RESACA
OPERATING COMPANY

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Resaca Exploitation
Cooper Jal Unit
Corrective Action Plan

Subject Lease:
Cooper Jal Unit
Sec. 18 –T24S-R37E
Lea County, New Mexico

Prepared For:
New Mexico Oil Conservation Division
Hobbs District Office
And
Resaca Exploitation, Inc.
Mr. Marc Neatherlin

November 28, 2012

Reviewed w/ comments verbally transmitted
Geoffrey Leking
Environmental Specialist
NMOCD - DIST I
1/23/13

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30 025 11140

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APPENDICES:

1.0 PURPOSE

The purpose of this document is to summarize and define corrective action measures that will take place to mitigate any possible impairment as a result of an accidental release that occurred on June 24th, 2012 from a ruptured flow line at the Cooper Jal Unit well located in Section 18, T24S, R37E, Lea County, New Mexico.

This corrective action plan is being submitted to supplement the initial C-141 submitted to the New Mexico Oil Conservation Division (NMOCD) on July 2nd, 2012.

2.0 DESCRIPTION OF INCIDENT

On June 24th, 2012 at approximately 0900 hours, a four (4) inch fiberglass line ruptured, resulting in the release of approximately one hundred twenty-five (125) to one hundred thirty-five (135) barrels of oil and produced water. The line runs south from the Satellite #1 well to the Cooper Jal main battery. When the release was discovered, Resaca Operating Company cut a five (5) foot piece of back line out and replaced it with a new line. The release was then verbally reported to Mr. E. L. Gonzales of the NMOCD on June 24th, 2012. The initial Form C-141 was submitted to the NMOCD on July 2nd, 2011 by Mr. Marc Netherland, Operations Manager for Resaca Exploitation. The area of this release of oil and produced water is located just west of the Cooper Jal Unit #117 between the well head and its associated tank battery.

A copy of the initial NMOCD Form C-141 is reproduced as Appendix A. A general site diagram is attached as Appendix B. Site Ranking Information is included as Appendix C. Photographic documentation is presented as Appendix D. Material Safety Data Sheets are provided as Appendix E. The analytical laboratory results of the samples taken are attached as Appendix F.

3.0 GENERAL SITE CHARACTERISTICS

The location of the Cooper Jal Unit # 117 well is described as a producing oil and gas well. This location sits on Tonuco series soils. The Tonuco series is shallow to very shallow, excessively drained and is formed from coarse textured alluvium derived from mixed sources. It is on broad plains and alluvial fans with slopes of zero to five percent (0-5%). Average annual precipitation is approximately twelve inches (12") and the average annual air temperature is approximately sixty-three degrees Fahrenheit (63°F). The affected area consists of native plants and grasses.

4.0 CORRECTIVE ACTIONS

The process we propose to chemically remediate the affected area is as follows:

1) Collect minimum five point composite sample of the soil profile to a minimum depth of twelve inches (12") below ground surface and analyze for presence and concentrations of total petroleum hydrocarbons (TPH) and total chlorides.
2) Disk the affected area to a minimum depth of six to twelve inches (6"-12") below ground surface
3) Apply SoilSaver and I A Petro to affected areas (MSDS for each product is located in Appendix E)
4) Disk the affected area to a minimum depth of six to twelve inches (6"-12") below ground surface
5) Water the affected area provided the absence of rain
6) Collect minimum five point composite sample of the soil profile to a minimum depth of twelve inches (12") below ground surface and analyze for presence and concentrations of total petroleum hydrocarbons (TPH) and total chlorides.
7) Contour to minimize erosion
8) Seed with varietal mixture acceptable to landowner

5.0 CONCLUSION OF REMEDIATION

The remediation process will be complete once the affected areas have been tilled, remediated and confirmation samples, gathered from zero to twenty-four (0"-24") inches below the surface, show that chloride levels are below two hundred fifty (250) ppm and TPH levels are below five thousand (5000) ppm.

Upon completion of this project, the third party environmental consulting firm will draft notes of sample results during the remediation process, photographic documentation of activities with a final version of NMOCD form C-141 and submit to the NMOCD for successful closure of this Corrective Action Plan.

It is our opinion that the implementation of this corrective action plan will assist to ensure protection of fresh waters and public health to the environment.

Sincerely,

Marc Neatherlin - District Manager
Resaca Exploitation

APPENDIX A

NMOCD FORM C-141 (INITIAL)

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: Resaca Operating Company	Contact: Marc L Neatherlin
Address: 2505 Mowic Road Odessa, TX 79763	Telephone No.: 432-557-9480
Facility Name: Cooper Jal Unit	Facility Type:

Surface Owner: Kelly Myers	Mineral Owner	Lease No.: 30 025 11140

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	18	24	37					

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release: Oil & Water	Volume of Release: 125-135 BBLS / Volume Recovered: 55 BBLS
Source of Release: ruptured line	Date and Hour of Occurrence: 6/24 / Date and Hour of Discovery: 6/24/12
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? E.L. Gonzales
By Whom? Gilbert Romero	Date and Hour: 6/25/12 9:00 AM
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse: None

If a Watercourse was Impacted, Describe Fully.*

N/A

aw@1124

Describe Cause of Problem and Remedial Action Taken.* A 4" fiberglass line that runs south from SAT #1, to the CPF main battery Ruptured. Resaca operating Co. cut 5' piece of Bad line out and replaced with new. Had Vaccum Truck p/u 55-50 BBLS liquid.

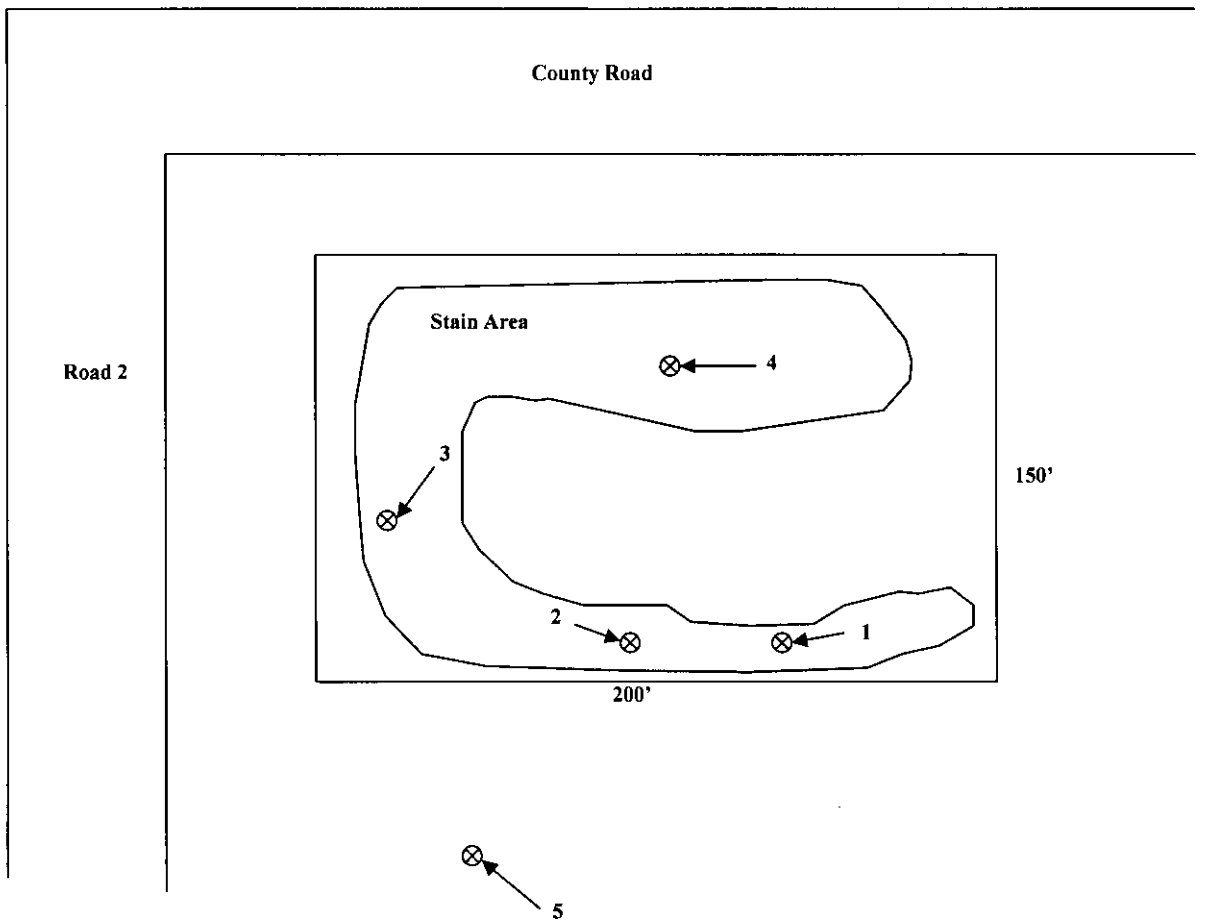
Describe Area Affected and Cleanup Action Taken.* We had 491,334 ft³ Affected area, we will Remediate Soil, with fertalizer and new soil. We will haul off all Affected Soil.

