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# 1RP#2049 New Mexico State No. 7 Lease Final Closure Report Lea County, New Mexico

Project No. 8-0171

July 23, 2009

Prepared for: Bridwell Oil Company 810 8<sup>th</sup> Street Wichita Falls, Texas 76301

Prepared by: Mark J. Larson, CPG Certified Professional Geologist No. 10490

> Larson & Associates, Inc. 507 North Marienfeld, Suite 200 Midland, Texas 79701

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## **Executive Summary**

This report presents the closure documentation for the New Mexico State 7 Lease Well number 001 and tank battery operated by Bridwell Oil Company (Bridwell) in Unit H (SE/NE), Section 7, Township 9 South, Range 33 East in Lea County, New Mexico. The Site was remediated between February 2 and 10, 2009, according to New Mexico Oil Conservation Division (OCD) guidelines ("Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993"). On February 3 and 6, 2009, final soil samples were collected from the Site and analyzed by laboratory methods for total petroleum hydrocarbons (TPH) and chloride. The TPH concentrations in the final samples were below the OCD recommended remediation action level (RRAL) of 1,000 milligrams per kilogram (mg/Kg). The highest chloride concentration was 48 mg/Kg. Approximately 1,560 cubic yards of hydrocarbon contaminated soil was excavated and hauled to Gandy Marley Inc. (GMI) located west of Tatum, New Mexico. Approximately 1,960 cubic yards of clean top soil, approved by the New Mexico State Land Office (SLO), was acquired from GMI to fill the excavations. On May 5, 2009, the remediation areas were seeded according to SLO specifications. On July 1, 2009, the OCD released the plugging bond for the Site.

## 1.0 Introduction

This report was prepared by Larson & Associates, Inc. (LAI) to document the investigation and remediation of hydrocarbon contaminated soil at the New Mexico State 7 Lease Well No. 001 and tank battery located in Unit H (SE, NE), Section 7, Township 9 South , Range 33 East in Lea County New Mexico. The latitude and longitude is north 33° 32' 57.6" and west 103° 36' 02.0", respectively. On September 26, 2008, Bridwell submitted initial form C-103 to the OCD in Hobbs, New Mexico, for its intent to plug the well. On September 29, 2008, the SLO issued a letter to Charles D. Ray, as lessee of record, specifying requirements of Bridwell for abandoning the Site. On November 24 and 25, 2008, LAI collected soil samples from thirteen (13) air rotary drilled borings and analyzed the samples by laboratory methods for benzene, toluene, ethylbenzene, xylene (BTEX), TPH and chloride. On January 13, 2009, the OCD approved the initial form C-141 (Release Notification and Corrective Action) authorizing Bridwell to commence remediation. Soil remediation was performed between February 2 and 10, 2009. Final soil samples were collected on February 3 and 6, 2009, with no TPH concentrations exceeding the OCD recommended remediation action levels (RRAL). On May 5 and 6, 2009, the Site was seeded according to SLO requirements. Figure 1 presents a location map. Appendix A presents the regulatory correspondence.

## 2.0 Chronology

The following events have been documented in connection with the North (#2) Brine Pond closure.

