroethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,2-Dichloroethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,1-Dichloroethylene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
cis-1,2-Dichloroethylene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
trans-1,2-Dichloroethylene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,2-Dichloropropane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
cis-1,3-Dichloropropene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
trans-1,3-Dichloropropene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Ethylbenzene	ug/g	0.058	0.002	0.067	0.002	0.12	0.046	0.059	0.002	1915682
Ethylene Dibromide	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Methylene Chloride(Dichloromethane)	ug/g	0.006	0.003	ND	0.003	ND	ND	ND	0.003	1915682
Methyl Isobutyl Ketone	ug/g	ND	0.03	ND	0.03	ND	ND	ND	0.03	1915682
Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	0.03	ND	0.03	ND	ND	ND	0.03	1915682
Methyl t-butyl ether (MTBE)	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Styrene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,1,1,2-Tetrachloroethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
1,1,2,2-Tetrachloroethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Tetrachloroethylene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Toluene	ug/g	0.17	0.004	0.026	0.002	0.28	0.12	0.14	0.002	1915682
1,1,1-Trichloroethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL5495		DL5497		DL5609	DL5610	DL5611		
Sampling Date		2009/08/17 17:00		2009/08/17 17:00		2009/08/18 11:00	2009/08/18 17:30	2009/08/18 18:00		
	Units	**1-SD-7**	**RDL**	**1-SD-6**	**RDL**	**2-SD-4**	**2-SD-10**	**2-SD-11**	**RDL**	**QC Batch**
1,1,2-Trichloroethane	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Trichloroethylene	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
Vinyl Chloride	ug/g	ND	0.002	ND	0.002	ND	ND	ND	0.002	1915682
p+m-Xylene	ug/g	0.048	0.002	0.2	0.1	0.17	0.057	0.066	0.002	1915682
o-Xylene	ug/g	0.027	0.002	0.3	0.1	0.085	0.029	0.029	0.002	1915682
Xylene (Total)	ug/g	0.074	0.002	0.6	0.1	0.25	0.086	0.095	0.002	1915682
Surrogate Recovery (%)										
4-Bromofluorobenzene	%	83		59(1)		71	86	81		1915682
D4-1,2-Dichloroethane	%	95		96		94	96	94		1915682
D8-Toluene	%	89		62		78	98	91		1915682

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL5490	DL5491	DL5492		DL5493	DL5494		
Sampling Date		2009/08/18 11:30	2009/08/18 12:40	2009/08/18		2009/08/18 13:10	2009/08/17 17:00		
	Units	**2-SD-3**	**2-SD-5**	**FR-3**	**QC Batch**	**2-SD-6**	**1-SD-8**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g		ND		1915962		ND	0.02	1915963
Toluene	ug/g		ND		1915962		ND	0.02	1915963
Ethylbenzene	ug/g		ND		1915962		ND	0.02	1915963
o-Xylene	ug/g		ND		1915962		ND	0.02	1915963
p+m-Xylene	ug/g		ND		1915962		ND	0.04	1915963
Total Xylenes	ug/g		ND		1915962		ND	0.04	1915963
F1 (C6-C10)	ug/g	ND	ND	ND	1915962	ND	ND	10	1915963
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	1915962	ND	ND	10	1915963
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	ND	1915685	ND	ND	10	1915687
F3 (C16-C34 Hydrocarbons)	ug/g	ND	17	ND	1915685	ND	ND	10	1915687
F4 (C34-C50 Hydrocarbons)	ug/g	ND	ND	ND	1915685	ND	ND	10	1915687
Reached Baseline at C50	ug/g	YES	YES	YES	1915685	YES	YES		1915687
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	114	76	115	1915962	113	116		1915963
4-Bromofluorobenzene	%	114	114	113	1915962	111	112		1915963
D10-Ethylbenzene	%	87	93	91	1915962	87	77		1915963
D4-1,2-Dichloroethane	%	93	77	84	1915962	94	90		1915963
o-Terphenyl	%	81	73	77	1915685	92	93		1915687

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL5495	DL5497	DL5608	DL5609	DL5610	DL5611		
Sampling Date		2009/08/17 17:00	2009/08/17 17:00	2009/08/18 18:00	2009/08/18 11:00	2009/08/18 17:30	2009/08/18 18:00		
	Units	**1-SD-7**	**1-SD-6**	**2-SD-17**	**2-SD-4**	**2-SD-10**	**2-SD-11**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g			ND				0.02	1915963
Toluene	ug/g			ND				0.02	1915963
Ethylbenzene	ug/g			ND				0.02	1915963
o-Xylene	ug/g			ND				0.02	1915963
p+m-Xylene	ug/g			ND				0.04	1915963
Total Xylenes	ug/g			ND				0.04	1915963
F1 (C6-C10)	ug/g	ND	250	ND	ND	ND	ND	10	1915963
F1 (C6-C10) - BTEX	ug/g	ND	250	ND	ND	ND	ND	10	1915963
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	ND	570	ND	ND	ND	ND	10	1915687
F3 (C16-C34 Hydrocarbons)	ug/g	ND	68	ND	ND	ND	ND	10	1915687
F4 (C34-C50 Hydrocarbons)	ug/g	ND	ND	ND	ND	ND	ND	10	1915687
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES	YES		1915687
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	103	117	106	107	111	115		1915963
4-Bromofluorobenzene	%	111	113	116	114	115	112		1915963
D10-Ethylbenzene	%	78	98	70	69	69	74		1915963
D4-1,2-Dichloroethane	%	85	92	84	87	98	95		1915963
o-Terphenyl	%	86	93	92	94	100	91		1915687

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		DL5497		DL5609		DL5610	DL5611		
Sampling Date		2009/08/17 17:00		2009/08/18 11:00		2009/08/18 17:30	2009/08/18 18:00		
	Units	**1-SD-6**	**QC Batch**	**2-SD-4**	**QC Batch**	**2-SD-10**	**2-SD-11**	**RDL**	**QC Batch**
PCBs									
Aroclor 1262	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1016	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1221	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1232	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1242	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1248	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1254	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1260	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Aroclor 1268	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Total PCB	ug/g	ND	1919149	ND	1922106	ND	ND	0.01	1916935
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	85	1919149	98	1922106	70	78		1916935
Decachlorobiphenyl	%	126	1919149	108	1922106	102	108		1916935

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DL5490	DL5492	DL5493	DL5495		
Sampling Date		2009/08/18 11:30	2009/08/18	2009/08/18 13:10	2009/08/17 17:00		
	Units	**2-SD-3**	**FR-3**	**2-SD-6**	**1-SD-7**	**RDL**	**QC Batch**
Pesticides & Herbicides							
Aroclor 1262	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1268	ug/g	ND	ND	ND	ND	0.02	1919467
Aldrin	ug/g	ND	ND	ND	ND	0.002	1919467
a-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
b-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
d-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
a-Chlordane	ug/g	ND	ND	ND	ND	0.002	1919467
g-Chlordane	ug/g	ND	ND	ND	ND	0.002	1919467
Chlordane (Total)	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDD + p,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDE + p,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDT + p,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
DDT+ Metabolites	ug/g	ND	ND	ND	ND	0.002	1919467
Dieldrin	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan I	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan II	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan sulfate	ug/g	ND	ND	ND	ND	0.002	1919467
Total Endosulfan	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin aldehyde	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin ketone	ug/g	ND	ND	ND	ND	0.002	1919467
Heptachlor	ug/g	ND	ND	ND	ND	0.002	1919467
Heptachlor epoxide	ug/g	ND	ND	ND	ND	0.002	1919467
Hexachlorobenzene	ug/g	ND	ND	ND	ND	0.002	1919467
Lindane	ug/g	ND	ND	ND	ND	0.002	1919467
Methoxychlor	ug/g	ND	ND	ND	ND	0.008	1919467
Mirex	ug/g	ND	ND	ND	ND	0.002	1919467

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DL5490	DL5492	DL5493	DL5495		
Sampling Date		2009/08/18 11:30	2009/08/18	2009/08/18 13:10	2009/08/17 17:00		
	Units	**2-SD-3**	**FR-3**	**2-SD-6**	**1-SD-7**	**RDL**	**QC Batch**
Octachlorostyrene	ug/g	ND	ND	ND	ND	0.002	1919467
Total PCB	ug/g	ND	ND	ND	ND	0.03	1919467
Aroclor 1016	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1221	ug/g	ND	ND	ND	ND	0.03	1919467
Aroclor 1232	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1242	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1248	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1254	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1260	ug/g	ND	ND	ND	ND	0.02	1919467
Toxaphene	ug/g	ND	ND	ND	ND	0.08	1919467
Surrogate Recovery (%)							
2,4,5,6-Tetrachloro-m-xylene	%	44	61	48	53		1919467
Decachlorobiphenyl	%	63	78	77	75		1919467

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

ELEMENTS BY ICP/MS (VEGETATION)

Maxxam ID		DL5379	DL5380	DL5381	DL5382	DL5383		DL5384	DL5385		DL5386		
Sampling Date		2009/08/13	2009/08/14	2009/08/14	2009/08/13	2009/08/15		2009/08/13	2009/08/17		2009/08/17		
	Units	**1-VG-3**	**1-VG-4**	**1-VG-8**	**1-VG-2**	**2-VG-16**	**QC Batch**	**1-VG-1**	**1-VG-15**	**QC Batch**	**FR-5**	**RDL**	**QC Batch**
Metals													
Aluminum (Al)	mg/kg	43.1	2.4	31.2	5.4	15.1	1918784	11.1	88.2	1918785	3.4	0.3	1918784
Antimony (Sb)	mg/kg	ND	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.05	1918784
Arsenic (As)	mg/kg	0.1	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.1	1918784
Barium (Ba)	mg/kg	7.8	1.3	32.2	11.5	0.9	1918784	8.9	1.9	1918785	14.5	0.3	1918784
Beryllium (Be)	mg/kg	ND	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.05	1918784
Bismuth (Bi)	mg/kg	ND	ND	ND	ND	ND	1918784	0.06	ND	1918785	ND	0.05	1918784
Boron (B)	mg/kg	5.7	3.0	6.5	3.1	3.8	1918784	2.5	13.9	1918785	4.6	0.5	1918784
Cadmium (Cd)	mg/kg	0.03	ND	0.03	ND	ND	1918784	ND	0.02	1918785	ND	0.01	1918784
Calcium (Ca)	mg/kg	3360	813	5650	1790	3390	1918784	1780	5290	1918785	2010	50	1918784
Chromium (Cr)	mg/kg	0.9	ND	0.4	ND	ND	1918784	ND	ND	1918785	ND	0.3	1918784
Cobalt (Co)	mg/kg	0.116	0.042	0.030	0.009	0.016	1918784	0.013	0.041	1918785	0.008	0.005	1918784
Copper (Cu)	mg/kg	2.3	1.6	3.3	1.1	1.3	1918784	1.3	ND	1918785	2.4	0.5	1918784
Iron (Fe)	mg/kg	105	11	70	21	57	1918784	26	119	1918785	31	3	1918784
Lead (Pb)	mg/kg	0.57	0.05	0.50	0.04	0.07	1918784	0.06	0.18	1918785	0.04	0.03	1918784
Magnesium (Mg)	mg/kg	1560	425	2380	531	1610	1918784	458	1800	1918785	1190	100	1918784
Manganese (Mn)	mg/kg	33.2	42.4	19.1	12.3	44.4	1918784	23.7	3.9	1918785	23.1	0.3	1918784
Molybdenum (Mo)	mg/kg	0.15	0.21	0.65	0.11	0.91	1918784	0.08	0.05	1918785	0.40	0.05	1918784
Nickel (Ni)	mg/kg	0.60	0.14	0.31	0.08	0.08	1918784	0.12	0.15	1918785	0.34	0.05	1918784
Phosphorus (P)	mg/kg	1290	622	628	764	716	1918784	644	ND	1918785	1750	50	1918784
Potassium (K)	mg/kg	4620	6170	6700	4630	5720	1918784	3090	228	1918785	8280	100	1918784
Selenium (Se)	mg/kg	ND	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.2	1918784
Silver (Ag)	mg/kg	ND	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.05	1918784
Sodium (Na)	mg/kg	626	61	920	85	235	1918784	105	158	1918785	137	50	1918784
Strontium (Sr)	mg/kg	5.3	1.5	12.8	3.6	2.2	1918784	4.0	5.4	1918785	4.6	0.5	1918784
Thallium (Tl)	mg/kg	ND	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.003	1918784
Tin (Sn)	mg/kg	ND	ND	ND	ND	ND	1918784	ND	ND	1918785	ND	0.3	1918784
Titanium (Ti)	mg/kg	1.1	ND	1.1	ND	0.6	1918784	ND	2.4	1918785	ND	0.5	1918784
Uranium (U)	mg/kg	0.016	ND	0.006	ND	ND	1918784	ND	0.079	1918785	ND	0.005	1918784
Vanadium (V)	mg/kg	0.11	ND	0.08	ND	0.06	1918784	ND	0.23	1918785	ND	0.05	1918784
Zinc (Zn)	mg/kg	16	43	124	18	30	1918784	10	ND	1918785	58	2	1918784

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DL5576	DL5578	DL5581	DL5582		
Sampling Date		2009/08/17 18:00	2009/08/18 11:30	2009/08/18	2009/08/18 17:30		
	Units	**2-SW-11**	**2-SW-3**	**FR-2**	**2-SW-17**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons							
Acenaphthene	ug/L	ND	ND	ND	ND	0.05	1917367
Acenaphthylene	ug/L	ND	ND	ND	ND	0.05	1917367
Anthracene	ug/L	ND	ND	ND	ND	0.05	1917367
Benzo(a)anthracene	ug/L	ND	ND	ND	ND	0.05	1917367
Benzo(a)pyrene	ug/L	ND	ND	ND	ND	0.01	1917367
Benzo(b/j)fluoranthene	ug/L	ND	ND	ND	ND	0.05	1917367
Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	0.1	1917367
Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	0.05	1917367
Chrysene	ug/L	ND	ND	ND	ND	0.05	1917367
Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	0.1	1917367
Fluoranthene	ug/L	ND	ND	ND	ND	0.05	1917367
Fluorene	ug/L	ND	ND	ND	ND	0.05	1917367
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	0.1	1917367
1-Methylnaphthalene	ug/L	ND	ND	ND	ND	0.05	1917367
2-Methylnaphthalene	ug/L	ND	ND	ND	ND	0.05	1917367
Naphthalene	ug/L	ND	0.05	0.06	ND	0.05	1917367
Phenanthrene	ug/L	ND	ND	ND	ND	0.05	1917367
Pyrene	ug/L	ND	ND	ND	ND	0.05	1917367
Surrogate Recovery (%)							
D10-Anthracene	%	92	85	88	94		1917367
D14-Terphenyl (FS)	%	96	86	90	93		1917367
D7-Quinoline	%	102	101	106	106		1917367
D8-Acenaphthylene	%	83	80	83	83		1917367

ND = Not detected
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QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
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Your P.O. #: 1747-0901
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DL5576	DL5578	DL5581	DL5582		
Sampling Date		2009/08/17 18:00	2009/08/18 11:30	2009/08/18	2009/08/18 17:30		
	Units	**2-SW-11**	**2-SW-3**	**FR-2**	**2-SW-17**	**RDL**	**QC Batch**
Volatile Organics							
Acetone (2-Propanone)	ug/L	ND	ND	ND	ND	10	1922405
Benzene	ug/L	ND	ND	ND	ND	0.1	1922405
Bromodichloromethane	ug/L	ND	ND	ND	ND	0.1	1922405
Bromoform	ug/L	ND	ND	ND	ND	0.2	1922405
Bromomethane	ug/L	ND	ND	ND	ND	0.5	1922405
Carbon Tetrachloride	ug/L	ND	ND	ND	ND	0.1	1922405
Chlorobenzene	ug/L	ND	ND	ND	ND	0.1	1922405
Chloroform	ug/L	ND	ND	ND	ND	0.1	1922405
Dibromochloromethane	ug/L	ND	ND	ND	ND	0.2	1922405
1,2-Dichlorobenzene	ug/L	ND	ND	ND	ND	0.2	1922405
1,3-Dichlorobenzene	ug/L	ND	ND	ND	ND	0.2	1922405
1,4-Dichlorobenzene	ug/L	ND	ND	ND	ND	0.2	1922405
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	0.1	1922405
1,2-Dichloroethane	ug/L	ND	ND	ND	ND	0.2	1922405
1,1-Dichloroethylene	ug/L	ND	ND	ND	ND	0.1	1922405
cis-1,2-Dichloroethylene	ug/L	ND	ND	ND	ND	0.1	1922405
trans-1,2-Dichloroethylene	ug/L	ND	ND	ND	ND	0.1	1922405
1,2-Dichloropropane	ug/L	ND	ND	ND	ND	0.1	1922405
cis-1,3-Dichloropropene	ug/L	ND	ND	ND	ND	0.2	1922405
trans-1,3-Dichloropropene	ug/L	ND	ND	ND	ND	0.2	1922405
Ethylbenzene	ug/L	ND	ND	ND	ND	0.1	1922405
Ethylene Dibromide	ug/L	ND	ND	ND	ND	0.2	1922405
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	ND	ND	0.5	1922405
Methyl Isobutyl Ketone	ug/L	ND	ND	ND	ND	5	1922405
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	ND	ND	ND	5	1922405
Methyl t-butyl ether (MTBE)	ug/L	ND	7.0	7.3	ND	0.2	1922405
Styrene	ug/L	ND	ND	ND	ND	0.2	1922405
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	ND	ND	0.1	1922405
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	ND	ND	0.2	1922405
Tetrachloroethylene	ug/L	ND	ND	ND	ND	0.1	1922405
Toluene	ug/L	ND	ND	ND	ND	0.2	1922405
1,1,1-Trichloroethane	ug/L	ND	ND	ND	ND	0.1	1922405

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8632
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Franz Environmental Inc
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Your P.O. #: 1747-0901
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VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DL5576	DL5578	DL5581	DL5582		
Sampling Date		2009/08/17 18:00	2009/08/18 11:30	2009/08/18	2009/08/18 17:30		
	Units	**2-SW-11**	**2-SW-3**	**FR-2**	**2-SW-17**	**RDL**	**QC Batch**
1,1,2-Trichloroethane	ug/L	ND	ND	ND	ND	0.2	1922405
Trichloroethylene	ug/L	ND	ND	ND	ND	0.1	1922405
Vinyl Chloride	ug/L	ND	ND	ND	ND	0.2	1922405
p+m-Xylene	ug/L	ND	ND	ND	ND	0.1	1922405
o-Xylene	ug/L	ND	ND	ND	ND	0.1	1922405
Xylene (Total)	ug/L	ND	ND	ND	ND	0.1	1922405
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	76	76	79	80		1922405
D4-1,2-Dichloroethane	%	97	94	94	95		1922405
D8-Toluene	%	85	87	81	83		1922405

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL5576	DL5577	DL5578	DL5579	DL5580	DL5582		
Sampling Date		2009/08/17 18:00	2009/08/17 17:00	2009/08/18 11:30	2009/08/18 14:15	2009/08/18 11:00	2009/08/18 17:30		
	Units	**2-SW-11**	**2-SW-9**	**2-SW-3**	**2-SW-7**	**2-SW-4**	**2-SW-17**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/L		ND		ND	ND		0.2	1919066
Toluene	ug/L		ND		ND	ND		0.2	1919066
Ethylbenzene	ug/L		0.3		ND	ND		0.2	1919066
o-Xylene	ug/L		ND		ND	ND		0.2	1919066
p+m-Xylene	ug/L		1.1		ND	0.5		0.4	1919066
Total Xylenes	ug/L		1.1		ND	0.5		0.4	1919066
F1 (C6-C10)	ug/L	ND	ND	ND	ND	ND	ND	100	1919066
F1 (C6-C10) - BTEX	ug/L	ND	ND	ND	ND	ND	ND	100	1919066
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	ND	100	1916139
F3 (C16-C34 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	ND	100	1916139
F4 (C34-C50 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	ND	100	1916139
Reached Baseline at C50	ug/L	YES	YES	YES	YES	YES	YES		1916139
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	99	94	99	99	91	93		1919066
4-Bromofluorobenzene	%	100	105	100	102	106	105		1919066
D10-Ethylbenzene	%	109	107	106	111	107	122		1919066
D4-1,2-Dichloroethane	%	94	79	91	93	94	76		1919066
o-Terphenyl	%	70	69	60	60	71	61		1916139

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Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DL5576	DL5578			DL5581		
Sampling Date		2009/08/17 18:00	2009/08/18 11:30			2009/08/18		
	Units	**2-SW-11**	**2-SW-3**	**RDL**	**QC Batch**	**FR-2**	**RDL**	**QC Batch**
Pesticides & Herbicides								
Aldrin	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
a-BHC	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
b-BHC	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
d-BHC	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
a-Chlordane	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
g-Chlordane	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Chlordane (Total)	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
o,p-DDD	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
p,p-DDD	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
o,p-DDD + p,p-DDD	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
o,p-DDE	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
p,p-DDE	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
o,p-DDE + p,p-DDE	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
o,p-DDT	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
p,p-DDT	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
o,p-DDT + p,p-DDT	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
DDT+ Metabolites	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Dieldrin	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Endosulfan I	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Endosulfan II	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Endosulfan sulfate	ug/L	ND	ND	0.005	1917044	ND(1)	0.01	1920843
Total Endosulfan	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Endrin	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Endrin aldehyde	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Endrin ketone	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Heptachlor	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Heptachlor epoxide	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Hexachlorobenzene	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Lindane	ug/L	ND	ND	0.003	1917044	ND	0.003	1920843
Methoxychlor	ug/L	ND	ND	0.01	1917044	ND	0.01	1920843
Mirex	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DL5576	DL5578			DL5581		
Sampling Date		2009/08/17 18:00	2009/08/18 11:30			2009/08/18		
	Units	**2-SW-11**	**2-SW-3**	**RDL**	**QC Batch**	**FR-2**	**RDL**	**QC Batch**
Octachlorostyrene	ug/L	ND	ND	0.005	1917044	ND	0.005	1920843
Total PCB	ug/L	ND	ND	0.1	1917044	ND	0.1	1920843
Aroclor 1016	ug/L	ND	ND	0.05	1917044	ND	0.05	1920843
Aroclor 1221	ug/L	ND	ND	0.1	1917044	ND	0.1	1920843
Aroclor 1232	ug/L	ND	ND	0.05	1917044	ND	0.05	1920843
Aroclor 1242	ug/L	ND	ND	0.05	1917044	ND	0.05	1920843
Aroclor 1248	ug/L	ND	ND	0.05	1917044	ND	0.05	1920843
Aroclor 1254	ug/L	ND	ND	0.05	1917044	ND	0.05	1920843
Aroclor 1260	ug/L	ND	ND	0.05	1917044	ND	0.05	1920843
Toxaphene	ug/L	ND	ND	0.2	1917044	ND	0.2	1920843
Surrogate Recovery (%)								
2,4,5,6-Tetrachloro-m-xylene	%	38(1)	32(1)		1917044	56		1920843
Decachlorobiphenyl	%	95	90		1917044	96		1920843

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QC Batch = Quality Control Batch
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Package 1	7.3°C
Package 2	7.0°C
Package 3	9.0°C
Package 4	6.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

OC Pesticide Analysis: Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

Sample DL5495-01: VOCs analysis- Due to high concentration of Toluene beyond the appropriate range of instrument, sample required dilution. Detection limit for this compound was adjusted accordingly.

Sample DL5497-01: VOCs analysis- The recovery of surroagte compound 4-Bromofluorobenzene is slightly lower than lower control limit. This may be due to sample matrix effect.

VOCs analysis- Due to a high concentration of m+p-Xylene and o-Xylene in this sample, the sample was preextracted in methonol and the extract analysed by high level purge&trap (US EPA Method 5035) gas chromatography/mass spectrometry using US EPA Method 8260C(modified). The DLs were adjusted accordingly.

Sample DL5609-01: VOCs analysis- Due to the sample matrix, sample required diluton. Detection limits were adjusted accordingly.

PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample DL5610-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1915413	Moisture	2009/08/24							6.7	50		
1915682	4-Bromofluorobenzene	2009/08/24	89	60 - 140	100	60 - 140	111	%				
1915682	D4-1,2-Dichloroethane	2009/08/24	120	60 - 140	100	60 - 140	138	%				
1915682	D8-Toluene	2009/08/24	111	60 - 140	100	60 - 140	97	%				
1915682	Acetone (2-Propanone)	2009/08/25	131	24 - 171	102	60 - 140	ND, RDL=0.1	ug/g	NC	50		
1915682	Benzene	2009/08/25	115	39 - 137	96	60 - 140	ND, RDL=0.002	ug/g	7.0	50		
1915682	Bromodichloromethane	2009/08/25	116	45 - 131	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Bromoform	2009/08/25	104	44 - 131	113	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Bromomethane	2009/08/25	90	20 - 146	97	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1915682	Carbon Tetrachloride	2009/08/25	127	40 - 139	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Chlorobenzene	2009/08/25	105	45 - 140	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Chloroform	2009/08/25	116	48 - 128	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Dibromochloromethane	2009/08/25	117	52 - 135	110	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,2-Dichlorobenzene	2009/08/25	89	39 - 145	95	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,3-Dichlorobenzene	2009/08/25	99	38 - 158	96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,4-Dichlorobenzene	2009/08/25	99	35 - 159	97	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1-Dichloroethane	2009/08/25	108	48 - 131	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,2-Dichloroethane	2009/08/25	117	43 - 123	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1-Dichloroethylene	2009/08/25	112	50 - 134	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	cis-1,2-Dichloroethylene	2009/08/25	119	45 - 136	103	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	trans-1,2-Dichloroethylene	2009/08/25	116	45 - 138	101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,2-Dichloropropane	2009/08/25	110	51 - 130	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	cis-1,3-Dichloropropene	2009/08/25	108	39 - 143	112	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	trans-1,3-Dichloropropene	2009/08/25	113	33 - 135	111	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Ethylbenzene	2009/08/25	124	46 - 150	100	60 - 140	ND, RDL=0.002	ug/g	19.0	50		
1915682	Ethylene Dibromide	2009/08/25	115	48 - 136	106	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	MethyleneChloride(Dichloromethane)	2009/08/25	119	47 - 124	122	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1915682	Methyl Isobutyl Ketone	2009/08/25	NC	48 - 133	114	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1915682	Methyl Ethyl Ketone (2-Butanone)	2009/08/25	134	39 - 160	108	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1915682	Methyl t-butyl ether (MTBE)	2009/08/25	NC	37 - 150	78	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Styrene	2009/08/25	98	27 - 148	104	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1,1,2-Tetrachloroethane	2009/08/25	116	51 - 140	105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1,2,2-Tetrachloroethane	2009/08/25	101	46 - 128	105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Tetrachloroethylene	2009/08/25	123	45 - 154	94	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Toluene	2009/08/25	130	30 - 158	102	60 - 140	ND, RDL=0.002	ug/g	8.0	50		
1915682	1,1,1-Trichloroethane	2009/08/25	118	44 - 136	100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	1,1,2-Trichloroethane	2009/08/25	114	56 - 135	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Trichloroethylene	2009/08/25	107	39 - 146	98	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1915682	Vinyl Chloride	2009/08/25	115	34 - 136	102	60 - 140	ND, RDL=0.002	ug/g	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1915682	p+m-Xylene	2009/08/25	116	29 - 161	97	60 - 140	ND, RDL=0.002	ug/g	21.5	50		
1915682	o-Xylene	2009/08/25	121	45 - 150	107	60 - 140	ND, RDL=0.002	ug/g	27.7	50		
1915682	Xylene (Total)	2009/08/25					ND, RDL=0.002	ug/g	23.4	50		
1915685	o-Terphenyl	2009/08/24	71	30 - 130	76	30 - 130	76	%				
1915685	F2 (C10-C16 Hydrocarbons)	2009/08/24	104	60 - 130	86	60 - 130	ND, RDL=10	ug/g	1.1	50		
1915685	F3 (C16-C34 Hydrocarbons)	2009/08/24	104	60 - 130	86	60 - 130	ND, RDL=10	ug/g	1.1	50		
1915685	F4 (C34-C50 Hydrocarbons)	2009/08/24	104	60 - 130	86	60 - 130	ND, RDL=10	ug/g	1.3	50		
1915687	o-Terphenyl	2009/08/26	88	30 - 130	93	30 - 130	91	%			93	30 - 130
1915687	F2 (C10-C16 Hydrocarbons)	2009/08/26	84	60 - 130	89	60 - 130	ND, RDL=10	ug/g	NC	50	93	N/A
1915687	F3 (C16-C34 Hydrocarbons)	2009/08/26	84	60 - 130	89	60 - 130	ND, RDL=10	ug/g	NC	50	93	N/A
1915687	F4 (C34-C50 Hydrocarbons)	2009/08/26	84	60 - 130	89	60 - 130	ND, RDL=10	ug/g	NC	50	93	N/A
1915962	1,4-Difluorobenzene	2009/08/24	112	60 - 140	113	60 - 140	113	%				
1915962	4-Bromofluorobenzene	2009/08/24	111	60 - 140	110	60 - 140	110	%				
1915962	D10-Ethylbenzene	2009/08/24	93	30 - 130	98	30 - 130	98	%				
1915962	D4-1,2-Dichloroethane	2009/08/24	85	60 - 140	86	60 - 140	85	%				
1915962	Benzene	2009/08/24	102	60 - 140	107	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1915962	Toluene	2009/08/24	78	60 - 140	79	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1915962	Ethylbenzene	2009/08/24	81	60 - 140	82	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1915962	o-Xylene	2009/08/24	82	60 - 140	83	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1915962	p+m-Xylene	2009/08/24	88	60 - 140	88	60 - 140	ND, RDL=0.04	ug/g	NC	50		
1915962	F1 (C6-C10)	2009/08/24	91	60 - 140	90	60 - 140	ND, RDL=10	ug/g	NC	50		
1915962	Total Xylenes	2009/08/24					ND, RDL=0.04	ug/g	NC	50		
1915962	F1 (C6-C10) - BTEX	2009/08/24					ND, RDL=10	ug/g	NC	50		
1915963	1,4-Difluorobenzene	2009/08/26	108	60 - 140	122	60 - 140	108	%				
1915963	4-Bromofluorobenzene	2009/08/26	112	60 - 140	114	60 - 140	115	%				
1915963	D10-Ethylbenzene	2009/08/26	64	30 - 130	74	30 - 130	83	%				
1915963	D4-1,2-Dichloroethane	2009/08/26	80	60 - 140	87	60 - 140	86	%				
1915963	Benzene	2009/08/26	91	60 - 140	106	60 - 140	ND, RDL=0.02	ug/g				
1915963	Toluene	2009/08/26	69	60 - 140	87	60 - 140	ND, RDL=0.02	ug/g				
1915963	Ethylbenzene	2009/08/26	72	60 - 140	85	60 - 140	ND, RDL=0.02	ug/g				
1915963	o-Xylene	2009/08/26	71	60 - 140	89	60 - 140	ND, RDL=0.02	ug/g				
1915963	p+m-Xylene	2009/08/26	77	60 - 140	93	60 - 140	ND, RDL=0.04	ug/g				
1915963	F1 (C6-C10)	2009/08/26	91	60 - 140	85	60 - 140	ND, RDL=10	ug/g	NC	50		
1915963	Total Xylenes	2009/08/26					ND, RDL=0.04	ug/g				
1915963	F1 (C6-C10) - BTEX	2009/08/26					ND, RDL=10	ug/g	NC	50		
1915964	Moisture	2009/08/26							8.4	50		
1916139	o-Terphenyl	2009/08/25	80	30 - 130	81	30 - 130	81	%				
1916139	F2 (C10-C16 Hydrocarbons)	2009/08/25	84	60 - 130	80	60 - 130	ND, RDL=100	ug/L	NC	50		
1916139	F3 (C16-C34 Hydrocarbons)	2009/08/25	84	60 - 130	80	60 - 130	ND, RDL=100	ug/L	NC	50		

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1916139	F4 (C34-C50 Hydrocarbons)	2009/08/25	84	60 - 130	80	60 - 130	ND, RDL=100	ug/L	NC	50		
1916935	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	74	40 - 130	76	40 - 130	83	%				
1916935	Decachlorobiphenyl	2009/08/26	102	40 - 130	105	40 - 130	107	%				
1916935	Aroclor 1260	2009/08/26	97	30 - 130	100	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916935	Total PCB	2009/08/26	97	30 - 130	100	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1262	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1016	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1221	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1232	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1242	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1248	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1254	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1916935	Aroclor 1268	2009/08/26					ND, RDL=0.01	ug/g	NC	50		
1917021	D10-Anthracene	2009/08/25	102	30 - 130	98	30 - 130	105	%				
1917021	D14-Terphenyl (FS)	2009/08/25	94	30 - 130	93	30 - 130	98	%				
1917021	D7-Quinoline	2009/08/25	109	30 - 130	90	30 - 130	87	%				
1917021	D8-Acenaphthylene	2009/08/25	95	30 - 130	89	30 - 130	92	%				
1917021	Acenaphthene	2009/08/25	97	30 - 130	94	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1917021	Acenaphthylene	2009/08/25	97	30 - 130	93	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Anthracene	2009/08/25	95	30 - 130	92	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Benzo(a)anthracene	2009/08/25	119	30 - 130	110	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1917021	Benzo(a)pyrene	2009/08/25	125	30 - 130	114	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Benzo(b/j)fluoranthene	2009/08/25	121	30 - 130	112	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1917021	Benzo(g,h,i)perylene	2009/08/25	120	30 - 130	116	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1917021	Benzo(k)fluoranthene	2009/08/25	117	30 - 130	114	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1917021	Chrysene	2009/08/25	117	30 - 130	110	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1917021	Dibenz(a,h)anthracene	2009/08/25	128	30 - 130	130	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1917021	Fluoranthene	2009/08/25	95	30 - 130	95	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Fluorene	2009/08/25	104	30 - 130	97	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Indeno(1,2,3-cd)pyrene	2009/08/25	125	30 - 130	120	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1917021	1-Methylnaphthalene	2009/08/25	113	30 - 130	103	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	2-Methylnaphthalene	2009/08/25	104	30 - 130	91	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Naphthalene	2009/08/25	108	30 - 130	94	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Phenanthrene	2009/08/25	96	30 - 130	93	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917021	Pyrene	2009/08/25	92	30 - 130	93	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1917044	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	44	40 - 130	61	40 - 130	45	%				
1917044	Decachlorobiphenyl	2009/08/26	115	40 - 130	87	40 - 130	79	%				
1917044	Aldrin	2009/08/26	79	30 - 130	68	30 - 130	ND, RDL=0.005	ug/L				
1917044	a-BHC	2009/08/26	78	30 - 130	71	30 - 130	ND, RDL=0.005	ug/L				

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1917044	b-BHC	2009/08/26	91	30 - 130	82	30 - 130	ND, RDL=0.005	ug/L				
1917044	d-BHC	2009/08/26	80	30 - 130	73	30 - 130	ND, RDL=0.005	ug/L				
1917044	a-Chlordane	2009/08/26	103	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	g-Chlordane	2009/08/26	101	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDD	2009/08/26	105	40 - 130	97	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDD	2009/08/26	95	30 - 130	89	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDE	2009/08/26	104	40 - 130	92	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDE	2009/08/26	94	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L				
1917044	o,p-DDT	2009/08/26	111	40 - 130	99	40 - 130	ND, RDL=0.005	ug/L				
1917044	p,p-DDT	2009/08/26	100	30 - 130	93	30 - 130	ND, RDL=0.005	ug/L				
1917044	Dieldrin	2009/08/26	105	36 - 130	95	36 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan I	2009/08/26	104	30 - 130	83	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan II	2009/08/26	101	30 - 130	77	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endosulfan sulfate	2009/08/26	112	30 - 130	94	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin	2009/08/26	96	30 - 130	92	30 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin aldehyde	2009/08/26	83	40 - 130	65	40 - 130	ND, RDL=0.005	ug/L				
1917044	Endrin ketone	2009/08/26	112	40 - 130	99	40 - 130	ND, RDL=0.005	ug/L				
1917044	Heptachlor	2009/08/26	23(1)	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L				
1917044	Heptachlor epoxide	2009/08/26	128	30 - 130	97	30 - 130	ND, RDL=0.005	ug/L				
1917044	Hexachlorobenzene	2009/08/26	88	30 - 130	103	30 - 130	ND, RDL=0.005	ug/L				
1917044	Lindane	2009/08/26	91	30 - 130	86	30 - 130	ND, RDL=0.003	ug/L	NC	40		
1917044	Methoxychlor	2009/08/26	107	40 - 130	105	40 - 130	ND, RDL=0.014	ug/L				
1917044	Mirex	2009/08/26	121	40 - 130	103	40 - 130	ND, RDL=0.005	ug/L				
1917044	Octachlorostyrene	2009/08/26	109	30 - 130	90	30 - 130	ND, RDL=0.005	ug/L				
1917044	Total PCB	2009/08/26					ND, RDL=0.1	ug/L	NC	40		
1917044	Aroclor 1242	2009/08/26					ND, RDL=0.05	ug/L	NC	40		
1917044	Toxaphene	2009/08/26					ND, RDL=0.2	ug/L	NC	40		
1917044	Chlordane (Total)	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDD + p,p-DDD	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDE + p,p-DDE	2009/08/26					ND, RDL=0.005	ug/L				
1917044	o,p-DDT + p,p-DDT	2009/08/26					ND, RDL=0.005	ug/L				
1917044	DDT+ Metabolites	2009/08/26					ND, RDL=0.005	ug/L				
1917044	Total Endosulfan	2009/08/26					ND, RDL=0.005	ug/L				
1917044	Aroclor 1016	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1221	2009/08/26					ND, RDL=0.1	ug/L				
1917044	Aroclor 1232	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1248	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1254	2009/08/26					ND, RDL=0.05	ug/L				
1917044	Aroclor 1260	2009/08/26					ND, RDL=0.05	ug/L				

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1917051	Chromium (VI)	2009/08/25	107	75 - 125	102	75 - 125	ND, RDL=0.5	ug/L	NC	25		
1917052	Chromium (VI)	2009/08/27	101	75 - 125	94	75 - 125	ND, RDL=0.5	ug/L	NC	25		
1917367	D10-Anthracene	2009/08/25	87	30 - 130	90	30 - 130	97	%				
1917367	D14-Terphenyl (FS)	2009/08/25	90	30 - 130	92	30 - 130	96	%				
1917367	D7-Quinoline	2009/08/25	70	30 - 130	109	30 - 130	110	%				
1917367	D8-Acenaphthylene	2009/08/25	55	30 - 130	88	30 - 130	87	%				
1917367	Acenaphthene	2009/08/26	50	30 - 130	79	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Acenaphthylene	2009/08/26	48	30 - 130	79	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Anthracene	2009/08/26	77	30 - 130	83	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Benzo(a)anthracene	2009/08/25	89	30 - 130	93	30 - 130	ND, RDL=0.05	ug/L				
1917367	Benzo(a)pyrene	2009/08/25	95	30 - 130	98	30 - 130	ND, RDL=0.01	ug/L				
1917367	Benzo(b/j)fluoranthene	2009/08/25	98	30 - 130	104	30 - 130	ND, RDL=0.05	ug/L				
1917367	Benzo(g,h,i)perylene	2009/08/25	76	30 - 130	75	30 - 130	ND, RDL=0.1	ug/L				
1917367	Benzo(k)fluoranthene	2009/08/25	93	30 - 130	96	30 - 130	ND, RDL=0.05	ug/L				
1917367	Chrysene	2009/08/25	92	30 - 130	96	30 - 130	ND, RDL=0.05	ug/L				
1917367	Dibenz(a,h)anthracene	2009/08/25	83	30 - 130	81	30 - 130	ND, RDL=0.1	ug/L				
1917367	Fluoranthene	2009/08/26	78	30 - 130	80	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Fluorene	2009/08/26	65	30 - 130	85	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Indeno(1,2,3-cd)pyrene	2009/08/25	72	30 - 130	69	30 - 130	ND, RDL=0.1	ug/L				
1917367	1-Methylnaphthalene	2009/08/26	42	30 - 130	79	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	2-Methylnaphthalene	2009/08/26	37	30 - 130	72	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Naphthalene	2009/08/26	33	30 - 130	68	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Phenanthrene	2009/08/26	70	30 - 130	77	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1917367	Pyrene	2009/08/25	76	30 - 130	80	30 - 130	ND, RDL=0.05	ug/L				
1918784	Aluminum (Al)	2009/08/26	NC	75 - 125			ND, RDL=0.3	mg/kg	1.3	20	27	24 - 38
1918784	Antimony (Sb)	2009/08/26	105	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918784	Arsenic (As)	2009/08/26	99	75 - 125			ND, RDL=0.1	mg/kg	NC	20	95	70 - 130
1918784	Barium (Ba)	2009/08/26	NC	75 - 125			ND, RDL=0.3	mg/kg	1.7	20		
1918784	Beryllium (Be)	2009/08/26	102	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918784	Bismuth (Bi)	2009/08/26	95	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918784	Boron (B)	2009/08/26	NC	75 - 125			ND, RDL=0.5	mg/kg	2.6	20	89	70 - 130
1918784	Cadmium (Cd)	2009/08/26	97	75 - 125			ND, RDL=0.01	mg/kg	NC	20	88	70 - 130
1918784	Calcium (Ca)	2009/08/26	NC	75 - 125			ND, RDL=50	mg/kg	4.9	20	96	70 - 130
1918784	Chromium (Cr)	2009/08/26	100	75 - 125			ND, RDL=0.3	mg/kg	NC	20		
1918784	Cobalt (Co)	2009/08/26	99	75 - 125			ND, RDL=0.005	mg/kg	NC	20	83	70 - 130
1918784	Copper (Cu)	2009/08/26	98	75 - 125			ND, RDL=0.5	mg/kg	1.9	20	88	70 - 130
1918784	Iron (Fe)	2009/08/26	99	75 - 125			ND, RDL=3	mg/kg	6.5	20		
1918784	Lead (Pb)	2009/08/26	97	75 - 125			ND, RDL=0.03	mg/kg	1.3	20	99	70 - 130
1918784	Magnesium (Mg)	2009/08/26	NC	75 - 125			ND, RDL=100	mg/kg	1.4	20	98	70 - 130

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Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1918784	Manganese (Mn)	2009/08/26	NC	75 - 125			ND, RDL=0.3	mg/kg	2.8	20	93	70 - 130
1918784	Molybdenum (Mo)	2009/08/26	105	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918784	Nickel (Ni)	2009/08/26	98	75 - 125			ND, RDL=0.05	mg/kg	NC	20	53	42 - 78
1918784	Phosphorus (P)	2009/08/26	NC	N/A			ND, RDL=50	mg/kg	0.05	20		
1918784	Potassium (K)	2009/08/26	NC	75 - 125			ND, RDL=100	mg/kg	1.5	20	98	70 - 130
1918784	Selenium (Se)	2009/08/26	98	75 - 125			ND, RDL=0.2	mg/kg	NC	20		
1918784	Silver (Ag)	2009/08/26	96	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918784	Sodium (Na)	2009/08/26	103	75 - 125			ND, RDL=50	mg/kg	NC	20	79	70 - 130
1918784	Strontium (Sr)	2009/08/26	100	75 - 125			ND, RDL=0.5	mg/kg	4.8	20	93	70 - 130
1918784	Thallium (Tl)	2009/08/26	96	75 - 125			ND, RDL=0.003	mg/kg	NC	20	103	70 - 130
1918784	Tin (Sn)	2009/08/26	66(2)	75 - 125			ND, RDL=0.3	mg/kg	NC	20		
1918784	Titanium (Ti)	2009/08/26	100	75 - 125			ND, RDL=0.5	mg/kg	NC	20		
1918784	Vanadium (V)	2009/08/26	102	75 - 125			ND, RDL=0.05	mg/kg	NC	20	37	28 - 52
1918784	Zinc (Zn)	2009/08/26	NC	75 - 125			ND, RDL=2	mg/kg	3.2	20	88	70 - 130
1918784	Uranium (U)	2009/08/26					ND, RDL=0.005	mg/kg	NC	20	28	23 - 40
1918785	Aluminum (Al)	2009/08/26	118	75 - 125			ND, RDL=0.3	mg/kg	2.5	20	30	24 - 38
1918785	Antimony (Sb)	2009/08/26	95	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918785	Arsenic (As)	2009/08/26	94	75 - 125			ND, RDL=0.1	mg/kg	NC	20	98	70 - 130
1918785	Barium (Ba)	2009/08/26	NC	75 - 125			ND, RDL=0.3	mg/kg	2.4	20		
1918785	Beryllium (Be)	2009/08/26	96	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918785	Bismuth (Bi)	2009/08/26	90	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918785	Boron (B)	2009/08/26	NC	75 - 125			ND, RDL=0.5	mg/kg	1.7	20	89	70 - 130
1918785	Cadmium (Cd)	2009/08/26	90	75 - 125			ND, RDL=0.01	mg/kg	NC	20	90	70 - 130
1918785	Calcium (Ca)	2009/08/26	NC	75 - 125			ND, RDL=50	mg/kg	0.3	20	98	70 - 130
1918785	Chromium (Cr)	2009/08/26	96	75 - 125			ND, RDL=0.3	mg/kg	NC	20		
1918785	Cobalt (Co)	2009/08/26	94	75 - 125			ND, RDL=0.005	mg/kg	NC	20	85	70 - 130
1918785	Copper (Cu)	2009/08/26	88	75 - 125			ND, RDL=0.5	mg/kg	1.5	20	96	70 - 130
1918785	Iron (Fe)	2009/08/26	95	75 - 125			ND, RDL=3	mg/kg	NC	20		
1918785	Lead (Pb)	2009/08/26	92	75 - 125			ND, RDL=0.03	mg/kg	NC	20	107	70 - 130
1918785	Magnesium (Mg)	2009/08/26	NC	75 - 125			ND, RDL=100	mg/kg	1.4	20	106	70 - 130
1918785	Manganese (Mn)	2009/08/26	NC	75 - 125			ND, RDL=0.3	mg/kg	0.7	20	96	70 - 130
1918785	Molybdenum (Mo)	2009/08/26	95	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918785	Nickel (Ni)	2009/08/26	91	75 - 125			ND, RDL=0.05	mg/kg	NC	20	60	42 - 78
1918785	Phosphorus (P)	2009/08/26	NC	N/A			ND, RDL=50	mg/kg	5.2	20		
1918785	Potassium (K)	2009/08/26	NC	75 - 125			ND, RDL=100	mg/kg	3.1	20	99	70 - 130
1918785	Selenium (Se)	2009/08/26	92	75 - 125			ND, RDL=0.2	mg/kg	NC	20		
1918785	Silver (Ag)	2009/08/26	89	75 - 125			ND, RDL=0.05	mg/kg	NC	20		
1918785	Sodium (Na)	2009/08/26	103	75 - 125			ND, RDL=50	mg/kg	NC	20	87	70 - 130
1918785	Strontium (Sr)	2009/08/26	NC	75 - 125			ND, RDL=0.5	mg/kg	1.8	20	97	70 - 130

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1918785	Thallium (Tl)	2009/08/26	93	75 - 125			ND, RDL=0.003	mg/kg	NC	20	94	70 - 130
1918785	Tin (Sn)	2009/08/26	46(2)	75 - 125			ND, RDL=0.3	mg/kg	NC	20		
1918785	Titanium (Ti)	2009/08/26	91	75 - 125			ND, RDL=0.5	mg/kg	NC	20		
1918785	Vanadium (V)	2009/08/26	97	75 - 125			ND, RDL=0.05	mg/kg	NC	20	38	28 - 52
1918785	Zinc (Zn)	2009/08/26	NC	75 - 125			ND, RDL=2	mg/kg	NC	20	90	70 - 130
1918785	Uranium (U)	2009/08/26					ND, RDL=0.005	mg/kg	NC	20	33	23 - 40
1919066	1,4-Difluorobenzene	2009/08/26	97	70 - 130	96	70 - 130	104	%				
1919066	4-Bromofluorobenzene	2009/08/26	108	70 - 130	101	70 - 130	97	%				
1919066	D10-Ethylbenzene	2009/08/26	91	70 - 130	104	70 - 130	102	%				
1919066	D4-1,2-Dichloroethane	2009/08/26	90	70 - 130	87	70 - 130	94	%				
1919066	Benzene	2009/08/26	72	70 - 130	85	70 - 130	ND, RDL=0.2	ug/L				
1919066	Toluene	2009/08/26	82	70 - 130	103	70 - 130	ND, RDL=0.2	ug/L				
1919066	Ethylbenzene	2009/08/26	82	70 - 130	103	70 - 130	ND, RDL=0.2	ug/L				
1919066	o-Xylene	2009/08/26	89	70 - 130	111	70 - 130	ND, RDL=0.2	ug/L				
1919066	p+m-Xylene	2009/08/26	82	70 - 130	104	70 - 130	ND, RDL=0.4	ug/L				
1919066	F1 (C6-C10)	2009/08/26	93	70 - 130	92	70 - 130	ND, RDL=100	ug/L	NC	40		
1919066	Total Xylenes	2009/08/26					ND, RDL=0.4	ug/L				
1919066	F1 (C6-C10) - BTEX	2009/08/26					ND, RDL=100	ug/L	NC	40		
1919105	Chromium (VI)	2009/08/27	89	75 - 125	106	75 - 125	ND, RDL=0.2	ug/g	NC	35	97	85 - 115
1919149	2,4,5,6-Tetrachloro-m-xylene	2009/08/26	82	40 - 130	81	40 - 130	78	%				
1919149	Decachlorobiphenyl	2009/08/26	108	40 - 130	106	40 - 130	98	%				
1919149	Aroclor 1260	2009/08/27	122	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919149	Total PCB	2009/08/27	122	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	4.4	50		
1919149	Aroclor 1262	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1016	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1221	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1232	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1242	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1248	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1254	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919149	Aroclor 1268	2009/08/27					ND, RDL=0.01	ug/g	NC	50		
1919164	Chromium (VI)	2009/08/27	20(3)	75 - 125	99	75 - 125	ND, RDL=0.2	ug/g	NC	35	93	85 - 115
1919467	2,4,5,6-Tetrachloro-m-xylene	2009/08/31	54	40 - 130	43	40 - 130	70	%				
1919467	Decachlorobiphenyl	2009/08/31	78	40 - 130	77	40 - 130	79	%				
1919467	Aldrin	2009/08/31	66	40 - 130	55	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	a-BHC	2009/08/31	58	40 - 130	53	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	b-BHC	2009/08/31	72	40 - 130	71	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	d-BHC	2009/08/31	73	40 - 130	74	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	a-Chlordane	2009/08/31	76	40 - 130	75	40 - 130	ND, RDL=0.002	ug/g	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1919467	g-Chlordane	2009/08/31	76	40 - 130	81	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDD	2009/08/31	93	40 - 130	93	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDD	2009/08/31	83	40 - 130	90	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDE	2009/08/31	81	40 - 130	78	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDE	2009/08/31	90	40 - 130	87	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDT	2009/08/31	63	40 - 130	60	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDT	2009/08/31	62	40 - 130	50	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Dieldrin	2009/08/31	78	40 - 130	80	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan I	2009/08/31	76	40 - 130	77	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan II	2009/08/31	84	40 - 130	86	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan sulfate	2009/08/31	84	40 - 130	143(4)	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin	2009/08/31	75	40 - 130	78	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin aldehyde	2009/08/31	60	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin ketone	2009/08/31	86	40 - 130	79	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Heptachlor	2009/08/31	58	40 - 130	48	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Heptachlor epoxide	2009/08/31	86	40 - 130	84	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Hexachlorobenzene	2009/08/31	52	20 - 130	43	20 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Lindane	2009/08/31	57	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Methoxychlor	2009/08/31	84	40 - 130	68	40 - 130	ND, RDL=0.008	ug/g	NC	50		
1919467	Mirex	2009/08/31	82	40 - 130	75	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Octachlorostyrene	2009/08/31	76	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Total PCB	2009/08/31					ND, RDL=0.03	ug/g	NC	50		
1919467	Aroclor 1242	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Toxaphene	2009/08/31					ND, RDL=0.08	ug/g	NC	50		
1919467	Aroclor 1262	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1268	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Chlordane (Total)	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDD + p,p-DDD	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDE + p,p-DDE	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDT + p,p-DDT	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	DDT+ Metabolites	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	Total Endosulfan	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	Aroclor 1016	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1221	2009/08/31					ND, RDL=0.03	ug/g	NC	50		
1919467	Aroclor 1232	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1248	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1254	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1260	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919517	Dissolved (0.2u) Aluminum (Al)	2009/08/26	97	80 - 120	96	90 - 110	ND, RDL=5	ug/L	2.8	25		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1919573	Mercury (Hg)	2009/08/27	102%	75 - 125	101%	84 - 113	ND, RDL=0.1	ug/L	NC	25		
1919602	D10-Anthracene	2009/08/27	72	30 - 130	88	30 - 130	86	%				
1919602	D14-Terphenyl (FS)	2009/08/27	80	30 - 130	85	30 - 130	82	%				
1919602	D7-Quinoline	2009/08/27	77	30 - 130	88	30 - 130	88	%				
1919602	D8-Acenaphthylene	2009/08/27	75	30 - 130	83	30 - 130	81	%				
1919602	Acenaphthene	2009/08/27	78	30 - 130	86	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919602	Acenaphthylene	2009/08/27	76	30 - 130	84	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Anthracene	2009/08/27	77	30 - 130	84	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Benzo(a)anthracene	2009/08/27	94	30 - 130	99	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919602	Benzo(a)pyrene	2009/08/27	96	30 - 130	102	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Benzo(b/j)fluoranthene	2009/08/27	90	30 - 130	97	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919602	Benzo(g,h,i)perylene	2009/08/27	70	30 - 130	75	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1919602	Benzo(k)fluoranthene	2009/08/27	96	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919602	Chrysene	2009/08/27	95	30 - 130	100	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1919602	Dibenz(a,h)anthracene	2009/08/27	63	30 - 130	67	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1919602	Fluoranthene	2009/08/27	79	30 - 130	83	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Fluorene	2009/08/27	80	30 - 130	87	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Indeno(1,2,3-cd)pyrene	2009/08/27	75	30 - 130	80	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1919602	1-Methylnaphthalene	2009/08/27	82	30 - 130	94	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	2-Methylnaphthalene	2009/08/27	74	30 - 130	85	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Naphthalene	2009/08/27	75	30 - 130	86	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Phenanthrene	2009/08/27	76	30 - 130	82	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919602	Pyrene	2009/08/27	78	30 - 130	83	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919963	Moisture	2009/08/26							0.7	50		
1920229	Total Phosphorus	2009/08/27	106	75 - 125	109	75 - 125	ND, RDL=0.002	mg/L	NC	25	107	85 - 115
1920315	Acid Extractable Antimony (Sb)	2009/08/27	92	75 - 125			ND, RDL=0.2	ug/g	NC	35	90	75 - 125
1920315	Acid Extractable Arsenic (As)	2009/08/27	95	75 - 125			ND, RDL=1	ug/g	NC	35	92	75 - 125
1920315	Acid Extractable Barium (Ba)	2009/08/27	NC	75 - 125			ND, RDL=0.5	ug/g	2.0	35	92	75 - 125
1920315	Acid Extractable Beryllium (Be)	2009/08/27	100	75 - 125			ND, RDL=0.2	ug/g	NC	35	98	75 - 125
1920315	Acid Extractable Cadmium (Cd)	2009/08/27	101	75 - 125			ND, RDL=0.1	ug/g	NC	35	94	75 - 125
1920315	Acid Extractable Chromium (Cr)	2009/08/27	102	75 - 125			ND, RDL=1	ug/g	7.3	35	86	75 - 125
1920315	Acid Extractable Cobalt (Co)	2009/08/27	99	75 - 125			ND, RDL=0.1	ug/g	1	35	91	75 - 125
1920315	Acid Extractable Copper (Cu)	2009/08/27	97	75 - 125			ND, RDL=0.5	ug/g	3.2	35	99	75 - 125
1920315	Acid Extractable Lead (Pb)	2009/08/27	NC	75 - 125			ND, RDL=1	ug/g	1.8	35	98	75 - 125
1920315	Acid Extractable Molybdenum (Mo)	2009/08/27	100	75 - 125			ND, RDL=0.5	ug/g	NC	35	81	75 - 125
1920315	Acid Extractable Nickel (Ni)	2009/08/27	NC	75 - 125			ND, RDL=0.5	ug/g	17.4	35	83	75 - 125
1920315	Acid Extractable Selenium (Se)	2009/08/27	96	75 - 125			ND, RDL=0.5	ug/g	NC	35	59	50 - 150
1920315	Acid Extractable Silver (Ag)	2009/08/27	80	75 - 125			ND, RDL=0.2	ug/g	NC	35	101	75 - 125
1920315	Acid Extractable Thallium (Tl)	2009/08/27	93	75 - 125			ND, RDL=0.05	ug/g	NC	35	76	75 - 125

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1920315	Acid Extractable Vanadium (V)	2009/08/27	101	75 - 125			ND, RDL=5	ug/g	NC	35	80	75 - 125
1920315	Acid Extractable Zinc (Zn)	2009/08/27	NC	75 - 125			ND, RDL=5	ug/g	2.6	35	88	75 - 125
1920315	Acid Extractable Mercury (Hg)	2009/08/27	108	75 - 125			ND, RDL=0.05	ug/g			82	75 - 125
1920402	Total Antimony (Sb)	2009/08/27	106	80 - 120	100	82 - 120	ND, RDL=0.5	ug/L	NC	25		
1920402	Total Arsenic (As)	2009/08/27	98	80 - 120	103	86 - 119	ND, RDL=1	ug/L	NC	25		
1920402	Total Beryllium (Be)	2009/08/27	99	75 - 125	101	85 - 132	ND, RDL=0.5	ug/L	NC	25		
1920402	Total Boron (B)	2009/08/27	98	75 - 125	97	78 - 133	ND, RDL=10	ug/L	NC	25		
1920402	Total Cadmium (Cd)	2009/08/27	101	80 - 120	100	85 - 116	ND, RDL=0.1	ug/L	NC	25		
1920402	Total Chromium (Cr)	2009/08/27	98	80 - 120	103	80 - 120	ND, RDL=5	ug/L	NC	25		
1920402	Total Cobalt (Co)	2009/08/27	98	80 - 120	101	82 - 117	ND, RDL=0.5	ug/L	NC	25		
1920402	Total Copper (Cu)	2009/08/27	96	80 - 120	101	80 - 117	ND, RDL=1	ug/L	NC	25		
1920402	Total Iron (Fe)	2009/08/27	95	80 - 120	100	80 - 120	ND, RDL=100	ug/L	NC	25		
1920402	Total Lead (Pb)	2009/08/27	97	80 - 120	101	80 - 120	ND, RDL=0.5	ug/L	NC	25		
1920402	Total Molybdenum (Mo)	2009/08/27	103	80 - 120	97	82 - 117	ND, RDL=1	ug/L	NC	25		
1920402	Total Nickel (Ni)	2009/08/27	99	80 - 120	101	81 - 117	ND, RDL=1	ug/L	NC	25		
1920402	Total Selenium (Se)	2009/08/27	100	75 - 125	106	82 - 118	ND, RDL=2	ug/L	NC	25		
1920402	Total Silver (Ag)	2009/08/27	96	80 - 120	96	80 - 120	ND, RDL=0.1	ug/L	NC	25		
1920402	Total Thallium (Tl)	2009/08/27	99	80 - 120	103	80 - 129	ND, RDL=0.05	ug/L	NC	25		
1920402	Total Tungsten (W)	2009/08/27	106	75 - 125	101	81 - 123	ND, RDL=1	ug/L	NC	25		
1920402	Total Uranium (U)	2009/08/27	102	80 - 120	108	82 - 120	ND, RDL=0.1	ug/L	NC	25		
1920402	Total Vanadium (V)	2009/08/27	99	80 - 120	103	82 - 118	ND, RDL=1	ug/L	NC	25		
1920402	Total Zinc (Zn)	2009/08/27	99	80 - 120	102	80 - 120	ND, RDL=5	ug/L	NC	25		
1920402	Total Zirconium (Zr)	2009/08/27	103	75 - 125	95	84 - 118	ND, RDL=1	ug/L	NC	25		
1920413	Total Organic Carbon	2009/08/28					ND, RDL=500	mg/kg	3.9	50	99	80 - 120
1920432	Dissolved (0.2u) Aluminum (Al)	2009/08/27	95	80 - 120	94	90 - 110	ND, RDL=5	ug/L	NC	25		
1920435	Dissolved (0.2u) Aluminum (Al)	2009/08/27	94	80 - 120	94	90 - 110	ND, RDL=5	ug/L	0.4	25		
1920564	Hot Water Ext. Boron (B)	2009/08/27					0.01, RDL=0.01	ug/g			101	77 - 121
1920684	Acid Extractable Antimony (Sb)	2009/08/27	96	75 - 125			ND, RDL=0.2	ug/g	NC	35	104	75 - 125
1920684	Acid Extractable Arsenic (As)	2009/08/27	106	75 - 125			ND, RDL=1	ug/g	NC	35	86	75 - 125
1920684	Acid Extractable Barium (Ba)	2009/08/27	NC	75 - 125			ND, RDL=0.5	ug/g	0.3	35	88	75 - 125
1920684	Acid Extractable Beryllium (Be)	2009/08/27	107	75 - 125			ND, RDL=0.2	ug/g	NC	35	103	75 - 125
1920684	Acid Extractable Cadmium (Cd)	2009/08/27	103	75 - 125			ND, RDL=0.1	ug/g	NC	35	85	75 - 125
1920684	Acid Extractable Chromium (Cr)	2009/08/27	109	75 - 125			ND, RDL=1	ug/g	0.4	35	83	75 - 125
1920684	Acid Extractable Cobalt (Co)	2009/08/27	105	75 - 125			ND, RDL=0.1	ug/g	6.5	35	83	75 - 125
1920684	Acid Extractable Copper (Cu)	2009/08/27	104	75 - 125			ND, RDL=0.5	ug/g	0.7	35	97	75 - 125
1920684	Acid Extractable Lead (Pb)	2009/08/27	100	75 - 125			ND, RDL=1	ug/g	3.0	35	92	75 - 125
1920684	Acid Extractable Molybdenum (Mo)	2009/08/27	108	75 - 125			ND, RDL=0.5	ug/g	NC	35	92	75 - 125
1920684	Acid Extractable Nickel (Ni)	2009/08/27	105	75 - 125			ND, RDL=0.5	ug/g	6.7	35	84	75 - 125
1920684	Acid Extractable Selenium (Se)	2009/08/27	103	75 - 125			ND, RDL=0.5	ug/g	NC	35	72	50 - 150

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1920684	Acid Extractable Silver (Ag)	2009/08/27	79	75 - 125			ND, RDL=0.2	ug/g	NC	35	84	75 - 125
1920684	Acid Extractable Thallium (Tl)	2009/08/27	93	75 - 125			ND, RDL=0.05	ug/g	NC	35	72(2)	75 - 125
1920684	Acid Extractable Vanadium (V)	2009/08/27	108	75 - 125			7, RDL=5	ug/g	NC	35	101	75 - 125
1920684	Acid Extractable Zinc (Zn)	2009/08/27	112	75 - 125			ND, RDL=5	ug/g	NC	35	85	75 - 125
1920684	Acid Extractable Mercury (Hg)	2009/08/27	110	75 - 125			ND, RDL=0.05	ug/g	NC	35	89	75 - 125
1920843	2,4,5,6-Tetrachloro-m-xylene	2009/08/29	74	40 - 130	66	40 - 130	69	%				
1920843	Decachlorobiphenyl	2009/08/29	88	40 - 130	78	40 - 130	70	%				
1920843	Aldrin	2009/08/29	66	30 - 130	64	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	a-BHC	2009/08/29	97	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	b-BHC	2009/08/29	82	30 - 130	72	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	d-BHC	2009/08/29	88	30 - 130	76	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	a-Chlordane	2009/08/29	97	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	g-Chlordane	2009/08/29	98	30 - 130	86	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDD	2009/08/29	100	40 - 130	89	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	p,p-DDD	2009/08/29	99	30 - 130	89	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDE	2009/08/29	101	40 - 130	88	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	p,p-DDE	2009/08/29	91	30 - 130	81	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDT	2009/08/29	105	40 - 130	94	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	p,p-DDT	2009/08/29	109	30 - 130	99	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Dieldrin	2009/08/29	106	36 - 130	94	36 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endosulfan I	2009/08/29	97	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endosulfan II	2009/08/29	94	30 - 130	82	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endosulfan sulfate	2009/08/29	91	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endrin	2009/08/29	114	30 - 130	101	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endrin aldehyde	2009/08/29	45	40 - 130	47	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endrin ketone	2009/08/29	104	40 - 130	96	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Heptachlor	2009/08/29	86	30 - 130	106	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Heptachlor epoxide	2009/08/29	90	30 - 130	96	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Hexachlorobenzene	2009/08/29	82	30 - 130	71	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Lindane	2009/08/29	96	30 - 130	84	30 - 130	ND, RDL=0.003	ug/L	NC	40		
1920843	Methoxychlor	2009/08/29	127	40 - 130	124	40 - 130	ND, RDL=0.014	ug/L	NC	40		
1920843	Mirex	2009/08/29	89	40 - 130	86	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Octachlorostyrene	2009/08/29	85	30 - 130	76	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Total PCB	2009/08/29					ND, RDL=0.1	ug/L	NC	40		
1920843	Aroclor 1242	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Toxaphene	2009/08/29					ND, RDL=0.2	ug/L	NC	40		
1920843	Chlordane (Total)	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDD + p,p-DDD	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDE + p,p-DDE	2009/08/29					ND, RDL=0.005	ug/L	NC	40		

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1920843	o,p-DDT + p,p-DDT	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	DDT+ Metabolites	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	Total Endosulfan	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	Aroclor 1016	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1221	2009/08/29					ND, RDL=0.1	ug/L	NC	40		
1920843	Aroclor 1232	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1248	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1254	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1260	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920861	Hot Water Ext. Boron (B)	2009/08/27					ND, RDL=0.01	ug/g			101	77 - 121
1922106	2,4,5,6-Tetrachloro-m-xylene	2009/08/29	106	40 - 130	90	40 - 130	103	%				
1922106	Decachlorobiphenyl	2009/08/29	120	40 - 130	110	40 - 130	116	%				
1922106	Aroclor 1260	2009/08/29	118	30 - 130	121	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1922106	Total PCB	2009/08/29	118	30 - 130	121	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1262	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1016	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1221	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1232	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1242	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1248	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1254	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922106	Aroclor 1268	2009/08/29					ND, RDL=0.01	ug/g	NC	50		
1922405	4-Bromofluorobenzene	2009/08/31			84	70 - 130	75	%				
1922405	D4-1,2-Dichloroethane	2009/08/31			88	70 - 130	92	%				
1922405	D8-Toluene	2009/08/31			115	70 - 130	94	%				
1922405	Acetone (2-Propanone)	2009/08/31			79	60 - 140	ND, RDL=10	ug/L	NC	40		
1922405	Benzene	2009/08/31			99	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Bromodichloromethane	2009/08/31			88	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Bromoform	2009/08/31			75	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	Bromomethane	2009/08/31			127	60 - 140	ND, RDL=0.5	ug/L	NC	40		
1922405	Carbon Tetrachloride	2009/08/31			90	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Chlorobenzene	2009/08/31			100	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Chloroform	2009/08/31			93	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Dibromochloromethane	2009/08/31			85	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	1,2-Dichlorobenzene	2009/08/31			103	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	1,3-Dichlorobenzene	2009/08/31			90	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	1,4-Dichlorobenzene	2009/08/31			100	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	1,1-Dichloroethane	2009/08/31			101	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	1,2-Dichloroethane	2009/08/31			85	70 - 130	ND, RDL=0.2	ug/L	NC	40		

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1922405	1,1-Dichloroethylene	2009/08/31			99	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	cis-1,2-Dichloroethylene	2009/08/31			100	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	trans-1,2-Dichloroethylene	2009/08/31			99	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	1,2-Dichloropropane	2009/08/31			111	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	cis-1,3-Dichloropropene	2009/08/31			91	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	trans-1,3-Dichloropropene	2009/08/31			74	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	Ethylbenzene	2009/08/31			102	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Ethylene Dibromide	2009/08/31			94	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	Methylene Chloride(Dichloromethane)	2009/08/31			101	70 - 130	ND, RDL=0.5	ug/L	NC	40		
1922405	Methyl Isobutyl Ketone	2009/08/31			72	60 - 140	ND, RDL=5	ug/L	NC	40		
1922405	Methyl Ethyl Ketone (2-Butanone)	2009/08/31			86	60 - 140	ND, RDL=5	ug/L	NC	40		
1922405	Methyl t-butyl ether (MTBE)	2009/08/31			75	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	Styrene	2009/08/31			102	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	1,1,1,2-Tetrachloroethane	2009/08/31			90	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	1,1,2,2-Tetrachloroethane	2009/08/31			100	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	Tetrachloroethylene	2009/08/31			101	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Toluene	2009/08/31			113	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	1,1,1-Trichloroethane	2009/08/31			92	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	1,1,2-Trichloroethane	2009/08/31			95	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	Trichloroethylene	2009/08/31			101	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	Vinyl Chloride	2009/08/31			110	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1922405	p+m-Xylene	2009/08/31			96	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1922405	o-Xylene	2009/08/31			85	70 - 130	ND, RDL=0.1	ug/L	NC	40		

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8632
Report Date: 2009/09/02

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: JH

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1922405	Xylene (Total)	2009/08/31					ND, RDL=0.1	ug/L	NC	40		

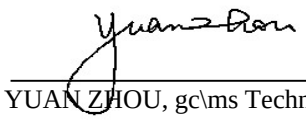
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.
(2) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(3) - The recovery was below the lower control limit. This may be due in part to the reducing environment of the sample.
(4) - Recovery in the spike was above the upper control limit. This may represent a high bias in some results. For results that were not detected (ND), this potential bias has no impact.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: A9A8632

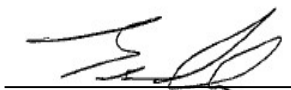
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



YUAN ZHOU, gc\ms Technician



PAUL RUBINATO, Analyst, Maxxam Analytics



BRAD NEWMAN, Scientific Specialist



CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: A9A8632

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

TIM MUNSHAW, Lab Manager

STEVE ROBERTS, Lab Supervisor, Ottawa

CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

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Your Project #: MA9A8632

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS INC.
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2009/08/27

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A945789
Received: 2009/08/26, 8:30

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Moisture	2	N/A	2009/08/27	CAL SOP-00023	McKeague MSSMA 2.411
Particle Size by Sieve (Dry) (1)	2	N/A	2009/08/27	CAL SOP-00025	SSMA #47

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Result indicates % of sample retained on the sieve.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

BRIAN ISSLER, Project Manager
Email: BRIAN.ISSLER@MaxxamAnalytics.com
Phone# (403) 291-3077

==========

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For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A945789
Report Date: 2009/08/27

MAXXAM ANALYTICS INC.
Client Project #: MA9A8632

Sampler Initials: JH

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		Q43283	Q43285		
Sampling Date		2009/08/18	2009/08/17		
	Units	**FR-3 (DL5492-01R)**	**1-SD-2 (DL5496-01R)**	**RDL**	**QC Batch**
Physical Properties					
Moisture	%	11	15	0.3	3378045
Sieve - #4 (>4.75mm)	%	2.1	21.6	0.2	3376555
Sieve - #10 (>2.00mm)	%	4.2	9.2	0.2	3376555
Sieve - #40 (>0.425mm)	%	7.1	5.3	0.2	3376555
Sieve - #200 (>0.075mm)	%	31.0	28.9	0.2	3376555
Sieve - Pan	%	55.7	34.9	0.2	3376555

RDL = Reportable Detection Limit

Maxxam Job #: A945789
Report Date: 2009/08/27

MAXXAM ANALYTICS INC.
Client Project #: MA9A8632

Sampler Initials: JH

Package 1	2.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS INC.
Attention: SUB CONTRACTOR
Client Project #: MA9A8632
P.O. #:
Site Reference:

Quality Assurance Report

Maxxam Job Number: CA945789

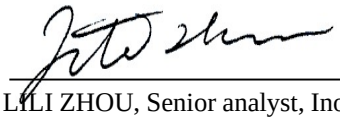
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3376555	PP1	QC Standard	Sieve - #200 (>0.075mm)	2009/08/27		104	%	75 - 125
			Sieve - Pan	2009/08/27		98	%	89 - 111
		RPD	Sieve - #4 (>4.75mm)	2009/08/27	18.9		%	35
			Sieve - #10 (>2.00mm)	2009/08/27	28.9		%	35
			Sieve - #40 (>0.425mm)	2009/08/27	33.9		%	35
			Sieve - #200 (>0.075mm)	2009/08/27	22.6		%	35
			Sieve - Pan	2009/08/27	14.4		%	35
3378045	HN	RPD	Moisture	2009/08/27	5.7		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

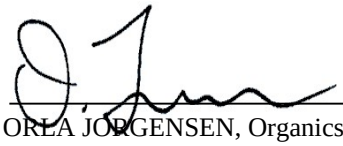
Validation Signature Page

Maxxam Job #: A945789

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



LILI ZHOU, Senior analyst, Inorganic department.



