

State of Colorado
Oil and Gas Conservation Commission

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FOR OGCC USE ONLY

REM 9622
Document 2526111
Date 03/31/2016

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): On-going Investigation and Remediation

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

OGCC Operator Number: 16700

Name of Operator: Chevron USA Inc

Address: 1400 Smith Street, Room 07084

City: Houston State: TX Zip: 77002

Contact Name and Telephone:

Marcelo Barberis

No: 713-372-0289

Fax: bmal@chevron.com

API Number: COGCC Project No. 70

County: Rio Blanco

Facility Name: Wilson Creek

Facility Number: 314519

Well Name: Wilson Creek Unit 16

Well Number: NA

Location: (QtrQtr, Sec, Twp, Rng, Meridian): E/2, SE/4, 27, 3 North, 94 West, 06 Latitude: NA Longitude: NA

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): _____

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☐ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): E&P, recreation (BLM), ranching

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Wilson Creek

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):

- ☐ Soils
☐ Vegetation
☐ Groundwater
☐ Surface Water

Extent of Impact:

Refer to attached work plan.
Refer to attached work plan.
Refer to attached work plan.
Refer to attached work plan.

How Determined:

REMEDIAL WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"

Describe how source is to be removed:

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"



Page 2
REMEDIATION WORKPLAN (Cont.)

Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☐ N If yes, describe:

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Refer to attached Work Plan dated March 31, 2016:

"Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC SPILL #2213637) for the Chevron North America Exploration and Production Company, Wilson Creek Unit, Rio Blanco County, Colorado. COGCC Project No. 70"

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____
Remediation Start Date: _____ Anticipated Completion Date: _____ Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Christopher Beall (Stantec)

Signed:

Title: Associate Geologist

Date: 03/31/16

OGCC Approved: Carlos A Lujan, Ph.D.

Title:

Digitally signed by Carlos A Lujan, Ph.D.
DN: cn=Carlos A Lujan, Ph.D., o=Colorado Oil and Gas Conservation Commission (COGCC), ou=Environmental
NW Region, email=carlos.lujan@state.co.us, c=US
Date: 2016.04.26 15:15:21 -0600

Date:

See Attached Conditions of Approval.

**Reclamation Work Plan –
Northeast (NE) Terraced Area
(COGCC SPILL #2213637)**

Wilson Creek Unit
Rio Blanco County, Colorado

Colorado Oil and Gas
Conservation Commission -
Remediation Project No. 70



Submitted to:

Carlos Lujan
State of Colorado Oil and Gas
Conservation Commission
796 Megan Avenue, Suite 201
Rifle, CO 81650

Submitted by:

Stantec Consulting Services Inc.
2000 South Colorado Blvd.
Suite 2-300
Denver, CO 80222

On Behalf of:

Marcelo Barberis
Chevron Environmental
Management Company
1400 Smith St., Room 07084
Houston, TX 77002

March 31, 2016

Table of Contents

1.0	INTRODUCTION	1.1
1.1	OBJECTIVES.....	1.1
1.2	BACKGROUND	1.1
1.2.1	Location	1.1
1.2.2	Geology and Hydrogeology	1.2
1.2.3	Site History	1.2
2.0	SCOPE OF WORK.....	2.5
2.1	PERMITTING	2.5
2.2	SOIL ABATEMENT	2.5
2.2.1	Location and Line Clearance	2.6
2.2.2	Subsurface Assessment.....	2.6
2.2.3	Excavation.....	2.7
2.2.4	Surveying.....	2.7
2.2.5	Soil Staging	2.8
2.2.6	Impacted Soil Management	2.8
2.2.7	Decontamination Procedures	2.9
2.2.8	Quality Assurance/Quality Control Samples	2.9
2.2.9	Laboratory Analysis	2.9
2.2.10	Sample Labeling	2.10
2.2.11	Sample Custody	2.10
2.3	SURFACE RESTORATION.....	2.11
2.3.1	Infrastructure Removal and Abandonment	2.11
2.3.2	Excavation, Backfilling and Site Re-contouring	2.12
2.3.3	Revegetation	2.12
2.3.4	Area Maintenance.....	2.13
3.0	HEALTH AND SAFETY	3.14
4.0	REPORTING AND DOCUMENTATION	4.15
5.0	PROJECT IMPLEMENTATION SCHEDULE	5.16
6.0	LIMITATIONS	6.17
7.0	REFERENCES.....	7.18

RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Area Map - Northeast Terraced Area

LIST OF APPENDICES

Appendix A.....	Northeast (NE) Terraced Area Phase II Assessment Report, dated October 31, 2014
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RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Introduction
March 31, 2016

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec), on behalf of Chevron Environmental Management Company (Chevron), is pleased to provide the Colorado Oil and Gas Conservation Commission (COGCC) with this Reclamation Work Plan (Work Plan) for the Northeast Terraced Area (NE Terraced Area) at the Wilson Creek Field (Site) in Rio Blanco County, Colorado. **Figure 1** provides a Site location map. The following COGCC tracking numbers have been assigned to this project:

- The Wilson Creek Field is registered as Remediation Project No. 70; and
- The NE Terraced Area is registered as Spill #2213637.

The NE Terraced Area was identified in 2007 as a potential area of concern (AOC) at the Site. Several subsurface assessments have been conducted since 2007 which have identified total petroleum hydrocarbons (TPH) and arsenic as potential constituents of concern. The area is inactive and has well-established vegetative cover.

Chevron proposes conducting final reclamation activities in a phased approach at the NE Terraced Area between 2016 and 2018. Excavation and off-site disposal of impacted soil is the primary abatement method being proposed under this Work Plan.

1.1 OBJECTIVES

The objectives of the reclamation are to:

- Return the NE Terraced Area to a condition approximating that which existed prior to the disturbance;
- Adhere to final reclamation guidelines provided in the COGCC Series 900 and 1000 Rules; and
- Obtain regulatory closure of the NE Terraced Area (Spill #2213637).

1.2 BACKGROUND

1.2.1 Location

The Site is located in northwest Colorado near the Danforth Hills, west of the Routt National Forest, and northwest of the White River National Forest. Nearby towns include Craig and Meeker, Colorado. A Site location map is included as **Figure 1**.



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Introduction
March 31, 2016

The Site is an active oil and gas field operated by Chevron and consists of a 31,502-acre participation area. The main processing area of the Site lies in a valley located approximately 12 miles north of Meeker in the east half (E/2) of the southeast quarter (SE/4) of Section 27, Township 3 North, Range 94 West in Rio Blanco County, Colorado (Main Processing Area). Rio Blanco County Road 9 runs through this valley.

Chevron owns 640 acres within the participation area with the remainder being owned by the Bureau of Land Management (BLM) and various private owners.

The NE Terraced Area is approximately one half-mile to the northeast of the Site Field Office and sits approximately 800 feet to the east of Rio Blanco County Road 9. The NE Terraced Area is comprised of a series of seven terraces as shown on **Figure 2**. The NE Terraced Area is located on land owned by Chevron and a private third party owner. The area currently has relatively limited access due to topography and existing road conditions.

1.2.2 Geology and Hydrogeology

The description of geology and hydrogeology in this section applies specifically to the Main Processing Area but is presumed applicable to the remainder of the Site, with the exception of groundwater conditions which vary significantly with topography.

Bedrock consisting of shale and sandstone sequences is typically encountered from ground surface to 20 to 30 feet below ground surface (bgs). Depth to bedrock typically decreases with elevation (i.e., bedrock is near the surface at summits and may be found 20 to 30 feet bgs in the valleys). Above the bedrock is a mixture of silty clay, silty clayey sand, and clayey gravelly sand strata. An estimate of average hydraulic conductivity for the horizontal alluvium in the Main Processing Area is 8.35×10^{-5} centimeters per second.

Groundwater is encountered at varying depths depending on time of year and ground surface elevation. Groundwater is encountered at 10 to 15 feet bgs in the valleys and greater than 100 feet bgs on the mountain-sides. Groundwater elevations fluctuate approximately 5 feet seasonally. During spring runoff, groundwater may surface in the valleys.

The near surface geology of the NE Terraced Area consists primarily of sandy silts. Some silty clays are also present. The bedrock surface has not been encountered during subsurface investigations in this area but the bedrock surface can be observed in several areas on the side-slopes of the valley where the terraces are located. Only perched groundwater has been encountered during subsurface investigations in this area.

1.2.3 Site History

Oil and gas exploration and production (E & P) activities have been on-going within the Main Processing Area since at least the 1920s. The field was owned and operated by Texaco Exploration and Production Incorporated (Texaco) prior to Chevron. Approximately 100 wells



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Introduction
March 31, 2016

have been drilled within the participation area since the 1920s, with the largest drilling surge taking place in the 1940s. Historical use since the 1920s is believed to be the same as current use (i.e., oil and gas E & P, hunting, ranching, mining, and recreation).

Chevron's oil and gas E & P activities within the production area generate the following four main product streams:

- Crude oil (contained on-site and trucked off-site);
- Natural gas (processed on-site and fed to the Public Service Company of Colorado);
- Natural gas liquid (NGL) (contained on-site and trucked off-site); and
- Produced water (disposed of on-site in permitted Type II injection wells).

1.2.3.1 NE Terraced Area

In the summer of 2007, the NE Terraced Area was identified by Chevron as requiring investigation. A total of seven terraces were identified and ranged from approximately 2,300 square feet to 9,600 square feet in size. The historical use of the NE Terraced Area is not confirmed, however the terraces are suspected as being former earthen holding pits for crude oil. Review of historic aerials suggests the terraces were present in the 1950's and may have been out of use by 1993.

A limited soil assessment was conducted on the seven terraces in October 2007, and documented in a report titled *Documentation of Soil Sampling at the NE Terraced Area near Rio Blanco County Road 9 at the Wilson Creek Unit*, dated December 7, 2007 (SECOR 2007). During the October 2007 assessment, one soil boring was advanced using a hand auger at each of the seven terraces. The hand auger borings were advanced to a depth of six feet bgs. The following key findings were identified during the 2007 assessment:

- The soil samples collected in the upper four feet had low photoionization detector (PID) readings and no observable soil staining;
- The soil samples collected between four and six feet below grade contained elevated PID readings and observable soil staining. Soil samples were collected at depth intervals of 4.5 to 5.5 feet bgs for TPH and metals analysis;
- TPH concentrations in the seven samples ranged from 2,800 to 13,000 milligrams per kilogram (mg/kg), which is higher than the COGCC Table 910 criteria (500 mg/kg). Arsenic was found in soil at levels between 3 and 6 mg/kg; and

RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Introduction
March 31, 2016

- The approximate area of each terrace is as follows:
 - **Terrace T-1:** approximately 4,500 square feet
 - **Terrace T-2:** approximately 3,300 square feet
 - **Terrace T-3:** approximately 9,600 square feet
 - **Terrace T-4:** approximately 3,200 square feet
 - **Terrace T-5:** approximately 2,300 square feet
 - **Terrace T-6:** approximately 2,900 square feet
 - **Terrace T-7:** approximately 2,400 square feet

A follow-up soil assessment was conducted on the seven terraces in August 2013, and documented in a report titled *Northeast (NE) Terraced Area Phase II Assessment Report*, dated October 31, 2014 (Stantec 2014);(Report). During the August 2013 assessment, four borings were advanced to a depth of approximately 10 feet bgs at each of the seven terraces. Borings were continuously sampled and screened with a PID. Soil samples were collected and submitted for laboratory analysis based on PID screening responses and visual observations. Up to three soil samples from each soil boring were submitted for laboratory analysis. Soil samples were analyzed for a combination of organics, inorganics, and metals.

The following key findings were identified during the 2013 assessment:

- Total TPH (carbon range [C]6-C36) was detected above the COGCC Table 910 criteria (500 mg/kg) in 18 locations (in at least one sample collected from terraces T-1 through T-7);
- Arsenic was detected above the COGCC Table 910 criteria (0.39 mg/kg) in 7 locations (in at least one sample collected from terraces T-1 through T-7); and
- No other deviations from the COGCC Table 910 criteria were identified.

A copy of the Report is included as **Appendix A** to this Work Plan. The Report includes the results from both the October 2007 and August 2013 assessments.



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

2.0 SCOPE OF WORK

The reclamation scope of work for the NE Terraced Area includes abatement of impacted soils, topography restoration, and revegetation. Various Site improvements (e.g., road improvements) will be required to provide safe and effective access to the NE Terraced Area before reclamation can be initiated.

Results from the 2013 assessment indicate that soils are present at the NE Terraced Area in excess of COGCC Table 910 criteria for TPH and arsenic. Subsequently, TPH and arsenic are the constituents of concern proposed for abatement activities at the NE Terraced Area.

Chevron proposes to abate impacted soil primarily via excavation and off-site disposal as part of reclamation efforts for the NE Terraced Area. However, Chevron may elect to utilize an on-site treatment remedy to meet COGCC Table 910 criteria for TPH and arsenic and then beneficially reuse the treated soils on-site.

Chevron will conduct a comprehensive subsurface soil investigation to identify areas requiring abatement prior to excavation. The results of this soil investigation will be used to develop detailed excavation plans of prescribed dimensions. The prescribed excavations will be designed to remove soils found to be in excess of COGCC Table 910 criteria for TPH and arsenic.

The excavated soil will either be: 1) hauled off-site for disposal, and/or 2) treated and beneficially reused on-site (likely as fill material for the excavations). Samples will be collected from any soils treated on-site to document adherence to COGCC Table 910 criteria prior to beneficial reuse on-site.

The surface will be restored after the excavations are backfilled. Remaining surface infrastructure (e.g., shallow flow-lines, deadmen, etc.) will be addressed appropriately if present. The topography will be re-contoured and seeded with a BLM-approved seed mix. Landowner preferences will be honored as part of the reclamation. The details of the proposed reclamation are discussed in the following sections.

2.1 PERMITTING

The project team will obtain landowner and COGCC acceptance of this Work Plan prior to execution. No other regulatory permitting will be required as part of the final reclamation of the NE Terraced Area.

2.2 SOIL ABATEMENT

Soil abatement activities conducted as part of the reclamation are designed to identify and abate soils that exceed COGCC Table 910 criteria.



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

2.2.1 Location and Line Clearance

As required by law, the Utility Notification Center of Colorado (UNCC) will be notified at least 48 hours before any intrusive activities. In addition to notifying the UNCC, Stantec will review all subsurface assessment and excavation locations with Chevron operations staff prior to breaking ground. No intrusive work (e.g., borings or test pits) will be conducted within 5 feet of a known underground utility and machinery (e.g., excavator) will be kept at least 20 feet away from any exposed aboveground utility.

2.2.2 Subsurface Assessment

A comprehensive subsurface soil investigation will be conducted to identify areas requiring abatement prior to excavation.

Each terrace footprint will be assessed on a grid pattern. Grid spacing and layout will be developed using a combination of professional judgment, findings from previous assessments, and/or the following equation¹ based on apparent surface area of the terraces:

$$\text{Grid Spacing (feet)} \sim (\sqrt{A/\pi}) \div 2$$

Where A is the surface area (feet²) of the AOC being investigated

Assessment grid spacing is anticipated to be generally less than 30 feet based on surface areas noted in Section 1.2.3.1 of this Work Plan.

Subsurface soils at each terrace will be investigated after grid locations are identified. Subsurface soils will be accessed using soil borings, test pits or hand auguring to determine the vertical extent of impacted soil at each location.

Up to three samples will be collected per location in an attempt to identify:

- The top elevation of the impacted soil layer;
- The maximum level of impacts at the location; and
- The bottom elevation of the impacted soil layer.

Quantitative and qualitative field screening techniques, such as PID headspace testing and visual observations, will be used to select sample intervals and help determine the thickness of the impacted soil layer.

¹ Reference: *Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria*. Michigan Department of Environmental Quality Remediation and Redevelopment Division; 2002.

RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

Selected soil samples will be labeled and placed in an ice-filled cooler for preservation during shipment to the laboratory for chemical analyses. The soil samples will be recorded onto a chain-of-custody document that will accompany the samples to the laboratory for analysis.

2.2.3 Excavation

The results of this subsurface assessment, along with results from previous assessments, will be used to develop detailed excavation plans of prescribed dimensions. The prescribed excavations will be designed to remove soils found to be in excess of COGCC Table 910 criteria for TPH and arsenic.

Prescriptive excavations will be conducted at assessment locations found to exceed COGCC Table 910 criteria for TPH and arsenic. The length and width of each excavation will be determined from the results of grid spacing utilized during the assessment of the terrace. The excavation depth will be dictated by the vertical extent of impacts as interpreted from the analytical results and quantitative and qualitative field screening observations developed during the subsurface assessment(s).

Excavations will be conducted to preserve existing trees, as requested by the landowner(s). If this is not practical, landowner approval will be requested before removing any trees.

Non-impacted overburden soils will be removed, as applicable, prior to addressing impacted soils. Overburden soils will be placed in separate stockpiles according to soil type and excavation depth (e.g., topsoil, clay, etc.) in order to facilitate returning the different soil types to depths from which they were removed.

During the excavation activities, dust and vapors will be controlled as necessary by the application of fresh water or applying cover (e.g., tarping with plastic sheeting).

Access to excavations left open overnight will be controlled using the following techniques:

- Temporary fencing at least 4 feet tall will be erected on all sides; and
- An earthen escape ramp will be installed for excavations exceeding 4 feet in depth.

2.2.4 Surveying

Subsurface soil assessment locations and excavation dimensions will be documented using field notes and a global positioning system (GPS) with sub-meter accuracy or total station surveying equipment.



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

2.2.5 Soil Staging

Excavated soils will be managed in stockpiles lined with plastic sheeting, as needed, to prevent contamination. The stockpiles will be managed to minimize erosion and runoff. Potential strategies for erosion control include silt fence, straw bales, or covering with plastic sheeting.

Overburden soil stockpiles will also be managed to preserve the integrity and quantity of the soil (minimize contamination and soil loss due to erosion).

Stockpile locations will be selected as to minimize adverse impact to the area and facilitate construction traffic.

2.2.6 Impacted Soil Management

Impacted soils will be reclaimed or removed from the area as soon as practical.

Primarily, impacted soils will be hauled off-site for disposal. Where practical, these soils may be loaded directly into haul trucks instead of being temporarily stockpiled.

In the event of rain, best practices will be exercised to mitigate run-off (e.g., construction of earthen berms, use of straw bales/waddles, or silt fence) as appropriate.

Secondarily, at the discretion of Chevron, soils perceived to be reclaimable² may be treated on-site until laboratory sample results indicate the reclaimed soils meet COGCC Table 910 criteria. Reclaimed soil may then be beneficially reused on-site (e.g., as backfill).

Section 2.2.6.1 outlines the contingent plan for on-site treatment of impacted soil.

2.2.6.1 On-site Treatment of Impacted Soil

Soils perceived to be reclaimable may be amended on-site and beneficially re-used during activities such as backfilling and re-contouring. The basic reclamation process of these soils will be as follows:

1. Thoroughly mix excavated soils with clean fill material as needed;
2. Based on soil properties, provide amendments to enhance biodegradation, reduce mobility, or induce fixation. Amendments may include nutrients (e.g., sulfate), organic matter, fly ash, or compounds to adjust pH; and

² Waste materials that exist with gross impacts (e.g., product-saturated soils) will be segregated, will not be considered "reclaimable", and will be disposed of off-site.

RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

3. Conduct quality assurance sampling on reclaimed soils.

To document the quality of reclaimed soils being beneficially reused, sampling will be conducted before beneficial reuse. Reclaimed soils will be sampled using the following guidelines:

- One composite sample will be collected and analyzed for approximately every 100 cubic yards of reclaimed soil material;
- Samples will be analyzed for TPH, arsenic and other pertinent parameters potentially altered by the treatment process/amendments (e.g., pH) and screened against the applicable COGCC Table 910 criteria; and
- Materials with concentrations below the screening criteria may be beneficially reused on-site. Materials with concentrations that exceed criteria will be either amended further and re-sampled, or disposed of off-site.

Analytical results from the quality assurance sampling will be documented.

2.2.7 Decontamination Procedures

Any non-dedicated or non-disposable sampling equipment that comes into contact with soil will be decontaminated before and after each use. Sampling implements, such as spatulas and trowels, will be washed with a Liquinox® water solution and rinsed with distilled water before and after sample collection. Construction and assessment equipment will be decontaminated utilizing best practices as appropriate to reduce the potential for contamination.

2.2.8 Quality Assurance/Quality Control Samples

Quality assurance/quality control (QA/QC) samples will be collected as follows:

- Duplicates – Duplicate soil samples will be collected to evaluate the laboratory's performance by comparing the analytical results of two samples collected at the same location. Duplicate samples will be collected at a rate of approximately 5 percent (%).

2.2.9 Laboratory Analysis

Based on qualitative and quantitative field screening, selected soil samples will be submitted for laboratory analyses.

At a minimum, soil samples selected for submittal to the laboratory will be analyzed for:

- TPH by EPA SW 846; and



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

- Arsenic by EPA SW 846.

TPH and arsenic were the constituents of concern exceeding COGCC Table 910 criteria observed during previous investigations. Additional analytes may be added, as necessary, to document adherence to the COGCC Table 910 criteria in the event on-site treatment is conducted.

2.2.10 Sample Labeling

Before a particular sample is collected, containers will be assembled and properly labeled. The sample label will be attached directly to the sample container. The sample label will include the following information:

- Project name;
- Sample ID (unique ID for each sample location);
- Date sampled;
- Time sampled (24-hour);
- Initials of sampler(s); and
- Preservative in the sample container, if any.

2.2.11 Sample Custody

Possession of samples collected in the field will be traceable from the time of collection until they are analyzed by the laboratory or processed for disposal. All samples will be held at temperature of 4 degrees Celsius (°C) or less in a cooler until delivery to the laboratory. Samples will be shipped to the laboratory via FedEx® (or equivalent) under chain-of-custody procedures. A project specific chain-of-custody record will be utilized by field personnel to document possession of all samples collected for chemical analysis. Chain-of-custody forms will accompany samples at all times. When transferring possession of the samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of transfer on the record. The chain-of-custody will be placed in a sealed plastic bag and taped to the inside of the cooler. The cooler will be securely sealed prior to presentation to the delivery service. A commercial delivery service (e.g., FedEx®) will be identified by company name only; the delivery service is not required to sign the chain-of-custody. At the laboratory, the chain-of-custody will be compared with sample labels to ensure that the information is consistent. The chain-of-custody record will include, but is not limited to, the following information:

- Project name and number;



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

- Name(s) and signatures of samplers;
- Sample ID (unique ID for each sample location);
- Date and time of collection;
- Number and type of containers;
- Required analyses;
- Laboratory name and address; and
- Signatures documenting change of sample custody.

2.3 SURFACE RESTORATION

Surface restoration activities will be conducted after impacted soil is abated as described in the previous sections. Excavations will be backfilled as soon as practical and at a time that aligns with the full project work scope.

The schedule for surface recontouring and revegetation efforts will be contingent on the overall project schedule and site access requirements to complete the full work scope of the entire project. Subsequently, surface recontouring and revegetation of individual terrace areas may not necessarily occur the same year they are excavated/backfilled. However, appropriate maintenance will be conducted at the former terraces until surface restoration is successful (see Section 2.3.4).

Surface restoration activities will be conducted to preserve existing trees, as requested by the landowner(s). If this is not practical, landowner approval will be requested before removing any trees. At the discretion of the landowner(s), areas considered as site improvements (e.g. access roads) may be left intact and not re-contoured.

2.3.1 Infrastructure Removal and Abandonment

All abandoned surface infrastructure encountered during the soil abatement activities will be removed from the area as practical:

- Any remaining tankage and equipment will be removed;
- Surface flow lines will be isolated, drained, and removed; and
- Oil field related debris (e.g., scrap debris, deadmen, unused power poles, etc.) will be removed from the area and properly disposed of off-site.



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

Buried flow lines and concrete foundations may be abandoned in place where final surface contouring will be sufficient to prevent buried infrastructure from becoming exposed due to water or wind erosion, soil movement, or anticipated subsequent use; otherwise, these features will be removed. Flow lines to be abandoned in place will first be isolated, drained, and capped.

2.3.2 Excavation, Backfilling and Site Re-contouring

Based on the comprehensive pre-excavation assessment and prescribed approach, collection of post-excavation confirmation samples is not planned with exception of soil treated onsite for beneficial reuse. The prescriptive excavations will be backfilled and the area (including the lease road) will be re-contoured to original grades, or contours that blend with the surrounding landform, after remaining infrastructure is removed.

Soil will be placed in loose lifts not exceeding 2 feet in height and compacted to non-yielding conditions. Compaction methods may include a vibratory roller, excavator bucket, or proof rolling with equipment.

Fill material may consist of:

- Imported fill;
- Overburden materials removed during excavation preparation;
- Materials from on-site borrow source; or
- Reclaimed soils.

The intent is to only use fill materials that meet COGCC Table 910 criteria.

On-site borrow will only be utilized if it can be done in a manner consistent with the natural landscape. Areas established for borrow sources will be graded and dressed appropriately.

Fill materials will be placed in the excavation at levels consistent with the type of native material removed from that level whenever practical (see Section 2.2.3).

2.3.3 Revegetation

Final grading will be conducted using a 4-inch thick layer of soil comparable to the native topsoil in the area. Topsoil may be manufactured on-site by adding amendments (e.g., composted manure) to enrich the soil, beneficially reusing existing topsoil, or importing topsoil. Lastly, the area will be seeded with an appropriate blend of perennial grasses to discourage the growth of



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Scope of Work
March 31, 2016

noxious weeds. Seeding will be accomplished through dozer track walking and broadcast seeding.

The BLM will be consulted for an appropriate seed mix prior to revegetation efforts. Previously, the following seed mixture was used in revegetation efforts during other reclamation work at the site:

Variety	Common Name	Scientific Name	Rate (Lbs PLS/Ac)
Arriba	Western wheatgrass	Pascopyrum smithii	4
Rimrock	Indian ricegrass	Achnatherum hymenoides	3.5
Whitmar	Bluebunch wheatgrass	Pseudoroegneria spicata	4
Lodorm	Green needlegrass	Nassella viridula	2.5
Timp	Northern sweetvetch	Hedysarum boreale	3
	Sulphur Flower	Eriogonum umbellatum	1.5

Note: Pounds (Lbs) pure live seed (PLS) per acre (Ac).

2.3.4 Area Maintenance

Successful restoration requires control of erosion and noxious weeds while native vegetation is established. To facilitate this, it may be necessary to re-contour surface grades, scarify the surface, replace topsoil, construct water bars, apply mulch, redistribute woody debris, or barricade the entrance to the area.

Health and Safety
March 31, 2016

3.0 HEALTH AND SAFETY

Stantec will update an existing site-specific health and safety plan (HASP) to cover the field activities described herein. The HASP will outline potential hazards to Stantec field personnel and subcontractors during the field activities. Permit to work documentation will be prepared when warranted, and job safety analyses (JSAs) will be created and continuously modified to cover any additional contingencies realized in the field. The HASP will also include required personal protective equipment (PPE) to be worn by all field personnel for each task. In addition, Stantec will produce a Journey Management Plan (JMP) in an attempt to prevent losses associated with motor vehicle incidents. A copy of Stantec's HASP and JMP will be available on-site during all field activities.

Health and safety tailgate meetings will be held three times daily (in the morning, after lunch prior to re-initiating work, and at the end of the work day) throughout the duration of the project with Stantec personnel and all other subcontracted personnel on-site. These meetings will be utilized to promote awareness of health and safety concerns and to help promote incident-free operations throughout the duration of the project.

4.0 REPORTING AND DOCUMENTATION

During the course of the assessment and reclamation activities at the Site, field activities will be documented in field notes. Survey data will be collected electronically. Soil sample analytical results will be reported by the laboratory.

