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# GENERAL CORRESPONDENCE YEAR(S):

# \_2011 - 2012\_

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez

Governor

John H. Bemis Cabinet Secretary-Designate

Brett F. Woods, Ph.D. Deputy Cabinet Secretary Jami Bailey Division Director Oil Conservation Division



June 30, 2011

Rosa L. Slade Southern Union Gas Services, LTD 1507 W. 15<sup>th</sup> Monahans, Texas 79756

RE: Compliance with the Transitional Provisions of the Surface Waste Management Facilities rule (Rule 36) and Treatment and Vadose Monitoring Requirements at Existing Landfarms Southern Union Gas Services, LTD
Sid Richardson Landfarm: Permit NM-2-019
Location: Unit F of Section 36, Township 23 South, Range 36 East, NMPM
Lea County, New Mexico

Dear Owner/Operator:

The Oil Conservation Division (OCD) has received several landfarm monitoring reports which indicate Owner/Operators are not conducting the required sampling and assessment of the monitoring data required by existing permit conditions and the applicable requirements of the Surface Waste Management Facilities rule 19.15.36 NMAC (Rule 36). OCD wishes to remind such Owner/Operators that the requirements of Rule 36 have been in effect since February 14, 2007 and compliance is required. This letter is provided to help Owner/Operators understand the most common deficiencies regarding compliance in general operations, sampling of landfarms at existing surface waste management facilities, and the reporting of such results.

# I. Transitional Provisions, Existing Surface Waste Management Facilities:

The transitional provision of Rule 36.20.A states that existing surface waste management facilities *shall comply with the operational, waste acceptance, and closure requirements* provided in the new rule, unless specifically addressed in the current permit, order, waiver, exception, or agreement granted in writing from OCD. Where the language in the existing permit is silent (i.e., where a specified requirement of Rule 36 is not addressed within the existing permit or in writing from OCD), the operational, waste acceptance, and closure provisions of Rule 36 apply and

Oil Conservation Division 1220 South St. Francis Drive • Santa Fe, New Mexico 87505 Phone (505) 476-3440 • Fax (505) 476-3462 • <u>www.emnrd.state.nm.us/OCD</u>

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supplement the conditions of the existing permit. Examples of how this transitional provision would be applied to Owner/Operators of existing landfarms are as follows:

## A. Treatment Zone Monitoring (contaminated soils being remediated):

Most Owner/Operators of existing landfarms have common language or conditions specified within their permits. For this example, two of the following common permit conditions demonstrate how an Owner/Operator would request the necessary modification of their existing permit.

In an existing landfarm permit:

- 1. Soils will be spread on the surface in six-inch lifts or less.
- 2. Successive lifts of contaminated soils may not be spread until a laboratory measurement of:
  - a. total petroleum hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm);
  - b. the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm; and
  - c. benzene is less than 10 ppm.
  - d. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of the remediated soils.

In addition to the above permit conditions, an Owner/Operator also has to implement the following additional requirements of Rule 36:

| If ground water is between 50' and 100'<br>below the bottom of the oil field waste: | If ground water is more than 100' below the bottom of the oil field waste: |
|---|--|
| Chloride concentration cannot exceed <b>500</b>                                     | Chloride concentration cannot exceed 1000                                  |
| mg/kg   | mg/kg  |

• Chloride testing and limits (See 19.15.36.15.D NMAC)

- The following test methods would have to be utilized: TPH concentration of each lift determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, and chloride concentration, determined by EPA method 300.1. (See 19.15.36.15.D NMAC)
- The sampling protocol and frequency: "*The operator shall collect and analyze at least one composite soil sample, consisting of four discrete samples, from the treatment zone at least semi-annually using the methods specified below for TPH and chlorides.*" (See 19.15.36.15.D NMAC)
- The maximum thickness of remediated soils for closure: "The maximum thickness of treated soils in a landfarm cell shall not exceed two feet or approximately 3000 cubic yards per acre. When that thickness is reached, the operator shall not place additional oil field waste in the

Southern Union Gas Services, LTD Sid Richardson Landfarm Permit NM-2-019 June 30, 2011 Page 3 of 7

> landfarm cell until it has demonstrated by monitoring the treatment zone at least semiannually that the contaminated soil has been treated to the standards specified in Subsection F of 19.15.36.15 NMAC or the contaminated soils have been removed to a division-approved surface waste management facility." (See 19.15.36.15.D NMAC)

**Therefore, in order to remain in compliance with existing permit conditions and Rule 36** the Owner/Operator shall ensure that:

- 1. Soils will be spread on the surface in **six**-inch lifts or less, and the addition of any remediated soils is not allowed until:
  - a. TPH concentration of each lift, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed **100** mg/kg (ppm),
  - b. the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm,
  - c. benzene is less than 10 ppm, and
  - d. the chloride concentration, as determined by EPA method 300.1, does not exceed **500** mg/kg or 1000 mg/kg. (See depth to ground water restrictions above.)
- 2. The Owner/Operator shall collect and analyze at least **one** composite soil sample, consisting of **four** discrete samples, from the treatment zone at least **semi-annually** using the methods specified above for TPH and chlorides.
- 3. The maximum thickness of treated soils in a landfarm cell shall not exceed **two feet** or approximately **3000 cubic yards per acre**. When that thickness is reached, the Owner/Operator shall <u>not</u> place additional oil field waste in the landfarm cell until it has demonstrated by monitoring the treatment zone at least semi-annually that the contaminated soil has been treated to the standards specified in Rule 36.15.F or the contaminated soils have been removed to a division-approved surface waste management facility. Owner/Operators **must** obtain authorization from the OCD prior to application of successive lifts and/or removal of the remediated soils.

The <u>requirements of Rule 36 that would require an Owner/Operator to submit a modification</u> <u>request regarding treatment zone monitoring to an existing landfarm are as follows:</u>

- "The operator shall spread contaminated soils on the surface in <u>eight-inch or less lifts or</u> <u>approximately 1000 cubic yards per acre per eight-inch lift</u>." (See 19.15.36.15.D NMAC)
- "<u>TPH concentration</u> of each lift, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, <u>does not exceed 2500 mg/kg</u>." (See 19.15.36.15.D NMAC)

# B. Vadose Zone Monitoring (native soils beneath the contaminated soils being remediated):

In regards to vadose zone monitoring (commonly referred to by the misnomer of "Treatment Zone Monitoring" within existing landfarm permits), most Owner/Operators of existing surface waste management facilities that operate landfarms have common language or conditions specified within their permits. For this example two of the most common permit conditions regarding the

Southern Union Gas Services, LTD Sid Richardson Landfarm Permit NM-2-019 June 30, 2011 Page 4 of 7

vadose zone will be used to demonstrate how an Owner/Operator would comply with the transitional provision of Rule 36.20.A, and what requirements of the rule would require an Owner/Operator to submit a request to modify an existing permit.