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: Marc L Neatherlin	Approved by District Supervisor:
Title: Operations Manager	Approval Date: / Expiration Date:
E-mail Address: marc.neatherlin@resacaexploration.com	Conditions of Approval: / Attached ☐
Date: 7/2/12 Phone: 432-557-9480	

* Attach Additional Sheets If Necessary

APPENDIX B
GENERAL SITE DIAGRAM



1. Soil Sample Area #1
2. Soil Sample Area #2
3. Soil Sample Area #3
4. Soil Sample Area #4
5. Background Soil Sample Area

* Stain Area is approximately 18' x 300'

ENVIRONMENTAL COMPLIANCE ASSOCIATES
10590 WESTOFFICE, SUITE 150
HOUSTON, TEXAS 77042
(713) 978-6700

N

TITLE: **Cooper Jal Unit**		
CLIENT: **Resaca Exploitation**		DATE: **November 2012**
LOCATION: **Lea County, New Mexico**		PREPARED BY: **TWE**
PROJECT NO.: **1112-02**		SCALE: **NONE**
LATITUDE: **32° 12' 38.3"**	LONGITUDE: **103° 12' 23.4"**	VIEW: **TOP**

APPENDIX C
SITE RANKING INFORMATION

GUIDELINES

FOR

REMEDIATION

OF

LEAKS, SPILLS AND RELEASES

(AUGUST 13, 1993)

New Mexico Oil Conservation Division
1220 S. ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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INTRODUCTION

The following document is to be used as a **guide** on all federal, state and fee lands when remediating contaminants resulting from leaks, spills and releases of oilfield wastes or products. The New Mexico Oil Conservation Division (OCD) requires that corrective actions be taken for leaks, spills or releases of any material which has a reasonable probability to injure or be detrimental to public health, fresh waters, animal or plant life, or property or unreasonably interfere with the public welfare or use of the property. These guidelines are intended to provide direction for remediation of soils and fresh waters contaminated as a result of leaks, spills or releases of oilfield wastes and products in a manner that assures protection of fresh waters, public health and the environment.

Fresh waters (to be protected) includes the water in lakes, playas, surface waters of all streams regardless of the quality of the water within any given reach, and all underground waters containing 10,000 milligrams per liter (mg/l) or less of total dissolved solids (TDS) except for which, after notice and hearing, it is found that there is no present or reasonably foreseeable beneficial use which would be impaired by contamination of such waters. The water in lakes and playas shall be protected from contamination even though it may contain more than 10,000 mg/l of TDS unless it can be shown that hydrologically connected fresh ground water will not be adversely affected.

Procedures may deviate from the following guidelines if it can be shown that the proposed procedure will either remediate, remove, isolate or control contaminants in such a manner that fresh waters, public health and the environment will not be impacted. Specific constituents and/or requirements for soil and ground water analysis and/or remediation may vary depending on site specific conditions. Deviations from approved plans will require OCD notification and approval.

****** Note:** **Notification to OCD of leaks, spills and releases does not relieve an operator of responsibility for compliance with any other federal, state or local law and/or regulation regarding the incident. Other agencies (ie. BLM, Indian Tribes, etc) may also have guidelines or requirements for remediation of leaks spills and releases.**

I. NOTIFICATION OF LEAK, SPILL OR RELEASE

Leaks, spills and releases of any wastes or products from oilfield operations are required to be reported to the OCD pursuant to OCD Rule 116 (Appendix A) or New Mexico Water Quality Control Commission (WQCC) Regulation 1-203 (Appendix B). Appendix C contains the phone numbers and addresses for reporting incidents to the OCD district and Santa Fe offices. Notification will include all information required under the respective rule or regulation. Below is a description of some of the information required:

A. RESPONSIBLE PARTY AND LOCAL CONTACT

The name, address and telephone number of the person/persons in charge of the facility/operation as well as the owner and/or operator of the facility/operation and a local contact.

B. FACILITY

The name and address of the facility or operation where the incident took place and the legal location listed by quarter-quarter, section, township and range, and by distance and direction from the nearest town or prominent landmark so that the exact site location can be readily located on the ground.

C. TIME OF INCIDENT

The date, time and duration of the incident.

D. DISCHARGE EVENT

A description of the source and cause of the incident.

E. TYPE OF DISCHARGE

A description of the nature or type of discharge. If the material leaked, spilled or released is anything other than crude oil, condensate or produced water include its chemical composition and physical characteristics.

F. QUANTITY

The known or estimated volume of the discharge.

G. SITE CHARACTERISTICS

The relevant general conditions prevailing at the site including precipitation, wind conditions, temperature, soil type, distance to nearest residence and population centers and proximity of fresh water wells or watercourse (ie. any river, lake, stream, playa, arroyo, draw, wash, gully or natural or man-made channel through which water flows or has flowed).

H. IMMEDIATE CORRECTIVE ACTIONS

Any initial response actions taken to mitigate immediate threats to fresh waters, public health and the environment.

II. INITIAL RESPONSE ACTIONS

Upon learning of a leak, spill or release of any material which has a reasonable probability to injure or be detrimental to public health, fresh waters, animal or plant life, or property or unreasonably interfere with the public welfare or use of the property, the responsible party (RP) should take the following immediate actions unless the actions could create a safety hazard which would result in a threat to personal or public injury:

A. SOURCE ELIMINATION AND SITE SECURITY

The RP should take the appropriate measures to stop the source of the leak, spill or release and limit access to the site as necessary to reduce the possibility of public exposure.

B. CONTAINMENT

Once the site is secure, the RP should take steps to contain the materials leaked, spilled or released by construction of berms or dikes, the use of absorbent pads or other containment actions to limit the area impacted by the event and prevent potential fresh water contaminants from migrating to watercourses or areas which could pose a threat to public health and safety.

C. SITE STABILIZATION

After containment, the RP should recover any products or wastes which can be physically removed from the surface within the containment area. The disposition of all wastes or products removed from the site must be approved by the OCD.

III. SITE ASSESSMENT

Prior to final closure (Section VIII), soils into which nonrecoverable products or wastes have infiltrated and which have a reasonable probability to injure or be detrimental to public health, fresh waters, animal or plant life, or property or unreasonably interfere with the public welfare or use of the property should be assessed for their potential environmental impacts and remediated according to the procedures contained in the following sections. Assessment results form the basis of any required remediation. Sites will be assessed for severity of contamination and potential environmental and public health threats using a risk based ranking system.

The following characteristics should be determined in order to evaluate a sites potential risks, the need for remedial action and, if necessary, the level of cleanup required at the site:

A. GENERAL SITE CHARACTERISTICS

1. Depth To Ground Water

The operator should determine the depth to ground water at each site. The depth to ground water is defined as the vertical distance from the lowermost contaminants to the seasonal high water elevation of the ground water. If the exact depth to ground water is unknown, the ground water depth can be estimated using either local water well information, published regional ground water information, data on file with the New Mexico State Engineer Office or the vertical distance from adjacent ground water or surface water.

2. Wellhead Protection Area

The operator should determine the horizontal distance from all water sources including private and domestic water sources. Water sources are defined as wells, springs or other sources of fresh water extraction. Private and domestic water sources are those water sources used by less than five households for domestic or stock purposes.

3. Distance To Nearest Surface Water Body

The operator should determine the horizontal distance to all downgradient surface water bodies. Surface water bodies are defined as perennial rivers, streams, creeks, irrigation canals and ditches, lakes, ponds and playas.

B. SOIL/WASTE CHARACTERISTICS

Soils/wastes within and beneath the area of the leak, spill or release should be evaluated to determine the type and extent of contamination at the site. In order to assess the level of contamination, observations should be made of the soils at the surface and samples of the impacted soils should be taken in the leak, spill or release area. Observations should note whether previous leaks, spills or releases have occurred at the site. Additional samples may be required to completely define the lateral and vertical extent of contamination. Soil samples should be obtained according to the sampling procedures in Sections V.A. and V.B. This may be accomplished using a backhoe, drill rig, hand auger, shovel or other means.

Initial assessment of soil contaminant levels is not required if an operator proposes to determine the final soil contaminant concentrations after a soil removal or remediation pursuant to section VI.A.

Varying degrees of contamination described below may co-exist at an individual site. The following sections describe the degrees of contamination that should be documented during the

assessment of the level of soil contamination:

1. **Highly Contaminated/Saturated Soils**

Highly contaminated/saturated soils are defined as those soils which contain a free liquid phase or exhibit gross staining.

2. **Unsaturated Contaminated Soils**

Unsaturated contaminated soils are defined as soils which are not highly contaminated/saturated, as described above, but contain benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH) or other potential fresh water contaminants unique to the leak, spill or release. Action levels and sampling and analytical methods for determining contaminant concentrations are described in detail in Sections IV. and V.

**** **(NOTE: Soils contaminated as a result of spills, leaks or releases of non-exempt wastes must be evaluated for all RCRA Subtitle C hazardous waste characteristics. The above definitions apply only to oilfield contaminated soils which are exempt from federal RCRA Subtitle C hazardous waste provisions and nonexempt oilfield contaminated soils which are characteristically nonhazardous according to RCRA Subtitle C regulations. Any nonexempt contaminated soils which are determined to be characteristically hazardous cannot be remediated using this guidance document and will be referred to the New Mexico Environment Department Hazardous Waste Program.)**

C. **GROUND WATER QUALITY**

If ground water is encountered during the soil/waste characterization of the impacted soils, a sample should be obtained to assess the incidents potential impact on ground water quality. Ground water samples should be obtained using the sampling procedures in Section V.C. Monitor wells may be required to assess potential impacts on ground water and the extent of ground water contamination, if there is a reasonable probability of ground water contamination based upon the extent and magnitude of soil contamination defined during remedial activities.

IV. SOIL AND WATER REMEDIATION ACTION LEVELS

A. **SOILS**

The sections below describe the OCD's recommended remediation action levels for soils contaminated with petroleum hydrocarbons. Soils contaminated with substances other than petroleum hydrocarbons may be required to be remediated based

upon the nature of the contaminant and it's potential to impact fresh waters, public health and the environment.

1. Highly Contaminated/Saturated Soils

All highly contaminated/saturated soils should be remediated insitu or excavated to the maximum extent practicable. These soils should be remediated using techniques described in Section VI.A to the contaminant specific level listed in Section IV.A.2.b.

2. Unsaturated Contaminated Soils

The general site characteristics obtained during the site assessment (Section III.A.) will be used to determine the appropriate soil remediation action levels using a risk based approach. Soils which are contaminated by petroleum constituents will be scored according to the ranking criteria below to determine their relative threat to public health, fresh waters and the environment.

a. Ranking Criteria

Depth To Ground Water	Ranking Score
<50 feet	20
50 - 99	10
>100	0

Wellhead Protection Area

<1000 feet from a water source,or;	
<200 feet from private domestic water source	
Yes	20
No	0

Distance To Surface Water Body

<200 horizontal feet	20
200 - 1000 horizontal feet	10
>1000 horizontal feet	0

b. Recommended Remediation Action Level

The total ranking score determines the degree of remediation that may be required at any given site. The total ranking score is the sum of all four individual ranking criteria listed in Section IV.A.2.a. The table below lists the remediation action level that may be required for the appropriate total ranking score.