A reclamation documentation report will be prepared and submitted to the COGCC after the field work is executed. The reclamation documentation report will include:

- A written project summary including schedule information;
- Results from the subsurface assessment;
- Excavation details (location and dimensions of excavations; excavation quantities);
- Impacted soil disposal information (fate of excavated soils);
- Reclaimed soil analytical results (if applicable); and
- Copies of the seed tags.

A closure request will be filed after successful completion of reclamation indicating the area is ready for inspection (after the area has been successfully revegetated and has been returned to conditions approximating or equal to that which existed prior to the disturbance).

RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Project Implementation Schedule
March 31, 2016

5.0 PROJECT IMPLEMENTATION SCHEDULE

The following project implementation schedule is tentative and is contingent on acceptance of the Work Plan by both the COGCC and the third-party property owner. The intent is to have COGCC closure of the NE Terrace Area (Spill #2213637) in 2018.

- March 2016. Submit the Work Plan to the COGCC for acceptance.
- April 2016. Obtain acceptance of the Work Plan by the COGCC.
- April/May 2016. Obtain acceptance of the Work Plan by the third-party property owner.
- June/July 2016. Conduct Site improvements to facilitate work (e.g., lease road improvements) and conduct the subsurface soil assessment.
- July 2016. Develop detailed excavation plans based on assessment results and mobilize the construction contractor to the Site.
- August 2016. Conduct reclamation at two of the seven terraces (Actual number and location of terraces to be addressed in 2016 is contingent on-site access and available construction window).
- Late August 2016. Demobilize for 2016.
- June/July 2017. Mobilize construction contractor to the Site.
- June/July-August 2017. Conduct reclamation at the remaining terraces.
- Late August 2017. Demobilize for 2017.
- December 2017. Submit reclamation documentation report to the COGCC.
- May – August 2018. Monitor the establishment of vegetation.
- September 2018. File closure request with the COGCC.
- December 2018. Regulatory closure of the NE Terraced Area.

The proposed field work schedule, and length of the available construction window, is contingent on the weather (e.g. depth of the winter snowpack, timing of the spring melt, ground thaw, and infiltration meltwater) as well as a request by the third-party property owner not to conduct field work after August 29th (start of hunting season). Moreover, the project team perceives conducting reclamation work during hunting season as a health and safety risk that should be avoided.



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

Limitations
March 31, 2016

6.0 LIMITATIONS

This work plan was prepared in accordance with the scope of work outlined in Stantec's contract and with generally accepted professional engineering and environmental consulting practices existing at the time this work plan was prepared and applicable to the location of the site. It was prepared for the exclusive use of Chevron for the express purpose stated above. Any re-use of this work plan for a different purpose or by others not identified above shall be at the user's sole risk without liability to Stantec. To the extent that this work plan is based on information provided to Stantec by third parties, Stantec may have made efforts to verify this third party information, but Stantec cannot guarantee the completeness or accuracy of this information. The opinions expressed and data collected are based on the conditions of the site existing at the time of the field investigation. No other warranties, expressed or implied are made by Stantec.

Prepared by  _____
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Reviewed by  _____
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Approved by  _____
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Tom Madsen, PE
Principal Engineer



RECLAMATION WORK PLAN – NORTHEAST (NE) TERRACED AREA (COGCC SPILL #2213637)

References

March 31, 2016

7.0 REFERENCES

SECOR, 2007. Documentation of Soil Sampling at the NE Terraced Area near Rio Blanco County Road 9 at the Wilson Creek Unit. December 7, 2007.

Stantec, 2014. Northeast (NE) Terraced Area Phase II Assessment Report. Wilson Creek Unit Rio Blanco County, Colorado. Colorado Oil and Gas Conservation Commission - Remediation Project No. 70. Spill No. 2213637. October 31, 2014.

Table 910-1. Colorado Department of Natural Resources - Colorado Oil and Gas Conservation Commission (COGCC), 2014. Series 900 Rules. January 30, 2015.

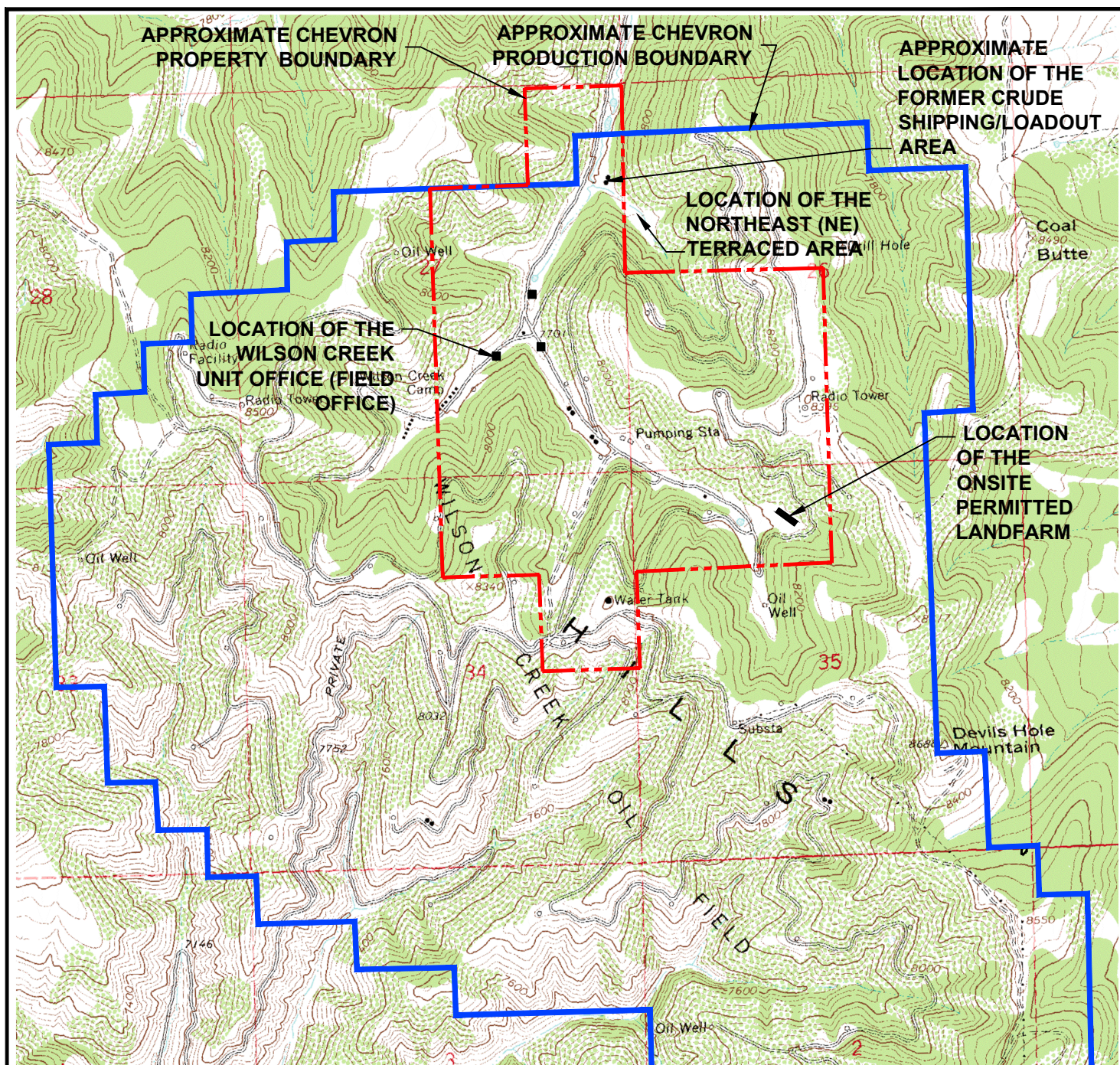
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Michigan Department of Environmental Quality Remediation and Redevelopment Division, 2002. DEQ Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria.

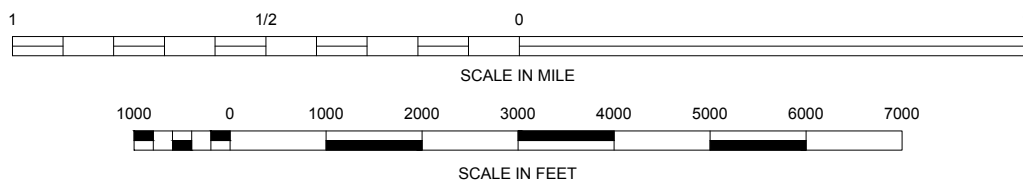
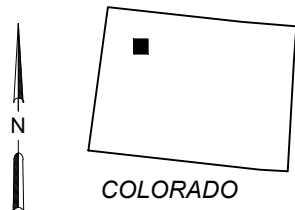
USEPA, 1993. Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846). Third Edition, August 31.

FIGURES

Figure 1
Site Location Map



NOTE: ALL LOCATIONS ARE APPROXIMATE.



REFERENCE: USGS 7.5 MINUTE UADRANGLE DEVILS HOLE GULCH, COLORADO



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FOR: CHEVRON ENVIRONMENTAL
MANAGEMENT COMPANY
WILSON CREEK UNIT
7265 RIO BLANCO COUNTY ROAD #9
MEEKER, COLORADO

JOB NUMBER:
212201118

DRAWN BY:
ARA

CHECKED BY:
SM

APPROVED BY:
CB

FIGURE:
1
DATE:
3/9/16

SITE LOCATION MAP

Figure 2

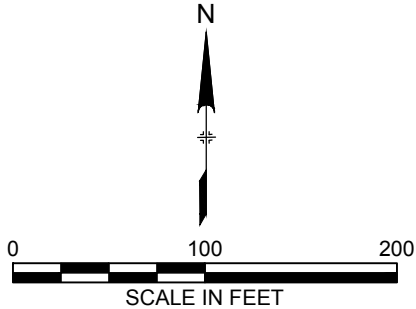
Area Map - Northeast Terraced Area



LEGEND

—P— PIPING (ABOVE AND BELOW GROUND)

— SURFACE DRAINAGE



 2000 South Colorado Boulevard, Suite 2-300 Denver, Colorado 80222 PHONE: (303) 758-4058 FAX: (303) 758-4828		FOR: CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY WILSON CREEK UNIT 7265 RIO BLANCO COUNTY ROAD #9 MEEKER, COLORADO		AREA MAP- NORTHEAST TERRACED AREA		FIGURE: 2
JOB NUMBER: 212201118		DRAWN BY: ARA		CHECKED BY: SM	APPROVED BY: CB	DATE: 3/9/16

APPENDIX

Appendix A

**Northeast (NE) Terraced Area Phase II Assessment
Report, dated October 31, 2014**

Northeast (NE) Terraced Area Phase II Assessment Report

Wilson Creek Unit
Rio Blanco County, Colorado

Colorado Oil and Gas
Conservation Commission -
Remediation Project No. 70
Spill No. 2213637



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October 31, 2014

Sign-off Sheet

This document entitled Northeast (NE) Terraced Area Phase II Assessment Report was prepared by Stantec Consulting Services Inc. for the account of Chevron Environmental Management Company. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Tom Madsen, PE

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Site Background
October 31, 2014

Table of Contents

1.0	SITE BACKGROUND	3
1.1	INTRODUCTION	3
1.2	SITE LOCATION	3
1.3	REGIONAL SETTING	3
1.4	NORTHEAST (NE) TERRACED AREA GEOLOGY/HYDROGEOLOGIC SETTING	4
1.5	NORTHEAST (NE) TERRACED AREA HISTORY	4
2.0	PHASE II ASSESSMENT OF THE NORTHEAST (NE) TERRACED AREA.....	6
3.0	PHASE II ASSESSMENT SAMPLING AND ANALYTICAL RESULTS	7
3.1	SOIL SAMPLING PROTOCOL.....	7
3.2	SOIL SAMPLE HANDLING AND ANALYSIS	7
3.3	SOIL ANALYTICAL RESULTS	8
4.0	QUALITY ASSURANCE/QUALITY CONTROL.....	9
4.1	HOLDING TIME LIMITS	9
4.2	LABORATORY QA/QC	9
5.0	NORTHEAST (NE) TERRACED AREA OVERVIEW AND CONCLUSIONS.....	10
5.1	OVERVIEW	10
5.2	CONCLUSIONS.....	11
6.0	REFERENCES.....	12

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Site Background
October 31, 2014

LIST OF TABLES

Table 1	Soil Sample Results For Organic Compounds
Table 2	Soil Sample Results For Inorganic Compounds and Metals

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Northeast (NE) Terraced Area and Soil Sample Location Map
Figure 3	Northeast (NE) Terraced Area and Soil Sample Results Map

Note: Tables and Figures appear at the end of the report.

LIST OF APPENDICES

Appendix A.....	Historical Report
Appendix B	Boring Logs
Appendix C	Laboratory Analytical Reports

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Site Background
October 31, 2014

1.0 Site Background

1.1 INTRODUCTION

This *Northeast (NE) Terraced Area Phase II Assessment Report* details the assessment activities including advancement of soil borings and soil sampling that occurred at the Wilson Creek Unit (Site) during August 8 through 11, 2013. Also included in this report, is a summary of historical soil sampling conducted in 2007 at the NE Terraced Area.

The Site consists of approximately 3,000 acres, of which 640 acres is owned and operated by Chevron North America Exploration and Production Company (Chevron), primarily encompassing the main processing area. The remainder of the Site is owned by the Bureau of Land Management (BLM) and various private owners. The Site is known within the Colorado Oil and Gas Conservation Commission (COGCC) as Remediation Project Number 70. The NE Terraced Area is known as Spill Number 2213637 under Remediation Project Number 70.

1.2 SITE LOCATION

The Site is located approximately 12 miles north of Meeker in Rio Blanco County, Colorado. The Site is located in and around Section 27, Township 3 North, Range 94 West. A Site location map is presented as **Figure 1** and shows the location of the NE Terraced Area, the Wilson Creek Unit Field Office (Field Office), as well as the locations of other Site features.

The NE Terraced Area is approximately one half-mile to the northeast of the Field Office and sits approximately 800 feet to the east of Rio Blanco County Road 9 (located immediately up-gradient from the Former Crude Shipping/Loadout Area) **Figure 2**. The NE Terraced Area is comprised of a series of seven terraces. Some of the terraces are located on land believed to be owned by a private owner (Ray Bonds).

1.3 REGIONAL SETTING

The Site is an active oil and gas field consisting of oil and gas exploration and production equipment, the Field Office, Rio Blanco County Road #9, and native vegetation. Properties adjacent to the Site include rural residences and private and public lands. These properties are utilized for agricultural, recreational, and mining purposes.

The topography of the Site consists of mountain tops, gulches, and valleys with elevations ranging from approximately 7,000 to 8,400 feet above mean sea level (AMSL). The terrain is rugged and forested. Scrub oak covers the dry, southern-facing slopes and aspen communities dominate the northerly slopes.

Snow melt and groundwater springs in the vicinity of the Site feed small creeks that join large tributary systems, ultimately leading to the Colorado River. The main processing area is located where several valleys converge. Surface runoff in this area flows along a natural drainage pathways in a primarily



NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Site Background
October 31, 2014

northerly direction towards four Spill Prevention, Control, and Countermeasures (SPCC) ponds maintained by Chevron. Surface water then flows into Wilson Creek, a tributary of the Yampa River.

1.4 NORTHEAST (NE) TERRACED AREA GEOLOGY/HYDROGEOLOGIC SETTING

The near surface geology of the NE Terraced Area consists primarily of sandy silts. Some silty clays are also present. The bedrock surface has not been encountered during subsurface investigations in this area but the bedrock surface can be observed in several areas on the side-slopes of the valley where the terraces are located. Only perched groundwater has been encountered during subsurface investigations in this area.

1.5 NORTHEAST (NE) TERRACED AREA HISTORY

In the summer of 2007, the NE Terraced Area was identified by Chevron as requiring investigation. A total of seven terraces were identified and ranged from approximately 2,300 square feet to 9,600 square feet in size. The historical use of the NE Terraced Area was, and is, currently unknown. An assessment was conducted on the seven terraces in October 2007, and documented in a report titled *Documentation of Soil Sampling at the NE Terraced Area near Rio Blanco County Road 9 at the Wilson Creek Unit*, dated December 7, 2007 (SECOR 2007) and presented as **Appendix A**. During the October 2007 assessment, one soil boring was advanced using a hand auger at each of the seven terraces. The hand auger borings were advanced to a depth of six feet below ground surface (bgs). The soils removed from each bore hole were screened with a photo-ionization detector (PID) to identify the appropriate interval to collect soil samples for quantitative analysis. The following findings were identified during the 2007 assessment:

- The soil samples collected in the upper four feet had low PID readings and no observed soil staining;
- The soil samples collected between four and six feet below grade contained elevated PID readings and observed soil staining;
- Soil samples were collected at depth intervals of 4.5 to 5.5 feet below the ground surface for total petroleum hydrocarbon (TPH) and metals analysis; and
- TPH concentrations in the seven samples ranged from 2,800 to 13,000 milligrams per kilogram (mg/kg), which is higher than the COGCC Allowable Concentrations and Levels (500 mg/kg).

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Site Background
October 31, 2014

- The approximate area of each terrace are is as follows:
 - **Terrace T-1:** approximately 4,500 square feet in area
 - **Terrace T-2:** approximately 3,300 square feet in area
 - **Terrace T-3:** approximately 9,600 square feet in area
 - **Terrace T-4:** approximately 3,200 square feet in area
 - **Terrace T-5:** approximately 2,300 square feet in area
 - **Terrace T-6:** approximately 2,900 square feet in area
 - **Terrace T-7:** approximately 2,400 square feet in area

A second investigation was planned for the summer of 2008 but was put on hold by Chevron citing property ownership issues. It was concluded that about half of the terraces are located on private property. Moreover, it was unknown whether or not the area is from historic Texaco operations.

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Phase II Assessment of the Northeast (NE) Terraced Area
October 31, 2014

2.0 Phase II Assessment of the Northeast (NE) Terraced Area

Stantec conducted the Phase II Assessment of the NE Terraced area during August 8 through 11, 2013. The purpose of the Phase II Assessment of the NE Terraced area was to evaluate the horizontal and vertical extent of TPH impacts to subsurface soil in each of the seven terraces which are above the COGCC screening levels. Additionally, a secondary objective was to develop alternatives that could be implemented to address subsurface soils impacts. In addition, one impacted soil sample (showing the most visually impacts and with the highest PID screening response) from each terrace was characterized as defined in the *COGCC Exploration & Production (E&P) Waste Management Table 910-1-Concentration Levels (Table 910-1)*, dated February 1, 2014. These additional analyses, along with data collected during the 2007 assessment, will satisfy Table 910-1 requirements and assist in narrowing constituents of concerns (COCs) for the NE Terraced Area.

The Phase II Assessment consisted of the following activities:

- Conducted a public and private utility locate within the former NE Terraced Area to identify the locations of underground pipelines and other underground structures or utilities;
- Identified and surveyed, using a hand held Global Positioning System (GPS) unit, four soil boring locations within each of the seven terraces;
- Used a Diedrich D-50 all-terrain vehicle (ATV) mounted drill rig with direct push drilling and split-spoon sampling methods to advanced soil borings to a depth of approximately 10 feet bgs;
- Collected continuous soil samples which were screened with a PID and classified soil stratigraphy using the Unified Soils Classification System (USCS) as a guide; and
- Collected and submitted soil samples for laboratory analysis based on PID screening responses and visual observations. Up to three soil samples from each soil boring were submitted for laboratory analysis.

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Phase II Assessment Sampling and Analytical Results
October 31, 2014

3.0 Phase II Assessment Sampling and Analytical Results

3.1 SOIL SAMPLING PROTOCOL

During the Phase II Assessment of the NE Terraced Area (August 8 through 11, 2013), a Stantec geologist supervised the advancement of soil borings (**Figure 2**) in each of the seven terraces. During drilling activities, a Stantec geologist collected soil samples from the sampler and placed them in a plastic bag to perform headspace screening for Volatile Organic Compounds (VOCs) using a MiniRae 3000 PID with an 10.6 electron volt (eV) lamp. Soil stratigraphy was also classified using the USCS as a guide. Boring logs are presented as **Appendix B**. Select soil samples were placed in laboratory-provided glassware, labeled, stored on ice, and transported under chain-of-custody protocol to Merit Laboratories (Merit) in East Lansing, Michigan. Soil sample intervals were selected as follows:

- Interval that showed the most visually impacted and with the highest PID screening response;
- Interval that showed little to no impacts just above the most impacted interval; and
- Interval that showed little to no impacts just below the most impacted interval.

3.2 SOIL SAMPLE HANDLING AND ANALYSIS

Following collection, soil samples were labeled, logged on a laboratory chain-of-custody, and placed on ice in an insulated cooler to maintain a temperature of approximately 40 degrees Fahrenheit (° F) (or 4 degrees Celsius [° C]). Samples were shipped to Merit in East Lansing, Michigan. Standard chain-of-custody documentation and protocol were maintained throughout the sampling and analysis process. Soil samples were analyzed as follows:

- Analyzed all soil samples collected for laboratory analysis for:
 - TPH-Gas Range Organics (GRO) [Carbon Range (C)6 – C10] using method 8015B
 - TPH-Diesel Range Organics (DRO) (C10 – C32) using method 8015B
 - TPH-Oil Range Organics (ORO) (C32 – C36) using method 8015B
- Submitted one soil sample from each terrace that appeared most visually impacted and with the highest PID screening response for laboratory analysis for the Table 910-1 constituents:
 - Benzene, toluene, ethylbenzene, and total xylenes (BTEX) using method 5035/8260B
 - Semi-Volatile Organic Compounds (SVOC) using method 8270C
 - Electrical Conductivity (EC) using method 120.1
 - Sodium Absorption Ratio (SAR) using method 20B
 - pH using method 9045D
 - Arsenic using method 6020
 - Barium using method 6020
 - Boron (hot water soluble) using method 200.8
 - Cadmium using method 6020
 - Chromium III using method 6020
 - Chromium VI using method 3500-Cr B
 - Copper using method 6020



NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Phase II Assessment Sampling and Analytical Results
October 31, 2014

- Lead using method 6020
- Mercury using method 7471A
- Nickel using method 6020
- Selenium using method 6020
- Silver using method 6020
- Zinc using method 6020
- Moisture using method 2540 B

3.3 SOIL ANALYTICAL RESULTS

During the Phase II Assessment of the NE Terraced Area (August 8 through 11, 2013), soil samples were collected from 28 soil borings (four soil boring per terrace). Soil analytical results for soil sampled during the September 2013 along with historical data gathered during the soil sampling conducted at the NE Terraced Area in 2007 are presented in **Table 1** and **Table 2** and on **Figure 3**. Laboratory analysis reports and chain-of-custody documents are presented as **Appendix C**. A summary of analytical results above the COGCC Allowable Concentrations and Levels is as follows¹:

- **Total TPH (C6-C36)** was detected above the COGCC Allowable Concentrations and Levels (500 mg/kg) in 18 locations (in at least one sample collected from Terraces T-1 through T-7)
- **Arsenic** was detected above the COGCC Allowable Concentrations and Levels (0.39 mg/kg) in 7 locations (in at least one sample collected from Terraces T-1 through T-7)

¹ Only detected concentrations above the COGCC Allowable Concentrations and Levels are listed. With the exception of Total TPH (C6-C36) and Total Xylene, concentrations below the method detection limit but above the COGCC Allowable Concentrations and Levels were considered below the COGCC Allowable Concentrations and Levels and non-detect.

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Quality Assurance/Quality Control
October 31, 2014

4.0 Quality Assurance/Quality Control

All non-disposable field equipment (i.e., split spoon) were decontaminated with a low-phosphate soap (Liquinox®) and distilled-water rinse prior to field activities and between each boring location. An isopropyl alcohol rinse was used to remove any phase-separated hydrocarbons (PSH) before using the Liquinox® and distilled-water rinse. Nitrile gloves were donned prior to sampling each soil sample. A PID, used to measure VOCs, was calibrated daily. Specific quality assurance/quality control (QA/QC) procedures implemented for this project are described below.

4.1 HOLDING TIME LIMITS

Holding times vary with the analyte, sample matrix, and analytical methodology. Holding times are specified in the USEPA Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846 (USEPA, 1993). All laboratory analysis were performed within specified holding times.

4.2 LABORATORY QA/QC

Laboratory QA/QC data are provided in the laboratory analytical reports presented in **Appendix C**.

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Northeast (NE) Terraced Area Overview and Conclusions
October 31, 2014

5.0 Northeast (NE) Terraced Area Overview and Conclusions

5.1 OVERVIEW

During the historical assessment conducted at the NE Terraced Area in 2007 along with the Phase II Assessment of the NE Terraced Area conducted in 2013, soil samples were collected from 35 soil boring locations (7 locations [one soil boring per terrace] in 2007 and 28 locations [four soil borings per terrace] in 2013). Soil analytical results for soil sampled during the 2007 and 2013 are presented in **Table 1** and **Table 2** and on **Figure 3**. Laboratory analysis reports and chain-of-custody documents are presented as **Appendix C**. A summary of the 2007 and 2013 analytical results above the COGCC Allowable Concentrations and Levels are as follows²:

- **Total TPH (C6-C35)** from 2007 was detected above the COGCC Allowable Concentrations and Levels (500 mg/kg) in 7 locations (Terraces T-1 through T-7 at depths of 4.5 through 5.5 feet bgs)
- **Total TPH (C6-C36)** from 2013 was detected above the COGCC Allowable Concentrations and Levels (500 mg/kg) in 18 locations (Terraces T-1 through T-7 at depths ranging from 4 to 10 feet bgs)
- **Arsenic** from 2007 and 2013 was detected above the COGCC Allowable Concentrations and Levels (0.39 mg/kg) in 14 locations (Terraces T-1 through T-7 at depths ranging from 4 to 10 feet bgs)

Based on historical data collected at the NE Terraced Area in 2007, along with data gathered during the Phase II Assessment conducted in 2013, the approximate area of TPH impacts above the COGCC Allowable Concentrations in each terraced area are as follows:

- **Terrace T-1:** approximately 2,200 square feet and at a depth of 4.5 through 5.5 feet bgs equaling approximately 2,200 cubic feet (82 cubic yards or 132 tons).
- **Terrace T-2:** approximately 2,500 square feet and at a depth of 4.5 through 6 feet bgs equaling approximately 3,750 cubic feet (139 cubic yards or 223 tons).
- **Terrace T-3:** approximately 7,700 square feet and at a depth of 4.5 through 10 feet bgs equaling approximately 42,350 cubic feet. (1,569 cubic yards or 2,510 tons).
- **Terrace T-4:** approximately 1,900 square feet and at a depth of 4 through 5.5 feet bgs equaling approximately 2,850 cubic feet. (106 cubic yards or 170 tons).
- **Terrace T-5:** approximately 2,300 square feet and at a depth of 4 through 10 feet bgs equaling approximately 13,800 cubic feet. (512 cubic yards or 820 tons).

² Only detected concentrations above the COGCC Allowable Concentrations and Levels are listed. With the exception of Total TPH (C6-C36) and Total Xylene, concentrations below the method detection limit but above the COGCC Allowable Concentrations and Levels were considered below the COGCC Allowable Concentrations and Levels and non-detect.

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

Northeast (NE) Terraced Area Overview and Conclusions
October 31, 2014

- **Terrace T-6:** approximately 2,200 square feet and at a depth of 4 through 5.5 feet bgs equaling approximately 3,300 cubic feet. (123 cubic yards or 197 tons).
- **Terrace T-7:** approximately 1,000 square feet and at a depth of 4 through 5.5 feet bgs equaling approximately 1,500 cubic feet. (56 cubic yards or 90 tons).