Two of the most common conditions in an existing landfarm permit are as follows:

- A treatment zone not to exceed three (3) feet beneath the landfarm native ground surface must be monitored. A minimum of one random soil sample must be taken from each individual cell, with no cell being larger than five (5) acres, six (6) months after the first contaminated soils are received in the cell and then quarterly thereafter. The sample must be taken at two (2) to three (3) feet below the native ground surface.
- 2. The soil samples must be analyzed using EPA-approved methods for total petroleum hydrocarbons (TPH) and volatile aromatic organics (BTEX) **quarterly** and for major cations/anions and Water Quality Control Commission (WQCC) metals **annually**.

Based upon the transitional provision of Rule 36.20.A, an Owner/Operator would have to implement and integrate the following **additional requirements** while complying with the conditions specified above.

- The testing for chlorides and the comparison of the results to background: "*The operator* shall collect and analyze a minimum... using the methods specified below for TPH, BTEX and chlorides and shall compare each result to the higher of the PQL or the background soil concentrations to determine whether a release has occurred." (See 19.15.36.15.E(2) NMAC).
  - Note: The "methods specified below for TPH, BTEX and chlorides" are those identified in Subsection F of 19.15.36.15 NMAC: "Total BTEX, as determined by *EPA SW-846 method 8021B or 8260B*..." (See 19.15.36.15.F(2) NMAC); "TPH, as determined by *EPA method 418.1* or other EPA method approved by the division..." (See 19.15.36.15.F(3) NMAC); and "Chlorides, as determined by *EPA method 300.1*..." (See 19.15.36.15.F(3) NMAC).
- The five year monitoring program: "The operator shall collect and analyze a minimum of *four* randomly selected, independent samples from the vadose zone, using the methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC at least every five years and shall compare each result to the higher of the PQL or the background soil concentrations to determine whether a release has occurred." (See 19.15.36.15.E(3) NMAC).
  - Note: The "methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC" are those identified in Subsection F of 19.15.36.15 NMAC: "The concentration of constituents listed in Subsections A and B of 20.6.2.3103

Southern Union Gas Services, LTD Sid Richardson Landfarm Permit NM-2-019 June 30, 2011 Page 5 of 7

NMAC shall be determined by *EPA SW-846 methods 6010B or 6020* or other methods approved by the division." (See 19.15.36.15.F(5) NMAC)

• The release response: "If vadose zone sampling results show that the concentrations of TPH, BTEX or chlorides exceed the higher of the PQL or the background soil concentrations, then the operator shall notify the division's environmental bureau of the exceedance, and shall **immediately collect and analyze** a minimum of **four** randomly selected, independent samples for TPH, BTEX, chlorides and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC. The operator shall submit the results of the re-sampling event and a response action plan for the division's approval <u>within 45 days</u> of the initial notification. The response action plan shall address changes in the landfarm's operation to prevent further contamination and, if necessary, a plan for remediating existing contamination." (See 19.15.36.15.E(5) NMAC

The <u>requirements of Rule 36 that would require an Owner/Operator to submit a modification</u> <u>request regarding valoes zone monitoring to an existing landfarm are as follows:</u>

- "The operator shall take the vadose zone samples from soils <u>between three and four feet</u> below the cell's original ground surface." (See 19.15.36.15.E(1) NMAC)
- "The operator shall collect and analyze a minimum of four randomly selected, independent samples from the vadose zone at least **semi-annually**..." (See 19.15.36.15.E(2) NMAC)

# C. Transitional Provisions, New Landfarm Cells Constructed at an Existing Surface Waste Management Facility:

The transitional provision, Rule 36.20.B, states "Major modification of an existing surface waste management facility and new landfarm cells constructed at an existing surface waste management facility shall comply with the requirements provided in 19.15.36 NMAC." In this case, an Owner/Operator is required to consider the siting criteria and operational requirements regarding landfarms specified in Rule 36.13; the specific requirements applicable to landfarms specified in Rule 36.15; and the closure and post closure requirements regarding landfarms of Rule 36.18. The existing permit conditions would not be applicable to new landfarm cells at the existing facility, but would continue to apply to landfarm cells that were constructed prior to the February 14, 2007 effective date of Rule 36.

# **II.** Compliance with Additional Operational Requirements:

Other regulatory requirements that Owner/Operators of existing surface waste management facilities that operate landfarms should be aware of and consider when operating its facility are as follows:

# A. Reuse of remediated soils:

Most existing surface waste management facility permits regarding landfarming do not specify the constituents and concentrations that must be achieved for reuse of treated or remediated soils. Rule 36 has a provision that specifically addresses the conditions of approval for reuse of treated Southern Union Gas Services, LTD Sid Richardson Landfarm Permit NM-2-019 June 30, 2011 Page 6 of 7

soils. Rule 36.15.G(1), disposition of treated soils, states "If the operator achieves the closure performance standards specified in Subsection F of 19.15.36 NMAC, then the operator may either leave the treated soils in place, or, with prior division approval, dispose or reuse of the treated soils in an alternative manner."

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In accordance with the treatment zone closure performance standards of Rule 36.15.F, "the operator shall continue treatment until the contaminated soil has been remediated to the higher of the background concentrations or the following closure performance standards. The operator shall demonstrate compliance with the closure performance standards by collecting and analyzing a minimum of one composite soil sample, consisting of four discrete samples.

(1) Benzene, as determined by <u>EPA SW-846 method 8021B or 8260B</u>, shall not exceed **0.2** mg/kg.

(2) Total BTEX, as determined by <u>EPA SW-846 method 8021B or 8260B</u>, shall not exceed **50 mg/kg**.

(3) The gasoline range organics (GRO) and diesel range organics (DRO) combined fractions, as determined by <u>EPA SW-846 method 8015M</u>, shall not exceed **500 mg/kg**. TPH, as determined by <u>EPA method 418.1</u> or other EPA method approved by the division, shall not exceed **2500 mg/kg**.

(4) Chlorides, as determined by <u>EPA method 300.1</u>, shall not exceed **500 mg/kg if** the landfarm is located where ground water is less than **100** feet but at least **50** feet below the lowest elevation at which the operator will place oil field waste or **1000 mg/kg if** the landfarm is located where ground water is **100** feet or more below the lowest elevation at which the operator will place oil field waste elevation at which the operator will place oil field waste elevation at which the operator will place oil field waste elevation at which the operator will place oil field waste.

