teckcominco

Mark J. Brown
General Manager
Pend Oreille Operations

July 28, 2006

Certified Mail 5460 4413

Mr. William Fees
Washington State Department of Ecology
Eastern Regional Office
4601 North Monroe
Spokane, WA 99205-1259

Re: Solid Waste Deposit Assessment

Dear Mr. Fees:

On April 6, 2005, the U.S. Environmental Protection Agency (EPA) visited the Pend Oreille Mine (POM) to conduct a follow-up investigation to the 2001 START-2 investigation of mines and mills on the Lower Pend Oreille River. During that visit, a legacy solid waste site was discovered west of the Mine in a heavily wooded, steep area. This previously undiscovered site is located on lands owned by Teck Cominco American Incorporated (TCAI) and Seattle City Light (SCL). Mr. David Godlewski of TCAI (Spokane) contacted you regarding the solid waste site and offered you the opportunity to review it with him. You respectfully declined, but requested to be informed of any investigative work.

In conjunction with SCL, POM has conducted an assessment of the site to determine the extent of the debris field and identify possible contamination sources, if any. POM has recently completed the assessment and hereby submits the findings to Ecology.

If you have any questions, please feel free to contact either Kevin Kinsella at (509) 446-5310 or myself at (509) 446-4516.

Sincerely,

Mark J. Brown
General Manager
Pend Oreille Operations

Enclosures

cc: D. Godlewski
K. Kinsella
B. Morgan
C. Pratt (SCL)

Teck Cominco American Incorporated
Pend Oreille Mine

P.O. Box 7 ▫ 1382 Pend Oreille Mine Road ▫ Metaline Falls WA 99153
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REPORT
SOLID WASTE DEPOSIT ASSESSMENT
PEND OREILLE MINE
METALINE FALLS, WASHINGTON

JULY 26, 2006

FOR
TECK COMINCO AMERICAN, INCORPORATED

GeoEngineers

File No. 6601-003-09

GeoEngineers

July 26, 2006

Teck Cominco American, Incorporated
15918 East Euclid Avenue
Spokane, Washington 99216

Attention: David Godlewski

This letter transmits draft two copies of our "Report, Solid Waste Deposit Assessment, Pend Oreille Mine, Metaline Falls, Washington".

Our services were completed in general accordance with our proposal dated April 29, 2005. Written authorization for our study was provided on May 25, 2005.

We appreciate the opportunity to provide these services. Please contact the undersigned should you have any questions or require additional information.

Sincerely,

GeoEngineers, Inc.

FOR

Bruce D. Williams
Principal

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Report
Solid Waste Deposit Assessment
Pend Oreille Mine
Metaline Falls, Washington
File No. 6601-003-09

July 26, 2006

Prepared for:

Teck Cominco American, Incorporated
15918 East Euclid Avenue
Spokane, Washington 99216

Attention: David Godlewski

Prepared by:

GeoEngineers, Inc.
523 East Second Avenue
Spokane, Washington 99202

Jodie D. Lamb, LG, LEG
Project Geologist

FOR

Bruce D. Williams
Principal

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PEND OREILLE MINE
METALINE FALLS, WASHINGTON
FILE NO. 6601-003-09
FOR
TECK COMINCO AMERICAN, INCORPORATED

INTRODUCTION

This letter report presents methodology and findings of an assessment of the solid waste deposit (debris field) at the Teck Cominco American Incorporated (TCAI) Pend Oreille Mine (POM) site near Metaline Falls, Washington. The approximate location of the site is shown on the Vicinity Map, Figure 1.

In early 2005, TCAI became aware of a debris field located on a vegetated hillslope west of and below the POM concentrator building and above the Pend Oreille River. Drums, wood, metal debris, and other wastes were observed partially buried in the debris field, which is approximately 200 feet wide by 300 feet long. Portions of the debris field are located on property owned or managed by Seattle City Light. Seeps that are likely seasonal are present at the base of the debris field. The Washington State Department of Ecology (Ecology) and the Environmental Protection Agency (EPA) are aware of the debris field.

PROJECT OBJECTIVES AND APPROACH

The three primary objectives for this project were to (1) assess the extent of the debris field; (2) assess for potential releases to the environment that might be associated with the debris field; and (3) assess slope stability issues if the debris is removed. Generally, the approach included conducting a site reconnaissance; collecting soil, waste, and seep water samples from below the debris; completing a geophysical survey; performing a slope stability evaluation; and providing recommendations for managing the debris, either through removal or in-place methods.

SCOPE OF SERVICES

The following presents the scope of services conducted to meet project objectives:

- Modify the existing Pend Oreille Mine site-specific health and safety plan for use by GeoEngineers' employees during activities conducted at the site.
- Conduct a site reconnaissance of the debris field. The purposes of this task were to map the occurrence of visible waste, review drum labels to further refine the proposed chemical of concern (COC) list (described below), and establish a grid system for the geophysical survey.
- Collect soil samples for chemical analysis concurrent with the site reconnaissance. The initial scope included advancement of hand augers into the solid waste field at approximately 10 locations. However, soil in the area of the debris was dense and the full vertical thickness of the debris field was not assessable using hand augers. An alternative plan was implemented, which included excavating four shovel test pits in select areas of the debris.
- Screen vapor within each test pit using a photoionization detector (PID). Soil samples were field screened for the presence of contaminants using visual, headspace vapor, and water sheen

screening methods. Based on field screening results, one soil sample was collected from each of the four test pits for chemical analysis.

- Collect a sample of powdery white material observed in a shallow test pit.
- Analyze the four soil samples for volatile organic compounds (VOCs) by EPA Methods 8260; diesel- and oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx; total cyanide by EPA Method 335.2; pH by EPA 9040B; polychlorinated biphenyls (PCBs) by EPA 8082; and organochlorine pesticides by EPA Method 8081. In addition, analyze the powdery white material for total cyanide by EPA Method 335.2.
- Collect one seep water sample from the base of the debris field. The seep water sample was analyzed for VOCs by EPA Method 8260; diesel- and oil-range petroleum hydrocarbons by NWTPH-Dx; total cyanide by EPA Method 335.2; pH by EPA Method 9040B; PCBs by EPA 8082; and chlorinated pesticides by EPA Method 8081.
- Conduct a geophysical survey of the site to identify the extent of the debris field. GeoPotential from Gresham, Oregon was subcontracted to conduct the geophysical survey. GeoPotential utilized a portable magnetometer and a tracer metal detector to generally delineate the boundaries of the buried solid waste.
- Collect ground penetrating radar (GPR) data along the top of the hill slope to further delineate the extent and depth of the debris in this location.
- Conduct a geologic evaluation to identify unstable slope hazards if the debris is removed. Several data were reviewed as part of the geologic evaluation including geophysical survey results, soil exploration data, surficial geologic maps and available geotechnical reports for the mine site, including a geotechnical report for the existing concentrator building (AMEC Earth & Environmental, Draft "Geotechnical Engineering Report, Concentrator Building, Cominco American Inc, Pend Oreille Mine Site", 2001).

SITE CONDITIONS

SURFACE CONDITIONS

General

The site is located near the POM, a lead-zinc mine that began operation in the mid-1950s. The debris field is located from about 20 feet east to 30 feet east of the Pend Oreille River. The ground surface elevation at the debris field and associated fill soil ranges from approximately Elevation 2,030 to Elevation 2,145 (elevations in this report are given in feet above Mean Sea Level). The Pend Oreille River near the mine is a reservoir created by Boundary Dam, which is located about eight miles downstream (north) of the mine site. Boundary Dam is a concrete-arch dam owned and operated by Seattle City Light for hydroelectric production. The normal pool elevation behind Boundary Dam is approximately Elevation 1,990.

The subject slope area is located on a northwest-facing slope above the Pend Oreille River. The POM is located at the top of the slope at approximately Elevation 2,150. The nearest POM facility building to the slope is the concentrator building, which is located approximately 60 to 80 feet from the top of the slope. TCAI owns the upper half of the slope and Seattle City Light owns the lower half of the slope.

A site reconnaissance of the slope was conducted on June 14 and 15, 2005, and August 31, 2005 to map slope and surface debris features. Significant features observed during the reconnaissance are shown on

the Site Plan, Figure 2. A field-developed profile of the slope near the debris field was developed and is shown on Figure 2 as transect A-A'. The slope profile and associated observations are shown on the Field Developed Slope Profile, Figure 3. The slope profile and mapping were completed using topographic maps provided by TCAI, by measuring distances from physical features using nylon measuring tapes, and measuring slopes using a hand clinometer. The location of features should be considered accurate to the degree implied by the methods used.

Accessible portions of the debris field were observed and recorded to describe debris characteristics. Surface debris included drums, hoses, engine parts, glass, wood timbers, sheet metal, cables, and other debris. This material is consistent with historic "bone-yard" debris expected at the POM. Generally, drum labels were not ascertainable because of weathering and rusting. One empty drum was labeled "Dow Float 250" which is a frothing chemical comprised of propylene glycol amyl ester.

For descriptive purposes the slope is separated into three areas based on topography: the upper, middle, and lower slope. Data stations were identified and recorded to assist with discussion; stations are shown on Figure 2. In general, inclinations on the upper slope range between about 30 and 35 percent (3.3H:1V (horizontal to vertical) and (2.8H:1H), the middle slope ranges between about 70 and 90 percent (1.4H:1V and 1.1H:1V) and the lower slope ranges between about 18 and 20 percent (5.5H:1V and 5H:1V). The upper slopes are steeper to the northwest and southeast of the debris field, and generally inclined on the order of 1.25H:1V. Our observations are discussed in further detail in the sections below.

Debris Field Description

The debris field is located on the slope immediately adjacent, north of the concentrator building. Fill soil and wood debris was apparent at the top of the slope (west of transect A-A'). The debris field in June 2005 generally was defined by 1) vegetation consisting of smaller diameter trees and dense underbrush; 2) surface debris primarily consisting of metal drums, vehicle body and frame parts, various machine parts and wood debris; and 3) features indicative of historical dumping of fill soil and debris. Fill soil was piled about 3 to 4 feet high and retained behind 18- to 24-inch diameter cedar trees near data Stations 21 and 22. Topographically, the area generally is bounded by a drainage to the northeast and a smaller drainage channel (2 feet wide and about 1-foot deep) to the southwest, which trends adjacent to a zone of timber debris situated perpendicular to the slope. The small, southwest drainage channel appears to have had recent flow, apparent by erosion of and deposition in the channel. We understand that the timber debris is from demolition of the tailings launder.

The debris we observed generally was varied across the slope. In some cases, debris was observed at random locations on the ground surface and in other cases, the debris appeared more densely concentrated, partially buried and degraded (rusted drums/metal). It appears that the debris has some thickness, based on the deposits observed upslope of trees and several areas where a probe can be pushed 2 to 3 feet into the degraded debris. We were not able to use drill equipment to evaluate subsurface soil and groundwater conditions on the slope because of the difficult access and steepness of the subject slope. The geophysical assessment did not prove useful for evaluating the potential thickness of debris, although it was useful for delineating the aerial extend of debris. Therefore, we were not able to ascertain the thickness of the debris on the slope. However, based on the limited hand explorations (TC-9) and observations of the failure within the debris, we estimate that the debris is at least 5½ feet thick at these locations.

We observed an older slope failure on the lower portion of the middle slope within the debris field. During our reconnaissance, the failure was defined by a main headscarp and lateral scarps. The failure

dimensions were estimated to be approximately 45 to 60 feet long (perpendicular to contour), 40 feet wide (on contour) and about 4 to 5 feet deep. The failure slope was inclined at about 70 percent (1.4H: 1V). The slide debris was composed of gravelly soil, which included metal and wood debris. We did not observe other apparent failures within the debris field.

Vegetation within the debris field is a mixture of deciduous and coniferous trees. Understory vegetation consists of smaller diameter trees (sapling size), brush and grasses. In general, it appears the slope area was cleared of larger diameter trees in the past.

Geophysical Survey

GeoEngineers subcontracted a geophysical survey to delineate the aerial extent of metal debris within the debris field site. The survey was completed using a magnetometer with an integral differential global positioning system (DGPS), ground penetrating radar (GPR) and an electromagnetic tracer (tracer). Refer to Appendix A, Geophysical Summary Report, for details and limitations of the geophysical survey.

In typical use, the DGPS records information from the magnetometer continuously. However, the effectiveness of the DGPS was limited and did not cover the anticipated debris area because of the dense vegetation and steep terrain. To delineate the aerial extent of the metal debris, the tracer was utilized at locations where the DGPS was ineffective. Metal debris located using the tracer was then flagged and picked up as discrete points, where possible, using the DGPS. This method allowed approximate delineation of buried metal within the debris field, which generally coincided with metal observed at the ground surface. This area is shown on Figure 2. However, it is likely that random metal objects are present outside the area shown on Figure 2.

Native Slopes

Native slopes adjacent to the subject site generally are inclined between about 45 and 80 percent (2.2H:1V and 1.25H: 1V). We did not observe obvious recent failure on the native slopes during our reconnaissance; however our reconnaissance was concentrated in the area of the debris field. Contrary to the debris area, vegetation on the native slopes generally consisted of mature coniferous trees with little to no understory vegetation. The coniferous trees observed generally had a straight growth habit.

Surface Water Drainage and Seepage

Based on our observations, storm water from the portion of the mine facility adjacent to, and uphill of the slope appears to collect at the silt fence located at the top of the slope, then seeps through the silt fence and enters the small drainage channel, which approximately bounds the southwest side of the debris field. The small channel was dry during our August 2005 reconnaissance.

We did not observe indication of seepage from the upper or middle portions of the slope. However, a seep is present at the toe of the lower slope approximately 100 feet northeast of data Station 24. The seep appears to emanate from a gravel layer and was discharging approximately 10 gallons per minute during our June 14 and 15, 2005 site visit.

SUBSURFACE CONDITIONS

General Geologic Conditions

We evaluated geology at the project site by reviewing selected published geologic maps, a well log from a water production well located approximately 500 feet south of the solid waste deposit, nine hand-excavated explorations and an AMEC report describing two test pits completed near the subject slope. According to the published maps, the subject site is underlain by glaciolacustrine deposits consisting of laminated clay, silt and fine sand. Locally, the deposits include thin beds of stratified sand and gravel (Stoffel, et al, 1991). The glaciolacustrine deposits are underlain by bedrock consisting of the Ledbedder slate and the Metaline Limestone Formations. Our observations of on-site soil and soil observed in the test pits completed by AMEC generally are consistent with the published information. Our observations are described in detail below.

Hand Auger/Test Pit Excavations

We evaluated shallow subsurface conditions on the subject slope by completing hand auger borings TC-1 through TC-5 and test pit excavations TC-6 through TC-9. These explorations were completed to depths ranging between 1 and 5½ feet. The approximate locations of the explorations are shown on Figure 2. Descriptions of the materials encountered are shown in Table 1 below. Exploration location rationale, soil sampling, and analytical results are described in the Environmental Conditions section of this report.

Table 1. Hand Auger-Subsurface Materials Description

Hand Auger Location	Description of Subsurface Materials
TC-1	Brown silt with gravel (TD=2 feet)[1]
TC-2	Brown sandy gravel (TD=1½ feet)[1]
TC-3	Brown sandy gravel (TD=1-foot)[1]
TC-4	Brown sand and gravel with rootlets (TD=2 feet)[1]
TC-5	Gray/black sand gravel with rootlets (TD= 1-foot)[1]
TC-6	Gray/brown sandy gravel, appears native (TD=4½ feet)[1]
TC-7	0 to 1 feet- Wood and plant material 1 to 3½ feet- Dark gray gravel with cobbles (fill soil) 3½ to 4½ feet- Gray/brown gravel with trace silt (native) (TD= 4½ feet)[1]
TC-8	0 to ½ feet- Wood and plant material ½ to 2 feet- Brown silt with debris (glass and bottle caps) 2 to 2 ½ feet- White power with yellow rind (unknown chemical) (TD= 2½ feet)[1]
TC-9	0 to ½ feet- Wood and plant material ½ to 4½ feet- Gray/Dark brown ashy silt with glass and burned wood. 4½ to 5½ Hand auger refused in fill soil. (TD= 5½ feet)[1]

Note 1: Hand auger borings were completed to practical refusal. TD= Total Depth of Hand Auger boring

Previous Test Pits

Test pits were completed by AMEC in 2001 for the expansion of the concentrator building. Test pit TP-5 and TP-8 were located at the north and northwest end of the concentrator building, respectively, as shown on Figure 2. These test pits are within about 50 to 80 feet of the subject slope crest. In general, logs for test pits TP-5 and TP-8 describe fine to coarse sand with gravel and silt between the ground surface and approximately 6 feet deep. Fine to coarse gravel with sand, silt and cobbles and boulders are indicated on the logs between 5 and 13 feet deep, and cobbles and large boulders up to 24 inches diameter between 13 and 15 feet deep. Slight caving was observed at approximately 8 feet deep in TP-5. Slight caving was also observed in TP-8, however the depth was not noted. No ground water seepage was noted on the logs for either test pit.

SLOPE STABILITY EVALUATION

GENERAL

We completed a qualitative evaluation of the subject slope relative to potential instability issues that could arise from removal of debris. Our evaluation was based on the following: 1) review of local geologic conditions; 2) logs for TP-5 and TP-8 discussed above; 3) results of our hand auger borings and test pits completed within the debris field; 4) our observations relative to surface water runoff or seepage and past slope failure within the debris field; 5) our previous experience with local hydrogeologic conditions; 6) our observations of the performance of the native slopes near the subject slope; and 7) slope geometry based on existing topographic information and our Field Developed Slope Profile, Figure 3. Details of our evaluation are discussed in the paragraphs below.

DISCUSSION

In general, factors that influence slope instability include removal of underlying or lateral support by erosion or human land modification and/or addition of mass to the slope such as groundwater, soil stockpiles, debris or structures. Absent groundwater seepage, glaciolacustrine deposits consisting of clay, silt and fine sand can be stable at slopes on the order of 1H to 1V, (horizontal to vertical) and, in some cases, steeper. The stable slope inclination decreases when the slope soil becomes loose or soft, or when zones of sand, gravel and/or groundwater seepage are present. In simple terms, when the stress within the slope soil mass exceeds the soil shear strength, unstable conditions ensue and deformation of the slope results.

With the exception of the seepage located approximately 100 feet northeast of the subject slope at approximate Elevation 1,995 feet (base of lower slope) we did not observe indication of seepage on the subject slope within the debris field vicinity. However, our reconnaissance occurred during the dry time of the year. Additionally, the native slopes near the subject site appear stable at inclinations on the order of 1.25H to 1V. We did not observe indication of apparent slope instability **on the native slopes** near the subject hillside, such as escarpments, tension cracks or debris lobes. The **failure we observed on the subject slope occurred within the relatively loose soil/debris and not within the native soil** (described in the Debris Field Description section of this report).

ENVIRONMENTAL CONDITIONS

GENERAL

The materials contained within the solid waste deposit likely were deposited during and shortly after the first operating period of the mine between 1952 and 1977. Likely, solid wastes from historic mine operations, including nearby mill operations, occasionally were disposed over the edge of the bank in the debris area. During our investigation, soil and seep water samples were collected and analyzed to preliminarily assess the potential for environmental contaminants to have been released as a result of historic waste disposal practices. Soil was assessed by conducting a near surface and shallow subsurface soil investigation that included soil sampling and analysis. Seep water was assessed by collecting and analyzing water samples from a seep located in the assumed downgradient location of the debris field. The following sections summarize soil and seep water sampling and analytical results.

NEAR SURFACE AND SHALLOW SUBSURFACE SOIL INVESTIGATION

Near surface and shallow subsurface soils in the area of the debris field were explored on June 14 and 15, 2005. Initially, explorations were attempted using a hand-auger. Five hand-auger explorations were attempted at various locations across the debris field; these were labeled TC-1 through TC-5. Depths of only 1 to 2 feet below surface grade could be achieved with hand augering because soils were dense and contained cobbles up to three inches in diameter. Consequently, the remaining explorations, TC-6 through TC-9 were advanced using hand-excavated test pits. Figure 2 shows near surface and shallow subsurface soil exploration locations. Appendix B presents a summary of field exploration methods.

One sample was collected from hand-auger exploration TC-1. This auger location was below the base of the debris field near the location of a seep that likely drains portions of the deposit. The approximate elevation of TC-1 is 1,995 feet. The sample from TC-1 was collected from the ground surface to approximately 1-foot below grade. The purpose of this sample was to estimate potential impacts to soil caused by downgradient leaching of possible contaminants from the solid waste deposit. No samples were collected for analysis from TC-2, TC-3 and TC-4 because these explorations did not extend through the full thickness of the debris fill.

Test pit TC-6 was excavated in the middle portion of the assumed debris field at an elevation of approximately 2,020 feet. This test pit was excavated to a depth of approximately 4½ feet within an ephemeral stream/drainage within the debris field. Soil sample TC-6 was collected from the test pit at a depth of approximately 4 to 4½ feet below grade at the assumed fill soil/native soil interface.

Test pit TC-7 was excavated in the lower portion of the debris field at an elevation of approximately 2,010 feet. Test pit TC-7 was located approximately 50 feet downhill from a drum field in the middle of the debris field. Test pit TC-7 was excavated to a depth of approximately 4½ feet. Soil sample TC-7 was collected from a depth of approximately 4 to 4½ feet deep at the assumed fill soil/native soil interface.

Test pit TC-8 was excavated in the upper portion of the debris field at an elevation of approximately 2,120 feet. This test pit was excavated to a depth of approximately 2 feet where an unknown white powdery material was encountered. A sample was collected of this material and the test pit was not excavated further.

Test pit TC-9 was excavated at an elevation of approximately 2,120 feet near the upper southeast portion of the debris field immediately down slope from a drum field in the upper portions of the slope. This test

pit was excavated to approximately 4½ feet below grade to the assumed contact between fill soil and native soil. Soil sample TC-9 was collected at a depth of 4 to 4½ feet.

NEAR SURFACE AND SHALLOW SUBSURFACE SOIL ANALYTICAL RESULTS

Soil samples TC-1, TC-6, TC-8 and TC-9 were field screened using visual, water sheen, PID headspace field screening procedures. In addition, these samples were analyzed by North Creek Analytical of Spokane, Washington for diesel- and oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx; VOCs by EPA Method 8260; total cyanide by EPA Method 335.2; pH by EPA Method 9040B; organochlorine pesticides by EPA Method 8081A; and PCBs by EPA Method 8082. Summary of Chemical Analytical Results – Soil, Table 2, summarizes laboratory analytical results. Laboratory reports are presented in Appendix C.

Diesel-range petroleum hydrocarbons were not detected in the samples. Oil-range petroleum hydrocarbons were detected in all the samples. Concentrations ranged from 29.7 milligrams per kilogram (mg/kg) in sample TC-1; 521 mg/kg in sample TC-7; 1,510 mg/kg in sample TC-6; and 1,740 mg/kg in sample TC-9. None of the samples exceeded the Washington State Model Toxics Control Act (MTCA) Method A oil-range petroleum hydrocarbon soil cleanup level of 2,000 mg/kg.

The VOC trichloroethene was detected in TC-6 at 1.76 mg/kg, TC-7 at 0.205 mg/kg, and TC-9 at 0.144 mg/kg. These concentrations exceed the MTCA Method A trichloroethene cleanup level of 0.03 mg/kg. Trichloroethene was not detected in soil sample TC-1; none of the other VOC were detected in any sample.

Cyanide was detected in samples TC-6 and sample TC-9 at concentrations of 0.0719 mg/kg and 0.393 mg/kg, respectively. These concentrations are less than the MTCA Method B direct contact cleanup level of 1,600 mg/kg. Cyanide was not detected in samples TC-1 and TC-8. pH ranged from 7.16 to 7.77 pH units. This range of pH is generally neutral.

One or more organochlorine pesticides were detected in each sample. None of the detected concentrations exceeded appropriate MTCA Method A or Method B direct contact soil cleanup levels. In addition, PCBs were detected in samples TC-6. TC-7, and TC-8 at concentrations ranging from 49.7 to 87.8 micrograms per kilogram (µg/kg). This is well below the MTCA Method A PCB soil cleanup level of 1,000 µg/kg. These detected contaminants are present at concentrations less than concentrations shown in MTCA Table 749.3, Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals.

Note that the sample of the white powdery material collected from TC-8 was analyzed for cyanide. No cyanide was detected in the sample.

SEEP WATER SAMPLING

Water samples were collected from a seep located near the northwest base of the debris field at an elevation of approximately 1,995 feet. This seep is located downslope from the debris field and likely represents groundwater that passes under all or a portion of the debris field. Samples were collected on June 14 and 15, 2005 by excavating a small stilling well at the seep location and using both a peristaltic pump with new tubing and decanting to obtain samples. Two sampling events were performed (one on June 14 and one on June 15, 2005) to ensure enough sample matrix for analysis. For the purposes of this assessment one sample is described; samples collected on both dates were labeled TC-WS1. Appendix B presents a summary of field exploration methods.

SEEP WATER SAMPLING ANALYTICAL RESULTS

The seep water sample was analyzed by North Creek Analytical of Spokane, Washington for diesel- and oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx; VOCs by EPA Method 8260; total cyanide by Standard Method 4500; organochlorine pesticides by EPA Method 8081A; and PCBs by EPA Method 8082. Summary of Chemical Analytical Results – Water, Table 3, summarizes seep water laboratory analytical results. Laboratory reports are presented in Appendix C.

Petroleum hydrocarbons, cyanide, and PCBs were not detected in the sample. Benzene and methyl tert-butyl ether were detected at concentrations of 2.84 and 1.80 micrograms per liter (µg/l) respectively. These are less than applicable MTCA Method A groundwater cleanup levels. No other VOCs were detected. Endosulfan was detected at a concentration of 0.0226 µg/l which is less than the MTCA Method B groundwater cleanup level of 96 µg/l. No other organochlorine pesticides were detected in the sample.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

There are two general factors that describe and define our conclusions and recommendations: environmental risk and the geotechnical properties of the native slope and overlying solid waste debris. Subsequently, our conclusions and recommendations are presented in two sections that apply to each of these factors.

ENVIRONMENTAL CONCLUSIONS AND RECOMMENDATIONS

The environmental assessment portion of our investigation identified trichloroethene present at concentrations exceeding MTCA Method A cleanup levels in soil collected from test pits excavated within the debris field. Other contaminants, including oil-range petroleum hydrocarbons, organochlorine pesticides, and PCBs were detected at concentrations less than MTCA cleanup levels. It is possible that the trichloroethene and the other contaminants were present within used oil that was incorporated into the debris. This is supported by detections of oil-range petroleum hydrocarbon in the soil samples where trichloroethene and the other contaminants were detected. In addition, it was a common historical practice to mix wastes prior to disposal.

The presence of partially buried drums suggests that additional undiscovered buried drums might be present within the debris field. While we did not observe drums containing residual product, we did discover an unidentified powder in one of our test pits (TC-8). The debris field appears to have been placed on native soil, precipitation freely drains through the debris, and there is potential that the Pend Oreille River receives runoff and groundwater from portions of the hillside where the debris is present. Although risk to the environment exists if the debris is left in place, environmental contaminants were not observed at concentrations exceeding MTCA groundwater cleanup levels in a seep sample collected below the waste. This suggests the current threat to human health and the environment is low relative to groundwater and surface water pathways. In our opinion, the data we collected did not justify that current threats require an expedited or immediate response.

We recommend monitoring water quality at seasonal seep and surface run-off locations below the debris field. The following actions may be performed to mitigate and monitor environmental risk:

- Collect seep water samples on a quarterly basis for a period of one year to assess if contaminants are migrating to groundwater and surface water. Based on the results of the first year, evaluate

the need for a second year of sampling. Ideally, samples will be collected following precipitation events when several seep locations might be present below the debris field. This data should provide a baseline of environmental conditions.

- Submit seep water samples to a qualified laboratory for analysis of petroleum hydrocarbons, volatile organics, chlorinated pesticides, cyanide and PCBs.
- Implement institutional controls or other measures to prevent use of the delineated waste deposit area.

Following mine closure, we recommend debris field removal as discussed in further detail below. This course of action should reduce or eliminate the risk to the environment presented by the debris field. The interim program of seep sampling may be used to monitor the quality of groundwater and surface water until the concentrator building is removed.

GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS

Based on our slope stability evaluation we conclude that the existing slope and debris field are generally stable in the current configuration. It is our opinion that the failure observed within the debris field likely initiated during a time of heavy precipitation when the loose debris and soil became saturated. This type of shallow failure should be expected as the loose wood/metal debris degrades over time.

Based on the hand auger and test pit information, debris on the slope is at least 5½ feet thick at the location of TC-9. Assuming a continuous 5½-foot debris thickness over the area delineated by the geophysics data results in a volume of approximately 6,500 cubic yards of soil/debris. However, based on the slope geometry and considering the inclination of adjacent native slopes, it is our opinion that the debris could be on the order of 20 feet thick in the vicinity of Station 18. Therefore, the debris volume could be greater than 6,500 cubic yards.

In our opinion, there are two options that POM may consider to address conditions on that portion of the slope where debris is present. The first option involves continued, aggressive management of stormwater to reduce potential surface water run on to the debris field in combination with periodic monitoring of the slope to assess stability. Such monitoring should be conducted on a monthly basis during seasonal wet weather, for at least two months following the winter and spring wet seasons each year and following significant storm events. Options for monitoring include the following:

- Monthly monitoring during October through June should consist of visual observations to assess possible changes in slope geometry. The monitoring may be conducted by POM personnel after initial training by GeoEngineers, unless POM elects to retain our company for the monitoring. When snow cover exceeds roughly 6 inches, monitoring may be deferred to the following month.
- If POM wishes to implement more rigorous monitoring, a network of survey points may be established on the slope for periodic evaluation of changes in elevation and horizontal location relative to a baseline survey of the monitoring points. We suggest a quarterly program of survey, after establishing baseline conditions, should this monitoring approach be selected.
- The next level of more intensive monitoring consists of installation of slope inclinometers. Data acquired periodically from slope inclinometers can show very small, subtle changes in slope geometry that often are indicative of impending failure. Installation of inclinometers will require portable drilling equipment because of the difficult access conditions. In our opinion, slope inclinometers for this project are not warranted.

