Nolan, Shiver

From:	Nolan, Shiver
Sent:	Tuesday, January 17, 2017 7:20 AM
To:	NMOCD Mike Bratcher (mike.bratcher@state.nm.us); Crystal Weaver (crystal.weaver@state.nm.us)
Cc:	Miro, Alena; Ferguson, Dina (djferguson@eprod.com)
Subject:	S Eddy 2RP-3493
Attachments:	S Eddy C-141 (10-4-2016).pdf; S Eddy -02-Assessment Summary Report.pdf; S Eddy C-141 10-8-2016.pdf

Attached is the information on 2 releases and the assessment summary. Should you need additional information, please contact Alena Miro.

Shiver J. Nolan
Sr. Compliance Administrator
Enterprise Products Operating LLC

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 August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

2RP-3493

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company *Enterprise Field Services, LLC*	Contact *Alena Miro*
PO Box 4324, Houston, TX 77210	Telephone No. *575-628-6802*
Facility Name *South Eddy Cryo Plant*	Facility Type: *Natural Gas Processing Plant*

Surface Owner *Enterprise Field Services, LLC*	Mineral Owner *NA*	Lease No. *NA*

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	*1*	*25S*	*30E*	*244*	*South*	*628*	*East*	*Eddy*

Latitude: *N 32.160280* **Longitude:** *W -103.827811*

NATURE OF RELEASE

Type of Release *Amine liquid and process material*	Volume of Release: *16.7 bbls liquids*	Volume Recovered: *10 bbls liquids*
Source of Release *Sump overfill*	Date and Hour of Occurrence *10/08/2016 @ 06:00 MST*	Date and Hour of Discovery *10/08/2016 @ 06:00 MST*
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Amine system liquids were released due to a sump overflow. The sump was isolated and contaminated soil was contained on site. Approximately 16.7 bbls of liquid released.

Describe Area Affected and Cleanup Action Taken.*
A liquid spill of approximately 16.7 bbls of amine solution was released. All liquids were confined to the facility site. Remediation actions followed the Enterprise General Release Notification, Response and Remediation Plan (March 9, 2015).

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: *Jon E. Fields*	OIL CONSERVATION DIVISION	
Printed Name: *Jon E. Fields*	Approved by District Supervisor:	
Title: *Director, Field Environmental*	Approval Date:	Expiration Date:
E-mail Address: *jefields@eprod.com*	Conditions of Approval:	Attached ☐
Date: *1/17/2017* Phone: *713-381-6684*		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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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 August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

2RP-3492

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company *Enterprise Field Services, LLC*	Contact *Alena Miro*
PO Box 4324, Houston, TX 77210	Telephone No. *575-628-6802*
Facility Name *South Eddy Cryo Plant*	Facility Type: *Natural Gas Processing Plant*

Surface Owner *Enterprise Field Services, LLC*	Mineral Owner *NA*	Lease No. *NA*

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	*1*	*25S*	*30E*	*244*	*South*	*628*	*East*	*Eddy*

Latitude: *N 32.160280* **Longitude:** *W -103.827811*

NATURE OF RELEASE

Type of Release *Amine liquid and process material*	Volume of Release: *20 bbl liquids*	Volume Recovered: *15 bbl liquids*
Source of Release *Sump overfill*	Date and Hour of Occurrence *10/04/2016 @ 18:00 MST*	Date and Hour of Discovery *10/04/2016 @ 18:00 MST*
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

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Signature:	OIL CONSERVATION DIVISION	
Printed Name: *Jon E. Fields*	Approved by District Supervisor:	
Title: *Director, Field Environmental*	Approval Date:	Expiration Date:
E-mail Address: *jefields@eprod.com*	Conditions of Approval:	Attached ☐
Date: *1/17/2017* Phone: *713-381-6684*		

* Attach Additional Sheets If Necessary

January 11, 2017 Reference No. 11135027

Ms. Alena Miro
Sr. Environmental Engineer
Enterprise Products Company
3008 East Greene Street
Carlsbad, NM 88220-9772
VIA E-Mail: ampolk@eprod.com

Dear Ms. Miro:

Re: Assessment Summary Report
South Eddy Cryo Plant
Enterprise Products LLC
2RP-3492 and 2RP-3493
Site Location: Sec. 1, T 25-S, R 31-E
(Lat 32.163336°, Long -103.840086°)
Eddy County, New Mexico

On behalf of Enterprise Products Company (Enterprise), GHD Services, Inc. (GHD, formerly Conestoga Rovers & Associates) is pleased to present this report for the above referenced site. Assessment activities were performed at the South Eddy Cryo Plant Site (hereafter referred to as the "Site"). Field work and data collected for the Site was performed by GHD Staff. The Site is located within Section 1, Township 25 South, Range 31 East, in Eddy County, New Mexico (Figure 1).

The Site is located approximately 27 miles southeast of Carlsbad, New Mexico. Two releases occurred at the Site over a short period of time. The first occurred on October 4, 2016 with a release of approximately 20 barrels (bbls) of amine solution. The amine solution is methyl-diethanolamine (MDEA). This release was assessed and sampled by GHD personnel and the contaminated soil was removed. The second incident occurred on October 8, 2016. During this release, approximately 16.7 bbls of amine solution was released. Both releases occurred from a sump overflow located at the base of a pump directly south of the main compressor piping. A Form C 141 was submitted to the New Mexico Oil Conservation Division (NMOCD) for each release (total of two forms submitted) on October 17, 2016 (See Appendix A).

1. Recommended Remediation Action Limits

There are relatively few groundwater wells in the area of the Site with which to obtain a depth to groundwater. Based on USGS groundwater information there are two wells within a 2-3 mile radius of the Site that have a depth to groundwater between 350 and 400 ft below ground surface (bgs). There is one well that is 4.47 miles from the Site that has the depth to groundwater at 65-70 ft bgs. GHD believes that this is representative of the depth to shallow groundwater in the area of the Site.

There do not appear to be any well head protection areas and no surface water bodies within 200 ft to 1000 ft of the Site. Therefore, the preliminary total ranking score for the Site is 10 (see table below).

Based on this score, the applicable NMOCD Site specific Recommended Remediation Action Limits (RRALs) are 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX), 1000 mg/kg for total petroleum hydrocarbons (TPH), and 250 mg/kg for chlorides.

New Mexico Oil Conservation Division Site Assessment	
Ranking Criteria	Score
Depth to Ground Water (> 50 ft bgs, <100 ft bgs)	10
Wellhead Protection Area (> 1000 ft from water source, > 200 ft from domestic source)	0
Distance to Surface Body Water (200-1000 ft)	0
Ranking Criteria Total Score	**10***
*The ranking criteria total score of 10 equates to NMOCD established RRALs of 10 mg/kg for benzene, 50 mg/kg for total BTEX, 1,000 mg/kg for TPH[1], and 250 mg/kg for chlorides.	

1. NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993

2. Assessment Activities

During October 2016, Enterprise Products contracted GHD to assess the extent of the release. TWC LLC was contracted to excavate impacted soils and assist with the assessment. Initial assessment activities were performed using visual screening and sampling.