- September 26, 2008 Bridwell submits form C-103 to the OCD in Hobbs, New Mexico to provide notification of its intent to plug well No. 001;
- September 29, 2008 SLO issues letter to Charles D. Ray, lessee of record, notifying Bridwell of its requirements to abandon the site and unacceptable damage, including obsolete equipment and surface staining;
- November 5, 2008 Bridwell retains LAI to remediate the site;
- November 24, 2008 SLO issues Right-of-Entry permit (ROE-1752) to LAI, whom supervises Scarborough Drilling, Inc. to collect soil samples from thirteen (13) airrotary drilled borings for laboratory analysis;
- January 13, 2009 LAI submits initial form C-141 (Release Notification and Corrective Action) to the OCD in Hobbs, New Mexico, and receives approval to remediate the hydrocarbon contaminated soil;
- January 28, 2009 Bridwell submits subsequent form C-103 to the OCD in Hobbs, New Mexico, providing notification that Well No. 001 was plugged;
- January 29, 2009 OCD inspects Site and issues a notice of violation to Bridwell for unacceptable conditions at tank battery and well location;
- February 2, 2009 LAI and Watson Construction Company, Inc. (Watson) begin soil remediation by removing approximately 300 cubic yards of caliche from the well location for blending and placement on the adjoining lease road;
- February 10, 2009 Soil remediation is completed after hauling approximately 1,560 cubic yards of hydrocarbon contaminated soil to the Gandy Marley, Inc. disposal facility, located west of Tatum, New Mexico. Approximately 1,960 cubic yards of clean soil, approved by the SLO, was hauled back from the Gandy Marley facility for filling excavations;
- May 5, 2009 B & T Farms, from Clovis, New Mexico, prepares seed bed, drills seed mixture according to SLO requirements and crimp mulch over remediation areas;
- July 1, 2009Plugging bond for Well No. 001 is released by the OCD in Hobbs, New<br/>Mexico.

## 3.0 Investigative Activities

On November 24 and 25, 2008, LAI supervised Scarborough Drilling, Inc. to collect soil samples using an air rotary rig and jam tube sampler at three (3) locations (BH-1 through BH-3) in the vicinity of the well and ten (10) locations (BH-4 through BH-13) at the tank battery. LAI provided notification to the OCD prior to drilling the borings which were advanced between approximately 15 and 30 feet below ground surface (BGS). Soil samples were collected about every five (5) feet (i.e., 1, 5, 10, 15, 20, etc.) to the total depth of the borings and placed in clean glass sample jars. The containers were sealed, labeled, chilled in an ice filled chest and hand delivered under chain of custody control to Trace Analysis, Inc. (Trace) located in Midland, Texas. Samples were collected for field headspace analysis using a calibrated photoionization detector (PID). Only one sample, BH-7, 5 feet, reported a PID reading over 100 parts per million (ppm) and was analyzed by the laboratory for benzene, toluene, ethylbenzene and xylene (BTEX) by method SW846-8021B. The laboratory analyzed additional samples for total petroleum hydrocarbons (TPH) by method SW846-8015 for gasoline range organics (GRO) and diesel range organics (DRO) and chloride. Table 1 presents a summary of the soil boring sample analysis. Figure 2 presents a drawing for the well location and borings. Figure 3 presents a drawing for the tank battery and spill are north of the tank battery and borings. Appendix B presents the boring logs. Appendix C presents the laboratory report.

Groundwater occurs in the Ogallala formation (Tertiary) at approximately 60 feet BGS. The nearest well is located about 3,400 feet northwest of the Site in Unit O (SW/SE) in Section 6, Township 9 South, Range 33 East and is used for stock watering. The closest surface water feature is a stock tank located about 3,200 feet southeast of the Site. LAI calculated recommended remediation action levels (RRAL) using the following criteria published by OCD ("Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993"):

Ranking Criteria	Result	Ranking Score
Depth-to-Groundwater	>50 feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0
	Total Score:	10

The following RRAL are assigned to the leak based on the total ranking score (10):

Benzene	10 mg/Kg
Total BTEX	50 mg/Kg
ТРН	1,000 mg/Kg

The laboratory reported no benzene in the sample from 5 feet BGS at boring BH-7, and BTEX was 0.197 mg/Kg. The laboratory reported TPH above 1,000 mg/Kg in the following samples:

Location	Depth	GRO	DRO	ТРН
BH-1	1	560	519	1,079
BH-7	5	7.22	1300	1,307.22
BH-12	1	1,390	3,960	5,350

TPH was also reported at 2,021.02 mg/Kg in a composite sample from a soil pile at the tank battery. Chloride was reported in concentrations from 15.6 mg/Kg to 6,620 mg/Kg.