5.2 CONCLUSIONS

The results of the additional Phase II Assessment conducted in 2013 at the Site have delineated the horizontal and vertical extent of TPH impacts at the NE Terraced Area. A review of the data suggests that the NE Terraced Area served as some type of pit or retention pond system that was in contact with crude oil. A review of historical aerial photographs indicate that the pits or retention pond systems were removed from service and reclaimed prior to July 1, 1995. Accordingly, since the NE Terraced Area was reclaimed prior to December 30, 1997, the reclamation requirements as defined in COGCC 1000 Series Rules (1000 Series Rules) apply.

NORTHEAST (NE) TERRACED AREA PHASE II ASSESSMENT REPORT

References
October 31, 2014

6.0 References

Table 910-1. Colorado Department of Natural Resources - Colorado Oil and Gas Conservation Commission (COGCC), 2014. Series 900 Rules. February 1, 2014.

SECOR, 2007. *Documentation of Soil Sampling at the NE Terraced Area near Rio Blanco County Road 9 at the Wilson Creek Unit*. December.

USEPA, 1993. *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846)*. Third Edition, August 31.

Series 1000 Rules. Colorado Department of Natural Resources - Colorado Oil and Gas Conservation Commission (COGCC), 2014. Series 1000 Rules. April 1, 2009.

Tables

Table 1
Soil Sample Results For Organic Compounds
Northeast (NE) Terraced Area
Wilson Creek Unit, Rio Blanco County, Colorado

Location	Sample ID and Date Collected	Sample Depth (feet bgs)	PID Reading	C6-C12 Hydrocarbons	C6-C10 Hydrocarbons	>C12-C28 Hydrocarbons	>C10-C32 Hydrocarbons	>C28-C35 Hydrocarbons	>C32-C36 Hydrocarbons	Total C6-C35 Hydrocarbons (TPH)	Total C6-C36 Hydrocarbons (TPH) ²	Benzene	Toluene	Ethyl- benzene	Total Xylenes ³	Acenaphthene	Anthracene	Benzo(A) anthracene	Benzo(B) fluoranthene	Benzo(K) fluoranthene	Benzo(A) pyrene	Chrysene	Dibenzo(A,H) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3,C,D) pyrene	Napthalene	Pyrene		
			(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
COGCC Allowable Concentrations and Levels ¹				--	--	--	--	--	--	500	500	0.17	85	100	175	1,000	1,000	0.22	0.22	2.2	0.022	22	0.022	1,000	1,000	0.22	23	1,000		
Analytical Method				TNRCC 1005 ⁴	SW8015M	TNRCC 1005 ⁴	SW8015M	TNRCC 1005 ⁴	SW8015M	TNRCC 1005 ⁴	SW8015M	5035/8260B	5035/8260B	5035/8260B	5035/8260B	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C	SW8270C		
T-1	T1-1-101007	4.5-5.5	209	1,300	--	8,300	--	1,800	--	11,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-1	T-1-2-4'-080813	4	3.5	--	<6	--	17	--	6	--	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-1	T-1-3-4'-080813	4	1.4	--	<6	--	11	--	<4	--	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-1	T-1-4-2'-080813	2	0.1	--	<6	--	219	--	64	--	286	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-1	T-1-4-5'-080813	5	309.1	--	83	--	4,349	--	807	--	5,239	<0.07	<0.07	0.55	0.34	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.9	<0.300	1.4	<0.3		
T-1	T-1-4-10'-080813	10	3.2	--	<8	--	36	--	8	--	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-1	T-1-5-5'-080813	5	0.9	--	<7	--	17	--	5	--	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T2-1-101007	4.5-5.5	194	1,100	--	3,600	--	<530	--	4,965	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-2-5'-080813	5	0.1	--	<7	--	14	--	6	--	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-3-2'-080813	2	0	--	<6	--	206	--	84	--	293	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-3-6'-080813	6	469.8	--	188	--	13,947	--	1,713	--	15,848	<0.4	<0.4	1.5	4.4	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	3.9	<1.6		
T-2	T-2-3-12'-080813	12	2.4	--	<7	--	7	--	<4	--	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-4-2'-080813	2	0.1	--	<5	--	129	--	42	--	174	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-4-5-080813	5	84.6	--	41	--	13,244	--	2,098	--	15,383	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-4-7'-080813	7	0.2	--	<7	--	9	--	<4	--	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-2	T-2-5-5'-080813	5	0.2	--	<5	--	16	--	6	--	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T3-1-101007	4.5-5.5	225	850	--	2,700	--	<520	--	3,860	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-2-6'-080813	6	1.4	--	<7	--	460	--	140	--	604	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-2-10'-080813	10	951.2	--	420	--	18,366	--	2,379	--	21,165	<0.5	<0.5	3.7	20.2	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	5.7	<1.8		
T-3	T-3-2-15'-080813	15	5.3	--	<7	--	38	--	10	--	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-3-5'-080813	5	2.3	--	<7	--	9,053	--	1,577	--	10,634	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-3-7'-080813	7	296.7	--	119	--	19,341	--	3,053	--	22,513	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-3-10'-080813	10	2.2	--	<7	--	10	--	<4	--	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-4-5'-080813	5	2.8	--	<7	--	12	--	<4	--	18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-5-4'-080813	4	15.8	--	<6	--	252	--	86	--	341	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-5-6'-080813	6	155.1	--	53	--	21,730	--	4,009	--	25,792	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-3	T-3-5-9'-080813	9	6.7	--	<8	--	75	--	11	--	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-4	T4-1-101007	4.5-5.5	440	1,900	--	9,500	--	1,500	--	13,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-4	T-4-2-5'-080713	5	0.9	--	<6	--	54	--	28	--	85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-4	T-4-3-3'-080713	3	6.7	--	<6	--	249	--	77	--	329	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-4	T-4-3-4'-080713	4	312.3	--	97	--	6,514	--	870	--	7,481	<0.07	<0.07	0.66	3.7	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	1.6	<1.5		
T-4	T-4-3-6'-080713	6	4.7	--	<7	--	5	--	<4	--	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-4	T-4-4-7'-080713	7	0	--	<7	--	5	--	<4	--	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-4	T-4-5-5'-080713	5	0.4	--	<9	--	20	--	9	--	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T5-1-101007	4.5-5.5	239	1,500	--	8,100	--	2,200	--	12,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-2-6'-080713	6	2.2	--	<7	--	187	--	47	--	238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-2-8'-080713	8	507.1	--	370	--	3,473	--	482	--	4,329	<0.1	<0.1	3.1	17.1	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	1.7	<0.8		
T-5	T-5-2-10'-080713	10	0.9	--	<7	--	10,000	--	<4	--	10,006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-3-4'-080713	4	12.6	--	<6	--	457	--	160	--	620	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-3-5'-080713	5	309.2	--	83	--	3,095	--	424	--	3,602	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-3-8'-080713	8	0.9	--	<7	--	15	--	5	--	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-4-4'-080713	4	4.2	--	<7	--	19	--	9	--	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-5-4'-080713	4	0.1	--	<6	--	247	--	97	--	347	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-5-8'-080713	8	362.2	--	240	--	7,180	--	821	--	8,241	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-5	T-5-5-9'-080713	9	2.6	--	<7	--	14	--	4	--	22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T6-1-101007	4.5-5.5	NM	640	--	2,200	--	<480	--	3,040	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-2-3'-080713	3	64.3	--	<6	--	134	--	55	--	192	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-2-4'-080713	4	64.3	--	<6	--	1,658	--	298	--	1,959	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-2-5'-080713	5	0.1	--	<7	--	20	--	7	--	31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-3-4'-080713	4	4.7	--	<7	--	1,332	--	256	--	1,592	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-3-5'-080713	5	2.4	--	34	--	4,285	--	498	--	4,817	<0.07	<0.07	0.21	0.64	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8		
T-6	T-6-3-8'-080713	8	0.8	--	<7	--	10	--	4	--	18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-4-4'-080713	4	0	--	<6	--	147	--	59	--	209	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-6	T-6-5-4'-080713	4	0	--	<7	--	12	--	5	--	21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-7	T7-1-101007	4.5-5.5	9,999	590	--	3,600	--	<480	--	4,440	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-7	T-7-2-4'-080613	4	0	--	<6	--	29	--	8	--	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-7	T-7-3-4'-080613	4	0	--	<6	--	66	--	20	--	89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-7	T-7-4-4'-080613	4	0	--	<6	--	14	--	5	--	22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
T-7	T-7-5-3'-080613	3	0	--	<6	--	359	--	97	--	459</																			

Table 1
Soil Sample Results For Organic Compounds
Northeast (NE) Terraced Area
Wilson Creek Unit, Rio Blanco County, Colorado

Notes:
Concentrations are in milligram per kilogram (mg/kg) unless otherwise noted.
Concentrations shaded gray and BOLD are above the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 Allowable Concentrations.
Concentrations in BOLD-only are Non-detect with a detection limit above the Allowable Concentrations.
T: Terrace
bgs: below ground surface
ppm: parts per million
TPH: Total petroleum hydrocarbons
C: Carbon range
-- : Not available
< represent concentrations below the test method limit unless otherwise noted
1. Allowable Concentrations: COGCC Allowable Concentrations per Series 900 Rules (February 1, 2014) Table 910-1
2. Total TPH C6-C36 Calculated as follows: Detected concentrations of TPH C6-C10, TPH >C10-C32, and TPH >C32-C36 were added together. If any of the TPH concentrations were below the test method limit, the test method limit was divided in half and added to the Total TPH concentration.
3. Total Xylene Calculated as follows: Detected concentrations of p,m-Xylene and o-Xylene were added together. If any of the p,m-Xylene or o-Xylene concentrations were below the test method limit, the test method limit was divided in half and added to the Total Xylene concentration.
4. Texas Natural Resource Conservation Commission (TNRCC) 1005 method used for TPH analysis during the 2007 assessment.

Table 2
Soil Sample Results For Inorganic Compounds and Metals
Northeast (NE) Terraced Area
Wilson Creek Unit, Rio Blanco County, Colorado

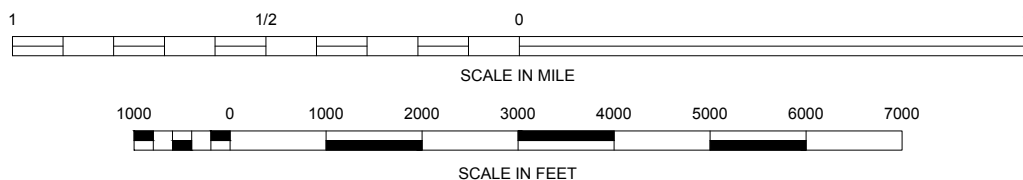
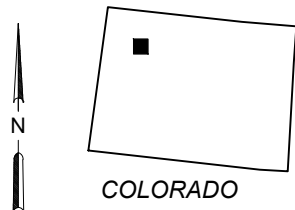
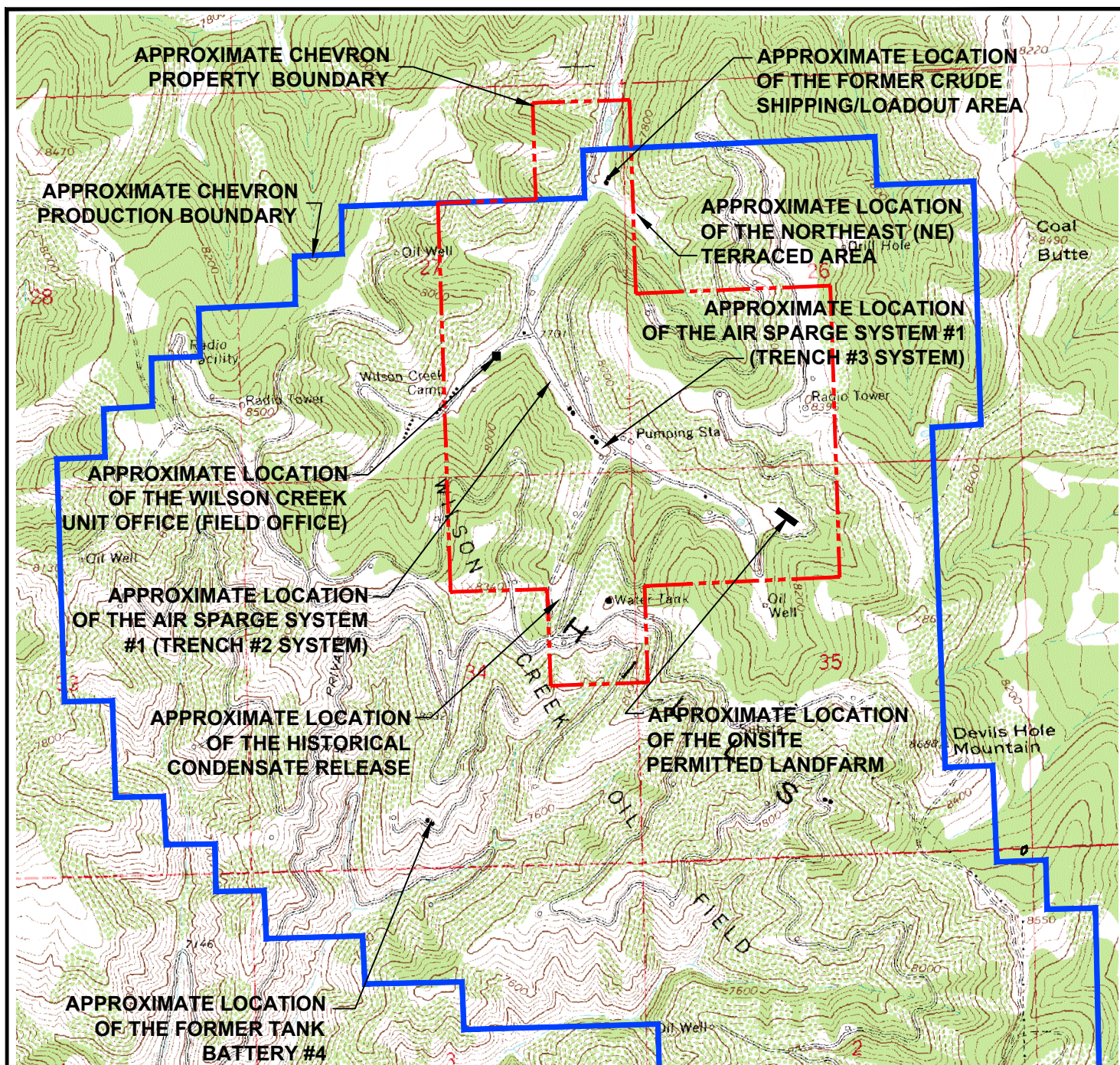
Location	Sample ID and Date Collected	Sample Depth (feet bgs)	Electrical Conductivity	Sodium Absorption Ratio	pH	Arsenic	Barium	Boron	Cadmium	Chromium (III)	Chromium (VI)	Total Chromium	Total Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Calcium	Magnesium	Sodium	Moisture
			mmhos/cm	--	--	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/L)	(mg/L)
COGCC Allowable Concentrations and Levels ¹			<4	<12	6 - 9	0.39	15,000	2	70	120,000	23	--	--	3,100	400	23	1,600	390	390	23,000	--	--	--	NA
Analytical Method			120.1	20B	9045D	SW6020	SW6020	E200.8	SW6020	SW6020	3500-Cr B	SW-846 6010B	SW6020	SW6020	SW6020	SW7471A	SW6020	SW6020	SW6020	SW6020	E200.8	E200.8	E200.8	Std M 2450B
T-1	T1-1-101007	4.5-5.5	--	--	--	5.25	206	--	< 0.616	--	--	19.7	--	--	27.1	0.382	--	< 2.46	< 0.616	--	--	--	--	19.6
T-1	T-1-2-4'-080813	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11
T-1	T-1-3-4'-080813	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9
T-1	T-1-4-2'-080813	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7
T-1	T-1-4-5'-080813	5	1.590	5.06	8.30	1.82	106	1.25	0.34	6.28	<1	--	6.28	24.0	16.5	0.174	10.5	<0.40	<0.20	100	50.8	17.5	164	19
T-1	T-1-4-10'-080813	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21
T-1	T-1-5-5'-080813	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14
T-2	T2-1-101007	4.5-5.5	--	--	--	5.83	242	--	< 0.657	--	--	20.9	--	--	26.5	< 0.126	--	< 2.63	< 0.657	--	--	--	--	24.7
T-2	T-2-2-5'-080813	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18
T-2	T-2-3-2'-080813	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6
T-2	T-2-3-6'-080813	6	1.668	1.35	7.85	1.73	88.9	1.17	0.40	4.56	<1	--	4.56	16.7	18.6	0.264	10.6	<0.40	<0.20	59.0	209	60.1	86.3	21
T-2	T-2-3-12'-080813	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16
T-2	T-2-4-2'-080813	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5
T-2	T-2-4-5'-080813	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24
T-2	T-2-4-7'-080813	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20
T-2	T-2-5-5'-080813	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14
T-3	T3-1-101007	4.5-5.5	--	--	--	4.48	267	--	< 0.640	--	--	19.6	--	--	28.0	< 0.123	--	< 2.56	< 0.640	--	--	--	--	22.6
T-3	T-3-2-6'-080813	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16
T-3	T-3-2-10'-080813	10	1.585	4.75	8.75	2.01	130	1.4	0.43	7.89	<1	--	7.89	17.7	18.1	0.31	10.6	<0.40	<0.20	60.7	209	59.2	302	32
T-3	T-3-2-15'-080813	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17
T-3	T-3-3-5'-080813	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15
T-3	T-3-3-7'-080813	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14
T-3	T-3-3-10'-080813	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18
T-3	T-3-4-5'-080813	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15
T-3	T-3-5-4'-080813	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12
T-3	T-3-5-6'-080813	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20
T-3	T-3-5-9'-080813	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23
T-4	T4-1-101007	4.5-5.5	--	--	--	3.82	178	--	< 0.588	--	--	18.1	--	--	33.5	0.547	--	< 2.35	< 0.588	--	--	--	--	16.7
T-4	T-4-2-5'-080713	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11
T-4	T-4-3-3'-080713	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11
T-4	T-4-3-4'-080713	4	1.193	0.481	7.85	0.62	96.0	0.72	0.38	2.97	<1	--	2.97	14.2	15.0	0.378	5.36	<0.40	<0.20	29.1	114	32.1	22.6	16
T-4	T-4-3-6'-080713	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17
T-4	T-4-4-7'-080713	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20
T-4	T-4-5-5'-080713	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26
T-5	T5-1-101007	4.5-5.5	--	--	--	4.18	189	--	< 0.607	--	--	16.3	--	--	21.5	0.176	--	< 2.43	< 0.607	--	--	--	--	18.5
T-5	T-5-2-6'-080713	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14
T-5	T-5-2-8'-080713	8	1.155	0.811	7.26	1.25	122	1.43	0.36	3.19	<2	--	3.19	13.7	15.4	<0.050	7.72	<0.40	<0.20	48.7	100	40.6	38.1	18
T-5	T-5-2-10'-080713	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18
T-5	T-5-3-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12
T-5	T-5-3-5'-080713	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15

Table 2
Soil Sample Results For Inorganic Compounds and Metals
Northeast (NE) Terraced Area
Wilson Creek Unit, Rio Blanco County, Colorado

Location	Sample ID and Date Collected	Sample Depth (feet bgs)	Electrical Conductivity	Sodium Absorption Ratio	pH	Arsenic	Barium	Boron	Cadmium	Chromium (III)	Chromium (VI)	Total Chromium	Total Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Calcium	Magnesium	Sodium	Moisture
			mmhos/cm	--	--	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/L)	(mg/L)
COGCC Allowable Concentrations and Levels ¹			<4	<12	6 - 9	0.39	15,000	2	70	120,000	23	--	--	3,100	400	23	1,600	390	390	23,000	--	--	--	NA
Analytical Method			120.1	20B	9045D	SW6020	SW6020	E200.8	SW6020	SW6020	3500-Cr B	SW-846 6010B	SW6020	SW6020	SW6020	SW7471A	SW6020	SW6020	SW6020	SW6020	E200.8	E200.8	E200.8	Std M 2450B
T-5	T-5-3-8'-080713	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17
T-5	T-5-4-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13
T-5	T-5-5-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7
T-5	T-5-5-8'-080713	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17
T-5	T-5-5-9'-080713	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17
T-6	T6-1-101007	4.5-5.5	--	--	--	4.66	209	--	< 0.591	--	--	14.3	--	--	19.6	0.167	--	< 2.37	< 0.591	--	--	--	--	17.1
T-6	T-6-2-3'-080713	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6
T-6	T-6-2-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13
T-6	T-6-2-5'-080713	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17
T-6	T-6-3-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14
T-6	T-6-3-5'-080713	5	0.870	1.27	7.57	1.26	75.4	1.07	0.27	2.90	<1	--	2.90	12.6	12.2	<0.050	8.67	<0.40	<0.20	35.1	53.3	23.2	44.2	16
T-6	T-6-3-8'-080713	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18
T-6	T-6-5-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8
T-6	T-6-5-4'-080713	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16
T-7	T7-1-101007	4.5-5.5	--	--	--	4.09	180		<0.593	--	--	15.2	--	--	16	<0.116	--	<2.37	<0.593	--	--	--	--	17.4
T-7	T-7-2-4'-080613	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12
T-7	T-7-3-4'-080613	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11
T-7	T-7-4-4'-080613	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6
T-7	T-7-5-3'-080613	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10
T-7	T-7-5-4'-080613	4	2.904	0.162	7.58	1.13	111	0.49	0.35	3.04	<1	--	3.04	11.6	11.0	0.146	6.11	<0.40	<0.20	21.0	234	46.8	10.4	15
T-7	T-7-5-7'-080613	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16

Notes:
Concentrations are in milligrams per kilogram (mg/kg) unless otherwise noted.
Concentrations in **BOLD** are above the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 Allowable Concentrations.
T: Terrace
bgs: below ground surface
-- : Not available
mmhos/cm: Millimhos per centimeter
mg/L: milligrams per liter
< represent concentrations below the test method limit unless otherwise noted
1. Allowable Concentrations: COGCC Allowable Concentrations per Series 900 Rules (February 1, 2014) Table 910-1

Figures

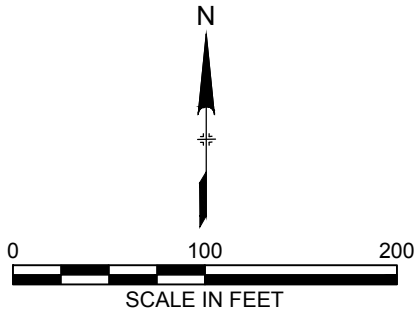


REFERENCE: USGS 7.5 MINUTE □ UADRANGLE □ DEVILS HOLE GULCH, COLORADO

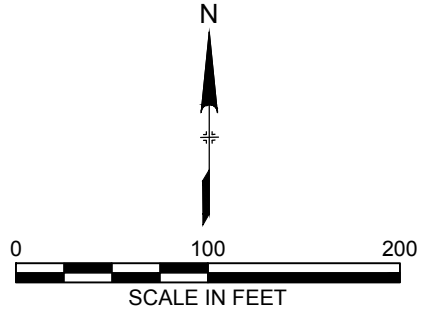
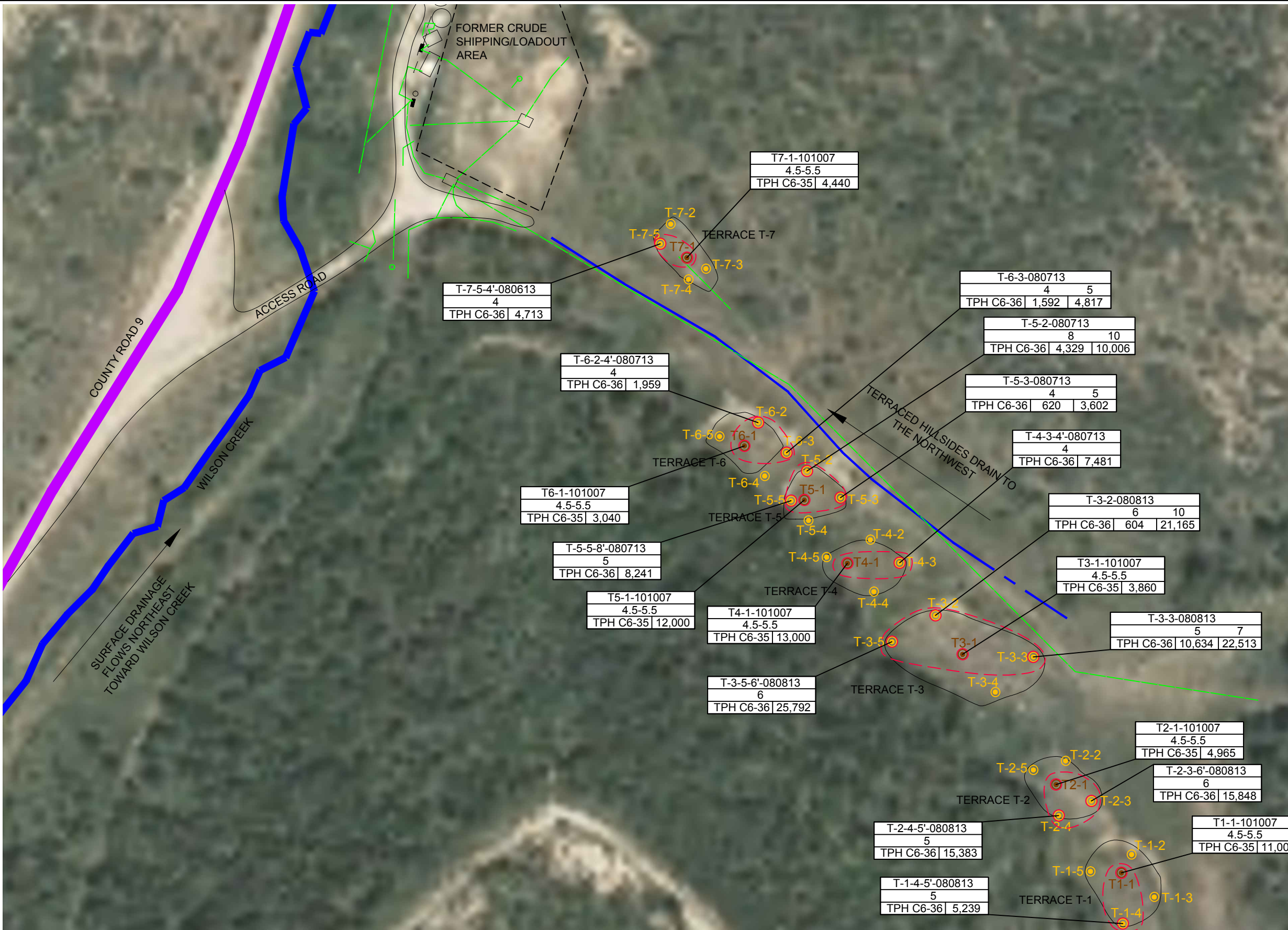
 Stantec 2000 South Colorado Boulevard, Suite 2-300 Denver, Colorado 80222 PHONE: (303) 758-4058 FAX: (303) 758-4828	FOR: CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY WILSON CREEK UNIT 7265 RIO BLANCO COUNTY ROAD #9 MEEKER, COLORADO		SITE LOCATION MAP		FIGURE: 1
	JOB NUMBER: 212201118	DRAWN BY: ARA	CHECKED BY: CB	APPROVED BY: TM	DATE: 12/18/13



- LEGEND**
- PIPING (ABOVE AND BELOW GROUND)
 - SURFACE DRAINAGE
 - SOIL SAMPLE LOCATION (2007)
 - SOIL SAMPLE LOCATION (2013)



 2000 South Colorado Boulevard, Suite 2-300 Denver, Colorado 80222 PHONE: (303) 758-4058 FAX: (303) 758-4828		FOR: CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY WILSON CREEK UNIT 7265 RIO BLANCO COUNTY ROAD #9 MEEKER, COLORADO		NORTHEAST TERRACE (NE) AREA AND SOIL SAMPLE AND BORING LOCATION MAP		FIGURE: 2
JOB NUMBER: 212201118		DRAWN BY: ARA		CHECKED BY: CB	APPROVED BY: TM	DATE: 4/2/14



Appendix A

Historical Report



SECOR
INTERNATIONAL
INCORPORATED

www.secor.com
2321 Club Meridian Drive
Suite E
Okemos, MI 48864
517-349-9499 TEL
517-349-6863 FAX

December 7, 2007

Mr. Steve Huddleson
Chevron Environmental Management Company
1400 Smith St. Room 19001A
Houston, Texas 77002

RE: Documentation of Soil Sampling at the NE Terraced Area near Rio Blanco County Road 9 at the Wilson Creek Unit

Dear Mr. Huddleson:

SECOR International Incorporated (SECOR) is pleased to provide Chevron Environmental Management Company (CEMC) with this letter report documenting results from soil sampling of the NE Terraced Area near Rio Blanco County Road 9 at the Wilson Creek Unit in Rio Blanco County, Colorado (Site) from October 10, 2007 through October 17, 2007.