(5) The concentration of constituents listed in Subsections A and B of 20.6.2.3103 NMAC shall be determined by <u>EPA SW-846 methods 6010B or 6020</u> or other methods approved by the division. If the concentration of those constituents exceed the PQL or background concentration, the operator shall **either** perform a site specific risk assessment using EPA approved methods and shall propose closure standards based upon individual site conditions that protect fresh water, public health, safety and the environment, which shall be subject to division approval **or** remove pursuant to Paragraph (2) of Subsection G of 19.15.36.15 NMAC."

# B. Waste Acceptance:

Based upon conversations with several landfarm Owner/Operators, it has come to OCD's attention that the proper waste acceptance protocol is not being implemented at all applicable facilities. In accordance with Rule 36.15.A, "Only soils and drill cuttings predominantly contaminated by petroleum hydrocarbons shall be placed in a landfarm. The division <u>may</u> approve placement of tank bottoms in a landfarm <u>if</u> the operator demonstrates that the tank bottoms do not contain economically recoverable petroleum hydrocarbons. Soils and drill cuttings placed in a landfarm shall be sufficiently free of liquid content to pass the paint filter test, and shall not have a <u>chloride</u> concentration exceeding **500 mg/kg if** the landfarm is located where ground water is less than **100** feet but at least 50 feet below the lowest elevation at which the operator will place oil field waste or exceeding **1000 mg/kg if** the landfarm is located where ground water is **100** feet or more below the lowest elevation at which the operator will place oil field waste. The person tendering oil field waste for treatment at a landfarm shall **certify**, on form C-138, that representative samples of the Southern Union Gas Services, LTD Sid Richardson Landfarm Permit NM-2-019 June 30, 2011 Page 7 of 7

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oil field waste have been subjected to the paint filter test and tested for chloride content, and that the samples have been found to conform to these requirements. <u>The landfarm's operator shall not</u> <u>accept oil field waste for landfarm treatment unless accompanied by this certification."</u>

All landfarm Owner/Operators should be implementing the above referenced requirements in order to ensure compliance to the transitional and waste acceptance provisions of Rule 36. Please note that pursuant to Rule 36.7.A(3), a landfarm "*means a discrete area of land designated and used for the remediation of petroleum hydrocarbon-contaminated soils and drill cuttings.*" Landfarm Owner/Operators should ensure that the waste material accepted for remediation at their facilities contains petroleum hydrocarbons. Acceptance of any other waste material could be considered disposal.

Please note that if you are currently implementing the protocols identified above, OCD appreciates your efforts to continually remain in compliance with the regulations. As for Owner/Operators that are not currently in compliance, the goal of OCD is to get you back on track and in compliance. OCD anticipates observing the changes identified above in the submittal of the results of the next sampling event. If there are any questions regarding this matter, please do not hesitate to contact Mr. Brad A. Jones of my staff at (505) 476-3487 or <u>brad.a.jones@state.nm.us</u>.

Sincerely,

Jami Bailey Division Director Oil Conservation Division

JB/baj

cc: OCD District I Office, Hobbs Basin Environmental, Lovington, NM 88260



1507 W. 15th Meriahams, Texas 79756 A32.943.1100 Fax: 432.943.1101 7011 JAN 25 P 12: 34

January 12, 2011

Mr. Brad Jones New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Re: Remediation Summary - Removal of 1,500 cubic yards of Chloride Impacted Soil Southern Union Gas Services
Southern Union Landfarm - Permit #NM-02-0019
SE ¼ of the NW ¼ of Section 36, Township 23 South, Range 36 East Lea County, New Mexico

Mr. Jones,

Enclosed is the Southern Union Landfarm facility *Remediation Summary - Removal of 1,500 cubic yards of Chloride Impacted Soil* dated January 12, 2011. The Southern Union Landfarm is located in Unit Letter "F", Section 36, Township 23 South, Range 36 East, in rural Lea County, New Mexico.

I have personally reviewed this document, prepared by Basin Environmental Service Technologies on behalf of Southern Union Gas Services, and believe the facts are true and accurate to the best of my knowledge and ability. If you have any questions or comments, please contact me at 432-940-5147 or by email at rose.slade@sug.com.

Respectfully submitted,

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Rose L. Slade EHS Compliance Specialist Southern Union Gas Services, Ltd 1507 W. 15<sup>th</sup> Street Monahans, Texas 79756 rose.slade@sug.com

Cc: SUG Environmental Files

# **Basin Environmental Service Technologies, LLC**

3100 Plains Highway
P. O. Box 301
Lovington, New Mexico 88260
bjarguijo@basinenv.com
Office: (575) 396-2378
Fax: (575) 396-1429

**Effective Solutions** 

January 12, 2011

Mr. Brad Jones New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

 Re: Remediation Summary - Removal of 1,500 cubic yards of Chloride Impacted Soil Southern Union Gas Services
 Southern Union Landfarm – Permit #NM-02-0019
 SE ¼ of the NW ¼ of Section 36, Township 23 South, Range 36 East Lea County, New Mexico

Dear Mr. Jones:

Basin Environmental Service Technologies, LLC ("Basin"), at the request of Southern Union Gas Services ("Southern Union"), assumed maintenance and reporting responsibilities for the Southern Union Landfarm in December 2009. Basin, on behalf of Southern Union, is submitting this *Remediation Summary* to document the removal of 1,500 cubic yards ("cy") of chloride-impacted soil from Cell 8 – Grid 1 of the Southern Union Landfarm. The Southern Union Landfarm is operated and maintained in accordance with New Mexico Oil Conservation Division ("NMOCD"), Natural Resources and Wildlife, Oil and Gas Surface Waste Management Facilities (Title 19 Chapter 15 Part 36). The Landfarm is operated by Southern Union as a "centralized" facility for Southern Union use only. Please reference the 2009 *Annual Report* for additional information.

On December 15, 2009, during the routine bi-annual sampling event, Basin collected one (1) to five (5) fourpoint composite treatment zone soil samples from each of the fifteen (15) treatment cells being utilized. Laboratory analytical results indicated chloride concentrations were less than the NMOCD regulatory standard for Surface Waste Management Facilities for each of the soil samples submitted, with the exception of the soil sample from Cell 8 – Grid 1 ("TZ Cell 8 G1"), which exhibited a chloride concentration of 2,050 mg/Kg. Please reference Attachment #1, "2009 Concentrations of Chloride in the Treatment Zone", for additional information.

On June 14, 2010, based on laboratory analytical results from soil sample "TZ Cell 8 G1", Southern Union requested NMOCD approval to remove and dispose of approximately 1,500 cy of chloride-impacted soil from the treatment zone of Cell 8 – Grid 1 at an NMOCD-approved land disposal facility. On June 30, 2010, Southern Union received NMOCD approval to conduct the proposed remediation activities.

