

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

| | |
|--|----------------------------------|
| Name of Company: Energen Resources, Inc. | Contact: Ed Hasely |
| Address: 2010 Afton Place, Farmington, NM 87401 | Telephone No: 505-324-4131 |
| Facility Name: Jicarilla 94 #2A (API # - 3003921484) | Facility Type: Oil/Gas Well Site |

| | | |
|---------------------------------------|---------------------------------------|-------------------------------|
| Surface Owner: Jicarilla Apache Tribe | Mineral Owner: Jicarilla Apache Tribe | Lease No. Jicarilla Apache 94 |
|---------------------------------------|---------------------------------------|-------------------------------|

LOCATION OF RELEASE

| | | | | | | | | |
|------------------|---------------|-----------------|-------------|----------------------|---------------------------|-----------------------|------------------------|----------------------|
| Unit Letter D | Section 27 | Township 27N | Range 3W | Feet from the 990 | North/South Line North | Feet from the 1190 | East/West Line West | County Rio Arriba |
|------------------|---------------|-----------------|-------------|----------------------|---------------------------|-----------------------|------------------------|----------------------|

Latitude 36.5488

Longitude -107.13669

RCVD JUN 19 '09
OIL CONS. DIV.
DIST. 3

NATURE OF RELEASE

| | | |
|--|--|---------------------------------------|
| Type of Release: Condensate | Volume of Release: 105 bbls - Condensate | Volume Recovered: 0 bbls |
| Source of Release: Condensate Tank | Date and Hour of Occurrence: 1/3/09 | Date and Hour of Discovery: 1/3/09 |
| Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required | If YES, To Whom? Bryce Hammond - Jicarilla Oil and Gas; Brandon Powell - NMOCD (message) | |
| By Whom? Billy Stalcup / Ed Hasely | Date and Hour: 1/3/09 3:30 pm | |
| Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | If YES, Volume Impacting the Watercourse. NA | |

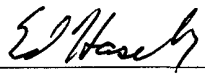

If a Watercourse was Impacted, Describe Fully.* NA

Describe Cause of Problem and Remedial Action Taken.*

A dozer operator hit the drain line running from the condensate tank to the water pit tank causing the valve on the condensate tank to break. This allowed the contents of the condensate tank to leak out into the bermed area. All fluids were contained inside the bermed area, but no liquids were recovered.

Describe Area Affected and Cleanup Action Taken.* The storage tank was moved so that the impacted soil around and beneath the equipment could be removed. Impacted soils was excavated and transported to a commercial disposal facility. Once the soil was removed, samples were collected from the excavation and sent to a laboratory for analysis. The samples were below the 100 ppm TPH and 100 ppm organic vapors. The excavation was backfilled with clean soil. A final report from Envirotech, including the lab analyses, is included with this submittal.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

| | | | |
|--|--|--|-----------------------------------|
| Signature:  | | OIL CONSERVATION DIVISION | |
| Printed Name: Ed Hasely | | Approved by District Supervisor:  For: Charlie Perrin | |
| Title: Sr. Environmental Engineer | | Approval Date: 6-19-09 | Expiration Date: |
| E-mail Address: ed.hasely@energen.com | | Conditions of Approval: | Attached <input type="checkbox"/> |
| Date: 6/16/09 Phone: 505-324-4131 / 505-330-3584(cell) | | | |

* Attach Additional Sheets If Necessary

Envirotech

Incident # NRM 0924741080



June 10, 2009

Client No. 03022-0142

Mr. Bill Stalcup
Energen Resources
2010 Afton Place
Farmington, NM 87401

RCVD JUN 19 '09
OIL CONS. DIV.
DIST. 3

Phone: (505) 793-7606

**RE: CONFIRMATION SAMPLING AND BELOW GRADE TANK CLOSURE
DOCUMENTATION AT THE JICARILLA 94 #2A WELL SITE**

Dear Mr. Stalcup,

Enclosed please find the field notes and analytical results for confirmation sampling activities for a release from a broken valve on an above ground storage tank (AST), and below grade tank (BGT) closure activities performed at the Jicarilla 94 #2A well site located in Section 27, Township 27N, Range 3W, Rio Arriba County, New Mexico. Prior to arrival, the area of release had been excavated to approximately 40' x 42' x 16' deep. Upon arrival, Envirotech, Inc. personnel conducted a brief site assessment. Because the site is located on the Jicarilla Apache Indian Reservation, the closure standard was determined to be 100 ppm total petroleum hydrocarbons (TPH) and 100 ppm organic vapors; pursuant to New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases. A representative of the Jicarilla Apache Environmental Protection Office was also onsite to observe sampling activities.