On October 13th, 2016 GHD returned to the site to sample the second release and perform site assessment activities. Soil samples were collected for laboratory analysis of benzene, toluene, ethylbenzene and xylene (BTEX) by EPA Method 8021, total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) by EPA Method 8015 (Appendix B). The samples were analyzed by Xenco Laboratories (Xenco) in Midland, Texas. The samples were also analyzed for MDEA by Xenco using their proprietary method.

In order to assess the vertical extent of the contamination sample locations were selected at the far extents of the area where the ground cover had been removed (Figure 2). Samples were collected using 4 oz. soil jars at depths of 12 inch (in.) to 18 in. bgs. Soil samples were collected, packed on ice, and shipped to Xenco.

The analytical results of the soil samples collected indicated that both BTEX and TPH concentrations from 12 in. to 18 in. in depth were below the laboratory reporting limits. Based on this, it appears that the vertical extent of petroleum hydrocarbons and BTEX has been assessed. The horizontal extent has been assessed in the northern, southern, and western directions of the release (Figure 2).

The impacted soils were excavated and placed in roll-off containers. The soil was disposed of at the Lea Land Landfill located on Highway 62/180 between Hobbs and Carlsbad, New Mexico (see attached manifests in Appendix C).

3. Conclusions and Recommendations

Concentrations of petroleum hydrocarbons were not detected above the laboratory reporting limit (LRL) in any of the samples collected. The soil sample collected adjacent to the release area was the only sample to indicate the presence of significant concentrations of MDEA.

GHD, on behalf of Enterprise is requesting that no further action be required for the Site. This is based on the following mitigating conditions:

- Petroleum hydrocarbons were not detected in any of the samples collected.
- MDEA was not detected in any significant concentrations with the exception of the sample located adjacent to the release area.
- There is no surface water or wells in the vicinity of the Site.
- The potential to impact groundwater is minimal given the depth (65 to 70 ft bgs).

Should you have any questions, or require additional information regarding this submittal, please feel free to contact Bernie Bockisch at (505) 884 0672 or Bernard.Bockisch@ghd.com.

Sincerely,

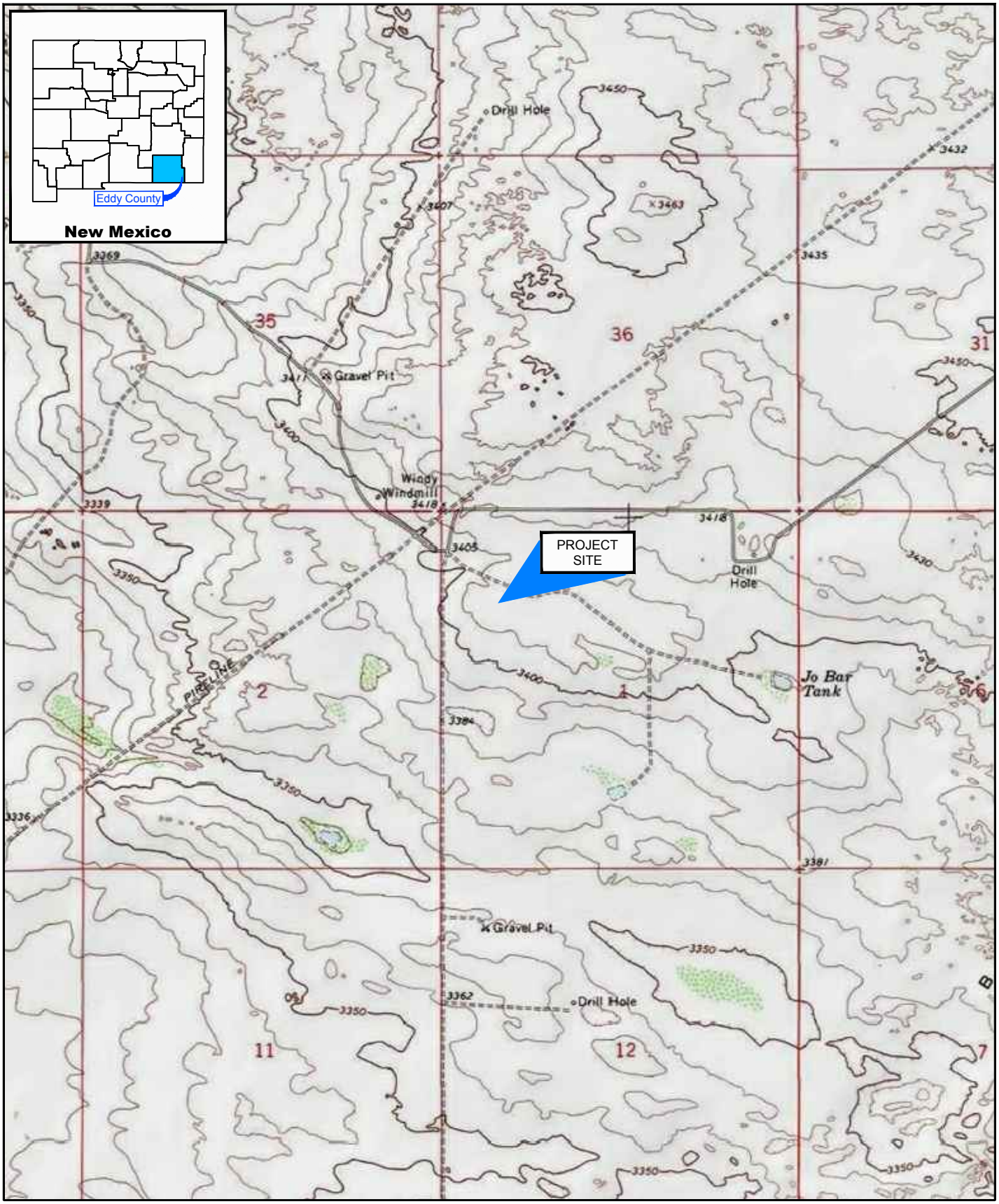
GHD

Charles Neligh
Project Scientist

Bernard Bockisch
Project Manager PPM

BB/mc/02

Figures



Source: USGS 7.5 Minute Quad "Big Sinks and Pierce Canyon, New Mexico"

Lat/Long: 32.163336° North, 103.840086° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

