April 3, 2008

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Mr. Mark Nelson Nelson Petroleum Inc. 1125 SW 80<sup>th</sup> Street Everett, WA 98203 APR 27 2015

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Subject:

Phase I and Phase II Environmental Site Assessment

201 W. Stanley Street Granite Falls, WA

Dear Mr. Nelson:

Slotta Design and Construction (SD&C) is pleased to present this report documenting the Phase I and II Environmental Site Assessment recently conducted at the Nelson Petroleum Inc. facility referenced above. The site assessment was conducted in accordance with your request and SD&C's *Phase 1 and II Environmental Site Assessment Proposal* dated February 4, 2008. The report conforms to standards identified by the American Society for Testing and Materials (ASTM) Designation E 1527-05, Standard Practice for Phase I Environmental Site Assessments.

If you have any questions about this project or report, please contact SD&C at (206) 459-5775. We appreciate the opportunity to work with you on this project.

Respectfully,

SD&C

Timothy S. Slotta L.H.G. #2175

Hydrogeologist

PO Box 2071, Kirkland, WA 98083

# Phase I and II Environmental Site Assessment Report

Nelson Petroleum Inc. 201 W. Stanley Street Granite Falls, WA

## Prepared for:

Nelson Petroleum Inc. 1125 SW 80<sup>th</sup> Street Everett, WA 98203

## Submitted by:

Slotta Design & Construction PO Box 2071 Kirkland, WA 98083

April 3, 2008

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#### 1.0 INTRODUCTION

#### 1.1 Background

This report presents the results of the Phase I and II Environmental Site Assessment recently conducted by Slotta Design and Construction (SD&C) at the Nelson Petroleum Inc. bulk fuel facility located at 201 W. Stanley Street in Granite Falls, WA (Figure 1). The site assessment was conducted in accordance with Nelson Petroleum's request and SD&C's *Phase I and II Environmental Site Assessment* proposal dated February 4, 2008. The report conforms to standards identified by the American Society for Testing and Materials (ASTM) Designation E 1527-05, Standard Practice for Phase I Environmental Site Assessment (ESA) Process.

The purpose of a Phase I ESA is to identify and document the current and historical environmental conditions of the subject site; and the presence of substances which indicate an existing, past or potential adverse impact to the air, soil, groundwater or surface waters as a result of operations on the site or adjacent surrounding properties. Information gathered during the Phase II is presented to evaluate the environmental liabilities associated with the subject site including the potential impact to subsurface soil and groundwater.

#### 1.2 Scope of Work - Phase I and II ESA

The scope of work during this Phase I and II ESA included the following tasks:

- Reviewing available information from various sources with respect to historical use of the property and its surroundings;
- Conducting a visual reconnaissance of the subject property and interviewing personnel familiar with current and past practices of the facility and surrounding areas;
- Conducting a file database search of appropriate site records available, and agency files, for the property and surrounding area within one-mile radius of the facility;
- Evaluating the presence and potential impact of petroleum hydrocarbon constituents in soil and groundwater;
- Characterizing the subsurface geologic conditions using a Geoprobe boring subcontractor;
- Observing and monitoring the advancement of seven test borings to a depths between 12-16 feet below ground surface (BGS) to collect soil and groundwater samples;
- Analyzing the data collected, and preparing a report to summarize the data, document site activities, and to provide conclusions and recommendations.

#### 2.0 ASSESSMENT FINDINGS

#### 2.1 Site Description

The rectangular shaped property is approximately one-acre in size and is located in a commercial area of downtown Granite Falls as illustrated in Figure 1. The property is located at Lat/Long: 48.083550 N and 121.970680 W. The legal description and assessor's plat map for the site are included as Appendix I to this report. The property is at an elevation of 402 feet above mean sea level, and the natural slope of the topography in the area trends downward to the southwest toward the Pilchuck River located approximately 0.5 miles from the site. The South Fork of the Stillaguamish River is located approximately 0.83 miles north/northwest of the site.

The property contains two separate parcels which are currently leased by Glen's Rentals located on the western half of the property, and Nelson Petroleum leases the eastern half of the property. The primary focus of this site assessment is the Nelson Petroleum property; however, selected subsurface borings were conducted on the western property to help evaluate the potential nature and extent of petroleum impact from the bulk fuel facility.

The Nelson Petroleum property includes a warehouse and former operations distribution building (1,500 sq ft), a small pump monitoring shed building (<100 sq ft) associated with an aboveground storage tank impoundment, and three fuel distribution pump locations. The principal site features are illustrated in Figure 2. The warehouse and shed buildings are constructed of wood framing and steel roofing and siding, built on a pier and grade beam foundations that form a crawl space.

There are four aboveground steel fuel storage tanks located in the northwest corner of the site. The above ground storage tanks (ASTs) include one 12,955-gallon Unleaded Gasoline tank, one 19,430-gallon Low Sulfur Diesel tank, and two 4,970-gallon Hi-Sulfur Diesel tanks that are interconnected. The tanks are enclosed by a gated cyclone fence on top of a concrete impoundment wall. The tank impoundment is unpaved and the surface material is crushed rock gravel. Underground piping connects the ASTs to the vehicle fueling pumps. The southern portion of the property not used for fueling vehicles is unpaved, with gravel, and is used for site access and transfer of fuel from distribution trucks. The northern portion of the site is undeveloped, and is surfaced by deciduous trees and blackberry vines. The site has a storm water collection system and oil-water separator which drains to the west along Stanley Street to a municipal surface water drainage system. The site is served by the municipal power, water, and sanitary sewer system.

The property is bordered to the:

- North by a vacant, flat graded, undeveloped property that slopes downward to a small pond;
- South by Stanley Street, and residential and commercial properties further to the south;
- West by an unpaved lot and an equipment rental company; and
- East by a Shell gasoline distribution station, and mini-mart convenience store.

#### 2.2 Physical Setting

The Granite Falls area is located between the Northern Cascade Subcontinent encompassing the surrounding mountain ranges to the east, and the Puget Sound Lowland to the west. The Northern Cascade Subcontinent is composed of oceanic crust and mudstones that accumulated on the ocean floor 50 million years ago. At lower elevations and along the river valleys the soils were deposited by floods that occurred sometime before about 15,000 years ago. Published geologic maps for the site vicinity (Jones, 1999) suggest that the materials underlying the subject site consist of recessional outwash sand, gravel alluvial deposits, and Glacial Till.

According to the US Department of Agriculture's (USDA) Soil Conservation Service, the site is underlain by Everett Soil which is described as gravelly – sandy loam and Bellingham Soil which is described as a silty clayey loam. The soil has poor drainage and may have saturated zones of low hydraulic conductivity with shallow groundwater less than 10 feet BGS. The direction of the groundwater flow likely follows topography of the site, and trends toward the southwest. A review of water well records from the Washington Department of Ecology (Ecology) indicated that there are two domestic drinking water wells located hydrologically up gradient of the site approximately 1/4-mile east and southeast. The depth to the groundwater in the Granite Falls Grange well located to the east is unknown, and the well located to the southeast is at a depth of 14 feet below ground surface. There are no wells located down gradient within ½-mile of the site.

#### 2.3 City Directory Review

SD&C reviewed City Directories for the site provided by Environmental Data Resources Inc. (EDR) of Milford, Connecticut as included in Appendix II. The City Directory lists the name of the resident or business from the address, or type of business if the name is unclear. The records indicate no coverage for the property location. A complete title record review for the property was outside SD&C's scope of services.

#### 2.4 Sanborn Map Report

SD&C reviewed the Sanborn Map Report historical fire insurance records for the site provided by EDR and included in Appendix II. The maps were available for 1917 and 1929 and are essentially identical for the years available. The maps indicate that the property has historically been located in the commercial downtown area of Granite Falls which is a lumber mill community. There was a railroad spur for the Northern Pacific Railroad, and a passenger station that bordered the north of the site. There was a building located on the eastern portion of the site (where the Nelson Petroleum warehouse is currently located) that was entitled Hardwood Warehouse. Further to the east there was a restaurant and a hardware store. The western portion of the site, and the property further to the west, were vacant and undeveloped. Stanley Street formed the southern boundary of the site, and the southern located properties included the Hotel Livengood on the west side of Cascade Avenue, and a garage and tire shop were located on the east side.

#### 2.5 Aerial Photograph Interpretation

EDR provided aerial photographs of the site from the years 1975, 1983, and 1990 as included in Appendix II. Review of the aerial photographs was relatively inconclusive because the distance above the ground surface inhibited a clear interpretation of the site, and surrounding properties. The site and surrounding area appear to have remained in the current configuration since the 1975 photo was collected.

#### 2.6 Historical Topographic Map Report

The Historical Topographic Maps for the site were provided by EDR for the years 1956, and 1989 as included in Appendix II. The 1956 map indicates that the property was undeveloped, and the 1989 map indicates there was one building on the property. The surrounding properties in the earlier map were undeveloped. The 1989 map indicates individual buildings were located to the south, east, west, and the northern property was undeveloped.

#### 3.0 REGULATORY LIST REVIEW

#### 3.1 Review of Regulatory Lists

A search of environmental records was conducted by EDR on February 29, 2008 to evaluate the potential for impact to the subject site from properties in the surrounding vicinity. Appendix II to this report includes a complete description of locations of facilities of concern within a one-mile radius of the site, contaminants of concern, and the cleanup activities being conducted. The following summarizes the findings of the records that were reviewed:

The USEPA's National Priority List (NPL) indicates no sites, and no proposed sites located within a one-mile radius of the property. The federal CERCLIS and RCRA data indicates that there are no sites located within 1 mile of the property. The Washington State Department of Ecology (Ecology) Hazardous Waste Sites List (CERCLIS) and Confirmed & Suspected Contaminated Sites List (CSCSL) indicated there no sites located within 1 mile of the target property. There are no sites on Ecology's CSCSL No Further Action (NFA) list located within 1 mile of the site.

A review of Ecology's State Hazardous Waste Sites (SHWS) priority sites planned for cleanup using state funds indicated there one site located within 1 mile of the target property. The site is identified as:

• The Edwards Property located at 311 W. Galena St (approximately two blocks, and at a lower elevation south of the site). The state reports that petroleum hydrocarbons, and EPA priority pollutant metals are present in soil and groundwater at the site.

Ecology's Leaking Underground Storage Tanks (LUST) incident reports list indicates that there is one site located at a lower elevation approximately 0.25 miles from the target property. The site is also listed as an Independent Cleanup Report (ICR) site, where independent cleanup actions have been conducted without Ecology oversight or approval and are not under an order or decree. The site is identified as:

 Railroad (Old Gas) Station located at 18905 SR 92 (approximately 3 blocks west of the site).

There are four sites on Ecology's Underground Storage Tanks (UST) list located within 0.25 miles of the target property. The sites are identified as:

- Bob and Carol's Deli Mart located at 108 W Stanley Street
- Stanley Street Market located at 107 W Stanley Street
- Mt. Loop Service & Auto Repair located at 206 East Stanley Street
- Granite Falls Central Office located at 108 E Union Street

None of the sites report releases, or are undergoing cleanup actions.

#### 4.0 SITE RECONNAISSANCE AND INSPECTION

#### 4.1 Site Inspection

On February 22, 2008, SD&C conducted a visual assessment for the potential past or existing environmental impact at the Nelson Petroleum facility, and the surrounding properties. The photographs representative of the site inspection are included as Appendix III to this report. The property includes a fenced AST compound and associated distribution pumps, and an eastern located warehouse building that is currently unoccupied as discussed in Section 2.1 Site Description. SD&C did not observe any unusual conditions for a bulk fueling facility such as staining, distressed vegetation, or visible petroleum product on the ground surface.