The second option consists of selective removal of shallow (within about 5 feet of the slope surface) degradable debris from within the debris field in combination with regrading of the steeper portion of the slope. In general, that portion of the slope roughly between Field Data Stations 17 and 19, as shown on Figure 2 and Figure 3, should be regraded if this option is implemented. Such regrading will be challenging and difficult. Additionally, there is a high risk that disturbance or removal of the vegetative covering on the slope and subsequent exposure to precipitation in combination with disturbance of other areas of the site by equipment will induce instability and soil erosion of the slope. Such instability could negatively impact the Seattle City Light property that occupies the lower portion of the slope and water quality in the adjacent Pend Oreille River. For these reasons, we do not recommend that selective removal of shallow debris be implemented.

Complete removal of the debris field will require removal of vegetation from the slope. The existing vegetation is a significant factor in reducing soil erosion potential and general shallow slope instability. In our opinion, the following instability issues should be expected by removing vegetation and debris from the subject slope.

- Exposure of the slope to erosion from precipitation or surface water.
- Potential shallow surface failures in loose surface soil disturbed by debris removal.
- Potential failure zones in areas where subsurface sand, gravel or seepage is encountered.

We believe that complete debris field removal at this time is not appropriate because of the high risk to the structural integrity of the buildings located above the debris field as a result of slope instability that likely could ensue from such removal

Based on results of our evaluation and the foregoing discussion, it is our opinion that monitoring the subject slope in combination with aggressive stormwater management is the most appropriate action at this time. It is our further opinion that monitoring should consist of monthly visual observations to assess short-term slope stability.

These opinions are based on our belief that the Concentrator Building should not be impacted by overall, global instability of the subject hillside area, provided debris removal is not implemented at this time.

It is our further opinion that the appropriate time for removal of the subject debris is during mine closure, when reducing the overall slope inclination is possible Such a reduction in slope inclination should correspondingly reduce the potential for erosion and slope instability that would otherwise result from removal of all or portions of the debris at this time.

LIMITATIONS

We have prepared this report for use by Teck Cominco American Incorporated for the Pend Oreille Mine site.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form or hard copy of this document (email, text, table, and/or figure), if provided, and any attachments are only a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to the Appendix D titled Report Limitations and Guidelines for Use for additional information pertaining to use of this report.

REFERENCES

Stoffel, K.L., Joseph, N.L, Surenko Waggoner, S., Gulick, C.W., Korosec, M.A., Bunning, B.B., 1991, "Geologic Map of Washington – Northeast Quadrant" Washington Division of Geology and Earth Resources, Geologic Map GM-39, Washington Department of Natural Resources.

AMEC Earth and Environmental, Inc., 2001, Draft "Geotechnical Engineering Report, Concentrator Building, Cominco American Inc. Pend Oreille Mine Site" Metaline Falls, Washington.

TABLE 2
SUMMARY OF CHEMICAL ANALYTICAL RESULTS[1] - SOIL AND CHEMICAL
TECK COMINCO AMERICAN INCORPORATED PEND OREILLE MINE
WASHINGTON

Analyte	Sample #: Date: Depth (feet):	TC-1 06/14/05 0-1	TC-6 06/14/05 0-2	TC-7 06/15/05 4-4.5	TC-8[2] 06/15/05 2-2.5	TC-9 06/15/15 4-4.5	Cleanup Levels[3]
Petroleum Hydrocarbons	Units						
DRPH[4]	mg/kg	ND	ND	ND	NA	ND	2,000
ORPH[5]	mg/kg	29.7	1,510	521	NA	1,740	2,000
VOCs[6]							
Trichloroethene	mg/kg	ND	**1.76**	**0.205**	NA	**0.144**	0.03
Conventional Chemistry Parameters[7]							
Cyanide	mg/kg	ND	0.0719	ND	ND	0.393	1,600
pH[8]	pH Units	7.77	7.21	7.16	NA	7.75	NA
Organochlorine Pesticides[9]							
beta-BHC	µg/kg	2.24	ND	ND	NA	ND	NA
4,4'-DDT	µg/kg	ND	3.05	ND	NA	ND	3,000
4.4'-DDD	µg/kg	ND	ND	7.95	NA	ND	4,170
4,4'-DDE	µg/kg	ND	ND	3.77	NA	ND	2,940
4,4'-DDT	µg/kg	ND	ND	13.0	NA	2.76	3,000
Endosulfan I	µg/kg	ND	ND	ND	NA	ND	480,000
PCBs[10]							
Aroclor 1260	µg/kg	ND	65.5	87.8	NA	49.7	1,000

Notes:

1. Chemical analysis performed by North Creek Analytical, Inc. of Spokane, Washington.
2. Sample TC-8 was comprised of a white, powdery material.
3. Cleanup levels listed are Model Toxics Control Act Method A or B for unrestricted land use.
4. DRPH = Diesel-range petroleum hydrocarbons analyzed by NWTPH-Dx.
5. ORPH = Heavy Oil-range petroleum hydrocarbons analyzed by NWTPH-Dx.
6. Volatile organic compounds analyzed by EPA Method 8260B. Only detected analytes are listed; for a full list of analytical results, see the laboratory certificates in the appendix.
7. Conventional chemistry parameters analyzed by APHA/EPA Methods.
8. pH reported in pH units.
9. Organochlorine pesticides analyzed by EPA Method 8081A. Only detected analytes are listed; for a full list of analytical results, see the laboratory certificates in the appendix.
10. Polychlorinated biphenyls analyzed by EPA Method 8082. Only detected analytes are listed; for a full list of analytical results, see the laboratory certificates in the appendix.

ND = not detected; NA = not analyzed; mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram

Bold type indicates concentration exceeds cleanup level.

TABLE 3
SUMMARY OF CHEMICAL ANALYTICAL RESULTS[1] - WATER
TECK COMINCO AMERICAN INCORPORATED POND OREILLE MINE
WASHINGTON

	Date	TC-WS1 06/14/05	TC-WS1 06/15/05	Cleanup Levels[2]
Petroleum Hydrocarbons	Units			
DRPH[3]	mg/l	ND	NA	500
ORPH[4]	mg/l	ND	NA	500
VOCs[5]				
Benzene	µg/l	2.84	NA	5
Methyl tert-butyl ether	µg/l	1.80	NA	20
Conventional Chemistry Parameters[6]				
Cyanide	mg/l	ND	NA	0.2[7]
Organochlorine Pesticides[8]				
Endosulfan I	µg/l	NA	0.0226	96
PCBs[9]				
Aroclor 1260	µg/l	NA	ND	0.1

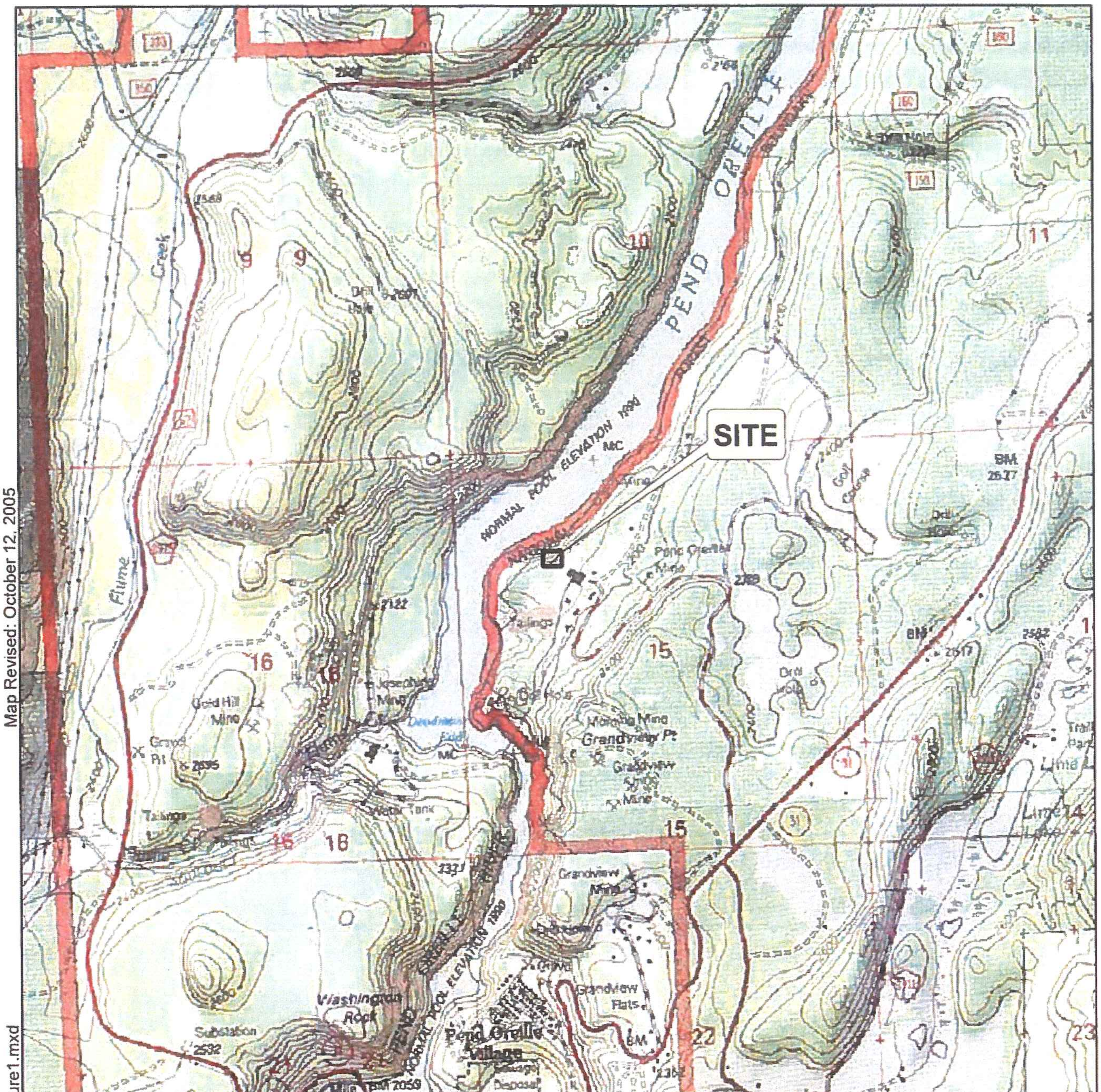
Notes:

1. Chemical analysis performed by North Creek Analytical, Inc. of Spokane, Washington.
2. Cleanup levels listed are Model Toxics Control Act Method A or B for unrestricted land use.
3. DRPH = Diesel-range petroleum hydrocarbons analyzed by NWTPH-Dx.
4. ORPH = Heavy Oil-range petroleum hydrocarbons analyzed by NWTPH-Dx.
5. Volatile organic compounds analyzed by EPA Method 8260B. Only detected analytes are listed; for a full list of analytical results, see the laboratory certificates in the appendix.
6. Conventional chemistry parameters analyzed by APHA/EPA Methods.
7. Based on MCL (Maximum Contaminant Level).
8. Organochlorine pesticides analyzed by EPA Method 8081A. Only detected analytes are listed; for a full list of analytical results, see the laboratory certificates in the appendix.
9. Polychlorinated biphenyls analyzed by EPA Method 8082. Only detected analytes are listed; for a full list of analytical results, see the laboratory certificates in the appendix.

ND = not detected; NA = not analyzed; mg/l = milligrams per liter; µg/l = micrograms per liter

Bold type indicates concentration exceeds cleanup level.

Map Revised: October 12, 2005



SITE

N
W E
S

2,000 0 2,000

Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: Interstates, state routes, and roads from TIGER 2000. County boundaries, cities, and waterbodies from Department of Ecology. U.S. Topographic map from National Geographic Society (obtained October 2005).
Lambert Conformal Conic, Washington State Plane North, North American Datum 1983

Path: P:\6\6601003\09\GIS\660100309_Figure1.mxd

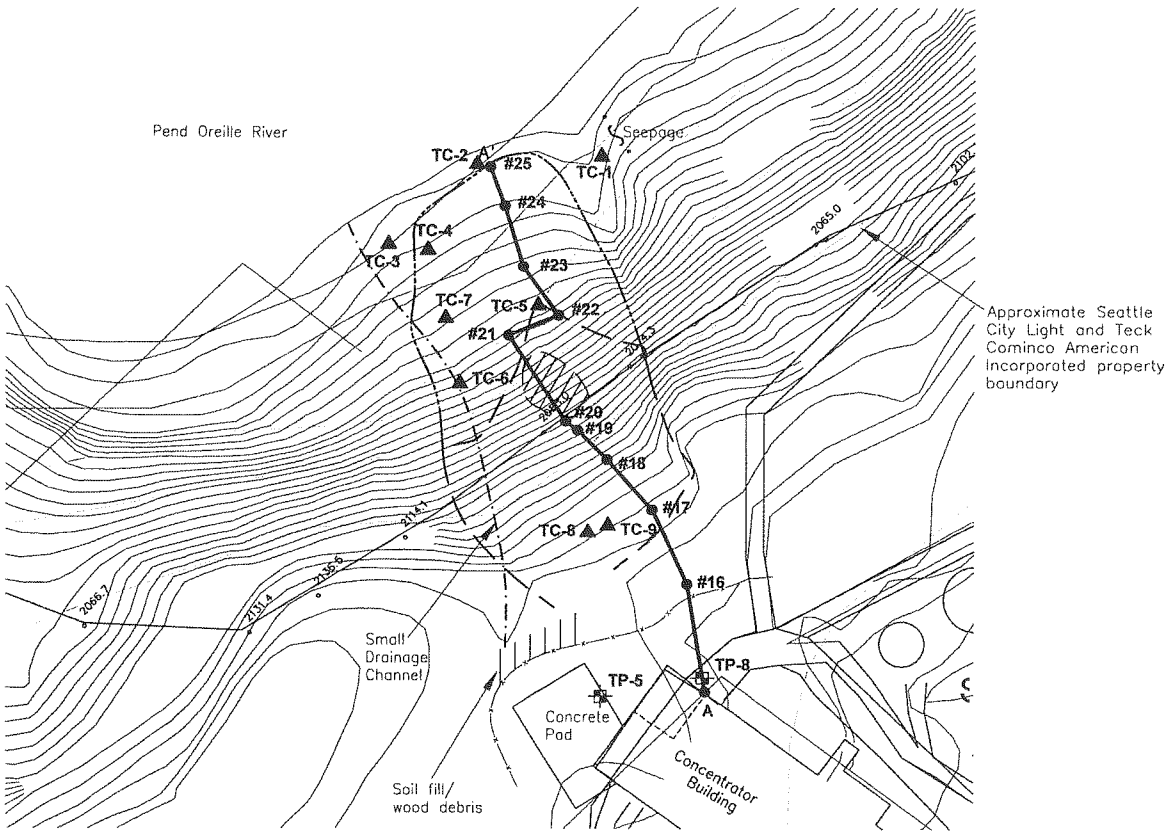
Office: SPO

Vicinity Map

Pend Oreille Mine Remedial Investigation
Metaline Falls, Washington

GeoEngineers

Figure 1



Legend

- Silt fence
- A—A' Slope traverse/profile
- #16 Field data station
- TC-1 Hand auger and test pit number and approximate location
- TP-5 Test pit number and approximate location, Amec Earth and Environmental Inc (March 2001)
- Property boundary
- Approximate debris field interpreted from geophysics reference GeoPotential, Inc., 2005
- Failure within debris
- Approximate debris field interpreted from field observation

N W E S

100 0 100
Feet
Contour Inverval is 5 feet.

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base drawing provided by Teck Cominco American Incorporated titled " Pend Oreille Mine, Surface Substation Location Map", dated 7/18/02.

Site Plan

Pend Orielle Mine Remedial Investigation
Metaline Falls, Washington

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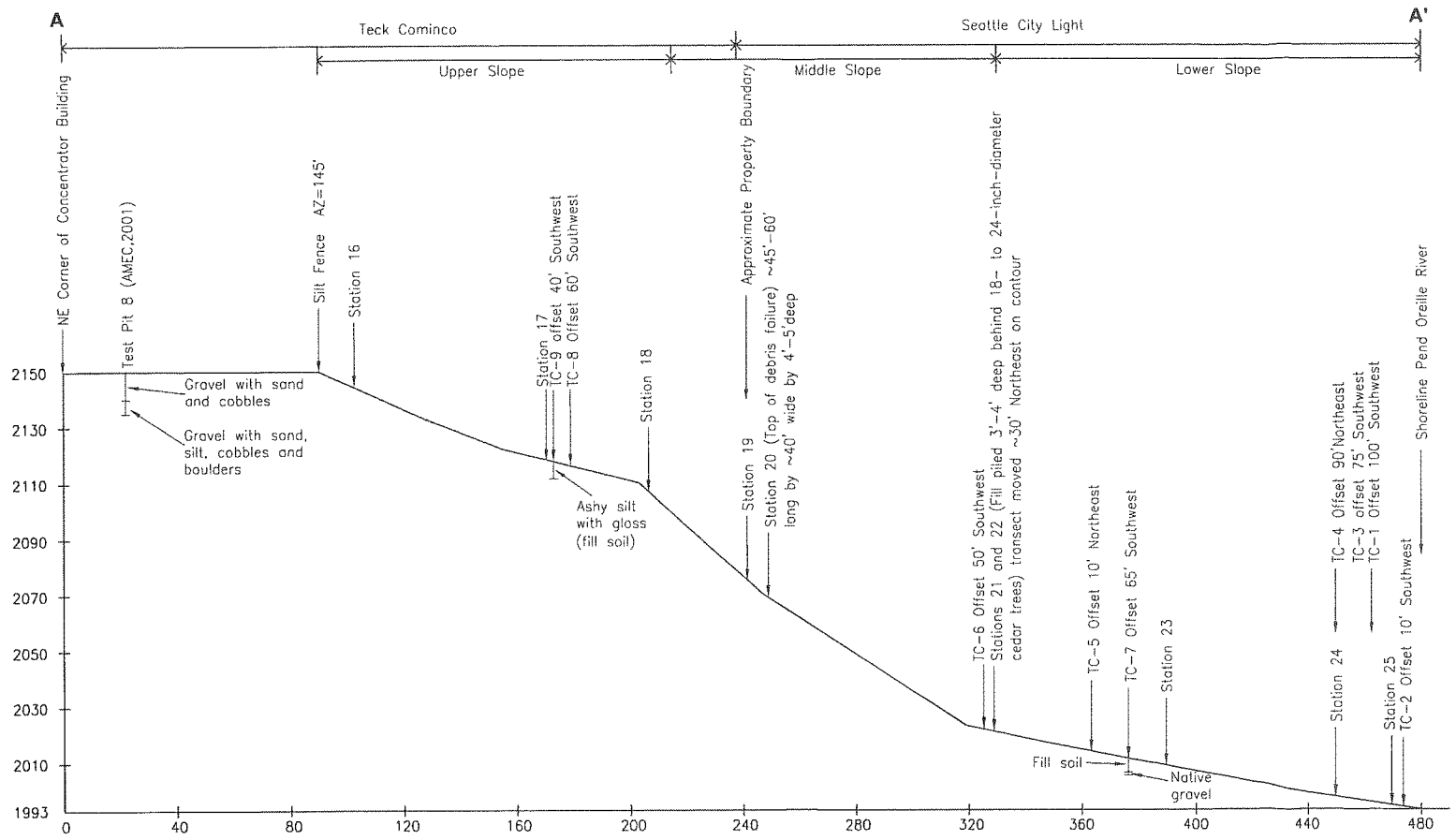
Figure 2

SPOK P:\06\6601-003\09\CAD\6601003095p.dwg JDL:tim 08/30/05 rev 09/27/05



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Field Developed Slope Profile

Pend Orielle Mine Remedial Investigation
Metaline Falls, Washington

GeoEngineers

Figure 3

SPOK P:\0616601-003\09\CAD\616601003098CS.dwg JDL:tlm 09/19/05 rev 10/10/05

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APPENDIX A
GEOPHYSICAL SUMMARY REPORT

GeoPotential

ENVIRONMENTAL & EXPLORATION GEOPHYSICS

22323 East Wild Fern Lane, Brightwood, Oregon 97011 • PH (503) 622-0154 • FAX (503) 622-0526
E-Mail: GeoPotential@aol.com

SUMMARY REPORT

SUBSURFACE MAPPING SURVEY TO MAP EXTENT OF METALLIC DEBRIS

TECK COMINCO AMERICAN INC.
PEND OREILLE MINE
METALINE FALLS, WASHINGTON

CLIENT:

GeoEngineers, Inc.
523 East Second Avenue
Spokane, Washington 99202

September 1, 2005

GeoPotential Project Number 7304

CONTENTS

FIGURES

APPENDICES

SUMMARY

A magnetometer with an integral differential global positioning system (DGPS) and a Tracer handheld metal detector were used to map the extent of a dumpsite containing metallic debris at the Teck Cominco American Inc., Pend Oreille Mine in Metaline Falls, Washington. A secondary electrical resistivity "test" survey was to be used to determine the approximate thickness of the metallic debris. Lastly, ground penetrating radar (GPR) was used to detect possible disturbed zones near the Concentrator building at the top of the dumpsite.

The effectiveness of the DGPS was limited by the steep, west facing slope and the thick brush and trees on the Site. Despite problems with the locations of some data points, the edges of the debris area appear to have been determined successfully using a combination of the magnetometer and the Tracer. The north and south edges of the dumpsite appear to correlate well with the limits of the observed surface metal. At several locations subsurface material extends beyond the visible surface metal. The edges of the dumpsite also correlate well with an area containing smaller trees and more brush. Larger trees and an older, more open forest are found to the north and south suggesting the dumpsite may have been cleared of trees when it was in use. It is possible that a few isolated metallic objects may be found outside of the survey area. The edges of the metal containing dumpsite were flagged on the surface at 19 points. These points are accurate to 1-2 feet. Random, isolated metal debris may be found outside of the dumpsite area.

The "test" electrical resistivity survey was not performed because of technical difficulties. It is not clear if the resistivity survey would have been useful given the large mass of metal (detected from the magnetometer survey and from visual observations) and the large number of "voids" observed across the Site. Resistivity surveys depend on good electrical contact between the metal electrodes and the earth. Voids and loosely compacted material decrease the effectiveness of resistivity surveys.

Ground penetrating radar traverses were made west and north of the reinforced concrete pad west of the Concentrator building in an attempt to detect disturbed zones that could represent possible trenches or dump areas. Several zones of disturbed materials were observed and marked on the ground surface. The zones did not appear to contain metallic debris.

INTRODUCTION

Subsurface mapping surveys are geophysical surveys utilizing geophysical methods and data to detect and locate natural and manmade subsurface features. The Geometrics G-858 Cesium magnetometer used to obtain the magnetic data across the dump area is a geophysical tool specifically designed to detect buried **ferrous** (iron-bearing) objects, including utilities, drums and USTs.

Normally, once suspicious magnetic anomalies are detected, small hand-held metal detectors are used to locate the peaks and edges of the magnetic anomalies. If a buried object appears to be three-dimensional (as expected over a possible UST), GPR is used in an attempt to determine the size, shape and depth of burial of the object.

GPR could not have been used at this Site due to the steep slopes, thick vegetation and uneven surface. The goal of this survey was to mark the edges of the metal debris zone, and not to actually determine physical characteristics of the buried objects producing the anomalies.

SURVEY OBJECTIVES

The objectives of the project included detecting and marking the limits of a dumping area west of the mine, estimating the thickness of the dumped material, and detecting possible trenches in the road west and north of the Concentrator building.

SURVEY SITE

The survey was conducted on the steep, west-facing slope west of the Concentrator building at the Pend Oreille Mine in Metaline Falls, Washington. The slope area is the location of a former dumpsite used by the previous mine owners in the 1950's to 1970's.

The metal detecting survey was conducted between the flat roadway west of the building and the Pend Oreille River roughly 160 feet below. Drums and heavy iron debris were visible across most of the survey area. The slope was estimated to be 45 to 50 degrees in places. It was thickly vegetated with small trees and brush making it very difficult and hazardous to access the entire area. Taller trees marked the north and south edges of the survey area making it appear as if the dumpsite trees had been cleared at one time.

TIMING

Jeff Mann and Nikos Tzetos conducted the fieldwork for GeoPotential on August 31and September 1, 2005. The survey was coordinated by Mr. Dave Enos and Mr. Jodie Lamb of GeoEngineers Spokane. Mr. Lamb was on Site the first day and greatly assisted with the magnetometer survey.

Help was also provided by Kevin Kinsella, Brock Morgan and Aston Tennefoss of the Pend Oreille Mine.

The report was written by Jeff Mann, reviewed by Nikos Tzetos and emailed in "pdf" format to Mr. Enos on September 10, 2005.

SURVEY EQUIPMENT AND LIMITATIONS

The following geophysical instruments were used to conduct the survey:

- GEOMETRICS G-858 CESIUM MAGNETOMETER with GPS OPTION (MAGNETIC SURVEY)
- MALA RAMAC GROUND PENETRATING RADAR SYSTEM with a 250 MHz ANTENNA MHz ANTENNA (RADAR SURVEY)
- AQUA -TRONICS A6 ELECTROMAGNETIC TRACER (EMA6 SURVEY)
- SCHONSTEDT GA92XTd MAGNETIC GRADIOMETER (GA92 SURVEY)

This equipment and the procedures used to meet the survey objectives of this project have been proven effective in detecting variations in the subsurface of the earth caused by natural and manmade objects.

A magnetometer is a very sensitive electronic instrument capable of detecting minute changes in the earth's local magnetic field. "Magnetic anomalies" are caused by ferrous (iron-bearing) objects on or below the ground surface. Surface objects can make the interpretation of a magnetometer survey difficult. A buried object of interest may be missed if it is too close to a large metallic surface object. Common surface objects that can present interpretation problems include vehicles, buildings, and fences.

The success of a GPR survey is greatly controlled by site conditions. Clayey-soil, wet-soil and reinforced concrete severely attenuate signal penetration even at different locations on the same site. USTs and utilities may be missed if they are deeper than the signal penetration, or if they are located under metallic and non-metallic debris, reinforced concrete, disturbed soils or utilities. The only operator-controlled variable is the frequency of the radar antenna; however, there is a tradeoff between high and low frequency antennas. Lower frequency antennas provide better depth penetration but give poorer resolution. Small objects including small utilities maybe missed with lower frequency antennas. Strong radar reflections depend on an adequate electrical contrast between the target object and the surrounding material. Highly rusted USTs may not have an adequate electrical contrast and may be missed.

GPR does not enable the operator to actually "see" below the ground surface. Like aircraft and weather radar, signals radiated from the antenna reflect off a wide variety of objects. Changes in soil moisture

content, mineralogy, grain size, etc., and from natural and man-made objects including rocks and stones, tanks and utilities all produce radar reflections that the operators interpret based upon experience. Radar data are ambiguous, i.e. reflections caused by stones can look similar to reflections produced by utilities. Boulders can produce reflections that are commonly observed over known tanks. Not all USTs produce the classic hyperbolic-shaped reflections.

The Tracer and Schonstedt hand-held metal detectors are used to locate the peaks of the magnetic anomalies and the edges of buried metallic objects found as a result of a magnetometer survey. The Tracer is excellent at detecting underground storage tanks and **conductive** utilities. Neither instrument records data; the outlines of underground objects found using these instruments are usually marked with paint on the ground surface. GPR may be used to determine the physical characteristics of the buried objects.

Geophysical techniques are excellent at detecting changes in the subsurface caused by natural and manmade objects; however, they are poor at actually identifying subsurface features. Complementary methods may be used to assist in the interpretation; however, the only sure way of identifying a buried feature is by excavation.

PROCEDURE

Normally a right-hand orthogonal survey grid is established across a Site using a measuring wheel and tapes, however this method was not feasible at this Site due to the difficult Site conditions.

At first it was decided to collect magnetic data along north-south and east-west lines wherever possible, to interpret the data as individual profiles, mark the limits of the magnetic anomalies with flagging, and finally locate the flagged edges on a Site map using measuring tapes. However, in the end a Differential GPS system made specifically for the Geometrics G-858 Cesium Magnetometer was rented. In theory this would enable the operator to acquire data at random locations on the Site. Each point would be accurately located without having to maintain a square survey grid. The Trimble DGPS has "sub-meter" accuracy under ideal conditions, however its accuracy decreases when the unit does not have a clear, unobstructed view of the sky. The magnetometer/DGPS system can indicate the accuracy of the data while it is being collected, however it was impossible to watch both the DGPS data quality and keep from slipping down the slope or falling into a void at the same time.

When it was realized how difficult obtaining reasonable coverage was going to be using the magnetometer, a secondary instrument was used. The Tracer metal detector is excellent at detecting not only ferrous metal, but also non-ferrous, conductive metals. It is smaller and easier to use in heavy brush. It was used to detect and mark the dumpsite edges in areas where the magnetometer could not be used. The Tracer does not record data. The Tracer locations were to be determined using the DGPS unit at a later time.

The electrical resistivity survey array was established between the edge of the river and the top of the dumpsite, west of the Concentrator building. Twenty-four metal electrodes were driven into the soil, however many voids were noted when inserting the electrodes. The electrodes must be well grounded, and only about ½ could be firmly inserted into the soil. Loose electrodes will not conduct an electric current into the earth.

Four GPR traverses were made along the road north of the reinforced concrete pad west of the Concentrator building, and in the gravel area between the pad and the edge of the dumpsite. A 250 MHz antenna was used to collect the data. GPR is not effective across highly conductive soils, and across metallic debris and reinforced concrete. Under these conditions the electromagnetic energy transmitted into the subsurface is severely attenuated by the conductive material.