GHD

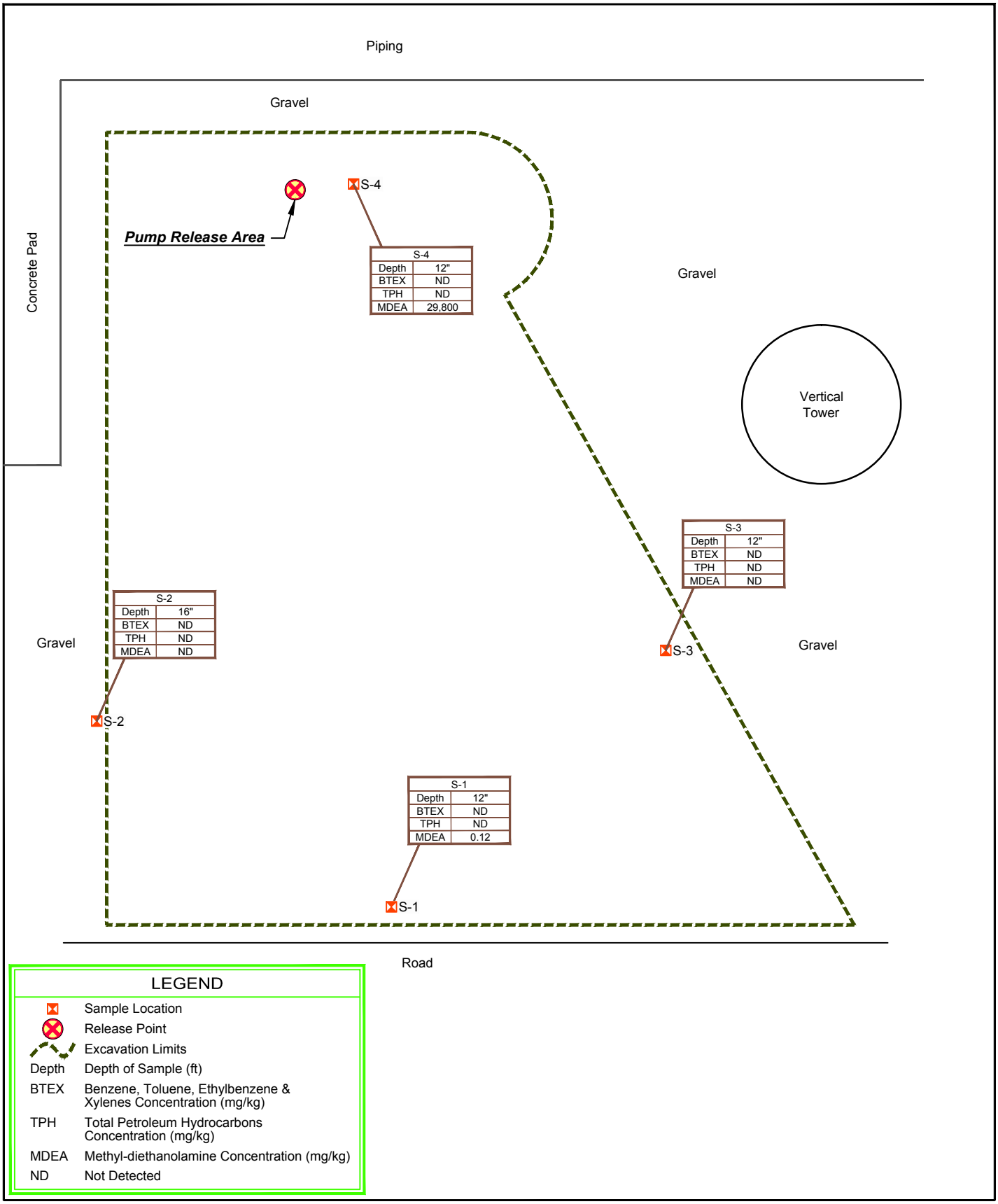
ENTERPRISE PRODUCTS
EDDY COUNTY, NEW MEXICO
SOUTH EDDY PLANT AMINE RELEASE ASSESSMENT

11135027-00
Nov 30, 2016

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1113----\11135027-Enterprise-Amine Release Assessment\11135027-00(000)GN-DL001.dwg



Not to Scale

N

GHD

ENTERPRISE PRODUCTS
EDDY COUNTY, NEW MEXICO
SOUTH EDDY PLANT AMINE RELEASE ASSESSMENT

11135027-00
Nov 30, 2016

SITE DETAILS

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1113----\11135027-Enterprise-Amine Release Assessment\11135027-00(000)GN-DL001.dwg

Appendices

Appendix A
C-141 Release Reports

District I
1625 N. French Dr., Hobbs, NM 88240
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Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company *Enterprise Field Services LLC*	Contact *Alena Miro*
PO Box 4324, Houston, TX 77210	Telephone No. *575-628-6802*
Facility Name *South Eddy Cryo Plant*	Facility Type: *Natural Gas Processing Plant*

Surface Owner *Enterprise Field Services LLC*	Mineral Owner *NA*	Lease No. *NA*

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
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Latitude: *N 32.160280* **Longitude:** *W -103.827811*

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Type of Release *Amine liquid and process material*	Volume of Release: *20 bbl liquids*	Volume Recovered: *15 bbl liquids*
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Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
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Signature:	OIL CONSERVATION DIVISION	
Printed Name: *Jon E. Fields*	Approved by District Supervisor:	
Title: *Director, Field Environmental*	Approval Date:	Expiration Date:
E-mail Address: *jefields@eprod.com*	Conditions of Approval:	Attached ☐
Date: *10/17/2016* Phone: *713-381-6684*		

* Attach Additional Sheets If Necessary

Mendez, Brenda

From: Mendez, Brenda
Sent: Monday, October 17, 2016 2:10 PM
To: 'mike.bratcher@state.nm.us'; heather.patterson@state.nm.us
Cc: Ferguson, Dina; Miro, Alena; Nolan, Shiver
Subject: South Eddy Cryo Plant C141 (10-8-16)
Attachments: South Eddy Cryo C141 Release Report (10-8) October 2016.pdf

Attached is the C-141 Form for the South Eddy Cryo Plant for October 8, 2016.

If you have questions or need additional information, please contact Alena Miro at 575-628-6802.

Thank you
Brenda J. Mendez – Planning and Reports Analyst
Enterprise Products Operating, LLC
Tel (713) 381-8270 – Fax (713) 880-6660
bjmendez@eprod.com

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E-mail Address: *jefields@eprod.com*	Conditions of Approval:	Attached ☐
Date: *10/11/2016* Phone: *713-381-6684*		

* Attach Additional Sheets If Necessary

Univar USA Inc Material Safety Data Sheet

MSDS No:	UCC95241
Version No:	010 2012-02-09
Order No:	

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

Material Safety Data Sheet

The Dow Chemical Company

Product Name: UCARSOL(TM) AP SOLVENT 814

Issue Date: 02/23/2011
Print Date: 23 Jan 2012

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
UCARSOL™ AP SOLVENT 814

COMPANY IDENTIFICATION
The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
United States

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400
Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Colorless to yellow
Physical State: Liquid.
Odor: Ammoniacal
Hazards of product:

DANGER! Causes severe eye burns. Causes burns of the mouth and throat. Prolonged exposure may cause skin burns. May cause allergic skin reaction. May be harmful if swallowed. Aspiration hazard. Can enter lungs and cause damage. Evacuate area. Keep upwind of spill. Stay out of low areas.

OSHA Hazard Communication Standard

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin Contact: Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Skin Sensitization: Skin contact may cause an allergic skin reaction. Contains component(s) which have demonstrated the potential for contact allergy in mice. Individuals who have had an allergic skin reaction to similar materials may have an allergic skin reaction to this product. The similar material(s) is/are: Triethylenetetramine (TETA).
Inhalation: At room temperature, exposure to vapor is minimal due to low volatility. If material is heated or aerosol/mist is produced, concentrations may be attained that are sufficient to cause respiratory irritation and other effects. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.
Ingestion: Low toxicity if swallowed. Swallowing may result in burns of the mouth and throat. Swallowing may result in gastrointestinal irritation or ulceration. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea.
Aspiration hazard: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.
Birth Defects/Developmental Effects: For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Reproductive Effects: For the minor component(s): In animal studies, has been shown to interfere with reproduction. In animal studies, has been shown to interfere with fertility.