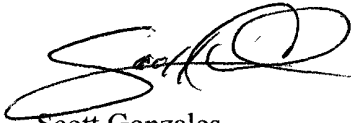
Five (5) composite samples were collected from the excavation. One (1) composite sample was collected from each of the four (4) walls, and one (1) composite sample was collected from the bottom of the excavation at 16 feet below ground surface (BGS). The samples were analyzed in the field for TPH using USEPA Method 418.1 and for organic vapors using a Photo Ionization Detector (PID). All of the samples were below the regulatory limit of 100 ppm TPH. The samples from each of the walls were below the regulatory limit of 100 ppm organic vapors; however, the sample from the bottom was above 100 ppm organic vapors. The sample from the bottom was then placed into a four (4) ounce glass jar, capped headspace free, and transported on ice under chain of custody to Envirotech's laboratory to be analyzed for benzene and BTEX using USEPA Method 8021. The sample was below the regulatory limits of 10 ppm benzene and 50 ppm BTEX; therefore, no further excavation was required.

Envirotech, Inc. personnel then collected a five (5)-point composite sample from the BGT pit for spill confirmation. The sample was analyzed in the field for TPH using USEPA Method 418.1, for organic vapors using (PID), and for chlorides. Additionally, the sample was placed into a four (4) ounce glass jar, capped headspace free, and

transported on ice under chain of custody to Envirotech's laboratory to be analyzed for benzene and BTEX using USEPA Method 8021 and for total chloride using USEPA Method 4500. The sample was below the regulatory limits of 100 ppm TPH, 100 ppm organic vapors, 0.2 ppm benzene and 50 ppm BTEX. The sample was below the regulatory limit of 250 ppm total chloride in the field; however, the sample was above the regulatory limit of 250 ppm total chloride using USEPA Method 4500; confirming a release had occurred. Because there is no regulatory closure standard for total chloride, no excavation is required.

Envirotech, Inc. recommends no further action in regards to these incidents. We appreciate the opportunity to be of service. If you have any questions, or require additional information, please contact our office at (505) 632-0615.

Respectfully Submitted,
ENVIROTECH, INC.



Scott Gonzales
Sr. Environmental Technician
sgonzales@envirotech-inc.com

Enclosures: Field Notes
Analytical Results
Summary of Analytical Results

Cc: Client File No. 03022

Client: **Energen**


envirotech
(505) 632-0015 (800) 362-1879
5790 U.S. Hwy 64, Farmington, NM 87401

Location No: **C3022-0142**
C.O.C. No:

FIELD REPORT: SPILL CLOSURE VERIFICATION

PAGE NO: **1** OF **1**
DATE STARTED: **5-12-09**
DATE FINISHED: **5-12-09**
ENVIRONMENTAL SPECIALIST: **S-G/R-J.**

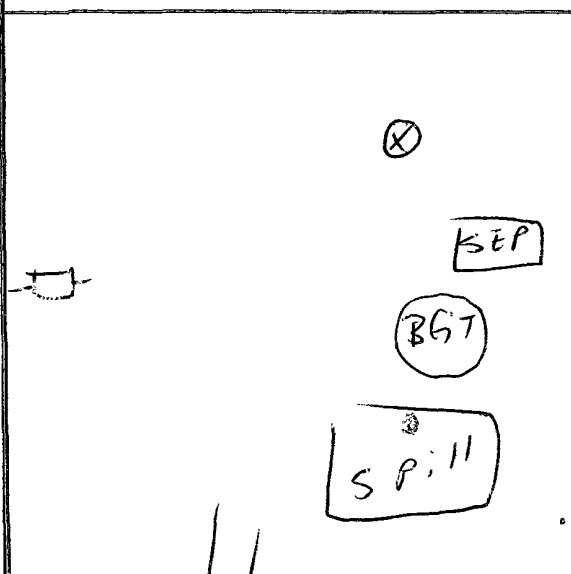
LOCATION: NAME: **Jicarilla 99** WELL #: **2A**
QUAD/UNIT: **D** SEC: **27** TWP: **27N** RNG: **3W** PM: CNTY: **RA** ST: **NM**
QTR/FOOTAGE: **990'FWL, 1190FWL** CONTRACTOR: **NMPM**