Figure 1 provides a site vicinity map identifying the investigated terraced area (NE Terraced Area) relative to the Chevron Wilson Creek Unit. Specifically, the NE Terraced Area is approximately a half mile to the northeast of the Chevron field office and sits approximately 800 feet to the east of Rio Blanco County Road 9.

Work Scope

SECOR conducted soil sampling to assess potential impacts to the NE Terraced Area. Sampling of the locations began on October 10, 2007 and concluded October 17, 2007. A total of seven samples were collected (one from each terrace T-1 through T-7) using a hand auger. The terraces range from approximately 2,300 square feet to 9,600 square feet. Headspace screening was conducted using a photo-ionization detector (PID) to determine the interval for sampling at each location. Soil samples were collected from a depth of approximately 4.5 to 5.5 feet below ground surface (bgs). Figure 2 shows the relative location of the terraces to the county road and surface drainage.

Geologic characteristics of the samples were recorded in the field notes (attached). Soils were generally soft clays overlain by silts, with a strong petroleum odor and staining observed in the 4-foot to 5-foot range. .

Soil samples were sent to Lancaster Laboratories, Inc. for analysis. Samples were analyzed for total petroleum hydrocarbons (TPH) by TNRCC Method 1005 Revision 03, moisture by Method SM20 2540 G, and metals by Method SW-846. Laboratory analytical reports will be providing in the 2007 Annual Report.

Results

Soil sampling results are shown in Table 1. Results were compared to the Allowable Concentrations and Levels in Table 910-1 of the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 Rules. For the purposes of this report, TPH is considered to be represented by results for the C6-C35 hydrocarbon analytical range.

All seven locations had TPH concentrations above the 1,000 mg/kg allowable concentration for sensitive areas, ranging from 2,800 mg/kg to 13,000 mg/kg.

As shown on Table 1, traces of select metals were found in the samples, however, all of the concentrations were significantly less than the COGCC allowable levels. Moisture contents ranged from 16.7% to 24.7%.

Should you have any questions regarding this report, please contact me at (517) 349-9499 extension 276.

Respectfully,

SECOR International Incorporated



Seth Maher, PE
Associate Engineer

Cc:

Luke Allred, Chevron
Tammy Strain, Chevron
Dale Harber, Chevron
Ronnie Kallus, SECOR

Attachments

Table 1: Soil Sample Results From NE Terraced Area October 2007

Figure 1: NE Terraced Area Site Vicinity Map

Figure 2: NE Terraced Area Site Plan

Notes: T-1 through T-7 Soil Boring Notes

Limitations

This report was prepared in accordance with the scope of work outlined in SECOR's contract and with generally accepted professional engineering and environmental consulting practices existing at the time this report was prepared and applicable to the location of the site. It was prepared for the exclusive use of Chevron for the express purpose stated above. Any re-use of this report for a different purpose or by others not identified above shall be at the user's sole risk without liability to SECOR. To the extent that this report is based on information provided to SECOR by third parties, SECOR may have made efforts to verify this third party information, but SECOR cannot guarantee the completeness or accuracy of this information. The opinions expressed and data collected are based on the conditions of the site existing at the time of the field investigation. No other warranties, expressed or implied are made by SECOR.

Table 1
Soil Sample Results From NE Terraced Area October 2007
Wilson Creek Unit, Rio Blanco County, Colorado

Location	Sample ID	C6-C12 Hydrocarbons	>C12-C28 Hydrocarbons	>C28-C35 Hydrocarbons	Total C6-C28 Hydrocarbons	Total C6-C35 Hydrocarbons (TPH)	Moisture	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(%)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
COGCC Allowable Concentrations and Levels		-	-	-	-	1,000	-	41	180,000	26	1,500	300	17	-	100
T-1	T-1-101007	1,300	8,300	1,800	9,600	11,000	19.6	5.25	206	< 0.616	19.7	27.1	0.382	< 2.46	< 0.616
T-2	T-2-101007	1,100	3,600	<530	4,700	4,700	24.7	5.83	242	< 0.657	20.9	26.5	< 0.126	< 2.63	< 0.657
T-3	T-3-101007	850	2,700	<520	3,600	3,600	22.6	4.48	267	< 0.640	19.6	28.0	< 0.123	< 2.56	< 0.640
T-4	T-4-101007	1,900	9,500	1,500	11,000	13,000	16.7	3.82	178	< 0.588	18.1	33.5	0.547	< 2.35	< 0.588
T-5	T-5-101007	1,500	8,100	2,200	9,700	12,000	18.5	4.18	189	< 0.607	16.3	21.5	0.176	< 2.43	< 0.607
T-6	T-6-101007	640	2,200	<480	2,800	2,800	17.1	4.66	209	< 0.591	14.3	19.6	0.167	< 2.37	< 0.591
T-7	T-7-107007	590	3,600	<480	4,200	4,200	17.4	4.09	180	<0.593	15.2	16.0	<0.116	<2.37	<0.593

Notes:

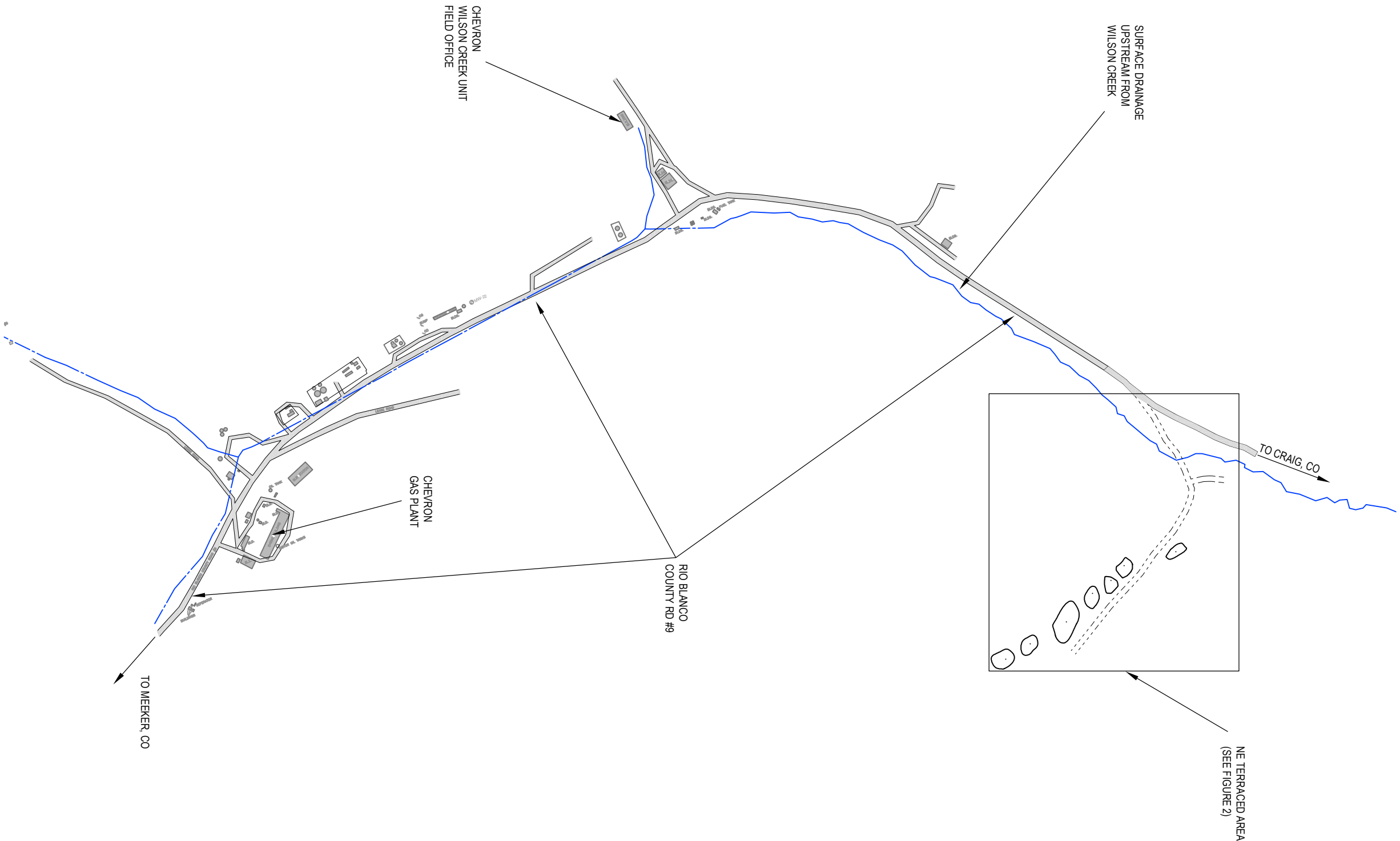
ppm = parts per million

mg/kg = milligrams per kilogram

COGCC Allowable Concentrations and Levels = Colorado Oil and Gas Conservation Commission Allowable Concentrations and Levels from Table 910-1 of the Series 900 Rules.

- = Not established.

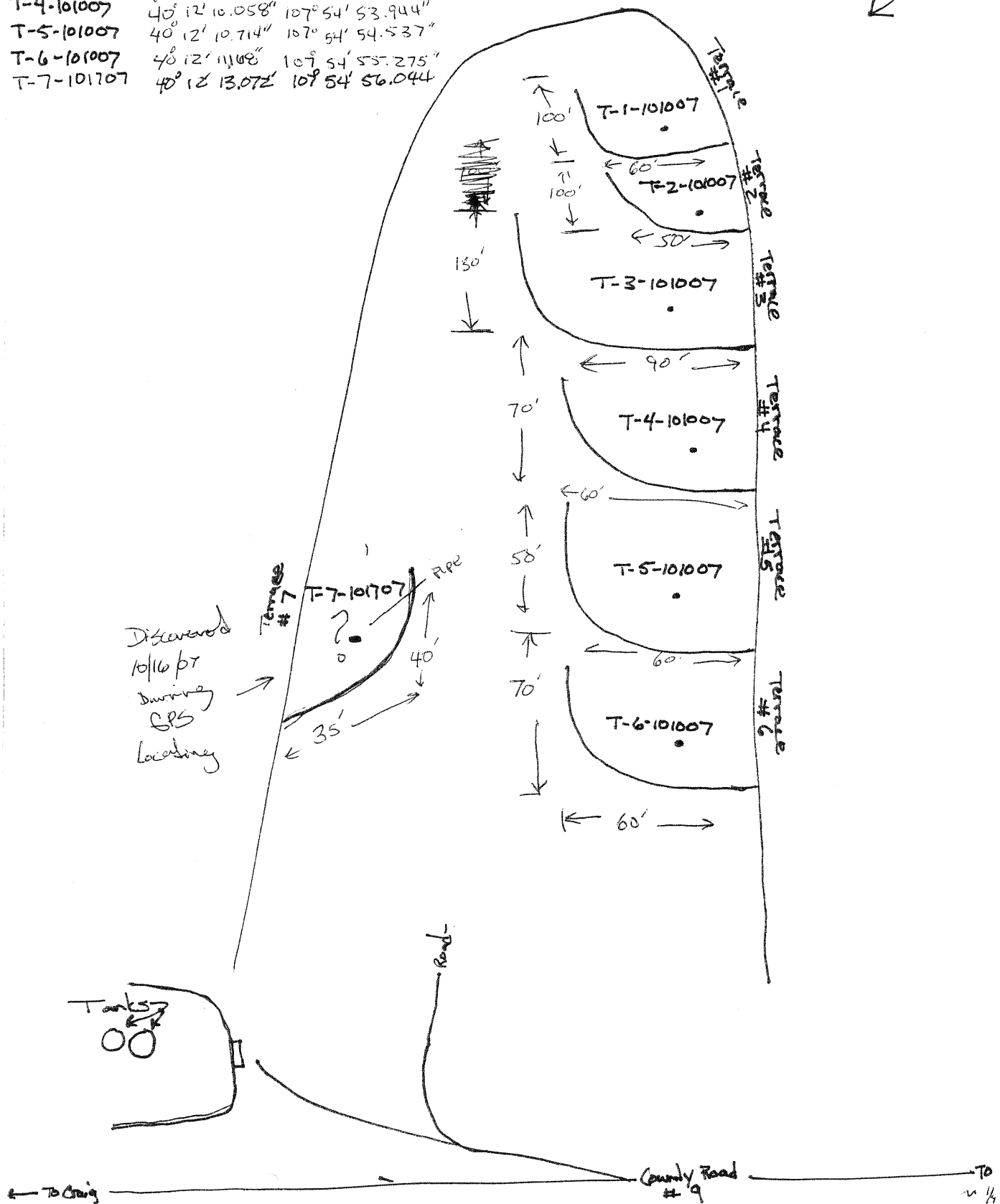
Total TPH concentrations exceeding the allowable concentration in sensitive areas are shown in **bold**.



No warranty is made by SECOR International, Inc. as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and/or information.

 SECOR 2321 CLUB MERIDIAN DR., SUITE E OKEMOS, MI 48864 PHONE: (517)349-9499 FAX: (517)349-6863	FOR: CHEVRON WILSON CREEK UNIT MEEKER, COLORADO	CHECKED BY: SAM APPROVED BY: JMR	FIGURE 1
JOB NUMBER: 89CH 49557 07 4000	DRAWN BY: EDK	DATE: 11/7/07	

Location	Lat.	Long.
T-1-101007	40° 12' 6.980"	107° 54' 50.723"
T-2-101007	40° 12' 7.849"	107° 54' 51.490"
T-3-101007	40° 12' 9.197"	107° 54' 52.634"
T-4-101007	40° 12' 10.058"	107° 54' 53.944"
T-5-101007	40° 12' 10.714"	107° 54' 54.537"
T-6-101007	40° 12' 11.468"	107° 54' 55.275"
T-7-101707	40° 12' 13.072"	107° 54' 56.044"



PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH.49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:

11-T-101007

PAGE 1 OF 1

SECOR

DRILLING: STARTED 10/07 COMPLETED: 10/07
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 5'
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
1		ML	Silt, strong brown, 7.5YR 4/6 Non plastic, very soft Moist, organic odor, No Staining			100% ↓	NA ↓	0.5	1	
2								0.6	2	
3								0.5	3	
4		CL	Clay, black, 7.5YR 2.5/1, Medium Plastic, very soft moist, strong odor, staining, Crude	Sample				209	4	
5			5' FOB						5	
6			6' FOB CB						6	
7									7	
8									8	
9									9	
10									10	
11									11	
12									12	
13									13	
14									14	
15									15	
16									16	
17									17	
18									18	
19									19	

PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH.49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:
TZ-H01007

PAGE 1 OF 1

SECOR

DRILLING: STARTED 10/10/07 COMPLETED: 10/10/07
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 5'
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
1			Silt, strong brown 7.5R			100% ↓	NA ↓	1.0	1	
2			ML 4/6, non plastic, very soft organic odor, dry, no staining					0.5	2	
3								0.8	3	
4			CL Clay, black 7.5R 2.5/1					194 ppm	4	
5			High plasticity very soft moist, strong odor, staining crude	sample					5	
6			S'EOB						6	
7			EOB						7	
8									8	
9									9	
10									10	
11									11	
12									12	
13									13	
14									14	
15									15	
16									16	
17									17	
18									18	
19									19	

PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH.49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:

T3-1-101007 PAGE 1 OF 1

SECOR

DRILLING: STARTED COMPLETED:
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 25'
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
1		ML	Silt, strong brown 7.5YR 4/6, non plastic, very soft organic odor, dry, no staining			100% ↓	NA ↓	0.7	1	
2								0.3	2	
3								0.4	3	
4		CL	Clay, black 7.5YR 2.5/1 medium plastic, very soft, moist, odor, staining	Sample				225	4	
5			EOB at 5'					96	5	
6									6	
7									7	
8									8	
9									9	
10									10	
11									11	
12									12	
13									13	
14									14	
15									15	
16									16	
17									17	
18									18	
19									19	

PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH.49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:

T4-1-101007

PAGE 1 OF 1

SECOR

DRILLING: STARTED 10/10/07 COMPLETED: 10/10/07
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 45'
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
1		ML	Silt, strong brown 7.5' R			100% ↓	NA ↓	0.2	1	
2			4/6, non plastic, very soft organic odor, dry, no staining.					0.1	2	
3								0.3	3	
4		CL	Clay, black 7.5' R 2.5' L medium plastic, very soft & moist strong odor, staining crude	Sample				440	4	
5			4.5' EOB						5	
6									6	
7									7	
8									8	
9									9	
10									10	
11									11	
12									12	
13									13	
14									14	
15									15	
16									16	
17									17	
18									18	
19									19	

PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH.49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:

T5-1-101007

PAGE 1 OF 1

SECOR

DRILLING: STARTED 10/10/07 COMPLETED: 10/10/07
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 45
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
1		ML	S.H. Strong brown, 7.5% 4/6, Non-plastic very Soft, ~~moist~~ organic odor, No staining			100% ↓	NA ↓	0.0 0.1	1 2	
2								0.3	3	
3								22.1	4	
4		CL	Clay, black, 7.5% medium plasticity, soft moist, strong odor, staining	Sample				239	5	
5			4.5' EOR						6	
6									7	
7									8	
8									9	
9									10	
10									11	
11									12	
12									13	
13									14	
14									15	
15									16	
16									17	
17									18	
18									19	
19										

PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH. 49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:

T6-1-101007

PAGE 1 OF 1

SECOR

DRILLING: STARTED 10/10/07 COMPLETED: 10/10/07
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 4.5
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace P/D (units)	Depth (feet)	Borehole Backfill
1		ML	Silt, Strong brown, 7.5YR 4/6 Non plastic, very soft moist, organic odor, no staining			100% ↓	NA ↓	0	1	
2								0	2	
3								NM	3	
4		CI	Clay, black, 7.5YR 2.5/1 Medium plasticity, very soft moist, strong odor, staining, crude	Sample				NM	4	
5								NM	5	
6			4.5' EOB						6	
7									7	
8									8	
9									9	
10									10	
11									11	
12									12	
13									13	
14									14	
15									15	
16									16	
17									17	
18									18	
19									19	

PROJECT: Wilson Creek - Chevron
LOCATION: Meeker, CO
PROJECT NUMBER: 89 CH.49557.07/1000

WELL / PROBEHOLE / BOREHOLE NO:

T7-1-B101707

PAGE 1 OF 1

SECOR

DRILLING: STARTED 101707 COMPLETED: 101707
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: SECOR
DRILLING EQUIPMENT: Hand Auger
DRILLING METHOD: Hand Auger
SAMPLING EQUIPMENT: Hand Auger

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): NA
STATIC DTW (ft): NA
WELL CASING DIAMETER (in): NA
LOGGED BY: C. Beall
EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): 5.5
WELL DEPTH (ft): NA
BOREHOLE DIAMETER (in): 2"
CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
1		ML	silt, Strong brown 7.5 YR 4/6 non plastic, very soft, Dry organic odor, no staining			100% ↓	NA ↓	26.5	1	
2								26.9	2	
3								35.1	3	
4		CL	clay black 7.5 YR 2.5/1 medium plastic, very soft, moist, Strong odor, staining, Crude					36.99	4	
5									5	
6			EOB 5.5'					99.99	6	
7									7	
8									8	
9									9	
10									10	
11									11	
12									12	
13									13	
14									14	
15									15	
16									16	
17									17	
18									18	
19									19	

Appendix B

Boring Logs

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T1-1 PAGE 1 OF 1

DRILLING: STARTED **10/10/07** COMPLETED: **10/10/07**
 INSTALLATION: STARTED **10/10/07** COMPLETED: **10/10/07**
 DRILLING COMPANY: **SECOR**
 DRILLING EQUIPMENT: **Hand auger**
 DRILLING METHOD: **Hand auger**
 SAMPLING EQUIPMENT: **Hand auger**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **5.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT ; ML; 7.5YR 4/6 strong brown; non plastic; very soft; moist; no staining; organic odor					0.5		
						5/5		0.6		
								0.5		Native fill
5		CL	CLAY ; CL; 7.5YR 2.5/1 black; medium plasticity; very soft; moist; strong petroleum odor; staining, crude		10/10/07 9:30 T1-1			209	5	
			Hole terminated at 5 feet.							
10									10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

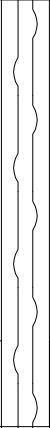
WELL / PROBEHOLE / BOREHOLE NO:



T2-1 PAGE 1 OF 1

DRILLING: STARTED **10/10/07** COMPLETED: **10/10/07**
 INSTALLATION: STARTED **10/10/07** COMPLETED: **10/10/07**
 DRILLING COMPANY: **SECOR**
 DRILLING EQUIPMENT: **Hand auger**
 DRILLING METHOD: **Hand auger**
 SAMPLING EQUIPMENT: **Hand auger**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **5.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT ; ML; 7.5YR 4/6 strong brown; non plastic; very soft; dry; no staining; organic odor					1.0		
						5/5		0.5		
								0.8		 Native fill
5		CL	CLAY ; CL; 7.5YR 2.5/1 black; high plasticity; very soft; moist; strong petroleum odor; staining, crude		10/10/07 9:45 T2-1			194	5	
			Hole terminated at 5 feet.							
10									10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:

T3-1 PAGE 1 OF 1



DRILLING: STARTED **10/10/07** COMPLETED: **10/10/07**
 INSTALLATION: STARTED **10/10/07** COMPLETED: **10/10/07**
 DRILLING COMPANY: **SECOR**
 DRILLING EQUIPMENT: **Hand auger**
 DRILLING METHOD: **Hand auger**
 SAMPLING EQUIPMENT: **Hand auger**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **5.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT ; ML; 7.5YR 4/6 strong brown; non plastic; very soft; dry; no staining; organic odor					0.7		
						5/5		0.3		
								0.4		Native fill
								225		
5		CL	CLAY ; CL; 7.5YR 2.5/1 black; medium plasticity; very soft; moist; slight petroleum odor; staining		10/10/07 10:00 T3-1			96	5	
			Hole terminated at 5 feet.							
10									10	
15									15	



GEO FORM 304 WC_NE_TERRACE.GPJ SCR 20050620(TOEDITS).GDT 4/8/14

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T5-1 PAGE 1 OF 1

DRILLING: STARTED **10/10/07** COMPLETED: **10/10/07**
 INSTALLATION: STARTED **10/10/07** COMPLETED: **10/10/07**
 DRILLING COMPANY: **SECOR**
 DRILLING EQUIPMENT: **Hand auger**
 DRILLING METHOD: **Hand auger**
 SAMPLING EQUIPMENT: **Hand auger**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **4.5**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT ; ML; 7.5YR 4/6 strong brown; non plastic; very soft; dry; no staining; organic odor					0.0		
						4.5/4.5		0.1		
								0.3		Native fill
								22.1		
		CL	CLAY ; CL; 7.5YR 2.5/1 black; medium plasticity; soft; moist; strong petroleum odor; staining		10/10/07 10:30 T5-1			239		
5			Hole terminated at 4.5 feet.						5	
10									10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

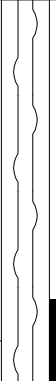
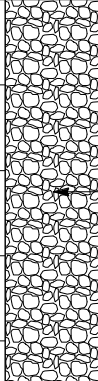
WELL / PROBEHOLE / BOREHOLE NO:



T6-1 PAGE 1 OF 1

DRILLING: STARTED **10/10/07** COMPLETED: **10/10/07**
 INSTALLATION: STARTED **10/10/07** COMPLETED: **10/10/07**
 DRILLING COMPANY: **SECOR**
 DRILLING EQUIPMENT: **Hand auger**
 DRILLING METHOD: **Hand auger**
 SAMPLING EQUIPMENT: **Hand auger**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **4.5**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT ; ML; 7.5YR 4/6 strong brown; non plastic; very soft; dry; no staining; organic odor					0		
						4.5/4.5		0		
								0		
		CL	CLAY ; CL; 7.5YR 2.5/1 black; medium plasticity; very soft; moist; strong petroleum odor; staining, crude Hole terminated at 4.5 feet.		10/10/07 10:45 T6-1					
5									5	 Native fill
10									10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T7-1 PAGE 1 OF 1

DRILLING: STARTED **10/17/07** COMPLETED: **10/17/07**
 INSTALLATION: STARTED **10/17/07** COMPLETED: **10/17/07**
 DRILLING COMPANY: **SECOR**
 DRILLING EQUIPMENT: **Hand auger**
 DRILLING METHOD: **Hand auger**
 SAMPLING EQUIPMENT: **Hand auger**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **5.5**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT ; ML; 7.5YR 4/6 strong brown; non plastic; very soft; dry; no staining; organic odor					26.5		
								20.9		
						5.5/5.5		35.1		Native fill
5		CL	CLAY ; CL; 7.5YR 2.5/1 black; medium plasticity; very soft; moist; strong petroleum odor; staining, crude					3,699	5	
			Hole terminated at 5.5 feet.					9,999		
10									10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-1-2 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 5/6 strong brown; dry; no odor; no staining			1/2	2 4 5 5	0.3		
			7.5YR 3/4 dark brown			1/2	6 11 11 11	3.5		
5			Moist		8/8/13 13:00 T-1-2-4'	1/2	5 5 4 4	1.0	5	Natural collapse/ native fill
			Wet			2/2	27 2 7 6	0.7		
10			Hole terminated at 10 feet.				2 2 2 2		10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-1-3 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			1.25/2	4 5 7 8	0.1		
			7.5YR 3/3 dark brown			1.75/2	5 5 6 6	1.4		
5			Moist		8/8/13 14:10 T-1-3-4'	1.75/2	4 5 4 5	0.3	5	Natural collapse/ native fill
			SOME CLAY				4 4 5 5			
			Wet				3 3 4 4			
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

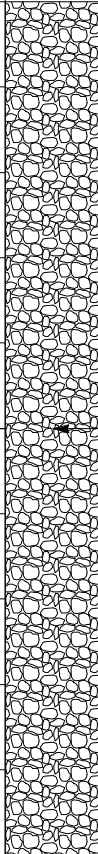
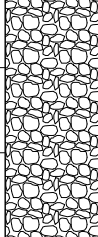
WELL / PROBEHOLE / BOREHOLE NO:



T-1-4 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill	
5		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/4 brown; dry; no odor; no staining		8/8/13 13:30 T-1-4-2'	1.5/2	4 6 9 10	0.1		Natural collapse/ native fill	
											
			Strong petroleum odor; black staining, some very sandy lenses, fine sand some gray stringers		8/8/13 13:40 T-1-4-5'	2/2	3 2 2 3	309.1			5
											
10		ML	SILT WITH CLAY ; ML; 7.5YR 3/4 dark brown; moist; slight petroleum odor; no staining		8/8/13 13:50 T-1-4-10'	2/2	4 4 6 9	3.2			
			No odor								
			Hole terminated at 10 feet.						10		
15									15		