## 4.0 Closure Activities

On January 13, 2009, Bridwell received approval from the OCD in Hobbs, New Mexico, to commence remediation. On February 2, 2009, LAI initiated remediation at the well location by excavating soil near the well (BH-1 through BH-3) to approximately three (3) feet BGS. About 300 cubic yards of caliche was removed from the well location, blended and was placed on the adjacent lease road. Soil was excavated from the tank battery to about eight (8) feet BGS near the center and to about 3 feet BGS in the vicinity of boring BH-12 at the spill area located north of the tank battery. Approximately 1,560 cubic yards of contaminated soil was disposed at Gandy Marley, Inc. (GMI) disposal facility located west of Tatum, New Mexico. Approximately 1,960 cubic yards of clean top soil, approved by the SLO, was acquired from GMI to fill the excavations.

On February 3 and 6, 2009, LAI collected confirmation samples at seven (7) locations (SS-1 through SS-7). The samples were collected near the well (SS-1), spill area north of the tank battery (SS-2), and from the tank battery (SS-4 through SS-7). The samples were collected using a stainless steel hand auger, placed in clean glass sample jars that were sealed, labeled, chilled in an ice filled chest and hand delivered under chain of custody control to Cardinal Laboratories, Inc. (Cardinal) located in Hobbs, New Mexico. Cardinal analyzed the samples for TPH, including GRO and DRO, by method SW846-8015 and chloride. The highest TPH concentration (103 mg/Kg) was reported in sample SS-7 collected near the center of the tank battery. The highest chloride concentration (48 mg/Kg) was reported in sample SS-4 from the northeast corner of the tank battery. Table 2 presents a summary of the remediation soil samples. Figure 2 presents the remediation sample locations. Appendix C presents the laboratory report.

On May 5 and 6, 2009, B & T Farms, Inc. (B & T) located in Clovis, New Mexico, seeded the remediation areas according to SLO requirements. Appropriate notification was given to the SLO in Hobs and Santa Fe, New Mexico. B & T prepared the seed bed, drilled the seed and placed a layer of hay mulch over the seeded areas. The hay mulch was mechanically crimped to minimize erosion from wind. Curtis & Curtis, Inc., located in Clovis, New Mexico, prepared the seed blend according to SLO specifications. Appendix D presents the seed certification and bag tag. Appendix E presents photographs. Appendix F presents the initial and final form C-141.

# 5.0 Conclusions

The following observations are documented in this report:

- The laboratory results of samples SS-1 through SS-7 demonstrate that soil was remediated to achieve the RRAL of 1,000 mg/Kg for TPH;
- Chloride in remediation soil samples SS-1 through SS-7 was below the OCD action level of 250 mg/Kg;
- The well location, tank battery and spill area north of the tank battery were remediated to OCD requirements and the surface was restored to SLO requirements.



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### Table 1

## Bridwell Oil Company Soil Boring Analytical Data Summary NM State #7 Lease Lea County, New Mexico Project Number: 8-0171