An evaluation of building materials such as lead based paint sampling, or sampling for asbestos were out of SD&C's scope of services.

#### 4.2 Hazardous Substance Storage/Use

The property has four aboveground steel fuel storage tanks located in the northwest corner of the site as described in the Section 2.1 Site Description. SD&C visually observed the condition of the ASTs and the associated above ground product piping. The steel storage tanks appeared sound and in good condition and there was no leaks or stains observable associated with the distribution piping. Based on soil and groundwater data collected during the current and previous investigations of the site, there is evidence of subsurface impact to soil and groundwater at the site. Further discussions of subsurface conditions are included in Sections 4.4 and 5.2 of this report.

#### 4.3 Interviews

Interviews were conducted with individuals knowledgeable of the site history and activities that may have potential environmental impact at the property. The following individuals were contacted regarding history at the site:

Mr. Glen Gray – Owner Glen's Rentals 231 W. Stanley Street Granite Falls, WA 98252

Mr. Leon Loth – Owner Shell Station Stanley Street and Granite Avenue Granite Falls, WA 98252

Mr. Mark Nelson – Owner Nelson Petroleum Inc.

Mr. Gray indicated that there was previously a lumber yard at the Glen's Rental property during the 1980s. A spill reportedly occurred on the Nelson Petroleum Facility during transfer from a distribution truck during at that time which required the lumber be removed from the southern property. The soil impacted by fuel was later excavated from the property during the City of Granite Falls utility upgrades to the area. The soil was reportedly excavated from the southern boundary of the Glen's Rentals property along Stanley Street to a depth of approximately 5 feet below ground surface.

Mr. Loth indicated that when he purchased the Shell Facility located to the east of the Nelson Petroleum property approximately 11 years ago that he conducted a subsurface investigation of his site. The results of borings conducted during a subsurface investigation of his property were reported to be "clean" of petroleum hydrocarbon constituents. Mr. Loth reported that he was aware of a gasoline release that had occurred at the Bob and Carol's Deli located across Stanley Street to the southeast that was encountered during the City utility upgrades. He was also aware of a release that had historically occurred at the Nelson Property.

Mr. Nelson referred to title records which indicate that the property has been leased as a bulk fuel facility since 1938. Nelson Petroleum reportedly acquired the lease on the property from Chevron during 1980. The property has remained in the general condition as exists today with the above ground storage tank (AST) compound being reconfigured with various changes of the storage tanks. The warehouse has historically been used to store petroleum products in drums. Mr. Nelson indicated that the one release at the property, that he was aware of, was not documented and the volume of fuel was not recorded. Mr. Nelson recollected the spill was less than 50 gallons of gasoline.

### 4.4 Past Site Inspection

On December 9, 2003, Environmental Associates (EA) Inc. prepared a Preliminary Subsurface Exploration Report for the Nelson Petroleum Bulk Fuel Facility. The Subsurface Exploration was conducted at the request or Mr. Mike Ongaro. As part of their study, EA conducted seven subsurface soil borings (B l through B7 illustrated in Figures 3 and 4) at the site, using a Bobcat-equipped with a fencepost auger. At each boring location the auger was advanced to a depth of approximately 5 to 6 feet below the ground surface. Soil samples were collected from the auger flights corresponding to depths of approximately 2 to 3 feet below the ground surface (BGS) and approximately 4 to 5 feet BGS. Shallow groundwater samples were collected from all the borings at depths between 2 and 4 feet BGS.

Gasoline, Benzene, Toluene, Ethyl Benzene, and Xylenes were detected in each of the five soil samples analyzed at concentrations that did not exceed Ecology's Model Toxics Control Act (MTCA) method A cleanup levels. Diesel was also detected in the five soil samples analyzed. However, only the composite sample from B7 contained Diesel at a concentration that exceeded the MTCA method A cleanup level. The remaining concentrations of Diesel and Heavy Oil did not exceed the MTCA method A cleanup levels.

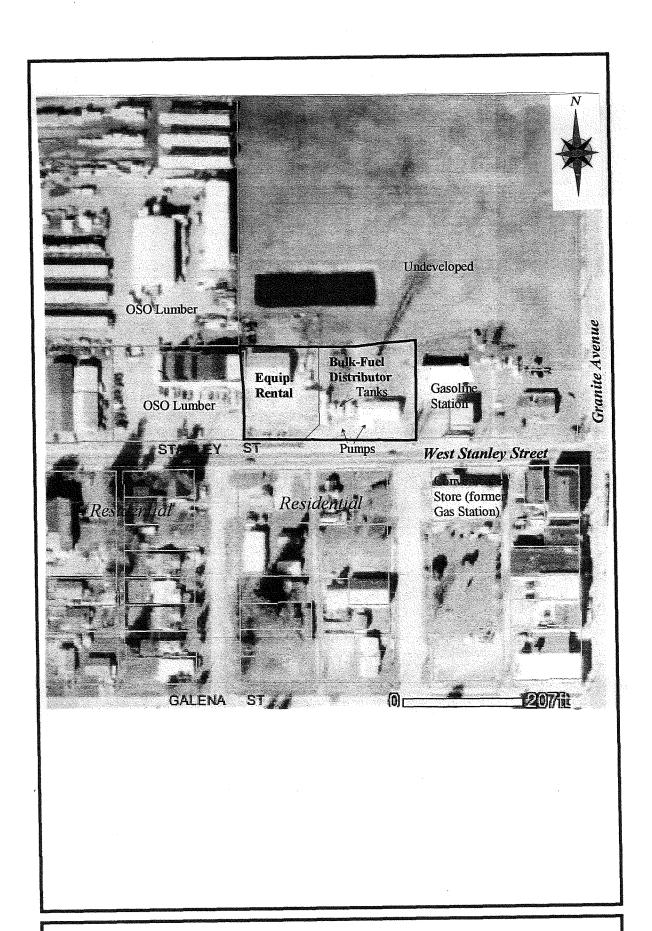
The groundwater samples collected from the borings B3, B4, and B7 all contained benzene at concentrations exceeding the MTCA method A cleanup level. According to EA's report the groundwater sample from B7, which had to be diluted by the laboratory, probably also contained gasoline range total petroleum hydrocarbons at concentrations exceeding the MTCA method A cleanup level. Diesel was detected in all seven groundwater samples. The concentrations of Diesel in the groundwater samples collected from Bl, B3, B4, B6, and B7 exceeded the MTCA method A cleanup level. The groundwater sample collected from Bl also contained Heavy Oil at a concentration which slightly exceeded the MTCA method A cleanup level.

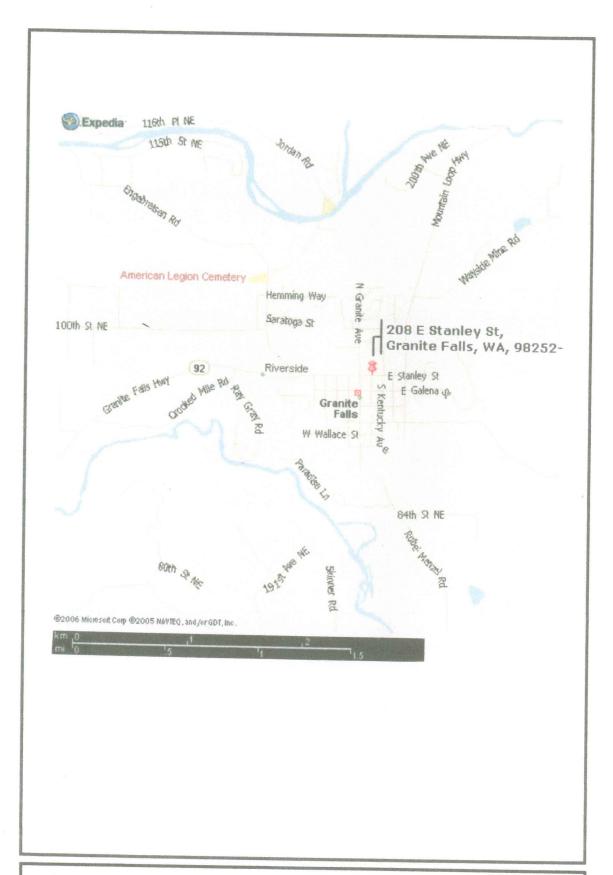
# 4.5 Subsurface Exploration and Sampling

On February 22, 2008 SD&C conducted a sub-surface investigation using Geoprobe NW of Puyallup, Washington, to conduct the borings and collect the soil and groundwater samples located as illustrated in Figures 3 and 4. The test borings were conducted under the supervision of a Washington Licensed Hydrogeologist (LHG) who prepared test boring logs and evaluated representative soil samples, and submitted selected samples for laboratory analysis. The logs for the borings are included in Appendix IV.

The number and location of the subsurface soil samples were based on the facility operations and proximity to the fueling pumps, ASTs, and the warehouse storage location at the site. The borings were conducted in the following locations:

Во	oring Number	Boring Location
•	SB-1 SB-2 SB-3	<ul><li>5 ft. South of the central gasoline pump distribution island;</li><li>10ft. East of the warehouse building, adjacent to the eastern Shell Station;</li><li>5 ft. West of the AST impoundment on the Glen's Rentals Property;</li></ul>





•	SB-4	25 ft. West on the south central portion of the Glen's Rentals Property;
•	SB-5	5 ft. Northwest of the AST impoundment on the Glen's Rentals Property;
•	SB-6	Inside the southeast corner of the AST impoundment;
•	SB-7	5 ft. South of the northeast property corner on undeveloped land (the
		boring could not be located closer to the AST impoundment because it
		was inaccessible due to black berry vines).

The soil borings (SB) conducted by SD&C were designated accordingly to differentiate from the borings numbering previously established by EA.

Soil encountered during the subsurface assessment was generally uniform in composition between the boring locations. The subsurface soil was comprised of an upper fill zone that is approximately 1 foot of gray silty, sandy, angular, crushed rock, gravel. The gravel was underlain to an approximate depth of 6 feet BGS by brown fine-to-medium grained silty sand/sandy silt with gravel. The shallow soil 3-4 feet BGS had a slight petroleum hydrocarbon odor which decreased with depth in Borings SB-1, 2, 3, and 6. The soil samples were collected from each of the borings at a shallow depth (3-4 ft.) above the groundwater surface. The subsurface soil graded into gray fine-to-coarse silty sand below 6 feet BGS where groundwater was encountered. The gray sand was interbedded with silt lenses to a depth of 16 ft. BGS where a gray very dense unsaturated Glacial Till (cemented sandy silt) was encountered. The density of Glacial Till prohibited further penetration and the maximum depth explored was to 16.5 feet in SB-3.

Groundwater samples were collected from temporary screens placed below the water level at 6 feet BGS in each of the borings. In the borings SB-1, 2 and SB-6 the groundwater had a slight petroleum hydrocarbon sheen floating on the surface.

#### 5.0 CHEMICAL ANALYSIS AND RESULTS

#### 5.1 Laboratory Analyses for Soil and Groundwater Samples

Soil and groundwater samples were submitted to Friedman Bruya, Inc. (FBI) laboratory located in Seattle, Washington for the following chemical analyses:

Soil samples were analyzed using the following methods:

• Diesel and Heavy Oil by Ecology method NWTPH-D ext. (Gasoline was not identified in the chromatograms and was therefore not analyzed).

