

State of Colorado
Oil and Gas Conservation Commission



1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

FOR OGCC USE ONLY

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.

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Final Reclamation

OGCC Operator Number: 16700

Name of Operator: Chevron USA Inc

Address: 1400 Smith Street, Room 07065

City: Houston State: TX Zip: 77002

Contact Name and Telephone:

Eric Page

No: 713-372-1022

Fax: epage@chevron.com

API Number: COGCC Remediation Project No. 70;(COGCC SPILL #2213635)

County: Rio Blanco

Facility Name: Wilson Creek

Facility Number: 93352

Well Name: NA

Well Number: NA

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

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Crude Oil, Produced Water

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.): _____

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):

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.

Describe how source is to be removed:

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.

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.:

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.



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.):

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.

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.

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.

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:

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.

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

Final reclamation proposed. Refer to attached work plan:

2011 Final Reclamation Work Plan - Former Tank Battery 4 ;(COGCC SPILL #2213635)

Wilson Creek Field; Rio Blanco County, Colorado; COGCC Remediation Project No. 70; September 22, 2011.

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: Seth Maher

Signed: _____

Title: Associate Engineer-Stantec Consulting

Date: 9/27/11

OGCC Approved: _____

Title: _____

FOR Chris Canfield Date: 10/12/2011
FPS NW Region



Stantec

**2011 Final Reclamation Work Plan -
Former Tank Battery 4
(COGCC SPILL #2213635)**

**Wilson Creek Field
Rio Blanco County, Colorado
COGCC Remediation Project No. 70**

Submitted to:

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September 22, 2011

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FIGURES

- Figure 1 Site Location Map
- Figure 2 Area Map-Former Tank Battery 4

APPENDICES

- Appendix A Initial Subsurface Investigation of the Wilson Creek Facility Tank Battery #4 Site.
- Appendix B COGCC Correspondence dated February 8, 2005

1.0 Introduction

Stantec Consulting Corporation (Stantec), on behalf of Chevron Environmental Management Company (Chevron), is pleased to provide the Colorado Oil and Gas Conservation Commission (COGCC) and Bureau of Land Management (BLM) with this *Final Reclamation Work Plan* for Former Tank Battery 4 (TB4) 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
- TB4 is registered as Spill #2213635.

Interim reclamation activities began at TB4 in spring 2007 following the removal of surface facilities. Several subsurface assessments have been conducted since 2007 and concentrations of the identified constituent of concern, total petroleum hydrocarbons (TPH), have gradually declined based on sample results. Operations in the area have ceased and Chevron proposes conducting final reclamation activities at TB4 in 2011.

1.1 OBJECTIVES

The objectives of the reclamation are to:

- Return TB4 area to a condition approximating or equal to that which existed prior to the disturbance.
- Adhere to final reclamation guidelines provided in the BLM Gold Book and the COGCC Series 900 and 1000 Rules.

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 cities include Craig and Meeker, Colorado.

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 BLM and various private owners.

TB4 is located outside the Main Processing Area on land managed by the BLM.

1.2.2 Geology and Hydrogeology

The description of geology and hydrogeology in this section applies specifically to the Main Processing Area but likely represents the remainder of the Site fairly well, with the exception that groundwater conditions 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.

TB4 is located on a mountain-side terrace.

1.2.3 Site Historical Use Information

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 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 Former Tank Battery 4

As summarized in an *Initial Subsurface Investigation of the Wilson Creek Facility Tank Battery #4 Site*, which is provided in **Appendix A**, Chevron identified staining on the hillside southwest of TB4 in August 2002 and conducted a preliminary soil investigation in September 2002 (Cordilleran, 2002). At that time, TB4 included six 400-barrel oil and produced water above-ground storage tanks (ASTs), a lease-automated custody transfer (LACT) unit, two horizontal separators, two 2-phase scrubbers, and associated flow lines, manifolds, and transfer pumps. The investigation focused on the stained area to the southwest of the then-active battery.

Several exploratory trenches were dug, but the apparent source of staining was not identified. Samples were analyzed for TPH, and the maximum concentration was 5,900 milligrams per kilogram (mg/kg). TB4 was located on a portion of BLM land classified as “non-sensitive”, thereby prompting a default TPH regulatory cleanup level of 10,000 mg/kg. The BLM “approved the response action of visually monitoring the Site and periodically removing accumulated fluids” (Cordilleran, 2002).

The COGCC issued a letter to Larson and Associates, Inc. (Larson), dated February 8, 2005, providing provisional closure of TB4 (COGCC, 2005). The letter, which is provided in **Appendix B**, was apparently issued in response to a January 13, 2005 request for area closure by Larson.

As summarized in a *2007 Annual Report*, surface infrastructure was removed from TB4 in the spring of 2007, and a test pit investigation was conducted in July 2007 as a matter of due diligence to ensure the conditions of the provisional COGCC closure issued in February 2005 were met (SECOR, 2008). Test pits were excavated to approximately 4 feet bgs at approximately 30-foot grid spacing. Soil samples were collected from 28 test pit locations and analyzed for petroleum hydrocarbons. Eight of the samples collected were also analyzed for RCRA metals and chloride. Two of the locations had TPH concentrations above 1,000 mg/kg¹, with concentrations of 2,400 mg/kg and 2,500 mg/kg. None of the RCRA metal concentrations were above COGCC criteria, and chloride concentrations ranged from 17.1 mg/kg to 282 mg/kg. After communicating their intentions to the COGCC on October 30, 2007, Chevron began remediating impacted soils at TB4 in-place using landfarming techniques in the fall of 2007.

TB4 was sampled in June 2008, and the results were provided in a *2008 Annual Report* (Stantec, 2009). TB4 was again sampled in October 2009, with a focus on areas of concern identified during the June 2008 event (Stantec, 2010). Six soil samples were collected and TPH detections ranged from 230 mg/kg to 870 mg/kg.

¹ 1,000 mg/kg corresponds to the sensitive area TPH criteria in the COGCC Series 900 rules prior to the April 1, 2009 rule revision.

2.0 Scope of Work

TPH results from the 2009 investigation indicate that some areas of soil at TB4 may have concentrations exceeding 500 mg/kg. TPH is the single constituent of concern proposed for the reclamation activities at TB4. An allowable concentration of 500 mg/kg TPH is proposed based on the COGCC Series 900 Rules dated April 1, 2009. Chevron intends on reclaiming soil quality in these areas as part of the overall reclamation project. Areas found during the 2009 investigation to exceed 500 mg/kg TPH will be resampled in 2011. If soils are found to exceed 500 mg/kg TPH, they will be reclaimed by soil blending the spoils from excavations of prescribed size. Confirmation samples will then be collected from the amended soil to ensure concentrations are below 500 mg/kg. Remaining surface infrastructure (e.g., shallow flow-lines, deadmen, etc.) will be removed after the soil is reclaimed. Finally, the topography will be recontoured and seeded with a BLM-approved seed mix. Details of the reclamation are discussed in the following sections.

2.1 PERMITTING

No regulatory permitting activities are proposed as part of the final reclamation of TB4. However, the project team will obtain BLM and COGCC endorsement of this work plan prior to execution.

2.2 SOIL RECLAMATION

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 test pit locations with Chevron operations staff prior to breaking ground. No test pit will be advanced within 10 feet of a known underground utility and the excavator boom will be kept at least 20 feet away from any aboveground utility.

2.2.2 Test Pit Assessment

Test pits will be installed with an excavator or back-hoe in areas identified in 2009 as having soils with TPH concentrations above 500 mg/kg. **Figure 2** displays relevant analytical data from the October 2009 investigation and the areas proposed for sampling and subsequent excavation as necessary.

Field staff will assess the condition of exposed soils by noting qualitative descriptions of soil type, color, and odor as well as quantitative screening using a photoionization detector (PID).

Each pit will extend to approximately 4 feet bgs. One composite soil sample will be collected from each test pit.

Quantitative and qualitative field screening techniques, such as PID headspace testing and visual observations, will be used to select sample intervals to be composited. Soil will be selected on a bias to areas that appear most likely impacted.

Soil samples will be labeled and placed in an ice-filled cooler for preservation during shipment. 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

Results from the test pit assessment will be used to guide remedial excavation and soil blending activities. Test pit locations found to exceed 500 mg/kg will be identified as areas requiring soil quality reclamation.

Prescriptive excavations will be centered on test pit locations found to exceed 500 mg/kg TPH. The excavations will be 30 feet wide x 30 feet long x 4 feet deep². Overburden soils will be removed as applicable prior to addressing waste materials. 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 backfilling of the excavation if possible.

During the excavation activities, dust and vapors will be controlled as necessary by the application of fresh water or applying cover.

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 four sides; and
- An earthen escape ramp will be installed.

2.2.4 Surveying

The test pit locations and excavation perimeters will be logged using a global positioning system (GPS) with sub-meter accuracy and field notes will be collected.

2.2.5 Soil Staging

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

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

² Dimensions were selected based on test pit investigations conducted by SECOR/Stantec in 2007, 2008, and 2009. Test pits were laid out on approximate 30-foot spacing during these investigations and extended approximately 4 feet bgs.

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

2.2.6 Reclamation Process and Waste Management

Primarily, soils perceived to be reclaimable³ will be amended on-site and beneficially re-used as fill material during backfilling and recontouring. The basic reclamation process of these soils will be as follows:

1. Thoroughly mix excavated soils with clean fill material;
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.
3. Conduct quality assurance sampling on reclaimed soils. The quality assurance sampling is described in Section 2.2.7.

Alternatively, excavated soils may be transported to the permitted landfarm on-site for treatment or disposed at a licensed facility (e.g., landfill) off-site. These soils may be loaded directly into the hauling trucks instead of being temporarily stockpiled if applicable. Haul trucks traveling on public roads will be equipped with disposable liners during transport.

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

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.

2.2.7 Reclaimed Soil Quality Assurance Sampling

Section 2.2.6 describes the preferred soil reclamation process. To ensure the quality of reclaimed soils being beneficially used as backfill, sampling will be conducted beforehand. 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 backfill material. At a minimum, three samples will be collected from the materials reclaimed from each prescriptive excavation.
- Samples will be analyzed for TPH by TX 1005 and screened against the applicable COGCC Series 900 Rule criteria (500 mg/kg TPH).

³ 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 or at the permitted landfarm on-site.

- Materials with concentrations below the screening criteria will be used as backfill. Materials with concentrations that exceed criteria will be either amended further and re-sampled or transported to the on-site landfarm for treatment.

Analytical results from the quality assurance sampling will be documented.

2.2.8 Sample Collection and Handling

Soil samples will be collected from the excavator bucket, shovel, or hand auger. No personnel are permitted to enter excavations.

2.2.8.1 Decontamination Procedures

Any non-dedicated or non-disposable sampling equipment that comes into contact with soil will be decontaminated before and after each use. The decontamination procedures are described below:

- 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; and
- Analytical probes that come in contact with sample soil should be cleaned by washing with a Liquinox water solution and thoroughly rinsing with distilled water.

2.2.8.2 Quality Assurance/Quality Control Samples

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

- Duplicates – Duplicate 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 one duplicate per ten samples collected.

2.2.8.3 Laboratory Analysis

All soil samples will be submitted to Merit Laboratories in East Lansing, Michigan for analysis.

Soil samples will be analyzed for TPH by TX 1005. This analyte was selected based on knowledge of Site activities and the results of previous investigations.

2.2.8.4 Sample Labeling

Before a particular sample is collected, containers should be assembled and properly labeled. The sample label should be attached directly to the sample container. The information that should be included on the sample label includes the following:

- Project name;
- Sample ID (unique ID for each sample location; see Section 2.2.8.6);

- Date sampled;
- Time sampled (in military time);
- Initials of sampler(s); and
- Preservative in the sample container, if any.

2.2.8.5 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 disposed. All samples will be held at 4°C in a cooler until delivery to the laboratory. Samples will be shipped to the laboratory via FedEx 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 sample chest. The sample chest 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;
- Name(s) and signatures of samplers;
- Sample ID (unique ID for each sample location; see Section 2.2.8.6);
- Date and time of collection;
- Number and type of containers;
- Required analyses;
- Laboratory name and address; and
- Signatures documenting change of sample custody.

2.2.8.6 Sample Naming

Samples will be labeled in the following format:

Test Pit Soil Samples:

Test pit number_Date, Depth (e.g., TP1_091511, 3'; TP2_091511, 4')

Reclaimed Soil Quality Assurance Samples:

Stock pile number_Date_Sample number / total sample number (e.g. SP1_091511_1/5; SP1_091511_2/5)

Duplicates:

DUP-# (e.g., DUP-1, DUP-2)

2.3 SURFACE RECLAMATION

Surface reclamation activities will be conducted after soil quality is restored as described in the previous sections.

2.3.1 Infrastructure Removal and Abandonment

All surface infrastructure will be removed from the area as practical:

- Any remaining tankage and equipment will be removed;
- Flow lines will be isolated, drained, and removed;
- 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.

Buried flow lines and concrete foundations will be abandoned in place if final surface contouring will 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 Recontouring

The prescriptive excavations will be backfilled and the area (including the lease road) will be recontoured to original contour, or a contour that blends with the surrounding landform, after remaining infrastructure is removed.

Soil will be placed in 2-foot lifts and compacted to minimize subsidence. Compaction methods may include excavator compaction wheel, excavator bucket, or proof rolling with equipment.

Fill material may consist of:

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

On-site barrow will only be utilized if it can be done in a manner consistent with the natural landscape. Areas established for barrow will be graded and dressed appropriately. The beneficial re-use of reclaimed soils as fill will reduce the consumption of on-site barrow sources.

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. Lastly, the area will be seeded with an appropriate blend of perennial grasses to discourage the growth of noxious weeds. Seeding will be accomplished through dozer track walking and broadcast seeding.

The following seed mixture will be used in vegetation:

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

2.3.4 Area Maintenance

Successful reclamation requires control of erosion and noxious weeds while native vegetation is established. To facilitate this, it may be necessary recontour, re-scarifying the surface, replace topsoil, construct waterbars, apply mulch, redistributing woody debris, or barricade the entrance to the area.

2.4 BONDING

The operator of the area (Chevron Midcontinent LP) has already provided bonding for E & P operations on-site. Refer to BLM Bond #ES0022.

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 loss analyses (JLAs) 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 twice daily (first thing in morning and after lunch prior to re-initiating work) 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 ensure that a zero incident policy is stressed throughout the duration of the project.

4.0 Reporting and Documentation

A Final Abandonment Notice (FAN) 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).

During the course of the assessment activities at the Site, field activities will be documented using a field notebook. GPS data will be collected electronically.

Following completion of the reclamation detailed above, the test pit and soil quality assurance results will be compiled. Results will be documented in the respective Site annual report to the COGCC.

5.0 Project Implementation Schedule

- Submit work plan to BLM and COGCC for acceptance — Week of September 26, 2011.
- Mobilize to field within two weeks of BLM and COGCC acceptance — Week of October 24, 2011.
- Conduct reclamation activities — Week of October 24, 2011.

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:



Seth Maher, P.E.
Associate Engineer

Peer Reviewed by:



Marisa Patterson
Associate Engineer

7.0 References

COGCC, 2005. *RE: Tank Battery #4 Investigation Request for Closure, Wilson Creek Unit, COGCC Remediation No. 70, Rio Blanco County, Colorado.* February 2005.