(NOTE: The OCD retains the right to require remediation to more stringent levels than those proposed below if warranted by site specific conditions (ie. native soil type, location relative to population centers and future use of the site or other appropriate site specific conditions.)

	Total Ranking Score		
	>19	10 - 19	0 - 9
Benzene(ppm)*	10	10	10
BTEX(ppm)*	50	50	50
TPH(ppm)**	100	1000	5000

* A field soil vapor headspace measurement (Section V.B.1) of 100 ppm may be substituted for a laboratory analysis of the Benzene and BTEX concentration limits.

** The contaminant concentration for TPH is the concentration above background levels.

B. GROUND WATER

Contaminated ground water is defined as ground water of a present or foreseeable beneficial use which contains free phase products, dissolved phase volatile organic constituents or other dissolved constituents in excess of the natural background water quality. Ground water contaminated in excess of the WQCC ground water standards or natural background water quality will require remediation.

V. SOIL AND WATER SAMPLING PROCEDURES

Below are the sampling procedures for soil and ground water contaminant investigations of leaks, spills or releases of RCRA Subtitle C exempt oil field petroleum hydrocarbon wastes. Leaks, spills or releases of non-exempt RCRA wastes must be tested to demonstrate that the wastes are not characteristically hazardous according to RCRA regulations. Sampling for additional constituents may be required based upon the nature of the contaminant which was leaked, spilled or released.

A. HIGHLY CONTAMINATED OR SATURATED SOILS

The following method is used to determine if soils are highly contaminated or saturated:

1. Physical Observations

Study a representative sample of the soil for observable free petroleum hydrocarbons or immiscible phases and gross staining. The immiscible phase may range from a free hydrocarbon to a sheen on any associated aqueous phase. A soil exhibiting any of these characteristics is considered highly contaminated or saturated.

B. UNSATURATED CONTAMINATED SOILS

The following methods may be used for determining the magnitude of contamination in unsaturated soils:

1. Soil Sampling Procedures for Headspace Analysis

A headspace analysis may be used to determine the total volatile organic vapor concentrations in soils (ie. in lieu of a laboratory analysis for benzene and BTEX but not in lieu of a TPH analysis). Headspace analysis procedures should be conducted according to OCD approved industry standards or other OCD-approved procedures. Accepted OCD procedures are as follows:

a) Fill a 0.5 liter or larger jar half full of sample and seal the top tightly with aluminum foil or fill

a one quart zip-lock bag one-half full of sample and seal the top of the bag leaving the remainder of the bag filled with air.

b) Ensure that the sample temperature is between 15 to 25 degrees Celsius (59-77 degrees Fahrenheit).

c) Allow aromatic hydrocarbon vapors to develop within the headspace of the sample jar or bag for 5 to 10 minutes. During this period, the sample jar should be shaken vigorously for 1 minute or the contents of the bag should be gently massaged to break up soil clods.

d) If using a jar, pierce the aluminum foil seal with the probe of either a PID or FID organic vapor meter (OVM), and then record the highest (peak) measurement. If using a bag, carefully open one end of the bag and insert the probe of the OVM into the bag and re-seal the bag around the probe as much as possible to prevent vapors from escaping. Record the peak measurement. The OVM must be calibrated to assume a benzene response factor.

2. Soil Sampling Procedures For Laboratory Analysis

a. Sampling Procedures

Soil sampling for laboratory analysis should be conducted according to OCD approved industry standards or other OCD-approved procedures. Accepted OCD soil sampling procedures and laboratory analytical methods are as follows:

i) Collect samples in clean, air-tight glass jars supplied by the laboratory which will conduct the analysis or from a reliable laboratory equipment supplier.

ii) Label the samples with a unique code for each sample.

iii) Cool and store samples with cold packs or on ice.

iv) Promptly ship sample to the lab for analysis following chain of custody procedures.

v) All samples must be analyzed within the holding times for the laboratory analytical method specified by EPA.

b. Analytical Methods

All soil samples must be analyzed using EPA methods, or by other OCD approved methods and must

be analyzed within the holding time specified by the method. Below are laboratory analytical methods commonly accepted by OCD for analysis of soil samples analyzed for petroleum related constituents. Additional analyses may be required if the substance leaked, spilled or released has been anything other than petroleum based fluids or wastes.

i) Benzene, toluene, ethylbenzene and xylene

- EPA Method 602/8020

ii) Total Petroleum Hydrocarbons

- EPA Method 418.1, or;
- EPA Method Modified 8015

C. GROUND WATER SAMPLING

If an investigation of ground water quality is deemed necessary, it should be conducted according to OCD approved industry standards or other OCD-approved procedures. The following methods are standard OCD accepted methods which should be used to sample and analyze ground water at RCRA Subtitle C exempt sites (Note: The installation of monitor wells may not be required if the OCD approves of an alternate ground water investigation or sampling technique):

1. Monitor Well Installation/Location

One monitor well should be installed adjacent to and hydrologically down-gradient from the area of the leak, spill or release to determine if protectable fresh water has been impacted by the disposal activities. Additional monitor wells, located up-gradient and down-gradient of the leak, spill or release, may be required to delineate the full extent of ground water contamination if ground water underlying the leak, spill or release has been found to be contaminated.

2. Monitor Well Construction

a) Monitor well construction materials should be:

i) selected according to industry standards;

ii) chemically resistant to the contaminants to be monitored; and

iii) installed without the use of glues/adhesives.

b) Monitor wells should be constructed according to OCD approved industry standards to prevent migration of contaminants along the well casing. Monitor wells should be constructed with a minimum of fifteen

(15) feet of well screen. At least five (5) feet of the well screen should be above the water table to accommodate seasonal fluctuations in the static water table.

3. Monitor Well Development

When ground water is collected for analysis from monitoring wells, the wells should be developed prior to sampling. The objective of monitor well development is to repair damage done to the formation by the drilling operation so that the natural hydraulic properties of the formation are restored and to remove any fluids introduced into the formation that could compromise the integrity of the sample. Monitoring well development is accomplished by purging fluid from the well until the pH and specific conductivity have stabilized and turbidity has been reduced to the greatest extent possible.

4. Sampling Procedures

Ground water should be sampled according to OCD accepted standards or other OCD approved methods. Samples should be collected in clean containers supplied by the laboratory which will conduct the analysis or from a reliable laboratory equipment supplier. Samples for different analyses require specific types of containers. The laboratory can provide information on the types of containers and preservatives required for sample collection. The following procedures are accepted by OCD as standard sampling procedures:

a) Monitor wells should be purged of a minimum of three well volumes of ground water using a clean bailer prior to sampling to ensure that the sample represents the quality of the ground water in the formation and not stagnant water in the well bore.

b) Collect samples in appropriate sample containers containing the appropriate preservative for the analysis required. No bubbles or headspace should remain in the sample container.

c) Label the sample containers with a unique code for each sample.

d) Cool and store samples with cold packs or on ice.

e) Promptly ship sample to the lab for analysis following chain of custody procedures.

f) All samples must be analyzed within the holding times for the laboratory analytical method specified by EPA.

5. Ground Water Laboratory Analysis

Samples should be analyzed for potential ground water contaminants contained in the waste stream, as defined by the WQCC Regulations. All ground water samples must be analyzed using EPA methods, or by other OCD approved methods and must be analyzed within the holding time specified by the method. Below are OCD accepted laboratory analytical methods for analysis of ground water samples analyzed for petroleum related constituents. Additional analyses may be required if the substance leaked, spilled or release has been anything other than a petroleum based fluid or waste.

a. Analytical Methods

i.) Benzene, Toluene, Ethylbenzene and Xylene

- EPA Method 602/8020

ii.) Major Cations and Anions

- Various EPA or standard methods

iii.) Heavy Metals

- EPA Method 6010, or;
- Various EPA 7000 series methods

iv.) Polynuclear Aromatic Hydrocarbons

- EPA Method 8100

VI. REMEDIATION

The following discussion summarizes recommended techniques for remediation of contaminated soil and ground water as defined in Section IV.A. and IV.B. OCD approval for remediation of an individual leak, spill or release site is not required if the company is operating under an OCD approved spill containment plan. All procedures which deviate from the companies spill containment plan must be approved by OCD.

A. SOIL REMEDIATION

When RCRA Subtitle C exempt or RCRA nonhazardous petroleum contaminated soil requires remediation, it should be remediated and managed according to the criteria described below or by other OCD approved procedures which will remove, treat, or isolate contaminants in order to protect fresh waters, public health and the environment.

In lieu of remediation, OCD may accept an assessment of risk which demonstrates that the remaining contaminants will not pose a threat to present or foreseeable beneficial use of fresh waters, public health and the environment.

1. Contaminated Soils

Highly contaminated/saturated soils and unsaturated contaminated soils exceeding the standards described in Section IV.A. should be either:

a) Excavated from the ground until a representative sample from the walls and bottom of the excavation is below the contaminant specific remediation level listed in Section IV.A.2.b or an alternate approved remediation level, or;

b) Excavated to the maximum depth and horizontal extent practicable. Upon reaching this limit a sample should be taken from the walls and bottom of the excavation to determine the remaining levels of soil contaminants, or;

c) Treated in place, as described in Section VI.A.2.b.ii. - Treatment of Soil in Place, until a representative sample is below the contaminant specific remediation level listed in Section IV.A.2.b, or an alternate approved remediation level, or;

d) Managed according to an approved alternate method.