3. Composition Information

Component	CAS #	Amount
Substituted amine (1)	Trade secret	> 65.0 %
Substituted amine (2)	Trade secret	> 15.0 %
Water	7732-18-5	7.0 - 9.0 %

4. First-aid measures

Description of first aid measures
General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
Skin Contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.
Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.
Most important symptoms and effects, both acute and delayed
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.
Indication of immediate medical attention and special treatment needed
Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Chemical eye burns

may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. Fire Fighting Measures

Suitable extinguishing media
Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture
Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.
Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Evacuate area. Refer to Section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. Keep personnel out of low areas. Only trained and properly protected personnel must be involved in clean-up operations. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Non-combustible material. Clay. Vermiculite. Zorb-all®. Do NOT use absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Cellulose. Sawdust. Large spills: Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Do not get in eyes. Do not swallow. Avoid breathing vapor. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Storage
Store in accordance with good manufacturing practices. Use only with adequate ventilation. Do not store in: Aluminum. Copper. Copper alloys. Galvanized containers. Zinc. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage Period:
Bulk
18 Months
Metal drums.
36 Months

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
None established			

Personal Protection
Eye/Face Protection: Use chemical goggles.
Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.
Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls
Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance
Physical State Liquid.

Color	Colorless to yellow
Odor	Ammoniacal
Odor Threshold	No test data available
pH	11 *Literature*
Melting Point	Not applicable
Freezing Point	-48 °C (-54 °F) *Literature* Pour point
Boiling Point (760 mmHg)	126 °C (259 °F) *Literature* .
Flash Point - Closed Cup	102 °C (216 °F) *ASTM D93*
Flash Point - Open Cup	132 °C (270 °F) *Cleveland Open Cup ASTM D92*
Evaporation Rate (Butyl Acetate = 1)	0.5 *Literature*
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	**Lower**: No test data available **Upper**: No test data available
Vapor Pressure	4.6 mmHg @ 20 °C *Literature*
Vapor Density (air = 1)	2.8 *Literature*
Specific Gravity (H2O = 1)	1.045 20 °C/20 °C *Literature*
Solubility in water (by weight)	100 % @ 20 °C *Literature*
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	304 - 307 °C (579 - 585 °F) *Literature*
Decomposition Temperature	No test data available
Kinematic Viscosity	No test data available
Molecular Weight	106 g/mol

10. Stability and Reactivity

Reactivity
No dangerous reaction known under conditions of normal use.
Chemical stability
Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions
Polymerization will not occur.
Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible Materials: Avoid contact with: Acrylates. Alcohols. Aldehydes. Ketones. Nitrites. Strong acids. Strong oxidizers. Avoid contact with metals such as: Aluminum. Copper. Copper alloys. Galvanized metals. Zinc. Avoid unintended contact with: Halogenated hydrocarbons. Avoid contact with absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Sawdust.
Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity
Ingestion
Single dose oral LD50 has not been determined.
Dermal
The dermal LD50 has not been determined.
Inhalation
As product: The LC50 has not been determined.
Eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin corrosion/irritation

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Sensitization

Skin

Skin contact may cause an allergic skin reaction. Contains component(s) which have demonstrated the potential for contact allergy in mice. Individuals who have had an allergic skin reaction to similar materials may have an allergic skin reaction to this product. The similar material(s) is/are: Triethylenetetramine (TETA).

Repeated Dose Toxicity

For the component(s) tested: Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Chronic Toxicity and Carcinogenicity

For the minor component(s): Did not cause cancer in laboratory animals.

Developmental Toxicity

For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For the major component(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive Toxicity

For the minor component(s): In animal studies, has been shown to interfere with reproduction. In animal studies, has been shown to interfere with fertility.

Genetic Toxicology

For all components. In vitro genetic toxicity studies were negative. For all components. Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Data for Component: **Substituted amine (1)**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity
LC50, golden orfe (Leuciscus idus), static, 96 h: 1,466 mg/l
LC50, fathead minnow (Pimephales promelas), static, 96 h: 1,200 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, static, 48 h, immobilization: 2,330 mg/l
Aquatic Plant Toxicity
EC50, green alga Desmodesmus subspicatus, static, Growth rate inhibition, 72 h: > 100 mg/l

Data for Component: **Substituted amine (2)**

Material is slightly toxic to fish on an acute basis (LC50 between 10 and 100 mg/L).

Fish Acute & Prolonged Toxicity
LC50, guppy (Poecilia reticulata), static renewal, 96 h: > 1,800 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, static, 48 h, immobilization: 21 mg/l
Aquatic Plant Toxicity
EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), Growth inhibition (cell density reduction), 72 h: 130 mg/l
NOEC, Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata), static, Growth rate inhibition, 72 h: > 1,000 mg/l
Toxicity to Micro-organisms
IC50; bacteria, 16 h: > 5,000 mg/l

Persistence and Degradability

Data for Component: **Substituted amine (1)**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
96 %	18 d	OECD 301A Test	pass

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
9.70E-11 cm3/s	1.324 h	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
40 %			42 %

Theoretical Oxygen Demand: 2.29 mg/mg

Data for Component: **Substituted amine (2)**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
> 90 %	28 d	OECD 302B Test	Not applicable
65.3 %	28 d	OECD 301F Test	pass

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.69E-10 cm3/s	2.8 h	Estimated.

Bioaccumulative potential

Data for Component: **Substituted amine (1)**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -1.08 Measured

Data for Component: **Substituted amine (2)**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -1.24 Measured
Bioconcentration Factor (BCF): < 3.9; fish; Measured

Mobility in soil

Data for Component: **Substituted amine (1)**

Mobility in soil: Potential for mobility in soil is high (Koc between 50 and 150).
Partition coefficient, soil organic carbon/water (Koc): 53 Estimated.
Henry's Law Constant (H): 9E-06 Pa m³/mol; 25 °C Estimated.

Data for Component: **Substituted amine (2)**

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient, soil organic carbon/water (Koc): 507 Measured
Henry's Law Constant (H): 2.2E-02 Pa*m3/mole. Estimated.

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE

PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. Transport Information

DOT Non-Bulk
NOT REGULATED

DOT Bulk
NOT REGULATED

IMDG
NOT REGULATED

ICAO/IATA
NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	No
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Substituted amine (2)	Trade secret	> 15.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30
CEPA - Domestic Substances List (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. Other Information

Product Literature
Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure. Additional information on this and other products may be obtained by visiting our web page.

Hazard Rating System

NFPA	Health	Fire	Reactivity
	3	1	0

Recommended Uses and Restrictions
Carbon dioxide removal. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Revision
Identification Number: 1511 / 1001 / Issue Date 02/23/2011 / Version: 5.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

Univar USA Inc. (”Univar”) expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

Material Safety Data Sheet

The Dow Chemical Company

Product Name: UCARSOL(TM) AP SOLVENT 814

Issue Date: 02/23/2011
Print Date: 23 Jan 2012

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
UCARSOL™ AP SOLVENT 814

COMPANY IDENTIFICATION
The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
United States

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400
Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Colorless to yellow
Physical State: Liquid.
Odor: Ammoniacal
Hazards of product:

DANGER! Causes severe eye burns. Causes burns of the mouth and throat. Prolonged exposure may cause skin burns. May cause allergic skin reaction. May be harmful if swallowed. Aspiration hazard. Can enter lungs and cause damage. Evacuate area. Keep upwind of spill. Stay out of low areas.