ORLA JORGENSEN, Organics Supervisor

==========

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Your P.O. #: 1747-0901
Your Project #: P-2963
Site: RESOLUTE, NU
Your C.O.C. #: 00574555

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2009/09/04

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A8737
Received: 2009/08/21, 16:20

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	6	2009/09/01	2009/09/01	CAM SOP-00408	EPA 3050B
Chromium (VI) in Soil	6	2009/08/31	2009/08/31	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	5	2009/08/25	2009/08/29	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1)	3	2009/08/24	2009/08/26	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1)	2	2009/08/24	2009/08/27	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	6	2009/09/01	2009/09/01	CAM SOP-00447	EPA 6020
MOISTURE (1)	5	N/A	2009/08/26	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	1	N/A	2009/09/02	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB (2)	4	2009/08/26	2009/08/31	CAM SOP-00307	SW846 8081, 8082
PAH Compounds in Soil by GC/MS (SIM)	4	2009/08/26	2009/08/27	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	1	2009/08/26	2009/08/28	CAM SOP - 00318	EPA 8270
Total Organic Carbon in Soil	1	N/A	2009/08/28	CAM SOP-00468	LECO Combustion
Volatile Organic Compounds in Soil (1)	4	2009/08/24	2009/08/25	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

==========

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For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DL5979	DL5980		DL5981		DL5982		DL5983		DL5984		
	Units	**3-TP-4**	**1-BH-14**	**QC Batch**	**1-BH-13**	**QC Batch**	**2-BH-1**	**QC Batch**	**2-BH-2**	**QC Batch**	**3-TP-9**	**RDL**	**QC Batch**
Metals													
Hot Water Ext. Boron (B)	ug/g	0.21	0.43	1924888	1.8	1924888	0.16	1924888	0.32	1924888	0.23	0.01	1924888
Chromium (VI)	ug/g	ND	ND	1922518	ND	1922518	ND	1922518	ND	1922518	0.2	0.2	1922518
Acid Extractable Antimony (Sb)	ug/g	ND	ND	1924863	ND	1925305	ND	1924863	ND	1925305	ND	0.2	1924863
Acid Extractable Arsenic (As)	ug/g	ND	1	1924863	2	1925305	1	1924863	1	1925305	2	1	1924863
Acid Extractable Barium (Ba)	ug/g	15	4.7	1924863	11	1925305	10	1924863	7.1	1925305	9.6	0.5	1924863
Acid Extractable Beryllium (Be)	ug/g	ND	ND	1924863	ND	1925305	ND	1924863	ND	1925305	ND	0.2	1924863
Acid Extractable Cadmium (Cd)	ug/g	ND	0.1	1924863	0.1	1925305	0.1	1924863	ND	1925305	ND	0.1	1924863
Acid Extractable Chromium (Cr)	ug/g	4	4	1924863	6	1925305	4	1924863	3	1925305	4	1	1924863
Acid Extractable Cobalt (Co)	ug/g	1.1	0.8	1924863	0.9	1925305	0.9	1924863	0.7	1925305	1.4	0.1	1924863
Acid Extractable Copper (Cu)	ug/g	5.5	3.7	1924863	4.4	1925305	3.0	1924863	2.0	1925305	7.1	0.5	1924863
Acid Extractable Lead (Pb)	ug/g	33	3	1924863	5	1925305	6	1924863	7	1925305	4	1	1924863
Acid Extractable Molybdenum (Mo)	ug/g	ND	0.7	1924863	ND	1925305	ND	1924863	0.5	1925305	ND	0.5	1924863
Acid Extractable Nickel (Ni)	ug/g	2.9	2.7	1924863	3.3	1925305	2.8	1924863	ND(1)	1925305	3.3	2.5	1924863
Acid Extractable Selenium (Se)	ug/g	ND	ND	1924863	ND	1925305	ND	1924863	ND	1925305	ND	0.5	1924863
Acid Extractable Silver (Ag)	ug/g	ND	ND	1924863	ND	1925305	ND	1924863	ND	1925305	ND	0.2	1924863
Acid Extractable Thallium (Tl)	ug/g	ND	ND	1924863	0.06	1925305	ND	1924863	ND	1925305	ND	0.05	1924863
Acid Extractable Vanadium (V)	ug/g	ND	ND	1924863	ND	1925305	5	1924863	ND	1925305	5	5	1924863
Acid Extractable Zinc (Zn)	ug/g	21	17	1924863	22	1925305	19	1924863	17	1925305	14	5	1924863
Acid Extractable Mercury (Hg)	ug/g	ND	ND	1924863	ND	1925305	ND	1924863	ND	1925305	ND	0.05	1924863

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DL5979	DL5980	DL5981	DL5982	DL5983		DL5984		
	Units	**3-TP-4**	**1-BH-14**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**QC Batch**	**3-TP-9**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	6.1	15	29	31	15	1915964	8.8	0.2	1927142
Total Organic Carbon	mg/kg				77000		1920413		500	

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL5979	DL5980		DL5981	DL5982	DL5983		
	Units	**3-TP-4**	**1-BH-14**	**QC Batch**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	ND	ND	1918818	ND	ND	ND	0.01	1918813
Acenaphthylene	ug/g	ND	ND	1918818	ND	ND	ND	0.005	1918813
Anthracene	ug/g	ND	ND	1918818	ND	ND	ND	0.005	1918813
Benzo(a)anthracene	ug/g	ND	ND	1918818	ND	ND	ND	0.01	1918813
Benzo(a)pyrene	ug/g	ND	ND	1918818	ND	ND	ND	0.005	1918813
Benzo(b/j)fluoranthene	ug/g	0.02	ND	1918818	ND	ND	ND	0.01	1918813
Benzo(g,h,i)perylene	ug/g	ND	ND	1918818	ND	ND	ND	0.02	1918813
Benzo(k)fluoranthene	ug/g	ND	ND	1918818	ND	ND	ND	0.01	1918813
Chrysene	ug/g	ND	ND	1918818	ND	ND	ND	0.01	1918813
Dibenz(a,h)anthracene	ug/g	ND	ND	1918818	ND	ND	ND	0.02	1918813
Fluoranthene	ug/g	0.012	ND	1918818	ND	ND	ND	0.005	1918813
Fluorene	ug/g	ND	ND	1918818	ND	ND	ND	0.005	1918813
Indeno(1,2,3-cd)pyrene	ug/g	ND	ND	1918818	ND	ND	ND	0.02	1918813
1-Methylnaphthalene	ug/g	0.007	ND	1918818	0.042	ND	ND	0.005	1918813
2-Methylnaphthalene	ug/g	0.005	ND	1918818	0.050	ND	ND	0.005	1918813
Naphthalene	ug/g	ND	ND	1918818	0.057	ND	ND	0.005	1918813
Phenanthrene	ug/g	ND	ND	1918818	ND	ND	ND	0.005	1918813
Pyrene	ug/g	0.011	ND	1918818	ND	ND	ND	0.005	1918813
Surrogate Recovery (%)									
D10-Anthracene	%	105	95	1918818	79	87	87		1918813
D14-Terphenyl (FS)	%	112	90	1918818	85	90	92		1918813
D7-Quinoline	%	106	78	1918818	71	54	68		1918813
D8-Acenaphthylene	%	95	81	1918818	68	62	69		1918813

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL5980	DL5981	DL5982	DL5983		
	Units	**1-BH-14**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**RDL**	**QC Batch**
Volatile Organics							
Acetone (2-Propanone)	ug/g	ND	ND	ND	ND	0.1	1917691
Benzene	ug/g	0.032	0.031	0.009	0.037	0.002	1917691
Bromodichloromethane	ug/g	ND	ND	ND	ND	0.002	1917691
Bromoform	ug/g	ND	ND	ND	ND	0.002	1917691
Bromomethane	ug/g	ND	ND	ND	ND	0.003	1917691
Carbon Tetrachloride	ug/g	ND	ND	ND	ND	0.002	1917691
Chlorobenzene	ug/g	ND	ND	ND	ND	0.002	1917691
Chloroform	ug/g	ND	ND	ND	ND	0.002	1917691
Dibromochloromethane	ug/g	ND	ND	ND	ND	0.002	1917691
1,2-Dichlorobenzene	ug/g	ND	ND	ND	ND	0.002	1917691
1,3-Dichlorobenzene	ug/g	ND	ND	ND	ND	0.002	1917691
1,4-Dichlorobenzene	ug/g	ND	ND	ND	ND	0.002	1917691
1,1-Dichloroethane	ug/g	ND	ND	ND	ND	0.002	1917691
1,2-Dichloroethane	ug/g	ND	ND	ND	ND	0.002	1917691
1,1-Dichloroethylene	ug/g	ND	ND	ND	ND	0.002	1917691
cis-1,2-Dichloroethylene	ug/g	ND	ND	ND	ND	0.002	1917691
trans-1,2-Dichloroethylene	ug/g	ND	ND	ND	ND	0.002	1917691
1,2-Dichloropropane	ug/g	ND	ND	ND	ND	0.002	1917691
cis-1,3-Dichloropropene	ug/g	ND	ND	ND	ND	0.002	1917691
trans-1,3-Dichloropropene	ug/g	ND	ND	ND	ND	0.002	1917691
Ethylbenzene	ug/g	0.039	0.037	0.014	0.053	0.002	1917691
Ethylene Dibromide	ug/g	ND	ND	ND	ND	0.002	1917691
Methylene Chloride(Dichloromethane)	ug/g	ND	ND	ND	ND	0.003	1917691
Methyl Isobutyl Ketone	ug/g	ND	ND	ND	ND	0.03	1917691
Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	ND	ND	ND	0.03	1917691
Methyl t-butyl ether (MTBE)	ug/g	ND	ND	ND	ND	0.002	1917691
Styrene	ug/g	ND	ND	ND	ND	0.002	1917691
1,1,1,2-Tetrachloroethane	ug/g	ND	ND	ND	ND	0.002	1917691
1,1,2,2-Tetrachloroethane	ug/g	ND	ND	ND	ND	0.002	1917691
Tetrachloroethylene	ug/g	ND	ND	ND	ND	0.002	1917691
Toluene	ug/g	0.093	0.10	0.035	0.12	0.002	1917691
1,1,1-Trichloroethane	ug/g	ND	ND	ND	ND	0.002	1917691
1,1,2-Trichloroethane	ug/g	ND	ND	ND	ND	0.002	1917691
Trichloroethylene	ug/g	ND	ND	ND	ND	0.002	1917691

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL5980	DL5981	DL5982	DL5983		
	Units	**1-BH-14**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**RDL**	**QC Batch**
Vinyl Chloride	ug/g	ND	ND	ND	ND	0.002	1917691
p+m-Xylene	ug/g	0.039	0.035	0.019	0.058	0.002	1917691
o-Xylene	ug/g	0.020	0.018	0.009	0.029	0.002	1917691
Xylene (Total)	ug/g	0.058	0.053	0.027	0.087	0.002	1917691
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	89	91	92	85		1917691
D4-1,2-Dichloroethane	%	105	107	103	105		1917691
D8-Toluene	%	91	94	95	86		1917691

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL5979	DL5980	DL5981	DL5982	DL5983		
	Units	**3-TP-4**	**1-BH-14**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	ND					0.02	1918405
Toluene	ug/g	ND					0.02	1918405
Ethylbenzene	ug/g	ND					0.02	1918405
o-Xylene	ug/g	ND					0.02	1918405
p+m-Xylene	ug/g	ND					0.04	1918405
Total Xylenes	ug/g	ND					0.04	1918405
F1 (C6-C10)	ug/g	ND	ND	ND	ND	ND	10	1918405
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	ND	ND	10	1918405
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	ND	ND	ND	10	1915687
F3 (C16-C34 Hydrocarbons)	ug/g	560	ND	58	ND	ND	10	1915687
F4 (C34-C50 Hydrocarbons)	ug/g	220	ND	ND	ND	ND	10	1915687
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES		1915687
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	104	101	103	94	91		1918405
4-Bromofluorobenzene	%	113	114	113	113	116		1918405
D10-Ethylbenzene	%	95	95	89	90	91		1918405
D4-1,2-Dichloroethane	%	88	84	88	85	86		1918405
o-Terphenyl	%	90	90	89	88	89		1915687

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DL5980	DL5981	DL5982	DL5983		
	Units	**1-BH-14**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**RDL**	**QC Batch**
Pesticides & Herbicides							
Aroclor 1262	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1268	ug/g	ND	ND	ND	ND	0.02	1919467
Aldrin	ug/g	ND	ND	ND	ND	0.002	1919467
a-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
b-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
d-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
a-Chlordane	ug/g	ND	ND	ND	ND	0.002	1919467
g-Chlordane	ug/g	ND	ND	ND	ND	0.002	1919467
Chlordane (Total)	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDD + p,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDE + p,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDT + p,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
DDT+ Metabolites	ug/g	ND	ND	ND	ND	0.002	1919467
Dieldrin	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan I	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan II	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan sulfate	ug/g	ND	ND	ND	ND	0.002	1919467
Total Endosulfan	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin aldehyde	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin ketone	ug/g	ND	ND	ND	ND	0.002	1919467
Heptachlor	ug/g	ND	ND	ND	ND	0.002	1919467
Heptachlor epoxide	ug/g	ND	ND	ND	ND	0.002	1919467
Hexachlorobenzene	ug/g	ND	ND	ND	ND	0.002	1919467
Lindane	ug/g	ND	ND	ND	ND	0.002	1919467
Methoxychlor	ug/g	ND	ND	ND	ND	0.008	1919467
Mirex	ug/g	ND	ND	ND	ND	0.002	1919467
Octachlorostyrene	ug/g	ND	ND	ND	ND	0.002	1919467

ND = Not detected
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QC Batch = Quality Control Batch

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DL5980	DL5981	DL5982	DL5983		
	Units	**1-BH-14**	**1-BH-13**	**2-BH-1**	**2-BH-2**	**RDL**	**QC Batch**
Total PCB	ug/g	ND	ND	ND	ND	0.03	1919467
Aroclor 1016	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1221	ug/g	ND	ND	ND	ND	0.03	1919467
Aroclor 1232	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1242	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1248	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1254	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1260	ug/g	ND	ND	ND	ND	0.02	1919467
Toxaphene	ug/g	ND	ND	ND	ND	0.08	1919467
Surrogate Recovery (%)							
2,4,5,6-Tetrachloro-m-xylene	%	69	61	77	65		1919467
Decachlorobiphenyl	%	86	80	77	81		1919467

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QC Batch = Quality Control Batch

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Package 1	7.0°C
Package 2	9.0°C
Package 3	6.0°C
Package 4	7.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1915687	o-Terphenyl	2009/08/26	88	30 - 130	93	30 - 130	91	%			93	30 - 130
1915687	F2 (C10-C16 Hydrocarbons)	2009/08/26	84	60 - 130	89	60 - 130	ND, RDL=10	ug/g	NC	50	93	N/A
1915687	F3 (C16-C34 Hydrocarbons)	2009/08/26	84	60 - 130	89	60 - 130	ND, RDL=10	ug/g	NC	50	93	N/A
1915687	F4 (C34-C50 Hydrocarbons)	2009/08/26	84	60 - 130	89	60 - 130	ND, RDL=10	ug/g	NC	50	93	N/A
1915964	Moisture	2009/08/26							8.4	50		
1917691	4-Bromofluorobenzene	2009/08/25			102	60 - 140	104	%				
1917691	D4-1,2-Dichloroethane	2009/08/25			104	60 - 140	106	%				
1917691	D8-Toluene	2009/08/25			98	60 - 140	96	%				
1917691	Acetone (2-Propanone)	2009/08/25			93	60 - 140	ND, RDL=0.1	ug/g	NC	50		
1917691	Benzene	2009/08/25			91	60 - 140	ND, RDL=0.002	ug/g	20.4	50		
1917691	Bromodichloromethane	2009/08/25			105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Bromoform	2009/08/25			110	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Bromomethane	2009/08/25			72	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1917691	Carbon Tetrachloride	2009/08/25			100	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Chlorobenzene	2009/08/25			90	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Chloroform	2009/08/25			99	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Dibromochloromethane	2009/08/25			108	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,2-Dichlorobenzene	2009/08/25			89	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,3-Dichlorobenzene	2009/08/25			89	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,4-Dichlorobenzene	2009/08/25			90	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,1-Dichloroethane	2009/08/25			94	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,2-Dichloroethane	2009/08/25			102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,1-Dichloroethylene	2009/08/25			95	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	cis-1,2-Dichloroethylene	2009/08/25			99	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	trans-1,2-Dichloroethylene	2009/08/25			94	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,2-Dichloropropane	2009/08/25			96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	cis-1,3-Dichloropropene	2009/08/25			105	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	trans-1,3-Dichloropropene	2009/08/25			101	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Ethylbenzene	2009/08/25			93	60 - 140	ND, RDL=0.002	ug/g	6.1	50		
1917691	Ethylene Dibromide	2009/08/25			102	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Methylene Chloride(Dichloromethane)	2009/08/25			113	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1917691	Methyl Isobutyl Ketone	2009/08/25			106	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1917691	Methyl Ethyl Ketone (2-Butanone)	2009/08/25			98	60 - 140	ND, RDL=0.03	ug/g	NC	50		
1917691	Methyl t-butyl ether (MTBE)	2009/08/25			80	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Styrene	2009/08/25			91	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,1,1,2-Tetrachloroethane	2009/08/25			99	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,1,2,2-Tetrachloroethane	2009/08/25			97	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Tetrachloroethylene	2009/08/25			92	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Toluene	2009/08/25			95	60 - 140	ND, RDL=0.002	ug/g	9.3	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1917691	1,1,1-Trichloroethane	2009/08/25			96	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	1,1,2-Trichloroethane	2009/08/25			98	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Trichloroethylene	2009/08/25			95	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	Vinyl Chloride	2009/08/25			89	60 - 140	ND, RDL=0.002	ug/g	NC	50		
1917691	p+m-Xylene	2009/08/25			90	60 - 140	ND, RDL=0.002	ug/g	4.2	50		
1917691	o-Xylene	2009/08/25			100	60 - 140	ND, RDL=0.002	ug/g	4.7	50		
1917691	Xylene (Total)	2009/08/25					ND, RDL=0.002	ug/g	4.4	50		
1918405	1,4-Difluorobenzene	2009/08/29	98	60 - 140	95	60 - 140	117	%				
1918405	4-Bromofluorobenzene	2009/08/29	113	60 - 140	113	60 - 140	111	%				
1918405	D10-Ethylbenzene	2009/08/29	74	30 - 130	85	30 - 130	85	%				
1918405	D4-1,2-Dichloroethane	2009/08/29	86	60 - 140	86	60 - 140	85	%				
1918405	Benzene	2009/08/29	99	60 - 140	101	60 - 140	ND, RDL=0.02	ug/g				
1918405	Toluene	2009/08/29	76	60 - 140	85	60 - 140	ND, RDL=0.02	ug/g				
1918405	Ethylbenzene	2009/08/29	78	60 - 140	87	60 - 140	ND, RDL=0.02	ug/g				
1918405	o-Xylene	2009/08/29	81	60 - 140	90	60 - 140	ND, RDL=0.02	ug/g				
1918405	p+m-Xylene	2009/08/29	86	60 - 140	95	60 - 140	ND, RDL=0.04	ug/g				
1918405	F1 (C6-C10)	2009/08/29	82	60 - 140	85	60 - 140	ND, RDL=10	ug/g	NC	50		
1918405	Total Xylenes	2009/08/29					ND, RDL=0.04	ug/g				
1918405	F1 (C6-C10) - BTEX	2009/08/29					ND, RDL=10	ug/g	NC	50		
1918813	D10-Anthracene	2009/08/27	79	30 - 130	91	30 - 130	95	%				
1918813	D14-Terphenyl (FS)	2009/08/27	82	30 - 130	95	30 - 130	99	%				
1918813	D7-Quinoline	2009/08/27	54	30 - 130	83	30 - 130	91	%				
1918813	D8-Acenaphthylene	2009/08/27	64	30 - 130	83	30 - 130	87	%				
1918813	Acenaphthene	2009/08/27	65	30 - 130	81	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918813	Acenaphthylene	2009/08/27	62	30 - 130	76	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Anthracene	2009/08/27	71	30 - 130	82	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Benzo(a)anthracene	2009/08/27	101	30 - 130	113	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918813	Benzo(a)pyrene	2009/08/27	93	30 - 130	104	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Benzo(b/j)fluoranthene	2009/08/27	93	30 - 130	104	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918813	Benzo(g,h,i)perylene	2009/08/27	88	30 - 130	101	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1918813	Benzo(k)fluoranthene	2009/08/27	103	30 - 130	113	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918813	Chrysene	2009/08/27	91	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918813	Dibenz(a,h)anthracene	2009/08/27	95	30 - 130	108	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1918813	Fluoranthene	2009/08/27	83	30 - 130	94	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Fluorene	2009/08/27	69	30 - 130	85	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Indeno(1,2,3-cd)pyrene	2009/08/27	103	30 - 130	119	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1918813	1-Methylnaphthalene	2009/08/27	66	30 - 130	87	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	2-Methylnaphthalene	2009/08/27	59	30 - 130	78	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Naphthalene	2009/08/27	59	30 - 130	85	30 - 130	ND, RDL=0.005	ug/g	NC	50		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1918813	Phenanthrene	2009/08/27	69	30 - 130	81	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918813	Pyrene	2009/08/27	81	30 - 130	93	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	D10-Anthracene	2009/08/27	103	30 - 130	99	30 - 130	106	%				
1918818	D14-Terphenyl (FS)	2009/08/27	96	30 - 130	92	30 - 130	95	%				
1918818	D7-Quinoline	2009/08/27	113	30 - 130	106	30 - 130	106	%				
1918818	D8-Acenaphthylene	2009/08/27	98	30 - 130	95	30 - 130	94	%				
1918818	Acenaphthene	2009/08/28	87	30 - 130	84	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918818	Acenaphthylene	2009/08/28	92	30 - 130	89	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Anthracene	2009/08/28	95	30 - 130	87	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Benzo(a)anthracene	2009/08/28	108	30 - 130	96	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918818	Benzo(a)pyrene	2009/08/28	114	30 - 130	101	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Benzo(b/j)fluoranthene	2009/08/28	112	30 - 130	102	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918818	Benzo(g,h,i)perylene	2009/08/28	117	30 - 130	100	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1918818	Benzo(k)fluoranthene	2009/08/28	108	30 - 130	101	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918818	Chrysene	2009/08/28	110	30 - 130	101	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1918818	Dibenz(a,h)anthracene	2009/08/28	121	30 - 130	105	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1918818	Fluoranthene	2009/08/28	92	30 - 130	84	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Fluorene	2009/08/28	97	30 - 130	91	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Indeno(1,2,3-cd)pyrene	2009/08/28	105	30 - 130	113	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1918818	1-Methylnaphthalene	2009/08/28	87	30 - 130	91	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	2-Methylnaphthalene	2009/08/28	77	30 - 130	82	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Naphthalene	2009/08/28	72	30 - 130	79	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Phenanthrene	2009/08/28	88	30 - 130	80	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1918818	Pyrene	2009/08/28	90	30 - 130	84	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1919467	2,4,5,6-Tetrachloro-m-xylene	2009/08/31	54	40 - 130	43	40 - 130	70	%				
1919467	Decachlorobiphenyl	2009/08/31	78	40 - 130	77	40 - 130	79	%				
1919467	Aldrin	2009/08/31	66	40 - 130	55	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	a-BHC	2009/08/31	58	40 - 130	53	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	b-BHC	2009/08/31	72	40 - 130	71	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	d-BHC	2009/08/31	73	40 - 130	74	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	a-Chlordane	2009/08/31	76	40 - 130	75	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	g-Chlordane	2009/08/31	76	40 - 130	81	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDD	2009/08/31	93	40 - 130	93	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDD	2009/08/31	83	40 - 130	90	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDE	2009/08/31	81	40 - 130	78	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDE	2009/08/31	90	40 - 130	87	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDT	2009/08/31	63	40 - 130	60	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDT	2009/08/31	62	40 - 130	50	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Dieldrin	2009/08/31	78	40 - 130	80	40 - 130	ND, RDL=0.002	ug/g	NC	50		

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1919467	Endosulfan I	2009/08/31	76	40 - 130	77	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan II	2009/08/31	84	40 - 130	86	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan sulfate	2009/08/31	84	40 - 130	143(1)	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin	2009/08/31	75	40 - 130	78	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin aldehyde	2009/08/31	60	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin ketone	2009/08/31	86	40 - 130	79	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Heptachlor	2009/08/31	58	40 - 130	48	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Heptachlor epoxide	2009/08/31	86	40 - 130	84	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Hexachlorobenzene	2009/08/31	52	20 - 130	43	20 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Lindane	2009/08/31	57	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Methoxychlor	2009/08/31	84	40 - 130	68	40 - 130	ND, RDL=0.008	ug/g	NC	50		
1919467	Mirex	2009/08/31	82	40 - 130	75	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Octachlorostyrene	2009/08/31	76	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Total PCB	2009/08/31					ND, RDL=0.03	ug/g	NC	50		
1919467	Aroclor 1242	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Toxaphene	2009/08/31					ND, RDL=0.08	ug/g	NC	50		
1919467	Aroclor 1262	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1268	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Chlordane (Total)	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDD + p,p-DDD	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDE + p,p-DDE	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDT + p,p-DDT	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	DDT+ Metabolites	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	Total Endosulfan	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	Aroclor 1016	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1221	2009/08/31					ND, RDL=0.03	ug/g	NC	50		
1919467	Aroclor 1232	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1248	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1254	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1260	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1920413	Total Organic Carbon	2009/08/28					ND, RDL=500	mg/kg	3.9	50	99	80 - 120
1922518	Chromium (VI)	2009/08/31	81	75 - 125	100	75 - 125	ND, RDL=0.2	ug/g	NC	35	99	85 - 115
1924863	Acid Extractable Antimony (Sb)	2009/09/01	91	75 - 125			ND, RDL=0.2	ug/g	NC	35	88	75 - 125
1924863	Acid Extractable Arsenic (As)	2009/09/01	90	75 - 125			ND, RDL=1	ug/g	NC	35	88	75 - 125
1924863	Acid Extractable Barium (Ba)	2009/09/01	NC	75 - 125			ND, RDL=0.5	ug/g	3.3	35	91	75 - 125
1924863	Acid Extractable Beryllium (Be)	2009/09/01	94	75 - 125			ND, RDL=0.2	ug/g	NC	35	115	75 - 125
1924863	Acid Extractable Cadmium (Cd)	2009/09/01	94	75 - 125			ND, RDL=0.1	ug/g	NC	35	93	75 - 125
1924863	Acid Extractable Chromium (Cr)	2009/09/01	90	75 - 125			ND, RDL=1	ug/g	5.6	35	90	75 - 125
1924863	Acid Extractable Cobalt (Co)	2009/09/01	92	75 - 125			ND, RDL=0.1	ug/g	3.0	35	90	75 - 125

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1924863	Acid Extractable Copper (Cu)	2009/09/01	NC	75 - 125			ND, RDL=0.5	ug/g	5.9	35	100	75 - 125
1924863	Acid Extractable Lead (Pb)	2009/09/01	93	75 - 125			ND, RDL=1	ug/g	4.4	35	99	75 - 125
1924863	Acid Extractable Molybdenum (Mo)	2009/09/01	94	75 - 125			ND, RDL=0.5	ug/g	NC	35	84	75 - 125
1924863	Acid Extractable Nickel (Ni)	2009/09/01	86	75 - 125			ND, RDL=0.5	ug/g	5.9	35	92	75 - 125
1924863	Acid Extractable Selenium (Se)	2009/09/01	93	75 - 125			ND, RDL=0.5	ug/g	NC	35	91	50 - 150
1924863	Acid Extractable Silver (Ag)	2009/09/01	121	75 - 125			ND, RDL=0.2	ug/g	NC	35	79	75 - 125
1924863	Acid Extractable Thallium (Tl)	2009/09/01	91	75 - 125			ND, RDL=0.05	ug/g	NC	35	89	75 - 125
1924863	Acid Extractable Vanadium (V)	2009/09/01	86	75 - 125			ND, RDL=5	ug/g	NC	35	86	75 - 125
1924863	Acid Extractable Zinc (Zn)	2009/09/01	NC	75 - 125			ND, RDL=5	ug/g	3.4	35	94	75 - 125
1924863	Acid Extractable Mercury (Hg)	2009/09/01	96	75 - 125			ND, RDL=0.05	ug/g	NC	35	106	75 - 125
1924888	Hot Water Ext. Boron (B)	2009/09/01					ND, RDL=0.01	ug/g			100	77 - 121
1925305	Acid Extractable Antimony (Sb)	2009/09/01	106	75 - 125			ND, RDL=0.2	ug/g	NC	35	100	75 - 125
1925305	Acid Extractable Arsenic (As)	2009/09/01	104	75 - 125			ND, RDL=1	ug/g	NC	35	93	75 - 125
1925305	Acid Extractable Barium (Ba)	2009/09/01	106	75 - 125			ND, RDL=0.5	ug/g	1.6	35	93	75 - 125
1925305	Acid Extractable Beryllium (Be)	2009/09/01	107	75 - 125			ND, RDL=0.2	ug/g	NC	35	82	75 - 125
1925305	Acid Extractable Cadmium (Cd)	2009/09/01	105	75 - 125			ND, RDL=0.1	ug/g	NC	35	87	75 - 125
1925305	Acid Extractable Chromium (Cr)	2009/09/01	106	75 - 125			ND, RDL=1	ug/g	NC	35	91	75 - 125
1925305	Acid Extractable Cobalt (Co)	2009/09/01	103	75 - 125			ND, RDL=0.1	ug/g	16.0	35	92	75 - 125
1925305	Acid Extractable Copper (Cu)	2009/09/01	102	75 - 125			ND, RDL=0.5	ug/g	5.6	35	101	75 - 125
1925305	Acid Extractable Lead (Pb)	2009/09/01	103	75 - 125			ND, RDL=1	ug/g	NC	35	96	75 - 125
1925305	Acid Extractable Molybdenum (Mo)	2009/09/01	105	75 - 125			ND, RDL=0.5	ug/g	NC	35	81	75 - 125
1925305	Acid Extractable Nickel (Ni)	2009/09/01	104	75 - 125			ND, RDL=0.5	ug/g	NC	35	92	75 - 125
1925305	Acid Extractable Selenium (Se)	2009/09/01	104	75 - 125			ND, RDL=0.5	ug/g	NC	35	71	50 - 150
1925305	Acid Extractable Silver (Ag)	2009/09/01	107	75 - 125			ND, RDL=0.2	ug/g	NC	35	75	75 - 125
1925305	Acid Extractable Thallium (Tl)	2009/09/01	103	75 - 125			ND, RDL=0.05	ug/g	NC	35	87	75 - 125
1925305	Acid Extractable Vanadium (V)	2009/09/01	104	75 - 125			ND, RDL=5	ug/g	NC	35	90	75 - 125
1925305	Acid Extractable Zinc (Zn)	2009/09/01	104	75 - 125			ND, RDL=5	ug/g	NC	35	90	75 - 125

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A8737
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE, NU
Your P.O. #: 1747-0901
Sampler Initials: JK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1925305	Acid Extractable Mercury (Hg)	2009/09/01	114	75 - 125			ND, RDL=0.05	ug/g			93	75 - 125
1927142	Moisture	2009/09/02							4.1	50		

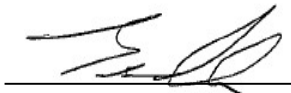
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery in the spike was above the upper control limit. This may represent a high bias in some results. For results that were not detected (ND), this potential bias has no impact.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: A9A8737

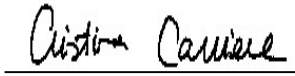
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



BRAD NEWMAN, Scientific Specialist



CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst



CRISTINA CARRIERE, Scientific Services



PAUL RUBINATO, Analyst, Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

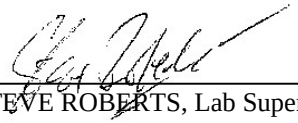
Validation Signature Page

Maxxam Job #: A9A8737

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



ALINA SEGAL, Manager Main Lab - Organics



STEVE ROBERTS, Lab Supervisor, Ottawa

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics Inc
6740 Campobello Road, Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5778 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

No. 1554 P. 2

Franz Environmental Inc.

Aug. 21. 2009 3:46PM

INVOICE INFORMATION	REPORT INFORMATION (if differs from invoice)	PROJECT INFORMATION	MAXXAM JOB NUMBER
Company Name: #10466 Franz Environmental	Company Name:	Quotation #: A95305	
Contact Name: Lukas Ellis	Contact Name: Jennifer Keenliside	P.O. #: 1747-0901	CHAIN OF CUSTODY #
Address: 339 Churchill Ave N, Suite 200 Ottawa, ON K1Z 5B8	Address:	Project #: P-2963	00574555
Phone: 613-724-0566 Fax: 613-724-0029	Phone: Fax:	Project Name: Resolute	
Email: lellis@franzenvironmental.com	Email: jkeenliside@nishnawbe.com	Location: Resolute, Nunavut	
		Sampled By: JK, ET	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form.

MISA (PWQO) Reg. 153 Table 1 Table 2 Table 3 Sewer Use Sanitary Storm Region: Other specify: Reg. 558 Report Criteria on: C or A? [ ]

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM.

ANALYSIS REQUESTED (Please be specific)

Regulated Drinking Water? (Y/N) | Metals: Field Filtered (Y/N)

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Petroleum Hydro. Corr. F1 + BTEX	Petroleum Hydro. F2-F4	F1-F6	OC Pesticides (Selected) + PCB	O'Reg. 153 Metals w/ Hg, HWSB, CrVI	Glycols	VOCs	PAH Compounds	Sieves, Various Sizes	TOC	# of Cont.	COMMENTS / TAT COMMENTS
1	3-TP-4			Soil	X	X	X		X			X			4	3 bottles, 1 bag
2	1-BH-14			Soil	X	X	X	X	X		X	X			6	5 bottles, 1 bag
3	1-BH-13			Soil	X	X	X	X	X		X	X			6	5 bottles, 1 bag
4	2-BH-1			Soil	X	X	X	X	X		X	X	X	X	6	5 bottles, 1 bag
5	2-BH-2			Soil	X	X	X	X	X		X	X			6	5 bottles, 1 bag
6	3-TP-9			Soil					X						1	1 bag
7																
8																
9																
10																
11																
12																

REC'D IN OTTAWA
21-Aug-09 16:20
MELISSA MORRISON
A9A8737
JOE OTT-014

TURNAROUND TIME (TAT) REQUIRED

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS.

Regular (Standard) TAT: [X] 5 to 7 Working Days

Rush TAT: Rush Confirmation #: (call lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required:

TIME Required:

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY (Signature/Print)	RECEIVED BY (Signature/Print)	Date	Time
J Keenliside	Jennifer Wright	Aug. 20. 21 Aug 09	6:45pm 4:20pm

Laboratory Use Only

Temperature (°C) on Receipt: 7/7/7 8/10/18 8/6/14 8/6/18

Condition of Sample on Receipt: [ ] OK [ ] SIF

*MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

ENVCOC-ONT-05/06 White: Maxxam Yellow: Mail Pink: Client

Your Project #: MA9A8737
Site:P-2963

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS INC.
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2009/08/28

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A945774
Received: 2009/08/26, 8:30

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Moisture	1	N/A	2009/08/27	CAL SOP-00023	McKeague MSSMA 2.411
Particle Size by Sieve (Dry) (1)	1	N/A	2009/08/27	CAL SOP-00025	SSMA #47

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Result indicates % of sample retained on the sieve.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

BRIAN ISSLER, Project Manager
Email: BRIAN.ISSLER@MaxxamAnalytics.com
Phone# (403) 291-3077

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A945774
Report Date: 2009/08/28

MAXXAM ANALYTICS INC.
Client Project #: MA9A8737
Site Reference: P-2963
Sampler Initials: JR

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		Q43195		
Sampling Date				
	Units	**2-BH-1 (DL5982-01R)**	**RDL**	**QC Batch**
Physical Properties				
Moisture	%	11	0.3	3378045
Sieve - #4 (>4.75mm)	%	29.1	0.2	3376555
Sieve - #10 (>2.00mm)	%	4.8	0.2	3376555
Sieve - #40 (>0.425mm)	%	8.1	0.2	3376555
Sieve - #200 (>0.075mm)	%	24.6	0.2	3376555
Sieve - Pan	%	33.4	0.2	3376555

RDL = Reportable Detection Limit

Maxxam Job #: A945774
Report Date: 2009/08/28

MAXXAM ANALYTICS INC.
Client Project #: MA9A8737
Site Reference: P-2963
Sampler Initials: JR

Package 1	2.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS INC.
Attention: SUB CONTRACTOR
Client Project #: MA9A8737
P.O. #:
Site Reference: P-2963

Quality Assurance Report

Maxxam Job Number: CA945774

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3376555	PP1	QC Standard	Sieve - #200 (>0.075mm)	2009/08/27		104	%	75 - 125
			Sieve - Pan	2009/08/27		98	%	89 - 111
		RPD	Sieve - #4 (>4.75mm)	2009/08/27	18.9		%	35
			Sieve - #10 (>2.00mm)	2009/08/27	28.9		%	35
			Sieve - #40 (>0.425mm)	2009/08/27	33.9		%	35
			Sieve - #200 (>0.075mm)	2009/08/27	22.6		%	35
			Sieve - Pan	2009/08/27	14.4		%	35
3378045	HN	RPD	Moisture	2009/08/27	5.7		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Validation Signature Page

Maxxam Job #: A945774

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

LILI ZHOU, Senior analyst, Inorganic department.

ORLA JORGENSEN, Organics Supervisor

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

Your P.O. #: 1747-0901
Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15956112, 159561-1

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2009/09/04

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A9300
Received: 2009/08/24, 11:40

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	3	2009/08/28	2009/08/28	CAM SOP-00408	EPA 3050B
Hot Water Extractable Boron	4	2009/08/31	2009/08/31	CAM SOP-00408	EPA 3050B
Chromium (VI) in Soil	3	2009/08/31	2009/08/31	CAM SOP-00420	EPA 3060A
Chromium (VI) in Soil	4	2009/08/31	2009/09/01	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil	5	2009/08/25	2009/08/27	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2009/08/25	2009/08/31	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	6	2009/08/26	2009/08/28	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	4	2009/08/31	2009/08/31	CAM SOP-00447	EPA 6020
Acid Extr. Metals (aqua regia) by ICPMS	3	2009/09/01	2009/09/01	CAM SOP-00447	EPA 6020
MOISTURE	6	N/A	2009/08/27	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	1	N/A	2009/08/29	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB	4	2009/08/26	2009/08/31	CAM SOP-00307	SW846 8081, 8082
PAH Compounds in Soil by GC/MS (SIM)	2	2009/08/27	2009/08/29	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	2	2009/08/28	2009/08/29	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	1	2009/08/30	2009/09/02	CAM SOP - 00318	EPA 8270
Volatile Organic Compounds in Soil	1	2009/08/25	2009/08/25	CAM SOP-00226	EPA 8260 modified

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dissolved Aluminum (0.2 u, clay free)	3	N/A	2009/08/28	CAM SOP-00447	SW846, 6020
Dissolved Aluminum (0.2 u, clay free)	1	N/A	2009/08/31	CAM SOP-00447	SW846, 6020
Dissolved Aluminum (0.2 u, clay free)	1	N/A	2009/09/01	CAM SOP-00447	SW846, 6020
Chromium (VI) in Water	5	N/A	2009/08/28	BRL SOP-00106	EPA 7199
Petroleum Hydro. CCME F1 & BTEX in Water	5	N/A	2009/08/27	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	5	2009/08/25	2009/08/27	CAM SOP-00316	CCME Hydrocarbons
Mercury	5	2009/08/31	2009/08/31	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	1	N/A	2009/09/02	CAM SOP-00447	EPA 6020
Total Metals Analysis by ICPMS	4	N/A	2009/09/03	CAM SOP-00447	EPA 6020
OC Pesticides (Selected) & PCB	1	2009/08/27	2009/08/29	CAM SOP-00307	SW846 8081,8082
PAH Compounds in Water by GC/MS (SIM)	4	2009/08/28	2009/08/29	CAM SOP-00318	EPA 8270
Total Phosphorus (Colourimetric)	5	2009/09/01	2009/09/02	CAM SOP-00407	APHA 4500 P,B,F
Volatile Organic Compounds in Water	1	N/A	2009/09/03	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DL9556	DL9557		DL9558		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00		2009/08/19 10:15		
	Units	**1-SD-16-2**	**3-SD-10**	**QC Batch**	**1-SD-16-1**	**RDL**	**QC Batch**
Metals							
Hot Water Ext. Boron (B)	ug/g	1.4	2.2	1923611	0.41	0.01	1922184
Chromium (VI)	ug/g	ND	ND	1924341	ND	0.2	1922518
Acid Extractable Antimony (Sb)	ug/g	ND	ND	1923948	ND	0.2	1923948
Acid Extractable Arsenic (As)	ug/g	ND	1	1923948	ND	1	1923948
Acid Extractable Barium (Ba)	ug/g	4.8	13	1923948	11	0.5	1923948
Acid Extractable Beryllium (Be)	ug/g	ND	0.4	1923948	ND	0.2	1923948
Acid Extractable Cadmium (Cd)	ug/g	0.1	ND	1923948	ND	0.1	1923948
Acid Extractable Chromium (Cr)	ug/g	3	7	1923948	5	1	1923948
Acid Extractable Cobalt (Co)	ug/g	0.6	3.9	1923948	1.4	0.1	1923948
Acid Extractable Copper (Cu)	ug/g	0.5	4.6	1923948	2.2	0.5	1923948
Acid Extractable Lead (Pb)	ug/g	3	7	1923948	8	1	1923948
Acid Extractable Molybdenum (Mo)	ug/g	ND	ND	1923948	ND	0.5	1923948
Acid Extractable Nickel (Ni)	ug/g	ND(1)	7.5	1923948	3.1	2.5	1923948
Acid Extractable Selenium (Se)	ug/g	ND	ND	1923948	ND	0.5	1923948
Acid Extractable Silver (Ag)	ug/g	ND	ND	1923948	ND	0.2	1923948
Acid Extractable Thallium (Tl)	ug/g	ND	0.05	1923948	ND	0.05	1923948
Acid Extractable Vanadium (V)	ug/g	ND	6	1923948	ND	5	1923948
Acid Extractable Zinc (Zn)	ug/g	13	17	1923948	26	5	1923948
Acid Extractable Mercury (Hg)	ug/g	ND	ND	1923948	ND	0.05	1923948

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DL9559		DL9560		DL9561			DL9562		
Sampling Date		2009/08/19 13:30		2009/08/19 14:00		2009/08/19			2009/08/19		
	Units	**1-SD-4**	**QC Batch**	**1-SD-5**	**QC Batch**	**1-TP-15**	**RDL**	**QC Batch**	**1-SD-15**	**RDL**	**QC Batch**
Inorganics											
Moisture	%					15	0.2	1923252			
Metals											
Hot Water Ext. Boron (B)	ug/g	1.6	1922184	0.91	1922184	0.76	0.01	1923611	4.7	0.01	1923611
Chromium (VI)	ug/g	ND	1924341	ND	1922518	ND	0.2	1922518	ND(1)	0.3	1924341
Acid Extractable Antimony (Sb)	ug/g	ND	1924863	ND	1924863	0.2	0.2	1924863	ND	0.2	1923948
Acid Extractable Arsenic (As)	ug/g	1	1924863	1	1924863	2	1	1924863	1	1	1923948
Acid Extractable Barium (Ba)	ug/g	37	1924863	2.1	1924863	7.4	0.5	1924863	17	0.5	1923948
Acid Extractable Beryllium (Be)	ug/g	ND	1924863	ND	1924863	ND	0.2	1924863	ND	0.2	1923948
Acid Extractable Cadmium (Cd)	ug/g	0.2	1924863	ND	1924863	0.1	0.1	1924863	0.2	0.1	1923948
Acid Extractable Chromium (Cr)	ug/g	5	1924863	3	1924863	6	1	1924863	3	1	1923948
Acid Extractable Cobalt (Co)	ug/g	0.9	1924863	0.4	1924863	1.3	0.1	1924863	0.3	0.1	1923948
Acid Extractable Copper (Cu)	ug/g	4.8	1924863	1.2	1924863	3.7	0.5	1924863	0.7	0.5	1923948
Acid Extractable Lead (Pb)	ug/g	4	1924863	3	1924863	4	1	1924863	4	1	1923948
Acid Extractable Molybdenum (Mo)	ug/g	0.9	1924863	ND	1924863	1.2	0.5	1924863	ND	0.5	1923948
Acid Extractable Nickel (Ni)	ug/g	3.3	1924863	ND(2)	1924863	4.5	2.5	1924863	ND(2)	2.5	1923948
Acid Extractable Selenium (Se)	ug/g	ND	1924863	ND	1924863	0.5	0.5	1924863	ND	0.5	1923948
Acid Extractable Silver (Ag)	ug/g	ND	1924863	ND	1924863	ND	0.2	1924863	ND	0.2	1923948
Acid Extractable Thallium (Tl)	ug/g	ND	1924863	ND	1924863	ND	0.05	1924863	ND	0.05	1923948
Acid Extractable Vanadium (V)	ug/g	5	1924863	ND	1924863	7	5	1924863	ND	5	1923948
Acid Extractable Zinc (Zn)	ug/g	23	1924863	11	1924863	19	5	1924863	9	5	1923948
Acid Extractable Mercury (Hg)	ug/g	ND	1924863	ND	1924863	ND	0.05	1924863	ND	0.05	1923948

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Due to high moisture content DL was adjusted to 0.3.
(2) - Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PWQO METALS (WATER)

Maxxam ID		DL9546		DL9547			DL9548			DL9549		DL9550		
Sampling Date		2009/08/19 10:30		2009/08/19 12:00			2009/08/19 10:30			2009/08/19 13:30		2009/08/19 14:00		
	Units	**1-SW-16-2**	**RDL**	**3-SW-10-1**	**RDL**	**QC Batch**	**1-SW-16-1**	**RDL**	**QC Batch**	**1-SW-4**	**RDL**	**1-SW-5**	**RDL**	**QC Batch**
Inorganics														
Total Phosphorus	mg/L	0.031	0.002	0.027	0.002	1925239	0.017	0.002	1925239	1.1(1)	0.02	0.18	0.002	1925239
Metals														
Dissolved (0.2u) Aluminum (Al)	ug/L	ND	5	ND	300	1922189	ND	5	1924587	6	5	8	5	1922189
Chromium (VI)	ug/L	ND	0.5	ND(2)	5	1921692	ND	0.5	1921692	ND	0.5	ND	0.5	1921692
Mercury (Hg)	ug/L	ND	0.1	ND	0.1	1923767	ND	0.1	1923767	ND	0.1	ND	0.1	1923767
Total Antimony (Sb)	ug/L	ND	30	ND	30	1926796	0.6	0.5	1926796	0.8	0.5	ND	0.5	1926796
Total Arsenic (As)	ug/L	ND	50	ND	50	1926796	ND	1	1926796	2	1	1	1	1926796
Total Beryllium (Be)	ug/L	ND	30	ND	30	1926796	ND	0.5	1926796	ND	0.5	ND	0.5	1926796
Total Boron (B)	ug/L	3900	500	3400	500	1926796	110	10	1926796	150	10	40	10	1926796
Total Cadmium (Cd)	ug/L	ND	5	ND	5	1926796	ND	0.1	1926796	ND	0.1	ND	0.1	1926796
Total Chromium (Cr)	ug/L	ND	300	ND	300	1926796	ND	5	1926796	ND	5	ND	5	1926796
Total Cobalt (Co)	ug/L	ND	30	ND	30	1926796	ND	0.5	1926796	2.2	0.5	0.6	0.5	1926796
Total Copper (Cu)	ug/L	ND	50	ND	50	1926796	2	1	1926796	5	1	2	1	1926796
Total Iron (Fe)	ug/L	ND	5000	ND	5000	1926796	ND	100	1926796	250	100	370	100	1926796
Total Lead (Pb)	ug/L	ND	30	ND	30	1926796	ND	0.5	1926796	0.9	0.5	1.4	0.5	1926796
Total Molybdenum (Mo)	ug/L	ND	50	ND	50	1926796	ND	1	1926796	1	1	ND	1	1926796
Total Nickel (Ni)	ug/L	ND	50	ND	50	1926796	2	1	1926796	9	1	4	1	1926796
Total Selenium (Se)	ug/L	ND	100	ND	100	1926796	ND	2	1926796	ND	2	ND	2	1926796
Total Silver (Ag)	ug/L	ND	5	ND	5	1926796	ND	0.1	1926796	ND	0.1	ND	0.1	1926796
Total Thallium (Tl)	ug/L	ND	3	ND	3	1926796	ND	0.05	1926796	ND	0.05	ND	0.05	1926796
Total Tungsten (W)	ug/L	ND	50	ND	50	1926796	ND	1	1926796	ND	1	ND	1	1926796
Total Uranium (U)	ug/L	ND	5	ND	5	1926796	0.7	0.1	1926796	0.2	0.1	0.1	0.1	1926796
Total Vanadium (V)	ug/L	ND	50	ND	50	1926796	ND	1	1926796	ND	1	2	1	1926796
Total Zinc (Zn)	ug/L	ND	300	ND	300	1926796	ND	5	1926796	16	5	ND	5	1926796
Total Zirconium (Zr)	ug/L	ND	50	ND	50	1926796	ND	1	1926796	ND	1	ND	1	1926796

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method.
(2) - Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DL9556	DL9557	DL9558	DL9559	DL9560	DL9562		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:15	2009/08/19 13:30	2009/08/19 14:00	2009/08/19		
	Units	**1-SD-16-2**	**3-SD-10**	**1-SD-16-1**	**1-SD-4**	**1-SD-5**	**1-SD-15**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	3.4	17	6.9	28	23	59	0.2	1918424

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DL9556	DL9557	DL9558			DL9559		DL9562		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:15			2009/08/19 13:30		2009/08/19		
	Units	**1-SD-16-2**	**3-SD-10**	**1-SD-16-1**	**RDL**	**QC Batch**	**1-SD-4**	**QC Batch**	**1-SD-15**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons											
Acenaphthene	ug/g	ND	ND	ND	0.01	1921671	ND	1926118	ND	0.04	1921671
Acenaphthylene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Anthracene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Benzo(a)anthracene	ug/g	ND	ND	ND	0.01	1921671	ND	1926118	ND	0.04	1921671
Benzo(a)pyrene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Benzo(b/j)fluoranthene	ug/g	ND	ND	ND	0.01	1921671	ND	1926118	ND	0.04	1921671
Benzo(g,h,i)perylene	ug/g	ND	ND	ND	0.02	1921671	ND	1926118	ND	0.08	1921671
Benzo(k)fluoranthene	ug/g	ND	ND	ND	0.01	1921671	ND	1926118	ND	0.04	1921671
Chrysene	ug/g	ND	ND	ND	0.01	1921671	ND	1926118	ND	0.04	1921671
Dibenz(a,h)anthracene	ug/g	ND	ND	ND	0.02	1921671	ND	1926118	ND	0.08	1921671
Fluoranthene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Fluorene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Indeno(1,2,3-cd)pyrene	ug/g	ND	ND	ND	0.02	1921671	ND	1926118	ND	0.08	1921671
1-Methylnaphthalene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
2-Methylnaphthalene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Naphthalene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Phenanthrene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Pyrene	ug/g	ND	ND	ND	0.005	1921671	ND	1926118	ND	0.02	1921671
Surrogate Recovery (%)											
D10-Anthracene	%	100	101	81		1921671	112	1926118	66		1921671
D14-Terphenyl (FS)	%	91	93	74		1921671	78	1926118	48		1921671
D7-Quinoline	%	61	58	58		1921671	66	1926118	44		1921671
D8-Acenaphthylene	%	69	70	60		1921671	65	1926118	35		1921671

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL9559		
Sampling Date		2009/08/19 13:30		
	Units	**1-SD-4**	**RDL**	**QC Batch**
Volatile Organics				
Acetone (2-Propanone)	ug/g	0.1	0.1	1917691
Benzene	ug/g	0.009	0.002	1917691
Bromodichloromethane	ug/g	ND	0.002	1917691
Bromoform	ug/g	ND	0.002	1917691
Bromomethane	ug/g	ND	0.003	1917691
Carbon Tetrachloride	ug/g	ND	0.002	1917691
Chlorobenzene	ug/g	ND	0.002	1917691
Chloroform	ug/g	ND	0.002	1917691
Dibromochloromethane	ug/g	ND	0.002	1917691
1,2-Dichlorobenzene	ug/g	ND	0.002	1917691
1,3-Dichlorobenzene	ug/g	ND	0.002	1917691
1,4-Dichlorobenzene	ug/g	ND	0.002	1917691
1,1-Dichloroethane	ug/g	ND	0.002	1917691
1,2-Dichloroethane	ug/g	ND	0.002	1917691
1,1-Dichloroethylene	ug/g	ND	0.002	1917691
cis-1,2-Dichloroethylene	ug/g	ND	0.002	1917691
trans-1,2-Dichloroethylene	ug/g	ND	0.002	1917691
1,2-Dichloropropane	ug/g	ND	0.002	1917691
cis-1,3-Dichloropropene	ug/g	ND	0.002	1917691
trans-1,3-Dichloropropene	ug/g	ND	0.002	1917691
Ethylbenzene	ug/g	0.011	0.002	1917691
Ethylene Dibromide	ug/g	ND	0.002	1917691
Methylene Chloride(Dichloromethane)	ug/g	ND	0.003	1917691
Methyl Isobutyl Ketone	ug/g	ND	0.03	1917691
Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	0.03	1917691
Methyl t-butyl ether (MTBE)	ug/g	ND	0.002	1917691
Styrene	ug/g	ND	0.002	1917691
1,1,1,2-Tetrachloroethane	ug/g	ND	0.002	1917691
1,1,2,2-Tetrachloroethane	ug/g	ND	0.002	1917691
Tetrachloroethylene	ug/g	ND	0.002	1917691
Toluene	ug/g	0.036	0.002	1917691
1,1,1-Trichloroethane	ug/g	ND	0.002	1917691
1,1,2-Trichloroethane	ug/g	ND	0.002	1917691

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DL9559		
Sampling Date		2009/08/19 13:30		
	Units	**1-SD-4**	**RDL**	**QC Batch**
Trichloroethylene	ug/g	ND	0.002	1917691
Vinyl Chloride	ug/g	ND	0.002	1917691
p+m-Xylene	ug/g	0.013	0.002	1917691
o-Xylene	ug/g	0.006	0.002	1917691
Xylene (Total)	ug/g	0.019	0.002	1917691
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	88		1917691
D4-1,2-Dichloroethane	%	104		1917691
D8-Toluene	%	106		1917691

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL9556	DL9557	DL9558	DL9559	DL9560		DL9562		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:15	2009/08/19 13:30	2009/08/19 14:00		2009/08/19		
	Units	**1-SD-16-2**	**3-SD-10**	**1-SD-16-1**	**1-SD-4**	**1-SD-5**	**RDL**	**1-SD-15**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	ND	ND	ND		ND	0.02	ND	0.04	1918413
Toluene	ug/g	ND	ND	ND		ND	0.02	ND	0.04	1918413
Ethylbenzene	ug/g	ND	ND	ND		ND	0.02	ND	0.04	1918413
o-Xylene	ug/g	ND	ND	ND		ND	0.02	ND	0.04	1918413
p+m-Xylene	ug/g	ND	ND	ND		ND	0.04	ND	0.08	1918413
Total Xylenes	ug/g	ND	ND	ND		ND	0.04	ND	0.08	1918413
F1 (C6-C10)	ug/g	ND	ND	ND	ND	ND	10	ND	20	1918413
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	ND	ND	10	ND	20	1918413
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	ND	33	ND	10	ND	20	1919122
F3 (C16-C34 Hydrocarbons)	ug/g	ND	ND	ND	200	ND	10	ND	20	1919122
F4 (C34-C50 Hydrocarbons)	ug/g	ND	ND	ND	86	ND	10	ND	20	1919122
Reached Baseline at C50	ug/g	YES	YES	YES	YES	YES		YES		1919122
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	94	92	100	96	113		108		1918413
4-Bromofluorobenzene	%	113	113	111	111	114		111		1918413
D10-Ethylbenzene	%	89	87	96	80	83		75		1918413
D4-1,2-Dichloroethane	%	79	89	81	78	84		78		1918413
o-Terphenyl	%	85	88	75	80	84		87		1919122

ND = Not detected
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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DL9556	DL9557	DL9558	DL9559		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:15	2009/08/19 13:30		
	Units	**1-SD-16-2**	**3-SD-10**	**1-SD-16-1**	**1-SD-4**	**RDL**	**QC Batch**
Pesticides & Herbicides							
Aroclor 1262	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1268	ug/g	ND	ND	ND	ND	0.02	1919467
Aldrin	ug/g	ND	ND	ND	ND	0.002	1919467
a-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
b-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
d-BHC	ug/g	ND	ND	ND	ND	0.002	1919467
a-Chlordane	ug/g	ND	ND	ND	ND	0.002	1919467
g-Chlordane	ug/g	ND	ND	ND	ND	0.002	1919467
Chlordane (Total)	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDD + p,p-DDD	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDE + p,p-DDE	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
p,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
o,p-DDT + p,p-DDT	ug/g	ND	ND	ND	ND	0.002	1919467
DDT+ Metabolites	ug/g	ND	ND	ND	ND	0.002	1919467
Dieldrin	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan I	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan II	ug/g	ND	ND	ND	ND	0.002	1919467
Endosulfan sulfate	ug/g	ND	ND	ND	ND	0.002	1919467
Total Endosulfan	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin aldehyde	ug/g	ND	ND	ND	ND	0.002	1919467
Endrin ketone	ug/g	ND	ND	ND	ND	0.002	1919467
Heptachlor	ug/g	ND	ND	ND	ND	0.002	1919467
Heptachlor epoxide	ug/g	ND	ND	ND	ND	0.002	1919467
Hexachlorobenzene	ug/g	ND	ND	ND	ND	0.002	1919467
Lindane	ug/g	ND	ND	ND	ND	0.002	1919467
Methoxychlor	ug/g	ND	ND	ND	ND	0.008	1919467

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DL9556	DL9557	DL9558	DL9559		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:15	2009/08/19 13:30		
	Units	**1-SD-16-2**	**3-SD-10**	**1-SD-16-1**	**1-SD-4**	**RDL**	**QC Batch**
Mirex	ug/g	ND	ND	ND	ND	0.002	1919467
Octachlorostyrene	ug/g	ND	ND	ND	ND	0.002	1919467
Total PCB	ug/g	ND	ND	ND	ND	0.03	1919467
Aroclor 1016	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1221	ug/g	ND	ND	ND	ND	0.03	1919467
Aroclor 1232	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1242	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1248	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1254	ug/g	ND	ND	ND	ND	0.02	1919467
Aroclor 1260	ug/g	ND	ND	ND	ND	0.02	1919467
Toxaphene	ug/g	ND	ND	ND	ND	0.08	1919467
Surrogate Recovery (%)							
2,4,5,6-Tetrachloro-m-xylene	%	73	72	73	68		1919467
Decachlorobiphenyl	%	81	86	86	86		1919467

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DL9546	DL9547	DL9548	DL9549		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:30	2009/08/19 13:30		
	Units	**1-SW-16-2**	**3-SW-10-1**	**1-SW-16-1**	**1-SW-4**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons							
Acenaphthene	ug/L	ND	ND	ND	ND	0.05	1922401
Acenaphthylene	ug/L	ND	ND	ND	ND	0.05	1922401
Anthracene	ug/L	ND	ND	ND	ND	0.05	1922401
Benzo(a)anthracene	ug/L	ND	ND	ND	ND	0.05	1922401
Benzo(a)pyrene	ug/L	ND	ND	ND	ND	0.01	1922401
Benzo(b/j)fluoranthene	ug/L	ND	ND	ND	ND	0.05	1922401
Benzo(g,h,i)perylene	ug/L	ND	ND	ND	ND	0.1	1922401
Benzo(k)fluoranthene	ug/L	ND	ND	ND	ND	0.05	1922401
Chrysene	ug/L	ND	ND	ND	ND	0.05	1922401
Dibenz(a,h)anthracene	ug/L	ND	ND	ND	ND	0.1	1922401
Fluoranthene	ug/L	ND	ND	ND	ND	0.05	1922401
Fluorene	ug/L	ND	ND	ND	ND	0.05	1922401
Indeno(1,2,3-cd)pyrene	ug/L	ND	ND	ND	ND	0.1	1922401
1-Methylnaphthalene	ug/L	ND	ND	ND	0.05	0.05	1922401
2-Methylnaphthalene	ug/L	ND	ND	ND	ND	0.05	1922401
Naphthalene	ug/L	ND	ND	0.05	0.06	0.05	1922401
Phenanthrene	ug/L	ND	ND	ND	ND	0.05	1922401
Pyrene	ug/L	ND	ND	ND	ND	0.05	1922401
Surrogate Recovery (%)							
D10-Anthracene	%	77	77	82	65		1922401
D14-Terphenyl (FS)	%	92	82	74	58		1922401
D7-Quinoline	%	76	74	77	68		1922401
D8-Acenaphthylene	%	63	64	69	57		1922401

ND = Not detected
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QC Batch = Quality Control Batch

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Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DL9549		
Sampling Date		2009/08/19 13:30		
	Units	**1-SW-4**	**RDL**	**QC Batch**
Volatile Organics				
Acetone (2-Propanone)	ug/L	ND	10	1916323
Benzene	ug/L	ND	0.1	1916323
Bromodichloromethane	ug/L	ND	0.1	1916323
Bromoform	ug/L	ND	0.2	1916323
Bromomethane	ug/L	ND	0.5	1916323
Carbon Tetrachloride	ug/L	ND	0.1	1916323
Chlorobenzene	ug/L	ND	0.1	1916323
Chloroform	ug/L	ND	0.1	1916323
Dibromochloromethane	ug/L	ND	0.2	1916323
1,2-Dichlorobenzene	ug/L	ND	0.2	1916323
1,3-Dichlorobenzene	ug/L	ND	0.2	1916323
1,4-Dichlorobenzene	ug/L	ND	0.2	1916323
1,1-Dichloroethane	ug/L	ND	0.1	1916323
1,2-Dichloroethane	ug/L	ND	0.2	1916323
1,1-Dichloroethylene	ug/L	ND	0.1	1916323
cis-1,2-Dichloroethylene	ug/L	ND	0.1	1916323
trans-1,2-Dichloroethylene	ug/L	ND	0.1	1916323
1,2-Dichloropropane	ug/L	ND	0.1	1916323
cis-1,3-Dichloropropene	ug/L	ND	0.2	1916323
trans-1,3-Dichloropropene	ug/L	ND	0.2	1916323
Ethylbenzene	ug/L	ND	0.1	1916323
Ethylene Dibromide	ug/L	ND	0.2	1916323
Methylene Chloride(Dichloromethane)	ug/L	ND	0.5	1916323
Methyl Isobutyl Ketone	ug/L	ND	5	1916323
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	5	1916323
Methyl t-butyl ether (MTBE)	ug/L	ND	0.2	1916323
Styrene	ug/L	ND	0.2	1916323
1,1,1,2-Tetrachloroethane	ug/L	ND	0.1	1916323
1,1,2,2-Tetrachloroethane	ug/L	ND	0.2	1916323
Tetrachloroethylene	ug/L	ND	0.1	1916323
Toluene	ug/L	ND	0.2	1916323
1,1,1-Trichloroethane	ug/L	ND	0.1	1916323
1,1,2-Trichloroethane	ug/L	ND	0.2	1916323

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9300
Report Date: 2009/09/04

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
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VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DL9549		
Sampling Date		2009/08/19 13:30		
	Units	**1-SW-4**	**RDL**	**QC Batch**
Trichloroethylene	ug/L	ND	0.1	1916323
Vinyl Chloride	ug/L	ND	0.2	1916323
p+m-Xylene	ug/L	ND	0.1	1916323
o-Xylene	ug/L	ND	0.1	1916323
Xylene (Total)	ug/L	ND	0.1	1916323
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	100		1916323
D4-1,2-Dichloroethane	%	114		1916323
D8-Toluene	%	78		1916323

ND = Not detected
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QC Batch = Quality Control Batch

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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DL9546	DL9547	DL9548	DL9549	DL9550		
Sampling Date		2009/08/19 10:30	2009/08/19 12:00	2009/08/19 10:30	2009/08/19 13:30	2009/08/19 14:00		
	Units	**1-SW-16-2**	**3-SW-10-1**	**1-SW-16-1**	**1-SW-4**	**1-SW-5**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/L	ND	ND	ND		ND	0.2	1921083
Toluene	ug/L	ND	ND	ND		ND	0.2	1921083
Ethylbenzene	ug/L	ND	ND	ND		ND	0.2	1921083
o-Xylene	ug/L	ND	ND	ND		ND	0.2	1921083
p+m-Xylene	ug/L	ND	ND	ND		ND	0.4	1921083
Total Xylenes	ug/L	ND	ND	ND		ND	0.4	1921083
F1 (C6-C10)	ug/L	ND	ND	ND	ND	ND	100	1921083
F1 (C6-C10) - BTEX	ug/L	ND	ND	ND	ND	ND	100	1921083
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	100	1918356
F3 (C16-C34 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	100	1918356
F4 (C34-C50 Hydrocarbons)	ug/L	ND	ND	ND	ND	ND	100	1918356
Reached Baseline at C50	ug/L	YES	YES	YES	YES	YES		1918356
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	95	96	96	97	96		1921083
4-Bromofluorobenzene	%	100	101	101	102	100		1921083
D10-Ethylbenzene	%	109	105	111	107	115		1921083
D4-1,2-Dichloroethane	%	101	93	91	92	91		1921083
o-Terphenyl	%	80	82	86	91	85		1918356

ND = Not detected
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QC Batch = Quality Control Batch

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Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DL9549		
Sampling Date		2009/08/19 13:30		
	Units	**1-SW-4**	**RDL**	**QC Batch**
Pesticides & Herbicides				
Aldrin	ug/L	ND	0.005	1920843
a-BHC	ug/L	ND	0.005	1920843
b-BHC	ug/L	ND(1)	0.01	1920843
d-BHC	ug/L	ND	0.005	1920843
a-Chlordane	ug/L	ND	0.005	1920843
g-Chlordane	ug/L	ND	0.005	1920843
Chlordane (Total)	ug/L	ND	0.005	1920843
o,p-DDD	ug/L	ND	0.005	1920843
p,p-DDD	ug/L	ND	0.005	1920843
o,p-DDD + p,p-DDD	ug/L	ND	0.005	1920843
o,p-DDE	ug/L	ND	0.005	1920843
p,p-DDE	ug/L	ND	0.005	1920843
o,p-DDE + p,p-DDE	ug/L	ND	0.005	1920843
o,p-DDT	ug/L	ND	0.005	1920843
p,p-DDT	ug/L	ND	0.005	1920843
o,p-DDT + p,p-DDT	ug/L	ND	0.005	1920843
DDT+ Metabolites	ug/L	ND	0.005	1920843
Dieldrin	ug/L	ND	0.005	1920843
Endosulfan I	ug/L	ND	0.005	1920843
Endosulfan II	ug/L	ND	0.005	1920843
Endosulfan sulfate	ug/L	ND	0.005	1920843
Total Endosulfan	ug/L	ND	0.005	1920843
Endrin	ug/L	ND	0.005	1920843
Endrin aldehyde	ug/L	ND	0.005	1920843
Endrin ketone	ug/L	ND	0.005	1920843
Heptachlor	ug/L	ND	0.005	1920843
Heptachlor epoxide	ug/L	ND	0.005	1920843
Hexachlorobenzene	ug/L	ND	0.005	1920843
Lindane	ug/L	ND	0.003	1920843
Methoxychlor	ug/L	ND	0.01	1920843
Mirex	ug/L	ND	0.005	1920843
Octachlorostyrene	ug/L	ND	0.005	1920843

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DL9549		
Sampling Date		2009/08/19 13:30		
	Units	**1-SW-4**	**RDL**	**QC Batch**
Total PCB	ug/L	ND	0.1	1920843
Aroclor 1016	ug/L	ND	0.05	1920843
Aroclor 1221	ug/L	ND	0.1	1920843
Aroclor 1232	ug/L	ND	0.05	1920843
Aroclor 1242	ug/L	ND	0.05	1920843
Aroclor 1248	ug/L	ND	0.05	1920843
Aroclor 1254	ug/L	ND	0.05	1920843
Aroclor 1260	ug/L	ND	0.05	1920843
Toxaphene	ug/L	ND	0.2	1920843
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	41		1920843
Decachlorobiphenyl	%	72		1920843

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Package 1	3.3°C
Package 2	5.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Sample DL9546-01: Metals Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample DL9547-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample DL9559-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample DL9562-01: F1-BTEX and F2-F2 analysis- Sample contained a high amount of moisture. Reporting limits were adjusted for dry weight of sample.

PAH Analysis: Detection limits were adjusted for high moisture content and the sample matrix.

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Franz Environmental Inc
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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1916323	4-Bromofluorobenzene	2009/09/02			100	70 - 130	97	%				
1916323	D4-1,2-Dichloroethane	2009/09/02			97	70 - 130	111	%				
1916323	D8-Toluene	2009/09/02			104	70 - 130	82	%				
1916323	Acetone (2-Propanone)	2009/09/02			114	60 - 140	ND, RDL=10	ug/L	26.5	40		
1916323	Benzene	2009/09/02			103	70 - 130	ND, RDL=0.1	ug/L	3.8	40		
1916323	Bromodichloromethane	2009/09/02			103	70 - 130	ND, RDL=0.1	ug/L	3.0	40		
1916323	Bromoform	2009/09/02			105	70 - 130	ND, RDL=0.2	ug/L	10.2	40		
1916323	Bromomethane	2009/09/02			93	60 - 140	ND, RDL=0.5	ug/L	2.0	40		
1916323	Carbon Tetrachloride	2009/09/02			105	70 - 130	ND, RDL=0.1	ug/L	7.6	40		
1916323	Chlorobenzene	2009/09/02			106	70 - 130	ND, RDL=0.1	ug/L	5.9	40		
1916323	Chloroform	2009/09/02			100	70 - 130	ND, RDL=0.1	ug/L	1.7	40		
1916323	Dibromochloromethane	2009/09/02			109	70 - 130	ND, RDL=0.2	ug/L	8.0	40		
1916323	1,2-Dichlorobenzene	2009/09/02			103	70 - 130	ND, RDL=0.2	ug/L	5.2	40		
1916323	1,3-Dichlorobenzene	2009/09/02			115	70 - 130	ND, RDL=0.2	ug/L	9.2	40		
1916323	1,4-Dichlorobenzene	2009/09/02			108	70 - 130	ND, RDL=0.2	ug/L	4.8	40		
1916323	1,1-Dichloroethane	2009/09/02			123	70 - 130	ND, RDL=0.1	ug/L	9.1	40		
1916323	1,2-Dichloroethane	2009/09/02			98	70 - 130	ND, RDL=0.2	ug/L	2.3	40		
1916323	1,1-Dichloroethylene	2009/09/02			93	70 - 130	ND, RDL=0.1	ug/L	3.8	40		
1916323	cis-1,2-Dichloroethylene	2009/09/02			110	70 - 130	ND, RDL=0.1	ug/L	2.8	40		
1916323	trans-1,2-Dichloroethylene	2009/09/02			96	70 - 130	ND, RDL=0.1	ug/L	NC	40		
1916323	1,2-Dichloropropane	2009/09/02			110	70 - 130	ND, RDL=0.1	ug/L	0.8	40		
1916323	cis-1,3-Dichloropropene	2009/09/02			96	70 - 130	ND, RDL=0.2	ug/L	4.4	40		
1916323	trans-1,3-Dichloropropene	2009/09/02			100	70 - 130	ND, RDL=0.2	ug/L	1.7	40		
1916323	Ethylbenzene	2009/09/02			107	70 - 130	ND, RDL=0.1	ug/L	3.7	40		
1916323	Ethylene Dibromide	2009/09/02			112	70 - 130	ND, RDL=0.2	ug/L	7.6	40		
1916323	Methylene Chloride(Dichloromethane)	2009/09/02			98	70 - 130	ND, RDL=0.5	ug/L	1.1	40		
1916323	Methyl Isobutyl Ketone	2009/09/02			99	60 - 140	ND, RDL=5	ug/L	5.2	40		
1916323	Methyl Ethyl Ketone (2-Butanone)	2009/09/02			99	60 - 140	ND, RDL=5	ug/L	3.6	40		
1916323	Methyl t-butyl ether (MTBE)	2009/09/02			97	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1916323	Styrene	2009/09/02			112	70 - 130	ND, RDL=0.2	ug/L	8.5	40		
1916323	1,1,1,2-Tetrachloroethane	2009/09/02			107	70 - 130	ND, RDL=0.1	ug/L	9.7	40		
1916323	1,1,2,2-Tetrachloroethane	2009/09/02			107	70 - 130	ND, RDL=0.2	ug/L	5.3	40		
1916323	Tetrachloroethylene	2009/09/02			110	70 - 130	ND, RDL=0.1	ug/L	7.5	40		
1916323	Toluene	2009/09/02			114	70 - 130	ND, RDL=0.2	ug/L	4.7	40		
1916323	1,1,1-Trichloroethane	2009/09/02			101	70 - 130	ND, RDL=0.1	ug/L	7.9	40		
1916323	1,1,2-Trichloroethane	2009/09/02			106	70 - 130	ND, RDL=0.2	ug/L	6.4	40		
1916323	Trichloroethylene	2009/09/02			112	70 - 130	ND, RDL=0.1	ug/L	0.1	40		
1916323	Vinyl Chloride	2009/09/02			103	70 - 130	ND, RDL=0.2	ug/L	5.0	40		
1916323	p+m-Xylene	2009/09/02			106	70 - 130	ND, RDL=0.1	ug/L	3.3	40		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1916323	o-Xylene	2009/09/02			105	70 - 130	ND, RDL=0.1	ug/L	6.5	40		
1916323	Xylene (Total)	2009/09/02					ND, RDL=0.1	ug/L				
1917691	4-Bromofluorobenzene	2009/08/25			102	60 - 140	104	%				
1917691	D4-1,2-Dichloroethane	2009/08/25			104	60 - 140	106	%				
1917691	D8-Toluene	2009/08/25			98	60 - 140	96	%				
1917691	Acetone (2-Propanone)	2009/08/25			93	60 - 140	ND, RDL=0.1	ug/g	3.5	50		
1917691	Benzene	2009/08/25			91	60 - 140	ND, RDL=0.002	ug/g	0.1	50		
1917691	Bromodichloromethane	2009/08/25			105	60 - 140	ND, RDL=0.002	ug/g	1.6	50		
1917691	Bromoform	2009/08/25			110	60 - 140	ND, RDL=0.002	ug/g	0.4	50		
1917691	Bromomethane	2009/08/25			72	60 - 140	ND, RDL=0.003	ug/g	NC	50		
1917691	Carbon Tetrachloride	2009/08/25			100	60 - 140	ND, RDL=0.002	ug/g	3.5	50		
1917691	Chlorobenzene	2009/08/25			90	60 - 140	ND, RDL=0.002	ug/g	3.6	50		
1917691	Chloroform	2009/08/25			99	60 - 140	ND, RDL=0.002	ug/g	1.1	50		
1917691	Dibromochloromethane	2009/08/25			108	60 - 140	ND, RDL=0.002	ug/g	0.7	50		
1917691	1,2-Dichlorobenzene	2009/08/25			89	60 - 140	ND, RDL=0.002	ug/g	6.6	50		
1917691	1,3-Dichlorobenzene	2009/08/25			89	60 - 140	ND, RDL=0.002	ug/g	7.1	50		
1917691	1,4-Dichlorobenzene	2009/08/25			90	60 - 140	ND, RDL=0.002	ug/g	8.6	50		
1917691	1,1-Dichloroethane	2009/08/25			94	60 - 140	ND, RDL=0.002	ug/g	0.5	50		
1917691	1,2-Dichloroethane	2009/08/25			102	60 - 140	ND, RDL=0.002	ug/g	2.0	50		
1917691	1,1-Dichloroethylene	2009/08/25			95	60 - 140	ND, RDL=0.002	ug/g	4.3	50		
1917691	cis-1,2-Dichloroethylene	2009/08/25			99	60 - 140	ND, RDL=0.002	ug/g	1.2	50		
1917691	trans-1,2-Dichloroethylene	2009/08/25			94	60 - 140	ND, RDL=0.002	ug/g	3.8	50		
1917691	1,2-Dichloropropane	2009/08/25			96	60 - 140	ND, RDL=0.002	ug/g	0.3	50		
1917691	cis-1,3-Dichloropropene	2009/08/25			105	60 - 140	ND, RDL=0.002	ug/g	1.3	50		
1917691	trans-1,3-Dichloropropene	2009/08/25			101	60 - 140	ND, RDL=0.002	ug/g	4.0	50		
1917691	Ethylbenzene	2009/08/25			93	60 - 140	ND, RDL=0.002	ug/g	3.9	50		
1917691	Ethylene Dibromide	2009/08/25			102	60 - 140	ND, RDL=0.002	ug/g	1	50		
1917691	Methylene Chloride(Dichloromethane)	2009/08/25			113	60 - 140	ND, RDL=0.003	ug/g	5.2	50		
1917691	Methyl Isobutyl Ketone	2009/08/25			106	60 - 140	ND, RDL=0.03	ug/g	3.9	50		
1917691	Methyl Ethyl Ketone (2-Butanone)	2009/08/25			98	60 - 140	ND, RDL=0.03	ug/g	4.6	50		
1917691	Methyl t-butyl ether (MTBE)	2009/08/25			80	60 - 140	ND, RDL=0.002	ug/g	29.9	50		
1917691	Styrene	2009/08/25			91	60 - 140	ND, RDL=0.002	ug/g	9.5	50		
1917691	1,1,1,2-Tetrachloroethane	2009/08/25			99	60 - 140	ND, RDL=0.002	ug/g	2.8	50		
1917691	1,1,2,2-Tetrachloroethane	2009/08/25			97	60 - 140	ND, RDL=0.002	ug/g	0.6	50		
1917691	Tetrachloroethylene	2009/08/25			92	60 - 140	ND, RDL=0.002	ug/g	5.1	50		
1917691	Toluene	2009/08/25			95	60 - 140	ND, RDL=0.002	ug/g	3.0	50		
1917691	1,1,1-Trichloroethane	2009/08/25			96	60 - 140	ND, RDL=0.002	ug/g	2.6	50		
1917691	1,1,2-Trichloroethane	2009/08/25			98	60 - 140	ND, RDL=0.002	ug/g	1.3	50		
1917691	Trichloroethylene	2009/08/25			95	60 - 140	ND, RDL=0.002	ug/g	2.0	50		

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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1917691	Vinyl Chloride	2009/08/25			89	60 - 140	ND, RDL=0.002	ug/g	11.1	50		
1917691	p+m-Xylene	2009/08/25			90	60 - 140	ND, RDL=0.002	ug/g	3.4	50		
1917691	o-Xylene	2009/08/25			100	60 - 140	ND, RDL=0.002	ug/g	1.4	50		
1917691	Xylene (Total)	2009/08/25					ND, RDL=0.002	ug/g	4.4	50		
1918356	o-Terphenyl	2009/08/27	88	30 - 130	91	30 - 130	87	%				
1918356	F2 (C10-C16 Hydrocarbons)	2009/08/27	81	60 - 130	76	60 - 130	ND, RDL=100	ug/L	NC	50		
1918356	F3 (C16-C34 Hydrocarbons)	2009/08/27	81	60 - 130	76	60 - 130	ND, RDL=100	ug/L	NC	50		
1918356	F4 (C34-C50 Hydrocarbons)	2009/08/27	81	60 - 130	76	60 - 130	ND, RDL=100	ug/L	NC	50		
1918413	1,4-Difluorobenzene	2009/08/27	93	60 - 140	93	60 - 140	95	%				
1918413	4-Bromofluorobenzene	2009/08/27	113	60 - 140	113	60 - 140	113	%				
1918413	D10-Ethylbenzene	2009/08/27	91	30 - 130	93	30 - 130	92	%				
1918413	D4-1,2-Dichloroethane	2009/08/27	84	60 - 140	79	60 - 140	78	%				
1918413	Benzene	2009/08/27	106	60 - 140	104	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918413	Toluene	2009/08/27	81	60 - 140	88	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918413	Ethylbenzene	2009/08/27	82	60 - 140	89	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918413	o-Xylene	2009/08/27	84	60 - 140	91	60 - 140	ND, RDL=0.02	ug/g	NC	50		
1918413	p+m-Xylene	2009/08/27	91	60 - 140	98	60 - 140	ND, RDL=0.04	ug/g	NC	50		
1918413	F1 (C6-C10)	2009/08/27	94	60 - 140	91	60 - 140	ND, RDL=10	ug/g	NC	50		
1918413	Total Xylenes	2009/08/27					ND, RDL=0.04	ug/g	NC	50		
1918413	F1 (C6-C10) - BTEX	2009/08/27					ND, RDL=10	ug/g	NC	50		
1918424	Moisture	2009/08/27							34.1	50		
1919122	o-Terphenyl	2009/08/28	85	30 - 130	85	30 - 130	86	%				
1919122	F2 (C10-C16 Hydrocarbons)	2009/08/28	83	60 - 130	84	60 - 130	ND, RDL=10	ug/g	NC	50		
1919122	F3 (C16-C34 Hydrocarbons)	2009/08/28	83	60 - 130	84	60 - 130	ND, RDL=10	ug/g	NC	50		
1919122	F4 (C34-C50 Hydrocarbons)	2009/08/28	83	60 - 130	84	60 - 130	ND, RDL=10	ug/g	NC	50		
1919467	2,4,5,6-Tetrachloro-m-xylene	2009/08/31	54	40 - 130	43	40 - 130	70	%				
1919467	Decachlorobiphenyl	2009/08/31	78	40 - 130	77	40 - 130	79	%				
1919467	Aldrin	2009/08/31	66	40 - 130	55	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	a-BHC	2009/08/31	58	40 - 130	53	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	b-BHC	2009/08/31	72	40 - 130	71	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	d-BHC	2009/08/31	73	40 - 130	74	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	a-Chlordane	2009/08/31	76	40 - 130	75	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	g-Chlordane	2009/08/31	76	40 - 130	81	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDD	2009/08/31	93	40 - 130	93	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDD	2009/08/31	83	40 - 130	90	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDE	2009/08/31	81	40 - 130	78	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDE	2009/08/31	90	40 - 130	87	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDT	2009/08/31	63	40 - 130	60	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	p,p-DDT	2009/08/31	62	40 - 130	50	40 - 130	ND, RDL=0.002	ug/g	NC	50		