2. Soil Management Options

All soil management options must be approved by OCD. The following is a list of options for either on-site

treatment or off-site treatment and/or disposal of contaminated soils:

a. Disposal

Excavated soils may be disposed of at an off-site OCD approved or permitted facility.

b. Soil Treatment and Remediation Techniques

i. Landfarming

Onetime applications of contaminated soils may be landfarmed on location by spreading the soil in an approximately six inch lift within a bermed area. Only soils which do not contain free liquids can be landfarmed. The soils should be disced regularly to enhance biodegradation of the contaminants. If necessary, upon approval by OCD, moisture and nutrients may be added to the soil to enhance aerobic biodegradation.

In some high risk areas an impermeable liner may be required to prevent leaching of contaminants into the underlying soil.

Landfarming sites that will receive soils from more than one location are considered centralized sites and must be approved separately by the OCD prior to operation.

ii. Insitu Soil Treatment

Insitu treatment may be accomplished using vapor venting, bioremediation or other approved treatment systems.

iii. Alternate Methods

The OCD encourages alternate methods of soil remediation including, but not limited to, active soil aeration, composting, bioremediation, solidification, and thermal treatment.

B. GROUND WATER REMEDIATION

1. Remediation Requirements

Ground water remediation activities will be reviewed and approved by OCD on a case by case basis prior to commencement of remedial activities. When contaminated ground water exceeds WQCC ground water standards, it

should be remediated according to the criteria described below.

a. Free Phase Contamination

Free phase floating product should be removed from ground water through the use of skimming devices, total-fluid type pumps, or other OCD-approved methods.

b. Dissolved Phase Contamination

Ground water contaminated with dissolved phase constituents in excess of WQCC ground water standards can be remediated by either removing and treating the ground water, or treating the ground water in place. If treated waters are to be disposed of onto or below the ground surface, a discharge plan must be submitted and approved by OCD.

c. Alternate Methods

The OCD encourages other methods of ground water remediation including, but not limited to, air sparging and bioremediation. Use of alternate methods must be approved by OCD prior to implementation.

VII. TERMINATION OF REMEDIAL ACTION

Remedial action may be terminated when the criteria described below have been met:

A. SOIL

Contaminated soils requiring remediation should be remediated so that residual contaminant concentrations are below the recommended soil remediation action level for a particular site as specified in Section IV.A.2.b.

If soil action levels cannot practicably be attained, an evaluation of risk may be performed and provided to OCD for approval showing that the remaining contaminants will not pose a threat to present or foreseeable beneficial use of fresh water, public health and the environment.

B. GROUND WATER

A ground water remedial action may be terminated if all recoverable free phase product has been removed, and the concentration of the remaining dissolved phase contaminants in the ground water does not exceed New Mexico WQCC water quality standards or background levels. Termination of remedial action will be approved by OCD upon a demonstration of completion of remediation as described in above.

VIII. FINAL CLOSURE

Upon termination of any required remedial actions (Section VII.) the area of a leak, spill or release may be closed by backfilling any excavated areas, contouring to provide drainage away from the site, revegetating the area or other OCD approved methods.

IX. FINAL REPORT

Upon completion of remedial activities a final report summarizing all actions taken to mitigate environmental damage related to the leak, spill or release will be provided to OCD for approval.

APPENDIX D
PHOTOGRAPHIC DOCUMENTATION

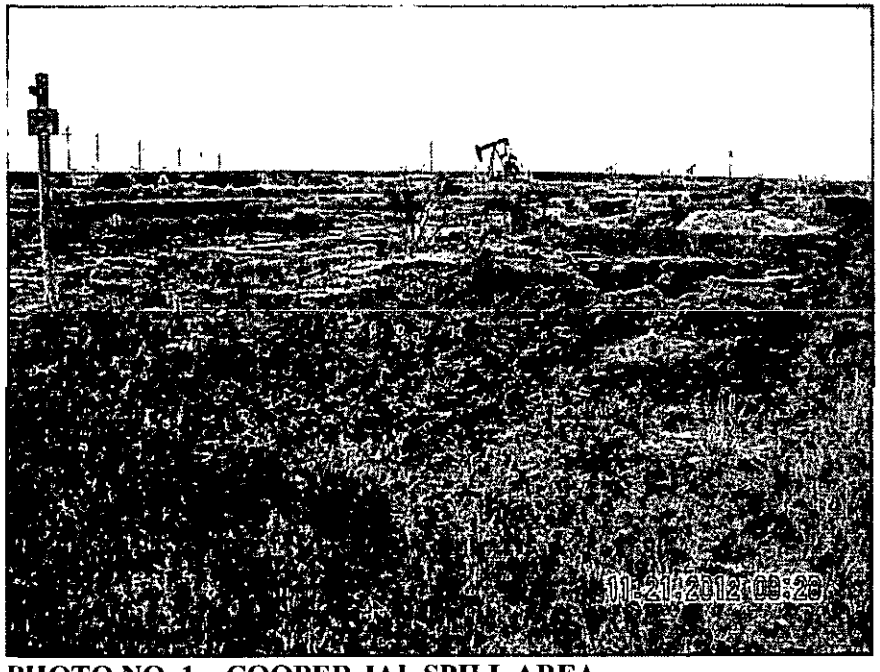

PHOTO NO. 1 – COOPER JAL SPILL AREA

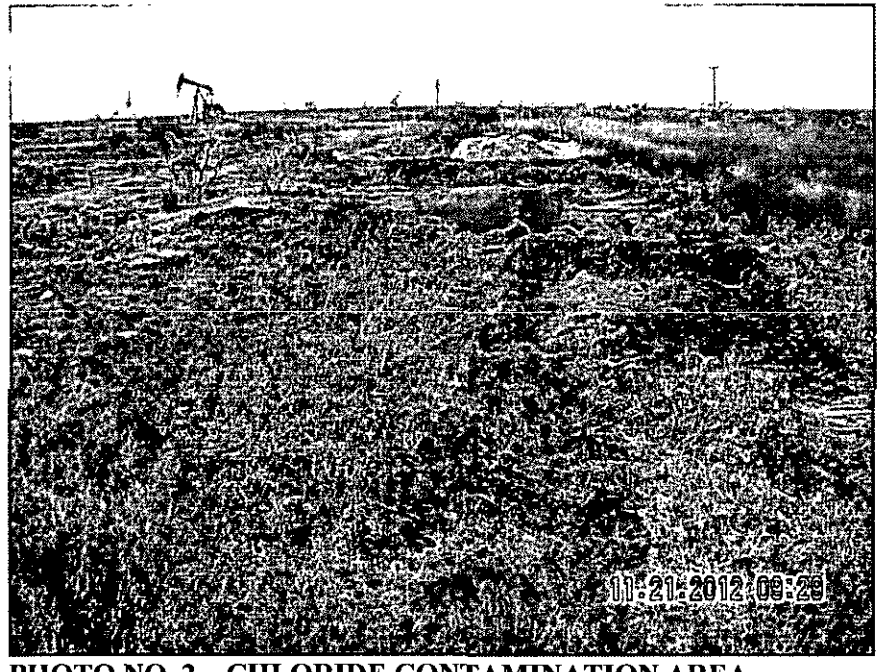

PHOTO NO. 2 – CHLORIDE CONTAMINATION AREA

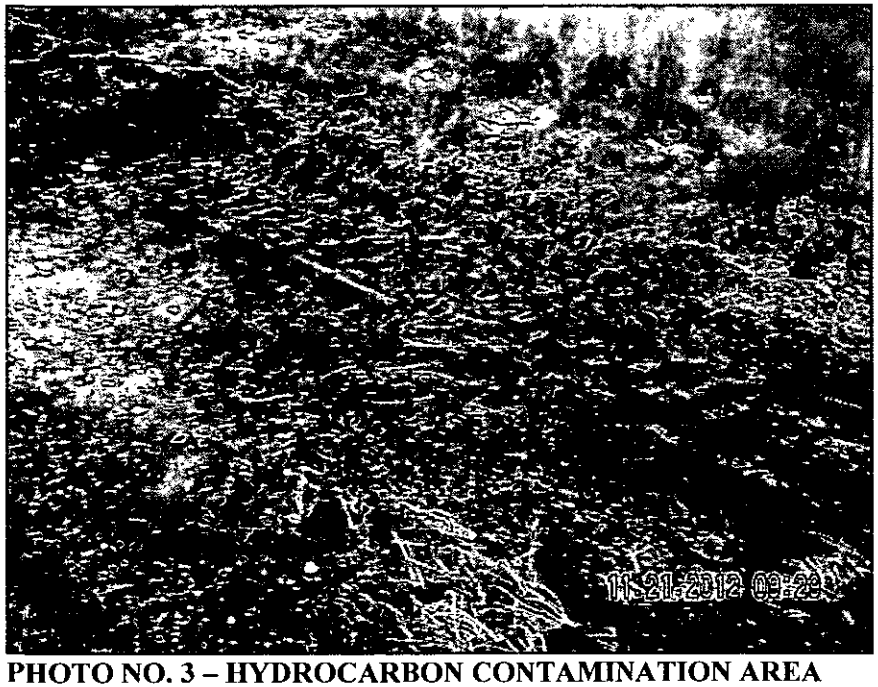

PHOTO NO. 3 – HYDROCARBON CONTAMINATION AREA

PHOTO NO. 4 – DISTRESSED VEGETATION AREA

APPENDIX E
MATERIAL SAFETY DATA SHEETS

NUGREEN SPECIALTY, INC.
MATERIAL SAFETY DATA SHEET

NUGREEN SPECIALTY - SB-1

SECTION 1 :==========IDENTIFICATION==========

Effective Date: 1/03/04 Revised: 01/03/04

Name and Address: Phone: (248)-330-9029

Emergency Phone: CHEMTREC (800)-424-9300

NUGREEN SPECIALTY, INC.
990 HIGHWAY 287 N, STE. 106
MANSFIELD, TX. 76063

Chemical Name:	NOT APPLICABLE
Synonyms:	NONE
D.O.T. Hazard Class:	PRODUCT IS NOT DOT REGULATED
D.O.T. Shipping Name:	PRODUCT IS NOT DOT REGULATED
Formula:	SEE SECTION II
Chemical Family:	N.A.
ID No.:	NONE
NFPA Profile:	Health 1; Flammability 0; Reactivity 0

SECTION 2 :==========INGREDIENTS==========

A. Hazardous Ingredients

	%	TLV
NONE KNOWN	N.A.	N.A.