RESULTS

The Tracer metal detector was used to detect possible railroad tracks northwest of the Concentrator building. These may have been used to transport debris to the edge of the dumpsite. The tracks appear to end at the top of the slope.

Dumpsite Location Survey - The average magnetic "background" value was estimated to be about 55700 NT.

The magnetometer was configured to record data every 1 second automatically. Figure 2 shows the magnetometer data points as "+"'s. The quality of the actual magnetic data is excellent.

From the figure it is apparent that coverage with the magnetometer was limited to the more open areas. Several relatively large areas were totally inaccessible with the magnetometer due to the thick brush and steep slope. Because of this the Tracer metal detector was used to detect the edges of the metallic material across the dumpsite at 10 points on the north side and 9 along the south side of the debris area.

Superimposing the station locations on the CAD map provided by GeoEngineers proved very difficult because the only points common to both the magnetometer map and the CAD map were the northwest and southwest corners of the Concentrator building. A small error placing the corners of the building on the CAD map is magnified farther down the hill. We estimate the data plotted on the CAD drawing may have errors of 5 – 10 feet in a generally north-south direction. The east/west distance appears good. Data for the westernmost magnetometer line was taken within 3 - 5 feet of the "high" water line.

Figure 3 is a colored magnetic contour map contoured at an interval of 500 nT. Magnetic "lows" are generally caused by objects located above the magnetometer sensor (normally carried about 3 feet high) and are shown in blue, and may also be hachured. At this Site magnetic "lows" are produced by metallic objects upslope from the magnetometer, or from tall pieces of rebar. Magnetic "highs", shown in red, are produced by ferrous objects below the sensor. Normally magnetic surveys are performed to locate buried objects (utilities, pipes, underground storage tanks and drums). At this Site however, the goal of the survey was to mark the edges of the dumpsite and not to detect and investigate individual buried metal objects.

Figure 4 shows the extent of the metal detected in the dumpsite based upon both the magnetic data and the Tracer data. The Tracer was used to locate the edges of the metallic debris in areas inaccessible with the magnetometer. This data is shown as diamonds in the figure. Ten points along the north edge and 9 points along the south edge were flagged using the Tracer and were marked "N edge A" to "N edge J" (North edge point A – point J) and similarly "S edge A through I". DGPS was then used to locate the new points for inclusion in the map showing the extent of the metallic material, however some of the "Tracer" points were obviously mislocated and were deleted because of uncertainties in their locations. The points shown on the map are probably accurate to 5-10 feet because of the poor satellite reception of the GPS and the difficulty overlaying the magnetic data onto the CAD map. The actual flagged points on the ground surface are accurate to 1-2 feet.

Stakes placed by GeoEngineers are shown as triangles. Stake 25 could not be used due to poor GPS data.

The edge of the dumpsite appears to correlate well with the observed surface metal along most of the perimeter of the dumpsite, however at several locations the metallic material extends beyond the limit of the observed material. The dumpsite also correlates well with the boundary between the taller, older trees to the north and south of the area. It appears that the dumpsite may have been cleared of trees when it was in operation.

Electrical Resistivity Survey –A Syscal Kid 24 electrode switching electrical resistivity meter was to be used as time permitted to collect electrical resistivity data along several traverses across the dumpsite. This was an effort to estimate the thickness of the debris. The resistivity unit malfunctioned after setting up an east-west 120-meter long traverse between the river and the top of the slope. The electrical resistivity survey was eventually canceled.

It is not clear if the data would have been useful in determining the thickness of the debris for several reasons. Geophysical surveys are excellent at detecting horizontal changes in the earth's surface; determining depths to, and thicknesses of material in the subsurface is much more difficult.

It is possible that no current could have been injected into the earth below the metallic debris because of the large mass of metal detected by the magnetometer survey and observed on the surface during the fieldwork. This metal may have produced a conductive upper layer making it difficult to inject an electrical current deeper than a few feet. Electrical resistivity works well in resistive material and poorly in conductive material. Also, while setting up the 24 metal electrodes in preparation for the first array, many large "voids" were observed within the relatively loosely compacted material. For an electrical survey to be successful the electrodes must be well "grounded". "Loose" electrodes make it difficult to inject an electric current into the earth.

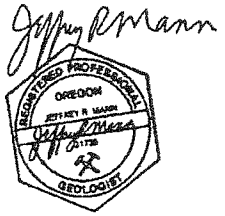
Ground Penetrating Radar Survey - A 250 MHz radar antenna was used to detect possible disturbed zones west and north of the reinforced concrete area at the top of the slope (west and north of the Concentrator building). The maximum depth of penetration using the 250 MHz antenna was estimated to be about 6 feet. GPR, like electrical resistivity (and other electrical methods) works best in resistive soil. In Portland for example, it is unusual to obtain reflections off objects deeper than 3-4 feet because of the wet, clayey soils that occur in the area.

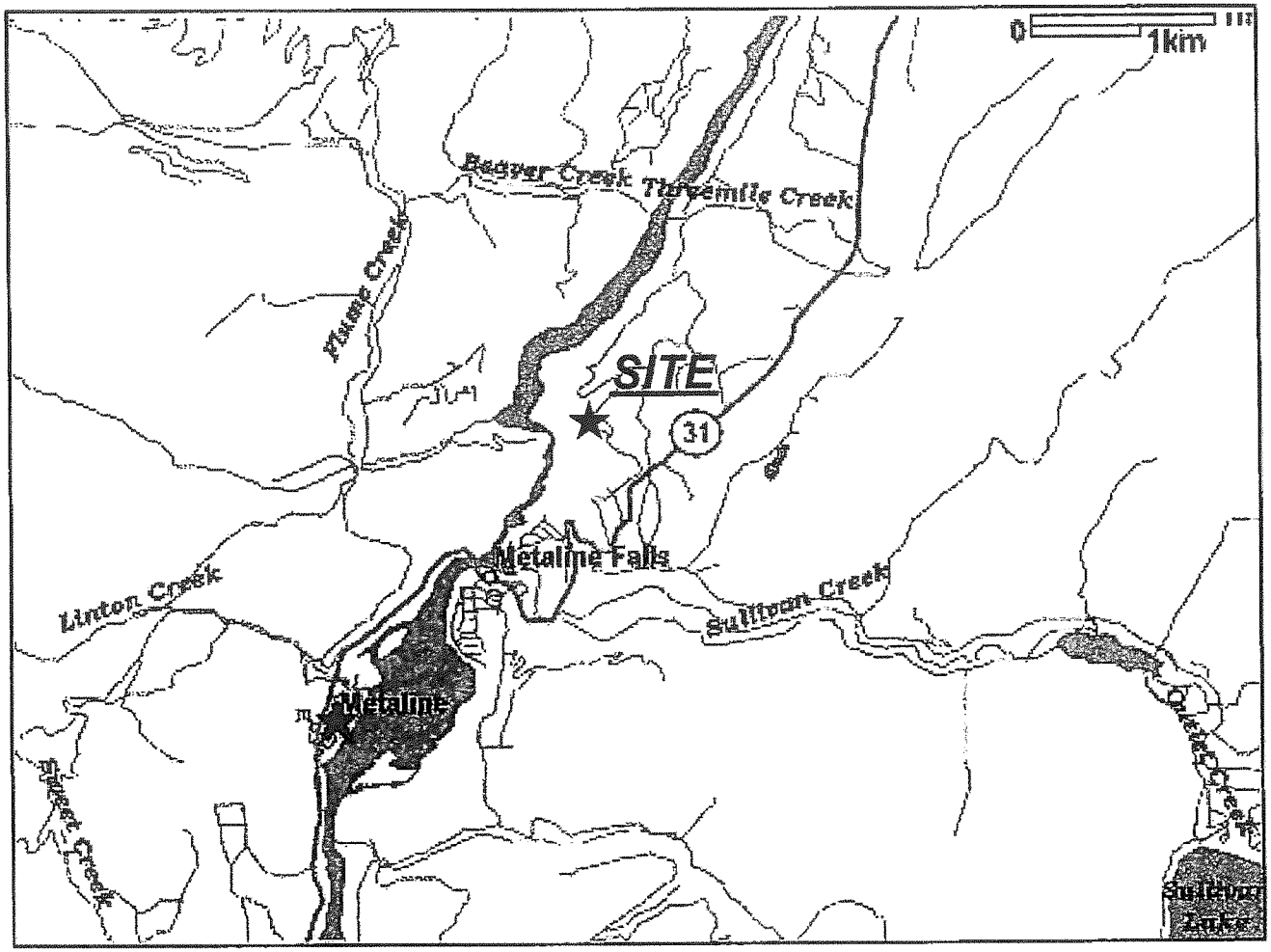
Several zones of disturbed soil were detected along the road and are shown in Figure 5. The disturbed material may indicate possible "trenches" containing buried debris, or may be related to the construction of the road. The Tracer metal detector was used across the disturbed zones and indicated the material does not appear to be metallic.

LIMITATIONS

Geophysical surveys consist of interpreting geophysical responses from subsurface features. Since a variety of subsurface features can produce identical geophysical responses, it is necessary to confirm the geophysical interpretation with intrusive investigations such as excavating or drilling. In addition, many subsurface features may produce no geophysical response. The use of this subsurface mapping survey is the sole responsibility of the client.

Jeff Mann, MS, PG **September 2005**
GeoPotential





GeoPotential

ENVIRONMENTAL & EXPLORATION GEOPHYSICS

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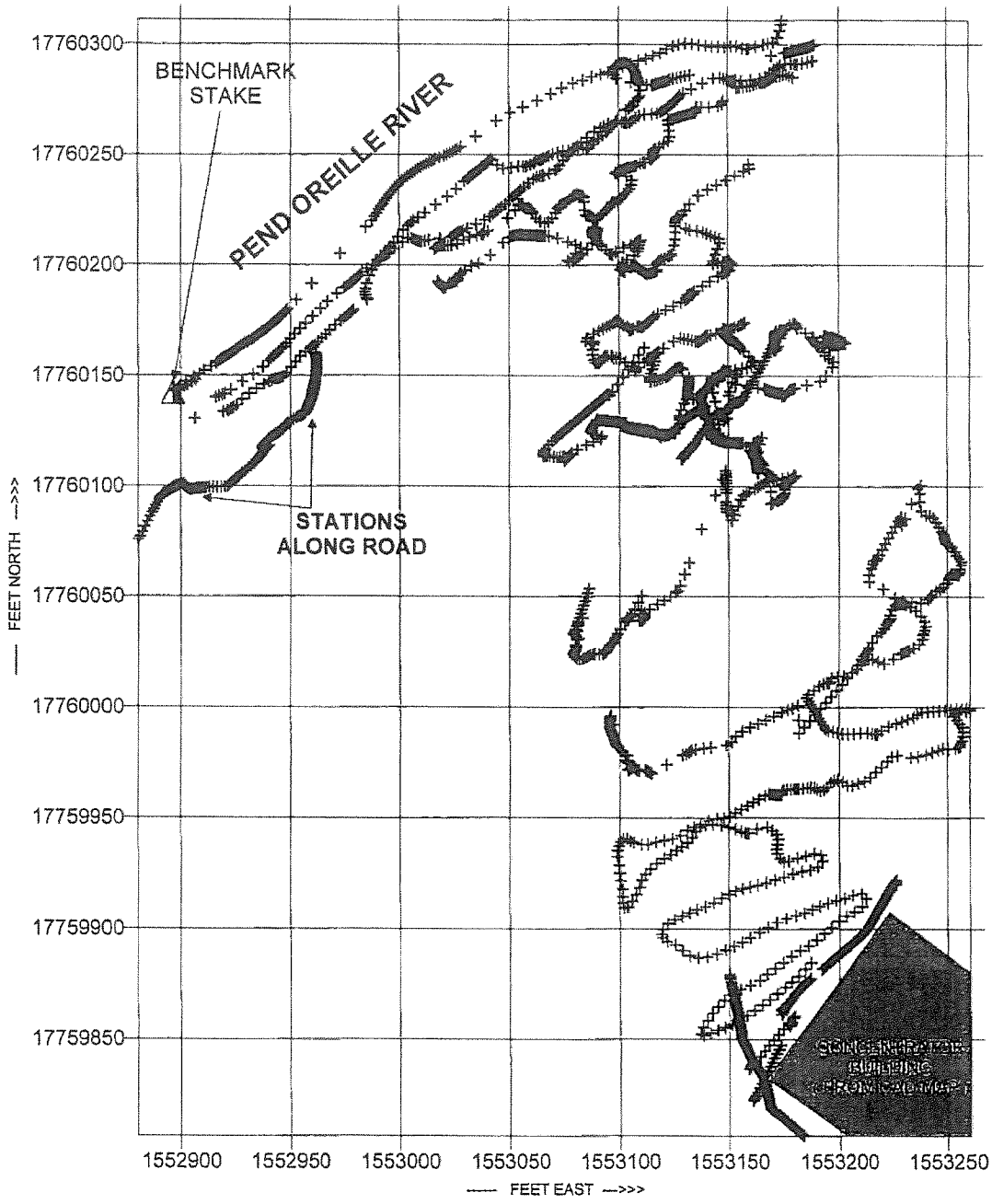
E-Mail: GeoPotential@aol.com

LOCATION:
TECK COMINCO AMERICAN INC.
PEND OREILLE MINE
METALINE FALLS, WASHINGTON

FIGURE 1.
SITE LOCATION MAP

DATE: September 1, 2005 SUBSURFACE MAPPING SURVEY PROJECT No. 7304 CLIENT: GeoEngineers, Inc.



GeoPotential

ENVIRONMENTAL & EXPLORATION GEOPHYSICS

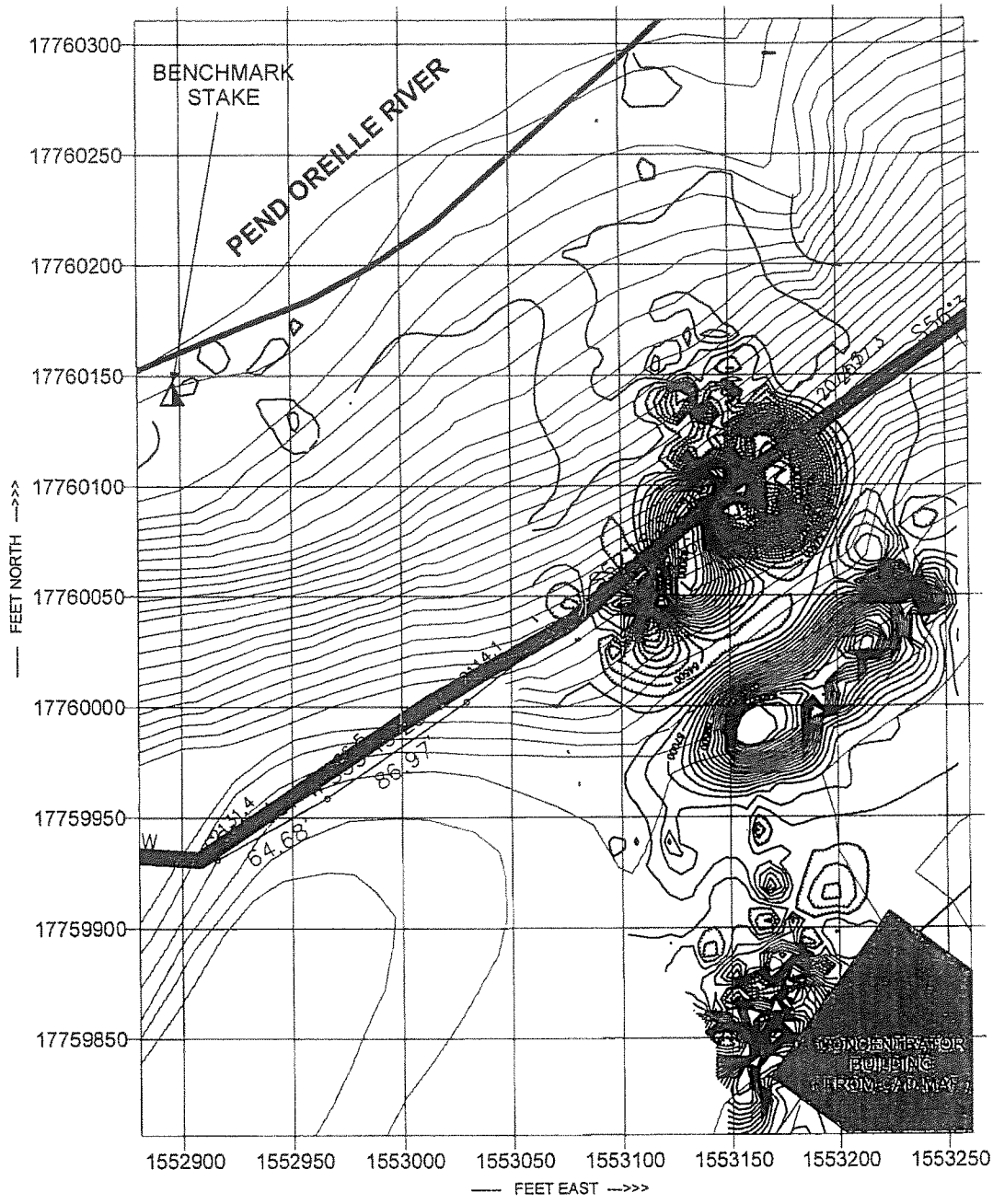
12123 East Wild Fern Lane, Brightwood, Oregon 97011• PH (503) 622-0156• FAX (503) 622-0429
E-Mail: GeoPotential@aol.com

DATE: September 1, 2006 — SUBSURFACE MAPPING SURVEY — PROJECT No. 7304

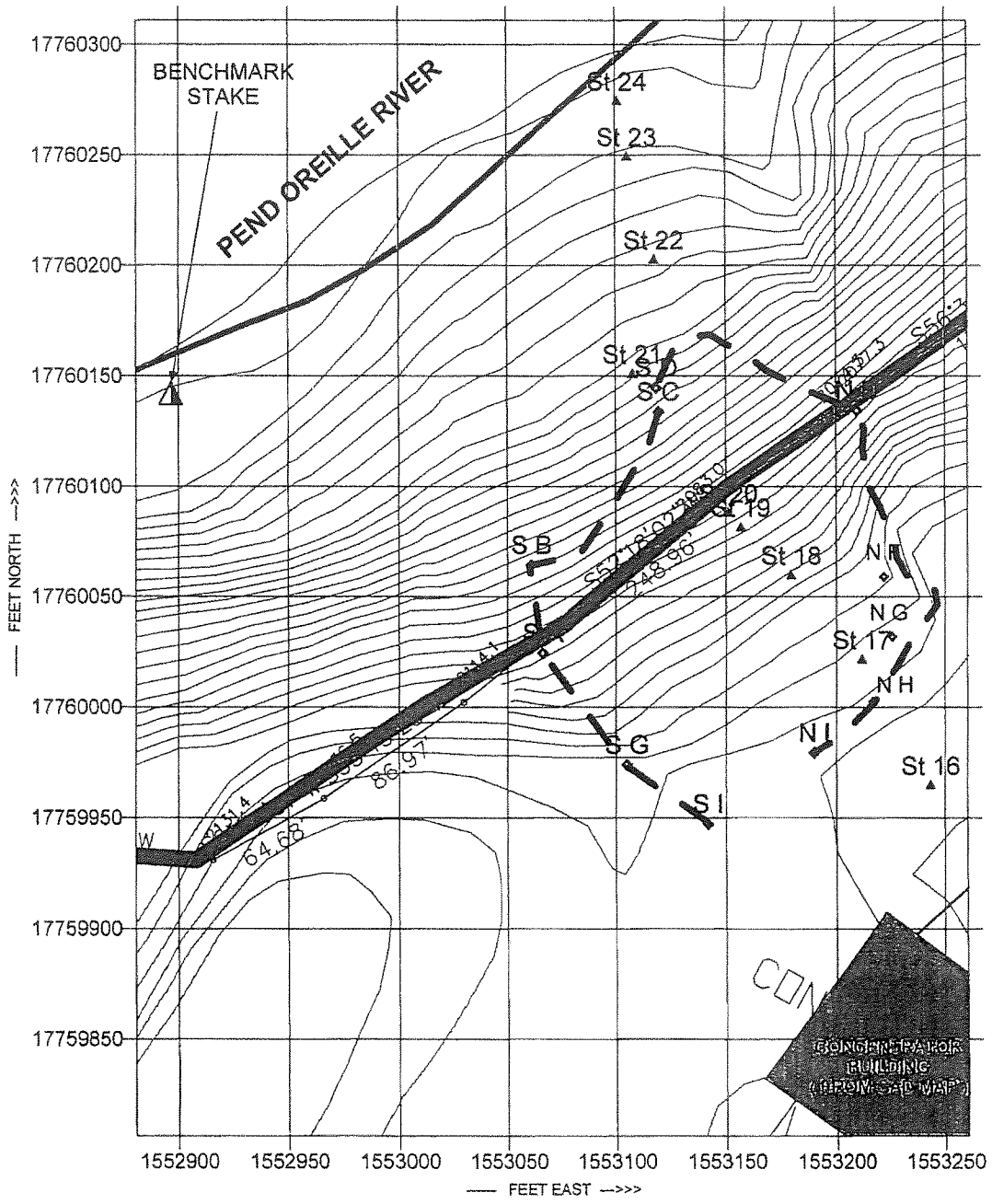
LOCATION:
TECK COMINCO AMERICAN INC.
PEND OREILLE MINE
METALINE FALLS, WASHINGTON

CLIENT: GeoEngineers, Inc.

FIGURE 2.
MAGNETIC SURVEY STATION MAP



GeoPotential ENVIRONMENTAL & EXPLORATION GEOPHYSICS 22123 East Wild Fern Lane, Brightwood, Oregon 97011 PH (503) 622-0158 FAX (503) 622-0626 E-Mail: GeoPotential@aol.com	LOCATION: TECK COMINCO AMERICAN INC. PEND OREILLE MINE METALINE FALLS, WASHINGTON	FIGURE 3. MAGNETIC CONTOUR MAP (C. I. = 500 nT)
DATE: September 1, 2006 SUBSURFACE MAPPING SURVEY PROJECT No. 7304	CLIENT: GeoEngineers, Inc.	



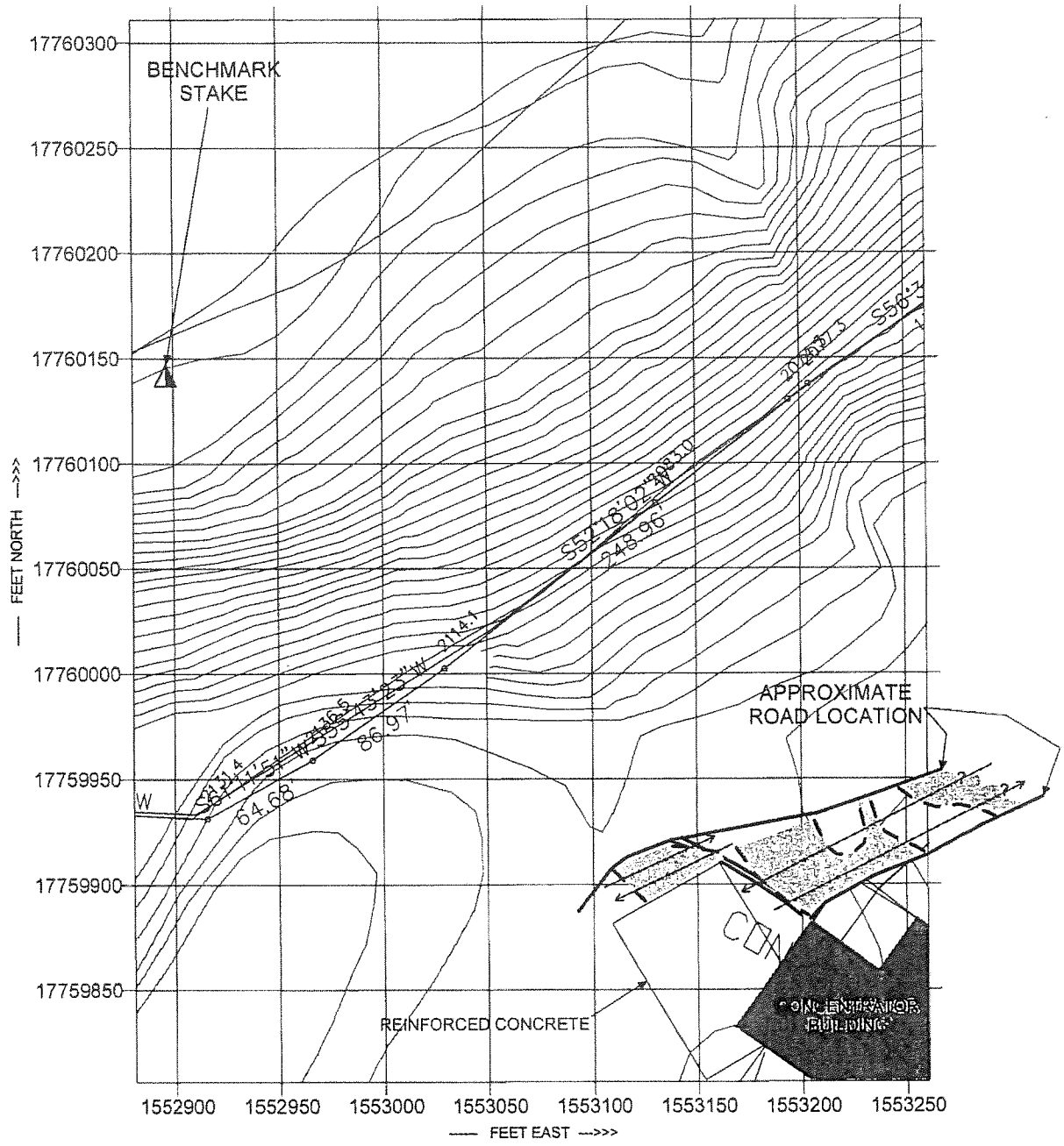
LEGEND

N G — FIELD EDGE

St 16 — GEOENGINEERS STAKE

FIELD BOUNDARY

GeoPotential ENVIRONMENTAL & EXPLORATION GEOPHYSICS 22323 East Wild Fern Lane, Brightwood, Oregon 97011 PH (503) 622-0160 FAX (503) 622-0626 E-Mail: GeoPotential@aol.com		LOCATION: TECK COMINCO AMERICAN INC. PEND OREILLE MINE METALINE FALLS, WASHINGTON	FIGURE 4. RESULTS MAP
DATE: September 1, 2005	SUBSURFACE MAPPING SURVEY PROJECT No. 7304	CLIENT: GeoEngineers, Inc.	



LEGEND

DISTURBED SOIL ZONE

GPR PROFILE

BURIED RR TRACKS

GeoPotential ENVIRONMENTAL & EXPLORATION GEOPHYSICS 22323 East Wild Fern Lane, Brightwood, Oregon 97011 • PH (503) 622-0156 FAX (503) 622-0626 E-Mail: GeoPotential@aol.com		LOCATION: TECK COMINCO AMERICAN INC. PEND OREILLE MINE METALINE FALLS, WASHINGTON	FIGURE 5. GPR RESULTS
DATE: September 1, 2005	SUBSURFACE MAPPING SURVEY PROJECT No. 7304	CLIENT: GeoEngineers, Inc.	

APPENDIX
MAGNETOMETER SURVEYS

The earth's magnetic field, measured in "nano Teslas" (nT), behaves like a bar magnet, with the strongest magnetic field located at the poles, and the weakest field located near the equator. In the United States, the average field intensity varies widely, however, the average value is about 50,000 nT. Also, like the magnetic field around the bar magnet, the earth's magnetic field is inclined. This inclination varies between 60 and 75 degrees, generally depending upon the latitude of the measuring location. The earth's magnetic field varies constantly and, during sunspot activity, quite dramatically. A magnetometer is an electronic device that measures the intensity of the earth's magnetic field.

Naturally occurring geologic features and buried ferrous metal objects such as underground storage tanks, drums, ordnance, pipes and debris filled trenches produce both horizontal and vertical disturbances to the earth's local magnetic field. The objects causing these "anomalies" can be detected quickly and reliably using portable magnetometers.

The intensity of an anomaly is a function of the mass, size and depth of burial of the object. As a rule of thumb, single drums buried several feet below the surface produce anomalies of about 200 nT relative to the normal undisturbed background and can be detected at a horizontal distance of about 15 feet, while large caches of drums can produce anomalies of many thousands of nT and may be detectable 50 feet away.

Magnetometers generally measure horizontal variations in the local magnetic field. A magnetic gradiometer is a variant of the magnetometer that measures both the horizontal and the vertical magnetic field at each survey point. It consists of two identical sensors located vertically on a staff and having a fixed separation. The intensity of the magnetic field caused by a buried metal object varies inversely with the distance between the object and the sensor. The relative intensities measured simultaneously at each sensor are used to determine the relative depth of burial of an object.

Relative depth estimates of buried metal objects can be made using a single sensor. In general, for a given mass object, the deeper the object is buried, the lower the amplitude and the wider the anomaly. Shallowly buried objects produce higher amplitude anomalies with closely spaced contour lines.

Magnetic surveys can only detect **ferrous metal** objects and cannot be used to identify the buried object. Estimates of the total mass of a buried object are difficult due to the physical properties of the object and other factors. Interference caused by observed surface metal objects limits the accuracy of the survey. The anomalies produced by fences, power lines, cars and buildings can easily mask the anomaly caused by an underground target.

Magnetic surveys are cost effective. Using the standard "step and wait" magnetometer, data from approximately 1000 points can be obtained in one field day corresponding to between 1 acre and about 5 acres depending on site conditions and survey goals. More modern cesium magnetometers collect up to 10 readings per second continuously, thus the operator can proceed without stopping. Many modern magnetometers use an audible signal to call attention to anomalous data as it is obtained. At some sites metallic objects can be detected and marked in the field at the time of the survey.