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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1919467	Dieldrin	2009/08/31	78	40 - 130	80	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan I	2009/08/31	76	40 - 130	77	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan II	2009/08/31	84	40 - 130	86	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endosulfan sulfate	2009/08/31	84	40 - 130	143(1)	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin	2009/08/31	75	40 - 130	78	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin aldehyde	2009/08/31	60	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Endrin ketone	2009/08/31	86	40 - 130	79	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Heptachlor	2009/08/31	58	40 - 130	48	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Heptachlor epoxide	2009/08/31	86	40 - 130	84	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Hexachlorobenzene	2009/08/31	52	20 - 130	43	20 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Lindane	2009/08/31	57	40 - 130	56	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Methoxychlor	2009/08/31	84	40 - 130	68	40 - 130	ND, RDL=0.008	ug/g	NC	50		
1919467	Mirex	2009/08/31	82	40 - 130	75	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Octachlorostyrene	2009/08/31	76	40 - 130	63	40 - 130	ND, RDL=0.002	ug/g	NC	50		
1919467	Total PCB	2009/08/31					ND, RDL=0.03	ug/g	NC	50		
1919467	Aroclor 1242	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Toxaphene	2009/08/31					ND, RDL=0.08	ug/g	NC	50		
1919467	Aroclor 1262	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1268	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Chlordane (Total)	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDD + p,p-DDD	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDE + p,p-DDE	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	o,p-DDT + p,p-DDT	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	DDT+ Metabolites	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	Total Endosulfan	2009/08/31					ND, RDL=0.002	ug/g	NC	50		
1919467	Aroclor 1016	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1221	2009/08/31					ND, RDL=0.03	ug/g	NC	50		
1919467	Aroclor 1232	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1248	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1254	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1919467	Aroclor 1260	2009/08/31					ND, RDL=0.015	ug/g	NC	50		
1920843	2,4,5,6-Tetrachloro-m-xylene	2009/08/29	74	40 - 130	66	40 - 130	69	%				
1920843	Decachlorobiphenyl	2009/08/29	88	40 - 130	78	40 - 130	70	%				
1920843	Aldrin	2009/08/29	66	30 - 130	64	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	a-BHC	2009/08/29	97	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	b-BHC	2009/08/29	82	30 - 130	72	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	d-BHC	2009/08/29	88	30 - 130	76	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	a-Chlordane	2009/08/29	97	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	g-Chlordane	2009/08/29	98	30 - 130	86	30 - 130	ND, RDL=0.005	ug/L	NC	40		

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QUALITY ASSURANCE REPORT

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1920843	o,p-DDD	2009/08/29	100	40 - 130	89	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	p,p-DDD	2009/08/29	99	30 - 130	89	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDE	2009/08/29	101	40 - 130	88	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	p,p-DDE	2009/08/29	91	30 - 130	81	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDT	2009/08/29	105	40 - 130	94	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	p,p-DDT	2009/08/29	109	30 - 130	99	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Dieldrin	2009/08/29	106	36 - 130	94	36 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endosulfan I	2009/08/29	97	30 - 130	85	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endosulfan II	2009/08/29	94	30 - 130	82	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endosulfan sulfate	2009/08/29	91	30 - 130	84	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endrin	2009/08/29	114	30 - 130	101	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endrin aldehyde	2009/08/29	45	40 - 130	47	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Endrin ketone	2009/08/29	104	40 - 130	96	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Heptachlor	2009/08/29	86	30 - 130	106	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Heptachlor epoxide	2009/08/29	90	30 - 130	96	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Hexachlorobenzene	2009/08/29	82	30 - 130	71	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Lindane	2009/08/29	96	30 - 130	84	30 - 130	ND, RDL=0.003	ug/L	NC	40		
1920843	Methoxychlor	2009/08/29	127	40 - 130	124	40 - 130	ND, RDL=0.014	ug/L	NC	40		
1920843	Mirex	2009/08/29	89	40 - 130	86	40 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Octachlorostyrene	2009/08/29	85	30 - 130	76	30 - 130	ND, RDL=0.005	ug/L	NC	40		
1920843	Total PCB	2009/08/29					ND, RDL=0.1	ug/L	NC	40		
1920843	Aroclor 1242	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Toxaphene	2009/08/29					ND, RDL=0.2	ug/L	NC	40		
1920843	Chlordane (Total)	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDD + p,p-DDD	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDE + p,p-DDE	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	o,p-DDT + p,p-DDT	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	DDT+ Metabolites	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	Total Endosulfan	2009/08/29					ND, RDL=0.005	ug/L	NC	40		
1920843	Aroclor 1016	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1221	2009/08/29					ND, RDL=0.1	ug/L	NC	40		
1920843	Aroclor 1232	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1248	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1254	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1920843	Aroclor 1260	2009/08/29					ND, RDL=0.05	ug/L	NC	40		
1921083	1,4-Difluorobenzene	2009/08/27	94	70 - 130	95	70 - 130	101	%				
1921083	4-Bromofluorobenzene	2009/08/27	100	70 - 130	101	70 - 130	97	%				
1921083	D10-Ethylbenzene	2009/08/27	107	70 - 130	104	70 - 130	108	%				
1921083	D4-1,2-Dichloroethane	2009/08/27	76	70 - 130	85	70 - 130	102	%				

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1921083	Benzene	2009/08/27	87	70 - 130	79	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1921083	Toluene	2009/08/27	107	70 - 130	99	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1921083	Ethylbenzene	2009/08/27	105	70 - 130	97	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1921083	o-Xylene	2009/08/27	116	70 - 130	108	70 - 130	ND, RDL=0.2	ug/L	NC	40		
1921083	p+m-Xylene	2009/08/27	106	70 - 130	97	70 - 130	ND, RDL=0.4	ug/L	NC	40		
1921083	F1 (C6-C10)	2009/08/27	95	70 - 130	91	70 - 130	ND, RDL=100	ug/L	NC	40		
1921083	Total Xylenes	2009/08/27					ND, RDL=0.4	ug/L	NC	40		
1921083	F1 (C6-C10) - BTEX	2009/08/27					ND, RDL=100	ug/L	NC	40		
1921671	D10-Anthracene	2009/08/28	101	30 - 130	90	30 - 130	90	%				
1921671	D14-Terphenyl (FS)	2009/08/28	102	30 - 130	91	30 - 130	87	%				
1921671	D7-Quinoline	2009/08/28	76	30 - 130	82	30 - 130	77	%				
1921671	D8-Acenaphthylene	2009/08/28	80	30 - 130	81	30 - 130	80	%				
1921671	Acenaphthene	2009/08/28	82	30 - 130	78	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1921671	Acenaphthylene	2009/08/28	80	30 - 130	78	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Anthracene	2009/08/28	90	30 - 130	79	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Benzo(a)anthracene	2009/08/28	111	30 - 130	96	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1921671	Benzo(a)pyrene	2009/08/28	113	30 - 130	100	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Benzo(b/j)fluoranthene	2009/08/28	112	30 - 130	100	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1921671	Benzo(g,h,i)perylene	2009/08/28	113	30 - 130	98	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1921671	Benzo(k)fluoranthene	2009/08/28	114	30 - 130	100	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1921671	Chrysene	2009/08/28	110	30 - 130	95	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1921671	Dibenz(a,h)anthracene	2009/08/28	122	30 - 130	107	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1921671	Fluoranthene	2009/08/28	97	30 - 130	85	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Fluorene	2009/08/28	89	30 - 130	82	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Indeno(1,2,3-cd)pyrene	2009/08/28	119	30 - 130	98	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1921671	1-Methylnaphthalene	2009/08/28	81	30 - 130	84	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	2-Methylnaphthalene	2009/08/28	75	30 - 130	77	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Naphthalene	2009/08/28	68	30 - 130	82	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Phenanthrene	2009/08/28	88	30 - 130	79	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921671	Pyrene	2009/08/28	96	30 - 130	83	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1921692	Chromium (VI)	2009/08/28	101	75 - 125	98	75 - 125	ND, RDL=0.5	ug/L	NC(2)	25		
1922184	Hot Water Ext. Boron (B)	2009/08/28					ND, RDL=0.01	ug/g	NC	35	107	77 - 121
1922189	Dissolved (0.2u) Aluminum (Al)	2009/08/28	100	80 - 120	98	90 - 110	ND, RDL=5	ug/L	NC	25		
1922401	D10-Anthracene	2009/08/28	NC(3)	30 - 130	82	30 - 130	84	%				
1922401	D14-Terphenyl (FS)	2009/08/28	35	30 - 130	87	30 - 130	87	%				
1922401	D7-Quinoline	2009/08/28	56	30 - 130	89	30 - 130	84	%				
1922401	D8-Acenaphthylene	2009/08/28	NC(3)	30 - 130	74	30 - 130	74	%				
1922401	Acenaphthene	2009/08/29	NC(4)	30 - 130	84	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Acenaphthylene	2009/08/29	NC(4)	30 - 130	74	30 - 130	ND, RDL=0.05	ug/L	NC	40		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1922401	Anthracene	2009/08/29	106	30 - 130	79	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Benzo(a)anthracene	2009/08/29	95	30 - 130	93	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Benzo(a)pyrene	2009/08/29	88	30 - 130	93	30 - 130	ND, RDL=0.01	ug/L	NC	40		
1922401	Benzo(b/j)fluoranthene	2009/08/29	86	30 - 130	95	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Benzo(g,h,i)perylene	2009/08/29	102	30 - 130	111	30 - 130	ND, RDL=0.1	ug/L	NC	40		
1922401	Benzo(k)fluoranthene	2009/08/29	80	30 - 130	102	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Chrysene	2009/08/29	93	30 - 130	100	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Dibenz(a,h)anthracene	2009/08/29	87	30 - 130	95	30 - 130	ND, RDL=0.1	ug/L	NC	40		
1922401	Fluoranthene	2009/08/29	NC(4)	30 - 130	97	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Fluorene	2009/08/29	NC(4)	30 - 130	94	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Indeno(1,2,3-cd)pyrene	2009/08/29	100	30 - 130	102	30 - 130	ND, RDL=0.1	ug/L	NC	40		
1922401	1-Methylnaphthalene	2009/08/29	NC(4)	30 - 130	82	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	2-Methylnaphthalene	2009/08/29	NC(4)	30 - 130	76	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Naphthalene	2009/08/29	NC(4)	30 - 130	68	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Phenanthrene	2009/08/29	96	30 - 130	82	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922401	Pyrene	2009/08/29	NC(4)	30 - 130	82	30 - 130	ND, RDL=0.05	ug/L	NC	40		
1922518	Chromium (VI)	2009/08/31	81	75 - 125	100	75 - 125	ND, RDL=0.2	ug/g	NC	35	99	85 - 115
1923252	Moisture	2009/08/29							2.7	50		
1923611	Hot Water Ext. Boron (B)	2009/08/31					0.01, RDL=0.01	ug/g			100	77 - 121
1923767	Mercury (Hg)	2009/08/31	109	75 - 125	102	84 - 113	ND, RDL=0.1	ug/L	NC	25		
1923948	Acid Extractable Antimony (Sb)	2009/08/31	94	75 - 125			ND, RDL=0.2	ug/g	NC	35	100	75 - 125
1923948	Acid Extractable Arsenic (As)	2009/08/31	96	75 - 125			ND, RDL=1	ug/g	NC	35	89	75 - 125
1923948	Acid Extractable Barium (Ba)	2009/08/31	100	75 - 125			ND, RDL=0.5	ug/g	10.3	35	90	75 - 125
1923948	Acid Extractable Beryllium (Be)	2009/08/31	104	75 - 125			ND, RDL=0.2	ug/g	NC	35	114	75 - 125
1923948	Acid Extractable Cadmium (Cd)	2009/08/31	100	75 - 125			ND, RDL=0.1	ug/g	NC	35	94	75 - 125
1923948	Acid Extractable Chromium (Cr)	2009/08/31	99	75 - 125			ND, RDL=1	ug/g	NC	35	88	75 - 125
1923948	Acid Extractable Cobalt (Co)	2009/08/31	99	75 - 125			ND, RDL=0.1	ug/g	5.4	35	87	75 - 125
1923948	Acid Extractable Copper (Cu)	2009/08/31	95	75 - 125			ND, RDL=0.5	ug/g	8.3	35	100	75 - 125
1923948	Acid Extractable Lead (Pb)	2009/08/31	96	75 - 125			ND, RDL=1	ug/g	NC	35	99	75 - 125
1923948	Acid Extractable Molybdenum (Mo)	2009/08/31	101	75 - 125			ND, RDL=0.5	ug/g	NC	35	91	75 - 125
1923948	Acid Extractable Nickel (Ni)	2009/08/31	98	75 - 125			ND, RDL=0.5	ug/g	NC	35	83	75 - 125
1923948	Acid Extractable Selenium (Se)	2009/08/31	104	75 - 125			ND, RDL=0.5	ug/g	NC	35	64	50 - 150
1923948	Acid Extractable Silver (Ag)	2009/08/31	87	75 - 125			ND, RDL=0.2	ug/g	NC	35	82	75 - 125
1923948	Acid Extractable Thallium (Tl)	2009/08/31	86	75 - 125			ND, RDL=0.05	ug/g	NC	35	94	75 - 125
1923948	Acid Extractable Vanadium (V)	2009/08/31	98	75 - 125			ND, RDL=5	ug/g	NC	35	88	75 - 125
1923948	Acid Extractable Zinc (Zn)	2009/08/31	98	75 - 125			ND, RDL=5	ug/g	NC	35	92	75 - 125
1923948	Acid Extractable Mercury (Hg)	2009/08/31	97	75 - 125			ND, RDL=0.05	ug/g	NC	35	99	75 - 125
1924341	Chromium (VI)	2009/09/01	40(5)	75 - 125	106	75 - 125	ND, RDL=0.2	ug/g	NC	35	96	85 - 115
1924587	Dissolved (0.2u) Aluminum (Al)	2009/09/01	95	80 - 120	93	90 - 110	ND, RDL=5	ug/L	NC	25		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1924863	Acid Extractable Antimony (Sb)	2009/09/01	91	75 - 125			ND, RDL=0.2	ug/g	NC	35	88	75 - 125
1924863	Acid Extractable Arsenic (As)	2009/09/01	90	75 - 125			ND, RDL=1	ug/g	NC	35	88	75 - 125
1924863	Acid Extractable Barium (Ba)	2009/09/01	NC	75 - 125			ND, RDL=0.5	ug/g	3.3	35	91	75 - 125
1924863	Acid Extractable Beryllium (Be)	2009/09/01	94	75 - 125			ND, RDL=0.2	ug/g	NC	35	115	75 - 125
1924863	Acid Extractable Cadmium (Cd)	2009/09/01	94	75 - 125			ND, RDL=0.1	ug/g	NC	35	93	75 - 125
1924863	Acid Extractable Chromium (Cr)	2009/09/01	90	75 - 125			ND, RDL=1	ug/g	5.6	35	90	75 - 125
1924863	Acid Extractable Cobalt (Co)	2009/09/01	92	75 - 125			ND, RDL=0.1	ug/g	3.0	35	90	75 - 125
1924863	Acid Extractable Copper (Cu)	2009/09/01	NC	75 - 125			ND, RDL=0.5	ug/g	5.9	35	100	75 - 125
1924863	Acid Extractable Lead (Pb)	2009/09/01	93	75 - 125			ND, RDL=1	ug/g	4.4	35	99	75 - 125
1924863	Acid Extractable Molybdenum (Mo)	2009/09/01	94	75 - 125			ND, RDL=0.5	ug/g	NC	35	84	75 - 125
1924863	Acid Extractable Nickel (Ni)	2009/09/01	86	75 - 125			ND, RDL=0.5	ug/g	5.9	35	92	75 - 125
1924863	Acid Extractable Selenium (Se)	2009/09/01	93	75 - 125			ND, RDL=0.5	ug/g	NC	35	91	50 - 150
1924863	Acid Extractable Silver (Ag)	2009/09/01	121	75 - 125			ND, RDL=0.2	ug/g	NC	35	79	75 - 125
1924863	Acid Extractable Thallium (Tl)	2009/09/01	91	75 - 125			ND, RDL=0.05	ug/g	NC	35	89	75 - 125
1924863	Acid Extractable Vanadium (V)	2009/09/01	86	75 - 125			ND, RDL=5	ug/g	NC	35	86	75 - 125
1924863	Acid Extractable Zinc (Zn)	2009/09/01	NC	75 - 125			ND, RDL=5	ug/g	3.4	35	94	75 - 125
1924863	Acid Extractable Mercury (Hg)	2009/09/01	96	75 - 125			ND, RDL=0.05	ug/g	NC	35	106	75 - 125
1925239	Total Phosphorus	2009/09/02	103	75 - 125	108	75 - 125	0.002, RDL=0.002	mg/L	14.1	25	107	85 - 115
1926118	D10-Anthracene	2009/09/02	96	30 - 130	80	30 - 130	83	%				
1926118	D14-Terphenyl (FS)	2009/09/02	97	30 - 130	79	30 - 130	78	%				
1926118	D7-Quinoline	2009/09/02	86	30 - 130	74	30 - 130	57	%				
1926118	D8-Acenaphthylene	2009/09/02	85	30 - 130	69	30 - 130	61	%				
1926118	Acenaphthene	2009/09/02	88	30 - 130	71	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1926118	Acenaphthylene	2009/09/02	82	30 - 130	66	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Anthracene	2009/09/02	84	30 - 130	69	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Benzo(a)anthracene	2009/09/02	96	30 - 130	79	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1926118	Benzo(a)pyrene	2009/09/02	94	30 - 130	76	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Benzo(b/j)fluoranthene	2009/09/02	95	30 - 130	76	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1926118	Benzo(g,h,i)perylene	2009/09/02	109	30 - 130	89	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1926118	Benzo(k)fluoranthene	2009/09/02	104	30 - 130	82	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1926118	Chrysene	2009/09/02	105	30 - 130	84	30 - 130	ND, RDL=0.01	ug/g	NC	50		
1926118	Dibenz(a,h)anthracene	2009/09/02	94	30 - 130	76	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1926118	Fluoranthene	2009/09/02	100	30 - 130	82	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Fluorene	2009/09/02	94	30 - 130	75	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Indeno(1,2,3-cd)pyrene	2009/09/02	94	30 - 130	83	30 - 130	ND, RDL=0.02	ug/g	NC	50		
1926118	1-Methylnaphthalene	2009/09/02	92	30 - 130	76	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	2-Methylnaphthalene	2009/09/02	83	30 - 130	69	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Naphthalene	2009/09/02	71	30 - 130	61	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926118	Phenanthrene	2009/09/02	83	30 - 130	69	30 - 130	ND, RDL=0.005	ug/g	NC	50		

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1926118	Pyrene	2009/09/02	85	30 - 130	70	30 - 130	ND, RDL=0.005	ug/g	NC	50		
1926796	Total Antimony (Sb)	2009/09/02	111	80 - 120	108	82 - 120	ND, RDL=0.5	ug/L	NC	25		
1926796	Total Arsenic (As)	2009/09/02	103	80 - 120	102	86 - 119	ND, RDL=1	ug/L	NC	25		
1926796	Total Beryllium (Be)	2009/09/02	104	75 - 125	106	85 - 132	ND, RDL=0.5	ug/L	NC	25		
1926796	Total Boron (B)	2009/09/02	106	75 - 125	110	78 - 133	ND, RDL=10	ug/L	NC	25		
1926796	Total Cadmium (Cd)	2009/09/02	102	80 - 120	100	85 - 116	ND, RDL=0.1	ug/L	NC	25		
1926796	Total Chromium (Cr)	2009/09/02	102	80 - 120	103	80 - 120	ND, RDL=5	ug/L	NC	25		
1926796	Total Cobalt (Co)	2009/09/02	99	80 - 120	101	82 - 117	ND, RDL=0.5	ug/L	NC	25		
1926796	Total Copper (Cu)	2009/09/02	95	80 - 120	99	80 - 117	ND, RDL=1	ug/L	NC	25		
1926796	Total Iron (Fe)	2009/09/02	93	80 - 120	94	80 - 120	ND, RDL=100	ug/L	NC	25		
1926796	Total Lead (Pb)	2009/09/02	99	80 - 120	101	80 - 120	ND, RDL=0.5	ug/L	NC	25		
1926796	Total Molybdenum (Mo)	2009/09/02	105	80 - 120	103	82 - 117	ND, RDL=1	ug/L	NC	25		
1926796	Total Nickel (Ni)	2009/09/02	96	80 - 120	99	81 - 117	ND, RDL=1	ug/L	NC	25		
1926796	Total Selenium (Se)	2009/09/02	101	75 - 125	101	82 - 118	ND, RDL=2	ug/L	NC	25		
1926796	Total Silver (Ag)	2009/09/02	98	80 - 120	97	80 - 120	ND, RDL=0.1	ug/L	NC	25		
1926796	Total Thallium (Tl)	2009/09/02	100	80 - 120	101	80 - 129	ND, RDL=0.05	ug/L	NC	25		
1926796	Total Tungsten (W)	2009/09/02	106	75 - 125	105	81 - 123	ND, RDL=1	ug/L	NC	25		
1926796	Total Uranium (U)	2009/09/02	96	80 - 120	96	82 - 120	ND, RDL=0.1	ug/L	3.9	25		
1926796	Total Vanadium (V)	2009/09/02	104	80 - 120	104	82 - 118	ND, RDL=1	ug/L	NC	25		
1926796	Total Zinc (Zn)	2009/09/02	97	80 - 120	101	80 - 120	ND, RDL=5	ug/L	NC	25		
1926796	Total Zirconium (Zr)	2009/09/02	106	75 - 125	104	84 - 118	ND, RDL=1	ug/L				

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery in the spike was above the upper control limit. This may represent a high bias in some results. For results that were not detected (ND), this potential bias has no impact.
(2) - Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
(3) - Surrogate recovery was not calculated (NC) due to matrix interferences.
(4) - The recovery in the matrix spike was not calculated (NC) due to background interference.
(5) - The recovery was below the lower control limit. This may be due in part to the reducing environment of the sample.

Validation Signature Page

Maxxam Job #: A9A9300

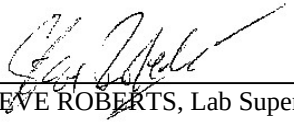
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



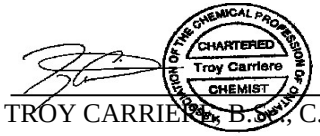
PAUL RUBINATO, Analyst, Maxxam Analytics



CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst



STEVE ROBERTS, Lab Supervisor, Ottawa



TROY CARRIERE, B.Sc., C.Chem, Scientific Specialist

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: A9A9300

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

FLOYD MAYEDE, Senior Analyst

CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

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Maxxam Analytics

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#10988 Franz Environmental Inc	Company Name:		Quotation #:	A95305	MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Lillian Ellis	Contact Name:	Jennifer Keenliside	P.O. #:	1747-0901		159561
Address:	329 Churchill Ave N Suite 200 Ottawa ON K1Z 5B8	Address:		Project #:	P-2963	CHAIN OF CUSTODY #:	PROJECT MANAGER:
Phone:	(613)721-0555 Fax: (613)721-0029	Phone:	Fax:	Project Name:		C#159561-12-01	MELISSA MORRISON
Email:	lellis@franzenvironmental.com	Email:	jkeenliside@franzenvironmental.com	Site Location:	Resolute Bay		
				Sampled By:	ET/JK		

REGULATORY CRITERIA:
☐ MISA ☐ Reg. 153/04 Sewer Use ☐ Sanitary ☐ Storm ☐ Combined
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table 6 ☐ Residential/Parkland ☐ Industrial/Commercial ☐ Medium/Fine ☐ Coarse
☐ Reg. 558 Municipality _____
Other (specify) _____ Report Criteria on C of A ? ☐

SPECIAL INSTRUCTIONS: SW=Surface Water

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	Petroleum Hydro. CCME F1 & BTEX in Water	Petroleum Hydrocarbons F2-F4 in Water	PWQO Metals inc Cr6, Hg, Al, TP	OC Pesticides (Selected) & PCB	VOCs	PAH Compounds in Water by GC/MS (SIM)	Glycols in Water by GC/FID	# of Bottles	Comments
1		1-SW-16-2	08/19/09	10:30 AM	SW	N	N	X	X	X			X		11	
2		3-SW-10-1	08/19/09	12:00 PM	SW	N	N	X	X	X			X		11	
3		1-SW-16-1	08/19/09	10:30AM	SW	N	N	X	X	X			X		11	REC'D IN OTTAWA
4		1-SW-4	08/19/09	1:30PM	SW	N	N	X	X	X	X	X	X		13	
5		1-SW-5	08/19/09	2:00PM	SW	N	N	X	X	X					9	
6		~~MSW~~														
7																
8																
9																
10																

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____ ☐
Rush Confirmation Number: _____ *(call lab for #)*

FLAG: Sample Inspection
Resolved ☐ By:_____
Date:_____

24-Aug-09 11:40
MELISSA MORRISON
A9A9300
JOE OTT-001

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
Elliott Tonasket	09/08/21	13:50	Joe Kish	09/08/24	11:40	

Laboratory Use Only		
Time Sensitive ☐	Temperature (°C) on Receipt 3/5/3 6/5/4	Custody Seal Intact on Cooler? ☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5779 www.maxxamanalytics.com

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#10988 Franz Environmental Inc	Company Name:		Quotation #:	A95305	MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	Lillian Ellis	Contact Name:	Jennifer Keenliside	P.O. #:	1747-0901		159533
Address:	329 Churchill Ave N Suite 200	Address:		Project #:	P-2963	CHAIN OF CUSTODY #:	PROJECT MANAGER:
	Ottawa ON K1Z 5B8			Project Name:		C#159533-10-01	MELISSA MORRISON
Phone:	(613)721-0555 Fax: (613)721-0029	Phone:	Fax:	Site Location:	Resolute Bay		
Email:	lellis@franzenvironmental.com	Email:	jkeenliside@franzenvironmental.com	Sampled By:	ET/JK		

REGULATORY CRITERIA:

☐ MISA Reg. 153/04 Sewer Use ☐ Sanitary ☐ Storm ☐ Combined

☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table 6 ☐ Residential/Parkland ☐ Industrial/Commercial ☐ Medium/Fine ☐ Coarse

☐ Reg. 558 Municipality _____

Other (specify) _____ Report Criteria on C of A ? ☐

SPECIAL INSTRUCTIONS: SD=sediment SL=soil

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y / N)	Metals Field Filtered? (Y / N)	Petroleum Hydro. CCME F1 & BTEX in Soil	Petroleum Hydrocarbons F2-F4 in Soil	F4G (If Required)	OC Pesticides (Selected) & PCB	O'Reg 153 Metals inc Hg, HWSB, Cr6	Glycols in Soil by GC-FID	VOCs	PAH Compounds in Soil by GC/MS (SIM)	Sieves, Various Sizes	Soil Texture (% sand, %silt, %clay)	# of Bottles	Comments
1		1-SD-16-2	08/19/09	10:30AM	SD			X	X	X	X	X			X			4 1 bag	
2		3-SD-10	08/19/09	12:00PM	SD			X	X	X	X	X			X			4 1 bag	REC'D IN OTTAWA
3		1-SD-16-1	08/19/09	10:15AM	SD			X	X	X	X	X			X			4 1 bag	
4		1-SD-4	08/19/09	1:30PM	SD			X	X	X	X	X		X	X			5 1 bag	
5		1-SD-5	08/19/09	2:00PM	SD			X	X			X						2 1 bag	
6		1-TP-15	08/19/09	\	SL							X						1 bag	
7		1-SD-15	08/19/09	\	SD			X	X			X			X			3 1 bag	
8																			
9																			
10																			

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____ Time Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
Elliott Jonasket	09/08/21	13:50	[illegible]	09/08/24	11:40	

Laboratory Use Only		
Time Sensitive ☐	Temperature (°C) on Receipt 2/5/3	Custody Seal Intact on Cooler? ☐ Yes ☐ No

6/5/14

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Your P.O. #: 1747-0901

Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15956113, 159533-1, 159561-1

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2010/01/21

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A9979
Received: 2009/08/25, 11:05

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	3	2009/09/02	2009/09/02	CAM SOP-00408	R153 Ana. Prot. 2004
Chromium (VI) in Soil	3	2009/08/31	2009/09/01	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2009/08/25	2009/08/27	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2009/08/25	2009/08/28	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	1	2009/08/26	2009/08/26	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2009/08/26	2009/08/28	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	2	2009/09/01	2009/09/01	CAM SOP-00447	EPA 6020
Acid Extr. Metals (aqua regia) by ICPMS	1	2009/09/03	2009/09/03	CAM SOP-00447	EPA 6020
MOISTURE	4	N/A	2009/08/27	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	3	N/A	2009/08/31	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB	2	2009/09/01	2009/09/01	CAM SOP-00307	SW846 8081, 8082
PAH Compounds in Soil by GC/MS (SIM)	1	2009/08/28	2009/08/29	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	2	2009/08/28	2009/08/30	CAM SOP - 00318	EPA 8270
Polychlorinated Biphenyl in Soil	1	2009/08/28	2009/08/29	CAM SOP-00309	SW846 8082
Volatile Organic Compounds in Soil	3	2009/08/26	2009/08/27	CAM SOP-00226	EPA 8260 modified

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dissolved Aluminum (0.2 u, clay free)	6	N/A	2009/09/01	CAM SOP-00447	SW846, 6020
Chromium (VI) in Water	6	N/A	2009/08/28	BRL SOP-00106	EPA 7199
Petroleum Hydro. CCME F1 & BTEX in Water	6	N/A	2009/08/28	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	3	2009/08/26	2009/08/27	CAM SOP-00316	CCME Hydrocarbons
Petroleum Hydrocarbons F2-F4 in Water	3	2009/08/26	2009/08/28	CAM SOP-00316	CCME Hydrocarbons
Glycols in Water by GC/FID	2	N/A	2009/08/28	CAM SOP-00322	based on EPA 8015
Mercury	2	2009/08/31	2009/08/31	CAM SOP-00453	EPA 7470
Mercury	4	2009/09/01	2009/09/02	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	6	N/A	2009/09/03	CAM SOP-00447	EPA 6020
OC Pesticides (Selected) & PCB	4	2009/08/27	2009/08/29	CAM SOP-00307	SW846 8081,8082
PAH Compounds in Water by GC/MS (SIM)	3	2009/09/01	2009/09/01	CAM SOP-00318	EPA 8270
PAH Compounds in Water by GC/MS (SIM)	3	2009/09/01	2009/09/02	CAM SOP-00318	EPA 8270
Total Phosphorus (Colourimetric)	6	2009/09/02	2009/09/02	CAM SOP-00407	APHA 4500 P,B,F
Volatile Organic Compounds in Water	5	N/A	2009/09/04	CAM SOP-00226	EPA 8260 modified

../2

Your P.O. #: 1747-0901

Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15956113, 159533-1, 159561-1

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2010/01/21

CERTIFICATE OF ANALYSIS

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MARIJANE CRUZ, Project Manager
Email: Marijane.Cruz@maxxamanalytics.com
Phone# (905) 817-5756

==========

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Total cover pages: 2

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DM2390	DM2391	DM2392		DM2393		
Sampling Date		2009/08/20	2009/08/20	2009/08/20		2009/08/22		
COC Number		159533-1	159533-1	159533-1		159533-1		
	Units	**FR-6**	**2-TP-20**	**2-SD-19**	**QC Batch**	**1-TP-12**	**DL**	**QC Batch**
Inorganics								
Moisture	%	23	23	29	1924013	5.5	0.2	1920995

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		DM2390			DM2391		
Sampling Date		2009/08/20			2009/08/20		
COC Number		159533-1			159533-1		
	Units	**FR-6**	**DL**	**QC Batch**	**2-TP-20**	**DL**	**QC Batch**
Metals							
Hot Water Ext. Boron (B)	ug/g	0.58	0.01	1926450	0.50	0.01	1926450
Chromium (VI)	ug/g	<0.2	0.2	1924341	<0.2	0.2	1924341
Acid Extractable Antimony (Sb)	ug/g	<0.2	0.2	1925615	<0.2	0.2	1928453
Acid Extractable Arsenic (As)	ug/g	<1	1	1925615	<1	1	1928453
Acid Extractable Barium (Ba)	ug/g	7.9	0.5	1925615	7.2	0.5	1928453
Acid Extractable Beryllium (Be)	ug/g	<0.2	0.2	1925615	<0.2	0.2	1928453
Acid Extractable Cadmium (Cd)	ug/g	0.2	0.1	1925615	0.1	0.1	1928453
Acid Extractable Chromium (Cr)	ug/g	3	1	1925615	4	1	1928453
Acid Extractable Cobalt (Co)	ug/g	0.8	0.1	1925615	0.8	0.1	1928453
Acid Extractable Copper (Cu)	ug/g	2.6	0.5	1925615	3.0	0.5	1928453
Acid Extractable Lead (Pb)	ug/g	4	1	1925615	3	1	1928453
Acid Extractable Molybdenum (Mo)	ug/g	<0.5	0.5	1925615	0.5	0.5	1928453
Acid Extractable Nickel (Ni)	ug/g	3.1 (1)	2.5	1925615	1.5	0.5	1928453
Acid Extractable Selenium (Se)	ug/g	<0.5	0.5	1925615	<0.5	0.5	1928453
Acid Extractable Silver (Ag)	ug/g	<0.2	0.2	1925615	<0.2	0.2	1928453
Acid Extractable Thallium (Tl)	ug/g	<0.05	0.05	1925615	<0.05	0.05	1928453
Acid Extractable Vanadium (V)	ug/g	<5	5	1925615	<5	5	1928453
Acid Extractable Zinc (Zn)	ug/g	19	5	1925615	16	5	1928453
Acid Extractable Mercury (Hg)	ug/g	<0.05	0.05	1925615	<0.05	0.05	1928453

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		DM2392		
Sampling Date		2009/08/20		
COC Number		159533-1		
	Units	**2-SD-19**	**DL**	**QC Batch**
Metals				
Hot Water Ext. Boron (B)	ug/g	1.2	0.01	1926450
Chromium (VI)	ug/g	<0.2	0.2	1924341
Acid Extractable Antimony (Sb)	ug/g	<0.2	0.2	1925615
Acid Extractable Arsenic (As)	ug/g	3	1	1925615
Acid Extractable Barium (Ba)	ug/g	7.1	0.5	1925615
Acid Extractable Beryllium (Be)	ug/g	<0.2	0.2	1925615
Acid Extractable Cadmium (Cd)	ug/g	<0.1	0.1	1925615
Acid Extractable Chromium (Cr)	ug/g	3	1	1925615
Acid Extractable Cobalt (Co)	ug/g	0.3	0.1	1925615
Acid Extractable Copper (Cu)	ug/g	1.7	0.5	1925615
Acid Extractable Lead (Pb)	ug/g	2	1	1925615
Acid Extractable Molybdenum (Mo)	ug/g	2.6	0.5	1925615
Acid Extractable Nickel (Ni)	ug/g	<2.5 (1)	2.5	1925615
Acid Extractable Selenium (Se)	ug/g	<0.5	0.5	1925615
Acid Extractable Silver (Ag)	ug/g	<0.2	0.2	1925615
Acid Extractable Thallium (Tl)	ug/g	<0.05	0.05	1925615
Acid Extractable Vanadium (V)	ug/g	<5	5	1925615
Acid Extractable Zinc (Zn)	ug/g	9	5	1925615
Acid Extractable Mercury (Hg)	ug/g	<0.05	0.05	1925615

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DM2390		DM2391		
Sampling Date		2009/08/20		2009/08/20		
COC Number		159533-1		159533-1		
	Units	**FR-6**	**QC Batch**	**2-TP-20**	**DL**	**QC Batch**
Polyaromatic Hydrocarbons						
Acenaphthene	ug/g	<0.01	1921687	<0.01	0.01	1921671
Acenaphthylene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Anthracene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Benzo(a)anthracene	ug/g	<0.01	1921687	<0.01	0.01	1921671
Benzo(a)pyrene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Benzo(b/j)fluoranthene	ug/g	<0.01	1921687	<0.01	0.01	1921671
Benzo(g,h,i)perylene	ug/g	<0.02	1921687	<0.02	0.02	1921671
Benzo(k)fluoranthene	ug/g	<0.01	1921687	<0.01	0.01	1921671
Chrysene	ug/g	<0.01	1921687	<0.01	0.01	1921671
Dibenz(a,h)anthracene	ug/g	<0.02	1921687	<0.02	0.02	1921671
Fluoranthene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Fluorene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Indeno(1,2,3-cd)pyrene	ug/g	<0.02	1921687	<0.02	0.02	1921671
1-Methylnaphthalene	ug/g	<0.005	1921687	0.007	0.005	1921671
2-Methylnaphthalene	ug/g	<0.005	1921687	0.007	0.005	1921671
Naphthalene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Phenanthrene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Pyrene	ug/g	<0.005	1921687	<0.005	0.005	1921671
Surrogate Recovery (%)						
D10-Anthracene	%	113	1921687	91		1921671
D14-Terphenyl (FS)	%	110	1921687	94		1921671
D7-Quinoline	%	91	1921687	82		1921671
D8-Acenaphthylene	%	94	1921687	79		1921671

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Franz Environmental Inc
Client Project #: P-2963
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Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DM2392		
Sampling Date		2009/08/20		
COC Number		159533-1		
	Units	**2-SD-19**	**DL**	**QC Batch**
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.02	0.02	1921687
Acenaphthylene	ug/g	<0.01	0.01	1921687
Anthracene	ug/g	<0.01	0.01	1921687
Benzo(a)anthracene	ug/g	<0.02	0.02	1921687
Benzo(a)pyrene	ug/g	<0.01	0.01	1921687
Benzo(b/j)fluoranthene	ug/g	<0.02	0.02	1921687
Benzo(g,h,i)perylene	ug/g	<0.04	0.04	1921687
Benzo(k)fluoranthene	ug/g	<0.02	0.02	1921687
Chrysene	ug/g	<0.02	0.02	1921687
Dibenz(a,h)anthracene	ug/g	<0.04	0.04	1921687
Fluoranthene	ug/g	<0.01	0.01	1921687
Fluorene	ug/g	<0.01	0.01	1921687
Indeno(1,2,3-cd)pyrene	ug/g	<0.04	0.04	1921687
1-Methylnaphthalene	ug/g	<0.01	0.01	1921687
2-Methylnaphthalene	ug/g	<0.01	0.01	1921687
Naphthalene	ug/g	<0.01	0.01	1921687
Phenanthrene	ug/g	<0.01	0.01	1921687
Pyrene	ug/g	<0.01	0.01	1921687
Surrogate Recovery (%)				
D10-Anthracene	%	102		1921687
D14-Terphenyl (FS)	%	78		1921687
D7-Quinoline	%	74		1921687
D8-Acenaphthylene	%	72		1921687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DM2390	DM2391	DM2393		
Sampling Date		2009/08/20	2009/08/20	2009/08/22		
COC Number		159533-1	159533-1	159533-1		
	Units	**FR-6**	**2-TP-20**	**1-TP-12**	**DL**	**QC Batch**
Volatile Organics						
Acetone (2-Propanone)	ug/g	<0.1	<0.1	<0.1	0.1	1919027
Benzene	ug/g	0.051	0.056	0.008	0.002	1919027
Bromodichloromethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Bromoform	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Bromomethane	ug/g	<0.003	<0.003	<0.003	0.003	1919027
Carbon Tetrachloride	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Chlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Chloroform	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Dibromochloromethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,2-Dichlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,3-Dichlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,4-Dichlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1-Dichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,2-Dichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1-Dichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
cis-1,2-Dichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
trans-1,2-Dichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,2-Dichloropropane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
cis-1,3-Dichloropropene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
trans-1,3-Dichloropropene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Ethylbenzene	ug/g	0.087	0.085	0.008	0.002	1919027
Ethylene Dibromide	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Methylene Chloride(Dichloromethane)	ug/g	<0.003	<0.003	<0.003	0.003	1919027
Methyl Isobutyl Ketone	ug/g	<0.03	<0.03	<0.03	0.03	1919027
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.03	<0.03	<0.03	0.03	1919027
Methyl t-butyl ether (MTBE)	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Styrene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1,1,2-Tetrachloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1,2,2-Tetrachloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Tetrachloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Toluene	ug/g	0.17	0.19	0.020	0.002	1919027
1,1,1-Trichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9979
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Franz Environmental Inc
Client Project #: P-2963
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Your P.O. #: 1747-0901
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VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DM2390	DM2391	DM2393		
Sampling Date		2009/08/20	2009/08/20	2009/08/22		
COC Number		159533-1	159533-1	159533-1		
	Units	**FR-6**	**2-TP-20**	**1-TP-12**	**DL**	**QC Batch**
1,1,2-Trichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Trichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Vinyl Chloride	ug/g	<0.002	<0.002	<0.002	0.002	1919027
p+m-Xylene	ug/g	0.079	0.076	0.011	0.002	1919027
o-Xylene	ug/g	0.047	0.045	0.005	0.002	1919027
Xylene (Total)	ug/g	0.13	0.12	0.016	0.002	1919027
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	84	80	94		1919027
D4-1,2-Dichloroethane	%	88	86	85		1919027
D8-Toluene	%	91	96	97		1919027

QC Batch = Quality Control Batch

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Franz Environmental Inc
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DM2390		DM2391	DM2392		
Sampling Date		2009/08/20		2009/08/20	2009/08/20		
COC Number		159533-1		159533-1	159533-1		
	Units	**FR-6**	**QC Batch**	**2-TP-20**	**2-SD-19**	**DL**	**QC Batch**
BTEX & F1 Hydrocarbons							
Benzene	ug/g				<0.02	0.02	1918413
Toluene	ug/g				<0.02	0.02	1918413
Ethylbenzene	ug/g				<0.02	0.02	1918413
o-Xylene	ug/g				<0.02	0.02	1918413
p+m-Xylene	ug/g				<0.04	0.04	1918413
Total Xylenes	ug/g				<0.04	0.04	1918413
F1 (C6-C10)	ug/g	<10	1919154	<10	<10	10	1918413
F1 (C6-C10) - BTEX	ug/g	<10	1919154	<10	<10	10	1918413
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	<10	1919129	<10	<10	10	1919122
F3 (C16-C34 Hydrocarbons)	ug/g	<10	1919129	<10	<10	10	1919122
F4 (C34-C50 Hydrocarbons)	ug/g	<10	1919129	<10	<10	10	1919122
Reached Baseline at C50	ug/g	Yes	1919129	Yes	Yes		1919122
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	107	1919154	90	87		1918413
4-Bromofluorobenzene	%	112	1919154	114	114		1918413
D10-Ethylbenzene	%	85	1919154	84	78		1918413
D4-1,2-Dichloroethane	%	85	1919154	89	92		1918413
o-Terphenyl	%	88	1919129	83	85		1919122

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Your P.O. #: 1747-0901
Sampler Initials: ET

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		DM2391		
Sampling Date		2009/08/20		
COC Number		159533-1		
	Units	**2-TP-20**	**DL**	**QC Batch**
PCBs				
Aroclor 1262	ug/g	<0.01	0.01	1922106
Aroclor 1016	ug/g	<0.01	0.01	1922106
Aroclor 1221	ug/g	<0.01	0.01	1922106
Aroclor 1232	ug/g	<0.01	0.01	1922106
Aroclor 1242	ug/g	<0.01	0.01	1922106
Aroclor 1248	ug/g	<0.01	0.01	1922106
Aroclor 1254	ug/g	<0.01	0.01	1922106
Aroclor 1260	ug/g	<0.01	0.01	1922106
Aroclor 1268	ug/g	<0.01	0.01	1922106
Total PCB	ug/g	<0.01	0.01	1922106
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	95		1922106
Decachlorobiphenyl	%	106		1922106

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DM2390	DM2392		
Sampling Date		2009/08/20	2009/08/20		
COC Number		159533-1	159533-1		
	Units	**FR-6**	**2-SD-19**	**DL**	**QC Batch**
Pesticides & Herbicides					
Aroclor 1262	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1268	ug/g	<0.02	<0.02	0.02	1925535
Aldrin	ug/g	<0.002	<0.002	0.002	1925535
a-BHC	ug/g	<0.002	<0.002	0.002	1925535
b-BHC	ug/g	<0.002	<0.002	0.002	1925535
d-BHC	ug/g	<0.002	<0.002	0.002	1925535
a-Chlordane	ug/g	<0.002	<0.002	0.002	1925535
g-Chlordane	ug/g	<0.002	<0.002	0.002	1925535
Chlordane (Total)	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDD	ug/g	<0.002	<0.002	0.002	1925535
p,p-DDD	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDD + p,p-DDD	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDE	ug/g	<0.002	<0.002	0.002	1925535
p,p-DDE	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDE + p,p-DDE	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDT	ug/g	<0.002	<0.002	0.002	1925535
p,p-DDT	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDT + p,p-DDT	ug/g	<0.002	<0.002	0.002	1925535
DDT+ Metabolites	ug/g	<0.002	<0.002	0.002	1925535
Dieldrin	ug/g	<0.002	<0.002	0.002	1925535
Endosulfan I	ug/g	<0.002	<0.002	0.002	1925535
Endosulfan II	ug/g	<0.002	<0.002	0.002	1925535
Endosulfan sulfate	ug/g	<0.002	<0.002	0.002	1925535
Total Endosulfan	ug/g	<0.002	<0.002	0.002	1925535
Endrin	ug/g	<0.002	<0.002	0.002	1925535
Endrin aldehyde	ug/g	<0.002	<0.002	0.002	1925535
Endrin ketone	ug/g	<0.002	<0.002	0.002	1925535
Heptachlor	ug/g	<0.002	<0.002	0.002	1925535
Heptachlor epoxide	ug/g	<0.002	<0.002	0.002	1925535
Hexachlorobenzene	ug/g	<0.002	<0.002	0.002	1925535
Lindane	ug/g	<0.002	<0.002	0.002	1925535
Methoxychlor	ug/g	<0.008	<0.008	0.008	1925535

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DM2390	DM2392		
Sampling Date		2009/08/20	2009/08/20		
COC Number		159533-1	159533-1		
	Units	**FR-6**	**2-SD-19**	**DL**	**QC Batch**
Mirex	ug/g	<0.002	<0.002	0.002	1925535
Octachlorostyrene	ug/g	<0.002	<0.002	0.002	1925535
Total PCB	ug/g	<0.03	<0.03	0.03	1925535
Aroclor 1016	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1221	ug/g	<0.03	<0.03	0.03	1925535
Aroclor 1232	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1242	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1248	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1254	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1260	ug/g	<0.02	<0.02	0.02	1925535
Toxaphene	ug/g	<0.08	<0.08	0.08	1925535
Surrogate Recovery (%)					
2,4,5,6-Tetrachloro-m-xylene	%	64	63		1925535
Decachlorobiphenyl	%	78	76		1925535

QC Batch = Quality Control Batch

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RESULTS OF ANALYSES OF WATER

Maxxam ID		DM2349	DM2350	DM2351	DM2352		
Sampling Date		2009/08/22 12:00	2009/08/22 10:30	2009/08/22 11:30	2009/08/22 11:00		
COC Number		159561-1	159561-1	159561-1	159561-1		
	Units	**2-MW-8**	**2-MW-1**	**2-MW-2**	**1-MW-13**	**DL**	**QC Batch**
Inorganics							
Total Phosphorus	mg/L	0.18	0.079	0.022	0.11	0.002	1926810

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DM2353	DM2354		
Sampling Date		2009/08/22 10:00	2009/08/20 21:05		
COC Number		159561-1	159561-1		
	Units	**1-MW-14**	**2-SW-19-1**	**DL**	**QC Batch**
Inorganics					
Total Phosphorus	mg/L	0.079	0.011	0.002	1926810

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GLYCOLS BY GC-FID (WATER)

Maxxam ID		DM2351	DM2355		
Sampling Date		2009/08/22 11:30	2009/08/20		
COC Number		159561-1	159561-1		
	Units	**2-MW-2**	**FR-4**	**DL**	**QC Batch**
Glycols					
Diethylene Glycol	mg/L	<5	<5	5	1920911
Ethylene Glycol	mg/L	<5	<5	5	1920911
Propylene Glycol	mg/L	<5	<5	5	1920911
Total Glycol	mg/L	<5	<5	5	1920911

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
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Franz Environmental Inc
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Sampler Initials: ET

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DM2349		DM2350		
Sampling Date		2009/08/22 12:00		2009/08/22 10:30		
COC Number		159561-1		159561-1		
	Units	**2-MW-8**	**QC Batch**	**2-MW-1**	**DL**	**QC Batch**
Metals						
Dissolved (0.2u) Aluminum (Al)	ug/L	<5	1924587	<5	5	1924587
Chromium (VI)	ug/L	<0.5	1921692	<0.5	0.5	1921692
Mercury (Hg)	ug/L	<0.1	1923767	<0.1	0.1	1925750
Total Antimony (Sb)	ug/L	1.0	1928144	<0.5	0.5	1928144
Total Arsenic (As)	ug/L	2	1928144	<1	1	1928144
Total Beryllium (Be)	ug/L	<0.5	1928144	<0.5	0.5	1928144
Total Boron (B)	ug/L	40	1928144	16	10	1928144
Total Cadmium (Cd)	ug/L	0.1	1928144	0.1	0.1	1928144
Total Chromium (Cr)	ug/L	<5	1928144	<5	5	1928144
Total Cobalt (Co)	ug/L	1.8	1928144	0.6	0.5	1928144
Total Copper (Cu)	ug/L	2	1928144	3	1	1928144
Total Iron (Fe)	ug/L	160	1928144	<100	100	1928144
Total Lead (Pb)	ug/L	1.0	1928144	<0.5	0.5	1928144
Total Molybdenum (Mo)	ug/L	<1	1928144	<1	1	1928144
Total Nickel (Ni)	ug/L	3	1928144	<1	1	1928144
Total Selenium (Se)	ug/L	<2	1928144	<2	2	1928144
Total Silver (Ag)	ug/L	<0.1	1928144	<0.1	0.1	1928144
Total Thallium (Tl)	ug/L	<0.05	1928144	<0.05	0.05	1928144
Total Tungsten (W)	ug/L	<1	1928144	<1	1	1928144
Total Uranium (U)	ug/L	0.7	1928144	0.4	0.1	1928144
Total Vanadium (V)	ug/L	<1	1928144	<1	1	1928144
Total Zinc (Zn)	ug/L	8	1928144	6	5	1928144
Total Zirconium (Zr)	ug/L	<1	1928144	<1	1	1928144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DM2351		DM2352		
Sampling Date		2009/08/22 11:30		2009/08/22 11:00		
COC Number		159561-1		159561-1		
	Units	**2-MW-2**	**QC Batch**	**1-MW-13**	**DL**	**QC Batch**
Metals						
Dissolved (0.2u) Aluminum (Al)	ug/L	<5	1924587	<5	5	1924587
Chromium (VI)	ug/L	<0.5	1921692	<0.5	0.5	1921692
Mercury (Hg)	ug/L	<0.1	1923767	<0.1	0.1	1925750
Total Antimony (Sb)	ug/L	<0.5	1928144	<0.5	0.5	1928144
Total Arsenic (As)	ug/L	<1	1928144	2	1	1928144
Total Beryllium (Be)	ug/L	<0.5	1928144	<0.5	0.5	1928144
Total Boron (B)	ug/L	31	1928144	31	10	1928144
Total Cadmium (Cd)	ug/L	<0.1	1928144	<0.1	0.1	1928144
Total Chromium (Cr)	ug/L	<5	1928144	<5	5	1928144
Total Cobalt (Co)	ug/L	<0.5	1928144	<0.5	0.5	1928144
Total Copper (Cu)	ug/L	1	1928144	2	1	1928144
Total Iron (Fe)	ug/L	240	1928144	1100	100	1928144
Total Lead (Pb)	ug/L	0.9	1928144	1.4	0.5	1928144
Total Molybdenum (Mo)	ug/L	1	1928144	<1	1	1928144
Total Nickel (Ni)	ug/L	<1	1928144	1	1	1928144
Total Selenium (Se)	ug/L	<2	1928144	<2	2	1928144
Total Silver (Ag)	ug/L	<0.1	1928144	<0.1	0.1	1928144
Total Thallium (Tl)	ug/L	<0.05	1928144	<0.05	0.05	1928144
Total Tungsten (W)	ug/L	<1	1928144	<1	1	1928144
Total Uranium (U)	ug/L	0.9	1928144	0.2	0.1	1928144
Total Vanadium (V)	ug/L	<1	1928144	2	1	1928144
Total Zinc (Zn)	ug/L	<5	1928144	11	5	1928144
Total Zirconium (Zr)	ug/L	<1	1928144	<1	1	1928144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DM2353	DM2354		
Sampling Date		2009/08/22 10:00	2009/08/20 21:05		
COC Number		159561-1	159561-1		
	Units	**1-MW-14**	**2-SW-19-1**	**DL**	**QC Batch**
Metals					
Dissolved (0.2u) Aluminum (Al)	ug/L	<5	<5	5	1924587
Chromium (VI)	ug/L	<0.5	<0.5	0.5	1921692
Mercury (Hg)	ug/L	<0.1	<0.1	0.1	1925750
Total Antimony (Sb)	ug/L	0.6	<0.5	0.5	1928144
Total Arsenic (As)	ug/L	2	<1	1	1928144
Total Beryllium (Be)	ug/L	<0.5	<0.5	0.5	1928144
Total Boron (B)	ug/L	55	27	10	1928144
Total Cadmium (Cd)	ug/L	<0.1	<0.1	0.1	1928144
Total Chromium (Cr)	ug/L	<5	<5	5	1928144
Total Cobalt (Co)	ug/L	1.7	<0.5	0.5	1928144
Total Copper (Cu)	ug/L	3	<1	1	1928144
Total Iron (Fe)	ug/L	1100	<100	100	1928144
Total Lead (Pb)	ug/L	1.6	<0.5	0.5	1928144
Total Molybdenum (Mo)	ug/L	2	<1	1	1928144
Total Nickel (Ni)	ug/L	7	<1	1	1928144
Total Selenium (Se)	ug/L	<2	<2	2	1928144
Total Silver (Ag)	ug/L	<0.1	<0.1	0.1	1928144
Total Thallium (Tl)	ug/L	<0.05	<0.05	0.05	1928144
Total Tungsten (W)	ug/L	<1	<1	1	1928144
Total Uranium (U)	ug/L	0.7	0.3	0.1	1928144
Total Vanadium (V)	ug/L	2	<1	1	1928144
Total Zinc (Zn)	ug/L	10	<5	5	1928144
Total Zirconium (Zr)	ug/L	1	<1	1	1928144

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DM2349	DM2350	DM2351		
Sampling Date		2009/08/22 12:00	2009/08/22 10:30	2009/08/22 11:30		
COC Number		159561-1	159561-1	159561-1		
	Units	**2-MW-8**	**2-MW-1**	**2-MW-2**	**DL**	**QC Batch**
Polyaromatic Hydrocarbons						
Acenaphthene	ug/L	0.33	<0.05	<0.05	0.05	1924970
Acenaphthylene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Anthracene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Benzo(a)anthracene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Benzo(a)pyrene	ug/L	<0.01	<0.01	<0.01	0.01	1924970
Benzo(b/j)fluoranthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Benzo(g,h,i)perylene	ug/L	<0.1	<0.1	<0.1	0.1	1924970
Benzo(k)fluoranthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Chrysene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Dibenz(a,h)anthracene	ug/L	<0.1	<0.1	<0.1	0.1	1924970
Fluoranthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Fluorene	ug/L	0.97	<0.05	<0.05	0.05	1924970
Indeno(1,2,3-cd)pyrene	ug/L	<0.1	<0.1	<0.1	0.1	1924970
1-Methylnaphthalene	ug/L	44	0.46	0.06	0.05	1924970
2-Methylnaphthalene	ug/L	66	1.0	0.07	0.05	1924970
Naphthalene	ug/L	39	0.15	0.11	0.05	1924970
Phenanthrene	ug/L	0.18	<0.05	<0.05	0.05	1924970
Pyrene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Surrogate Recovery (%)						
D10-Anthracene	%	81	83	79		1924970
D14-Terphenyl (FS)	%	71	75	71		1924970
D7-Quinoline	%	86	92	88		1924970
D8-Acenaphthylene	%	84	85	84		1924970

RDL = Reportable Detection Limit
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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DM2352	DM2353	DM2354		
Sampling Date		2009/08/22 11:00	2009/08/22 10:00	2009/08/20 21:05		
COC Number		159561-1	159561-1	159561-1		
	Units	**1-MW-13**	**1-MW-14**	**2-SW-19-1**	**DL**	**QC Batch**
Polyaromatic Hydrocarbons						
Acenaphthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Acenaphthylene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Anthracene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Benzo(a)anthracene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Benzo(a)pyrene	ug/L	<0.01	<0.01	<0.01	0.01	1924970
Benzo(b/j)fluoranthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Benzo(g,h,i)perylene	ug/L	<0.1	<0.1	<0.1	0.1	1924970
Benzo(k)fluoranthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Chrysene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Dibenz(a,h)anthracene	ug/L	<0.1	<0.1	<0.1	0.1	1924970
Fluoranthene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Fluorene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Indeno(1,2,3-cd)pyrene	ug/L	<0.1	<0.1	<0.1	0.1	1924970
1-Methylnaphthalene	ug/L	0.85	0.42	<0.05	0.05	1924970
2-Methylnaphthalene	ug/L	0.89	0.25	<0.05	0.05	1924970
Naphthalene	ug/L	5.2	0.25	<0.05	0.05	1924970
Phenanthrene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Pyrene	ug/L	<0.05	<0.05	<0.05	0.05	1924970
Surrogate Recovery (%)						
D10-Anthracene	%	77	81	88		1924970
D14-Terphenyl (FS)	%	72	73	81		1924970
D7-Quinoline	%	88	92	97		1924970
D8-Acenaphthylene	%	79	83	80		1924970

RDL = Reportable Detection Limit
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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DM2349		DM2350		
Sampling Date		2009/08/22 12:00		2009/08/22 10:30		
COC Number		159561-1		159561-1		
	Units	**2-MW-8**	**DL**	**2-MW-1**	**DL**	**QC Batch**
Volatile Organics						
Acetone (2-Propanone)	ug/L	<10	10	<10	10	1926784
Benzene	ug/L	1.8	0.1	<0.1	0.1	1926784
Bromodichloromethane	ug/L	<0.1	0.1	<0.1	0.1	1926784
Bromoform	ug/L	<0.2	0.2	<0.2	0.2	1926784
Bromomethane	ug/L	<0.5	0.5	<0.5	0.5	1926784
Carbon Tetrachloride	ug/L	<0.1	0.1	<0.1	0.1	1926784
Chlorobenzene	ug/L	<0.1	0.1	<0.1	0.1	1926784
Chloroform	ug/L	<0.1	0.1	<0.1	0.1	1926784
Dibromochloromethane	ug/L	<0.2	0.2	<0.2	0.2	1926784
1,2-Dichlorobenzene	ug/L	<0.2	0.2	<0.2	0.2	1926784
1,3-Dichlorobenzene	ug/L	<0.2	0.2	<0.2	0.2	1926784
1,4-Dichlorobenzene	ug/L	<0.2	0.2	<0.2	0.2	1926784
1,1-Dichloroethane	ug/L	<0.1	0.1	<0.1	0.1	1926784
1,2-Dichloroethane	ug/L	<0.2	0.2	<0.2	0.2	1926784
1,1-Dichloroethylene	ug/L	<0.1	0.1	<0.1	0.1	1926784
cis-1,2-Dichloroethylene	ug/L	<0.1	0.1	<0.1	0.1	1926784
trans-1,2-Dichloroethylene	ug/L	<0.1	0.1	<0.1	0.1	1926784
1,2-Dichloropropane	ug/L	<0.1	0.1	<0.1	0.1	1926784
cis-1,3-Dichloropropene	ug/L	<0.2	0.2	<0.2	0.2	1926784
trans-1,3-Dichloropropene	ug/L	<0.2	0.2	<0.2	0.2	1926784
Ethylbenzene	ug/L	3.7	0.1	<0.1	0.1	1926784
Ethylene Dibromide	ug/L	<0.2	0.2	<0.2	0.2	1926784
Methylene Chloride(Dichloromethane)	ug/L	<0.5	0.5	<0.5	0.5	1926784
Methyl Isobutyl Ketone	ug/L	<5	5	<5	5	1926784
Methyl Ethyl Ketone (2-Butanone)	ug/L	<5	5	<5	5	1926784
Methyl t-butyl ether (MTBE)	ug/L	<0.2	0.2	<0.2	0.2	1926784
Styrene	ug/L	<0.2	0.2	<0.2	0.2	1926784
1,1,1,2-Tetrachloroethane	ug/L	<0.1	0.1	<0.1	0.1	1926784
1,1,2,2-Tetrachloroethane	ug/L	<0.2	0.2	<0.2	0.2	1926784
Tetrachloroethylene	ug/L	<0.1	0.1	<0.1	0.1	1926784
Toluene	ug/L	17	0.2	<0.2	0.2	1926784

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DM2349		DM2350		
Sampling Date		2009/08/22 12:00		2009/08/22 10:30		
COC Number		159561-1		159561-1		
	Units	**2-MW-8**	**DL**	**2-MW-1**	**DL**	**QC Batch**
1,1,1-Trichloroethane	ug/L	<0.1	0.1	<0.1	0.1	1926784
1,1,2-Trichloroethane	ug/L	<0.2	0.2	<0.2	0.2	1926784
Trichloroethylene	ug/L	<0.1	0.1	<0.1	0.1	1926784
Vinyl Chloride	ug/L	<0.2	0.2	<0.2	0.2	1926784
p+m-Xylene	ug/L	37	0.5	<0.1	0.1	1926784
o-Xylene	ug/L	53	0.5	<0.1	0.1	1926784
Xylene (Total)	ug/L	90	0.5	<0.1	0.1	1926784
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	118		95		1926784
D4-1,2-Dichloroethane	%	94		106		1926784
D8-Toluene	%	102		112		1926784

QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DM2351	DM2352	DM2353		
Sampling Date		2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00		
COC Number		159561-1	159561-1	159561-1		
	Units	**2-MW-2**	**1-MW-13**	**1-MW-14**	**DL**	**QC Batch**
Volatile Organics						
Acetone (2-Propanone)	ug/L	<10	<10	13	10	1926784
Benzene	ug/L	<0.1	<0.1	0.1	0.1	1926784
Bromodichloromethane	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Bromoform	ug/L	<0.2	<0.2	<0.2	0.2	1926784
Bromomethane	ug/L	<0.5	<0.5	<0.5	0.5	1926784
Carbon Tetrachloride	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Chlorobenzene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Chloroform	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Dibromochloromethane	ug/L	<0.2	<0.2	<0.2	0.2	1926784
1,2-Dichlorobenzene	ug/L	<0.2	<0.2	<0.2	0.2	1926784
1,3-Dichlorobenzene	ug/L	<0.2	<0.2	<0.2	0.2	1926784
1,4-Dichlorobenzene	ug/L	<0.2	<0.2	<0.2	0.2	1926784
1,1-Dichloroethane	ug/L	<0.1	<0.1	<0.1	0.1	1926784
1,2-Dichloroethane	ug/L	<0.2	<0.2	<0.2	0.2	1926784
1,1-Dichloroethylene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
cis-1,2-Dichloroethylene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
trans-1,2-Dichloroethylene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
1,2-Dichloropropane	ug/L	<0.1	<0.1	<0.1	0.1	1926784
cis-1,3-Dichloropropene	ug/L	<0.2	<0.2	<0.2	0.2	1926784
trans-1,3-Dichloropropene	ug/L	<0.2	<0.2	<0.2	0.2	1926784
Ethylbenzene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Ethylene Dibromide	ug/L	<0.2	<0.2	<0.2	0.2	1926784
Methylene Chloride(Dichloromethane)	ug/L	<0.5	<0.5	<0.5	0.5	1926784
Methyl Isobutyl Ketone	ug/L	<5	<5	<5	5	1926784
Methyl Ethyl Ketone (2-Butanone)	ug/L	<5	<5	<5	5	1926784
Methyl t-butyl ether (MTBE)	ug/L	<0.2	<0.2	<0.2	0.2	1926784
Styrene	ug/L	<0.2	<0.2	<0.2	0.2	1926784
1,1,1,2-Tetrachloroethane	ug/L	<0.1	<0.1	<0.1	0.1	1926784
1,1,2,2-Tetrachloroethane	ug/L	<0.2	<0.2	<0.2	0.2	1926784
Tetrachloroethylene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Toluene	ug/L	<0.2	<0.2	0.2	0.2	1926784

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DM2351	DM2352	DM2353		
Sampling Date		2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00		
COC Number		159561-1	159561-1	159561-1		
	Units	**2-MW-2**	**1-MW-13**	**1-MW-14**	**DL**	**QC Batch**
1,1,1-Trichloroethane	ug/L	<0.1	<0.1	<0.1	0.1	1926784
1,1,2-Trichloroethane	ug/L	<0.2	<0.2	<0.2	0.2	1926784
Trichloroethylene	ug/L	<0.1	<0.1	<0.1	0.1	1926784
Vinyl Chloride	ug/L	<0.2	<0.2	<0.2	0.2	1926784
p+m-Xylene	ug/L	<0.1	0.7	<0.1	0.1	1926784
o-Xylene	ug/L	<0.1	0.8	0.1	0.1	1926784
Xylene (Total)	ug/L	<0.1	1.5	0.1	0.1	1926784
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	102	115	99		1926784
D4-1,2-Dichloroethane	%	89	109	98		1926784
D8-Toluene	%	82	91	81		1926784

QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DM2349	DM2350	DM2351		
Sampling Date		2009/08/22 12:00	2009/08/22 10:30	2009/08/22 11:30		
COC Number		159561-1	159561-1	159561-1		
	Units	**2-MW-8**	**2-MW-1**	**2-MW-2**	**DL**	**QC Batch**
BTEX & F1 Hydrocarbons						
F1 (C6-C10)	ug/L	190	<100	<100	100	1921083
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	100	1921083
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	420	<100	<100	100	1918356
F3 (C16-C34 Hydrocarbons)	ug/L	<100	<100	<100	100	1918356
F4 (C34-C50 Hydrocarbons)	ug/L	<100	<100	<100	100	1918356
Reached Baseline at C50	ug/L	Yes	Yes	Yes		1918356
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	97	97	98		1921083
4-Bromofluorobenzene	%	104	101	98		1921083
D10-Ethylbenzene	%	117	107	109		1921083
D4-1,2-Dichloroethane	%	80	101	89		1921083
o-Terphenyl	%	84	89	87		1918356

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DM2352	DM2353	DM2354		
Sampling Date		2009/08/22 11:00	2009/08/22 10:00	2009/08/20 21:05		
COC Number		159561-1	159561-1	159561-1		
	Units	**1-MW-13**	**1-MW-14**	**2-SW-19-1**	**DL**	**QC Batch**
BTEX & F1 Hydrocarbons						
Benzene	ug/L			<0.2	0.2	1921083
Toluene	ug/L			<0.2	0.2	1921083
Ethylbenzene	ug/L			<0.2	0.2	1921083
o-Xylene	ug/L			<0.2	0.2	1921083
p+m-Xylene	ug/L			<0.4	0.4	1921083
Total Xylenes	ug/L			<0.4	0.4	1921083
F1 (C6-C10)	ug/L	<100	<100	<100	100	1921083
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	100	1921083
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	1918356
F3 (C16-C34 Hydrocarbons)	ug/L	<100	<100	<100	100	1918356
F4 (C34-C50 Hydrocarbons)	ug/L	<100	<100	<100	100	1918356
Reached Baseline at C50	ug/L	Yes	Yes	Yes		1918356
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	97	103	95		1921083
4-Bromofluorobenzene	%	102	114	103		1921083
D10-Ethylbenzene	%	106	88	111		1921083
D4-1,2-Dichloroethane	%	97	92	79		1921083
o-Terphenyl	%	83	88	84		1918356

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
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Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DM2349	DM2351	DM2352		
Sampling Date		2009/08/22 12:00	2009/08/22 11:30	2009/08/22 11:00		
COC Number		159561-1	159561-1	159561-1		
	Units	**2-MW-8**	**2-MW-2**	**1-MW-13**	**DL**	**QC Batch**
Pesticides & Herbicides						
Aldrin	ug/L	<0.005	<0.005	<0.005	0.005	1920843
a-BHC	ug/L	<0.005	<0.005	<0.005	0.005	1920843
b-BHC	ug/L	<0.005	<0.005	<0.005	0.005	1920843
d-BHC	ug/L	<0.005	<0.005	<0.005	0.005	1920843
a-Chlordane	ug/L	<0.005	<0.005	<0.005	0.005	1920843
g-Chlordane	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Chlordane (Total)	ug/L	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDD	ug/L	<0.005	<0.005	<0.005	0.005	1920843
p,p-DDD	ug/L	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDD + p,p-DDD	ug/L	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDE	ug/L	<0.005	<0.005	<0.005	0.005	1920843
p,p-DDE	ug/L	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDE + p,p-DDE	ug/L	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDT	ug/L	<0.005	<0.005	<0.005	0.005	1920843
p,p-DDT	ug/L	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDT + p,p-DDT	ug/L	<0.005	<0.005	<0.005	0.005	1920843
DDT+ Metabolites	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Dieldrin	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Endosulfan I	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Endosulfan II	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Endosulfan sulfate	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Total Endosulfan	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Endrin	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Endrin aldehyde	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Endrin ketone	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Heptachlor	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Heptachlor epoxide	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Hexachlorobenzene	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Lindane	ug/L	<0.003	<0.003	<0.003	0.003	1920843
Methoxychlor	ug/L	<0.01	<0.01	<0.01	0.01	1920843
Mirex	ug/L	<0.005	<0.005	<0.005	0.005	1920843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DM2349	DM2351	DM2352		
Sampling Date		2009/08/22 12:00	2009/08/22 11:30	2009/08/22 11:00		
COC Number		159561-1	159561-1	159561-1		
	Units	**2-MW-8**	**2-MW-2**	**1-MW-13**	**DL**	**QC Batch**
Octachlorostyrene	ug/L	<0.005	<0.005	<0.005	0.005	1920843
Total PCB	ug/L	<0.1	<0.1	<0.1	0.1	1920843
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1221	ug/L	<0.1	<0.1	<0.1	0.1	1920843
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	0.05	1920843
Toxaphene	ug/L	<0.2	<0.2	<0.2	0.2	1920843
Surrogate Recovery (%)						
2,4,5,6-Tetrachloro-m-xylene	%	41	49	47		1920843
Decachlorobiphenyl	%	74	81	75		1920843

QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
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Franz Environmental Inc
Client Project #: P-2963
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Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DM2353		
Sampling Date		2009/08/22 10:00		
COC Number		159561-1		
	Units	**1-MW-14**	**DL**	**QC Batch**
Pesticides & Herbicides				
Aldrin	ug/L	<0.005	0.005	1920843
a-BHC	ug/L	<0.005	0.005	1920843
b-BHC	ug/L	<0.005	0.005	1920843
d-BHC	ug/L	<0.005	0.005	1920843
a-Chlordane	ug/L	<0.005	0.005	1920843
g-Chlordane	ug/L	<0.005	0.005	1920843
Chlordane (Total)	ug/L	<0.005	0.005	1920843
o,p-DDD	ug/L	<0.005	0.005	1920843
p,p-DDD	ug/L	<0.005	0.005	1920843
o,p-DDD + p,p-DDD	ug/L	<0.005	0.005	1920843
o,p-DDE	ug/L	<0.005	0.005	1920843
p,p-DDE	ug/L	<0.005	0.005	1920843
o,p-DDE + p,p-DDE	ug/L	<0.005	0.005	1920843
o,p-DDT	ug/L	<0.005	0.005	1920843
p,p-DDT	ug/L	<0.005	0.005	1920843
o,p-DDT + p,p-DDT	ug/L	<0.005	0.005	1920843
DDT+ Metabolites	ug/L	<0.005	0.005	1920843
Dieldrin	ug/L	<0.005	0.005	1920843
Endosulfan I	ug/L	<0.005	0.005	1920843
Endosulfan II	ug/L	<0.005	0.005	1920843
Endosulfan sulfate	ug/L	<0.005	0.005	1920843
Total Endosulfan	ug/L	<0.005	0.005	1920843
Endrin	ug/L	<0.005	0.005	1920843
Endrin aldehyde	ug/L	<0.005	0.005	1920843
Endrin ketone	ug/L	<0.005	0.005	1920843
Heptachlor	ug/L	<0.005	0.005	1920843
Heptachlor epoxide	ug/L	<0.005	0.005	1920843
Hexachlorobenzene	ug/L	<0.005	0.005	1920843
Lindane	ug/L	<0.003	0.003	1920843
Methoxychlor	ug/L	<0.01	0.01	1920843
Mirex	ug/L	<0.005	0.005	1920843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
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ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DM2353		
Sampling Date		2009/08/22 10:00		
COC Number		159561-1		
	Units	**1-MW-14**	**DL**	**QC Batch**
Octachlorostyrene	ug/L	<0.005	0.005	1920843
Total PCB	ug/L	<0.1	0.1	1920843
Aroclor 1016	ug/L	<0.05	0.05	1920843
Aroclor 1221	ug/L	<0.1	0.1	1920843
Aroclor 1232	ug/L	<0.05	0.05	1920843
Aroclor 1242	ug/L	<0.05	0.05	1920843
Aroclor 1248	ug/L	<0.05	0.05	1920843
Aroclor 1254	ug/L	<0.05	0.05	1920843
Aroclor 1260	ug/L	<0.05	0.05	1920843
Toxaphene	ug/L	<0.2	0.2	1920843
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	47		1920843
Decachlorobiphenyl	%	79		1920843

QC Batch = Quality Control Batch

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Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

Test Summary

Maxxam ID DM2349 **Collected** 2009/08/22
Sample ID 2-MW-8 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	1924587	N/A	2009/09/01	ADA
Chromium (VI) in Water	IC	1921692	N/A	2009/08/28	LS
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	1921083	N/A	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	1918356	2009/08/26	2009/08/27	PRB
Mercury	CVAA	1923767	2009/08/31	2009/08/31	MC
Total Metals Analysis by ICPMS	ICP/MS	1928144	N/A	2009/09/03	HRE
OC Pesticides (Selected) & PCB	GC/ECD	1920843	2009/08/27	2009/08/29	MAK
PAH Compounds in Water by GC/MS (SIM)	GC/MS	1924970	2009/09/01	2009/09/01	YZ
Total Phosphorus (Colourimetric)	TECH/P	1926810	2009/09/02	2009/09/02	LHA
Volatile Organic Compounds in Water	P&T/MS	1926784	N/A	2009/09/04	S_N

Maxxam ID DM2350 **Collected** 2009/08/22
Sample ID 2-MW-1 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	1924587	N/A	2009/09/01	ADA
Chromium (VI) in Water	IC	1921692	N/A	2009/08/28	LS
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	1921083	N/A	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	1918356	2009/08/26	2009/08/27	PRB
Mercury	CVAA	1925750	2009/09/01	2009/09/02	MC
Total Metals Analysis by ICPMS	ICP/MS	1928144	N/A	2009/09/03	HRE
PAH Compounds in Water by GC/MS (SIM)	GC/MS	1924970	2009/09/01	2009/09/01	YZ
Total Phosphorus (Colourimetric)	TECH/P	1926810	2009/09/02	2009/09/02	LHA
Volatile Organic Compounds in Water	P&T/MS	1926784	N/A	2009/09/04	S_N

Maxxam ID DM2351 **Collected** 2009/08/22
Sample ID 2-MW-2 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	1924587	N/A	2009/09/01	ADA
Chromium (VI) in Water	IC	1921692	N/A	2009/08/28	LS
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	1921083	N/A	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	1918356	2009/08/26	2009/08/27	PRB
Glycols in Water by GC/FID	GC/FID	1920911	N/A	2009/08/28	ZZ
Mercury	CVAA	1923767	2009/08/31	2009/08/31	MC
Total Metals Analysis by ICPMS	ICP/MS	1928144	N/A	2009/09/03	HRE
OC Pesticides (Selected) & PCB	GC/ECD	1920843	2009/08/27	2009/08/29	MAK
PAH Compounds in Water by GC/MS (SIM)	GC/MS	1924970	2009/09/01	2009/09/01	YZ
Total Phosphorus (Colourimetric)	TECH/P	1926810	2009/09/02	2009/09/02	LHA
Volatile Organic Compounds in Water	P&T/MS	1926784	N/A	2009/09/04	S_N

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
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Sampler Initials: ET

Test Summary

Maxxam ID DM2351 Dup **Collected** 2009/08/22
Sample ID 2-MW-2 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Glycols in Water by GC/FID	GC/FID	1920911	N/A	2009/08/28	ZZ

Maxxam ID DM2352 **Collected** 2009/08/22
Sample ID 1-MW-13 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	1924587	N/A	2009/09/01	ADA
Chromium (VI) in Water	IC	1921692	N/A	2009/08/28	LS
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	1921083	N/A	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	1918356	2009/08/26	2009/08/28	PRB
Mercury	CVAA	1925750	2009/09/01	2009/09/02	MC
Total Metals Analysis by ICPMS	ICP/MS	1928144	N/A	2009/09/03	HRE
OC Pesticides (Selected) & PCB	GC/ECD	1920843	2009/08/27	2009/08/29	MAK
PAH Compounds in Water by GC/MS (SIM)	GC/MS	1924970	2009/09/01	2009/09/02	YZ
Total Phosphorus (Colourimetric)	TECH/P	1926810	2009/09/02	2009/09/02	LHA
Volatile Organic Compounds in Water	P&T/MS	1926784	N/A	2009/09/04	S_N

Maxxam ID DM2353 **Collected** 2009/08/22
Sample ID 1-MW-14 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	1924587	N/A	2009/09/01	ADA
Chromium (VI) in Water	IC	1921692	N/A	2009/08/28	LS
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	1921083	N/A	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	1918356	2009/08/26	2009/08/28	PRB
Mercury	CVAA	1925750	2009/09/01	2009/09/02	MC
Total Metals Analysis by ICPMS	ICP/MS	1928144	N/A	2009/09/03	HRE
OC Pesticides (Selected) & PCB	GC/ECD	1920843	2009/08/27	2009/08/29	MAK
PAH Compounds in Water by GC/MS (SIM)	GC/MS	1924970	2009/09/01	2009/09/02	YZ
Total Phosphorus (Colourimetric)	TECH/P	1926810	2009/09/02	2009/09/02	LHA
Volatile Organic Compounds in Water	P&T/MS	1926784	N/A	2009/09/04	S_N

Maxxam ID DM2354 **Collected** 2009/08/20
Sample ID 2-SW-19-1 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dissolved Aluminum (0.2 u, clay free)	ICP/MS	1924587	N/A	2009/09/01	ADA
Chromium (VI) in Water	IC	1921692	N/A	2009/08/28	LS
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	1921083	N/A	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	1918356	2009/08/26	2009/08/28	PRB
Mercury	CVAA	1925750	2009/09/01	2009/09/02	MC
Total Metals Analysis by ICPMS	ICP/MS	1928144	N/A	2009/09/03	HRE
PAH Compounds in Water by GC/MS (SIM)	GC/MS	1924970	2009/09/01	2009/09/02	YZ
Total Phosphorus (Colourimetric)	TECH/P	1926810	2009/09/02	2009/09/02	LHA

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

Test Summary

Maxxam ID DM2355 **Collected** 2009/08/20
Sample ID FR-4 **Shipped**
Matrix Water **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Glycols in Water by GC/FID	GC/FID	1920911	N/A	2009/08/28	ZZ

Maxxam ID DM2390 **Collected** 2009/08/20
Sample ID FR-6 **Shipped**
Matrix Soil **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	1926450	2009/09/02	2009/09/02	LCH
Chromium (VI) in Soil	SPEC/CR6	1924341	2009/08/31	2009/09/01	VRO
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	1919154	2009/08/25	2009/08/27	STE
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	1919129	2009/08/26	2009/08/26	PRB
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	1925615	2009/09/01	2009/09/01	KCO
MOISTURE	BAL	1919114	N/A	2009/08/27	PRB
MOISTURE	BAL	1924013	N/A	2009/08/31	AC
OC Pesticides (Selected) & PCB	GC/ECD	1925535	2009/09/01	2009/09/01	DH
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	1921687	2009/08/28	2009/08/30	JJI
Volatile Organic Compounds in Soil	P&T/MS	1919027	2009/08/26	2009/08/27	S_N

Maxxam ID DM2391 **Collected** 2009/08/20
Sample ID 2-TP-20 **Shipped**
Matrix Soil **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	1926450	2009/09/02	2009/09/02	LCH
Chromium (VI) in Soil	SPEC/CR6	1924341	2009/08/31	2009/09/01	VRO
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	1918413	2009/08/25	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	1919122	2009/08/26	2009/08/28	LHR
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	1928453	2009/09/03	2009/09/03	KCO
MOISTURE	BAL	1918424	N/A	2009/08/27	PRB
MOISTURE	BAL	1924013	N/A	2009/08/31	AC
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	1921671	2009/08/28	2009/08/29	DTI
Polychlorinated Biphenyl in Soil	GC/ECD	1922106	2009/08/28	2009/08/29	JZ
Volatile Organic Compounds in Soil	P&T/MS	1919027	2009/08/26	2009/08/27	S_N

Maxxam ID DM2392 **Collected** 2009/08/20
Sample ID 2-SD-19 **Shipped**
Matrix Soil **Received** 2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	1926450	2009/09/02	2009/09/02	LCH
Chromium (VI) in Soil	SPEC/CR6	1924341	2009/08/31	2009/09/01	VRO
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	1918413	2009/08/25	2009/08/28	STE
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	1919122	2009/08/26	2009/08/28	LHR
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	1925615	2009/09/01	2009/09/01	KCO
MOISTURE	BAL	1918424	N/A	2009/08/27	PRB
MOISTURE	BAL	1924013	N/A	2009/08/31	AC
OC Pesticides (Selected) & PCB	GC/ECD	1925535	2009/09/01	2009/09/01	DH
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	1921687	2009/08/28	2009/08/30	JJI

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

Test Summary

Maxxam ID	DM2393	**Collected**	2009/08/22
Sample ID	1-TP-12	**Shipped**	
Matrix	Soil	**Received**	2009/08/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
MOISTURE	BAL	1920995	N/A	2009/08/27	LHR
Volatile Organic Compounds in Soil	P&T/MS	1919027	2009/08/26	2009/08/27	S_N

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GENERAL COMMENTS

Revised Report: As per the client's request, sample ID 2-TP-8 has been changed to 2-TP-20.