EXCAVATION APPROX: **40** FT. X **42** FT. X **16** FT. DEEP CUBIC YARDAGE: **995**
DISPOSAL FACILITY: **Smiths Landfarm (TNT)** REMEDIATION METHOD: **landfarm**
LAND USE: **Reservation** LEASE: **API 3003921484** LAND OWNER: **Jicarilla**
CAUSE OF RELEASE: **Broken Valve** METERRAIL RELEASED: **hydrocarbons**
SPILL LOCATED APPROXIMATELY: **131** FT. **1000** FROM **wellhead**
DEPTH TO GROUNDWATER: NEAREST WATER SOURCE: NEAREST SURFACE WATER:
NMOCD RANKING SCORE: NMOCD TPH CLOSURE STD: **100** PPM

SOIL AND EXCAVATION DESCRIPTION:

| SAMPLE DESCRIPTION | TIME | SAMPLE I.D. | LAB NO. | WEIGHT (g) | mL FREON | DILUTION | READING | CALC. ppm |
|-------------------------|--------------|---------------|----------|------------|-----------|----------|------------|-----------|
| 200 std. | 10:30 | | | | | | 202 | |
| Bottom Spt. Comp | 10:40 | Bottom | 1 | 5 | 20 | 4 | 24 | 96 |
| Wall 1 Spt. Comp | 10:43 | Wall 1 | 2 | 5 | 20 | 4 | 5 | 20 |
| Wall 2 Spt. Comp | 10:46 | Wall 2 | 3 | 5 | 20 | 4 | 1 | 4 |
| Wall 3 Spt. Comp | 10:49 | Wall 3 | 4 | 5 | 20 | 4 | 1 | 4 |
| Wall 4 Spt. Comp | 10:52 | Wall 4 | 5 | 5 | 20 | 4 | 4 | 16 |

SPILL PERIMETER



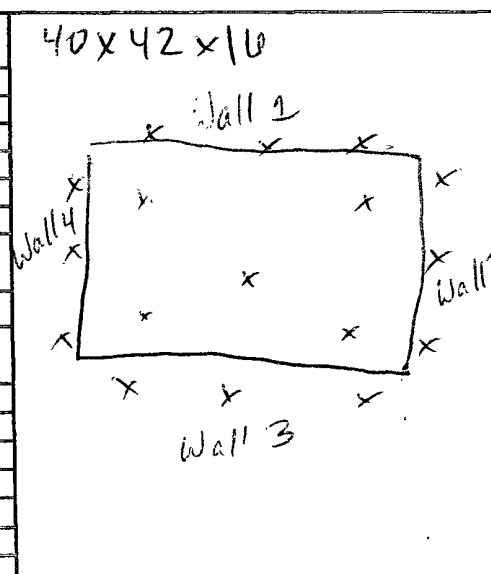
OVM RESULTS

| SAMPLE ID | FIELD HEADSPACE PID (ppm) |
|---------------|---------------------------|
| Bottom | 301 |
| Wall 1 | 0.1 |
| Wall 2 | 0.1 |
| Wall 3 | 0.2 |
| Wall 4 | 0.5 |

LAB SAMPLES

| SAMPLE ID | ANALYSIS | TIME |
|-----------|----------|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

SPILL PROFILE

40x42x16


TRAVEL NOTES:

CALLED OUT:

ONSITE:

PAGE NO: 1 OF 1**envirotech**
(505) 632-0615 (500) 362-1879

5796 U.S. Hwy 64, Farmington, NM 87401

ENVIRONMENTAL SPECIALIST:

DATE STARTED: 5-12-09DATE FINISHED: 5-12-09LAT: N36.548550°LONG: W107.136808°**FIELD REPORT: BGT / PIT CLOSURE VERIFICATION**LOCATION: NAME: Jicarilla 94-2 WELL #: 2A TEMP PIT: PERMANENT PIT: BGT: ☒LEGAL ADD: UNIT: D SEC: 27 TWP: 27N RNG: 3W PM:QTR/FOOTAGE: 990' ENL, 1190' FWL CNTY: Rio Arriba ST: NMEXCAVATION APPROX: FT. X FT. X FT. DEEP CUBIC YARDAGE: NADISPOSAL FACILITY: NA REMEDIATION METHOD: NALAND OWNER: Jicarilla API: 3003921484 BGT / PIT VOLUME: 100 bblsCONSTRUCTION MATERIAL: Steel DOUBLE-WALLED, WITH LEAK DETECTION: NOLOCATION APPROXIMATELY: 121 FT. 150° FROM WELLHEAD

DEPTH TO GROUNDWATER:

☐ TEMPORARY PIT - GROUNDWATER 50-100 FEET DEEPBENZENE \leq 0.2 mg/kg, BTEX \leq 50 mg/kg, GRO & DRO FRACTION (8015) \leq 500 mg/kg, TPH (418.1) \leq 2500 mg/kg, CHLORIDES \leq 500 mg/kg☐ TEMPORARY PIT - GROUNDWATER \geq 100 FEET DEEPBENZENE \leq 0.2 mg/kg, BTEX \leq 50 mg/kg, GRO & DRO FRACTION (8015) \leq 500 mg/kg, TPH (418.1) \leq 2500 mg/kg, CHLORIDES \leq 1000 mg/kg☒ PERMANENT PIT OR BGTBENZENE \leq 0.2 mg/kg, BTEX \leq 50 mg/kg, TPH (418.1) \leq 100 mg/kg, CHLORIDES \leq 250 mg/kg

FIELD 418.1 ANALYSIS

| TIME | SAMPLE I.D. | LAB NO. | WEIGHT (g) | mL FREON | DILUTION | READING | CALC. (mg/kg) |
|------------------|----------------|----------|------------|-----------|----------|------------|---------------|
| <u>10:30</u> | <u>200 STD</u> | | | | | <u>202</u> | |
| <u>Spt. Comp</u> | <u>11:15</u> | <u>1</u> | <u>5</u> | <u>20</u> | <u>4</u> | <u>2</u> | <u>8</u> |
| | | <u>2</u> | | | | | |
| | | <u>3</u> | | | | | |
| | | <u>4</u> | | | | | |
| | | <u>5</u> | | | | | |
| | | <u>6</u> | | | | | |

PERIMETER

FIELD CHLORIDES RESULTS

PROFILE

SAMPLE ID READING CALC. (mg/kg)

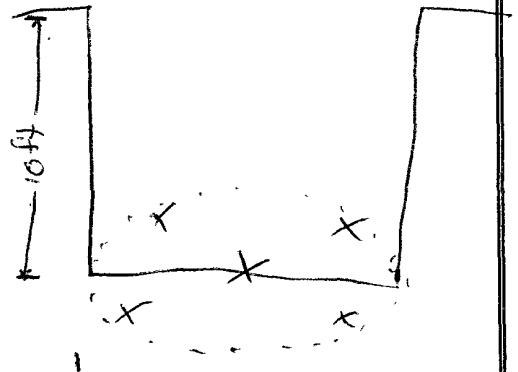
Spt. Comp 2 162

PID RESULTS

SAMPLE ID RESULTS (ppm)

Spt. Comp 18.3

30x20x10



LAB SAMPLES

| SAMPLE ID | ANALYSIS | RESULTS |
|-----------|-----------|---------|
| | BENZENE | |
| | BTEX | |
| | GRO & DRO | |
| | CHLORIDES | |

NOTES:

WORKORDER #

WHO ORDERED



EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client: Energen
Sample No.: 1
Sample ID: Bottom @16'
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03022-0142
Date Reported: 6/2/2009
Date Sampled: 5/12/2009
Date Analyzed: 5/12/2009
Analysis Needed: TPH-418.1

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|-----------|--------------------------|--------------------------|
|-----------|--------------------------|--------------------------|

| | | |
|------------------------------|----|-----|
| Total Petroleum Hydrocarbons | 96 | 5.0 |
|------------------------------|----|-----|