B. Other Ingredients

	%*	TLV
INGREDIENTS NOT PRECISELY IDENTIFIED ARE NON-HAZARDOUS & PROPRIETARY. INGREDIENTS OF <1% HAVE BEEN ADDED TO A NON-HAZARDOUS LIQUID ORGANIC SUBSTRATE		
ACTIVE COMPONENTS: PROPRIETARY	>15%	NONE ESTAB.
ENZYME MIXTURE	<5%	NONE ESTAB.
WATER, CAS#7732-18-5	<85%	NONE ESTAB.

SECTION 3 :==========PHYSICAL PROPERTIES==========

Boiling Point:	~212°F	Specific Gravity:	~1.0
Percent Volatile (volume):	N.A.	pH (undiluted):	7.5-9.5
Vapor Pressure (mm Hg):	N.A.	Solubility in Water:	99%
Vapor Density (air=1):	N.A.	Evaporation Rate (water=1):	<1.0
Freezing Point	~0°F	Viscosity:	Similar to Water

Appearance and Odor: DARK BROWN/BLACK LIQUID, MILD EARTHY ODOR.

NUGREEN SPECIALTY, INC.
MATERIAL SAFETY DATA SHEET

NUGREEN SPECIATLY - SB-1

SECTION 4:==========FIRE AND EXPLOSION HAZARD DATA==========

Flash Point (method used): NOT APPLICABLE
Flammable Limits in Air (lower): N.A. (upper): N.A.

Extinguishing Media: SOLUTION IS NOT FLAMMABLE. IF INVOLVED IN A FIRE, USE WATER.

Special Fire Fighting Procedures: NONE. PRODUCT WILL NOT BURN.

Unusual Fire or Explosion Hazards: NONE. PRODUCT WILL NOT BURN.

SECTION 5:==========HEALTH HAZARD DATA==========

A. TLV and source: N.A.

B. Effects of a Single Overexposure by

1. Ingestion: MAY CAUSE SICKNESS IF INGESTED IN LARGE QUANTITIES.
2. Inhalation: LOW ORDER OF TOXICITY. MAY CAUSE MILD DISCOMFORT.
3. Skin Contact: SLIGHT REDNESS ON HANDS AND FORARMS IF INDIVIDUAL HAS HISTORY OF DERMAL ALLERGIC REACTIONS.
4. Eye Contact: MAY CAUSE MILD TRANSIENT IRRITATION.

C. Cancer Statement: THIS PRODUCT (OR ANY COMPONENT AT A CONCENTRATION OF 0.1% OR GREATER) IS NOT LISTED BY THE NTP, LARC, OSHA OR EPA AS A CARCINOGEN. IT ALSO CONTAINS NO KNOWN TERATOGENS, REPRODUCTIVE TOXINS OR SENSITIZERS.

D. Emergency and First Aid Procedure for

1. Ingestion: GIVE TWO GLASSES OF WATER. DO NOT INDUCE VOMITING GET PROMPT MEDICAL ATTENTION.
2. Inhalation: IMMEDIATELY REMOVE VICTIM FROM EXPOSURE. ADMINISTER ARTIFICIAL RESPIRATION IF BREATHING HAS STOPPED. KEEP AT REST. CALL FOR PROMPT MEDICAL ATTENTION.
3. Skin Contact: WASH WITH LARGE AMOUNTS OF WATER; USE SOAP IF AVAILABLE. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.
4. Eye Contact: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER UNTIL IRRITATION SUBSIDES. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

NUGREEN SPECIALTY, INC.
MATERIAL SAFETY DATA SHEET

NUGREEN SPECIALTY - SB-1

SECTION 6:==========PERSONNEL PROTECTION DATA==========

Respiratory Protection:	NOT NORMALLY REQUIRED. IF MISTED BY HEAT AGITATION OR SPRAY, USE A MIST RESPIRATOR APPROVED BY NIOSH. DO NOT USE SINGLE-USE TYPE.
Ventilation:	VENTILATION SHOULD BE PROVIDED TO CONTROL WORKER EXPOSURES AND PREVENT HEALTH RISK;
Protective Gloves:	CHEMICAL RESISTANT GLOVES.
Eye Protection:	GOGGLES OR SAFETY GLASSES WITH SIDE SHIELDS.
Other Protective Equipment:	EYEWASH STATION IN AREA OF USE.

SECTION 7:==========REACTIVITY DATA==========

Product Stability:	STABLE
Conditions to Avoid:	STRONG ACIDS OR ALKALI COMPOUNDS MAY INACTIVATE BIO CULTURES.
Incompatibility:	STRONG ACIDS OR ALKALI COMPOUNDS
Hazard Combustion or Decomposition Products:	N.A.
Hazardous Polymerization:	WILL NOT OCCUR.

SECTION 8:==========ACCIDENTAL RELEASE MEASURES==========

A. Water Spill: PREVENT ADDITIONAL DISCHARGE OF MATERIAL, IF POSSIBLE TO DO SO WITHOUT HAZARD. SINCE N-P-K IS A FERTILIZER, IT MAY PROMOTE ENTROPHICATION IN WATERWAYS. CONSULT AN EXPERT ON DISPOSAL OF RECOVERED MATERIAL, AND ENSURE CONFORMITY TO ALL FEDERAL, STATE, AND LOCAL DISPOSAL REGULATIONS.

B. Land Spill: PREVENT ADDITIONAL DISCHARGE OF MATERIAL, IF POSSIBLE TO DO SO WITHOUT HAZARD. FOR SMALL SPILLS, IMPLEMENT CLEANUP PROCEDURES; FOR LARGE SPILLS, IMPLEMENT CLEANUP PROCEDURES AND, IF IN PUBLIC AREA, ADVISE AUTHORITIES.
PREVENT LIQUID FROM ENTERING SEWERS, WATERCOURSES, OR LOW AREAS. CONTAIN SPILLED LIQUID WITH SAND OR EARTH.
RECOVER BY PUMPING OR WITH A SUITABLE ABSORBENT.
CONSULT AN EXPERT ON DISPOSAL OF RECOVERED MATERIAL AND ENSURE CONFORMITY TO ALL FEDERAL, STATE, AND LOCAL DISPOSAL REGULATIONS.

NUGREEN SPECIALTY, INC.
MATERIAL SAFETY DATA SHEET

NUGREEN SPECIALTY - SB-1

SECTION 9:==========SPECIAL PRECAUTIONS==========

A. Handling and Storage: KEEP CONTAINER CLOSED. BOTH OPEN AND HANDLE CONTAINERS WITH CARE. STORE IN A COOL, WELL VENTILATED PLACE AWAY FROM INCOMPATIBLE MATERIALS.

STORAGE TEMPERATURE: 0°F MIN TO 180°F MAX.
LOADING TEMPERATURE: 0°F MIN TO 180°F MAX.
STORAGE PRESSURE: ATMOSPHERIC

B. Other Precautions: NONE

SECTION 10:==========TOXICOLOGICAL INFORMATION==========

PLEASE CALL THE NON-EMERGENCY TELEPHONE NUMBER ON PAGE ONE IF THIS INFORMATION IS REQUIRED.

SECTION 11:==========ECOLOGICAL INFORMATION==========

PLEASE CALL THE NON-EMERGENCY TELEPHONE NUMBER ON PAGE ONE IF THIS INFORMATION IS REQUIRED.

The data contained in this Material Safety Data Sheet has been prepared based upon an evaluation of the ingredients contained in the product, their concentration in the product and potential interactions. The information is offered in good faith and is believed to be accurate. It is furnished to the customer who is urged to study it carefully to become aware of hazards, if any, in the storage, handling, use and disposal of the product; and to insure their employees are properly informed and advised of all safety precautions required. The information is furnished for compliance with the "Occupational Safety and Health Act" of 1970, the "Hazards Communication Act" of 1983 as well as various other Federal, State and Local regulations. Use or dissemination of all or part of this information for any other purpose is illegal.

APPENDIX F
ANALYTICAL LABORATORY RESULTS

Analytical Report 452891

for

Environmental Compliance Associates

Project Manager: Lloyd Stafford

1112-02 and 03

28-NOV-12

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

28-NOV-12

Project Manager: **Lloyd Stafford**
Environmental Compliance Associates
P.O.Box 770005
Houston, TX 77215

Reference: XENCO Report No: **452891**
1112-02 and 03
Project Address: Jal, NM

Lloyd Stafford:

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 452891. 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. The uncertainty of measurement associated with the results of analysis reported is available upon request. 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. 452891 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,

Nicholas Straccione
Project Manager

Sample Cross Reference 452891

Environmental Compliance Associates, Houston, TX

1112-02 and 03 .