Sample ID	Date	GRO C6-C12	DRO C12-C28	TPH 5 C6-C28	Chlorides
Néw Mexico Regu	l latory Limit			1,000	250
BH-1, 1'	11/24/2008	560	519 <sup>`</sup>	1,079	1,490
BH-1, 5'	11/24/2008	89.7	32.2	121.9	665
BH-1, 10'	11/24/2008	29.4	<17.3	29.4	3,360
BH-1, 15'	11/24/2008				1,160
BH-1, 20'	11/24/2008				1,480
BH-2, 1'	11/24/2008	10.9	<16.6	10.9	149
BH-2, 5'	11/24/2008	6.19	18.5	24.69	6,620
BH-2, 10'	11/24/2008				1,490
BH-2 <i>,</i> 15'	11/24/2008				470
BH-2, 20'	11/24/2008				1,620
BH-3, 1'	11/24/2008	6.84	<17.0	6.84	176
BH-3, 5'	11/24/2008	1.13	<17.5	1.13	3,210
BH-3, 10'	11/24/2008				4,390
BH-3, 15'	11/24/2008				776
BH-3, 20'	11/24/2008				460
BH-4, 1'	11/25/2008	0.447	<17.3	0.447	46.6
BH-4, 5'	11/25/2008	0.270	<17.0	0.270	26.0
BH-4, 10'	11/25/2008				666
BH-4, 15'	11/25/2008	ar 100 m			52.0
BH-4, 20'	11/25/2008				50.6
BH-5, 1'	11/25/2008	<0.182	<16.8	<16.982	120
BH-5, 5'	11/25/2008	<0.186	<17.1	<17.286	962
BH-5, 10'	11/25/2008				868
BH-5, 15'	11/25/2008				332
BH-5, 20'	11/25/2008				163
BH-6, 1'	11/25/2008	<0.183	27.8	27.8	37.5
BH-6, 5'	11/25/2008	<0.180	<16.6	<16.780	134
BH-6, 10'	11/25/2008				320
BH-6, 15'	11/25/2008				101
BH-7, 1'	11/25/2008	<0.189	<17.4	<17.589	1,170
BH-7, 5'	11/25/2008	7.22	1,300	1,307.22	1,390
BH-7, 10'	11/25/2008	6.52	<17.1	6.52	733
BH-7, 15'	11/25/2008	1.41	<16.0	1.41	211
BH-7, 20'	11/25/2008				317
BH-7. 30'	11/25/2008				295
BH-8, 1'	11/25/2008	0.922	<16.9	0.922	187
BH-8, 5'	11/25/2008	1.01	<17.4	1.01	1,220
BH-8, 10'	11/25/2008				746
BH-8, 15'	11/25/2008				2,090
BH-8, 20'	11/25/2008				1,750

## Table 1 Bridwell Oil Company Soil Boring Analytical Data Summary NM State #7 Lease Lea County, New Mexico Project Number: 8-0171

Sample ID	Date	GRO	DRO	TPH	Chlorides
•		C6-C12	C12-C28	C6-C28	250
New Mexico Regu				1,000	. <sub>2</sub> . 230 ,
BH-9, 1'	11/25/2008	0.949	<16.6	0.949	159
BH-9, 5'	11/25/2008	0.932	<16.8	0.932	805
BH-9, 10'	11/25/2008	0.950	<17.8	0.950	1,740
BH-9, 15'	11/25/2008	0.941	<16.5	0.941	810
BH-9, 20'	11/25/2008				345
BH-10, 1'	11/25/2008	0.937	<17.3	0.937	38.5
BH-10, 5'	11/25/2008	0.982	<17.3	0.982	127
BH-10, 10'	11/25/2008				134
BH-10, 15'	11/25/2008				57.3
BH-10, 20'	11/25/2008				40.9
BH-11, 1'	11/25/2008	0.934	<16.8	0.934	79.9
BH-11, 5'	11/25/2008	0.925	<16.7	0.925	40.2
BH-11, 10'	11/25/2008				724
BH-11, 15'	11/25/2008				543
BH-11, 20'	11/25/2008				173
BH-12, 1'	11/25/2008	1390	3960	5350	25.6
BH-12, 5'	11/25/2008	47.6	<17.8	47.6	22.1
BH-12, 10'	11/25/2008	16.3	<16.6	16.3	120
BH-12, 15'	11/25/2008				82.5
BH-13, 0'	11/25/2008	2.36	<16.6	2.36	15.6
BH-13, 5'	11/25/2008	1.31	<16.9	1.31	28.9
BH-13, 10'	11/25/2008				220
BH-13 <i>,</i> 15'	11/25/2008				97.4
BH-13, 20'	11/25/2008				49.1
SS-1	11/25/2008	1.02	2020	2021.02	122

#### Notes

Total Petroleum Hydrocarbons analyzed via EPA SW Method 8015 Mod.

All values reported in Milligrams per Kilogram - dry (mg/Kg, parts per million).

Bold indicates the analyte was detected.

Bold and blue indicates the value exceeds NMOCD requirements.