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: Jicarilla 94 #2A

Instrument calibrated to 200 ppm standard. Zeroed before each sample


Analyst

Scott Gonzales
Printed



Sherry Auckland
Printed



EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client: Energen
Sample No.: 2
Sample ID: wall 1
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03022-0142
Date Reported: 6/2/2009
Date Sampled: 5/12/2009
Date Analyzed: 5/12/2009
Analysis Needed: TPH-418.1

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|-----------|--------------------------|--------------------------|
|-----------|--------------------------|--------------------------|

| | | |
|------------------------------|----|-----|
| Total Petroleum Hydrocarbons | 20 | 5.0 |
|------------------------------|----|-----|

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: Jicarilla 94 #2A

Instrument calibrated to 200 ppm standard. Zeroed before each sample


Analyst

Scott Gonzales
Printed



Sherry Auckland
Printed



EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client: Energen
Sample No.: 3
Sample ID: Wall 2
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03022-0142
Date Reported: 6/2/2009
Date Sampled: 5/12/2009
Date Analyzed: 5/12/2009
Analysis Needed: TPH-418.1

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|-----------|--------------------------|--------------------------|
|-----------|--------------------------|--------------------------|

| | | |
|------------------------------|----|-----|
| Total Petroleum Hydrocarbons | ND | 5.0 |
|------------------------------|----|-----|

ND = Parameter not detected at the stated detection limit.

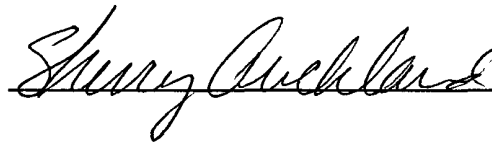
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: Jicarilla 94 #2A

Instrument calibrated to 200 ppm standard. Zeroed before each sample


Analyst

Scott Gonzales
Printed



Sherry Auckland
Printed



EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

| | | | |
|----------------|-----------------|------------------|------------|
| Client: | Energen | Project #: | 03022-0142 |
| Sample No.: | 4 | Date Reported: | 6/2/2009 |
| Sample ID: | Wall 3 | Date Sampled: | 5/12/2009 |
| Sample Matrix: | Soil | Date Analyzed: | 5/12/2009 |
| Preservative: | Cool | Analysis Needed: | TPH-418.1 |
| Condition: | Cool and Intact | | |

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|-----------|--------------------------|--------------------------|
|-----------|--------------------------|--------------------------|


| | | |
|------------------------------|----|-----|
| Total Petroleum Hydrocarbons | ND | 5.0 |
|------------------------------|----|-----|

ND = Parameter not detected at the stated detection limit.


References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Jicarilla 94 #2A**

Instrument calibrated to 200 ppm standard. Zeroed before each sample


Analyst

Scott Gonzales
Printed



Sherry Auckland
Printed



EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client: Energen
Sample No.: 5
Sample ID: Wall 4
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03022-0142
Date Reported: 6/2/2009
Date Sampled: 5/12/2009
Date Analyzed: 5/12/2009
Analysis Needed: TPH-418.1

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|------------------------------|--------------------------|--------------------------|
| Total Petroleum Hydrocarbons | 16 | 5.0 |

ND = Parameter not detected at the stated detection limit.


References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Jicarilla 94 #2A**

Instrument calibrated to 200 ppm standard. Zeroed before each sample


Analyst

Scott Gonzales
Printed



Sherry Auckland
Printed



CONTINUOUS CALIBRATION
EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Cal. Date: 12-May-09

| Parameter | Standard Concentration mg/L | Concentration Reading mg/L |
|-----------|-----------------------------------|----------------------------------|
| TPH | 100 | 202 |
| | 200 | |
| | 500 | |
| | 1000 | |

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.