Sample DM2349-01: Due to high concentration of some target analytes, sample required dilution. Detection limits were adjusted accordignly.

Sample DM2392-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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Attention: Jennifer Keenliside
Client Project #: P-2963
P.O. #: 1747-0901
Project name: RESOLUTE BAY

Quality Assurance Report

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1918356	PRB	Matrix Spike	o-Terphenyl	2009/08/27		88	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/27		81	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2009/08/27		81	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2009/08/27		81	%	60 - 130
		Spiked Blank	o-Terphenyl	2009/08/27		91	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/27		76	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2009/08/27		76	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2009/08/27		76	%	60 - 130
		Method Blank	o-Terphenyl	2009/08/27		87	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/27	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2009/08/27	<100		ug/L	
			F4 (C34-C50 Hydrocarbons)	2009/08/27	<100		ug/L	
		RPD - Sample/Sample Dup	F2 (C10-C16 Hydrocarbons)	2009/08/27	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2009/08/27	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2009/08/27	NC		%	50
1918413	STE	Matrix Spike	1,4-Difluorobenzene	2009/08/27		93	%	60 - 140
			4-Bromofluorobenzene	2009/08/27		113	%	60 - 140
			D10-Ethylbenzene	2009/08/27		91	%	30 - 130
			D4-1,2-Dichloroethane	2009/08/27		84	%	60 - 140
			Benzene	2009/08/27		106	%	60 - 140
			Toluene	2009/08/27		81	%	60 - 140
			Ethylbenzene	2009/08/27		82	%	60 - 140
			o-Xylene	2009/08/27		84	%	60 - 140
			p+m-Xylene	2009/08/27		91	%	60 - 140
			F1 (C6-C10)	2009/08/27		94	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene	2009/08/27		93	%	60 - 140
			4-Bromofluorobenzene	2009/08/27		113	%	60 - 140
			D10-Ethylbenzene	2009/08/27		93	%	30 - 130
			D4-1,2-Dichloroethane	2009/08/27		79	%	60 - 140
			Benzene	2009/08/27		104	%	60 - 140
			Toluene	2009/08/27		88	%	60 - 140
			Ethylbenzene	2009/08/27		89	%	60 - 140
			o-Xylene	2009/08/27		91	%	60 - 140
			p+m-Xylene	2009/08/27		98	%	60 - 140
			F1 (C6-C10)	2009/08/27		91	%	60 - 140
		Method Blank	1,4-Difluorobenzene	2009/08/27		95	%	60 - 140
			4-Bromofluorobenzene	2009/08/27		113	%	60 - 140
			D10-Ethylbenzene	2009/08/27		92	%	30 - 130
			D4-1,2-Dichloroethane	2009/08/27		78	%	60 - 140
			Benzene	2009/08/27	<0.02		ug/g	
			Toluene	2009/08/27	<0.02		ug/g	
			Ethylbenzene	2009/08/27	<0.02		ug/g	
			o-Xylene	2009/08/27	<0.02		ug/g	
			p+m-Xylene	2009/08/27	<0.04		ug/g	
			Total Xylenes	2009/08/27	<0.04		ug/g	
			F1 (C6-C10)	2009/08/27	<10		ug/g	
			F1 (C6-C10) - BTEX	2009/08/27	<10		ug/g	
		RPD - Sample/Sample Dup	Benzene	2009/08/27	NC		%	50
			Toluene	2009/08/27	NC		%	50
			Ethylbenzene	2009/08/27	NC		%	50
			o-Xylene	2009/08/27	NC		%	50

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Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1918413	STE	RPD - Sample/Sample Dup	p+m-Xylene	2009/08/27	NC		%	50
			Total Xylenes	2009/08/27	NC		%	50
			F1 (C6-C10)	2009/08/27	NC		%	50
			F1 (C6-C10) - BTEX	2009/08/27	NC		%	50
1918424	PRB	RPD - Sample/Sample Dup	Moisture	2009/08/27	34.1		%	50
1919027	S_N	Matrix Spike	4-Bromofluorobenzene	2009/08/27		110	%	60 - 140
			D4-1,2-Dichloroethane	2009/08/27		90	%	60 - 140
			D8-Toluene	2009/08/27		94	%	60 - 140
			Acetone (2-Propanone)	2009/08/27		88	%	24 - 171
			Benzene	2009/08/27		94	%	39 - 137
			Bromodichloromethane	2009/08/27		85	%	45 - 131
			Bromoform	2009/08/27		64	%	44 - 131
			Bromomethane	2009/08/27		73	%	20 - 146
			Carbon Tetrachloride	2009/08/27		86	%	40 - 139
			Chlorobenzene	2009/08/27		87	%	45 - 140
			Chloroform	2009/08/27		87	%	48 - 128
			Dibromochloromethane	2009/08/27		70	%	52 - 135
			1,2-Dichlorobenzene	2009/08/27		72	%	39 - 145
			1,3-Dichlorobenzene	2009/08/27		83	%	38 - 158
			1,4-Dichlorobenzene	2009/08/27		82	%	35 - 159
			1,1-Dichloroethane	2009/08/27		90	%	48 - 131
			1,2-Dichloroethane	2009/08/27		85	%	43 - 123
			1,1-Dichloroethylene	2009/08/27		95	%	50 - 134
			cis-1,2-Dichloroethylene	2009/08/27		95	%	45 - 136
			trans-1,2-Dichloroethylene	2009/08/27		95	%	45 - 138
			1,2-Dichloropropane	2009/08/27		97	%	51 - 130
			cis-1,3-Dichloropropene	2009/08/27		87	%	39 - 143
			trans-1,3-Dichloropropene	2009/08/27		92	%	33 - 135
			Ethylbenzene	2009/08/27		104	%	46 - 150
			Ethylene Dibromide	2009/08/27		84	%	48 - 136
			Methylene Chloride(Dichloromethane)	2009/08/27		98	%	47 - 124
			Methyl Isobutyl Ketone	2009/08/27		98	%	48 - 133
			Methyl Ethyl Ketone (2-Butanone)	2009/08/27		98	%	39 - 160
			Methyl t-butyl ether (MTBE)	2009/08/27		53	%	37 - 150
			Styrene	2009/08/27		87	%	27 - 148
			1,1,1,2-Tetrachloroethane	2009/08/27		81	%	51 - 140
			1,1,2,2-Tetrachloroethane	2009/08/27		83	%	46 - 128
			Tetrachloroethylene	2009/08/27		88	%	45 - 154
			Toluene	2009/08/27		94	%	30 - 158
			1,1,1-Trichloroethane	2009/08/27		84	%	44 - 136
			1,1,2-Trichloroethane	2009/08/27		84	%	56 - 135
			Trichloroethylene	2009/08/27		94	%	39 - 146
			Vinyl Chloride	2009/08/27		69	%	34 - 136
			p+m-Xylene	2009/08/27		116	%	29 - 161
			o-Xylene	2009/08/27		129	%	45 - 150
		Spiked Blank	4-Bromofluorobenzene	2009/08/27		112	%	60 - 140
			D4-1,2-Dichloroethane	2009/08/27		83	%	60 - 140
			D8-Toluene	2009/08/27		90	%	60 - 140
			Acetone (2-Propanone)	2009/08/27		81	%	60 - 140
			Benzene	2009/08/27		91	%	60 - 140
			Bromodichloromethane	2009/08/27		95	%	60 - 140

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Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1919027	S_N	Spiked Blank	Bromoform	2009/08/27		95	%	60 - 140
			Bromomethane	2009/08/27		NC	%	60 - 140
			Carbon Tetrachloride	2009/08/27		86	%	60 - 140
			Chlorobenzene	2009/08/27		87	%	60 - 140
			Chloroform	2009/08/27		86	%	60 - 140
			Dibromochloromethane	2009/08/27		91	%	60 - 140
			1,2-Dichlorobenzene	2009/08/27		65	%	60 - 140
			1,3-Dichlorobenzene	2009/08/27		72	%	60 - 140
			1,4-Dichlorobenzene	2009/08/27		71	%	60 - 140
			1,1-Dichloroethane	2009/08/27		91	%	60 - 140
			1,2-Dichloroethane	2009/08/27		84	%	60 - 140
			1,1-Dichloroethylene	2009/08/27		91	%	60 - 140
			cis-1,2-Dichloroethylene	2009/08/27		96	%	60 - 140
			trans-1,2-Dichloroethylene	2009/08/27		90	%	60 - 140
			1,2-Dichloropropane	2009/08/27		101	%	60 - 140
			cis-1,3-Dichloropropene	2009/08/27		98	%	60 - 140
			trans-1,3-Dichloropropene	2009/08/27		98	%	60 - 140
			Ethylbenzene	2009/08/27		93	%	60 - 140
			Ethylene Dibromide	2009/08/27		92	%	60 - 140
			Methylene Chloride(Dichloromethane)	2009/08/27		99	%	60 - 140
			Methyl Isobutyl Ketone	2009/08/27		96	%	60 - 140
			Methyl Ethyl Ketone (2-Butanone)	2009/08/27		94	%	60 - 140
			Methyl t-butyl ether (MTBE)	2009/08/27		76	%	60 - 140
			Styrene	2009/08/27		91	%	60 - 140
			1,1,1,2-Tetrachloroethane	2009/08/27		86	%	60 - 140
			1,1,2,2-Tetrachloroethane	2009/08/27		89	%	60 - 140
			Tetrachloroethylene	2009/08/27		84	%	60 - 140
			Toluene	2009/08/27		87	%	60 - 140
			1,1,1-Trichloroethane	2009/08/27		82	%	60 - 140
			1,1,2-Trichloroethane	2009/08/27		90	%	60 - 140
			Trichloroethylene	2009/08/27		98	%	60 - 140
			Vinyl Chloride	2009/08/27		61	%	60 - 140
			p+m-Xylene	2009/08/27		93	%	60 - 140
			o-Xylene	2009/08/27		114	%	60 - 140
		Method Blank	4-Bromofluorobenzene	2009/08/27		115	%	60 - 140
			D4-1,2-Dichloroethane	2009/08/27		106	%	60 - 140
			D8-Toluene	2009/08/27		92	%	60 - 140
			Acetone (2-Propanone)	2009/08/27	<0.1		ug/g	
			Benzene	2009/08/27	<0.002		ug/g	
			Bromodichloromethane	2009/08/27	<0.002		ug/g	
			Bromoform	2009/08/27	<0.002		ug/g	
			Bromomethane	2009/08/27	<0.003		ug/g	
			Carbon Tetrachloride	2009/08/27	<0.002		ug/g	
			Chlorobenzene	2009/08/27	<0.002		ug/g	
			Chloroform	2009/08/27	<0.002		ug/g	
			Dibromochloromethane	2009/08/27	<0.002		ug/g	
			1,2-Dichlorobenzene	2009/08/27	<0.002		ug/g	
			1,3-Dichlorobenzene	2009/08/27	<0.002		ug/g	
			1,4-Dichlorobenzene	2009/08/27	<0.002		ug/g	
			1,1-Dichloroethane	2009/08/27	<0.002		ug/g	
			1,2-Dichloroethane	2009/08/27	<0.002		ug/g	
			1,1-Dichloroethylene	2009/08/27	<0.002		ug/g	
			cis-1,2-Dichloroethylene	2009/08/27	<0.002		ug/g	
			trans-1,2-Dichloroethylene	2009/08/27	<0.002		ug/g	
			1,2-Dichloropropane	2009/08/27	<0.002		ug/g	

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Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1919027	S_N	Method Blank	cis-1,3-Dichloropropene	2009/08/27	<0.002		ug/g	
			trans-1,3-Dichloropropene	2009/08/27	<0.002		ug/g	
			Ethylbenzene	2009/08/27	<0.002		ug/g	
			Ethylene Dibromide	2009/08/27	<0.002		ug/g	
			Methylene Chloride(Dichloromethane)	2009/08/27	<0.003		ug/g	
			Methyl Isobutyl Ketone	2009/08/27	<0.03		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2009/08/27	<0.03		ug/g	
			Methyl t-butyl ether (MTBE)	2009/08/27	<0.002		ug/g	
			Styrene	2009/08/27	<0.002		ug/g	
			1,1,1,2-Tetrachloroethane	2009/08/27	<0.002		ug/g	
			1,1,2,2-Tetrachloroethane	2009/08/27	<0.002		ug/g	
			Tetrachloroethylene	2009/08/27	<0.002		ug/g	
			Toluene	2009/08/27	<0.002		ug/g	
			1,1,1-Trichloroethane	2009/08/27	<0.002		ug/g	
			1,1,2-Trichloroethane	2009/08/27	<0.002		ug/g	
			Trichloroethylene	2009/08/27	<0.002		ug/g	
			Vinyl Chloride	2009/08/27	<0.002		ug/g	
			p+m-Xylene	2009/08/27	<0.002		ug/g	
			o-Xylene	2009/08/27	<0.002		ug/g	
			Xylene (Total)	2009/08/27	<0.002		ug/g	
		RPD - Sample/Sample Dup	Acetone (2-Propanone)	2009/08/27	NC		%	50
			Benzene	2009/08/27	NC		%	50
			Bromodichloromethane	2009/08/27	NC		%	50
			Bromoform	2009/08/27	NC		%	50
			Bromomethane	2009/08/27	NC		%	50
			Carbon Tetrachloride	2009/08/27	NC		%	50
			Chlorobenzene	2009/08/27	NC		%	50
			Chloroform	2009/08/27	NC		%	50
			Dibromochloromethane	2009/08/27	NC		%	50
			1,2-Dichlorobenzene	2009/08/27	NC		%	50
			1,3-Dichlorobenzene	2009/08/27	NC		%	50
			1,4-Dichlorobenzene	2009/08/27	NC		%	50
			1,1-Dichloroethane	2009/08/27	NC		%	50
			1,2-Dichloroethane	2009/08/27	NC		%	50
			1,1-Dichloroethylene	2009/08/27	NC		%	50
			cis-1,2-Dichloroethylene	2009/08/27	NC		%	50
			trans-1,2-Dichloroethylene	2009/08/27	NC		%	50
			1,2-Dichloropropane	2009/08/27	NC		%	50
			cis-1,3-Dichloropropene	2009/08/27	NC		%	50
			trans-1,3-Dichloropropene	2009/08/27	NC		%	50
			Ethylbenzene	2009/08/27	NC		%	50
			Ethylene Dibromide	2009/08/27	NC		%	50
			Methylene Chloride(Dichloromethane)	2009/08/27	NC		%	50
			Methyl Isobutyl Ketone	2009/08/27	NC		%	50
			Methyl Ethyl Ketone (2-Butanone)	2009/08/27	NC		%	50
			Methyl t-butyl ether (MTBE)	2009/08/27	NC		%	50
			Styrene	2009/08/27	NC		%	50
			1,1,1,2-Tetrachloroethane	2009/08/27	NC		%	50
			1,1,2,2-Tetrachloroethane	2009/08/27	NC		%	50
			Tetrachloroethylene	2009/08/27	NC		%	50
			Toluene	2009/08/27	NC		%	50
			1,1,1-Trichloroethane	2009/08/27	NC		%	50
			1,1,2-Trichloroethane	2009/08/27	NC		%	50

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Client Project #: P-2963
P.O. #: 1747-0901
Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1919027	S_N	RPD - Sample/Sample Dup	Trichloroethylene	2009/08/27	NC		%	50
			Vinyl Chloride	2009/08/27	NC		%	50
			p+m-Xylene	2009/08/27	NC		%	50
			o-Xylene	2009/08/27	NC		%	50
			Xylene (Total)	2009/08/27	0		%	50
1919114	PRB	RPD - Sample/Sample Dup	Moisture	2009/08/27	1.4		%	50
1919122	LHR	Matrix Spike	o-Terphenyl	2009/08/28		85	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/28		83	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2009/08/28		83	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2009/08/28		83	%	60 - 130
		Spiked Blank	o-Terphenyl	2009/08/28		85	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/28		84	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2009/08/28		84	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2009/08/28		84	%	60 - 130
		Method Blank	o-Terphenyl	2009/08/28		86	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/28	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2009/08/28	<10		ug/g	
			F4 (C34-C50 Hydrocarbons)	2009/08/28	<10		ug/g	
		RPD - Sample/Sample Dup	F2 (C10-C16 Hydrocarbons)	2009/08/28	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2009/08/28	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2009/08/28	NC		%	50
1919129	PRB	Matrix Spike	o-Terphenyl	2009/08/26		87	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/26		87	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2009/08/26		87	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2009/08/26		87	%	60 - 130
		Spiked Blank	o-Terphenyl	2009/08/26		72	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/26		77	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2009/08/26		77	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2009/08/26		77	%	60 - 130
		Method Blank	o-Terphenyl	2009/08/26		85	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2009/08/26	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2009/08/26	<10		ug/g	
			F4 (C34-C50 Hydrocarbons)	2009/08/26	<10		ug/g	
		RPD - Sample/Sample Dup	F2 (C10-C16 Hydrocarbons)	2009/08/26	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2009/08/26	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2009/08/26	NC		%	50
1919154	STE	Matrix Spike	1,4-Difluorobenzene	2009/08/26		98	%	60 - 140
			4-Bromofluorobenzene	2009/08/26		113	%	60 - 140
			D10-Ethylbenzene	2009/08/26		91	%	30 - 130
			D4-1,2-Dichloroethane	2009/08/26		72	%	60 - 140
			F1 (C6-C10)	2009/08/26		96	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene	2009/08/26		105	%	60 - 140
			4-Bromofluorobenzene	2009/08/26		113	%	60 - 140
			D10-Ethylbenzene	2009/08/26		93	%	30 - 130
			D4-1,2-Dichloroethane	2009/08/26		89	%	60 - 140
			F1 (C6-C10)	2009/08/26		96	%	60 - 140
		Method Blank	1,4-Difluorobenzene	2009/08/27		98	%	60 - 140

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Client Project #: P-2963
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Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1919154	STE	Method Blank	4-Bromofluorobenzene	2009/08/27		111	%	60 - 140
			D10-Ethylbenzene	2009/08/27		89	%	30 - 130
			D4-1,2-Dichloroethane	2009/08/27		72	%	60 - 140
			F1 (C6-C10)	2009/08/27	<10		ug/g	
			F1 (C6-C10) - BTEX	2009/08/27	<10		ug/g	
		RPD - Sample/Sample Dup	F1 (C6-C10)	2009/08/27	NC		%	50
			F1 (C6-C10) - BTEX	2009/08/27	NC		%	50
1920843	MAK	Matrix Spike	2,4,5,6-Tetrachloro-m-xylene	2009/08/29		74	%	40 - 130
			Decachlorobiphenyl	2009/08/29		88	%	40 - 130
			Aldrin	2009/08/29		66	%	30 - 130
			a-BHC	2009/08/29		97	%	30 - 130
			b-BHC	2009/08/29		82	%	30 - 130
			d-BHC	2009/08/29		88	%	30 - 130
			a-Chlordane	2009/08/29		97	%	30 - 130
			g-Chlordane	2009/08/29		98	%	30 - 130
			o,p-DDD	2009/08/29		100	%	40 - 130
			p,p-DDD	2009/08/29		99	%	30 - 130
			o,p-DDE	2009/08/29		101	%	40 - 130
			p,p-DDE	2009/08/29		91	%	30 - 130
			o,p-DDT	2009/08/29		105	%	40 - 130
			p,p-DDT	2009/08/29		109	%	30 - 130
			Dieldrin	2009/08/29		106	%	36 - 130
			Endosulfan I	2009/08/29		97	%	30 - 130
			Endosulfan II	2009/08/29		94	%	30 - 130
			Endosulfan sulfate	2009/08/29		91	%	30 - 130
			Endrin	2009/08/29		114	%	30 - 130
			Endrin aldehyde	2009/08/29		45	%	40 - 130
			Endrin ketone	2009/08/29		104	%	40 - 130
			Heptachlor	2009/08/29		86	%	30 - 130
			Heptachlor epoxide	2009/08/29		90	%	30 - 130
			Hexachlorobenzene	2009/08/29		82	%	30 - 130
			Lindane	2009/08/29		96	%	30 - 130
			Methoxychlor	2009/08/29		127	%	40 - 130
			Mirex	2009/08/29		89	%	40 - 130
			Octachlorostyrene	2009/08/29		85	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2009/08/29		66	%	40 - 130
			Decachlorobiphenyl	2009/08/29		78	%	40 - 130
			Aldrin	2009/08/29		64	%	30 - 130
			a-BHC	2009/08/29		84	%	30 - 130
			b-BHC	2009/08/29		72	%	30 - 130
			d-BHC	2009/08/29		76	%	30 - 130
			a-Chlordane	2009/08/29		85	%	30 - 130
			g-Chlordane	2009/08/29		86	%	30 - 130
			o,p-DDD	2009/08/29		89	%	40 - 130
			p,p-DDD	2009/08/29		89	%	30 - 130
			o,p-DDE	2009/08/29		88	%	40 - 130
			p,p-DDE	2009/08/29		81	%	30 - 130
			o,p-DDT	2009/08/29		94	%	40 - 130
			p,p-DDT	2009/08/29		99	%	30 - 130
			Dieldrin	2009/08/29		94	%	36 - 130
			Endosulfan I	2009/08/29		85	%	30 - 130
			Endosulfan II	2009/08/29		82	%	30 - 130
			Endosulfan sulfate	2009/08/29		84	%	30 - 130

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1920843 MAK	Spiked Blank	Endrin	2009/08/29		101	%	30 - 130
		Endrin aldehyde	2009/08/29		47	%	40 - 130
		Endrin ketone	2009/08/29		96	%	40 - 130
		Heptachlor	2009/08/29		106	%	30 - 130
		Heptachlor epoxide	2009/08/29		96	%	30 - 130
		Hexachlorobenzene	2009/08/29		71	%	30 - 130
		Lindane	2009/08/29		84	%	30 - 130
		Methoxychlor	2009/08/29		124	%	40 - 130
		Mirex	2009/08/29		86	%	40 - 130
		Octachlorostyrene	2009/08/29		76	%	30 - 130
	RPD	Total PCB	2009/08/29	NC		%	40
		Aroclor 1242	2009/08/29	NC		%	40
		Toxaphene	2009/08/29	NC		%	40
	Method Blank	2,4,5,6-Tetrachloro-m-xylene	2009/08/29		69	%	40 - 130
		Decachlorobiphenyl	2009/08/29		70	%	40 - 130
		Aldrin	2009/08/29	<0.005		ug/L	
		a-BHC	2009/08/29	<0.005		ug/L	
		b-BHC	2009/08/29	<0.005		ug/L	
		d-BHC	2009/08/29	<0.005		ug/L	
		a-Chlordane	2009/08/29	<0.005		ug/L	
		g-Chlordane	2009/08/29	<0.005		ug/L	
		Chlordane (Total)	2009/08/29	<0.005		ug/L	
		o,p-DDD	2009/08/29	<0.005		ug/L	
		p,p-DDD	2009/08/29	<0.005		ug/L	
		o,p-DDD + p,p-DDD	2009/08/29	<0.005		ug/L	
		o,p-DDE	2009/08/29	<0.005		ug/L	
		p,p-DDE	2009/08/29	<0.005		ug/L	
		o,p-DDE + p,p-DDE	2009/08/29	<0.005		ug/L	
		o,p-DDT	2009/08/29	<0.005		ug/L	
		p,p-DDT	2009/08/29	<0.005		ug/L	
		o,p-DDT + p,p-DDT	2009/08/29	<0.005		ug/L	
		DDT+ Metabolites	2009/08/29	<0.005		ug/L	
		Dieldrin	2009/08/29	<0.005		ug/L	
		Endosulfan I	2009/08/29	<0.005		ug/L	
		Endosulfan II	2009/08/29	<0.005		ug/L	
		Endosulfan sulfate	2009/08/29	<0.005		ug/L	
		Total Endosulfan	2009/08/29	<0.005		ug/L	
		Endrin	2009/08/29	<0.005		ug/L	
		Endrin aldehyde	2009/08/29	<0.005		ug/L	
		Endrin ketone	2009/08/29	<0.005		ug/L	
		Heptachlor	2009/08/29	<0.005		ug/L	
		Heptachlor epoxide	2009/08/29	<0.005		ug/L	
		Hexachlorobenzene	2009/08/29	<0.005		ug/L	
		Lindane	2009/08/29	<0.003		ug/L	
		Methoxychlor	2009/08/29	<0.014		ug/L	
		Mirex	2009/08/29	<0.005		ug/L	
		Octachlorostyrene	2009/08/29	<0.005		ug/L	
		Total PCB	2009/08/29	<0.1		ug/L	
		Aroclor 1016	2009/08/29	<0.05		ug/L	
		Aroclor 1221	2009/08/29	<0.1		ug/L	
		Aroclor 1232	2009/08/29	<0.05		ug/L	
		Aroclor 1242	2009/08/29	<0.05		ug/L	
		Aroclor 1248	2009/08/29	<0.05		ug/L	
		Aroclor 1254	2009/08/29	<0.05		ug/L	
		Aroclor 1260	2009/08/29	<0.05		ug/L	

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1920843	MAK	Method Blank	Toxaphene	2009/08/29	<0.2		ug/L	
		RPD - Sample/Sample Dup	Aldrin	2009/08/29	NC		%	40
			a-BHC	2009/08/29	NC		%	40
			b-BHC	2009/08/29	NC		%	40
			d-BHC	2009/08/29	NC		%	40
			a-Chlordane	2009/08/29	NC		%	40
			g-Chlordane	2009/08/29	NC		%	40
			Chlordane (Total)	2009/08/29	NC		%	40
			o,p-DDD	2009/08/29	NC		%	40
			p,p-DDD	2009/08/29	NC		%	40
			o,p-DDD + p,p-DDD	2009/08/29	NC		%	40
			o,p-DDE	2009/08/29	NC		%	40
			p,p-DDE	2009/08/29	NC		%	40
			o,p-DDE + p,p-DDE	2009/08/29	NC		%	40
			o,p-DDT	2009/08/29	NC		%	40
			p,p-DDT	2009/08/29	NC		%	40
			o,p-DDT + p,p-DDT	2009/08/29	NC		%	40
			DDT+ Metabolites	2009/08/29	NC		%	40
			Dieldrin	2009/08/29	NC		%	40
			Endosulfan I	2009/08/29	NC		%	40
			Endosulfan II	2009/08/29	NC		%	40
			Endosulfan sulfate	2009/08/29	NC		%	40
			Total Endosulfan	2009/08/29	NC		%	40
			Endrin	2009/08/29	NC		%	40
			Endrin aldehyde	2009/08/29	NC		%	40
			Endrin ketone	2009/08/29	NC		%	40
			Heptachlor	2009/08/29	NC		%	40
			Heptachlor epoxide	2009/08/29	NC		%	40
			Hexachlorobenzene	2009/08/29	NC		%	40
			Lindane	2009/08/29	NC		%	40
			Methoxychlor	2009/08/29	NC		%	40
			Mirex	2009/08/29	NC		%	40
			Octachlorostyrene	2009/08/29	NC		%	40
			Aroclor 1016	2009/08/29	NC		%	40
			Aroclor 1221	2009/08/29	NC		%	40
			Aroclor 1232	2009/08/29	NC		%	40
			Aroclor 1248	2009/08/29	NC		%	40
			Aroclor 1254	2009/08/29	NC		%	40
			Aroclor 1260	2009/08/29	NC		%	40
1920911	ZZ	Matrix Spike (DM2351)	Diethylene Glycol	2009/08/28		91	%	60 - 140
			Ethylene Glycol	2009/08/28		93	%	60 - 140
			Propylene Glycol	2009/08/28		91	%	60 - 140
		Spiked Blank	Diethylene Glycol	2009/08/28		101	%	60 - 140
			Ethylene Glycol	2009/08/28		100	%	60 - 140
			Propylene Glycol	2009/08/28		99	%	60 - 140
		Method Blank	Diethylene Glycol	2009/08/28	<5		mg/L	
			Ethylene Glycol	2009/08/28	<5		mg/L	
			Propylene Glycol	2009/08/28	<5		mg/L	
			Total Glycol	2009/08/28	<5		mg/L	
		RPD - Sample/Sample Dup	Diethylene Glycol	2009/08/28	NC		%	40

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1920911	ZZ	RPD - Sample/Sample Dup	Ethylene Glycol	2009/08/28	NC		%	40
			Propylene Glycol	2009/08/28	NC		%	40
			Total Glycol	2009/08/28	NC		%	40
1920995	LHR	RPD - Sample/Sample Dup	Moisture	2009/08/27	0.7		%	50
1921083	STE	Matrix Spike	1,4-Difluorobenzene	2009/08/28		94	%	70 - 130
			4-Bromofluorobenzene	2009/08/28		100	%	70 - 130
			D10-Ethylbenzene	2009/08/28		107	%	70 - 130
			D4-1,2-Dichloroethane	2009/08/28		76	%	70 - 130
			Benzene	2009/08/28		87	%	70 - 130
			Toluene	2009/08/28		107	%	70 - 130
			Ethylbenzene	2009/08/28		105	%	70 - 130
			o-Xylene	2009/08/28		116	%	70 - 130
			p+m-Xylene	2009/08/28		106	%	70 - 130
			F1 (C6-C10)	2009/08/28		95	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene	2009/08/28		95	%	70 - 130
			4-Bromofluorobenzene	2009/08/28		101	%	70 - 130
			D10-Ethylbenzene	2009/08/28		104	%	70 - 130
			D4-1,2-Dichloroethane	2009/08/28		85	%	70 - 130
			Benzene	2009/08/28		79	%	70 - 130
			Toluene	2009/08/28		99	%	70 - 130
			Ethylbenzene	2009/08/28		97	%	70 - 130
			o-Xylene	2009/08/28		108	%	70 - 130
			p+m-Xylene	2009/08/28		97	%	70 - 130
			F1 (C6-C10)	2009/08/28		91	%	70 - 130
		Method Blank	1,4-Difluorobenzene	2009/08/27		101	%	70 - 130
			4-Bromofluorobenzene	2009/08/27		97	%	70 - 130
			D10-Ethylbenzene	2009/08/27		108	%	70 - 130
			D4-1,2-Dichloroethane	2009/08/27		102	%	70 - 130
			Benzene	2009/08/27	<0.2		ug/L	
			Toluene	2009/08/27	<0.2		ug/L	
			Ethylbenzene	2009/08/27	<0.2		ug/L	
			o-Xylene	2009/08/27	<0.2		ug/L	
			p+m-Xylene	2009/08/27	<0.4		ug/L	
			Total Xylenes	2009/08/27	<0.4		ug/L	
			F1 (C6-C10)	2009/08/27	<100		ug/L	
			F1 (C6-C10) - BTEX	2009/08/27	<100		ug/L	
		RPD - Sample/Sample Dup	Benzene	2009/08/27	NC		%	40
			Toluene	2009/08/27	NC		%	40
			Ethylbenzene	2009/08/27	NC		%	40
			o-Xylene	2009/08/27	NC		%	40
			p+m-Xylene	2009/08/27	NC		%	40
			Total Xylenes	2009/08/27	NC		%	40
			F1 (C6-C10)	2009/08/27	NC		%	40
			F1 (C6-C10) - BTEX	2009/08/27	NC		%	40
1921671	DTI	Matrix Spike	D10-Anthracene	2009/08/28		101	%	30 - 130
			D14-Terphenyl (FS)	2009/08/28		102	%	30 - 130
			D7-Quinoline	2009/08/28		76	%	30 - 130
			D8-Acenaphthylene	2009/08/28		80	%	30 - 130
			Acenaphthene	2009/08/28		82	%	30 - 130

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1921671	DTI	Matrix Spike	Acenaphthylene	2009/08/28		80	%	30 - 130
			Anthracene	2009/08/28		90	%	30 - 130
			Benzo(a)anthracene	2009/08/28		111	%	30 - 130
			Benzo(a)pyrene	2009/08/28		113	%	30 - 130
			Benzo(b/j)fluoranthene	2009/08/28		112	%	30 - 130
			Benzo(g,h,i)perylene	2009/08/28		113	%	30 - 130
			Benzo(k)fluoranthene	2009/08/28		114	%	30 - 130
			Chrysene	2009/08/28		110	%	30 - 130
			Dibenz(a,h)anthracene	2009/08/28		122	%	30 - 130
			Fluoranthene	2009/08/28		97	%	30 - 130
			Fluorene	2009/08/28		89	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2009/08/28		119	%	30 - 130
			1-Methylnaphthalene	2009/08/28		81	%	30 - 130
			2-Methylnaphthalene	2009/08/28		75	%	30 - 130
			Naphthalene	2009/08/28		68	%	30 - 130
			Phenanthrene	2009/08/28		88	%	30 - 130
			Pyrene	2009/08/28		96	%	30 - 130
		Spiked Blank	D10-Anthracene	2009/08/28		90	%	30 - 130
			D14-Terphenyl (FS)	2009/08/28		91	%	30 - 130
			D7-Quinoline	2009/08/28		82	%	30 - 130
			D8-Acenaphthylene	2009/08/28		81	%	30 - 130
			Acenaphthene	2009/08/28		78	%	30 - 130
			Acenaphthylene	2009/08/28		78	%	30 - 130
			Anthracene	2009/08/28		79	%	30 - 130
			Benzo(a)anthracene	2009/08/28		96	%	30 - 130
			Benzo(a)pyrene	2009/08/28		100	%	30 - 130
			Benzo(b/j)fluoranthene	2009/08/28		100	%	30 - 130
			Benzo(g,h,i)perylene	2009/08/28		98	%	30 - 130
			Benzo(k)fluoranthene	2009/08/28		100	%	30 - 130
			Chrysene	2009/08/28		95	%	30 - 130
			Dibenz(a,h)anthracene	2009/08/28		107	%	30 - 130
			Fluoranthene	2009/08/28		85	%	30 - 130
			Fluorene	2009/08/28		82	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2009/08/28		98	%	30 - 130
			1-Methylnaphthalene	2009/08/28		84	%	30 - 130
			2-Methylnaphthalene	2009/08/28		77	%	30 - 130
			Naphthalene	2009/08/28		82	%	30 - 130
			Phenanthrene	2009/08/28		79	%	30 - 130
			Pyrene	2009/08/28		83	%	30 - 130
		Method Blank	D10-Anthracene	2009/08/28		90	%	30 - 130
			D14-Terphenyl (FS)	2009/08/28		87	%	30 - 130
			D7-Quinoline	2009/08/28		77	%	30 - 130
			D8-Acenaphthylene	2009/08/28		80	%	30 - 130
			Acenaphthene	2009/08/28	<0.01		ug/g	
			Acenaphthylene	2009/08/28	<0.005		ug/g	
			Anthracene	2009/08/28	<0.005		ug/g	
			Benzo(a)anthracene	2009/08/28	<0.01		ug/g	
			Benzo(a)pyrene	2009/08/28	<0.005		ug/g	
			Benzo(b/j)fluoranthene	2009/08/28	<0.01		ug/g	
			Benzo(g,h,i)perylene	2009/08/28	<0.02		ug/g	
			Benzo(k)fluoranthene	2009/08/28	<0.01		ug/g	
			Chrysene	2009/08/28	<0.01		ug/g	
			Dibenz(a,h)anthracene	2009/08/28	<0.02		ug/g	
			Fluoranthene	2009/08/28	<0.005		ug/g	
			Fluorene	2009/08/28	<0.005		ug/g	

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Franz Environmental Inc
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Client Project #: P-2963
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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1921671 DTI	Method Blank	Indeno(1,2,3-cd)pyrene	2009/08/28	<0.02		ug/g	
		1-Methylnaphthalene	2009/08/28	<0.005		ug/g	
		2-Methylnaphthalene	2009/08/28	<0.005		ug/g	
		Naphthalene	2009/08/28	<0.005		ug/g	
		Phenanthrene	2009/08/28	<0.005		ug/g	
		Pyrene	2009/08/28	<0.005		ug/g	
	RPD - Sample/Sample Dup	Acenaphthene	2009/08/28	NC		%	50
		Acenaphthylene	2009/08/28	NC		%	50
		Anthracene	2009/08/28	NC		%	50
		Benzo(a)anthracene	2009/08/28	NC		%	50
		Benzo(a)pyrene	2009/08/28	NC		%	50
		Benzo(b/j)fluoranthene	2009/08/28	NC		%	50
		Benzo(g,h,i)perylene	2009/08/28	NC		%	50
		Benzo(k)fluoranthene	2009/08/28	NC		%	50
		Chrysene	2009/08/28	NC		%	50
		Dibenz(a,h)anthracene	2009/08/28	NC		%	50
		Fluoranthene	2009/08/28	NC		%	50
		Fluorene	2009/08/28	NC		%	50
		Indeno(1,2,3-cd)pyrene	2009/08/28	NC		%	50
		1-Methylnaphthalene	2009/08/28	NC		%	50
		2-Methylnaphthalene	2009/08/28	NC		%	50
		Naphthalene	2009/08/28	NC		%	50
		Phenanthrene	2009/08/28	NC		%	50
		Pyrene	2009/08/28	NC		%	50
1921687 JJI	Matrix Spike	D10-Anthracene	2009/08/29		108	%	30 - 130
		D14-Terphenyl (FS)	2009/08/29		109	%	30 - 130
		D7-Quinoline	2009/08/29		106	%	30 - 130
		D8-Acenaphthylene	2009/08/29		94	%	30 - 130
		Acenaphthene	2009/08/29		92	%	30 - 130
		Acenaphthylene	2009/08/29		91	%	30 - 130
		Anthracene	2009/08/29		97	%	30 - 130
		Benzo(a)anthracene	2009/08/29		119	%	30 - 130
		Benzo(a)pyrene	2009/08/29		122	%	30 - 130
		Benzo(b/j)fluoranthene	2009/08/29		120	%	30 - 130
		Benzo(g,h,i)perylene	2009/08/29		110	%	30 - 130
		Benzo(k)fluoranthene	2009/08/29		125	%	30 - 130
		Chrysene	2009/08/29		119	%	30 - 130
		Dibenz(a,h)anthracene	2009/08/29		127	%	30 - 130
		Fluoranthene	2009/08/29		104	%	30 - 130
		Fluorene	2009/08/29		100	%	30 - 130
		Indeno(1,2,3-cd)pyrene	2009/08/29		124	%	30 - 130
		1-Methylnaphthalene	2009/08/29		106	%	30 - 130
		2-Methylnaphthalene	2009/08/29		113	%	30 - 130
		Naphthalene	2009/08/29		116	%	30 - 130
		Phenanthrene	2009/08/29		97	%	30 - 130
		Pyrene	2009/08/29		102	%	30 - 130
	Spiked Blank	D10-Anthracene	2009/08/29		102	%	30 - 130
		D14-Terphenyl (FS)	2009/08/29		101	%	30 - 130
		D7-Quinoline	2009/08/29		97	%	30 - 130
		D8-Acenaphthylene	2009/08/29		94	%	30 - 130
		Acenaphthene	2009/08/29		89	%	30 - 130
		Acenaphthylene	2009/08/29		89	%	30 - 130
		Anthracene	2009/08/29		88	%	30 - 130

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1921687	JJI	Spiked Blank	Benzo(a)anthracene	2009/08/29		107	%	30 - 130
			Benzo(a)pyrene	2009/08/29		109	%	30 - 130
			Benzo(b/j)fluoranthene	2009/08/29		112	%	30 - 130
			Benzo(g,h,i)perylene	2009/08/29		97	%	30 - 130
			Benzo(k)fluoranthene	2009/08/29		108	%	30 - 130
			Chrysene	2009/08/29		107	%	30 - 130
			Dibenz(a,h)anthracene	2009/08/29		111	%	30 - 130
			Fluoranthene	2009/08/29		93	%	30 - 130
			Fluorene	2009/08/29		91	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2009/08/29		102	%	30 - 130
			1-Methylnaphthalene	2009/08/29		98	%	30 - 130
			2-Methylnaphthalene	2009/08/29		91	%	30 - 130
			Naphthalene	2009/08/29		97	%	30 - 130
			Phenanthrene	2009/08/29		87	%	30 - 130
			Pyrene	2009/08/29		92	%	30 - 130
		Method Blank	D10-Anthracene	2009/08/29		98	%	30 - 130
			D14-Terphenyl (FS)	2009/08/29		92	%	30 - 130
			D7-Quinoline	2009/08/29		80	%	30 - 130
			D8-Acenaphthylene	2009/08/29		83	%	30 - 130
			Acenaphthene	2009/08/29	<0.01		ug/g	
			Acenaphthylene	2009/08/29	<0.005		ug/g	
			Anthracene	2009/08/29	<0.005		ug/g	
			Benzo(a)anthracene	2009/08/29	<0.01		ug/g	
			Benzo(a)pyrene	2009/08/29	<0.005		ug/g	
			Benzo(b/j)fluoranthene	2009/08/29	<0.01		ug/g	
			Benzo(g,h,i)perylene	2009/08/29	<0.02		ug/g	
			Benzo(k)fluoranthene	2009/08/29	<0.01		ug/g	
			Chrysene	2009/08/29	<0.01		ug/g	
			Dibenz(a,h)anthracene	2009/08/29	<0.02		ug/g	
			Fluoranthene	2009/08/29	<0.005		ug/g	
			Fluorene	2009/08/29	<0.005		ug/g	
			Indeno(1,2,3-cd)pyrene	2009/08/29	<0.02		ug/g	
			1-Methylnaphthalene	2009/08/29	<0.005		ug/g	
			2-Methylnaphthalene	2009/08/29	<0.005		ug/g	
			Naphthalene	2009/08/29	<0.005		ug/g	
			Phenanthrene	2009/08/29	<0.005		ug/g	
			Pyrene	2009/08/29	<0.005		ug/g	
		RPD - Sample/Sample Dup	Acenaphthene	2009/08/29	NC		%	50
			Acenaphthylene	2009/08/29	NC		%	50
			Anthracene	2009/08/29	NC		%	50
			Benzo(a)anthracene	2009/08/29	NC		%	50
			Benzo(a)pyrene	2009/08/29	NC		%	50
			Benzo(b/j)fluoranthene	2009/08/29	NC		%	50
			Benzo(g,h,i)perylene	2009/08/29	NC		%	50
			Benzo(k)fluoranthene	2009/08/29	NC		%	50
			Chrysene	2009/08/29	NC		%	50
			Dibenz(a,h)anthracene	2009/08/29	NC		%	50
			Fluoranthene	2009/08/29	NC		%	50
			Fluorene	2009/08/29	NC		%	50
			Indeno(1,2,3-cd)pyrene	2009/08/29	NC		%	50
			1-Methylnaphthalene	2009/08/29	58.1 (1)		%	50
			2-Methylnaphthalene	2009/08/29	59.4 (2)		%	50
			Naphthalene	2009/08/29	59.3 (2)		%	50

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1921687	JJI	RPD - Sample/Sample Dup	Phenanthrene	2009/08/29	NC		%	50
			Pyrene	2009/08/29	NC		%	50
1921692	LS	Matrix Spike	Chromium (VI)	2009/08/28		101	%	75 - 125
		Spiked Blank	Chromium (VI)	2009/08/28		98	%	75 - 125
		Method Blank	Chromium (VI)	2009/08/28	<0.5		ug/L	
		RPD - Sample/Sample Dup	Chromium (VI)	2009/08/28	NC (3)		%	25
1922106	JZ	Matrix Spike	2,4,5,6-Tetrachloro-m-xylene	2009/08/29		106	%	40 - 130
			Decachlorobiphenyl	2009/08/29		120	%	40 - 130
			Aroclor 1260	2009/08/29		118	%	30 - 130
			Total PCB	2009/08/29		118	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2009/08/29		90	%	40 - 130
			Decachlorobiphenyl	2009/08/29		110	%	40 - 130
			Aroclor 1260	2009/08/29		121	%	30 - 130
			Total PCB	2009/08/29		121	%	30 - 130
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2009/08/29		103	%	40 - 130
			Decachlorobiphenyl	2009/08/29		116	%	40 - 130
			Aroclor 1262	2009/08/29	<0.01		ug/g	
			Aroclor 1016	2009/08/29	<0.01		ug/g	
			Aroclor 1221	2009/08/29	<0.01		ug/g	
			Aroclor 1232	2009/08/29	<0.01		ug/g	
			Aroclor 1242	2009/08/29	<0.01		ug/g	
			Aroclor 1248	2009/08/29	<0.01		ug/g	
			Aroclor 1254	2009/08/29	<0.01		ug/g	
			Aroclor 1260	2009/08/29	<0.01		ug/g	
			Aroclor 1268	2009/08/29	<0.01		ug/g	
			Total PCB	2009/08/29	<0.01		ug/g	
		RPD - Sample/Sample Dup	Aroclor 1262	2009/08/29	NC		%	50
			Aroclor 1016	2009/08/29	NC		%	50
			Aroclor 1221	2009/08/29	NC		%	50
			Aroclor 1232	2009/08/29	NC		%	50
			Aroclor 1242	2009/08/29	NC		%	50
			Aroclor 1248	2009/08/29	NC		%	50
			Aroclor 1254	2009/08/29	NC		%	50
			Aroclor 1260	2009/08/29	NC		%	50
			Aroclor 1268	2009/08/29	NC		%	50
			Total PCB	2009/08/29	NC		%	50
1923767	MC	Matrix Spike	Mercury (Hg)	2009/08/31		109	%	75 - 125
		Spiked Blank	Mercury (Hg)	2009/08/31		102	%	84 - 113
		Method Blank	Mercury (Hg)	2009/08/31	<0.1		ug/L	
		RPD - Sample/Sample Dup	Mercury (Hg)	2009/08/31	NC		%	25
1924013	MYG	RPD - Sample/Sample Dup	Moisture	2009/08/31	1.6		%	50
1924341	VRO	Matrix Spike	Chromium (VI)	2009/09/01		40 (4)	%	75 - 125
		QC Standard	Chromium (VI)	2009/09/01		96	%	85 - 115
		Spiked Blank	Chromium (VI)	2009/09/01		106	%	75 - 125
		Method Blank	Chromium (VI)	2009/09/01	<0.2		ug/g	

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1924341	VRO	RPD - Sample/Sample Dup	Chromium (VI)	2009/09/01	NC		%	35
1924587	ADA	Matrix Spike	Dissolved (0.2u) Aluminum (Al)	2009/09/01		95	%	80 - 120
		Spiked Blank	Dissolved (0.2u) Aluminum (Al)	2009/09/01		93	%	90 - 110
		Method Blank	Dissolved (0.2u) Aluminum (Al)	2009/09/01	<5		ug/L	
		RPD - Sample/Sample Dup	Dissolved (0.2u) Aluminum (Al)	2009/09/01	NC		%	25
1924970	YZ	Matrix Spike	D10-Anthracene	2009/09/01		78	%	30 - 130
			D14-Terphenyl (FS)	2009/09/01		76	%	30 - 130
			D7-Quinoline	2009/09/01		86	%	30 - 130
			D8-Acenaphthylene	2009/09/01		82	%	30 - 130
			Acenaphthene	2009/09/01		74	%	30 - 130
			Acenaphthylene	2009/09/01		78	%	30 - 130
			Anthracene	2009/09/01		75	%	30 - 130
			Benzo(a)anthracene	2009/09/01		92	%	30 - 130
			Benzo(a)pyrene	2009/09/01		97	%	30 - 130
			Benzo(b/j)fluoranthene	2009/09/01		102	%	30 - 130
			Benzo(g,h,i)perylene	2009/09/01		97	%	30 - 130
			Benzo(k)fluoranthene	2009/09/01		99	%	30 - 130
			Chrysene	2009/09/01		115	%	30 - 130
			Dibenz(a,h)anthracene	2009/09/01		103	%	30 - 130
			Fluoranthene	2009/09/01		76	%	30 - 130
			Fluorene	2009/09/01		84	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2009/09/01		90	%	30 - 130
			1-Methylnaphthalene	2009/09/01		47	%	30 - 130
			2-Methylnaphthalene	2009/09/01		59	%	30 - 130
			Naphthalene	2009/09/01		NC (5)	%	30 - 130
			Phenanthrene	2009/09/01		75	%	30 - 130
			Pyrene	2009/09/01		73	%	30 - 130
		Spiked Blank	D10-Anthracene	2009/09/02		82	%	30 - 130
			D14-Terphenyl (FS)	2009/09/02		79	%	30 - 130
			D7-Quinoline	2009/09/02		101	%	30 - 130
			D8-Acenaphthylene	2009/09/02		85	%	30 - 130
			Acenaphthene	2009/09/02		80	%	30 - 130
			Acenaphthylene	2009/09/02		83	%	30 - 130
			Anthracene	2009/09/02		79	%	30 - 130
			Benzo(a)anthracene	2009/09/02		96	%	30 - 130
			Benzo(a)pyrene	2009/09/02		104	%	30 - 130
			Benzo(b/j)fluoranthene	2009/09/02		110	%	30 - 130
			Benzo(g,h,i)perylene	2009/09/02		101	%	30 - 130
			Benzo(k)fluoranthene	2009/09/02		103	%	30 - 130
			Chrysene	2009/09/02		98	%	30 - 130
			Dibenz(a,h)anthracene	2009/09/02		106	%	30 - 130
			Fluoranthene	2009/09/02		78	%	30 - 130
			Fluorene	2009/09/02		87	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2009/09/02		89	%	30 - 130
			1-Methylnaphthalene	2009/09/02		77	%	30 - 130
			2-Methylnaphthalene	2009/09/02		69	%	30 - 130
			Naphthalene	2009/09/02		64	%	30 - 130
			Phenanthrene	2009/09/02		76	%	30 - 130
			Pyrene	2009/09/02		77	%	30 - 130
		Method Blank	D10-Anthracene	2009/09/01		86	%	30 - 130
			D14-Terphenyl (FS)	2009/09/01		77	%	30 - 130

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1924970	YZ	Method Blank	D7-Quinoline	2009/09/01		103	%	30 - 130
			D8-Acenaphthylene	2009/09/01		88	%	30 - 130
			Acenaphthene	2009/09/01	<0.05		ug/L	
			Acenaphthylene	2009/09/01	<0.05		ug/L	
			Anthracene	2009/09/01	<0.05		ug/L	
			Benzo(a)anthracene	2009/09/01	<0.05		ug/L	
			Benzo(a)pyrene	2009/09/01	<0.01		ug/L	
			Benzo(b/j)fluoranthene	2009/09/01	<0.05		ug/L	
			Benzo(g,h,i)perylene	2009/09/01	<0.1		ug/L	
			Benzo(k)fluoranthene	2009/09/01	<0.05		ug/L	
			Chrysene	2009/09/01	<0.05		ug/L	
			Dibenz(a,h)anthracene	2009/09/01	<0.1		ug/L	
			Fluoranthene	2009/09/01	<0.05		ug/L	
			Fluorene	2009/09/01	<0.05		ug/L	
			Indeno(1,2,3-cd)pyrene	2009/09/01	<0.1		ug/L	
			1-Methylnaphthalene	2009/09/01	<0.05		ug/L	
			2-Methylnaphthalene	2009/09/01	<0.05		ug/L	
			Naphthalene	2009/09/01	<0.05		ug/L	
			Phenanthrene	2009/09/01	<0.05		ug/L	
			Pyrene	2009/09/01	<0.05		ug/L	
		RPD - Sample/Sample Dup	Acenaphthene	2009/09/01	NC		%	40
			Acenaphthylene	2009/09/01	NC		%	40
			Anthracene	2009/09/01	NC		%	40
			Fluoranthene	2009/09/01	NC		%	40
			Fluorene	2009/09/01	NC		%	40
			1-Methylnaphthalene	2009/09/01	NC		%	40
			2-Methylnaphthalene	2009/09/01	NC		%	40
			Naphthalene	2009/09/01	17.7		%	40
			Phenanthrene	2009/09/01	NC		%	40
1925535	DH	Matrix Spike	2,4,5,6-Tetrachloro-m-xylene	2009/09/01		62	%	40 - 130
			Decachlorobiphenyl	2009/09/01		105	%	40 - 130
			Aldrin	2009/09/01		70	%	40 - 130
			a-BHC	2009/09/01		57	%	40 - 130
			b-BHC	2009/09/01		63	%	40 - 130
			d-BHC	2009/09/01		62	%	40 - 130
			a-Chlordane	2009/09/01		66	%	40 - 130
			g-Chlordane	2009/09/01		67	%	40 - 130
			o,p-DDD	2009/09/01		87	%	40 - 130
			p,p-DDD	2009/09/01		82	%	40 - 130
			o,p-DDE	2009/09/01		74	%	40 - 130
			p,p-DDE	2009/09/01		81	%	40 - 130
			o,p-DDT	2009/09/01		74	%	40 - 130
			p,p-DDT	2009/09/01		78	%	40 - 130
			Dieldrin	2009/09/01		68	%	40 - 130
			Endosulfan I	2009/09/01		67	%	40 - 130
			Endosulfan II	2009/09/01		73	%	40 - 130
			Endosulfan sulfate	2009/09/01		75	%	40 - 130
			Endrin	2009/09/01		107	%	40 - 130
			Endrin aldehyde	2009/09/01		84	%	40 - 130
			Endrin ketone	2009/09/01		73	%	40 - 130
			Heptachlor	2009/09/01		54	%	40 - 130
			Heptachlor epoxide	2009/09/01		70	%	40 - 130
			Hexachlorobenzene	2009/09/01		60	%	20 - 130

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Franz Environmental Inc
Attention: Jennifer Keenliside
Client Project #: P-2963
P.O. #: 1747-0901
Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1925535	DH	Matrix Spike	Lindane	2009/09/01		62	%	40 - 130
			Methoxychlor	2009/09/01		58	%	40 - 130
			Mirex	2009/09/01		70	%	40 - 130
			Octachlorostyrene	2009/09/01		74	%	40 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2009/09/01		59	%	40 - 130
			Decachlorobiphenyl	2009/09/01		99	%	40 - 130
			Aldrin	2009/09/01		65	%	40 - 130
			a-BHC	2009/09/01		56	%	40 - 130
			b-BHC	2009/09/01		62	%	40 - 130
			d-BHC	2009/09/01		58	%	40 - 130
			a-Chlordane	2009/09/01		64	%	40 - 130
			g-Chlordane	2009/09/01		65	%	40 - 130
			o,p-DDD	2009/09/01		79	%	40 - 130
			p,p-DDD	2009/09/01		75	%	40 - 130
			o,p-DDE	2009/09/01		68	%	40 - 130
			p,p-DDE	2009/09/01		75	%	40 - 130
			o,p-DDT	2009/09/01		73	%	40 - 130
			p,p-DDT	2009/09/01		90	%	40 - 130
			Dieldrin	2009/09/01		67	%	40 - 130
			Endosulfan I	2009/09/01		67	%	40 - 130
			Endosulfan II	2009/09/01		71	%	40 - 130
			Endosulfan sulfate	2009/09/01		96	%	40 - 130
			Endrin	2009/09/01		100	%	40 - 130
			Endrin aldehyde	2009/09/01		75	%	40 - 130
			Endrin ketone	2009/09/01		70	%	40 - 130
			Heptachlor	2009/09/01		54	%	40 - 130
			Heptachlor epoxide	2009/09/01		72	%	40 - 130
			Hexachlorobenzene	2009/09/01		54	%	20 - 130
			Lindane	2009/09/01		63	%	40 - 130
			Methoxychlor	2009/09/01		64	%	40 - 130
			Mirex	2009/09/01		66	%	40 - 130
			Octachlorostyrene	2009/09/01		67	%	40 - 130
		RPD	Total PCB	2009/09/01	NC		%	50
			Aroclor 1242	2009/09/01	NC		%	50
			Toxaphene	2009/09/01	NC		%	50
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2009/09/01		62	%	40 - 130
			Decachlorobiphenyl	2009/09/01		102	%	40 - 130
			Aroclor 1262	2009/09/01	<0.015		ug/g	
			Aroclor 1268	2009/09/01	<0.015		ug/g	
			Aldrin	2009/09/01	<0.002		ug/g	
			a-BHC	2009/09/01	<0.002		ug/g	
			b-BHC	2009/09/01	<0.002		ug/g	
			d-BHC	2009/09/01	<0.002		ug/g	
			a-Chlordane	2009/09/01	<0.002		ug/g	
			g-Chlordane	2009/09/01	<0.002		ug/g	
			Chlordane (Total)	2009/09/01	<0.002		ug/g	
			o,p-DDD	2009/09/01	<0.002		ug/g	
			p,p-DDD	2009/09/01	<0.002		ug/g	
			o,p-DDD + p,p-DDD	2009/09/01	<0.002		ug/g	
			o,p-DDE	2009/09/01	<0.002		ug/g	
			p,p-DDE	2009/09/01	<0.002		ug/g	
			o,p-DDE + p,p-DDE	2009/09/01	<0.002		ug/g	
			o,p-DDT	2009/09/01	<0.002		ug/g	
			p,p-DDT	2009/09/01	<0.002		ug/g	
			o,p-DDT + p,p-DDT	2009/09/01	<0.002		ug/g	

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Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1925535	DH	Method Blank	DDT+ Metabolites	2009/09/01	<0.002		ug/g	
			Dieldrin	2009/09/01	<0.002		ug/g	
			Endosulfan I	2009/09/01	<0.002		ug/g	
			Endosulfan II	2009/09/01	<0.002		ug/g	
			Endosulfan sulfate	2009/09/01	<0.002		ug/g	
			Total Endosulfan	2009/09/01	<0.002		ug/g	
			Endrin	2009/09/01	<0.002		ug/g	
			Endrin aldehyde	2009/09/01	<0.002		ug/g	
			Endrin ketone	2009/09/01	<0.002		ug/g	
			Heptachlor	2009/09/01	<0.002		ug/g	
			Heptachlor epoxide	2009/09/01	<0.002		ug/g	
			Hexachlorobenzene	2009/09/01	<0.002		ug/g	
			Lindane	2009/09/01	<0.002		ug/g	
			Methoxychlor	2009/09/01	<0.008		ug/g	
			Mirex	2009/09/01	<0.002		ug/g	
			Octachlorostyrene	2009/09/01	<0.002		ug/g	
			Total PCB	2009/09/01	<0.03		ug/g	
			Aroclor 1016	2009/09/01	<0.015		ug/g	
			Aroclor 1221	2009/09/01	<0.03		ug/g	
			Aroclor 1232	2009/09/01	<0.015		ug/g	
			Aroclor 1242	2009/09/01	<0.015		ug/g	
			Aroclor 1248	2009/09/01	<0.015		ug/g	
			Aroclor 1254	2009/09/01	<0.015		ug/g	
			Aroclor 1260	2009/09/01	<0.015		ug/g	
			Toxaphene	2009/09/01	<0.08		ug/g	
		RPD - Sample/Sample Dup	Aroclor 1262	2009/09/01	NC		%	50
			Aroclor 1268	2009/09/01	NC		%	50
			Aldrin	2009/09/01	NC		%	50
			a-BHC	2009/09/01	NC		%	50
			b-BHC	2009/09/01	NC		%	50
			d-BHC	2009/09/01	NC		%	50
			a-Chlordane	2009/09/01	NC		%	50
			g-Chlordane	2009/09/01	NC		%	50
			Chlordane (Total)	2009/09/01	NC		%	50
			o,p-DDD	2009/09/01	NC		%	50
			p,p-DDD	2009/09/01	NC		%	50
			o,p-DDD + p,p-DDD	2009/09/01	NC		%	50
			o,p-DDE	2009/09/01	NC		%	50
			p,p-DDE	2009/09/01	NC		%	50
			o,p-DDE + p,p-DDE	2009/09/01	NC		%	50
			o,p-DDT	2009/09/01	NC		%	50
			p,p-DDT	2009/09/01	NC		%	50
			o,p-DDT + p,p-DDT	2009/09/01	NC		%	50
			DDT+ Metabolites	2009/09/01	NC		%	50
			Dieldrin	2009/09/01	NC		%	50
			Endosulfan I	2009/09/01	NC		%	50
			Endosulfan II	2009/09/01	NC		%	50
			Endosulfan sulfate	2009/09/01	NC		%	50
			Total Endosulfan	2009/09/01	NC		%	50
			Endrin	2009/09/01	NC		%	50
			Endrin aldehyde	2009/09/01	NC		%	50
			Endrin ketone	2009/09/01	NC		%	50
			Heptachlor	2009/09/01	NC		%	50

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Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1925535	DH	RPD - Sample/Sample Dup	Heptachlor epoxide	2009/09/01	NC		%	50
			Hexachlorobenzene	2009/09/01	NC		%	50
			Lindane	2009/09/01	NC		%	50
			Methoxychlor	2009/09/01	NC		%	50
			Mirex	2009/09/01	NC		%	50
			Octachlorostyrene	2009/09/01	NC		%	50
			Aroclor 1016	2009/09/01	NC		%	50
			Aroclor 1221	2009/09/01	NC		%	50
			Aroclor 1232	2009/09/01	NC		%	50
			Aroclor 1248	2009/09/01	NC		%	50
			Aroclor 1254	2009/09/01	NC		%	50
			Aroclor 1260	2009/09/01	NC		%	50
1925615	KCO	Matrix Spike	Acid Extractable Antimony (Sb)	2009/09/01		95	%	75 - 125
			Acid Extractable Arsenic (As)	2009/09/01		93	%	75 - 125
			Acid Extractable Barium (Ba)	2009/09/01		NC	%	75 - 125
			Acid Extractable Beryllium (Be)	2009/09/01		98	%	75 - 125
			Acid Extractable Cadmium (Cd)	2009/09/01		102	%	75 - 125
			Acid Extractable Chromium (Cr)	2009/09/01		97	%	75 - 125
			Acid Extractable Cobalt (Co)	2009/09/01		94	%	75 - 125
			Acid Extractable Copper (Cu)	2009/09/01		97	%	75 - 125
			Acid Extractable Lead (Pb)	2009/09/01		96	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2009/09/01		99	%	75 - 125
			Acid Extractable Nickel (Ni)	2009/09/01		94	%	75 - 125
			Acid Extractable Selenium (Se)	2009/09/01		94	%	75 - 125
			Acid Extractable Silver (Ag)	2009/09/01		87	%	75 - 125
			Acid Extractable Thallium (Tl)	2009/09/01		92	%	75 - 125
			Acid Extractable Vanadium (V)	2009/09/01		96	%	75 - 125
			Acid Extractable Zinc (Zn)	2009/09/01		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2009/09/01		103	%	75 - 125
		QC Standard	Acid Extractable Antimony (Sb)	2009/09/01		88	%	75 - 125
			Acid Extractable Arsenic (As)	2009/09/01		93	%	75 - 125
			Acid Extractable Barium (Ba)	2009/09/01		91	%	75 - 125
			Acid Extractable Beryllium (Be)	2009/09/01		99	%	75 - 125
			Acid Extractable Cadmium (Cd)	2009/09/01		95	%	75 - 125
			Acid Extractable Chromium (Cr)	2009/09/01		88	%	75 - 125
			Acid Extractable Cobalt (Co)	2009/09/01		90	%	75 - 125
			Acid Extractable Copper (Cu)	2009/09/01		100	%	75 - 125
			Acid Extractable Lead (Pb)	2009/09/01		100	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2009/09/01		89	%	75 - 125
			Acid Extractable Nickel (Ni)	2009/09/01		90	%	75 - 125
			Acid Extractable Selenium (Se)	2009/09/01		73	%	50 - 150
			Acid Extractable Silver (Ag)	2009/09/01		82	%	75 - 125
			Acid Extractable Thallium (Tl)	2009/09/01		86	%	75 - 125
			Acid Extractable Vanadium (V)	2009/09/01		89	%	75 - 125
			Acid Extractable Zinc (Zn)	2009/09/01		95	%	75 - 125
			Acid Extractable Mercury (Hg)	2009/09/01		129 (6)	%	75 - 125
		Method Blank	Acid Extractable Antimony (Sb)	2009/09/01	<0.2		ug/g	
			Acid Extractable Arsenic (As)	2009/09/01	<1		ug/g	
			Acid Extractable Barium (Ba)	2009/09/01	<0.5		ug/g	
			Acid Extractable Beryllium (Be)	2009/09/01	<0.2		ug/g	
			Acid Extractable Cadmium (Cd)	2009/09/01	<0.1		ug/g	
			Acid Extractable Chromium (Cr)	2009/09/01	<1		ug/g	
			Acid Extractable Cobalt (Co)	2009/09/01	<0.1		ug/g	

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Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1925615	KCO	Method Blank	Acid Extractable Copper (Cu)	2009/09/01	<0.5		ug/g	
			Acid Extractable Lead (Pb)	2009/09/01	<1		ug/g	
			Acid Extractable Molybdenum (Mo)	2009/09/01	<0.5		ug/g	
			Acid Extractable Nickel (Ni)	2009/09/01	<0.5		ug/g	
			Acid Extractable Selenium (Se)	2009/09/01	<0.5		ug/g	
			Acid Extractable Silver (Ag)	2009/09/01	<0.2		ug/g	
			Acid Extractable Thallium (Tl)	2009/09/01	<0.05		ug/g	
			Acid Extractable Vanadium (V)	2009/09/01	<5		ug/g	
			Acid Extractable Zinc (Zn)	2009/09/01	<5		ug/g	
			Acid Extractable Mercury (Hg)	2009/09/01	<0.05		ug/g	
		RPD - Sample/Sample Dup	Acid Extractable Antimony (Sb)	2009/09/01	NC		%	35
			Acid Extractable Arsenic (As)	2009/09/01	NC		%	35
			Acid Extractable Barium (Ba)	2009/09/01	9.2		%	35
			Acid Extractable Beryllium (Be)	2009/09/01	NC		%	35
			Acid Extractable Cadmium (Cd)	2009/09/01	NC		%	35
			Acid Extractable Chromium (Cr)	2009/09/01	13.7		%	35
			Acid Extractable Cobalt (Co)	2009/09/01	2.9		%	35
			Acid Extractable Copper (Cu)	2009/09/01	2.6		%	35
			Acid Extractable Lead (Pb)	2009/09/01	7.9		%	35
			Acid Extractable Molybdenum (Mo)	2009/09/01	NC		%	35
			Acid Extractable Nickel (Ni)	2009/09/01	14.3		%	35
			Acid Extractable Selenium (Se)	2009/09/01	NC		%	35
			Acid Extractable Silver (Ag)	2009/09/01	NC		%	35
			Acid Extractable Thallium (Tl)	2009/09/01	NC		%	35
			Acid Extractable Vanadium (V)	2009/09/01	NC		%	35
			Acid Extractable Zinc (Zn)	2009/09/01	5.9		%	35
			Acid Extractable Mercury (Hg)	2009/09/01	NC		%	35
1925750	MC	Matrix Spike	Mercury (Hg)	2009/09/02		95	%	75 - 125
		Spiked Blank	Mercury (Hg)	2009/09/02		95	%	84 - 113
		Method Blank	Mercury (Hg)	2009/09/02	<0.1		ug/L	
		RPD - Sample/Sample Dup	Mercury (Hg)	2009/09/02	NC		%	25
1926450	LCH	QC Standard	Hot Water Ext. Boron (B)	2009/09/02		103	%	77 - 121
		Method Blank	Hot Water Ext. Boron (B)	2009/09/02	0.01, RDL=0.01		ug/g	
		RPD - Sample/Sample Dup	Hot Water Ext. Boron (B)	2009/09/02	17.0		%	35
1926784	S_N	Matrix Spike	4-Bromofluorobenzene	2009/09/04		101	%	70 - 130
			D4-1,2-Dichloroethane	2009/09/04		103	%	70 - 130
			D8-Toluene	2009/09/04		110	%	70 - 130
			Acetone (2-Propanone)	2009/09/04		96	%	60 - 140
			Benzene	2009/09/04		106	%	70 - 130
			Bromodichloromethane	2009/09/04		104	%	70 - 130
			Bromoform	2009/09/04		99	%	70 - 130
			Bromomethane	2009/09/04		116	%	60 - 140
			Carbon Tetrachloride	2009/09/04		113	%	70 - 130
			Chlorobenzene	2009/09/04		108	%	70 - 130
			Chloroform	2009/09/04		107	%	70 - 130
			Dibromochloromethane	2009/09/04		107	%	70 - 130
			1,2-Dichlorobenzene	2009/09/04		106	%	70 - 130
			1,3-Dichlorobenzene	2009/09/04		112	%	70 - 130
			1,4-Dichlorobenzene	2009/09/04		112	%	70 - 130

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Quality Assurance Report (Continued)

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1926784	S_N	Matrix Spike	1,1-Dichloroethane	2009/09/04		NC	%	70 - 130
			1,2-Dichloroethane	2009/09/04		102	%	70 - 130
			1,1-Dichloroethylene	2009/09/04		109	%	70 - 130
			cis-1,2-Dichloroethylene	2009/09/04		112	%	70 - 130
			trans-1,2-Dichloroethylene	2009/09/04		NC	%	70 - 130
			1,2-Dichloropropane	2009/09/04		110	%	70 - 130
			cis-1,3-Dichloropropene	2009/09/04		93	%	70 - 130
			trans-1,3-Dichloropropene	2009/09/04		103	%	70 - 130
			Ethylbenzene	2009/09/04		115	%	70 - 130
			Ethylene Dibromide	2009/09/04		111	%	70 - 130
			Methylene Chloride(Dichloromethane)	2009/09/04		129	%	70 - 130
			Methyl Isobutyl Ketone	2009/09/04		100	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2009/09/04		94	%	60 - 140
			Methyl t-butyl ether (MTBE)	2009/09/04		NC	%	70 - 130
			Styrene	2009/09/04		116	%	70 - 130
			1,1,1,2-Tetrachloroethane	2009/09/04		110	%	70 - 130
			1,1,2,2-Tetrachloroethane	2009/09/04		109	%	70 - 130
			Tetrachloroethylene	2009/09/04		117	%	70 - 130
			Toluene	2009/09/04		122	%	70 - 130
			1,1,1-Trichloroethane	2009/09/04		109	%	70 - 130
			1,1,2-Trichloroethane	2009/09/04		107	%	70 - 130
			Trichloroethylene	2009/09/04		116	%	70 - 130
			Vinyl Chloride	2009/09/04		110	%	70 - 130
			p+m-Xylene	2009/09/04		115	%	70 - 130
			o-Xylene	2009/09/04		107	%	70 - 130
		Spiked Blank	4-Bromofluorobenzene	2009/09/04		100	%	70 - 130
			D4-1,2-Dichloroethane	2009/09/04		97	%	70 - 130
			D8-Toluene	2009/09/04		104	%	70 - 130
			Acetone (2-Propanone)	2009/09/04		114	%	60 - 140
			Benzene	2009/09/04		103	%	70 - 130
			Bromodichloromethane	2009/09/04		103	%	70 - 130
			Bromoform	2009/09/04		105	%	70 - 130
			Bromomethane	2009/09/04		93	%	60 - 140
			Carbon Tetrachloride	2009/09/04		105	%	70 - 130
			Chlorobenzene	2009/09/04		106	%	70 - 130
			Chloroform	2009/09/04		100	%	70 - 130
			Dibromochloromethane	2009/09/04		109	%	70 - 130
			1,2-Dichlorobenzene	2009/09/04		103	%	70 - 130
			1,3-Dichlorobenzene	2009/09/04		115	%	70 - 130
			1,4-Dichlorobenzene	2009/09/04		108	%	70 - 130
			1,1-Dichloroethane	2009/09/04		123	%	70 - 130
			1,2-Dichloroethane	2009/09/04		98	%	70 - 130
			1,1-Dichloroethylene	2009/09/04		93	%	70 - 130
			cis-1,2-Dichloroethylene	2009/09/04		110	%	70 - 130
			trans-1,2-Dichloroethylene	2009/09/04		96	%	70 - 130
			1,2-Dichloropropane	2009/09/04		110	%	70 - 130
			cis-1,3-Dichloropropene	2009/09/04		96	%	70 - 130
			trans-1,3-Dichloropropene	2009/09/04		100	%	70 - 130
			Ethylbenzene	2009/09/04		107	%	70 - 130
			Ethylene Dibromide	2009/09/04		112	%	70 - 130
			Methylene Chloride(Dichloromethane)	2009/09/04		98	%	70 - 130
			Methyl Isobutyl Ketone	2009/09/04		99	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2009/09/04		99	%	60 - 140
			Methyl t-butyl ether (MTBE)	2009/09/04		97	%	70 - 130
			Styrene	2009/09/04		112	%	70 - 130