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-1-5 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 3/4 brown; dry; no odor; no staining			1.75/2	4 4 5 6	1.2		
			7.5YR 3/4 dark brown			1.75/2	5 6 7 10	2.5		
			Trace iron staining							
5					8/8/13 12:55 T-1-5-3'	1.5/2	7 9 10 6	0.9	5	Natural collapse/ native fill
			SOME CLAY ; 7.5YR 2-5/3 very dark brown			1/2	8 13 8 6	0.1		
						1.5/2	5 6 7 9	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-2-2 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining							
						2/2	6 5 3 3	0.0		
						1/2	4 3 3 4	0.0		
5			7.5YR 3/3 dark brown							
					8/8/13 10:55 T-2-2-5'	1/2	5 5 6 5	0.1	5	Natural collapse/ native fill
						1.5/2	6 7 7 6	0.0		
						1.5/2	5 5 5 5	0.1		
10			Wet							
			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**LOCATION: **Meeker, CO**PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:

T-2-3 PAGE 1 OF 1DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**DRILLING COMPANY: **Dakota Drilling**DRILLING EQUIPMENT: **ATV-Diedrich D-50**DRILLING METHOD: **Direct push**SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):

LATITUDE:

GROUND ELEV (ft):

INITIAL DTW (ft): **N/A**STATIC DTW (ft): **N/A**

WELL CASING DIAMETER (in): ---

LOGGED BY: **C.Beall**

EASTING (ft):

LONGITUDE:

TOC ELEV (ft):

BOREHOLE DEPTH (ft): **12.0**

WELL DEPTH (ft): ---

BOREHOLE DIAMETER (in): **2**CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/4 brown; dry; no odor; no staining		8/8/13 11:30 T-2-3-2'	1.5/2	3 5 6 7	0.01		
						1.5/2	11 10 6 6	30.6		
5			Slight odor Black staining, oily feel		8/8/13 11:45 T-2-3-6'	1/2	3 4 3 4	469.8	5	
						1/2	3 4 4 5	26.1		Natural collapse/ native fill
10						1.75/2	3 3 4 4	3.4		
		ML	SILT WITH CLAY AND SAND ; ML; 7.5YR 3/4 dark brown; wet; no odor; no staining		8/8/13 12:00 T-2-3-12'	2/2	3 2 3 4	2.4	10	
			Hole terminated at 12 feet.							
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-2-4 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/4 brown; dry; no odor; no staining		8/8/13 11:00 T-2-4-2'	1.5/2	6 6 7 8	0.1		
					8/8/13 11:05 T-2-4-5'	1.5/2	8 8 8 6	47.0		
5			7.5YR 3/3 dark brown; moist; slight odor Black staining, strong odor			1.5/2	4 6 6 5	84.6	5	Natural collapse/ native fill
					8/8/13 11:15 T-2-4-7'	2/2	6 5 5 5	0.2		
		ML	SILT WITH FINE SAND ; ML; 7.5YR 3/3 dark brown; wet; no odor; no staining			1.5/2	4 6 6 7	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-2-5 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/4 brown; dry; no odor; no staining							
						1.5/2	5 5 6 6	0.2		
			7.5YR 3/4 dark brown			1/2	7 9 12 13	0.1		
5			7.5YR 3/2 dark brown; moist; no odor; no staining		8/8/13 10:40 T-2-5-5'	1/2	9 10 10 8	0.2	5	Natural collapse/ native fill
						1.5/2	6 7 8 8	0.2		
						1/2	14 16 14 20	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**LOCATION: **Meeker, CO**PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:

T-3-2 PAGE 1 OF 1DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**DRILLING COMPANY: **Dakota Drilling**DRILLING EQUIPMENT: **ATV-Diedrich D-50**DRILLING METHOD: **Direct push**SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):

LATITUDE:

GROUND ELEV (ft):

INITIAL DTW (ft): **N/A**STATIC DTW (ft): **N/A**

WELL CASING DIAMETER (in): ---

LOGGED BY: **C.Beall**

EASTING (ft):

LONGITUDE:

TOC ELEV (ft):

BOREHOLE DEPTH (ft): **16.0**

WELL DEPTH (ft): ---

BOREHOLE DIAMETER (in): **2**CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining							
						2/2	6 5 4 7	0.1		
						1/2	10 10 10 12	0.1		
5			7.5YR 3/3 dark brown; moist		8/8/13 8:15 T-3-2-6'	2/2	5 5 6 7	1.4	5	
						1/2	5 6 7 6	349.6		
		CL	CLAY ; CL; 7.5YR 4/1 dark gray; dry; no staining; some weathered sandstone, slight odor							
			Black oily clay/silt		8/8/13 8:20 T-3-2-10'	1/2	3 4 3 4	951.2		Natural collapse/ native fill
10						2/2	2 3 4 5	279.4	10	
						1/2	3 6 7 8	224.2		
15					8/8/13 8:25 T-3-2-15'	1/2	6 4 14 16	5.3	15	
			Hole terminated at 16 feet.							

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-3-3 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining							
						2/2	7 6 5 6	0.2		
						1.5/2	7 8 8 10	0.2		
5					8/8/13 10:05 T-3-3-5'	1/2	5 5 6 5	2.3	5	Natural collapse/ native fill
		SP	SAND ; SP; 7.5YR 4/1 dark gray; strong odor, staining		8/8/13 10:10 T-3-3-7'	2/2	5 6 6 7	296.7		
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining							
					8/8/13 10:15 T-3-3-10'		4 6 5 6	2.2		
10			Hole terminated at 10 feet.						10	
15									15	



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PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-3-5 PAGE 1 OF 1

DRILLING: STARTED **8/8/13** COMPLETED: **8/8/13**
 INSTALLATION: STARTED **8/8/13** COMPLETED: **8/8/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/2 brown; dry; no odor; no staining							
						1.75/2	7 11 7 6	0.1		
					8/8/13 9:00 T-3-5-4'	2/2	7 8 9 6	15.8		
5			Black oily silt/clay, staining, strong odor		8/8/13 9:10 T-3-5-6'	1/2	3 3 3 3	155.1	5	Natural collapse/ native fill
						2/2	3 3 4 4	138.2		
		CL	CLAY ; CL; 7.5YR 3/2 dark brown; moist; no staining; some sandstone gravel, slight odor		8/8/13 9:15 T-3-5-9'	2/2	5 6 8 10	6.7		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-4-2 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/2 brown; dry; no odor; no staining			1/2	9 11 9 11	0.7		
						1/2	11 10 9 8	0.5		
5			7.5YR 3/3 dark brown; moist; trace iron staining		8/7/13 14:00 T-4-2-5'	2/2	3 4 8 6	0.9	5	Natural collapse/ native fill
			Some organic material			1/2	6 7 8 7	0.4		
			Some clay			2/2	6 7 6 6	0.1		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-4-3 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/2 brown; dry; no odor; no staining			1/2	9 18 16 18	6.4		
					8/7/13 13:35 T-4-3-2'	2/2	9 12 6 7			
			Black staining, slight odor							
5					8/7/13 13:40 T-4-3-4'	2/2	7 6 6 5	312.3	5	
		ML	SILT TRACE FINE SAND ; ML; 7.5YR 2.5/3 very dark brown; no odor; no staining							
					8/7/13 13:45 T-4-3-6'	2/2	4 4 6 5	4.7		
						2/2	4 5 7 9	0.6		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-4-4 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7YR 3/4 dark brown; dry; no odor; some iron staining			2/2	6 7 8 11	0.0		
						2/2	8 9 11 20	0.1		
5			SANDSTONE ; 7.5YR 6/8 reddish yellow; no odor; very fine to fine grained, weathered cobble bedrock, iron staining			1.5/2	6 8 10 11	0.1	5	Natural collapse/ native fill
		ML	SILT TRACE FINE SAND ; ML; 7.5YR 3/3 dark brown; moist; no odor; trace iron staining		8/7/13 15:10 T-4-4-7'	2/2	4 3 4 6	0.0		
						2/2	4 5 5 8	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-4-5 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/2 brown; dry; no odor; no staining			1/2	7 11 14 21	0.1		
						1.5/2	9 8 15 10	0.4		
5			7.5YR 3/2 dark brown; moist; some organics		8/7/13 15:00 T-4-5-5'	1.5/2	12 10 11 9	0.4	5	Natural collapse/ native fill
						1.75/2	5 4 4 5	0.1		
			Wet			2/2	5 5 6 6	0.1		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-5-2 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; no odor; iron staining			1/2	5 8 9 13	0.1		
						1/2	13 13 13	0.1		
5			7.5YR 3/3 dark brown; moist; no odor; no staining			1/2	15 16 13 9	2.2	5	Natural collapse/ native fill
					8/7/13 11:20 T-5-2-6'	2/2	11 12 7 7	507.1		
		ML	SILT WITH SAND ; ML; 7.5YR 2.5/1 black; wet; strong odor, black staining							
		ML	SILT ; ML; 7.5YR 3/3 dark brown; moist; no odor; no staining		8/7/13 11:25 T-5-2-8'	0.5/2	4 4 6 7	0.9		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-5-3 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining							
						0.75/2	5 7 11 11	0.3		
			7.5YR 3/3 dark brown		8/7/13 12:10 T-5-3-4'	1.5/2	7 12 8 11	12.6		
5			7.5YR 2.5/1 black; moist; strong odor, stained black		8/7/13 12:15 T-5-3-5'	2/2	7 8 10 11	309.2	5	Natural collapse/ native fill
			No odor; no staining		8/7/13 12:25 T-5-3-6'	2/2	4 5 7 6	0.9		
						2/2	7 8 8 8	0.6		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-5-4 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			2/2	8 9 10 10	0.5		
			7.5YR 3/3 dark brown; iron staining			1/2	11 11 12 12	4.2		
5					8/7/13 10:55 T-5-4-4'	1.5/2	6 6 8 9	0.2	5	Natural collapse/ native fill
			Wet			1.75/2	8 11 10 9	0.1		
						2/2	7 7 7 7	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-5-5 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			1.5/2	6 8 10 11	0.1		
		SP	SAND SOME SILT ; SP; 7.5YR 4/3 brown; dry; no odor; no staining			2/2	7 9 11 11	0.1		
5			Moist to wet; black staining, strong odor		8/7/13 10:25 T-5-5-4'	2/2	6 7 7 8	362.2	5	Natural collapse/ native fill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 5/1 gray; wet; no odor; some staining		8/7/13 10:30 T-5-5-8'	2/2	3 4 7 10			
					8/7/13 10:35 T-5-5-9'	2/2	7 10 12 12	2.6		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-6-2 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining		8/7/13 10:00 T-6-2-3'	1/2	5 5 8 10	0.0		
					8/7/13 10:05 T-6-2-4'	1.5/2	15 16 8 12	64.3		
5			7.5YR 3/3 dark brown; moist; slight odor, possible staining							
			No odor		8/7/13 10:10 T-6-2-5'	1/2	5 6 7 7	0.1	5	Natural collapse/ native fill
		CL	CLAY SOME SILT ; CL; 7.5YR 2.5/3 dark brown; wet; no odor; no staining			1/2	5 5 5 5	0.0		
10						2/2	5 5 5 5	0.0		
			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-6-3 PAGE 1 OF 1

DRILLING: STARTED **8/6/13** COMPLETED: **8/6/13**
 INSTALLATION: STARTED **8/6/13** COMPLETED: **8/6/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH SAND AND GRAVEL ; ML; 7.5YR 3/3 dark brown; dry							
						2/2	4 5 7 8	15.6		
					8/6/13 9:00 T-6-3-4'	2/2	8 8 7 8	12.5		
		CL	Moist; slight odor CLAY TRACE SILT ; CL; 7.5YR 3/3 dark brown; moist; slight odor, black staining							
5					8/6/13 9:05 T-6-3-5'	2/2	8 5 5 5	276.6	5	Natural collapse/ native fill
					8/6/13 9:10 T-6-3-8'	1/2	4 5 5 4	2.9		
			Wet; no odor; no staining							
						2/2	3 3 2 3	2.4		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-6-4 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
5		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			1.5/2	10 16 21 22	0.6		
			7.5YR 3/2 brown; slight odor		8/7/13 9:45 T-6-4-4'	1.5/2	16 15 10 11	4.7		
						1/2	18 24 17 16	2.4	5	Natural collapse/ native fill
		CL	CLAY ; CL; 7.5YR 3/4 dark brown; wet; no odor; no staining				5 6 6 7	0.8		
		SP	SAND WITH SILT ; SP; 7.5YR 5/1 gray; very fine-grained sand; wet; no odor; no staining				5 6 11 10			
10		CL	CLAY ; CL; 7.5YR 3/3 dark brown; wet; no odor; no staining							
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-6-5 PAGE 1 OF 1

DRILLING: STARTED **8/7/13** COMPLETED: **8/7/13**
 INSTALLATION: STARTED **8/7/13** COMPLETED: **8/7/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			1/2	4 5 7 6	0.0		
						1/2	4 3 6 5	0.0		
5			7.5YR 3/3 dark brown; trace brick fragments		8/7/13 9:50 T-6-5-4'	2/2	6 8 8 11	0.0	5	Natural collapse/ native fill
			7.5YR 3/3 dark brown; wet; no odor			2/2	4 6 4 6	0.0		
		SP	SAND ; SP; 7.5YR 5/1 gray; very fine-grained sand; wet; no odor; no staining			1/2	6 6 50	0.0		
10		ML	SILT WITH FINE SAND ; ML; 7.5YR 3/3 dark brown; wet; no odor @9.5': sand lenses						10	
			Hole terminated at 10 feet.							
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-7-2 PAGE 1 OF 1

DRILLING: STARTED **8/6/13** COMPLETED: **8/6/13**
 INSTALLATION: STARTED **8/6/13** COMPLETED: **8/6/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			2/2	6 10 5 13	0		
			7.5YR 3/3 dark brown; moist; no odor; trace iron staining			2/2	10 8 9 9	0		
5					8/6/13 13:00 T-7-2-4'	2/2	6 7 5 6	0.1	5	Natural collapse/ native fill
			Wet; trace very fine gravel			2/2	3 4 3 4	0		
		SP	SAND WITH SILT ; SP; 10YR 5/3 brown; very fine-grained sand; wet; no odor; no staining			2/2	4 4 4 10	0.1		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**LOCATION: **Meeker, CO**PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:

T-7-3 PAGE 1 OF 1DRILLING: STARTED **8/6/13** COMPLETED: **8/6/13**INSTALLATION: STARTED **8/6/13** COMPLETED: **8/6/13**DRILLING COMPANY: **Dakota Drilling**DRILLING EQUIPMENT: **ATV-Diedrich D-50**DRILLING METHOD: **Direct push**SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):

LATITUDE:

GROUND ELEV (ft):

INITIAL DTW (ft): **N/A**STATIC DTW (ft): **N/A**

WELL CASING DIAMETER (in): ---

LOGGED BY: **C.Beall**

EASTING (ft):

LONGITUDE:

TOC ELEV (ft):

BOREHOLE DEPTH (ft): **10.0**

WELL DEPTH (ft): ---

BOREHOLE DIAMETER (in): **2**CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; no staining			2/2	5 6 7 8	0.0		
			705YR 3/3 dark brown			1.5/2	8 7 8 8	0.0		
5		CL	CLAY TRACE COARSE SAND ; CL; 7.5YR 2.5/3 very dark brown; wet; no odor; trace iron staining		8/6/13 13:50 T-7-3-4'	2/2	3 2 3 3	0.3	5	Natural collapse/ native fill
		ML	SILT WITH FINE SAND ; ML; 7.5YR 2.5/3 very dark brown; wet; no odor; trace iron staining			2/2	2 3 3 3	0.0		
10			Hole terminated at 10 feet.			2/2	2 3 3 3	0.0	10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-7-4 PAGE 1 OF 1

DRILLING: STARTED **8/6/13** COMPLETED: **8/6/13**
 INSTALLATION: STARTED **8/6/13** COMPLETED: **8/6/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **N/A**
 STATIC DTW (ft): **N/A**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **C.Beall**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **10.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **2**
 CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT WITH FINE SAND AND GRAVEL ; ML; 7.5YR 5/3 brown; dry; no odor; no staining			2/2	7 7 6 7	0.0		
						2/2	4 4 6 5	0.0		
5			7.5YR 3/3 dark brown; trace iron staining		8/6/13 14:10 T-7-4-4'	2/2	4 4 5 6	0.0	5	Natural collapse/ native fill
			Moist			1.5/2	4 4 5 6	0.0		
			7.5YR 2.5/3 very dark brown; trace iron oxide staining			2/2	4 5 5 6	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

PROJECT: **Chevron-Wilson Creek**
 LOCATION: **Meeker, CO**
 PROJECT NUMBER: **212201118**

WELL / PROBEHOLE / BOREHOLE NO:



T-7-5 PAGE 1 OF 1

DRILLING: STARTED **8/6/13** COMPLETED: **8/6/13**
 INSTALLATION: STARTED **8/6/13** COMPLETED: **8/6/13**
 DRILLING COMPANY: **Dakota Drilling**
 DRILLING EQUIPMENT: **ATV-Diedrich D-50**
 DRILLING METHOD: **Direct push**
 SAMPLING EQUIPMENT: **2' split spoon**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **N/A** BOREHOLE DEPTH (ft): **10.0**
 STATIC DTW (ft): **N/A** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **2**
 LOGGED BY: **C.Beall** CHECKED BY: **D.Worden**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		ML	SILT TRACE FINE SAND ; ML; 7.5YR 4/3 brown; dry; no odor; trace iron staining							
						1/2	4 5 7 6	0.0		
			7.5YR 3/4 dark brown; moist		8/6/13 13:20 T-7-5-3'	1.5	13 11 13 8	0.0		
5			Slight odor		8/6/13 13:30 T-7-5-4'	2/2	7 7 6 5	26.0	5	Natural collapse/ native fill
			Wet		8/6/13 13:40 T-7-5-7'	2/2	3 2 3 3	0.0		
		CL	CLAY TRACE COARSE SAND ; CL; 7.5YR 2.5/3 very dark brown			2/2	3 3 3 3	0.0		
10			Hole terminated at 10 feet.						10	
15									15	

Appendix C

Laboratory Analytical Reports

ANALYTICAL RESULTS

Prepared for:

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

517-349-9499

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425**SAMPLE GROUP**

The sample group for this submittal is 1061790. Samples arrived at the laboratory on Friday, October 19, 2007. The PO# for this group is 89CH.49557.07 and the release number is WILSON CREEK.

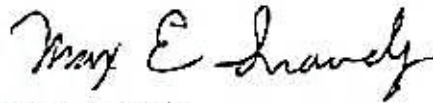
<u>Client Description</u>	<u>Lancaster Labs Number</u>
T1-1-101007 Grab Soil Sample	5189496
T2-1-101007 Grab Soil Sample	5189497
T3-1-101007 Grab Soil Sample	5189498
T4-1-101007 Grab Soil Sample	5189499
T5-1-101007 Grab Soil Sample	5189500
T6-1-101007 Grab Soil Sample	5189501
LF-1-101007 Composite Soil Sample	5189502
LF-2-101007 Composite Soil Sample	5189503
LF-3-101007 Composite Soil Sample	5189504
LF-4-101007 Composite Soil Sample	5189505
Trip Blank Water Sample	5189506

ELECTRONIC SECOR International, Inc.
COPY TO

Attn: Seth Maher

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,



Max E. Snively
Senior Specialist



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 2

Lancaster Laboratories Sample No. SW 5189496

T1-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 09:30 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:09
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T1110
I 5E w

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	0.382	0.121	mg/kg	1
06935	Arsenic	7440-38-2	5.25	2.46	mg/kg	1
06936	Selenium	7782-49-2	< 2.46	2.46	mg/kg	1
06946	Barium	7440-39-3	206.	0.616	mg/kg	1
06949	Cadmium	7440-43-9	< 0.616	0.616	mg/kg	1
06951	Chromium	7440-47-3	19.7	1.85	mg/kg	1
06955	Lead	7439-92-1	27.1	1.85	mg/kg	1
06966	Silver	7440-22-4	< 0.616	0.616	mg/kg	1
00111	Moisture	n.a.	19.6	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	9,600.	500.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	11,000.	500.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	1,300.	500.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	8,300.	500.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	1,800.	500.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	10/24/2007 10:02	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
06936	Selenium	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
06946	Barium	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
06949	Cadmium	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
06951	Chromium	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
06955	Lead	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
06966	Silver	SW-846 6010B	1	10/24/2007 01:54	Choon Y Tian	1
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/24/2007 20:50	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	1	10/22/2007 19:30	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/23/2007 23:00	Annamaria Stipkovits	1



Analysis Report

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Page 2 of 2

Lancaster Laboratories Sample No. SW 5189496

T1-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 09:30 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:09
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T1110

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1
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Lancaster Laboratories Sample No. SW 5189497
**T2-1-101007 Grab Soil Sample
Wilson Creek**

Collected: 10/10/2007 09:45 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T2110
I 5E w

CAT			Dry	Dry		
No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	< 0.126	0.126	mg/kg	1
06935	Arsenic	7440-38-2	5.83	2.63	mg/kg	1
06936	Selenium	7782-49-2	< 2.63	2.63	mg/kg	1
06946	Barium	7440-39-3	242.	0.657	mg/kg	1
06949	Cadmium	7440-43-9	< 0.657	0.657	mg/kg	1
06951	Chromium	7440-47-3	20.9	1.97	mg/kg	1
06955	Lead	7439-92-1	26.5	1.97	mg/kg	1
06966	Silver	7440-22-4	< 0.657	0.657	mg/kg	1
00111	Moisture	n.a.	24.7	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	4,700.	530.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	4,700.	530.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	1,100.	530.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	3,600.	530.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	< 530.	530.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT				Analysis		
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	10/24/2007 10:04	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
06936	Selenium	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
06946	Barium	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
06949	Cadmium	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
06951	Chromium	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
06955	Lead	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
06966	Silver	SW-846 6010B	1	10/24/2007 01:58	Choon Y Tian	1
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/29/2007 09:16	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	1	10/22/2007 19:30	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/23/2007 23:00	Annamaria Stipkovits	1



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Page 2 of 2

Lancaster Laboratories Sample No. SW 5189497

T2-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 09:45 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T2110

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1
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Lancaster Laboratories Sample No. SW 5189498

**T3-1-101007 Grab Soil Sample
Wilson Creek**

Collected: 10/10/2007 10:00 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T3110
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CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	< 0.123	0.123	mg/kg	1
06935	Arsenic	7440-38-2	4.48	2.56	mg/kg	1
06936	Selenium	7782-49-2	< 2.56	2.56	mg/kg	1
06946	Barium	7440-39-3	267.	0.640	mg/kg	1
06949	Cadmium	7440-43-9	< 0.640	0.640	mg/kg	1
06951	Chromium	7440-47-3	19.6	1.90	mg/kg	1
06955	Lead	7439-92-1	28.0	1.92	mg/kg	1
06966	Silver	7440-22-4	< 0.640	0.640	mg/kg	1
00111	Moisture	n.a.	22.6	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	3,600.	520.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	3,600.	520.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	850.	520.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	2,700.	520.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	< 520.	520.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	10/24/2007 10:05	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	10/24/2007 11:02	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	10/24/2007 04:52	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	10/24/2007 04:52	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	10/24/2007 04:52	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	10/31/2007 15:47	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	10/24/2007 04:52	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	10/24/2007 04:52	Tara L Snyder	1
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/29/2007 09:50	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	3	10/30/2007 18:55	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/23/2007 23:00	Annamaria Stipkovits	1



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Page 2 of 2

Lancaster Laboratories Sample No. SW 5189498

T3-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 10:00 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T3110

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1
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Lancaster Laboratories Sample No. SW 5189499

**T4-1-101007 Grab Soil Sample
Wilson Creek**

Collected: 10/10/2007 10:15 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T4110
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CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	0.547	0.114	mg/kg	1
06935	Arsenic	7440-38-2	3.82	2.35	mg/kg	1
06936	Selenium	7782-49-2	< 2.35	2.35	mg/kg	1
06946	Barium	7440-39-3	178.	0.588	mg/kg	1
06949	Cadmium	7440-43-9	< 0.588	0.588	mg/kg	1
06951	Chromium	7440-47-3	18.1	1.77	mg/kg	1
06955	Lead	7439-92-1	33.5	1.77	mg/kg	1
06966	Silver	7440-22-4	< 0.588	0.588	mg/kg	1
00111	Moisture	n.a.	16.7	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	11,000.	480.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	13,000.	480.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	1,900.	480.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	9,500.	480.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	1,500.	480.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	10/24/2007 10:09	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	10/25/2007 16:28	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	10/24/2007 04:56	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	10/24/2007 04:56	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	10/24/2007 04:56	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	10/31/2007 15:52	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	10/24/2007 04:56	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	10/24/2007 04:56	Tara L Snyder	1
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/29/2007 11:01	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	3	10/30/2007 18:55	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/23/2007 23:00	Annamaria Stipkovits	1



Analysis Report

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Page 2 of 2

Lancaster Laboratories Sample No. SW 5189499

T4-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 10:15 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T4110

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1
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Lancaster Laboratories Sample No. SW 5189500

T5-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 10:30 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T5110
I 5E w

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	0.176	0.115	mg/kg	1
06935	Arsenic	7440-38-2	4.18	2.43	mg/kg	1
06936	Selenium	7782-49-2	< 2.43	2.43	mg/kg	1
06946	Barium	7440-39-3	189.	0.607	mg/kg	1
06949	Cadmium	7440-43-9	< 0.607	0.607	mg/kg	1
06951	Chromium	7440-47-3	16.3	1.79	mg/kg	1
06955	Lead	7439-92-1	21.5	1.82	mg/kg	1
06966	Silver	7440-22-4	< 0.607	0.607	mg/kg	1
00111	Moisture	n.a.	18.5	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	9,700.	490.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	12,000.	490.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	1,500.	490.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	8,100.	490.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	2,200.	490.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	10/24/2007 10:10	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	10/24/2007 11:11	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	10/24/2007 05:01	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	10/24/2007 05:01	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	10/24/2007 05:01	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	10/31/2007 15:56	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	10/24/2007 05:01	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	10/24/2007 05:01	Tara L Snyder	1
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/29/2007 12:10	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	3	10/30/2007 18:55	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/23/2007 23:00	Annamaria Stipkovits	1



Analysis Report

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Page 2 of 2

Lancaster Laboratories Sample No. SW 5189500

T5-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 10:30 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T5110

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1
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Lancaster Laboratories Sample No. SW 5189501

**T6-1-101007 Grab Soil Sample
Wilson Creek**

Collected: 10/10/2007 10:45 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T6110
I 5E w

CAT			Dry	Dry		
No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	0.167	0.118	mg/kg	1
06935	Arsenic	7440-38-2	4.66	2.37	mg/kg	1
06936	Selenium	7782-49-2	< 2.37	2.37	mg/kg	1
06946	Barium	7440-39-3	209.	0.591	mg/kg	1
06949	Cadmium	7440-43-9	< 0.591	0.591	mg/kg	1
06951	Chromium	7440-47-3	14.3	1.74	mg/kg	1
06955	Lead	7439-92-1	19.6	1.77	mg/kg	1
06966	Silver	7440-22-4	< 0.591	0.591	mg/kg	1
00111	Moisture	n.a.	17.1	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	2,800.	480.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	2,800.	480.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	640.	480.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	2,200.	480.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	< 480.	480.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
00159	Mercury	SW-846 7471A	1	10/24/2007 10:11	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	10/25/2007 16:32	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	10/24/2007 05:05	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	10/24/2007 05:05	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	10/24/2007 05:05	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	10/31/2007 16:01	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	10/24/2007 05:05	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	10/24/2007 05:05	Tara L Snyder	1
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/29/2007 13:21	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	3	10/30/2007 18:55	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/23/2007 23:00	Annamaria Stipkovits	1