Analyst

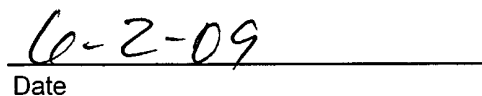
Scott Gonzales

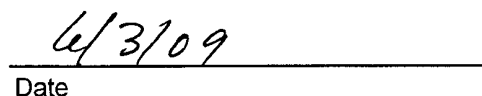
Print Name


Review

Sherry Auckland

Print Name


Date


Date



EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client: Energen
Sample No.: 1
Sample ID: 5 point comp
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03022-0142
Date Reported: 6/2/2009
Date Sampled: 5/12/2009
Date Analyzed: 5/12/2009
Analysis Needed: TPH-418.1

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|-----------|--------------------------|--------------------------|
|-----------|--------------------------|--------------------------|

| | | |
|------------------------------|---|-----|
| Total Petroleum Hydrocarbons | 8 | 5.0 |
|------------------------------|---|-----|

ND = Parameter not detected at the stated detection limit.

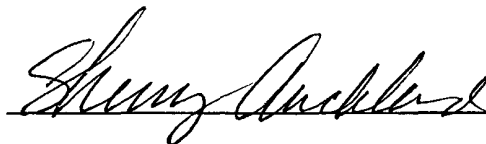
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: Jicarilla 94 #2A BGT Closure

Instrument calibrated to 200 ppm standard. Zeroed before each sample


Analyst

Scott Gonzales
Printed



Sherry Auckland
Printed



CONTINUOUS CALIBRATION
EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Cal. Date: 12-May-09

| Parameter | Standard Concentration mg/L | Concentration Reading mg/L |
|-----------|-----------------------------------|----------------------------------|
| TPH | 100 | 202 |
| | 200 | |
| | 500 | |
| | 1000 | |

BGT Closure

The accepted percent relative deviation (%RSD) of the calibration factor is less than 20% over the working range.


Analyst


Scott Gonzales

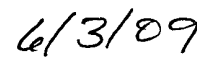
Print Name


Review

Sherry Auckland

Print Name


Date


Date



Field Chloride

Client: Energen
Sample No.: 1
Sample ID: 5 pt Comp
Sample Matrix: Soil
Preservative: Cool
Condition: Cool and Intact

Project #: 03022-0142
Date Reported: 6/3/2009
Date Sampled: 5/12/2009
Date Analyzed: 5/12/2009
Analysis Needed: Chloride

| Parameter | Concentration (mg/kg) | Det. Limit (mg/kg) |
|----------------|--------------------------|--------------------------|
| Field Chloride | 62 | 31.0 |

ND = Parameter not detected at the stated detection limit.

References: "Standard Methods for the Examination of Water and Wastewater", 18th ed., 1992
Hach Company Quantab Titrators for Chloride

Comments: Jicarilla 94 #2A


Analyst

Scott Gonzales

Printed


Review

Sherry Auckland

Printed

| | | | |
|--------------------|--------------|---------------------|------------|
| Client: | Energen | Project #: | 03022-0142 |
| Sample ID: | Bottom Comp. | Date Reported: | 05-15-09 |
| Laboratory Number: | 50038 | Date Sampled: | 05-12-09 |
| Chain of Custody: | 7049 | Date Received: | 05-12-09 |
| Sample Matrix: | Soil | Date Analyzed: | 05-14-09 |
| Preservative: | Cool | Date Extracted: | 05-13-09 |
| Condition: | Intact | Analysis Requested: | BTEX |

| Parameter | Concentration (ug/Kg) | Det. Limit (ug/Kg) |
|-------------------|--------------------------|--------------------------|
| Benzene | 3.1 | 0.9 |
| Toluene | 26.2 | 1.0 |
| Ethylbenzene | 2.0 | 1.0 |
| p,m-Xylene | 5.5 | 1.2 |
| o-Xylene | 46.2 | 0.9 |
| Total BTEX | 83.0 | |

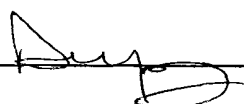
ND - Parameter not detected at the stated detection limit.