The SB-2@4'\* Soil sample was additionally analyzed for:

- Total Lead by EPA method 7010
- Volatile Organic Compounds Dichloroethane (EDC), Dibromoethane (EDB),
   Naphthalene and MTBE using EPA Method 8260B.
- Semi-volatile Organic Compounds using EPA Method 8270C.

Groundwater samples were analyzed using the following methods:

- Gasoline by Ecology method NWTPH-Gx, and BTEX by EPA method 8020
- Diesel and Heavy Oil by Ecology method NWTPH-D ext.

The SB-6\* Groundwater sample was additionally analyzed for:

 Volatile Organic Compounds Dichloroethane (EDC), Dibromoethane (EDB), Naphthalene and MTBE using EPA Method 8260B.

Additionally, a soil sample previously collected (B7-2-3) by EA was used for age dating evaluation by FBI. The sample was selected by the laboratory because the concentrations of petroleum hydrocarbons significantly exceeded the concentrations detected during the current sampling and analysis. The boring B7 was located directly south of the southwest corner of the AST impoundment.

### 5.2 Results of Sample Analyses

Copies of original laboratory reports are included as Appendix V. Laboratory results for soil samples collected from the borings are summarized in Table 1, and the laboratory results for groundwater samples are summarized in Table 2.

The results of soil samples contained petroleum hydrocarbons as Diesel and Heavy Oil in six of the seven sampling locations (SB-1, 2, 3, 4, 5 and 6). The chromatographs did not indicate the presence of gasoline in any of the samples collected. The sample collected from SB-2 was the only sample that exceeded the MTCA method A cleanup level for Diesel or Heavy oil. The sample also contained low level concentrations of Ethyl Benzene, Xylenes, and Total Lead. The sample from SB-2 did not contain Dichloroethane (EDC), Dibromoethane (EDB), Naphthalene or MTBE. However, Naphthalene, Acenapthene, Flourene, and Phenanthrene were detected at trace levels in the SB-2 sample.

The results of groundwater samples contained petroleum hydrocarbons in three of the seven sampling locations (SB-1, 2, and 6). The samples collected from SB-2 contained Diesel and Benzene at concentrations that exceeded the MTCA method A cleanup levels. The groundwater sample collected from SB-6 contained Gasoline, Diesel, and Benzene at concentrations that exceeded the MTCA method A cleanup levels. The sample from SB-6 also contained low level concentrations of Toluene, Ethyl Benzene, and Xylenes. The SB-6 groundwater sample did not contain detectable concentrations of Dichloroethane (EDC), Dibromoethane (EDB), Naphthalene and MTBE. The groundwater sample collected from B-1 contained Gasoline and Ethyl Benzene at concentrations that slightly exceeded the laboratory method reporting limits.

The results of the age dating evaluation conducted by FBI on EA's B7-2-3 sample indicated that a probable release date of greater than 11 years from the sampling date in 2003. The data indicates the release occurred circa 1992.

#### **6.0 CONCLUSIONS**

SD&C was contracted to conduct a Phase I and II ESA at the Nelson Petroleum facility located in Granite Falls, WA. Based on the information gathered during the Phase I, the property has been leased and developed in its current configuration as a bulk fuel distributor since 1938. Prior to 1938 records indicate that the northern portion of the property was occupied by a spur and station building for the Pacific Northern Railroad. The eastern property near Stanley Street was occupied by a hardwood distribution business circa 1929. The past practices, prior to the construction of the bulk fuel facility at the property appear to have had minimal impact on the environmental conditions at the site.

The Phase I review indicated that the properties immediately surrounding the site have historically been used for commercial purposes. The current configuration of fuel distribution facilities in the vicinity of the site poses the greatest historical potential for environmental impact. Interviews with surrounding property owners indicate there have been releases at the Nelson facility and at an adjacent property located to the southeast. However, there are no regulatory documentation of the releases at any of the sites. The closest property with a reported release identified during a search of regulatory data bases is located approximately 3 blocks south and down gradient of the Nelson Facility, and does not pose a potential environmental impact to the site.

The focus of the Phase II subsurface site assessment was to collect additional data regarding petroleum hydrocarbons previously identified in subsurface soil samples collected in 2003 during a Preliminary Subsurface Exploration. EA previously conducted seven borings at the site. The results of the soil samples collected by EA exceeded the MTCA method A cleanup levels in one boring (B-7). The groundwater samples exceeded the MTCA cleanup levels in four locations (B3, 4, 6 and 7).

SD&C conducted the subsurface site assessment activities during the Phase II of the investigation which was performed on February 22, 2008. The subsurface soils encountered at the site were generally uniform and consisted of a dense sandy silt underlain at a depth of six feet by a shallow water-bearing sand, underlain by a very dense Glacial Till material at approximately 16 feet BGS. Field observation of the subsurface borings indicated that the petroleum hydrocarbons were encountered only at shallow depths in the soil and appeared to be the result of isolated surficial releases. The petroleum hydrocarbons were concentrated at a shallow depth 3-4 ft. and decreased below the groundwater level of approximately six feet below ground surface. The analysis of the soil samples did not indicate the presence of gasoline in any of the chromatographs. Diesel was the primary petroleum hydrocarbon constituent of concern in the soil and was encountered at low concentrations in the majority of the borings.

The soil sample collected from the SB-2 boring located near the property boundary between the warehouse building and the adjacent Shell Station to the east contained Diesel and Heavy Oil at concentrations that exceeded the MTCA method A cleanup levels. The source and extent of subsurface impact of the petroleum hydrocarbons to the soil in the vicinity of SB-2 is currently unknown. The concentrations encountered in the boring location significantly increased from the 2003 investigation of the site. The EA investigation indicated that the Diesel and Heavy Oil concentrations did not exceed the MTCA method A cleanup level. It is currently unknown if the

increase in concentration is the result of the boring being in a slightly different location from a past release, or if the concentration is the result of an on-going release.

The results of the soil samples previously collected by EA indicate there have been surficial releases in the vicinity of the pump island (B3) and the AST impoundment (B7). The age dating conducted by FBI on the B7-2-3 sample indicated that the probable release date was 1992. The total extent of soil impacted by petroleum hydrocarbons at the facility is currently unknown, but based on the current and past data collected from the borings the estimated volume of soil exceeding the MTCA method A cleanup levels at the site is 1,000 - 1,500 cubic yards.

The groundwater data indicated that the petroleum hydrocarbons detected also appear to be isolated and limited. The primary source areas appear to be the south and east portions of the AST impoundment (SB-6) and the east side of the warehouse (SB-2). The groundwater from SB-6 exceeded the MTCA method A cleanup level for Gasoline, Diesel and Benzene. The groundwater sample collected from the (SB-2) also exceeded the MTCA method A cleanup level for Diesel and Benzene. The groundwater from the vicinity of the south pump island contained a low level concentration of gasoline, however no Diesel was detected. None of the other sampling locations contained detectable concentrations of petroleum hydrocarbons. The groundwater concentrations decreased significantly from the samples collected by EA roughly 5 years earlier.

Based on the reduction in concentration, it appears that the groundwater naturally bio-attenuates relatively quickly. It is likely after the source of the petroleum hydrocarbons has been removed, and the impacted soil is excavated, a limited amount of water treatment from the open excavation would be successful in remediating the site. Monitoring wells would then be installed at the site to conduct long term evaluation of the groundwater quality and the success of the remedial activities. The intent of conducting the remedial activities would be to achieve a "no further action" (NFA) designation from the Ecology's Voluntary Cleanup Program (VCP). MTCA contains alternative cleanup levels that are less stringent in comparison to method A. Although the site is an industrial facility, the cleanup levels determined by a risk based (method B) calculation would likely be as stringent to method A levels because of the presence of benzene in groundwater. Once a NFA has been authorized by Ecology, a transfer of the property's ownership could then occur without environmental restrictions.

#### 7.0 LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, site location, and project indicated. The conclusions presented in this report are based on the assumption that site conditions do not deviate from those observed during our study as described in this report. Any unusual conditions that warrant environmental concern should be brought to the attention of SD&C staff, so that revisions to this report can be made. This report is not a definitive study of contamination at the site and should not be interpreted as such. No sampling or chemical analyses were performed or assessment of asbestos, PCB, or lead-containing materials was completed as part of this study.

This report is based in part, on unverified information supplied to SD&C by third-party sources. While efforts have been made to substantiate this third-party information, SD&C cannot guarantee its completeness or accuracy. SD&C's staff members participating in this environmental site assessment are hydrogeologists and engineers, and not attorneys or building inspectors. Therefore, it must be clear to all parties that this report does not offer any legal opinion, representation, or interpretation of environmental laws, rules, regulations, or policies of federal, state or local governmental agencies.

SD&C's work was performed in accordance in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

#### 8.0 REFERENCES

American Society for Testing Materials (ASTM) E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Conshohocken, Pennsylvania

Environmental Data Resources, Inc., the EDR Radius Map with GeoCheck, Southport, Connecticut, February 29, 2008.

Table 1
Laboratory Chemical Analyses Results
For Soil Samples
Nelson Petroleum Facility, Granite Falls, WA

Sample ID	Sample Date	WTPH-D	O-HALM	Benzene	Toluene	Ethyl Benzene	Xylenes	Total Lead
		(mg/kg, ppm)	(mg/kg, ppm)	(mg/kg, ppm)				
Soil Borings								
SB-1@4'	2/22/08	270	<250	N/A	N/A	N/A	N/A	N/A
SB-2 @ 4'*	2/22/08	2,600	3,200	<0.03	<0.05	0.32	0.72	3.03
SB-3 @ 4'	2/22/08	450	510	N/A	N/A	N/A	N/A	N/A
SB-4 @ 3'	2/22/08	110	<250	N/A	N/A	N/A	N/A	N/A
SB-5 @ 4'	2/22/08	240	<250	N/A	N/A	N/A	N/A	N/A
SB-6 @ 4'	2/22/08	160	<250	N/A	N/A	N/A	N/A	N/A
SB-7 @ 4'	2/22/08	<50	<250	N/A	N/A	N/A	N/A	N/A
MTCA Method A cleanup level	leanup level	2,000	2,000	0.03	7	9	6	250
Method Reporting Limit	ng Limit	50	250	0.02	0.05	0.05	0.05	1.0

Notes:

milligrams per kilogram (mg/kg) parts per million (ppm).

<1.0 = not detected at or above the method reporting limit.</p>

N/A = not analyzed

MTCA Method A cleanup levels for soil are from Washington Administrative Code (WAC) chapter 173-340 revised 2-12-01.

Soil samples were analyzed using the following methods:

- Diesel and Heavy Oil by Ecology method NWTPH-D ext. (Gasoline was not identified in the chromatograms).
  - SB-2@4'\* Soil sample was additionally analyzed for:
    - Total Lead by EPA method 7010
- Dichloroethane (EDC), Dibromoethane (EDB), Naphthalene and MTBE using EPA Method 8260B. (Napthalene was detected at 0.63 ppm all other results did not exceed the method reporting limit.
  - Acenapthene, Flourene, and Phenanthrene were also detected at low levels in B-2 @ 4' using EPA Method 8270C.