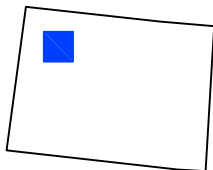
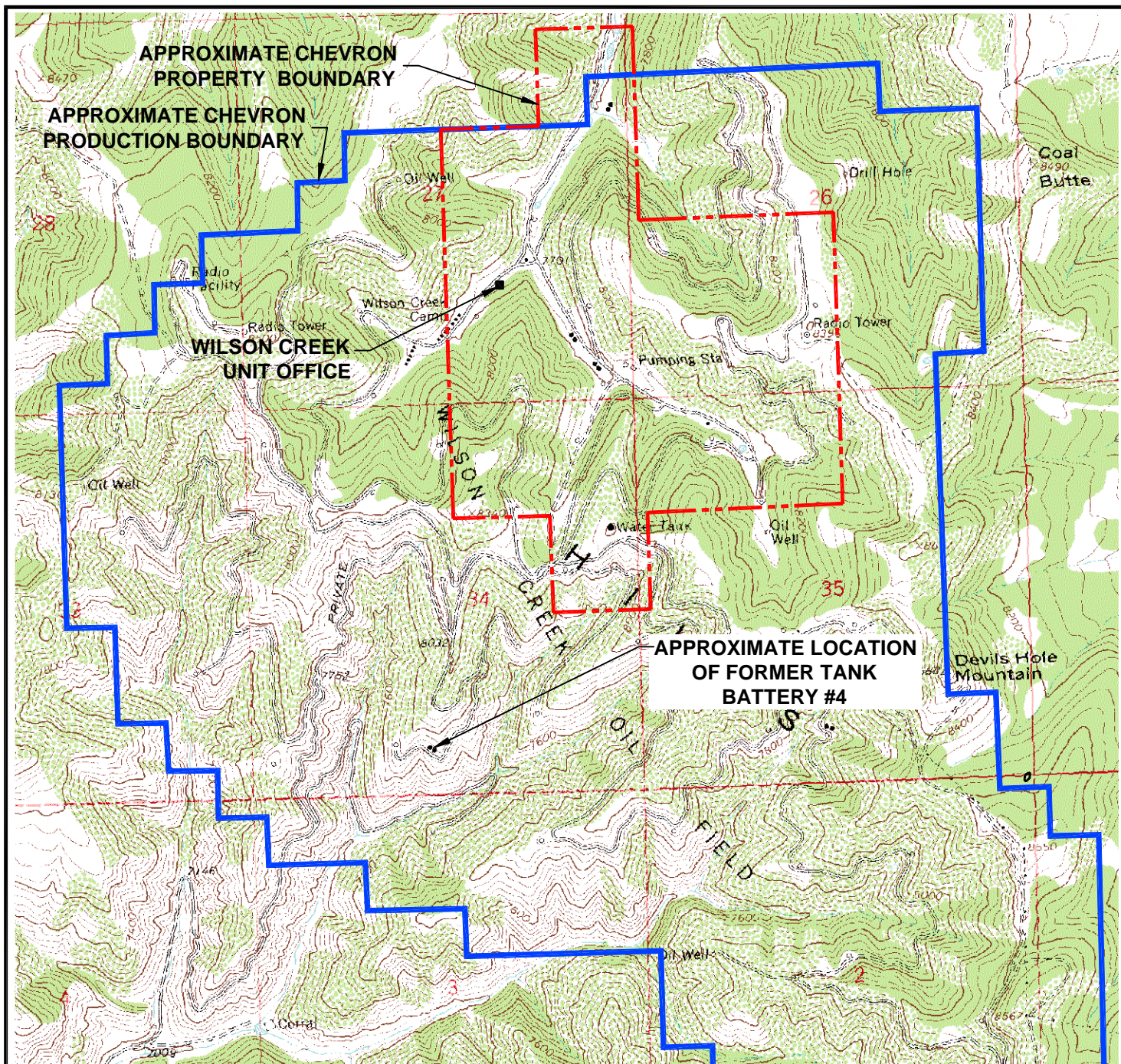
Cordilleran, 2002. *Initial Subsurface Investigation of the Wilson Creek Facility Tank Battery #4 Site Cordilleran Project # E02131.* December 2002.

SECOR, 2008. *2007 Annual Report, Wilson Creek Unit, 7265 Rio Blanco CR#9, Meeker Colorado 81641.* March 2008.

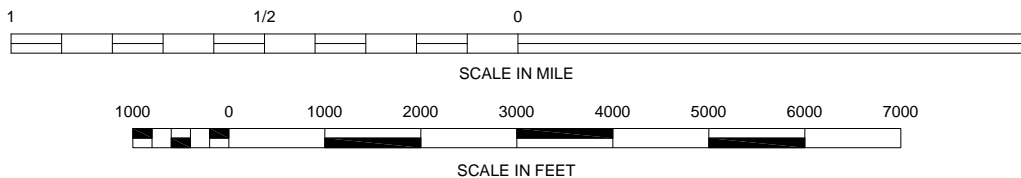
Stantec, 2009. *2008 Annual Report, Wilson Creek Unit, Rio Blanco County, Colorado.* April 2009.

Stantec, 2010. *2009 Annual Report, Wilson Creek Unit, Rio Blanco County, Colorado.* June 2010.

Figures



COLORADO



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; DEVILS HOLE GULCH, COLORADO



Stantec

2321 CLUB MERIDIAN DR, SUITE E
OKEMOS, MI

Phone: (517) 349-9499 Fax: (517) 349-6863

FOR:
CHEVRON ENVIRONMENTAL
MANAGEMENT COMPANY
WILSON CREEK UNIT
RIO BLANCO COUNTY, COLORADO

JOB NUMBER:
212201118

DRAWN BY:
JRO/ARA

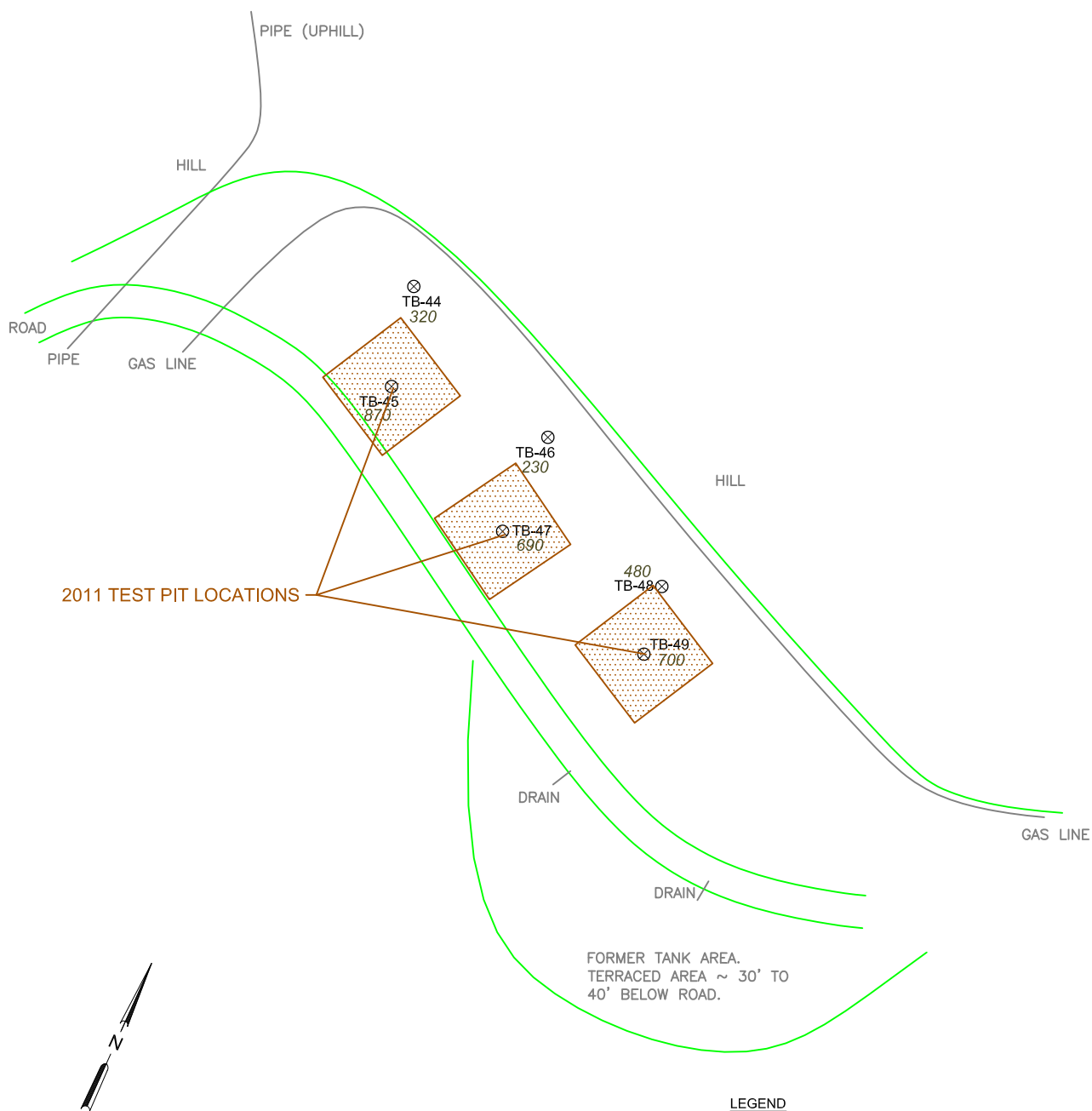
CHECKED BY:
CB

APPROVED BY:
SAM

FIGURE:

1

DATE:
9/21/11



LEGEND

- ⊗ 2009 SOIL SAMPLE LOCATION
- <1.0 TPH CONCENTRATION IN mg/kg (OCTOBER 2009)
- mg/kg MILLIGRAMS PER KILOGRAM
- TPH TOTAL PETROLEUM HYDROCARBONS
- FOOTPRINT OF PRESCRIPTIVE EXCAVATIONS (30'x30'x4') AS NEEDED BASED ON 2011 SAMPLE RESULTS

NOTES:
LOCATION OF ROAD, PIPES, HILLS, AND
TERRACE ARE APPROXIMATE.



Stantec

2321 CLUB MERIDIAN DR, SUITE E
OKEMOS, MI

PHONE: (517) 349-9499 FAX: (517) 349-6863

FOR:
**CHEVRON ENVIRONMENTAL
MANAGEMENT COMPANY**

WILSON CREEK UNIT
7265 RIO BLANCO COUNTY ROAD #9
MEEKER, COLORADO

JOB NUMBER:
212201118

DRAWN BY:
ARA

CHECKED BY:
CB

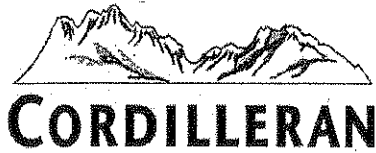
APPROVED BY:
SAM

FIGURE:

2

DATE:
9/21/11

Appendices



770 Simms Street
Suite 110
Golden, CO 80401
P: 303.237.2072
F: 303.237.2659

December 10, 2002

Mr. John Abbott
ChevronTexaco Inc.
7265 Rio Blanco County Road #9
Meeker, Colorado 81641

**RE: Initial Subsurface Investigation of the Wilson Creek Facility Tank Battery #4 Site
Cordilleran Project #E02131**

Dear Mr. Abbott:

On September 17, 2002 Cordilleran Compliance Services, Inc. (Cordilleran) and S&K Construction conducted a preliminary subsurface investigation at the above referenced facility. The following discussion summarizes the field activities and presents conclusions and recommendations.

The site is located in the southeast quarter of the northwest quarter of Section 34, Township 3 North, Range 94 West of the Sixth Principal Meridian in Rio Blanco County, Colorado. The elevation of the site is approximately 8000 feet above mean sea level. The topography in the area of the site is steep and slopes to the southwest toward Devils Hole Gulch. The site location is shown on Figure 1.

The site consists of a tank battery composed of (6) 400-barrel (bbl) capacity aboveground storage tanks (ASTs) containing oil and produced water, a lease automatic custody transfer (LACT) pump house, a manifold house, a saltwater disposal pump house, two horizontal separators, two 2-phase scrubbers enclosed in sheet metal buildings, a 500-gallon methanol AST, and the associated aboveground and buried piping. A site plan is presented as Figure 2.

Background

According to ChevronTexaco, operations personnel noticed staining in the hillslope down hill south of the site during an August 2002 audit of the Wilson Creek Facilities. S&K Construction was retained to excavate exploratory trenches in August 2002 in an effort to locate the source of the staining. The source of the staining was not identified and is not known.

According to ChevronTexaco personnel and S&K Construction personnel, a tank was formerly located on the hillslope south of the site during the early 1980s. The tank was reportedly not in use and was removed during the late 1980s. Perforated plastic piping was encountered during the excavation activities and consisted of both 4-inch diameter and 6-inch diameter pipe surrounded by gravel aggregate. A fence enclosed area was observed on the hillslope below the area where staining was observed.

Site Geology and Hydrogeology

The site bedrock geology consists of sandstones, shales, and claystone of the upper Cretaceous Iles Formation that either crop out or are present as subcrop beneath a thin veneer of colluvial sediments derived from the bedrock. Alternating layers of thinly bedded sandstone, shale, and claystone were observed in the trench through the road and also in the excavations below the level of the road. The sandstone beds encountered within the excavation typically appeared to be less than a foot thick.

The Iles Formation is part of the Mesaverde Group, which locally is an important aquifer in the region, especially toward the center of the Piceance Basin. The water quality within the Mesaverde Formation is highly variable and may have total dissolved solids (TDS) concentrations less than 1000 milligrams per kilogram (mg/kg), along the marginal areas of the basin or may have TDS concentrations that exceed 10,000 mg/kg in the central part of the Piceance Basin. The sediments that comprise the Mesaverde Group are generally impermeable and have low transmissivities.

A determination of the presence of groundwater could not be made at the time of the subsurface investigation due to thunderstorm activity. The steady drizzle made it impossible to determine whether groundwater was present; however, based on the presence of the staining in the hillslope down from the site, it appears likely that storm waters infiltrate the bedrock and rapidly discharge through fractures within the bedrock or seeping out at the contacts with relatively impermeable claystone or shale layers.

Field Activities

Cordilleran and S&K Construction conducted a preliminary subsurface investigation by excavating an arcuate trench. The trench was started on the south side of the property within the road and curved back to the northeast toward the 2-phase scrubber building. The trench was installed in proximity to where S&K had previously excavated in August and was completed to a depth of approximately 12 feet below ground surface (bgs).

Gray to black staining was observed within a sandstone layer underlain by claystone starting at a depth of 10 feet bgs. Small quantities of crude oil and water were observed seeping into the excavation through fractures. A steady rain fell during the morning hours of the investigation, making it impossible to determine if groundwater was present.

Three smaller excavations were completed down slope of the trench in areas where stained soils were observed. The largest of these excavations was approximately 25 feet below the base of the road, beneath the southern extent of the trench, and extended back into the hillside approximately 6 feet to 8 feet. Staining and a dark olive-green crude oil was observed pooling at the base following enlargement of this excavation. Two smaller excavations were completed downslope to the north of the first excavation. Both of these excavations were in areas that exhibited staining and where a mixture of crude oil and water was observed seeping through fractures in the rock. Some of the claystone exhibited "staining rinds" where the oil had seeped into the pore spaces of the rock adjacent to fractures.

A fourth excavation was completed north of the fenced area down slope from the previous three excavations. This area did not exhibit apparent signs of impact and the excavation was completed to a depth of approximately 4 feet bgs and was located a total of 56 feet downslope of the road.

Soils from each of the excavations were headspace screened using an organic vapor meter (OVM) calibrated to a 100 part per million (ppm) isobutylene in air span gas mixture prior to collection of the field data. Soil from each location was placed into a sealable plastic bag, allowed to warm over several minutes so that adsorbed petroleum hydrocarbons would volatilize into the headspace of the bag. Concentrations of these petroleum hydrocarbons were measured using the OVM. Background and breathing zone readings for the OVM typically ranged from 0 ppm to 1 ppm; while OVM sample headspace readings ranged from 3 ppm in the excavation furthest downslope and greater than 1097 ppm on one sample collected from the arcuate trench in the road. The headspace screening results for the soils are presented in Table 1. Soil samples were submitted from each excavation for laboratory analysis.

Following completion of the activities, the trench and other excavations were backfilled and compacted using the backhoe excavator to restore the road and site to its previous condition. The three excavations located below the level of the road remained open pending possible future activities.

Laboratory Analytical Parameters

Soil samples were collected and placed into laboratory provided 4 ounce jars and submitted to Evergreen Analytical Laboratory of Wheat Ridge, Colorado. The samples were submitted for analysis of total volatile petroleum hydrocarbons (TVPH) and total extractable petroleum hydrocarbons (TEPH) using an EPA modified Method 8015. The samples were stored on ice and delivered to the laboratory under chain-of-custody protocols. The sample names identify the site location, the order in which it was collected, and also correlate to the excavation from which each was collected.

Laboratory Analytical Results

The laboratory analytical results for the soil samples indicated that the TVPH concentrations ranged from 400 mg/kg in sample TB4SS2 to 960 mg/kg in sample TB4SS3 in the arc trench adjacent to the 2-phase scrubber building. Concentrations of TEPH ranged from 780 mg/kg in sample TB4SS1 to 1400 mg/kg in sample TB4SS3.

The laboratory results for the soil sample TB4SS4 collected from the excavation 25 feet down hill from the road had a TVPH concentration of 3500 mg/kg and a TEPH concentration of 3800 mg/kg. The laboratory analytical results for soil samples downslope indicated that TB4SS5 had a TVPH concentration of 180 mg/kg and TEPH concentration of 1000 mg/kg and TB4SS6 had a TVPH concentration of 1500 mg/kg and TEPH concentration of 5900 mg/kg.

The laboratory results for sample TB4SS7, collected furthest downslope, indicated TVPH concentrations were not detected, and that TEPH concentrations were 42 mg/kg. No staining

was observed and no hydrocarbon odors were detected in this sample. The laboratory analytical results for each of the soil samples are presented in Table 2.

Regulatory Agency Determination

ChevronTexaco personnel discussed the seep location and assessment findings with the Colorado Oil and Gas Conservation Commission (COGCC). Based on information provided to the COGCC by ChevronTexaco, the COGCC's knowledge of the site location, and a review of the COGCC Figure 901-1 Sensitive Area Determination Decision Tree, the COGCC concluded that the site is outside sensitive areas. The COGCC has established a maximum allowable concentration of 10,000 mg/kg for total petroleum hydrocarbons (TPH) in Non-Sensitive Areas.

The site is located on Bureau of Land Management (BLM) land and the BLM preempts the COGCC's jurisdiction on land it administers. The BLM was notified and has inspected the site. The BLM has approved the response action of visually monitoring the seep and periodically recovering the accumulated fluids. Photographs of the site are included as Attachment B.