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
LJ #1	S	11-21-12 08:55	6 In	452891-001
LJ #2	S	11-21-12 09:00	6 In	452891-002
LJ # BG	S	11-21-12 09:06	6 In	452891-003
CJ #1	S	11-21-12 07:47	2.5 In	452891-004
CJ #2	S	11-21-12 07:53	6 In	452891-005
CJ #6	S	11-21-12 08:00	6 In	452891-006
CJ #4	S	11-21-12 08:02	6 In	452891-007
CJ # BG	S	11-21-12 08:10	6 In	452891-008

CASE NARRATIVE

XENCO Laboratories

Client Name: Environmental Compliance Associates
Project Name: 1112-02 and 03

Project ID:
Work Order Number: 452891

Report Date: 28-NOV-12
Date Received: 11/21/2012

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 452891

Environmental Compliance Associates, Houston, TX

Project Name: 1112-02 and 03

Project Id:

Contact: Lloyd Stafford

Project Location: Jal, NM

Date Received in Lab: Wed Nov-21-12 11:45 am

Report Date: 28-NOV-12

Project Manager: Nicholas Straccione

Analysis Requested													
	Lab Id:	452891-001		452891-002		452891-003		452891-004		452891-005		452891-006	
	Field Id:	LJ #1		LJ #2		LJ # BG		CJ #1		CJ #2		CJ #6	
	Depth:	6- In		6- In		6- In		2.5- In		6- In		6- In	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Nov-21-12 08:55		Nov-21-12 09:00		Nov-21-12 09:06		Nov-21-12 07:47		Nov-21-12 07:53		Nov-21-12 08:00	
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Nov-23-12 15:30		Nov-23-12 16:04		Nov-23-12 16:38		Nov-23-12 16:55		Nov-23-12 17:13		Nov-23-12 18:04	
	Analyzed:	Nov-23-12 15:30		Nov-23-12 16:04		Nov-23-12 16:38		Nov-23-12 16:55		Nov-23-12 17:13		Nov-23-12 18:04	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		8940	124	10800	113	444	108	353	1.07	117	0.984	119	1.09
Percent Moisture	***Extracted:***												
	Analyzed:	Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		19.2	1.00	17.8	1.00	1.72	1.00	2.98	1.00	6.11	1.00	5.09	1.00
TPH By SW8015B Mod	***Extracted:***	Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00	
	Analyzed:	Nov-26-12 18:38		Nov-26-12 16:10		Nov-26-12 16:39		Nov-26-12 19:07		Nov-26-12 14:05		Nov-26-12 23:40	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		368	18.5	18.8	18.2	ND	15.2	ND	15.4	ND	15.9	ND	15.8
C10-C28 Diesel Range Hydrocarbons		3030	18.5	604	18.2	ND	15.2	3950	15.4	1750	15.9	190	15.8

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 452891

Environmental Compliance Associates, Houston, TX

Project Name: 1112-02 and 03

Project Id:

Contact: Lloyd Stafford

Project Location: Jal, NM

Date Received in Lab: Wed Nov-21-12 11:45 am

Report Date: 28-NOV-12

Project Manager: Nicholas Straccione

Analysis Requested													
	Lab Id:	452891-007		452891-008									
	Field Id:	CJ #4		CJ # BG									
	Depth:	6- In		6- In									
	Matrix:	SOIL		SOIL									
	Sampled:	Nov-21-12 08:02		Nov-21-12 08:10									
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Nov-23-12 18:21		Nov-23-12 18:38									
	Analyzed:	Nov-23-12 18:21		Nov-23-12 18:38									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Chloride		144	1.08	16.0	0.951								
Percent Moisture	***Extracted:***												
	Analyzed:	Nov-21-12 12:30		Nov-21-12 12:30									
	Units/RL:	%	RL	%	RL								
Percent Moisture		2.82	1.00	1.38	1.00								
TPH By SW8015B Mod	***Extracted:***	Nov-26-12 09:00		Nov-26-12 09:00									
	Analyzed:	Nov-26-12 15:04		Nov-26-12 15:37									
	Units/RL:	mg/kg	RL	mg/kg	RL								
C6-C10 Gasoline Range Hydrocarbons		ND	15.4	ND	15.1								
C10-C28 Diesel Range Hydrocarbons		2900	15.4	ND	15.1								

Nicholas Straccione
Project Manager

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901575 **Sample:** 452891-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 14:05

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.3	99.5	88	70-135	
o-Terphenyl	45.4	49.8	91	70-135	

Lab Batch #: 901575 **Sample:** 452891-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 15:04

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.4	99.6	90	70-135	
o-Terphenyl	49.8	49.8	100	70-135	

Lab Batch #: 901575 **Sample:** 452891-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 15:37

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.6	99.6	91	70-135	
o-Terphenyl	44.7	49.8	90	70-135	

Lab Batch #: 901575 **Sample:** 452891-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 16:10

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.1	99.5	89	70-135	
o-Terphenyl	49.2	49.8	99	70-135	

Lab Batch #: 901575 **Sample:** 452891-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 16:39

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.2	99.5	86	70-135	
o-Terphenyl	41.7	49.8	84	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901575 **Sample:** 452891-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 18:38

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.6	99.5	92	70-135	
o-Terphenyl	45.9	49.8	92	70-135	

Lab Batch #: 901575 **Sample:** 452891-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 19:07

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.2	99.8	90	70-135	
o-Terphenyl	46.6	49.9	93	70-135	

Lab Batch #: 901575 **Sample:** 452891-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 23:40

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.1	100	88	70-135	
o-Terphenyl	44.2	50.0	88	70-135	

Lab Batch #: 901575 **Sample:** 630401-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/12 12:28

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.4	100	92	70-135	
o-Terphenyl	46.3	50.0	93	70-135	

Lab Batch #: 901575 **Sample:** 630401-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/12 11:25

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.3	99.9	88	70-135	
o-Terphenyl	53.7	50.0	107	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901575 **Sample:** 630401-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/12 11:59

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.6	99.6	86	70-135	
o-Terphenyl	51.3	49.8	103	70-135	

Lab Batch #: 901575 **Sample:** 452960-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 22:41

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	56.5	50.1	113	70-135	

Lab Batch #: 901575 **Sample:** 452960-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 23:11

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.9	101	70-135	
o-Terphenyl	56.3	50.0	113	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

XENCO Laboratories

BS / BSD Recoveries

Project Name: 1112-02 and 03

Work Order #: 452891 **Project ID:**

Analyst: JOL **Date Prepared:** 11/23/2012 **Date Analyzed:** 11/23/2012

Lab Batch ID: 901508 **Sample:** 630351-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	100	105	105	100	105	105	0	80-120	20	

Analyst: KEB **Date Prepared:** 11/26/2012 **Date Analyzed:** 11/26/2012

Lab Batch ID: 901575 **Sample:** 630401-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<50.0	999	910	91	996	905	91	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<50.0	999	905	91	996	873	88	4	70-135	35	

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

XENCO Laboratories

Form 3 - MS Recoveries

Project Name: 1112-02 and 03

Work Order #: 452891

Lab Batch #: 901508 **Project ID:**

Date Analyzed: 11/23/2012 **Date Prepared:** 11/23/2012 **Analyst:** JOL

QC- Sample ID: 452891-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	8940	12400	21900	105	80-120	

Lab Batch #: 901508

Date Analyzed: 11/23/2012 **Date Prepared:** 11/23/2012 **Analyst:** JOL

QC- Sample ID: 452891-002 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	10800	11300	22500	104	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: 1112-02 and 03

Work Order # : 452891 **Project ID:**

Lab Batch ID: 901575 **QC- Sample ID:** 452960-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/26/2012 **Date Prepared:** 11/26/2012 **Analyst:** KEB

Reporting Units: mg/kg

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
TPH By SW8015B Mod **Analytes**	**Parent Sample Result [A]**	**Spike Added [B]**	**Spiked Sample Result [C]**	**Spiked Sample %R [D]**	**Spike Added [E]**	**Duplicate Spiked Sample Result [F]**	**Spiked Dup. %R [G]**	**RPD %**	**Control Limits %R**	**Control Limits %RPD**	**Flag**
C6-C10 Gasoline Range Hydrocarbons	<51.2	1020	1070	105	1020	1070	105	0	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<51.2	1020	1080	106	1020	1090	107	1	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

XENCO Laboratories

Sample Duplicate Recovery

Project Name: 1112-02 and 03

Work Order #: 452891

Lab Batch #: 901385 **Project ID:**

Date Analyzed: 11/21/2012 12:30 **Date Prepared:** 11/21/2012 **Analyst:** WRU

QC- Sample ID: 452891-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	19.2	19.3	1	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

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

XENCO Laboratories

☐ 4143 Greenbriar Drive, Stafford, TX 77477 **281-240-4200**
☐ 5332, Blackberry Drive, San Antonio, TX 78238 **210-509-3334**
☐ 9701 Harry Hines Blvd., Dallas, TX 75220 **214-902-0300**
☐ 12600 West I-20 East, Odessa, TX 79765 **432-563-1800**

Serial #: 332369 Page of

Lab Only: 452891

Company-City: ECA **Phone:** 713-978-6700

Project Name-Location: 1112-02 AND 03 - 041 NM ☐ Previously done at XENCO **Project ID:**

TAT: ASAP 5h 12h 24h 48h 3d (5d) 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Proj. State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other

Proj. Manager (PM): L Stafford

E-mail Results to: ☒ PM and aedrington@eca-mail.com **Fax No:**

Invoice to: ☒ Accounting ☐ Invoice with Final Report ☐ Invoice must have a P.O.
Bill to:

Quote/Pricing: **P.O. No:** ☐ Call for P.O.

Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP

QAPP Per-Contract CLP AGCEE NAVY DOE DOD USACE OTHER:

Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)

Sampler Name: L Stafford **Signature:**

	Sample ID	Sampling Date	Time	Depth ft' in" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	VOA: Full-List BTEX-MTBE EtOH Oxyg VOHs VOAs	VOA: PP TCL DW Appdx-1 Appdx-2 CALL Other:	PAHs SIM 8310 8270	DRO GRO MA EPH MA VPH SW8015	SVOCs: Full-List DW BN&AE TCLP PP Appdx-2 CALL	OC Pesticides PCBs Herbicides OP Pesticides	Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx2	SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)	EDB / DBCP	Total Chlorides	TAT ASAP 5h 12h 24h 48h 3d (5d) 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Samples (Surcharges will apply and are pre-approved)	Remarks: Sample Clean-ups are pre-approved as needed	Addn: Date Rcv. by: From:	
1	LJ #1	11/21/12	8:55AM	6"	S		X	1	4	C	ice				X						X						1
2	LJ #2	11/21/12	9:00AM	6"	"		X	"	"	"	"				X						X						2
3	LJ # BG	11/21/12	9:06AM	6"	"		X	"	"	"	"				X						X						3
4	CJ #1	"	7:47AM	2.5'	"		X	"	"	"	"				X						X						4
5	CJ #2	"	7:53AM	6"	"		X	"	"	"	"				X						X						5
6	CJ #3	"	8:00AM	6"	"		X	"	"	"	"				X						X						6
7	CJ #4	"	8:02AM	6"	"		X	"	"	"	"				X						X						7
8	CJ #BG	"	8:10AM	6"	"		X	"	"	"	"				X						X						8
9																											9
10																											10

	Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1	1) LSS	11/21/12	2) Shaunel Smith	11/21/12 11:45
2	3)	11:45AM	4)	
3	5)		6)	

Total Containers per COC: 8 Cooler Temp: -0.5 °C

Otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be held 30 days after final report is e-mailed unless hereby requested. Rush Charges and Collection Fees are pre-approved if needed.