Table 2
Laboratory Chemical Analyses Results
For Groundwater Samples
Nelson Petroleum Facility, Granite Falls, WA

Sample ID	Sample Date	D-HdLM	Q-HALM	O-HdLM	Benzene	Toluene	Ethyl Benzene	Xylenes
		(ug/L, ppb)	(ug/L. ppb)					
Soil Borings								
SB-1	2/22/08	220	<310	> <560	7	▽		\$
SB-2	2/22/08	<100	570	<510	S	<1	\\_	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
SB-3	2/22/08	<100	<290	<510	\\		\ <u>\</u>	$\Diamond$
SB-4	2/22/08	<100	<310	09\$>	7	7	\	$\Diamond$
SB-5	2/22/08	<100	<310	09\$>	▽	7	7	♡
SB-6 *	2/22/08	008	2,500	09\$>	50	4	2	8
SB-7	80/27/7	<100	<290	<510	\   	\	\\_\	♡
MTCA Method A cleanup level	leanup level	800	200	200	5	1,000	700	1,000
Method Reporting Limit	ng Limit	100	50	510-560	1	1	1	3

Notes:

micrograms per liter (µg/L), parts per billion (ppb).

<1.0 = not detected at or above the method reporting limit.

N/A = not analyzed

MTCA Method A cleanup levels for groundwater are from Washington Administrative Code (WAC) chapter 173-340 revised 2-12-01. Groundwater samples were analyzed using the following methods:

- Gasoline by Ecology method NWTPH-Gx, and BTEX by EPA method 8020
  - Diesel and Heavy Oil by Ecology method NWTPH-D ext.

SB-6\* Groundwater sample was additionally analyzed for:

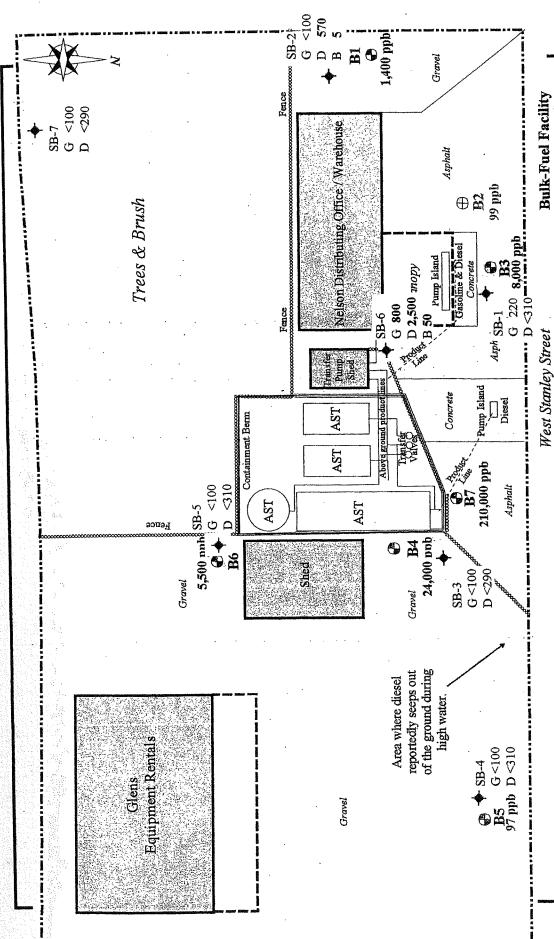
Dichloroethane (EDC), Dibromoethane (EDB), Naphthalene and MTBE using EPA Method 8260B - Results were all below the method reporting limit.

Soil Boring Location Map - Soil Analytical Data EA Associates 2003 / SD&C 2008

Figure 3

Granite Falls, Washington

201 West Stanley Street



201 West Stanley Street Granite Falls, Washington

SD&C

Boring Location Map - Groundwater Analytical Data EA Associates 2003 / SD&C 2008

Figure 4

# APPENDIX I

## LEGAL DESCRIPTION AND ASSESSOR'S PLAT MAPS

# APPENDIX II

HISTORICAL TOPOGRAPHIC MAPS, SANBORN MAPS, AND REGULATORY LISTS

## APPENDIX V

# LABORATORY DATA

#### **ENVIRONMENTAL CHEMISTS**

James E. Bruya, Ph.D. Charlene Morrow, M.S. Yelena Aravkina, M.S. Bradley T. Benson, B.S. Kurt Johnson, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044 e-mail: fbi@isomedia.com

March 18, 2008

Tim Slotta, Project Manager SD&C PO Box 2071 Kirkland, WA 98083

Dear Mr. Slotta:

Included are the results from the testing of material submitted on February 22, 2008 from the Nelson Granite Falls, F&BI 802241 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Mily Color

Michael Erdahl Project Manager

Enclosures NAA0318R.DOC

# ENVIRONMENTAL CHEMISTS

# CASE NARRATIVE

This case narrative encompasses samples received on February 22, 2008 by Friedman & Bruya, Inc. from the SD&C Nelson Granite Falls, F&BI 802241 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	SD&C
802241-01	B-1
802241-02	B-2
802241-03	B-3
802241-04	B-4
802241-05	B-5
802241-06	B-6
802241-07	B-7
802241-08	B-1@4'
802241-09	B-2@4'
802241-10	B-3@4'
802241-11	B-4@3'
802241-12	B-5@4'
802241-13	B-6@4'
802241-14	B-7@4'

 $\label{eq:locality} \textbf{All quality control requirements were acceptable}.$ 

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

Date Extracted: 02/27/08 Date Analyzed: 02/27/08

# RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Gasoline <u>Range</u>	Surrogate (% Recovery) (Limit 50-150)
B-1 802241-01	<1	<1	1	<3	220	80
B-2 802241-02	5	<1	<1	<3	<100	81
B-3 802241-03	<1	<1	<1	<3	<100	79
B-4 802241-04	<1	<1	<1	<3	<100	80
B-5 802241-05	<1	<1	<1	<3	<100	80
B-6 802241-06	50	4	2	8	800	85
B-7 802241-07	<1	<1	<1	<3	<100	81
Method Blank	<1	<1	<1	<3	<100	80

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

Date Extracted: 02/26/08 Date Analyzed: 02/26/08

# RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	$rac{ ext{Diesel Range}}{ ext{(C}_{10} ext{-C}_{25})}$	$rac{ ext{Motor Oil Range}}{ ext{(C}_{25} ext{-C}_{36} ext{)}}$	Surrogate (% Recovery) (Limit 50-150)
B-1@4' 802241-08	270	<250	90
B-2@4' 802241-09	2,600	3,200	88
B-3@4' 802241-10	450	510	90
B-4@3' 802241-11	110	<250	89
B-5@4' 802241-12	250	<250	86
B-6@4' 802241-13	<50	<250	92
B-7@4' 802241-14	<50	<250	85
Method Blank	<50	<250	83

# ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

Date Extracted: 02/28/08 Date Analyzed: 02/29/08

# RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	$rac{ ext{Diesel Range}}{ ext{(C}_{10} ext{-C}_{25})}$	$rac{ ext{Motor Oil Range}}{ ext{(C}_{25} ext{-C}_{36} ext{)}}$	Surrogate (% Recovery) (Limit 50-150)
B-1 dv 802241-01	<310	<560 m	116
B-2 dv 802241-02	570	<510 m	121
B-3 dv 802241-03	<290	<510 m	119
B-4 dv 802241-04	<310	<560 m	121
B-5 dv 802241-05	<310	<560 m	110
B-6 dv 802241-06	2,500	<560 m	122
B-7 dv 802241-07	<290	<510 m	114
Method Blank	<50	<250	86

m – The motor oil reporting limit is reported down to the method detection limit.

# ENVIRONMENTAL CHEMISTS

Client:

Project:

Lab ID:

Data File:

Operator:

Instrument:

# Analysis For Total Metals By EPA Method 200.8

Client ID:

B-2@4'

Date Received:

02/22/08 03/13/08

Date Extracted: Date Analyzed:

03/13/08

Matrix:

Soil

Units:

mg/kg (ppm)

Internal Standard: Holmium

% Recovery:

87

Lower

60

Limit:

SD&C

Nelson Granite Falls, F&BI 802241

802241-09 802241-09.041

ICPMS1

hr

Upper Limit:

125

Concentration

Analyte:

mg/kg (ppm)

Lead

3.03

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 200.8

SD&C Client: Method Blank

Nelson Granite Falls, F&BI 802241 Client ID: Project: NA Date Received: 18-086 mb Lab ID: 03/13/08

Date Extracted: I8-086 mb.030 Data File: 03/13/08 Date Analyzed: ICPMS1 Instrument: Soil Matrix: hr Operator:

mg/kg (ppm) Units: Upper Lower

Limit: Limit: % Recovery: Internal Standard: 125 60 92 Holmium

Concentration

mg/kg (ppm) Analyte:

<1 Lead

# ENVIRONMENTAL CHEMISTS

# Analysis For Volatile Compounds By EPA Method 8260B

Toluene

2-Hexanone

trans-1,3-Dichloropropene

1,1,2-Trichloroethane

1,3-Dichloropropane

Analysis For Vo.	іатне Сошр	Journas 15, 22-1		am 0 G	
Client Sample ID:	B-6		Client:	SD&C Nelson Granite Falls, F&	&BI 802241
Date Received:	02/22/08		Project:	Nelson Granite 1 uns, 2 3	
Date Extracted:	03/07/08		Lab ID:	802241-06	
Date Extracted.	03/07/08		Data File:	030720.D	
Date Analyzed:	Water		Instrument:	GCMS4	
Matrix:	ug/L (ppb)		Operator:	MB	
Units:	ng/Li (ppo)		Lower	Upper	
			Limit:	Limit:	
Surrogates:		% Recovery:	57	121	
Dibromofluoromet	hane	96		118	
1,2-Dichloroethane	e-d4	105	58	117	
Toluene-d8		100	59 45	141	
4-Bromofluoroben	zene	105	45	***	
4-DIOMORIGOTOR		Concentration			Concentration
			Compo	unds:	ug/L (ppb)
Compounds:		ug/L (ppb)			<1
- 1' M	athono	<1	Tetracl	hloroethene	<1
Dichlorodifluoron	петпапе	<1	Dibron	nochloromethane	<1
Chloromethane		< 0.2	1,2-Dib	promoethane (EDB)	<1
Vinyl chloride		<1		benzene	1.5
Bromomethane		<1	Ethylb	enzene	1.5 <1
Chloroethane	. 3	<1	1,1,1,2	-Tetrachloroethane	<del>-</del>
Trichlorofluorom	ethane	<10	m,p-Xy	ylene	4.5 $1.1$
Acetone		<1	o-Xyle	ne	1.1 <1
1,1-Dichloroethe	ne	< <sub>5</sub>	Styrer	ne	3.7
Methylene chlori	.de	<1	Isopro	pylbenzene	• • •
trans-1,2-Dichlor	coethene	<1	Bromo	oform	<1 4.8
1,1-Dichloroetha	ne	<1	n-Proj	pylbenzene	
2,2-Dichloroprop	ane	<1	Brome	obenzene	<1 8.2
cis-1,2-Dichloroe	thene	<1	1,3,5-	Trimethylbenzene	
Chloroform	w	<10	1,1,2,	2-Tetrachloroethane	<1
2-Butanone (ME	K)	<10	1,2,3-	Trichloropropane	<1
1,2-Dichloroetha	ine (EDC)	<1	2-Chl	orotoluene	<1
1,1,1-Trichloroe	thane	<1	4-Chl	orotoluene	<1
1,1-Dichloroprop	ene	<1	tert-I	Butylbenzene	<1
Carbon Tetrach	loride	54	1,2,4	-Trimethylbenzene	20
Benzene		<1	sec-B	Butylbenzene	2.1
Trichloroethene	•	<1	osI-a	propyltoluene	2.5
1,2-Dichloropro	pane	<1	1.3-D	dichlorobenzene	<1
Bromodichloron	nethane	<1	1.4-E	)ichlorobenzene	<1
Dibromometha	ne	<10	1 2-T	dichlorobenzene	<1
4-Methyl-2-pen	tanone	<10 <1	1.2-I	Oibromo-3-chloropropane	<1
cis-1,3-Dichloro	propene	<del>-</del>	1 2 4	4-Trichlorobenzene	<1
Toluene		1.3	Hex:	achlorobutadiene	<1