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Franz Environmental Inc
Attention: Jennifer Keenliside
Client Project #: P-2963
P.O. #: 1747-0901
Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1926784	S_N	Spiked Blank	1,1,1,2-Tetrachloroethane	2009/09/04		107	%	70 - 130
			1,1,2,2-Tetrachloroethane	2009/09/04		107	%	70 - 130
			Tetrachloroethylene	2009/09/04		110	%	70 - 130
			Toluene	2009/09/04		114	%	70 - 130
			1,1,1-Trichloroethane	2009/09/04		101	%	70 - 130
			1,1,2-Trichloroethane	2009/09/04		106	%	70 - 130
			Trichloroethylene	2009/09/04		112	%	70 - 130
			Vinyl Chloride	2009/09/04		103	%	70 - 130
			p+m-Xylene	2009/09/04		106	%	70 - 130
			o-Xylene	2009/09/04		105	%	70 - 130
		Method Blank	4-Bromofluorobenzene	2009/09/04		91	%	70 - 130
			D4-1,2-Dichloroethane	2009/09/04		79	%	70 - 130
			D8-Toluene	2009/09/04		95	%	70 - 130
			Acetone (2-Propanone)	2009/09/04	<10		ug/L	
			Benzene	2009/09/04	<0.1		ug/L	
			Bromodichloromethane	2009/09/04	<0.1		ug/L	
			Bromoform	2009/09/04	<0.2		ug/L	
			Bromomethane	2009/09/04	<0.5		ug/L	
			Carbon Tetrachloride	2009/09/04	<0.1		ug/L	
			Chlorobenzene	2009/09/04	<0.1		ug/L	
			Chloroform	2009/09/04	<0.1		ug/L	
			Dibromochloromethane	2009/09/04	<0.2		ug/L	
			1,2-Dichlorobenzene	2009/09/04	<0.2		ug/L	
			1,3-Dichlorobenzene	2009/09/04	<0.2		ug/L	
			1,4-Dichlorobenzene	2009/09/04	<0.2		ug/L	
			1,1-Dichloroethane	2009/09/04	<0.1		ug/L	
			1,2-Dichloroethane	2009/09/04	<0.2		ug/L	
			1,1-Dichloroethylene	2009/09/04	<0.1		ug/L	
			cis-1,2-Dichloroethylene	2009/09/04	<0.1		ug/L	
			trans-1,2-Dichloroethylene	2009/09/04	<0.1		ug/L	
			1,2-Dichloropropane	2009/09/04	<0.1		ug/L	
			cis-1,3-Dichloropropene	2009/09/04	<0.2		ug/L	
			trans-1,3-Dichloropropene	2009/09/04	<0.2		ug/L	
			Ethylbenzene	2009/09/04	<0.1		ug/L	
			Ethylene Dibromide	2009/09/04	<0.2		ug/L	
			Methylene Chloride(Dichloromethane)	2009/09/04	<0.5		ug/L	
			Methyl Isobutyl Ketone	2009/09/04	<5		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2009/09/04	<5		ug/L	
			Methyl t-butyl ether (MTBE)	2009/09/04	<0.2		ug/L	
			Styrene	2009/09/04	<0.2		ug/L	
			1,1,1,2-Tetrachloroethane	2009/09/04	<0.1		ug/L	
			1,1,2,2-Tetrachloroethane	2009/09/04	<0.2		ug/L	
			Tetrachloroethylene	2009/09/04	<0.1		ug/L	
			Toluene	2009/09/04	<0.2		ug/L	
			1,1,1-Trichloroethane	2009/09/04	<0.1		ug/L	
			1,1,2-Trichloroethane	2009/09/04	<0.2		ug/L	
			Trichloroethylene	2009/09/04	<0.1		ug/L	
			Vinyl Chloride	2009/09/04	<0.2		ug/L	
			p+m-Xylene	2009/09/04	<0.1		ug/L	
			o-Xylene	2009/09/04	<0.1		ug/L	
			Xylene (Total)	2009/09/04	<0.1		ug/L	
		RPD - Sample/Sample Dup	Acetone (2-Propanone)	2009/09/04	NC		%	40
			Benzene	2009/09/04	NC		%	40

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Client Project #: P-2963
P.O. #: 1747-0901
Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1926784	S_N	RPD - Sample/Sample Dup	Bromodichloromethane	2009/09/04	NC		%	40
			Bromoform	2009/09/04	NC		%	40
			Bromomethane	2009/09/04	NC		%	40
			Carbon Tetrachloride	2009/09/04	NC		%	40
			Chlorobenzene	2009/09/04	NC		%	40
			Chloroform	2009/09/04	NC		%	40
			Dibromochloromethane	2009/09/04	NC		%	40
			1,2-Dichlorobenzene	2009/09/04	NC		%	40
			1,3-Dichlorobenzene	2009/09/04	NC		%	40
			1,4-Dichlorobenzene	2009/09/04	NC		%	40
			1,1-Dichloroethane	2009/09/04	NC		%	40
			1,2-Dichloroethane	2009/09/04	NC		%	40
			1,1-Dichloroethylene	2009/09/04	NC		%	40
			cis-1,2-Dichloroethylene	2009/09/04	NC		%	40
			trans-1,2-Dichloroethylene	2009/09/04	NC		%	40
			1,2-Dichloropropane	2009/09/04	NC		%	40
			cis-1,3-Dichloropropene	2009/09/04	NC		%	40
			trans-1,3-Dichloropropene	2009/09/04	NC		%	40
			Ethylbenzene	2009/09/04	NC		%	40
			Ethylene Dibromide	2009/09/04	NC		%	40
			Methylene Chloride(Dichloromethane)	2009/09/04	NC		%	40
			Methyl Isobutyl Ketone	2009/09/04	NC		%	40
			Methyl Ethyl Ketone (2-Butanone)	2009/09/04	NC		%	40
			Methyl t-butyl ether (MTBE)	2009/09/04	NC		%	40
			Styrene	2009/09/04	NC		%	40
			1,1,1,2-Tetrachloroethane	2009/09/04	NC		%	40
			1,1,2,2-Tetrachloroethane	2009/09/04	NC		%	40
			Tetrachloroethylene	2009/09/04	NC		%	40
			Toluene	2009/09/04	NC		%	40
			1,1,1-Trichloroethane	2009/09/04	NC		%	40
			1,1,2-Trichloroethane	2009/09/04	NC		%	40
			Trichloroethylene	2009/09/04	NC		%	40
			Vinyl Chloride	2009/09/04	NC		%	40
			p+m-Xylene	2009/09/04	NC		%	40
			o-Xylene	2009/09/04	NC		%	40
			Xylene (Total)	2009/09/04	NC		%	40
1926810	LHA	Matrix Spike	Total Phosphorus	2009/09/02		NC	%	75 - 125
		QC Standard	Total Phosphorus	2009/09/02		101	%	85 - 115
		Spiked Blank	Total Phosphorus	2009/09/02		104	%	75 - 125
		Method Blank	Total Phosphorus	2009/09/02	<0.002		mg/L	
		RPD - Sample/Sample Dup	Total Phosphorus	2009/09/02	1.0 (7)		%	25
1928144	HRE	Matrix Spike	Total Antimony (Sb)	2009/09/03		100	%	80 - 120
			Total Arsenic (As)	2009/09/03		102	%	80 - 120
			Total Beryllium (Be)	2009/09/03		98	%	75 - 125
			Total Boron (B)	2009/09/03		98	%	75 - 125
			Total Cadmium (Cd)	2009/09/03		98	%	80 - 120
			Total Chromium (Cr)	2009/09/03		100	%	80 - 120
			Total Cobalt (Co)	2009/09/03		96	%	80 - 120
			Total Copper (Cu)	2009/09/03		96	%	80 - 120
			Total Iron (Fe)	2009/09/03		98	%	80 - 120
			Total Lead (Pb)	2009/09/03		100	%	80 - 120

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Franz Environmental Inc
Attention: Jennifer Keenliside
Client Project #: P-2963
P.O. #: 1747-0901
Project name: RESOLUTE BAY

Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1928144	HRE	Matrix Spike	Total Molybdenum (Mo)	2009/09/03		101	%	80 - 120
			Total Nickel (Ni)	2009/09/03		98	%	80 - 120
			Total Selenium (Se)	2009/09/03		97	%	75 - 125
			Total Silver (Ag)	2009/09/03		94	%	80 - 120
			Total Thallium (Tl)	2009/09/03		98	%	80 - 120
			Total Tungsten (W)	2009/09/03		103	%	75 - 125
			Total Uranium (U)	2009/09/03		107	%	80 - 120
			Total Vanadium (V)	2009/09/03		98	%	80 - 120
			Total Zinc (Zn)	2009/09/03		97	%	80 - 120
			Total Zirconium (Zr)	2009/09/03		101	%	75 - 125
		Spiked Blank	Total Antimony (Sb)	2009/09/03		98	%	82 - 120
			Total Arsenic (As)	2009/09/03		99	%	86 - 119
			Total Beryllium (Be)	2009/09/03		93	%	85 - 132
			Total Boron (B)	2009/09/03		94	%	78 - 133
			Total Cadmium (Cd)	2009/09/03		95	%	85 - 116
			Total Chromium (Cr)	2009/09/03		99	%	80 - 120
			Total Cobalt (Co)	2009/09/03		93	%	82 - 117
			Total Copper (Cu)	2009/09/03		96	%	80 - 117
			Total Iron (Fe)	2009/09/03		95	%	80 - 120
			Total Lead (Pb)	2009/09/03		99	%	80 - 120
			Total Molybdenum (Mo)	2009/09/03		97	%	82 - 117
			Total Nickel (Ni)	2009/09/03		97	%	81 - 117
			Total Selenium (Se)	2009/09/03		96	%	82 - 118
			Total Silver (Ag)	2009/09/03		90	%	80 - 120
			Total Thallium (Tl)	2009/09/03		96	%	80 - 129
			Total Tungsten (W)	2009/09/03		104	%	81 - 123
			Total Uranium (U)	2009/09/03		104	%	82 - 120
			Total Vanadium (V)	2009/09/03		96	%	82 - 118
			Total Zinc (Zn)	2009/09/03		97	%	80 - 120
			Total Zirconium (Zr)	2009/09/03		99	%	84 - 118
		Method Blank	Total Antimony (Sb)	2009/09/03	<0.5		ug/L	
			Total Arsenic (As)	2009/09/03	<1		ug/L	
			Total Beryllium (Be)	2009/09/03	<0.5		ug/L	
			Total Boron (B)	2009/09/03	<10		ug/L	
			Total Cadmium (Cd)	2009/09/03	<0.1		ug/L	
			Total Chromium (Cr)	2009/09/03	<5		ug/L	
			Total Cobalt (Co)	2009/09/03	<0.5		ug/L	
			Total Copper (Cu)	2009/09/03	<1		ug/L	
			Total Iron (Fe)	2009/09/03	<100		ug/L	
			Total Lead (Pb)	2009/09/03	<0.5		ug/L	
			Total Molybdenum (Mo)	2009/09/03	<1		ug/L	
			Total Nickel (Ni)	2009/09/03	<1		ug/L	
			Total Selenium (Se)	2009/09/03	<2		ug/L	
			Total Silver (Ag)	2009/09/03	<0.1		ug/L	
			Total Thallium (Tl)	2009/09/03	<0.05		ug/L	
			Total Tungsten (W)	2009/09/03	<1		ug/L	
			Total Uranium (U)	2009/09/03	<0.1		ug/L	
			Total Vanadium (V)	2009/09/03	<1		ug/L	
			Total Zinc (Zn)	2009/09/03	<5		ug/L	
			Total Zirconium (Zr)	2009/09/03	<1		ug/L	
		RPD - Sample/Sample Dup	Total Lead (Pb)	2009/09/03	NC		%	25
1928453	KCO	Matrix Spike	Acid Extractable Antimony (Sb)	2009/09/03		85	%	75 - 125
			Acid Extractable Arsenic (As)	2009/09/03		95	%	75 - 125

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Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
1928453	KCO	Matrix Spike	Acid Extractable Barium (Ba)	2009/09/03		95	%	75 - 125
			Acid Extractable Beryllium (Be)	2009/09/03		98	%	75 - 125
			Acid Extractable Cadmium (Cd)	2009/09/03		89	%	75 - 125
			Acid Extractable Chromium (Cr)	2009/09/03		99	%	75 - 125
			Acid Extractable Cobalt (Co)	2009/09/03		100	%	75 - 125
			Acid Extractable Copper (Cu)	2009/09/03		101	%	75 - 125
			Acid Extractable Lead (Pb)	2009/09/03		92	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2009/09/03		91	%	75 - 125
			Acid Extractable Nickel (Ni)	2009/09/03		101	%	75 - 125
			Acid Extractable Selenium (Se)	2009/09/03		89	%	75 - 125
			Acid Extractable Silver (Ag)	2009/09/03		91	%	75 - 125
			Acid Extractable Thallium (Tl)	2009/09/03		89	%	75 - 125
			Acid Extractable Vanadium (V)	2009/09/03		96	%	75 - 125
			Acid Extractable Zinc (Zn)	2009/09/03		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2009/09/03		103	%	75 - 125
		QC Standard	Acid Extractable Antimony (Sb)	2009/09/03		95	%	75 - 125
			Acid Extractable Arsenic (As)	2009/09/03		95	%	75 - 125
			Acid Extractable Barium (Ba)	2009/09/03		93	%	75 - 125
			Acid Extractable Beryllium (Be)	2009/09/03		89	%	75 - 125
			Acid Extractable Cadmium (Cd)	2009/09/03		89	%	75 - 125
			Acid Extractable Chromium (Cr)	2009/09/03		92	%	75 - 125
			Acid Extractable Cobalt (Co)	2009/09/03		93	%	75 - 125
			Acid Extractable Copper (Cu)	2009/09/03		106	%	75 - 125
			Acid Extractable Lead (Pb)	2009/09/03		95	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2009/09/03		84	%	75 - 125
			Acid Extractable Nickel (Ni)	2009/09/03		97	%	75 - 125
			Acid Extractable Selenium (Se)	2009/09/03		73	%	50 - 150
			Acid Extractable Silver (Ag)	2009/09/03		77	%	75 - 125
			Acid Extractable Thallium (Tl)	2009/09/03		89	%	75 - 125
			Acid Extractable Vanadium (V)	2009/09/03		91	%	75 - 125
			Acid Extractable Zinc (Zn)	2009/09/03		93	%	75 - 125
			Acid Extractable Mercury (Hg)	2009/09/03		123	%	75 - 125
		Method Blank	Acid Extractable Antimony (Sb)	2009/09/03	<0.2		ug/g	
			Acid Extractable Arsenic (As)	2009/09/03	<1		ug/g	
			Acid Extractable Barium (Ba)	2009/09/03	<0.5		ug/g	
			Acid Extractable Beryllium (Be)	2009/09/03	<0.2		ug/g	
			Acid Extractable Cadmium (Cd)	2009/09/03	<0.1		ug/g	
			Acid Extractable Chromium (Cr)	2009/09/03	<1		ug/g	
			Acid Extractable Cobalt (Co)	2009/09/03	<0.1		ug/g	
			Acid Extractable Copper (Cu)	2009/09/03	<0.5		ug/g	
			Acid Extractable Lead (Pb)	2009/09/03	<1		ug/g	
			Acid Extractable Molybdenum (Mo)	2009/09/03	<0.5		ug/g	
			Acid Extractable Nickel (Ni)	2009/09/03	<0.5		ug/g	
			Acid Extractable Selenium (Se)	2009/09/03	<0.5		ug/g	
			Acid Extractable Silver (Ag)	2009/09/03	<0.2		ug/g	
			Acid Extractable Thallium (Tl)	2009/09/03	<0.05		ug/g	
			Acid Extractable Vanadium (V)	2009/09/03	<5		ug/g	
			Acid Extractable Zinc (Zn)	2009/09/03	<5		ug/g	
			Acid Extractable Mercury (Hg)	2009/09/03	<0.05		ug/g	
		RPD - Sample/Sample Dup	Acid Extractable Arsenic (As)	2009/09/03	NC		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

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Quality Assurance Report (Continued)

Maxxam Job Number: TA9A9979

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) Duplicate results exceeded RPD acceptance criteria. This may be due to sample heterogenity. Small stones observed in the duplicate. The variability in the results for flagged analytes may be more pronounced.
(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(3) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
(4) The recovery was below the lower control limit. This may be due in part to the reducing environment of the sample.
(5) The recovery in the matrix spike was not calculated (NC). Spiked concentration was less than 2x that native to the sample. However, the results for naphthalene between the parent sample and the matrix spike were noted to be different. This may due to sample heterogeneity.
(6) The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.
(7) Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method.

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Your P.O. #: 1747-0901
Your Project #: P-2963
Site: RESOLUTE BAY
Your C.O.C. #: 15956113, 159533-1, 159561-1

Attention: Jennifer Keenliside
Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Report Date: 2010/01/21
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9A9979
Received: 2009/08/25, 11:05

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	3	2009/09/02	2009/09/02	CAM SOP-00408	R153 Ana. Prot. 2004
Chromium (VI) in Soil	3	2009/08/31	2009/09/01	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2009/08/25	2009/08/27	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2009/08/25	2009/08/28	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	1	2009/08/26	2009/08/26	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2009/08/26	2009/08/28	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	2	2009/09/01	2009/09/01	CAM SOP-00447	EPA 6020
Acid Extr. Metals (aqua regia) by ICPMS	1	2009/09/03	2009/09/03	CAM SOP-00447	EPA 6020
MOISTURE	4	N/A	2009/08/27	CAM SOP-00445	MOE HANDBOOK(1983)
MOISTURE	3	N/A	2009/08/31	CAM SOP-00445	McKeague 2nd ed 1978
OC Pesticides (Selected) & PCB	2	2009/09/01	2009/09/01	CAM SOP-00307	SW846 8081, 8082
PAH Compounds in Soil by GC/MS (SIM)	1	2009/08/28	2009/08/29	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	2	2009/08/28	2009/08/30	CAM SOP - 00318	EPA 8270
Polychlorinated Biphenyl in Soil	1	2009/08/28	2009/08/29	CAM SOP-00309	SW846 8082
Volatile Organic Compounds in Soil	3	2009/08/26	2009/08/27	CAM SOP-00226	EPA 8260 modified

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dissolved Aluminum (0.2 u, clay free)	6	N/A	2009/09/01	CAM SOP-00447	SW846, 6020
Chromium (VI) in Water	6	N/A	2009/08/28	BRL SOP-00106	EPA 7199
Petroleum Hydro. CCME F1 & BTEX in Water	6	N/A	2009/08/28	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	3	2009/08/26	2009/08/27	CAM SOP-00316	CCME Hydrocarbons
Petroleum Hydrocarbons F2-F4 in Water	3	2009/08/26	2009/08/28	CAM SOP-00316	CCME Hydrocarbons
Glycols in Water by GC/FID	2	N/A	2009/08/28	CAM SOP-00322	based on EPA 8015
Mercury	2	2009/08/31	2009/08/31	CAM SOP-00453	EPA 7470
Mercury	4	2009/09/01	2009/09/02	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	6	N/A	2009/09/03	CAM SOP-00447	EPA 6020
OC Pesticides (Selected) & PCB	4	2009/08/27	2009/08/29	CAM SOP-00307	SW846 8081,8082
PAH Compounds in Water by GC/MS (SIM)	3	2009/09/01	2009/09/01	CAM SOP-00318	EPA 8270
PAH Compounds in Water by GC/MS (SIM)	3	2009/09/01	2009/09/02	CAM SOP-00318	EPA 8270
Total Phosphorus (Colourimetric)	6	2009/09/02	2009/09/02	CAM SOP-00407	APHA 4500 P,B,F
Volatile Organic Compounds in Water	5	N/A	2009/09/04	CAM SOP-00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) This test was performed by Maxxam Ottawa
(2) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MARIJANE CRUZ, Project Manager
Email: Marijane.Cruz@maxxamanalytics.com
Phone# (905) 817-5756

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

O'REG 153 METALS PACKAGE (SOIL)

Maxxam ID		DM2390			DM2391			DM2392		
Sampling Date		2009/08/20			2009/08/20			2009/08/20		
	Units	**FR-6**	**RDL**	**QC Batch**	**2-TP-20**	**RDL**	**QC Batch**	**2-SD-19**	**RDL**	**QC Batch**
Metals										
Hot Water Ext. Boron (B)	ug/g	0.58	0.01	1926450	0.50	0.01	1926450	1.2	0.01	1926450
Chromium (VI)	ug/g	<0.2	0.2	1924341	<0.2	0.2	1924341	<0.2	0.2	1924341
Acid Extractable Antimony (Sb)	ug/g	<0.2	0.2	1925615	<0.2	0.2	1928453	<0.2	0.2	1925615
Acid Extractable Arsenic (As)	ug/g	<1	1	1925615	<1	1	1928453	3	1	1925615
Acid Extractable Barium (Ba)	ug/g	7.9	0.5	1925615	7.2	0.5	1928453	7.1	0.5	1925615
Acid Extractable Beryllium (Be)	ug/g	<0.2	0.2	1925615	<0.2	0.2	1928453	<0.2	0.2	1925615
Acid Extractable Cadmium (Cd)	ug/g	0.2	0.1	1925615	0.1	0.1	1928453	<0.1	0.1	1925615
Acid Extractable Chromium (Cr)	ug/g	3	1	1925615	4	1	1928453	3	1	1925615
Acid Extractable Cobalt (Co)	ug/g	0.8	0.1	1925615	0.8	0.1	1928453	0.3	0.1	1925615
Acid Extractable Copper (Cu)	ug/g	2.6	0.5	1925615	3.0	0.5	1928453	1.7	0.5	1925615
Acid Extractable Lead (Pb)	ug/g	4	1	1925615	3	1	1928453	2	1	1925615
Acid Extractable Molybdenum (Mo)	ug/g	<0.5	0.5	1925615	0.5	0.5	1928453	2.6	0.5	1925615
Acid Extractable Nickel (Ni)	ug/g	3.1(1)	2.5	1925615	1.5	0.5	1928453	<2.5(1)	2.5	1925615
Acid Extractable Selenium (Se)	ug/g	<0.5	0.5	1925615	<0.5	0.5	1928453	<0.5	0.5	1925615
Acid Extractable Silver (Ag)	ug/g	<0.2	0.2	1925615	<0.2	0.2	1928453	<0.2	0.2	1925615
Acid Extractable Thallium (Tl)	ug/g	<0.05	0.05	1925615	<0.05	0.05	1928453	<0.05	0.05	1925615
Acid Extractable Vanadium (V)	ug/g	<5	5	1925615	<5	5	1928453	<5	5	1925615
Acid Extractable Zinc (Zn)	ug/g	19	5	1925615	16	5	1928453	9	5	1925615
Acid Extractable Mercury (Hg)	ug/g	<0.05	0.05	1925615	<0.05	0.05	1928453	<0.05	0.05	1925615

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
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PWQO METALS (WATER)

Maxxam ID		DM2349		DM2350		DM2351		DM2352	DM2353	DM2354		
Sampling Date		2009/08/22 12:00		2009/08/22 10:30		2009/08/22 11:30		2009/08/22 11:00	2009/08/22 10:00	2009/08/20 21:05		
	Units	**2-MW-8**	**QC Batch**	**2-MW-1**	**QC Batch**	**2-MW-2**	**QC Batch**	**1-MW-13**	**1-MW-14**	**2-SW-19-1**	**RDL**	**QC Batch**
Inorganics												
Total Phosphorus	mg/L	0.18	1926810	0.079	1926810	0.022	1926810	0.11	0.079	0.011	0.002	1926810
Metals												
Dissolved (0.2u) Aluminum (Al)	ug/L	<5	1924587	<5	1924587	<5	1924587	<5	<5	<5	5	1924587
Chromium (VI)	ug/L	<0.5	1921692	<0.5	1921692	<0.5	1921692	<0.5	<0.5	<0.5	0.5	1921692
Mercury (Hg)	ug/L	<0.1	1923767	<0.1	1925750	<0.1	1923767	<0.1	<0.1	<0.1	0.1	1925750
Total Antimony (Sb)	ug/L	1.0	1928144	<0.5	1928144	<0.5	1928144	<0.5	0.6	<0.5	0.5	1928144
Total Arsenic (As)	ug/L	2	1928144	<1	1928144	<1	1928144	2	2	<1	1	1928144
Total Beryllium (Be)	ug/L	<0.5	1928144	<0.5	1928144	<0.5	1928144	<0.5	<0.5	<0.5	0.5	1928144
Total Boron (B)	ug/L	40	1928144	16	1928144	31	1928144	31	55	27	10	1928144
Total Cadmium (Cd)	ug/L	0.1	1928144	0.1	1928144	<0.1	1928144	<0.1	<0.1	<0.1	0.1	1928144
Total Chromium (Cr)	ug/L	<5	1928144	<5	1928144	<5	1928144	<5	<5	<5	5	1928144
Total Cobalt (Co)	ug/L	1.8	1928144	0.6	1928144	<0.5	1928144	<0.5	1.7	<0.5	0.5	1928144
Total Copper (Cu)	ug/L	2	1928144	3	1928144	1	1928144	2	3	<1	1	1928144
Total Iron (Fe)	ug/L	160	1928144	<100	1928144	240	1928144	1100	1100	<100	100	1928144
Total Lead (Pb)	ug/L	1.0	1928144	<0.5	1928144	0.9	1928144	1.4	1.6	<0.5	0.5	1928144
Total Molybdenum (Mo)	ug/L	<1	1928144	<1	1928144	1	1928144	<1	2	<1	1	1928144
Total Nickel (Ni)	ug/L	3	1928144	<1	1928144	<1	1928144	1	7	<1	1	1928144
Total Selenium (Se)	ug/L	<2	1928144	<2	1928144	<2	1928144	<2	<2	<2	2	1928144
Total Silver (Ag)	ug/L	<0.1	1928144	<0.1	1928144	<0.1	1928144	<0.1	<0.1	<0.1	0.1	1928144
Total Thallium (Tl)	ug/L	<0.05	1928144	<0.05	1928144	<0.05	1928144	<0.05	<0.05	<0.05	0.05	1928144
Total Tungsten (W)	ug/L	<1	1928144	<1	1928144	<1	1928144	<1	<1	<1	1	1928144
Total Uranium (U)	ug/L	0.7	1928144	0.4	1928144	0.9	1928144	0.2	0.7	0.3	0.1	1928144
Total Vanadium (V)	ug/L	<1	1928144	<1	1928144	<1	1928144	2	2	<1	1	1928144
Total Zinc (Zn)	ug/L	8	1928144	6	1928144	<5	1928144	11	10	<5	5	1928144
Total Zirconium (Zr)	ug/L	<1	1928144	<1	1928144	<1	1928144	<1	1	<1	1	1928144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9979
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RESULTS OF ANALYSES OF SOIL

Maxxam ID		DM2390	DM2391	DM2392		DM2393		
Sampling Date		2009/08/20	2009/08/20	2009/08/20		2009/08/22		
	Units	**FR-6**	**2-TP-20**	**2-SD-19**	**QC Batch**	**1-TP-12**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	23	23	29	1924013	5.5	0.2	1920995

RDL = Reportable Detection Limit
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Franz Environmental Inc
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Your P.O. #: 1747-0901
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SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DM2390		DM2391			DM2392		
Sampling Date		2009/08/20		2009/08/20			2009/08/20		
	Units	**FR-6**	**QC Batch**	**2-TP-20**	**RDL**	**QC Batch**	**2-SD-19**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.01	1921687	<0.01	0.01	1921671	<0.02	0.02	1921687
Acenaphthylene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Anthracene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Benzo(a)anthracene	ug/g	<0.01	1921687	<0.01	0.01	1921671	<0.02	0.02	1921687
Benzo(a)pyrene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Benzo(b/j)fluoranthene	ug/g	<0.01	1921687	<0.01	0.01	1921671	<0.02	0.02	1921687
Benzo(g,h,i)perylene	ug/g	<0.02	1921687	<0.02	0.02	1921671	<0.04	0.04	1921687
Benzo(k)fluoranthene	ug/g	<0.01	1921687	<0.01	0.01	1921671	<0.02	0.02	1921687
Chrysene	ug/g	<0.01	1921687	<0.01	0.01	1921671	<0.02	0.02	1921687
Dibenz(a,h)anthracene	ug/g	<0.02	1921687	<0.02	0.02	1921671	<0.04	0.04	1921687
Fluoranthene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Fluorene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Indeno(1,2,3-cd)pyrene	ug/g	<0.02	1921687	<0.02	0.02	1921671	<0.04	0.04	1921687
1-Methylnaphthalene	ug/g	<0.005	1921687	0.007	0.005	1921671	<0.01	0.01	1921687
2-Methylnaphthalene	ug/g	<0.005	1921687	0.007	0.005	1921671	<0.01	0.01	1921687
Naphthalene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Phenanthrene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Pyrene	ug/g	<0.005	1921687	<0.005	0.005	1921671	<0.01	0.01	1921687
Surrogate Recovery (%)									
D10-Anthracene	%	113	1921687	91		1921671	102		1921687
D14-Terphenyl (FS)	%	110	1921687	94		1921671	78		1921687
D7-Quinoline	%	91	1921687	82		1921671	74		1921687
D8-Acenaphthylene	%	94	1921687	79		1921671	72		1921687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
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Franz Environmental Inc
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Project name: RESOLUTE BAY
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Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DM2390	DM2391	DM2393		
Sampling Date		2009/08/20	2009/08/20	2009/08/22		
	Units	**FR-6**	**2-TP-20**	**1-TP-12**	**RDL**	**QC Batch**
Volatile Organics						
Acetone (2-Propanone)	ug/g	<0.1	<0.1	<0.1	0.1	1919027
Benzene	ug/g	0.051	0.056	0.008	0.002	1919027
Bromodichloromethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Bromoform	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Bromomethane	ug/g	<0.003	<0.003	<0.003	0.003	1919027
Carbon Tetrachloride	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Chlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Chloroform	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Dibromochloromethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,2-Dichlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,3-Dichlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,4-Dichlorobenzene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1-Dichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,2-Dichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1-Dichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
cis-1,2-Dichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
trans-1,2-Dichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,2-Dichloropropane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
cis-1,3-Dichloropropene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
trans-1,3-Dichloropropene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Ethylbenzene	ug/g	0.087	0.085	0.008	0.002	1919027
Ethylene Dibromide	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Methylene Chloride(Dichloromethane)	ug/g	<0.003	<0.003	<0.003	0.003	1919027
Methyl Isobutyl Ketone	ug/g	<0.03	<0.03	<0.03	0.03	1919027
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.03	<0.03	<0.03	0.03	1919027
Methyl t-butyl ether (MTBE)	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Styrene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1,1,2-Tetrachloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1,2,2-Tetrachloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Tetrachloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Toluene	ug/g	0.17	0.19	0.020	0.002	1919027
1,1,1-Trichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
1,1,2-Trichloroethane	ug/g	<0.002	<0.002	<0.002	0.002	1919027
Trichloroethylene	ug/g	<0.002	<0.002	<0.002	0.002	1919027

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9979
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Franz Environmental Inc
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Your P.O. #: 1747-0901
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VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		DM2390	DM2391	DM2393		
Sampling Date		2009/08/20	2009/08/20	2009/08/22		
	Units	**FR-6**	**2-TP-20**	**1-TP-12**	**RDL**	**QC Batch**
Vinyl Chloride	ug/g	<0.002	<0.002	<0.002	0.002	1919027
p+m-Xylene	ug/g	0.079	0.076	0.011	0.002	1919027
o-Xylene	ug/g	0.047	0.045	0.005	0.002	1919027
Xylene (Total)	ug/g	0.13	0.12	0.016	0.002	1919027
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	84	80	94		1919027
D4-1,2-Dichloroethane	%	88	86	85		1919027
D8-Toluene	%	91	96	97		1919027

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Franz Environmental Inc
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DM2390		DM2391	DM2392		
Sampling Date		2009/08/20		2009/08/20	2009/08/20		
	Units	**FR-6**	**QC Batch**	**2-TP-20**	**2-SD-19**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons							
Benzene	ug/g				<0.02	0.02	1918413
Toluene	ug/g				<0.02	0.02	1918413
Ethylbenzene	ug/g				<0.02	0.02	1918413
o-Xylene	ug/g				<0.02	0.02	1918413
p+m-Xylene	ug/g				<0.04	0.04	1918413
Total Xylenes	ug/g				<0.04	0.04	1918413
F1 (C6-C10)	ug/g	<10	1919154	<10	<10	10	1918413
F1 (C6-C10) - BTEX	ug/g	<10	1919154	<10	<10	10	1918413
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	<10	1919129	<10	<10	10	1919122
F3 (C16-C34 Hydrocarbons)	ug/g	<10	1919129	<10	<10	10	1919122
F4 (C34-C50 Hydrocarbons)	ug/g	<10	1919129	<10	<10	10	1919122
Reached Baseline at C50	ug/g	YES	1919129	YES	YES		1919122
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	107	1919154	90	87		1918413
4-Bromofluorobenzene	%	112	1919154	114	114		1918413
D10-Ethylbenzene	%	85	1919154	84	78		1918413
D4-1,2-Dichloroethane	%	85	1919154	89	92		1918413
o-Terphenyl	%	88	1919129	83	85		1919122

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		DM2391		
Sampling Date		2009/08/20		
	Units	**2-TP-20**	**RDL**	**QC Batch**
PCBs				
Aroclor 1262	ug/g	<0.01	0.01	1922106
Aroclor 1016	ug/g	<0.01	0.01	1922106
Aroclor 1221	ug/g	<0.01	0.01	1922106
Aroclor 1232	ug/g	<0.01	0.01	1922106
Aroclor 1242	ug/g	<0.01	0.01	1922106
Aroclor 1248	ug/g	<0.01	0.01	1922106
Aroclor 1254	ug/g	<0.01	0.01	1922106
Aroclor 1260	ug/g	<0.01	0.01	1922106
Aroclor 1268	ug/g	<0.01	0.01	1922106
Total PCB	ug/g	<0.01	0.01	1922106
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	95		1922106
Decachlorobiphenyl	%	106		1922106

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DM2390	DM2392		
Sampling Date		2009/08/20	2009/08/20		
	Units	**FR-6**	**2-SD-19**	**RDL**	**QC Batch**
Pesticides & Herbicides					
Aroclor 1262	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1268	ug/g	<0.02	<0.02	0.02	1925535
Aldrin	ug/g	<0.002	<0.002	0.002	1925535
a-BHC	ug/g	<0.002	<0.002	0.002	1925535
b-BHC	ug/g	<0.002	<0.002	0.002	1925535
d-BHC	ug/g	<0.002	<0.002	0.002	1925535
a-Chlordane	ug/g	<0.002	<0.002	0.002	1925535
g-Chlordane	ug/g	<0.002	<0.002	0.002	1925535
Chlordane (Total)	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDD	ug/g	<0.002	<0.002	0.002	1925535
p,p-DDD	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDD + p,p-DDD	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDE	ug/g	<0.002	<0.002	0.002	1925535
p,p-DDE	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDE + p,p-DDE	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDT	ug/g	<0.002	<0.002	0.002	1925535
p,p-DDT	ug/g	<0.002	<0.002	0.002	1925535
o,p-DDT + p,p-DDT	ug/g	<0.002	<0.002	0.002	1925535
DDT+ Metabolites	ug/g	<0.002	<0.002	0.002	1925535
Dieldrin	ug/g	<0.002	<0.002	0.002	1925535
Endosulfan I	ug/g	<0.002	<0.002	0.002	1925535
Endosulfan II	ug/g	<0.002	<0.002	0.002	1925535
Endosulfan sulfate	ug/g	<0.002	<0.002	0.002	1925535
Total Endosulfan	ug/g	<0.002	<0.002	0.002	1925535
Endrin	ug/g	<0.002	<0.002	0.002	1925535
Endrin aldehyde	ug/g	<0.002	<0.002	0.002	1925535
Endrin ketone	ug/g	<0.002	<0.002	0.002	1925535
Heptachlor	ug/g	<0.002	<0.002	0.002	1925535
Heptachlor epoxide	ug/g	<0.002	<0.002	0.002	1925535
Hexachlorobenzene	ug/g	<0.002	<0.002	0.002	1925535
Lindane	ug/g	<0.002	<0.002	0.002	1925535
Methoxychlor	ug/g	<0.008	<0.008	0.008	1925535
Mirex	ug/g	<0.002	<0.002	0.002	1925535
Octachlorostyrene	ug/g	<0.002	<0.002	0.002	1925535

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

ORGANOCHLORINATED PESTICIDES BY GC-ECD (SOIL)

Maxxam ID		DM2390	DM2392		
Sampling Date		2009/08/20	2009/08/20		
	Units	**FR-6**	**2-SD-19**	**RDL**	**QC Batch**
Total PCB	ug/g	<0.03	<0.03	0.03	1925535
Aroclor 1016	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1221	ug/g	<0.03	<0.03	0.03	1925535
Aroclor 1232	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1242	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1248	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1254	ug/g	<0.02	<0.02	0.02	1925535
Aroclor 1260	ug/g	<0.02	<0.02	0.02	1925535
Toxaphene	ug/g	<0.08	<0.08	0.08	1925535
Surrogate Recovery (%)					
2,4,5,6-Tetrachloro-m-xylene	%	64	63		1925535
Decachlorobiphenyl	%	78	76		1925535

GLYCOLS BY GC-FID (WATER)

Maxxam ID		DM2351	DM2355		
Sampling Date		2009/08/22 11:30	2009/08/20		
	Units	**2-MW-2**	**FR-4**	**RDL**	**QC Batch**
Glycols					
Diethylene Glycol	mg/L	<5	<5	5	1920911
Ethylene Glycol	mg/L	<5	<5	5	1920911
Propylene Glycol	mg/L	<5	<5	5	1920911
Total Glycol	mg/L	<5	<5	5	1920911

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DM2349	DM2350	DM2351	DM2352	DM2353	DM2354		
Sampling Date		2009/08/22 12:00	2009/08/22 10:30	2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00	2009/08/20 21:05		
	Units	**2-MW-8**	**2-MW-1**	**2-MW-2**	**1-MW-13**	**1-MW-14**	**2-SW-19-1**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons									
Acenaphthene	ug/L	0.33	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Acenaphthylene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Anthracene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Benzo(a)anthracene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Benzo(a)pyrene	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	1924970
Benzo(b/j)fluoranthene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Benzo(g,h,i)perylene	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1924970
Benzo(k)fluoranthene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Chrysene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Dibenz(a,h)anthracene	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1924970
Fluoranthene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Fluorene	ug/L	0.97	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Indeno(1,2,3-cd)pyrene	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1924970
1-Methylnaphthalene	ug/L	44	0.46	0.06	0.85	0.42	<0.05	0.05	1924970
2-Methylnaphthalene	ug/L	66	1.0	0.07	0.89	0.25	<0.05	0.05	1924970
Naphthalene	ug/L	39	0.15	0.11	5.2	0.25	<0.05	0.05	1924970
Phenanthrene	ug/L	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Pyrene	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1924970
Surrogate Recovery (%)									
D10-Anthracene	%	81	83	79	77	81	88		1924970
D14-Terphenyl (FS)	%	71	75	71	72	73	81		1924970
D7-Quinoline	%	86	92	88	88	92	97		1924970
D8-Acenaphthylene	%	84	85	84	79	83	80		1924970

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Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DM2349		DM2350	DM2351	DM2352	DM2353		
Sampling Date		2009/08/22 12:00		2009/08/22 10:30	2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00		
	Units	**2-MW-8**	**RDL**	**2-MW-1**	**2-MW-2**	**1-MW-13**	**1-MW-14**	**RDL**	**QC Batch**
Volatile Organics									
Acetone (2-Propanone)	ug/L	<10	10	<10	<10	<10	13	10	1926784
Benzene	ug/L	1.8	0.1	<0.1	<0.1	<0.1	0.1	0.1	1926784
Bromodichloromethane	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Bromoform	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
Bromomethane	ug/L	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	0.5	1926784
Carbon Tetrachloride	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Chlorobenzene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Chloroform	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Dibromochloromethane	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
1,2-Dichlorobenzene	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
1,3-Dichlorobenzene	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
1,4-Dichlorobenzene	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
1,1-Dichloroethane	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
1,2-Dichloroethane	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
1,1-Dichloroethylene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
cis-1,2-Dichloroethylene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
trans-1,2-Dichloroethylene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
1,2-Dichloropropane	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
cis-1,3-Dichloropropene	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
trans-1,3-Dichloropropene	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
Ethylbenzene	ug/L	3.7	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Ethylene Dibromide	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
Methylene Chloride(Dichloromethane)	ug/L	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	0.5	1926784
Methyl Isobutyl Ketone	ug/L	<5	5	<5	<5	<5	<5	5	1926784
Methyl Ethyl Ketone (2-Butanone)	ug/L	<5	5	<5	<5	<5	<5	5	1926784
Methyl t-butyl ether (MTBE)	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
Styrene	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
1,1,1,2-Tetrachloroethane	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
1,1,2,2-Tetrachloroethane	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
Tetrachloroethylene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Toluene	ug/L	17	0.2	<0.2	<0.2	<0.2	0.2	0.2	1926784
1,1,1-Trichloroethane	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
1,1,2-Trichloroethane	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		DM2349		DM2350	DM2351	DM2352	DM2353		
Sampling Date		2009/08/22 12:00		2009/08/22 10:30	2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00		
	Units	**2-MW-8**	**RDL**	**2-MW-1**	**2-MW-2**	**1-MW-13**	**1-MW-14**	**RDL**	**QC Batch**
Trichloroethylene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1926784
Vinyl Chloride	ug/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.2	1926784
p+m-Xylene	ug/L	37	0.5	<0.1	<0.1	0.7	<0.1	0.1	1926784
o-Xylene	ug/L	53	0.5	<0.1	<0.1	0.8	0.1	0.1	1926784
Xylene (Total)	ug/L	90	0.5	<0.1	<0.1	1.5	0.1	0.1	1926784
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	118		95	102	115	99		1926784
D4-1,2-Dichloroethane	%	94		106	89	109	98		1926784
D8-Toluene	%	102		112	82	91	81		1926784

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Maxxam Job #: A9A9979
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Your P.O. #: 1747-0901
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DM2349	DM2350	DM2351	DM2352	DM2353	DM2354		
Sampling Date		2009/08/22 12:00	2009/08/22 10:30	2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00	2009/08/20 21:05		
	Units	**2-MW-8**	**2-MW-1**	**2-MW-2**	**1-MW-13**	**1-MW-14**	**2-SW-19-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/L						<0.2	0.2	1921083
Toluene	ug/L						<0.2	0.2	1921083
Ethylbenzene	ug/L						<0.2	0.2	1921083
o-Xylene	ug/L						<0.2	0.2	1921083
p+m-Xylene	ug/L						<0.4	0.4	1921083
Total Xylenes	ug/L						<0.4	0.4	1921083
F1 (C6-C10)	ug/L	190	<100	<100	<100	<100	<100	100	1921083
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	<100	<100	100	1921083
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	420	<100	<100	<100	<100	<100	100	1918356
F3 (C16-C34 Hydrocarbons)	ug/L	<100	<100	<100	<100	<100	<100	100	1918356
F4 (C34-C50 Hydrocarbons)	ug/L	<100	<100	<100	<100	<100	<100	100	1918356
Reached Baseline at C50	ug/L	YES	YES	YES	YES	YES	YES		1918356
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	97	97	98	97	103	95		1921083
4-Bromofluorobenzene	%	104	101	98	102	114	103		1921083
D10-Ethylbenzene	%	117	107	109	106	88	111		1921083
D4-1,2-Dichloroethane	%	80	101	89	97	92	79		1921083
o-Terphenyl	%	84	89	87	83	88	84		1918356

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ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DM2349	DM2351	DM2352	DM2353		
Sampling Date		2009/08/22 12:00	2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00		
	Units	**2-MW-8**	**2-MW-2**	**1-MW-13**	**1-MW-14**	**RDL**	**QC Batch**
Pesticides & Herbicides							
Aldrin	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
a-BHC	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
b-BHC	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
d-BHC	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
a-Chlordane	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
g-Chlordane	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Chlordane (Total)	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDD	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
p,p-DDD	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDD + p,p-DDD	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDE	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
p,p-DDE	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDE + p,p-DDE	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDT	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
p,p-DDT	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
o,p-DDT + p,p-DDT	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
DDT+ Metabolites	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Dieldrin	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Endosulfan I	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Endosulfan II	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Endosulfan sulfate	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Total Endosulfan	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Endrin	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Endrin aldehyde	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Endrin ketone	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Heptachlor	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Heptachlor epoxide	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Hexachlorobenzene	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Lindane	ug/L	<0.003	<0.003	<0.003	<0.003	0.003	1920843
Methoxychlor	ug/L	<0.01	<0.01	<0.01	<0.01	0.01	1920843
Mirex	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Octachlorostyrene	ug/L	<0.005	<0.005	<0.005	<0.005	0.005	1920843
Total PCB	ug/L	<0.1	<0.1	<0.1	<0.1	0.1	1920843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Franz Environmental Inc
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ORGANOCHLORINATED PESTICIDES BY GC-ECD (WATER)

Maxxam ID		DM2349	DM2351	DM2352	DM2353		
Sampling Date		2009/08/22 12:00	2009/08/22 11:30	2009/08/22 11:00	2009/08/22 10:00		
	Units	**2-MW-8**	**2-MW-2**	**1-MW-13**	**1-MW-14**	**RDL**	**QC Batch**
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1221	ug/L	<0.1	<0.1	<0.1	<0.1	0.1	1920843
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	1920843
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	1920843
Toxaphene	ug/L	<0.2	<0.2	<0.2	<0.2	0.2	1920843
Surrogate Recovery (%)							
2,4,5,6-Tetrachloro-m-xylene	%	41	49	47	47		1920843
Decachlorobiphenyl	%	74	81	75	79		1920843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Package 1	7.0°C
Package 2	8.0°C
Package 3	9.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Revised Report: As per the client's request, sample ID 2-TP-8 has been changed to 2-TP-20.

Sample DM2349-01: Due to high concentration of some target analytes, sample required dilution. Detection limits were adjusted accordingly.

Sample DM2392-01: PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1918356	o-Terphenyl	2009/08/27	88	30 - 130	91	30 - 130	87	%				
1918356	F2 (C10-C16 Hydrocarbons)	2009/08/27	81	60 - 130	76	60 - 130	<100	ug/L	NC	50		
1918356	F3 (C16-C34 Hydrocarbons)	2009/08/27	81	60 - 130	76	60 - 130	<100	ug/L	NC	50		
1918356	F4 (C34-C50 Hydrocarbons)	2009/08/27	81	60 - 130	76	60 - 130	<100	ug/L	NC	50		
1918413	1,4-Difluorobenzene	2009/08/27	93	60 - 140	93	60 - 140	95	%				
1918413	4-Bromofluorobenzene	2009/08/27	113	60 - 140	113	60 - 140	113	%				
1918413	D10-Ethylbenzene	2009/08/27	91	30 - 130	93	30 - 130	92	%				
1918413	D4-1,2-Dichloroethane	2009/08/27	84	60 - 140	79	60 - 140	78	%				
1918413	Benzene	2009/08/27	106	60 - 140	104	60 - 140	<0.02	ug/g	NC	50		
1918413	Toluene	2009/08/27	81	60 - 140	88	60 - 140	<0.02	ug/g	NC	50		
1918413	Ethylbenzene	2009/08/27	82	60 - 140	89	60 - 140	<0.02	ug/g	NC	50		
1918413	o-Xylene	2009/08/27	84	60 - 140	91	60 - 140	<0.02	ug/g	NC	50		
1918413	p+m-Xylene	2009/08/27	91	60 - 140	98	60 - 140	<0.04	ug/g	NC	50		
1918413	F1 (C6-C10)	2009/08/27	94	60 - 140	91	60 - 140	<10	ug/g	NC	50		
1918413	Total Xylenes	2009/08/27					<0.04	ug/g	NC	50		
1918413	F1 (C6-C10) - BTEX	2009/08/27					<10	ug/g	NC	50		
1918424	Moisture	2009/08/27							34.1	50		
1919027	4-Bromofluorobenzene	2009/08/27	110	60 - 140	112	60 - 140	115	%				
1919027	D4-1,2-Dichloroethane	2009/08/27	90	60 - 140	83	60 - 140	106	%				
1919027	D8-Toluene	2009/08/27	94	60 - 140	90	60 - 140	92	%				
1919027	Acetone (2-Propanone)	2009/08/27	88	24 - 171	81	60 - 140	<0.1	ug/g	NC	50		
1919027	Benzene	2009/08/27	94	39 - 137	91	60 - 140	<0.002	ug/g	NC	50		
1919027	Bromodichloromethane	2009/08/27	85	45 - 131	95	60 - 140	<0.002	ug/g	NC	50		
1919027	Bromoform	2009/08/27	64	44 - 131	95	60 - 140	<0.002	ug/g	NC	50		
1919027	Bromomethane	2009/08/27	73	20 - 146	NC	60 - 140	<0.003	ug/g	NC	50		
1919027	Carbon Tetrachloride	2009/08/27	86	40 - 139	86	60 - 140	<0.002	ug/g	NC	50		
1919027	Chlorobenzene	2009/08/27	87	45 - 140	87	60 - 140	<0.002	ug/g	NC	50		
1919027	Chloroform	2009/08/27	87	48 - 128	86	60 - 140	<0.002	ug/g	NC	50		
1919027	Dibromochloromethane	2009/08/27	70	52 - 135	91	60 - 140	<0.002	ug/g	NC	50		
1919027	1,2-Dichlorobenzene	2009/08/27	72	39 - 145	65	60 - 140	<0.002	ug/g	NC	50		
1919027	1,3-Dichlorobenzene	2009/08/27	83	38 - 158	72	60 - 140	<0.002	ug/g	NC	50		
1919027	1,4-Dichlorobenzene	2009/08/27	82	35 - 159	71	60 - 140	<0.002	ug/g	NC	50		
1919027	1,1-Dichloroethane	2009/08/27	90	48 - 131	91	60 - 140	<0.002	ug/g	NC	50		
1919027	1,2-Dichloroethane	2009/08/27	85	43 - 123	84	60 - 140	<0.002	ug/g	NC	50		
1919027	1,1-Dichloroethylene	2009/08/27	95	50 - 134	91	60 - 140	<0.002	ug/g	NC	50		
1919027	cis-1,2-Dichloroethylene	2009/08/27	95	45 - 136	96	60 - 140	<0.002	ug/g	NC	50		
1919027	trans-1,2-Dichloroethylene	2009/08/27	95	45 - 138	90	60 - 140	<0.002	ug/g	NC	50		
1919027	1,2-Dichloropropane	2009/08/27	97	51 - 130	101	60 - 140	<0.002	ug/g	NC	50		
1919027	cis-1,3-Dichloropropene	2009/08/27	87	39 - 143	98	60 - 140	<0.002	ug/g	NC	50		

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Franz Environmental Inc
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Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1919027	trans-1,3-Dichloropropene	2009/08/27	92	33 - 135	98	60 - 140	<0.002	ug/g	NC	50		
1919027	Ethylbenzene	2009/08/27	104	46 - 150	93	60 - 140	<0.002	ug/g	NC	50		
1919027	Ethylene Dibromide	2009/08/27	84	48 - 136	92	60 - 140	<0.002	ug/g	NC	50		
1919027	Methylene Chloride(Dichloromethane)	2009/08/27	98	47 - 124	99	60 - 140	<0.003	ug/g	NC	50		
1919027	Methyl Isobutyl Ketone	2009/08/27	98	48 - 133	96	60 - 140	<0.03	ug/g	NC	50		
1919027	Methyl Ethyl Ketone (2-Butanone)	2009/08/27	98	39 - 160	94	60 - 140	<0.03	ug/g	NC	50		
1919027	Methyl t-butyl ether (MTBE)	2009/08/27	53	37 - 150	76	60 - 140	<0.002	ug/g	NC	50		
1919027	Styrene	2009/08/27	87	27 - 148	91	60 - 140	<0.002	ug/g	NC	50		
1919027	1,1,1,2-Tetrachloroethane	2009/08/27	81	51 - 140	86	60 - 140	<0.002	ug/g	NC	50		
1919027	1,1,2,2-Tetrachloroethane	2009/08/27	83	46 - 128	89	60 - 140	<0.002	ug/g	NC	50		
1919027	Tetrachloroethylene	2009/08/27	88	45 - 154	84	60 - 140	<0.002	ug/g	NC	50		
1919027	Toluene	2009/08/27	94	30 - 158	87	60 - 140	<0.002	ug/g	NC	50		
1919027	1,1,1-Trichloroethane	2009/08/27	84	44 - 136	82	60 - 140	<0.002	ug/g	NC	50		
1919027	1,1,2-Trichloroethane	2009/08/27	84	56 - 135	90	60 - 140	<0.002	ug/g	NC	50		
1919027	Trichloroethylene	2009/08/27	94	39 - 146	98	60 - 140	<0.002	ug/g	NC	50		
1919027	Vinyl Chloride	2009/08/27	69	34 - 136	61	60 - 140	<0.002	ug/g	NC	50		
1919027	p+m-Xylene	2009/08/27	116	29 - 161	93	60 - 140	<0.002	ug/g	NC	50		
1919027	o-Xylene	2009/08/27	129	45 - 150	114	60 - 140	<0.002	ug/g	NC	50		
1919027	Xylene (Total)	2009/08/27					<0.002	ug/g	0	50		
1919114	Moisture	2009/08/27							1.4	50		
1919122	o-Terphenyl	2009/08/28	85	30 - 130	85	30 - 130	86	%				
1919122	F2 (C10-C16 Hydrocarbons)	2009/08/28	83	60 - 130	84	60 - 130	<10	ug/g	NC	50		
1919122	F3 (C16-C34 Hydrocarbons)	2009/08/28	83	60 - 130	84	60 - 130	<10	ug/g	NC	50		
1919122	F4 (C34-C50 Hydrocarbons)	2009/08/28	83	60 - 130	84	60 - 130	<10	ug/g	NC	50		
1919129	o-Terphenyl	2009/08/26	87	30 - 130	72	30 - 130	85	%				
1919129	F2 (C10-C16 Hydrocarbons)	2009/08/26	87	60 - 130	77	60 - 130	<10	ug/g	NC	50		
1919129	F3 (C16-C34 Hydrocarbons)	2009/08/26	87	60 - 130	77	60 - 130	<10	ug/g	NC	50		
1919129	F4 (C34-C50 Hydrocarbons)	2009/08/26	87	60 - 130	77	60 - 130	<10	ug/g	NC	50		
1919154	1,4-Difluorobenzene	2009/08/27	98	60 - 140	105	60 - 140	98	%				
1919154	4-Bromofluorobenzene	2009/08/27	113	60 - 140	113	60 - 140	111	%				
1919154	D10-Ethylbenzene	2009/08/27	91	30 - 130	93	30 - 130	89	%				
1919154	D4-1,2-Dichloroethane	2009/08/27	72	60 - 140	89	60 - 140	72	%				
1919154	F1 (C6-C10)	2009/08/27	96	60 - 140	96	60 - 140	<10	ug/g	NC	50		
1919154	F1 (C6-C10) - BTEX	2009/08/27					<10	ug/g	NC	50		
1920843	2,4,5,6-Tetrachloro-m-xylene	2009/08/29	74	40 - 130	66	40 - 130	69	%				
1920843	Decachlorobiphenyl	2009/08/29	88	40 - 130	78	40 - 130	70	%				
1920843	Aldrin	2009/08/29	66	30 - 130	64	30 - 130	<0.005	ug/L	NC	40		
1920843	a-BHC	2009/08/29	97	30 - 130	84	30 - 130	<0.005	ug/L	NC	40		
1920843	b-BHC	2009/08/29	82	30 - 130	72	30 - 130	<0.005	ug/L	NC	40		

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Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1920843	d-BHC	2009/08/29	88	30 - 130	76	30 - 130	<0.005	ug/L	NC	40		
1920843	a-Chlordane	2009/08/29	97	30 - 130	85	30 - 130	<0.005	ug/L	NC	40		
1920843	g-Chlordane	2009/08/29	98	30 - 130	86	30 - 130	<0.005	ug/L	NC	40		
1920843	o,p-DDD	2009/08/29	100	40 - 130	89	40 - 130	<0.005	ug/L	NC	40		
1920843	p,p-DDD	2009/08/29	99	30 - 130	89	30 - 130	<0.005	ug/L	NC	40		
1920843	o,p-DDE	2009/08/29	101	40 - 130	88	40 - 130	<0.005	ug/L	NC	40		
1920843	p,p-DDE	2009/08/29	91	30 - 130	81	30 - 130	<0.005	ug/L	NC	40		
1920843	o,p-DDT	2009/08/29	105	40 - 130	94	40 - 130	<0.005	ug/L	NC	40		
1920843	p,p-DDT	2009/08/29	109	30 - 130	99	30 - 130	<0.005	ug/L	NC	40		
1920843	Dieldrin	2009/08/29	106	36 - 130	94	36 - 130	<0.005	ug/L	NC	40		
1920843	Endosulfan I	2009/08/29	97	30 - 130	85	30 - 130	<0.005	ug/L	NC	40		
1920843	Endosulfan II	2009/08/29	94	30 - 130	82	30 - 130	<0.005	ug/L	NC	40		
1920843	Endosulfan sulfate	2009/08/29	91	30 - 130	84	30 - 130	<0.005	ug/L	NC	40		
1920843	Endrin	2009/08/29	114	30 - 130	101	30 - 130	<0.005	ug/L	NC	40		
1920843	Endrin aldehyde	2009/08/29	45	40 - 130	47	40 - 130	<0.005	ug/L	NC	40		
1920843	Endrin ketone	2009/08/29	104	40 - 130	96	40 - 130	<0.005	ug/L	NC	40		
1920843	Heptachlor	2009/08/29	86	30 - 130	106	30 - 130	<0.005	ug/L	NC	40		
1920843	Heptachlor epoxide	2009/08/29	90	30 - 130	96	30 - 130	<0.005	ug/L	NC	40		
1920843	Hexachlorobenzene	2009/08/29	82	30 - 130	71	30 - 130	<0.005	ug/L	NC	40		
1920843	Lindane	2009/08/29	96	30 - 130	84	30 - 130	<0.003	ug/L	NC	40		
1920843	Methoxychlor	2009/08/29	127	40 - 130	124	40 - 130	<0.014	ug/L	NC	40		
1920843	Mirex	2009/08/29	89	40 - 130	86	40 - 130	<0.005	ug/L	NC	40		
1920843	Octachlorostyrene	2009/08/29	85	30 - 130	76	30 - 130	<0.005	ug/L	NC	40		
1920843	Total PCB	2009/08/29					<0.1	ug/L	NC	40		
1920843	Aroclor 1242	2009/08/29					<0.05	ug/L	NC	40		
1920843	Toxaphene	2009/08/29					<0.2	ug/L	NC	40		
1920843	Chlordane (Total)	2009/08/29					<0.005	ug/L	NC	40		
1920843	o,p-DDD + p,p-DDD	2009/08/29					<0.005	ug/L	NC	40		
1920843	o,p-DDE + p,p-DDE	2009/08/29					<0.005	ug/L	NC	40		
1920843	o,p-DDT + p,p-DDT	2009/08/29					<0.005	ug/L	NC	40		
1920843	DDT+ Metabolites	2009/08/29					<0.005	ug/L	NC	40		
1920843	Total Endosulfan	2009/08/29					<0.005	ug/L	NC	40		
1920843	Aroclor 1016	2009/08/29					<0.05	ug/L	NC	40		
1920843	Aroclor 1221	2009/08/29					<0.1	ug/L	NC	40		
1920843	Aroclor 1232	2009/08/29					<0.05	ug/L	NC	40		
1920843	Aroclor 1248	2009/08/29					<0.05	ug/L	NC	40		
1920843	Aroclor 1254	2009/08/29					<0.05	ug/L	NC	40		
1920843	Aroclor 1260	2009/08/29					<0.05	ug/L	NC	40		
1920911	Diethylene Glycol	2009/08/28	91	60 - 140	101	60 - 140	<5	mg/L	NC	40		

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1920911	Ethylene Glycol	2009/08/28	93	60 - 140	100	60 - 140	<5	mg/L	NC	40		
1920911	Propylene Glycol	2009/08/28	91	60 - 140	99	60 - 140	<5	mg/L	NC	40		
1920911	Total Glycol	2009/08/28					<5	mg/L	NC	40		
1920995	Moisture	2009/08/27							0.7	50		
1921083	1,4-Difluorobenzene	2009/08/27	94	70 - 130	95	70 - 130	101	%				
1921083	4-Bromofluorobenzene	2009/08/27	100	70 - 130	101	70 - 130	97	%				
1921083	D10-Ethylbenzene	2009/08/27	107	70 - 130	104	70 - 130	108	%				
1921083	D4-1,2-Dichloroethane	2009/08/27	76	70 - 130	85	70 - 130	102	%				
1921083	Benzene	2009/08/27	87	70 - 130	79	70 - 130	<0.2	ug/L	NC	40		
1921083	Toluene	2009/08/27	107	70 - 130	99	70 - 130	<0.2	ug/L	NC	40		
1921083	Ethylbenzene	2009/08/27	105	70 - 130	97	70 - 130	<0.2	ug/L	NC	40		
1921083	o-Xylene	2009/08/27	116	70 - 130	108	70 - 130	<0.2	ug/L	NC	40		
1921083	p+m-Xylene	2009/08/27	106	70 - 130	97	70 - 130	<0.4	ug/L	NC	40		
1921083	F1 (C6-C10)	2009/08/27	95	70 - 130	91	70 - 130	<100	ug/L	NC	40		
1921083	Total Xylenes	2009/08/27					<0.4	ug/L	NC	40		
1921083	F1 (C6-C10) - BTEX	2009/08/27					<100	ug/L	NC	40		
1921671	D10-Anthracene	2009/08/28	101	30 - 130	90	30 - 130	90	%				
1921671	D14-Terphenyl (FS)	2009/08/28	102	30 - 130	91	30 - 130	87	%				
1921671	D7-Quinoline	2009/08/28	76	30 - 130	82	30 - 130	77	%				
1921671	D8-Acenaphthylene	2009/08/28	80	30 - 130	81	30 - 130	80	%				
1921671	Acenaphthene	2009/08/28	82	30 - 130	78	30 - 130	<0.01	ug/g	NC	50		
1921671	Acenaphthylene	2009/08/28	80	30 - 130	78	30 - 130	<0.005	ug/g	NC	50		
1921671	Anthracene	2009/08/28	90	30 - 130	79	30 - 130	<0.005	ug/g	NC	50		
1921671	Benzo(a)anthracene	2009/08/28	111	30 - 130	96	30 - 130	<0.01	ug/g	NC	50		
1921671	Benzo(a)pyrene	2009/08/28	113	30 - 130	100	30 - 130	<0.005	ug/g	NC	50		
1921671	Benzo(b/j)fluoranthene	2009/08/28	112	30 - 130	100	30 - 130	<0.01	ug/g	NC	50		
1921671	Benzo(g,h,i)perylene	2009/08/28	113	30 - 130	98	30 - 130	<0.02	ug/g	NC	50		
1921671	Benzo(k)fluoranthene	2009/08/28	114	30 - 130	100	30 - 130	<0.01	ug/g	NC	50		
1921671	Chrysene	2009/08/28	110	30 - 130	95	30 - 130	<0.01	ug/g	NC	50		
1921671	Dibenz(a,h)anthracene	2009/08/28	122	30 - 130	107	30 - 130	<0.02	ug/g	NC	50		
1921671	Fluoranthene	2009/08/28	97	30 - 130	85	30 - 130	<0.005	ug/g	NC	50		
1921671	Fluorene	2009/08/28	89	30 - 130	82	30 - 130	<0.005	ug/g	NC	50		
1921671	Indeno(1,2,3-cd)pyrene	2009/08/28	119	30 - 130	98	30 - 130	<0.02	ug/g	NC	50		
1921671	1-Methylnaphthalene	2009/08/28	81	30 - 130	84	30 - 130	<0.005	ug/g	NC	50		
1921671	2-Methylnaphthalene	2009/08/28	75	30 - 130	77	30 - 130	<0.005	ug/g	NC	50		
1921671	Naphthalene	2009/08/28	68	30 - 130	82	30 - 130	<0.005	ug/g	NC	50		
1921671	Phenanthrene	2009/08/28	88	30 - 130	79	30 - 130	<0.005	ug/g	NC	50		
1921671	Pyrene	2009/08/28	96	30 - 130	83	30 - 130	<0.005	ug/g	NC	50		
1921687	D10-Anthracene	2009/08/29	108	30 - 130	102	30 - 130	98	%				

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Franz Environmental Inc
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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1921687	D14-Terphenyl (FS)	2009/08/29	109	30 - 130	101	30 - 130	92	%				
1921687	D7-Quinoline	2009/08/29	106	30 - 130	97	30 - 130	80	%				
1921687	D8-Acenaphthylene	2009/08/29	94	30 - 130	94	30 - 130	83	%				
1921687	Acenaphthene	2009/08/29	92	30 - 130	89	30 - 130	<0.01	ug/g	NC	50		
1921687	Acenaphthylene	2009/08/29	91	30 - 130	89	30 - 130	<0.005	ug/g	NC	50		
1921687	Anthracene	2009/08/29	97	30 - 130	88	30 - 130	<0.005	ug/g	NC	50		
1921687	Benzo(a)anthracene	2009/08/29	119	30 - 130	107	30 - 130	<0.01	ug/g	NC	50		
1921687	Benzo(a)pyrene	2009/08/29	122	30 - 130	109	30 - 130	<0.005	ug/g	NC	50		
1921687	Benzo(b/j)fluoranthene	2009/08/29	120	30 - 130	112	30 - 130	<0.01	ug/g	NC	50		
1921687	Benzo(g,h,i)perylene	2009/08/29	110	30 - 130	97	30 - 130	<0.02	ug/g	NC	50		
1921687	Benzo(k)fluoranthene	2009/08/29	125	30 - 130	108	30 - 130	<0.01	ug/g	NC	50		
1921687	Chrysene	2009/08/29	119	30 - 130	107	30 - 130	<0.01	ug/g	NC	50		
1921687	Dibenz(a,h)anthracene	2009/08/29	127	30 - 130	111	30 - 130	<0.02	ug/g	NC	50		
1921687	Fluoranthene	2009/08/29	104	30 - 130	93	30 - 130	<0.005	ug/g	NC	50		
1921687	Fluorene	2009/08/29	100	30 - 130	91	30 - 130	<0.005	ug/g	NC	50		
1921687	Indeno(1,2,3-cd)pyrene	2009/08/29	124	30 - 130	102	30 - 130	<0.02	ug/g	NC	50		
1921687	1-Methylnaphthalene	2009/08/29	106	30 - 130	98	30 - 130	<0.005	ug/g	58.1(1, 2)	50		
1921687	2-Methylnaphthalene	2009/08/29	113	30 - 130	91	30 - 130	<0.005	ug/g	59.4(1)	50		
1921687	Naphthalene	2009/08/29	116	30 - 130	97	30 - 130	<0.005	ug/g	59.3(1)	50		
1921687	Phenanthrene	2009/08/29	97	30 - 130	87	30 - 130	<0.005	ug/g	NC	50		
1921687	Pyrene	2009/08/29	102	30 - 130	92	30 - 130	<0.005	ug/g	NC	50		
1921692	Chromium (VI)	2009/08/28	101	75 - 125	98	75 - 125	<0.5	ug/L	NC(3)	25		
1922106	2,4,5,6-Tetrachloro-m-xylene	2009/08/29	106	40 - 130	90	40 - 130	103	%				
1922106	Decachlorobiphenyl	2009/08/29	120	40 - 130	110	40 - 130	116	%				
1922106	Aroclor 1260	2009/08/29	118	30 - 130	121	30 - 130	<0.01	ug/g	NC	50		
1922106	Total PCB	2009/08/29	118	30 - 130	121	30 - 130	<0.01	ug/g	NC	50		
1922106	Aroclor 1262	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1016	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1221	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1232	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1242	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1248	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1254	2009/08/29					<0.01	ug/g	NC	50		
1922106	Aroclor 1268	2009/08/29					<0.01	ug/g	NC	50		
1923767	Mercury (Hg)	2009/08/31	109	75 - 125	102	84 - 113	<0.1	ug/L	NC	25		
1924013	Moisture	2009/08/31							1.6	50		
1924341	Chromium (VI)	2009/09/01	40(1, 4)	75 - 125	106	75 - 125	<0.2	ug/g	NC	35	96	85 - 115
1924587	Dissolved (0.2u) Aluminum (Al)	2009/09/01	95	80 - 120	93	90 - 110	<5	ug/L	NC	25		
1924970	D10-Anthracene	2009/09/01	78	30 - 130	82	30 - 130	86	%				

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1924970	D14-Terphenyl (FS)	2009/09/01	76	30 - 130	79	30 - 130	77	%				
1924970	D7-Quinoline	2009/09/01	86	30 - 130	101	30 - 130	103	%				
1924970	D8-Acenaphthylene	2009/09/01	82	30 - 130	85	30 - 130	88	%				
1924970	Acenaphthene	2009/09/01	74	30 - 130	80	30 - 130	<0.05	ug/L	NC	40		
1924970	Acenaphthylene	2009/09/01	78	30 - 130	83	30 - 130	<0.05	ug/L	NC	40		
1924970	Anthracene	2009/09/01	75	30 - 130	79	30 - 130	<0.05	ug/L	NC	40		
1924970	Benzo(a)anthracene	2009/09/01	92	30 - 130	96	30 - 130	<0.05	ug/L				
1924970	Benzo(a)pyrene	2009/09/01	97	30 - 130	104	30 - 130	<0.01	ug/L				
1924970	Benzo(b/j)fluoranthene	2009/09/01	102	30 - 130	110	30 - 130	<0.05	ug/L				
1924970	Benzo(g,h,i)perylene	2009/09/01	97	30 - 130	101	30 - 130	<0.1	ug/L				
1924970	Benzo(k)fluoranthene	2009/09/01	99	30 - 130	103	30 - 130	<0.05	ug/L				
1924970	Chrysene	2009/09/01	115	30 - 130	98	30 - 130	<0.05	ug/L				
1924970	Dibenz(a,h)anthracene	2009/09/01	103	30 - 130	106	30 - 130	<0.1	ug/L				
1924970	Fluoranthene	2009/09/01	76	30 - 130	78	30 - 130	<0.05	ug/L	NC	40		
1924970	Fluorene	2009/09/01	84	30 - 130	87	30 - 130	<0.05	ug/L	NC	40		
1924970	Indeno(1,2,3-cd)pyrene	2009/09/01	90	30 - 130	89	30 - 130	<0.1	ug/L				
1924970	1-Methylnaphthalene	2009/09/01	47	30 - 130	77	30 - 130	<0.05	ug/L	NC	40		
1924970	2-Methylnaphthalene	2009/09/01	59	30 - 130	69	30 - 130	<0.05	ug/L	NC	40		
1924970	Naphthalene	2009/09/01	NC(5)	30 - 130	64	30 - 130	<0.05	ug/L	17.7	40		
1924970	Phenanthrene	2009/09/01	75	30 - 130	76	30 - 130	<0.05	ug/L	NC	40		
1924970	Pyrene	2009/09/01	73	30 - 130	77	30 - 130	<0.05	ug/L				
1925535	2,4,5,6-Tetrachloro-m-xylene	2009/09/01	62	40 - 130	59	40 - 130	62	%				
1925535	Decachlorobiphenyl	2009/09/01	105	40 - 130	99	40 - 130	102	%				
1925535	Aldrin	2009/09/01	70	40 - 130	65	40 - 130	<0.002	ug/g	NC	50		
1925535	a-BHC	2009/09/01	57	40 - 130	56	40 - 130	<0.002	ug/g	NC	50		
1925535	b-BHC	2009/09/01	63	40 - 130	62	40 - 130	<0.002	ug/g	NC	50		
1925535	d-BHC	2009/09/01	62	40 - 130	58	40 - 130	<0.002	ug/g	NC	50		
1925535	a-Chlordane	2009/09/01	66	40 - 130	64	40 - 130	<0.002	ug/g	NC	50		
1925535	g-Chlordane	2009/09/01	67	40 - 130	65	40 - 130	<0.002	ug/g	NC	50		
1925535	o,p-DDD	2009/09/01	87	40 - 130	79	40 - 130	<0.002	ug/g	NC	50		
1925535	p,p-DDD	2009/09/01	82	40 - 130	75	40 - 130	<0.002	ug/g	NC	50		
1925535	o,p-DDE	2009/09/01	74	40 - 130	68	40 - 130	<0.002	ug/g	NC	50		
1925535	p,p-DDE	2009/09/01	81	40 - 130	75	40 - 130	<0.002	ug/g	NC	50		
1925535	o,p-DDT	2009/09/01	74	40 - 130	73	40 - 130	<0.002	ug/g	NC	50		
1925535	p,p-DDT	2009/09/01	78	40 - 130	90	40 - 130	<0.002	ug/g	NC	50		
1925535	Dieldrin	2009/09/01	68	40 - 130	67	40 - 130	<0.002	ug/g	NC	50		
1925535	Endosulfan I	2009/09/01	67	40 - 130	67	40 - 130	<0.002	ug/g	NC	50		
1925535	Endosulfan II	2009/09/01	73	40 - 130	71	40 - 130	<0.002	ug/g	NC	50		
1925535	Endosulfan sulfate	2009/09/01	75	40 - 130	96	40 - 130	<0.002	ug/g	NC	50		

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1925535	Endrin	2009/09/01	107	40 - 130	100	40 - 130	<0.002	ug/g	NC	50		
1925535	Endrin aldehyde	2009/09/01	84	40 - 130	75	40 - 130	<0.002	ug/g	NC	50		
1925535	Endrin ketone	2009/09/01	73	40 - 130	70	40 - 130	<0.002	ug/g	NC	50		
1925535	Heptachlor	2009/09/01	54	40 - 130	54	40 - 130	<0.002	ug/g	NC	50		
1925535	Heptachlor epoxide	2009/09/01	70	40 - 130	72	40 - 130	<0.002	ug/g	NC	50		
1925535	Hexachlorobenzene	2009/09/01	60	20 - 130	54	20 - 130	<0.002	ug/g	NC	50		
1925535	Lindane	2009/09/01	62	40 - 130	63	40 - 130	<0.002	ug/g	NC	50		
1925535	Methoxychlor	2009/09/01	58	40 - 130	64	40 - 130	<0.008	ug/g	NC	50		
1925535	Mirex	2009/09/01	70	40 - 130	66	40 - 130	<0.002	ug/g	NC	50		
1925535	Octachlorostyrene	2009/09/01	74	40 - 130	67	40 - 130	<0.002	ug/g	NC	50		
1925535	Total PCB	2009/09/01					<0.03	ug/g	NC	50		
1925535	Aroclor 1242	2009/09/01					<0.015	ug/g	NC	50		
1925535	Toxaphene	2009/09/01					<0.08	ug/g	NC	50		
1925535	Aroclor 1262	2009/09/01					<0.015	ug/g	NC	50		
1925535	Aroclor 1268	2009/09/01					<0.015	ug/g	NC	50		
1925535	Chlordane (Total)	2009/09/01					<0.002	ug/g	NC	50		
1925535	o,p-DDD + p,p-DDD	2009/09/01					<0.002	ug/g	NC	50		
1925535	o,p-DDE + p,p-DDE	2009/09/01					<0.002	ug/g	NC	50		
1925535	o,p-DDT + p,p-DDT	2009/09/01					<0.002	ug/g	NC	50		
1925535	DDT+ Metabolites	2009/09/01					<0.002	ug/g	NC	50		
1925535	Total Endosulfan	2009/09/01					<0.002	ug/g	NC	50		
1925535	Aroclor 1016	2009/09/01					<0.015	ug/g	NC	50		
1925535	Aroclor 1221	2009/09/01					<0.03	ug/g	NC	50		
1925535	Aroclor 1232	2009/09/01					<0.015	ug/g	NC	50		
1925535	Aroclor 1248	2009/09/01					<0.015	ug/g	NC	50		
1925535	Aroclor 1254	2009/09/01					<0.015	ug/g	NC	50		
1925535	Aroclor 1260	2009/09/01					<0.015	ug/g	NC	50		
1925615	Acid Extractable Antimony (Sb)	2009/09/01	95	75 - 125			<0.2	ug/g	NC	35	88	75 - 125
1925615	Acid Extractable Arsenic (As)	2009/09/01	93	75 - 125			<1	ug/g	NC	35	93	75 - 125
1925615	Acid Extractable Barium (Ba)	2009/09/01	NC	75 - 125			<0.5	ug/g	9.2	35	91	75 - 125
1925615	Acid Extractable Beryllium (Be)	2009/09/01	98	75 - 125			<0.2	ug/g	NC	35	99	75 - 125
1925615	Acid Extractable Cadmium (Cd)	2009/09/01	102	75 - 125			<0.1	ug/g	NC	35	95	75 - 125
1925615	Acid Extractable Chromium (Cr)	2009/09/01	97	75 - 125			<1	ug/g	13.7	35	88	75 - 125
1925615	Acid Extractable Cobalt (Co)	2009/09/01	94	75 - 125			<0.1	ug/g	2.9	35	90	75 - 125
1925615	Acid Extractable Copper (Cu)	2009/09/01	97	75 - 125			<0.5	ug/g	2.6	35	100	75 - 125
1925615	Acid Extractable Lead (Pb)	2009/09/01	96	75 - 125			<1	ug/g	7.9	35	100	75 - 125
1925615	Acid Extractable Molybdenum (Mo)	2009/09/01	99	75 - 125			<0.5	ug/g	NC	35	89	75 - 125
1925615	Acid Extractable Nickel (Ni)	2009/09/01	94	75 - 125			<0.5	ug/g	14.3	35	90	75 - 125
1925615	Acid Extractable Selenium (Se)	2009/09/01	94	75 - 125			<0.5	ug/g	NC	35	73	50 - 150