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH (A), ZnAc&NaOH (Z), (Cool, <4C) (C), None (NA),See Label (L), Other (O)
Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (40), 1L (1), 500ml (5), Tedlar Bag (B), Various (V), Other _____ **Cont. Type:** Glass Amb (A), Glass Clear (C), Plastic (P), Various (V)

Matrix: Air (A), Product (P), Solid (S), Water (W), Liquid (L)

Committed to Excellence in Service and Quality www.xenco.com

Notice: Signature of this document and relinquishment of these samples constitutes a valid purchase order from client company to Xenco Laboratories and its affiliates, subcontractors and assigns under Xenco's standard terms and conditions of service unless previously negotiated under a fully executed client contract.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Environmental Compliance Associates

Date/ Time Received: 11/21/2012 11:45:00 AM

Work Order #: 452891

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	Yes
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	Yes
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	Yes

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:	PH Device/Lot#:

Checklist completed by: _____ Date: _____

Checklist reviewed by: _____ Date: _____

Analytical Report 452891

for

Environmental Compliance Associates

Project Manager: Lloyd Stafford

1112-02 and 03

30-NOV-12

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

30-NOV-12

Project Manager: **Lloyd Stafford**
Environmental Compliance Associates
P.O.Box 770005
Houston, TX 77215

Reference: XENCO Report No: **452891**
1112-02 and 03
Project Address: Jal, NM

Lloyd Stafford:

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 452891. 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. The uncertainty of measurement associated with the results of analysis reported is available upon request. 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. 452891 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,

Nicholas Straccione
Project Manager

Sample Cross Reference 452891

Environmental Compliance Associates, Houston, TX

1112-02 and 03

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
LJ #1	S	11-21-12 08:55	6 In	452891-001
LJ #2	S	11-21-12 09:00	6 In	452891-002
LJ # BG	S	11-21-12 09:06	6 In	452891-003
CJ #1	S	11-21-12 07:47	2.5 In	452891-004
CJ #2	S	11-21-12 07:53	6 In	452891-005
CJ #6	S	11-21-12 08:00	6 In	452891-006
CJ #4	S	11-21-12 08:02	6 In	452891-007
CJ # BG	S	11-21-12 08:10	6 In	452891-008

CASE NARRATIVE

XENCO Laboratories

Client Name: Environmental Compliance Associates
Project Name: 1112-02 and 03

Project ID:
Work Order Number: 452891

Report Date: 30-NOV-12
Date Received: 11/21/2012

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-901828 BTEX-MTBE by EPA 8021B
SW8021BM

Batch 901828, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis
Samples affected are: 452891-002.

Certificate of Analysis Summary 452891

Environmental Compliance Associates, Houston, TX

Project Name: 1112-02 and 03

Project Id:

Contact: Lloyd Stafford

Project Location: Jal, NM

Date Received in Lab: Wed Nov-21-12 11:45 am

Report Date: 30-NOV-12

Project Manager: Nicholas Straccione

Analysis Requested													
	Lab Id:	452891-001		452891-002		452891-003		452891-004		452891-005		452891-006	
	Field Id:	LJ #1		LJ #2		LJ # BG		CJ #1		CJ #2		CJ #6	
	Depth:	6- In		6- In		6- In		2.5- In		6- In		6- In	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Nov-21-12 08:55		Nov-21-12 09:00		Nov-21-12 09:06		Nov-21-12 07:47		Nov-21-12 07:53		Nov-21-12 08:00	
BTEX-MTBE by EPA 8021B	*Extracted:*	Nov-29-12 09:10		Nov-29-12 09:10		Nov-29-12 09:10		Nov-29-12 09:10		Nov-29-12 09:10		Nov-29-12 09:10	
	Analyzed:	Nov-29-12 13:04		Nov-29-12 14:26		Nov-29-12 10:35		Nov-29-12 14:43		Nov-29-12 11:08		Nov-29-12 11:24	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.0257	0.0247	ND	0.00121	ND	0.00101	ND	0.00103	ND	0.00107	ND	0.00106
Toluene		0.756	0.0494	0.0129	0.00242	ND	0.00202	ND	0.00206	ND	0.00213	ND	0.00211
Ethylbenzene		1.40	0.0247	0.0339	0.00121	ND	0.00101	ND	0.00103	ND	0.00107	ND	0.00106
m_p-Xylenes		3.93	0.0494	0.123	0.00242	ND	0.00202	ND	0.00206	ND	0.00213	ND	0.00211
o-Xylene		1.67	0.0247	0.0393	0.00121	ND	0.00101	ND	0.00103	ND	0.00107	ND	0.00106
MTBE		ND	0.494	ND	0.0242	ND	0.0202	ND	0.0206	ND	0.0213	ND	0.0211
Total Xylenes		5.60	0.0247	0.162	0.00121	ND	0.00101	ND	0.00103	ND	0.00107	ND	0.00106
Total BTEX		7.78	0.0247	0.209	0.00121	ND	0.00101	ND	0.00103	ND	0.00107	ND	0.00106
Inorganic Anions by EPA 300/300.1 SUB: E871002	*Extracted:*	Nov-23-12 15:30		Nov-23-12 16:04		Nov-23-12 16:38		Nov-23-12 16:55		Nov-23-12 17:13		Nov-23-12 18:04	
	Analyzed:	Nov-23-12 15:30		Nov-23-12 16:04		Nov-23-12 16:38		Nov-23-12 16:55		Nov-23-12 17:13		Nov-23-12 18:04	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		8940	124	10800	113	444	108	353	1.07	117	0.984	119	1.09
Percent Moisture	*Extracted:*												
	Analyzed:	Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30		Nov-21-12 12:30	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		19.2	1.00	17.8	1.00	1.72	1.00	2.98	1.00	6.11	1.00	5.09	1.00
TPH By SW8015B Mod	*Extracted:*	Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00		Nov-26-12 09:00	
	Analyzed:	Nov-26-12 18:38		Nov-26-12 16:10		Nov-26-12 16:39		Nov-26-12 19:07		Nov-26-12 14:05		Nov-26-12 23:40	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		368	18.5	18.8	18.2	ND	15.2	ND	15.4	ND	15.9	ND	15.8
C10-C28 Diesel Range Hydrocarbons		3030	18.5	604	18.2	ND	15.2	3950	15.4	1750	15.9	190	15.8

Nicholas Straccione
Project Manager

Certificate of Analysis Summary 452891

Environmental Compliance Associates, Houston, TX

Project Name: 1112-02 and 03

Project Id:

Contact: Lloyd Stafford

Project Location: Jal, NM

Date Received in Lab: Wed Nov-21-12 11:45 am

Report Date: 30-NOV-12

Project Manager: Nicholas Straccione

Analysis Requested									
	Lab Id:	452891-007		452891-008					
	Field Id:	CJ #4		CJ # BG					
	Depth:	6- In		6- In					
	Matrix:	SOIL		SOIL					
	Sampled:	Nov-21-12 08:02		Nov-21-12 08:10					
BTEX-MTBE by EPA 8021B	***Extracted:***	Nov-29-12 09.10		Nov-29-12 09:10					
	Analyzed:	Nov-29-12 12:48		Nov-29-12 11:58					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		ND	0.00103	ND	0.00101				
Toluene		ND	0.00206	ND	0.00203				
Ethylbenzene		ND	0.00103	ND	0 00101				
m_p-Xylenes		ND	0.00206	ND	0 00203				
o-Xylene		ND	0.00103	ND	0 00101				
MTBE		ND	0.0206	ND	0.0203				
Total Xylenes		ND	0.00103	ND	0 00101				
Total BTEX		ND	0.00103	ND	0 00101				
Inorganic Anions by EPA 300/300.1 SUB: E871002	***Extracted:***	Nov-23-12 18:21		Nov-23-12 18:38					
	Analyzed:	Nov-23-12 18:21		Nov-23-12 18:38					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		144	1.08	16.0	0.951				
Percent Moisture	***Extracted:***								
	Analyzed:	Nov-21-12 12:30		Nov-21-12 12:30					
	Units/RL:	%	RL	%	RL				
Percent Moisture		2.82	1.00	1.38	1.00				
TPH By SW8015B Mod	***Extracted:***	Nov-26-12 09:00		Nov-26-12 09:00					
	Analyzed:	Nov-26-12 15:04		Nov-26-12 15:37					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C10 Gasoline Range Hydrocarbons		ND	15.4	ND	15.1				
C10-C28 Diesel Range Hydrocarbons		2900	15.4	ND	15.1				

Nicholas Straccione
Project Manager

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891,

Project ID:

Lab Batch #: 901575 **Sample:** 452891-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 14:05

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.3	99.5	88	70-135	
o-Terphenyl	45.4	49.8	91	70-135	

Lab Batch #: 901575 **Sample:** 452891-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 15:04

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89 4	99.6	90	70-135	
o-Terphenyl	49.8	49.8	100	70-135	

Lab Batch #: 901575 **Sample:** 452891-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 15:37

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.6	99.6	91	70-135	
o-Terphenyl	44.7	49.8	90	70-135	

Lab Batch #: 901575 **Sample:** 452891-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 16:10

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.1	99.5	89	70-135	
o-Terphenyl	49.2	49.8	99	70-135	

Lab Batch #: 901575 **Sample:** 452891-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 16:39

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.2	99.5	86	70-135	
o-Terphenyl	41.7	49.8	84	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901575 **Sample:** 452891-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 18:38