<1

<1

<10

<1

Hexachlorobutadiene

1,2,3-Trichlorobenzene

Naphthalene

25

<1

# ENVIRONMENTAL CHEMISTS

# Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Blank Not Applicable 03/07/08 03/07/08 Water	Client: Project: Lab ID: Data File: Instrument:	SD&C Nelson Granite Falls, F&BI 802241 080327 mb 030719.D GCMS4
Units:	ug/L (ppb)	Operator:	MB

		Lower	Upper
Surrogates:	% Recovery:	Limit:	Limit:
Dibromofluoromethane	98	57	121
1,2-Dichloroethane-d4	107	58	118
Toluene-d8	102	59	117
4-Bromofluorobenzene	107	45	141

	Concentration		Concentration
Compounds:	ug/L (ppb)	Compounds:	ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	< 0.2	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	${f sec} ext{-}{f Butylbenzene}$	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Volatile Compounds By EPA Method 8260B

Analysis For Vo	lattic comp	Client:	SD&C
Client Sample ID:	B-2@4'	Project:	Nelson Granite Falls, F&BI 802241
Offerio Dam-base	00/00/09	I Tojeco.	222211 00

02/22/08 802241-09 Date Received: Lab ID: 03/07/08 030717.D Date Extracted: Data File: 03/07/08 Date Analyzed: GCMS5 Instrument:

Soil MBMatrix: Operator: mg/kg (ppm) Units:

Units: mg/kg (ppm)  Lower  Limit:  Surrogates: 100 32  Dibromofluoromethane 103 35  1,2-Dichloroethane-d4 97 35  Toluene-d8 108 15	Upper Limit: 147 150 149 196
--	---

Toluene-d8	31	15	196	
4-Bromofluorobenzene	108			Concentration
	Concentration	ada:		mg/kg (ppm)
Compounds: Dichlorodifluoromethane	mg/kg (ppm) <0.5 <0.05	Compounds: Tetrachloroe Dibromochlo	romethane	<0.025 <0.05 <0.05
Chlorom ethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane Acetone 1,1-Dichloroethene Methylene chloride trans-1,2-Dichloroethene 1,1-Dichloroethane 2,2-Dichloropropane cis-1,2-Dichloroethene Chloroform 2-Butanone (MEK) 1,2-Dichloroethane (EDC) 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon Tetrachloride Benzene	<0.05 <0.05 <0.5 <0.5 <0.5 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05	1,2-Dibromoe Chlorobenze Ethylbenzen 1,1,1,2-Tetra m,p-Xylene o-Xylene Styrene Isopropylbe Bromoform n-Propylber Bromobenz 1,3,5-Trime 1,1,2,2-Tetr 1,2,3-Trich 2-Chlorotol 4-Chloroto tert-Butylb 1,2,4-Trim sec-Butylb	ethane (EDB) ne nzene nzene ethylbenzene rachloroethane loropropane luene nluene nethylbenzene nethylbenzene	<ul> <li>&lt;0.05</li> <li>&lt;0.05</li> <li>0.32</li> <li>&lt;0.05</li> <li>0.72</li> <li>&lt;0.05</li> <li>&lt;0.05</li> <li>&lt;0.22</li> <li>&lt;0.05</li> <l></l></ul>
Trichloroethene 1,2-Dichloropropane Bromodichloromethane Dibromomethane 4-Methyl-2-pentanone cis-1,3-Dichloropropene Toluene trans-1,3-Dichloropropene 1,1,2-Trichloroethane 2-Hexanone 1,3-Dichloropropane	<0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05	p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	<0.05 <0.05 <0.05	

# ENVIRONMENTAL CHEMISTS

# Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 03/07/08 03/07/08 Soil mg/kg (ppm)	Client: Project: Lab ID: Data File: Instrument: Operator:	SD&C Nelson Granite Falls, F&BI 802241 080328 mb 030716.D GCMS5 MB
Surrogates:	% Recovery:	Lower Limit:	Upper Limit:

Concentration

Surrogates:	% Recovery:	Limit:	Limit:
Dibromofluoromethane	95	32	147
1,2-Dichloroethane-d4	97	35	150
Toluene-d8	93	35	149
4-Bromofluorobenzene	107	15	196
	Concentration	Compounds:	
Compounds:	mg/kg (ppm)	Compounds.	
D'.ll differenemethane	< 0.5	Tetrachloroethene	

<b>a</b> 1	Concentration mg/kg (ppm)	Compounds:	mg/kg (ppm)
Compounds:	mg/kg (ppm)	_	•
Dichlorodifluoromethane	< 0.5	Tetrachloroethene	< 0.025
Chloromethane	< 0.05	Dibromochloromethane	< 0.05
Vinyl chloride	< 0.05	1,2-Dibromoethane (EDB)	< 0.05
Bromomethane	< 0.5	Chlorobenzene	< 0.05
Chloroethane	< 0.5	Ethylbenzene	< 0.05
Trichlorofluoromethane	< 0.5	1,1,1,2-Tetrachloroethane	< 0.05
Acetone	< 0.5	m,p-Xylene	< 0.1
1,1-Dichloroethene	< 0.05	o-Xylene	< 0.05
Methylene chloride	< 0.5	Styrene	< 0.05
trans-1,2-Dichloroethene	< 0.05	Isopropylbenzene	< 0.05
1,1-Dichloroethane	< 0.05	${f Bromoform}$	< 0.05
2,2-Dichloropropane	< 0.05	${f n} ext{-}{f Propylbenzene}$	< 0.05
cis-1,2-Dichloroethene	< 0.05	Bromobenzene	< 0.05
Chloroform	< 0.05	1,3,5-Trimethylbenzene	< 0.05
2-Butanone (MEK)	< 0.5	1,1,2,2-Tetrachloroethane	< 0.05
1,2-Dichloroethane (EDC)	< 0.05	1,2,3-Trichloropropane	< 0.05
1,1,1-Trichloroethane	< 0.05	2-Chlorotoluene	< 0.05
1,1-Dichloropropene	< 0.05	4-Chlorotoluene	< 0.05
Carbon Tetrachloride	< 0.05	tert-Butylbenzene	< 0.05
Benzene	< 0.03	1,2,4-Trimethylbenzene	< 0.05
Trichloroethene	< 0.03	sec-Butylbenzene	< 0.05
1,2-Dichloropropane	< 0.05	p-Isopropyltoluene	< 0.05
Bromodichloromethane	< 0.05	1,3-Dichlorobenzene	< 0.05
Dibromomethane	< 0.05	1,4-Dichlorobenzene	< 0.05
4-Methyl-2-pentanone	< 0.5	1,2-Dichlorobenzene	< 0.05
cis-1,3-Dichloropropene	< 0.05	1,2-Dibromo-3-chloropropane	< 0.05
Toluene	< 0.05	1,2,4-Trichlorobenzene	<0.1
trans-1,3-Dichloropropene	< 0.05	Hexachlorobutadiene	< 0.1
1,1,2-Trichloroethane	< 0.05	Naphthalene	< 0.05
2-Hexanone	< 0.5	1,2,3-Trichlorobenzene	< 0.1
1,3-Dichloropropane	< 0.05		
-,			

#### **ENVIRONMENTAL CHEMISTS**

# Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID: B-2@4' Date Received: 02/22/08 02/28/08 Date Extracted: 02/28/08 Date Analyzed: Matrix: Soil

mg/kg (ppm) Units:

SD&C Client:

Nelson Granite Falls, F&BI 802241 Project:

Lab ID: 802241-09 1/5 Data File: 022822.D Instrument: GCMS6 YA Operator:

		Lower	Upper
Surrogates:	% Recovery:	Limit:	Limit:
Anthracene d10	159 vo	50	150
Benzo(a)anthracene-d12	115	35	159

Compounds:	Concentration mg/kg (ppm)
compounds.	·
Naphthalene	$0.45 \mathrm{\ js}$
Acenaphthylene	< 0.01
Acenaphthene	$0.16 \mathrm{\ js}$
Fluorene	0.32  js
Phenanthrene	$0.40 \mathrm{\ js}$
Anthracene	< 0.01
Fluoranthene	$0.029 \mathrm{\ js}$
Pyrene	$0.049 \mathrm{\ js}$
Benz(a)anthracene	< 0.01
Chrysene	0.018
Benzo(a)pyrene	<0.01 J
Benzo(b)fluoranthene	<0.01 J
Benzo(k)fluoranthene	<0.01 J
Indeno(1,2,3-cd)pyrene	<0.01 J
Dibenz(a,h)anthracene	<0.01 J
Benzo(g,h,i)perylene	<0.01 J

#### **ENVIRONMENTAL CHEMISTS**

#### Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Client Sample ID:	B-2@4'
Date Received:	02/22/08
Date Extracted:	02/28/08
Date Analyzed:	02/29/08
Matrix:	Soil
Units:	mg/kg (ppm)

Client: SD&C Project: Nelson Lab ID: 802241

Nelson Granite Falls, F&BI 802241

Lab ID: 802241-09 1/50
Data File: 022912.D
Instrument: GCMS6
Operator: YA

		$\operatorname{Lower}$	$_{ m Upper}$
Surrogates:	% Recovery:	Limit:	Limit:
Anthracene d10	$259  \mathrm{ds}$	50	150
Benzo(a)anthracene-d12	128	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.49
Acenaphthylene	< 0.1
Acenaphthene	0.15
Fluorene	0.35
Phenanthrene	0.38
Anthracene	< 0.1
Fluoranthene	< 0.1
Pyrene	< 0.1
Benz(a)anthracene	< 0.1
Chrysene	< 0.1
Benzo(a)pyrene	< 0.1
Benzo(b)fluoranthene	< 0.1
Benzo(k)fluoranthene	< 0.1
Indeno(1,2,3-cd)pyrene	< 0.1
Dibenz(a,h)anthracene	< 0.1
Benzo(g,h,i)perylene	<0.1

#### ENVIRONMENTAL CHEMISTS

## Analysis For Semivolatile Compounds By EPA Method 8270C SIM

Method Blank Client Sample ID: Not Applicable Date Received: 02/28/08 Date Extracted: 02/28/08 Date Analyzed: Soil Matrix: Units:

mg/kg (ppm)

SD&C Client:

Nelson Granite Falls, F&BI 802241 Project: 08293mb 1/5 Lab ID:

022815.D Data File: GCMS6 Instrument: YΑ Operator:

		Lower	$\operatorname{Upper}$
Ctom	% Recovery:	Limit:	Limit:
Surrogates: Anthracene d10 Benzo(a)anthracene-d12	148 117	50 35	150 159
Denzo(a)anoma and			

20	
	Concentration
Compounds:	mg/kg (ppm)
Naphthalene	< 0.01
Acenaphthylene	< 0.01
Acenaphthene	< 0.01
Fluorene	< 0.01
Phenanthrene	< 0.01
Anthracene	< 0.01
Fluoranthene	< 0.01
	< 0.01
Pyrene	< 0.01
Benz(a)anthracene	< 0.01
Chrysene	< 0.01
Benzo(a)pyrene	
Benzo(b)fluoranthene	< 0.01
Benzo(k)fluoranthene	< 0.01
Indeno(1,2,3-cd)pyrene	< 0.01
Dibenz(a,h)anthracene	< 0.01
Benzo(g,h,i)perylene	< 0.01

## ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 802253-03 (Duplicate)

Laboratory Code:	802253-03 (Duplicat	te)		Relative Percent Difference
	Reporting Units	Sample Result	Duplicate Result	(Limit 20)
Analyte		<1	<1	nm
Benzene	ug/L (ppb)	<1	<1	$\mathbf{nm}$
Toluene	ug/L (ppb)	<1 <1	<1	$\mathbf{nm}$
Ethylbenzene	ug/L (ppb)	<3	<3	$\mathbf{nm}$
Xylenes Gasoline	ug/L (ppb) ug/L (ppb)	<100	<100	nm

Laboratory Code: La	boratory Contro	1 Sample	Percent	
	Reporting Units	Spike Level	Recovery LCS	Acceptance Criteria
Analyte Benzene Toluene Ethylbenzene Xylenes Gasoline	ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb) ug/L (ppb)	50 50 50 150 1,000	91 89 85 88 91	70-130 70-130 70-130 70-130 70-130

## ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

## QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	802256-04 (Matrix S <sub>I</sub>	pike)	Sample	Percent	Percent Recovery	Acceptance	RPD
Analyte Diesel Extended	Units	Spike Level 5,000	Result (Wet wt) <50	Recovery MS 95	MSD 99	Criteria 50-150	(Limit 20) 4

Laboratory Code: L	aporatory Contro	1	Percent	
	Reporting	Spike Level	Recovery LCS	Acceptance Criteria
Analyte	Units	5,000	93	70-130
Diesel Extended	mg/kg (ppm)	9,000		

## ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code:	Laboratory Control	Sample	Percent	Percent		RPD
	Reporting Units	Spike Level	Recovery LCS	Recovery LCSD	Acceptance Criteria	(Limit 20)
Analyte Diesel Extended	7 ( 1)	2,500	114	107	70-130	б

## ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 803112-03 (Duplicate)

Laboratory Code	: 803112-03 (Duplica	te)		Relative	Acceptance
		Sample	Duplicate Result	Percent Difference	Criteria
Analyte Lead	Reporting Units mg/kg (ppm)	77.7	88.3	13	0-20

Laboratory Code: 803112-03 (Matrix Spike)

Laboratory Code:	803112-03 (Matrix	Spike)		Percent	
	Reporting Units mg/kg (ppm)	Spike	Sample Result 77.7	Recovery MS 99 b	Acceptance Criteria 50-150

Laboratory Code: 1	Laboratory Control	Bampic	Percent	
		Spike	Recovery LCS	Acceptance Criteria
Analyte Lead	Reporting Units mg/kg (ppm)	Level 50	100	70-130

## ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260B

aboratory Code: 803051-01	(Duplicate)	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)					
	Reporting	Sample Result	_	nm					
	Units	<1	<1	nm					
nalyte	ug/L (ppb)	<1	<1	nm					
dichlorodifluoromethane	ug/L (ppb)	<0.2	<0.2	nm					
hloromethane	ug/L (ppb)	<1	<1	nm					
inyl chloride	ug/L (ppb)	<1	<1	nm					
Bromomethane	ug/L (ppb)	<1	<1	nm					
Chloroethane	ug/L (ppb)	<10	<10	nm					
richlorofluoromethane	ug/L (ppb)	<1	<1	nm					
Acetone	ug/L (ppb)	<5	<5	nm					
1,1-Dichloroethene	ug/L (ppb)	<1	<1	nm					
Methylene chloride trans-1,2-Dichloroethene	ug/L (ppb) ug/L (ppb)	<1	<1	nm					
1,1-Dichloroethane	ag(L (ppb)	<1	<1	nm					
1,1-Dichlorogenane 2,2-Dichloropropane	ug/L (ppb) ug/L (ppb)	<1	<1	nm					
2,2-Dichloropropane cis-1,2-Dichloroethene	ug/L (ppb)	<1	<1	nm					
Chloroform		<10	<10	nm					
Chlorotot in	ug/L (ppb)	<1	. <1	nm					
2-Butanone (MEK) 1,2-Dichloroethane (EDC)	ug/L (ppb) ug/L (ppb)	<1	<1 <1	nm					
1,1,1-Trichloroethane	ug/L (ppb)	<1	<1 <1	nm					
1,1-Dichloropropene	ug/L (ppb)	<1	<1 <1	nm					
Carbon Tetrachloride	ug/L (ppb)	<1	<1	nm					
Benzene	ug/L (ppb)	<1	<1 <1	nm					
Trichloroethene	ug/L (ppb)	<1	<1	nm					
1,2-Dichloropropane	ug/L (ppb)	<1	<1	nm					
Bromodichloromethane	ug/L (ppb)	<1	<10	nm					
Dibromomethane	ug/L (ppb)	<10	<1	$\mathbf{nm}$					
4 Mothyl -2-pentanone	ug/L (ppb)	<1	<1	nm					
cis-1,3-Dichloropropene	ug/L (ppb)	<1	<1	nm					
Toluene	ug/L (ppb)	<1	<1	nm					
trope-1 3-Dichloropropene	ug/L (ppb)	<1	<10	nm					
1,1,2-Trichloroethane	ug/L (ppb)	<10	<1	nm					
2-Hexanone	ug/L (ppb)	<1	<1	nm					
1,3-Dichloropropane	ug/L (ppb)	<1	<1	nm					
Tetrachloroethene	ug/L (ppb)	<1	<1	nm					
D:L-omochloromethane	ug/L (ppb)	<1	<1	nm					
1,2-Dibromoethane (EDB)	ug/L (ppb)	<1	<1	nm					
Chlorobenzene	ug/L (ppb)	<1	<1	nm					
Tul-lhonzone	ug/L (ppb)	<1 <2	<2	nm					
1 1 1 2-Tetrachloroethane	ug/L (ppb)	_	<1	nm					
m,p-Xylene	ug/L (ppb)	<1	<1	nm					
o-Xylene	ug/L (ppb)	<1	<1	nm					
Styrene	ug/L (ppb)	<1 <1	<1	nm nm					
Isopropylbenzene	ug/L (ppb)		<1						
Bromoform	ug/L (ppb)	<1 <1	<1	nm nm					
n-Propylbenzene	ug/L (ppb)	<1	<1	nm nm					
Bromobenzene	ug/L (ppb)	<1	<1	nm					
a r m-i-mothylbenzene	ug/L (ppb)	<1	<1	nm					
1,1,2,2-Tetrachloroethane	ug/L (ppb)	<1	<1	nm nm					
123-Trichloropropane	ug/L (ppb)	<1	<1	nm					
2-Chlorotoluene	ug/L (ppb)	<1	<1	nm					
4-Chlorotoluene	ug/L (ppb)	<1	<1	nm					
tert-Butylbenzene	ug/L (ppb)	<1	<1	nm					
1,2,4-Trimethylbenzene	ug/L (ppb)	<1	<1	nm					
sec-Butylbenzene	ug/L (ppb)	<1	<1	nm					
p-Isopropyltoluene	ug/L (ppb)	<1	<1	nm					
1,3-Dichlorobenzene	ug/L (ppb)	<1	<1	nm					
1,4-Dichlorobenzene	ug/L (ppb)	<1	<1	nm					
1,2-Dichlorobenzene	ug/L (ppb)	<1	<1	nm					
1,2-Dibromo-3-chloropropane	ug/L (ppb)	<1	<1	nm					
1,2,4-Trichlorobenzene	ug/L (ppb)	<1	<1	nm					
Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	ug/L (ppb) ug/L (ppb)	<1	<1						

## ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

# QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: 803051-02 (Matrix Spike)

Result  <1 <0.2 <1 <1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	MS  88  144  125  96  175 ip  145  130  111  108  109  92  110  112  104  112  105  107  119  93  106  102  113  115  116	27-155 30.167 36-166 47-169 46-160 48-158 31-182 69-118 68-126 72-129 70-128 60-136 71-127 66-132 64-129 69-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141 58-134
<1 <0.2 <1 <0.2 <1 <1 <1 <1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	144 125 96 175 ip 145 130 111 108 108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	36-166 47-169 48-158 48-158 31-182 69-118 68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<0.2 <1 <1 <10 <1 <5 <1 <1 <1 <1 <1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	96 175 ip 145 130 111 108 108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	47-169 46-160 48-158 31-182 69-118 68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	175 ip 145 130 111 108 108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	46-160 48-158 31-182 69-118 68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <10 <10 <1 <5 <1 <1 <1 <1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	145 130 111 108 108 108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	48-158 31-182 69-118 68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <10 <1 <5 <1 <1 <1 <1 <1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	130 111 108 108 109 92 110 112 104 112 105 115 107 119 93 106 102 113 115 116	31-182 69-118 68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<10 <1 <1 <5 <1 <1 <1 <1 8.1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	130 111 108 108 109 92 110 112 104 112 105 115 107 119 93 106 102 113 115 116	69-118 68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <5 <1 <1 <1 <1 8.1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	108 108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	68-126 72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<5 <1 <1 <1 <1 <1 8.1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	108 108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	72-129 70-128 60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	108 109 92 110 112 104 112 115 107 119 93 106 102 113 115 116	70-128 60-136 71-127 65-132 64-129 69-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <1 <1 8.1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	109 92 110 112 104 112 115 107 119 93 106 102 113 115	60-136 71-127 65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <1 8.1 <10 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	92 110 112 104 112 115 107 119 93 106 102 113 115 116	71-127 66-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 8.1   <10   <1   <1   <1   <1   <1   <1	110 112 104 112 115 107 119 93 106 102 113 115 116	65-132 64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
8.1 <10 <1 <1 <1 <1 110 <1 8.1 <1 <1 <10	112 104 112 115 107 119 93 106 102 113 115	64-129 69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<10 <1 <1 <1 <1 <1 <1 100 <1 8.1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	104 112 115 107 119 93 106 102 113 115 116	69-133 62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <1 <1 <1 110 <1 8.1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	112 115 107 119 93 106 102 113 115	62-133 71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 <1 110 <1 8.1 <1 <1	115 107 119 93 106 102 113 115	71-124 62-134 77-117 79-118 79-119 60-136 66-141
<1 <1 110 <1 8.1 <1 <1	107 119 93 106 102 113 115 116	62-134 77-117 79-118 79-119 60-136 66-141
<1 110 <1 8.1 <1 <1 <10	119 93 106 102 113 115	77-117 79-118 79-119 60-136 66-141
110 <1 8.1 <1 <1 <10	93 106 102 113 115	79-118 79-119 60-136 66-141
<1 8.1 <1 <1 <10	106 102 113 115 116	79-119 60-136 66-141
8.1 <1 <1 <10	102 113 115 116	60-136 66-141
<1 <1 <10	113 115 116	66-141
<1 <10	115 116	
<10	116	
		58- L14
		75-127
	107	77-118
<1	96	75-128
<1	109	68-131
<1	99	54-142
<10	110	71-128
<1	100	77-121
<1	102	71-121
<1	112	69-134
<1	102	78-118
<1	102	78-110
	98	
	104	78-124
	95	76-121 71-125
	99	
	100	74-125
	103	71-125
		65-142
-		68-127
		78-116
_		74-121
		51-154
		53-156
		66-12
		65-13
		69-12
		68-12
		68-12
		70-12
		72-1
		69-1
\ <1		69-1
n <1		32-1
		76-1
		68-1
U		47-1
		70-
0 <1	97	10-
0 <1 15		
0 <1 15		
	21 31 31 31 31 31 31 31 31 31 3	18 104 <1 95 5.1 95 3.3 99 <1 100 2.5 103 <1 105 4.8 103 <1 102 <1 100 <1 100 <1 100 <1 101 <1 101 <1 101 <1 100 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 98 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100 <1 100