OSHA Hazard Communication Standard

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin Contact: Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Skin Sensitization: Skin contact may cause an allergic skin reaction. Contains component(s) which have demonstrated the potential for contact allergy in mice. Individuals who have had an allergic skin reaction to similar materials may have an allergic skin reaction to this product. The similar material(s) is/are: Triethylenetetramine (TETA).
Inhalation: At room temperature, exposure to vapor is minimal due to low volatility. If material is heated or aerosol/mist is produced, concentrations may be attained that are sufficient to cause respiratory irritation and other effects. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.
Ingestion: Low toxicity if swallowed. Swallowing may result in burns of the mouth and throat. Swallowing may result in gastrointestinal irritation or ulceration. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea.
Aspiration hazard: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.
Birth Defects/Developmental Effects: For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Reproductive Effects: For the minor component(s): In animal studies, has been shown to interfere with reproduction. In animal studies, has been shown to interfere with fertility.

3. Composition Information

Component	CAS #	Amount
Substituted amine (1)	Trade secret	> 65.0 %
Substituted amine (2)	Trade secret	> 15.0 %
Water	7732-18-5	7.0 - 9.0 %

4. First-aid measures

Description of first aid measures
General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
Skin Contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.
Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.
Most important symptoms and effects, both acute and delayed
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.
Indication of immediate medical attention and special treatment needed
Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Chemical eye burns

may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. Fire Fighting Measures

Suitable extinguishing media
Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture
Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.
Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Evacuate area. Refer to Section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. Keep personnel out of low areas. Only trained and properly protected personnel must be involved in clean-up operations. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Non-combustible material. Clay. Vermiculite. Zorb-all®. Do NOT use absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Cellulose. Sawdust. Large spills: Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Do not get in eyes. Do not swallow. Avoid breathing vapor. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Storage
Store in accordance with good manufacturing practices. Use only with adequate ventilation. Do not store in: Aluminum. Copper. Copper alloys. Galvanized containers. Zinc. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage Period:
Bulk
18 Months
Metal drums.
36 Months

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
None established			

Personal Protection
Eye/Face Protection: Use chemical goggles.
Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.
Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.
Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls
Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance
Physical State Liquid.

Color	Colorless to yellow
Odor	Ammoniacal
Odor Threshold	No test data available
pH	11 *Literature*
Melting Point	Not applicable
Freezing Point	-48 °C (-54 °F) *Literature* Pour point
Boiling Point (760 mmHg)	126 °C (259 °F) *Literature* .
Flash Point - Closed Cup	102 °C (216 °F) *ASTM D93*
Flash Point - Open Cup	132 °C (270 °F) *Cleveland Open Cup ASTM D92*
Evaporation Rate (Butyl Acetate = 1)	0.5 *Literature*
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	**Lower**: No test data available **Upper**: No test data available
Vapor Pressure	4.6 mmHg @ 20 °C *Literature*
Vapor Density (air = 1)	2.8 *Literature*
Specific Gravity (H2O = 1)	1.045 20 °C/20 °C *Literature*
Solubility in water (by weight)	100 % @ 20 °C *Literature*
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	304 - 307 °C (579 - 585 °F) *Literature*
Decomposition Temperature	No test data available
Kinematic Viscosity	No test data available
Molecular Weight	106 g/mol

10. Stability and Reactivity

Reactivity
No dangerous reaction known under conditions of normal use.
Chemical stability
Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions
Polymerization will not occur.
Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible Materials: Avoid contact with: Acrylates. Alcohols. Aldehydes. Ketones. Nitrites. Strong acids. Strong oxidizers. Avoid contact with metals such as: Aluminum. Copper. Copper alloys. Galvanized metals. Zinc. Avoid unintended contact with: Halogenated hydrocarbons. Avoid contact with absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Sawdust.
Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity
Ingestion
Single dose oral LD50 has not been determined.
Dermal
The dermal LD50 has not been determined.
Inhalation
As product: The LC50 has not been determined.
Eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin corrosion/irritation

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Sensitization

Skin

Skin contact may cause an allergic skin reaction. Contains component(s) which have demonstrated the potential for contact allergy in mice. Individuals who have had an allergic skin reaction to similar materials may have an allergic skin reaction to this product. The similar material(s) is/are: Triethylenetetramine (TETA).

Repeated Dose Toxicity

For the component(s) tested: Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Chronic Toxicity and Carcinogenicity

For the minor component(s): Did not cause cancer in laboratory animals.

Developmental Toxicity

For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For the major component(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive Toxicity

For the minor component(s): In animal studies, has been shown to interfere with reproduction. In animal studies, has been shown to interfere with fertility.

Genetic Toxicology

For all components. In vitro genetic toxicity studies were negative. For all components. Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Data for Component: **Substituted amine (1)**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity
LC50, golden orfe (Leuciscus idus), static, 96 h: 1,466 mg/l
LC50, fathead minnow (Pimephales promelas), static, 96 h: 1,200 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, static, 48 h, immobilization: 2,330 mg/l
Aquatic Plant Toxicity
EC50, green alga Desmodesmus subspicatus, static, Growth rate inhibition, 72 h: > 100 mg/l

Data for Component: **Substituted amine (2)**

Material is slightly toxic to fish on an acute basis (LC50 between 10 and 100 mg/L).

Fish Acute & Prolonged Toxicity
LC50, guppy (Poecilia reticulata), static renewal, 96 h: > 1,800 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, static, 48 h, immobilization: 21 mg/l
Aquatic Plant Toxicity
EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), Growth inhibition (cell density reduction), 72 h: 130 mg/l
NOEC, Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata), static, Growth rate inhibition, 72 h: > 1,000 mg/l
Toxicity to Micro-organisms
IC50; bacteria, 16 h: > 5,000 mg/l

Persistence and Degradability

Data for Component: **Substituted amine (1)**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
96 %	18 d	OECD 301A Test	pass

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
9.70E-11 cm3/s	1.324 h	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
40 %			42 %

Theoretical Oxygen Demand: 2.29 mg/mg

Data for Component: **Substituted amine (2)**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
> 90 %	28 d	OECD 302B Test	Not applicable
65.3 %	28 d	OECD 301F Test	pass

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.69E-10 cm3/s	2.8 h	Estimated.

Bioaccumulative potential

Data for Component: **Substituted amine (1)**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -1.08 Measured

Data for Component: **Substituted amine (2)**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -1.24 Measured
Bioconcentration Factor (BCF): < 3.9; fish; Measured

Mobility in soil

Data for Component: **Substituted amine (1)**

Mobility in soil: Potential for mobility in soil is high (Koc between 50 and 150).
Partition coefficient, soil organic carbon/water (Koc): 53 Estimated.
Henry's Law Constant (H): 9E-06 Pa m³/mol; 25 °C Estimated.

Data for Component: **Substituted amine (2)**

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient, soil organic carbon/water (Koc): 507 Measured
Henry's Law Constant (H): 2.2E-02 Pa*m3/mole. Estimated.