The use of a second, automatically recording "base station" magnetometer is highly recommended due to temporal variations in the earth's magnetic field. These changes must be removed from the field data before an accurate interpretation can be made, particularly when searching for small buried objects.

Magnetic data are most commonly presented in two contour maps. The TOTAL MAGNETIC FIELD CONTOUR MAP shows the horizontal magnetic field and, therefore, the areal extent of anomalies. The GRADIOMETER CONTOUR MAPS show the vertical magnetic field and indicate the relative depth of burial of the objects causing those anomalies. Color versions of these maps may be produced showing only the magnetic highs and lows.

APPENDIX
GROUND PENETRATING RADAR SURVEYS

Ground Penetrating Radar (GPR) can be a valuable tool to accurately locate both metallic and non-metallic UST's and utilities, buried drums and hazardous material at some sites. It may detect objects below reinforced concrete floors and slabs. GPR may delineate trenches and excavations and, under some conditions, it may be used to locate contaminant plumes. It has been used as an archaeological tool to look for buried artifacts. It may accurately profile fresh water lake bottoms either from a boat or from a frozen lake surface. GPR may be used to locate voids below roads and runways. GPR has numerous engineering applications. It can be used in non-destructive testing of engineering material, for example, locating rebar in concrete structures and determining the thickness of concrete and other structural material.

GPR uses short impulses of high frequency radio waves directed into the ground to acquire information about the subsurface. The energy radiated into the ground is reflected back to the antenna by features having different electrical properties to that of the surrounding material. The greater the contrast, the stronger the reflection. Typical reflectors include water table, bedrock, bedding, fractures, voids, contaminant plumes and man-made objects such as UST's and metal and plastic utilities. Materials having little electrical contrast like clay and concrete pipes may not produce strong reflections and may not be seen. Data are digitally recorded or downloaded to a laptop computer for filtering and processing.

The frequency of the radar signal used for a survey is a trade off. Low frequencies (250 Mhz – 50 Mhz) give better penetration but low resolution so that pipes and utilities may not be seen. Pipes and utilities may be seen using higher frequencies (500 Mhz) but the depth of penetration may be limited to only a few feet especially in the wet, clayey soils found in the NW USA . The GPR frequency is dependent upon the antenna. Once an antenna is selected, nothing the operator can do can increase the depth of penetration.

Radar data is ambiguous. Many buried objects produce echoes that may be similar to the echo expected from the target object. Boulders and debris produce reflections that are similar to pipes and tanks. Subtle changes in the electrical properties along a traverse caused by changes in soil type, mineralogy, grain size, and moisture content all produce "noise" that can make interpretation difficult. Interpreting radargrams is an art as much as a science.

Under some conditions, although a UST itself may not be clearly visible in a GPR record, the excavation or trench in which the UST is buried is evident. Usually GPR data is used to compliment data from other "tools". For example, a trench-like reflection but no clear UST reflection, combined with a "tank" shaped magnetic anomaly suggests the presence of a UST. Although the UST itself could not be seen using GPR, the radar showed a trench-like reflection. The magnetic data showed a large ferrous object. We would report a possible UST at that location.

GPR is often used in conjunction with magnetometer surveys. Magnetometer Surveys are very fast and large areas can be covered cost effectively. Magnetic anomalies are marked in the field, then may be further investigated using radar.

GPR, like other geophysical tools, is excellent at detecting changes across a site, but it is poor at actually identifying the cause of the change. **The only sure way to identify buried objects is through excavation.**

ADVANTAGES - General

- GPR provides continuous records along traverses which, depending on the goal of the survey, may be interpreted in the field.
- At flat, open sites, for reconnaissance purposes, the antenna can be towed behind a vehicle at several mph.
- Many GPR antennas are shielded and are unaffected by surface and overhead objects and power lines.
- GPR can be used in conjunction with magnetic or EM surveys to accurately locate buried objects.

ADVANTAGES – Site specific

- With a low frequency antenna, in clean, dry, sandy soil, reflections from targets as deep as 100 feet are possible. Geologic features such as bedrock and cross bedding may be seen at some sites.
- The resolution of data is very high particularly for high frequency antennas.
- Shallow, man-made objects generally can be detected.
- Fiberglass UST's and plastic pipes can be detected using GPR.

LIMITATIONS - General

To acquire the highest quality data, proper coupling between the antenna and the ground surface is necessary. Poor data may be obtained at sites covered with debris, an uneven surface, tall grass and brush. Objects located at curbs are difficult to see.

Acquiring GPR data is slow. The antenna must be over the target. The signal from the antenna is cone-shaped. Reflections from objects to the side of the antenna may be seen, but their actual location relative to the antenna is not obvious.

Penetration of the GPR signal is "site specific" and its depth of penetration at a particular site can not be predicted ahead of time. Near surface conductive material, such as salty or contaminated ground water and wet, clay-rich soil, may attenuate the radar signal, limiting the effective depth of the survey to several feet. Reinforced concrete also can attenuate the signal. Rebar may produce reflections that look like pipes.

GPR may not be cost-effective for some projects. For a detailed survey mapping underground storage tanks and utilities, it may be necessary to collect data in orthogonal directions at 5-foot line spacing.

LIMITATIONS – Interpretation

Interpretation can be difficult. Radar data are ambiguous. Subsurface objects can be detected but, in general, they cannot be identified. USTs and utilities have a characteristic reflection, however, large rocks and boulders have a similar reflection.

The reflection visible in a GPR record is very complex and may be caused by small changes in the electrical properties of the soil. The reflection may not be produced by the target in mind. Due to "noise", the target may be missed. USTs and deep utilities may be missed if they are under debris and/or other pipes.

Other methods may be necessary to aid in the interpretation of the data (use a magnetometer to detect a large metallic mass, then GPR to determine if the object is tank-like, or a utility locator to determine if there are feed lines and fill pipes leading to the object).

Adequate contrast between the ground and the target is required to obtain reflections. UST's may be missed if they are badly corroded. Utilities made of "earth" materials like clay and concrete may not be detected since their electrical properties are similar to the surrounding soil.

To determine the depth to an object without "ground truth", assumptions must be made regarding soil properties. Even with ground truth at several locations on the same site, changes in material across a site (therefore changes in signal velocity) can cause errors in depth measurements at other locations.

APPENDIX
ELECTRICAL RESISTIVITY SURVEYS

Electrical resistivity is a geophysical method whereby an electrical current is injected into the ground through steel electrodes. It is used to measure changes in the electrical properties of the subsurface.

Most soils and non-ore bearing rocks are electrically resistive, (i.e., insulators). Soil moisture and ground water are often electrically conductive due to contained dissolved minerals. Therefore the resistivity measured in the ground is predominantly controlled by the amount of moisture and water within the soil and rock (a function of the porosity and permeability), and the concentration of dissolved solids (salts) in that water.

The basic application requires at least 4 steel electrodes be driven into the ground. An electrical current is applied to the outer electrodes by a battery or generator. A voltage is measured between the 2 inner electrodes using a simple voltmeter. Through Ohm's Law (V=IR) and by knowing the input current, the measured voltage and the geometry of the electrode array, a value known as resistance can be calculated.

Resistivity is resistance times area divided by distance. Units are known as Ohm-meters. The value measured is known as the "apparent resistivity" because it is thought to be at the midpoint of the 2 inner electrodes, not at an actual electrode. Most modern resistivity meters calculate apparent resistivity once the geometric parameters are input.

Electrical resistivity may be used to determine changes in subsurface conditions with depth by increasing the spacing between the electrodes. A rule of thumb is that the depth of the investigation is equal to about ½ to 1/3 the "a" spacing. This is known as the "sounding" method and would be the one used to determine the depth to a clay layer, ground water, or bedrock.

Electrical resistivity may also be used to locate lateral changes by moving the array right and left or, forward and back. This method is called "profiling" and might be used to locate a conductive leachate plume, an old stream channel, or a trench.

Many different geometric electrode arrays have been used. The simplest electrode array is the Wenner Array in which the electrodes are set out in a straight line, and the spacing between each electrode (the "a" spacing) remains constant. The first measurement might have an "a" spacing of 1 meter. After the data are collected, the array might be expanded to an "a" spacing of 2 meters, then 4 meters, then 8, etc. "A" spacings can vary from less than a meter to more than 100 meters, depending on the depth of interest.

Another common electrode array is the Schlumberger Array. With this spread the outer current electrodes are driven into the ground a set distance from the mid point (measuring point). To gather deeper and deeper data the voltage electrodes are moved outward from the mid point in increments (both sides being the same). If the operator is interested in collecting lateral data, the electrodes are moved right or left. The outer electrodes remain the same, making this method easier since only 2 electrodes need to be moved after each measurement is made.

Many modern resistivity meters have a "switching" capability whereby 12, 24 or 48 electrodes may be placed in the ground at one time, all connected to the same data cable. The meter then automatically uses every possible combination of electrodes to gather information about the electrical properties of the subsurface. This method is much faster than using only 4 electrodes at

a time. With the 4 electrode method you would place the 4 electrodes in the ground, take the measurement, then move the electrodes outward, walk back to the meter, take a second measurement, walk back out to the electrodes, move them, walk back to the meter, etc. This is a very slow and tedious task, especially with spacings of many meters.

With a 24 electrode switching meter roughly 100 measurements are taken automatically producing very detailed information about the electrical properties of the subsurface.

Advantages
Profiling can be used to detect and locate contaminant plumes.
Soundings can be used to determine the depth and thickness of subsurface layers, depth to the water table, and bedrock.
Resistivity values can be used to estimate geological formations

Limitations
Electrical resistivity is slow because electrodes must be driven into the ground between measurements.
Arrays cannot be located near buried electrical power lines and utilities since the current injected into the ground can flow more easily through the utility.
Data are influenced by near surface conductive layers. The currnet will always travel most easily along highly conductive layers. If the surface is highly conductive it may not be possible to collect data below the top layer.

GeoEngineers

APPENDIX B
FIELD EXPLORATION

APPENDIX B
FIELD EXPLORATION

GENERAL

Hand auger, test pit, and seep water sampling was performed by GeoEngineers on June 14 and 15, 2005. Four soil samples, one chemical sample, and one seep water (collected on two different days from the same source) were collected as part of our study. Soil encountered was classified using ASTM D 2488-90. A description of soil encountered is presented in Table 1. Exploration procedures, sampling protocol and analytical results are described below.

FIELD EXPLORATIONS

Locations of the explorations were determined by GeoEngineers field representative. Each exploration location was photographed, with photographs being stored in our files. The location of each test pit was recorded using cloth tape and, if possible a global positioning system (GPS) receiver. The approximate locations of all explorations are shown on Figure 2.

FIELD METHODS

FIELD RECONNAISSANCE

A representative of GeoEngineers visited the site on June 14, 2005 and completed a reconnaissance of the debris field slope. We completed our reconnaissance by traversing the slope area and documenting the location of the surface debris and other pertinent features on a topographic field map provided by TCAI and by photography. During our reconnaissance we developed a slope profile of the subject slope (Figure 3, transect A-A') using a compass, a nylon tape to measure slope distance and a slope clinometer to measure slope inclination. The location of features shown on Figures 2 and 3 should be considered accurate to the degree implied by the methods used.

SOIL AND CHEMICAL SAMPLING

Samples were collected from the base of each exploration using a hand auger. Each of these samples were field screened and then placed into a decontaminated borosilicate glass sample container for laboratory submittal. Sample locations were noted in field logs and are shown on Figure 2.

Soil and chemical samples were collected using new disposable nitrile gloves. Samples were placed into laboratory prepared sample containers. The samples were labeled and placed in a cooler with blue ice pending delivery to the analytical laboratory.

FIELD SCREENING METHODS

Our representative conducted field screening on each of the soil samples obtained from the explorations. Field screening results are used as a general guideline to delineate areas of possible petroleum-related contamination in soils. The screening methods employed included (1) visual examination, (2) water sheen testing, and (3) headspace vapor testing using a MiniREA 2000 PID.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high. Water sheen screening

and headspace vapor screening are more sensitive screening methods which can be effective in detecting petroleum based products in concentrations lower than regulatory cleanup guidelines. However, field screening results are site-specific. The effectiveness of field screening results will vary with temperature, moisture content, soil lithology, organic content and type of contaminant. The presence or absence of a sheen or headspace vapors does not necessarily indicate the presence or absence of petroleum hydrocarbons.

Water sheen testing involves placing soil in water and observing the water surface for signs of sheen. The results of water sheen testing on soil samples from the borings are presented on the boring logs. Sheens are classified as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light colorless film, spotty to globular, spread is irregular, not rapid; areas of no sheen remain; film dissipates rapidly.
Moderate Sheen (MS)	Light to heavy film, may have some color or iridescence, globular to stringy, spread is irregular to flowing; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy colorful film with iridescence; stringy, spread is rapid; sheen flows off the sample; most of water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of the MiniREA is inserted into the bag and the MiniREA 2000 measures the concentration of organic vapors in the sample bag headspace. The MiniREA 2000 is calibrated to isobutylene and is designed to quantify organic vapor concentrations up to 2,500 ppm (parts per million). The lower threshold of significance of the PID in this application is 10 ppm; however, lower values were recorded by the instrument, as shown on the test pit logs.

SEEP WATER SAMPLING

Seep water samples were collected on June 14, 2005 by excavating a small stilling well at the location of the seep. A peristaltic pump with new tubing was used to transfer water from the stilling well to laboratory prepared sample containers. The seep water sample collected on June 15, 2005 was collected by decanting water from the seep to laboratory prepared sample containers using a clean, unused sample jar. Samples were transferred under chain-of-custody to the laboratory.

GeoEngineers

APPENDIX C
CHEMICAL ANALYTICAL DATA

APPENDIX C
CHEMICAL ANALYTICAL DATA

SAMPLES

Chain-of-custody procedures were followed during the transport of the field samples to the accredited analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results and quality control records are included in this attachment.

ANALYTICAL DATA REVIEW

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report. Any data quality exceptions documented by the accredited laboratory were reviewed by GeoEngineers and are addressed in the data quality exception section of this attachment.

DATA QUALITY EXCEPTION SUMMARY

No significant data quality exceptions were noted in the laboratory report or during our review. Based on our data quality review, it is our opinion that the analytical data are of acceptable quality for their intended use.

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TC-1 (0-1)	S5F0090-01	Soil	06/14/05 10:30	06/15/05 11:05
TC-6 (0-2)	S5F0090-06	Soil	06/14/05 15:00	06/15/05 11:05
TC-WS1	S5F0090-08	Water	06/14/05 14:00	06/15/05 11:05

Dennis D Wells, Laboratory Director

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Semivolatile Petroleum Products by NWTPH-Dx

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	5060156	06/20/05	06/23/05	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**29.7**	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*94.8*	*50-150*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*101*	*50-150*			"	"	"	"	
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Diesel Range Hydrocarbons	ND	100	mg/kg dry	10	5060156	06/20/05	06/23/05	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**1510**	250	"	"	"	"	"	"	
Surrogate: 2-FBP	*93.5*	*50-150*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*152*	*50-150*			"	"	"	"	*S-02*
TC-WS1 (S5F0090-08) Water Sampled: 06/14/05 14:00 Received: 06/15/05 11:05									
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	5060144	06/17/05	06/24/05	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*77.2*	*50-150*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*81.0*	*50-150*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Acetone	ND	1.00	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Benzene	ND	0.0300	"	"	"	"	"	"	
Bromobenzene	ND	0.100	"	"	"	"	"	"	
Bromochloromethane	ND	0.100	"	"	"	"	"	"	
Bromodichloromethane	ND	0.100	"	"	"	"	"	"	
Bromoform	ND	0.100	"	"	"	"	"	"	
Bromomethane	ND	0.500	"	"	"	"	"	"	
2-Butanone	ND	1.00	"	"	"	"	"	"	
n-Butylbenzene	ND	0.100	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.100	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.100	"	"	"	"	"	"	
Carbon disulfide	ND	0.100	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.100	"	"	"	"	"	"	
Chlorobenzene	ND	0.100	"	"	"	"	"	"	
Chloroethane	ND	0.100	"	"	"	"	"	"	
Chloroform	ND	0.100	"	"	"	"	"	"	
Chloromethane	ND	0.500	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
Dibromochloromethane	ND	0.100	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.100	"	"	"	"	"	"	
Dibromomethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.100	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.100	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.100	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Ethylbenzene	ND	0.100	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Hexachlorobutadiene	ND	0.100	"	"	"	"	"	"	
2-Hexanone	ND	1.00	"	"	"	"	"	"	
Isopropylbenzene	ND	0.100	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.100	"	"	"	"	"	"	
Methylene chloride	ND	1.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
n-Propylbenzene	ND	0.100	"	"	"	"	"	"	
Styrene	ND	0.100	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0300	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.100	"	"	"	"	"	"	
Trichloroethene	ND	0.0300	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.100	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
Vinyl chloride	ND	0.100	"	"	"	"	"	"	
o-Xylene	ND	0.200	"	"	"	"	"	"	
m,p-Xylene	ND	0.400	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*80.4*	*44.8-146*			"	"	"	"	
Surrogate: Toluene-d8	*85.7*	*62.3-143*			"	"	"	"	
Surrogate: 4-bromofluorobenzene	*109*	*52.5-138*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Acetone	ND	1.00	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Benzene	ND	0.0300	"	"	"	"	"	"	
Bromobenzene	ND	0.100	"	"	"	"	"	"	
Bromochloromethane	ND	0.100	"	"	"	"	"	"	
Bromodichloromethane	ND	0.100	"	"	"	"	"	"	
Bromoform	ND	0.100	"	"	"	"	"	"	
Bromomethane	ND	0.500	"	"	"	"	"	"	
2-Butanone	ND	1.00	"	"	"	"	"	"	
n-Butylbenzene	ND	0.100	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.100	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.100	"	"	"	"	"	"	
Carbon disulfide	ND	0.100	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.100	"	"	"	"	"	"	
Chlorobenzene	ND	0.100	"	"	"	"	"	"	
Chloroethane	ND	0.100	"	"	"	"	"	"	
Chloroform	ND	0.100	"	"	"	"	"	"	
Chloromethane	ND	0.500	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
Dibromochloromethane	ND	0.100	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.100	"	"	"	"	"	"	
Dibromomethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.100	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.100	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.100	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12.00

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Ethylbenzene	ND	0.100	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Hexachlorobutadiene	ND	0.100	"	"	"	"	"	"	
2-Hexanone	ND	1.00	"	"	"	"	"	"	
Isopropylbenzene	ND	0.100	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.100	"	"	"	"	"	"	
Methylene chloride	ND	1.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
n-Propylbenzene	ND	0.100	"	"	"	"	"	"	
Styrene	ND	0.100	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0300	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.100	"	"	"	"	"	"	
Trichloroethene	**1.76**	0.0300	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.100	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
Vinyl chloride	ND	0.100	"	"	"	"	"	"	
o-Xylene	ND	0.200	"	"	"	"	"	"	
m,p-Xylene	ND	0.400	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*81.9*	*44.8-146*			"	"	"	"	
Surrogate: Toluene-d8	*81.9*	*62.3-143*			"	"	"	"	
Surrogate: 4-bromofluorobenzene	*98.4*	*52.5-138*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-WS1 (S5F0090-08) Water Sampled: 06/14/05 14:00 Received: 06/15/05 11:05									
Acetone	ND	25.0	ug/l	1	5060118	06/16/05	06/17/05	EPA 8260B	
Benzene	2.84	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-WS1 (S5F0090-08) Water Sampled: 06/14/05 14:00 Received: 06/15/05 11:05									
Ethylbenzene	ND	1.00	ug/l	1	5060118	06/16/05	06/17/05	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**1.80**	1.00	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	0.200	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*112*	*62.9-131*			"	"	"	"	
Surrogate: Toluene-d8	*102*	*58.7-133*			"	"	"	"	
Surrogate: 4-bromofluorobenzene	*94.0*	*60.8-140*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Conventional Chemistry Parameters by APHA/EPA Methods

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Cyanide (total)	ND	0.0500	mg/kg	10	5060229	06/28/05	06/28/05	EPA 335.2	
pH	7.77		pH Units	1	5060182	06/22/05	06/22/05	EPA 9045B	
% Solids	86.8	0.0100	% by Weight	"	5060169	06/21/05	06/21/05	Gravimetry	
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Cyanide (total)	0.0719	0.0500	mg/kg	10	5060229	06/28/05	06/28/05	EPA 335.2	
pH	7.21		pH Units	1	5060182	06/22/05	06/22/05	EPA 9045B	
% Solids	78.5	0.0100	% by Weight	"	5060169	06/21/05	06/21/05	Gravimetry	
TC-WS1 (S5F0090-08) Water Sampled: 06/14/05 14:00 Received: 06/15/05 11:05									
Cyanide (total)	ND	0.00500	mg/l	1	5060139	06/16/05	06/16/05	EPA 335.2	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (SSF0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									X
Aldrin	ND	1.00	ug/kg dry	1	5F24051	06/24/05	07/07/05	EPA 8081A	
alpha-BHC	ND	1.00	"	"	"	"	"	"	
beta-BHC	**2.24**	2.00	"	"	"	"	"	"	P-03
delta-BHC	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.00	"	"	"	"	"	"	
Chlordane (tech)	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane	ND	1.00	"	"	"	"	"	"	
4,4'-DDD	ND	2.00	"	"	"	"	"	"	
4,4'-DDE	ND	2.00	"	"	"	"	"	"	
4,4'-DDT	ND	2.00	"	"	"	"	"	"	
Dieldrin	ND	2.00	"	"	"	"	"	"	
Endosulfan I	ND	1.00	"	"	"	"	"	"	
Endosulfan II	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate	ND	2.00	"	"	"	"	"	"	
Endrin	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde	ND	2.00	"	"	"	"	"	"	
Endrin ketone	ND	2.00	"	"	"	"	"	"	
Heptachlor	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.00	"	"	"	"	"	"	
Methoxychlor	ND	2.00	"	"	"	"	"	"	
Toxaphene	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX	*79.8*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*89.4*	*35-151*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01RE1) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Aldrin	ND	10.0	ug/kg dry	10	5F24051	06/24/05	07/08/05	EPA 8081A	
alpha-BHC	ND	10.0	"	"	"	"	"	"	
beta-BHC	ND	20.0	"	"	"	"	"	"	
delta-BHC	ND	10.0	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	10.0	"	"	"	"	"	"	
Chlordane (tech)	ND	100	"	"	"	"	"	"	
alpha-Chlordane	ND	10.0	"	"	"	"	"	"	
gamma-Chlordane	ND	10.0	"	"	"	"	"	"	
4,4'-DDD	ND	20.0	"	"	"	"	"	"	
4,4'-DDE	ND	20.0	"	"	"	"	"	"	
4,4'-DDT	ND	20.0	"	"	"	"	"	"	
Dieldrin	ND	20.0	"	"	"	"	"	"	
Endosulfan I	ND	10.0	"	"	"	"	"	"	
Endosulfan II	ND	20.0	"	"	"	"	"	"	
Endosulfan sulfate	ND	20.0	"	"	"	"	"	"	
Endrin	ND	20.0	"	"	"	"	"	"	
Endrin aldehyde	ND	20.0	"	"	"	"	"	"	
Endrin ketone	ND	20.0	"	"	"	"	"	"	
Heptachlor	ND	10.0	"	"	"	"	"	"	
Heptachlor epoxide	ND	10.0	"	"	"	"	"	"	
Methoxychlor	ND	20.0	"	"	"	"	"	"	
Toxaphene	ND	500	"	"	"	"	"	"	
Surrogate: TCX	*98.3*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*112*	*35-151*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									X
Aldrin	ND	1.00	ug/kg dry	1	5F24051	06/24/05	07/06/05	EPA 8081A	
alpha-BHC	ND	1.00	"	"	"	"	"	"	
beta-BHC	ND	2.00	"	"	"	"	"	"	
delta-BHC	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.00	"	"	"	"	"	"	
Chlordane (tech)	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane	ND	1.00	"	"	"	"	"	"	
4,4'-DDD	ND	2.00	"	"	"	"	"	"	
4,4'-DDE	ND	2.00	"	"	"	"	"	"	
4,4'-DDT	3.05	2.00	"	"	"	"	"	"	
Dieldrin	ND	2.00	"	"	"	"	"	"	
Endosulfan I	ND	1.00	"	"	"	"	"	"	
Endosulfan II	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate	ND	2.00	"	"	"	"	"	"	
Endrin	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde	ND	2.00	"	"	"	"	"	"	
Endrin ketone	ND	2.00	"	"	"	"	"	"	
Heptachlor	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.00	"	"	"	"	"	"	
Methoxychlor	ND	2.00	"	"	"	"	"	"	
Toxaphene	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX	*67.3*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*92.6*	*35-151*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-6 (0-2) (S5F0090-06RE1) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Aldrin	ND	100	ug/kg dry	100	5F24051	06/24/05	07/08/05	EPA 8081A	
alpha-BHC	ND	100	"	"	"	"	"	"	
beta-BHC	ND	200	"	"	"	"	"	"	
delta-BHC	ND	100	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	100	"	"	"	"	"	"	
Chlordane (tech)	ND	1000	"	"	"	"	"	"	
alpha-Chlordane	ND	100	"	"	"	"	"	"	
gamma-Chlordane	ND	100	"	"	"	"	"	"	
4,4'-DDD	ND	200	"	"	"	"	"	"	
4,4'-DDE	ND	200	"	"	"	"	"	"	
4,4'-DDT	ND	200	"	"	"	"	"	"	
Dieldrin	ND	200	"	"	"	"	"	"	
Endosulfan I	ND	100	"	"	"	"	"	"	
Endosulfan II	ND	200	"	"	"	"	"	"	
Endosulfan sulfate	ND	200	"	"	"	"	"	"	
Endrin	ND	200	"	"	"	"	"	"	
Endrin aldehyde	ND	200	"	"	"	"	"	"	
Endrin ketone	ND	200	"	"	"	"	"	"	
Heptachlor	ND	100	"	"	"	"	"	"	
Heptachlor epoxide	ND	100	"	"	"	"	"	"	
Methoxychlor	ND	200	"	"	"	"	"	"	
Toxaphene	ND	5000	"	"	"	"	"	"	
Surrogate: TCX	*98.2*	*47-134*			"	"	"	"	*P-03*
Surrogate: Decachlorobiphenyl	*99.0*	*35-151*			"	"	"	"	*P-03*

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Polychlorinated Biphenyls by EPA Method 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Aroclor 1016	ND	25.0	ug/kg dry	1	5F24051	06/24/05	06/29/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*90.7*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*104*	*37-151*			"	"	"	"	
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Aroclor 1016	ND	25.0	ug/kg dry	1	5F24051	06/24/05	06/29/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	**65.5**	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*81.0*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*97.0*	*37-151*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Physical Parameters by APHA/ASTM/EPA Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-1 (0-1) (S5F0090-01) Soil Sampled: 06/14/05 10:30 Received: 06/15/05 11:05									
Dry Weight	79.9	1.00	%	1	5F27064	06/27/05	06/28/05	BSOPSPL003R08	
TC-6 (0-2) (S5F0090-06) Soil Sampled: 06/14/05 15:00 Received: 06/15/05 11:05									
Dry Weight	78.9	1.00	%	1	5F27064	06/27/05	06/28/05	BSOPSPL003R08	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Semivolatile Petroleum Products by NWTPH-Dx - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060144: Prepared 06/17/05 Using EPA 3510/600 Series										
Blank (5060144-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Heavy Oil Range Hydrocarbons	ND	0.500	"							
Surrogate: 2-FBP	*0.167*		"	*0.200*		*83.5*	*50-150*			
Surrogate: p-Terphenyl-d14	*0.174*		"	*0.200*		*87.0*	*50-150*			
LCS (5060144-BS1)										
Diesel Range Hydrocarbons	2.39	0.250	mg/l	2.50		95.6	50-150			
Surrogate: 2-FBP	*0.200*		"	*0.200*		*100*	*50-150*			
Surrogate: p-Terphenyl-d14	*0.192*		"	*0.200*		*96.0*	*50-150*			
LCS Dup (5060144-BSD1)										
Diesel Range Hydrocarbons	2.48	0.250	mg/l	2.50		99.2	50-150	3.70	11.8	
Surrogate: 2-FBP	*0.206*		"	*0.200*		*103*	*50-150*			
Surrogate: p-Terphenyl-d14	*0.197*		"	*0.200*		*98.5*	*50-150*			
Batch 5060156: Prepared 06/20/05 Using EPA 3550B										
Blank (5060156-BLK1)										
Diesel Range Hydrocarbons	ND	10.0	mg/kg wet							
Heavy Oil Range Hydrocarbons	ND	25.0	"							
Surrogate: 2-FBP	*6.14*		"	*6.67*		*92.1*	*50-150*			
Surrogate: p-Terphenyl-d14	*6.28*		"	*6.67*		*94.2*	*50-150*			
LCS (5060156-BS1)										
Diesel Range Hydrocarbons	86.6	10.0	mg/kg wet	83.3		104	50-150			
Surrogate: 2-FBP	*7.51*		"	*6.67*		*113*	*50-150*			
Surrogate: p-Terphenyl-d14	*6.64*		"	*6.67*		*99.6*	*50-150*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Semivolatile Petroleum Products by NWTPH-Dx - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060156: Prepared 06/20/05 Using EPA 3550B										
Duplicate (5060156-DUP1)					**Source: S5F0079-01**					
Diesel Range Hydrocarbons	ND	100	mg/kg dry		ND				25	
Heavy Oil Range Hydrocarbons	361	250	"		261			32.2	25	Q-05
Surrogate: 2-FBP	*10.2*		"	*10.9*		*93.6*	*50-150*			
Surrogate: p-Terphenyl-d14	*11.2*		"	*10.9*		*103*	*50-150*			
Matrix Spike (5060156-MS1)					**Source: S5F0079-01**					
Diesel Range Hydrocarbons	157	100	mg/kg dry	136	ND	115	50-150			
Surrogate: 2-FBP	*12.5*		"	*10.9*		*115*	*50-150*			
Surrogate: p-Terphenyl-d14	*11.8*		"	*10.9*		*108*	*50-150*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060118: Prepared 06/16/05 Using GC/MS Volatiles										
Blank (5060118-BLK1)										
Acetone	ND	25.0	ug/l							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromochloromethane	ND	1.00	"							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
2-Butanone	ND	10.0	"							
n-Butylbenzene	ND	1.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	1.00	"							
Carbon tetrachloride	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
Chloroethane	ND	1.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
Dibromochloromethane	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	5.00	"							
1,2-Dibromoethane	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
Dichlorodifluoromethane	ND	1.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane (EDC)	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							
1,2-Dichloropropane	ND	1.00	"							
1,3-Dichloropropane	ND	1.00	"							
2,2-Dichloropropane	ND	1.00	"							