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260B

	Reporting	Spike	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	88	90	31-145	2
Chloromethane	ug/L (ppb)	50	118	105	22-155	12
Vinyl chloride	ug/L (ppb)	50 50	107 85	101	33-158	6 5
Bromomethane Chloroethane	ug/L (ppb) ug/L (ppb)	50 50	112	81 115	26-174 35-157	3
Trichlorofluoromethane	ug/L (ppb)	50	100	95	49-153	5
Acetone	ug/L (ppb)	50	105	107	38-171	2
1,1-Dichloroethene	ug/L (ppb)	50	104	101	55-139	3
Methylene chloride	ug/L (ppb)	50	99	96	52-129	3
trans-1,2-Dichloroethene 1.1-Dichloroethane	ug/L (ppb)	50 50	99 99	107 106	73-120	8 7
2,2-Dichloropropane	ug/L (ppb) ug/L (ppb)	50 50	100	100	75-118 68-128	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	109	78-119	7
Chloroform	ug/L (ppb)	50	100	104	78-120	4
2-Butanone (MEK)	ug/L (ppb)	50	100	98	61-139	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	100	103	74-129	3
1,1,1-Trichloroethane	ug/L (ppb)	50	102	106	68-130	4
1,I-Dichloropropene Carbon Tetrachloride	ug/L (ppb)	50 50	101 106	104 107	74- 123 67- 131	3 1
Benzene	ug/L (ppb) ug/L (ppb)	50 50	106 99	107	67-131 76-115	3
Trichloroethene	ug/L (ppb)	50	99	102	76-118	3
1,2-Dichloropropane	ug/L (ppb)	50	101	103	74-119	2
Bromodichloromethane	ug/L (ppb)	50	102	106	78-122	4
Dibromomethane	ug/L (ppb)	50	106	112	80-119	6
4-Methyl-2-pentanone	ug/L (ppb)	50	112	111	56-134	1
cis-1,3-Dichloropropene Toluene	ug/L (ppb) ug/L (ppb)	50 50	106 98	110 98	77-122 77-115	4 0
trans-1,3-Dichloropropene	ug/L (ppb) ug/L (ppb)	50	110	36 111	78-128	1
1,1,2-Trichloroethane	ug/L (ppb)	50	101	102	82-116	1
2-Hexanone	ug/L (ppb)	50	116	113	58-144	3
1,3-Dichloropropane	ug/L (ppb)	50	102	102	80-118	0
Tetrachloroethene	ug/L (ppb)	50	101	101	79-119	0
Dibromochloromethane	ug/L (ppb)	50	107	109	86-122	2
1,2-Dibromoethane (EDB) Chlorobenzene	ug/L (ppb) ug/L (ppb)	50 50	105 101	106 102	84-116 81-110	1 1
Ethylbenzene	ug/L (ppb) ug/L (ppb)	50 50	97	97	80-113	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	101	102	81-119	1
m,p-Xylene	ug/L (ppb)	100	97	96	80-111	1
o-Xylene	ug/L (ppb)	50	99	99	79-110	0
Styrene	ug/L (ppb)	50	101	101	79-111	0
Isopropylbenzene Bromoform	ug/L (ppb)	50 50	103 109	101 109	76-115 80-131	2
n-Propylbenzene	ug/L (ppb) ug/L (ppb)	50 50	98	104	74-119	6
Bromobenzene	ug/L (ppb)	50 50	96	105	80-116	9
1,3,5-Trimethylbenzene	ug/L (ppb)	50	98	101	75-115	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	92	98	78-118	6
1,2,3-Trichloropropane	ug/L (ppb)	50	94	100	76-124	6
2-Chlorotoluene	ug/L (ppb)	50	91	98	77-115	7
4-Chlorotoluene tert-Butvlbenzene	ug/L (ppb)	50 50	94 99	99 100	77-116 76-113	5 1
1,2,4-Trimethylbenzene	ug/L (ppb) ug/L (ppb)	50 50	96	100	75-115 75-115	4
sec-Butylbenzene	ug/L (ppb)	50	99	100	74-116	1
p-Isopropyltoluene	ug/L (ppb)	50	100	101	75-117	ī
1,3-Dichlorobenzene	ug/L (ppb)	50	94	96	81-111	2
1,4-Dichlorobenzene	ug/L (ppb)	50	98	102	81-110	4
1,2-Dichlorobenzene	ug/L (ppb)	50	99	100	81-111	1
1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene	ug/L (ppb)	50 50	106	104 111	72-137 74-131	2 2
Hexachlorobutadiene	ug/L (ppb) ug/L (ppb)	50 50	113 104	96	74-131 64-138	2 8
Naphthalene	ug/L (ppb)	50 50	114	112	74-131	2
1,2,3-Trichlorobenzene	ug/L (ppb)	50	110	108	73-134	2

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: 803063-05 (Duplicate)

	plicate)	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)				
Analyte	Units		<0.05	nm				
Dichlorodifluoromethane	mg/kg (ppm)	<0.05 <0.05	<0.05	nm.				
Chloromethane	mg/kg (ppm)	<0.05	<0.05	nm				
Vinyl chloride	mg/kg (ppm)	<0.05 <0.5	<0.5	nm				
Bromomethane	mg/kg (ppm)	<0.5 <0.5	<0.5	nm				
Chloroethane	mg/kg (ppm)		<0.5	nm				
Trichlorofluoromethane	mg/kg (ppm)	<0.5	<0.5	nm				
Acetone	mg/kg (ppm)	<0.5	<0.05	nm				
1.1-Dichloroethene	mg/kg (ppm)	<0.05	<0.5	nm				
Methylene chloride	mg/kg (ppm)	<0.5	<0.05	nm				
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm				
1.1-Dichloroethane	mg/kg (ppm)	<0.05	<0.05	nm				
2.2-Dichloropropane	mg/kg (ppm)	< 0.05	<0.05	nm				
cis-1,2-Dichloroethene	mg/kg (ppm)	< 0.05	<0.05 <0.05	nm				
	mg/kg (ppm)	<0.05		nm				
Chloroform	mg/kg (ppm)	<0.5	<0.5	nm				
2-Butanone (MEK)	mg/kg (ppm)	<0.05	<0.05	nm				
1,2-Dichloroethane (EDC)	mg/kg (ppm)	< 0.05	<0.05	nm				
1,1,1-Trichloroethane	mg/kg (ppm)	< 0.05	<0.05	nm				
1,1-Dichloropropene	mg/kg (ppm)	< 0.05	<0.05	nm				
Carbon Tetrachloride	mg/kg (ppm)	< 0.03	<0.03					
Benzene	mg/kg (ppm)	< 0.03	<0.03	nm				
Trichloroethene	mg/kg (ppm)	< 0.05	<0.05	nm nm				
1,2-Dichloropropane	mg/kg (ppm)	<0.05	< 0.05					
Bromodichloromethane	mg/kg (ppm)	< 0.05	<0.05	nm				
Dibromomethane	mg/kg (ppm)	<0.5	<0.5	nm				
4-Methyl-2-pentanone	mg/kg (ppm)	< 0.05	< 0.05	nm				
cis-1,3-Dichloropropene	mg/kg (ppm)	< 0.05	< 0.05	nm				
Toluene	mg/kg (ppm)	< 0.05	< 0.05	nm				
trans-1,3-Dichloropropene	mg/kg (ppm)	< 0.05	< 0.05	nm				
1,1,2-Trichloroethane	mg/kg (ppm)	< 0.5	<0.5	nm				
2-Hexanone	mg/kg (ppm)	< 0.05	< 0.05	nm				
1.3-Dichloropropane	mg/kg (ppm) mg/kg (ppm)	<0.025	<0.025	nm				
Tetrachloroethene		<0.05	< 0.05	nm				
Dibromochloromethane	mg/kg (ppm)	<0.05	< 0.05	nm				
1.2-Dibromoethane (EDB)	mg/kg (ppm)	<0.05	< 0.05	nm				
Chlorobenzene	mg/kg (ppm)	<0.05	< 0.05	nm				
Ethylbenzene	mg/kg (ppm)	<0.05	< 0.05	nm				
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.1	<0.1	nm				
m,p-Xylene	mg/kg (ppm)	<0.05	< 0.05	nm				
o-Xylene	mg/kg (ppm)	<0.05	<0.05	nm				
Styrene	mg/kg (ppm)	<0.05 <0.05	<0.05	nm				
Isopropylbenzene	mg/kg (ppm)	< 0.05	<0.05	nm				
Bromoform	mg/kg (ppm)	<0.05	<0.05	nm				
n-Propylbenzene	mg/kg (ppm)	<0.05	<0.05	nm				
Bromobenzene	mg/kg (ppm)	<0.05 <0.05	<0.05	nm				
1,3,5-Trimethylbenzene	mg/kg (ppm)		<0.05	nm				
1.1.2.2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm				
1,2,3-Trichloropropane	mg/kg (ppm)	<0.05 <0.05	<0.05	nm				
2-Chiorotoluene	mg/kg (ppm)		<0.05	nm				
4-Chlorotoluene	mg/kg (ppm)	<0.05	< 0.05	nm				
tert-Butvlbenzene	mg/kg (ppm)	<0.05	<0.05	nm				
1.2,4-Trimethylbenzene	mg/kg (ppm)	<0.05	<0.05	nm				
sec-Butvlbenzene	mg/kg (ppm)	<0.05	<0.05 <0.05	nm				
p-Isopropyltoluene	mg/kg (ppm)	< 0.05	<0.05 <0.05	nm				
	mg/kg (ppm)	<0.05		nm				
	mg/kg (ppm)	<0.05	<0.05	nm				
1,3-Dichlorobenzene		< 0.05	<0.05	nm				
1,3-Dichlorobenzene 1,4-Dichlorobenzene	mg/kg (ppm)		< 0.05	TITE .				
1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	mg/kg (ppm) mg/kg (ppm)	< 0.05		****				
1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.1	<0.1	nm				
1.3-Dichlorobenzene 1.4-Dichlorobenzene 1.2-Dichlorobenzene 1.2-Dibromo-3-chloropropane 1.2.4-Trichlorobenzene	mg/kg (ppm) mg/kg (ppm)	<0.1 <0.1	<0.1 <0.1	nm				
1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2-4-Trichlorobenzene Hexachlorobutadiene	mg/kg (ppm) mg/kg (ppm) mg/kg (ppm)	<0.1 <0.1 <0.05	<0.1 <0.1 <0.05	nm nm				
1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2-4-Trichlorobenzene	mg/kg (ppm) mg/kg (ppm)	<0.1 <0.1	<0.1 <0.1	nm				

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: 803063-08 (Matrix Spike)