Conclusions and Recommendations

The COGCC has determined that the site is located in a Non-Sensitive Area and none of the laboratory results for the soil samples submitted from the assessment exceeded the maximum allowable concentration of 10,000 mg/kg. No further action is proposed at this time with regard to the impacted soil. The site is located on BLM land and the BLM has been notified of the seep. The BLM has approved the response action of visually monitoring the site and periodically recovering accumulated fluids.

ChevronTexaco personnel should visually monitor the stained soils and oil seep to make sure that the problem does not get worse and that the oil seep does not impact waters of the state since the seep is located in a ravine which contains an intermittent stream, classified as "Waters of the State."

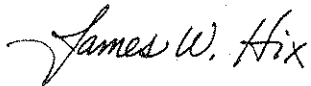
Although analytical results indicate that TPH concentrations in soils are less than the COGCC 10,000 mg/kg maximum allowable concentration for non-sensitive areas, storm events could cause oils to migrate further down slope and impact surface water resources. Federal Clean Water Act and Oil Pollution Act (OPA) regulations may apply to the oil seep. If ChevronTexco personnel determine the problem is getting worse, Cordilleran recommends that the BLM and COGCC be notified and additional assessment be performed to include the following.

- Installation of a receptor trench at the oil seep that can contain the oil and be periodically pumped out;
- Test hole drilling and soil sampling; and
- Additional subsurface investigation activities to further delineate impacts and potentially the source of the impacts.

If an active leak source is identified, the source of the leak should be repaired or removed. If remediation is warranted, the subsurface could be flushed with water, combined with recovery of petroleum hydrocarbons, and followed by bioflooding with a nutrient and/or microbial solution to promote accelerated attenuation/degradation of the impacts.

Cordilleran appreciates the opportunity to be of service to ChevronTexaco in conducting this assessment of the Wilson Creek Tank Battery #4 site. If you have any questions, please contact us at (303) 237-2072 or (970) 263-7800.

Sincerely,
Cordilleran Compliance Services, Inc.



James W. Hix
Senior Project Geologist

 for:

Craig J. Meis, P.E.
Principal Engineer

cc: Mr. Greg Menory, ChevronTexaco, Midland, TX
Ms. Tammy Strain, ChevronTexaco, Rangely, CO

Attachments

LIST OF TABLES

Table 1. Field Organic Vapor Meter Headspace Readings

Table 2. Laboratory Soil Analytical Results

Table 2
Laboratory Soil Analytical Results

ChevronTexaco Production Company
Wilson Creek Facility - Tank Battery #4
Section 34, Township 3 North, Range 94 West

| Sample ID | Depth (feet) | Date | TVPH (mg/kg) | TEPH (mg/kg) | Sample Location Description |
|-----------|--------------|-----------|--------------|--------------|---|
| TB4SS1 | 12 | 9/17/2002 | 540 | 780 | South end of trench corner of gravel roadway/top of hillslope. South of heater treater building. |
| TB4SS2 | 12 | 9/17/2002 | 400 | 940 | South end of trench approximately 10 feet north of TB4SS1 location. Across from 500 gallon methanol AST. |
| TB4SS3 | 12 | 9/17/2002 | 960 | 1400 | North end of trench/16 feet south of stormwater drain and approximately 45 feet from heater treater building |
| TB4SS4 | 12 | 9/17/2002 | 3500 | 3800 | Excavation 25 feet down from the road/south end of excavation and 6 feet into hillside. Oil and water mixture observed. |
| TB4SS5 | 3 | 9/17/2002 | 180 | 1000 | Excavation approximately 25 feet downslope from previous excavation area and 35 feet from the road. Soil staining. |
| TB4SS6 | 2.5 | 9/17/2002 | 1500 | 5900 | Excavation approximately 40 feet downslope from first excavation and 35 feet down from the road. Oil/water seeps. |
| TB4SS7 | 3.5 | 9/17/2002 | < 20 | 42 | Excavation located 56 feet downslope from TB4SS5 and TB4SS6 locations. No staining or odors. |

Notes:

Locations of soil samples collected from Tank Battery #4 are shown on Figure 2.

Sample depths are in feet below ground surface.

mg/kg: milligrams per kilogram

TVPH - total volatile petroleum hydrocarbons by EPA modified Method 8015.

TEPH - total extractable petroleum hydrocarbons by EPA modified Method 8015.

< - Analyte was not detected.

COGCC - Colorado Oil and Gas Conservation Commission.

The COGCC has established criteria for the maximum allowable concentrations of total petroleum hydrocarbons in soils for sensitive and non-sensitive areas.

Table 1
Field Organic Vapor Meter Headspace Readings

ChevronTexaco Production Company
Wilson Creek - Tank Battery #4
Section 34, Township 3 North, Range 94 West

| Sample ID | Depth (feet) | Date | OVM Readings (ppm) | Sample Location Description |
|-----------------|-----------------|-----------|--------------------------|---|
| TB4SS1 | 12 | 9/17/2002 | 784 | Southend of trench corner of gravel roadway/top of hillslope. South of heater treater building. Staining observed and odor detected. |
| TB4SS2 | 12 | 9/17/2002 | > 1097 | South end of trench approximately 10 feet north of TB4SS1 location. Across from 500 gallon methanol AST. Free product observed. |
| (no lab sample) | 12 | 9/17/2002 | 881 | Sample not submitted for laboratory analysis. OVM headspace reading for soil approximately 10 feet north of TB4SS2. Staining observed and odors detected. |
| (no lab sample) | 12 | 9/17/2002 | 938 | Sample not submitted for laboratory analysis. OVM headspace reading for soil approximately 20 feet north of TB4SS2. Staining observed and odor detected. |
| TB4SS3 | 12 | 9/17/2002 | 847 | North end of trench/16 feet south of stormwater drain and approximately 45 feet from heater treater building. Staining observed and odor detected. |
| TB4SS4 | 12 | 9/17/2002 | 914 | Excavation 25 feet down from the road/south end of excavation and 6 feet into hillside. Oil and water mixture observed. |
| TB4SS5 | 3 | 9/17/2002 | 590 | Excavation approximately 25 feet downslope from previous excavation area and 35 feet from the road. Soil staining observed and odor detected. |
| TB4SS6 | 2.5 | 9/17/2002 | 483 | Excavation approximately 40 feet downslope from first excavation and 35 feet down from the road. Oil/water seeps. |
| TB4SS7 | 3.5 | 9/17/2002 | 3 | Excavation located 56 feet downslope from TB4SS5 and TB4SS6 locations. No staining or odors. |

Notes:

Locations of soil samples collected from Tank Battery #4 are shown on Figure 2.

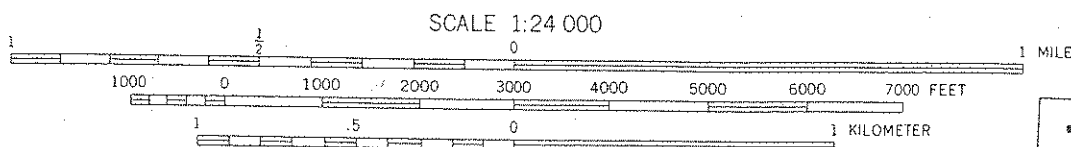
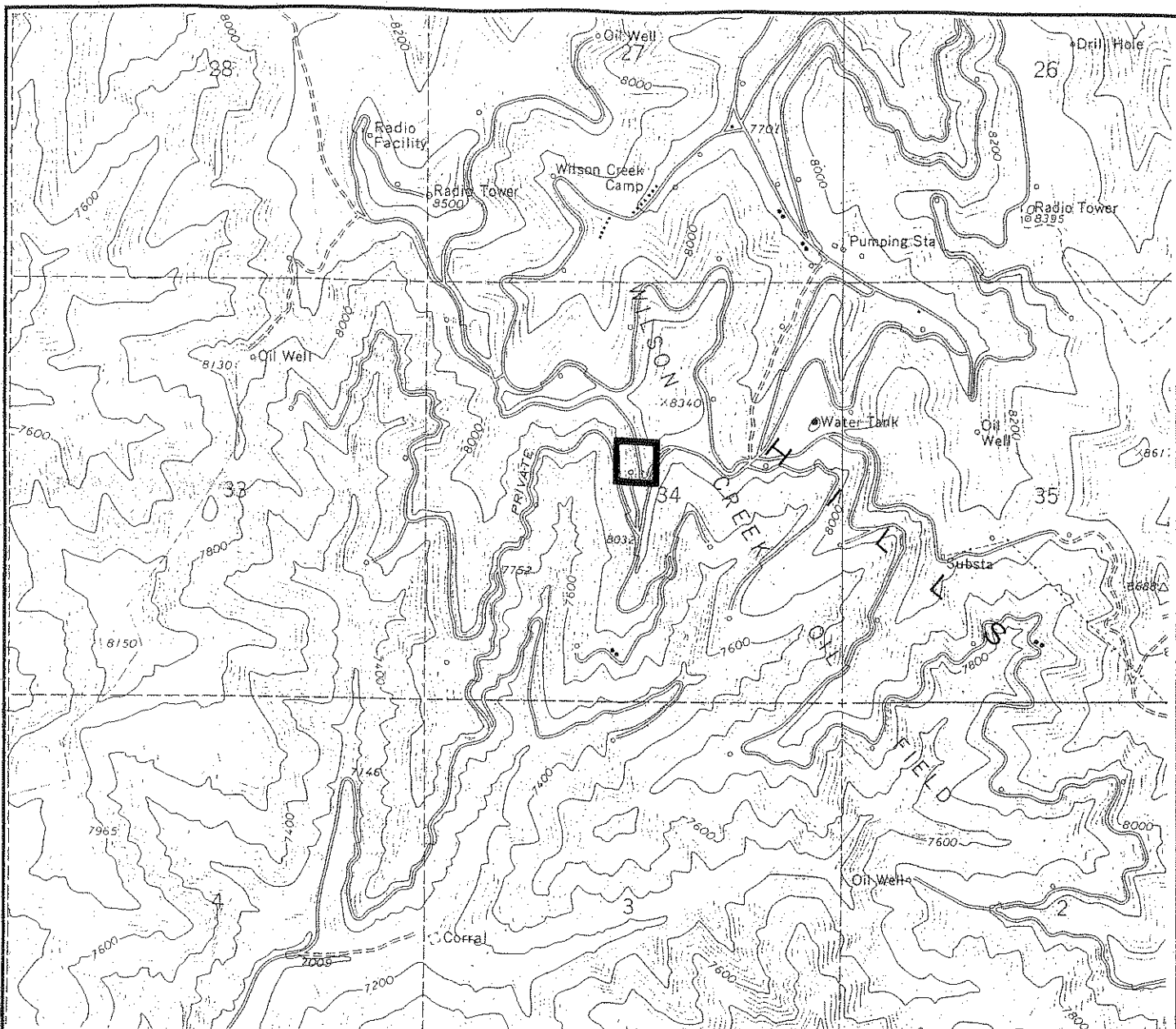
Sample depths are in feet below ground surface.

ppm - parts per million.

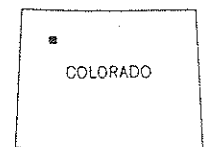
LIST OF FIGURES

Figure 1. Site Location Map

Figure 2. Tank Battery #4



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION



Site Location

DEVILS HOLE GULCH, COLO.

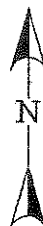
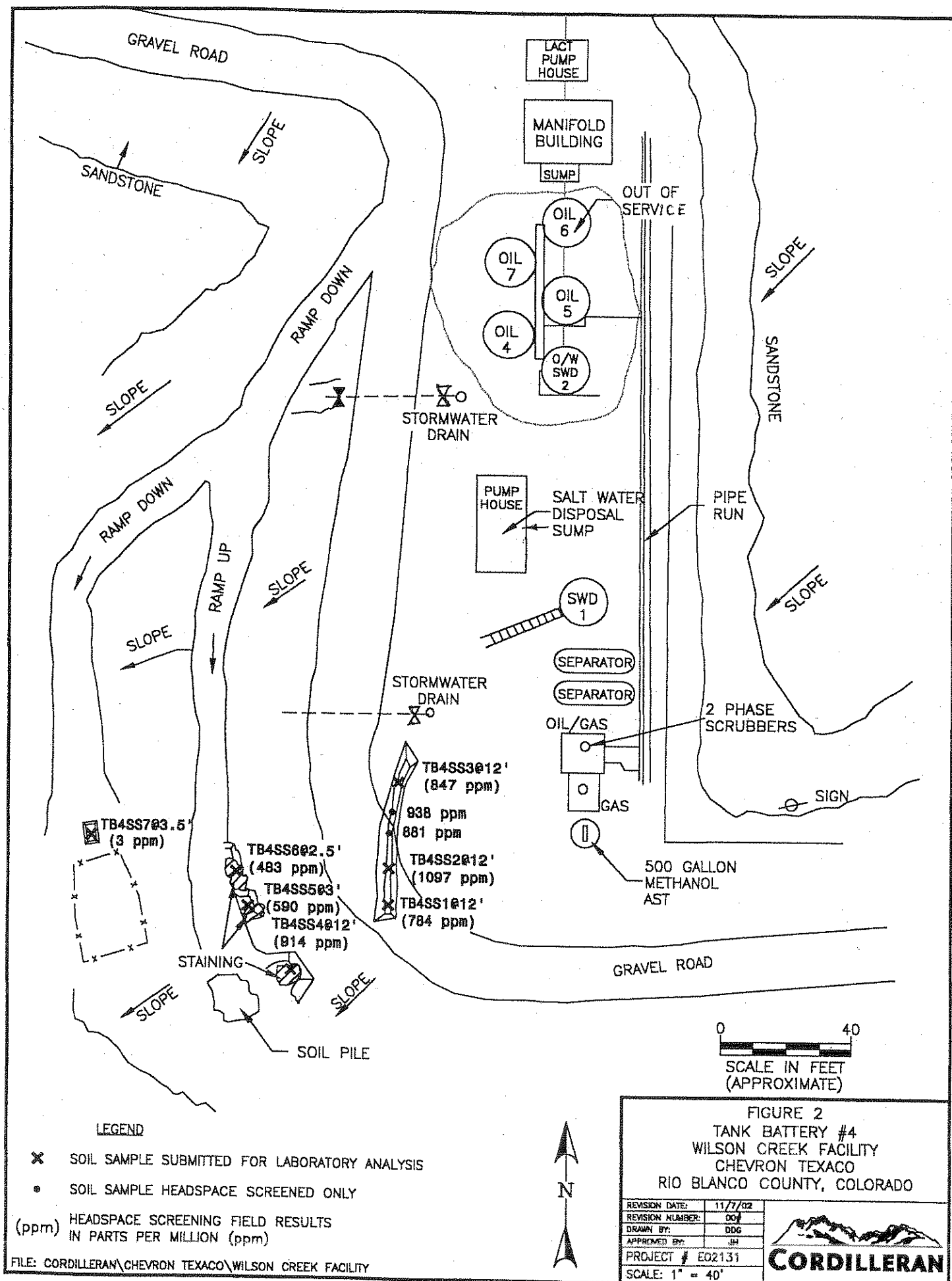


FIGURE 1
SITE LOCATION MAP
TANK BATTERY #4
WILSON CREEK FACILITY
CHEVRON TEXACO
RIO BLANCO COUNTY, COLORADO

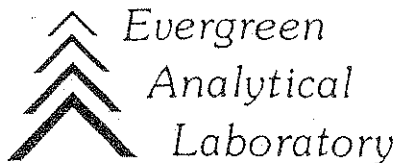
| | |
|------------------|--------------|
| REVISION DATE: | 08/24/02 |
| REVISION NUMBER: | 004 |
| DRAWN BY: | DGC |
| APPROVED BY: | JH |
| PROJECT # | E02131 |
| SCALE: | 1" = 24,000' |

CORDILLERAN



ATTACHMENT A

Laboratory Data



September 23, 2002

James Hix
Cordilleran Compliance Services, Inc.
770 Simms Street Suite 110
Golden, CO 80401

Lab Work Order: 02-5787

Client Project:

Dear James Hix:

Enclosed are the analytical results and invoice for the samples shown in the Laboratory Work Order Summary.

The enclosed data for testing performed at Evergreen Analytical Laboratory (EAL) have been reviewed for quality assurance. A case narrative is included to describe any anomalies associated with the samples or data.

EAL will dispose of all samples one month from the date of this letter. If you want samples returned, please advise us by mail or fax as soon as possible.

A copy of this project report and supporting data will be retained for a period of five years unless we are otherwise advised by you. A document retrieval charge will apply.

Thank you for using the services of Evergreen Analytical. If you have any questions concerning the analytical data, please contact me. Please direct other questions to Client Services.

Sincerely,



Carl Smits
Technical Director of Chemical Analysis

This report contains a total of 29 pages including the cover letter.