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060118: Prepared 06/16/05 Using GC/MS Volatiles										
Blank (5060118-BLK1)										
1,1-Dichloropropene	ND	1.00	ug/l							
cis-1,3-Dichloropropene	ND	1.00	"							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	1.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	1.00	"							
p-Isopropyltoluene	ND	1.00	"							
Methylene chloride	10.4	5.00	"							
4-Methyl-2-pentanone	ND	10.0	"							
Methyl tert-butyl ether	ND	1.00	"							
Naphthalene	ND	1.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	0.200	"							
o-Xylene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
Surrogate: Dibromofluoromethane	*10.1*		"	*10.0*		*101*	*62.9-131*			
Surrogate: Toluene-d8	*10.2*		"	*10.0*		*102*	*58.7-133*			
Surrogate: 4-bromofluorobenzene	*8.98*		"	*10.0*		*89.8*	*60.8-140*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060118: Prepared 06/16/05 Using GC/MS Volatiles										
LCS (5060118-BS1)										
Benzene	9.96	1.00	ug/l	10.0		99.6	67.4-116			
Chlorobenzene	10.1	1.00	"	10.0		101	68.3-123			
1,1-Dichloroethene	10.8	1.00	"	10.0		108	67-137			
Toluene	10.0	1.00	"	10.0		100	68.8-139			
Trichloroethene	9.64	1.00	"	10.0		96.4	68.1-128			
Surrogate: Dibromofluoromethane	*10.1*		"	*10.0*		*101*	*62.9-131*			
Surrogate: Toluene-d8	*9.88*		"	*10.0*		*98.8*	*58.7-133*			
Surrogate: 4-bromofluorobenzene	*9.04*		"	*10.0*		*90.4*	*60.8-140*			
Matrix Spike (5060118-MS1)					Source: S5F0071-01					
Benzene	10.6	1.00	ug/l	10.0	ND	106	59.7-129			
Chlorobenzene	10.3	1.00	"	10.0	ND	103	75.8-121			
1,1-Dichloroethene	10.8	1.00	"	10.0	ND	108	63.8-137			
Toluene	10.7	1.00	"	10.0	ND	107	84.5-127			
Trichloroethene	10.0	1.00	"	10.0	ND	100	75.5-129			
Surrogate: Dibromofluoromethane	*10.9*		"	*10.0*		*109*	*62.9-131*			
Surrogate: Toluene-d8	*10.3*		"	*10.0*		*103*	*58.7-133*			
Surrogate: 4-bromofluorobenzene	*9.86*		"	*10.0*		*98.6*	*60.8-140*			
Matrix Spike Dup (5060118-MSD1)					Source: S5F0071-01					
Benzene	10.7	1.00	ug/l	10.0	ND	107	59.7-129	0.939	10	
Chlorobenzene	10.4	1.00	"	10.0	ND	104	75.8-121	0.966	11	
1,1-Dichloroethene	9.99	1.00	"	10.0	ND	99.9	63.8-137	7.79	14	
Toluene	10.6	1.00	"	10.0	ND	106	84.5-127	0.939	12	
Trichloroethene	10.1	1.00	"	10.0	ND	101	75.5-129	0.995	10	
Surrogate: Dibromofluoromethane	*10.8*		"	*10.0*		*108*	*62.9-131*			
Surrogate: Toluene-d8	*10.1*		"	*10.0*		*101*	*58.7-133*			
Surrogate: 4-bromofluorobenzene	*9.48*		"	*10.0*		*94.8*	*60.8-140*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
Blank (5060180-BLK1)										
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.0300	"							
Bromobenzene	ND	0.100	"							
Bromochloromethane	ND	0.100	"							
Bromodichloromethane	ND	0.100	"							
Bromoform	ND	0.100	"							
Bromomethane	ND	0.500	"							
2-Butanone	ND	1.00	"							
n-Butylbenzene	ND	0.100	"							
sec-Butylbenzene	ND	0.100	"							
tert-Butylbenzene	ND	0.100	"							
Carbon disulfide	ND	0.100	"							
Carbon tetrachloride	ND	0.100	"							
Chlorobenzene	ND	0.100	"							
Chloroethane	ND	0.100	"							
Chloroform	ND	0.100	"							
Chloromethane	ND	0.500	"							
2-Chlorotoluene	ND	0.100	"							
4-Chlorotoluene	ND	0.100	"							
Dibromochloromethane	ND	0.100	"							
1,2-Dibromo-3-chloropropane	ND	0.500	"							
1,2-Dibromoethane	ND	0.100	"							
Dibromomethane	ND	0.100	"							
1,2-Dichlorobenzene	ND	0.100	"							
1,3-Dichlorobenzene	ND	0.100	"							
1,4-Dichlorobenzene	ND	0.100	"							
Dichlorodifluoromethane	ND	0.100	"							
1,1-Dichloroethane	ND	0.100	"							
1,2-Dichloroethane (EDC)	ND	0.100	"							
1,1-Dichloroethene	ND	0.100	"							
cis-1,2-Dichloroethene	ND	0.100	"							
trans-1,2-Dichloroethene	ND	0.100	"							
1,2-Dichloropropane	ND	0.100	"							
1,3-Dichloropropane	ND	0.100	"							
2,2-Dichloropropane	ND	0.100	"							

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
Blank (5060180-BLK1)										
1,1-Dichloropropene	ND	0.100	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.100	"							
trans-1,3-Dichloropropene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Hexachlorobutadiene	ND	0.100	"							
2-Hexanone	ND	1.00	"							
Isopropylbenzene	ND	0.100	"							
p-Isopropyltoluene	ND	0.100	"							
Methylene chloride	ND	1.00	"							
4-Methyl-2-pentanone	ND	1.00	"							
Methyl tert-butyl ether	ND	0.100	"							
Naphthalene	ND	0.100	"							
n-Propylbenzene	ND	0.100	"							
Styrene	ND	0.100	"							
1,1,1,2-Tetrachloroethane	ND	0.100	"							
1,1,2,2-Tetrachloroethane	ND	0.100	"							
Tetrachloroethene	ND	0.0300	"							
Toluene	ND	0.100	"							
1,2,3-Trichlorobenzene	ND	0.100	"							
1,2,4-Trichlorobenzene	ND	0.100	"							
1,1,1-Trichloroethane	ND	0.100	"							
1,1,2-Trichloroethane	ND	0.100	"							
Trichloroethene	ND	0.0300	"							
Trichlorofluoromethane	ND	0.100	"							
1,2,3-Trichloropropane	ND	0.100	"							
1,2,4-Trimethylbenzene	ND	0.100	"							
1,3,5-Trimethylbenzene	ND	0.100	"							
Vinyl chloride	ND	0.100	"							
o-Xylene	ND	0.200	"							
m,p-Xylene	ND	0.400	"							
Surrogate: Dibromofluoromethane	*1.05*		"	*1.00*		*105*	*44.8-146*			
Surrogate: Toluene-d8	*1.04*		"	*1.00*		*104*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*0.676*		"	*1.00*		*67.6*	*52.5-138*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
LCS (5060180-BS1)										
Benzene	0.522	0.0300	mg/kg wet	0.500		104	72.5-130			
Chlorobenzene	0.510	0.100	"	0.500		102	78.4-120			
1,1-Dichloroethene	0.602	0.100	"	0.500		120	50-150			
Toluene	0.526	0.100	"	0.500		105	75.3-120			
Trichloroethene	0.495	0.0300	"	0.500		99.0	64.5-131			
Surrogate: Dibromofluoromethane	*1.06*		"	*1.00*		*106*	*44.8-146*			
Surrogate: Toluene-d8	*0.996*		"	*1.00*		*99.6*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*0.976*		"	*1.00*		*97.6*	*52.5-138*			
LCS Dup (5060180-BSD1)										
Benzene	0.513	0.0300	mg/kg wet	0.500		103	72.5-130	1.74	25	
Chlorobenzene	0.509	0.100	"	0.500		102	78.4-120	0.196	25	
1,1-Dichloroethene	0.602	0.100	"	0.500		120	50-150	0.00	25	
Toluene	0.514	0.100	"	0.500		103	75.3-120	2.31	25	
Trichloroethene	0.483	0.0300	"	0.500		96.6	64.5-131	2.45	25	
Surrogate: Dibromofluoromethane	*1.02*		"	*1.00*		*102*	*44.8-146*			
Surrogate: Toluene-d8	*0.964*		"	*1.00*		*96.4*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*0.892*		"	*1.00*		*89.2*	*52.5-138*			
Matrix Spike (5060180-MS1)					**Source: S5F0135-02**					
Benzene	0.658	0.0300	mg/kg dry	0.769	ND	85.6	62-130			
Chlorobenzene	0.652	0.100	"	0.769	ND	84.8	70.3-119			
1,1-Dichloroethene	0.758	0.100	"	0.769	ND	98.6	50-150			
Toluene	0.675	0.100	"	0.769	0.0514	81.1	63.8-120			
Trichloroethene	0.621	0.0300	"	0.769	ND	80.8	73.9-122			
Surrogate: Dibromofluoromethane	*1.51*		"	*1.54*		*98.1*	*44.8-146*			
Surrogate: Toluene-d8	*1.26*		"	*1.54*		*81.8*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*1.40*		"	*1.54*		*90.9*	*52.5-138*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
Matrix Spike Dup (5060180-MSD1)					**Source: S5F0135-02**					
Benzene	0.666	0.0300	mg/kg dry	0.769	ND	86.6	62-130	1.21	25	
Chlorobenzene	0.673	0.100	"	0.769	ND	87.5	70.3-119	3.17	25	
1,1-Dichloroethene	0.665	0.100	"	0.769	ND	86.5	50-150	13.1	25	
Toluene	0.681	0.100	"	0.769	0.0514	81.9	63.8-120	0.885	25	
Trichloroethene	0.613	0.0300	"	0.769	ND	79.7	73.9-122	1.30	25	
Surrogate: Dibromofluoromethane	*1.42*		"	*1.54*		*92.2*	*44.8-146*			
Surrogate: Toluene-d8	*1.22*		"	*1.54*		*79.2*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*1.27*		"	*1.54*		*82.5*	*52.5-138*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060139: Prepared 06/16/05 Using Wet Chem										
Blank (5060139-BLK1)										
Cyanide (total)	ND	0.00500	mg/l							
LCS (5060139-BS1)										
Cyanide (total)	0.0523	0.00500	mg/l	0.0500		105	56-120			
Duplicate (5060139-DUP1)					**Source: S5F0090-08**					
Cyanide (total)	ND	0.00500	mg/l		ND				18	
Batch 5060182: Prepared 06/22/05 Using Wet Chem										
LCS (5060182-BS1)										
pH	6.94		pH Units	7.00		99.1	80-120			
Duplicate (5060182-DUP1)					**Source: S5F0121-01**					
pH	8.17		pH Units		8.21			0.488	20	
Batch 5060229: Prepared 06/28/05 Using Wet Chem										
Blank (5060229-BLK1)										
Cyanide (total)	ND	0.0500	mg/kg							
LCS (5060229-BS1)										
Cyanide (total)	0.0543	0.00500	mg/kg	0.0500		109	56-120			
Duplicate (5060229-DUP1)					**Source: S5F0090-01**					
Cyanide (total)	ND	0.0500	mg/kg		ND				20	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
Blank (5F24051-BLK1)										
Aldrin	ND	1.00	ug/kg wet							
alpha-BHC	ND	1.00	"							
beta-BHC	ND	2.00	"							
delta-BHC	ND	1.00	"							
gamma-BHC (Lindane)	ND	1.00	"							
Chlordane (tech)	ND	10.0	"							
alpha-Chlordane	ND	1.00	"							
gamma-Chlordane	ND	1.00	"							
4,4'-DDD	ND	2.00	"							
4,4'-DDE	ND	2.00	"							
4,4'-DDT	ND	2.00	"							
Dieldrin	ND	2.00	"							
Endosulfan I	ND	1.00	"							
Endosulfan II	ND	2.00	"							
Endosulfan sulfate	ND	2.00	"							
Endrin	ND	2.00	"							
Endrin aldehyde	ND	2.00	"							
Endrin ketone	ND	2.00	"							
Heptachlor	ND	1.00	"							
Heptachlor epoxide	ND	1.00	"							
Methoxychlor	ND	2.00	"							
Toxaphene	ND	50.0	"							
Surrogate: TCX	*6.63*		"	*6.67*		*99.4*	*47-134*			
Surrogate: Decachlorobiphenyl	*6.46*		"	*6.67*		*96.9*	*35-151*			
LCS (5F24051-BS1)										
Aldrin	9.25	1.00	ug/kg wet	8.33		111	60-125			
alpha-BHC	8.22	1.00	"	8.33		98.7	61-125			
beta-BHC [2C]	8.49	2.00	"	8.33		102	37-147			P-03
delta-BHC	8.07	1.00	"	8.33		96.9	57-110			
gamma-BHC (Lindane)	8.58	1.00	"	8.33		103	61-125			
alpha-Chlordane	8.39	1.00	"	8.33		101	35-151			
gamma-Chlordane	8.51	1.00	"	8.33		102	65-125			
4,4'-DDD	16.6	2.00	"	16.7		99.4	70-125			
4,4'-DDE	16.3	2.00	"	16.7		97.6	69-125			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
LCS (5F24051-BS1)										
4,4'-DDT	16.0	2.00	ug/kg wet	16.7		95.8	60-127			
Dieldrin	16.5	2.00	"	16.7		98.8	59-128			
Endosulfan I	7.73	1.00	"	8.33		92.8	32-153			
Endosulfan II	17.9	2.00	"	16.7		107	61-125			
Endosulfan sulfate	17.3	2.00	"	16.7		104	56-125			
Endrin	15.9	2.00	"	16.7		95.2	58-132			
Endrin aldehyde [2C]	18.3	2.00	"	16.7		110	22-144			P-03
Endrin ketone	17.4	2.00	"	16.7		104	50-140			
Heptachlor	7.42	1.00	"	8.33		89.1	59-125			P-03
Heptachlor epoxide	8.12	1.00	"	8.33		97.5	55-125			
Methoxychlor	75.7	2.00	"	83.3		90.9	50-135			
Surrogate: TCX	*6.31*		"	*6.67*		*94.6*	*47-134*			
Surrogate: Decachlorobiphenyl	*6.85*		"	*6.67*		*103*	*35-151*			
LCS Dup (5F24051-BSD1)										
Aldrin	7.32	1.00	ug/kg wet	8.33		87.9	60-125	23.3	30	
alpha-BHC	7.25	1.00	"	8.33		87.0	61-125	12.5	35	
beta-BHC [2C]	7.96	2.00	"	8.33		95.6	37-147	6.44	35	
delta-BHC	7.02	1.00	"	8.33		84.3	57-110	13.9	35	
gamma-BHC (Lindane)	7.05	1.00	"	8.33		84.6	61-125	19.6	30	
alpha-Chlordane	7.18	1.00	"	8.33		86.2	35-151	15.5	35	
gamma-Chlordane	7.34	1.00	"	8.33		88.1	65-125	14.8	35	
4,4'-DDD	14.5	2.00	"	16.7		86.8	70-125	13.5	35	
4,4'-DDE	14.6	2.00	"	16.7		87.4	69-125	11.0	35	
4,4'-DDT	13.5	2.00	"	16.7		80.8	60-127	16.9	35	
Dieldrin	14.7	2.00	"	16.7		88.0	59-128	11.5	35	
Endosulfan I	6.80	1.00	"	8.33		81.6	32-153	12.8	35	
Endosulfan II	15.6	2.00	"	16.7		93.4	61-125	13.7	35	
Endosulfan sulfate	16.2	2.00	"	16.7		97.0	56-125	6.57	35	
Endrin	14.5	2.00	"	16.7		86.8	58-132	9.21	35	
Endrin aldehyde [2C]	14.3	2.00	"	16.7		85.6	22-144	24.5	35	
Endrin ketone	16.5	2.00	"	16.7		98.8	50-140	5.31	35	
Heptachlor	6.28	1.00	"	8.33		75.4	59-125	16.6	30	
Heptachlor epoxide	7.38	1.00	"	8.33		88.6	55-125	9.55	35	
Methoxychlor	72.1	2.00	"	83.3		86.6	50-135	4.87	35	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
LCS Dup (5F24051-BSD1)										
Surrogate: TCX	*5.89*		*ug/kg wet*	*6.67*		*88.3*	*47-134*			
Surrogate: Decachlorobiphenyl	*6.48*		"	*6.67*		*97.2*	*35-151*			
Matrix Spike (5F24051-MS1)					**Source: B5F0427-12**					X
Aldrin	4.24	0.499	ug/kg dry	4.76	ND	89.1	51-125			
alpha-BHC	3.95	0.499	"	4.76	ND	83.0	39-125			
beta-BHC	3.96	0.998	"	4.76	ND	83.2	13-152			
delta-BHC	3.82	0.499	"	4.76	ND	80.3	21-133			
gamma-BHC (Lindane)	3.87	0.499	"	4.76	ND	81.3	36-125			
alpha-Chlordane	3.92	0.499	"	4.76	ND	82.4	24-156			
gamma-Chlordane	4.25	0.499	"	4.76	ND	89.3	34-143			
4,4'-DDD	6.94	0.998	"	9.52	ND	72.9	29-153			
4,4'-DDE	7.94	0.998	"	9.52	ND	83.4	30-160			
4,4'-DDT	7.59	0.998	"	9.52	ND	79.7	31-149			
Dieldrin	7.97	0.998	"	9.52	ND	83.7	41-134			
Endosulfan I	3.65	0.499	"	4.76	ND	76.7	20-155			
Endosulfan II	7.94	0.998	"	9.52	ND	83.4	30-140			
Endosulfan sulfate	8.80	0.998	"	9.52	ND	92.4	14-143			
Endrin	7.26	0.998	"	9.52	ND	76.3	42-137			
Endrin aldehyde	7.26	0.998	"	9.52	ND	76.3	10-144			
Endrin ketone	7.18	0.998	"	9.52	ND	75.4	14-149			
Heptachlor	3.43	0.499	"	4.76	ND	72.1	43-125			
Heptachlor epoxide	3.86	0.499	"	4.76	ND	81.1	51-125			
Methoxychlor	36.0	0.998	"	47.6	ND	75.6	24-138			
Surrogate: TCX	*3.19*		"	*3.81*		*83.7*	*47-134*			
Surrogate: Decachlorobiphenyl	*3.34*		"	*3.81*		*87.7*	*35-151*			
Matrix Spike (5F24051-MS3)					**Source: B5F0427-12**					
Aldrin	3.98	4.99	ug/kg dry	4.76	ND	83.6	51-125			
alpha-BHC	4.06	4.99	"	4.76	ND	85.3	39-125			
beta-BHC	3.87	9.98	"	4.76	ND	81.3	13-152			
delta-BHC	3.93	4.99	"	4.76	ND	82.6	21-133			
gamma-BHC (Lindane)	3.68	4.99	"	4.76	ND	77.3	36-125			
alpha-Chlordane	4.08	4.99	"	4.76	ND	85.7	24-156			
gamma-Chlordane	4.30	4.99	"	4.76	ND	90.3	34-143			
4,4'-DDD	7.66	9.98	"	9.52	ND	80.5	29-153			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
Matrix Spike (5F24051-MS3)					**Source: B5F0427-12**					
4,4'-DDE	8.56	9.98	ug/kg dry	9.52	ND	89.9	30-160			
4,4'-DDT	8.40	9.98	"	9.52	ND	88.2	31-149			
Dieldrin	8.67	9.98	"	9.52	ND	91.1	41-134			
Endosulfan I	3.82	4.99	"	4.76	ND	80.3	20-155			
Endosulfan II	8.78	9.98	"	9.52	ND	92.2	30-140			
Endosulfan sulfate	10.0	9.98	"	9.52	ND	105	14-143			
Endrin	7.72	9.98	"	9.52	ND	81.1	42-137			
Endrin aldehyde	8.64	9.98	"	9.52	ND	90.8	10-144			
Endrin ketone	8.68	9.98	"	9.52	ND	91.2	14-149			
Heptachlor	3.54	4.99	"	4.76	ND	74.4	43-125			
Heptachlor epoxide	4.76	4.99	"	4.76	ND	100	51-125			
Methoxychlor	42.7	9.98	"	47.6	ND	89.7	24-138			
Surrogate: TCX	*3.41*		"	*3.81*		*89.5*	*47-134*			
Surrogate: Decachlorobiphenyl	*3.71*		"	*3.81*		*97.4*	*35-151*			
Matrix Spike Dup (5F24051-MSD1)					**Source: B5F0427-12**					X
Aldrin	3.99	0.498	ug/kg dry	4.75	ND	84.0	51-125	6.08	35	
alpha-BHC	3.89	0.498	"	4.75	ND	81.9	39-125	1.53	35	
beta-BHC	3.64	0.997	"	4.75	ND	76.6	13-152	8.42	35	
delta-BHC	3.53	0.498	"	4.75	ND	74.3	21-133	7.89	35	
gamma-BHC (Lindane)	3.84	0.498	"	4.75	ND	80.8	36-125	0.778	35	
alpha-Chlordane	3.67	0.498	"	4.75	ND	77.3	24-156	6.59	35	
gamma-Chlordane	3.88	0.498	"	4.75	ND	81.7	34-143	9.10	35	
4,4'-DDD	6.95	0.997	"	9.50	ND	73.2	29-153	0.144	35	
4,4'-DDE	7.61	0.997	"	9.50	ND	80.1	30-160	4.24	35	
4,4'-DDT	7.82	0.997	"	9.50	ND	82.3	31-149	2.99	35	
Dieldrin	7.71	0.997	"	9.50	ND	81.2	41-134	3.32	35	
Endosulfan I	3.41	0.498	"	4.75	ND	71.8	20-155	6.80	35	
Endosulfan II	7.69	0.997	"	9.50	ND	80.9	30-140	3.20	35	
Endosulfan sulfate	8.48	0.997	"	9.50	ND	89.3	14-143	3.70	35	
Endrin	7.35	0.997	"	9.50	ND	77.4	42-137	1.23	35	
Endrin aldehyde	7.08	0.997	"	9.50	ND	74.5	10-144	2.51	35	
Endrin ketone	7.48	0.997	"	9.50	ND	78.7	14-149	4.09	35	
Heptachlor	3.42	0.498	"	4.75	ND	72.0	43-125	0.292	35	
Heptachlor epoxide	3.76	0.498	"	4.75	ND	79.2	51-125	2.62	35	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
Matrix Spike Dup (5F24051-MSD1)					**Source: B5F0427-12**					X
Methoxychlor	37.2	0.997	ug/kg dry	47.5	ND	78.3	24-138	3.28	35	
Surrogate: TCX	*3.12*		"	*3.80*		*82.1*	*47-134*			
Surrogate: Decachlorobiphenyl	*3.67*		"	*3.80*		*96.6*	*35-151*			
Matrix Spike Dup (5F24051-MSD3)					**Source: B5F0427-12**					
Aldrin	3.97	4.98	ug/kg dry	4.75	ND	83.6	51-125	0.252	35	
alpha-BHC	3.92	4.98	"	4.75	ND	82.5	39-125	3.51	35	
beta-BHC	3.69	9.97	"	4.75	ND	77.7	13-152	4.76	35	
delta-BHC	3.64	4.98	"	4.75	ND	76.6	21-133	7.66	35	
gamma-BHC (Lindane)	3.60	4.98	"	4.75	ND	75.8	36-125	2.20	35	
alpha-Chlordane	4.03	4.98	"	4.75	ND	84.8	24-156	1.23	35	
gamma-Chlordane	4.16	4.98	"	4.75	ND	87.6	34-143	3.31	35	
4,4'-DDD	7.49	9.97	"	9.50	ND	78.8	29-153	2.24	35	
4,4'-DDE	8.56	9.97	"	9.50	ND	90.1	30-160	0.00	35	
4,4'-DDT	8.11	9.97	"	9.50	ND	85.4	31-149	3.51	35	
Dieldrin	8.55	9.97	"	9.50	ND	90.0	41-134	1.39	35	
Endosulfan I	3.78	4.98	"	4.75	ND	79.6	20-155	1.05	35	
Endosulfan II	8.53	9.97	"	9.50	ND	89.8	30-140	2.89	35	
Endosulfan sulfate	9.43	9.97	"	9.50	ND	99.3	14-143	5.87	35	
Endrin	7.75	9.97	"	9.50	ND	81.6	42-137	0.388	35	
Endrin aldehyde	7.82	9.97	"	9.50	ND	82.3	10-144	9.96	35	
Endrin ketone	8.11	9.97	"	9.50	ND	85.4	14-149	6.79	35	
Heptachlor	3.61	4.98	"	4.75	ND	76.0	43-125	1.96	35	
Heptachlor epoxide	4.39	4.98	"	4.75	ND	92.4	51-125	8.09	35	
Methoxychlor	41.6	9.97	"	47.5	ND	87.6	24-138	2.61	35	
Surrogate: TCX	*3.44*		"	*3.80*		*90.5*	*47-134*			
Surrogate: Decachlorobiphenyl	*3.66*		"	*3.80*		*96.3*	*35-151*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL1)										
Aldrin	1.12		ug/l	1.00		112				
Aldrin [2C]	1.14		"	1.00		114				
alpha-BHC	1.03		"	1.00		103				
alpha-BHC [2C]	1.03		"	1.00		103				
beta-BHC	1.67		"	1.00		167				
beta-BHC [2C]	1.37		"	1.00		137				
delta-BHC	1.08		"	1.00		108				
delta-BHC [2C]	1.10		"	1.00		110				
gamma-BHC (Lindane)	1.06		"	1.00		106				
gamma-BHC (Lindane) [2C]	1.00		"	1.00		100				
alpha-Chlordane	1.17		"	1.00		117				
alpha-Chlordane [2C]	1.23		"	1.00		123				
gamma-Chlordane	1.21		"	1.00		121				
gamma-Chlordane [2C]	1.29		"	1.00		129				
4,4'-DDD	2.46		"	2.00		123				
4,4'-DDD [2C]	2.35		"	2.00		118				
4,4'-DDE	2.44		"	2.00		122				
4,4'-DDE [2C]	2.41		"	2.00		120				
4,4'-DDT	2.93		"	2.00		146				
4,4'-DDT [2C]	2.76		"	2.00		138				
Dieldrin	2.32		"	2.00		116				
Dieldrin [2C]	2.40		"	2.00		120				
Endosulfan I	1.30		"	1.00		130				
Endosulfan I [2C]	1.24		"	1.00		124				
Endosulfan II	2.38		"	2.00		119				
Endosulfan II [2C]	2.46		"	2.00		123				
Endosulfan sulfate	2.31		"	2.00		116				
Endosulfan sulfate [2C]	2.26		"	2.00		113				
Endrin	2.53		"	2.00		126				
Endrin [2C]	2.61		"	2.00		130				
Endrin aldehyde	2.46		"	2.00		123				
Endrin aldehyde [2C]	2.37		"	2.00		118				
Endrin ketone	2.62		"	2.00		131				
Endrin ketone [2C]	2.29		"	2.00		114				
Heptachlor	1.39		"	1.00		139				

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL1)										
Heptachlor [2C]	1.45		ug/l	1.00		145				
Heptachlor epoxide	1.32		"	1.00		132				
Heptachlor epoxide [2C]	1.23		"	1.00		123				
Methoxychlor	15.9		"	10.0		159				
Methoxychlor [2C]	15.7		"	10.0		157				
Surrogate: TCX	*2.54*		"	*2.00*		*127*	*20-129*			
Surrogate: TCX [2C]	*2.48*		"	*2.00*		*124*	*20-129*			
Surrogate: Decachlorobiphenyl	*5.20*		"	*4.00*		*130*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*5.26*		"	*4.00*		*132*	*10-131*			
Cal Standard (5G05054-CAL2)										
Aldrin	5.01		ug/l	5.00		100				
Aldrin [2C]	5.16		"	5.00		103				
alpha-BHC	4.96		"	5.00		99.2				
alpha-BHC [2C]	5.17		"	5.00		103				
beta-BHC	5.20		"	5.00		104				
beta-BHC [2C]	5.32		"	5.00		106				
delta-BHC	5.88		"	5.00		118				
delta-BHC [2C]	5.15		"	5.00		103				
gamma-BHC (Lindane)	5.19		"	5.00		104				
gamma-BHC (Lindane) [2C]	5.13		"	5.00		103				
alpha-Chlordane	5.07		"	5.00		101				
alpha-Chlordane [2C]	5.59		"	5.00		112				
gamma-Chlordane	4.82		"	5.00		96.4				
gamma-Chlordane [2C]	5.16		"	5.00		103				
4,4'-DDD	10.6		"	10.0		106				
4,4'-DDD [2C]	11.0		"	10.0		110				
4,4'-DDE	10.5		"	10.0		105				
4,4'-DDE [2C]	10.7		"	10.0		107				
4,4'-DDT	12.3		"	10.0		123				
4,4'-DDT [2C]	12.2		"	10.0		122				
Dieldrin	10.7		"	10.0		107				
Dieldrin [2C]	10.9		"	10.0		109				
Endosulfan I	5.41		"	5.00		108				
Endosulfan I [2C]	5.40		"	5.00		108				