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## Table 1 Bridwell Oil Company Soil Analytical Data Summary NM State #7 Lease Lea County, New Mexico Project Number: 8-0171

Sample ID	Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX
New Mexico Reg	ulatory Limit	10			- <u></u>	. 50
BH-7, 5'	11/25/2008	<0.00905	<0.00905	0.115	0.0819	0.197

#### Notes

Benzene, Toluene, Ethylbenzene and Xylenes analyzed via EPA SW Method 8021B.

All values reported in Milligrams per Kilogram - dry (mg/Kg, parts per million).

Bold indicates the analyte was detected.

Bold and blue indicates the value exceeds NMOCD requirements.

## Table 2 Bridwell Oil Company Soil Remediation Analytical Data Summary NM State #7 Lease Lea County, New Mexico Project Number: 8-0171

Sample ID	Date	GRO C6-C12	DRO C12-C28	ТРН C6-C28	Chlorides
New Mexico Regu	latory Limit		· · · · · · · ·	1,000	250
SS-1 (0-1)	2/3/2009	<10	<10	<10	<16
SS-2 (0-1)	2/3/2009	<10	<10	<10	<16
SS-3 (0-1)	2/6/2009	<10	<10	<10	32
SS-4 (0-1)	2/6/2009	<10	<10	<10	48
SS-5 (0-1)	2/6/2009	<10	<10	<10	<16
SS-6 (0-1)	2/6/2009	<10	82.8	82.8	<16
SS-7 (0-1)	2/6/2009	<10	103	103	<16

#### Notes

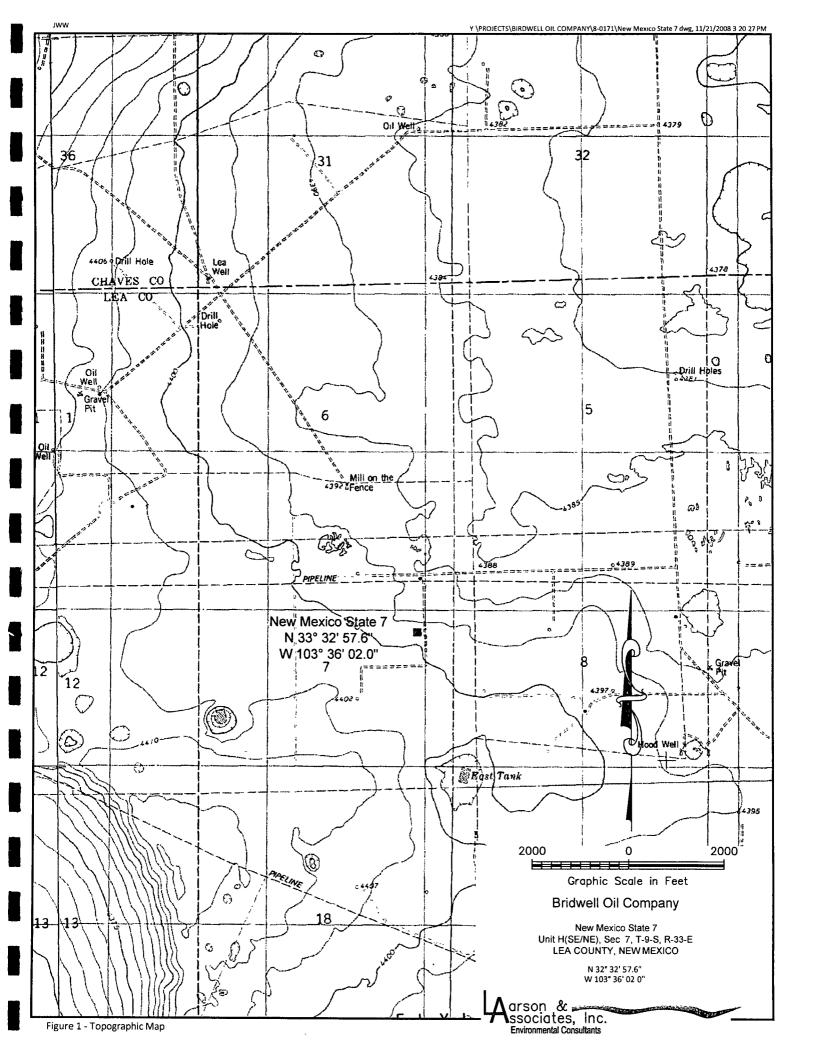
Total Petroleum Hydrocarbons analyzed via EPA SW Method 8015 Mod.