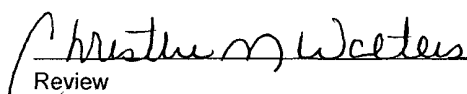
| Surrogate Recoveries: | Parameter | Percent Recovery |
|-----------------------|---------------------|------------------|
| | Fluorobenzene | 98.0 % |
| | 1,4-difluorobenzene | 98.0 % |
| | Bromochlorobenzene | 98.0 % |

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Jicarilla 94 #2A

Analyst 


 Review

| | | | |
|--------------------|----------------|---------------------|------------|
| Client: | Energen | Project #: | 03022-0142 |
| Sample ID: | 5pt. Comp. BGT | Date Reported: | 05-15-09 |
| Laboratory Number: | 50037 | Date Sampled: | 05-12-09 |
| Chain of Custody: | 7049 | Date Received: | 05-12-09 |
| Sample Matrix: | Soil | Date Analyzed: | 05-14-09 |
| Preservative: | Cool | Date Extracted: | 05-13-09 |
| Condition: | Intact | Analysis Requested: | BTEX |

| Parameter | Concentration (ug/Kg) | Det. Limit (ug/Kg) |
|--------------|--------------------------|--------------------------|
| Benzene | 21.7 | 0.9 |
| Toluene | 355 | 1.0 |
| Ethylbenzene | 67.7 | 1.0 |
| p,m-Xylene | 762 | 1.2 |
| o-Xylene | 165 | 0.9 |
| Total BTEX | 1,370 | |

ND - Parameter not detected at the stated detection limit.

| Surrogate Recoveries: | Parameter | Percent Recovery |
|-----------------------|---------------------|------------------|
| | Fluorobenzene | 98.0 % |
| | 1,4-difluorobenzene | 98.0 % |
| | Bromochlorobenzene | 98.0 % |

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Jicarilla 94 #2A

Analyst

Review

| | | | |
|--------------------|----------------|----------------|----------|
| Client: | N/A | Project #: | N/A |
| Sample ID: | 05-14-BT QA/QC | Date Reported: | 05-15-09 |
| Laboratory Number: | 50022 | Date Sampled: | N/A |
| Sample Matrix: | Soil | Date Received: | N/A |
| Preservative: | N/A | Date Analyzed: | 05-14-09 |
| Condition: | N/A | Analysis: | BTEX |

| Calibration and Detection Limits (ug/L) | I-Cal RF | C-Cal RF | %Diff | Blank Conc | Detect Limit |
|--|-------------|-----------------------|-------|---------------|-----------------|
| | | Accept. Range 0 - 15% | | | |
| Benzene | 6 7829E+006 | 6 7965E+006 | 0.2% | ND | 0.1 |
| Toluene | 6 0934E+006 | 6 1056E+006 | 0.2% | ND | 0.1 |
| Ethylbenzene | 5 1834E+006 | 5 1938E+006 | 0.2% | ND | 0.1 |
| p,m-Xylene | 1 3655E+007 | 1 3682E+007 | 0.2% | ND | 0.1 |
| o-Xylene | 5 0915E+006 | 5 1017E+006 | 0.2% | ND | 0.1 |

| Duplicate Conc. (ug/Kg) | Sample | Duplicate | %Diff | Accept Range | Detect Limit |
|-------------------------|--------|-----------|-------|--------------|--------------|
| Benzene | 8.7 | 8.6 | 1.1% | 0 - 30% | 0.9 |
| Toluene | 14.0 | 14.2 | 1.4% | 0 - 30% | 1.0 |
| Ethylbenzene | 17.3 | 18.4 | 6.4% | 0 - 30% | 1.0 |
| p,m-Xylene | 34.7 | 35.0 | 0.9% | 0 - 30% | 1.2 |
| o-Xylene | 19.7 | 20.8 | 5.6% | 0 - 30% | 0.9 |

| Spike Conc. (ug/Kg) | Sample | Amount Spiked | Spiked Sample | % Recovery | Accept Range |
|---------------------|--------|---------------|---------------|------------|--------------|
| Benzene | 8.7 | 50.0 | 57.4 | 97.8% | 39 - 150 |
| Toluene | 14.0 | 50.0 | 61.6 | 96.3% | 46 - 148 |
| Ethylbenzene | 17.3 | 50.0 | 62.9 | 93.5% | 32 - 160 |
| p,m-Xylene | 34.7 | 100 | 130 | 96.7% | 46 - 148 |
| o-Xylene | 19.7 | 50.0 | 68.3 | 98.0% | 46 - 148 |

ND - Parameter not detected at the stated detection limit.

References Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 50022 - 50026, 50028, 50031, 50034, 50037, and 50038.