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Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL2)										
Endosulfan II	10.5		ug/l	10.0		105				
Endosulfan II [2C]	10.7		"	10.0		107				
Endosulfan sulfate	10.4		"	10.0		104				
Endosulfan sulfate [2C]	10.4		"	10.0		104				
Endrin	11.4		"	10.0		114				
Endrin [2C]	11.5		"	10.0		115				
Endrin aldehyde	10.3		"	10.0		103				
Endrin aldehyde [2C]	10.2		"	10.0		102				
Endrin ketone	11.3		"	10.0		113				
Endrin ketone [2C]	10.1		"	10.0		101				
Heptachlor	5.92		"	5.00		118				
Heptachlor [2C]	5.89		"	5.00		118				
Heptachlor epoxide	5.29		"	5.00		106				
Heptachlor epoxide [2C]	5.26		"	5.00		105				
Methoxychlor	69.8		"	50.0		140				
Methoxychlor [2C]	69.7		"	50.0		139				
Surrogate: TCX	*11.5*		"	*10.0*		*115*	*20-129*			
Surrogate: TCX [2C]	*11.6*		"	*10.0*		*116*	*20-129*			
Surrogate: Decachlorobiphenyl	*21.8*		"	*20.0*		*109*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*23.0*		"	*20.0*		*115*	*10-131*			
Cal Standard (5G05054-CAL3)										
Aldrin	10.4		ug/l	10.0		104				
Aldrin [2C]	11.1		"	10.0		111				
alpha-BHC	10.5		"	10.0		105				
alpha-BHC [2C]	11.0		"	10.0		110				
beta-BHC	10.5		"	10.0		105				
beta-BHC [2C]	11.0		"	10.0		110				
delta-BHC	10.9		"	10.0		109				
delta-BHC [2C]	11.0		"	10.0		110				
gamma-BHC (Lindane)	10.8		"	10.0		108				
gamma-BHC (Lindane) [2C]	11.2		"	10.0		112				
alpha-Chlordane	10.5		"	10.0		105				
alpha-Chlordane [2C]	11.3		"	10.0		113				
gamma-Chlordane	10.4		"	10.0		104				

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL3)										
gamma-Chlordane [2C]	10.5		ug/l	10.0		105				
4,4'-DDD	21.4		"	20.0		107				
4,4'-DDD [2C]	22.5		"	20.0		112				
4,4'-DDE	21.6		"	20.0		108				
4,4'-DDE [2C]	22.7		"	20.0		114				
4,4'-DDT	25.7		"	20.0		128				
4,4'-DDT [2C]	25.8		"	20.0		129				
Dieldrin	22.3		"	20.0		112				
Dieldrin [2C]	23.3		"	20.0		116				
Endosulfan I	11.0		"	10.0		110				
Endosulfan I [2C]	11.2		"	10.0		112				
Endosulfan II	21.5		"	20.0		108				
Endosulfan II [2C]	22.3		"	20.0		112				
Endosulfan sulfate	21.5		"	20.0		108				
Endosulfan sulfate [2C]	21.5		"	20.0		108				
Endrin	23.7		"	20.0		118				
Endrin [2C]	24.5		"	20.0		122				
Endrin aldehyde	20.9		"	20.0		104				
Endrin aldehyde [2C]	21.6		"	20.0		108				
Endrin ketone	21.7		"	20.0		108				
Endrin ketone [2C]	21.2		"	20.0		106				
Heptachlor	11.4		"	10.0		114				
Heptachlor [2C]	11.8		"	10.0		118				
Heptachlor epoxide	10.0		"	10.0		100				
Heptachlor epoxide [2C]	11.0		"	10.0		110				
Methoxychlor	141		"	100		141				
Methoxychlor [2C]	141		"	100		141				
Surrogate: TCX	*23.5*		"	*20.0*		*118*	*20-129*			
Surrogate: TCX [2C]	*23.1*		"	*20.0*		*116*	*20-129*			
Surrogate: Decachlorobiphenyl	*43.4*		"	*40.0*		*108*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*44.7*		"	*40.0*		*112*	*10-131*			

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Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL4)										
Aldrin	27.9		ug/l	25.0		112				
Aldrin [2C]	30.2		"	25.0		121				
alpha-BHC	28.9		"	25.0		116				
alpha-BHC [2C]	30.7		"	25.0		123				
beta-BHC	27.9		"	25.0		112				
beta-BHC [2C]	29.6		"	25.0		118				
delta-BHC	28.4		"	25.0		114				
delta-BHC [2C]	30.7		"	25.0		123				
gamma-BHC (Lindane)	29.1		"	25.0		116				
gamma-BHC (Lindane) [2C]	30.9		"	25.0		124				
alpha-Chlordane	27.9		"	25.0		112				
alpha-Chlordane [2C]	30.6		"	25.0		122				
gamma-Chlordane	28.1		"	25.0		112				
gamma-Chlordane [2C]	28.1		"	25.0		112				
4,4'-DDD	55.7		"	50.0		111				
4,4'-DDD [2C]	59.7		"	50.0		119				
4,4'-DDE	56.8		"	50.0		114				
4,4'-DDE [2C]	61.9		"	50.0		124				
4,4'-DDT	69.9		"	50.0		140				
4,4'-DDT [2C]	70.5		"	50.0		141				
Dieldrin	59.4		"	50.0		119				
Dieldrin [2C]	63.0		"	50.0		126				
Endosulfan I	28.7		"	25.0		115				
Endosulfan I [2C]	30.3		"	25.0		121				
Endosulfan II	55.5		"	50.0		111				
Endosulfan II [2C]	59.3		"	50.0		119				
Endosulfan sulfate	55.8		"	50.0		112				
Endosulfan sulfate [2C]	56.5		"	50.0		113				
Endrin	63.0		"	50.0		126				
Endrin [2C]	65.8		"	50.0		132				
Endrin aldehyde	54.7		"	50.0		109				
Endrin aldehyde [2C]	58.0		"	50.0		116				
Endrin ketone	54.7		"	50.0		109				
Endrin ketone [2C]	56.0		"	50.0		112				
Heptachlor	29.8		"	25.0		119				

North Creek Analytical - Spokane

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Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL4)										
Heptachlor [2C]	31.8		ug/l	25.0		127				
Heptachlor epoxide	27.2		"	25.0		109				
Heptachlor epoxide [2C]	29.7		"	25.0		119				
Methoxychlor	351		"	250		140				
Methoxychlor [2C]	353		"	250		141				
Surrogate: TCX	*61.1*		"	*50.0*		*122*	*20-129*			
Surrogate: TCX [2C]	*60.7*		"	*50.0*		*121*	*20-129*			
Surrogate: Decachlorobiphenyl	*110*		"	*100*		*110*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*113*		"	*100*		*113*	*10-131*			
Cal Standard (5G05054-CAL5)										
Aldrin	57.7		ug/l	50.0		115				
Aldrin [2C]	62.8		"	50.0		126				
alpha-BHC	59.1		"	50.0		118				
alpha-BHC [2C]	63.6		"	50.0		127				
beta-BHC	57.0		"	50.0		114				
beta-BHC [2C]	60.9		"	50.0		122				
delta-BHC	58.5		"	50.0		117				
delta-BHC [2C]	63.9		"	50.0		128				
gamma-BHC (Lindane)	59.7		"	50.0		119				
gamma-BHC (Lindane) [2C]	64.3		"	50.0		129				
alpha-Chlordane	57.3		"	50.0		115				
alpha-Chlordane [2C]	63.3		"	50.0		127				
gamma-Chlordane	58.1		"	50.0		116				
gamma-Chlordane [2C]	58.3		"	50.0		117				
4,4'-DDD	113		"	100		113				
4,4'-DDD [2C]	123		"	100		123				
4,4'-DDE	115		"	100		115				
4,4'-DDE [2C]	126		"	100		126				
4,4'-DDT	144		"	100		144				
4,4'-DDT [2C]	146		"	100		146				
Dieldrin	120		"	100		120				
Dieldrin [2C]	128		"	100		128				
Endosulfan I	58.9		"	50.0		118				
Endosulfan I [2C]	62.9		"	50.0		126				

North Creek Analytical - Spokane

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North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL5)										
Endosulfan II	112		ug/l	100		112				
Endosulfan II [2C]	121		"	100		121				
Endosulfan sulfate	114		"	100		114				
Endosulfan sulfate [2C]	116		"	100		116				
Endrin	127		"	100		127				
Endrin [2C]	133		"	100		133				
Endrin aldehyde	113		"	100		113				
Endrin aldehyde [2C]	121		"	100		121				
Endrin ketone	111		"	100		111				
Endrin ketone [2C]	114		"	100		114				
Heptachlor	60.7		"	50.0		121				
Heptachlor [2C]	65.3		"	50.0		131				
Heptachlor epoxide	56.4		"	50.0		113				
Heptachlor epoxide [2C]	61.3		"	50.0		123				
Methoxychlor	669		"	500		134				
Methoxychlor [2C]	674		"	500		135				
Surrogate: TCX	*124*		"	*100*		*124*	*20-129*			
Surrogate: TCX [2C]	*120*		"	*100*		*120*	*20-129*			
Surrogate: Decachlorobiphenyl	*219*		"	*200*		*110*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*225*		"	*200*		*112*	*10-131*			
Cal Standard (5G05054-CAL6)										
Aldrin	85.9		ug/l	75.0		115				
Aldrin [2C]	93.6		"	75.0		125				
alpha-BHC	87.0		"	75.0		116				
alpha-BHC [2C]	93.5		"	75.0		125				
beta-BHC	85.1		"	75.0		113				
beta-BHC [2C]	91.3		"	75.0		122				
delta-BHC	87.3		"	75.0		116				
delta-BHC [2C]	95.9		"	75.0		128				
gamma-BHC (Lindane)	88.4		"	75.0		118				
gamma-BHC (Lindane) [2C]	95.4		"	75.0		127				
alpha-Chlordane	85.5		"	75.0		114				
alpha-Chlordane [2C]	94.5		"	75.0		126				
gamma-Chlordane	86.1		"	75.0		115				

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North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL6)										
gamma-Chlordane [2C]	87.0		ug/l	75.0		116				
4,4'-DDD	167		"	150		111				
4,4'-DDD [2C]	180		"	150		120				
4,4'-DDE	168		"	150		112				
4,4'-DDE [2C]	184		"	150		123				
4,4'-DDT	215		"	150		143				
4,4'-DDT [2C]	216		"	150		144				
Dieldrin	176		"	150		117				
Dieldrin [2C]	187		"	150		125				
Endosulfan I	87.8		"	75.0		117				
Endosulfan I [2C]	93.4		"	75.0		125				
Endosulfan II	166		"	150		111				
Endosulfan II [2C]	179		"	150		119				
Endosulfan sulfate	170		"	150		113				
Endosulfan sulfate [2C]	174		"	150		116				
Endrin	188		"	150		125				
Endrin [2C]	195		"	150		130				
Endrin aldehyde	169		"	150		113				
Endrin aldehyde [2C]	181		"	150		121				
Endrin ketone	164		"	150		109				
Endrin ketone [2C]	170		"	150		113				
Heptachlor	89.6		"	75.0		119				
Heptachlor [2C]	96.1		"	75.0		128				
Heptachlor epoxide	81.6		"	75.0		109				
Heptachlor epoxide [2C]	90.7		"	75.0		121				
Methoxychlor	955		"	750		127				
Methoxychlor [2C]	968		"	750		129				
Surrogate: TCX	*177*		"	*150*		*118*	*20-129*			
Surrogate: TCX [2C]	*174*		"	*150*		*116*	*20-129*			
Surrogate: Decachlorobiphenyl	*321*		"	*300*		*107*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*330*		"	*300*		*110*	*10-131*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL7)										
Aldrin	115		ug/l	100		115				
Aldrin [2C]	126		"	100		126				
alpha-BHC	118		"	100		118				
alpha-BHC [2C]	125		"	100		125				
beta-BHC	116		"	100		116				
beta-BHC [2C]	125		"	100		125				
delta-BHC	118		"	100		118				
delta-BHC [2C]	130		"	100		130				
gamma-BHC (Lindane)	119		"	100		119				
gamma-BHC (Lindane) [2C]	129		"	100		129				
alpha-Chlordane	115		"	100		115				
alpha-Chlordane [2C]	128		"	100		128				
gamma-Chlordane	117		"	100		117				
gamma-Chlordane [2C]	118		"	100		118				
4,4'-DDD	224		"	200		112				
4,4'-DDD [2C]	242		"	200		121				
4,4'-DDE	225		"	200		112				
4,4'-DDE [2C]	245		"	200		122				
4,4'-DDT	287		"	200		144				
4,4'-DDT [2C]	288		"	200		144				
Dieldrin	233		"	200		116				
Dieldrin [2C]	247		"	200		124				
Endosulfan I	118		"	100		118				
Endosulfan I [2C]	126		"	100		126				
Endosulfan II	222		"	200		111				
Endosulfan II [2C]	238		"	200		119				
Endosulfan sulfate	228		"	200		114				
Endosulfan sulfate [2C]	233		"	200		116				
Endrin	248		"	200		124				
Endrin [2C]	258		"	200		129				
Endrin aldehyde	231		"	200		116				
Endrin aldehyde [2C]	246		"	200		123				
Endrin ketone	219		"	200		110				
Endrin ketone [2C]	228		"	200		114				
Heptachlor	121		"	100		121				

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Cal Standard (5G05054-CAL7)										
Heptachlor [2C]	130		ug/l	100		130				
Heptachlor epoxide	113		"	100		113				
Heptachlor epoxide [2C]	123		"	100		123				
Methoxychlor	1230		"	1000		123				
Methoxychlor [2C]	1240		"	1000		124				
Surrogate: TCX	*238*		"	*200*		*119*	*20-129*			
Surrogate: TCX [2C]	*231*		"	*200*		*116*	*20-129*			
Surrogate: Decachlorobiphenyl	*425*		"	*400*		*106*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*435*		"	*400*		*109*	*10-131*			
Cal Standard (5G05054-CAL8)										
Toxaphene	500		ug/l	500		100				
Toxaphene [2C]	500		"	500		100				
Surrogate: TCX	*50.0*		"	*50.0*		*100*	*20-129*			
Surrogate: TCX [2C]	*50.0*		"	*50.0*		*100*	*20-129*			
Surrogate: Decachlorobiphenyl	*50.0*		"	*50.0*		*100*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*50.0*		"	*50.0*		*100*	*10-131*			
Cal Standard (5G05054-CAL9)										
Chlordane (tech)	500		ug/l	500		100				
Chlordane (tech) [2C]	500		"	500		100				
Surrogate: TCX	*50.0*		"	*50.0*		*100*	*20-129*			
Surrogate: TCX [2C]	*50.0*		"	*50.0*		*100*	*20-129*			
Surrogate: Decachlorobiphenyl	*50.0*		"	*50.0*		*100*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*50.0*		"	*50.0*		*100*	*10-131*			
Calibration Check (5G05054-CCV2)										
Aldrin	52.1		ug/l	50.0		104	85-115			
Aldrin [2C]	52.6		"	50.0		105	85-115			
alpha-BHC	52.5		"	50.0		105	85-115			
alpha-BHC [2C]	53.5		"	50.0		107	85-115			
beta-BHC	46.6		"	50.0		93.2	85-115			
beta-BHC [2C]	49.4		"	50.0		98.8	85-115			
delta-BHC	49.6		"	50.0		99.2	85-115			
delta-BHC [2C]	52.1		"	50.0		104	85-115			
gamma-BHC (Lindane)	52.0		"	50.0		104	85-115			
gamma-BHC (Lindane) [2C]	53.9		"	50.0		108	85-115			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Calibration Check (5G05054-CCV2)										
alpha-Chlordane	51.9		ug/l	50.0		104	85-115			
alpha-Chlordane [2C]	50.2		"	50.0		100	85-115			
gamma-Chlordane	51.9		"	50.0		104	85-115			
gamma-Chlordane [2C]	49.7		"	50.0		99.4	85-115			
4,4'-DDD	100		"	100		100	85-115			
4,4'-DDD [2C]	102		"	100		102	85-115			
4,4'-DDE	101		"	100		101	85-115			
4,4'-DDE [2C]	103		"	100		103	85-115			
4,4'-DDT	103		"	100		103	85-115			
4,4'-DDT [2C]	105		"	100		105	85-115			
Dieldrin	103		"	100		103	85-115			
Dieldrin [2C]	104		"	100		104	85-115			
Endosulfan I	50.2		"	50.0		100	85-115			
Endosulfan I [2C]	51.6		"	50.0		103	85-115			
Endosulfan II	101		"	100		101	85-115			
Endosulfan II [2C]	90.8		"	100		90.8	85-115			
Endosulfan sulfate	100		"	100		100	85-115			
Endosulfan sulfate [2C]	101		"	100		101	85-115			
Endrin	99.8		"	100		99.8	85-115			
Endrin [2C]	103		"	100		103	85-115			
Endrin aldehyde	99.1		"	100		99.1	85-115			
Endrin aldehyde [2C]	101		"	100		101	85-115			
Endrin ketone	98.2		"	100		98.2	85-115			
Endrin ketone [2C]	101		"	100		101	85-115			
Heptachlor	49.0		"	50.0		98.0	85-115			
Heptachlor [2C]	50.0		"	50.0		100	85-115			
Heptachlor epoxide	48.1		"	50.0		96.2	85-115			
Heptachlor epoxide [2C]	51.2		"	50.0		102	85-115			
Methoxychlor	486		"	500		97.2	85-115			
Methoxychlor [2C]	488		"	500		97.6	85-115			
Surrogate: TCX	*101*		"	*100*		*101*	*20-129*			
Surrogate: TCX [2C]	*101*		"	*100*		*101*	*20-129*			
Surrogate: Decachlorobiphenyl	*198*		"	*200*		*99.0*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*198*		"	*200*		*99.0*	*10-131*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Calibration Check (5G05054-CCV4)										
Aldrin	50.8		ug/l	50.0		102	85-115			
Aldrin [2C]	51.1		"	50.0		102	85-115			
alpha-BHC	49.6		"	50.0		99.2	85-115			
alpha-BHC [2C]	50.4		"	50.0		101	85-115			
beta-BHC	42.9		"	50.0		85.8	85-115			
beta-BHC [2C]	46.9		"	50.0		93.8	85-115			
delta-BHC	48.5		"	50.0		97.0	85-115			
delta-BHC [2C]	50.6		"	50.0		101	85-115			
gamma-BHC (Lindane)	47.8		"	50.0		95.6	85-115			
gamma-BHC (Lindane) [2C]	50.3		"	50.0		101	85-115			
alpha-Chlordane	49.9		"	50.0		99.8	85-115			
alpha-Chlordane [2C]	49.5		"	50.0		99.0	85-115			
gamma-Chlordane	50.5		"	50.0		101	85-115			
gamma-Chlordane [2C]	48.8		"	50.0		97.6	85-115			
4,4'-DDD	96.9		"	100		96.9	85-115			
4,4'-DDD [2C]	96.7		"	100		96.7	85-115			
4,4'-DDE	100		"	100		100	85-115			
4,4'-DDE [2C]	100		"	100		100	85-115			
4,4'-DDT	89.9		"	100		89.9	85-115			
4,4'-DDT [2C]	93.5		"	100		93.5	85-115			
Dieldrin	101		"	100		101	85-115			
Dieldrin [2C]	100		"	100		100	85-115			
Endosulfan I	49.5		"	50.0		99.0	85-115			
Endosulfan I [2C]	49.9		"	50.0		99.8	85-115			
Endosulfan II	102		"	100		102	85-115			
Endosulfan II [2C]	94.9		"	100		94.9	85-115			
Endosulfan sulfate	99.4		"	100		99.4	85-115			
Endosulfan sulfate [2C]	98.9		"	100		98.9	85-115			
Endrin	94.9		"	100		94.9	85-115			
Endrin [2C]	94.0		"	100		94.0	85-115			
Endrin aldehyde	101		"	100		101	85-115			
Endrin aldehyde [2C]	100		"	100		100	85-115			
Endrin ketone	90.1		"	100		90.1	85-115			
Endrin ketone [2C]	93.1		"	100		93.1	85-115			
Heptachlor	44.4		"	50.0		88.8	85-115			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Calibration Check (5G05054-CCV4)										
Heptachlor [2C]	45.3		ug/l	50.0		90.6	85-115			
Heptachlor epoxide	47.4		"	50.0		94.8	85-115			
Heptachlor epoxide [2C]	49.6		"	50.0		99.2	85-115			
Methoxychlor	433		"	500		86.6	85-115			
Methoxychlor [2C]	431		"	500		86.2	85-115			
Surrogate: TCX	*97.6*		"	*100*		*97.6*	*20-129*			
Surrogate: TCX [2C]	*97.5*		"	*100*		*97.5*	*20-129*			
Surrogate: Decachlorobiphenyl	*200*		"	*200*		*100*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*195*		"	*200*		*97.5*	*10-131*			
Calibration Check (5G05054-CCV6)										
Aldrin	51.2		ug/l	50.0		102	85-115			
Aldrin [2C]	53.0		"	50.0		106	85-115			
alpha-BHC	52.7		"	50.0		105	85-115			
alpha-BHC [2C]	54.7		"	50.0		109	85-115			
beta-BHC	46.9		"	50.0		93.8	85-115			
beta-BHC [2C]	50.8		"	50.0		102	85-115			
delta-BHC	50.2		"	50.0		100	85-115			
delta-BHC [2C]	54.1		"	50.0		108	85-115			
gamma-BHC (Lindane)	52.0		"	50.0		104	85-115			
gamma-BHC (Lindane) [2C]	54.9		"	50.0		110	85-115			
alpha-Chlordane	49.0		"	50.0		98.0	85-115			
alpha-Chlordane [2C]	49.1		"	50.0		98.2	85-115			
gamma-Chlordane	49.9		"	50.0		99.8	85-115			
gamma-Chlordane [2C]	48.6		"	50.0		97.2	85-115			
4,4'-DDD	104		"	100		104	85-115			
4,4'-DDD [2C]	108		"	100		108	85-115			
4,4'-DDE	97.2		"	100		97.2	85-115			
4,4'-DDE [2C]	99.8		"	100		99.8	85-115			
4,4'-DDT	74.1		"	100		74.1	85-115			
4,4'-DDT [2C]	76.6		"	100		76.6	85-115			
Dieldrin	98.6		"	100		98.6	85-115			
Dieldrin [2C]	99.5		"	100		99.5	85-115			
Endosulfan I	48.4		"	50.0		96.8	85-115			
Endosulfan I [2C]	49.5		"	50.0		99.0	85-115			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Calibration Check (5G05054-CCV6)										
Endosulfan II	95.4		ug/l	100		95.4	85-115			
Endosulfan II [2C]	93.8		"	100		93.8	85-115			
Endosulfan sulfate	96.1		"	100		96.1	85-115			
Endosulfan sulfate [2C]	95.4		"	100		95.4	85-115			
Endrin	95.5		"	100		95.5	85-115			
Endrin [2C]	97.4		"	100		97.4	85-115			
Endrin aldehyde	96.3		"	100		96.3	85-115			
Endrin aldehyde [2C]	96.0		"	100		96.0	85-115			
Endrin ketone	91.0		"	100		91.0	85-115			
Endrin ketone [2C]	94.7		"	100		94.7	85-115			
Heptachlor	47.0		"	50.0		94.0	85-115			
Heptachlor [2C]	48.6		"	50.0		97.2	85-115			
Heptachlor epoxide	48.4		"	50.0		96.8	85-115			
Heptachlor epoxide [2C]	50.3		"	50.0		101	85-115			
Methoxychlor	403		"	500		80.6	85-115			
Methoxychlor [2C]	406		"	500		81.2	85-115			
Surrogate: TCX	*103*		"	*100*		*103*	*20-129*			
Surrogate: TCX [2C]	*103*		"	*100*		*103*	*20-129*			
Surrogate: Decachlorobiphenyl	*180*		"	*200*		*90.0*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*177*		"	*200*		*88.5*	*10-131*			
Secondary Cal Check (5G05054-SCV2)										
Aldrin	52.3		ug/l	50.0		105	80-120			
Aldrin [2C]	53.5		"	50.0		107	80-120			
alpha-BHC	50.3		"	50.0		101	80-120			
alpha-BHC [2C]	51.5		"	50.0		103	80-120			
beta-BHC	47.8		"	50.0		95.6	80-120			
beta-BHC [2C]	51.0		"	50.0		102	80-120			
delta-BHC	47.2		"	50.0		94.4	80-120			
delta-BHC [2C]	50.0		"	50.0		100	80-120			
gamma-BHC (Lindane)	48.4		"	50.0		96.8	80-120			
gamma-BHC (Lindane) [2C]	50.3		"	50.0		101	80-120			
alpha-Chlordane	50.1		"	50.0		100	80-120			
alpha-Chlordane [2C]	50.2		"	50.0		100	80-120			
gamma-Chlordane	50.9		"	50.0		102	80-120			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5G05054: Prepared 07/05/05 Using 5F28027										
Secondary Cal Check (5G05054-SCV2)										
gamma-Chlordane [2C]	49.9		ug/l	50.0		99.8	80-120			
4,4'-DDD	91.6		"	100		91.6	80-120			
4,4'-DDD [2C]	93.4		"	100		93.4	80-120			
4,4'-DDE	97.7		"	100		97.7	80-120			
4,4'-DDE [2C]	101		"	100		101	80-120			
4,4'-DDT	92.0		"	100		92.0	80-120			
4,4'-DDT [2C]	95.2		"	100		95.2	80-120			
Dieldrin	98.4		"	100		98.4	80-120			
Dieldrin [2C]	99.6		"	100		99.6	80-120			
Endosulfan I	46.6		"	50.0		93.2	80-120			
Endosulfan I [2C]	47.9		"	50.0		95.8	80-120			
Endosulfan II	100		"	100		100	80-120			
Endosulfan II [2C]	96.6		"	100		96.6	80-120			
Endosulfan sulfate	102		"	100		102	80-120			
Endosulfan sulfate [2C]	103		"	100		103	80-120			
Endrin	91.8		"	100		91.8	80-120			
Endrin [2C]	93.9		"	100		93.9	80-120			
Endrin aldehyde	109		"	100		109	80-120			
Endrin aldehyde [2C]	112		"	100		112	80-120			
Endrin ketone	99.5		"	100		99.5	80-120			
Endrin ketone [2C]	104		"	100		104	80-120			
Heptachlor	42.7		"	50.0		85.4	80-120			
Heptachlor [2C]	43.0		"	50.0		86.0	80-120			
Heptachlor epoxide	48.6		"	50.0		97.2	80-120			
Heptachlor epoxide [2C]	51.0		"	50.0		102	80-120			
Methoxychlor	438		"	500		87.6	80-120			
Methoxychlor [2C]	443		"	500		88.6	80-120			
Surrogate: TCX	*95.2*		"	*100*		*95.2*	*20-129*			
Surrogate: TCX [2C]	*96.3*		"	*100*		*96.3*	*20-129*			
Surrogate: Decachlorobiphenyl	*176*		"	*200*		*88.0*	*10-131*			
Surrogate: Decachlorobiphenyl [2C]	*177*		"	*200*		*88.5*	*10-131*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
Blank (5F24051-BLK2)										
Aroclor 1016	ND	25.0	ug/kg wet							
Aroclor 1221	ND	50.0	"							
Aroclor 1232	ND	25.0	"							
Aroclor 1242	ND	25.0	"							
Aroclor 1248	ND	25.0	"							
Aroclor 1254	ND	25.0	"							
Aroclor 1260	ND	25.0	"							
Aroclor 1262	ND	25.0	"							
Aroclor 1268	ND	25.0	"							
Surrogate: TCX	*6.10*		"	*6.67*		*91.5*	*19-149*			
Surrogate: Decachlorobiphenyl	*7.01*		"	*6.67*		*105*	*37-151*			
LCS (5F24051-BS2)										
Aroclor 1016	72.8	25.0	ug/kg wet	83.3		87.4	63-125			
Aroclor 1260	83.5	25.0	"	83.3		100	64-125			
Surrogate: TCX	*6.41*		"	*6.67*		*96.1*	*19-149*			
Surrogate: Decachlorobiphenyl	*6.92*		"	*6.67*		*104*	*37-151*			
LCS Dup (5F24051-BSD2)										
Aroclor 1016	74.4	25.0	ug/kg wet	83.3		89.3	63-125	2.17	30	
Aroclor 1260	86.2	25.0	"	83.3		103	64-125	3.18	30	
Surrogate: TCX	*6.51*		"	*6.67*		*97.6*	*19-149*			
Surrogate: Decachlorobiphenyl	*7.09*		"	*6.67*		*106*	*37-151*			
Matrix Spike (5F24051-MS2)					**Source: B5F0427-12**					X
Aroclor 1016	3.44	12.4	ug/kg dry	47.4	ND	7.26	28-136			
Aroclor 1260	16.7	12.4	"	47.4	24.7	-16.9	35-152			
Surrogate: TCX	*0.762*		"	*3.79*		*20.1*	*19-149*			
Surrogate: Decachlorobiphenyl	*0.999*		"	*3.79*		*26.4*	*37-151*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F24051: Prepared 06/24/05 Using EPA 3550B										
Matrix Spike Dup (5F24051-MSD2)					Source: B5F0427-12					X
Aroclor 1016	42.5	12.5	ug/kg dry	47.5	ND	89.5	28-136	170	35	
Aroclor 1260	60.0	12.5	"	47.5	24.7	74.3	35-152	113	35	
Surrogate: TCX	*3.50*		"	*3.80*		*92.1*	*19-149*			
Surrogate: Decachlorobiphenyl	*3.88*		"	*3.80*		*102*	*37-151*			
Batch 5F30001: Prepared 06/30/05 Using 5F24051										
Calibration Check (5F30001-CCV1)										
Aroclor 1016	948		ug/l	1000		94.8	85-115			
Aroclor 1016 [2C]	1000		"	1000		100	85-115			
Aroclor 1260	1030		"	1000		103	85-115			
Aroclor 1260 [2C]	970		"	1000		97.0	85-115			
Surrogate: TCX	*95.4*		"	*100*		*95.4*	*25-129*			
Surrogate: TCX [2C]	*99.1*		"	*100*		*99.1*	*25-129*			
Surrogate: Decachlorobiphenyl	*99.4*		"	*100*		*99.4*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*90.7*		"	*100*		*90.7*	*22-125*			
Calibration Check (5F30001-CCV2)										
Aroclor 1016	943		ug/l	1000		94.3	85-115			
Aroclor 1016 [2C]	862		"	1000		86.2	85-115			
Aroclor 1260	1040		"	1000		104	85-115			
Aroclor 1260 [2C]	958		"	1000		95.8	85-115			
Surrogate: TCX	*94.3*		"	*100*		*94.3*	*25-129*			
Surrogate: TCX [2C]	*94.2*		"	*100*		*94.2*	*25-129*			
Surrogate: Decachlorobiphenyl	*99.1*		"	*100*		*99.1*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*94.3*		"	*100*		*94.3*	*22-125*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F30001: Prepared 06/30/05 Using 5F24051										
Calibration Check (5F30001-CCV4)										
Aroclor 1016	1020		ug/l	1000		102	85-115			
Aroclor 1016 [2C]	1050		"	1000		105	85-115			
Aroclor 1260	1070		"	1000		107	85-115			
Aroclor 1260 [2C]	1100		"	1000		110	85-115			
Surrogate: TCX	*96.0*		"	*100*		*96.0*	*25-129*			
Surrogate: TCX [2C]	*98.2*		"	*100*		*98.2*	*25-129*			
Surrogate: Decachlorobiphenyl	*104*		"	*100*		*104*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*104*		"	*100*		*104*	*22-125*			
Calibration Check (5F30001-CCV6)										
Aroclor 1016	964		ug/l	1000		96.4	85-115			
Aroclor 1016 [2C]	963		"	1000		96.3	85-115			
Aroclor 1260	1060		"	1000		106	85-115			
Aroclor 1260 [2C]	1040		"	1000		104	85-115			
Surrogate: TCX	*95.5*		"	*100*		*95.5*	*25-129*			
Surrogate: TCX [2C]	*97.7*		"	*100*		*97.7*	*25-129*			
Surrogate: Decachlorobiphenyl	*102*		"	*100*		*102*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*104*		"	*100*		*104*	*22-125*			
Calibration Check (5F30001-CCV8)										
Aroclor 1016	977		ug/l	1000		97.7	85-115			
Aroclor 1016 [2C]	960		"	1000		96.0	85-115			
Aroclor 1260	1060		"	1000		106	85-115			
Aroclor 1260 [2C]	1010		"	1000		101	85-115			
Surrogate: TCX	*95.6*		"	*100*		*95.6*	*25-129*			
Surrogate: TCX [2C]	*97.6*		"	*100*		*97.6*	*25-129*			
Surrogate: Decachlorobiphenyl	*102*		"	*100*		*102*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*96.7*		"	*100*		*96.7*	*22-125*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F30001: Prepared 06/30/05 Using 5F24051										
Calibration Check (5F30001-CCVA)										
Aroclor 1016	1010		ug/l	1000		101	85-115			
Aroclor 1016 [2C]	968		"	1000		96.8	85-115			
Aroclor 1260	1040		"	1000		104	85-115			
Aroclor 1260 [2C]	963		"	1000		96.3	85-115			
Surrogate: TCX	*95.4*		"	*100*		*95.4*	*25-129*			
Surrogate: TCX [2C]	*91.4*		"	*100*		*91.4*	*25-129*			
Surrogate: Decachlorobiphenyl	*103*		"	*100*		*103*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*95.1*		"	*100*		*95.1*	*22-125*			
Calibration Check (5F30001-CCVC)										
Aroclor 1016	974		ug/l	1000		97.4	85-115			
Aroclor 1016 [2C]	934		"	1000		93.4	85-115			
Aroclor 1260	1070		"	1000		107	85-115			
Aroclor 1260 [2C]	989		"	1000		98.9	85-115			
Surrogate: TCX	*96.0*		"	*100*		*96.0*	*25-129*			
Surrogate: TCX [2C]	*95.5*		"	*100*		*95.5*	*25-129*			
Surrogate: Decachlorobiphenyl	*104*		"	*100*		*104*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*99.3*		"	*100*		*99.3*	*22-125*			
Calibration Check (5F30001-CCVE)										
Aroclor 1016	1020		ug/l	1000		102	85-115			
Aroclor 1016 [2C]	999		"	1000		99.9	85-115			
Aroclor 1260	1070		"	1000		107	85-115			
Aroclor 1260 [2C]	988		"	1000		98.8	85-115			
Surrogate: TCX	*96.7*		"	*100*		*96.7*	*25-129*			
Surrogate: TCX [2C]	*98.6*		"	*100*		*98.6*	*25-129*			
Surrogate: Decachlorobiphenyl	*104*		"	*100*		*104*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*95.1*		"	*100*		*95.1*	*22-125*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F30001: Prepared 06/30/05 Using 5F24051										
Calibration Check (5F30001-CCVG)										
Aroclor 1016	1010		ug/l	1000		101	85-115			
Aroclor 1016 [2C]	903		"	1000		90.3	85-115			
Aroclor 1260	1020		"	1000		102	85-115			
Aroclor 1260 [2C]	797		"	1000		79.7	85-115			
Surrogate: TCX	*97.6*		"	*100*		*97.6*	*25-129*			
Surrogate: TCX [2C]	*97.7*		"	*100*		*97.7*	*25-129*			
Surrogate: Decachlorobiphenyl	*96.8*		"	*100*		*96.8*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*78.7*		"	*100*		*78.7*	*22-125*			
Calibration Check (5F30001-CCVI)										
Aroclor 1016	972		ug/l	1000		97.2	85-115			
Aroclor 1016 [2C]	938		"	1000		93.8	85-115			
Aroclor 1260	1040		"	1000		104	85-115			
Aroclor 1260 [2C]	927		"	1000		92.7	85-115			
Surrogate: TCX	*96.4*		"	*100*		*96.4*	*25-129*			
Surrogate: TCX [2C]	*92.6*		"	*100*		*92.6*	*25-129*			
Surrogate: Decachlorobiphenyl	*98.6*		"	*100*		*98.6*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*87.2*		"	*100*		*87.2*	*22-125*			
Calibration Check (5F30001-CCVK)										
Aroclor 1016	1030		ug/l	1000		103	85-115			
Aroclor 1016 [2C]	1000		"	1000		100	85-115			
Aroclor 1260	1110		"	1000		111	85-115			
Aroclor 1260 [2C]	1010		"	1000		101	85-115			
Surrogate: TCX	*98.4*		"	*100*		*98.4*	*25-129*			
Surrogate: TCX [2C]	*97.0*		"	*100*		*97.0*	*25-129*			
Surrogate: Decachlorobiphenyl	*107*		"	*100*		*107*	*22-125*			
Surrogate: Decachlorobiphenyl [2C]	*95.9*		"	*100*		*95.9*	*22-125*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F27064: Prepared 06/27/05 Using Dry Weight										
Blank (5F27064-BLK1)										
Dry Weight	99.8	1.00	%							