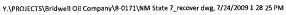
All values reported in Milligrams per Kilogram - dry (mg/Kg, parts per million).

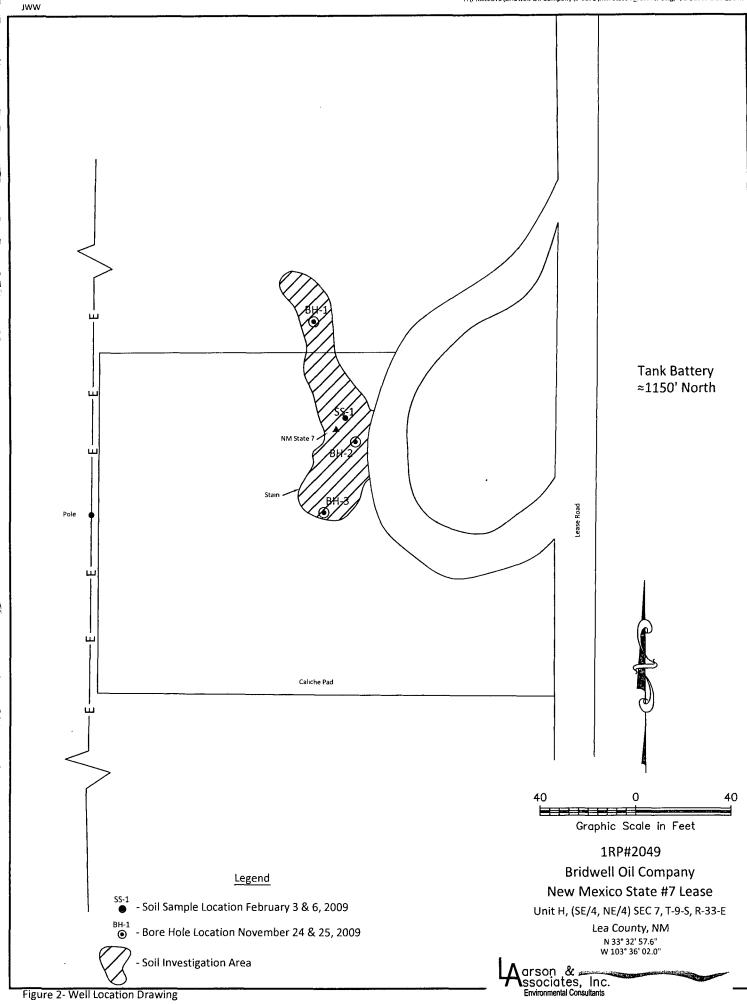
Bold indicates the analyte was detected.