Evergreen Analytical, Inc.
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Lab Order: 02-5787
Client: Cordilleran Compliance Services, Inc.
Project ID:
Matrix: Soil

Date Received: 9/18/02
Date Prepared: 9/19/02
Prep Batch ID: 209
Units: mg/Kg

Method: SW8015M

Total Extractable Hydrocarbons
Diesel Fuel (No. 2)


| Lab ID | Client Sample ID | File ID | Date Collected | Date Analyzed | DF | Surr REC | Sample Results | LQL |
|-------------|------------------|---------------------|----------------|---------------|----|----------|----------------|-----|
| 02-5787-01B | TB4SS1@12ft | FID30920\010F0101.D | 9/17/02 | 9/19/02 | 10 | 65% | 780 | 140 |
| 02-5787-02B | TB4SS2@12ft | FID30920\011F0101.D | 9/17/02 | 9/19/02 | 10 | 90% | 940 | 140 |
| 02-5787-03B | TB4SS3@12ft | FID30920\012F0101.D | 9/17/02 | 9/19/02 | 10 | 70% | 1400 | 140 |
| 02-5787-04B | TB4SS4@12ft | FID30920\014F0101.D | 9/17/02 | 9/19/02 | 5 | 101% | 3800 | 70 |
| 02-5787-05B | TB4SS5@3ft | FID30920\015F0101.D | 9/17/02 | 9/19/02 | 2 | 79% | 1000 | 28 |
| 02-5787-06B | TB4SS6@2.5ft | FID30923\003F0101.D | 9/17/02 | 9/19/02 | 10 | 107% | 5900 | 140 |
| 02-5787-07B | TB4SS7@3.5ft | FID30923\004F0101.D | 9/17/02 | 9/19/02 | 1 | 60% | 42 | 14 |

Surrogate QC Limits: 24-135 %REC

Surr: TBB



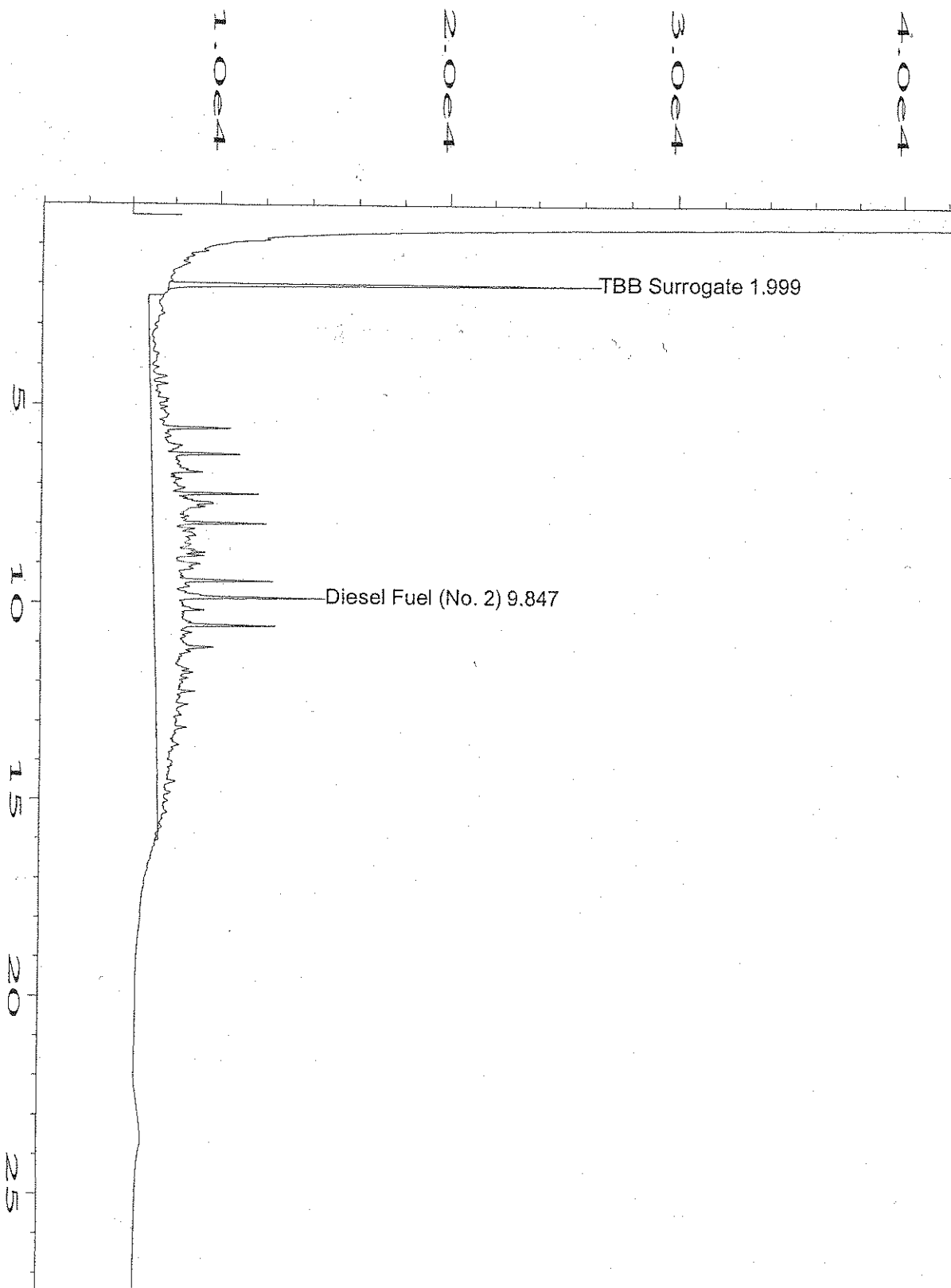
Analyst



Approved

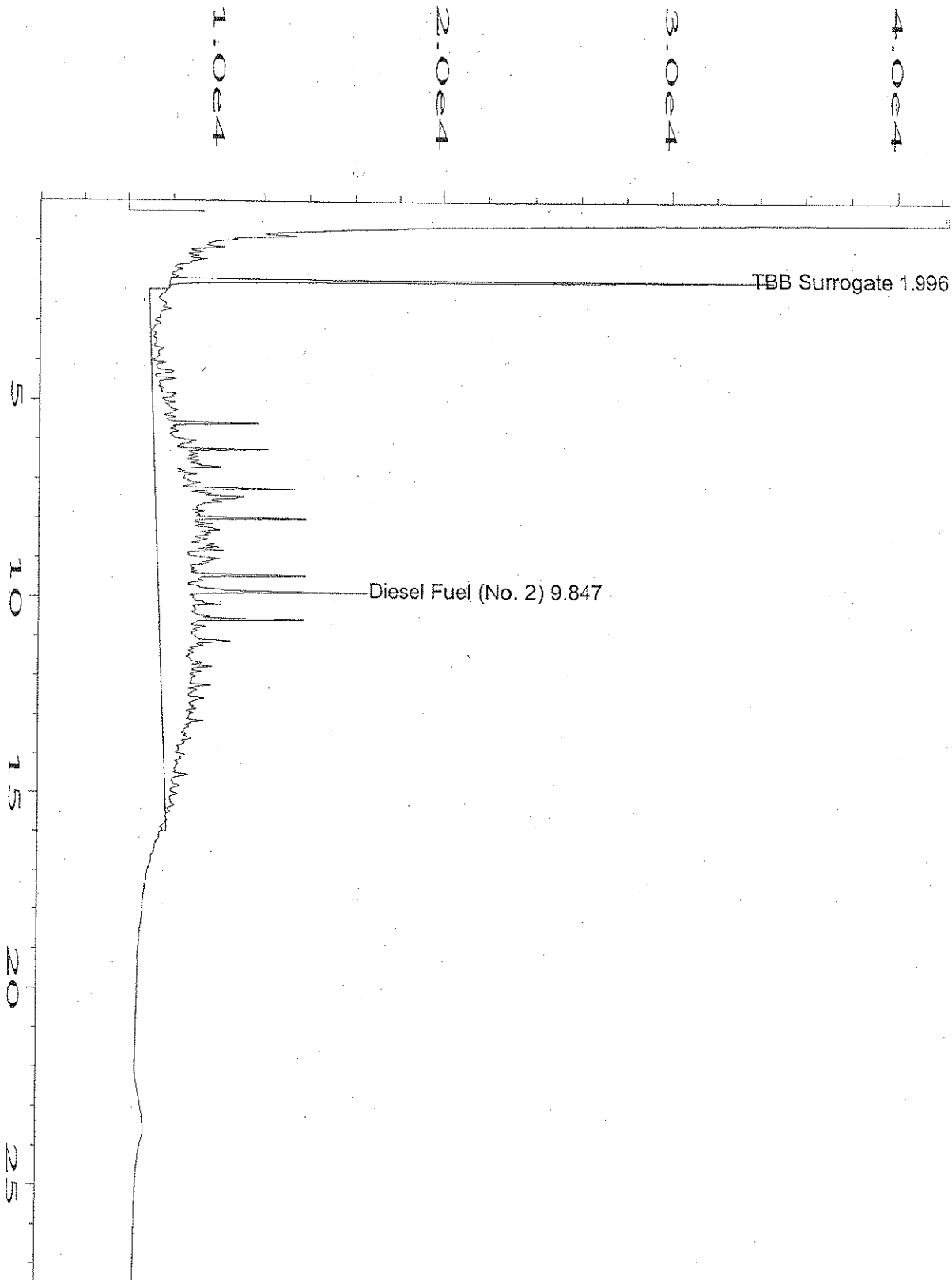
Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: DF - Dilution Factor
LQL - Lower Quantitation Limit
Surr - Surrogate



user modified

| | | | |
|--------------------|---|--------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30920\010F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 10 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-01B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method: | FID3BASE.MTH |
| Acquired on | : 20 Sep 02 12:39 PM | Analysis Method | : FD3F0802.MTH |
| Report Created on: | 21 Sep 02 11:24 AM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |



user modified

| | | | |
|--------------------|---|--------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30920\011F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 11 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-02B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method: | FID3BASE.MTH |
| Acquired on | : 20 Sep 02 01:15 PM | Analysis Method | : FD3F0802.MTH |
| Report Created on: | 21 Sep 02 11:25 AM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |

WORK ORDER Summary

9/18/2002 4:11:56 PM

Report To: James Hix

Cordilleran Compliance Services, Inc.
770 Simms Street Suite 110
Golden, CO 80401-

Phone: (303) 237-2072

Fax: (303) 237-2659

E-mail:

Client Project ID:

QC Level: LEVEL I

Comments

| Sample ID | Client Sample ID | Matrix | Test Code | Test Name | Hold | MS | Storage | Collection Date | Date Received | Date Due | Hold Date |
|-------------|------------------|--------|-----------|-------------------------------------|--------------------------|--------------------------|---------|-----------------|---------------|-----------|-----------|
| 02-5787-01B | TB4SS1@12ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-02B | TB4SS2@12ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-03B | TB4SS3@12ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-04B | TB4SS4@12ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-05B | TB4SS5@3ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-06B | TB4SS6@2.5ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-07B | TB4SS7@3.5ft | Soil | TEH_S | 8015 Total Extractable Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | A4 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-01A | TB4SS1@12ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-02A | TB4SS2@12ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-03A | TB4SS3@12ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-04A | TB4SS4@12ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-05A | TB4SS5@3ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-06A | TB4SS6@2.5ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |
| 02-5787-07A | TB4SS7@3.5ft | Soil | TVH_S | 8015 Total Volatile Hydrocarbons | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 9/17/2002 | 9/18/2002 | 9/23/2002 | 10/1/2002 |

Page 1 of 1

Date/Time

Date/Time

Evergreen Analytical, Inc.

Date: 30-Sep-02

CLIENT: Cordilleran Compliance Services, Inc.

Project:

Lab Order: 02-5787

CASE NARRATIVE

SAMPLE RECEIVING

Samples were received in good condition within method specified holding times.

Samples were hand delivered to the laboratory by the client.

Samples did not require preservation.

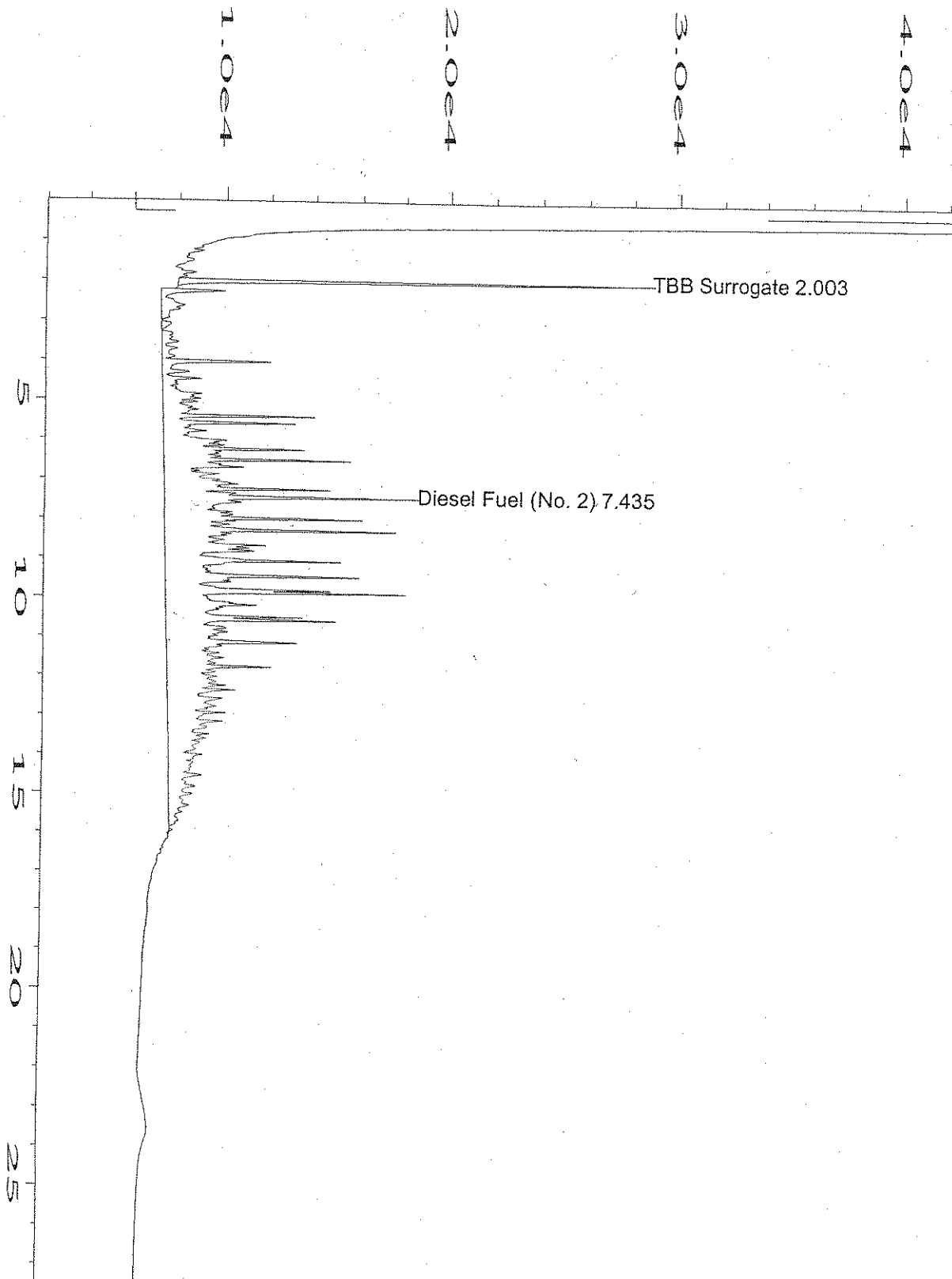
The temperature of the sample(s) upon arrival was 4 °C.