Mr. Brad Jones January 12, 2011 Page 2

# SUMMARY OF SOIL REMEDIATION ACTIVITIES

On November 25, 2010, removal of chloride-impacted soil commenced at the Southern Union Landfarm. Approximately 600 cy of impacted soil was excavated from Cell 8 - Grid 1 and transported to Sundance Services, Inc. (NMOCD Permit # NM-01003), for disposal. Following the removal of the soil, two (2) soil samples (#1 and #2) were collected in the vadose zone at a depth of approximately six (6) inches below ground surface ("bgs") to determine the extent (if any) of chloride impact to the vadose zone. Field test results indicated that chloride concentrations were less than that measurable by the Hach Quantab Chloride Low Range (30-600 mg/Kg) Titrators ("Hach Quantab Titrators") utilized to perform the field analyses. Please reference Attachment #2, "Chloride Field Test Results", for additional information.

On November 26, 2010, approximately 900 cy of chloride-impacted soil was excavated from Cell 8 - Grid 1 and transported to Sundance Services, Inc., for disposal. Following the removal of the soil, six (6) soil samples (#1, #2, #3, #4, #5, and #6) were collected from the vadose zone at a depth of approximately six (6) inches bgs. Field test results indicated that chloride concentrations were less than that measurable by the Hach Quantab Titrators utilized to perform the field analyses.

On November 30, 2010, six (6) five-point composite confirmation samples were collected from the vadose zone at a depth of approximately six (6) inches bgs. The soil samples were submitted to Xenco Laboratories in Odessa, Texas, and analyzed for chloride concentrations using EPA Method 300. Chloride concentrations ranged from 32 mg/Kg for soil sample VZ Cell 8 G-1 Confirmation 3 to 87.2 mg/Kg for soil sample VZ Cell 8 G-1 Confirmations of Chloride in the Vadose Zone", for additional information.

The locations of soil samples collected during the November 25 through 30, 2010, sampling events at Cell 8 – Grid 1 are depicted in the attached "Site & Sample Location Map" (Attachment #4). Photographs documenting the remediation activities are attached.

# CONCLUSIONS

Analytical results of vadose zone soil sampling indicate soil underlying Cell 8 - Grid 1 of the Southern Union Landfarm has not been significantly affected above chloride background levels established prior to the construction of the landfarm treatment cells. Please reference Attachment #5, "Historic Concentrations of Hydrocarbons, Chlorides, Sulfates and Alkalinity in the Vadose Zone", for additional information. An executed C-138 documenting the disposal of the chloride-impacted soil is attached. Further remediation activities do not appear to be warranted at this time.

An *Annual Report* will be submitted by April 1, 2011, documenting the results of the 2010 treatment cell and vadose zone bi-annual sampling events.

Mr. Brad Jones January 12, 2011 Page 3

#### LIMITATIONS

Basin Environmental Service Technologies, LLC ("Basin"), has prepared this *Remediation Summary* to the best of its ability. No other warranty, expressed or implied, is made or intended.

Basin has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Basin has not conducted an independent examination of the facts contained in referenced materials and statements. Basin has presumed the genuineness of the documents and the information provided in documents or statements is true and accurate. Basin has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Basin also notes the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Southern Union Gas Services. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or Southern Union Gas Services.

Should you have any questions or concerns, please contact Rose Slade at (432)940-5147, or me at (575)396-2378.

Respectfully,

Ben J. Arguijo Basin Environmental Service Technologies, LLC

Cc:

Rose Slade, Southern Union Gas Services, Monahans, Texas (rose.slade@sug.com)

Attachments:

Attachment #1: 2009 Concentrations of Chloride in the Treatment Zone

Attachment #2: Chloride Field Test Results

Attachment #3: Concentrations of Chloride in the Vadose Zone

Attachment #4: Site & Sample Location Map

Attachment #5: Historic Concentrations of Hydrocarbons, Chlorides, Sulfates & Alkalinity in the Vadose Zone

Laboratory Analytical Reports Photographs NMOCD Form C-138

# Attachments

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#### 2009 CONCENTRATIONS OF CHLORIDE IN THE TREATMENT ZONE

#### SOUTHERN UNION GAS SERVICES SOUTHERN UNION LAND FARM LEA COUNTY, NEW MEXICO NMOCD Permit #NM-02-19

|   | SAMPLE                                   |                       | EPA 300                                  |  |  |
|---|--|-----------------------|--|--|--|
| SAMPLE LOCATION   | DEPTH<br>(bgs)                           | SAMPLE<br>DATE        | Chloride<br>(mg/Kg)                      |  |  |
| Cell #7 - Comp  | -  | 4/20/2009             | -  |  |  |
| and the second se |  |                       | وسور المعالي                             |  |  |
| Cell #11 - Comp   | -  | 4/20/2009             | -  |  |  |
|   |  | and the second second |  |  |  |
| Cell #12 - Comp   | -  | 4/20/2009             | -  |  |  |
|   |  |                       |  |  |  |
| Cell #13 - Comp   | -  | 4/20/2009             | -  |  |  |
|   | an a |                       | · · · · · · · · · · · · · · · · · · ·    |  |  |
| Cell #14 - Comp   | -  | 4/20/2009             | -  |  |  |
|   | ار الفراد الم<br>الم الفراد الم          |                       |  |  |  |
| Cell #2 North Comp  | _  | 4/21/2009             | -  |  |  |
|   |  |                       | S. A. C. Bay                             |  |  |
| Cell #2 South Comp  | -  | 4/21/2009             | -  |  |  |
|   | 45°                                      |                       |  |  |  |
| Cell #15 Comp   | -  | 4/21/2009             | -  |  |  |
|   |  |                       | 1 THERE                                  |  |  |
| TZ Cell 14 C1   | -  | 12/15/2009            | <4.92                                    |  |  |
|   |  |                       | S. C. S. S. S. S.                        |  |  |
| TZ Cell 1 G1  | -  | 12/15/2009            | 61.5                                     |  |  |
| TZ Cell 1 G2  | -  | 12/15/2009            | 98                                       |  |  |
| TZ Cell 1 G3  | -  | 12/15/2009            | 231                                      |  |  |
| TZ Cell 1 G4  | -  | 12/15/2009            | 300                                      |  |  |
| TZ Cell 1 G5  | -  | 12/15/2009            | 44.8                                     |  |  |
|   | ,  |                       |  |  |  |
| TZ Cell 2 G1  | -  | 12/15/2009            | 7.83                                     |  |  |
| TZ Cell 2 G2  | -  | 12/15/2009            | 161                                      |  |  |
| TZ Cell 2 G3  | -  | 12/15/2009            | 144                                      |  |  |
| TZ Cell 2 G4  | -  | 12/15/2009            | 45.6                                     |  |  |
|   |  | 1                     | 1. " AN " 5 W. T                         |  |  |
| TZ Cell 3 G1  | -  | 12/15/2009            | 16.2                                     |  |  |
| TZ Cell 3 G2  | -  | 12/15/2009            | 26.3                                     |  |  |
| TZ Cell 3 G3  | -  | 12/15/2009            | 26.6                                     |  |  |
| TZ Cell 3 G4  | -  | 12/15/2009            | 15.8                                     |  |  |
| TZ Cell 3 G5  | -  | 12/15/2009            | 17.8                                     |  |  |
|   |  |                       | e esta esta esta esta esta esta esta est |  |  |
| TZ Cell 4 G1  | -  | 12/15/2009            | 18                                       |  |  |
| TZ Cell 4 G2  | -  | 12/15/2009            | 39.7                                     |  |  |
| TZ Cell 4 G3  | -  | 12/15/2009            | 9.49                                     |  |  |
| TZ Cell 4 G4  | -  | 12/15/2009            | 16.1                                     |  |  |
| TZ Cell 4 G5  | -  | 12/15/2009            | 31                                       |  |  |
|   | Statute 5                                |                       |  |  |  |