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1925615	Acid Extractable Silver (Ag)	2009/09/01	87	75 - 125			<0.2	ug/g	NC	35	82	75 - 125
1925615	Acid Extractable Thallium (Tl)	2009/09/01	92	75 - 125			<0.05	ug/g	NC	35	86	75 - 125
1925615	Acid Extractable Vanadium (V)	2009/09/01	96	75 - 125			<5	ug/g	NC	35	89	75 - 125
1925615	Acid Extractable Zinc (Zn)	2009/09/01	NC	75 - 125			<5	ug/g	5.9	35	95	75 - 125
1925615	Acid Extractable Mercury (Hg)	2009/09/01	103	75 - 125			<0.05	ug/g	NC	35	129(1, 6)	75 - 125
1925750	Mercury (Hg)	2009/09/02	95	75 - 125	95	84 - 113	<0.1	ug/L	NC	25		
1926450	Hot Water Ext. Boron (B)	2009/09/02					0.01, RDL=0.01	ug/g	17.0	35	103	77 - 121
1926784	4-Bromofluorobenzene	2009/09/04	101	70 - 130	100	70 - 130	91	%				
1926784	D4-1,2-Dichloroethane	2009/09/04	103	70 - 130	97	70 - 130	79	%				
1926784	D8-Toluene	2009/09/04	110	70 - 130	104	70 - 130	95	%				
1926784	Acetone (2-Propanone)	2009/09/04	96	60 - 140	114	60 - 140	<10	ug/L	NC	40		
1926784	Benzene	2009/09/04	106	70 - 130	103	70 - 130	<0.1	ug/L	NC	40		
1926784	Bromodichloromethane	2009/09/04	104	70 - 130	103	70 - 130	<0.1	ug/L	NC	40		
1926784	Bromoform	2009/09/04	99	70 - 130	105	70 - 130	<0.2	ug/L	NC	40		
1926784	Bromomethane	2009/09/04	116	60 - 140	93	60 - 140	<0.5	ug/L	NC	40		
1926784	Carbon Tetrachloride	2009/09/04	113	70 - 130	105	70 - 130	<0.1	ug/L	NC	40		
1926784	Chlorobenzene	2009/09/04	108	70 - 130	106	70 - 130	<0.1	ug/L	NC	40		
1926784	Chloroform	2009/09/04	107	70 - 130	100	70 - 130	<0.1	ug/L	NC	40		
1926784	Dibromochloromethane	2009/09/04	107	70 - 130	109	70 - 130	<0.2	ug/L	NC	40		
1926784	1,2-Dichlorobenzene	2009/09/04	106	70 - 130	103	70 - 130	<0.2	ug/L	NC	40		
1926784	1,3-Dichlorobenzene	2009/09/04	112	70 - 130	115	70 - 130	<0.2	ug/L	NC	40		
1926784	1,4-Dichlorobenzene	2009/09/04	112	70 - 130	108	70 - 130	<0.2	ug/L	NC	40		
1926784	1,1-Dichloroethane	2009/09/04	NC	70 - 130	123	70 - 130	<0.1	ug/L	NC	40		
1926784	1,2-Dichloroethane	2009/09/04	102	70 - 130	98	70 - 130	<0.2	ug/L	NC	40		
1926784	1,1-Dichloroethylene	2009/09/04	109	70 - 130	93	70 - 130	<0.1	ug/L	NC	40		
1926784	cis-1,2-Dichloroethylene	2009/09/04	112	70 - 130	110	70 - 130	<0.1	ug/L	NC	40		
1926784	trans-1,2-Dichloroethylene	2009/09/04	NC	70 - 130	96	70 - 130	<0.1	ug/L	NC	40		
1926784	1,2-Dichloropropane	2009/09/04	110	70 - 130	110	70 - 130	<0.1	ug/L	NC	40		
1926784	cis-1,3-Dichloropropene	2009/09/04	93	70 - 130	96	70 - 130	<0.2	ug/L	NC	40		
1926784	trans-1,3-Dichloropropene	2009/09/04	103	70 - 130	100	70 - 130	<0.2	ug/L	NC	40		
1926784	Ethylbenzene	2009/09/04	115	70 - 130	107	70 - 130	<0.1	ug/L	NC	40		
1926784	Ethylene Dibromide	2009/09/04	111	70 - 130	112	70 - 130	<0.2	ug/L	NC	40		
1926784	MethyleneChloride(Dichloromethane)	2009/09/04	129	70 - 130	98	70 - 130	<0.5	ug/L	NC	40		
1926784	Methyl Isobutyl Ketone	2009/09/04	100	70 - 130	99	70 - 130	<5	ug/L	NC	40		
1926784	Methyl Ethyl Ketone (2-Butanone)	2009/09/04	94	60 - 140	99	60 - 140	<5	ug/L	NC	40		
1926784	Methyl t-butyl ether (MTBE)	2009/09/04	NC	70 - 130	97	70 - 130	<0.2	ug/L	NC	40		
1926784	Styrene	2009/09/04	116	70 - 130	112	70 - 130	<0.2	ug/L	NC	40		
1926784	1,1,1,2-Tetrachloroethane	2009/09/04	110	70 - 130	107	70 - 130	<0.1	ug/L	NC	40		
1926784	1,1,2,2-Tetrachloroethane	2009/09/04	109	70 - 130	107	70 - 130	<0.2	ug/L	NC	40		

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1926784	Tetrachloroethylene	2009/09/04	117	70 - 130	110	70 - 130	<0.1	ug/L	NC	40		
1926784	Toluene	2009/09/04	122	70 - 130	114	70 - 130	<0.2	ug/L	NC	40		
1926784	1,1,1-Trichloroethane	2009/09/04	109	70 - 130	101	70 - 130	<0.1	ug/L	NC	40		
1926784	1,1,2-Trichloroethane	2009/09/04	107	70 - 130	106	70 - 130	<0.2	ug/L	NC	40		
1926784	Trichloroethylene	2009/09/04	116	70 - 130	112	70 - 130	<0.1	ug/L	NC	40		
1926784	Vinyl Chloride	2009/09/04	110	70 - 130	103	70 - 130	<0.2	ug/L	NC	40		
1926784	p+m-Xylene	2009/09/04	115	70 - 130	106	70 - 130	<0.1	ug/L	NC	40		
1926784	o-Xylene	2009/09/04	107	70 - 130	105	70 - 130	<0.1	ug/L	NC	40		
1926784	Xylene (Total)	2009/09/04					<0.1	ug/L	NC	40		
1926810	Total Phosphorus	2009/09/02	NC	75 - 125	104	75 - 125	<0.002	mg/L	1.0(7)	25	101	85 - 115
1928144	Total Antimony (Sb)	2009/09/03	100	80 - 120	98	82 - 120	<0.5	ug/L				
1928144	Total Arsenic (As)	2009/09/03	102	80 - 120	99	86 - 119	<1	ug/L				
1928144	Total Beryllium (Be)	2009/09/03	98	75 - 125	93	85 - 132	<0.5	ug/L				
1928144	Total Boron (B)	2009/09/03	98	75 - 125	94	78 - 133	<10	ug/L				
1928144	Total Cadmium (Cd)	2009/09/03	98	80 - 120	95	85 - 116	<0.1	ug/L				
1928144	Total Chromium (Cr)	2009/09/03	100	80 - 120	99	80 - 120	<5	ug/L				
1928144	Total Cobalt (Co)	2009/09/03	96	80 - 120	93	82 - 117	<0.5	ug/L				
1928144	Total Copper (Cu)	2009/09/03	96	80 - 120	96	80 - 117	<1	ug/L				
1928144	Total Iron (Fe)	2009/09/03	98	80 - 120	95	80 - 120	<100	ug/L				
1928144	Total Lead (Pb)	2009/09/03	100	80 - 120	99	80 - 120	<0.5	ug/L	NC	25		
1928144	Total Molybdenum (Mo)	2009/09/03	101	80 - 120	97	82 - 117	<1	ug/L				
1928144	Total Nickel (Ni)	2009/09/03	98	80 - 120	97	81 - 117	<1	ug/L				
1928144	Total Selenium (Se)	2009/09/03	97	75 - 125	96	82 - 118	<2	ug/L				
1928144	Total Silver (Ag)	2009/09/03	94	80 - 120	90	80 - 120	<0.1	ug/L				
1928144	Total Thallium (Tl)	2009/09/03	98	80 - 120	96	80 - 129	<0.05	ug/L				
1928144	Total Tungsten (W)	2009/09/03	103	75 - 125	104	81 - 123	<1	ug/L				
1928144	Total Uranium (U)	2009/09/03	107	80 - 120	104	82 - 120	<0.1	ug/L				
1928144	Total Vanadium (V)	2009/09/03	98	80 - 120	96	82 - 118	<1	ug/L				
1928144	Total Zinc (Zn)	2009/09/03	97	80 - 120	97	80 - 120	<5	ug/L				
1928144	Total Zirconium (Zr)	2009/09/03	101	75 - 125	99	84 - 118	<1	ug/L				
1928453	Acid Extractable Antimony (Sb)	2009/09/03	85	75 - 125			<0.2	ug/g			95	75 - 125
1928453	Acid Extractable Arsenic (As)	2009/09/03	95	75 - 125			<1	ug/g	NC	35	95	75 - 125
1928453	Acid Extractable Barium (Ba)	2009/09/03	95	75 - 125			<0.5	ug/g			93	75 - 125
1928453	Acid Extractable Beryllium (Be)	2009/09/03	98	75 - 125			<0.2	ug/g			89	75 - 125
1928453	Acid Extractable Cadmium (Cd)	2009/09/03	89	75 - 125			<0.1	ug/g			89	75 - 125
1928453	Acid Extractable Chromium (Cr)	2009/09/03	99	75 - 125			<1	ug/g			92	75 - 125
1928453	Acid Extractable Cobalt (Co)	2009/09/03	100	75 - 125			<0.1	ug/g			93	75 - 125
1928453	Acid Extractable Copper (Cu)	2009/09/03	101	75 - 125			<0.5	ug/g			106	75 - 125
1928453	Acid Extractable Lead (Pb)	2009/09/03	92	75 - 125			<1	ug/g			95	75 - 125

Maxxam Job #: A9A9979
Report Date: 2010/01/21

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Your P.O. #: 1747-0901
Sampler Initials: ET

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
1928453	Acid Extractable Molybdenum (Mo)	2009/09/03	91	75 - 125			<0.5	ug/g			84	75 - 125
1928453	Acid Extractable Nickel (Ni)	2009/09/03	101	75 - 125			<0.5	ug/g			97	75 - 125
1928453	Acid Extractable Selenium (Se)	2009/09/03	89	75 - 125			<0.5	ug/g			73	50 - 150
1928453	Acid Extractable Silver (Ag)	2009/09/03	91	75 - 125			<0.2	ug/g			77	75 - 125
1928453	Acid Extractable Thallium (Tl)	2009/09/03	89	75 - 125			<0.05	ug/g			89	75 - 125
1928453	Acid Extractable Vanadium (V)	2009/09/03	96	75 - 125			<5	ug/g			91	75 - 125
1928453	Acid Extractable Zinc (Zn)	2009/09/03	NC	75 - 125			<5	ug/g			93	75 - 125
1928453	Acid Extractable Mercury (Hg)	2009/09/03	103	75 - 125			<0.05	ug/g			123	75 - 125

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - Duplicate results exceeded RPD acceptance criteria. This may be due to sample heterogenity. Small stones observed in the duplicate. The variability in the results for flagged analytes may be more pronounced.
(3) - Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
(4) - The recovery was below the lower control limit. This may be due in part to the reducing environment of the sample.
(5) - The recovery in the matrix spike was not calculated (NC). Spiked concentration was less than 2x that native to the sample. However, the results for naphthalene between the parent sample and the matrix spike were noted to be different. This may due to sample heterogeneity.
(6) - The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.
(7) - Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: A9A9979

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



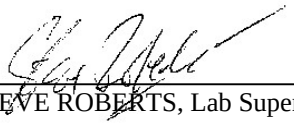
LINCOLN RAMDAHIN, Senior Analyst



PAUL RUBINATO, Analyst, Maxxam Analytics



CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst



STEVE ROBERTS, Lab Supervisor, Ottawa

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

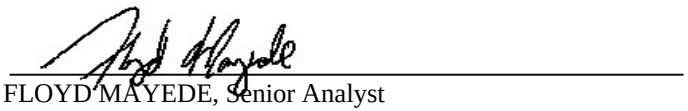
Validation Signature Page

Maxxam Job #: A9A9979

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



TIM MUNSHAW, Lab Manager



FLOYD MAYEDE, Senior Analyst



CRISTINA CARRIERE, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

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Maxxam Analytics

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#10988 Franz Environmental Inc	Company Name:		Quotation #:	A95305	MAXXAM JOB #:	BOTTLE ORDER #: 159561
Contact Name:	Lillian Ellis	Contact Name:	Jennifer Keenliside	P.O. #:	1747-0901		
Address:	329 Churchill Ave N Suite 200 Ottawa ON K1Z 5B8	Address:		Project #:	P-2963	CHAIN OF CUSTODY #: C#159561-13-01	PROJECT MANAGER: MELISSA MORRISON
Phone:	(613)721-0555 Fax: (613)721-0029	Phone:	Fax:	Project Name:			
Email:	lellis@franzenvironmental.com	Email:	jkeenliside@franzenvironmental.com	Site Location:	Resolute Bay		
				Sampled By:	ET		

REGULATORY CRITERIA:

- ☐ MISA — Reg. 153/04 — Sewer Use: ☐ Sanitary ☐ Storm ☐ Combined
- ☐ PWQO — ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table 6 — ☐ Residential/Parkland ☐ Industrial/Commercial ☐ Medium/Fine ☐ Coarse — Municipality: _____
- ☐ Reg. 558 — ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table 6 — ☐ Residential/Parkland ☐ Industrial/Commercial ☐ Medium/Fine ☐ Coarse — Municipality: _____
- Other (specify): _____ Report Criteria on C of A ? ☐

SPECIAL INSTRUCTIONS

GW= Ground water
SW=Surface water

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____ Time Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	Petroleum Hydro. CCME F1 & BTEX in Water	Petroleum Hydrocarbons F2-F4 in Water	PWQO Metals inc Cr6, Hg, Al, TP	OC Pesticides (Selected) & PCB	VOCs	PAH Compounds in Water by GC/MS (SIM)	Glycols in Water by GC/FID	# of Bottles	Comments
1		2-MW-8	22/08/09	12:00	GW			X	X	X	X	X	X		4-Vial	Limited sample Some only have 1 Bottle for parameter
2		2-MW-1	22/08/09	10:30	GW			X	X	X		X	X		4-Vial	
3		2-MW-2	22/08/09	11:30	GW			X	X	X	X	X	X	X	4-Vial	
4		1-MW-13	22/08/09	11:00	GW			X	X	X	X	X	X		4-Vial	
5		1-MW-14	22/08/09	10:00	GW			X	X	X	X	X	X		4-Vial	
6		2-SW-19-1	20/08/09	21:05	SW			X		X			X		2-vial	
7		FR-4	20/08/09	—	SW									X	1	Ran out of Proper bottles use 1000mL
8																
9																REC'D IN OTTAWA
10																

25-Aug-09 11:05
MELISSA MORRISON
A9A9979
JOE OTT-001

FLAG: Sample Inspection
Resolved ☐ By: _____
Date: _____

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
Elliott Tonaskat	09/08/22	15:30	Jennifer Wright	25Aug09	11:05am	

Laboratory Use Only		
Time Sensitive ☐	Temperature (°C) on Receipt: 8/6/7	Custody Seal Intact on Cooler? ☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

10/8/6
9/5/13

Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5779 www.maxxamanalytics.com

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:

Company Name: #10988 Franz Environmental Inc
Contact Name: Lillian Ellis
Address: 329 Churchill Ave N Suite 200, Ottawa ON K1Z 5B8
Phone: (613)721-0555 Fax: (613)721-0029
Email: lellis@franzenvironmental.com

REPORT INFORMATION (if differs from invoice):

Company Name:
Contact Name: Jennifer Keenliside
Address:
Phone: Fax:
Email: jkeenliside@franzenvironmental.com

PROJECT INFORMATION:

Quotation #: A95305
P.O. #: 1747-0901
Project #: P-2963
Project Name:
Site Location: Resolute Bay
Sampled By: ET

Laboratory Use Only:

MAXXAM JOB #:
BOTTLE ORDER #: 159533
CHAIN OF CUSTODY #: C#159533-12-01
PROJECT MANAGER: MELISSA MORRISON

REGULATORY CRITERIA:

☐ MISA Reg. 153/04 Sewer Use ☐ Sanitary ☐ Storm ☐ Combined
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table 6 ☐ Residential/Parkland ☐ Industrial/Commercial ☐ Medium/Fine ☐ Coarse
☐ Reg. 558 Municipality
Other (specify) Report Criteria on C of A ? ☐

SPECIAL INSTRUCTIONS

SD = Sediment
SL = Soil

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: Time Required:
Rush Confirmation Number: *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	Petroleum Hydro. CCME F1 & BTEX in Soil	Petroleum Hydrocarbons F2-F4 in Soil	F4G (If Required)	OC Pesticides (Selected) & PCB	O'Reg 153 Metals inc Hg, HWSB, Cr6	Glycols in Soil by GC-FID	VOCs	PAH Compounds in Soil by GC/MS (SIM)	Sieves, Various Sizes TOC + grain size	Soil Texture (% sand, %silt, %clay)	# of Bottles	Comments
1	~~FR-6~~	FR-6	20/08/09		SL			X	X	X	X	X		X	X	X		4 1-Bag	NO TOC JUST Grain size
2		1-TP-8	20/08/09		SL			X	X	X					X			3 1-Bag	NO PESTICIDES OC
3		~~2-TP-3~~																	
4		2-SD-19-1	20/08/09		SD			X	X	X	X	X			X			4 1-Bag	REC'D IN OTTAWA
5		1-TP-12	22/08/09		SL									X				1	
6																			
7																			
8																			
9																			
10																			

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
Elliott Tomaskat.	09/08/22	15:30	Jennifer Wright	25 Aug 09	11:05am	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
☐	8/6/7	☐ Yes ☐ No

10/8/6
9/5/13

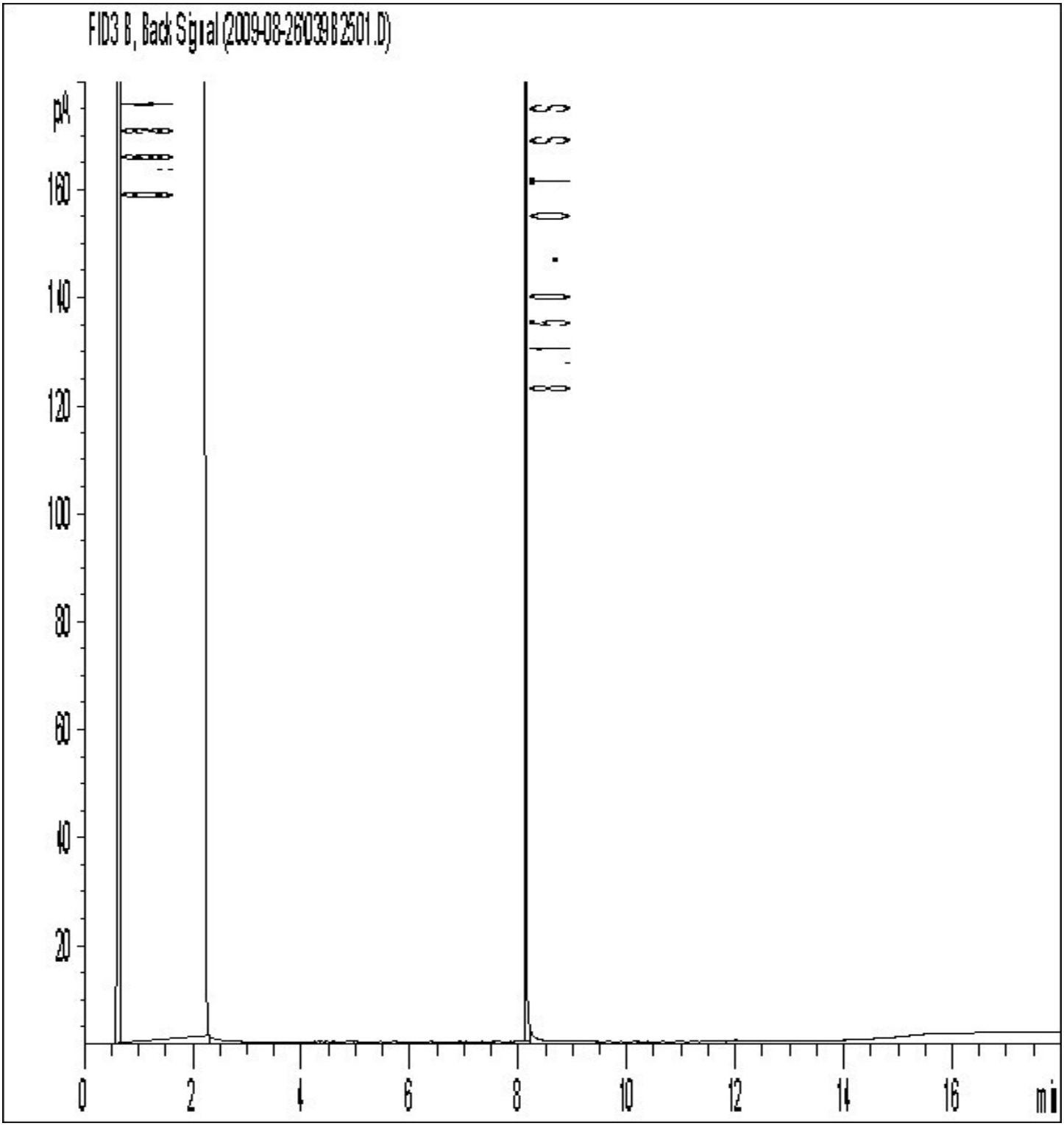
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Report Date: 2010/01/21
Maxxam Job #: A9A9979
Maxxam Sample: DM2390

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Client ID: FR-6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

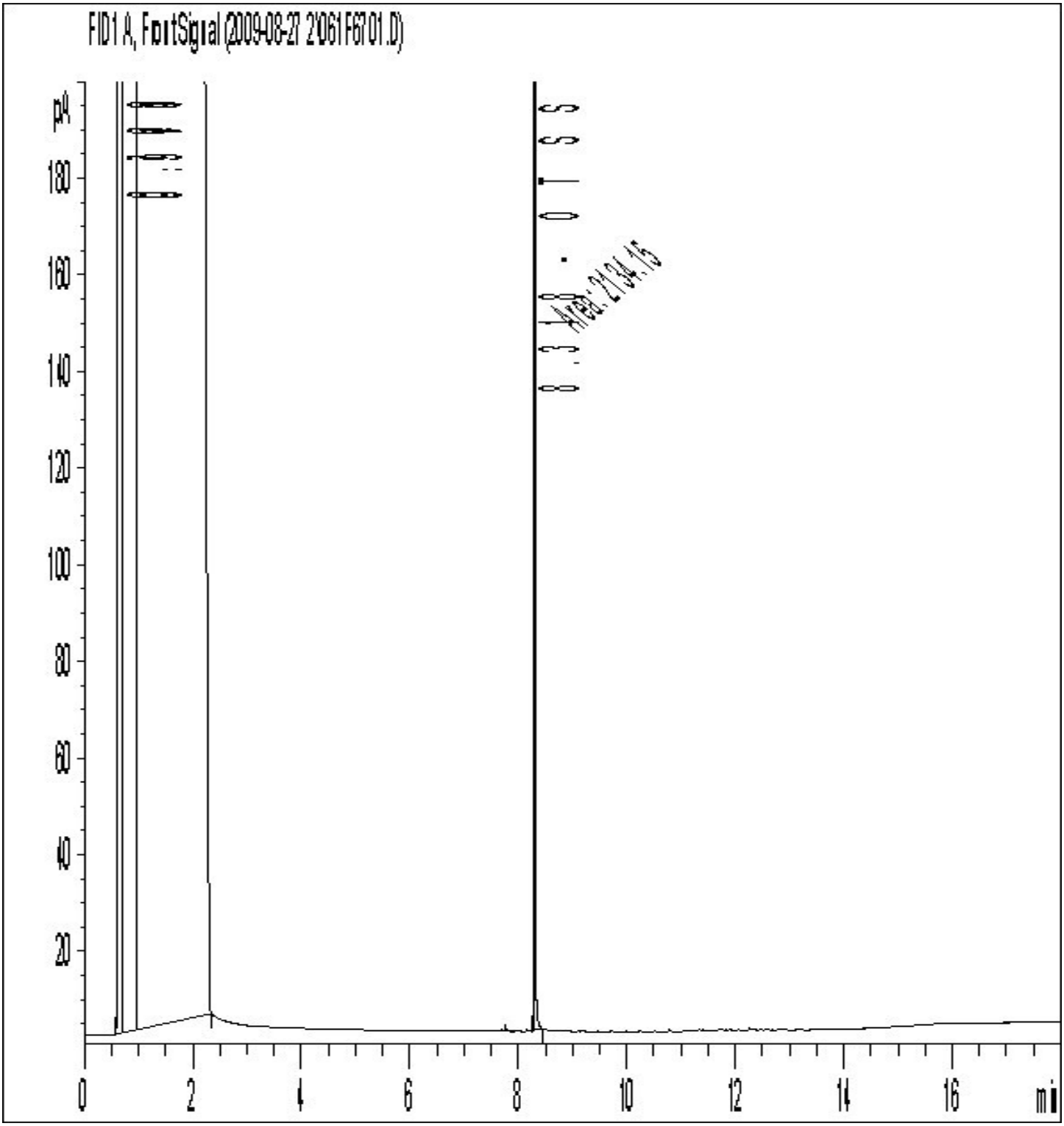


Note: This information is provided for reference purposes only. Should detailed chemist intrepretation or fingerprinting be required to please contact the laboratory.

Report Date: 2010/01/21
Maxxam Job #: A9A9979
Maxxam Sample: DM2391

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Client ID: 2-TP-20

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

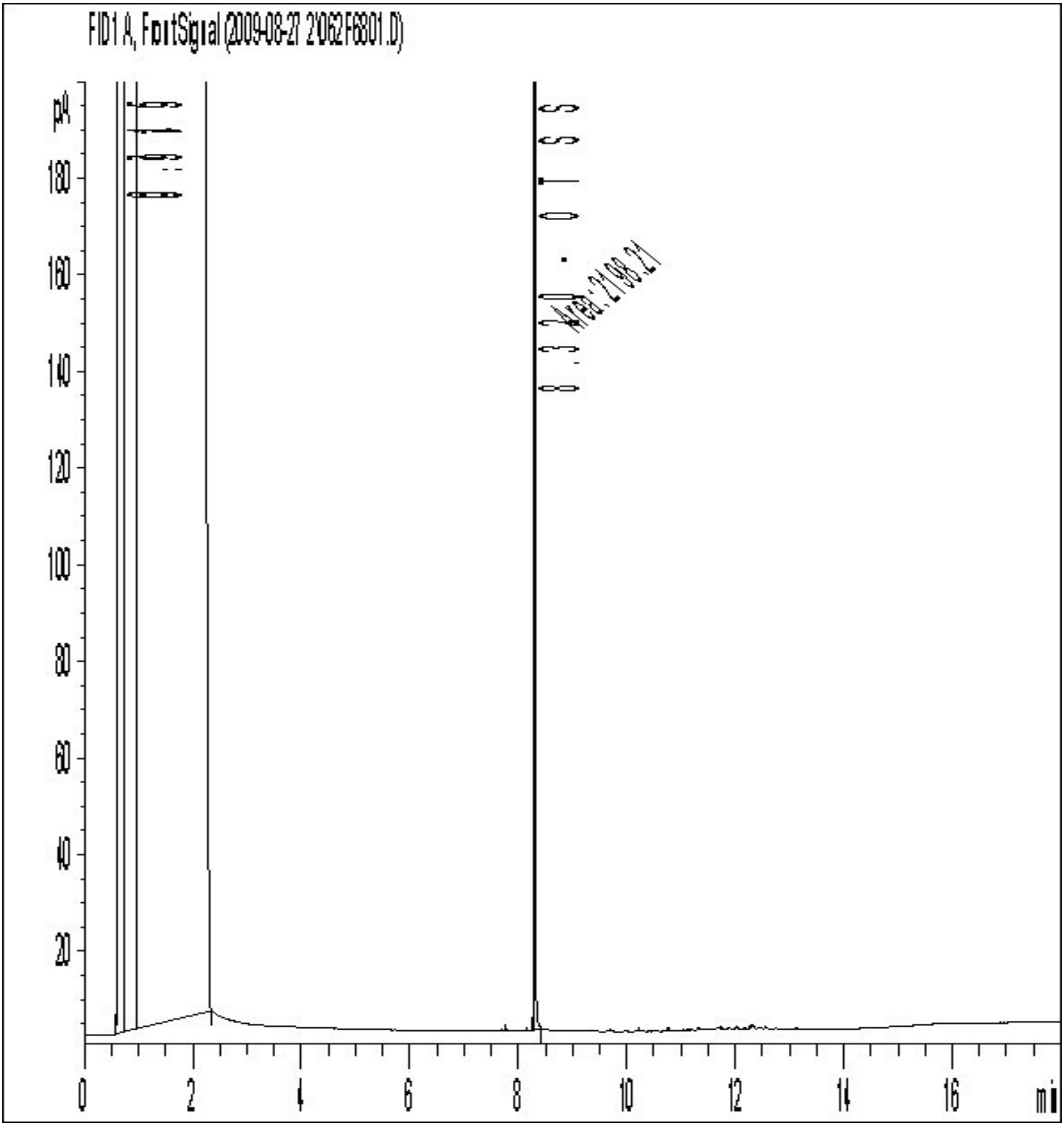


Note: This information is provided for reference purposes only. Should detailed chemist intrepretation or fingerprinting be required to please contact the laboratory.

Report Date: 2010/01/21
Maxxam Job #: A9A9979
Maxxam Sample: DM2392

Franz Environmental Inc
Client Project #: P-2963
Project name: RESOLUTE BAY
Client ID: 2-SD-19

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist intrepretation or fingerprinting be required to please contact the laboratory.

Your P.O. #: 720-8121-3516
Your Project #: MA9A9979

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS INC.
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2009/09/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A946477
Received: 2009/08/28, 8:30

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Moisture	2	N/A	2009/08/29	CAL SOP-00023	McKeague MSSMA 2.411
Particle Size by Sieve (Dry) (1)	2	N/A	2009/09/01	CAL SOP-00025	SSMA #47

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Result indicates % of sample retained on the sieve.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

BRIAN ISSLER, Project Manager
Email: BRIAN.ISSLER@MaxxamAnalytics.com
Phone# (403) 291-3077

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A946477
Report Date: 2009/09/02

MAXXAM ANALYTICS INC.
Client Project #: MA9A9979

Your P.O. #: 720-8121-3516

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		Q47597	Q47598		
Sampling Date		2009/08/20	2009/08/20		
	Units	**FR-6 (DM2390-06R)**	**2-TP-8 (DM2391-06R)**	**RDL**	**QC Batch**
Physical Properties					
Moisture	%	19	21	0.3	3383285
Sieve - #4 (>4.75mm)	%	<0.2	<0.2	0.2	3388829
Sieve - #10 (>2.00mm)	%	0.6	<0.2	0.2	3388829
Sieve - #40 (>0.425mm)	%	2.2	2.9	0.2	3388829
Sieve - #200 (>0.075mm)	%	70.7	69.7	0.2	3388829
Sieve - Pan	%	26.5	27.4	0.2	3388829

RDL = Reportable Detection Limit

Maxxam Job #: A946477
Report Date: 2009/09/02

MAXXAM ANALYTICS INC.
Client Project #: MA9A9979

Your P.O. #: 720-8121-3516

Package 1	2.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS INC.
Attention: SUB CONTRACTOR
Client Project #: MA9A9979
P.O. #: 720-8121-3516
Site Reference:

Quality Assurance Report

Maxxam Job Number: CA946477

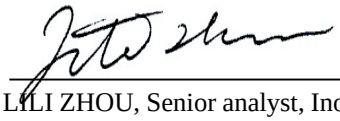
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3383285	NG2	RPD	Moisture	2009/08/29	0.8		%	20
3388829	KTH	QC Standard	Sieve - #200 (>0.075mm)	2009/09/01		103	%	75 - 125
			Sieve - Pan	2009/09/01		99	%	89 - 111
		RPD	Sieve - #4 (>4.75mm)	2009/09/01	27.6		%	35
			Sieve - #10 (>2.00mm)	2009/09/01	21.4		%	35
			Sieve - #40 (>0.425mm)	2009/09/01	3.7		%	35
			Sieve - #200 (>0.075mm)	2009/09/01	11.0		%	35
			Sieve - Pan	2009/09/01	7.5		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Validation Signature Page

Maxxam Job #: A946477

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



LILI ZHOU, Senior analyst, Inorganic department.

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

Appendix J
Analytical Results

1747-0901 RESOLUTE SAMPLING PLAN				Laboratory Analyses								
	Duplicate ID	Station ID	MEDIA	PHC	PCB (total)	Metals	VOC	PAH	Pesticides	Glycols	TOC	Grain size
APEC 1 Solid Waste Landfill		1-SD-1	sediment	1		1						
		1-SD-2	sediment	1	1	1	1	1	1		1	1
		1-SD-4	sediment	1	1	1	1	1	1			
		1-SD-5	sediment	1		1						
		1-SD-6	sediment	1	1	1	1	1				
		1-SD-7	sediment	1	1	1	1	1	1			
		1-SD-8	sediment	1		1						
		1-TP-9	soil	1	1	1	1	1	1			
		1-TP-10	soil	1		1						1
		1-TP-11	soil	1	1	1	1	1	1			
		1-TP-12	soil	1	1	1	1	1				
		1-BH-13	soil	1	1	1	1	1	1			
		1-BH-14	soil	1	1	1	1	1	1			
		1-MW-13	groundwater	1	1	1	1	1	1			
		1-MW-14	groundwater	1	1	1	1	1	1			
		1-SW-1	surface water	1		1						
		1-SW-2	surface water	1	1	1	1	1	1			
		1-SW-4	surface water	1	1	1	1	1	1			
		1-SW-5	surface water	1		1						
		1-SW-6	surface water	1	1	1	1	1	1			
		1-SW-7	surface water	1	1	1	1	1	1	1		
		1-SW-8	surface water	1		1						
		1-VG-1	vegetation			1						
		1-VG-2	vegetation			1						
		1-VG-3	vegetation			1						
		1-VG-4	vegetation			1						
		1-VG-8	vegetation			1						
APEC 2 - Historical Landfill		2-BH-1	soil	1	1	1	1	1	1		1	1
		2-BH-2	soil	1	1	1	1	1	1			
		2-MW-1	groundwater	1	1	1	1	1	1			
		2-MW-2	groundwater	1	1	1	1	1	1	1		
		2-MW-8	groundwater	1	1	1	1	1	1			
		2-SD-3	sediment	1	1	1	1	1	1			
		2-SD-4	sediment	1	1	1	1	1			1	1
		2-SD-5	sediment	1		1						
		2-SD-6	sediment	1	1	1	1	1	1			
		2-SD-7	sediment			1						
		2-TP-8	soil	1	1	1	1	1				1
		2-SD-10	sediment	1	1	1	1	1				
		2-SD-11	sediment	1	1	1	1	1				
		2-TP-12	soil	1	1	1	1	1				
		2-TP-13	soil	1		1			1			
		2-TP-14	soil	1	1	1	1	1	1			
		2-TP-15	soil	1	1	1	1	1	1			
		2-TP-18	soil	1	1	1	1	1	1			
		2-TP-20	soil	1	1	1	1	1	1			
		2-SW-3	surface water	1	1	1	1	1	1	1		
		2-SW-4	surface water	1		1						
		2-SW-5	surface water	1		1						
		2-SW-6	surface water	1	1	1	1	1				
		2-SW-7	surface water	1		1						
		2-SW-9	surface water	1		1						
		2-SW-11	surface water	1	1	1	1	1	1			
APEC 3 - Vehicle Storage Area		3-TP-1	soil	1	1	1	1	1			1	1
		3-TP-2	soil	1		1		1	1			
		3-TP-3	soil	1		1		1				
		3-TP-4	soil	1		1		1				
		3-TP-5	soil	1	1	1	1	1				
		3-SD-7	sediment	1	1	1	1	1				
		3-SD-8	sediment	1	1	1	1	1				
		3-SW-7	surface water	1	1	1	1	1		1		
		3-SW-8	surface water	1	1	1	1	1		1		
Downgradient Receptors		1-SD-16-1	sediment	1	1	1		1	1			
		1-SD-16-2	sediment	1	1	1		1	1			
		2-SD-19-1	sediment	1	1	1		1	1			
		3-SD-10	sediment	1	1	1		1	1			
		1-SW-16-1	surface water	1		1		1				
		1-SW-16-2	surface water	1		1		1				
		2-SW-19-1	surface water	1		1		1				
		3-SW-10	surface water	1		1		1				
Background Sampling		1-SD-15	sediment	1		1		1				
		1-TP-15	soil			1						
		1-SW-15	surface water	1		1		1				
		1-VG-15	vegetation			1						
		2-VG-16	vegetation			1						
		2-SD-17	sediment	1		1		1				
		2-TP-17	soil			1						
		2-SW-17	surface water	1		1	1	1				
		3-TP-6	soil			1						
		3-TP-9	soil			1						
QA/QC Program	FR-1	1-SW-15	surface water	1		1						
	FR-2	2-SW-3	surface water		1		1	1	1			
	FR-3	1-SD-15	sediment	1	1	1	1	1	1			1
	FR-4	1-SW-7	surface water							1		
	FR-5	1-VG-15	vegetation			1						
	FR-6	2-TP-20	soil	1	1	1	1	1	1			1

Table 6-2 Grain Size Analysis Results
Resolute Bay, Nunavut

APEC ID	2	2	2	1	1	1	1	3	1	2
Field ID	FR-6	2-TP-20	2-BH-1	FR-3	1-SD-2	1-SD-2	1-SD-2 Lab-Dup	3-TP-1	1-TP-10	2-TP-8
Duplicate ID	2-TP-20	FR-6		1-SD-15						
Lab report ID	Q47597	Q47598	Q43195	Q43283	Q43285	Q40632	Q40632	Q40633	Q40634	Q45071
Media	soil	soil	soil	sediment	sediment	sediment	sediment	soil	soil	soil
Sieve - #4 (>4.75mm)	<0.2	<0.2	29.1	2.1	21.6	4.9	5.9	15.1	12.8	3.2
Sieve - #10 (>2.00mm)	0.6	<0.2	4.8	4.2	9.2	13.2	9.9	16.7	24.7	7.5
Sieve - #40 (>0.425mm)	2.2	2.9	8.1	7.1	5.3	4.4	6.2	10.4	16.5	6.8
Sieve - #200 (>0.075mm)	70.7	69.7	24.6	31.0	28.9	28.0	35.2	25.6	19.8	33.5
Sieve - Pan	26.5	27.4	33.4	55.7	34.9	49.5	42.8	32.2	26.2	49.1
CCME Classification										
% Coarse [a]	73.5	72.6	66.6	44.4	65	50.5	57.2	67.8	73.8	51
% Fine [b]	26.5	27.4	33.4	55.7	34.9	49.5	42.8	32.2	26.2	49.1

Notes:

All units are in percentage (%)

[a] Coarse-grained soils are defined in CCME (2006) as soil which contains greater than 50% by mass particles greater than 75 um (mean diameter (D50 > 75 um).

[b] Fine-grained soils are defined in CCME (2006) as soil which contains greater than 50% by mass particles less than 75 um (mean diameter (D50 < 75 um).

Table 7-1 Analytical Results for Petroleum Hydrocarbons (PHCs) in Soil
Resolute Bay, Nunavut

APEC ID	CWS for PHC		CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2
Station ID	Residential / Parkland (coarse, surface)	Commercial (coarse, surface)			**1-TP-9**	**1-TP-10**	**1-TP-11**	**1-TP-12**	**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-TP-8**	**2-TP-12**	**2-TP-13**	**2-TP-14**	**2-TP-15**	**2-TP-18**	**2-TP-20**	**2-TP-20**
Field label					1-TP-9	1-TP-10	1-TP-11	1-TP-12	1-BH-13	1-BH-14	2-BH-1	2-BH-2	2-TP-8	2-TP-12	2-TP-13	2-TP-14	2-TP-15	2-TP-18	2-TP-20	FR-6
Duplicate ID																			FR-6	2-TP-20
Date					16/Aug/09	16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	16/Aug/09	16/Aug/09	15/Aug/09	20/Aug/09	20/Aug/09
Lab report ID					A9A7367	A9A7367	A9A7367	A9A7367, A9A9979	A9A8737	A9A8737	A9A8737	A9A8737	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A9979	A9A9979
Depth (m)					0.5 – 0.95	0 – 0.25	0 – 0.15	0 – 0.5	0.05 – 0.66	0.1 – 0.62	0.2 – 0.57	0.05 – 0.64	0.1 – 0.6	0.6 – 1.2	0.2 – 0.8	0 – 1.1	0.2 – 0.7	0.6 – 1.2	0.1 – 0.6	0.1 – 0.6
Benzene	-	-	0.03	0.03	-	<0.02	-	-	-	-	-	-	-	-	<0.02	-	-	-	-	-
Ethylbenzene	-	-	0.082	0.082	-	<0.02	-	-	-	-	-	-	-	-	<0.02	-	-	-	-	-
Toluene	-	-	0.37	0.37	-	<0.02	-	-	-	-	-	-	-	-	<0.02	-	-	-	-	-
m+p-Xylene	-	-	-	-	-	<0.04	-	-	-	-	-	-	-	-	<0.04	-	-	-	-	-
o-Xylene	-	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	<0.02	-	-	-	-	-
Xylenes (total)	-	-	11	11	-	<0.04	-	-	-	0.058	-	-	-	-	<0.04	-	-	-	-	-
F1 (C6-C10)	30	320	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) minus BTEX	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	150	260	-	-	<10	<10	<10	<10	<10	<10	<10	<10	6100	27	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	1700	-	-	150	230	75	30	58	<10	<10	<10	260	690	<10	<10	<10	<10	<10	<10
F4 (C34-C50)	2800	3300	-	-	93	<10	41	27	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Reached Baseline at C50	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

APEC ID	CWS for PHC		CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 3	APEC 3	APEC 3	APEC 3	APEC 3
Station ID	Residential / Parkland (coarse, surface)	Commercial (coarse, surface)			**3-TP-1**	**3-TP-2**	**3-TP-3**	**3-TP-4**	**3-TP-5**
Field label					3-TP-1	3-TP-2	3-TP-3	3-TP-4	3-TP-5
Duplicate ID									
Date					16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09
Lab report ID					A9A7367	A9A7367	A9A7367	A9A8737	A9A7367
Depth (m)					0.1 – 0.2	0 – 0.1	0 – 0.2	0 – 0.1	0 – 0.1
Benzene	-	-	0.03	0.03	-	<0.02	<0.02	<0.02	-
Ethylbenzene	-	-	0.082	0.082	-	<0.02	<0.02	<0.02	-
Toluene	-	-	0.37	0.37	-	<0.02	<0.02	<0.02	-
m+p-Xylene	-	-	-	-	-	<0.04	<0.04	<0.04	-
o-Xylene	-	-	-	-	-	<0.02	<0.02	<0.02	-
Xylenes (total)	-	-	11	11	-	<0.04	<0.04	<0.04	-
F1 (C6-C10)	30	320	-	-	<10	<10	<10	<10	<10
F1 (C6-C10) minus BTEX	-	-	-	-	<10	<10	<10	<10	<10
F2 (C10-C16)	150	260	-	-	<10	<10	45	<10	<10
F3 (C16-C34)	300	1700	-	-	<10	<10	11000	560	<10
F4 (C34-C50)	2800	3300	-	-	<10	<10	360	220	<10
Reached Baseline at C50	-	-	-	-	Yes	Yes	Yes	Yes	Yes

Notes

All units in ug/g.

"-" indicates that there is no applicable guideline or analyses were not performed.

Red cells indicate that parameter exceeds CCME guidelines (Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health and Canada-Wide Standards for Petroleum Hydrocarbons in Soil) for commercial (CL) land use in coarse-grained soil for APECs 1 and 2, and residential/parkland (RL/PL) land use in coarse-grained soil for APEC 3.

Analyses for BTEX can also be found in the Soil VOC table

Table 7-2 Analytical Results for Metals in Soil
Resolute Bay, Nunavut

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	Relative Percent Difference (%)
Station ID			**1-TP-9**	**1-TP-10**	**1-TP-11**	**1-TP-12**	**1-MW-13**	**1-MW-14**	**1-TP-15**	**2-MW-1**	**2-MW-2**	**2-TP-8**	**2-TP-12**	**2-TP-13**	**2-TP-14**	**2-TP-15**	**2-TP-17**	**2-TP-18**	**2-TP-20**	**2-TP-20**	
Field label			1-TP-9	1-TP-10	1-TP-11	1-TP-12	1-BH-13	1-BH-14	1-TP-15	2-BH-1	2-BH-2	2-TP-8	2-TP-12	2-TP-13	2-TP-14	2-TP-15	2-TP-17	2-TP-18	2-TP-20	FR-6	
Duplicate ID																			FR-6	2-TP-20	
Date			16/Aug/09	16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	19/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	16/Aug/09	16/Aug/09	18-Aug-09	15/Aug/09	20/Aug/09	20/Aug/09	
Lab report ID			A9A7367	A9A7367	A9A7367	A9A7367	A9A8737	A9A8737	A9A9300	A9A8737	A9A8737	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A8632	A9A7367	A9A9979	A9A9979	
Depth (m)			0.5 – 0.95	0 – 0.25	0 – 0.15	0 – 0.5	0.05 – 0.66	0.1 – 0.62	0 – 0.1	0.2 – 0.57	0.05 – 0.64	0.1 – 0.6	0.6 – 1.2	0.2 – 0.8	0 – 1.1	0.2 – 0.7	0.1 – 0.2	0.6 – 1.2	0.1 – 0.6	0.1 – 0.6	
Antimony	20	40	1.0	1.9	3.0	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Arsenic	12	12	2	2	3	2	2	1	2	1	1	2	<1	2	2	<1	1	<1	<1	<1	
Barium	500	2000	34.0	49.0	40.0	46.0	11.0	4.7	7.4	10.0	7.1	19.0	33.0	20.0	16.0	6.8	3.9	4.5	7.2	7.9	2.3
Beryllium	4	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Boron	-	-	1.7	0.94	1.5	0.77	1.8	0.43	0.76	0.16	0.32	0.96	0.14	0.74	0.38	0.19	0.13	0.16	0.50	0.58	3.7
Cadmium	10	22	0.3	13.0	3.3	0.6	0.1	0.1	0.1	0.1	<0.1	0.2	0.2	0.1	<0.1	<0.1	<0.1	0.2	0.1	0.2	16.7
Chromium	64	87	10	19	12	6	6	4	6	4	3	7	2	7	5	2	2	3	4	3	7.1
Chromium (VI)	0.4	1.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Cobalt	50	300	1.3	2.4	3.2	2.0	0.9	0.8	1.3	0.9	0.7	2.1	0.2	2.9	1.8	0.3	0.2	0.4	0.8	0.8	0.0
Copper	63	91	870.0	55.0	150.0	5.8	4.4	3.7	3.7	3.0	2.0	5.2	1.5	16.0	3.4	1.2	0.7	1.8	3.0	2.6	3.6
Lead	140	260	32	110	170	13	5	3	4	6	7	6	7	10	4	5	<1	11	3	4	7.1
Mercury	6.6	24	0.19	0.06	0.43	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Molybdenum	10	40	1.4	2.7	2.1	<0.5	<0.5	0.7	1.2	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	
Nickel	50	50	4.0	4.7	7	4.7	3.3	2.7	4.5	2.8	<2.5	6.0	<2.5	7.7	4	<2.5	<1	<2.5	1.5	3.1	17.4
Selenium	1	2.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Silver	20	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Thallium	1	1	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Vanadium	130	130	<5	<5	9	5	<5	<5	7	5	<5	9	<5	6	9	<5	6	<5	<5	<5	
Zinc	200	360	56	140	300	39	22	17	19	19	17	22	15	32	15	11	<5	43	16	19	4.3

APEC ID	CCME Soil RL/PL (coarse-grained)	CCME Soil CL (coarse-grained)	APEC 3	APEC 3	APEC 3	APEC 3	APEC 3	APEC 3	APEC 3
Station ID			**3-TP-1**	**3-TP-2**	**3-TP-3**	**3-TP-4**	**3-TP-5**	**3-TP-6**	**3-TP-9**
Field label			3-TP-1	3-TP-2	3-TP-3	3-TP-4	3-TP-5	3-TP-6	3-TP-9
Duplicate ID									
Date			16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	16/Aug/09	15/Aug/09
Lab report ID			A9A7367	A9A7367	A9A7367	A9A8737	A9A7367	A9A7367	A9A8737
Depth (m)			0.1 – 0.2	0 – 0.1	0 – 0.2	0 – 0.1	0 – 0.1	0 – 0.1	0 – 0.1
Antimony	20	40	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2
Arsenic	12	12	2	3	2	<1	2	2	2
Barium	500	2000	11.0	43.0	21.0	15.0	9.6	6.4	9.6
Beryllium	4	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	-	-	0.27	0.47	0.81	0.21	0.42	0.15	0.23
Cadmium	10	22	0.1	0.1	0.3	<0.1	0.3	<0.1	<0.1
Chromium	64	87	5	7	11	4	5	5	4
Chromium (VI)	0.4	1.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Cobalt	50	300	1.7	2.6	2.5	1.1	1.9	1.8	1.4
Copper	63	91	5.5	6.1	110.0	5.5	3.3	3.4	7.1
Lead	140	260	11	12	74	33	7	5	4
Mercury	6.6	24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum	10	40	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5
Nickel	50	50	4.0	6.3	6.0	2.9	4.7	4.7	3.3
Selenium	1	2.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	20	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	1	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium	130	130	<5	8	5	<5	5	5	5
Zinc	200	360	15	24	66	21	23	20	14

Notes
All units in ug/g.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicate that parameter exceeds CCME guidelines (Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health for commercial land use in coarse-grained soil for APECs 1 and 2, and residential/parkland land use in coarse-grained soil for APEC 3.

Table 7-3 Analytical Results for Polycyclic Aromatic Hydrocarbons (PAHs) in Soil
Resolute Bay, Nunavut

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2
Station ID			**1-TP-9**	**1-TP-11**	**1-TP-12**	**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-TP-8**	**2-TP-12**	**2-TP-14**	**2-TP-15**	**2-TP-18**	**2-TP-20**	**2-TP-20**
Field label			1-TP-9	1-TP-11	1-TP-12	1-BH-13	1-BH-14	2-BH-1	2-BH-2	2-TP-8	2-TP-12	2-TP-14	2-TP-15	2-TP-18	2-TP-20	FR-6
Duplicate ID															FR-6	2-TP-20
Date			16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	16/Aug/09	15/Aug/09	20/Aug/09	20/Aug/09
Lab report ID			A9A7367	A9A7367	A9A7367	A9A8737	A9A8737	A9A8737	A9A8737	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A9979	A9A9979
Depth (m)			0.5 – 0.95	0 – 0.15	0 – 0.5	0.05 – 0.66	0.1 – 0.62	0.2 – 0.57	0.05 – 0.64	0.1 – 0.6	0.6 – 1.2	0 – 1.1	0.2 – 0.7	0.6 – 1.2	0.1 – 0.6	0.1 – 0.6
Acenaphthene	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Anthracene	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(a)anthracene	1	10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.7	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(b+j)fluoranthene	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	1	10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	1	10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	-	-	0.006	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluorene	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.74	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene	1	10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	-	-	0.006	0.006	<0.005	0.042	<0.005	<0.005	<0.005	13.00	<0.005	<0.005	<0.005	<0.005	0.007	<0.005
2-Methylnaphthalene	-	-	0.013	0.009	<0.005	0.050	<0.005	<0.005	<0.005	14.00	<0.005	<0.005	<0.005	<0.005	0.007	<0.005
Naphthalene	0.6	22	0.007	0.014	<0.005	0.057	<0.005	<0.005	<0.005	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene	5	50	0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	0.18	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene	10	100	0.013	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 3	APEC 3	APEC 3	APEC 3	APEC 3
Station ID			**3-TP-1**	**3-TP-2**	**3-TP-3**	**3-TP-4**	**3-TP-5**
Field label			3-TP-1	3-TP-2	3-TP-3	3-TP-4	3-TP-5
Duplicate ID							
Date			16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09
Lab report ID			A9A7367	A9A7367	A9A7367	A9A8737	A9A7367
Depth (m)			0.1 – 0.2	0 – 0.1	0 – 0.2	0 – 0.1	0 – 0.1
Acenaphthene	-	-	<0.01	<0.01	<0.4	<0.01	<0.01
Acenaphthylene	-	-	<0.005	<0.005	<0.2	<0.005	<0.005
Anthracene	-	-	<0.005	<0.005	0.3	<0.005	<0.005
Benzo(a)anthracene	1	10	<0.01	<0.01	2.4	<0.01	0.02
Benzo(a)pyrene	0.7	0.7	<0.005	<0.005	1.3	<0.005	0.015
Benzo(b+j)fluoranthene	-	-	<0.01	<0.01	2.6	0.02	0.02
Benzo(g,h,i)perylene	-	-	<0.02	<0.02	1.3	<0.02	<0.02
Benzo(k)fluoranthene	1	10	<0.01	<0.01	0.7	<0.01	<0.01
Chrysene	-	-	<0.01	<0.01	2.8	<0.01	0.02
Dibenz(a,h)anthracene	1	10	<0.02	<0.02	<0.8	<0.02	<0.02
Fluoranthene	-	-	<0.005	<0.005	1.3	0.012	0.031
Fluorene	-	-	<0.005	<0.005	<0.2	<0.005	<0.005
Indeno(1,2,3-cd)pyrene	1	10	<0.02	<0.02	1.2	<0.02	<0.02
1-Methylnaphthalene	-	-	<0.005	<0.005	<0.2	0.007	<0.005
2-Methylnaphthalene	-	-	<0.005	<0.005	<0.2	0.005	<0.005
Naphthalene	0.6	22	<0.005	<0.005	0.3	<0.005	<0.005
Phenanthrene	5	50	<0.005	<0.005	0.4	<0.005	0.014
Pyrene	10	100	<0.005	<0.005	6.0	0.011	0.023

Notes

All units in ug/g.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicate that parameter exceeds CCME guidelines (Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health for commercial land use in coarse-grained soil for APECs 1 and 2, and residential/parkland land use in coarse-grained soil for APEC 3.

Table 7-4 Analytical Results for Polychlorinated Biphenyls (PCBs) in So
Resolute Bay, Nunavut

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2
Station ID			**1-TP-9**	**1-TP-11**	**1-TP-12**	**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-TP-8**	**2-TP-12**	**2-TP-13**	**2-TP-14**	**2-TP-15**	**2-TP-18**	**2-TP-20**	**2-TP-20**
Field label			1-TP-9	1-TP-11	1-TP-12	1-BH-13	1-BH-14	2-BH-1	2-BH-2	2-TP-8	2-TP-12	2-TP-13	2-TP-14	2-TP-15	2-TP-18	2-TP-20	FR-6
Duplicate ID																FR-6	2-TP-20
Date			16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	16/Aug/09	16/Aug/09	15/Aug/09	20/Aug/09	20/Aug/09
Lab report ID			A9A7367	A9A7367	A9A7367	A9A8737	A9A8737	A9A8737	A9A8737	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A9979	A9A9979
Depth (m)			0.5 – 0.95	0 – 0.15	0 – 0.5	0.05 – 0.66	0.1 – 0.62	0.2 – 0.57	0.05 – 0.64	0.1 – 0.6	0.6 – 1.2	0.2 – 0.8	0 – 1.1	0.2 – 0.7	0.6 – 1.2	0.1 – 0.6	0.1 – 0.6
Aroclor 1016	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1221	-	-	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.03
Aroclor 1232	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1242	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1248	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1254	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1260	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1262	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Aroclor 1268	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.02
Polychlorinated biphenyls	1.3	33	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	<0.03	<0.01	<0.01	<0.01	<0.01	<0.03

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 3	APEC 3	APEC 3
Station ID			**3-TP-1**	**3-TP-2**	**3-TP-5**
Field label			3-TP-1	3-TP-2	3-TP-5
Duplicate ID					
Date			16/Aug/09	15/Aug/09	16/Aug/09
Lab report ID			A9A7367	A9A7367	A9A7367
Depth (m)			0.1 – 0.2	0 – 0.1	0 – 0.1
Aroclor 1016	-	-	<0.01	-	<0.01
Aroclor 1221	-	-	<0.01	-	<0.01
Aroclor 1232	-	-	<0.01	-	<0.01
Aroclor 1242	-	-	<0.01	-	<0.01
Aroclor 1248	-	-	<0.01	-	<0.01
Aroclor 1254	-	-	<0.01	-	<0.01
Aroclor 1260	-	-	<0.01	-	<0.01
Aroclor 1262	-	-	<0.01	-	<0.01
Aroclor 1268	-	-	<0.01	-	<0.01
Polychlorinated biphenyls	1.3	33	<0.01	<0.03	<0.01

Notes

All units in ug/g.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicate that parameter exceeds CCME guidelines (Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health for commercial land use in coarse-grained soil for APECs 1 and 2, and residential/parkland land use in coarse-grained soil for APEC 3.

Table 7-5 Analytical Results for Volatile Organic Compounds (VOC) in Soil
Resolute Bay, Nunavut

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	Relative Percent Difference (%)	APEC 3	APEC 3	APEC 3	APEC 3	APEC 3
Station ID			1-TP-9	1-TP-10	1-TP-11	1-TP-12	1-MW-13	1-MW-14	2-MW-1	2-MW-2	2-TP-8	2-TP-12	2-TP-13	2-TP-14	2-TP-15	2-TP-18	2-TP-20	2-TP-20		3-TP-1	3-TP-2	3-TP-3	3-TP-4	3-TP-5
Field label			1-TP-9	1-TP-10	1-TP-11	1-TP-12	1-BH-13	1-BH-14	2-BH-1	2-BH-2	2-TP-8	2-TP-12	2-TP-13	2-TP-14	2-TP-15	2-TP-18	2-TP-20	FR-6		3-TP-1	3-TP-2	3-TP-3	3-TP-4	3-TP-5
Duplicate ID																	FR-6	2-TP-20						
Date			16/Aug/09	16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	16/Aug/09	16/Aug/09	15/Aug/09	20/Aug/09	20/Aug/09		16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09
Lab report ID			A9A7367	A9A7367	A9A7367	A9A9979	A9A8737	A9A8737	A9A8737	A9A8737	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A7367	A9A9979	A9A9979		A9A7367	A9A7367	A9A7367	A9A8737	A9A7367
Depth (m)			0.5 – 0.95	0 – 0.25	0 – 0.15	0 – 0.5	0.05 – 0.66	0.1 – 0.62	0.2 – 0.57	0.05 – 0.64	0.1 – 0.6	0.6 – 1.2	0.2 – 0.8	0 – 1.1	0.2 – 0.7	0.6 – 1.2	0.1 – 0.6	0.1 – 0.6		0.1 – 0.2	0 – 0.1	0 – 0.2	0 – 0.1	0 – 0.1
Acetone	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	-	<0.1
Benzene	0.03	0.03	0.009	<0.02	0.005	0.008	0.031	0.032	0.009	0.037	<0.1	0.69	<0.02	0.004	0.017	0.016	0.056	0.051	2.34	0.005	<0.02	<0.02	<0.02	0.006
Bromodichloromethane	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Bromoform	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Bromomethane	-	-	<0.003	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.2	<0.006	-	<0.003	<0.003	<0.003	<0.003	<0.003	-	<0.003	-	-	-	<0.003
Carbon tetrachloride	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Chlorobenzene	1	10	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Chlorodibromomethane	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Chloroform	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Dibromoethane	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,2-Dichlorobenzene	1	10	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,3-Dichlorobenzene	1	10	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,4-Dichlorobenzene	1	10	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,1-Dichloroethane	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,2-Dichloroethane	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,1-Dichloroethene	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
cis-1,2-Dichloroethene	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
trans-1,2-Dichloroethene	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Dichloromethane	5	50	<0.003	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.2	<0.006	-	<0.003	<0.003	<0.003	<0.003	<0.003	-	<0.003	-	-	-	<0.003
1,2-Dichloropropane	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
cis-1,3-Dichloropropene	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
trans-1,3-Dichloropropene	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Ethylbenzene	0.082	0.082	0.009	<0.02	0.004	0.008	0.037	0.039	0.014	0.053	<0.1	0.70	<0.02	0.006	0.028	0.021	0.085	0.087	0.58	0.008	<0.02	<0.02	<0.02	0.012
Hexachlorobenzene	2	10	<0.002	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	-	-	-	-	<0.002	-	-	<0.002	-	-	-
Methyl ethyl ketone	-	-	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<1	<0.05	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	-	-	-	<0.03
Methyl isobutyl ketone	-	-	<0.03	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<1	<0.05	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	-	-	-	<0.03
Methyl-tert-butylether	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Styrene	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,1,1,2-Tetrachloroethane	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,1,2,2-Tetrachloroethane	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Tetrachloroethene	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Toluene	0.37	0.37	0.027	<0.02	0.013	0.020	0.10	0.093	0.035	0.12	<0.1	1.4	<0.02	0.016	0.060	0.051	0.19	0.17	2.78	0.018	<0.02	<0.02	<0.02	0.023
1,1,1-Trichloroethane	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
1,1,2-Trichloroethane	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Trichloroethene	5	50	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
Vinyl chloride	-	-	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.1	<0.004	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-	-	-	<0.002
m+p-Xylene	-	-	0.015	<0.04	0.006	0.011	0.035	0.039	0.019	0.058	0.6	0.58	<0.04	0.011	0.038	0.026	0.076	0.079	0.97	0.009	<0.04	<0.04	<0.04	0.012
o-Xylene	-	-	0.007	<0.02	0.003	0.005	0.018	0.020	0.009	0.029	1.7	0.32	<0.02	0.005	0.018	0.012	0.045	0.047	1.09	0.004	<0.02	<0.02	<0.02	0.007
Xylenes (total)	11	11	0.021	<0.04	0.009	0.016	0.053	0.058	0.027	0.087	2.3	0.90	<0.04	0.016	0.056	0.038	0.12	0.13	2.00	0.013	<0.04	<0.04	<0.04	0.018

Notes
All units in ug/g.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicate that parameter exceeds CCME guidelines (Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health for commercial land use in coarse-grained soil for APECs 1 and 2, and residential/parkland land use in coarse-grained soil for APEC 3.

Table 7-6 Analytical Results for Pesticides in Soil
Resolute Bay, Nunavut

APEC ID	CCME Soil RL/PL (coarse, surface)	CCME Soil CL (coarse, surface)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3
Station ID			**1-TP-9**	**1-TP-11**	**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-TP-13**	**2-TP-20**	**3-TP-2**
Field label			1-TP-9	1-TP-11	1-BH-13	1-BH-14	2-BH-1	2-BH-2	2-TP-13	FR-6	3-TP-2
Duplicate ID										2-TP-20	
Date			16/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	15/Aug/09	16/Aug/09	20/Aug/09	15/Aug/09
Lab report ID			A9A7367	A9A7367	A9A8737	A9A8737	A9A8737	A9A8737	A9A7367	A9A9979	A9A7367
Depth (m)			0.5 – 0.95	0 – 0.15	0.05 – 0.66	0.1 – 0.62	0.2 – 0.57	0.05 – 0.64	0.2 – 0.8	0.1 – 0.6	0 – 0.1
Aldrin	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chlordane	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
alpha-Chlordane	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
trans-Chlordane	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
2,4'-DDD	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4,4'-DDD	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDD (total)	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
2,4'-DDE	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4,4'-DDE	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDE (total)	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
2,4'-DDT	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4,4'-DDT	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDT plus metabolites	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDT (total)	0.7	12	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dieldrin	-	-	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endosulfan	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
alpha-Endosulfan	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
beta-Endosulfan	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endosulfan sulphate	-	-	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin aldehyde	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin ketone	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
alpha-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
beta-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
delta-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
gamma-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Heptachlor	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Heptachlor epoxide	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Hexachlorobenzene	2	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methoxychlor	-	-	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Mirex	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Octachlorostyrene	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toxaphene	-	-	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08

Notes

All units in ug/g.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicate that parameter exceeds CCME guidelines (Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health for commercial land use in coarse-grained soil for APECs 1 and 2, and residential/parkland land use in coarse-grained soil for APEC 3.

Table 7-7 Analytical Results for Petroleum Hydrocarbons in Sediment
Resolute Bay, Nunavut

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	Relative Percent Difference (%)	APEC 1	APEC 1
Station ID			**1-SD-1**	**1-SD-2**	**1-SD-4**	**1-SD-5**	**1-SD-6**	**1-SD-7**	**1-SD-8**	**1-SD-15**	**1-SD-15**		**1-SD-16**	**1-SD-16**
Field label			1-SD-1	1-SD-2	1-SD-4	1-SD-5	1-SD-6	1-SD-7	1-SD-8	1-SD-15	FR-3		1-SD-16-1	1-SD-16-2
Duplicate ID										FR-3	1-SD-15			
Date			16-Aug-09	16-Aug-09	19-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	18-Aug-09		19-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A7367	A9A9300	A9A9300	A9A8632	A9A8632	A9A8632	A9A9300	A9A8632		A9A9300	A9A9300
Depth (m)			0.05 - 0.15	0.05 - 0.15	0.1 - 0.3	0.05 - 0.15	0 - 0.15	0 - 0.15	0.05 - 0.15	0 - 0.1	0 - 0.1		0.05 - 0.15	0 - 0.15
Moisture content	-	-	20.0	59.0	15.0	3.4	6.9	17.0	28.0	23.0	15.0	10.5	19.0	31.0
Benzene	-	-	<0.02	-	-	<0.02	-	-	<0.02	<0.04	-	-	<0.02	<0.02
Ethylbenzene	-	-	<0.02	-	-	<0.02	-	-	<0.02	<0.04	-	-	<0.02	<0.02
Toluene	-	-	<0.02	-	-	<0.02	-	-	<0.02	<0.04	-	-	<0.02	<0.02
m+p-Xylene	-	-	<0.04	-	-	<0.04	-	-	<0.04	<0.08	-	-	<0.04	<0.04
o-Xylene	-	-	<0.02	-	-	<0.02	-	-	<0.02	<0.04	-	-	<0.02	<0.02
Xylenes (total)	-	-	<0.04	-	-	<0.04	-	-	<0.04	<0.08	-	-	<0.04	<0.04
F1 (C6-C10)	-	-	<10	<10	<10	<10	250	<10	<10	<20	<10	-	<10	<10
F1 (C6-C10) minus BTEX	-	-	<10	<10	<10	<10	250	<10	<10	<20	<10	-	<10	<10
F2 (C10-C16)	-	-	<10	<10	33	<10	570	<10	<10	<20	<10	-	<10	<10
F3 (C16-C34)	-	-	<10	29	200	<10	68	<10	<10	<20	<10	-	<10	<10
F4 (C34-C50)	-	-	<10	<10	86	<10	<10	<10	<10	<20	<10	-	<10	<10
Reached Baseline at C5(	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3	APEC 3
Station ID			**2-SD-3**	**2-SD-4**	**2-SD-5**	**2-SD-6**	**2-SD-10**	**2-SD-11**	**2-SD-17**	**2-SD-19**	**3-SD-7**	**3-SD-8**	**3-SD-10**
Field label			2-SD-3	2-SD-4	2-SD-5	2-SD-6	2-SD-10	2-SD-11	2-SD-17	2-SD-19	3-SD-7	3-SD-8	3-SD-10
Duplicate ID													
Date			18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09	19-Aug-09
Lab report ID			A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367	A9A9300
Depth (m)			0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0 - 0.1	0 - 0.1	0.1 - 0.2
Moisture content	-	-	24.0	21.0	24.0	29.0	21.0	18.0	26.0	17.0	17.0	23.0	18.0
Benzene	-	-	0.050	-	<0.02	-	-	-	<0.02	<0.02	-	-	<0.02
Ethylbenzene	-	-	0.055	-	<0.02	-	-	-	<0.02	<0.02	-	-	<0.02
Toluene	-	-	0.15	-	<0.02	-	-	-	<0.02	<0.02	-	-	<0.02
m+p-Xylene	-	-	0.057	-	<0.04	-	-	-	<0.04	<0.04	-	-	<0.04
o-Xylene	-	-	0.026	-	<0.02	-	-	-	<0.02	<0.02	-	-	<0.02
Xylenes (total)	-	-	0.083	-	<0.04	-	-	-	<0.04	<0.04	-	-	<0.04
F1 (C6-C10)	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) minus BTEX	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	-	-	<10	<10	17	<10	<10	<10	<10	<10	<10	<10	<10
F4 (C34-C50)	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Reached Baseline at C5(	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes
All units in ug/g.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicate that parameter exceeds CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (Interim Sediment Quality Guidelines - ISQG).

Table 7-8 Analytical Results for Metals in Sediment
Resolute Bay, Nunavut

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	Relative Percent Difference (%)	APEC 1	APEC 1
Station ID			1-SD-1	1-SD-2	1-SD-3	1-SD-4	1-SD-5	1-SD-6	1-SD-7	1-SD-8	1-SD-15	1-SD-15		1-SD-16	1-SD-16
Field label			1-SD-1	1-SD-2	1-SD-3	1-SD-4	1-SD-5	1-SD-6	1-SD-7	1-SD-8	1-SD-15	FR-3		1-SD-16-1	1-SD-16-2
Duplicate ID											FR-3	1-SD-15			
Date			16-Aug-09	16-Aug-09	17-Aug-09	19-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	18-Aug-09		19-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A7367	A9A8632	A9A9300	A9A9300	A9A8632	A9A8632	A9A8632	A9A9300	A9A8632		A9A9300	A9A9300
Depth (m)			0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.3	0.05 - 0.15	0 - 0.15	0 - 0.15	0.05 - 0.15	0 - 0.1	0 - 0.1		0.05 - 0.15	0 - 0.15
Antimony	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2
Arsenic	5.9	7.24	1	2	2	1	1	3	2	3	1	1	0	<1	<1
Barium	-	-	28.0	9.1	7.1	37.0	2.1	42.0	4.4	18.0	17.0	29.0	13.04	11.0	4.8
Beryllium	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	0.3	0.26	<0.2	<0.2
Boron	-	-	1.3	0.36	0.44	1.6	0.91	0.88	0.70	1.7	4.7	0.48	40.73	0.41	1.4
Cadmium	0.6	0.7	0.2	0.1	0.1	0.2	<0.1	0.2	<0.1	0.3	0.2	0.1		<0.1	0.1
Chromium	37.3	52.3	8	5	4	5	3	8	3	13	3	8	22.73	5	3
Chromium (VI)	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.2		<0.2	<0.2
Cobalt	-	-	2.2	1.0	0.9	0.9	0.4	2.7	0.6	0.8	0.3	2.3	38.46	1.4	0.6
Copper	35.7	18.7	9.9	3.9	2.7	4.8	1.2	6.0	1.0	9.3	0.7	6.5	40.28	2.2	0.5
Lead	35	30.2	10	<5	3	4	3	12	3	8	4	6	10.00	8	3
Mercury	0.17	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Molybdenum	-	-	<0.5	0.5	0.6	0.9	<0.5	0.6	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Nickel	-	-	5	3	2	3.3	<2.5	7	2	2	<2.5	6		3.1	<2.5
Selenium	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Silver	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2
Thallium	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Vanadium	-	-	8	10	10	5	<5	15	9	7	<5	15		<5	<5
Zinc	123	124	39	16	14	23	11	35	10	57	9	22	20.968	26	13

APEC ID	CCME ISQG	CCME ISQG (Marine)	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3	APEC 3
Station ID			2-SD-3	2-SD-4	2-SD-5	2-SD-6	2-SD-7	2-SD-10	2-SD-11	2-SD-17	2-SD-19	3-SD-7	3-SD-8	3-SD-10
Field label			2-SD-3	2-SD-4	2-SD-5	2-SD-6	2-SD-7	2-SD-10	2-SD-11	2-SD-17	2-SD-19	3-SD-7	3-SD-8	3-SD-10
Duplicate ID														
Date/Time			18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09	19-Aug-09
Lab report ID			A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367	A9A9300
Depth (m)			0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0 - 0.1	0 - 0.1	0.1 - 0.2
Antimony	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	5.9	7.24	1	<1	3	2	2	2	1	2	3	2	2	1
Barium	-	-	14.0	3.3	3.5	36.0	9.2	10.0	10.0	2.0	7.1	12.0	5.2	13.0
Beryllium	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4
Boron	-	-	0.75	0.70	1.5	0.53	0.14	1.3	0.36	0.50	1.2	0.48	0.41	2.2
Cadmium	0.6	0.7	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	37.3	52.3	3	2	2	8	3	4	3	2	3	7	4	7
Chromium (VI)	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	-	-	0.6	0.1	0.3	2.6	0.6	0.9	0.4	<0.1	0.3	3.0	1.4	3.9
Copper	35.7	18.7	1.4	1.5	1.4	5.5	1.6	2.7	1.1	<0.5	1.7	6.5	1.7	4.6
Lead	35	30.2	13	9	8	9	5	6	7	<1	2	9	<5	7
Mercury	0.17	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	2.6	<0.5	<0.5	<0.5
Nickel	-	-	2	<1	2	7	2	3	2	<1	<2.5	6	3	7.5
Selenium	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	-	-	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Vanadium	-	-	8	<5	6	18	7	11	7	6	<5	12	8	6
Zinc	123	124	15	14	22	24	15	16	16	<5	9	18	12	17

Notes

All units in ug/g.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicate that parameter exceeds CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (Interim Sediment Quality Guidelines - ISQG).

Table 7-9 Analytical Results for Polycyclic Aromatic Hydrocarbons (PAH) in Sediment
Resolute Bay, Nunavut

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3	APEC 3
Station ID			**1-SD-2**	**1-SD-4**	**1-SD-6**	**1-SD-7**	**1-SD-15**	**1-SD-15**	**1-SD-16**	**1-SD-16**	**2-SD-3**	**2-SD-4**	**2-SD-6**	**2-SD-10**	**2-SD-11**	**2-SD-17**	**2-SD-19**	**3-SD-7**	**3-SD-8**	**3-SD-10**
Field label			1-SD-2	1-SD-4	1-SD-6	1-SD-7	1-SD-15	FR-3	1-SD-16-1	1-SD-16-2	2-SD-3	2-SD-4	2-SD-6	2-SD-10	2-SD-11	2-SD-17	2-SD-19	3-SD-7	3-SD-8	3-SD-10
Duplicate ID							FR-3	1-SD-15												
Date			16-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	18-Aug-09	19-Aug-09	19-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A9300	A9A8632	A9A8632	A9A9300	A9A8632	A9A9300	A9A9300	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367	A9A9300
Depth (m)			0.05 - 0.15	0.1 - 0.3	0.05 - 0.15	0 - 0.15	0 - 0.1	0 - 0.1	0.05 - 0.15	0 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0 - 0.1	0 - 0.1	0.1 - 0.2
Acenaphthene	0.0067	0.0067	<0.01	<0.04	0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Acenaphthylene	0.0059	0.0059	<0.005	<0.02	<0.01	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Anthracene	0.0469	0.0469	<0.005	<0.02	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Benzo(a)anthracene	0.0317	0.0748	<0.01	<0.04	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.0319	0.0888	<0.005	<0.02	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Benzo(b+j)fluoranthene	-	-	<0.01	<0.04	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	-	-	<0.02	<0.08	<0.02	<0.02	<0.08	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.04	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	-	-	<0.01	<0.04	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Chrysene	0.0571	0.108	<0.01	<0.04	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	0.0062	0.0062	<0.02	<0.08	<0.02	<0.02	<0.08	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.04	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02
Fluoranthene	0.111	0.113	<0.005	<0.02	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Fluorene	0.0212	0.0212	<0.005	<0.02	0.028	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene	-	-	<0.02	<0.08	<0.02	<0.02	<0.08	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.04	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02
1-Methylnaphthalene	-	-	<0.005	<0.02	0.40	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
2-Methylnaphthalene	0.0202	0.0202	<0.005	<0.02	0.39	0.009	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Naphthalene	0.0346	0.0346	<0.005	<0.02	0.11	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Phenanthrene	0.0419	0.0867	<0.005	<0.02	0.011	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Pyrene	0.053	0.153	<0.005	<0.02	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005

Notes
All units in ug/g.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicate that parameter exceeds CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (Interim Sediment Quality Guidelines - ISQG).
The reportable detection limits (RDLs) are at the lowest concentration achievable by the laboratory.