Samples for volatile organic compounds (VOCs) were received with no headspace present. NJO

GAS CHROMATOGRAPHY

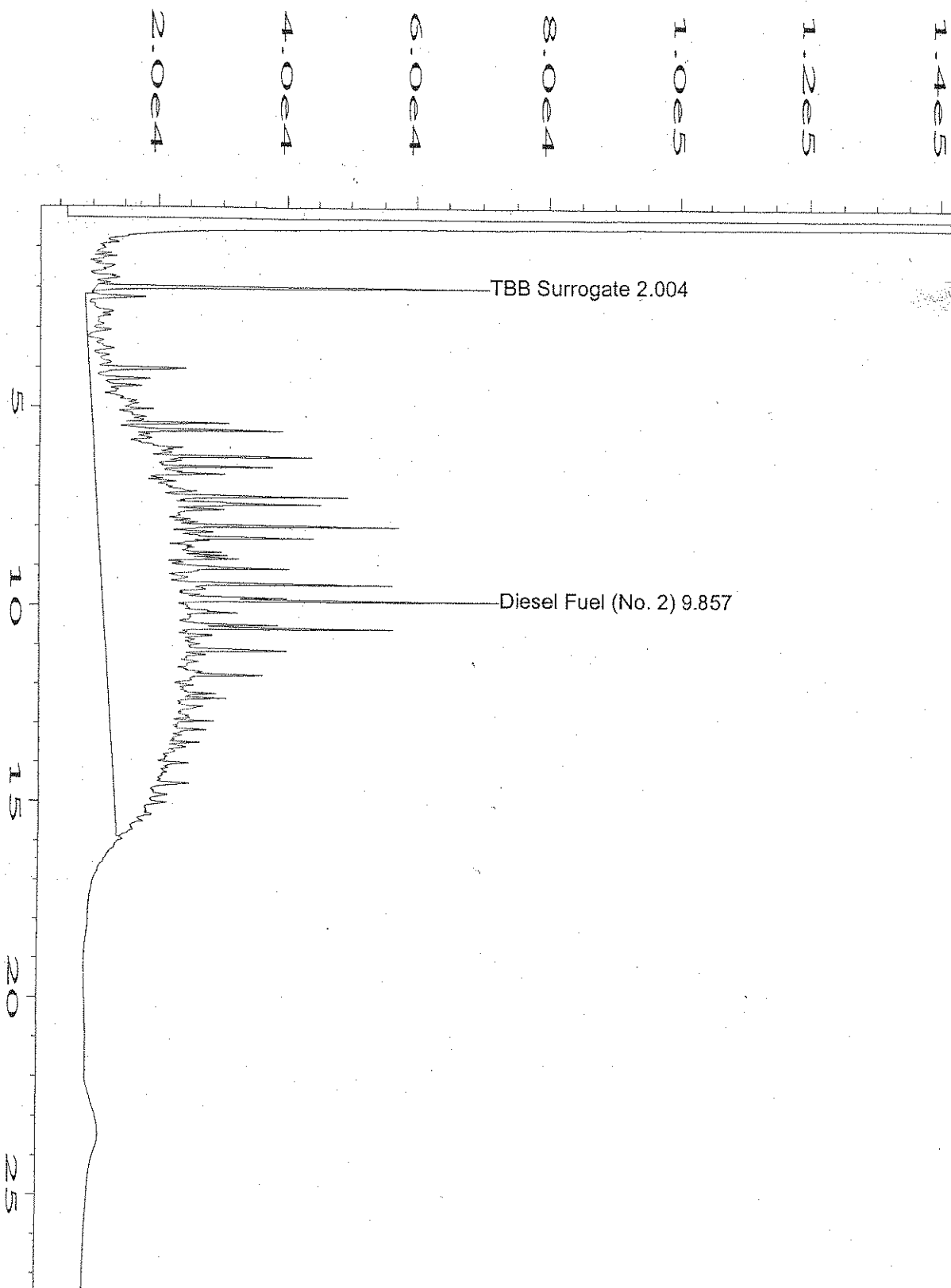
Method TEH_S: There are no anomalies to report. KAW

Method 8015_S: Surrogate recovery for samples 02-5787-01A through 04A is above laboratory acceptance criteria due to coelution of hydrocarbon interference. There are no other anomalies to report. KAW/CLC



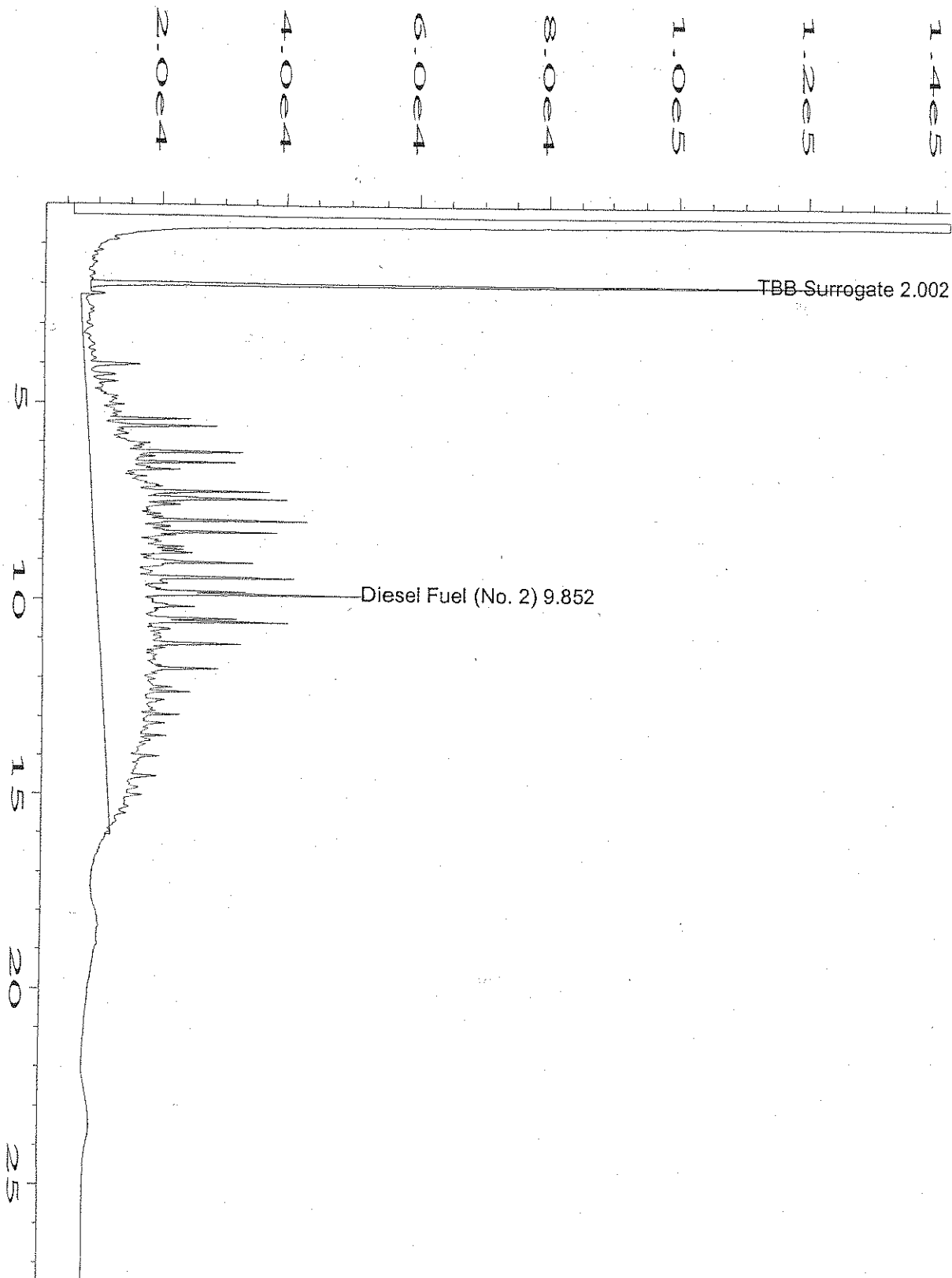
user modified

| | | | |
|--------------------|---|-------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30920\012F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 12 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-03B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : FID3BASE.MTH |
| Acquired on | : 20 Sep 02 01:51 PM | Analysis Method | : FD3F0802.MTH |
| Report Created on | : 21 Sep 02 11:28 AM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |



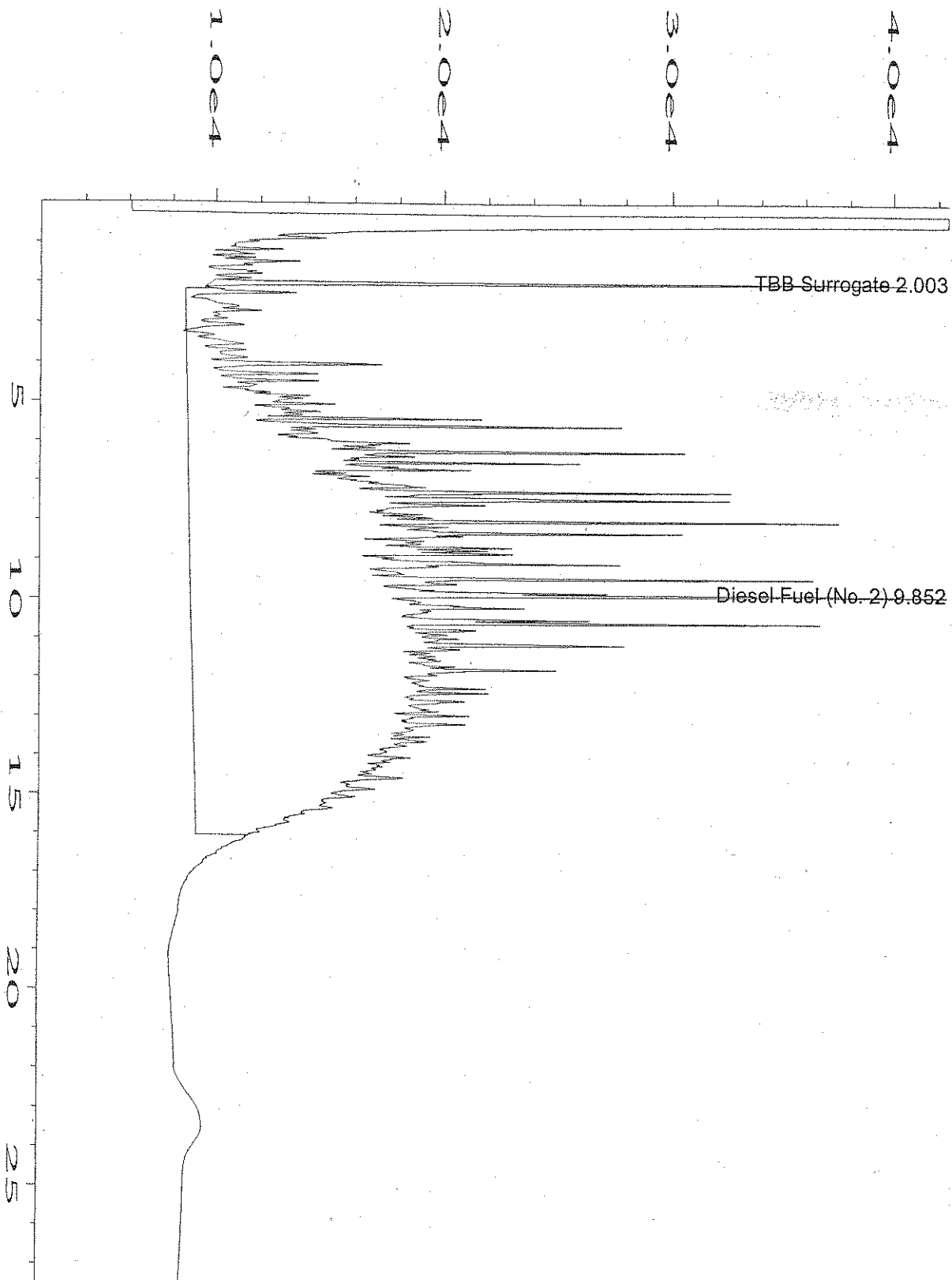
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| | | | |
|--------------------|---|--------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30920\014F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 14 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-04B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method: | FID3BASE.MTH |
| Acquired on | : 20 Sep 02 03:46 PM | Analysis Method | : FD3F0802.MTH |
| Report Created on: | 21 Sep 02 11:30 AM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |



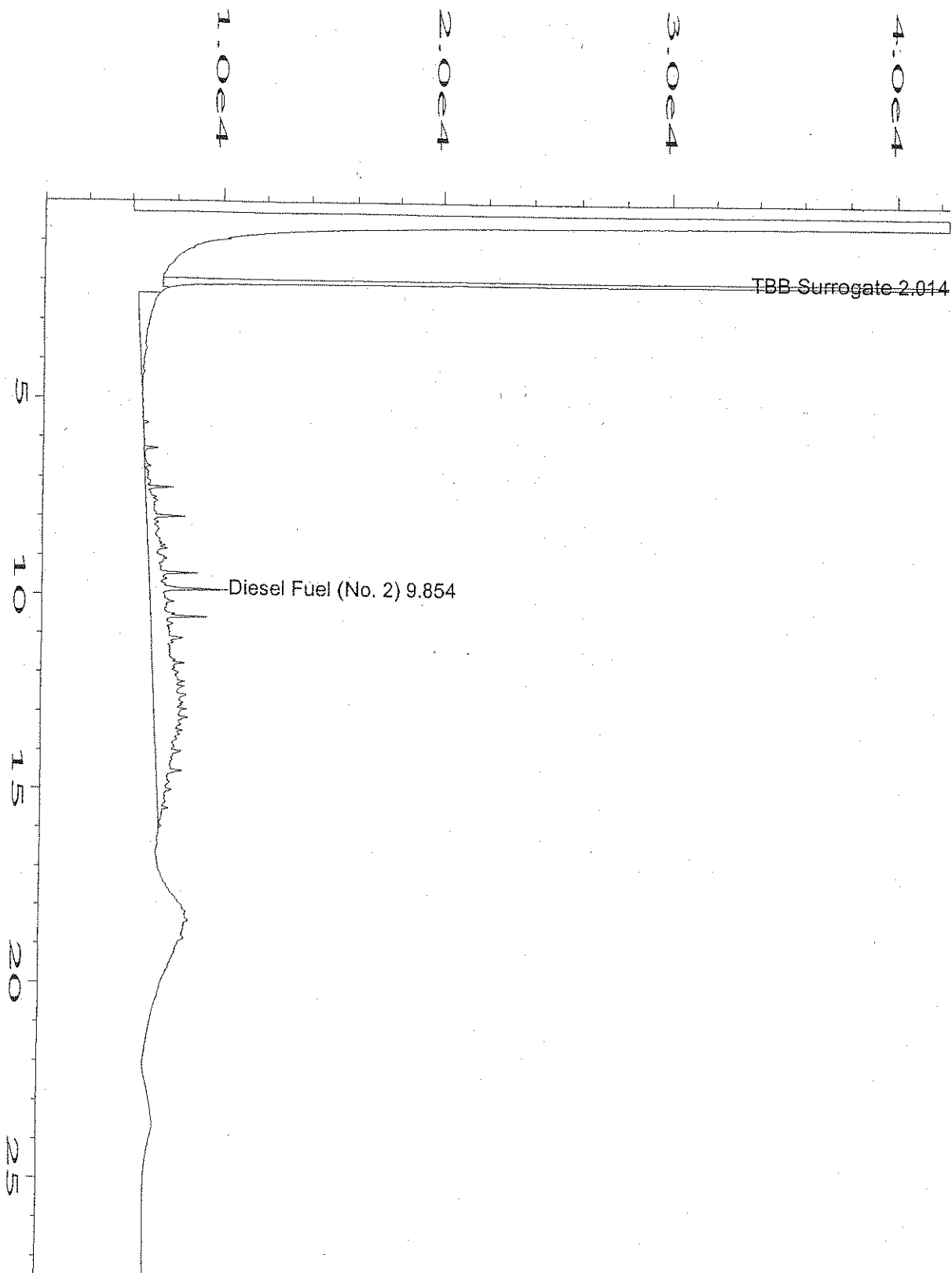
user modified

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|--------------------|---|--------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30920\015F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 15 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-05B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method: | FID3BASE.MTH |
| Acquired on | : 20 Sep 02 04:22 PM | Analysis Method | : FD3F0802.MTH |
| Report Created on: | 21 Sep 02 11:32 AM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |



user modified

| | | | |
|--------------------|---|-------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30923\003F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 3 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-06B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : FID3BASE.MTH |
| Acquired on | : 23 Sep 02 09:15 AM | Analysis Method | : FD3F0802.MTH |
| Report Created on: | : 23 Sep 02 12:44 PM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |



user modified

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|--------------------|---|-------------------|----------------|
| Data File Name | : C:\HPCHEM\FD3F\DATA\FID30923\004F0101.D | Page Number | : 1 |
| Operator | : K.WARDZALA | Vial Number | : 4 |
| Instrument | : FID3 | Injection Number | : 1 |
| Sample Name | : 02-5787-07B | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : FID3BASE.MTH |
| Acquired on | : 23 Sep 02 09:51 AM | Analysis Method | : FD3F0802.MTH |
| Report Created on: | : 23 Sep 02 10:38 AM | Sample Amount | : 0 |
| Last Recalib on | : 05 AUG 02 09:25 AM | ISTD Amount | : |
| Multiplier | : 1 | | |

CLIENT: Cordilleran Compliance Services, Inc.