Laboratory Code: 803063-08 (M	Reporting	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Analyte	Units	2.5	< 0.05	70	24-139 30-153
ichlorodifluoromethane	mg/kg (ppm)	2.5	< 0.05	95	30-155 41-150
Chloromethane	mg/kg (ppm)	2.5	<0.05	109	54-150
invl chloride	mg/kg (ppm)	2.5	< 0.5	133	36-161
romomethane	mg/kg (ppm)	2.5	<0.5	162 vo	46-164
Chloroethane	mg/kg (ppm)	2.5	<0.5	118	47-157
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	146	47-151 22-144
Acetone	mg/kg (ppm)	2.5	<0.05	123	38-149
Li-Dichloroethene	mg/kg (ppm)	2.5	< 0.5	109	00
Methylene chloride	mg/kg (ppm)	2.5	< 0.05	109	53-138 65-125
crans-1,2-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	110	26-153
1.1-Dichloroethane	mg/kg (ppm)	2.5	< 0.05	116	
2,2-Dichloropropane	mg/kg (ppm)	2.5	< 0.05	108	59- 140 67- 126
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	115	
Chloroform	mg/kg (ppm)	2.5	< 0.5	101	40-160
2-Butanone (MEK)	mg/kg (ppm)	2.5	< 0.05	117	68-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	< 0.05	127	61-134
1,2-Dichloroethane 1,1,1-Trichloroethane	mg/kg (ppm)	2.5	< 0.05	112	59-128
1,1,1-Trichloropenane 1,1-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	106	54-138
	mg/kg (ppm)	2.5 2.5	<0.03	102	61-129
Carbon Tetrachloride	mg/kg (ppm)	2.5 2.5	<0.03	109	61-132
Benzene	mg/kg (ppm)	2.5	<0.05	108	69-129
Trichloroethene	mg/kg (ppm)	2.5	<0.05	126	56-138
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	118	65-135
Bromodichloromethane	mg/kg (ppm)		<0.5	113	62-145
Dibromomethane	mg/kg (ppm)	2.5	<0.05	119	63-134
4-Methyl-2-pentanone	mg/kg (ppm)	2.5 2.5	<0.05	98	59-137
cis-1,3-Dichloropropene	mg/kg (ppm)		<0.05	103	67-133
Toluene	mg/kg (ppm)	2.5	<0.05	103	71-130
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.5	114	56-157
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	103	71-128
2-Hexanone	mg/kg (ppm)	2.5	<0.05 <0.025	104	63-131
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	102	58-132
Tetrachloroethene	mg/kg (ppm)	2.5	<0.05	112	71-132
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	104	65-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	104	69-130
Chlorobenzene	mg/kg (ppm)	2.5	<0.05 <0.05	105	69-129
Ethylbenzene	mg/kg (ppm)	2.5	<0.05 <0.1	102	67-134
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	5	<0.1	105	73-130
m,p-Xylene	mg/kg (ppm)	2.5		107	68-127
o-Xylene	mg/kg (ppm)	2.5	< 0.05	110	50-147
Styrene	mg/kg (ppm)	2.5	<0.05	102	50-142
Isopropylbenzene	mg/kg (ppm)	2.5	< 0.05	106	70-129
Bromoform	mg/kg (ppm)	2.5	< 0.05	105	69-132
n-Propylbenzene	mg/kg (ppm)	2.5	< 0.05	103	71-129
Bromobenzene	mg/kg (ppm)	2.5	< 0.05	104	64-13
1.3.5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	103	66-13
1.1.2.2-Tetrachloroethane	mg/kg (ppm)	2.5	< 0.05	105	69-12
1.2.3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	107	68-12
2-Chlorotoluene	mg/kg (ppm)	2.5	< 0.05	109	70-12
4-Chlorotoluene	mg/kg (ppm)	2.5	< 0.05	107	71-13
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	107	58-13
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	< 0.05	109	70-13
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	109	70-12
n-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	104	69-12
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05		68-12
1.4-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	105	55-1
1.2.Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	98	64-1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	< 0.1	111	55-14
1,2,4-Trichlorobenzene	mg/kg (ppm) mg/kg (ppm)	2.5	< 0.1	107	53-1
Hexachlorobutadiene	mg/kg (ppm)	2.5	< 0.05	95	55-1
Naphthalene		2.5	< 0.1	106	99- 1
1.2,3-Trichlorobenzene	mg/kg (ppm)	2.0			

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

# QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260B

naboratory coue. naboratory c			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	102	29-163
Chloromethane	mg/kg (ppm)	2.5	102	28-147
Vinyl chloride	mg/kg (ppm)	2.5	111	38-143
Bromomethane	mg/kg (ppm)	2.5	108	32-163
Chloroethane	mg/kg (ppm)	2.5	109	10-165
Trichlorofluoromethane	mg/kg (ppm)	2.5	105	22-167
Acetone	mg/kg (ppm)	2.5	111	20-172
1,1-Dichloroethene	mg/kg (ppm)	2.5	108	42-140
Methylene chloride	mg/kg (ppm)	2.5	105	53-137
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5 2.5	106 102	70- 122 77- 114
1,1-Dichloroethane	mg/kg (ppm)	2.5 2.5	108	65-135
2,2-Dichloropropane	mg/kg (ppm)	2.5	106	77-120
cis-1,2-Dichloroethene	mg/kg (ppm) mg/kg (ppm)	2.5	103	76-117
Chloroform 2-Butanone (MEK)	mg/kg (ppm)	2.5	97	52-153
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	76-116
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	111	79-120
1,1-Dichloropropene	mg/kg (ppm)	2.5	109	76-123
Carbon Tetrachloride	mg/kg (ppm)	2.5	91	75-126
Benzene	mg/kg (ppm)	2.5	100	76-118
Trichloroethene	mg/kg (ppm)	2.5	105	75-121
1.2-Dichloropropane	mg/kg (ppm)	2.5	107	78- 123
Bromodichloromethane	mg/kg (ppm)	2.5	112	79- 126
Dibromomethane	mg/kg (ppm)	2.5	109	79-121
4-Methyl-2-pentanone	mg/kg (ppm)	2.5	108	52-151
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	117	80-127
Toluene	mg/kg (ppm)	2.5	98	76-122
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	100	80-126 77-121
1,1,2-Trichloroethane	mg/kg (ppm)	2.5 2.5	104 108	67-121
2-Hexanone	mg/kg (ppm)	2.5 2.5	103	76-120
1,3-Dichloropropane	mg/kg (ppm) mg/kg (ppm)	2.5	101	77-124
Tetrachloroethene Dibromochloromethane	mg/kg (ppm)	2.5	96	73-127
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	112	78-126
Chlorobenzene	mg/kg (ppm)	2.5	102	79-113
Ethylbenzene	mg/kg (ppm)	2.5	101	77-120
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	101	79-125
m.pXylene	mg/kg (ppm)	5	101	79-121
o-Xylene	mg/kg (ppm)	2.5	105	80-123
Styrene	mg/kg (ppm)	2.5	108	81-124
Isopropylbenzene	mg/kg (ppm)	2.5	107	79-123
Bromoform	mg/kg (ppm)	2.5	95	65-124
n-Propylbenzene	mg/kg (ppm)	2.5	106	77-123 78-122
Bromobenzene	mg/kg (ppm)	2.5 2.5	105 104	78-122 79-123
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	104	73-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm) mg/kg (ppm)	2.5 2.5	100	69-123
1,2,3-Trichloropropane 2-Chlorotoluene	mg/kg (ppm)	2.5	102	77-120
4-Chlorotoluene	mg/kg (ppm)	2.5	103	77-121
tert Butylbenzene	mg/kg (ppm)	2.5	105	77-124
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	104	78-123
sec-Butylbenzene	mg/kg (ppm)	2.5	106	77-122
p-Isopropyltoluene	mg/kg (ppm)	2.5	107	79-126
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	103	78-119
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	99	77-114
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	105	78-120
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	97	66-133
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	114	71-129
Hexachlorobutadiene	mg/kg (ppm)	2.5	107	65-134
Naphthalene	mg/kg (ppm)	2.5	98	51-158
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	109	37-182

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

# QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270C SIM

Laboratory Code: 802286-10 (Duplicate)

	<b>.</b>			Relative Percent
A 1 (	Reporting	$\mathbf{Sample}$	Duplicate	Difference
Analyte	Units	Result	Result	(Limit 20)
Naphthalene	mg/kg (ppm)	< 0.01	< 0.01	nm
Acenaphthylene	mg/kg (ppm)	< 0.01	< 0.01	nm
Acenaphthene	mg/kg (ppm)	< 0.01	< 0.01	nm
Fluorene	mg/kg (ppm)	< 0.01	< 0.01	nm
Phenanthrene	mg/kg (ppm)	< 0.01	< 0.01	nm
Anthracene	mg/kg (ppm)	< 0.01	< 0.01	nm
Fluoranthene	mg/kg (ppm)	< 0.01	< 0.01	nm
Pyrene	mg/kg (ppm)	< 0.01	< 0.01	nm
Benz(a)anthracene	mg/kg (ppm)	< 0.01	< 0.01	nm
Chrysene	mg/kg (ppm)	< 0.01	< 0.01	nm
Benzo(b)fluoranthene	mg/kg (ppm)	< 0.01	< 0.01	nm
Benzo(k)fluoranthene	mg/kg (ppm)	< 0.01	< 0.01	nm
Benzo(a)pyrene	mg/kg (ppm)	< 0.01	< 0.01	nm
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	< 0.01	< 0.01	nm
Dibenz(a,h)anthracene	mg/kg (ppm)	< 0.01	< 0.01	nm
Benzo(g,h,i)perylene	mg/kg (ppm)	< 0.01	< 0.01	nm

Laboratory Code: 802286-10 (Matrix Spike)

Acceptance Criteria
Criteria
50-150
16-167
58-108
57-113
30-138
42-132
45-145
44-139
17-134
10-157
28-134
55-115
37-123
61-104
69-100
60-105

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/08 Date Received: 02/22/08

Project: Nelson Granite Falls, F&BI 802241

# QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270C SIM

Laboratory Code: Laboratory Control Sample

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Naphthalene	mg/kg (ppm)	0.17	89	92	72-112	3
Acenaphthylene	mg/kg (ppm)	0.17	85	87	68-112	$\overset{\circ}{2}$
Acenaphthene	mg/kg (ppm)	0.17	87	88	70-111	1
Fluorene	mg/kg (ppm)	0.17	83	84	69-110	1
Phenanthrene	mg/kg (ppm)	0.17	91	92	68-111	1
Anthracene	mg/kg (ppm)	0.17	87	88	67-110	$\overline{1}$
Fluoranthene	mg/kg (ppm)	0.17	80	82	68-114	$\overset{-}{2}$
Pyrene	mg/kg (ppm)	0.17	80	82	68-114	$\overline{2}$
Benz(a)anthracene	mg/kg (ppm)	0.17	90	93	<b>58-108</b>	3
Chrysene	mg/kg (ppm)	0.17	77	79	64-115	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	91	92	54-119	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	86	88	61-123	$\overset{ au}{2}$
Benzo(a)pyrene	mg/kg (ppm)	0.17	83	86	54-111	4
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	98	95	46-126	3
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	90	94	57-119	4
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	87	91	60-116	$\overline{4}$

Note: The calibration verification result for anthracene-d10 exceeded 15% deviation. The average deviation for all compounds was not greater than 15%; therefore, the initial calibration is considered valid.

#### **ENVIRONMENTAL CHEMISTS**

#### **Data Qualifiers & Definitions**

- a The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 More than one compound of similar molecule structure was identified with equal probablility.
- b The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c The presence of the analyte indicated may be due to carryover from previous sample injections.
- d The sample was diluted. Detection limits may be raised due to dilution.
- ds The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb The analyte indicated was found in the method blank. The result should be considered an estimate.
- fc The compound is a common laboratory and field contaminant.
- hr The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht The sample was extracted outside of holding time. Results should be considered estimates.
- ip Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- i The result is below normal reporting limits. The value reported is an estimate.
- J The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc The presence of the compound indicated is likely due to laboratory contamination.
- L The reported concentration was generated from a library search.
- nm The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.
- vo The value reported fell outside the control limits established for this analyte.
- x The pattern of peaks present is not indicative of diesel.
- y The pattern of peaks present is not indicative of motor oil.

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