Analysis Report

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Page 2 of 2

Lancaster Laboratories Sample No. SW 5189501

T6-1-101007 Grab Soil Sample
Wilson Creek

Collected: 10/10/2007 10:45 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

T6110

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1
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Lancaster Laboratories Sample No. SW 5189502

**LF-1-101007 Composite Soil Sample
Wilson Creek**

Collected: 10/10/2007 14:20 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

LF110
I 5E w

CAT			Dry	Dry		Dilution
No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Units	Factor
00111	Moisture	n.a.	14.9	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
02321	TNRCC 1005 -(Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	420.	24.	mg/kg	1
02323	Total C6 - C35 Hydrocarbons	n.a.	460.	24.	mg/kg	1
08751	C6 - C12 Hydrocarbons	n.a.	49.	24.	mg/kg	1
08752	>C12 - C28 Hydrocarbons	n.a.	370.	24.	mg/kg	1
08753	>C28 - C35 Hydrocarbons	n.a.	46.	24.	mg/kg	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 -(Soils)	TNRCC 1005 Rev 3	1	10/29/2007 05:42	Heather E Williams	1
07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1

Lancaster Laboratories Sample No. SW 5189503

**LF-2-101007 Composite Soil Sample
Wilson Creek**

Collected: 10/10/2007 14:30 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

LF210
I 5E w

CAT			Dry	Dry		Dilution
No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Units	Factor
00111	Moisture	n.a.	11.1	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
02321	TNRCC 1005 -(Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	150.	22.	mg/kg	1
02323	Total C6 - C35 Hydrocarbons	n.a.	180.	22.	mg/kg	1
08751	C6 - C12 Hydrocarbons	n.a.	< 22.	22.	mg/kg	1
08752	>C12 - C28 Hydrocarbons	n.a.	150.	22.	mg/kg	1
08753	>C28 - C35 Hydrocarbons	n.a.	35.	22.	mg/kg	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 -(Soils)	TNRCC 1005 Rev 3	1	10/29/2007 06:19	Heather E Williams	1
07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1

Lancaster Laboratories Sample No. SW 5189504

**LF-3-101007 Composite Soil Sample
Wilson Creek**

Collected: 10/10/2007 14:40 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

LF310
I 5E w

CAT			Dry	Dry		Dilution
No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Units	Factor
00111	Moisture	n.a.	15.3	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
02321	TNRCC 1005 -(Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	170.	24.	mg/kg	1
02323	Total C6 - C35 Hydrocarbons	n.a.	220.	24.	mg/kg	1
08751	C6 - C12 Hydrocarbons	n.a.	< 24.	24.	mg/kg	1
08752	>C12 - C28 Hydrocarbons	n.a.	170.	24.	mg/kg	1
08753	>C28 - C35 Hydrocarbons	n.a.	48.	24.	mg/kg	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 -(Soils)	TNRCC 1005 Rev 3	1	10/30/2007 04:01	Heather E Williams	1
07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1

Lancaster Laboratories Sample No. SW 5189505

**LF-4-101007 Composite Soil Sample
Wilson Creek**

Collected: 10/10/2007 14:50 by CB

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

LF410
I 5E w

CAT			Dry	Dry		Dilution
No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Units	Factor
00111	Moisture	n.a.	16.1	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
02321	TNRCC 1005 -(Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	690.	24.	mg/kg	1
02323	Total C6 - C35 Hydrocarbons	n.a.	1,000.	24.	mg/kg	1
08751	C6 - C12 Hydrocarbons	n.a.	< 24.	24.	mg/kg	1
08752	>C12 - C28 Hydrocarbons	n.a.	670.	24.	mg/kg	1
08753	>C28 - C35 Hydrocarbons	n.a.	330.	24.	mg/kg	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
00111	Moisture	SM20 2540 G	1	10/22/2007 17:13	Scott W Freisher	1
02321	TNRCC 1005 -(Soils)	TNRCC 1005 Rev 3	1	10/30/2007 04:38	Heather E Williams	1
07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/22/2007 14:30	Kerrie A Greenfield	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 1

Lancaster Laboratories Sample No. WW 5189506

Trip Blank Water Sample
Wilson Creek

Collected: 10/10/2007

Account Number: 11842

Submitted: 10/19/2007 09:15
Reported: 11/01/2007 at 08:10
Discard: 12/02/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

TBL10
I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	< 1.0	1.0	ug/l	1
00777	Toluene	108-88-3	< 1.0	1.0	ug/l	1
00778	Ethylbenzene	100-41-4	< 1.0	1.0	ug/l	1
00779	Total Xylenes	1330-20-7	< 3.0	3.0	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	10/22/2007 12:20	Patrick N Evans	1
01146	GC VOA Water Prep	SW-846 5030B	1	10/22/2007 12:20	Patrick N Evans	1

Quality Control Summary

Client Name: SECOR International, Inc.

Group Number: 1061790

Reported: 11/01/07 at 08:10 AM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 07292A51B	Sample number(s): 5189506							
Benzene	< 1.0	1.0	ug/l	102	98	86-119	4	30
Toluene	< 1.0	1.0	ug/l	104	101	82-119	2	30
Ethylbenzene	< 1.0	1.0	ug/l	103	101	81-119	2	30
Total Xylenes	< 3.0	3.0	ug/l	113	102	82-120	10	30
Batch number: 072950005A	Sample number(s): 5189496-5189505							
Total C6 - C28 Hydrocarbons	< 20.	20.	mg/kg	103	102	75-125	0	20
Total C6 - C35 Hydrocarbons	< 20.	20.	mg/kg					
C6 - C12 Hydrocarbons	< 20.	20.	mg/kg	101	101	75-125	0	20
>C12 - C28 Hydrocarbons	< 20.	20.	mg/kg	105	103	75-125	1	20
>C28 - C35 Hydrocarbons	< 20.	20.	mg/kg					
Batch number: 072955708001	Sample number(s): 5189496-5189497							
Arsenic	< 2.00	2.00	mg/kg	94		86-114		
Selenium	< 2.00	2.00	mg/kg	98		85-115		
Barium	< 0.500	0.500	mg/kg	98		90-110		
Cadmium	< 0.500	0.500	mg/kg	95		90-110		
Chromium	< 1.50	1.50	mg/kg	113		79-121		
Lead	< 1.50	1.50	mg/kg	96		90-110		
Silver	< 0.500	0.500	mg/kg	96		89-111		
Batch number: 07295820003A	Sample number(s): 5189496-5189500							
Moisture				100		99-101		
Batch number: 07295820003B	Sample number(s): 5189501-5189505							
Moisture				100		99-101		
Batch number: 072965708001	Sample number(s): 5189498-5189501							
Arsenic	< 2.00	2.00	mg/kg	104		86-114		
Selenium	< 2.00	2.00	mg/kg	110		85-115		
Barium	< 0.500	0.500	mg/kg	104		90-110		
Cadmium	< 0.500	0.500	mg/kg	105		90-110		
Lead	< 1.50	1.50	mg/kg	103		90-110		
Silver	< 0.500	0.500	mg/kg	101		89-111		
Batch number: 072965711001	Sample number(s): 5189496-5189501							
Mercury	< 0.100	0.100	mg/kg	72		66-133		
Batch number: 073035708001	Sample number(s): 5189498-5189501							
Chromium	< 1.50	1.50	mg/kg	116		79-121		

Sample Matrix Quality Control

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: SECOR International, Inc.

Group Number: 1061790

Reported: 11/01/07 at 08:10 AM

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup</u> <u>RPD</u> <u>Max</u>
Batch number: 07292A51B	Sample number(s): 5189506 UNSPK: P183633								
Benzene	121		78-131						
Toluene	106		78-129						
Ethylbenzene	106		75-133						
Total Xylenes	94		84-131						
Batch number: 072950005A	Sample number(s): 5189496-5189505 UNSPK: 5189496								
Total C6 - C28 Hydrocarbons	590 (2)	878 (2)	75-125	13	20				
C6 - C12 Hydrocarbons	216 (2)	276 (2)	75-125	9	20				
>C12 - C28 Hydrocarbons	964 (2)	1481 (2)	75-125	13	20				
Batch number: 072955708001	Sample number(s): 5189496-5189497 UNSPK: P188717 BKG: P188717								
Arsenic	75	63*	75-125	6	20	19.2	14.5	28*	20
Selenium	103	107	75-125	4	20	< 1.94	< 1.90	200* (1)	20
Barium	84	83	75-125	1	20	196.	174.	12	20
Cadmium	89	89	75-125	1	20	< 0.485	< 0.476	94* (1)	20
Chromium	109	76	75-125	13	20	33.7	26.2	25*	20
Lead	97	63*	75-125	16	20	16.5	14.6	13	20
Silver	97	98	75-125	1	20	< 0.485	< 0.476	38* (1)	20
Batch number: 07295820003A	Sample number(s): 5189496-5189500 BKG: 5189497								
Moisture						24.7	23.9	3	15
Batch number: 07295820003B	Sample number(s): 5189501-5189505 BKG: P190832								
Moisture						69.9	70.9	1	15
Batch number: 072965708001	Sample number(s): 5189498-5189501 UNSPK: P189129 BKG: P189129								
Arsenic	98	90	75-125	6	20	5.49	5.16	6 (1)	20
Selenium	126*	118	75-125	6	20	< 2.00	< 2.00	200* (1)	20
Barium	108	105	75-125	2	20	46.5	44.6	4	20
Cadmium	103	100	75-125	3	20	< 0.500	< 0.500	22* (1)	20
Lead	109	111	75-125	1	20	29.0	27.6	5	20
Silver	104	102	75-125	2	20	< 0.500	< 0.500	5 (1)	20
Batch number: 072965711001	Sample number(s): 5189496-5189501 UNSPK: P189985 BKG: P189985								
Mercury	94	99	80-120	5	20	< 0.0960	< 0.0956	0 (1)	20
Batch number: 073035708001	Sample number(s): 5189498-5189501 UNSPK: P189129 BKG: P189129								
Chromium	110	116	75-125	3	20	27.0	28.1	4	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021)

Batch number: 07292A51B

Trifluorotoluene-P

5189506 117

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: SECOR International, Inc.

Group Number: 1061790

Reported: 11/01/07 at 08:10 AM

Surrogate Quality Control

Blank	121
LCS	115
LCSD	118
MS	118

Limits: 69-129

Analysis Name: TNRCC 1005 - (Soils)

Batch number: 072950005A

	Orthoterphenyl	Trifluorotoluene
--	----------------	------------------

5189496	68*	62*
5189497	83	74
5189498	69*	63*
5189499	99	70
5189500	101	77
5189501	70	68*
5189502	72	76
5189503	72	77
5189504	70	80
5189505	76	83
Blank	97	95
LCS	99	102
LCSD	100	95
MS	94	79
MSD	102	65*

Limits: 70-130 70-130

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Generic Analysis Request/Chain of Custody



004309

For Lancaster Laboratories use only

Acct. #: 11842 Sample #: 5189496-506 SCR#: _____

Group# 1061790

Facility #: Wilson Creek Unit
 Site Address: Meeker CO
 Chevron PM: Huddleson Lead Consultant: SECOR
 Consultant/Office: Lansing, MI
 Consultant Prj. Mgr.: Seth Maher
 Consultant Phone #: 517-349-9499 Fax #: 517-349-6863
 Sampler: CB/JA
 Service Order #: _____ ☐ Non SAR: _____

Sample Identification		Date Collected	Time Collected	Matrix		Total Number of Containers	Analyses Requested												Preservative Codes		Comments / Remarks
				Soil	Water		Preservation Codes												Preservative Codes		
				Grab	Composite		BTEX + 8260	8260 full scan	Oxygenates	TPH G	TPH D	Lead Total	VPI/EPH	NWTPH HClD	TNRCC 1005	PCRA 8 Metals	Moisture				
T1-1-101007	101007	0930	X		X	2	☒									X	X	X			
T2-1-101007	101007	0945	X		X	2										X	X	X			
T3-1-101007	101007	1000	X		X	2										X	X	X			
~~T3-1-101007~~ T4-1-101007	101007	1015	X		X	2										X	X	X			
T5-1-101007	101007	1030	X		X	2										X	X	X			
T6-1-101007	101007	1045	X		X	2										X	X	X			
LF-1-101007	101007	1420		X	X	2										X		X			
LF-2-101007	101007	1430		X	X	2										X		X			
LF-3-101007	101007	1440		X	X	2										X		X			
LF-4-101007	101007	1450		X	X	2										X		X			
Trip Blank	—	—	X		X	2	X														

Turnaround Time Requested (TAT) (please circle) STD. TAT 72 hour 48 hour 24 hour 4 day 5 day			Relinquished by:		Date: <u>10/07</u>	Time: <u>1500</u>	Received by: _____		Date: _____	Time: _____
			Relinquished by: _____		Date: _____	Time: _____	Received by: _____		Date: _____	Time: _____
Data Package Options (please circle if required) QC Summary Type I - Full Type VI (Raw Data) Disk / EDD WIP (RWQCB) Standard Format Disk _____ Other.			Relinquished by: _____		Date: _____	Time: _____	Received by: _____		Date: _____	Time: _____
			Relinquished by Commercial Carrier: _____		Received by:		Date: <u>10/07</u>	Time: <u>0915</u>		
			UPS <u>PerEx</u> Other _____		Temperature Upon Receipt: <u>0-6-3.5</u> C°		Custody Seals Intact? <u>Yes</u> No			

Lancaster Laboratories

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared for:

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

517-349-9499

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425SAMPLE GROUP

The sample group for this submittal is 1062278. Samples arrived at the laboratory on Tuesday, October 23, 2007. The PO# for this group is 89CH.49557.07 and the release number is WILSON CREEK.

Client DescriptionT-7-101707 Grab Soil Sample
Trip Blank Water SampleLancaster Labs Number5192711
5192712ELECTRONIC SECOR International, Inc.
COPY TO

Attn: Seth Maher

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,



Max E. Snively
Senior Specialist

Lancaster Laboratories Sample No. SW 5192711
**T-7-101707 Grab Soil Sample
Wilson Creek**

Collected: 10/17/2007 17:30 by CB

Account Number: 11842

Submitted: 10/23/2007 09:40
Reported: 11/02/2007 at 06:58
Discard: 12/03/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

717WC
I 5E w

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Units	Dilution Factor
00159	Mercury	7439-97-6	< 0.116	0.116	mg/kg	1
06935	Arsenic	7440-38-2	4.09	2.37	mg/kg	1
06936	Selenium	7782-49-2	< 2.37	2.37	mg/kg	1
06946	Barium	7440-39-3	180.	0.593	mg/kg	1
06949	Cadmium	7440-43-9	< 0.593	0.593	mg/kg	1
06951	Chromium	7440-47-3	15.2	1.78	mg/kg	1
06955	Lead	7439-92-1	16.0	1.78	mg/kg	1
06966	Silver	7440-22-4	< 0.593	0.593	mg/kg	1
00111	Moisture	n.a.	17.4	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02321	TNRCC 1005 - (Soils)					
02322	Total C6 - C28 Hydrocarbons	n.a.	4,200.	480.	mg/kg	20
02323	Total C6 - C35 Hydrocarbons	n.a.	4,200.	480.	mg/kg	20
08751	C6 - C12 Hydrocarbons	n.a.	590.	480.	mg/kg	20
08752	>C12 - C28 Hydrocarbons	n.a.	3,600.	480.	mg/kg	20
08753	>C28 - C35 Hydrocarbons	n.a.	< 480.	480.	mg/kg	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	10/26/2007 08:53	Damary Valentin	1
06935	Arsenic	SW-846 6010B	1	11/02/2007 02:33	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	11/02/2007 02:33	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	11/02/2007 02:33	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	11/01/2007 04:15	Laura E Hartman	1
06951	Chromium	SW-846 6010B	1	11/01/2007 04:15	Laura E Hartman	1
06955	Lead	SW-846 6010B	1	11/01/2007 04:15	Laura E Hartman	1
06966	Silver	SW-846 6010B	1	11/01/2007 04:15	Laura E Hartman	1
00111	Moisture	SM20 2540 G	1	10/24/2007 17:32	Scott W Freisher	1
02321	TNRCC 1005 - (Soils)	TNRCC 1005 Rev 3	1	10/26/2007 17:04	Heather E Williams	20
05708	SW SW846 ICP Digest	SW-846 3050B	1	10/29/2007 18:30	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	10/25/2007 22:55	Annamaria Stipkovits	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 2 of 2

Lancaster Laboratories Sample No. SW 5192711

T-7-101707 Grab Soil Sample
Wilson Creek

Collected: 10/17/2007 17:30 by CB

Account Number: 11842

Submitted: 10/23/2007 09:40
Reported: 11/02/2007 at 06:58
Discard: 12/03/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

717WC

07004	Extraction - DRO (Soils)	TNRCC 1005 06/01	1	10/24/2007 09:00	Deborah M Zimmerman	1
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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 1

Lancaster Laboratories Sample No. WW 5192712

Trip Blank Water Sample
Wilson Creek

Collected: 10/17/2007

Account Number: 11842

Submitted: 10/23/2007 09:40
Reported: 11/02/2007 at 06:58
Discard: 12/03/2007

SECOR International, Inc.
2321 Club Meridian Drive
Suite E
Okemos MI 48864

I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	< 1.0	1.0	ug/l	1
00777	Toluene	108-88-3	< 1.0	1.0	ug/l	1
00778	Ethylbenzene	100-41-4	< 1.0	1.0	ug/l	1
00779	Total Xylenes	1330-20-7	< 3.0	3.0	ug/l	1

Preservation requirements were not met. The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt. The pH of this sample was pH = 5.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
08213	BTEX (8021)	SW-846 8021B	1	10/25/2007 13:03	Steven A Skiles	1
01146	GC VOA Water Prep	SW-846 5030B	1	10/25/2007 13:03	Steven A Skiles	1

Quality Control Summary

Client Name: SECOR International, Inc.
Reported: 11/02/07 at 06:58 AM

Group Number: 1062278

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 072960024A	Sample number(s): 5192711							
Total C6 - C28 Hydrocarbons	< 20.	20.	mg/kg	103	91	75-125	12	20
Total C6 - C35 Hydrocarbons	< 20.	20.	mg/kg					
C6 - C12 Hydrocarbons	< 20.	20.	mg/kg	99	87	75-125	13	20
>C12 - C28 Hydrocarbons	< 20.	20.	mg/kg	106	95	75-125	11	20
>C28 - C35 Hydrocarbons	< 20.	20.	mg/kg					
Batch number: 07296A07D	Sample number(s): 5192712							
Benzene	< 1.0	1.0	ug/l	88	103	86-119	15	30
Toluene	< 1.0	1.0	ug/l	88	103	82-119	16	30
Ethylbenzene	< 1.0	1.0	ug/l	90	104	81-119	15	30
Total Xylenes	< 3.0	3.0	ug/l	94	109	82-120	15	30
Batch number: 07297820012A	Sample number(s): 5192711							
Moisture				100		99-101		
Batch number: 072985711001	Sample number(s): 5192711							
Mercury	< 0.100	0.100	mg/kg	76		66-133		
Batch number: 073025708001	Sample number(s): 5192711							
Arsenic	< 2.00	2.00	mg/kg	93		86-114		
Selenium	< 2.00	2.00	mg/kg	97		85-115		
Barium	< 0.500	0.500	mg/kg	95		90-110		
Cadmium	< 0.500	0.500	mg/kg	92		90-110		
Chromium	< 1.50	1.50	mg/kg	109		79-121		
Lead	< 1.50	1.50	mg/kg	91		90-110		
Silver	< 0.500	0.500	mg/kg	90		89-111		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 072960024A	Sample number(s): 5192711 UNSPK: P192129								
Total C6 - C28 Hydrocarbons	89	91	75-125	2	20				
C6 - C12 Hydrocarbons	85	86	75-125	1	20				
>C12 - C28 Hydrocarbons	93	97	75-125	4	20				
Batch number: 07296A07D	Sample number(s): 5192712 UNSPK: P191678								
Benzene	81	(2)	78-131						
Toluene	105		78-129						
Ethylbenzene	105		75-133						
Total Xylenes	111		84-131						

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: SECOR International, Inc.

Group Number: 1062278

Reported: 11/02/07 at 06:58 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup</u> <u>RPD</u> <u>Max</u>
Batch number: 07297820012A Moisture	Sample number(s): 5192711 BKG: P191837					15.3	14.4	6	15
Batch number: 072985711001 Mercury	Sample number(s): 5192711 UNSPK: P190832 BKG: P190832				200 (2) 580 (2) 80-120 12	20 4.19	4.40	5 (1)	20
Batch number: 073025708001 Arsenic	Sample number(s): 5192711 UNSPK: P193116 BKG: P193116				151* 137* 75-125 7	20 < 9.90	10.2	14 (1)	20
Selenium	109	129*	75-125	17	20	< 9.90	< 10.0	0 (1)	20
Barium	146*	135*	75-125	4	20	235.	208.	12	20
Cadmium	-126*	-108*	75-125	14	20	12.0	0.749	177* (1)	20
Chromium	126*	146*	75-125	8	20	24.7	29.9	19	20
Lead	3602 (2)	2404 (2)	75-125	14	20	684.	729.	6	20
Silver	94	92	75-125	2	20	0.722	0.692	4 (1)	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TNRCC 1005 -(Soils)

Batch number: 072960024A

Orthoterphenyl

Trifluorotoluene

5192711	37*	70
Blank	94	85
LCS	120	101
LCSD	89	89
MS	92	86
MSD	91	90

Limits: 70-130 70-130

Analysis Name: BTEX (8021)

Batch number: 07296A07D

Trifluorotoluene-P

5192712	95
Blank	91
LCS	106
LCSD	106
MS	106

Limits: 69-129

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Generic Analysis Request/Chain of Custody



005998

For Lancaster Laboratories use only

Acct. #: 11842 Sample #: 5192711-12 SCR#: _____

Facility #: <u>Wilson Creek unit</u> Site Address: <u>Meeker, CO</u> Chevron PM: <u>Huddleson</u> Lead Consultant: <u>SECOR</u> Consultant/Office: <u>Lansing MI</u> Consultant Prj. Mgr.: <u>Seth Maher</u> Consultant Phone #: <u>517 349-9499</u> Fax #: <u>517 349 6863</u> Sampler: <u>CB/JA</u> Service Order #: _____ ☐ Non SAR: _____				Matrix Potable ☐ NPDES ☐ Water ☐ Air ☐ Soil ☐		Analyses Requested <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="10">Preservation Codes</th> </tr> <tr> <td>☐ BTEX + 8021</td> <td>☐ 8260</td> <td>☐ Naphth</td> <td>☐ 8021</td> <td>☐ 8260</td> <td>☐ full scan</td> <td>☐ Oxygenates</td> <td>☐ TPH G</td> <td>☐ TPH D</td> <td>☐ Extended Rng.</td> <td>☐ Silica Gel Cleanup</td> <td>☐ Lead Total</td> <td>☐ Diss.</td> <td>☐ Method</td> <td>☐ VPH/EPH</td> <td>☐ NWTPH HClID</td> <td>☐ quantification</td> </tr> </table>										Preservation Codes										☐ BTEX + 8021	☐ 8260	☐ Naphth	☐ 8021	☐ 8260	☐ full scan	☐ Oxygenates	☐ TPH G	☐ TPH D	☐ Extended Rng.	☐ Silica Gel Cleanup	☐ Lead Total	☐ Diss.	☐ Method	☐ VPH/EPH	☐ NWTPH HClID	☐ quantification	Preservative Codes H = HCl T = Thiosulfate N = HNO ₃ B = NaOH S = H ₂ SO ₄ O = Other ☐ J value reporting needed ☐ Must meet lowest detection limits possible for 8260 compounds 8021 MTBE Confirmation ☐ Confirm MTBE + Naphthalene ☐ Confirm highest hit by 8260 ☐ Confirm all hits by 8260 ☐ Run ___ oxy's on highest hit ☐ Run ___ oxy's on all hits	
Preservation Codes																																												
☐ BTEX + 8021	☐ 8260	☐ Naphth	☐ 8021	☐ 8260	☐ full scan	☐ Oxygenates	☐ TPH G	☐ TPH D	☐ Extended Rng.	☐ Silica Gel Cleanup	☐ Lead Total	☐ Diss.	☐ Method	☐ VPH/EPH	☐ NWTPH HClID	☐ quantification																												
Sample Identification <u>T-7-101707</u> <u>trip blank</u>		Date Collected <u>10/7/07</u>	Time Collected <u>1730</u>	Grab ☒ Composite ☐	Soil ☒ Water ☐ Oil ☐	Total Number of Containers <u>2</u>	BTEX + 8021 ☒ 8260 ☒ Naphth ☐ 8260 full scan ☐ Oxygenates ☐ TPH G ☐ TPH D ☐ Extended Rng. ☐ Silica Gel Cleanup ☐ Lead Total ☐ Diss. ☐ Method ☐ VPH/EPH ☐ NWTPH HClID ☐ quantification ☐	<u>TN RCL 1005</u> <u>K RCRA 8 Metals</u>	Comments / Remarks 																																			
Turnaround Time Requested (TAT) (please circle) STD. TAT 72 hour 48 hour 24 hour 4 day 5 day						Relinquished by: <u>Jason Anderson</u> Relinquished by: _____ Relinquished by Commercial Carrier: _____ UPS ☒ FedEx ☐ Other ☐		Date <u>10/23/07</u>	Time <u>170900</u>	Received by: _____ Received by: _____ Received by: _____ Received by: <u>Shirley Meyer</u>		Date <u>10-23-07</u>	Time <u>0940</u>																															
Data Package Options (please circle if required) QC Summary Type I - Full Type VI (Raw Data) Disk / EDD WIP (RWQCB) Standard Format Disk _____ Other: _____						Temperature Upon Receipt <u>2.2°</u> C°		Custody Seals intact? ☒ Yes ☐ No																																				

Lancaster Laboratories

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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Analytical Laboratory Report

Report ID: S57595.01(01)
Generated on 09/04/2013

Report to

Attention: Chris Beall
Stantec
2000 S. Colorado Blvd.
Ste. 2-300
Denver, CO 80222

Phone: 970-214-1126 FAX:
Email: Christopher.Beall@stantec.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
Tabitha Faust (tfaust@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S57595.01-S57595.54
Project: 212201118/ Chevron Wilson Creek
Collected Date: 08/06/2013 - 08/08/2013
Submitted Date/Time: 08/13/2013 10:40
Sampled by: Chris Beall
P.O. #: 130620-4541

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc..

Laboratory Certifications:

Michigan DNRE (#9956), DOD/ISO 17025 (#69699), WBENC (#2005110032), Ohio EPA (#CL0002), IN Drinking Water (#C-MI-07), NELAC NY (#11814)
Some analytes reported may not be certified. Full certification lists are available upon request.