Work Order: 02-5787

Project:

ANALYTICAL QC SUMMARY REPORT

BatchID: 209

| | | | | | | | | | | | |
|---------------------|--------|----------------|-----------------|-----------------------------|------|------------------------|-----------|--------------|------|----------|------|
| Sample ID: MB-209 | | SampType: MBLK | TestCode: TEH_S | Run ID: FID3_020920A | | Prep Date: 9/19/02 | | Units: mg/Kg | | | |
| | | Batch ID: 209 | TestNo: SW8015M | FileID: FID30920\003F0101.D | | Analysis Date: 9/20/02 | | SeqNo: 7593 | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel Fuel (No. 2) | U | 14 | | | | | | | | | |
| Surr: TBB | 49.92 | 0 | 66.67 | 0 | 74.9 | 24 | 135 | 0 | 0 | | |

| | | | | | | | | | | | |
|---------------------|--------|---------------|-----------------|-----------------------------|------|------------------------|-----------|--------------|------|----------|------|
| Sample ID: LCS-209 | | SampType: LCS | TestCode: TEH_S | Run ID: FID3_020920A | | Prep Date: 9/19/02 | | Units: mg/Kg | | | |
| | | Batch ID: 209 | TestNo: SW8015M | FileID: FID30920\004F0101.D | | Analysis Date: 9/20/02 | | SeqNo: 7594 | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel Fuel (No. 2) | 640.4 | 14 | 666.7 | 0 | 96.1 | 70 | 130 | 0 | 0 | | |
| Surr: TBB | 54.57 | 0 | 66.67 | 0 | 81.9 | 24 | 135 | 0 | 0 | | |

| | | | | | | | | | | | |
|--------------------------|--------|---------------|-----------------|-----------------------------|------|------------------------|-----------|--------------|------|----------|------|
| Sample ID: 02-5773-03BMS | | SampType: MS | TestCode: TEH_S | Run ID: FID3_020920A | | Prep Date: 9/19/02 | | Units: mg/Kg | | | |
| | | Batch ID: 209 | TestNo: SW8015M | FileID: FID30920\008F0101.D | | Analysis Date: 9/20/02 | | SeqNo: 7598 | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel Fuel (No. 2) | 603.6 | 14 | 665.1 | 22.98 | 87.3 | 24 | 179 | 0 | 0 | | |
| Surr: TBB | 44.87 | 0 | 66.51 | 0 | 67.5 | 24 | 135 | 0 | 0 | | |

| | | | | | | | | | | | |
|---------------------------|--------|---------------|-----------------|-----------------------------|------|------------------------|-----------|--------------|------|----------|------|
| Sample ID: 02-5773-03BMSD | | SampType: MSD | TestCode: TEH_S | Run ID: FID3_020920A | | Prep Date: 9/19/02 | | Units: mg/Kg | | | |
| | | Batch ID: 209 | TestNo: SW8015M | FileID: FID30920\009F0101.D | | Analysis Date: 9/20/02 | | SeqNo: 7599 | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Diesel Fuel (No. 2) | 667.7 | 14 | 664.9 | 22.98 | 97 | 24 | 179 | 603.6 | 10.1 | 50 | |
| Surr: TBB | 52.53 | 0 | 66.49 | 0 | 79 | 24 | 135 | 0 | 0 | 0 | |

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 H - Sample exceeded analytical holding time

Print Date: 9/23/02

Page 1 of 1

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS1@12ft

Client Project ID:

Date Collected: 9/17/02

Date Received: 9/18/02

Lab Work Order: 02-5787

Lab Sample ID: 02-5787-01A

Sample Matrix: Soil

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

Date Prepared: 9/19/02

Lab File ID: TVB40920\031F0101.D

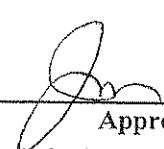
Dilution Factor: 100

Date Analyzed: 9/21/02

Method Blank: MEB091902

| Analytes | CAS Number | Result | LQL | Units |
|----------------------------------|------------|--------|------------------|-------|
| TVH-Gasoline | 86290-81-5 | 540 | 20 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 300 SX | QC Limts: 37-159 | %REC |

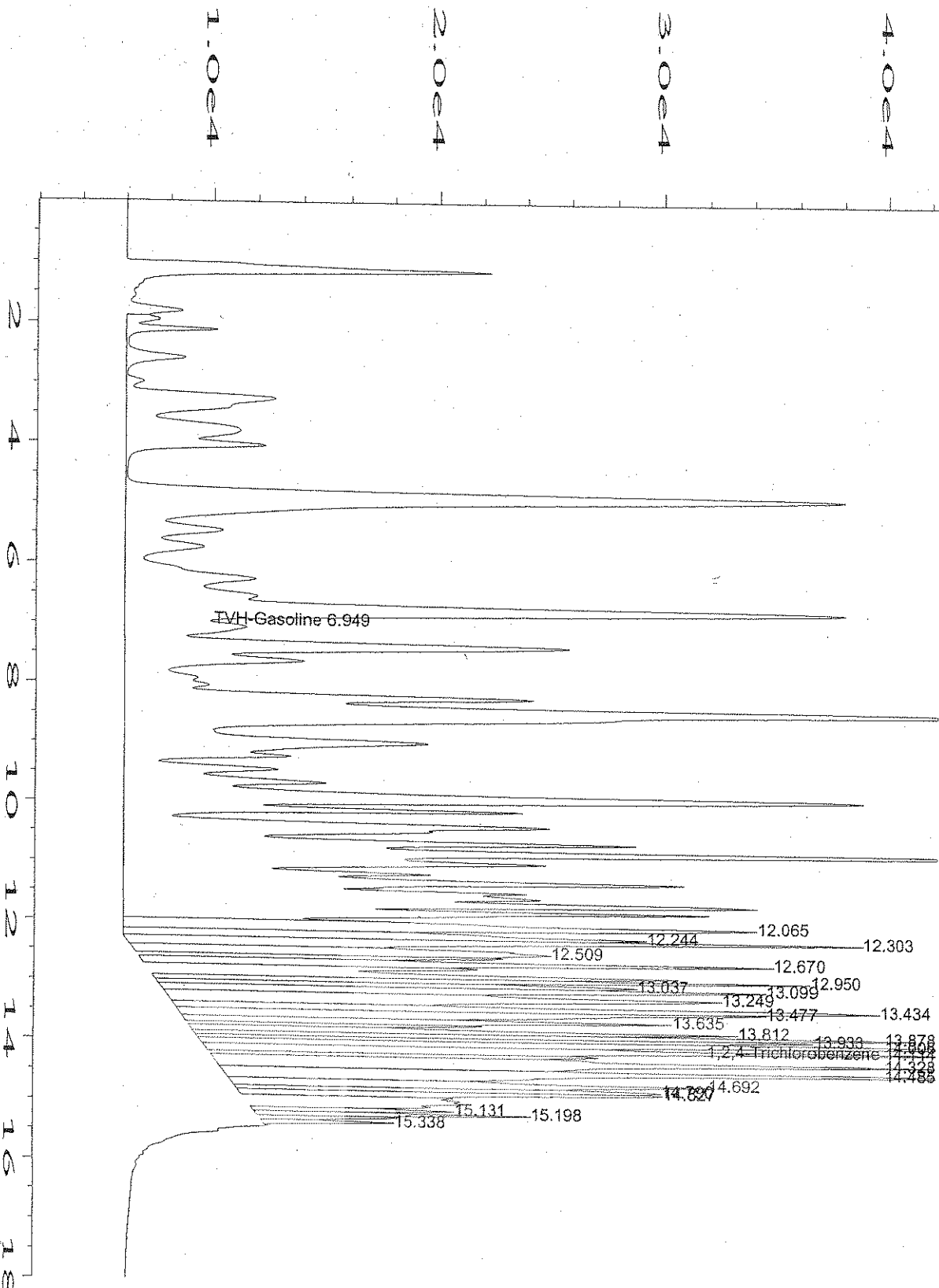

Analyst


Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate



| | | | |
|--------------------|--|--------------------|---------------|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40920\031F0101.D | Page Number | : 1 |
| Operator | : C. CRONE/K.W./C.S/K.H. | Vial Number | : 31 |
| Instrument | : TVHBTEX4 | Injection Number | : 1 |
| Sample Name | : 02-5787-01A | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method: | TS40907.MTH |
| Acquired on | : 21 Sep 02 05:29 AM | Analysis Method | : TS40907.MTH |
| Report Created on: | 21 Sep 02 05:47 AM | Sample Amount | : 0 |
| Last Recalib on | : 10 SEP 02 05:21 PM | ISTD Amount | : |
| Multiplier | : 1 | | |
| Sample Info | : CAMP TITL C 0001 C | | |

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS2@12ft
Client Project ID:
Date Collected: 9/17/02
Date Received: 9/18/02

Lab Work Order: 02-5787
Lab Sample ID: 02-5787-02A
Sample Matrix: Soil

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

Date Prepared: 9/19/02

Lab File ID: TVB40920\032F0101.D

Dilution Factor: 100


Date Analyzed: 9/21/02

Method Blank: MEB091902

| Analytes | CAS Number | Result | LQL | Units |
|----------------------------------|------------|--------|-------------------|-------|
| TVH-Gasoline | 86290-81-5 | 400 | 20 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 193 SX | QC Limits: 37-159 | %REC |



Analyst



Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS3@12ft
Client Project ID:
Date Collected: 9/17/02
Date Received: 9/18/02

Lab Work Order: 02-5787
Lab Sample ID: 02-5787-03A
Sample Matrix: Soil

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

| | | | | |
|----------------------------------|----------------------------------|----------------------|------------------|-------|
| Date Prepared: 9/19/02 | Lab File ID: TVB40920\033F0101.D | Dilution Factor: 100 | | |
| Date Analyzed: 9/21/02 | Method Blank: MEB091902 | | | |
| Analytes | CAS Number | Result | LQL | Units |
| TVH-Gasoline | 86290-81-5 | 960 | 20 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 289 SX | QC Limts: 37-159 | %REC |

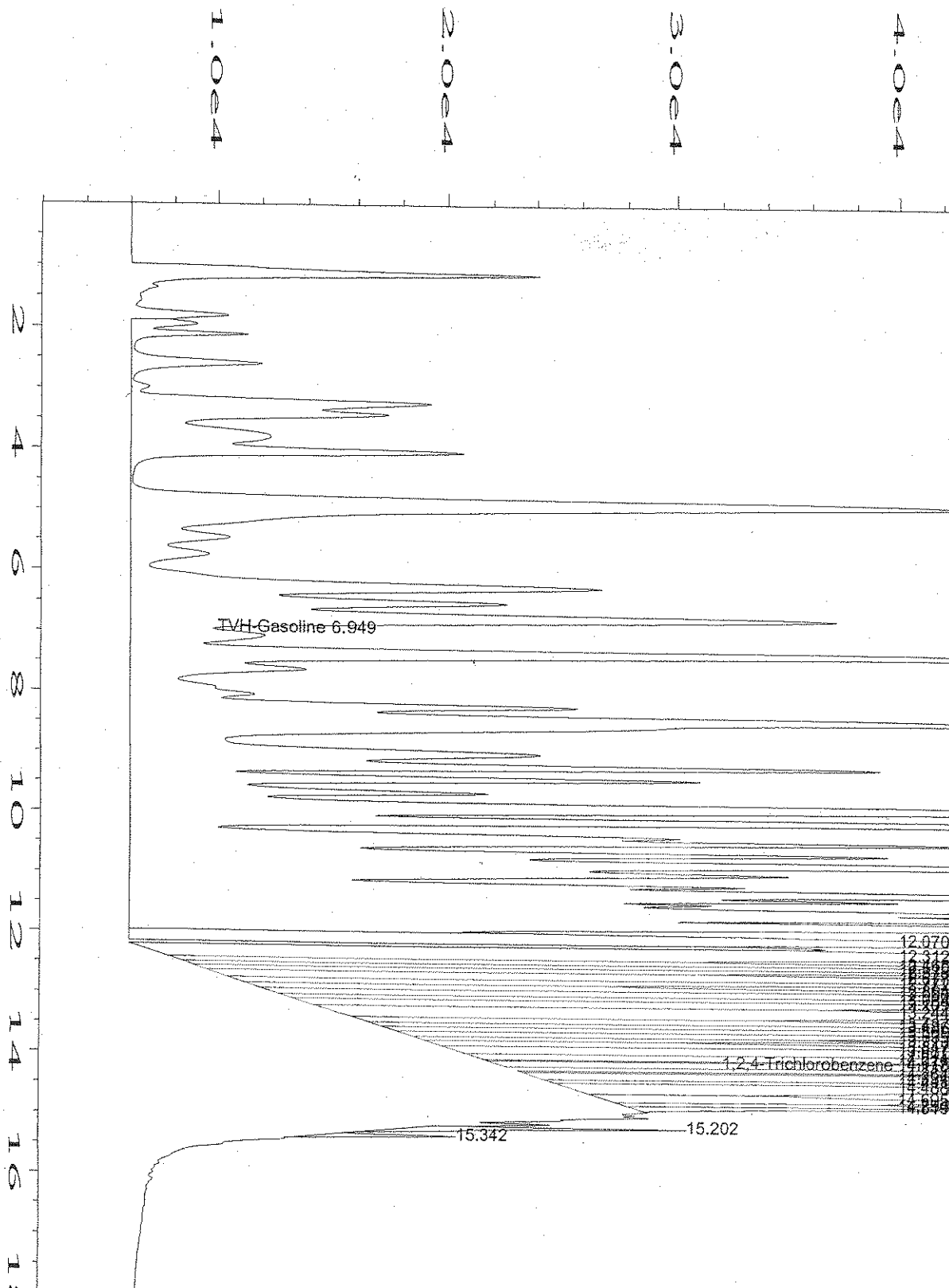
KW LCLC
Analyst

Jim
Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate



| | | | |
|--------------------|--|-------------------|---------------|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40920\033F0101.D | Page Number | : 1 |
| Operator | : C. CRONE/K.W./C.S/K.H. | Vial Number | : 33 |
| Instrument | : TVHBTEX4 | Injection Number | : 1 |
| Sample Name | : 02-5787-03A | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : TS40907.MTH |
| Acquired on | : 21 Sep 02 06:35 AM | Analysis Method | : TS40907.MTH |
| Report Created on: | : 21 Sep 02 06:53 AM | Sample Amount | : 0 |
| Last Recalib on | : 10 SEP 02 05:21 PM | ISTD Amount | : |
| Multiplier | : 1 | | |
| Sample Info | : SAMP TVH 0 0001 0 | | |

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS4@12ft

Client Project ID:

Date Collected: 9/17/02

Date Received: 9/18/02

Lab Work Order: 02-5787

Lab Sample ID: 02-5787-04A

Sample Matrix: Soil

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

Date Prepared: 9/19/02

Lab File ID: TVB40920\034F0101.D

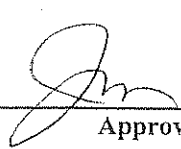
Dilution Factor: 1000

Date Analyzed: 9/21/02

Method Blank: MEB091902

| Analytes | CAS Number | Result | LQL | Units |
|----------------------------------|------------|--------|------------------|-------|
| TVH-Gasoline | 86290-81-5 | 3500 | 200 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 202 SX | QC Limts: 37-159 | %REC |

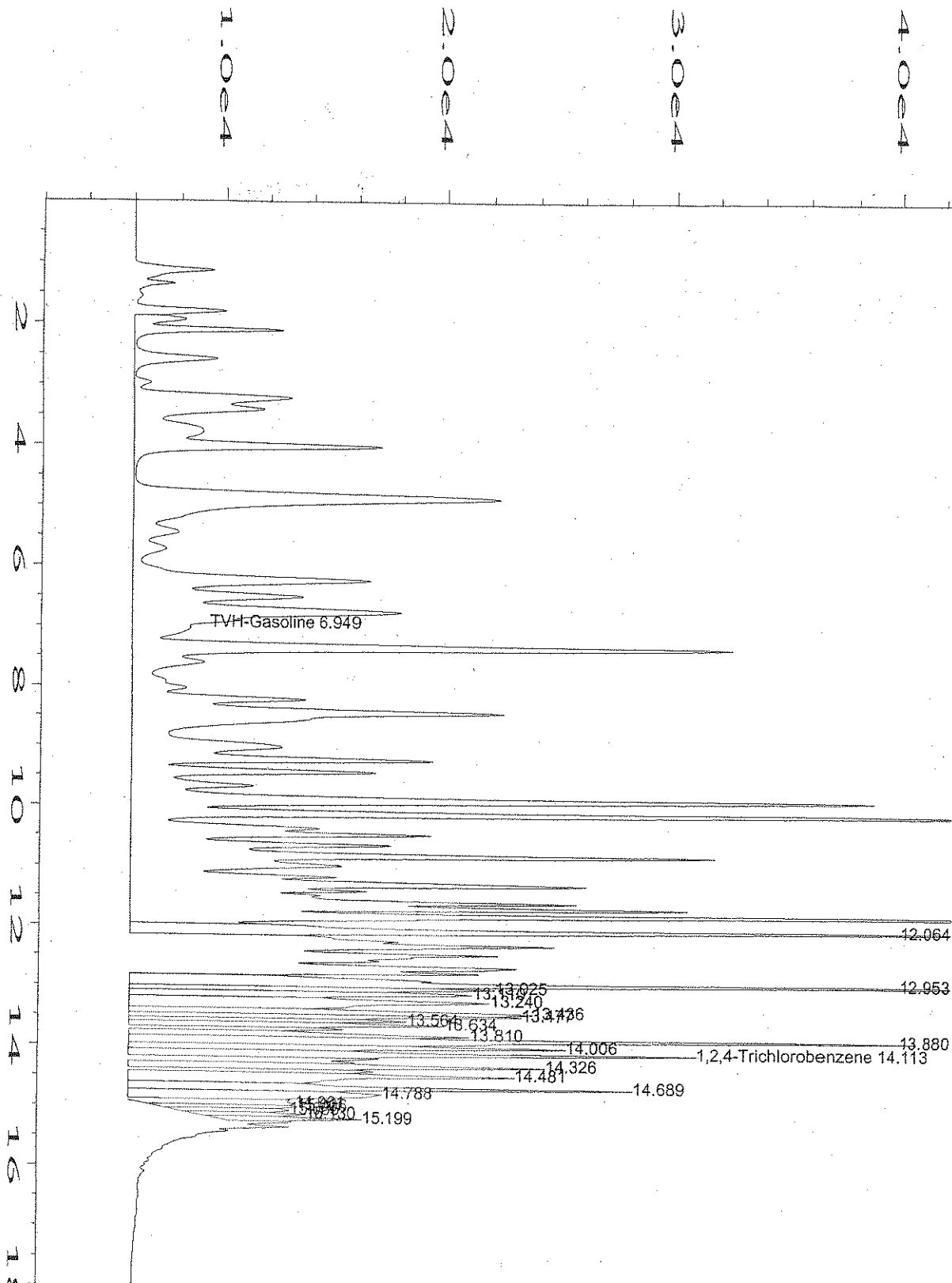

Analyst


Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate



| | | | |
|--------------------|--|--------------------|---------------|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40920\034F0101.D | Page Number | : 1 |
| Operator | : C. CRONE/K.W./C.S/K.H. | Vial Number | : 34 |
| Instrument | : TVHBTEX4 | Injection Number | : 1 |
| Sample Name | : 02-5787-04A | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method: | TS40907.MTH |
| Acquired on | : 21 Sep 02 07:08 AM | Analysis Method | : TS40907.MTH |
| Report Created on: | 21 Sep 02 07:26 AM | Sample Amount | : 0 |
| Last Recalib on | : 10 SEP 02 05:21 PM | ISTD Amount | : |
| Multiplier | : 1 | | |
| Sample Info | : SAMP TVH S 8021 S | | |