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE

PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. Transport Information

DOT Non-Bulk
NOT REGULATED

DOT Bulk
NOT REGULATED

IMDG
NOT REGULATED

ICAO/IATA
NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	No
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Substituted amine (2)	Trade secret	> 15.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30
CEPA - Domestic Substances List (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. Other Information

Product Literature
Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure. Additional information on this and other products may be obtained by visiting our web page.

Hazard Rating System

NFPA	Health	Fire	Reactivity
	3	1	0

Recommended Uses and Restrictions
Carbon dioxide removal. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Revision
Identification Number: 1511 / 1001 / Issue Date 02/23/2011 / Version: 5.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

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This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

Appendix B
Laboratory Analytical Report

Analytical Report 538742

for

GHD-Albuquerque, NM

Project Manager: Bernie Bockisch

Enterprise South Eddy

11135037

17-OCT-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

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17-OCT-16

Project Manager: **Bernie Bockisch**
GHD-Albuquerque, NM
6121 Indian School Rd. NE Suite 200

Albuquerque, NM 87110

Reference: XENCO Report No(s): **538742**
Enterprise South Eddy
Project Address:

Bernie Bockisch:

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(s) 538742. 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. 538742 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,

Kelsey Brooks
Project Manager

Sample Cross Reference 538742

GHD-Albuquerque, NM, Albuquerque, NM

Enterprise South Eddy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-11135037-101316-CN-SI	S	10-13-16 09:31	12 In	538742-001
S-11135037-101316-CN-S2	S	10-13-16 09:36	16 In	538742-002
S-11135037-101316-CN-S3	S	10-13-16 09:40	12 In	538742-003
S-11135037-101316-CN-S4	S	10-13-16 09:52	12 In	538742-004

CASE NARRATIVE

Client Name: GHD-Albuquerque, NM

Project Name: Enterprise South Eddy

Project ID: *11135037*
Work Order Number(s): *538742*

Report Date: *17-OCT-16*
Date Received: *10/14/2016*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3002116 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 538742

GHD-Albuquerque, NM, Albuquerque, NM

Enterprise South Eddy

Sample Id:	**S-11135037-101316-CN-SI**	Matrix:	Soil	Date Received:	10.14.16 12.01
Lab Sample Id:	538742-001	Date Collected:	10.13.16 09.31	Sample Depth:	12 In

Analytical Method:	TPH by SW 8015B			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.14.16 16.00	Basis:	Wet Weight
Seq Number:	3002122				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	ND	15.0	mg/kg	10.14.16 21.57	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	ND	15.0	mg/kg	10.14.16 21.57	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	ND	15.0	mg/kg	10.14.16 21.57	U	1
Total TPH	PHC635	ND	15.0	mg/kg	10.14.16 21.57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	10.14.16 21.57	
o-Terphenyl	84-15-1	118	%	70-135	10.14.16 21.57	

Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	10.14.16 18.00	Basis:	Wet Weight
Seq Number:	3002116				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00150	mg/kg	10.14.16 19.56	U	1
Toluene	108-88-3	ND	0.00200	mg/kg	10.14.16 19.56	U	1
Ethylbenzene	100-41-4	ND	0.00200	mg/kg	10.14.16 19.56	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/kg	10.14.16 19.56	U	1
o-Xylene	95-47-6	ND	0.00299	mg/kg	10.14.16 19.56	U	1
Total Xylenes	1330-20-7	ND	0.00200	mg/kg	10.14.16 19.56	U	1
Total BTEX		ND	0.00150	mg/kg	10.14.16 19.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	80-120	10.14.16 19.56	
1,4-Difluorobenzene	540-36-3	103	%	80-120	10.14.16 19.56	

Certificate of Analytical Results 538742

GHD-Albuquerque, NM, Albuquerque, NM

Enterprise South Eddy

Sample Id:	**S-11135037-101316-CN-S2**	Matrix:	Soil	Date Received:	10.14.16 12.01
Lab Sample Id:	538742-002	Date Collected:	10.13.16 09.36	Sample Depth:	16 In

Analytical Method:	TPH by SW 8015B			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.14.16 16.00	Basis:	Wet Weight
Seq Number:	3002122				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	ND	15.0	mg/kg	10.14.16 22.22	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	ND	15.0	mg/kg	10.14.16 22.22	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	ND	15.0	mg/kg	10.14.16 22.22	U	1
Total TPH	PHC635	ND	15.0	mg/kg	10.14.16 22.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	10.14.16 22.22	
o-Terphenyl	84-15-1	120	%	70-135	10.14.16 22.22	

Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	10.14.16 18.00	Basis:	Wet Weight
Seq Number:	3002116				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00150	mg/kg	10.14.16 20.12	U	1
Toluene	108-88-3	ND	0.00200	mg/kg	10.14.16 20.12	U	1
Ethylbenzene	100-41-4	ND	0.00200	mg/kg	10.14.16 20.12	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/kg	10.14.16 20.12	U	1
o-Xylene	95-47-6	ND	0.00299	mg/kg	10.14.16 20.12	U	1
Total Xylenes	1330-20-7	ND	0.00200	mg/kg	10.14.16 20.12	U	1
Total BTEX		ND	0.00150	mg/kg	10.14.16 20.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	80-120	10.14.16 20.12	
1,4-Difluorobenzene	540-36-3	96	%	80-120	10.14.16 20.12	

Certificate of Analytical Results 538742

GHD-Albuquerque, NM, Albuquerque, NM

Enterprise South Eddy

Sample Id:	**S-11135037-101316-CN-S3**	Matrix:	Soil	Date Received:	10.14.16 12.01
Lab Sample Id:	538742-003	Date Collected:	10.13.16 09.40	Sample Depth:	12 In

Analytical Method:	TPH by SW 8015B			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.14.16 16.00	Basis:	Wet Weight
Seq Number:	3002122				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	ND	15.0	mg/kg	10.14.16 22.46	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	ND	15.0	mg/kg	10.14.16 22.46	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	ND	15.0	mg/kg	10.14.16 22.46	U	1
Total TPH	PHC635	ND	15.0	mg/kg	10.14.16 22.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	10.14.16 22.46	
o-Terphenyl	84-15-1	123	%	70-135	10.14.16 22.46	

Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	10.14.16 18.00	Basis:	Wet Weight
Seq Number:	3002116				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00149	mg/kg	10.14.16 20.28	U	1
Toluene	108-88-3	ND	0.00199	mg/kg	10.14.16 20.28	U	1
Ethylbenzene	100-41-4	ND	0.00199	mg/kg	10.14.16 20.28	U	1
m,p-Xylenes	179601-23-1	ND	0.00199	mg/kg	10.14.16 20.28	U	1
o-Xylene	95-47-6	ND	0.00298	mg/kg	10.14.16 20.28	U	1
Total Xylenes	1330-20-7	ND	0.00199	mg/kg	10.14.16 20.28	U	1
Total BTEX		ND	0.00149	mg/kg	10.14.16 20.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	92	%	80-120	10.14.16 20.28	
1,4-Difluorobenzene	540-36-3	96	%	80-120	10.14.16 20.28	

Certificate of Analytical Results 538742

GHD-Albuquerque, NM, Albuquerque, NM

Enterprise South Eddy

Sample Id:	**S-11135037-101316-CN-S4**	Matrix:	Soil	Date Received:	10.14.16 12.01
Lab Sample Id:	538742-004	Date Collected:	10.13.16 09.52	Sample Depth:	12 In