Violetta F. Murshak
Laboratory Director



Analytical Laboratory Report

Sample Summary (54 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S57595.01	T-1-2-4'-080813	Soil	08/08/2013 13:00
S57595.02	T-1-3-4'-080813	Soil	08/08/2013 14:10
S57595.03	T-1-4-2'-080813	Soil	08/08/2013 13:30
S57595.04	T-1-4-5'-080813	Soil	08/08/2013 13:40
S57595.05	T-1-4-10'-080813	Soil	08/08/2013 13:50
S57595.06	T-1-5-5'-080813	Soil	08/08/2013 12:55
S57595.07	T-2-2-5'-080813	Soil	08/08/2013 10:55
S57595.08	T-2-3-6'-080813	Soil	08/08/2013 11:45
S57595.09	T-2-3-2'-080813	Soil	08/08/2013 11:30
S57595.10	T-2-3-12'-080813	Soil	08/08/2013 12:00
S57595.11	T-2-4-2'-080813	Soil	08/08/2013 11:00
S57595.12	T-2-4-7'-080813	Soil	08/08/2013 11:45
S57595.13	T-2-4-5'-080813	Soil	08/08/2013 11:05
S57595.14	T-2-5-5'-080813	Soil	08/08/2013 10:40
S57595.15	T-3-2-6'-080813	Soil	08/08/2013 08:15
S57595.16	T-3-2-10'-080813	Soil	08/08/2013 08:20
S57595.17	T-3-2-15'-080813	Soil	08/08/2013 08:35
S57595.18	T-3-3-5'-080813	Soil	08/08/2013 10:05
S57595.19	T-3-3-7'-080813	Soil	08/08/2013 10:10
S57595.20	T-3-3-10'-080813	Soil	08/08/2013 10:15
S57595.21	T-3-4-5'-080813	Soil	08/08/2013 09:35
S57595.22	T-3-5-4'-080813	Soil	08/08/2013 09:00
S57595.23	T-3-5-6'-080813	Soil	08/08/2013 09:10
S57595.24	T-3-5-9'-080813	Soil	08/08/2013 09:15
S57595.25	T-4-2-5'-080713	Soil	08/07/2013 14:00
S57595.26	T-4-3-3'-080713	Soil	08/07/2013 13:35
S57595.27	T-4-3-4'-080713	Soil	08/07/2013 13:40
S57595.28	T-4-3-6'-080713	Soil	08/07/2013 13:45
S57595.29	T-4-4-7'-080713	Soil	08/07/2013 15:10
S57595.30	T-4-5-5'-080713	Soil	08/07/2013 15:00
S57595.31	T-5-2-6'-080713	Soil	08/07/2013 11:20
S57595.32	T-5-2-8'-080713	Soil	08/07/2013 11:25
S57595.33	T-5-2-10'-080713	Soil	08/07/2013 11:35
S57595.34	T-5-3-4'-080713	Soil	08/07/2013 12:10
S57595.35	T-5-3-5'-080713	Soil	08/07/2013 12:15
S57595.36	T-5-3-8'-080713	Soil	08/07/2013 12:25
S57595.37	T-5-4-4'-080713	Soil	08/07/2013 10:55
S57595.38	T-5-5-4'-080713	Soil	08/07/2013 10:25
S57595.39	T-5-5-8'-080713	Soil	08/07/2013 10:30
S57595.40	T-5-5-9'-080713	Soil	08/07/2013 10:35
S57595.41	T-6-2-3'-080713	Soil	08/07/2013 10:00
S57595.42	T-6-2-4'-080713	Soil	08/07/2013 10:05
S57595.43	T-6-2-5'-080713	Soil	08/07/2013 10:10
S57595.44	T-6-3-4'-080713	Soil	08/07/2013 09:00
S57595.45	T-6-3-5'-080713	Soil	08/07/2013 09:05
S57595.46	T-6-3-8'-080713	Soil	08/07/2013 09:10
S57595.47	T-6-4-4'-080713	Soil	08/07/2013 09:45
S57595.48	T-6-5-4'-080713	Soil	08/07/2013 09:50
S57595.49	T-7-2-4'-080613	Soil	08/06/2013 13:00
S57595.50	T-7-3-4'-080613	Soil	08/06/2013 13:50
S57595.51	T-7-4-4'-080613	Soil	08/06/2013 14:10
S57595.52	T-7-5-3'-080613	Soil	08/06/2013 13:20
S57595.53	T-7-5-4'-080613	Soil	08/06/2013 13:30
S57595.54	T-7-5-7'-080613	Soil	08/06/2013 13:40



Analytical Laboratory Report

Lab Sample ID: S57595.01

Sample Tag: T-1-2-4'-080813

Collected Date/Time: 08/08/2013 13:00

Matrix: Soil

COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	17,000	ug/kg	4,000	SW8015M	08/15/13 20:31	PL		
TPH DRO (C32-C36)	6,000	ug/kg	4,000	SW8015M	08/15/13 20:31	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/15/13 14:31	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.02

Sample Tag: T-1-3-4'-080813

Collected Date/Time: 08/08/2013 14:10

Matrix: Soil

COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Inorganics								
Total Solids	91	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	11,000	ug/kg	4,000	SW8015M	08/15/13 20:52	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/15/13 20:52	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/15/13 14:49	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.03
Sample Tag: T-1-4-2'-080813
Collected Date/Time: 08/08/2013 13:30
Matrix: Soil
COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Inorganics								
Total Solids	93	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	219,000	ug/kg	18,000	SW8015M	08/15/13 21:13	PL		Y
TPH DRO (C32-C36)	64,000	ug/kg	18,000	SW8015M	08/15/13 21:13	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/15/13 15:07	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.04
Sample Tag: T-1-4-5'-080813
Collected Date/Time: 08/08/2013 13:40
Matrix: Soil
COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
2	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/13/13 23:39	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	1	3500-Cr B	08/14/13 13:54	MJC	18540-29-9	
Conductivity	1,590	umhos/cm	NA	120.1	08/20/13 12:56	JDP		
pH/ Corrosivity	8.30	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	81	%	1	Std M 2540 B	08/13/13 17:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	1.82	mg/kg	0.20	SW6020	08/27/13 16:08	PER	7440-38-2	
Barium	106	mg/kg	1.0	SW6020	08/27/13 16:08	PER	7440-39-3	
Cadmium	0.34	mg/kg	0.20	SW6020	08/27/13 16:08	PER	7440-43-9	
Chromium III	6.28	mg/kg	0.5	SW6020	08/30/13 15:00	JDP	16065-83-1	
Chromium	6.28	mg/kg	0.50	SW6020	08/27/13 16:08	PER	7440-47-3	
Copper	24.0	mg/kg	0.50	SW6020	08/27/13 16:08	PER	7440-50-8	
Lead	16.5	mg/kg	0.30	SW6020	08/27/13 16:08	PER	7439-92-1	
Mercury	0.174	mg/kg	0.050	SW7471A	08/15/13 16:27	CCM	7439-97-6	
Nickel	10.5	mg/kg	0.50	SW6020	08/27/13 16:08	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:08	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:08	PER	7440-22-4	
Zinc	100	mg/kg	1.0	SW6020	08/27/13 16:08	PER	7440-66-6	
Boron	1.25	mg/L	0.05	E200.8	08/28/13 14:12	PER	7440-42-8	
Calcium	50.8	mg/L	1.0	E200.8	08/28/13 12:59	PER	7440-70-2	
Magnesium	17.5	mg/L	0.50	E200.8	08/28/13 12:59	PER	7439-95-4	
Sodium	164	mg/L	0.50	E200.8	08/28/13 12:59	PER	7440-23-5	
Sodium Adsorption Ratio	5.06	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	4,349,000	ug/kg	412,000	SW8015M	08/15/13 22:37	PL		Y
TPH DRO (C32-C36)	807,000	ug/kg	412,000	SW8015M	08/15/13 22:37	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	83-32-9	
Anthracene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	56-55-3	

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.04 (continued)

Sample Tag: T-1-4-5'-080813

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)pyrene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	207-08-9	
Chrysene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	53-70-3	
Fluoranthene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	206-44-0	
Fluorene	900	ug/kg	300	SW8270C	08/14/13 23:32	PL	86-73-7	Z
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	193-39-5	
Naphthalene	1,400	ug/kg	300	SW8270C	08/14/13 23:32	PL	91-20-3	
Pyrene	Not detected	ug/kg	300	SW8270C	08/14/13 23:32	PL	129-00-0	
Organics - Volatiles								
TPH GRO (C6-C10)	83,000	ug/kg	7,000	SW8015M	08/19/13 16:25	WAT		
BTEX 5035								
Benzene	Not detected	ug/kg	70	5035/8260B	08/20/13 14:28	WAT	71-43-2	
Toluene	Not detected	ug/kg	70	5035/8260B	08/20/13 14:28	WAT	108-88-3	
Ethylbenzene	550	ug/kg	70	5035/8260B	08/20/13 14:28	WAT	100-41-4	
p,m-Xylene	300	ug/kg	100	5035/8260B	08/20/13 14:28	WAT		
o-Xylene	Not detected	ug/kg	70	5035/8260B	08/20/13 14:28	WAT	95-47-6	

Z-Estimated result due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.05

Sample Tag: T-1-4-10'-080813

Collected Date/Time: 08/08/2013 13:50

Matrix: Soil

COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Inorganics								
Total Solids	79	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	36,000	ug/kg	4,000	SW8015M	08/15/13 22:16	PL		
TPH DRO (C32-C36)	8,000	ug/kg	4,000	SW8015M	08/15/13 22:16	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	8,000	SW8015M	08/15/13 15:25	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.06
Sample Tag: T-1-5-5'-080813
Collected Date/Time: 08/08/2013 12:55
Matrix: Soil
COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Inorganics								
Total Solids	86	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	17,000	ug/kg	4,000	SW8015M	08/15/13 21:34	PL		
TPH DRO (C32-C36)	5,000	ug/kg	4,000	SW8015M	08/15/13 21:34	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 15:43	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.07

Sample Tag: T-2-2-5'-080813

Collected Date/Time: 08/08/2013 10:55

Matrix: Soil

COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/13/13 23:38	EMR		
Inorganics								
Total Solids	82	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	14,000	ug/kg	4,000	SW8015M	08/15/13 21:55	PL		
TPH DRO (C32-C36)	6,000	ug/kg	4,000	SW8015M	08/15/13 21:55	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 16:02	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.08
Sample Tag: T-2-3-6'-080813
Collected Date/Time: 08/08/2013 11:45
Matrix: Soil
COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
2	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/14/13 22:49	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	1	3500-Cr B	08/14/13 14:09	MJC	18540-29-9	
Conductivity	1,668	umhos/cm	NA	120.1	08/20/13 12:58	JDP		
pH/ Corrosivity	7.85	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	79	%	1	Std M 2540 B	08/13/13 17:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	1.73	mg/kg	0.20	SW6020	08/27/13 16:13	PER	7440-38-2	
Barium	88.9	mg/kg	1.0	SW6020	08/27/13 16:13	PER	7440-39-3	
Cadmium	0.40	mg/kg	0.20	SW6020	08/27/13 16:13	PER	7440-43-9	
Chromium III	4.56	mg/kg	0.5	SW6020	08/30/13 15:01	JDP	16065-83-1	
Chromium	4.56	mg/kg	0.50	SW6020	08/27/13 16:13	PER	7440-47-3	
Copper	16.7	mg/kg	0.50	SW6020	08/27/13 16:13	PER	7440-50-8	
Lead	18.6	mg/kg	0.30	SW6020	08/27/13 16:13	PER	7439-92-1	
Mercury	0.264	mg/kg	0.050	SW7471A	08/15/13 16:29	CCM	7439-97-6	
Nickel	10.6	mg/kg	0.50	SW6020	08/27/13 16:13	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:13	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:13	PER	7440-22-4	
Zinc	59.0	mg/kg	1.0	SW6020	08/27/13 16:13	PER	7440-66-6	
Boron	1.17	mg/L	0.05	E200.8	08/28/13 14:15	PER	7440-42-8	
Calcium	209	mg/L	1.0	E200.8	08/28/13 13:00	PER	7440-70-2	
Magnesium	60.1	mg/L	0.50	E200.8	08/28/13 13:00	PER	7439-95-4	
Sodium	86.3	mg/L	0.50	E200.8	08/28/13 13:00	PER	7440-23-5	
Sodium Adsorption Ratio	1.35	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	13,947,000	ug/kg	633,000	SW8015M	08/16/13 17:36	PL		Y
TPH DRO (C32-C36)	1,713,000	ug/kg	133,000	SW8015M	08/16/13 17:36	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	83-32-9	X
Anthracene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	120-12-7	X

Y-Elevated reporting limit due to high target concentration

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.08 (continued)

Sample Tag: T-2-3-6'-080813

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)anthracene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	56-55-3	X
Benzo(a)pyrene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	50-32-8	X
Benzo(b)fluoranthene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	205-99-2	X
Benzo(k)fluoranthene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	207-08-9	X
Chrysene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	218-01-9	X
Dibenzo(ah)anthracene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	53-70-3	X
Fluoranthene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	206-44-0	X
Fluorene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	193-39-5	X
Naphthalene	3,900	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	91-20-3	X
Pyrene	Not detected	ug/kg	1,600	SW8270C	08/15/13 18:37	PL	129-00-0	X
Organics - Volatiles								
TPH GRO (C6-C10)	188,000	ug/kg	8,000	SW8015M	08/19/13 16:43	WAT		
BTEX 5035								
Benzene	Not detected	ug/kg	400	5035/8260B	08/22/13 14:14	WAT	71-43-2	X
Toluene	Not detected	ug/kg	400	5035/8260B	08/22/13 14:14	WAT	108-88-3	X
Ethylbenzene	1,500	ug/kg	400	5035/8260B	08/22/13 14:14	WAT	100-41-4	X
p,m-Xylene	2,900	ug/kg	800	5035/8260B	08/22/13 14:14	WAT		X
o-Xylene	Not detected	ug/kg	400	5035/8260B	08/22/13 14:14	WAT	95-47-6	X

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.09

Sample Tag: T-2-3-2'-080813

Collected Date/Time: 08/08/2013 11:30

Matrix: Soil

COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	94	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	206,000	ug/kg	53,000	SW8015M	08/16/13 17:57	PL		Y
TPH DRO (C32-C36)	84,000	ug/kg	53,000	SW8015M	08/16/13 17:57	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/15/13 16:20	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.10
Sample Tag: T-2-3-12'-080813
Collected Date/Time: 08/08/2013 12:00
Matrix: Soil
COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	84	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	7,000	ug/kg	4,000	SW8015M	08/16/13 18:18	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/16/13 18:18	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 16:38	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.11

Sample Tag: T-2-4-2'-080813

Collected Date/Time: 08/08/2013 11:00

Matrix: Soil

COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	95	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	129,000	ug/kg	35,000	SW8015M	08/16/13 18:39	PL		Y
TPH DRO (C32-C36)	42,000	ug/kg	35,000	SW8015M	08/16/13 18:39	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	5,000	SW8015M	08/15/13 16:56	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.12
Sample Tag: T-2-4-7'-080813
Collected Date/Time: 08/08/2013 11:45
Matrix: Soil
COC Reference: 75022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	80	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	9,000	ug/kg	4,000	SW8015M	08/16/13 19:00	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/16/13 19:00	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 17:15	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.13

Sample Tag: T-2-4-5'-080813

Collected Date/Time: 08/08/2013 11:05

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	76	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	13,244,000	ug/kg	1,316,000	SW8015M	08/16/13 19:21	PL		Y
TPH DRO (C32-C36)	2,098,000	ug/kg	1,316,000	SW8015M	08/16/13 19:21	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	41,000	ug/kg	8,000	SW8015M	08/15/13 17:33	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.14

Sample Tag: T-2-5-5'-080813

Collected Date/Time: 08/08/2013 10:40

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	86	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	16,000	ug/kg	4,000	SW8015M	08/16/13 19:42	PL		
TPH DRO (C32-C36)	6,000	ug/kg	4,000	SW8015M	08/16/13 19:42	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	5,000	SW8015M	08/15/13 17:51	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.15
Sample Tag: T-3-2-6'-080813
Collected Date/Time: 08/08/2013 08:15
Matrix: Soil
COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	84	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	460,000	ug/kg	40,000	SW8015M	08/16/13 20:03	PL		Y
TPH DRO (C32-C36)	140,000	ug/kg	40,000	SW8015M	08/16/13 20:03	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 18:10	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.16

Sample Tag: T-3-2-10'-080813

Collected Date/Time: 08/08/2013 08:20

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
2	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/14/13 22:49	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	1	3500-Cr B	08/14/13 14:43	MJC	18540-29-9	
Conductivity	1,585	umhos/cm	NA	120.1	08/20/13 13:00	JDP		
pH/ Corrosivity	8.75	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	68	%	1	Std M 2540 B	08/13/13 17:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	2.01	mg/kg	0.20	SW6020	08/27/13 16:15	PER	7440-38-2	
Barium	130	mg/kg	1.0	SW6020	08/27/13 16:15	PER	7440-39-3	
Cadmium	0.43	mg/kg	0.20	SW6020	08/27/13 16:15	PER	7440-43-9	
Chromium III	7.89	mg/kg	0.5	SW6020	08/30/13 15:02	JDP	16065-83-1	
Chromium	7.89	mg/kg	0.50	SW6020	08/27/13 16:15	PER	7440-47-3	
Copper	17.7	mg/kg	0.50	SW6020	08/27/13 16:15	PER	7440-50-8	
Lead	18.1	mg/kg	0.30	SW6020	08/27/13 16:15	PER	7439-92-1	
Mercury	0.310	mg/kg	0.050	SW7471A	08/15/13 16:31	CCM	7439-97-6	
Nickel	10.6	mg/kg	0.50	SW6020	08/27/13 16:15	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:15	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:15	PER	7440-22-4	
Zinc	60.7	mg/kg	1.0	SW6020	08/27/13 16:15	PER	7440-66-6	
Boron	1.40	mg/L	0.05	E200.8	08/28/13 14:16	PER	7440-42-8	
Calcium	209	mg/L	1.0	E200.8	08/28/13 13:01	PER	7440-70-2	
Magnesium	59.2	mg/L	0.50	E200.8	08/28/13 13:01	PER	7439-95-4	
Sodium	302	mg/L	0.50	E200.8	08/28/13 13:01	PER	7440-23-5	
Sodium Adsorption Ratio	4.75	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	18,366,000	ug/kg	735,000	SW8015M	08/16/13 20:24	PL		Y
TPH DRO (C32-C36)	2,379,000	ug/kg	735,000	SW8015M	08/16/13 20:24	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	83-32-9	X
Anthracene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	120-12-7	X

Y-Elevated reporting limit due to high target concentration

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.16 (continued)

Sample Tag: T-3-2-10'-080813

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)anthracene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	56-55-3	X
Benzo(a)pyrene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	50-32-8	X
Benzo(b)fluoranthene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	205-99-2	X
Benzo(k)fluoranthene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	207-08-9	X
Chrysene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	218-01-9	X
Dibenzo(ah)anthracene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	53-70-3	X
Fluoranthene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	206-44-0	X
Fluorene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	193-39-5	X
Naphthalene	5,700	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	91-20-3	X
Pyrene	Not detected	ug/kg	1,800	SW8270C	08/15/13 18:59	PL	129-00-0	X
Organics - Volatiles								
TPH GRO (C6-C10)	420,000	ug/kg	50,000	SW8015M	08/20/13 15:42	WAT		Y
BTEX 5035								
Benzene	Not detected	ug/kg	500	5035/8260B	08/20/13 15:42	WAT	71-43-2	Y
Toluene	Not detected	ug/kg	500	5035/8260B	08/20/13 15:42	WAT	108-88-3	Y
Ethylbenzene	3,700	ug/kg	500	5035/8260B	08/20/13 15:42	WAT	100-41-4	Y
p,m-Xylene	17,000	ug/kg	1,000	5035/8260B	08/20/13 15:42	WAT		Y
o-Xylene	3,200	ug/kg	500	5035/8260B	08/20/13 15:42	WAT	95-47-6	Y

X-Elevated reporting limit due to matrix interference

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.17

Sample Tag: T-3-2-15'-080813

Collected Date/Time: 08/08/2013 08:35

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	38,000	ug/kg	4,000	SW8015M	08/16/13 20:45	PL		
TPH DRO (C32-C36)	10,000	ug/kg	4,000	SW8015M	08/16/13 20:45	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 18:28	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.18
Sample Tag: T-3-3-5'-080813
Collected Date/Time: 08/08/2013 10:05
Matrix: Soil
COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	85	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	9,053,000	ug/kg	588,000	SW8015M	08/16/13 21:06	PL		Y
TPH DRO (C32-C36)	1,577,000	ug/kg	588,000	SW8015M	08/16/13 21:06	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 18:46	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.19

Sample Tag: T-3-3-7'-080813

Collected Date/Time: 08/08/2013 10:10

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	86	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	19,341,000	ug/kg	1,453,000	SW8015M	08/16/13 21:27	PL		Y
TPH DRO (C32-C36)	3,053,000	ug/kg	1,453,000	SW8015M	08/16/13 21:27	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	119,000	ug/kg	7,000	SW8015M	08/15/13 19:04	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.20

Sample Tag: T-3-3-10'-080813

Collected Date/Time: 08/08/2013 10:15

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	82	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	10,000	ug/kg	4,000	SW8015M	08/16/13 21:48	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/16/13 21:48	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 19:22	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.21
Sample Tag: T-3-4-5'-080813
Collected Date/Time: 08/08/2013 09:35
Matrix: Soil
COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	85	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	12,000	ug/kg	4,000	SW8015M	08/16/13 22:09	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/16/13 22:09	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/15/13 19:40	JGH		



Analytical Laboratory Report

Lab Sample ID: S57595.22
Sample Tag: T-3-5-4'-080813
Collected Date/Time: 08/08/2013 09:00
Matrix: Soil
COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	88	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	252,000	ug/kg	38,000	SW8015M	08/16/13 22:30	PL		Y
TPH DRO (C32-C36)	86,000	ug/kg	38,000	SW8015M	08/16/13 22:30	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/15/13 19:59	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.23

Sample Tag: T-3-5-6'-080813

Collected Date/Time: 08/08/2013 09:10

Matrix: Soil

COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	80	%	1	Std M 2540 B	08/13/13 17:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	21,730,000	ug/kg	1,563,000	SW8015M	08/16/13 22:51	PL		Y
TPH DRO (C32-C36)	4,009,000	ug/kg	1,563,000	SW8015M	08/16/13 22:51	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	53,000	ug/kg	8,000	SW8015M	08/15/13 20:17	JGH		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.24
Sample Tag: T-3-5-9'-080813
Collected Date/Time: 08/08/2013 09:15
Matrix: Soil
COC Reference: 75023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	77	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	75,000	ug/kg	4,000	SW8015M	08/16/13 23:12	PL		
TPH DRO (C32-C36)	11,000	ug/kg	4,000	SW8015M	08/16/13 23:12	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	8,000	SW8015M	08/16/13 13:31	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.25
Sample Tag: T-4-2-5'-080713
Collected Date/Time: 08/07/2013 14:00
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	54,000	ug/kg	11,000	SW8015M	08/16/13 23:32	PL		Y
TPH DRO (C32-C36)	28,000	ug/kg	11,000	SW8015M	08/16/13 23:32	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/16/13 13:49	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.26
Sample Tag: T-4-3-3'-080713
Collected Date/Time: 08/07/2013 13:35
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	249,000	ug/kg	37,000	SW8015M	08/16/13 23:53	PL		Y
TPH DRO (C32-C36)	77,000	ug/kg	37,000	SW8015M	08/16/13 23:53	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/16/13 14:07	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.27
Sample Tag: T-4-3-4'-080713
Collected Date/Time: 08/07/2013 13:40
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
2	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/14/13 22:48	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/14/13 22:49	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	1	3500-Cr B	08/14/13 14:56	MJC	18540-29-9	
Conductivity	1,193	umhos/cm	NA	120.1	08/20/13 13:04	JDP		
pH/ Corrosivity	7.85	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	84	%	1	Std M 2540 B	08/13/13 19:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	0.62	mg/kg	0.20	SW6020	08/27/13 16:18	PER	7440-38-2	
Barium	96.0	mg/kg	1.0	SW6020	08/27/13 16:18	PER	7440-39-3	
Cadmium	0.38	mg/kg	0.20	SW6020	08/27/13 16:18	PER	7440-43-9	
Chromium III	2.97	mg/kg	0.5	SW6020	08/30/13 15:03	JDP	16065-83-1	
Chromium	2.97	mg/kg	0.50	SW6020	08/27/13 16:18	PER	7440-47-3	
Copper	14.2	mg/kg	0.50	SW6020	08/27/13 16:18	PER	7440-50-8	
Lead	15.0	mg/kg	0.30	SW6020	08/27/13 16:18	PER	7439-92-1	
Mercury	0.378	mg/kg	0.050	SW7471A	08/15/13 16:33	CCM	7439-97-6	
Nickel	5.36	mg/kg	0.50	SW6020	08/27/13 16:18	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:18	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:18	PER	7440-22-4	
Zinc	29.1	mg/kg	1.0	SW6020	08/27/13 16:18	PER	7440-66-6	
Boron	0.72	mg/L	0.05	E200.8	08/28/13 14:17	PER	7440-42-8	
Calcium	114	mg/L	1.0	E200.8	08/28/13 13:02	PER	7440-70-2	
Magnesium	32.1	mg/L	0.50	E200.8	08/28/13 13:02	PER	7439-95-4	
Sodium	22.6	mg/L	0.50	E200.8	08/28/13 13:02	PER	7440-23-5	
Sodium Adsorption Ratio	0.481	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	6,514,000	ug/kg	397,000	SW8015M	08/17/13 00:14	PL		Y
TPH DRO (C32-C36)	870,000	ug/kg	397,000	SW8015M	08/17/13 00:14	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	83-32-9	X
Anthracene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	120-12-7	X

Y-Elevated reporting limit due to high target concentration

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.27 (continued)

Sample Tag: T-4-3-4'-080713

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)anthracene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	56-55-3	X
Benzo(a)pyrene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	50-32-8	X
Benzo(b)fluoranthene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	205-99-2	X
Benzo(k)fluoranthene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	207-08-9	X
Chrysene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	218-01-9	X
Dibenzo(ah)anthracene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	53-70-3	X
Fluoranthene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	206-44-0	X
Fluorene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	193-39-5	X
Naphthalene	1,600	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	91-20-3	X
Pyrene	Not detected	ug/kg	1,500	SW8270C	08/15/13 19:22	PL	129-00-0	X
Organics - Volatiles								
TPH GRO (C6-C10)	97,000	ug/kg	7,000	SW8015M	08/19/13 17:20	WAT		
BTEX 5035								
Benzene	Not detected	ug/kg	70	5035/8260B	08/19/13 17:20	WAT	71-43-2	
Toluene	Not detected	ug/kg	70	5035/8260B	08/19/13 17:20	WAT	108-88-3	
Ethylbenzene	660	ug/kg	70	5035/8260B	08/19/13 17:20	WAT	100-41-4	
p,m-Xylene	3,700	ug/kg	100	5035/8260B	08/19/13 17:20	WAT		
o-Xylene	Not detected	ug/kg	70	5035/8260B	08/19/13 17:20	WAT	95-47-6	

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.28

Sample Tag: T-4-3-6'-080713

Collected Date/Time: 08/07/2013 13:45

Matrix: Soil

COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	5,000	ug/kg	4,000	SW8015M	08/19/13 16:11	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/19/13 16:11	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 14:25	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.29

Sample Tag: T-4-4-7'-080713

Collected Date/Time: 08/07/2013 15:10

Matrix: Soil

COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	80	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	5,000	ug/kg	4,000	SW8015M	08/19/13 16:32	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/19/13 16:32	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 14:44	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.30
Sample Tag: T-4-5-5'-080713
Collected Date/Time: 08/07/2013 15:00
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	74	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	20,000	ug/kg	4,000	SW8015M	08/19/13 16:53	PL		
TPH DRO (C32-C36)	9,000	ug/kg	4,000	SW8015M	08/19/13 16:53	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	9,000	SW8015M	08/16/13 15:02	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.31
Sample Tag: T-5-2-6'-080713
Collected Date/Time: 08/07/2013 11:20
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
DRO Extraction (Replicate 01)	Completed			3550B	08/21/13 17:59	EMR		

Inorganics

Total Solids	86	%	1	Std M 2540 B	08/13/13 19:30	ASB		
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Organics - Semi-Volatiles

TPH DRO (C10-C32)	187,000	ug/kg	19,000	SW8015M	08/19/13 17:14	PL		SY
TPH DRO (C10-C32) (Replicate 01)	358,000	ug/kg	19,000	SW8015M	08/22/13 23:08	PL		Y
TPH DRO (C32-C36)	47,000	ug/kg	19,000	SW8015M	08/19/13 17:14	PL		SY
TPH DRO (C32-C36) (Replicate 01)	86,000	ug/kg	19,000	SW8015M	08/22/13 23:08	PL		Y