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS5@3ft
Client Project ID:
Date Collected: 9/17/02
Date Received: 9/18/02

Lab Work Order: 02-5787
Lab Sample ID: 02-5787-05A
Sample Matrix: Soil

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

Date Prepared: 9/19/02

Lab File ID: TVB40920\035F0101.D

Dilution Factor: 100

Date Analyzed: 9/21/02

Method Blank: MEB091902

| Analytes | CAS Number | Result | LQL | Units |
|----------------------------------|------------|--------|------------------|-------|
| TVH-Gasoline | 86290-81-5 | 180 | 20 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 148 | QC Limts: 37-159 | %REC |

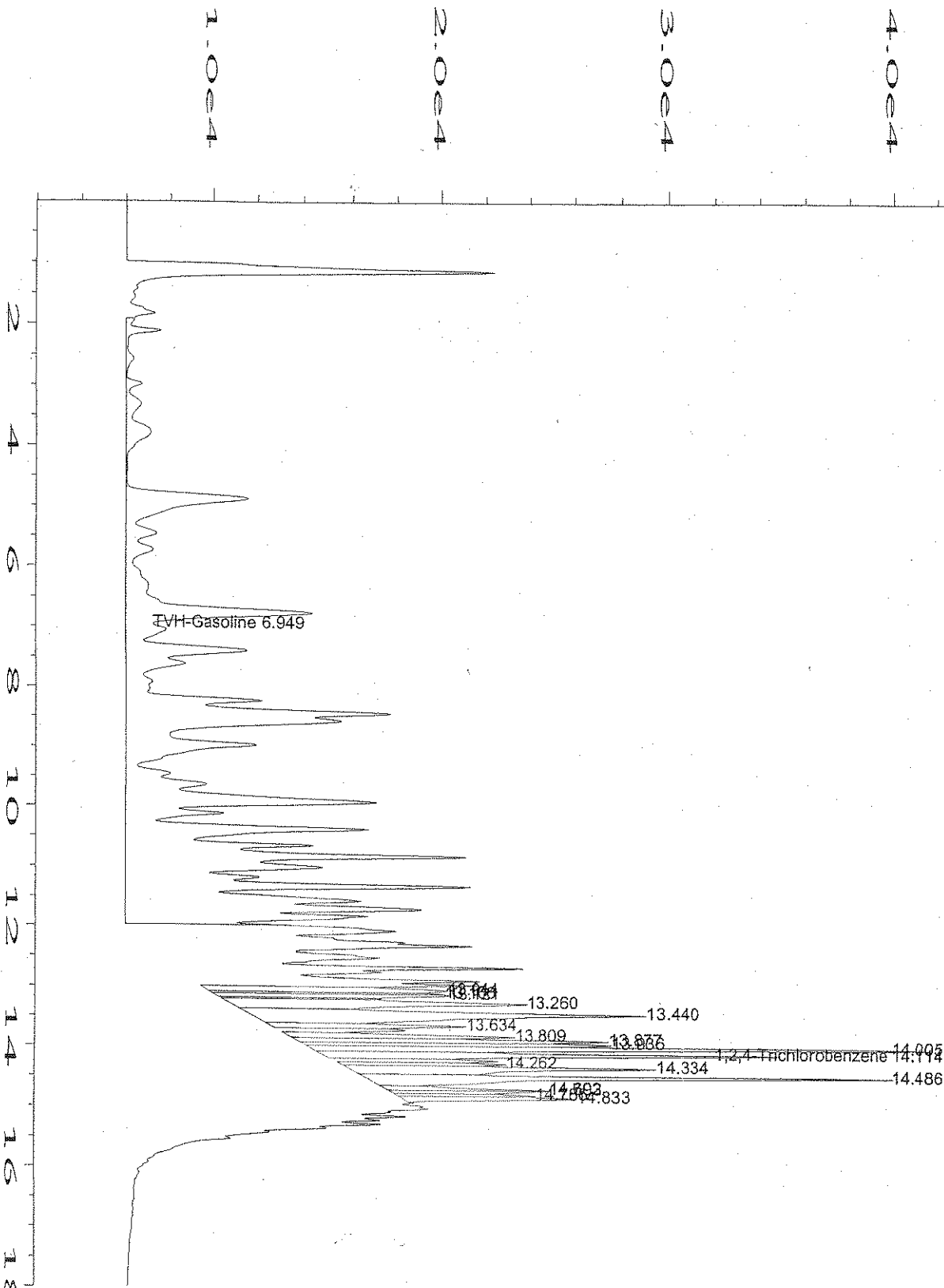

Analyst


Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate



| | | | |
|--------------------|--|-------------------|---------------|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40920\035F0101.D | Page Number | : 1 |
| Operator | : C. CRONE/K.W./C.S/K.H. | Vial Number | : 35 |
| Instrument | : TVHBTEX4 | Injection Number | : 1 |
| Sample Name | : 02-5787-05A | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : TS40907.MTH |
| Acquired on | : 21 Sep 02 07:41 AM | Analysis Method | : TS40907.MTH |
| Report Created on: | 21 Sep 02 07:59 AM | Sample Amount | : 0 |
| Last Recalib on | : 10 SEP 02 05:21 PM | ISTD Amount | : |
| Multiplier | : 1 | | |
| Sample Info | : SAMP TVH S 8021 S | | |

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS6@2.5ft

Lab Work Order: 02-5787

Client Project ID:

Lab Sample ID: 02-5787-06A

Date Collected: 9/17/02

Sample Matrix: Soil

Date Received: 9/18/02

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

Date Prepared: 9/19/02

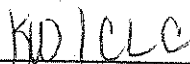
Lab File ID: TVB40920\036F0101.D


Dilution Factor: 500

Date Analyzed: 9/21/02

Method Blank: MEB091902

| Analytes | CAS Number | Result | LQL | Units |
|----------------------------------|------------|--------|-------------------|-------|
| TVH-Gasoline | 86290-81-5 | 1500 | 100 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 138 | QC Limits: 37-159 | %REC |

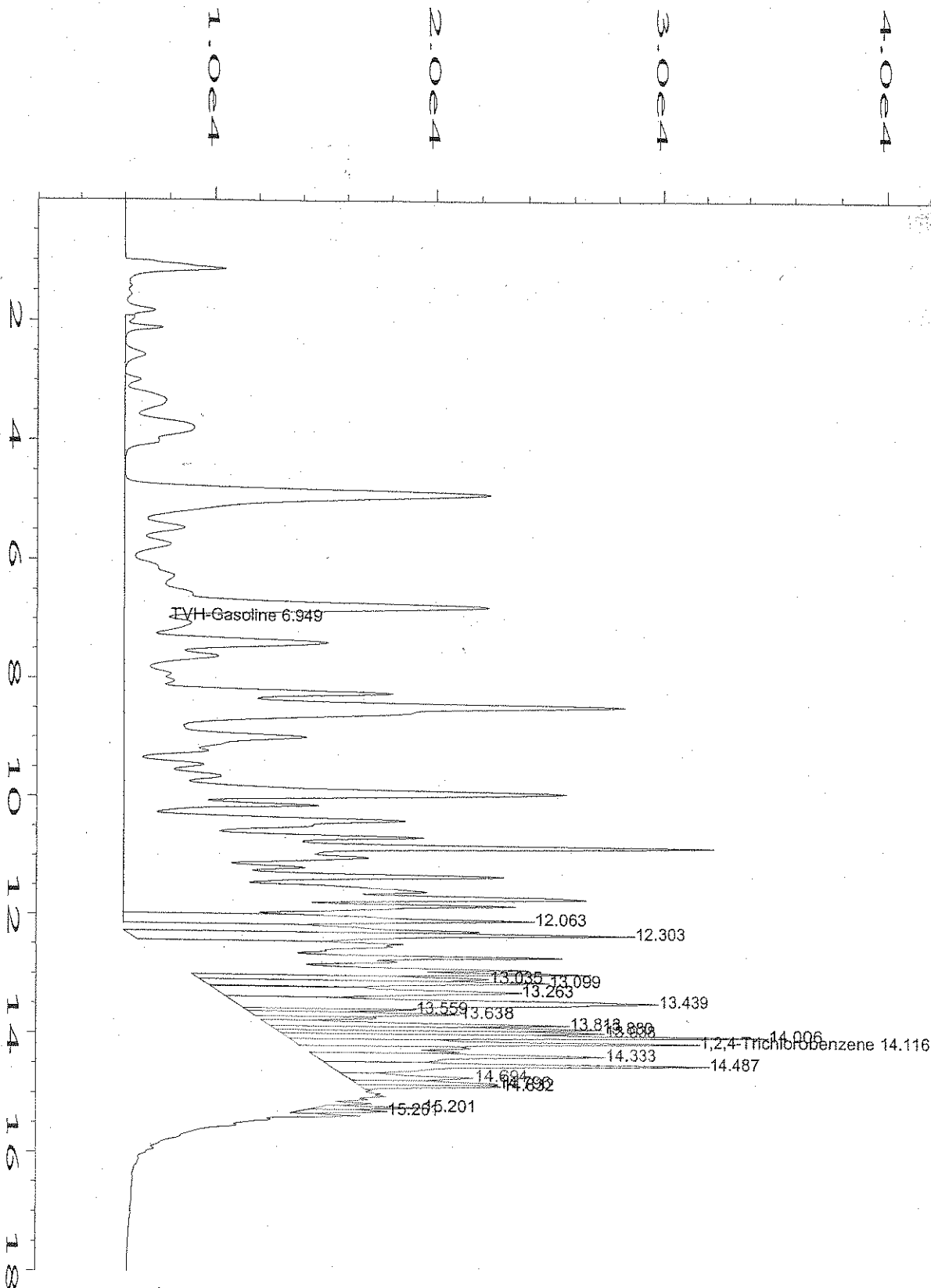

Analyst


Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate



| | | | |
|--------------------|--|-------------------|---------------|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40920\036F0101.D | Page Number | : 1 |
| Operator | : C. CRONE/K.W./C.S/K.H. | Vial Number | : 36 |
| Instrument | : TVHBTEX4 | Injection Number | : 1 |
| Sample Name | : 02-5787-06A | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : TS40907.MTH |
| Acquired on | : 21 Sep 02 08:14 AM | Analysis Method | : TS40907.MTH |
| Report Created on: | 21 Sep 02 08:33 AM | Sample Amount | : 0 |
| Last Recalib on | : 10 SEP 02 05:21 PM | ISTD Amount | : |
| Multiplier | : 1 | | |

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

Client Sample ID: TB4SS7@3.5ft

Lab Work Order: 02-5787

Client Project ID:

Lab Sample ID: 02-5787-07A

Date Collected: 9/17/02

Sample Matrix: Soil

Date Received: 9/18/02

Method: SW8015M

TOTAL VOLATILE HYDROCARBONS

Date Prepared: 9/30/02

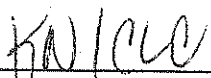
Lab File ID: TVB40930\006F0101.D

Dilution Factor: 5

Date Analyzed: 9/30/02

Method Blank: MB4093002

| Analytes | CAS Number | Result | LQL | Units |
|----------------------------------|------------|--------|-------------------|-------|
| TVH-Gasoline | 86290-81-5 | U | 1.0 | mg/Kg |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 52 | QC Limits: 37-159 | %REC |

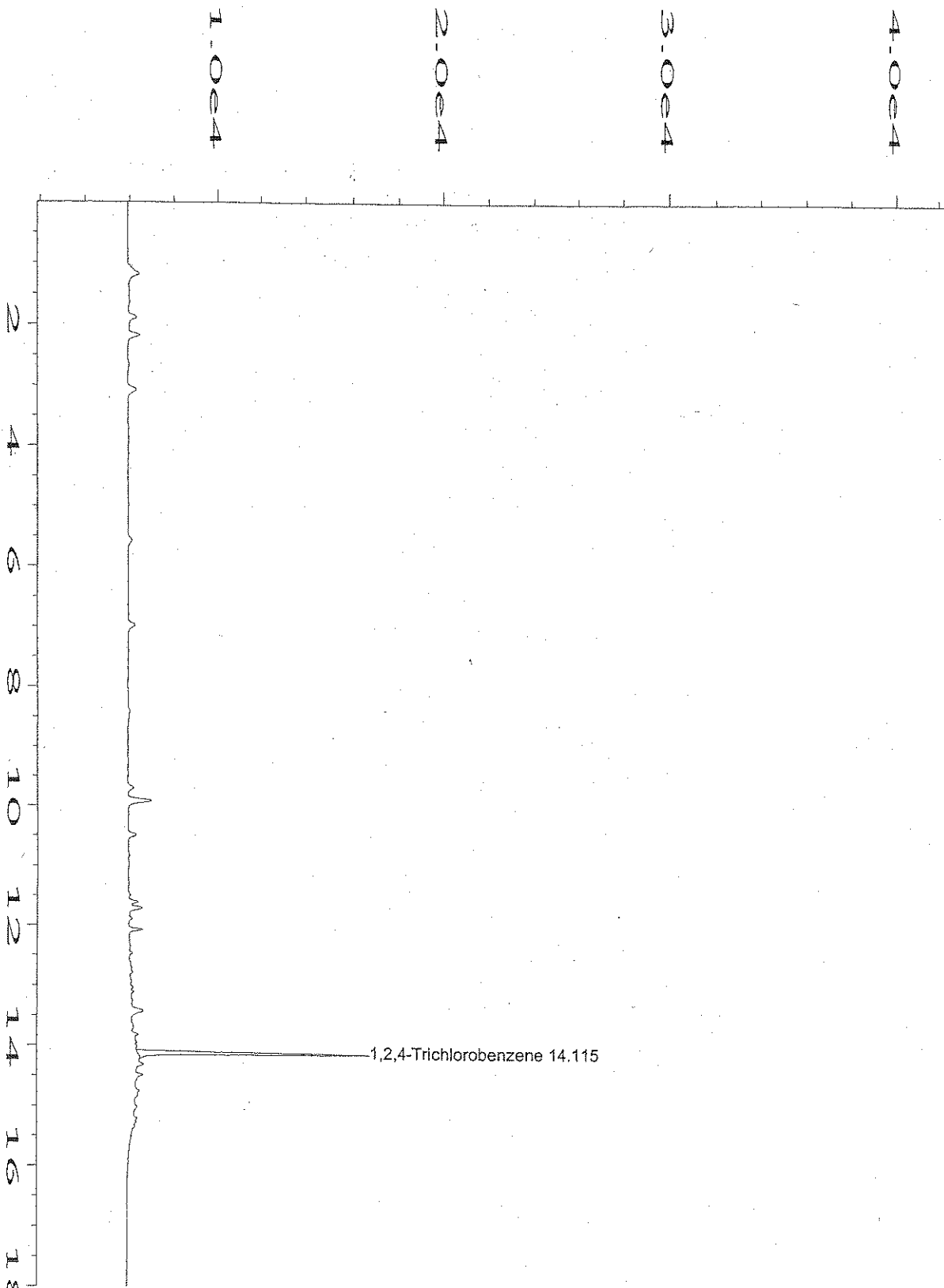

Analyst


Approved

Notes: Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

Qualifiers: B - Analyte detected in the associated Method Blank
E - Extrapolated value. Value exceeds calibration range
H - Sample exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* - Value exceeded the Maximum Contamination Level (MCL)

Definitions: LQL - Lower Quantitation Limit
Surr - Surrogate



| | | | |
|--------------------|--|-------------------|---------------|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40930\006F0101.D | Page Number | : 1 |
| Operator | : C. CRONE/K.W./C.S/K.H. | Vial Number | : 6 |
| Instrument | : TVHBTEX4 | Injection Number | : 1 |
| Sample Name | : 02-5787-07A | Sequence Line | : 1 |
| Run Time Bar Code: | | Instrument Method | : TS40907.MTH |
| Acquired on | : 30 Sep 02 12:12 PM | Analysis Method | : TS40907.MTH |
| Report Created on: | 30 Sep 02 12:30 PM | Sample Amount | : 0 |
| Last Recalib on | : 10 SEP 02 05:21 PM | ISTD Amount | : |
| Multiplier | : 1 | | |

CLIENT: Cordilleran Compliance Services, Inc.