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 12:00

Notes and Definitions

P-03	Greater than 40% difference between two dissimilar columns. After evaluation, the lower result has been reported.
Q-05	RPD values are not controlled at sample concentrations less than 10 times the reporting limit.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
X	See case narrative.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN OF CUSTODY RECORD

GeoEngineers
523 EAST SECOND AVE.
SPOKANE, WASHINGTON 99202
(509) 363-3125

GeoEngineers

DATE 6/14/05
PAGE 1 OF 1
LAB NCA
LAB NO. 55F0090

PROJECT NAME/LOCATION TECUMSEH
PROJECT NUMBER 6601-003-09
PROJECT MANAGER DAVE ENOS
SAMPLED BY MARJAN ROTTINO

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED											NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	VOC 8260	NWTPH-Dx	TOTAL CYANIDE	pH								
	TC-1 (0-1)	6/14/05	10:30	S	2	X	X	X	X								STANDARD TAT
	TC-2 (0-1)	"	11:00	S	3												
	TC-3 (0-1.5)	"	11:20	S	3												
	TC-4 (0-2)	"	11:10	S	2												
	TC-6 (0-2)	"	15:00	S	2	X	X	X	X								
	TC-7 (4-4.5)	"	16:00	S	2												
	TC-WS1	"	09:00	W	8	X	X	X									

RELINQUISHED BY / SIGNATURE	FIRM GET	RELINQUISHED BY / SIGNATURE FIRM NCAS
PRINTED NAME Dave Enos		PRINTED NAME Chris Williams
DATE 6/15/05 TIME 09:00		DATE 6/15/05 TIME 11:05 AM
RECEIVED BY / SIGNATURE / PRINTED NAME / DATE / TIME	FIRM	RECEIVED BY / SIGNATURE / PRINTED NAME / DATE / TIME FIRM
RELINQUISHED BY / SIGNATURE / PRINTED NAME / DATE / TIME	FIRM	RECEIVED BY / SIGNATURE / PRINTED NAME / DATE / TIME FIRM

ADDITIONAL COMMENTS:
VOC'S - NON-LISTED VOCS MIGHT BE PRESENT - CALL DAVE ENOS TO DISCUSS
HOLD ALL SAMPLES FOR POSSIBLE ADDITIONAL ANALYSES

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TC-7 (4-4.5)	S5F0098-01	Soil	06/15/05 11:00	06/16/05 12:53
TC-8 (2-2.5)	S5F0098-02	Soil	06/15/05 13:00	06/16/05 12:53
TC-9 (4-4.5)	S5F0098-03	Soil	06/15/05 14:00	06/16/05 12:53
TC-WS1	S5F0098-04	Water	06/15/05 09:00	06/16/05 12:53

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Semivolatile Petroleum Products by NWTPH-Dx

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Diesel Range Hydrocarbons	ND	100	mg/kg dry	10	5060156	06/20/05	06/23/05	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**521**	250	"	"	"	"	"	"	
Surrogate: 2-FBP	*101*	*50-150*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*130*	*50-150*			"	"	"	"	
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Diesel Range Hydrocarbons	ND	1000	mg/kg dry	100	5060156	06/20/05	06/23/05	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	**1740**	700	"	"	"	"	"	"	
Surrogate: 2-FBP	*69.7*	*50-150*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*130*	*50-150*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Acetone	ND	1.00	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Benzene	ND	0.0300	"	"	"	"	"	"	
Bromobenzene	ND	0.100	"	"	"	"	"	"	
Bromochloromethane	ND	0.100	"	"	"	"	"	"	
Bromodichloromethane	ND	0.100	"	"	"	"	"	"	
Bromoform	ND	0.100	"	"	"	"	"	"	
Bromomethane	ND	0.500	"	"	"	"	"	"	
2-Butanone	ND	1.00	"	"	"	"	"	"	
n-Butylbenzene	ND	0.100	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.100	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.100	"	"	"	"	"	"	
Carbon disulfide	ND	0.100	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.100	"	"	"	"	"	"	
Chlorobenzene	ND	0.100	"	"	"	"	"	"	
Chloroethane	ND	0.100	"	"	"	"	"	"	
Chloroform	ND	0.100	"	"	"	"	"	"	
Chloromethane	ND	0.500	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
Dibromochloromethane	ND	0.100	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.100	"	"	"	"	"	"	
Dibromomethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.100	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.100	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.100	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Ethylbenzene	ND	0.100	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Hexachlorobutadiene	ND	0.100	"	"	"	"	"	"	
2-Hexanone	ND	1.00	"	"	"	"	"	"	
Isopropylbenzene	ND	0.100	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.100	"	"	"	"	"	"	
Methylene chloride	ND	1.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
n-Propylbenzene	ND	0.100	"	"	"	"	"	"	
Styrene	ND	0.100	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0300	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.100	"	"	"	"	"	"	
Trichloroethene	**0.205**	0.0300	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.100	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
Vinyl chloride	ND	0.100	"	"	"	"	"	"	
o-Xylene	ND	0.200	"	"	"	"	"	"	
m,p-Xylene	ND	0.400	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*83.7*	*44.8-146*			"	"	"	"	
Surrogate: Toluene-d8	*82.2*	*62.3-143*			"	"	"	"	
Surrogate: 4-bromofluorobenzene	*83.9*	*52.5-138*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Acetone	ND	1.00	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Benzene	ND	0.0300	"	"	"	"	"	"	
Bromobenzene	ND	0.100	"	"	"	"	"	"	
Bromochloromethane	ND	0.100	"	"	"	"	"	"	
Bromodichloromethane	ND	0.100	"	"	"	"	"	"	
Bromoform	ND	0.100	"	"	"	"	"	"	
Bromomethane	ND	0.500	"	"	"	"	"	"	
2-Butanone	ND	1.00	"	"	"	"	"	"	
n-Butylbenzene	ND	0.100	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.100	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.100	"	"	"	"	"	"	
Carbon disulfide	ND	0.100	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.100	"	"	"	"	"	"	
Chlorobenzene	ND	0.100	"	"	"	"	"	"	
Chloroethane	ND	0.100	"	"	"	"	"	"	
Chloroform	ND	0.100	"	"	"	"	"	"	
Chloromethane	ND	0.500	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.100	"	"	"	"	"	"	
Dibromochloromethane	ND	0.100	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.100	"	"	"	"	"	"	
Dibromomethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.100	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.100	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.100	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.100	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.100	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.100	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Ethylbenzene	ND	0.100	mg/kg dry	1	5060180	06/21/05	06/23/05	EPA 8260B	
Hexachlorobutadiene	ND	0.100	"	"	"	"	"	"	
2-Hexanone	ND	1.00	"	"	"	"	"	"	
Isopropylbenzene	ND	0.100	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.100	"	"	"	"	"	"	
Methylene chloride	ND	1.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
n-Propylbenzene	ND	0.100	"	"	"	"	"	"	
Styrene	ND	0.100	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.100	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0300	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.100	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.100	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.100	"	"	"	"	"	"	
Trichloroethene	**0.144**	0.0300	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.100	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.100	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.100	"	"	"	"	"	"	
Vinyl chloride	ND	0.100	"	"	"	"	"	"	
o-Xylene	ND	0.200	"	"	"	"	"	"	
m,p-Xylene	ND	0.400	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane	*89.3*	*44.8-146*			"	"	"	"	
Surrogate: Toluene-d8	*86.4*	*62.3-143*			"	"	"	"	
Surrogate: 4-bromofluorobenzene	*116*	*52.5-138*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Conventional Chemistry Parameters by APHA/EPA Methods

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Cyanide (total)	ND	0.0500	mg/kg	10	5060229	06/28/05	06/28/05	EPA 335.2	
pH	7.16		pH Units	1	5060182	06/22/05	06/22/05	EPA 9045B	
% Solids	84.3	0.0100	% by Weight	"	5060169	06/21/05	06/21/05	Gravimetry	
TC-8 (2-2.5) (S5F0098-02) Soil Sampled: 06/15/05 13:00 Received: 06/16/05 12:53									
Cyanide (total)	ND	0.0500	mg/kg	10	5060229	06/28/05	06/28/05	EPA 335.2	
% Solids	87.0	0.0100	% by Weight	1	5060169	06/21/05	06/21/05	Gravimetry	
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Cyanide (total)	0.393	0.0500	mg/kg	10	5060229	06/28/05	06/28/05	EPA 335.2	
pH	7.75		pH Units	1	5060182	06/22/05	06/22/05	EPA 9045B	
% Solids	71.4	0.0100	% by Weight	"	5060169	06/21/05	06/21/05	Gravimetry	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									X
Aldrin [2C]	ND	1.00	ug/kg dry	1	5F28056	06/28/05	07/06/05	EPA 8081A	
alpha-BHC [2C]	ND	1.00	"	"	"	"	"	"	
beta-BHC [2C]	ND	2.00	"	"	"	"	"	"	
delta-BHC [2C]	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane) [2C]	ND	1.00	"	"	"	"	"	"	
Chlordane (tech) [2C]	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane [2C]	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane [2C]	ND	1.00	"	"	"	"	"	"	
4,4'-DDD [2C]	**7.95**	2.00	"	"	"	"	"	"	P-03
4,4'-DDE [2C]	**3.77**	2.00	"	"	"	"	"	"	
4,4'-DDT [2C]	**13.0**	2.00	"	"	"	"	"	"	
Dieldrin [2C]	ND	2.00	"	"	"	"	"	"	
Endosulfan I [2C]	ND	1.00	"	"	"	"	"	"	
Endosulfan II [2C]	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate [2C]	ND	2.00	"	"	"	"	"	"	
Endrin [2C]	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde [2C]	ND	2.00	"	"	"	"	"	"	
Endrin ketone [2C]	ND	2.00	"	"	"	"	"	"	
Heptachlor [2C]	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide [2C]	ND	1.00	"	"	"	"	"	"	
Methoxychlor [2C]	ND	2.00	"	"	"	"	"	"	
Toxaphene [2C]	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX [2C]	*57.8*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	*60.1*	*35-151*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01RE1) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Aldrin [2C]	ND	200	ug/kg dry	200	5F28056	06/28/05	07/06/05	EPA 8081A	
alpha-BHC [2C]	ND	200	"	"	"	"	"	"	
beta-BHC [2C]	ND	400	"	"	"	"	"	"	
delta-BHC [2C]	ND	200	"	"	"	"	"	"	
gamma-BHC (Lindane) [2C]	ND	200	"	"	"	"	"	"	
Chlordane (tech) [2C]	ND	2000	"	"	"	"	"	"	
alpha-Chlordane [2C]	ND	200	"	"	"	"	"	"	
gamma-Chlordane [2C]	ND	200	"	"	"	"	"	"	
4,4'-DDD [2C]	ND	400	"	"	"	"	"	"	
4,4'-DDE [2C]	ND	400	"	"	"	"	"	"	
4,4'-DDT [2C]	ND	400	"	"	"	"	"	"	
Dieldrin [2C]	ND	400	"	"	"	"	"	"	
Endosulfan I [2C]	ND	200	"	"	"	"	"	"	
Endosulfan II [2C]	ND	400	"	"	"	"	"	"	
Endosulfan sulfate [2C]	ND	400	"	"	"	"	"	"	
Endrin [2C]	ND	400	"	"	"	"	"	"	
Endrin aldehyde [2C]	ND	400	"	"	"	"	"	"	
Endrin ketone [2C]	ND	400	"	"	"	"	"	"	
Heptachlor [2C]	ND	200	"	"	"	"	"	"	
Heptachlor epoxide [2C]	ND	200	"	"	"	"	"	"	
Methoxychlor [2C]	ND	400	"	"	"	"	"	"	
Toxaphene [2C]	ND	10000	"	"	"	"	"	"	
Surrogate: TCX [2C]	*116*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	*NR*	*35-151*			"	"	"	"	*S-04*

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									X
Aldrin [2C]	ND	1.00	ug/kg dry	1	5F28056	06/28/05	07/06/05	EPA 8081A	
alpha-BHC [2C]	ND	1.00	"	"	"	"	"	"	
beta-BHC [2C]	ND	2.00	"	"	"	"	"	"	
delta-BHC [2C]	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane) [2C]	ND	1.00	"	"	"	"	"	"	
Chlordane (tech) [2C]	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane [2C]	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane [2C]	ND	1.00	"	"	"	"	"	"	
4,4'-DDD [2C]	ND	2.00	"	"	"	"	"	"	
4,4'-DDE [2C]	ND	2.00	"	"	"	"	"	"	
4,4'-DDT [2C]	**2.76**	2.00	"	"	"	"	"	"	
Dieldrin [2C]	ND	2.00	"	"	"	"	"	"	
Endosulfan I [2C]	ND	1.00	"	"	"	"	"	"	
Endosulfan II [2C]	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate [2C]	ND	2.00	"	"	"	"	"	"	
Endrin [2C]	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde [2C]	ND	2.00	"	"	"	"	"	"	
Endrin ketone [2C]	ND	2.00	"	"	"	"	"	"	
Heptachlor [2C]	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide [2C]	ND	1.00	"	"	"	"	"	"	
Methoxychlor [2C]	ND	2.00	"	"	"	"	"	"	
Toxaphene [2C]	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX [2C]	*85.8*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	*75.9*	*35-151*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-9 (4-4.5) (S5F0098-03RE1) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Aldrin [2C]	ND	100	ug/kg dry	100	5F28056	06/28/05	07/06/05	EPA 8081A	
alpha-BHC [2C]	ND	100	"	"	"	"	"	"	
beta-BHC [2C]	ND	200	"	"	"	"	"	"	
delta-BHC [2C]	ND	100	"	"	"	"	"	"	
gamma-BHC (Lindane) [2C]	ND	100	"	"	"	"	"	"	
Chlordane (tech) [2C]	ND	1000	"	"	"	"	"	"	
alpha-Chlordane [2C]	ND	100	"	"	"	"	"	"	
gamma-Chlordane [2C]	ND	100	"	"	"	"	"	"	
4,4'-DDD [2C]	ND	200	"	"	"	"	"	"	
4,4'-DDE [2C]	ND	200	"	"	"	"	"	"	
4,4'-DDT [2C]	ND	200	"	"	"	"	"	"	
Dieldrin [2C]	ND	200	"	"	"	"	"	"	
Endosulfan I [2C]	ND	100	"	"	"	"	"	"	
Endosulfan II [2C]	ND	200	"	"	"	"	"	"	
Endosulfan sulfate [2C]	ND	200	"	"	"	"	"	"	
Endrin [2C]	ND	200	"	"	"	"	"	"	
Endrin aldehyde [2C]	ND	200	"	"	"	"	"	"	
Endrin ketone [2C]	ND	200	"	"	"	"	"	"	
Heptachlor [2C]	ND	100	"	"	"	"	"	"	
Heptachlor epoxide [2C]	ND	100	"	"	"	"	"	"	
Methoxychlor [2C]	ND	200	"	"	"	"	"	"	
Toxaphene [2C]	ND	5000	"	"	"	"	"	"	
Surrogate: TCX [2C]	*98.0*	*47-134*			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	*166*	*35-151*			"	"	"	"	*S-04*

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-WS1 (S5F0098-04) Water Sampled: 06/15/05 09:00 Received: 06/16/05 12:53									
Aldrin [2C]	ND	0.0800	ug/l	1	5F22064	06/22/05	06/27/05	EPA 8081A	
alpha-BHC [2C]	ND	0.0400	"	"	"	"	"	"	
beta-BHC [2C]	ND	0.0400	"	"	"	"	"	"	
delta-BHC [2C]	ND	0.100	"	"	"	"	"	"	
gamma-BHC (Lindane) [2C]	ND	0.0400	"	"	"	"	"	"	
Chlordane (tech) [2C]	ND	0.500	"	"	"	"	"	"	
alpha-Chlordane [2C]	ND	0.0400	"	"	"	"	"	"	
gamma-Chlordane [2C]	ND	0.0400	"	"	"	"	"	"	
4,4'-DDD [2C]	ND	0.0400	"	"	"	"	"	"	
4,4'-DDE [2C]	ND	0.0800	"	"	"	"	"	"	
4,4'-DDT [2C]	ND	0.0800	"	"	"	"	"	"	
Dieldrin [2C]	ND	0.0800	"	"	"	"	"	"	
Endosulfan I [2C]	**0.0226**	0.0200	"	"	"	"	"	"	
Endosulfan II [2C]	ND	0.0800	"	"	"	"	"	"	
Endosulfan sulfate [2C]	ND	0.100	"	"	"	"	"	"	
Endrin [2C]	ND	0.0800	"	"	"	"	"	"	
Endrin aldehyde [2C]	ND	0.160	"	"	"	"	"	"	
Endrin ketone [2C]	ND	0.0800	"	"	"	"	"	"	
Heptachlor [2C]	ND	0.0800	"	"	"	"	"	"	
Heptachlor epoxide [2C]	ND	0.0400	"	"	"	"	"	"	
Methoxychlor	ND	0.500	"	"	"	"	"	"	
Toxaphene [2C]	ND	2.00	"	"	"	"	"	"	
Surrogate: TCX [2C]	*81.0*	*24-143*			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	*84.0*	*10-145*			"	"	"	"	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Polychlorinated Biphenyls by EPA Method 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Aroclor 1016	ND	25.0	ug/kg dry	1	5F28056	06/28/05	06/30/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	**87.8**	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*86.9*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*96.5*	*37-151*			"	"	"	"	
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Aroclor 1016	ND	25.0	ug/kg dry	1	5F28056	06/28/05	06/29/05	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	**49.7**	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	*90.3*	*19-149*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*98.3*	*37-151*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Polychlorinated Biphenyls by EPA Method 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-WS1 (S5F0098-04) Water Sampled: 06/15/05 09:00 Received: 06/16/05 12:53									
Aroclor 1016	ND	0.500	ug/l	1	5F22064	06/22/05	06/28/05	EPA 8082	
Aroclor 1221	ND	0.500	"	"	"	"	"	"	
Aroclor 1232	ND	0.500	"	"	"	"	"	"	
Aroclor 1242	ND	0.500	"	"	"	"	"	"	
Aroclor 1248	ND	0.500	"	"	"	"	"	"	
Aroclor 1254	ND	0.500	"	"	"	"	"	"	
Aroclor 1260	ND	0.500	"	"	"	"	"	"	
Aroclor 1262	ND	0.500	"	"	"	"	"	"	
Aroclor 1268	ND	0.500	"	"	"	"	"	"	
Surrogate: TCX	*81.5*	*25-129*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*99.5*	*22-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Physical Parameters by APHA/ASTM/EPA Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TC-7 (4-4.5) (S5F0098-01) Soil Sampled: 06/15/05 11:00 Received: 06/16/05 12:53									
Dry Weight	76.3	1.00	%	1	5F29068	06/30/05	06/30/05	BSOPSPL003R08	
TC-9 (4-4.5) (S5F0098-03) Soil Sampled: 06/15/05 14:00 Received: 06/16/05 12:53									
Dry Weight	75.0	1.00	%	1	5F29068	06/30/05	06/30/05	BSOPSPL003R08	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Semivolatile Petroleum Products by NWTPH-Dx - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060156: Prepared 06/20/05 Using EPA 3550B										
Blank (5060156-BLK1)										
Diesel Range Hydrocarbons	ND	10.0	mg/kg wet							
Heavy Oil Range Hydrocarbons	ND	25.0	"							
Surrogate: 2-FBP	*6.14*		"	*6.67*		*92.1*	*50-150*			
Surrogate: p-Terphenyl-d14	*6.28*		"	*6.67*		*94.2*	*50-150*			
LCS (5060156-BS1)										
Diesel Range Hydrocarbons	86.6	10.0	mg/kg wet	83.3		104	50-150			
Surrogate: 2-FBP	*7.51*		"	*6.67*		*113*	*50-150*			
Surrogate: p-Terphenyl-d14	*6.64*		"	*6.67*		*99.6*	*50-150*			
Duplicate (5060156-DUP1)					**Source: S5F0079-01**					
Diesel Range Hydrocarbons	ND	100	mg/kg dry		ND				25	
Heavy Oil Range Hydrocarbons	361	250	"		261			32.2	25	Q-05
Surrogate: 2-FBP	*10.2*		"	*10.9*		*93.6*	*50-150*			
Surrogate: p-Terphenyl-d14	*11.2*		"	*10.9*		*103*	*50-150*			
Matrix Spike (5060156-MS1)					**Source: S5F0079-01**					
Diesel Range Hydrocarbons	157	100	mg/kg dry	136	ND	115	50-150			
Surrogate: 2-FBP	*12.5*		"	*10.9*		*115*	*50-150*			
Surrogate: p-Terphenyl-d14	*11.8*		"	*10.9*		*108*	*50-150*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
Blank (5060180-BLK1)										
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.0300	"							
Bromobenzene	ND	0.100	"							
Bromochloromethane	ND	0.100	"							
Bromodichloromethane	ND	0.100	"							
Bromoform	ND	0.100	"							
Bromomethane	ND	0.500	"							
2-Butanone	ND	1.00	"							
n-Butylbenzene	ND	0.100	"							
sec-Butylbenzene	ND	0.100	"							
tert-Butylbenzene	ND	0.100	"							
Carbon disulfide	ND	0.100	"							
Carbon tetrachloride	ND	0.100	"							
Chlorobenzene	ND	0.100	"							
Chloroethane	ND	0.100	"							
Chloroform	ND	0.100	"							
Chloromethane	ND	0.500	"							
2-Chlorotoluene	ND	0.100	"							
4-Chlorotoluene	ND	0.100	"							
Dibromochloromethane	ND	0.100	"							
1,2-Dibromo-3-chloropropane	ND	0.500	"							
1,2-Dibromoethane	ND	0.100	"							
Dibromomethane	ND	0.100	"							
1,2-Dichlorobenzene	ND	0.100	"							
1,3-Dichlorobenzene	ND	0.100	"							
1,4-Dichlorobenzene	ND	0.100	"							
Dichlorodifluoromethane	ND	0.100	"							
1,1-Dichloroethane	ND	0.100	"							
1,2-Dichloroethane (EDC)	ND	0.100	"							
1,1-Dichloroethene	ND	0.100	"							
cis-1,2-Dichloroethene	ND	0.100	"							
trans-1,2-Dichloroethene	ND	0.100	"							
1,2-Dichloropropane	ND	0.100	"							
1,3-Dichloropropane	ND	0.100	"							
2,2-Dichloropropane	ND	0.100	"							