Table 7-10 Analytical Results for Polychlorinated Biphenyls (PCB) in Sediment
Resolute Bay, Nunavut

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2
Station ID			**1-SD-2**	**1-SD-4**	**1-SD-6**	**1-SD-7**	**1-SD-15**	**1-SD-16**	**1-SD-16**	**2-SD-3**	**2-SD-4**	**2-SD-6**	**2-SD-10**	**2-SD-11**	**2-SD-19**
Field label			1-SD-2	1-SD-4	1-SD-6	1-SD-7	FR-3	1-SD-16-1	1-SD-16-2	2-SD-3	2-SD-4	2-SD-6	2-SD-10	2-SD-11	2-SD-19
Duplicate ID							1-SD-15								
Date			16-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	19-Aug-09	19-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	20-Aug-09
Lab report ID			A9A7367	A9A9300	A9A8632	A9A8632	A9A8632	A9A9300	A9A9300	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979
Depth (m)			0.05 - 0.15	0.1 - 0.3	0.05 - 0.15	0 - 0.15	0 - 0.1	0.05 - 0.15	0 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0.05 - 0.15
Aroclor 1016	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1221	-	-	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.03	<0.01	<0.01	<0.03
Aroclor 1232	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1242	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1248	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1254	0.006	0.0633	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1260	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1262	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Aroclor 1268	-	-	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02
Polychlorinated biphenyls	0.0341	0.0215	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.03	<0.01	<0.01	<0.03

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 3	APEC 3	APEC 3
Station ID			**3-SD-7**	**3-SD-8**	**3-SD-10**
Field label			3-SD-7	3-SD-8	3-SD-10
Duplicate ID					
Date			16-Aug-09	16-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A7367	A9A9300
Depth (m)			0 - 0.1	0 - 0.1	0.1 - 0.2
Aroclor 1016	-	-	<0.01	<0.01	<0.02
Aroclor 1221	-	-	<0.01	<0.01	<0.03
Aroclor 1232	-	-	<0.01	<0.01	<0.02
Aroclor 1242	-	-	<0.01	<0.01	<0.02
Aroclor 1248	-	-	<0.01	<0.01	<0.02
Aroclor 1254	0.006	0.0633	<0.01	<0.01	<0.02
Aroclor 1260	-	-	<0.01	<0.01	<0.02
Aroclor 1262	-	-	<0.01	<0.01	<0.02
Aroclor 1268	-	-	<0.01	<0.01	<0.02
Polychlorinated biphenyls	0.0341	0.0215	<0.01	<0.01	<0.03

Notes
All units in ug/g.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicate that parameter exceeds CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (Interim Sediment Quality Guidelines - ISQG).

Table 7-11 Analytical Results for Volatile Organic Compounds (VOC) in Sediment
Resolute Bay, Nunavut

APEC ID	CCME ISQG (freshwater)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3
Station ID		**1-SD-2**	**1-SD-4**	**1-SD-6**	**1-SD-7**	**1-SD-15**	**2-SD-3**	**2-SD-4**	**2-SD-6**	**2-SD-10**	**2-SD-11**	**3-SD-7**	**3-SD-8**
Field label		1-SD-2	1-SD-4	1-SD-6	1-SD-7	FR-3	2-SD-3	2-SD-4	2-SD-6	2-SD-10	2-SD-11	3-SD-7	3-SD-8
Duplicate ID						1-SD-15							
Date		16-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	16-Aug-09	16-Aug-09
Lab report ID		A9A7367	A9A9300	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A8632	A9A7367	A9A7367
Depth (m)		0.05 - 0.15	0.1 - 0.3	0 - 0.15	0 - 0.15	0 - 0.1	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.2	0.05 - 0.15	0 - 0.1	0 - 0.1
Acetone	-	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzene	-	0.015	0.009	0.010	0.040	0.008	0.050	0.097	0.008	0.031	0.043	0.007	0.010
Bromodichloromethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Bromoform	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Bromomethane	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Carbon tetrachloride	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chlorobenzene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chlorodibromomethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chloroform	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dibromoethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichlorobenzene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,3-Dichlorobenzene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,4-Dichlorobenzene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloroethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
cis-1,2-Dichloroethene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
trans-1,2-Dichloroethene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dichloromethane	-	<0.003	<0.003	<0.003	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dichloropropane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
cis-1,3-Dichloropropene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
trans-1,3-Dichloropropene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	-	0.018	0.011	0.067	0.058	0.012	0.055	0.12	0.011	0.046	0.059	0.008	0.011
Hexachlorobenzene	-	<0.002	<0.002	-	<0.002	<0.002	<0.002	-	<0.002	-	-	-	-
Methyl ethyl ketone	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Methyl isobutyl ketone	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Methyl-tert-butylether	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Styrene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,1,2-Tetrachloroethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	-	0.046	0.036	0.026	0.17	0.031	0.15	0.28	0.029	0.12	0.14	0.024	0.026
1,1,1-Trichloroethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2-Trichloroethane	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichloroethene	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Vinyl chloride	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m+p-Xylene	-	0.020	0.013	0.2	0.048	0.015	0.057	0.17	0.014	0.057	0.066	0.010	0.008
o-Xylene	-	0.009	0.006	0.3	0.027	0.005	0.026	0.085	0.007	0.029	0.029	0.004	0.004
Xylenes (total)	-	0.029	0.019	0.6	0.074	0.020	0.083	0.25	0.021	0.086	0.095	0.014	0.013

Notes

All units in ug/g.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicate that parameter exceeds CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (Interim Sediment Quality Guidelines - ISQG).

The reportable detection limits (RDLs) are at the lowest concentration achievable by the laboratory.

Table 7-12 Analytical Results for Pesticides in Sediment
Resolute Bay, Nunavut

APEC ID	CCME ISQG (freshwater)	CCME ISQG (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 3
Station ID			**1-SD-2**	**1-SD-4**	**1-SD-7**	**1-SD-15**	**1-SD-16**	**1-SD-16**	**2-SD-3**	**2-SD-6**	**2-SD-19**	**3-SD-10**
Field label			1-SD-2	1-SD-4	1-SD-7	FR-3	1-SD-16-1	1-SD-16-2	2-SD-3	2-SD-6	2-SD-19	3-SD-10
Duplicate ID						1-SD-15						
Date			16-Aug-09	19-Aug-09	17-Aug-09	18-Aug-09	19-Aug-09	19-Aug-09	18-Aug-09	18-Aug-09	20-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A9300	A9A8632	A9A8632	A9A9300	A9A9300	A9A8632	A9A8632	A9A9979	A9A9300
Depth (m)			0.05 - 0.15	0.1 - 0.3	0 - 0.15	0 - 0.1	0.05 - 0.15	0 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.1 - 0.2
Aldrin	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chlordane	0.0045	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
alpha-Chlordane	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
trans-Chlordane	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
2,4'-DDD	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4,4'-DDD	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDD (total)	0.0035	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
2,4'-DDE	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4,4'-DDE	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDE (total)	0.0014	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
2,4'-DDT	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4,4'-DDT	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDT plus metabolites	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDT (total)	0.0012	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dieldrin	0.0029	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endosulfan	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
alpha-Endosulfan	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
beta-Endosulfan	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endosulfan sulphate	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin	0.0027	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin aldehyde	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin ketone	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
alpha-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
beta-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
delta-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
gamma-HCH	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Heptachlor	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Heptachlor epoxide	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Hexachlorobenzene	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methoxychlor	-	-	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Mirex	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Octachlorostyrene	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toxaphene	0.0001	-	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08

Notes

All units in ug/g.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicate that parameter exceeds CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (Interim Sediment Quality Guidelines - ISQG).

The reportable detection limits (RDLs) are at the lowest concentration achievable by the laboratory.

Table 7-13 Analytical Results for Petroleum Hydrocarbons (PHCs) in Surface Water
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	CCME AW (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1
Station ID			**1-SW-1**	**1-SW-2**	**1-SW-4**	**1-SW-5**	**1-SW-6**	**1-SW-7**	**1-SW-8**	**1-SW-15**	**1-SW-15**	**1-SW-16**	**1-SW-16**
Field label			1-SW-1	1-SW-2	1-SW-4	1-SW-5	1-SW-6	1-SW-7	1-SW-8	1-SW-15	FR-1	1-SW-16-1	1-SW-16-2
Duplicate ID								FR-4		FR-1	1-SW-15		
Date			16-Aug-09	16-Aug-09	19-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	19-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A7367	A9A9300	A9A9300	A9A8511	A9A8511	A9A8511	A9A8511	A9A8511	A9A9300	A9A9300
Benzene	370	110	<0.2	-	-	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	90	25	<0.2	-	-	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	2	215	<0.2	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
m+p-Xylene	-	-	<0.4	-	-	<0.4	<0.1	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4
o-Xylene	-	-	<0.2	-	-	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Xylenes (total)	-	-	<0.4	-	-	<0.4	<0.1	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4
F1 (C6-C10)	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F1 (C6-C10) minus BTEX	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F2 (C10-C16)	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F4 (C34-C50)	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Reached Baseline at C5(	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

APEC ID	CCME AW (Freshwater)	CCME AW (Marine)	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3	APEC 3
Station ID			**2-SW-3**	**2-SW-3**	**2-SW-4**	**2-SW-5**	**2-SW-6**	**2-SW-7**	**2-SW-9**	**2-SW-11**	**2-SW-17**	**2-SW-19**	**3-SW-7**	**3-SW-8**	**3-SW-10**
Field label			FR-2	2-SW-3	2-SW-4	2-SW-5	2-SW-6	2-SW-7	2-SW-9	2-SW-11	2-SW-17	2-SW-19-1	3-SW-7	3-SW-8	3-SW-10-1
Duplicate ID			2-SW-3	FR-2											
Date			18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09	19-Aug-09
Lab report ID			A9A8632	A9A8632	A9A8632	A9A8511	A9A8511	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367	A9A9300
Benzene	370	110	<0.1	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	<0.2
Ethylbenzene	90	25	<0.1	-	<0.2	<0.2	<0.2	<0.2	0.3	-	-	<0.2	-	-	<0.2
Toluene	2	215	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	<0.2
m+p-Xylene	-	-	<0.1	-	0.5	<0.4	<0.4	<0.4	1.1	-	-	<0.4	-	-	<0.4
o-Xylene	-	-	<0.1	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	<0.2
Xylenes (total)	-	-	<0.1	-	0.5	<0.4	<0.4	<0.4	1.1	-	-	<0.4	-	-	<0.4
F1 (C6-C10)	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F1 (C6-C10) minus BTEX	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F2 (C10-C16)	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F4 (C34-C50)	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Reached Baseline at C5(	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes

All units in ug/L.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

* The reportable detection levels are the lowest achievable by the laboratory.

Table 7-14 Analytical Results for Metals in Surface Wate
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	Relative Percent Difference (%)	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3
Station ID		**1-SW-1**	**1-SW-2**	**1-SW-4**	**1-SW-5**	**1-SW-6**	**1-SW-7**	**1-SW-8**	**1-SW-15**	**1-SW-15**		**1-SW-16**	**2-SW-3**	**2-SW-4**	**2-SW-5**	**2-SW-6**	**2-SW-7**	**2-SW-9**	**2-SW-11**	**2-SW-17**	**2-SW-19**	**3-SW-7**	**3-SW-8**
Field label		1-SW-1	1-SW-2	1-SW-4	1-SW-5	1-SW-6	1-SW-7	1-SW-8	1-SW-15	FR-1		1-SW-16-1	2-SW-3	2-SW-4	2-SW-5	2-SW-6	2-SW-7	2-SW-9	2-SW-11	2-SW-17	2-SW-19-1	3-SW-7	3-SW-8
Duplicate ID							FR-4		FR-1	1-SW-15			FR-2										
Date		16-Aug-09	16-Aug-09	19-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09		19-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09
Lab report ID		A9A7367	A9A7367	A9A9300	A9A9300	A9A8511	A9A8511	A9A8511	A9A8511	A9A8511		A9A9300	A9A8632	A9A8632	A9A8511	A9A8511	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367
Hardness (mg/L)	-	254	230	274[d]	274[d]	331	378	213	240	240		274[d]	253	177	173	224	301	290	227	114	216[d]	186	200
Aluminum	5	<5	<5	6	8	7	<5	<5	<5	<5	-	<5	<5	<5	<5	12	<5	<5	<5	9	<5	<5	<5
Antimony	-	<0.5	<0.5	0.8	<0.5	1.2	1.1	0.7	<0.5	<0.5	-	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	0.6	<0.5	<0.5	<0.5	<0.5
Arsenic	5	<1	<1	2	1	3	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	-	36	55	150	40	250	150	86	130	130	0	110	59	40	36	53	59	30	26	<10	27	30	32
Cadmium	0.017	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium	-	72000	64000			93000	110000	54000	58000	58000			70000	43000	43000	65000	76000	85000	68000	26000		58000	62000
Chromium	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chromium (VI)	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	-	<0.5	<0.5	2.2	0.6	2.7	0.6	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	2 - 4[a]	2	2	5	2	2	4	3	<1	<1	-	2	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
Iron	300	<100	<100	250	370	590	<100	<100	<100	<100	-	<100	<100	<100	<100	180	<100	<100	<100	<100	<100	<100	<100
Lead	2 - 7[b]	<0.5	<0.5	0.9	1.4	1.1	1.2	1.0	<0.5	<0.5	-	<0.5	0.7	<0.5	0.6	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Magnesium		18000	17000			24000	25000	19000	23000	23000			19000	17000	16000	15000	27000	19000	14000	12000		10000	11000
Mercury	0.026	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	73	<1	<1	1	<1	2	2	1	1	1	0	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Nickel	65 - 150[c]	2	2	9	4	12	4	1	<1	<1	-	2	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	1	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Silver	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	0.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Uranium	-	0.2	0.3	0.2	0.1	0.2	0.4	0.3	0.4	0.4	0	0.7	0.3	0.5	0.3	0.4	0.7	0.7	0.3	0.1	0.3	0.4	0.4
Vanadium	-	<1	<1	<1	2	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc	30	7	8	16	<5	13	110	20	<5	<5	-	<5	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	6
Zirconium	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes

All units in ug/L.

" - " indicates that there is no applicable regulation or analyses were not performed.

Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

CCME guidelines for Copper, Lead and Nickel were based on the calculated average of hardness (120-180 mg/L)

[a]Copper guideline = 2 ug/L at a water hardness of 0-120 mg/L (soft to medium) as $CaCO_3$

= 3 ug/L at a water hardness of 120 - 180 mg/L (hard) as $CaCO_3$

= 4 ug/L at a water hardness of >180 mg/L (very hard) as $CaCO_3$

[b]Lead guideline = 2 ug/L at a water hardness of 60-120 mg/L (medium) as CaCO3

= 4 ug/L at a water hardness of 120-180 mg/L (hard) as $CaCO_3$

= 7 ug/L at a water hardness of >180 mg/L (very hard) as $CaCO_3$

[c]Nickel guideline = 65 ug/L at a water hardness of 60-120 mg/L (medium) as $CaCO_3$

= 110 ug/L at a water hardness of 120-180 mg/L (hard) as $CaCO_3$

= 150 ug/L at a water hardness of >180 mg/L (very hard) as $CaCO_3$

[d]Average calculated hardness: APEC 1 = 274 mg/L
APEC 2 = 216 mg/L

Table 7-15 Analytical Results for Polycyclic Aromatic Hydrocarbons (PAHs) in Surface Water
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	CCME AW (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3	APEC 3
Station ID			**1-SW-2**	**1-SW-4**	**1-SW-6**	**1-SW-7**	**1-SW-15**	**1-SW-16**	**1-SW-16**	**2-SW-3**	**2-SW-3**	**2-SW-6**	**2-SW-11**	**2-SW-17**	**2-SW-19**	**3-SW-7**	**3-SW-8**	**3-SW-10**
Field label			1-SW-2	1-SW-4	1-SW-6	1-SW-7	1-SW-15	1-SW-16-1	1-SW-16-2	FR-2	2-SW-3	2-SW-6	2-SW-11	2-SW-17	2-SW-19-1	3-SW-7	3-SW-8	3-SW-10-1
Duplicate ID						FR-4	FR-1			2-SW-3	FR-2							
Date			16-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	19-Aug-09	19-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	17-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09	19-Aug-09
Lab report ID			A9A7367	A9A9300	A9A8511	A9A8511	A9A8511	A9A9300	A9A9300	A9A8632	A9A8632	A9A8511	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367	A9A9300
Acenaphthene	5.8	5.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.012	0.012	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	0.018	0.018	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	0.015	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b+j)fluoranthene	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-Methylnaphthalene	-	-	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	1.1	1.1	<0.05	0.06	<0.05	<0.05	<0.05	0.05	<0.05	0.06	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	0.4	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	0.025	0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 7-16 Analytical Results for Polychlorinated Biphenyls (PCBs) in Surface Water
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3
Station ID		**1-SW-2**	**1-SW-4**	**1-SW-6**	**1-SW-7**	**2-SW-3**	**2-SW-3**	**2-SW-6**	**2-SW-11**	**3-SW-7**	**3-SW-8**
Field label		1-SW-2	1-SW-4	1-SW-6	1-SW-7	FR-2	2-SW-3	2-SW-6	2-SW-11	3-SW-7	3-SW-8
Duplicate ID					FR-4	2-SW-3	FR-2				
Date		16-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	17-Aug-09	16-Aug-09	16-Aug-09
Lab report ID		A9A7367	A9A9300	A9A8511	A9A8511	A9A8632	A9A8632	A9A8511	A9A8632	A9A7367	A9A7367
Aroclor 1016	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1221	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.05	<0.05
Aroclor 1232	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1242	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1262	-	-	-	-	-	-	-	<0.05	-	<0.05	<0.05
Aroclor 1268	-	-	-	-	-	-	-	<0.05	-	<0.05	<0.05
Polychlorinated biphenyls	0.001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.05	<0.05

Notes

All units in ug/L.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 7-17 Analytical Results for Volatile Organic Compounds (VOCs) in Surface Water
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	CCME AW (Marine)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	Relative Percent Difference (%)	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 2	APEC 3	APEC 3
Station ID			1-SW-1	1-SW-2	1-SW-4	1-SW-5	1-SW-6	1-SW-7	1-SW-8	1-SW-15	1-SW-15	1-SW-16	1-SW-16	2-SW-3	2-SW-3		2-SW-4	2-SW-5	2-SW-6	2-SW-7	2-SW-9	2-SW-11	2-SW-17	2-SW-19	3-SW-7	3-SW-8
Field label			1-SW-1	1-SW-2	1-SW-4	1-SW-5	1-SW-6	1-SW-7	1-SW-8	1-SW-15	FR-1	1-SW-16-1	1-SW-16-2	FR-2	2-SW-3		2-SW-4	2-SW-5	2-SW-6	2-SW-7	2-SW-9	2-SW-11	2-SW-17	2-SW-19-1	3-SW-7	3-SW-8
Duplicate ID								FR-4		FR-1	1-SW-15			2-SW-3	FR-2											
Date			16-Aug-09	16-Aug-09	19-Aug-09	19-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	17-Aug-09	19-Aug-09	19-Aug-09	18-Aug-09	18-Aug-09		18-Aug-09	18-Aug-09	18-Aug-09	18-Aug-09	17-Aug-09	17-Aug-09	18-Aug-09	20-Aug-09	16-Aug-09	16-Aug-09
Lab report ID			A9A7367	A9A7367	A9A9300	A9A9300	A9A8511	A9A8511	A9A8511	A9A8511	A9A8511	A9A9300	A9A9300	A9A8632	A9A8632		A9A8632	A9A8511	A9A8511	A9A8632	A9A8632	A9A8632	A9A8632	A9A9979	A9A7367	A9A7367
Acetone	-	-	-	<10	<10	-	<10	<10	-	-	-	-	-	<10	<10		-	-	-	-	-	<10	<10	-	<10	<10
Benzene	370	110	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
Bromodichloromethane	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Bromoform	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
Bromomethane	-	-	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-	-	-	<0.5	<0.5		-	-	-	-	-	<0.5	<0.5	-	<0.5	<0.5
Carbon tetrachloride	13.3	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Chlorobenzene	1.3	25	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Chlorodibromomethane	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
Chloroform	1.8	1.8	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Dibromoethane	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
1,2-Dichlorobenzene	0.7	42	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
1,3-Dichlorobenzene	150	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
1,4-Dichlorobenzene	26	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
1,1-Dichloroethane	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
1,2-Dichloroethane	100	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
1,1-Dichloroethene	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
cis-1,2-Dichloroethene	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
trans-1,2-Dichloroethene	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Dichloromethane	98.1	-	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-	-	-	<0.5	<0.5		-	-	-	-	-	<0.5	<0.5	-	<0.5	<0.5
1,2-Dichloropropane	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
cis-1,3-Dichloropropene	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
trans-1,3-Dichloropropene	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
Ethylbenzene	90	25	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1		<0.2	<0.2	<0.2	<0.2	0.3	<0.1	<0.1	<0.2	<0.1	<0.1
Hexachlorobenzene	-	-	-	<0.005	<0.005	-	<0.005	<0.005	-	-	-	-	-	<0.005	<0.005		-	-	-	-	-	<0.005	-	-	-	-
Methyl ethyl ketone	-	-	-	<5	<5	-	<5	<5	-	-	-	-	-	<5	<5		-	-	-	-	-	<5	<5	-	<5	<5
Methyl isobutyl ketone	-	-	-	<5	<5	-	<5	<5	-	-	-	-	-	<5	<5		-	-	-	-	-	<5	<5	-	<5	<5
Methyl-tert-butylether	10000	5000	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	7.3	7.0	1.0	-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
Styrene	72	72	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
1,1,1,2-Tetrachloroethane	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
1,1,2,2-Tetrachloroethane	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
Tetrachloroethene	111	111	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Toluene	2	215	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,1-Trichloroethane	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
1,1,2-Trichloroethane	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
Trichloroethene	21	21	-	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1		-	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1
Vinyl chloride	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2		-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2
m+p-Xylene	-	-	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.1	<0.1		0.5	<0.4	<0.4	<0.4	1.1	<0.1	<0.1	<0.4	<0.1	<0.1
o-Xylene	-	-	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
Xylenes (total)	-	-	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.1	<0.1		0.5	<0.4	<0.4	<0.4	1.1	<0.1	<0.1	<0.4	<0.1	<0.1

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 7-18 Analytical Results for Pesticides in Surface Water
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2
Station ID		**1-SW-2**	**1-SW-4**	**1-SW-6**	**1-SW-7**	**2-SW-3**	**2-SW-3**	**2-SW-11**
Field label		1-SW-2	1-SW-4	1-SW-6	1-SW-7	FR-2	2-SW-3	2-SW-11
Duplicate ID					FR-4	2-SW-3	FR-2	
Date		16/08/09	19/08/09	17/08/09	17/08/09	18/Aug/09	18/Aug/09	17/08/09
Lab report ID		A9A7367	A9A9300	A9A8511	A9A8511	A9A8632	A9A8632	A9A8632
Aldrin	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
alpha-Chlordane	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-Chlordane	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDD	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDD	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDD (total)	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDE	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDE (total)	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDT	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDT plus metabolites	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDT (total)	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
alpha-Endosulfan	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
beta-Endosulfan	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan sulphate	-	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Endrin	0.0023	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin aldehyde	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin ketone	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
alpha-HCH	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
beta-HCH	-	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005
delta-HCH	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-HCH	0.01	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Heptachlor	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mirex	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Octachlorostyrene	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toxaphene	0.008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 7-19 Analytical Results for Glycols in Surface Water
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 3	APEC 3
Station ID		**1-SW-7**	**1-SW-7**	**3-SW-7**	**3-SW-8**
Field label		1-SW-7	FR-4	3-SW-7	3-SW-8
Duplicate ID		FR-4	1-SW-7		
Date		17/08/09	17/08/09	16/08/09	16/08/09
Lab report ID		A9A8511	A9A9979	A9A7367	A9A7367
Diethylene glycol	-	<5000	<5000	<5000	<5000
Ethylene glycol	192000	<5000	<5000	<5000	<5000
Propylene glycol	500000	<5000	<5000	<5000	<5000
Total Glycol	-	<5000	<5000	<5000	<5000

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 7-20 Analytical Results for Petroleum Hydrocarbons in Groundwater
Resolute Bay, Nunavut

APEC ID	Alberta Tier 1 Commercial*	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2
Station ID			**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-MW-8**
Field label			1-MW-13	1-MW-14	2-MW-1	2-MW-2	2-MW-8
Duplicate ID							
Date			22/08/09	22/08/09	22/08/09	22/08/09	22/08/09
Lab report ID			A9A9979	A9A9979	A9A9979	A9A9979	A9A9979
Benzene	-	370	-	-	-	-	-
Ethylbenzene	-	90	-	-	-	-	-
Toluene	-	2	-	-	-	-	-
m+p-Xylene	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-
Xylenes (total)	-	-	-	-	-	-	-
F1 (C6-C10)	2200	-	<100	<100	<100	<100	190
F1 (C6-C10) minus BTEX	-	-	<100	<100	<100	<100	<100
F2 (C10-C16)	1100	-	<100	<100	<100	<100	420
F3 (C16-C34)	-	-	<100	<100	<100	<100	<100
F4 (C34-C50)	-	-	<100	<100	<100	<100	<100
Reached Baseline at C50	-	-	Yes	Yes	Yes	Yes	Yes

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
* Alberta Environment (AENV) *Tier 1 Groundwater Remediation Guidelines for Commercial land use* were used for F1 and F2 petroleum hydrocarbons
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.
All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on the depth to active layer.

Table 7-21 Analytical Results for Metals in Groundwater
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2
Station ID		**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-MW-8**
Field label		1-MW-13	1-MW-14	2-MW-1	2-MW-2	2-MW-8
Duplicate ID						
Date		22/08/09	22/08/09	22/08/09	22/08/09	22/08/09
Lab report ID		A9A9979	A9A9979	A9A9979	A9A9979	A9A9979
Hardness (mg/L)[d]	-	274	274	216	216	216
Aluminum	5	<5	<5	<5	<5	<5
Antimony	-	<0.5	0.6	<0.5	<0.5	1.0
Arsenic	5	2	2	<1	<1	2
Beryllium	-	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	-	31	55	16	31	40
Cadmium	0.017	<0.1	<0.1	0.1	<0.1	0.1
Chromium	-	<5	<5	<5	<5	<5
Chromium (VI)	1	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	-	<0.5	1.7	0.6	<0.5	1.8
Copper	4[a]	2	3	3	1	2
Iron	300	1100	1100	<100	240	160
Lead	7[b]	1.4	1.6	<0.5	0.9	1.0
Mercury	0.026	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	73	<1	2	<1	1	<1
Nickel	150[c]	1	7	<1	<1	3
Selenium	1	<2	<2	<2	<2	<2
Silver	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	0.8	<0.05	<0.05	<0.05	<0.05	<0.05
Uranium	-	0.2	0.7	0.4	0.9	0.7
Vanadium	-	2	2	<1	<1	<1
Zinc	30	11	10	6	<5	8
Zirconium	-	<1	1	<1	<1	<1

Notes

All units in ug/L.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.

All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on the depth to active layer.

[a]Copper guideline = 4 ug/L at a water hardness of >180 mg/L (very hard) as $CaCO_3$

[b]Lead guideline = 7 ug/L at a water hardness of >180 mg/L (very hard) as $CaCO_3$

[c]Nickel guideline = 150 ug/L at a water hardness of >180 mg/L (very hard) as $CaCO_3$

[d]Average calculated hardness: APEC 1 = 274 mg/L
APEC 2 = 216 mg/L

Table 7-22 Analytical Results for Polyaromatic Hydrocarbons (PAHs) in Groundwater
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2
Station ID		**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-MW-8**
Field label		1-MW-13	1-MW-14	2-MW-1	2-MW-2	2-MW-8
Duplicate ID						
Date/Time		22/08/09	22/08/09	22/08/09	22/08/09	22/08/09
Lab report ID		A9A9979	A9A9979	A9A9979	A9A9979	A9A9979
Acenaphthene	5.8	<0.05	<0.05	<0.05	<0.05	0.33
Acenaphthylene	-	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.012	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	0.018	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	0.015	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b+j)fluoranthene	-	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	-	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	-	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	-	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	-	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.04	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	3	<0.05	<0.05	<0.05	<0.05	0.97
Indeno(1,2,3-cd)pyrene	-	<0.1	<0.1	<0.1	<0.1	<0.1
1-Methylnaphthalene	-	0.85	0.42	0.46	0.06	44.00
2-Methylnaphthalene	-	0.89	0.25	1.0	0.07	66.00
Naphthalene	1.1	5.2	0.25	0.15	0.11	39.00
Phenanthrene	0.4	<0.05	<0.05	<0.05	<0.05	0.18
Pyrene	0.025	<0.05	<0.05	<0.05	<0.05	<0.05

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.
All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on the depth to active layer.

Table 7-23 Analytical Results for Polychlorinated Biphenyls (PCBs) in Groundwater
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 2	APEC 2
Station ID		1-MW-13	1-MW-14	2-MW-2	2-MW-8
Field label		1-MW-13	1-MW-14	2-MW-2	2-MW-8
Duplicate ID					
Date		22/08/09	22/08/09	22/08/09	22/08/09
Lab report ID		A9A9979	A9A9979	A9A9979	A9A9979
Aroclor 1016	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1221	-	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1242	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	-	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	-	<0.05	<0.05	<0.05	<0.05
Polychlorinated biphenyls	0.001	<0.1	<0.1	<0.1	<0.1

Notes

All units in ug/L.

"-" indicates that there is no applicable regulation or analyses were not performed.

Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.

All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on the depth to active layer.

Table 7-24 Analytical Results for Volatile Organic Compounds (VOCs) in Groundwater
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 2	APEC 2	APEC 2
Station ID		**1-MW-13**	**1-MW-14**	**2-MW-1**	**2-MW-2**	**2-MW-8**
Field label		1-MW-13	1-MW-14	2-MW-1	2-MW-2	2-MW-8
Duplicate ID						
Date		22/08/09	22/08/09	22/08/09	22/08/09	22/08/09
Lab report ID		A9A9979	A9A9979	A9A9979	A9A9979	A9A9979
Acetone	-	<10	13	<10	<10	<10
Benzene	370	<0.1	0.1	<0.1	<0.1	1.8
Bromodichloromethane	-	<0.1	<0.1	<0.1	<0.1	<0.1
Bromoform	-	<0.2	<0.2	<0.2	<0.2	<0.2
Bromomethane	-	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	13.3	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorobenzene	1.3	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorodibromomethane	-	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroform	1.8	<0.1	<0.1	<0.1	<0.1	<0.1
Dibromoethane	-	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	0.7	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichlorobenzene	150	<0.2	<0.2	<0.2	<0.2	<0.2
1,4-Dichlorobenzene	26	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	-	<0.1	<0.1	<0.1	<0.1	<0.1
1,2-Dichloroethane	100	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	-	<0.1	<0.1	<0.1	<0.1	<0.1
cis-1,2-Dichloroethene	-	<0.1	<0.1	<0.1	<0.1	<0.1
trans-1,2-Dichloroethene	-	<0.1	<0.1	<0.1	<0.1	<0.1
Dichloromethane	98.1	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	-	<0.1	<0.1	<0.1	<0.1	<0.1
cis-1,3-Dichloropropene	-	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,3-Dichloropropene	-	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	90	<0.1	<0.1	<0.1	<0.1	3.7
Hexachlorobenzene	-	<0.005	<0.005	-	<0.005	<0.005
Methyl ethyl ketone	-	<5	<5	<5	<5	<5
Methyl isobutyl ketone	-	<5	<5	<5	<5	<5
Methyl-tert-butylether	10000	<0.2	<0.2	<0.2	<0.2	<0.2
Styrene	72	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,1,2-Tetrachloroethane	-	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,2,2-Tetrachloroethane	-	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrachloroethene	111	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	2	<0.2	0.2	<0.2	<0.2	17.0
1,1,1-Trichloroethane	-	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,2-Trichloroethane	-	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene	21	<0.1	<0.1	<0.1	<0.1	<0.1
Vinyl chloride	-	<0.2	<0.2	<0.2	<0.2	<0.2
m+p-Xylene	-	0.7	<0.1	<0.1	<0.1	37.0
o-Xylene	-	0.8	0.1	<0.1	<0.1	53.0
Xylenes (total)	-	1.5	0.1	<0.1	<0.1	90.0

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.
All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on depth to active layer.

Table 7-25 Analytical Results for Pesticides in Groundwater
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 1	APEC 1	APEC 2	APEC 2
Station ID		**1-MW-13**	**1-MW-14**	**2-MW-2**	**2-MW-8**
Field label		1-MW-13	1-MW-14	2-MW-2	2-MW-8
Duplicate ID					
Date		22/08/09	22/08/09	22/08/09	22/08/09
Lab report ID		A9A9979	A9A9979	A9A9979	A9A9979
Aldrin	-	<0.005	<0.005	<0.005	<0.005
Chlordane	0.006	<0.005	<0.005	<0.005	<0.005
alpha-Chlordane	-	<0.005	<0.005	<0.005	<0.005
trans-Chlordane	-	<0.005	<0.005	<0.005	<0.005
2,4'-DDD	-	<0.005	<0.005	<0.005	<0.005
4,4'-DDD	-	<0.005	<0.005	<0.005	<0.005
DDD (total)	-	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	-	<0.005	<0.005	<0.005	<0.005
4,4'-DDE	-	<0.005	<0.005	<0.005	<0.005
DDE (total)	-	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	-	<0.005	<0.005	<0.005	<0.005
4,4'-DDT	0.001	<0.005	<0.005	<0.005	<0.005
DDT plus metabolites	-	<0.005	<0.005	<0.005	<0.005
DDT (total)	-	<0.005	<0.005	<0.005	<0.005
Dieldrin	-	<0.005	<0.005	<0.005	<0.005
Endosulfan	0.02	<0.005	<0.005	<0.005	<0.005
alpha-Endosulfan	-	<0.005	<0.005	<0.005	<0.005
beta-Endosulfan	-	<0.005	<0.005	<0.005	<0.005
Endosulfan sulphate	-	<0.005	<0.005	<0.005	<0.005
Endrin	0.0023	<0.005	<0.005	<0.005	<0.005
Endrin aldehyde	-	<0.005	<0.005	<0.005	<0.005
Endrin ketone	-	<0.005	<0.005	<0.005	<0.005
alpha-HCH	-	<0.005	<0.005	<0.005	<0.005
beta-HCH	-	<0.005	<0.005	<0.005	<0.005
delta-HCH	-	<0.005	<0.005	<0.005	<0.005
gamma-HCH	0.01	<0.003	<0.003	<0.003	<0.003
Heptachlor	-	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	0.01	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	-	<0.005	<0.005	<0.005	<0.005
Methoxychlor	-	<0.01	<0.01	<0.01	<0.01
Mirex	-	<0.005	<0.005	<0.005	<0.005
Octachlorostyrene	-	<0.005	<0.005	<0.005	<0.005
Toxaphene	0.008	<0.2	<0.2	<0.2	<0.2

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.
All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on the depth to active layer.

Table 7-26 Analytical Results for Glycols in Groundwater
Resolute Bay, Nunavut

APEC ID	CCME AW (Freshwater)	APEC 2
Station ID		**2-MW-2**
Field label		2-MW-2
Duplicate ID		
Date		22/08/09
Lab report ID		A9A9979
Diethylene glycol	-	<5000
Ethylene glycol	192000	<5000
Propylene glycol	500000	<5000
Total Glycol	-	<5000

Notes
All units in ug/L.
"-" indicates that there is no applicable regulation or analyses were not performed.
Red cells indicates parameter exceeds CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life.
All monitoring wells were screened from approximately below grade to 0.5-1.5 metres, depending on the depth to active layer.

Table 7-27 Analytical Results for Metals in Vegetation
Resolute Bay, Nunavut

APEC ID	MOE Vegetation Guidelines (ppm)	APEC 1	APEC 1	APEC 1	APEC 1	Relative Percent Difference (%)	APEC 1	APEC 1	APEC 1	APEC 2
Station ID		**1-VG-1**	**1-VG-2**	**1-VG-3**	**1-VG-3**		**1-VG-4**	**1-VG-8**	**1-VG-15**	**2-VG-16**
Field label		1-VG-1	1-VG-2	1-VG-3	FR-5		1-VG-4	1-VG-8	1-VG-15	2-VG-16
Duplicate ID				FR-5	1-VG-3					
Date		13/Aug/09	13/Aug/09	13/Aug/09	13/Aug/09		14/Aug/09	14/Aug/09	17/Aug/09	15/Aug/09
Lab report ID		A9A8632	A9A8632	A9A8632	A9A8632		A9A8632	A9A8632	A9A8632	A9A8632
Aluminum	500	11.1	5.4	43.1	3.4	170.75	2.4	31.2	88.2	15.1
Antimony	0.3	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Arsenic	0.5	<0.1	<0.1	0.1	<0.1	NC	<0.1	<0.1	<0.1	<0.1
Barium		8.9	11.5	7.8	14.5	60.09	1.3	32.2	1.9	0.9
Beryllium		<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Bismuth		0.06	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Boron	75	2.5	3.1	5.7	4.6	21.36	3.0	6.5	13.9	3.8
Cadmium	1	<0.01	<0.01	0.03	<0.01	NC	<0.01	0.03	0.02	<0.01
Calcium	3%	1780	1790	3360	2010	50.28	813	5650	5290	3390
Chromium	8	<0.3	<0.3	0.9	<0.3	NC	<0.3	0.4	<0.3	<0.3
Cobalt	2	0.013	0.009	0.116	0.008	4.26	0.042	0.030	0.041	0.016
Copper	20	1.3	1.1	2.3	2.4	0.15	1.6	3.3	<0.5	1.3
Iron	500	26	21	105	31	108.82	11	70	119	57
Lead	30	0.06	0.04	0.57	0.04	43.44	0.05	0.50	0.18	0.07
Magnesium	0.70%	458	531	1560	1190	26.91	425	2380	1800	1610
Manganese		23.7	12.3	33.2	23.1	35.88	42.4	19.1	3.9	44.4
Molybdenum	1.5	0.08	0.11	0.15	0.40	90.91	0.21	0.65	0.05	0.91
Nickel	5	0.12	0.08	0.60	0.34	55.32	0.14	0.31	0.15	0.08
Phosphorus		644	764	1290	1750	30.26	622	628	<50	716
Potassium		3090	4630	4620	8280	56.74	6170	6700	228	5720
Selenium	0.5	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Silver		<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Sodium*	50	105	85	626	137	128.18	61	920	158	235
Strontium		4.0	3.6	5.3	4.6	14.14	1.5	12.8	5.4	2.2
Thallium		<0.003	<0.003	<0.003	<0.003	-	<0.003	<0.003	<0.003	<0.003
Tin		<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3
Titanium		<0.5	<0.5	1.1	<0.5	NC	<0.5	1.1	2.4	0.6
Uranium		<0.005	<0.005	0.016	<0.005	NC	<0.005	0.006	0.079	<0.005
Vanadium	5	<0.05	<0.05	0.11	<0.05	NC	<0.05	0.08	0.23	0.06
Zinc	250	10	18	16	58	113.51	43	124	<2	30

Notes
All units in ug/g.
"-" indicates that there is no applicable regulation.
* Sodium levels are elevated as study area is subjected to maritime influence
Red cells indicate parameter exceeds MOE Vegetation Guidelines (ppm)
"NC" indicates that no relative percent difference was calculated.

Appendix K

NCSCS Sheets for Each APEC

CCME National Classification System for Contaminated Sites (2008)
Pre-Screening Checklist

Question	Response (yes / no)	Comment
1. Are **Radioactive material**, **Bacterial contamination** or **Biological hazards** likely to be present at the site?	No	If yes, do not proceed through the NCSCS. Contact applicable regulatory agency immediately.
2. Are there **no contamination exceedances** (known or suspected)? Determination of exceedances may be based on: 1) CCME environmental quality guidelines; 2) equivalent provincial guidelines/standards if no CCME guideline exists for a specific chemical in a relevant medium; or 3) toxicity benchmarks derived from the literature for chemicals not covered by CCME or provincial guidelines/standards.	No	If yes (i.e., there are no exceedances), do not proceed through the NCSCS.
3. Have **partial/incompleted or no environmental site investigations** been conducted for the Site?	No	If yes, do not proceed through the NCSCS.
4. Is there direct and signficant evidence of **impacts to humans** at the site, or off-site due to migration of contaminants from the site?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
5. Is there direct and significant evidence of **impacts to ecological receptors** at the site, or off-site due to migration of contaminants from the site?	No	Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are considered to be severe, the site may be categorized as Class 1, regardless of the numerical total NCSCS score. For the purpose of application of the NCSCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction.
6. Are there indicators of significant **adverse effects in the exposure zone** (i.e., the zone in which receptors may come into contact with contaminants)? Some examples are as follows: -Hydrocarbon sheen or NAPL in the exposure zone -Severely stressed biota or devoid of biota; -Presence of material at ground surface or sediment with suspected high concentration of contaminants such as ore tailings, sandblasting grit, slag, and coal tar.	Yes	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
7. Do measured concentrations of volatiles or unexploded ordnances represent an **explosion hazard**?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, and do not continue until the safety risks have been addressed. Consult your jurisdiction's occupational health and safety guidance or legislation on exposive hazards and measurement of lower explosive limits.

If none of the above applies, proceed with the NCSCS scoring.

CCME National Classification System for Contaminated Sites (2008)
Summary of Site Conditions

Subject Site:	**Resolute Bay Airport - Solid Waste Landfill Area**	
Civic Address: *(or other description of location)*	NA	
Site Common Name: *(if applicable)*	Solid Waste Landfill Area	
Site Owner or Custodian: *(Organization and Contact Person)*	Transport Canada	
Legal description *or* metes and bounds:	NA	
Approximate Site area:	40,000 m2 or 4 hectares	
PID(s): *(or Parcel Identification Numbers [PIN] if untitled Crown land)*	NA	
Centre of site: *(provide latitude/longitude or UTM coordinates)*	Latitude: Longitude:	74 degress 44 minutes 24.6516 seconds 95 degrees 0 minutes 28.728 seconds
	UTM Coordinate:	Northing 441018.25116 Easting 8295615.38237
Site Land Use:	Current:	Airport Landfill (not in active use)
	Proposed:	None
Site Plan	**To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.**	
Provide a brief description of the Site:	The solid waste landfill site is on Cornwallis Island, approximately 2 km north of the Resolute Bay airport terminal building along a service road within the airport lands. The solid waste landfill site is approximately 8km northwest of the Hamlet of Resolute Bay.The site borders the sewage lagoons used by the airport management. The site currently has no buildings or structures. The top of the landfill is partially capped. There is a boggy ponding areas immediately downgradient of the landfill area. Please refer to the attached site plan for location.	
Affected media and Contaminants of Potential Concern (COPC):	Affected media consists of soil, surface water, shallow groundwater, sediment and vegetation. Contaminants of concern are BTEX, PAHs, metals and PHCs. Most of the contaminant impacts are in the landfill or just beyond the toe of the landfill. Visual impacts are across the site.	

Please fill in the "letter" that best describes the level of information available for the site being assessed.

Site Letter Grade **C**

If letter grade is F, do not continue, you must have a minimum of a Phase I Environmental Site Assessment or equivalent.

Scoring Completed By:	**Michael Shum/Jordi Helsen**
Date Scoring Completed:	**21-Jan-10**

CCME National Classification System (2008)

(I) Contaminant Characteristics

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
1. Residency Media (replaces physical state)				
Which of the following residency media are known (or strongly suspected) to have one or more exceedances of the applicable CCME guidelines? **yes** = has an exceedance or strongly suspected to have an exceedance **no** = does not have an exceedance or strongly suspected not to have an exceedance		Exceedances of CCME guidelines (or other applicable limits, in the absence of CCME guidelines) are documented in Franz (2010) Phase II/III Environmental Site Assessment (field report), and Jacques Whitford (JWEL, 2006) Environmental Site Investigation. ---------- Franz, 2010 Soil exceedances: Benzene at 1-BH-13 (0.05-0.66m), 1-BH-14 (0.1 - 0.62m) : Copper at 1-TP-9 (0.5-0.95m), 1-TP-11 (0-0.15m). Groundwater exceedances: Iron at 1-MW-13 and 1-MW-14 : Naphthalene at 1-MW-13. Surface water exceedances : Al at 1-SW-4/5/6 : Cd at 1-SW-7 : Cu at 1-SW-4/7 : Fe at 1-SW-5/6 : Zn at 1-SW-7. Sediment exceedances : 1-SD-6 (acenaphthene, fluorene, 2-methylnaphthalene, naphthalene). -- ---------- JWEL, 2006. Soil exceedances: F2 and F3 above CWS-CL at SWF-TP2-SA1 (0-0.25m) Meltwater exceedances: F2 at SWF-TP2, and Cu at SWF-TP6. Surface water exceedance: Cd at SWF-SW2.	The overall score is calculated by adding the individual scores from each residency media (having one or more exceedance of the most conservative media specific and land-use appropriate CCME guideline). Summary tables of the Canadian Environmental Quality Guidelines for soil, water (aquatic life, non-potable groundwater environments, and agricultural water uses) and sediment are available on the CCME website at http://www.ccme.ca/publications/ceqg_rcqe.html?category_id=124 . For potable groundwater environments, guidelines for Canadian Drinking Water Quality (for comparison with groundwater monitoring data) are available on the Health Canada website at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html.	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
Yes No Do Not Know				
B. Groundwater	Yes			
Yes No Do Not Know				
C. Surface water	Yes			
Yes No Do Not Know				
D. Sediment	Yes			
Yes No Do Not Know				
"Known" -score	8			
"Potential" - score	---			
2. Chemical Hazard				
What is the relative degree of chemical hazard of the contaminant in the list of hazard rankings proposed by the Federal Contaminated Sites Action Plan (FCSAP)?	High	Based on exceedances of bezene in soil at 2 sampling locations and cadmium in surface water at 2 sampling location -see above note (Franz 2010 and JWEL 2006).	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. *See Attached Reference Material for Contaminant Hazard Rankings.*	Hazard as defined in the revised NCS pertains to the physical properties of a chemical which can cause harm. Properties can include toxic potency, propensity to biomagnify, persistence in the environment, etc. Although there is some overlap between hazard and contaminant exceedance factor below, it will not be possible to derive contaminant exceedance factors for many substances which have a designated chemical hazard designation, but don't have a CCME guideline. The purpose of this category is to avoid missing a measure of toxic potential.
High Medium Low Do Not Know				
"Known" -score	8			
"Potential" - score	---			
3. Contaminant Exceedence Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")?	dium (10x to 10	Based on CCME ISQG exceedance of 2-methylnaphthalene in sediment (2-methylnaphthalene at 1-SD-6 = 0.39 ug/g; CCME ISQG = 0.0202 ug/g).	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the *most conservative media-specific and land-use appropriate CCME* environmental quality guidelines. **Ranking should be based on contaminant with greatest exceedance of CCME guidelines.** Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines Mobile NAPL = Contaminant is a non-aqueous phase liquid (i.e., due to its low solubility, it does not dissolve in water, but remains as a separate liquid) and is present at a sufficiently high saturation (i.e., greater than residual NAPL saturation) such that there is significant potential for mobility either downwards or laterally. Other standards may include local background concentration or published toxicity benchmarks. Results of toxicity testing with site samples can be used as an alternative. This approach is only relevant for contaminants that do not biomagnify in the food web, since toxicity tests would not indicate potential effects at higher trophic levels. High = lethality observed. Medium = no lethality, but sub lethal effects observed. Low = neither lethal nor sub lethal effects observed.	In the event that elevated levels of a material with no associated CCME guidelines are present, check provincial and USEPA environmental criteria. Hazard Quotients (sometimes referred to as a screening quotient in risk assessments) refer to the ratio of measured concentration to the concentration believed to be the threshold for toxicity. A similar calculation is used here to determine the contaminant exceedance factor (CEF). Concentrations greater than one times the applicable CCME guideline (i.e., CEF=>1) indicate that risks are possible. Mobile NAPL has the highest associated score (8) because of its highly concentrated nature and potential for increase in the size of the impacted zone.
Mobile NAPL High (>100x) Medium (10x to 100x) Low (1x to 10x) Do Not Know				
"Known" -score	4			
"Potential" - score	---			

CCME National Classification System (2008)

(I) Contaminant Characteristics

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants? >10 hectare (ha) or 5000 m^3 2 to 10 ha or 1000 to 5000 m^3 <2 ha or 1000 m^3 Do Not Know	>10 hectare (ha) or 5000 m3	Estimated area of landfill is 18,000m2 x approx 6-10m height (108,000 - 180,000m3), plus drainage basin.	Measure or estimate the area or quantity of total contamination (i.e, all contaminants known or strongly suspected to be present on the site). The "Area of Contamination" is defined as the area or volume of contaminated media (soil, sediment, groundwater, surface water) exceeding appropriate environmental criteria.	A larger quantity of a potentially toxic substance can result in a larger frequency of exposure as well as a greater probability of migration, therefore, larger quantities of these substances earn a higher score.
"Known" -score	9			
"Potential" - score	---			
5. Modifying Factors				
Does the chemical fall in the class of persistent chemicals based on its behavior in the environment? Yes No Do Not Know	No	No PCBs, chlorinated pesticides or other pesistent chemicals present at concentrations exceeding the CCME guidelines. Most were ND, however, one PCB (Arochlor 1254) was detected near the DL at SWF-TP2-SA1 (0-0.25m) (JWEL, 2006).	Persistent chemicals, e.g., PCBs, chlorinated pesticides etc. either do not degrade or take longer to degrade, and therefore may be available to cause effects for a longer period of time. Canadian Environmental Protection Act (CEPA) classifies a chemical as persistent when it has at least one of the following characteristics: (a) in air, (i) its half-life is equal to or greater than 2 days, or (ii) it is subject to atmospheric transport from its source to a remote area; (b) in water, its half-life is equal to or greater than 182 days; (c) in sediments, its half-life is equal to or greater than 365 days; or (d) in soil, its half-life is equal to or greater than 182 days. This list does not include metals or metalloids, which in their elemental form do not degrade. However metals and metalloids form chemical species in the environment, many of which are not readily bioavailable.	*Examples of Persistent Substances are provided in attached Reference Materials*
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No	No contaminants present that are known to damage utilities and/or infrastructure.		Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	five or more	Five contaminant classes exceed CCME guidelines: (1) inorganics substances (metals), (2) volatile petroleum hydrocarbons (benzene), (3) PAHs (naphthalene, acenaphthene, fluorene, 2-methylnaphthalene), (4) F2 (JWEL, 2006), and (5) F3 (JWEL, 2006).	For the purposes of the revised NCS ranking system, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	*Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.*
"Known" - Score	3			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Scores- "Known"	32
Raw Total Scores- "Potential"	0
Raw Combined Total Scores	32
Total Score (Raw Combined / 40 * 33)	**26.4**

CCME National Classification System (2008)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
i) For **potable groundwater environments** , 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For **non-potable environments** (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts.	12	Not scored.	Review chemical data and evaluate groundwater quality. The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis. Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils. Seeps and springs are considered part of the groundwater pathway. In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.	The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries. Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links. Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered. **Selected References** Potable Environments Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html Non-Potable Environments Canadian Water Quality Guidelines for Protection of Aquatic Life. CCME. 1999 www.ccme.ca Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	9			
iii) Meets GCDWQ for **potable environments** ; meets non-potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for **non-potable environments** **or** Absence of groundwater exposure pathway (i.e., there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight).	0			
Score	Go to Potential —			
NOTE: If a score is assigned here for Known COPC Exceedances, then you can skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)				
B. Potential for groundwater pathway.				
a. Relative Mobility High Moderate Low Insignificant Do Not Know	High	Relative mobility considered high because of the high log Koc values for benzene in soil (log Koc = 1.77).	Organics Koc (L/kg) Koc < 500 (i.e., log Koc < 2.7) Koc = 500 to 5000 (i.e., log Koc = 2.7 to 3.7) Koc = 5,000 to 100,000 (i.e., log Koc = 3.7 to 5) Koc > 100,000 (i.e., log Koc > 5) Metals with higher mobility at acidic conditions pH < 5 pH = 5 to 6 pH > 6 Metals with higher mobility at alkaline conditions pH > 8.5 pH = 7.5 to 8.5 pH < 7.5	Reference: US EPA Soil Screening Guidance (Part 5 - Table 39) If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixtures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.
Score	4			
b. Presence of engineered sub-surface containment? No containment Partial containment Full containment Do Not Know	No containment	No engineered containment system. Insufficient data to evaluate natural attenuation. No detailed evaluation of permafrost conducted.	Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved. Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.	Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links. **Selected Resources:** United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128. Environment Canada – Ontario Region – Natural Attenuation Technical Assistance Bulletins (TABS) Number 19 –21.
Score	3			
c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway 3 m or less including no confining layer or discontinuous confining layer 3 to 10 m > 10 m Do Not Know	3 m or less	No confining layer.	The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow. Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway. The evaluation of this category is based on: 1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or 2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (e.g., water table aquifer, first hydrostratigraphic unit or other groundwater pathway).	
Score	1			
d. Hydraulic conductivity of confining layer >10^{-4} cm/s or no confining layer 10^{-6} to 10^{-4} cm/s <10^{-6} cm/s Do Not Know	>10-4 cm/s	No confining layer.	Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on: 1) The presence and hydraulic conductivity ("K") of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as a drinking water source, groundwater exposure pathway or 2) The presence and permeability ("k") of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated water table aquifer, first hydrostratigraphic unit or other groundwater pathway.	
Score	1			
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High Moderate Low Very Low None Do Not Know	Very Low	Annual precipitation is 150mm. Surface materials are poorly developed soils, typically granular and ranging from sand to gravel (based on onsite observations from Franz site visit August 2009).	Precipitation Refer to Environment Canada precipitation records for relevant areas. Divide annual precipitation by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). Permeability For surface soil relative permeability (i.e., infiltration) assume: gravel (1), sand (0.6), loam (0.3) and pavement or clay (0). Multiply the surface soil relative permeability factor with precipitation factor to obtain the score for precipitation infiltration rate.	
Score	0.2			
f. Hydraulic conductivity of aquifer >10^{-2} cm/s 10^{-2} to 10^{-4} cm/s <10^{-4} cm/s Do Not Know	>10-2 cm/s	Sand (some gravel) to sand & gravel (based on onsite observations from Franz site visit August 2009).	Determine the nature of geologic materials and estimate hydraulic conductivity of all aquifers of concern from published material (refer to "Range of Values of Hydraulic Conductivity and Permeability" in the Reference Material sheet).	
Score	2			
Potential groundwater pathway total	11.2			
Allowed Potential score	11.2	Note: If a "known" score is provided, the "potential" score is disallowed.		
Groundwater pathway total	**11.2**			
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for prot ection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (e.g. toxicity testing; or other indicator testing of exposure).	12	Data collected in the summer of 2009 shows that water in shallow wells had CCME exceedences for metals and PAH at several locations. Additionally, inland/ponded surface water exceeded CCME AW (freshwater) for Al at 1-SW-4/5/6, Cd at 1-SW-7, Cu at 1-SW-4/7, Fe at 1-SW-5/6, and Zn at 1-SW-7 (Franz, 2010 - field report).	Collect all available information on quality of surface water near to site. Evaluate available data against Canadian Water Quality Guidelines (select appropriate guidelines based on local water use, e.g., recreation, irrigation, aquatic life, livestock watering, etc.). The evaluation method concentrates on the surface water flow system and its potential to be an exposure pathway. Contamination is present on the surface (above ground) and has the potential to impact surface water bodies. Surface water is defined as a water body that supports one of the following uses: recreation, irrigation, livestock watering, aquatic life.	General Notes: Someone experienced must provide a thorough description of the sources researched to classify the surface water body in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References: CCME. 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life www.ccme.ca CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) www.ccme.ca Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	8			
iii) Meets CWQG or absence of surface water exposure pathway (i.e., Distance to nearest surface water is > 5 km.)	0			
Score	12 12			
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you can skip Part B (Potential for migration of COPCs in surface water) and go to Section 3 (Surface Soils)				
B. Potential for migration of COPCs in surface water				
a. Presence of containment No containment Partial containment Full containment Do Not Know	Do Not Know	Not scored.	Review the existing engineered systems and relate these structures to site conditions and proximity to surface water and determine if full containment is achieved; score low if there is full containment such as capping, berms, dikes; score medium if there is partial containment such as natural barriers, trees, ditches, sedimentation ponds; score high if there are no intervening barriers between the site and nearby surface water. Full containment must include containment of all chemicals.	

CCME National Classification System (2008)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Score	3			
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know	Do Not Know	Not scored.	Review available mapping and survey data to determine distance to nearest surface water bodies.	
Score	2			
c. Topography Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is intermediate Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know	Do Not Know	Not scored.	Review engineering documents on the topography of the site and the slope of surrounding terrain. Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (e.g., trench, above ground, etc.).	
Score	1			
d. Run-off potential High (rainfall run-off score > 0.6) Moderate (0.4 < rainfall run-off score <0.6) Low (0.2 < rainfall run-off score <0.4) Very Low (0 < rainfall run-off score < 0.2) None (rainfall run-off score = 0) Do Not Know	Do Not Know	Not scored.	Rainfall Refer to Environment Canada precipitation records for relevant areas. Divide rainfall by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). The former definition of "annual rainfall" did not include the precipitation as snow. This minor adjustment has been made. The second modification was the inclusion of permeability of surface materials as an evaluation factor. Permeability For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the infiltration factor with precipitation factor to obtain rainfall run off score.	Selected Sources: Environment Canada web page link: www.msc.ec.gc.ca Snow to rainfall conversion apply ratio of 15 (snow):1(water)
Score	0.4			
e. Flood potential 1 in 2 years 1 in 10 years 1 in 50 years Do Not Know	Do Not Know	Not scored.	Review published data such as flood plain mapping or flood potential (e.g., spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.	
Score	0.5			
Potential surface water pathway total	6.9			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Surface water pathway total	**12**			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
COPCs measured in surface soils exceed the CCME soil quality guideline.	12	CCME CL Soil Quality Guideline exceedences for: -Benzene at 1-BH-13 (0.05-0.66m) and 1-BH-14 (0.1 - 0.62m) -Copper at 1-TP-9 (0.5-0.95m) and 1-TP-11 (0-0.15m)	Collect all available information on quality of surface soils (i.e., top 1.5 metres) at the site. Evaluate available data against Canadian Soil Quality Guidelines. Select appropriate guidelines based on current (or proposed future) land use (i.e. agricultural, residential/parkland, commercial, or industrial), and soil texture if applicable (i.e., coarse or fine).	Selected References: CCME. 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health www.ccme.ca
Strongly suspected that soils exceed guidelines	9			
COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).	0			
	12			
Score	12			
NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you can skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)				
B. Potential for a surface soils (top 1.5 m) migration pathway				
a. Are the soils in question covered? Exposed Vegetated Landscaped Paved Do Not Know	Do Not Know	Not scored.	Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.	The possibility of contaminants in blowing snow have not been included in the revised NCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.
Score	4			
b. For what proportion of the year does the site remain covered by snow? 0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know	Do Not Know	Not scored.	Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).	
Score	3			
Potential surface soil pathway total	7			
Allowed Potential score	---	**Note: If a "known" score is provided, the "potential" score is disallowed.**		
Soil pathway total	**12**			
4. Vapour				
A. Demonstrated COPCs in vapour.				
Vapour has been measured (indoor or outdoor) in concentrations exceeding risk based concentrations.	12		Consult previous investigations, including human health risk assessments, for reports of vapours detected.	
Strongly suspected (based on observations and/or modelling)	9			
Vapour has not been measured and volatile hydrocarbons have not been found in site soils or groundwater.	0			
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you can skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H' (dimensionless) High (H' > 1.0E-1) Moderate (H' = 1.0E-1 to 1.0E-3) Low (H' < 1.0E-3) Not Volatile Do Not Know	High	Potential for COPCs in vapour considered high because of: -benzene: HLC = 2.28x10-1 (dimensionless)	Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) *Provided in Attached Reference Materials*	If the Henry's Law Constant for a substance indicates that it is not volatile, and a score of zero is assigned here for relative volatility, then the other three questions in this section on Potential for COPCs will be automatically assigned scores of zero and you can skip to section 5.
Score	4			
b. What is the soil grain size? Fine Coarse Do Not Know	Coarse	Sand and gravel.	Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours. Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
Score	4			
c. Is the depth to the source less than 10m? Yes No Do Not Know	Yes	Depth to the source is < 1.0 m. CCME CL exceedences for benzene in soil at 1-BH-13 (0.05-0.66m) and 1-BH-14 (0.1 - 0.62m).	Review groundwater depths below grade for the site.	
Score	2			
d. Are there any preferential pathways? Yes No Do Not Know	No	Soil contamination found in surface soils, no known preferential pathways.	Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathyways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
Score	0			
Potential vapour pathway total	10			
Allowed Potential score	10	Note: If a "known" score is provided, the "potential" score is disallowed.		
Vapour pathway total	**10**			
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated.	12		Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Strongly suspected (based on observations and/or modelling)	9	Concentrations of PAH compounds in sediment indicates the likelihood of sediment migration. PAHs were detected in 2009 sediment sample 1-SD-6 (acenaphthene, fluorene, 2-methylnaphthalene, naphthalene) down gradient from toe of landfill. It should be noted that PAH at 1-SD-15 (background) < laboratory MDLs (Franz, 2010).		
Sediments have been contained and there is no indication that sediments will migrate in future. **or** Absence of sediment exposure pathway (i.e., within 5 km of the site there are no aquatic receiving environments, and therefore no sediments).	0			
	12			
Score	12			

CCME National Classification System (2008)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you can skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				
B. Potential for sediment migration				
a. Are the sediments having COPC exceedances capped with sediments having no exceedances ("clean sediments")?	Do Not Know	Not scored	Review existing sediment assessments. If sediment coring has been completed, it may indicate that historically contaminated sediments have been covered over by newer "clean" sediments. This assessment will require that cores collected demonstrate a low concentration near the top and higher concentration with sediment depth.	
Yes				
No				
Do Not Know	2			
b. For lakes and marine habitats, are the contaminated sediments in shallow water and therefore likely to be affected by tidal action, wave action or propeller wash?	Do Not Know		Review existing sediment assessments. If the sediments present at the site are in a river, select "no" for this question.	
Yes				
No				
Do Not Know	2			
c. For rivers, are the contaminated sediments in an area prone to sediment scouring?	Do Not Know		Review existing sediment assessments. It is important that the assessment is made under worst case flows (high yearly flows). Under high yearly flows, areas which are commonly depositional	
Yes				
No				
Do Not Know	2			
Potential sediment pathway total	6			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Sediment pathway total	**12**			
6. Modifying Factors				
Are there subsurface utility conduits in the area affected by contamination?	No	No subsurface utility conduits are located in the contaminated area (based on a conversation with Jason Brown (airport manager), Aug 2009).	Consult existing engineering reports. Subsurface utilities can act as conduits for contaminant migration.	
Yes				
No				
Do Not Know				
Known	0			
Potential	0			

Migration Potential Total		
Raw "known" total	36	
Raw "potential" total	21.2	
Raw combined total	57.2	Note: If "Known" and "Potential" scores are provided, the checklist defaults to known. Therefore, the total "Potential" Score may not reflect the sum of the individual "Potential" scores.
Total (max 33)	**29.5**	

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Human				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to humans as a result of the contaminated site. (Class 1 Site*)	22	Not scored	"Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (i.e., action required). There is no need to proceed through the NCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites). This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1 for noncarcinogenic chemicals and incremental cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either >10^{-6} or >10^{-5}). Known impacts can also be evaluated based on blood testing (e.g. blood lead >10 ug/dL) or other health based testing. This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 0.2 for non-carcinogenic chemicals and incremental lifetime cancer risks for carcinogenic chemicals that are within acceptable levels as defined by the jurisdiction (for most jurisdictions this is less than either 10^{-6} or 10^{-5}).	Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet. Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site. **Selected References:** Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Heath Screening Level Risk Assessments (www.hc-sc.gc.ca/ewh-semt/pubs/contaminite/index_e.html) United States Environmental Protection Agency, Integrated Risk Information System (IRIS) – http://toxnet.nml.nih.gov
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	10			
No quantified or suspected exposures/impacts in humans.	0			
	Go to Potential			
Score	--			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Human Exposure) and go to Section 2 (Human Exposure Modifying Factors)				
B. Potential for human exposure				
a) Land use (provides an indication of potential human exposure scenarios) Agricultural Residential / Parkland Commercial Industrial Do Not Know	Commercial	The area is located within airport lands (commercial zoning). It is not close to residential or active commercial areas. However, the exposure scenario is likely most similar to commercial/industrial.	Review zoning and land use maps over the distances indicated. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place. Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (e.g., children).
Score	1			
b. Indicate the level of accessibility to the contaminated portion of the site (e.g., the potential for coming in contact with contamination) Limited barriers to prevent site access; contamination not covered Moderate access or no intervening barriers, contaminants are covered. Remote locations in which contaminants not covered. Controlled access or remote location and contaminants are covered Do Not Know	Access, not covered	There are no barriers to access at the landfill. Landfill material is partially covered. Down gradient impacted areas exposed.	Review location and structures and contaminants at the site and determine if there are intervening barriers between the site and humans. A low rating should be assigned to a (covered) site surrounded by a fence or in a remote location, whereas a high score should be assigned to a site that has no cover, fence, natural barriers or buffer.	
Score	2			
B. Potential for human exposure				
c) Potential for intake of contaminated soil, water, sediment or foods for operable or potentially operable pathways, as identified in Worksheet II (Migration Potential). i) direct contact Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated? Yes No Do Not Know	Yes	Dermal contact assumed due to presence of surface soils exceeding CCME guidelines.	If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.	Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.
Score	3			
ii) inhalation (i.e., inhalation of dust, vapour) Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)? Yes No Do Not Know	No	There are no buildings within 30 m of the site. Soil consists of sand and gravel (coarse).	If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a.), *Potential for COPCs in Vapour* for a definition of volatility.	Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion. Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts. General Notes; Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References; Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. www.ccme.ca. Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC
Score	0			
Dust - If there is contaminated surface soil (e.g. top 1.5 m) , indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero. Fine Coarse Surface soil is not contaminated or absent (bedrock) Do Not Know Texture			Consult grain size data for the site. If soils (containing exceedances of the CCME soil quality guidelines) predominantly consist of fine material (having a median grain size of 75 microns; as defined by CCME (2006)) then these soils are more likely to generate dusts.	
Score	Coarse			
	1			
inhalation total	1			
B. Potential for human exposure				
iii) Ingestion (i.e., ingestion of food items, water and soils [for children]), including traditional foods. Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future). 0 to 100 m 100 to 300 m 300 m to 1 km 1 to 5 km No drinking water present Do Not Know	1 to 5 km	Drinking water is supplied to the community from Stip Lake on the other side of the airport. Stip Lake is approximately 2.7 km from the solid waste landfill.	Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (e.g., provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure. The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport.	**Selected References:** Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/hecs-sesc/water/publications/drinking_water_quality_guidelines/toc.htm Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable. Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.
Score	1.5			
Is an alternative water supply readily available? Yes No Do Not Know	Yes	Other lakes are likely suitable sources for potable water.		
Score	0			
Is human ingestion of contaminated soils possible? Yes No Do Not Know	Yes	Access to the site is not restricted, and contaminated soils are found in the top 1.5m.	If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.	
Score	3			
Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings? Yes No Do Not Know	Do Not Know	Use of the resources, by humans and/or game, from APEC 1 and downstream areas is unknown.	Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (e.g., large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.	
Score	0.5			
Ingestion total	5			
Human Health Total "Potential" Score	12	Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.		
Allowed "Potential" Score	12			
2. Human Exposure Modifying Factors				
a) Strong reliance of local people on natural resources for survival (i.e., food, water, shelter, etc.)	No			

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Yes No Do Not Know		There is unlikely to be any use of the site for natural resources by local people given the presence of the landfill and sewage lagoons.		
Known	0			
Potential	---			
Raw Human "known" total	0			
Raw Human "potential" total	12			
Raw Human Exposure Total Score	12			
Human Health Total (max 22)	**12.0**			
3. Ecological				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.	18	Not scored.	Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are deemed to be severe, the site may be categorized as class one (i.e., a priority for remediation or risk management), regardless of the numerical total NCS score. For the purpose of application of the NCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction. If ecological effects are determined to be severe and an automatic Class 1 is assigned, there is no need to proceed through the NCS. However, a scoring guideline (18) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites). This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.	CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. www.ccme.ca CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. www.ccme.ca Sensitive receptors- review: Canadian Council on Ecological Areas; www.ccea.org. Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in *A Framework for Ecological Risk Assessment: General Guidance* (CCME 1996). Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	12			
No quantified or suspected exposures/impacts in terrestrial or aquatic organisms	0		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.	
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)				
B. Potential for ecological exposure (for the contaminated portion of the site)				
a) Terrestrial i) Land use Agricultural (or Wild lands) Residential/Parkland Commercial Industrial Do Not Know		Applied the land use most applicable to the site.	Review zoning and land use maps. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place (indicate in the worksheet that future land use is the consideration). Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Wild lands are grouped with agricultural land due to the similarities in receptors that would be expected to occur there (e.g., herbivorous mammals and birds) and the similar need for a high level of protection to ensure ecological functioning. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	
	Commercial			
Score	1			
ii) Uptake potential Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site? Yes No Do Not Know	Yes	Soils exceeding CCME CL are located near the surface (in the top 1.5m).	If contaminated soils are located within the top 1.5 m, it is assumed that direct contact of soils with plants and soil invertebrates is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely.	
Score	1			
iii) Ingestion (i.e., wildlife or domestic animals ingesting contaminated food items, soils or water) Are terrestrial animals likely to be ingesting contaminated water at the site? Yes No Do Not Know	Yes	Terrestrial receptors may be ingesting the contaminated water at the site since there are few surface water sources in the area.	Refer to an Ecological Risk Assessment for the site. If there is contaminated surface water at the site, assume that terrestrial organisms will ingest it.	
Score	1			
Are terrestrial animals likely to be ingesting contaminated soils at the site? Yes No Do Not Know	Yes	Terrestrial receptors may be ingesting the contaminated soil attached to the roots of plants.	Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Score	1			
Can the contamination identified bioaccumulate? Yes No Do Not Know	No	Benzene and naphthalene log Kow values < 4.	Bioaccumulation of contaminants within food items is considered possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in soils exceed the most conservative CCME soil quality guideline for the intended land use, or 2) The contaminant in collected tissue samples exceeds the Canadian Tissue Residue Guidelines.	
Score	0			
Distance to sensitive terrestrial ecological area 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	1 to 5 km	Distance to Allen Bay is approx. 2 km.	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor located within this area of the site will be subject to further evaluations. It is also considered that any environmental receptor located greater than 5 km will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance; arctic environments (on a site specific basis); nature preserves, habitats for species at risk, sensitive forests, natural parks or forests.
Score	1			
Raw Terrestrial Total Potential	5	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Terrestrial Total Potential	5			
B. Potential for ecological exposure (for the contaminated portion of the site)				
b) Aquatic i) Classification of aquatic environment Sensitive Typical Not Applicable (no aquatic environment present) Do Not Know			"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species. "Typical aquatic environments" include those in areas other than those listed above.	
	Typical			
Score	1			
ii) Uptake potential Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact? Yes No (or Not Applicable) Do Not Know	Yes	CCME AW exceedances: GW : Iron at 1-MW-13 and 1-MW-14 :Naphthalene at 1-MW-13 SW : Al at 1-SW-4/5/6 : Cd at 1-SW-7 : Cu at 1-SW-7 : Fe at 1-SW-4/7 : Fe at 1-SW-5/6 : Zn at 1-SW-7	Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Score	1			
Distance from the contaminated site to an important surface water resource 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	1 to 5 km	Distance to Allen Bay is approximately 2 km.	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor or important water resource located within this area of the site will be subject to further evaluation. It is also considered that any environmental receptor located greater than 5 km away will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance, sensitive wetlands and fens and other aquatic environments.
Score	1		Bioaccumulation of food items is possible if:	

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Solid Waste Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Are aquatic species (i.e., forage fish, invertebrates or plants) that are consumed by predatory fish or wildlife consumers, such as mammals and birds, likely to accumulate contaminants in their tissues? Yes No Do Not Know	No	Benzene and naphthalene log Kow values < 4.	1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in sediments exceed the CCME ISQGs. 2) The contaminant in collected tissue samples exceeds the CCME tissue quality guidelines.	
Score	0			
Raw Aquatic Total Potential	3	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Aquatic Total Potential	3			
4. Ecological Exposure Modifying Factors				
a) Known occurrence of a species at risk. Is there a potential for a species at risk to be present at the site? Yes No Do Not Know	Yes	Ivory gull may be present , based on the range provided by the species at risk website (special concern species) for Cornwallis Island/Resolute Bay area (http://www.sis.ec.gc.ca/ec_species/ec_species_e.phtml).	Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as Eco Explorer. Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.	Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMWLAP. 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists. Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://srmwww.gov.bc.ca/atrisk/red-blue.htm
Score	2 ---			
b) Potential impact of aesthetics (e.g., enrichment of a lake or tainting of food flavor). Is there evidence of aesthetic impact to receiving water bodies? Yes No Do Not Know	Yes 2 ---	Discoloured water (green-blue) at 1-SW-7. Green algae observed in ponded surface water at 1-SW-2. Evidence of discharge of overflow from sewage lagoon into ponded surface water at 1-SW-6.	Documentation may consist of environmental investigation reports, press articles, petitions or other records.	This item will require some level of documentation by user, including contact names, addresses, phone numbers, e-mail addresses. Evidence of changes must be documented, please attach copy of report containing relevant information.
Is there evidence of olfactory impact (i.e., unpleasant smell)? Yes No Do Not Know	Yes 2 ---	Slight hydrocarbon odour at 1-TP-10.	Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.	
Is there evidence of increase in plant growth in the lake or water body? Yes No Do Not Know	Yes 2 ---	The drainage area was rich with vegetation in comparison to other areas of the island.	A distinct increase of plant growth in an aquatic environment may suggest enrichment. Nutrients e.g., nitrogen or phosphorous releases to an aquatic body can act as a fertilizer.	
Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different? Yes No Do Not Know	Do Not Know --- 1		Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.	
Ecological Modifying Factors Total - Known	**8**			
Ecological Modifying Factors Total - Potential	**1**			
Raw Ecological Total - Known	8			
Raw Ecological Total - Potential	9			
Raw Ecological Total	17			
Ecological Total (Max 18)	**17.0**			
5. Other Potential Contaminant Receptors				
a) Exposure of permafrost (leading to erosion and structural concerns) Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity? Yes No Do Not Know	Yes 4 ---	Stability of the solid waste landfill and sewage lagoons relies on the permafrost.	Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.	Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.
Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment? Yes No Do Not Know	Yes 2 ---	Surface water runoff is clearing migrating from the site. Surface water flow ultimately reaches Allen Bay, which is the receiving water body for any particulate matter transported by run-off (via drainage channels and overland run-off).	Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.	
Other Potential Receptors Total - Known	**6**			
Other Potential Receptors Total - Potential	**0**			

Exposure Total	
Raw Human Health + Ecological Total - Known	14
Raw Human Health + Ecological Total - Potential	21
Raw Total	35
Exposure Total (max 34)	**25.9**

Only includes "Allowed potential" - if a "Known" score was supplied under a given category then the "Potential" score was not included.

CCME National Classification System (2008)
Score Summary

Scores from individual worksheets are tallied in this worksheet.
Refer to this sheet after filling out the revised NCS completely.

I. Contaminant Characteristics	Known	Potential
1. Residency Media	8	---
2. Chemical Hazard	8	---
3. Contaminant Exceedance Factor	4	---
4. Contaminant Quantity	9	---
5. Modifying Factors	3	---
Raw Total Score	32	0
Raw Total Score (Known + Potential)	32	
Adjusted Total Score (Raw Total / 40 *33)	**26.4**	(max 33)

II. Migration Potential	Known	Potential
1. Groundwater Movement	---	11.2
2. Surface Water Movement	12	---
3. Soil	12	---
4. Vapour	---	10
5. Sediment Movement	12	---
6. Modifying Factors	0	0
Raw Total Score	36	21.2
Raw Total Score (Known + Potential)	57.2	
Adjusted Total Score (Raw Total / 64 * 33)	**29.5**	(max 33)

III. Exposure	Known	Potential
1. Human Receptors		
A. Known Impact	---	
B Potential		
a. Land Use		1
b. Accessibility		2
c. Exposure Route		
i. Direct Contact		3
ii. Inhalation		1
iii. Ingestion		5
2. Human Receptors Modifying Factors	0	---
Raw Total Human Score	0	12
Raw Total Human Score (Known + Potential)	12	
Adjusted Total Human Score	12.0	(maximum 22)
3. Ecological Receptors		
A. Known Impact	---	
B. Potential		
a. Terrestrial		5
b. Aquatic		3
4. Ecological Receptors Modifying Factors	8	1
Raw Total Ecological Score	8	9
Raw Total Ecological Score (Known + Potential)	17	
Adjusted Total Ecological Score	17.0	(maximum 18)
5. Other Receptors	6	0
Total Other Receptors Score (Known + Potential)	6	
Total Exposure Score (Human + Ecological + Other)	**35.0**	
Adjusted Total Exposure Score (Total Exposure / 46 * 34)	**25.9**	(max 34)

Site Score

Resolute Bay Airport - Solid Waste Landfill Area

Site Letter Grade	**C**
Certainty Percentage	**75%**
% Responses that are "Do Not Know"	**3%**
Total NCSCS Score for site	**81.8**
Site Classification Category	**1**

Site Classification Categories*:

Class 1 - High Priority for Action (Total NCS Score >70)
Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)
Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)
Class N - Not a Priority for Action (Total NCS Score <37)
Class INS - Insufficient Information (>15% of responses are "Do Not Know")

* NOTE: The term "action" in the above categories does not necessarily refer to remediation, but could also include risk assessment, risk management or further site characterization and data collection.