Analytical Method:	TPH by SW 8015B			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	10.14.16 16.00	Basis:	Wet Weight
Seq Number:	3002122				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	ND	15.0	mg/kg	10.14.16 23.14	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	ND	15.0	mg/kg	10.14.16 23.14	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	ND	15.0	mg/kg	10.14.16 23.14	U	1
Total TPH	PHC635	ND	15.0	mg/kg	10.14.16 23.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	10.14.16 23.14	
o-Terphenyl	84-15-1	117	%	70-135	10.14.16 23.14	

Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	PJB			% Moisture:	
Analyst:	PJB	Date Prep:	10.14.16 18.00	Basis:	Wet Weight
Seq Number:	3002116				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00150	mg/kg	10.14.16 20.44	U	1
Toluene	108-88-3	ND	0.00200	mg/kg	10.14.16 20.44	U	1
Ethylbenzene	100-41-4	ND	0.00200	mg/kg	10.14.16 20.44	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/kg	10.14.16 20.44	U	1
o-Xylene	95-47-6	ND	0.00300	mg/kg	10.14.16 20.44	U	1
Total Xylenes	1330-20-7	ND	0.00200	mg/kg	10.14.16 20.44	U	1
Total BTEX		ND	0.00150	mg/kg	10.14.16 20.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	80-120	10.14.16 20.44	
1,4-Difluorobenzene	540-36-3	99	%	80-120	10.14.16 20.44	

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 quantitation 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

QC Summary 538742

GHD-Albuquerque, NM

Enterprise South Eddy

Analytical Method: TPH by SW 8015B — Prep Method: TX1005P
Seq Number: 3002122 — Matrix: Solid — Date Prep: 10.14.16
MB Sample Id: 715008-1-BLK — LCS Sample Id: 715008-1-BKS — LCSD Sample Id: 715008-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	999	100	968	97	70-135	3	35	mg/kg	10.14.16 19:53	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1070	107	1050	105	70-135	2	35	mg/kg	10.14.16 19:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		129		123		70-135	%	10.14.16 19:53
o-Terphenyl	120		129		129		70-135	%	10.14.16 19:53

Analytical Method: TPH by SW 8015B — Prep Method: TX1005P
Seq Number: 3002122 — Matrix: Soil — Date Prep: 10.14.16
Parent Sample Id: 538536-001 — MS Sample Id: 538536-001 S — MSD Sample Id: 538536-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	16.6	998	961	95	969	96	70-135	1	35	mg/kg	10.14.16 21:09	
C10-C28 Diesel Range Hydrocarbons	30.0	998	1000	97	979	95	70-135	2	35	mg/kg	10.14.16 21:09	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	127		128		70-135	%	10.14.16 21:09
o-Terphenyl	124		124		70-135	%	10.14.16 21:09

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3002116 — Matrix: Solid — Date Prep: 10.14.16
MB Sample Id: 715021-1-BLK — LCS Sample Id: 715021-1-BKS — LCSD Sample Id: 715021-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00150	0.100	0.0896	90	0.0897	90	70-130	0	35	mg/kg	10.14.16 18:05	
Toluene	<0.00200	0.100	0.0922	92	0.0925	93	70-130	0	35	mg/kg	10.14.16 18:05	
Ethylbenzene	<0.00200	0.100	0.0960	96	0.0977	98	71-129	2	35	mg/kg	10.14.16 18:05	
m,p-Xylenes	<0.00200	0.200	0.197	99	0.200	100	70-135	2	35	mg/kg	10.14.16 18:05	
o-Xylene	<0.00300	0.100	0.0964	96	0.0983	98	71-133	2	35	mg/kg	10.14.16 18:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		99		100		80-120	%	10.14.16 18:05
4-Bromofluorobenzene	97		102		105		80-120	%	10.14.16 18:05

QC Summary 538742

GHD-Albuquerque, NM

Enterprise South Eddy

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3002116 Matrix: Soil Date Prep: 10.14.16

Parent Sample Id: 538742-001 MS Sample Id: 538742-001 S MSD Sample Id: 538742-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00149	0.0994	0.0822	83	0.0807	81	70-130	2	35	mg/kg	10.14.16 18:36	
Toluene	<0.00199	0.0994	0.0852	86	0.0830	84	70-130	3	35	mg/kg	10.14.16 18:36	
Ethylbenzene	<0.00199	0.0994	0.0885	89	0.0857	86	71-129	3	35	mg/kg	10.14.16 18:36	
m,p-Xylenes	<0.00199	0.199	0.182	91	0.175	88	70-135	4	35	mg/kg	10.14.16 18:36	
o-Xylene	<0.00298	0.0994	0.0911	92	0.0867	87	71-133	5	35	mg/kg	10.14.16 18:36	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		101		80-120	%	10.14.16 18:36
4-Bromofluorobenzene	106		103		80-120	%	10.14.16 18:36

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 #: 322796 Page 1 of 1

Lab Only: 539742

Company-City GHD Services	**Phone** (505) 884-0672
Project Name-Location Enterprise South Eddy ☐ Previously done at XENCO	**Project ID** 11135037
Proj. State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other	**Proj. Manager (PM)** Bernard Backisch
E-mail Results to ☐PM and Bernard.Backisch@GHD.com	**Fax No:**
Invoice to ☐Accounting ☐Inc. 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 C. Veligh	**Signature** Chris Veligh

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
1	S-11135037-10316-CN-S1	10-13-16	0931	12"	S		/	2	4oz	C	NA
2	S-11135037-10316-CN-S2	10-13-16	0936	16"	S		/	2	4oz	C	NA
3	S-11135037-10316-CN-S3	10-13-16	0940	12"	S		/	2	4oz	C	NA
4	S-11135037-10316-CN-S4	10-13-16	0952	12"	S		/	2	4oz	C	NA
5											
6											
7											
8											
9											
10											

	VOA: Full-List BTEX-MTBE EtOH Oxyg VOHs VOAs	VOA: PP TCL DW Appdx-1 Appdx-2 CALL Other:	PAHs SIM 8310 8270	TX-1005 DRO GRO MA EPH MA VPH	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	BTEX by 8021	TPH DRO/GRO/MRO by 8015	Amins/MDEA - Do NOT Run until Instructed	TATASAP 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									X	X	X				Do Not Run Amins until Instructed.	
2									X	X	X					
3									X	X	X					
4									X	X	X					
5																
6																
7																
8																
9																
10																

Remarks

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1) CN Chris Veligh	10-13-16 1529	2) Deserree Cadoz	10/13/16 3:30
3)		4) KRAMER 1	10/14/16 1200
5)		6)	

Total Containers per COC: Cooler Temp: 1.1 °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 Collectio

Temp: IR ID:R-8 CF:+ 0.1 Corrected Temp: 6.6 C

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 (

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

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

ORIGIN ID:HOBA (575) 392-7550
**
MAIL SERVICES ETC, LLC
4008 N GRIMES

HOBBS, NM 88240
UNITED STATES US

SHIP DATE: 13OCT16
ACTWGT: 23.0 LB MAN
CAD: 0909328/CAFE2915
DIMS: 18x16x11 IN

BILL RECIPIENT

TO XENCO LABORATORIES
XENCO LABORATORIES
1211 W FLORIDA AVE

MIDLAND TX 79701
(432) 563-1800
INV:
PO:
REF:
DEPT:

FedEx Express

TRK# 0201 6606 3912 7291

FRI - 14 OCT 3:00P
STANDARD OVERNIGHT

41 MAFA

79701
TX-US LBB

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD-Albuquerque, NM

Date/ Time Received: 10/14/2016 12:01:00 PM

Work Order #: 538742

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	6.6
#2 *Shipping container in good condition?	**N/A**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**Yes**
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Jessica Kramer Date: 10/14/2016

Jessica Kramer

Checklist reviewed by: Kelsey Brooks Date: 10/14/2016

Kelsey Brooks

Appendix C
Waste Manifests

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST NO 111304 | 1. PAGE __ OF __ | 2. TRAILER NO. 83

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE
Enterprise Field Services LLC.	P.O. Box 1508			
PHONE NO.	CITY	STATE	ZIP	6. TNRCC I.D. NO.
(575) 885-7236	Carlsbad	NM	88220	

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	8. CONTAINERS Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a. Non-Regulated, Non Hazardous Waste	1	CM	25		
b.					
c.					
d. WT					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.
SOUTH EDDY CYRO PLANT	

TERMINATOR

14. **IN CASE OF EMERGENCY OR SPILL, CONTACT**

NAME	PHONE NO	24-HOUR EMERGENCY NO.
Kin Slaughter	575-887-4048	

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE
Jaffrey Lewis		10/10/16

TRANSPORTERS

16. TRANSPORTER (1)	17. TRANSPORTER (2)
NAME: TWT LLC	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT: CARL SUNDERLAND	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: (575) 887-4048	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Jesus Bermudez	PRINTED/TYPED NAME
SIGNATURE DATE 10/10/16	SIGNATURE DATE

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048

PERMIT NO.	20. COMMENTS
WM-01-035 - New Mexico	

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 4

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST NO 111303 | 1. PAGE ___ OF ___ | 2. TRAILER NO. 83

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE
Enterprise Field Services LLC	P.O. Box 1508			
PHONE NO. (575) 885-7236	CITY Carlsbad	STATE NM	ZIP 88220	6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a. Non-Regulated, Non Hazardous Waste	1	CM	25		
b.					
c.					
d. WT:					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.
SOUTH EDDY CYRO PLANT	

14. IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME	PHONE NO	24-HOUR EMERGENCY NO.
Kin Slaughter	575-887-4048	

15. GENERATOR'S CERTIFICATION: I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE
PATRICK KINNARD	Patrick Kinnard	10/10/16

TRANSPORTERS

16. TRANSPORTER (1)	17. TRANSPORTER (2)
NAME: TWT LLC	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT: CARL SUNDERLAND	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: (575) 887-4048	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Jesus Escrudero	PRINTED/TYPED NAME
SIGNATURE [signature] DATE 10/10/16	SIGNATURE DATE

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048

PERMIT NO.	20. COMMENTS
WM-01-035 - New Mexico	

21. DISPOSAL FACILITY'S CERTIFICATION: I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 4

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST NO 111302 | 1. PAGE __ OF __ | 2. TRAILER NO. 83

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE
Enterprise Field Services LLC, PHONE NO. (505) 599-1230	P.O. Box 1508 CITY Carlsbad	STATE NM	ZIP 88220	6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a. Non-Regulated, Non Hazardous Waste	1	CM	25		
b.					
c.					
d. WT					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.
SOUTH EDDY CYRO PLANT	

TRANSPORTER

14. **IN CASE OF EMERGENCY OR SPILL, CONTACT**

NAME	PHONE NO	24-HOUR EMERGENCY NO.
Kin Slaughter	575-887-4048	

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE
PATRICK KANNARD	Patrick Kannard	10/10/16

TRANSPORTERS

16. **TRANSPORTER (1)**	17. **TRANSPORTER (2)**
NAME: TWT LLC	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT: CARL SUNDERLAND	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: (575) 887-4048	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Jesus Fernandez	PRINTED/TYPED NAME
SIGNATURE DATE 10/10/16	SIGNATURE DATE

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048

PERMIT NO.	20. COMMENTS
WM-01-035 - New Mexico	

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 4

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST NO 115785 | 1. PAGE ___ OF ___ | 2. TRAILER NO. 83

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE
Enterprise Field Services LLC	P.O BOX 1508			
PHONE NO. (575) 885-7236	CITY Carlsbad	STATE NM	ZIP 88221	6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	8. CONTAINERS Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a. Non-Regulated, Non Hazardous Waste	1	CM	25		
b.					
c.					
d.					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.
SOUTH EDDY CYRO PLANT	708582

14. **IN CASE OF EMERGENCY OR SPILL, CONTACT**

NAME	PHONE NO	24-HOUR EMERGENCY NO.
Kin Slaughter	575-887-4048	

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE

TRANSPORTERS

16. **TRANSPORTER (1)**	17. **TRANSPORTER (2)**
NAME: TWT LLC	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT: CARL SUNDERLAND	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: (575) 887-4048	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Jesus Bermudez	PRINTED/TYPED NAME
SIGNATURE DATE 10/7/16	SIGNATURE DATE

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048

PERMIT NO.	20. COMMENTS
WM-01-035 - New Mexico	

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 4

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST NO 115784 | 1. PAGE ___ OF ___ | 2. TRAILER NO. 83

GENERATOR

3. COMPANY NAME	4. ADDRESS	5. PICK-UP DATE
PHONE NO.	CITY STATE ZIP	6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a. Non-Regulated, Non Hazardous Waste			25		
b.					
c.					
d.					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.

GENERATOR

14. **IN CASE OF EMERGENCY OR SPILL, CONTACT**

NAME	PHONE NO	24-HOUR EMERGENCY NO.

GENERATOR

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE
MATT CASTILLO		10-7-16

TRANSPORTERS

16. **TRANSPORTER (1)**	17. **TRANSPORTER (2)**
NAME: TWT LLC	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT: CARL SUNDERLAND	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: (575) 887-4048	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Jesus Bermudez	PRINTED/TYPED NAME
SIGNATURE DATE 10/7/16	SIGNATURE DATE

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048

PERMIT NO.	20. COMMENTS
WM-01-035 - New Mexico	

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 4

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST NO 115783 | 1. PAGE ___ OF ___ | 2. TRAILER NO. 83

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE
PHONE NO.	CITY	STATE	ZIP	6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a.			25		
b.					
c.					
d.					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.

14. **IN CASE OF EMERGENCY OR SPILL, CONTACT**

NAME PHONE NO 24-HOUR EMERGENCY NO.

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE

TRANSPORTERS

16. **TRANSPORTER (1)**	17. **TRANSPORTER (2)**
NAME:	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT:	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE:	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Jesus Bermudez	PRINTED/TYPED NAME
SIGNATURE DATE	SIGNATURE DATE

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048
PERMIT NO. WM-01-035 - New Mexico	20. COMMENTS	

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 4

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 408913

CONDITIONS

Operator: Enterprise Field Services, LLC PO Box 4324 Houston, TX 77210	OGRID: 241602
	Action Number: 408913
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Historical document upload. Incorrect RP number listed on C141.	12/5/2024