#### 2009 CONCENTRATIONS OF CHLORIDE IN THE TREATMENT ZONE

#### SOUTHERN UNION GAS SERVICES SOUTHERN UNION LAND FARM LEA COUNTY, NEW MEXICO NMOCD Permit #NM-02-19

|   | SAMPLE                                   |  | EPA 300                                   |
|---|--|--|---|
| SAMPLE LOCATION   | DEPTH<br>(bgs)                           | SAMPLE<br>DATE   | Chloride<br>(mg/Kg)                       |
| TZ Cell 8 G1  | -  | 12/15/2009   | 2,050                                     |
| TZ Cell 8 G2  | -  | 12/15/2009   | <10.4                                     |
|   |  |  |   |
| TZ Cell 7 G1  | -  | 12/15/2009   | 17.1                                      |
| ان از این می وادی<br>این از این می وادی<br>مرکز این می وادی   |  |  | 1. A. |
| TZ Cell 5 G1  | -  | 12/15/2009   | <4.28                                     |
| and   |  |  |   |
| TZ Cell 6 G1  | -  | 12/15/2009   | <20.6                                     |
| TZ Cell 6 G2  | -  | 12/15/2009   | 36.5                                      |
|   | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 | and a second sec | A war i de ch                             |
| TZ Cell 9 G1  | -  | 12/15/2009   | 156                                       |
| TZ Cell 9 G2  | -  | 12/15/2009   | 152                                       |
| TZ Cell 9 G3  | -  | 12/15/2009   | 58.6                                      |
| TZ Cell 9 G4  | -  | 12/15/2009   | 43.5                                      |
| TZ Cell 9 G5  | -  | 12/15/2009   | 81.6                                      |
| and the state of the |  |  |   |
| TZ Cell 10 G1   | -  | 12/15/2009   | 9.63                                      |
| TZ Cell 10 G2   | -  | 12/15/2009   | 11.9                                      |
| TZ Cell 10 G3   | -  | 12/15/2009   | 9.06                                      |
| TZ Cell 10 G4   | -  | 12/15/2009   | 10  |
| A STATES  |  |  |   |
| TZ Cell 15 G1   | -  | 12/15/2009   | <46.9                                     |
| 5, 3, 3, 8, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,  |  | e  |   |
| TZ Cell 11 G1   | -  | 12/15/2009   | 128                                       |
| TZ Cell 11 G2   | -  | 12/15/2009   | 161                                       |
|   | The State Alle                           | a marana a stati   | To and a start of                         |
| TZ Cell 12 G1   | -  | 12/15/2009   | <22.6                                     |
| بالمربة الرهمينية في المحالية وبوع الموالية المعودة المعودة المعودة المعودة المعودة المعودة المعودة ا           |  | A. 2. 3. 4   |   |
| TZ Cell 13 G1   | -  | 12/15/2009   | 291                                       |
|   | 3  | 1. <b>1.</b> 1. 1. 1.  |   |

Page 2 of 2

# CHLORIDE FIELD TEST RESULTS

# SOUTHERN UNION GAS SERVICES SOUTHERN UNION LAND FARM LEA COUNTY, NEW MEXICO NMOCD PERMIT #NM-02-19

|  | SAMPLE  |                |                | Hach Quantab     |
|--|---|----------------|----------------|------------------|
| SAMPLE<br>LOCATION   | DEPTH<br>(Below Ground<br>Surface)  | SAMPLE<br>DATE | SOIL<br>STATUS | CHLORIDE (mg/Kg) |
| #1   | 6"  | 11/25/2010     | In-Situ        | ND               |
| #2   | 6"  | 11/25/2010     | In-Situ        | ND               |
|  | a share and a second |                |                |                  |
| #1   | 6"  | 11/26/2010     | In-Situ        | ND               |
| #2   | 6"  | 11/26/2010     | In-Situ        | ND               |
| #3   | 6"  | 11/26/2010     | In-Situ        | ND               |
| #4   | 6"  | 11/26/2010     | In-Situ        | ND               |
| #5   | 6"  | 11/26/2010     | In-Situ        | ND               |
| #6   | 6"  | 11/26/2010     | In-Situ        | ND               |
| and the second sec |   |                |                |                  |

# CONCENTRATIONS OF CHLORIDE IN THE VADOSE ZONE

## SOUTHERN UNION GAS SERVICES SOUTHERN UNION LAND FARM LEA COUNTY, NEW MEXICO NMOCD PERMIT #NM-02-19

| SAMPLE LOCATION              | SAMPLE<br>DEPTH<br>(BGS) | SAMPLE<br>DATE | SOIL<br>STATUS | E 300<br>CHLORIDE<br>(mg/Kg) |
|------------------------------|--------------------------|----------------|----------------|------------------------------|
| VZ Cell 8 G-1 Confirmation 1 | 6"                       | 11/30/2010     | In-situ        | 78                           |
| VZ Cell 8 G-1 Confirmation 2 | 6"                       | 11/30/2010     | In-situ        | 66.7                         |
| VZ Cell 8 G-1 Confirmation 3 | 6"                       | 11/30/2010     | In-situ        | 32                           |
| VZ Cell 8 G-1 Confirmation 4 | 6"                       | 11/30/2010     | In-situ        | 32.2                         |
| VZ Cell 8 G-1 Confirmation 5 | 6"                       | 11/30/2010     | In-situ        | 87.2                         |
| VZ Cell 8 G-1 Confirmation 6 | 6"                       | 11/30/2010     | In-situ        | 82.7                         |
|                              |                          |                |                |                              |