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.6	99.5	92	70-135	
o-Terphenyl	45.9	49.8	92	70-135	

Lab Batch #: 901575 **Sample:** 452891-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 19:07

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.2	99.8	90	70-135	
o-Terphenyl	46.6	49.9	93	70-135	

Lab Batch #: 901575 **Sample:** 452891-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 23:40

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.1	100	88	70-135	
o-Terphenyl	44.2	50.0	88	70-135	

Lab Batch #: 901828 **Sample:** 452891-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 10:35

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

Lab Batch #: 901828 **Sample:** 452891-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 11:08

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0256	0.0300	85	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891,

Project ID:

Lab Batch #: 901828 **Sample:** 452891-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 11:24

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 901828 **Sample:** 452891-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 11:58

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 901828 **Sample:** 452891-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 12:48

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	80-120	
4-Bromofluorobenzene	0.0263	0.0300	88	80-120	

Lab Batch #: 901828 **Sample:** 452891-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 13:04

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0243	0.0300	81	80-120	
4-Bromofluorobenzene	0.0333	0.0300	111	80-120	

Lab Batch #: 901828 **Sample:** 452891-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 14:26

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0122	0.0300	41	80-120	**
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901828 **Sample:** 452891-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 14:43

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 901575 **Sample:** 630401-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/12 12:28

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.4	100	92	70-135	
o-Terphenyl	46.3	50.0	93	70-135	

Lab Batch #: 901828 **Sample:** 630534-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/12 10:19

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0260	0.0300	87	80-120	

Lab Batch #: 901575 **Sample:** 630401-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/12 11:25

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.3	99.9	88	70-135	
o-Terphenyl	53.7	50.0	107	70-135	

Lab Batch #: 901828 **Sample:** 630534-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/12 09:46

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901575 **Sample:** 630401-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/12 11:59

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.6	99.6	86	70-135	
o-Terphenyl	51.3	49.8	103	70-135	

Lab Batch #: 901828 **Sample:** 630534-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/12 10:02

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0344	0.0300	115	80-120	
4-Bromofluorobenzene	0.0336	0.0300	112	80-120	

Lab Batch #: 901575 **Sample:** 452960-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 22:41

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	56.5	50.1	113	70-135	

Lab Batch #: 901828 **Sample:** 453136-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 16:05

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 901575 **Sample:** 452960-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/12 23:11

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.9	101	70-135	
o-Terphenyl	56.3	50.0	113	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: 1112-02 and 03

Work Orders : 452891, **Project ID:**

Lab Batch #: 901828 **Sample:** 453136-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/12 15:16

BTEX-MTBE by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0352	0.0300	117	80-120	
4-Bromofluorobenzene	0.0303	0.0300	101	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

XENCO Laboratories

BS / BSD Recoveries

Project Name: 1112-02 and 03

Work Order #: 452891 **Project ID:**

Analyst: KEB **Date Prepared:** 11/29/2012 **Date Analyzed:** 11/29/2012

Lab Batch ID: 901828 **Sample:** 630534-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX-MTBE by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000992	0.0992	0.0825	83	0.100	0.102	102	21	70-130	35	
Toluene	<0.00198	0.0992	0.0920	93	0.100	0.106	106	14	70-130	35	
Ethylbenzene	<0.000992	0.0992	0.0880	89	0.100	0.0994	99	12	71-129	35	
m_p-Xylenes	<0.00198	0.198	0.180	91	0.201	0.207	103	14	70-135	35	
o-Xylene	<0.000992	0.0992	0.0900	91	0.100	0.103	103	13	71-133	35	
MTBE	<0.0198	0.496	0.436	88	0.502	0.494	98	12	71-133	35	

Analyst: JOL **Date Prepared:** 11/23/2012 **Date Analyzed:** 11/23/2012

Lab Batch ID: 901508 **Sample:** 630351-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<1.00	100	105	105	100	105	105	0	80-120	20	

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

XENCO Laboratories

BS / BSD Recoveries

Project Name: 1112-02 and 03

Work Order #: 452891 **Project ID:**

Analyst: KEB **Date Prepared:** 11/26/2012 **Date Analyzed:** 11/26/2012

Lab Batch ID: 901575 **Sample:** 630401-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

TPH By SW8015B Mod	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<50.0	999	910	91	996	905	91	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<50.0	999	905	91	996	873	88	4	70-135	35	

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: 1112-02 and 03

Work Order #: 452891

Lab Batch #: 901508 **Project ID:**

Date Analyzed: 11/23/2012 **Date Prepared:** 11/23/2012 **Analyst:** JOL

QC- Sample ID: 452891-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	8940	12400	21900	105	80-120	

Lab Batch #: 901508

Date Analyzed: 11/23/2012 **Date Prepared:** 11/23/2012 **Analyst:** JOL

QC- Sample ID: 452891-002 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	10800	11300	22500	104	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: 1112-02 and 03

Work Order # : 452891 **Project ID:**

Lab Batch ID: 901828 **QC- Sample ID:** 453136-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/29/2012 **Date Prepared:** 11/29/2012 **Analyst:** KEB

Reporting Units: mg/kg

BTEX-MTBE by EPA 8021B	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000998	0.0998	0.101	101	0.100	0.104	104	3	70-130	35	
Toluene	<0.00200	0.0998	0.107	107	0.100	0.109	109	2	70-130	35	
Ethylbenzene	<0.000998	0.0998	0.100	100	0.100	0.0978	98	2	71-129	35	
m_p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.207	104	1	70-135	35	
o-Xylene	<0.000998	0.0998	0.103	103	0.100	0.101	101	2	71-133	35	
MTBE	<0.0200	0.499	0.501	100	0.501	0.537	107	7	71-133	35	

Lab Batch ID: 901575 **QC- Sample ID:** 452960-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/26/2012 **Date Prepared:** 11/26/2012 **Analyst:** KEB

Reporting Units: mg/kg

TPH By SW8015B Mod	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<51.2	1020	1070	105	1020	1070	105	0	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<51.2	1020	1080	106	1020	1090	107	1	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

XENCO Laboratories

Sample Duplicate Recovery

Project Name: 1112-02 and 03

Work Order #: 452891

Lab Batch #: 901385 **Project ID:**

Date Analyzed: 11/21/2012 12:30 **Date Prepared:** 11/21/2012 **Analyst:** WRU

QC- Sample ID: 452891-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	19.2	19.3	1	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

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

XENCO Laboratories

☐ 4143 Greenbriar Drive, Stafford, TX 77477 **281-240-4200**
☐ 5332, Blackberry Drive, San Antonio, TX 78238 **210-509-3334**
☐ 9701 Harry Hines Blvd., Dallas, TX 75220 **214-902-0300**
☐ 12600 West I-20 East, Odessa, TX 79765 **432-563-1800**

Serial #: 332369 Page of

Company-City ECA	**Phone** 713-978-6700
Project Name-Location 1112-02 AND 03 - 041 NM ☐ Previously done at XENCO	**Project ID**
Proj. State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other	**Proj. Manager (PM)** L Stafford
E-mail Results to ☒ PM and aedrington@eca-mail.com	**Fax No:**
Invoice to ☒ Accounting ☐ Invoice with Final Report ☐ Invoice must have a P.O. Bill to:	
Quote/Pricing:	**P.O. No:** ☐ Call for P.O.
Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP	
QAPP Per-Contract CLP AGCEE NAVY DOE DOD USACE OTHER:	
Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)	
Sampler Name L Stafford **Signature**	

Lab Only: 452891

TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

#	Sample ID	Sampling Date	Time	Depth ft' in" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	VOA: Full-List BTEX-MTBE EtOH Oxyg VOHs VOAs	VOA: PP TCL DW Appdx-1 Appdx-2 CALL Other:	PAHs SIM 8310 8270	DRO GRO MA EPH MA VPH SW8015	SVOCs: Full-List DW BN&AE TCLP PP Appdx-2 CALL	OC Pesticides Herbicides OP Pesticides PCBs	Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx2	SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)	EDB / DBCP	Total Chlorides	TAT ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d	Addn: PAH above mg/L W, mg/Kg S Highest Hit	Hold Samples (Surcharges will apply and are pre-approved)	Sample Clean-ups are pre-approved as needed	Addn: Date Rcv. by: From:	#
1	LJ #1	11/21/12	8:55AM	6"	S		X	1	4	C	ice				X						X						1
2	LJ #2	11/21/12	9:00AM	6"	"		X	"	"	"	"				X						X						2
3	LJ # BG	11/21/12	9:06AM	6"	"		X	"	"	"	"				X						X						3
4	CJ #1	"	7:47AM	2.5'	"		X	"	"	"	"				X						X						4
5	CJ #2	"	7:53AM	6"	"		X	"	"	"	"				X						X						5
6	CJ #3	"	8:00AM	6"	"		X	"	"	"	"				X						X						6
7	CJ #4	"	8:02AM	6"	"		X	"	"	"	"				X						X						7
8	CJ #BG	"	8:10AM	6"	"		X	"	"	"	"				X						X						8
9																											9
10																											10

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1) LSS	11/21/12	2) Shaunelsmith	11/21/12 11:45
3)	11:45AM	4)	
5)		6)	

Total Containers per COC: 8 Cooler Temp: -0.5 °C

Otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be held 30 days after final report is e-mailed unless hereby requested. Rush Charges and Collection Fees are pre-approved if needed.

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH (A), ZnAc&NaOH (Z), (Cool, <4C) (C), None (NA), See Label (L), Other (O) _____
Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (40), 1L (1), 500ml (5), Tedlar Bag (B), Various (V), Other _____ **Cont. Type:** Glass Amb (A), Glass Clear (C), Plastic (P), Various (V)

Matrix: Air (A), Product (P), Solid (S), Water (W), Liquid (L)

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Environmental Compliance Associates

Date/ Time Received: 11/21/2012 11:45:00 AM

Work Order #: 452891

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	Yes
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	Yes
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	Yes

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:	PH Device/Lot#:

Checklist completed by: _____ Date: _____

Checklist reviewed by: _____ Date: _____