Work Order: 02-5787

Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: TVH_S

| | | | | | | | | | | | |
|----------------------------------|--------|------------------|-----------------|-------------|-----------------------------|----------|------------------------|-------------|--------------|----------|------|
| Sample ID: MEB091902 | | SampType: MBLK | TestCode: TVH_S | | Run ID: TVHBTEX4_020920B | | Prep Date: 9/19/02 | | Units: mg/Kg | | |
| | | Batch ID: R470-B | TestNo: SW8015M | | FileID: TVB40920\022F0101.D | | Analysis Date: 9/21/02 | | SeqNo: 8163 | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TVH-Gasoline | U | 20 | | | | | | | | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 12090 | 0 | 10000 | 0 | 121 | 37 | 159 | 0 | 0 | | |

| | | | | | | | | | | | |
|----------------------------------|--------|----------------|-----------------|-------------|-----------------------------|----------|------------------------|-------------|--------------|----------|------|
| Sample ID: MB4093002 | | SampType: MBLK | TestCode: TVH_S | | Run ID: TVHBTEX4_020930B | | Prep Date: 9/30/02 | | Units: mg/Kg | | |
| | | Batch ID: R579 | TestNo: SW8015M | | FileID: TVB40930\003F0101.D | | Analysis Date: 9/30/02 | | SeqNo: 10840 | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TVH-Gasoline | U | 1.0 | | | | | | | | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 501.4 | 0 | 500 | 0 | 100 | 37 | 159 | 0 | 0 | | |

| | | | | | | | | | | | |
|----------------------------------|--------|----------------|-----------------|-------------|-----------------------------|----------|------------------------|-------------|--------------|----------|------|
| Sample ID: LCS4093002 | | SampType: LCS | TestCode: TVH_S | | Run ID: TVHBTEX4_020930B | | Prep Date: 9/30/02 | | Units: mg/Kg | | |
| | | Batch ID: R579 | TestNo: SW8015M | | FileID: TVB40930\004F0101.D | | Analysis Date: 9/30/02 | | SeqNo: 10841 | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TVH-Gasoline | 10.11 | 1.0 | 11 | 0 | 91.9 | 53 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 548.6 | 0 | 500 | 0 | 110 | 37 | 159 | 0 | 0 | | |

| | | | | | | | | | | | |
|----------------------------------|--------|----------------|-----------------|-------------|-----------------------------|----------|------------------------|-------------|--------------|----------|------|
| Sample ID: LCSD4093002 | | SampType: LCSD | TestCode: TVH_S | | Run ID: TVHBTEX4_020930B | | Prep Date: 9/30/02 | | Units: mg/Kg | | |
| | | Batch ID: R579 | TestNo: SW8015M | | FileID: TVB40930\005F0101.D | | Analysis Date: 9/30/02 | | SeqNo: 10842 | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TVH-Gasoline | 9.83 | 1.0 | 11 | 0 | 89.4 | 53 | 130 | 10.11 | 2.81 | 30 | |
| Surr: 1,2,4-Trichlorobenzene (S) | 570.4 | 0 | 500 | 0 | 114 | 37 | 159 | 0 | 0 | 0 | |

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 H - Sample exceeded analytical holding time

Print Date: 9/30/02

Page 1 of 1

CLIENT: Cordilleran Compliance Services, Inc.

Work Order: 02-5787

Project:

ANALYTICAL QC SUMMARY REPORT

BatchID: R470-B

| | | | | | | | | | | | |
|----------------------|------------------|-----------------|-----------------------------|------------------------|--------------|----------|-----------|-------------|------|----------|------|
| Sample ID: MEB091902 | SampType: MBLK | TestCode: TVH_S | Run ID: TVHBTEX4_020920B | Prep Date: 9/19/02 | Units: mg/Kg | | | | | | |
| | Batch ID: R470-B | TestNo: SW8015M | FileID: TVB40920\022F0101.D | Analysis Date: 9/21/02 | SeqNo: 8163 | | | | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |

| | | | | | | | | | | | |
|----------------------------------|-------|----|-------|---|-----|----|-----|---|---|--|--|
| TVH-Gasoline | U | 20 | | | | | | | | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 12090 | 0 | 10000 | 0 | 121 | 37 | 159 | 0 | 0 | | |

| | | | | | | | | | | | |
|--------------------------|------------------|-----------------|-----------------------------|------------------------|--------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 02-5792-04AMS | SampType: MS | TestCode: TVH_S | Run ID: TVHBTEX4_020920B | Prep Date: 9/19/02 | Units: mg/Kg | | | | | | |
| | Batch ID: R470-B | TestNo: SW8015M | FileID: TVB40920\028F0101.D | Analysis Date: 9/21/02 | SeqNo: 8167 | | | | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |

| | | | | | | | | | | | |
|----------------------------------|-------|----|-------|-------|-----|----|-----|---|---|--|--|
| TVH-Gasoline | 830.5 | 20 | 220 | 583.6 | 112 | 51 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 29260 | 0 | 10000 | 0 | 293 | 37 | 159 | 0 | 0 | | |

| | | | | | | | | | | | |
|---------------------------|------------------|-----------------|-----------------------------|------------------------|--------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 02-5792-04AMSD | SampType: MSD | TestCode: TVH_S | Run ID: TVHBTEX4_020920B | Prep Date: 9/19/02 | Units: mg/Kg | | | | | | |
| | Batch ID: R470-B | TestNo: SW8015M | FileID: TVB40920\029F0101.D | Analysis Date: 9/21/02 | SeqNo: 8168 | | | | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |

| | | | | | | | | | | | |
|----------------------------------|-------|----|-------|-------|------|----|-----|-------|------|----|----------------|
| VH-Gasoline | 794.3 | 20 | 220 | 583.6 | 95.8 | 51 | 130 | 830.5 | 4.46 | 30 | |
| Surr: 1,2,4-Trichlorobenzene (S) | 24740 | 0 | 10000 | 0 | 247 | 37 | 159 | 0 | 0 | 0 | S (CO-ELUTION) |

| | | | | | | | | | | | |
|-------------------------|------------------|-----------------|-----------------------------|------------------------|-------------|----------|-----------|-------------|------|----------|------|
| Sample ID: LCS4092002-W | SampType: LCS | TestCode: TVH_W | Run ID: TVHBTEX4_020920B | Prep Date: 9/19/02 | Units: mg/L | | | | | | |
| | Batch ID: R470-B | TestNo: SW8015M | FileID: TVB40920\023F0101.D | Analysis Date: 9/21/02 | SeqNo: 8164 | | | | | | |
| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |

| | | | | | | | | | | | |
|----------------------------------|-------|------|-----|---|------|----|-----|---|---|--|-------------|
| VH-Gasoline | 2.164 | 0.20 | 2.2 | 0 | 98.4 | 69 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 152 | 0 | 100 | 0 | 152 | 62 | 146 | 0 | 0 | | S (6% HIGH) |

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 S - Spike Recovery outside accepted recovery limits

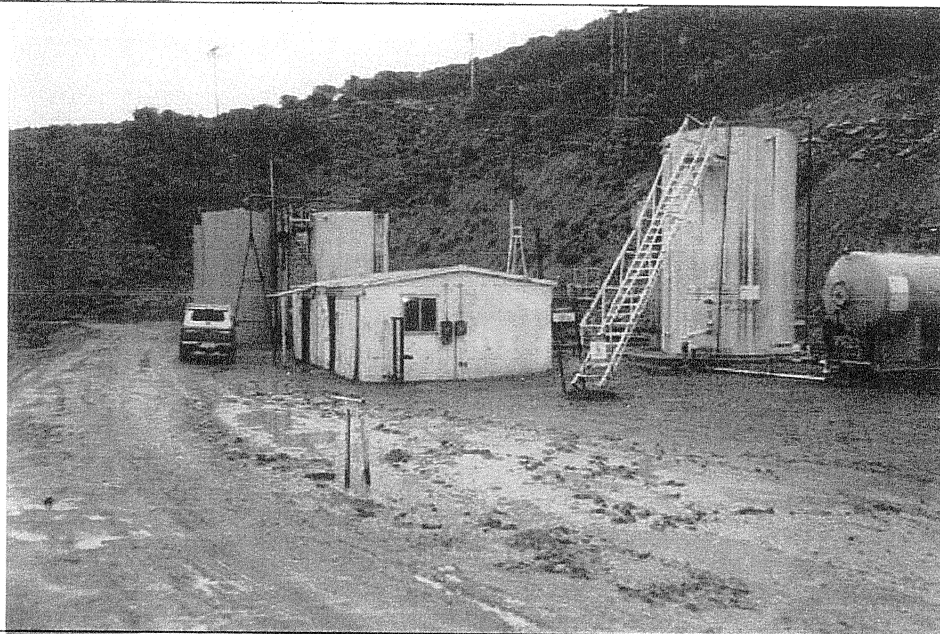
R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 H - Sample exceeded analytical holding time

Print Date: 9/23/02

Page 1 of 1

ATTACHMENT B

Site Photographs



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: The Wilson Creek Tank Battery #4 consisted of six 400-barrel tanks for crude oil and produced water storage, a saltwater disposal pump building, horizontal separators, and the associated aboveground piping.

View: North



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: A LACT pump building and a manifold building were located on the north end of the Wilson Creek Tank Battery #4 site adjacent to the 400-barrel ASTs.

View: South



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: Two separators were located on the south end of the site next to a 2-phase scrubber building. The site topographic slope is to the southwest; however the site has been graded to slope back toward the hillside and the road has been built up.

View: Southeast



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: Staining was observed on the hillside to the southwest of the site approximately 25 feet below the level of the road. Bedrock consisting of alternating layers of sandstone and shale were observed within excavations conducted in August 2002.

View: Southeast



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: Staining and crude oil seeps were observed at the base of an excavation approximately 25 feet below the level of the road on the hillside southwest of the Tank Battery #4 location.

View: East



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: S&K Construction personnel excavated a arcuate trench through the road on the south side of the location toward the 2-phase scrubber building. Staining was encountered starting at a depth of approximately 12 feet below ground surface (bgs).

View: Southwest



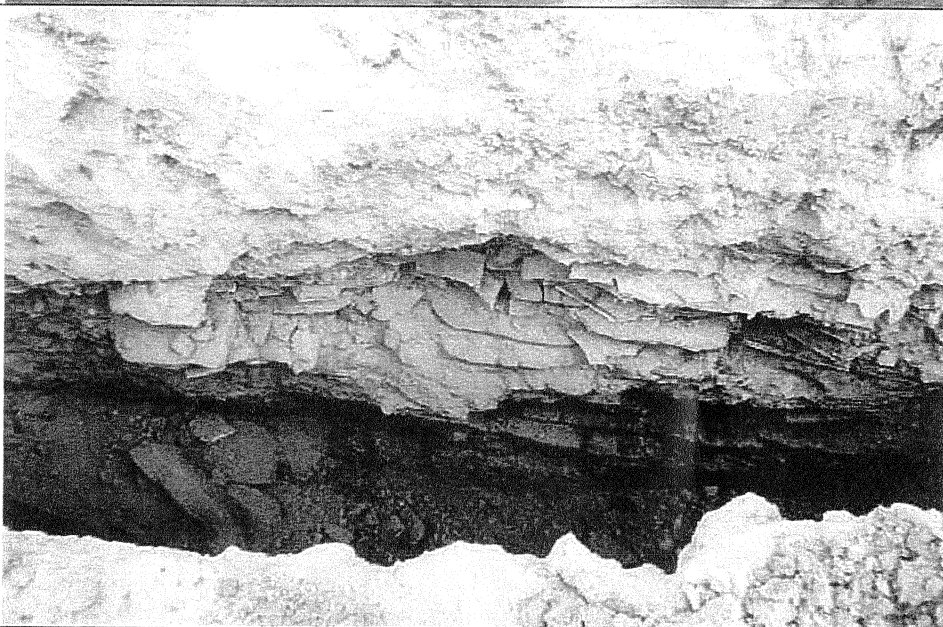
Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: The excavation started at the south side of the road on the outside of the curve and extended back onsite toward the 2-phase scrubber building and was completed approximately 16 feet south of the stormwater drainpipe. The valve for the stormwater drainpipe is marked by a yellow pipe sticking up in front of the backhoe. The valve is kept closed.

View: South



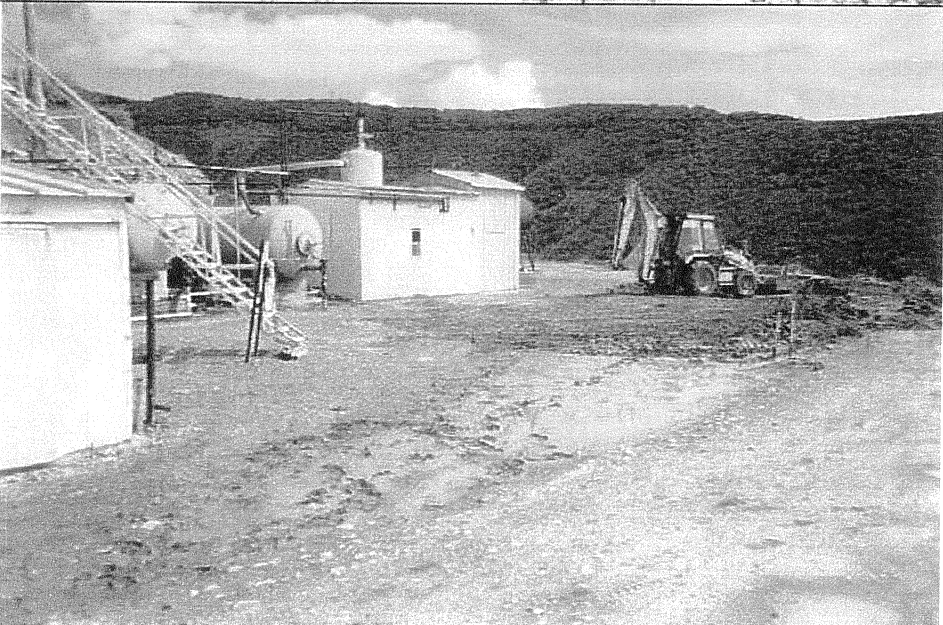
Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: The lithologies encountered in the excavation consisted of a gravel and cobble road base overlying sandstone and shale bedrock. Staining was observed starting at 12 feet bgs. Crude oil was observed seeping through cracks in the bedrock.

View: Facing East



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: The excavation was backfilled and the road was restored to its previous condition following sample collection and field screening.

View: South-Southeast



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: The site is located at the head of Devils Hole Gulch which drains to the southwest. A tank was formerly located in the fenced area located at the lower left side of the photograph. Photograph was taken southwest of the site.

View: West



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: Photograph showing the slope down to the former tank location looking up toward the road. Sections of 4-inch diameter and 6-inch diameter, perforated, PVC pipe were encountered during previous excavation. A piece of the pipe is shown in the lower right side of the photograph near the former tank fence.

View: East



Project: ChevronTexaco Wilson Creek Tank Battery #4 Investigation

Project Number: E02131

Date: September 17, 2002

Subject: A drain pipe for draining stormwater from the south part of the site was located north of the excavation area. The drain valve is located within the tank berm and is kept closed.

View: South



DEPARTMENT OF NATURAL RESOURCES
Bill Owens, Governor
1120 Lincoln St., Suite 801
Denver, CO 80203
Phone: (303) 894-2100
FAX: (303) 894-2109
www.oil-gas.state.co.us

February 8, 2005

Mark Larson
Larson and Associates, Inc.
507 N. Marienfeld Street
Suite 202
Midland, Texas 79701

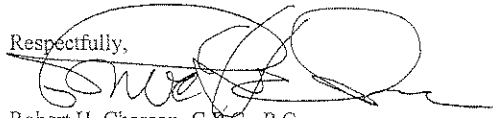
RE: Tank Battery No. 4 Investigation and Request for Closure
Wilson Creek Unit
COGCC Remediation No. 70
Rio Blanco County, Colorado

Dear Mr. Larson:

The Colorado Oil & Gas Conservation Commission (COGCC) staff has reviewed the January 13, 2005 Report and request for site closure. The staff approves the requested closure with no additional requirements. However, should future conditions be discovered which indicate that contaminant concentrations in soils exceed COGCC standards or if groundwater is found to have been significantly impacted, then ChevronTexaco may be required to conduct further site investigation and/or remediation.

Should you have any questions, please call me at (303) 894-2100 ext.112.

Respectfully,


Robert H. Chesson, C.P.G., P.G.
Environmental Protection Specialist

cc: COGCC – Brian Macke
COGCC – Debbie Baldwin
COGCC – Jaime Adkins