Page 1 of 1



# HISTORIC CONCENTRATIONS OF HYDROCARBONS, CHLORIDES, SULFATES & ALKALINITY IN THE VADOSE ZONE

## SOUTHERN UNION GAS SERVICES SOUTHERN UNION LANDFARM LEA COUNTY, NEW MEXICO

|                     |                |                | METHOD: EPA SW 846-8021B, 5030 |        |                   |                 |           |               |  | METHOD: 8015M                           |   |  |  |
|---------------------|----------------|----------------|--------------------------------|--------|-------------------|-----------------|-----------|---------------|--|---|---|--|--|
| SAMPLE LOCATION     | DEPTH<br>(BGS) | SAMPLE<br>DATE | BENZEN<br>E (ma/Ka)            |        | ETHYL-<br>BENZENE | M.P<br>XYLENES  | O-XYLENES | TOTAL<br>BTEX | GRO<br>C <sub>6</sub> -C <sub>12</sub> | DRO<br>C <sub>12</sub> -C <sub>28</sub> | ORO<br>C <sub>28</sub> -C <sub>35</sub> | ТРН<br>С <sub>6</sub> -С <sub>35</sub> |  |
|                     | (000)          | ,,             | E (mg/r/g/                     | (      | (mg/Kg)           | (mg/Kg)         | (mg/Kg)   | (mg/Kg)       | (mg/Kg)                                | (mg/Kg)                                 | (mg/Kg)                                 | (mg/Kg)                                |  |
| Landfarm Background | 2'             | 4/11/2001      | <0.025                         | <0.025 | <0.025            | <0.025          | <0.025    | <0.025        | -                                      | -                                       | -                                       | 134.0                                  |  |
|                     | 19 18 18 C 19  |                |                                |        |                   | 12 20 14 14 A 4 |           |               |  |   |   |  |  |

| SAMPLE LOCATION     | SAMPLE<br>DEPTH<br>(BGS)            | SAMPLE<br>DATE | SODIUM<br>(mg/Kg) | CALCIUM<br>(mg/Kg) | MAGNESIUM<br>(mg/Kg) | POTASSIUM<br>(mg/Kg) | CHLORIDE<br>(mg/Kg) | SULFATE<br>(mg/Kg) | CARBONATE<br>(mg/Kg) | BICARBONATE<br>(mg/Kg)  |  |
|---------------------|-------------------------------------|----------------|-------------------|--------------------|----------------------|----------------------|---------------------|--------------------|----------------------|---|--|
| Landfarm Background | ndfarm Background 2' 4/11/2001 14.4 |                | 14.4              | 73.54 8.54         |                      | 11.24 <10            |                     | 35.2               | <1.0                 | 140   |  |
|                     |                                     | 2.             |                   |                    | 4592                 |                      | 196<br>1            |                    |                      | ومی<br>از می از این میلی و از این |  |

# Laboratory Analytical Reports

# Analytical Report 399257

# for

# Southern Union Gas Services- Monahans

# **Project Manager: Rose Slade**

# Southern Union Gas Landfarm

## 10-DEC-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



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#### 10-DEC-10

Project Manager: **Rose Slade Southern Union Gas Services- Monahans** 1507 W. 15th Street Monahans, TX 79756

Reference: XENCO Report No: 399257 Southern Union Gas Landfarm Project Address: Lea County, NM

#### Rose Slade:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 399257. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 399257 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II Odessa Laboratory Manager

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# Sample Cross Reference 399257

# Southern Union Gas Services- Monahans, Monahans, TX

Southern Union Gas Landfarm

| Matrix | Date Collected                            | Sample Depth  | Lab Sample Id  |
|--------|---|---|--|
| S      | Nov-30-10 10:00                           |   | 399257-001   |
| S      | Nov-30-10 10:30                           |   | 399257-002   |
| S      | Nov-30-10 11:00                           |   | 399257-003   |
| S      | Nov-30-10 11:30                           |   | 399257-004   |
| S      | Nov-30-10 12:00                           |   | 399257-005   |
| S      | Nov-30-10 12:30                           |   | 399257-006   |
|        | Matrix<br>S<br>S<br>S<br>S<br>S<br>S<br>S | Matrix         Date Collected           S         Nov-30-10 10:00           S         Nov-30-10 10:30           S         Nov-30-10 11:00           S         Nov-30-10 11:30           S         Nov-30-10 12:00           S         Nov-30-10 12:30 | Matrix         Date Collected         Sample Depth           S         Nov-30-10 10:00         S           S         Nov-30-10 10:30         S           S         Nov-30-10 11:00         S           S         Nov-30-10 11:00         S           S         Nov-30-10 12:00         S           S         Nov-30-10 12:30         S |



# CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: Southern Union Gas Landfarm



Project ID: Work Order Number: 399257 Report Date: 10-DEC-10 Date Received: 12/03/2010

# Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None



**Project Id:** 

Contact: Rose Slade

Project Location: Lea County, NM

# Certificate of Analysis Summary 399257

Southern Union Gas Services- Monahans, Monahans, TX



Project Name: Southern Union Gas Landfarm

Date Received in Lab: Fri Dec-03-10 01:45 pm

Report Date: 10-DEC-10

. . .

|                           |            |                  |                 |                  |            |                  |            | I I Uject Ma     | uager.     | Dicit Ballon,    | 11         |                  |            |
|---------------------------|------------|------------------|-----------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
|                           | Lab Id:    | · 399257-0       | 01              | 399257-0         | 02         | 399257-0         | 03         | 399257-0         | 04         | 399257-0         | 05         | 399257-0         | 06         |
| Analysis Deguested        | Field Id:  | VZ Cell 8 G-1 Co | nfirmation      | VZ Cell 8 G-1 Co | nfirmation | VZ Cell 8 G-1 Co | nfirmation | VZ Cell 8 G-1 Co | nfirmation | VZ Cell 8 G-1 Co | nfirmation | VZ Cell 8 G-1 Co | nfirmation |
| Anulysis Kequesieu        | Depth:     |                  |                 |                  |            |                  |            |                  |            |                  |            |                  |            |
|                           | Matrix:    | SOIL             |                 | SOIL             |            | SOIL             |            | SOIL             |            | SOIL             |            | SOIL             |            |
|                           | Sampled:   | Nov-30-10        | Nov-30-10 10:00 |                  | 10:30      | Nov-30-10        | 11:00      | Nov-30-10        | 11:30      | Nov-30-10        | 12:00      | Nov-30-10 12:30  |            |
| Anions by E300            | Extracted: |                  |                 |                  |            |                  |            |                  |            |                  |            |                  |            |
|                           | Analyzed:  | Dec-06-10        | 16:02           | Dec-06-10 16:02  |            |
|                           | Units/RL:  | mg/kg            | RL              | mg/kg            | RL         | mg/kg            | RL         | mg/kg            | RL         | mg/kg            | RL         | mg/kg            | RL         |
| Chloride                  |            | 78.0             | 8.70            | 66.7             | 8.72       | 32.0             | 8.65       | 32.2             | 8.78       | 87.2             | 8.93       | 82.7             | 8.83       |
| Percent Moisture          | Extracted: |                  |                 |                  |            |                  |            |                  |            |                  |            |                  |            |
| Analyzed: Dec-06-10 12:55 |            | Dec-06-10        | 2:55            | Dec-06-10 1      | 2:55       | Dec-06-10        | 12:55      | Dec-06-10        | 12:55      | Dec-06-10        | 12:55      |                  |            |
|                           | Units/RL:  | %                | RL              | %                | RL         | %                | RL         | %                | RL         | %                | ŔL         | %                | RL         |
| Percent Moisture          |            | 3.40             | 1.00            | 3.65             | 1.00       | 2.93             | 1.00       | 4.38             | 1.00       | 5.92             | 1.00       | 4.86             | 1.00       |