Analyst

Review



| | | | |
|----------------|----------------|-------------------|------------|
| Client: | Energen | Project #: | 03022-0142 |
| Sample ID: | 5pt. Comp. BGT | Date Reported: | 05-19-09 |
| Lab ID#: | 50037 | Date Sampled: | 05-12-09 |
| Sample Matrix: | Soil | Date Received: | 05-12-09 |
| Preservative: | Cool | Date Analyzed: | 05-19-09 |
| Condition: | Intact | Chain of Custody: | 7049 |

Parameter

Concentration (mg/Kg)

Total Chloride

290

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Jicarilla 94 #2A.**

Analyst

Review

CHAIN OF CUSTODY RECORD

7049

| Client: Energen | | | Project Name / Location: Jicarilla 94 #28 | | | ANALYSIS / PARAMETERS | | | | | | | | | | | | | |
|---|----------------|--------------|---|------------------------|--------------------------|---|--------------------|-------------------------------------|---------------|-------------------------------------|---------------------|---------------|-----|-------------|-------------------------------------|--|--|-------------------------------------|-------------------------------------|
| Client Address: | | | Sampler Name: Scott Gonzales/Robyn Jones | | | TPH (Method 8015) | BTEX (Method 8021) | VOC (Method 8260) | RCRA 8 Metals | Cation / Anion | RCI | TCLP with H/P | PAH | TPH (418.1) | CHLORIDE | | | Sample Cool | Sample Intact |
| Client Phone No.: | | | Client No.: 03022-0142 | | | | | | | | | | | | | | | | |
| Sample No./ Identification | Sample Date | Sample Time | Lab No. | Sample Matrix | No./Volume of Containers | Preservative HgCl ₂ HCl ICS | | | | | | | | | | | | | |
| 5pt. Comp. Bot | 5/12/09 | 11:15 | 50037 | Soil Solid | 1 4oz | | | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | | | | | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Bottom Comp. | 5/12/09 | 10:45 | 50038 | Soil Solid | 1 4oz | | | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| | | | | Soil Solid | Sludge Aqueous | | | | | | | | | | | | | | |
| Relinquished by: (Signature) Robyn S. Jones | | | | Date 5/12/09 | Time 14:40 | Received by: (Signature) Kendall Augustin | | | | Date 5/12/09 | Time 1440 | | | | | | | | |
| Relinquished by: (Signature) | | | | | | Received by: (Signature) | | | | | | | | | | | | | |
| Relinquished by: (Signature) | | | | | | Received by: (Signature) | | | | | | | | | | | | | |



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Table 1, Summary of Analytical Results
Energen Resources
Jicarilla 94 #2A
Sec. 27, Twp. 27N, Rng. 3W
Rio Arriba County, New Mexico
Project No. 03022-0142

| Sample Description | Sample Number | Date | USEPA Method 8021 Benzene (ppm) | USEPA Method 8021 BTEX (ppm) | USEPA Method 418.1 TPH (ppm) | USEPA Method 4500 Total Chloride (ppm) | Field Chloride (ppm) | OVM (ppm) |
|------------------------------|---------------|----------|------------------------------------|---------------------------------|---------------------------------|---|-------------------------|--------------|
| NMOC Standards | NA | NA | 10.0 | 50 | 5000 | 250 | 250 | 100 |
| Confirmation Sampling | | | | | | | | |
| Bottom at 16' BGS | 1 | 05/12/09 | 0.0031 | 0.0830 | 96 | NS | NS | 301.0 |
| Wall #1 | 2 | 05/12/09 | NS | NS | 20 | NS | NS | 0.1 |
| Wall #2 | 3 | 05/12/09 | NS | NS | ND | NS | NS | 0.1 |
| Wall #3 | 4 | 05/12/09 | NS | NS | ND | NS | NS | 0.2 |
| Wall #4 | 5 | 05/12/09 | NS | NS | 16 | NS | NS | 0.5 |
| BGT Closure Sampling | | | | | | | | |
| NMOC Standards | NA | NA | 0.2 | 50 | 100 | 250 | 250 | 100 |
| 5-Point Composite | 1 | 05/12/09 | 0.0217 | 1.3700 | 8 | 290 | 62 | 18.3 |

NS = Not Sampled

ND = Non-Detect

* Values in **BOLD** above regulatory standards