North Creek Analytical - Spokane

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
Blank (5060180-BLK1)										
1,1-Dichloropropene	ND	0.100	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.100	"							
trans-1,3-Dichloropropene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Hexachlorobutadiene	ND	0.100	"							
2-Hexanone	ND	1.00	"							
Isopropylbenzene	ND	0.100	"							
p-Isopropyltoluene	ND	0.100	"							
Methylene chloride	ND	1.00	"							
4-Methyl-2-pentanone	ND	1.00	"							
Methyl tert-butyl ether	ND	0.100	"							
Naphthalene	ND	0.100	"							
n-Propylbenzene	ND	0.100	"							
Styrene	ND	0.100	"							
1,1,1,2-Tetrachloroethane	ND	0.100	"							
1,1,2,2-Tetrachloroethane	ND	0.100	"							
Tetrachloroethene	ND	0.0300	"							
Toluene	ND	0.100	"							
1,2,3-Trichlorobenzene	ND	0.100	"							
1,2,4-Trichlorobenzene	ND	0.100	"							
1,1,1-Trichloroethane	ND	0.100	"							
1,1,2-Trichloroethane	ND	0.100	"							
Trichloroethene	ND	0.0300	"							
Trichlorofluoromethane	ND	0.100	"							
1,2,3-Trichloropropane	ND	0.100	"							
1,2,4-Trimethylbenzene	ND	0.100	"							
1,3,5-Trimethylbenzene	ND	0.100	"							
Vinyl chloride	ND	0.100	"							
o-Xylene	ND	0.200	"							
m,p-Xylene	ND	0.400	"							
Surrogate: Dibromofluoromethane	*1.05*		"	*1.00*		*105*	*44.8-146*			
Surrogate: Toluene-d8	*1.04*		"	*1.00*		*104*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*0.676*		"	*1.00*		*67.6*	*52.5-138*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
LCS (5060180-BS1)										
Benzene	0.522	0.0300	mg/kg wet	0.500		104	72.5-130			
Chlorobenzene	0.510	0.100	"	0.500		102	78.4-120			
1,1-Dichloroethene	0.602	0.100	"	0.500		120	50-150			
Toluene	0.526	0.100	"	0.500		105	75.3-120			
Trichloroethene	0.495	0.0300	"	0.500		99.0	64.5-131			
Surrogate: Dibromofluoromethane	*1.06*		"	*1.00*		*106*	*44.8-146*			
Surrogate: Toluene-d8	*0.996*		"	*1.00*		*99.6*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*0.976*		"	*1.00*		*97.6*	*52.5-138*			
LCS Dup (5060180-BSD1)										
Benzene	0.513	0.0300	mg/kg wet	0.500		103	72.5-130	1.74	25	
Chlorobenzene	0.509	0.100	"	0.500		102	78.4-120	0.196	25	
1,1-Dichloroethene	0.602	0.100	"	0.500		120	50-150	0.00	25	
Toluene	0.514	0.100	"	0.500		103	75.3-120	2.31	25	
Trichloroethene	0.483	0.0300	"	0.500		96.6	64.5-131	2.45	25	
Surrogate: Dibromofluoromethane	*1.02*		"	*1.00*		*102*	*44.8-146*			
Surrogate: Toluene-d8	*0.964*		"	*1.00*		*96.4*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*0.892*		"	*1.00*		*89.2*	*52.5-138*			
Matrix Spike (5060180-MS1)					Source: S5F0135-02					
Benzene	0.658	0.0300	mg/kg dry	0.769	ND	85.6	62-130			
Chlorobenzene	0.652	0.100	"	0.769	ND	84.8	70.3-119			
1,1-Dichloroethene	0.758	0.100	"	0.769	ND	98.6	50-150			
Toluene	0.675	0.100	"	0.769	0.0514	81.1	63.8-120			
Trichloroethene	0.621	0.0300	"	0.769	ND	80.8	73.9-122			
Surrogate: Dibromofluoromethane	*1.51*		"	*1.54*		*98.1*	*44.8-146*			
Surrogate: Toluene-d8	*1.26*		"	*1.54*		*81.8*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*1.40*		"	*1.54*		*90.9*	*52.5-138*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060180: Prepared 06/21/05 Using GC/MS Volatiles										
Matrix Spike Dup (5060180-MSD1)					**Source: S5F0135-02**					
Benzene	0.666	0.0300	mg/kg dry	0.769	ND	86.6	62-130	1.21	25	
Chlorobenzene	0.673	0.100	"	0.769	ND	87.5	70.3-119	3.17	25	
1,1-Dichloroethene	0.665	0.100	"	0.769	ND	86.5	50-150	13.1	25	
Toluene	0.681	0.100	"	0.769	0.0514	81.9	63.8-120	0.885	25	
Trichloroethene	0.613	0.0300	"	0.769	ND	79.7	73.9-122	1.30	25	
Surrogate: Dibromofluoromethane	*1.42*		"	*1.54*		*92.2*	*44.8-146*			
Surrogate: Toluene-d8	*1.22*		"	*1.54*		*79.2*	*62.3-143*			
Surrogate: 4-bromofluorobenzene	*1.27*		"	*1.54*		*82.5*	*52.5-138*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

North Creek Analytical - Spokane

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5060182: Prepared 06/22/05 Using Wet Chem										
LCS (5060182-BS1)										
pH	6.94		pH Units	7.00		99.1	80-120			
Duplicate (5060182-DUP1)					Source: S5F0121-01					
pH	8.17		pH Units		8.21			0.488	20	
Batch 5060229: Prepared 06/28/05 Using Wet Chem										
Blank (5060229-BLK1)										
Cyanide (total)	ND	0.0500	mg/kg							
LCS (5060229-BS1)										
Cyanide (total)	0.0543	0.00500	mg/kg	0.0500		109	56-120			
Duplicate (5060229-DUP1)					Source: S5F0090-01					
Cyanide (total)	ND	0.0500	mg/kg		ND				20	

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F22064: Prepared 06/22/05 Using EPA 3520C										
Blank (5F22064-BLK1)										
Aldrin [2C]	ND	0.0800	ug/l							
alpha-BHC [2C]	ND	0.0400	"							
beta-BHC [2C]	ND	0.0400	"							
delta-BHC [2C]	ND	0.100	"							
gamma-BHC (Lindane) [2C]	ND	0.0400	"							
Chlordane (tech) [2C]	ND	0.500	"							
alpha-Chlordane [2C]	ND	0.0400	"							
gamma-Chlordane [2C]	ND	0.0400	"							
4,4'-DDD [2C]	ND	0.0400	"							
4,4'-DDE [2C]	ND	0.0800	"							
4,4'-DDT [2C]	ND	0.0800	"							
Dieldrin [2C]	ND	0.0800	"							
Endosulfan I [2C]	ND	0.0200	"							
Endosulfan II [2C]	ND	0.0800	"							
Endosulfan sulfate [2C]	ND	0.100	"							
Endrin [2C]	ND	0.0800	"							
Endrin aldehyde [2C]	ND	0.160	"							
Endrin ketone [2C]	ND	0.0800	"							
Heptachlor [2C]	ND	0.0800	"							
Heptachlor epoxide [2C]	ND	0.0400	"							
Methoxychlor	ND	0.500	"							
Toxaphene [2C]	ND	2.00	"							
Surrogate: TCX [2C]	*0.146*		"	*0.200*		*73.0*	*24-143*			
Surrogate: Decachlorobiphenyl [2C]	*0.157*		"	*0.200*		*78.5*	*10-145*			
LCS (5F22064-BS1)										
Aldrin [2C]	0.226	0.0800	ug/l	0.250		90.4	57-124			
alpha-BHC [2C]	0.204	0.0400	"	0.250		81.6	52-138			
beta-BHC [2C]	0.230	0.0400	"	0.250		92.0	63-129			
delta-BHC [2C]	0.203	0.100	"	0.250		81.2	19-140			
gamma-BHC (Lindane) [2C]	0.207	0.0400	"	0.250		82.8	59-129			
alpha-Chlordane [2C]	0.223	0.0400	"	0.250		89.2	60-120			
gamma-Chlordane [2C]	0.228	0.0400	"	0.250		91.2	58-121			
4,4'-DDD [2C]	0.470	0.0400	"	0.500		94.0	57-129			
4,4'-DDE [2C]	0.452	0.0800	"	0.500		90.4	60-128			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F22064: Prepared 06/22/05 Using EPA 3520C										
LCS (5F22064-BS1)										
4,4'-DDT [2C]	0.402	0.0800	ug/l	0.500		80.4	60-147			
Dieldrin [2C]	0.453	0.0800	"	0.500		90.6	58-123			
Endosulfan I [2C]	0.227	0.0200	"	0.250		90.8	55-131			
Endosulfan II [2C]	0.466	0.0800	"	0.500		93.2	53-135			
Endosulfan sulfate [2C]	0.455	0.100	"	0.500		91.0	58-120			
Endrin [2C]	0.376	0.0800	"	0.500		75.2	61-134			
Endrin aldehyde [2C]	0.466	0.160	"	0.500		93.2	46-123			
Endrin ketone [2C]	0.528	0.0800	"	0.500		106	55-138			
Heptachlor [2C]	0.189	0.0800	"	0.250		75.6	60-128			
Heptachlor epoxide [2C]	0.227	0.0400	"	0.250		90.8	62-123			
Methoxychlor	2.06	0.500	"	2.50		82.4	60-155			
Surrogate: TCX [2C]	*0.160*		"	*0.200*		*80.0*	*24-143*			
Surrogate: Decachlorobiphenyl [2C]	*0.163*		"	*0.200*		*81.5*	*10-145*			
LCS Dup (5F22064-BSD1)										
Aldrin [2C]	0.233	0.0800	ug/l	0.250		93.2	57-124	3.05	30	
alpha-BHC [2C]	0.203	0.0400	"	0.250		81.2	52-138	0.491	30	
beta-BHC [2C]	0.234	0.0400	"	0.250		93.6	63-129	1.72	30	
delta-BHC [2C]	0.205	0.100	"	0.250		82.0	19-140	0.980	30	
gamma-BHC (Lindane) [2C]	0.210	0.0400	"	0.250		84.0	59-129	1.44	30	
alpha-Chlordane [2C]	0.229	0.0400	"	0.250		91.6	60-120	2.65	30	
gamma-Chlordane [2C]	0.235	0.0400	"	0.250		94.0	58-121	3.02	30	
4,4'-DDD [2C]	0.487	0.0400	"	0.500		97.4	57-129	3.55	30	
4,4'-DDE [2C]	0.470	0.0800	"	0.500		94.0	60-128	3.90	30	
4,4'-DDT [2C]	0.406	0.0800	"	0.500		81.2	60-147	0.990	30	
Dieldrin [2C]	0.480	0.0800	"	0.500		96.0	58-123	5.79	30	
Endosulfan I [2C]	0.234	0.0200	"	0.250		93.6	55-131	3.04	30	
Endosulfan II [2C]	0.474	0.0800	"	0.500		94.8	53-135	1.70	30	
Endosulfan sulfate [2C]	0.461	0.100	"	0.500		92.2	58-120	1.31	30	
Endrin [2C]	0.445	0.0800	"	0.500		89.0	61-134	16.8	30	
Endrin aldehyde [2C]	0.471	0.160	"	0.500		94.2	46-123	1.07	30	
Endrin ketone [2C]	0.490	0.0800	"	0.500		98.0	55-138	7.47	30	
Heptachlor [2C]	0.195	0.0800	"	0.250		78.0	60-128	3.12	30	
Heptachlor epoxide [2C]	0.233	0.0400	"	0.250		93.2	62-123	2.61	30	
Methoxychlor	2.07	0.500	"	2.50		82.8	60-155	0.484	30	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F22064: Prepared 06/22/05 Using EPA 3520C										
LCS Dup (5F22064-BSD1)										
Surrogate: TCX [2C]	*0.162*		*ug/l*	*0.200*		*81.0*	*24-143*			
Surrogate: Decachlorobiphenyl [2C]	*0.166*		*"*	*0.200*		*83.0*	*10-145*			
Batch 5F28056: Prepared 06/28/05 Using EPA 3550B										
Blank (5F28056-BLK1)										
Aldrin [2C]	ND	1.00	ug/kg wet							
alpha-BHC [2C]	ND	1.00	"							
beta-BHC [2C]	ND	2.00	"							
delta-BHC [2C]	ND	1.00	"							
gamma-BHC (Lindane) [2C]	ND	1.00	"							
Chlordane (tech) [2C]	ND	10.0	"							
alpha-Chlordane [2C]	ND	1.00	"							
gamma-Chlordane [2C]	ND	1.00	"							
4,4'-DDD [2C]	ND	2.00	"							
4,4'-DDE [2C]	ND	2.00	"							
4,4'-DDT [2C]	ND	2.00	"							
Dieldrin [2C]	ND	2.00	"							
Endosulfan I [2C]	ND	1.00	"							
Endosulfan II [2C]	ND	2.00	"							
Endosulfan sulfate [2C]	ND	2.00	"							
Endrin [2C]	ND	2.00	"							
Endrin aldehyde [2C]	ND	2.00	"							
Endrin ketone [2C]	ND	2.00	"							
Heptachlor [2C]	ND	1.00	"							
Heptachlor epoxide [2C]	ND	1.00	"							
Methoxychlor [2C]	ND	2.00	"							
Toxaphene [2C]	ND	50.0	"							
Surrogate: TCX [2C]	*6.60*		*"*	*6.67*		*99.0*	*47-134*			
Surrogate: Decachlorobiphenyl [2C]	*7.45*		*"*	*6.67*		*112*	*35-151*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F28056: Prepared 06/28/05 Using EPA 3550B										
LCS (5F28056-BS1)										
Aldrin [2C]	7.94	1.00	ug/kg wet	8.33		95.3	60-125			
alpha-BHC [2C]	7.50	1.00	"	8.33		90.0	61-125			
beta-BHC [2C]	7.75	2.00	"	8.33		93.0	37-147			
delta-BHC [2C]	6.47	1.00	"	8.33		77.7	57-110			
gamma-BHC (Lindane) [2C]	7.12	1.00	"	8.33		85.5	61-125			
alpha-Chlordane [2C]	7.67	1.00	"	8.33		92.1	35-151			
gamma-Chlordane [2C]	7.65	1.00	"	8.33		91.8	65-125			
4,4'-DDD [2C]	15.4	2.00	"	16.7		92.2	70-125			
4,4'-DDE [2C]	15.4	2.00	"	16.7		92.2	69-125			
4,4'-DDT [2C]	15.9	2.00	"	16.7		95.2	60-127			
Dieldrin [2C]	15.1	2.00	"	16.7		90.4	59-128			
Endosulfan I [2C]	7.01	1.00	"	8.33		84.2	32-153			
Endosulfan II [2C]	16.3	2.00	"	16.7		97.6	61-125			
Endosulfan sulfate [2C]	16.0	2.00	"	16.7		95.8	56-125			
Endrin [2C]	15.5	2.00	"	16.7		92.8	58-132			
Endrin aldehyde [2C]	13.7	2.00	"	16.7		82.0	22-144			
Endrin ketone [2C]	16.2	2.00	"	16.7		97.0	50-140			
Heptachlor [2C]	7.19	1.00	"	8.33		86.3	59-129			
Heptachlor epoxide [2C]	7.89	1.00	"	8.33		94.7	55-125			
Methoxychlor [2C]	79.8	2.00	"	83.3		95.8	50-135			
Surrogate: TCX [2C]	*6.44*		"	*6.67*		*96.6*	*47-134*			
Surrogate: Decachlorobiphenyl [2C]	*7.27*		"	*6.67*		*109*	*35-151*			
LCS Dup (5F28056-BSD1)										
Aldrin [2C]	8.19	1.00	ug/kg wet	8.33		98.3	60-125	3.10	30	
alpha-BHC [2C]	7.68	1.00	"	8.33		92.2	61-125	2.37	35	
beta-BHC [2C]	8.03	2.00	"	8.33		96.4	37-147	3.55	35	
delta-BHC [2C]	6.74	1.00	"	8.33		80.9	57-110	4.09	35	
gamma-BHC (Lindane) [2C]	7.23	1.00	"	8.33		86.8	61-125	1.53	30	
alpha-Chlordane [2C]	8.09	1.00	"	8.33		97.1	35-151	5.33	35	
gamma-Chlordane [2C]	8.12	1.00	"	8.33		97.5	65-125	5.96	35	
4,4'-DDD [2C]	16.2	2.00	"	16.7		97.0	70-125	5.06	35	
4,4'-DDE [2C]	16.2	2.00	"	16.7		97.0	69-125	5.06	35	
4,4'-DDT [2C]	16.9	2.00	"	16.7		101	60-127	6.10	35	
Dieldrin [2C]	15.9	2.00	"	16.7		95.2	59-128	5.16	35	

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F28056: Prepared 06/28/05 Using EPA 3550B										
LCS Dup (5F28056-BSD1)										
Endosulfan I [2C]	7.32	1.00	ug/kg wet	8.33		87.9	32-153	4.33	35	
Endosulfan II [2C]	17.2	2.00	"	16.7		103	61-125	5.37	35	
Endosulfan sulfate [2C]	16.9	2.00	"	16.7		101	56-125	5.47	35	
Endrin [2C]	16.4	2.00	"	16.7		98.2	58-132	5.64	35	
Endrin aldehyde [2C]	14.3	2.00	"	16.7		85.6	22-144	4.29	35	
Endrin ketone [2C]	17.0	2.00	"	16.7		102	50-140	4.82	35	
Heptachlor [2C]	7.42	1.00	"	8.33		89.1	59-129	3.15	30	
Heptachlor epoxide [2C]	8.27	1.00	"	8.33		99.3	55-125	4.70	35	
Methoxychlor [2C]	83.0	2.00	"	83.3		99.6	50-135	3.93	35	
Surrogate: TCX [2C]	*6.63*		"	*6.67*		*99.4*	*47-134*			
Surrogate: Decachlorobiphenyl [2C]	*7.54*		"	*6.67*		*113*	*35-151*			
Matrix Spike (5F28056-MS1)					**Source: B5F0448-02**					
Aldrin [2C]	9.98	1.00	ug/kg dry	9.26	ND	108	51-125			
alpha-BHC [2C]	8.61	1.00	"	9.26	ND	93.0	39-125			
beta-BHC [2C]	9.37	2.00	"	9.26	ND	101	13-152			
delta-BHC [2C]	7.61	1.00	"	9.26	ND	82.2	21-133			
gamma-BHC (Lindane) [2C]	8.17	1.00	"	9.26	ND	88.2	36-125			
alpha-Chlordane [2C]	8.06	1.00	"	9.26	ND	87.0	24-156			
gamma-Chlordane [2C]	9.07	1.00	"	9.26	ND	97.9	34-143			
4,4'-DDD [2C]	17.6	2.00	"	18.5	ND	95.1	29-153			
4,4'-DDE [2C]	18.3	2.00	"	18.5	ND	98.9	30-160			
4,4'-DDT [2C]	18.4	2.00	"	18.5	ND	99.5	31-149			
Dieldrin [2C]	17.9	2.00	"	18.5	ND	96.8	41-134			
Endosulfan I [2C]	5.89	1.00	"	9.26	ND	63.6	20-155			
Endosulfan II [2C]	19.0	2.00	"	18.5	ND	103	30-140			
Endosulfan sulfate [2C]	19.4	2.00	"	18.5	ND	105	14-143			
Endrin [2C]	18.8	2.00	"	18.5	ND	102	42-137			
Endrin aldehyde [2C]	12.0	2.00	"	18.5	ND	64.9	10-144			
Endrin ketone [2C]	19.0	2.00	"	18.5	ND	103	14-149			
Heptachlor [2C]	8.11	1.00	"	9.26	ND	87.6	43-125			
Heptachlor epoxide [2C]	9.16	1.00	"	9.26	ND	98.9	51-125			
Methoxychlor [2C]	95.5	2.00	"	92.6	0.399	103	24-138			
Surrogate: TCX [2C]	*7.37*		"	*7.41*		*99.5*	*47-134*			
Surrogate: Decachlorobiphenyl [2C]	*8.54*		"	*7.41*		*115*	*35-151*			

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Organochlorine Pesticides by EPA Method 8081A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F28056: Prepared 06/28/05 Using EPA 3550B										
Matrix Spike Dup (5F28056-MSD1)					**Source: B5F0448-02**					
Aldrin [2C]	9.86	1.00	ug/kg dry	9.32	ND	106	51-125	1.21	35	
alpha-BHC [2C]	8.82	1.00	"	9.32	ND	94.6	39-125	2.41	35	
beta-BHC [2C]	9.20	2.00	"	9.32	ND	98.7	13-152	1.83	35	
delta-BHC [2C]	7.30	1.00	"	9.32	ND	78.3	21-133	4.16	35	
gamma-BHC (Lindane) [2C]	8.31	1.00	"	9.32	ND	89.2	36-125	1.70	35	
alpha-Chlordane [2C]	7.98	1.00	"	9.32	ND	85.6	24-156	0.998	35	
gamma-Chlordane [2C]	8.93	1.00	"	9.32	ND	95.8	34-143	1.56	35	
4,4'-DDD [2C]	16.8	2.00	"	18.6	ND	90.3	29-153	4.65	35	
4,4'-DDE [2C]	17.8	2.00	"	18.6	ND	95.7	30-160	2.77	35	
4,4'-DDT [2C]	17.7	2.00	"	18.6	ND	95.2	31-149	3.88	35	
Dieldrin [2C]	17.5	2.00	"	18.6	ND	94.1	41-134	2.26	35	
Endosulfan I [2C]	5.59	1.00	"	9.32	ND	60.0	20-155	5.23	35	
Endosulfan II [2C]	18.4	2.00	"	18.6	ND	98.9	30-140	3.21	35	
Endosulfan sulfate [2C]	18.5	2.00	"	18.6	ND	99.5	14-143	4.75	35	
Endrin [2C]	18.3	2.00	"	18.6	ND	98.4	42-137	2.70	35	
Endrin aldehyde [2C]	11.5	2.00	"	18.6	ND	61.8	10-144	4.26	35	
Endrin ketone [2C]	18.1	2.00	"	18.6	ND	97.3	14-149	4.85	35	
Heptachlor [2C]	8.01	1.00	"	9.32	ND	85.9	43-125	1.24	35	
Heptachlor epoxide [2C]	8.86	1.00	"	9.32	ND	95.1	51-125	3.33	35	
Methoxychlor [2C]	91.9	2.00	"	93.2	0.399	98.2	24-138	3.84	35	
Surrogate: TCX [2C]	*7.59*		"	*7.46*		*102*	*47-134*			
Surrogate: Decachlorobiphenyl [2C]	*8.15*		"	*7.46*		*109*	*35-151*			

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F22064: Prepared 06/22/05 Using EPA 3520C										
Blank (5F22064-BLK2)										
Aroclor 1016	ND	0.500	ug/l							
Aroclor 1221	ND	0.500	"							
Aroclor 1232	ND	0.500	"							
Aroclor 1242	ND	0.500	"							
Aroclor 1248	ND	0.500	"							
Aroclor 1254	ND	0.500	"							
Aroclor 1260	ND	0.500	"							
Aroclor 1262	ND	0.500	"							
Aroclor 1268	ND	0.500	"							
Surrogate: TCX	*0.151*		"	*0.200*		*75.5*	*25-129*			
Surrogate: Decachlorobiphenyl	*0.192*		"	*0.200*		*96.0*	*22-125*			
LCS (5F22064-BS2)										
Aroclor 1016	2.07	0.500	ug/l	2.50		82.8	57-123			
Aroclor 1260	2.42	0.500	"	2.50		96.8	56-125			
Surrogate: TCX	*0.167*		"	*0.200*		*83.5*	*25-129*			
Surrogate: Decachlorobiphenyl	*0.204*		"	*0.200*		*102*	*22-125*			
LCS Dup (5F22064-BSD2)										
Aroclor 1016	2.03	0.500	ug/l	2.50		81.2	57-123	1.95	30	
Aroclor 1260	2.32	0.500	"	2.50		92.8	56-125	4.22	30	
Surrogate: TCX	*0.173*		"	*0.200*		*86.5*	*25-129*			
Surrogate: Decachlorobiphenyl	*0.193*		"	*0.200*		*96.5*	*22-125*			
Batch 5F28056: Prepared 06/28/05 Using EPA 3550B										
Blank (5F28056-BLK2)										
Aroclor 1016	ND	25.0	ug/kg wet							
Aroclor 1221	ND	50.0	"							
Aroclor 1232	ND	25.0	"							
Aroclor 1242	ND	25.0	"							
Aroclor 1248	ND	25.0	"							
Aroclor 1254	ND	25.0	"							
Aroclor 1260	ND	25.0	"							
Aroclor 1262	ND	25.0	"							
Aroclor 1268	ND	25.0	"							

North Creek Analytical - Spokane

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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	**Reported:**
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F28056: Prepared 06/28/05 Using EPA 3550B										
Blank (5F28056-BLK2)										
Surrogate: TCX	*6.57*		*ug/kg wet*	*6.67*		*98.5*	*19-149*			
Surrogate: Decachlorobiphenyl	*7.75*		"	*6.67*		*116*	*37-151*			
LCS (5F28056-BS2)										
Aroclor 1016	71.0	25.0	ug/kg wet	83.3		85.2	63-125			
Aroclor 1260	86.4	25.0	"	83.3		104	64-125			
Surrogate: TCX	*6.51*		"	*6.67*		*97.6*	*19-149*			
Surrogate: Decachlorobiphenyl	*7.35*		"	*6.67*		*110*	*37-151*			
LCS Dup (5F28056-BSD2)										
Aroclor 1016	72.0	25.0	ug/kg wet	83.3		86.4	63-125	1.40	30	
Aroclor 1260	86.3	25.0	"	83.3		104	64-125	0.116	30	
Surrogate: TCX	*6.60*		"	*6.67*		*99.0*	*19-149*			
Surrogate: Decachlorobiphenyl	*7.51*		"	*6.67*		*113*	*37-151*			
Matrix Spike (5F28056-MS2)					**Source: B5F0427-26**					
Aroclor 1016	42.9	12.4	ug/kg dry	51.6	ND	83.1	28-136			
Aroclor 1260	53.8	12.4	"	51.6	2.35	99.7	35-152			
Surrogate: TCX	*3.65*		"	*4.13*		*88.4*	*19-149*			
Surrogate: Decachlorobiphenyl	*4.37*		"	*4.13*		*106*	*37-151*			
Matrix Spike Dup (5F28056-MSD2)					**Source: B5F0427-26**					
Aroclor 1016	39.7	12.4	ug/kg dry	51.8	ND	76.6	28-136	7.75	35	
Aroclor 1260	55.5	12.4	"	51.8	2.35	103	35-152	3.11	35	
Surrogate: TCX	*3.71*		"	*4.14*		*89.6*	*19-149*			
Surrogate: Decachlorobiphenyl	*4.43*		"	*4.14*		*107*	*37-151*			

Dennis D Wells, Laboratory Director

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane 11922 E. 1st Avenue, Spokane Valley, WA 99206-5302
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5F29068: Prepared 06/30/05 Using Dry Weight										
Blank (5F29068-BLK1)										
Dry Weight	100	1.00	%							

Dennis D Wells, Laboratory Director

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509.924.9200 fax 509.924.9290
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Geo Engineers - Spokane	Project: Teck Cominco	
523 East Second Ave.	Project Number: 6601-003-09	Reported:
Spokane, WA 99202	Project Manager: Dave Enos	07/11/05 11:59

Notes and Definitions

P-03	Greater than 40% difference between two dissimilar columns. After evaluation, the lower result has been reported.
Q-05	RPD values are not controlled at sample concentrations less than 10 times the reporting limit.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
X	See case narrative.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-9508 425-420-9200 FAX 420-9210
11115 E Montgomery Suite B, Spokane, WA 99206-4776 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7132 503-906-9200 FAX 906-9210
20332 Empire Ave Suite F-1, Bend, OR 99701-5711 541-383-9310 FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #: 56F0098

CLIENT: GeoEngineers, Inc

REPORT TO: Dave Enos
ADDRESS: 523 E 2nd Ave
Spokane, WA 99202
PHONE (509) 363-3125 FAX:

INVOICE TO: Same

P.O. NUMBER:

PROJECT NAME: Teck Cominco

PROJECT NUMBER: 6601-003-09

SAMPLED BY: M. Rotting

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 STD | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	WAD Cyanide	Nitrate+Nitrite	Total Cyanide	pH	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	TC-7 (4-4.5)	6/15/05 1100	X	X	X	X				
2	TC-8 (2-2.5)	" 1300			X					
3	TC-9 (4-4.5)	" 1400	X	X	X	X				
4										
5										
6										
7										
8										
9										
10										

RELEASED BY: Marjan A. Rotting DATE: 6/16/05
PRINT NAME: Marjan A. Rotting FIRM: GEI TIME: 12:15PM

RECEIVED BY: Chris Williams DATE: 6/16/05
PRINT NAME: Chris Williams FIRM: NCA-S TIME: 12:15PM

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS: CAUTION: Sample TC-8 is an unknown chemical. May be pure cyanide VOC - non listed VOC may be present - Call D Enos. Hold all samples for further tests

TEMP: 7.2°C

COC REV 1/03

PAGE 1 OF 1

GeoEngineers

APPENDIX D

REPORT LIMITATIONS AND GUIDELINES FOR USE

APPENDIX D
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This Appendix provides information to help you manage your risks with respect to the use of this report.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for the exclusive use of Teck Cominco American Incorporated, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Potlatch should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

THIS REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report has been prepared for the Pend Oreille Mine site located near Metaline Falls, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

RELIANCE CONDITIONS FOR THIRD PARTIES

Our report was prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Assessment Is Completed

No assessment can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Geotechnical Engineering Report Recommendations Are Not Final

Do not over-rely on the preliminary construction recommendations included in this report. These recommendations are not final, because they were developed principally from GeoEngineers' professional judgment and opinion. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for this report's recommendations if we do not perform construction observation.

Sufficient monitoring, testing and consultation by GeoEngineers should be provided during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Soil And Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Geological And Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field

and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Do Not Redraw The Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical, Geologic And Geoenvironmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.