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the beet judgment of XENCO Laboratorics. XENCO Laboratorics assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Brent Barron, II

Odessa Laboratory Manager

Page 5 of 11



# Flagging Criteria

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the MQL and above the SQL.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.

**JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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| 305) 823-8500 | (305) 823-8555 |
| 432) 563-1800 | (432) 563-1713 |
| 361 884-0371  | (361) 884-9116 |



**BS / BSD Recoveries** 



# Project Name: Southern Union Gas Landfarm

| Work Order #: 399257<br>Analyst: LATCOR<br>Lab Batch ID: 834914 Sample | D<br>: 834914-1-BKS           | ate Prepar<br>Batcl | ed: 12/06/20             | 10                   |                |   | Pro<br>Date A          | ject ID:<br>nalyzed: 1<br>Matrix: S | 2/06/2010<br>Solid      |                           |      |
|--|-------------------------------|---------------------|--------------------------|----------------------|----------------|---|------------------------|-------------------------------------|-------------------------|---------------------------|------|
| Units: mg/kg   | BLAN                          | K/BLANK             | SPIKE / F                | BLANK S              | PIKE DUPI      | ICATE                                     | RECOVE                 | ERY STUD                            | ŶY                      |                           |      |
| Anions by E300   | Blank<br>Sample Result<br>[A] | Spike<br>Added      | Blank<br>Spike<br>Result | Blank<br>Spike<br>%R | Spike<br>Added | Blank<br>Spike<br>Duplicate<br>Desult (El | Blk. Spk<br>Dup.<br>%R | RPD<br>%                            | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
| Analytes   |                               | [B]                 | [C]                      | [0]                  | [E]            | Result [F]                                | [G]                    |                                     |                         |                           |      |
| Chloride   | ND                            | 10.0                | 10.5                     | 105                  | 10             | 10.3                                      | 103                    | 2                                   | 75-125                  | 20                        |      |

8 Acr 30

Relative Percent Difference RPD = 200\*|(C-F)/(C+F)|Blank Spike Recovery [D] = 100\*(C)/[B]Blank Spike Duplicate Recovery [G] = 100\*(F)/[E]All results are based on MDL and Validated for QC Purposes



# Form 3 - MS Recoveries



# Project Name: Southern Union Gas Landfarm

| Work Order #: 399257        |                                      |  | n                              | • • • • • • |                         |      |
|-----------------------------|--------------------------------------|--|--------------------------------|-------------|-------------------------|------|
| Lab Batch #: 834914         | 10/0                                 | Project ID:                            |                                |             |                         |      |
| Date Analyzed: 12/06/2010   | Date Prepared: 12/0                  | e Prepared: 12/06/2010 Analyst: LATCOR |                                |             |                         |      |
| QC- Sample ID: 399253-003 S | Batch #: 1                           | Batch #: 1 Matrix: Soil                |                                |             |                         |      |
| Reporting Units: mg/kg      | MATRIX / MATRIX SPIKE RECOVERY STUDY |  |                                |             |                         |      |
| Inorganic Anions by EPA 300 | Parent<br>Sample<br>Result           | Spike<br>Added                         | Spiked Sample<br>Result<br>[C] | %R<br>[D]   | Control<br>Limits<br>%R | Flag |
| Analytes                    | [A]                                  | [B]                                    |                                |             |                         |      |
| Chloride                    | . ND                                 | 221                                    | 202                            | 91          | 75-125                  |      |

tatrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative Percent Difference [E] = 200\*(C-A)/(C+B).Il Results are based on MDL and Validated for QC Purposes

**NRL** - Below Reporting Limit

٠,



Sample Duplicate Recovery



# Project Name: Southern Union Gas Landfarm

Work Order #: 399257

| Lab Batch #: 834914<br>Date Analyzed: 12/06/2010 16:02 Date Prepa<br>OC- Sample ID: 399253-003 D Bat   | Project ID:<br>Date Prepared: 12/06/2010 Analyst: LATCOR<br>Batch #: 1 Matrix: Soil |                                      |                      |                           |       |
|--|---|--------------------------------------|----------------------|---------------------------|-------|
| Reporting Units: mg/kg   | SAMPLE  | SAMPLE                               | DUPLIC               | ATE REC                   | OVERY |
| Anions by E300   | Parent Sample<br>Result<br>[A]  | Sample<br>Duplicate<br>Result<br>[B] | RPD                  | Control<br>Limits<br>%RPD | Flag  |
| Chloride   | ND  | ND                                   | NC                   | 20                        |       |
| Lab Batch #:         834602           Date Analyzed:         12/06/2010         12:55         Date Prepare           QC- Sample ID:         399253-003 D         Bat | ared: 12/06/2010<br>ch #: 1   | ) Anal<br>Mat                        | yst:JLG<br>rix: Soil |                           |       |
| Reporting Units: %   | SAMPLE / SAMPLE DUPLICATE RECOVERY  |                                      |                      |                           |       |
| Percent Moisture<br>Analyte  | Parent Sample<br>Result<br>[A]  | Sample<br>Duplicate<br>Result<br>[B] | RPD                  | Control<br>Limits<br>%RPD | Flag  |
| Percent Moisture   | 9.60  | 10.8                                 | 11                   | 20                        |       |

Spike Relative Difference RPD 200 \* | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit

#### **Environmental Lab of Texas** CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST 12600 West I-20 East Phone: 432-563-1800 Fax: 432-563-1713 Odessa, Texas 79765 Project Manager: Project Name: Southern Union Gas Landfarm Ben Arguijo Company Name **Basin Environmental Services Technologies** Project #: Company Address: P.O. Box 301 Project Loc: Lea County, NM ESA-SUP-37954 PO #: City/State/Zip: Lovington, NM 88260 Report Format: X Standard NPDES TRRP **Telephone No:** (575) 396-2378 (575) 396-1429 Fax No: Sampler Signature: pm@basinenv.com e-mail: Analyze For: (lab use only) TCLP: 2 X TOTAL 299257 ĝ ORDER #: Preservation & # of Containers Matrix BTEX 8024B/6030 or BTEX 8260 Aetals: As Ag Ba Cd Cr Pb Hg Se z Chlorid 801 뒿 1006 RUSH TAT (Pre-Schedule) vrions (CI, SO4, Alkalinity) Standard TAT 4 DAY (Aluo ž Cations (Ca. Mg. Na, K) Beginning Depth Groundwater **Fime Sampled** Date Sampled Depth 080 CEC Non-Potable TX 1005 Other (Specify Inking 418.1 300 # (lab ( fotal #. of Co Semivolatiles ield Filtered SAR / ESP Ending Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> None N.O.R.M. Volatiles HCI H,SO, NaOH HNO<sub>3</sub> 1 Ë AB F ىلا ŝ § FIELD CODE х Х VZ Cell 8 G1 Confirmation 1 11/30/10 1000 1 X SOIL X Х 7 VZ Cell 8 G1 Confirmation 2 11/30/10 1030 1 X SOIL Х Х 2 VZ Cell 8 G1 Confirmation 3 11/30/10 1100 1 Х SOIL Х ū X VZ Cell 8 G1 Confirmation 4 1 Х SOIL 11/30/10 1130 5 X Х х VZ Cell 8 G1 Confirmation 5 1 SOIL 11/30/10 1200 ¥ X VZ Cell 8 G1 Confirmation 6 X SOIL 11/30/10 1230 1 Special Instructions: Laboratory Comments: 8-4U Ν Sample Containers Intact? ₩<del>A</del> VOCs Free of Headspace? Relinguished by: Date Time Received b Date Time Labels on container(s) N Custody seals on container(s) 12 31 0715 "0 07/5 N Custody seals on cooler(s) N Sample Hand Delivered **l**ime Relinquish N by Sampler/Client Rep. ? 15+0 FedEx Lone Star UPS DHL by Courier? HOZ 01255 Dat Time °C 13 :45



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Document Title: Sample Receipt Checklist Document No.: SYS-SRC Revision/Date: No. 01, 5/27/2010 Effective Date: 6/1/2010 Page 1 of 1

Phoenix, San Antonio, Tampa

# Prelogin / Nonconformance Report - Sample Log-In

| client: Basin Environmental |          |
|-----------------------------|----------|
| Date/Time: 12/3/10 1:45     | · .      |
| Lab ID #: 399257            | <u> </u> |
| Initials: XM                |          |
| •                           |          |

# Sample Receipt Checklist

|   |        |            | No           |    |
|---|--------|------------|--------------|----|
| 1. Samples on ice?  | Blue   | (water)    | NO           |    |
| 2. Shipping container in good condition?                            | Tes    | <u> No</u> | None         |    |
| 3. Custody seals intact on shipping container (cooler) and bottles? |        | > No       | N/A          |    |
| 4. Chain of Custody present?  | Tes    | B No       |              |    |
| 5. Sample instructions complete on chain of custody?                | Yes    | No         |              |    |
| 6. Any missing / extra samples?                                     |        | No         |              |    |
| 7. Chain of custody signed when relinquished / received?            |        | No         |              |    |
| 8. Chain of custody agrees with sample label(s)?                    |        | No         |              |    |
| 9. Container labels legible and intact?                             |        | No         |              |    |
| 10. Sample matrix / properties agree with chain of custody?         | Yes    | No ·       |              |    |
| 11. Samples in proper container / bottle?                           | Cyes   | ) No       |              |    |
| 12. Samples property preserved?                                     |        | No         | N/A          |    |
| 13. Sample container intact?  |        | No         |              |    |
| 14. Sufficient sample amount for indicated test(s)?                 |        | No         |              |    |
| 15. All samples received within sufficient hold time?               |        | No         |              |    |
| 16. Subcontract of sample(s)?                                       |        | s No       | N/A          |    |
| 17. VOC sample have zero head space?                                |        | s No       | NA           |    |
| 18. Cooler 1 No. Cooler 2 No. Cooler 3 No.                          | Cooler | 4 No.      | Cooler 5 No. | ,  |
| lbs () °C lbs °C lbs  | °C     | ibs °C     | ibs          | ວິ |

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# Photographs



Southern Union Landfarm: Cell 8 - Grid 1



Removal of chloride-impacted soil from Cell 8 - Grid 1



Loading of chloride-impacted material from Cell 8 - Grid 1



Grid 8 – Cell 1 following removal of chloride-impacted material (Sample locations marked with green flags)

# Request for Approval to Accept Solid Waste (Form C-138)

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

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State of New Mexico **Energy Minerals and Natural Resources** 

Form C-138 Revised March 12, 2007

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

\*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

# **REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE**

1. Generator Name and Address: Southern Union Gas Services, Ltd 1507 W. 15th Street Monahans, Texas 79756

#### **Originating Site:** Various environmental remediation sites deposited in the western % of Landfarm Cell #8

3 Location of Material (Street Address, City, State or ULSTR): Western % of Landfarm Cell #8, Located in Unit Letter Unit "F", Section 36, Township 23 South, Range 36 East, NMPM, in rural Lea County, New Mexico:

4 Source and Description of Waste:

Waste is hydrocarbon and chloride impacted soil deposited in western 1/2 of Cell #8 of Southern Union Gas Services, Ltd Landfarm. Analytical results obtained during December 2009 biannual sampling event indicated soil contained within the western ½ of Cell #8 exhibited chloride concentrations in excess of the NMOCD permitted concentration. Subject soil was transported to the landfill with NMOCD approval.

Estimated Volume 1,500 yd<sup>3</sup> / bbls Known Volume (to be entered by the operator at the end of the haul) yd<sup>3</sup>/bbls GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS 5 I, Rose Slade

, representative or authorized agent for Southern Union Gas Services, Ltd

do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with nonexempt waste. Operator Use Only: Waste Acceptance Frequency O Monthly O Weekly O Per Load

RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

□ MSDS Information □ RCRA Hazardous Waste Analysis □ Process Knowledge □ Other (Provide description in Box 4)

## **GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS**

, representative for do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

Transporter: 5. Basin Environmental Services Technologies, LLC Lovington, New Mexico **OCD** Permitted Surface Waste Management Facility Name and Facility Permit #: Sundance Services, Inc. (NM-01-003) Address of Facility: PO Box 1737, Eunice, New Mexico 88231 Method of Treatment and/or Disposal: Evaporation Injection Treating Plant Landfarm Kandfill Other Waste Acceptance Status: APPROVED **DENIED** (Must Be Maintained As Permanent Record) TITLE DATE: 12-3-10 PRINT NAME: CONNIE Komero SIGNATURE: Commie Romero TELEPHONE NO.: 578 394-