Organics - Volatiles

TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 15:20	WAT		
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S-Surrogate recovery outside of control limits Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.32
Sample Tag: T-5-2-8'-080713
Collected Date/Time: 08/07/2013 11:25
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
2	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/15/13 21:51	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	2	3500-Cr B	08/14/13 15:01	MJC	18540-29-9	
Conductivity	1,155	umhos/cm	NA	120.1	08/20/13 13:06	JDP		
pH/ Corrosivity	7.26	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	82	%	1	Std M 2540 B	08/13/13 19:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	1.25	mg/kg	0.20	SW6020	08/27/13 16:20	PER	7440-38-2	
Barium	122	mg/kg	1.0	SW6020	08/27/13 16:20	PER	7440-39-3	
Cadmium	0.36	mg/kg	0.20	SW6020	08/27/13 16:20	PER	7440-43-9	
Chromium III	3.19	mg/kg	0.5	SW6020	08/30/13 15:04	JDP	16065-83-1	
Chromium	3.19	mg/kg	0.50	SW6020	08/27/13 16:20	PER	7440-47-3	
Copper	13.7	mg/kg	0.50	SW6020	08/27/13 16:20	PER	7440-50-8	
Lead	15.4	mg/kg	0.30	SW6020	08/27/13 16:20	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471A	08/15/13 16:37	CCM	7439-97-6	
Nickel	7.72	mg/kg	0.50	SW6020	08/27/13 16:20	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:20	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:20	PER	7440-22-4	
Zinc	48.7	mg/kg	1.0	SW6020	08/27/13 16:20	PER	7440-66-6	
Boron	1.43	mg/L	0.05	E200.8	08/28/13 14:19	PER	7440-42-8	
Calcium	100	mg/L	1.0	E200.8	08/28/13 13:04	PER	7440-70-2	
Magnesium	40.6	mg/L	0.50	E200.8	08/28/13 13:04	PER	7439-95-4	
Sodium	38.1	mg/L	0.50	E200.8	08/28/13 13:04	PER	7440-23-5	
Sodium Adsorption Ratio	0.811	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	3,473,000	ug/kg	203,000	SW8015M	08/19/13 17:35	PL		Y
TPH DRO (C32-C36)	482,000	ug/kg	203,000	SW8015M	08/19/13 17:35	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	83-32-9	X
Anthracene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	120-12-7	X

Y-Elevated reporting limit due to high target concentration

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.32 (continued)

Sample Tag: T-5-2-8'-080713

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)anthracene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	56-55-3	X
Benzo(a)pyrene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	50-32-8	X
Benzo(b)fluoranthene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	205-99-2	X
Benzo(k)fluoranthene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	207-08-9	X
Chrysene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	218-01-9	X
Dibenzo(ah)anthracene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	53-70-3	X
Fluoranthene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	206-44-0	X
Fluorene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	193-39-5	X
Naphthalene	1,700	ug/kg	800	SW8270C	08/16/13 22:52	PL	91-20-3	X
Pyrene	Not detected	ug/kg	800	SW8270C	08/16/13 22:52	PL	129-00-0	X
Organics - Volatiles								
TPH GRO (C6-C10)	370,000	ug/kg	10,000	SW8015M	08/20/13 16:19	WAT		Y
BTEX 5035								
Benzene	Not detected	ug/kg	100	5035/8260B	08/20/13 16:19	WAT	71-43-2	Y
Toluene	Not detected	ug/kg	100	5035/8260B	08/20/13 16:19	WAT	108-88-3	Y
Ethylbenzene	3,100	ug/kg	100	5035/8260B	08/20/13 16:19	WAT	100-41-4	Y
p,m-Xylene	16,900	ug/kg	300	5035/8260B	08/20/13 16:19	WAT		Y
o-Xylene	200	ug/kg	100	5035/8260B	08/20/13 16:19	WAT	95-47-6	Y

X-Elevated reporting limit due to matrix interference

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.33

Sample Tag: T-5-2-10'-080713

Collected Date/Time: 08/07/2013 11:35

Matrix: Soil

COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	82	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	10,000	ug/kg	4,000	SW8015M	08/19/13 17:56	PL		
TPH DRO (C32-C36)	Not detected	ug/kg	4,000	SW8015M	08/19/13 17:56	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 15:39	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.34
Sample Tag: T-5-3-4'-080713
Collected Date/Time: 08/07/2013 12:10
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	88	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	457,000	ug/kg	57,000	SW8015M	08/19/13 18:17	PL		Y
TPH DRO (C32-C36)	160,000	ug/kg	57,000	SW8015M	08/19/13 18:17	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/16/13 15:58	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.35
Sample Tag: T-5-3-5'-080713
Collected Date/Time: 08/07/2013 12:15
Matrix: Soil
COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	85	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	3,095,000	ug/kg	196,000	SW8015M	08/19/13 18:38	PL		Y
TPH DRO (C32-C36)	424,000	ug/kg	196,000	SW8015M	08/19/13 18:38	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	83,000	ug/kg	7,000	SW8015M	08/16/13 16:16	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.36

Sample Tag: T-5-3-8'-080713

Collected Date/Time: 08/07/2013 12:25

Matrix: Soil

COC Reference: 75024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	15,000	ug/kg	4,000	SW8015M	08/19/13 18:59	PL		
TPH DRO (C32-C36)	5,000	ug/kg	4,000	SW8015M	08/19/13 18:59	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 16:34	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.37
Sample Tag: T-5-4-4'-080713
Collected Date/Time: 08/07/2013 10:55
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	87	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	19,000	ug/kg	4,000	SW8015M	08/19/13 19:20	PL		
TPH DRO (C32-C36)	9,000	ug/kg	4,000	SW8015M	08/19/13 19:20	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 16:52	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.38

Sample Tag: T-5-5-4'-080713

Collected Date/Time: 08/07/2013 10:25

Matrix: Soil

COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	93	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	247,000	ug/kg	36,000	SW8015M	08/19/13 19:41	PL		Y
TPH DRO (C32-C36)	97,000	ug/kg	36,000	SW8015M	08/19/13 19:41	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/16/13 17:10	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.39

Sample Tag: T-5-5-8'-080713

Collected Date/Time: 08/07/2013 10:30

Matrix: Soil

COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	7,180,000	ug/kg	301,000	SW8015M	08/19/13 20:02	PL		Y
TPH DRO (C32-C36)	821,000	ug/kg	301,000	SW8015M	08/19/13 20:02	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	240,000	ug/kg	7,000	SW8015M	08/16/13 17:29	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.40
Sample Tag: T-5-5-9'-080713
Collected Date/Time: 08/07/2013 10:35
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	14,000	ug/kg	4,000	SW8015M	08/19/13 20:23	PL		
TPH DRO (C32-C36)	4,000	ug/kg	4,000	SW8015M	08/19/13 20:23	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 17:47	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.41
Sample Tag: T-6-2-3'-080713
Collected Date/Time: 08/07/2013 10:00
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	94	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	134,000	ug/kg	35,000	SW8015M	08/19/13 20:44	PL		Y
TPH DRO (C32-C36)	55,000	ug/kg	35,000	SW8015M	08/19/13 20:44	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/16/13 18:05	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.42
Sample Tag: T-6-2-4'-080713
Collected Date/Time: 08/07/2013 10:05
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	87	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	1,658,000	ug/kg	115,000	SW8015M	08/19/13 21:05	PL		Y
TPH DRO (C32-C36)	298,000	ug/kg	115,000	SW8015M	08/19/13 21:05	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/16/13 18:23	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.43
Sample Tag: T-6-2-5'-080713
Collected Date/Time: 08/07/2013 10:10
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	20,000	ug/kg	4,000	SW8015M	08/19/13 21:26	PL		
TPH DRO (C32-C36)	7,000	ug/kg	4,000	SW8015M	08/19/13 21:26	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 18:41	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.44
Sample Tag: T-6-3-4'-080713
Collected Date/Time: 08/07/2013 09:00
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	86	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	1,332,000	ug/kg	116,000	SW8015M	08/19/13 21:47	PL		Y
TPH DRO (C32-C36)	256,000	ug/kg	116,000	SW8015M	08/19/13 21:47	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 18:59	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.45
Sample Tag: T-6-3-5'-080713
Collected Date/Time: 08/07/2013 09:05
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
2	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/15/13 21:51	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	1	3500-Cr B	08/14/13 15:08	MJC	18540-29-9	
Conductivity	870	umhos/cm	NA	120.1	08/20/13 13:08	JDP		
pH/ Corrosivity	7.57	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	84	%	1	Std M 2540 B	08/13/13 19:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	1.26	mg/kg	0.20	SW6020	08/27/13 16:23	PER	7440-38-2	
Barium	75.4	mg/kg	1.0	SW6020	08/27/13 16:23	PER	7440-39-3	
Cadmium	0.27	mg/kg	0.20	SW6020	08/27/13 16:23	PER	7440-43-9	
Chromium III	2.90	mg/kg	0.5	SW6020	08/30/13 15:05	JDP	16065-83-1	
Chromium	2.90	mg/kg	0.50	SW6020	08/27/13 16:23	PER	7440-47-3	
Copper	12.6	mg/kg	0.50	SW6020	08/27/13 16:23	PER	7440-50-8	
Lead	12.2	mg/kg	0.30	SW6020	08/27/13 16:23	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471A	08/15/13 16:50	CCM	7439-97-6	
Nickel	8.67	mg/kg	0.50	SW6020	08/27/13 16:23	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:23	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:23	PER	7440-22-4	
Zinc	35.1	mg/kg	1.0	SW6020	08/27/13 16:23	PER	7440-66-6	
Boron	1.07	mg/L	0.05	E200.8	08/28/13 14:20	PER	7440-42-8	
Calcium	53.3	mg/L	1.0	E200.8	08/28/13 13:05	PER	7440-70-2	
Magnesium	23.2	mg/L	0.50	E200.8	08/28/13 13:05	PER	7439-95-4	
Sodium	44.2	mg/L	0.50	E200.8	08/28/13 13:05	PER	7440-23-5	
Sodium Adsorption Ratio	1.27	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	4,285,000	ug/kg	198,000	SW8015M	08/19/13 22:08	PL		Y
TPH DRO (C32-C36)	498,000	ug/kg	198,000	SW8015M	08/19/13 22:08	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	83-32-9	X
Anthracene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	120-12-7	X

Y-Elevated reporting limit due to high target concentration

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.45 (continued)

Sample Tag: T-6-3-5'-080713

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)anthracene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	56-55-3	X
Benzo(a)pyrene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	50-32-8	X
Benzo(b)fluoranthene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	205-99-2	X
Benzo(k)fluoranthene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	207-08-9	X
Chrysene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	218-01-9	X
Dibenzo(ah)anthracene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	53-70-3	X
Fluoranthene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	206-44-0	X
Fluorene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	193-39-5	X
Naphthalene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	91-20-3	X
Pyrene	Not detected	ug/kg	800	SW8270C	08/19/13 23:11	PL	129-00-0	X
Organics - Volatiles								
TPH GRO (C6-C10)	34,000	ug/kg	7,000	SW8015M	08/19/13 14:36	WAT		
BTEX 5035								
Benzene	Not detected	ug/kg	70	5035/8260B	08/19/13 14:36	WAT	71-43-2	
Toluene	Not detected	ug/kg	70	5035/8260B	08/19/13 14:36	WAT	108-88-3	
Ethylbenzene	210	ug/kg	70	5035/8260B	08/19/13 14:36	WAT	100-41-4	
p,m-Xylene	600	ug/kg	100	5035/8260B	08/19/13 14:36	WAT		
o-Xylene	Not detected	ug/kg	70	5035/8260B	08/19/13 14:36	WAT	95-47-6	

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.46

Sample Tag: T-6-3-8'-080713

Collected Date/Time: 08/07/2013 09:10

Matrix: Soil

COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	82	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	10,000	ug/kg	4,000	SW8015M	08/19/13 22:29	PL		
TPH DRO (C32-C36)	4,000	ug/kg	4,000	SW8015M	08/19/13 22:29	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/16/13 19:17	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.47

Sample Tag: T-6-4-4'-080713

Collected Date/Time: 08/07/2013 09:45

Matrix: Soil

COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/15/13 21:49	EMR		
Inorganics								
Total Solids	92	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	147,000	ug/kg	36,000	SW8015M	08/19/13 22:50	PL		Y
TPH DRO (C32-C36)	59,000	ug/kg	36,000	SW8015M	08/19/13 22:50	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/20/13 15:05	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.48
Sample Tag: T-6-5-4'-080713
Collected Date/Time: 08/07/2013 09:50
Matrix: Soil
COC Reference: 75028

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Inorganics								
Total Solids	84	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	12,000	ug/kg	4,000	SW8015M	08/21/13 16:47	PL		
TPH DRO (C32-C36)	5,000	ug/kg	4,000	SW8015M	08/21/13 16:47	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/20/13 15:23	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.49

Sample Tag: T-7-2-4'-080613

Collected Date/Time: 08/06/2013 13:00

Matrix: Soil

COC Reference: 75026

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Inorganics								
Total Solids	88	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	29,000	ug/kg	4,000	SW8015M	08/21/13 17:08	PL		
TPH DRO (C32-C36)	8,000	ug/kg	4,000	SW8015M	08/21/13 17:08	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/20/13 14:10	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.50
Sample Tag: T-7-3-4'-080613
Collected Date/Time: 08/06/2013 13:50
Matrix: Soil
COC Reference: 75026

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	66,000	ug/kg	7,000	SW8015M	08/21/13 17:29	PL		Y
TPH DRO (C32-C36)	20,000	ug/kg	7,000	SW8015M	08/21/13 17:29	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/19/13 14:54	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.51
Sample Tag: T-7-4-4'-080613
Collected Date/Time: 08/06/2013 14:10
Matrix: Soil
COC Reference: 75026

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Inorganics								
Total Solids	94	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	14,000	ug/kg	4,000	SW8015M	08/21/13 17:50	PL		
TPH DRO (C32-C36)	5,000	ug/kg	4,000	SW8015M	08/21/13 17:50	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/19/13 15:12	WAT		



Analytical Laboratory Report

Lab Sample ID: S57595.52
Sample Tag: T-7-5-3'-080613
Collected Date/Time: 08/06/2013 13:20
Matrix: Soil
COC Reference: 75026

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Inorganics								
Total Solids	90	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	359,000	ug/kg	37,000	SW8015M	08/21/13 18:11	PL		Y
TPH DRO (C32-C36)	97,000	ug/kg	37,000	SW8015M	08/21/13 18:11	PL		Y
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	6,000	SW8015M	08/19/13 15:31	WAT		

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S57595.53
Sample Tag: T-7-5-4'-080613
Collected Date/Time: 08/06/2013 13:30
Matrix: Soil
COC Reference: 75026

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
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Extraction / Prep.

DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Mercury Digestion	Completed			SW7471A	08/15/13 12:00	CCM		
Metal Digestion	Completed			3050B	08/27/13 12:00	PER		
Metal Digestion	Completed			3015A	08/28/13 09:00	PER		
PNA Extraction	Completed			3550B	08/19/13 23:58	EMR		
Sodium Adsorption Ratio Prep.	Completed			20B	08/13/13 17:30	WAR		

Inorganics

Chromium VI	Not detected	mg/kg	1	3500-Cr B	08/14/13 15:14	MJC	18540-29-9	
Conductivity	2,904	umhos/cm	NA	120.1	08/20/13 13:10	JDP		
pH/ Corrosivity	7.58	STD Units	0.1	9045D	08/27/13 15:00	WAR		
Total Solids	85	%	1	Std M 2540 B	08/13/13 19:30	ASB		

Metals

Hot Water Extraction	Completed				08/28/13 09:00	PER		
Arsenic	1.13	mg/kg	0.20	SW6020	08/27/13 16:25	PER	7440-38-2	
Barium	111	mg/kg	1.0	SW6020	08/27/13 16:25	PER	7440-39-3	
Cadmium	0.35	mg/kg	0.20	SW6020	08/27/13 16:25	PER	7440-43-9	
Chromium III	3.04	mg/kg	0.5	SW6020	08/30/13 15:06	JDP	16065-83-1	
Chromium	3.04	mg/kg	0.50	SW6020	08/27/13 16:25	PER	7440-47-3	
Copper	11.6	mg/kg	0.50	SW6020	08/27/13 16:25	PER	7440-50-8	
Lead	11.0	mg/kg	0.30	SW6020	08/27/13 16:25	PER	7439-92-1	
Mercury	0.146	mg/kg	0.050	SW7471A	08/15/13 16:58	CCM	7439-97-6	
Nickel	6.11	mg/kg	0.50	SW6020	08/27/13 16:25	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020	08/27/13 16:25	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020	08/27/13 16:25	PER	7440-22-4	
Zinc	21.0	mg/kg	1.0	SW6020	08/27/13 16:25	PER	7440-66-6	
Boron	0.49	mg/L	0.05	E200.8	08/28/13 14:21	PER	7440-42-8	
Calcium	234	mg/L	1.0	E200.8	08/28/13 13:06	PER	7440-70-2	
Magnesium	46.8	mg/L	0.50	E200.8	08/28/13 13:06	PER	7439-95-4	
Sodium	10.4	mg/L	0.50	E200.8	08/28/13 13:06	PER	7440-23-5	
Sodium Adsorption Ratio	0.162	ru		20B	09/03/13 10:00	BJB		

Organics - Semi-Volatiles

TPH DRO (C10-C32)	3,984,000	ug/kg	196,000	SW8015M	08/21/13 18:32	PL		Y
TPH DRO (C32-C36)	725,000	ug/kg	196,000	SW8015M	08/21/13 18:32	PL		Y

Polynuclear Aromatics

Acenaphthene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	83-32-9	X
Anthracene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	120-12-7	X

Y-Elevated reporting limit due to high target concentration

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.53 (continued)

Sample Tag: T-7-5-4'-080613

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Benzo(a)anthracene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	56-55-3	X
Benzo(a)pyrene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	50-32-8	X
Benzo(b)fluoranthene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	205-99-2	X
Benzo(k)fluoranthene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	207-08-9	X
Chrysene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	218-01-9	X
Dibenzo(ah)anthracene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	53-70-3	X
Fluoranthene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	206-44-0	X
Fluorene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	193-39-5	X
Naphthalene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	91-20-3	X
Pyrene	Not detected	ug/kg	1,200	SW8270C	08/20/13 18:28	PL	129-00-0	X
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/19/13 15:49	WAT		
BTEX 5035								
Benzene	Not detected	ug/kg	70	5035/8260B	08/19/13 15:49	WAT	71-43-2	
Toluene	Not detected	ug/kg	70	5035/8260B	08/19/13 15:49	WAT	108-88-3	
Ethylbenzene	Not detected	ug/kg	70	5035/8260B	08/19/13 15:49	WAT	100-41-4	
p,m-Xylene	Not detected	ug/kg	100	5035/8260B	08/19/13 15:49	WAT		
o-Xylene	Not detected	ug/kg	70	5035/8260B	08/19/13 15:49	WAT	95-47-6	

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S57595.54
Sample Tag: T-7-5-7'-080613
Collected Date/Time: 08/06/2013 13:40
Matrix: Soil
COC Reference: 75026

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.3	IR
1	4oz Glass	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
DRO Extraction	Completed			3550B	08/19/13 23:57	EMR		
Inorganics								
Total Solids	84	%	1	Std M 2540 B	08/13/13 19:30	ASB		
Organics - Semi-Volatiles								
TPH DRO (C10-C32)	10,000	ug/kg	4,000	SW8015M	08/21/13 18:53	PL		
TPH DRO (C32-C36)	4,000	ug/kg	4,000	SW8015M	08/21/13 18:53	PL		
Organics - Volatiles								
TPH GRO (C6-C10)	Not detected	ug/kg	7,000	SW8015M	08/19/13 16:07	WAT		

Form 4, within thirty (30) days of December 30, 1997. The Sundry Notice, Form 4 shall include a copy of the existing pit permit, if a permit was obtained, and a description of the closure process.

- (2) Pits closed prior to December 30, 1997 were required to be reclaimed in accordance with the 1000 Series rules. Pits closed after December 30, 1997 shall be closed in accordance with the 900 Series rules and reclaimed in accordance with the 1000 Series rules.
- (3) Operators of steel, fiberglass, concrete or other similar produced water vessels buried or partially buried and located in sensitive areas were required to repair or replace vessels and tanks found to be leaking. Operators shall repair or replace vessels and tanks found to be leaking. Operators shall submit to the Director a Sundry Notice, Form 4, describing the integrity testing results and action taken within thirty (30) days of December 30, 1997.
- (4) Closure of pits and steel, fiberglass, concrete or other similar produced water vessels, and associated remediation operations conducted prior to December 30, 1997 are not subject to Rules 905., 906., 907., 909. and 910.

912. VENTING OR FLARING NATURAL GAS

- a. The unnecessary or excessive venting or flaring of natural gas produced from a well is prohibited.
- b. Except for gas flared or vented during an upset condition, well maintenance, well stimulation flowback, purging operations, or a productivity test, gas from a well shall be flared or vented only after notice has been given and approval obtained from the Director on a Sundry Notice, Form 4, stating the estimated volume and content of the gas. The notice shall indicate whether the gas contains more than one (1) ppm of hydrogen sulfide. If necessary to protect the public health, safety or welfare, the Director may require the flaring of gas.
- c. Gas flared, vented or used on the lease shall be estimated based on a gas-oil ratio test or other equivalent test approved by the Director, and reported on Operator's Monthly Production Report, Form 7.
- d. Flared gas that is subject to Sundry Notice, Form 4, shall be directed to a controlled flare in accordance with Rule 903.b.(2) or other combustion device operated as efficiently as possible to provide maximum reduction of air contaminants where practicable and without endangering the safety of the well site personnel and the public.
- e. Operators shall notify the local emergency dispatch or the local governmental designee of any natural gas flaring. Notice shall be given prior to flaring when flaring can be reasonably anticipated, or as soon as possible, but in no event more than two (2) hours after the flaring occurs.

Table 910-1
CONCENTRATION LEVELS¹

Contaminant of Concern	Concentrations
Organic Compounds in Soil	
TPH (total volatile and extractable petroleum hydrocarbons)	500 mg/kg
Benzene	0.17 mg/kg ²

Toluene	85 mg/kg ²
Ethylbenzene	100 mg/kg ²
Xylenes (total)	175 mg/kg ²
Acenaphthene	1,000 mg/kg ²
Anthracene	1,000 mg/kg ²
Benzo(A)anthracene	0.22 mg/kg ²
Benzo(B)fluoranthene	0.22 mg/kg ²
Benzo(K)fluoranthene	2.2 mg/kg ²
Benzo(A)pyrene	0.022 mg/kg ²
Chrysene	22 mg/kg ²
Dibenzo(A,H)anthracene	0.022 mg/kg ²
Fluoranthene	1,000 mg/kg ²
Fluorene	1,000 mg/kg ²
Indeno(1,2,3-C,D)pyrene	0.22 mg/kg ²
Naphthalene	23 mg/kg ²
Pyrene	1,000 mg/kg ²
Organic Compounds in Ground Water	
Benzene	5 µg/l ¹
Toluene	560 to 1,000 µg/l ³
Ethylbenzene	700 µg/l ³
Xylenes (Total)	4,400 to 10,000 µg/l ^{3,4}
Inorganics in Soils	
Electrical Conductivity (EC)	<4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	<12 ⁵
pH	6-9
Inorganics in Ground Water	
Total Dissolved Solids (TDS)	<4.25 x background ¹
Chlorides	<4.25 x background ¹
Sulfates	<1.25 x background ³
Metals in Soils	
Arsenic	0.39 mg/kg ²
Barium (LDNR True Total Barium)	15,000 mg/kg ²
Boron (Hot Water Soluble)	2 mg/l ³
Cadmium	70 mg/kg ^{3,5}
Chromium (III)	120,000 mg/kg ²
Chromium (VI)	23 mg/kg ^{2,6}
Copper	3,100 mg/kg ²
Lead (inorganic)	400 mg/kg ²
Mercury	23 mg/kg ²
Nickel (soluble salts)	1,600 mg/kg ^{2,5}
Selenium	390 mg/kg ^{2,5}
Silver	390 mg/kg ²
Zinc	23,000 mg/kg ^{2,5}
Liquid Hydrocarbons in Soils and Ground Water	
Liquid hydrocarbons including condensate and oil	Below detection level ⁷

COGCC recommends that the latest version of EPA SW 846 analytical methods be used where possible and that analyses of samples be performed by laboratories that maintain state or national accreditation programs.

¹ Consideration shall be given to background levels in native soils and ground water.

² Concentrations taken from CDPHE-HMWMD Table 1 Colorado Soil Evaluation Values (December 2007).

³ Concentrations taken from CDPHE-WQCC Regulation 41 - The Basic Standards for Ground Water.

⁴ For this range of standards, the first number in the range is a strictly health-based value, based on the WQCC's established methodology for human health-based standards. The second number in the range is a maximum contaminant level (MCL), established under the Federal Safe Drinking Water Act which has been

determined to be an acceptable level of this chemical in public water supplies, taking treatability and laboratory detection limits into account. The WQCC intends that control requirements for this chemical be implemented to attain a level of ambient water quality that is at least equal to the first number in the range except as follows: 1) where ground water quality exceeds the first number in the range due to a release of contaminants that occurred prior to September 14, 2004 (regardless of the date of discovery or subsequent migration of such contaminants) clean-up levels for the entire contaminant plume shall be no more restrictive than the second number in the range or the ground water quality resulting from such release, whichever is more protective, and 2) whenever the WQCC has adopted alternative, site-specific standards for the chemical, the site-specific standards shall apply instead of these statewide standards.

⁵ Analysis by USDA Agricultural Handbook 60 method (20B) with soluble cations determined by method (2). Method (20B) = estimation of exchangeable sodium percentage and exchangeable potassium percentage from soluble cations. Method (2) = saturated paste method (note: each analysis requires a unique sample of at least 500 grams). If soils are saturated, USDA Agricultural Handbook 60 with soluble cations determined by method (3A) saturation extraction method.

⁶ The table value for these inorganic constituents is taken from the CDPHE-HMWMD Table 1 Colorado Soil Evaluation Values (December 2007). However, because these values are high, it is possible that site-specific geochemical conditions may exist that could allow these constituents to migrate into ground water at levels exceeding ground water standards even though the concentrations are below the table values. Therefore, when these constituents are present as contaminants, a secondary evaluation of their leachability must be performed to ensure ground water protection.

Comments and Condition of Approval (COA)

TERRACES

The “Reclamation Work Plan – Northeast (NE) Terraced Area (COGCC Spill #2213637)” is actually a remediation workplan.

COAs:

- Conditionally approved, however, additional information or activities may be required during the course of remediation.
- COGCC approval is contingent on Operator providing notice to Environmental staff Carlos Lujan (carlos.lujan@state.co.us) or 970-625-2497, X7 a minimum of 72 hrs prior to conducting field operations.
- Soil samples shall be collected through the materials of the pit and from native material beneath the bottom of the pit to adequately characterize whether an impact has occurred. Samples shall be analyzed for total petroleum hydrocarbons (TPH) C6-12, C6-C10, C12-C28, C28-C-35, and C32-C36; benzene, toluene, xylenes, ethylbenzene, EC, SAR, arsenic, and pH.
- It is stated in the scope of work that on-site treatment for TPH and Arsenic may be performed. Provide the proposed treatment remedy.
- Amendments that may result in solidification of materials and leaving solidified material on-site will not be allowed.
- Project updates shall be provided to the COGC via eForm 27 (if available) or eForm 4 if the eForm 27 is not available, on a monthly basis, following approval of this Form 27.
- Reclamation shall be in accordance with the 900 and 1000 Series Rules.