CCME National Classification System for Contaminated Sites (2008)
Pre-Screening Checklist

Question	Response (yes / no)	Comment
1. Are **Radioactive material**, **Bacterial contamination** or **Biological hazards** likely to be present at the site?	No	If yes, do not proceed through the NCSCS. Contact applicable regulatory agency immediately.
2. Are there **no contamination exceedances** (known or suspected)? Determination of exceedances may be based on: 1) CCME environmental quality guidelines; 2) equivalent provincial guidelines/standards if no CCME guideline exists for a specific chemical in a relevant medium; or 3) toxicity benchmarks derived from the literature for chemicals not covered by CCME or provincial guidelines/standards.	No	If yes (i.e., there are no exceedances), do not proceed through the NCSCS.
3. Have **partial/incompleted or no environmental site investigations** been conducted for the Site?	No	If yes, do not proceed through the NCSCS.
4. Is there direct and signficant evidence of **impacts to humans** at the site, or off-site due to migration of contaminants from the site?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
5. Is there direct and significant evidence of **impacts to ecological receptors** at the site, or off-site due to migration of contaminants from the site?	No	Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are considered to be severe, the site may be categorized as Class 1, regardless of the numerical total NCSCS score. For the purpose of application of the NCSCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction.
6. Are there indicators of significant **adverse effects in the exposure zone** (i.e., the zone in which receptors may come into contact with contaminants)? Some examples are as follows: -Hydrocarbon sheen or NAPL in the exposure zone -Severely stressed biota or devoid of biota; -Presence of material at ground surface or sediment with suspected high concentration of contaminants such as ore tailings, sandblasting grit, slag, and coal tar.	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
7. Do measured concentrations of volatiles or unexploded ordnances represent an **explosion hazard**?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, and do not continue until the safety risks have been addressed. Consult your jurisdiction's occupational health and safety guidance or legislation on exposive hazards and measurement of lower explosive limits.

If none of the above applies, proceed with the NCSCS scoring.

CCME National Classification System for Contaminated Sites (2008)
Summary of Site Conditions

Subject Site:	**Resolute Bay Airport - Historic Landfill Area**	
Civic Address: *(or other description of location)*	NA	
Site Common Name: *(if applicable)*	Historic Landfill Area	
Site Owner or Custodian: *(Organization and Contact Person)*	Transport Canada	
Legal description *or* metes and bounds:	NA	
Approximate Site area:	145,000 m2 or 145 hectares	
PID(s): *(or Parcel Identification Numbers [PIN] if untitled Crown land)*	NA	
Centre of site: *(provide latitude/longitude or UTM coordinates)*	Latitude: Longitude:	74 degrees 42 minutes 52.218 seconds 94 degress 59 minutes 19.1142 seconds
	UTM Coordinate:	Northing 441490.16211 Easting 8292733.08862
Site Land Use:	Current:	none, historic/former airport landfill
	Proposed:	none
Site Plan	**To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.**	
Provide a brief description of the Site:	The historic landfill site is on Cornwallis Island, immediately approximately 300 m southwest of the airport terminal building. The site currently has no buildings or structures, however, a hotel is underdevelopment at the northern edge of the landfill. The landfill is capped, but there are some drums and other waste at the surface. There is a boggy ponding areas immediately downgradient of the landfill area. Please refer to the attached site plan for location.	
Affected media and Contaminants of Potential Concern (COPC):	Affected media consists of soil, surface water, and shallow groundwater. Contaminants of concern are BTEX, PAHs, metals and PHCs. Most of the contaminant impacts are in the landfill or just beyond the toe of the landfill. Visual impacts are across the site.	

Please fill in the "letter" that best describes the level of information available for the site being assessed.
Site Letter Grade **C**
If letter grade is F, do not continue, you must have a minimum of a Phase I Environmental Site Assessment or equivalent.

Scoring Completed By:	**Jordi Helsen/Michael Shum**
Date Scoring Completed:	**21-Jan-10**

CCME National Classification System (2008)

(I) Contaminant Characteristics

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
1. Residency Media (replaces physical state)				
Which of the following residency media are known (or strongly suspected) to have one or more exceedances of the applicable CCME guidelines? **yes** = has an exceedance or strongly suspected to have an exceedance **no** = does not have an exceedance or strongly suspected not to have an exceedance		Exceedances of CCME guidelines (or other applicable limits, in the absence of CCME guidelines) are documented in Franz (2010) Phase II/III Environmental Site Assessment (field report), and Jacques Whitford (2006) Environmental Site Investigation. Soil exceedences: Benzene at 2-BH-2 (0.05-0.64 m), 2-TP-12 (0.6-1.2m), and 2-TP-20 (0.1-0.6m); Ethylbenzene at 2-TP-20; Toluene at 2-TP-12; F2 at 2-TP-8; Groundwater exceedences: Toluene at 2-MW-8; Cadmium at 2-MW-1 and 2-MW-8; Naphthalene at 2-MW-8 Surface water exceedences: Aluminum at 2-SW-6 and 2-SW-17; ---------- Jacques Whitford (2006) also found: Soil: F2 at FL-TP1-SA1 (0-0.89m), FL-TP6-SA1 (0-0.61m) and FL-TP6-SA2 (0-0.61m), and FL-TP8-SA1 (0-0.69m); Copper and Zinc at FL-TP4-SA1 (0-0.53m).	The overall score is calculated by adding the individual scores from each residency media (having one or more exceedance of the most conservative media specific and land-use appropriate CCME guideline). Summary tables of the Canadian Environmental Quality Guidelines for soil, water (aquatic life, non-potable groundwater environments, and agricultural water uses) and sediment are available on the CCME website at http://www.ccme.ca/publications/ceqg_rcqe.html?category_id=124 . For potable groundwater environments, guidelines for Canadian Drinking Water Quality (for comparison with groundwater monitoring data) are available on the Health Canada website at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html.	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
Yes No Do Not Know				
B. Groundwater	Yes			
Yes No Do Not Know				
C. Surface water	Yes			
Yes No Do Not Know				
D. Sediment	No			
Yes No Do Not Know				
"Known" -score	6			
"Potential" - score	---			
2. Chemical Hazard				
What is the relative degree of chemical hazard of the contaminant in the list of hazard rankings proposed by the Federal Contaminated Sites Action Plan (FCSAP)?	High	Based on exceedences in benzene in soil at 3 sampling locations, and cadmium in groundwater at two locations (see previous note) (Franz, 2010).	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. *See Attached Reference Material for Contaminant Hazard Rankings.*	Hazard as defined in the revised NCS pertains to the physical properties of a chemical which can cause harm. Properties can include toxic potency, propensity to biomagnify, persistence in the environment, etc. Although there is some overlap between hazard and contaminant exceedance factor below, it will not be possible to derive contaminant exceedance factors for many substances which have a designated chemical hazard designation, but don't have a CCME guideline. The purpose of this category is to avoid missing a measure of toxic potential.
High Medium Low Do Not Know				
"Known" -score	8			
"Potential" - score	---			
3. Contaminant Exceedence Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")?	dium (10x to 10	Based on: -CCME AW exceedences of naphthalene in GW (naph @ 2-MW-8 = 39ug/L; CCME freshwater AW = 1.1 ug/L) -CCME CL exceedences of benzene in soil (benzene @2-TP-12 = 0.69ug/g; CCME CL for coarse soils = 0.03 ug/g) -CCME CWS exceedences of F2 in soil. (F2 @ 2-TP-8 = 6,100ug/g; CCME CWS CL = 260ug/g) (data from Franz, 2010).	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the *most conservative media-specific and land-use appropriate CCME* environmental quality guidelines. **Ranking should be based on contaminant with greatest exceedance of CCME guidelines.** Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines Mobile NAPL = Contaminant is a non-aqueous phase liquid (i.e., due to its low solubility, it does not dissolve in water, but remains as a separate liquid) and is present at a sufficiently high saturation (i.e., greater than residual NAPL saturation) such that there is significant potential for mobility either downwards or laterally. Other standards may include local background concentration or published toxicity benchmarks. Results of toxicity testing with site samples can be used as an alternative. This approach is only relevant for contaminants that do not biomagnify in the food web, since toxicity tests would not indicate potential effects at higher trophic levels. High = lethality observed. Medium = no lethality, but sub lethal effects observed. Low = neither lethal nor sub lethal effects observed.	In the event that elevated levels of a material with no associated CCME guidelines are present, check provincial and USEPA environmental criteria. Hazard Quotients (sometimes referred to as a screening quotient in risk assessments) refer to the ratio of measured concentration to the concentration believed to be the threshold for toxicity. A similar calculation is used here to determine the contaminant exceedance factor (CEF). Concentrations greater than one times the applicable CCME guideline (i.e., CEF=>1) indicate that risks are possible. Mobile NAPL has the highest associated score (8) because of its highly concentrated nature and potential for increase in the size of the impacted zone.
Mobile NAPL High (>100x) Medium (10x to 100x) Low (1x to 10x) Do Not Know				
"Known" -score	4			
"Potential" - score	---			

CCME National Classification System (2008)

(I) Contaminant Characteristics

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants? >10 hectare (ha) or 5000 m^3 2 to 10 ha or 1000 to 5000 m^3 <2 ha or 1000 m^3 Do Not Know	>10 hectare (ha) or 5000 m3	Estimated volume of landfill is >> 5000 m3 (old landfill extent approx. 30,000 m2 x at least 1 m depth, most likely several metres depth)	Measure or estimate the area or quantity of total contamination (i.e, all contaminants known or strongly suspected to be present on the site). The "Area of Contamination" is defined as the area or volume of contaminated media (soil, sediment, groundwater, surface water) exceeding appropriate environmental criteria.	A larger quantity of a potentially toxic substance can result in a larger frequency of exposure as well as a greater probability of migration, therefore, larger quantities of these substances earn a higher score.
"Known" -score	9			
"Potential" - score	---			
5. Modifying Factors				
Does the chemical fall in the class of persistent chemicals based on its behavior in the environment? Yes No Do Not Know	No	No PCBs, chlorinated pesticides or other pesistent chemicals present at concentrations exceeding the CCME guidelines. Most were ND, however, PCBs (Arochlor 1254 and 1260) were detected near the DL in FL-TP2-SA2 (0.29 - 0.58m) (Jacques Whitford, 2006).	Persistent chemicals, e.g., PCBs, chlorinated pesticides etc. either do not degrade or take longer to degrade, and therefore may be available to cause effects for a longer period of time. Canadian Environmental Protection Act (CEPA) classifies a chemical as persistent when it has at least one of the following characteristics: (a) in air, (i) its half-life is equal to or greater than 2 days, or (ii) it is subject to atmospheric transport from its source to a remote area; (b) in water, its half-life is equal to or greater than 182 days; (c) in sediments, its half-life is equal to or greater than 365 days; or (d) in soil, its half-life is equal to or greater than 182 days. This list does not include metals or metalloids, which in their elemental form do not degrade. However metals and metalloids form chemical species in the environment, many of which are not readily bioavailable.	*Examples of Persistent Substances are provided in attached Reference Materials*
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No	No contaminants present that are known to damage utilities and/or infrastructure.		Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	two to four	Four contaminant classes exceed CCME guidelines: (1) inorganics substances (metals), (2) volatile petroleum hydrocarbons (benzene, toluene, ethylbenzene), (3) PAHs (naphthalene), and (4) light extractable petroleum hydrocarbons (F2).	For the purposes of the revised NCS ranking system, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	*Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.*
"Known" - Score	2			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Scores- "Known"	29
Raw Total Scores- "Potential"	0
Raw Combined Total Scores	29
Total Score (Raw Combined / 40 * 33)	**23.9**

CCME National Classification System (2008)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
i) For **potable groundwater environments**, 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For **non-potable environments** (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts. ii) Same as i) except the information is not known but <u>strongly suspected</u> based on indirect observations. iii) Meets GCDWQ for **potable environments**; meets non-potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for **non-potable environments** **or** Absence of groundwater exposure pathway (i.e., there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight). Score	12 9 0 Go to Potential ---	Not scored.	Review chemical data and evaluate groundwater quality. The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis. Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils. Seeps and springs are considered part of the groundwater pathway. In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.	The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries. Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links. Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered. **Selected References** <u>Potable Environments</u> Guidelines for Canadian Drinking Water Quality: <u>www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html</u> <u>Non-Potable Environments</u> Canadian Water Quality Guidelines for Protection of Aquatic Life. CCME. 1999 <u>www.ccme.ca</u> Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.
NOTE: If a score is assigned here for Known COPC Exceedances, then you can skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)				
B. Potential for groundwater pathway.				
a. Relative Mobility High Moderate Low Insignificant Do Not Know Score	 High 4	Relative mobility considered high because of the high log Koc values for benzene in soil & groundwater (log Koc = 1.77) and toluene in groundwater (log Koc = 2.26).	Organics Koc (L/kg) Koc < 500 (i.e., log Koc < 2.7) Koc = 500 to 5000 (i.e., log Koc = 2.7 to 3.7) Koc = 5,000 to 100,000 (i.e., log Koc = 3.7 to 5) Koc > 100,000 (i.e., log Koc > 5) Metals with higher mobility at acidic conditions pH < 5 pH = 5 to 6 pH > 6 Metals with higher mobility at alkaline conditions pH > 8.5 pH = 7.5 to 8.5 pH < 7.5	Reference: US EPA Soil Screening Guidance (Part 5 - Table 39) If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixtures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.
b. Presence of engineered sub-surface containment? No containment Partial containment Full containment Do Not Know Score	 No containment 3	No engineered containment system. Insufficient data to evaluate natural attenuation. No detailed evaluation of permafrost conducted.	Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved. Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.	Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links. **Selected Resources:** United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128. Environment Canada – Ontario Region – Natural Attenuation Technical Assistance Bulletins (TABS) Number 19 –21.
c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway 3 m or less including no confining layer or discontinuous confining **layer** 3 to 10 m > 10 m Do Not Know Score	 3 m or less 1	No confining layer.	The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow. Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway. The evaluation of this category is based on: 1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or 2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (e.g., water table aquifer, first hydrostratigraphic unit or other groundwater pathway).	
d. Hydraulic conductivity of confining layer $>10^{-4}$ cm/s or no confining layer 10^{-4} to 10^{-6} cm/s $<10^{-6}$ cm/s Do Not Know Score	 >10-4 cm/s 1	No confining layer.	Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on: 1) The presence and hydraulic conductivity ("K") of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as a drinking water source, groundwater exposure pathway or 2) The presence and permeability ("K") of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated water table aquifer, first hydrostratigraphic unit or other groundwater pathway.	
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High Moderate Low Very Low None Do Not Know Score	 Very Low 0.2	Annual precipitation is 150mm. Surface materials are poorly developed soils, typically granular and ranging from sand to gravel (based on onsite observations from Franz site visit August 2009).	<u>Precipitation</u> Refer to Environment Canada precipitation records for relevant areas. Divide annual precipitation by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). <u>Permeability</u> For surface soil relative permeability (i.e., infiltration) assume: gravel (1), sand (0.6), loam (0.3) and pavement or clay (0). Multiply the surface soil relative permeability factor with precipitation factor to obtain the score for precipitation infiltration rate.	
f. Hydraulic conductivity of aquifer $>10^{-2}$ cm/s 10^{-2} to 10^{-4} cm/s $<10^{-4}$ cm/s Do Not Know Score	 >10-2 cm/s 2	Sand (some gravel) to Sand & gravel (based on onsite observations from Franz site visit August 2009).	Determine the nature of geologic materials and estimate hydraulic conductivity of all aquifers of concern from published material (refer to "Range of Values of Hydraulic Conductivity and Permeability" in the Reference Material sheet).	
Potential groundwater pathway total Allowed Potential score **Groundwater pathway total**	11.2 11.2 **11.2**	Note: if a "known" score is provided, the "potential" score is disallowed.		
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				

CCME National Classification System (2008)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for protection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (e.g. toxicity testing; or other indicator testing of exposure).	12	Data collected in the summer of 2009 shows that water in shallow wells had CCME exceedences for volatile organics , metals, and PAHs at multiple locations. Additionally, inland/ponded water exceeded CCME AW (freshwater) for aluminum at 2-SW-6 (Franz, 2010 - field report).	Collect all available information on quality of surface water near to site. Evaluate available data against Canadian Water Quality Guidelines (select appropriate guidelines based on local water use, e.g., recreation, irrigation, aquatic life, livestock watering, etc.). The evaluation method concentrates on the surface water flow system and its potential to be an exposure pathway. Contamination is present on the surface (above ground) and has the potential to impact surface water bodies. Surface water is defined as a water body that supports one of the following uses: recreation, irrigation, livestock watering, aquatic life.	General Notes: Someone experienced must provide a thorough description of the sources researched to classify the surface water body in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References: CCME. 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life www.ccme.ca CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) www.ccme.ca Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality.
ii) Same as i) except the information is not known but strongly suspected based on indirect observations.	8			
iii) Meets CWQG or absence of surface water exposure pathway (i.e., Distance to nearest surface water is > 5 km.)	0			
	12			
Score	12			
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you can skip Part B (Potential for migration of COPCs in surface water) and go to Section 3 (Surface Soils)				
B. Potential for migration of COPCs in surface water				
a. Presence of containment No containment Partial containment Full containment Do Not Know		Not scored.	Review the existing engineered systems and relate these structures to site conditions and proximity to surface water and determine if full containment is achieved: score low if there is full containment such as capping, berms, dikes; score medium if there is partial containment such as natural barriers, trees, ditches, sedimentation ponds; score high if there are no intervening barriers between the site and nearby surface water. Full containment must include containment of all chemicals.	
	Do Not Know			
Score	3			
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know		Not scored.	Review available mapping and survey data to determine distance to nearest surface water bodies.	
	Do Not Know			
Score	2			
c. Topography Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is intermediate Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know		Not scored.	Review engineering documents on the topography of the site and the slope of surrounding terrain. Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (e.g., trench, above ground, etc.).	
	Do Not Know			
Score	1			
d. Run-off potential High (rainfall run-off score > 0.6) Moderate (0.4 < rainfall run-off score <0.6) Low (0.2 < rainfall run-off score <0.4) Very Low (0 < rainfall run-off score < 0.2) None (rainfall run-off score = 0) Do Not Know		Not scored.	Rainfall Refer to Environment Canada precipitation records for relevant areas. Divide rainfall by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). The former definition of "annual rainfall" did not include the precipitation as snow. This minor adjustment has been made. The second modification was the inclusion of permeability of surface materials as an evaluation factor. Permeability For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the infiltration factor with precipitation factor to obtain rainfall run off score.	Selected Sources: Environment Canada web page link: www.msc.ec.gc.ca Snow to rainfall conversion apply ratio of 15 (snow):1(water)
	Do Not Know			
Score	0.4			
e. Flood potential 1 in 2 years 1 in 10 years 1 in 50 years Do Not Know		Not scored.	Review published data such as flood plain mapping or flood potential (e.g., spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.	
	Do Not Know			
Score	0.5			
Potential surface water pathway total	6.9			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Surface water pathway total	**12**			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
COPCs measured in surface soils exceed the CCME soil quality guideline.	12	CCME CL Soil Quality Guideline exceedences for: -benzene at 2-BH-2 (0.05-0.64 m), 2-TP-12 (0.6-1.2m), and 2-TP-20 (0.1-0.6m) -ethylbenzene at 2-TP-20 -toluene at 2-TP-12 -F2 at 2-TP-8 (Franz, 2010 - field report)	Collect all available information on quality of surface soils (i.e., top 1.5 metres) at the site. Evaluate available data against Canadian Soil Quality Guidelines. Select appropriate guidelines based on current (or proposed future) land use (i.e, agricultural, residential/parkland, commercial, or industrial), and soil texture if applicable (i.e., coarse or fine).	Selected References: CCME. 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health www.ccme.ca
Strongly suspected that soils exceed guidelines	9			
COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).	0			
	12			
Score	12			
NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you can skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)				
B. Potential for a surface soils (top 1.5 m) migration pathway				
a. Are the soils in question covered? Exposed Vegetated Landscaped Paved Do Not Know		Not scored.	Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.	The possibility of contaminants in blowing snow have not been included in the revised NCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.
	Do Not Know			
Score	4			
b. For what proportion of the year does the site remain covered by snow? 0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know		Not scored.	Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).	
	Do Not Know			
Score	3			
Potential surface soil pathway total	7			
Allowed Potential score	---	**Note: If a "known" score is provided, the "potential" score is disallowed.**		
Soil pathway total	**12**			
4. Vapour				
A. Demonstrated COPCs in vapour.				
Vapour has been measured (indoor or outdoor) in concentrations exceeding risk based concentrations.	12		Consult previous investigations, including human health risk assessments, for reports of vapours detected.	
Strongly suspected (based on observations and/or modelling)	9			
Vapour has not been measured and volatile hydrocarbons have not been found in site soils or groundwater.	0			

CCME National Classification System (2008)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
	Go to Potential			
Score	--			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you can skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H' (dimensionless) High (H' > 1.0E-1) Moderate (H' = 1.0E-1 to 1.0E-3) Low (H' < 1.0E-3) Not Volatile Do Not Know	High	Potential for COPCs in vapour considered high because of: -benzene: HLC = 2.28x10-1 (unitless) -ethylbenzene: HLC = 3.23x10-1 (unitless) -toluene: HLC = 2.72x10-1 (unitless)	Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) *Provided in Attached Reference Materials*	If the Henry's Law Constant for a substance indicates that it is not volatile, and a score of zero is assigned here for relative volatility, then the other three questions in this section on Potential for COPCs will be automatically assigned scores of zero and you can skip to section 5.
Score	4			
b. What is the soil grain size? Fine Coarse Do Not Know	Coarse	Sand and gravel	Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours. Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
Score	4			
c. Is the depth to the source less than 10m? Yes No Do Not Know	Yes	See previous notes.	Review groundwater depths below grade for the site.	
Score	2			
d. Are there any preferential pathways? Yes No Do Not Know	No	Soil contamination found in surface soils, preferential pathways not applicable.	Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathyways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
Score	0			
Potential vapour pathway total	10			
Allowed Potential score	10	Note: If a "known" score is provided, the "potential" score is disallowed.		
Vapour pathway total	**10**			
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated.	12	Concentrations of BTEX compounds indicate the likelihood of sediment migration. BTEX was detected in 2009 sediment samples at 2-SD-3, 2-SD-4, 2-SD-6, 2-SD-10 and 2-SD-11 down gradient from toe of landfill. It should be noted that BTEX at 2-SD-17 (background) < laboratory MDLs . Franz (2010).	Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Strongly suspected (based on observations and/or modelling)	9			
Sediments have been contained and there is no indication that sediments will migrate in future. **or** Absence of sediment exposure pathway (i.e., within 5 km of the site there are no aquatic receiving environments, and therefore no sediments).	0			
	9			
Score	9			
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you can skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				
B. Potential for sediment migration				
a. Are the sediments having COPC exceedances capped with sediments having no exceedances ("clean sediments")? Yes No Do Not Know	Do Not Know 2	Not scored.	Review existing sediment assessments. If sediment coring has been completed, it may indicate that historically contaminated sediments have been covered over by newer "clean" sediments. This assessment will require that cores collected demonstrate a low concentration near the top and higher concentration with sediment depth.	
b. For lakes and marine habitats, are the contaminated sediments in shallow water and therefore likely to be affected by tidal action, wave action or propeller wash? Yes No Do Not Know	Do Not Know 2		Review existing sediment assessments. If the sediments present at the site are in a river, select "no" for this question.	
c. For rivers, are the contaminated sediments in an area prone to sediment scouring? Yes No Do Not Know	Do Not Know 2		Review existing sediment assessments. It is important that the assessment is made under worst case flows (high yearly flows). Under high yearly flows, areas which are commonly depositional	
Potential sediment pathway total	6			
Allowed Potential score	--	Note: If a "known" score is provided, the "potential" score is disallowed.		
Sediment pathway total	**9**			
6. Modifying Factors				
Are there subsurface utility conduits in the area affected by contamination? Yes No Do Not Know	No	No subsurface utility conduits are located in the contaminated area (based on a conversation with Jason Brown (airport manager), Aug 2009).	Consult existing engineering reports. Subsurface utilities can act as conduits for contaminant migration.	
Known	0			
Potential	0			

Migration Potential Total		
Raw "known" total	33	
Raw "potential" total	21.2	
Raw combined total	54.2	Note: If "Known" and "Potential" scores are provided, the checklist defaults to known. Therefore, the total "Potential" Score may not reflect the sum of the individual "Potential" scores.
Total (max 33)	**27.9**	

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Human				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to humans as a result of the contaminated site. (Class 1 Site*)	22		"Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (i.e., action required). There is no need to proceed through the NCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites). This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1 for noncarcinogenic chemicals and incremental cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either >10^{-6} or >10^{-5}). Known impacts can also be evaluated based on blood testing (e.g. blood lead >10 ug/dL) or other health based testing. This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 0.2 for non-carcinogenic chemicals and incremental lifetime cancer risks for carcinogenic chemicals that are within acceptable levels as defined by the jurisdiction (for most jurisdictions this is less than either 10^{-6} or 10^{-5}).	Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet. Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site. **Selected References:** Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Heath Screening Level Risk Assessments (www.hc-sc.gc.ca/ewh-semt/pubs/contaminite/index_e.html) United States Environmental Protection Agency, Integrated Risk Information System (IRIS) – http://toxnet.nml.nih.gov
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	10			
No quantified or suspected exposures/impacts in humans.	0			
	Go to Potential			
Score	--			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Human Exposure) and go to Section 2 (Human Exposure Modifying Factors)				
B. Potential for human exposure				
a) Land use (provides an indication of potential human exposure scenarios) Agricultural Residential / Parkland Commercial Industrial Do Not Know	Commercial	Commercial zoning (located within the airport lands). Distance to the nearest residential housing is over 3km. A hotel was under construction in the summer of 2009.	Review zoning and land use maps over the distances indicated. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place. Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (e.g., children).
Score	1			
b. Indicate the level of accessibility to the contaminated portion of the site (e.g., the potential for coming in contact with contamination) Limited barriers to prevent site access; contamination not covered Moderate access or no intervening barriers, contaminants are covered. Remote locations in which contaminants not covered. Controlled access or remote location and contaminants are covered Do Not Know	Access, not covered	There are no barriers to access at the landfill. Landfill material is covered, however down gradient impacted areas exposed.	Review location and structures and contaminants at the site and determine if there are intervening barriers between the site and humans. A low rating should be assigned to a (covered) site surrounded by a fence or in a remote location, whereas a high score should be assigned to a site that has no cover, fence, natural barriers or buffer.	
Score	2			
B. Potential for human exposure				
c) Potential for intake of contaminated soil, water, sediment or foods for operable or potentially operable pathways, as identified in Worksheet II (Migration Potential). i) direct contact Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated? Yes No Do Not Know	Yes	Dermal contact assumed due to presence of surface soils exceeding CCME guidelines.	If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.	Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.
Score	3			
ii) inhalation (i.e., inhalation of dust, vapour) Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)? Yes No Do Not Know	Do Not Know	New hotel is being constructed on top of the landfill on its NE end, however the exact location of hotel and the soil quality in its vicinity is unknown. Soils consist of sand and gravel.	If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a.), *Potential for COPCs in Vapour* for a definition of volatility.	Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion. Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts. General Notes; Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References; Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. www.ccme.ca. Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC
Score	1.5			
Dust - If there is contaminated surface soil (e.g. top 1.5 m) , indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero. Fine Coarse Surface soil is not contaminated or absent (bedrock) Do Not Know Texture			Consult grain size data for the site. If soils (containing exceedances of the CCME soil quality guidelines) predominantly consist of fine material (having a median grain size of 75 microns; as defined by CCME (2006)) then these soils are more likely to generate dusts.	
Score	Coarse			
	1			
inhalation total	2.5			
B. Potential for human exposure				
iii) Ingestion (i.e., ingestion of food items, water and soils [for children]), including traditional foods. Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future). 0 to 100 m 100 to 300 m 300 m to 1 km 1 to 5 km No drinking water present Do Not Know	300 m to 1 km	Drinking water supplied to community from Strip Lake on the other side of the airport. Strip Lake is approximately 0.6 km from the landfill.	Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (e.g., provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure. The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport.	**Selected References:** Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/hecs-sesc/water/publications/drinking_water_quality_guidelines/toc.htm Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable. Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.
Score	2			
Is an alternative water supply readily available? Yes No Do Not Know	Yes	Other lakes are likely suitable sources for potable water.		
Score	0			
Is human ingestion of contaminated soils possible? Yes No Do Not Know	Yes	Access to the site is not restricted, and contaminated soils are found in the top 1.5m.	If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.	
Score	3			
Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings? Yes No Do Not Know	Do Not Know	Use of the resources, by humans and/or game, from APEC 2 and downstream areas is unknown.	Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (e.g., large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.	
Score	0.5			
Ingestion total	5.5			
Human Health Total "Potential" Score	14	Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.		
Allowed "Potential" Score	14			
2. Human Exposure Modifying Factors				
a) Strong reliance of local people on natural resources for survival (i.e., food, water, shelter, etc.)	No	Local Inuit may occasionally use the site, however, there is unlikely to be any use of the site for natural resources given the presence of the landfill.		

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Yes No Do Not Know				
Known	0			
Potential	---			
Raw Human "known" total	0			
Raw Human "potential" total	14			
Raw Human Exposure Total Score	14			
Human Health Total (max 22)	**14.0**			
3. Ecological				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.	18		Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are deemed to be severe, the site may be categorized as class one (i.e., a priority for remediation or risk management), regardless of the numerical total NCS score. For the purpose of application of the NCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction. If ecological effects are determined to be severe and an automatic Class 1 is assigned, there is no need to proceed through the NCS. However, a scoring guideline (18) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).	CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. www.ccme.ca CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. www.ccme.ca Sensitive receptors- review: Canadian Council on Ecological Areas; www.ccea.org. Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in *A Framework for Ecological Risk Assessment: General Guidance* (CCME 1996). Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	12		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.	
No quantified or suspected exposures/impacts in terrestrial or aquatic organisms	0		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.	
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)				
B. Potential for ecological exposure (for the contaminated portion of the site)				
a) Terrestrial i) Land use Agricultural (or Wild lands) Residential/Parkland Commercial Industrial Do Not Know		Applied the land use most applicable to the site.	Review zoning and land use maps. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place (indicate in the worksheet that future land use is the consideration). Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Wild lands are grouped with agricultural land due to the similarities in receptors that would be expected to occur there (e.g., herbivorous mammals and birds) and the similar need for a high level of protection to ensure ecological functioning. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	
	Commercial			
Score	1			
ii) Uptake potential Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site? Yes No Do Not Know	Yes	Contaminated soils are located within the top 1.5 m.	If contaminated soils are located within the top 1.5 m, it is assumed that direct contact of soils with plants and soil invertebrates is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely.	
Score	1			
iii) Ingestion (i.e., wildlife or domestic animals ingesting contaminated food items, soils or water) Are terrestrial animals likely to be ingesting contaminated water at the site? Yes No Do Not Know	Yes	Terrestrial receptors may be ingesting the contaminated water at the site since there are few surface water sources in the area.	Refer to an Ecological Risk Assessment for the site. If there is contaminated surface water at the site, assume that terrestrial organisms will ingest it.	
Score	1			
Are terrestrial animals likely to be ingesting contaminated soils at the site? Yes No Do Not Know	Yes	Terrestrial receptors may be ingesting the contaminated soil attached to the roots of plants.	Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Score	1			
Can the contamination identified bioaccumulate? Yes No Do Not Know	No	Benzene, ethylbenzene, toluene and naphthalene log Kow values < 4	Bioaccumulation of contaminants within food items is considered possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in soils exceed the most conservative CCME soil quality guideline for the intended land use, or 2) The contaminant in collected tissue samples exceeds the Canadian Tissue Residue Guidelines.	
Score	0			
Distance to sensitive terrestrial ecological area 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	1 to 5 km	Distance to Allen Bay is approx. 2.5 to < 5 km (depending on season and direction of water flow).	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor located within this area of the site will be subject to further evaluations. It is also considered that any environmental receptor located greater than 5 km will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance; arctic environments (on a site specific basis); nature preserves, habitats for species at risk, sensitive forests, natural parks or forests.
Score	1			
Raw Terrestrial Total Potential	5	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Terrestrial Total Potential	5			
B. Potential for ecological exposure (for the contaminated portion of the site)				
b) Aquatic i) Classification of aquatic environment Sensitive Typical Not Applicable (no aquatic environment present) Do Not Know			"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species. "Typical aquatic environments" include those in areas other than those listed above.	
	Typical			
Score	1			
ii) Uptake potential Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact? Yes No (or Not Applicable) Do Not Know	Do Not Know	GW: Toluene at 2-MW-8; Cadmium at 2-MW-1 and 2-MW-8; Naphthalene at 2-MW-8 SW: Aluminum at 2-SW-6	Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Score	0.5			
Distance from the contaminated site to an important surface water resource 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	1 to 5 km	Distance to Allen Bay is approx. 2.5 to < 5 km (depending on direction).	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor or important water resource located within this area of the site will be subject to further evaluation. It is also considered that any environmental receptor located greater than 5 km away will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance, sensitive wetlands and fens and other aquatic environments.
Score	1		Bioaccumulation of food items is possible if:	

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Historic Landfill Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Are aquatic species (i.e., forage fish, invertebrates or plants) that are consumed by predatory fish or wildlife consumers, such as mammals and birds, likely to accumulate contaminants in their tissues? Yes No Do Not Know	No	Benzene, ethylbenzene, toluene and naphthalene log Kow values < 4	1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in sediments exceed the CCME ISQGs. 2) The contaminant in collected tissue samples exceeds the CCME tissue quality guidelines.	
Score	0			
Raw Aquatic Total Potential	2.5	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Aquatic Total Potential	2.5			
4. Ecological Exposure Modifying Factors				
a) Known occurrence of a species at risk. Is there a potential for a species at risk to be present at the site? Yes No Do Not Know	Do Not Know	Ivory gull may be present , based on the range provided by the species at risk website (special concern species) for Cornwallis Island/Resolute Bay area (http://www.sis.ec.gc.ca/ec_species/ec_species_e.phtml).	Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as Eco Explorer. Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.	Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMWLAP. 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists. Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://srmwww.gov.bc.ca/atrisk/red-blue.htm
	---			
Score	1			
b) Potential impact of aesthetics (e.g., enrichment of a lake or tainting of food flavor).		No aesthetic impact was observed.		
Is there evidence of aesthetic impact to receiving water bodies? Yes No Do Not Know	Do Not Know		Documentation may consist of environmental investigation reports, press articles, petitions or other records.	This item will require some level of documentation by user, including contact names, addresses, phone numbers, e-mail addresses. Evidence of changes must be documented, please attach copy of report containing relevant information.

	1			
Is there evidence of olfactory impact (i.e., unpleasant smell)? Yes No Do Not Know	Yes	Slight hydrocarbon odours at 2-TP-8, 2-TP-12, 2-TP-13 and 2-TP-18.	Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.	
	2			

Is there evidence of increase in plant growth in the lake or water body? Yes No Do Not Know	Yes	The southern end of the drainage area was rich with vegetation in comparison to other areas of the island.	A distinct increase of plant growth in an aquatic environment may suggest enrichment. Nutrients e.g., nitrogen or phosphorous releases to an aquatic body can act as a fertilizer.	
	2			

Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different? Yes No Do Not Know	Do Not Know		Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.	

	1			
Ecological Modifying Factors Total - Known	**4**			
Ecological Modifying Factors Total - Potential	**3**			
Raw Ecological Total - Known	4			
Raw Ecological Total - Potential	10.5			
Raw Ecological Total	14.5			
Ecological Total (Max 18)	**14.5**			
5. Other Potential Contaminant Receptors				
a) Exposure of permafrost (leading to erosion and structural concerns)		Yes, stability of the landfill and adjacent airport buildings relies on the permafrost.		Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.
Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity? Yes No Do Not Know	Do Not Know		Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.	

	2			
Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment? Yes No Do Not Know	Yes	Surface water runoff is migrating from the site. Past studies show that Merreta Lake has received flow from the area, and thus is the receiving water body for any particulate matter transported by run-off (via drainage channels and overland run-off).	Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.	
	2			

Other Potential Receptors Total - Known	**2**			
Other Potential Receptors Total - Potential	**2**			

Exposure Total	
Raw Human Health + Ecological Total - Known	6
Raw Human Health + Ecological Total - Potential	26.5
Raw Total	32.5
Exposure Total (max 34)	**24.0**

Only includes "Allowed potential" - if a "Known" score was supplied under a given category then the "Potential" score was not included.

CCME National Classification System (2008)
Score Summary

Scores from individual worksheets are tallied in this worksheet.
Refer to this sheet after filling out the revised NCS completely.

I. Contaminant Characteristics	Known	Potential
1. Residency Media	6	---
2. Chemical Hazard	8	---
3. Contaminant Exceedance Factor	4	---
4. Contaminant Quantity	9	---
5. Modifying Factors	2	---
Raw Total Score	29	0
Raw Total Score (Known + Potential)	29	
Adjusted Total Score (Raw Total / 40 *33)	**23.9**	(max 33)

II. Migration Potential	Known	Potential
1. Groundwater Movement	---	11.2
2. Surface Water Movement	12	---
3. Soil	12	---
4. Vapour	---	10
5. Sediment Movement	9	---
6. Modifying Factors	0	0
Raw Total Score	33	21.2
Raw Total Score (Known + Potential)	54.2	
Adjusted Total Score (Raw Total / 64 * 33)	**27.9**	(max 33)

III. Exposure	Known	Potential
1. Human Receptors		
A. Known Impact	---	
B Potential		
a. Land Use		1
b. Accessibility		2
c. Exposure Route		
i. Direct Contact		3
ii. Inhalation		2.5
iii. Ingestion		5.5
2. Human Receptors Modifying Factors	0	---
Raw Total Human Score	0	14
Raw Total Human Score (Known + Potential)	14	
Adjusted Total Human Score	14.0	(maximum 22)
3. Ecological Receptors		
A. Known Impact	---	
B. Potential		
a. Terrestrial		5
b. Aquatic		2.5
4. Ecological Receptors Modifying Factors	4	3
Raw Total Ecological Score	4	10.5
Raw Total Ecological Score (Known + Potential)	14.5	
Adjusted Total Ecological Score	14.5	(maximum 18)
5. Other Receptors	2	2
Total Other Receptors Score (Known + Potential)	4	
Total Exposure Score (Human + Ecological + Other)	**32.5**	
Adjusted Total Exposure Score (Total Exposure / 46 * 34)	**24.0**	(max 34)

Site Score

Resolute Bay Airport - Historic Landfill Area

Site Letter Grade	**C**
Certainty Percentage	**75%**
% Responses that are "Do Not Know"	**12%**
Total NCSCS Score for site	**75.9**
Site Classification Category	**1**

Site Classification Categories*:

Class 1 - High Priority for Action (Total NCS Score >70)
Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)
Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)
Class N - Not a Priority for Action (Total NCS Score <37)
Class INS - Insufficient Information (>15% of responses are "Do Not Know")

* NOTE: The term "action" in the above categories does not necessarily refer to remediation, but could also include risk assessment, risk management or further site characterization and data collection.

CCME National Classification System for Contaminated Sites (2008)
Pre-Screening Checklist

Question	Response (yes / no)	Comment
1. Are **Radioactive material**, **Bacterial contamination** or **Biological hazards** likely to be present at the site?	No	If yes, do not proceed through the NCSCS. Contact applicable regulatory agency immediately.
2. Are there **no contamination exceedances** (known or suspected)? Determination of exceedances may be based on: 1) CCME environmental quality guidelines; 2) equivalent provincial guidelines/standards if no CCME guideline exists for a specific chemical in a relevant medium; or 3) toxicity benchmarks derived from the literature for chemicals not covered by CCME or provincial guidelines/standards.	No	If yes (i.e., there are no exceedances), do not proceed through the NCSCS.
3. Have **partial/incompleted or no environmental site investigations** been conducted for the Site?	No	If yes, do not proceed through the NCSCS.
4. Is there direct and signficant evidence of **impacts to humans** at the site, or off-site due to migration of contaminants from the site?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
5. Is there direct and significant evidence of **impacts to ecological receptors** at the site, or off-site due to migration of contaminants from the site?	No	Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are considered to be severe, the site may be categorized as Class 1, regardless of the numerical total NCSCS score. For the purpose of application of the NCSCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction.
6. Are there indicators of significant **adverse effects in the exposure zone** (i.e., the zone in which receptors may come into contact with contaminants)? Some examples are as follows: -Hydrocarbon sheen or NAPL in the exposure zone -Severely stressed biota or devoid of biota; -Presence of material at ground surface or sediment with suspected high concentration of contaminants such as ore tailings, sandblasting grit, slag, and coal tar.	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
7. Do measured concentrations of volatiles or unexploded ordnances represent an **explosion hazard**?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, and do not continue until the safety risks have been addressed. Consult your jurisdiction's occupational health and safety guidance or legislation on exposive hazards and measurement of lower explosive limits.

If none of the above applies, proceed with the NCSCS scoring.

CCME National Classification System for Contaminated Sites (2008)
Summary of Site Conditions

Subject Site:	**Resolute Bay Airport - Vehicle Storage Area**	
Civic Address: *(or other description of location)*	NA	
Site Common Name: *(if applicable)*	Vehicle Storage Area / Boneyard	
Site Owner or Custodian: *(Organization and Contact Person)*	Transport Canada	
Legal description *or* metes and bounds:	NA	
Approximate Site area:		
PID(s): *(or Parcel Identification Numbers [PIN] if untitled Crown land)*	NA	
Centre of site: *(provide latitude/longitude or UTM coordinates)*	Latitude: Longitude:	74 degress 44 minutes 46.2552 seconds 95 degrees 1 minute 41.3826 seconds
	UTM Coordinate:	Northing 440448.49819 Easting 8296304.65508
Site Land Use:	Current:	former vehicle and scrap metal disposal site
	Proposed:	none
Site Plan	**To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.**	
Provide a brief description of the Site:	The Vehicle Storage Area is on the south edge of the McMaster River valley approximately 30-35 asl. The area is approximately 3 km north of the airport terminal along a service road and can be divided into two distinct disposal areas(1) vehicles and other scrap metal, and (2) other miscellaneous materials including batteries, communications equipment, paint, shingles, transformers, etc.	
Affected media and Contaminants of Potential Concern (COPC):	Affected media is limited to soil. Contaminants of concern are PAHs, metals and PHCs. Contaminant impacts are limited to the site. Visual impacts are across the site.	

Please fill in the "letter" that best describes the level of information available for the site being assessed.
Site Letter Grade **D** Limited Phase II ESA
If letter grade is F, do not continue, you must have a minimum of a Phase I Environmental Site Assessment or equivalent.

Scoring Completed By:	**Michael Shum/Jordi Helsen**
Date Scoring Completed:	**21-Jan-10**

CCME National Classification System (2008)

(I) Contaminant Characteristics

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
1. Residency Media (replaces physical state)				
Which of the following residency media are known (or strongly suspected) to have one or more exceedances of the applicable CCME guidelines? **yes** = has an exceedance or strongly suspected to have an exceedance **no** = does not have an exceedance or strongly suspected not to have an exceedance		Exceedances of CCME guidelines (or other applicable limits, in the absence of CCME guidelines) are documented in Franz (2010) Phase II/III Environmental Site Assessment (field report). Soil exceedances: F3, benzo(a)anthracene, benzo(a)pyrene, indeno(1,2,3-c,d) pyrene, and copper at 3-TP-3 (0 - 0.2m); and F3 at 3-TP-4 (0 - 0.1m).	The overall score is calculated by adding the individual scores from each residency media (having one or more exceedance of the most conservative media specific and land-use appropriate CCME guideline). Summary tables of the Canadian Environmental Quality Guidelines for soil, water (aquatic life, non-potable groundwater environments, and agricultural water uses) and sediment are available on the CCME website at http://www.ccme.ca/publications/ceqg_rqe.html?category_id=124 For potable groundwater environments, guidelines for Canadian Drinking Water Quality (for comparison with groundwater monitoring data) are available on the Health Canada website at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
Yes No Do Not Know				
B. Groundwater	No			
Yes No Do Not Know				
C. Surface water	No			
Yes No Do Not Know				
D. Sediment	No			
Yes No Do Not Know				
"Known" -score	2			
"Potential" - score	---			
2. Chemical Hazard	soil -			
What is the relative degree of chemical hazard of the contaminant in the list of hazard rankings proposed by the Federal Contaminated Sites Action Plan (FCSAP)?	High	Benzo(a)anthracene, benzo(a)pyrene, and indeno(1,2,3-c,d)pyrene are all considered to have high hazard rankings.	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. *See Attached Reference Material for Contaminant Hazard Rankings.*	Hazard as defined in the revised NCS pertains to the physical properties of a chemical which can cause harm. Properties can include toxic potency, propensity to biomagnify, persistence in the environment, etc. Although there is some overlap between hazard and contaminant exceedance factor below, it will not be possible to derive contaminant exceedance factors for many substances which have a designated chemical hazard designation, but don't have a CCME guideline. The purpose of this category is to avoid missing a measure of toxic potential.
High Medium Low Do Not Know				
"Known" -score	8			
"Potential" - score	---			
3. Contaminant Exceedence Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")?	dium (10x to 10	Based on CWS-RL/PL exceedance of F3 in soil at 3-TP-3 that is 37x greater than the RL/PL standard (F3 at 3-TP-3 = 11,000 ug/g; CWS-RL/PL = 300 ug/g).	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the*most conservative media-specific and land-use appropriate CCME* environmental quality guidelines. **Ranking should be based on contaminant with greatest exceedance of CCME guidelines.** Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines Mobile NAPL = Contaminant is a non-aqueous phase liquid (i.e., due to its low solubility, it does not dissolve in water, but remains as a separate liquid) and is present at a sufficiently high saturation (i.e., greater than residual NAPL saturation) such that there is significant potential for mobility either downwards or laterally. Other standards may include local background concentration or published toxicity benchmarks. Results of toxicity testing with site samples can be used as an alternative. This approach is only relevant for contaminants that do not biomagnify in the food web, since toxicity tests would not indicate potential effects at higher trophic levels. High = lethality observed. Medium = no lethality, but sub lethal effects observed. Low = neither lethal nor sub lethal effects observed.	In the event that elevated levels of a material with no associated CCME guidelines are present, check provincial and USEPA environmental criteria. Hazard Quotients (sometimes referred to as a screening quotient in risk assessments) refer to the ratio of measured concentration to the concentration believed to be the threshold for toxicity. A similar calculation is used here to determine the contaminant exceedance factor (CEF). Concentrations greater than one times the applicable CCME guideline (i.e., CEF=>1) indicate that risks are possible. Mobile NAPL has the highest associated score (8) because of its highly concentrated nature and potential for increase in the size of the impacted zone.
Mobile NAPL High (>100x) Medium (10x to 100x) Low (1x to 10x) Do Not Know				
"Known" -score	4			
"Potential" - score	---			
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants?	<2 ha or 1000 m3	Contaminated soil is not extensive (< 1000m3); soil exceeding CCME RL/PL was encountered at 3-TP-3 and 3-TP-4.	Measure or estimate the area or quantity of total contamination (i.e, all contaminants known or strongly suspected to be present on the site). The "Area of Contamination" is defined as the area or volume of contaminated media (soil, sediment, groundwater, surface water) exceeding appropriate environmental criteria.	A larger quantity of a potentially toxic substance can result in a larger frequency of exposure as well as a greater probability of migration, therefore, larger quantities of these substances earn a higher score.
>10 hectare (ha) or 5000 m^3 2 to 10 ha or 1000 to 5000 m^3 <2 ha or 1000 m^3 Do Not Know				
"Known" -score	2			
"Potential" - score	---			
5. Modifying Factors				
Does the chemical fall in the class of persistent chemicals based on its behavior in the environment?	No		Persistent chemicals, e.g., PCBs, chlorinated pesticides etc. either do not degrade or take longer to degrade, and therefore may be available to cause effects for a longer period of time. Canadian Environmental Protection Act (CEPA) classifies a chemical as persistent when it has at least one of the following characteristics: (a) in air, (i) its half-life is equal to or greater than 2 days, or (ii) it is subject to atmospheric transport from its source to a	*Examples of Persistent Substances are provided in*
Yes No Do Not Know				

CCME National Classification System (2008)

(I) Contaminant Characteristics

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
		No PCBs, chlorinated pesticides or other pesistent chemicals present at concentrations exceeding the CCME guidelines. Most were ND.	remote area; (b) in water, its half-life is equal to or greater than 182 days; (c) in sediments, its half-life is equal to or greater than 365 days; or (d) in soil, its half-life is equal to or greater than 182 days. This list does not include metals or metalloids, which in their elemental form do not degrade. However metals and metalloids form chemical species in the environment, many of which are not readily bioavailable.	*attached Reference Materials*
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No	No contaminants present that are known to damage utilities and/or infrastructure.		Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	two to four	There are three classes of contaminants: heavy extractable PHC (F3), PAHs (benzo(a)anthracene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene) and metals (Cu).	For the purposes of the revised NCS ranking system, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	*Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.*
"Known" - Score	2			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Scores- "Known"	18
Raw Total Scores- "Potential"	0
Raw Combined Total Scores	18
Total Score (Raw Combined / 40 * 33)	**14.9**

CCME National Classification System (2008)

(II) Migration Potentia (Evaluation of contaminant migration pathways

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
i) For **potable groundwater environments**, 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For **non-potable environments** (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts. ii) Same as (i) except the information is not known but strongly suspected based on indirect observations. iii) Meets GCDWQ for **potable environments**; meets non-potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for **non-potable environments** **or** Absence of groundwater exposure pathway (*i.e.*, there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight). Score	12 9 0 Go to Potential ---	Not scored.	Review chemical data and evaluate groundwater quality. The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis. Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils. Seeps and springs are considered part of the groundwater pathway. In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.	The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries. Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links. Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered. **Selected References** Potable Environments Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html Non-Potable Environments Canadian Water Quality Guidelines for Protection of Aquatic Life. CCME. 1999 www.ccme.ca Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.
NOTE: If a score is assigned here for Known COPC Exceedances, then you can skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)				
B. Potential for groundwater pathway.				
a. Relative Mobility High Moderate Low Insignificant Do Not Know Score	 Insignificant 0	Relative mobility consider insignificant because the PAHs present in soil exceeding CCME RL/PL have log Koc values greater than 5.	Organics Koc (L/kg) / Metals with higher mobility at acidic conditions / Metals with higher mobility at alkaline conditions Koc < 500 (i.e., log Koc < 2.7) — pH < 5 — pH > 8.5 Koc = 500 to 5000 (i.e., log Koc = 2.7 to 3.7) — pH = 5 to 6 — pH = 7.5 to 8.5 Koc = 5,000 to 100,000 (i.e., log Koc = 3.7 to 5) — pH > 6 — pH < 7.5 Koc > 100,000 (i.e., log Koc > 5)	Reference: US EPA Soil Screening Guidance (Part 5 - Table 39) If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixtures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.
b. Presence of engineered sub-surface containment? No containment Partial containment Full containment Do Not Know Score	 No containment 3	No engineered containment system. Insufficient data to evaluate natural attenuation. No detailed evaluation of permafrost conducted.	Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved. Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.	Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links. **Selected Resources:** United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128. Environment Canada – Ontario Region – Natural Attenuation Technical Assistance Bulletins (TABS) Number 19 –21.
c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway 3 m or less including no confining layer or discontinuous confining layer 3 to 10 m > 10 m Do Not Know Score	 3 m or less 1	No confining layer.	The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow. Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway. The evaluation of this category is based on: 1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or 2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (e.g., water table aquifer, first hydrostratigraphic unit or other groundwater pathway).	
d. Hydraulic conductivity of confining layer $>10^{-4}$ cm/s or no confining layer 10^{-4} to 10^{-6} cm/s $<10^{-6}$ cm/s Do Not Know Score	 >10-4 cm/s 1	No confining layer.	Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on: 1) The presence and hydraulic conductivity ("K") of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as a drinking water source, groundwater exposure pathway or 2) The presence and permeability ("K") of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated water table aquifer, first hydrostratigraphic unit or other groundwater pathway.	
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High Moderate Low Very Low None Do Not Know Score	 Very Low 0.2	Annual precipitation is 150mm. Surface materials are poorly developed soils, typically granular and ranging from sand to gravel (based on onsite observations from Franz site visit August 2009). Precipitation factor (PF) = annual precipitation/1000 and rounded to the nearest tenth = 0.2 Surface soil relative permeability factor (SSRPF) (sand to gravel) = 0.8 Precipitation infiltration rate = PF x SSRPF = 0.2 x 0.8 = 0.16	Precipitation Refer to Environment Canada precipitation records for relevant areas. Divide annual precipitation by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). Permeability For surface soil relative permeability (i.e., infiltration) assume: gravel (1), sand (0.6), loam (0.3) and pavement or clay (0). Multiply the surface soil relative permeability factor with precipitation factor to obtain the score for precipitation infiltration rate.	
f. Hydraulic conductivity of aquifer $>10^{-2}$ cm/s 10^{-2} to 10^{-4} cm/s $<10^{-4}$ cm/s Do Not Know Score	 >10-2 cm/s 2	Sand to gravel (based on onsite observations from Franz site visit August 2009).	Determine the nature of geologic materials and estimate hydraulic conductivity of all aquifers of concern from published material (refer to "Range of Values of Hydraulic Conductivity and Permeability" in the Reference Material sheet).	
Potential groundwater pathway total	7.2			
Allowed Potential score	7.2			
Groundwater pathway total	**7.2**			
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				

CCME National Classification System (2008)

(II) Migration Potentia (Evaluation of contaminant migration pathways

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for protection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (e.g. toxicity testing; or other indicator testing of exposure).	12	Not scored.	Collect all available information on quality of surface water near to site. Evaluate available data against Canadian Water Quality Guidelines (select appropriate guidelines based on local water use, e.g., recreation, irrigation, aquatic life, livestock watering, etc.). The evaluation method concentrates on the surface water flow system and its potential to be an exposure pathway. Contamination is present on the surface (above ground) and has the potential to impact surface water bodies. Surface water is defined as a water body that supports one of the following uses: recreation, irrigation, livestock watering, aquatic life.	General Notes: Someone experienced must provide a thorough description of the sources researched to classify the surface water body in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References: CCME. 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life www.ccme.ca CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) www.ccme.ca Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	8			
iii) Meets CWQG or absence of surface water exposure pathway (i.e., Distance to nearest surface water is > 5 km.)	0			
Score	Go to Potential --			
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you can skip Part B (Potential for migration of COPCs in surface water) and go to Section 3 (Surface Soils)				
B. Potential for migration of COPCs in surface water				
a. Presence of containment No containment Partial containment Full containment Do Not Know	No containment	No engineered containment systems or natural intervening barriers between the site and nearby surface water (McMaster Creek).	Review the existing engineered systems and relate these structures to site conditions and proximity to surface water and determine if full containment is achieved: score low if there is full containment such as capping, berms, dikes; score medium if there is partial containment such as natural barriers, trees, ditches, sedimentation ponds; score high if there are no intervening barriers between the site and nearby surface water. Full containment must include containment of all chemicals.	
Score	5			
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know	0 to <100 m	Distance to nearest surface water body (McMaster Creek) = approx. 40 to 65 m.	Review available mapping and survey data to determine distance to nearest surface water bodies.	
Score	3			
c. Topography Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is intermediate Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know	All below and stee	Contaminated soil exceeding CCME RL/PL at 3-TP-3 (0 - 0.2m) and 3-TP-4 (0 - 0.1m). Scrap metal and other waste debris located on surface (at grade). Terrain immediately adjacent to APEC 3 slopes steeply to the NW (> 50% slope).	Review engineering documents on the topography of the site and the slope of surrounding terrain. Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (e.g., trench, above ground, etc.).	
Score	1.5			
d. Run-off potential High (rainfall run-off score > 0.6) Moderate (0.4 < rainfall run-off score <0.6) Low (0.2 < rainfall run-off score <0.4) Very Low (0 < rainfall run-off score < 0.2) None (rainfall run-off score = 0) Do Not Know	Very Low (0 < rainfall run-off	Annual precipitation is 150mm. Surface materials are poorly developed soils, typically granular and ranging from sand to gravel (based on observations from Franz site visit August 2009). Precipitation factor (PF) = precipitation/ 1000 and rounded to the nearest tenth = 0.2 Infiltration factor (IF) = 0.15, assumed to be half way between sand (0.3) and gravel (0). Rainfall run-off score = PF x IF = 0.2 x 0.15 = 0.03	Rainfall Refer to Environment Canada precipitation records for relevant areas. Divide rainfall by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). The former definition of "annual rainfall" did not include the precipitation as snow. This minor adjustment has been made. The second modification was the inclusion of permeability of surface materials as an evaluation factor. Permeability For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the infiltration factor with precipitation factor to obtain rainfall run off score.	Selected Sources: Environment Canada web page link: www.msc.ec.gc.ca Snow to rainfall conversion apply ratio of 15 (snow): 1(water)
Score	0.4			
e. Flood potential 1 in 2 years 1 in 10 years 1 in 50 years Do Not Know	Do Not Know		Review published data such as flood plain mapping or flood potential (e.g., spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.	
Score	0.5			
Potential surface water pathway total	10.4			
Allowed Potential score	10.4	Note: If a "known" score is provided, the "potential" score is disallowed.		
Surface water pathway total	**10.4**			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
COPCs measured in surface soils exceed the CCME soil quality guideline.	12	All soil exceeding CCME RL/PL was encountered at depths < 0.5m. 3-TP-3 (0 - 0.2m) exceeds for F3, benzo(a)anthracene, benzo(a)pyrene, indeno(1,2,3-c,d) pyrene, and copper; 3-TP-4 (0 - 0.1m) exceeds for F4	Collect all available information on quality of surface soils (i.e., top 1.5 metres) at the site. Evaluate available data against Canadian Soil Quality Guidelines. Select appropriate guidelines based on current (or proposed future) land use (i.e, agricultural, residential/parkland, commercial, or industrial), and soil texture if applicable (i.e., coarse or fine).	Selected References: CCME. 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health www.ccme.ca
Strongly suspected that soils exceed guidelines	9			
COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).	0			
	12			
Score	12			
NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you can skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)				
B. Potential for a surface soils (top 1.5 m) migration pathway				
a. Are the soils in question covered? Exposed Vegetated Landscaped Paved Do Not Know	Do Not Know	Not scored.	Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.	The possibility of contaminants in blowing snow have not been included in the revised NCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.
Score	4			
b. For what proportion of the year does the site remain covered by snow? 0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know	Do Not Know	Not scored.	Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).	
Score	3			
Potential surface soil pathway total	7			
Allowed Potential score	--	**Note: If a "known" score is provided, the "potential" score is disallowed.**		
Soil pathway total	**12**			
4. Vapour				
A. Demonstrated COPCs in vapour.				
Vapour has been measured (indoor or outdoor) in concentrations exceeding risk based concentrations.	12		Consult previous investigations, including human health risk assessments, for reports of vapours detected.	
Strongly suspected (based on observations and/or modelling)	9			
Vapour has not been measured and volatile hydrocarbons have not been found in site soils or groundwater.	0			

CCME National Classification System (2008)

(II) Migration Potentia (Evaluation of contaminant migration pathways

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you can skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H' (dimensionless) High (H' > 1.0E-1) Moderate (H' = 1.0E-1 to 1.0E-3) Low (H' < 1.0E-3) Not Volatile Do Not Know	Low	Dimensionless Henry's Law Constants for benzo(a)anthracene, benzo(a)pyrene and indeno(1,2,3-c,d)pyrene are less than 1.0E-03.	Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) *Provided in Attached Reference Materials*	If the Henry's Law Constant for a substance indicates that it is not volatile, and a score of zero is assigned here for relative volatility, then the other three questions in this section on Potential for COPCs will be automatically assigned scores of zero and you can skip to section 5.
Score	1			
b. What is the soil grain size? Fine Coarse Do Not Know	Coarse	Sand to gravel.	Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours. Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
Score	4			
c. Is the depth to the source less than 10m? Yes No Do Not Know	Yes	Contaminated soil is within the top 0.5m.	Review groundwater depths below grade for the site.	
Score	2			
d. Are there any preferential pathways? Yes No Do Not Know	No	Soil contamination found in surface soils, preferential pathways not applicable.	Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathyways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
Score	0			
Potential vapour pathway total	7			
Allowed Potential score	7	Note: If a "known" score is provided, the "potential" score is disallowed.		
Vapour pathway total	**7**			
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated.	12		Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Strongly suspected (based on observations and/or modelling)	9			
Sediments have been contained and there is no indication that sediments will migrate in future. **or** Absence of sediment exposure pathway (i.e., within 5 km of the site there are no aquatic receiving environments, and therefore no sediments).	0			
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you can skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				
B. Potential for sediment migration				
a. Are the sediments having COPC exceedances capped with sediments having no exceedances ("clean sediments")? Yes No Do Not Know	Do Not Know	Sediment coring has not been conducted.	Review existing sediment assessments. If sediment coring has been completed, it may indicate that historically contaminated sediments have been covered over by newer "clean" sediments. This assessment will require that cores collected demonstrate a low concentration near the top and higher concentration with sediment depth.	
	2			
b. For lakes and marine habitats, are the contaminated sediments in shallow water and therefore likely to be affected by tidal action, wave action or propeller wash? Yes No Do Not Know	No	Sediments are located in the McMaster Creek floodplain.	Review existing sediment assessments. If the sediments present at the site are in a river, select "no" for this question.	
	0			
c. For rivers, are the contaminated sediments in an area prone to sediment scouring? Yes No Do Not Know	Yes	Sediments samples were collected from the creek channel and could be scoured during higher flows.	Review existing sediment assessments. It is important that the assessment is made under worst case flows (high yearly flows). Under high yearly flows, areas which are commonly depositional	
	4			
Potential sediment pathway total	6			
Allowed Potential score	6	Note: If a "known" score is provided, the "potential" score is disallowed.		
Sediment pathway total	**6**			
6. Modifying Factors				
Are there subsurface utility conduits in the area affected by contamination? Yes No Do Not Know	No	No subsurface utility conduits are located in the contaminated area (based on a conversation with Jason Brown (airport manager), Aug 2009).	Consult existing engineering reports. Subsurface utilities can act as conduits for contaminant migration.	
Known	0			
Potential	0			

Migration Potential Total		
Raw "known" total	12	
Raw "potential" total	30.6	
Raw combined total	42.6	Note: If "Known" and "Potential" scores are provided, the checklist defaults to known. Therefore, the total "Potential" Score may not reflect the sum of the individual "Potential" scores.
Total (max 33)	**22.0**	

CCME National Classification System (2008)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Human				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to humans as a result of the contaminated site. (Class 1 Site*)	22	Not scored	"Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (i.e., action required). There is no need to proceed through the NCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites). This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1 for noncarcinogenic chemicals and incremental cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either >10^{-6} or >10^{-5}). Known impacts can also be evaluated based on blood testing (e.g. blood lead >10 ug/dL) or other health based testing. This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 0.2 for non-carcinogenic chemicals and incremental lifetime cancer risks for carcinogenic chemicals that are within acceptable levels as defined by the jurisdiction (for most jurisdictions this is less than either 10^{-6} or 10^{-5}).	Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet. Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site. **Selected References:** Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Health Screening Level Risk Assessments (www.hc-sc.gc.ca/ewh-semt/pubs/contaminite/index_e.html) United States Environmental Protection Agency, Integrated Risk Information System (IRIS) – http://toxnet.nml.nih.gov
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	10			
No quantified or suspected exposures/impacts in humans.	0			
	Go to Potential			
Score	--			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Human Exposure) and go to Section 2 (Human Exposure Modifying Factors)				
B. Potential for human exposure				
a) Land use (provides an indication of potential human exposure scenarios) Agricultural Residential / Parkland Commercial Industrial Do Not Know	Commercial	The site is located outside of the airport lands (commercial zoning). It is not close to the residential or active commercial areas; however, the exposure scenario is likely most similar to commercial/industrial.	Review zoning and land use maps over the distances indicated. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place. Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (e.g., children).
Score	1			
b. Indicate the level of accessibility to the contaminated portion of the site (e.g., the potential for coming in contact with contamination) Limited barriers to prevent site access; contamination not covered Moderate access or no intervening barriers, contaminants are covered. Remote locations in which contaminants not covered. Controlled access or remote location and contaminants are covered Do Not Know	Access, not covered	There are no barriers to access at the vehicle storage area.	Review location and structures and contaminants at the site and determine if there are intervening barriers between the site and humans. A low rating should be assigned to a (covered) site surrounded by a fence or in a remote location, whereas a high score should be assigned to a site that has no cover, fence, natural barriers or buffer.	
Score	2			
B. Potential for human exposure				
c) Potential for intake of contaminated soil, water, sediment or foods for operable or potentially operable pathways, as identified in Worksheet II (Migration Potential). i) direct contact Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated? Yes No Do Not Know	Yes	Dermal contact assumed due to presence of surface soils exceeding CCME RL/PL guidelines.	If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.	Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.
Score	3			
ii) inhalation (i.e., inhalation of dust, vapour) Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)? Yes No Do Not Know	No	There are no buildings within 30 m of the site. Soil consists of sand to gravel (coarse).	If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a.), *Potential for COPCs in Vapour* for a definition of volatility.	Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion. Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts. General Notes; Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References; Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. www.ccme.ca. Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC
Score	0			
Dust - If there is contaminated surface soil (e.g. top 1.5 m) , indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero. Fine Coarse Surface soil is not contaminated or absent (bedrock) Do Not Know Texture			Consult grain size data for the site. If soils (containing exceedances of the CCME soil quality guidelines) predominantly consist of fine material (having a median grain size of 75 microns; as defined by CCME (2006)) then these soils are more likely to generate dusts.	
Score	Coarse			
	1			
inhalation total	1			
B. Potential for human exposure				
iii) Ingestion (i.e., ingestion of food items, water and soils [for children]), including traditional foods. Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future). 0 to 100 m 100 to 300 m 300 m to 1 km 1 to 5 km No drinking water present Do Not Know	1 to 5 km	Drinking water is supplied to the community from Strip Lake on the other side of the airport. Strip Lake is approximately 3.7 km from the vehicle storage area.	Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (e.g., provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure. The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport.	**Selected References:** Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/hecs-sesc/water/publications/drinking_water_quality_guidelines/toc.htm Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable. Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.
Score	1.5			
Is an alternative water supply readily available? Yes No Do Not Know	Yes	Other lakes are likely suitable sources for potable water.		
Score	0			
Is human ingestion of contaminated soils possible? Yes No Do Not Know	Yes	Access to the site is not restricted, and contaminated soils are found within the top 1.5m.	If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.	
Score	3			
Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings? Yes No Do Not Know	Do Not Know	Use of the resources, by humans and/or game, from APEC 3 and downstream areas is unknown.	Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (e.g., large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.	
Score	0.5			
Ingestion total	5			
Human Health Total "Potential" Score	12	Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.		
Allowed "Potential" Score	12			
2. Human Exposure Modifying Factors				
a) Strong reliance of local people on natural resources for survival (i.e., food, water, shelter, etc.)	No			

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(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Yes No Do Not Know		There is unlikely to be any use of the site for natural resources by local people given the presence of the scrap metal and waste debris.		
Known	0			
Potential	---			
Raw Human "known" total	0			
Raw Human "potential" total	12			
Raw Human Exposure Total Score	12			
Human Health Total (max 22)	**12.0**			
3. Ecological				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.	18		Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are deemed to be severe, the site may be categorized as class one (i.e., a priority for remediation or risk management), regardless of the numerical total NCS score. For the purpose of application of the NCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction. If ecological effects are determined to be severe and an automatic Class 1 is assigned, there is no need to proceed through the NCS. However, a scoring guideline (18) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).	CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. www.ccme.ca CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. www.ccme.ca Sensitive receptors- review: Canadian Council on Ecological Areas; www.ccea.org. Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in *A Framework for Ecological Risk Assessment: General Guidance* (CCME 1996). Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	12		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.	
No quantified or suspected exposures/impacts in terrestrial or aquatic organisms	0		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.	
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)				
B. Potential for ecological exposure (for the contaminated portion of the site)				
a) Terrestrial i) Land use Agricultural (or Wild lands) Residential/Parkland Commercial Industrial Do Not Know		Applied the land use most applicable to the site.	Review zoning and land use maps. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place (indicate in the worksheet that future land use is the consideration). Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Wild lands are grouped with agricultural land due to the similarities in receptors that would be expected to occur there (e.g., herbivorous mammals and birds) and the similar need for a high level of protection to ensure ecological functioning. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	
	Commercial			
Score	1			
ii) Uptake potential Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site? Yes No Do Not Know	Yes	Soils exceeding CCME RL/PL are located near the surface (in the top 1.5m).	If contaminated soils are located within the top 1.5 m, it is assumed that direct contact of soils with plants and soil invertebrates is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely.	
Score	1			
iii) Ingestion (i.e., wildlife or domestic animals ingesting contaminated food items, soils or water) Are terrestrial animals likely to be ingesting contaminated water at the site? Yes No Do Not Know	No	No contaminated water was identified at the site.	Refer to an Ecological Risk Assessment for the site. If there is contaminated surface water at the site, assume that terrestrial organisms will ingest it.	
Score	0			
Are terrestrial animals likely to be ingesting contaminated soils at the site? Yes No Do Not Know	Yes	Terrestrial receptors may be ingesting the contaminated soil attached to the roots of plants.	Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Score	1			
Can the contamination identified bioaccumulate? Yes No Do Not Know	Yes	Log Kow values for benzo(a)anthracene, benzo(a)pyrene, and indeno(1,2,3-c,d)pyrene are greater than 4, and thus bioaccumulation would be considered possible.	Bioaccumulation of contaminants within food items is considered possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in soils exceed the most conservative CCME soil quality guideline for the intended land use, or 2) The contaminant in collected tissue samples exceeds the Canadian Tissue Residue Guidelines.	
Score	1			
Distance to sensitive terrestrial ecological area 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	300 m to 1 km	The distance to Allen Bay ranges from approximately 900 m to 1100 m (depending on flow path).	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor located within this area of the site will be subject to further evaluations. It is also considered that any environmental receptor located greater than 5 km will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance; arctic environments (on a site specific basis); nature preserves, habitats for species at risk, sensitive forests, natural parks or forests.
Score	2			
Raw Terrestrial Total Potential	6	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Terrestrial Total Potential	6			
B. Potential for ecological exposure (for the contaminated portion of the site)				
b) Aquatic i) Classification of aquatic environment Sensitive Typical Not Applicable (no aquatic environment present) Do Not Know			"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species. "Typical aquatic environments" include those in areas other than those listed above.	
	Typical			
Score	1			
ii) Uptake potential Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact? Yes No (or Not Applicable) Do Not Know	No	No groundwater data was collected, however, based on the limited contamination and the lack of detectable concentrations in surface water and sediment - the uptake potential is considered nil.	Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Score	0			
Distance from the contaminated site to an important surface water resource 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	300 m to 1 km	The distance to Allen Bay ranges from approximately 900 m to 1100 m (depending on flow path).	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor or important water resource located within this area of the site will be subject to further evaluation. It is also considered that any environmental receptor located greater than 5 km away will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance, sensitive wetlands and fens and other aquatic environments.
Score	2			
			Bioaccumulation of food items is possible if:	

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(III) Exposure (Demonstrates the presence of an exposure pathway and receptor)

Resolute Bay Airport - Vehicle Storage Area

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Are aquatic species (i.e., forage fish, invertebrates or plants) that are consumed by predatory fish or wildlife consumers, such as mammals and birds, likely to accumulate contaminants in their tissues? Yes No Do Not Know	No	No contaminants were observed in surface water or sediment samples.	1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in sediments exceed the CCME ISQGs. 2) The contaminant in collected tissue samples exceeds the CCME tissue quality guidelines.	
Score	0			
Raw Aquatic Total Potential	3	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Aquatic Total Potential	3			
4. Ecological Exposure Modifying Factors				
a) Known occurrence of a species at risk. Is there a potential for a species at risk to be present at the site? Yes No Do Not Know	Yes	Ivory gull may be present, based on the range provided by the species at risk website (special concern species) for Cornwallis Island/Resolute Bay area (http://www.sis.ec.gc.ca/ec_species/ec_species_e.phtml).	Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as Eco Explorer. Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.	Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMWLAP. 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists. Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://srmwww.gov.bc.ca/atrisk/red-blue.htm
Score	2 ---			
b) Potential impact of aesthetics (e.g., enrichment of a lake or tainting of food flavor).				
Is there evidence of aesthetic impact to receiving water bodies? Yes No Do Not Know	Yes 2 ---	Yes, scrap metal and transformers were observed in McMaster Creek and adjacent to the creek on its flood plain.	Documentation may consist of environmental investigation reports, press articles, petitions or other records.	This item will require some level of documentation by user, including contact names, addresses, phone numbers, e-mail addresses. Evidence of changes must be documented, please attach copy of report containing relevant information.
Is there evidence of olfactory impact (i.e., unpleasant smell)? Yes No Do Not Know	Yes 2 ---	Light hydrocarbon odour (oily) at 3-TP-3.	Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.	
Is there evidence of increase in plant growth in the lake or water body? Yes No Do Not Know	No 0 ---	No evidence of increased plant growth was observed at the site.	A distinct increase of plant growth in an aquatic environment may suggest enrichment. Nutrients e.g., nitrogen or phosphorous releases to an aquatic body can act as a fertilizer.	
Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different? Yes No Do Not Know	Do Not Know --- 1		Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.	
Ecological Modifying Factors Total - Known	**6**			
Ecological Modifying Factors Total - Potential	**1**			
Raw Ecological Total - Known	6			
Raw Ecological Total - Potential	10			
Raw Ecological Total	16			
Ecological Total (Max 18)	**16.0**			
5. Other Potential Contaminant Receptors				
a) Exposure of permafrost (leading to erosion and structural concerns)				Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.
Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity? Yes No Do Not Know	No 0 ---		Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.	
Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment? Yes No Do Not Know	Yes 2 ---	Surface water runoff (and possibly shallow groundwater) drains from the site. Linear drainage features (channels) were observed at the site at the top of the slope, and along the valley slope leading down to McMaster Creek. Depositional features (alluvial fans) were observed at the bottom of the slope.	Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.	
Other Potential Receptors Total - Known	**2**			
Other Potential Receptors Total - Potential	**0**			

Exposure Total		
Raw Human Health + Ecological Total - Known	8	Only includes "Allowed potential" - if a "Known" score was supplied under a given category then the "Potential" score was not included.
Raw Human Health + Ecological Total - Potential	22	
Raw Total	30	
Exposure Total (max 34)	**22.2**	

CCME National Classification System (2008)
Score Summary

Scores from individual worksheets are tallied in this worksheet.
Refer to this sheet after filling out the revised NCS completely.

I. Contaminant Characteristics	Known	Potential
1. Residency Media	2	---
2. Chemical Hazard	8	---
3. Contaminant Exceedance Factor	4	---
4. Contaminant Quantity	2	---
5. Modifying Factors	2	---
Raw Total Score	18	0
Raw Total Score (Known + Potential)	18	
Adjusted Total Score (Raw Total / 40 *33)	**14.9**	(max 33)

II. Migration Potential	Known	Potential
1. Groundwater Movement	---	7.2
2. Surface Water Movement	---	10.4
3. Soil	12	---
4. Vapour	---	7
5. Sediment Movement	---	6
6. Modifying Factors	0	0
Raw Total Score	12	30.6
Raw Total Score (Known + Potential)	42.6	
Adjusted Total Score (Raw Total / 64 * 33)	**22.0**	(max 33)

III. Exposure	Known	Potential
1. Human Receptors		
A. Known Impact	---	
B Potential		
a. Land Use		1
b. Accessibility		2
c. Exposure Route		
i. Direct Contact		3
ii. Inhalation		1
iii. Ingestion		5
2. Human Receptors Modifying Factors	0	---
Raw Total Human Score	0	12
Raw Total Human Score (Known + Potential)	12	
Adjusted Total Human Score	12.0	(maximum 22)
3. Ecological Receptors		
A. Known Impact	---	
B. Potential		
a. Terrestrial		6
b. Aquatic		3
4. Ecological Receptors Modifying Factors	6	1
Raw Total Ecological Score	6	10
Raw Total Ecological Score (Known + Potential)	16	
Adjusted Total Ecological Score	16.0	(maximum 18)
5. Other Receptors	2	0
Total Other Receptors Score (Known + Potential)	2	
Total Exposure Score (Human + Ecological + Other)	**30.0**	
Adjusted Total Exposure Score (Total Exposure / 46 * 34)	**22.2**	(max 34)

Site Score

Resolute Bay Airport - Vehicle Storage Area

Site Letter Grade	**D**
Certainty Percentage	**63%**
% Responses that are "Do Not Know"	**7%**
Total NCSCS Score for site	**59.0**
Site Classification Category	**2**

Site Classification Categories*:

Class 1 - High Priority for Action (Total NCS Score >70)
Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)
Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)
Class N - Not a Priority for Action (Total NCS Score <37)
Class INS - Insufficient Information (>15% of responses are "Do Not Know")

* NOTE: The term "action" in the above categories does not necessarily refer to remediation, but could also include risk assessment, risk management or further site characterization and data collection.