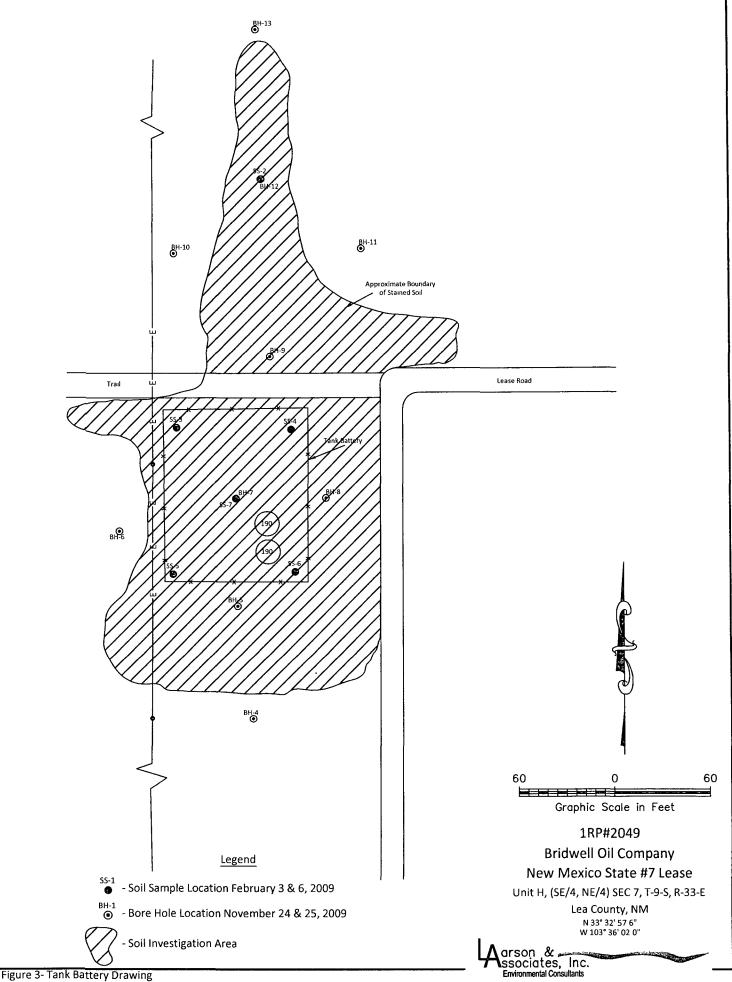
Bold and blue indicates the value exceeds NMOCD requirements.

FIGURES









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### **APPENDIX A**

## **Regulatory Correspondence**

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	ate of New Mexico inerals and Natural Resources	Form C-103 June 19, 2008
1625 N. French Design States Annual 224	WELL API NO. 30-025-24388	
1301 W Grand Ave , Artesia, NM 88210 OIL CON	5. Indicate Type of Lease STATE FEE	
District IV 1220 S. St Frandis II San Plant S	anta Fe, NM 87505	6. State Oil & Gas Lease No. K-03354
87505 SUNDRY NOTICES AND REPO (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMI	TO DEEPEN OR PLUG BACK TO A	7. Lease Name or Unit Agreement Name New Mexico State -7-
PROPOSALS.) 1. Type of Well: Oil Well 🔀 Gas Well 🗌 O	ther	8. Well Number 1
2. Name of Operator		9. OGRID Number 2832
Bridwell Oil Company 3. Address of Operator		10. Pool name or Wildcat
Post Office Box 1830, Wichita Falls, Texas 7630'	7	Flying M; San Ardres
4. Well Location Unit Letter H: 1980 feet from the North lir	he and 660 feet from the East line	
Section 007 Tow	vnship 9S Range 33E	NMPM County Lea
11. Elevation (S 4380 GL	Show whether DR, RKB, RT, GR, etc	
12. Check Appropriate Bo	x to Indicate Nature of Notice,	, Report or Other Data
NOTICE OF INTENTION TO PERFORM REMEDIAL WORK PLUG AND AB TEMPORARILY ABANDON CHANGE PLAN PULL OR ALTER CASING MULTIPLE CON DOWNHOLE COMMINGLE	ANDON 🛛 🛛 REMEDIAL WOR	
OTHER:		
13. Describe proposed or completed operations.	(Clearly state all pertinent details, an	nd give pertinent dates, including estimated date ttach wellbore diagram of proposed completion
Plug & Abandon 1. MIRU Well Servicing Rig, pull ry 2. Set a CIBP at 4350', dump & sack 3. Perforate the 4.5" casing at 422' v 4. Establish circulation, pump 50 sac 5. Set 5 sacks cement plug at ground 6. Cut casing off 3' below ground le	with 4 shots. Surface casing shoe is cks cement, place inside and outside 1 surface-60'f. Sarface	at 372'. PERF. @ 18 18 Gat 22! 4.5" casing from 322' to 422'. WOC - TAG; WOC + TAO
Estimated Start Date: As Soon As Po		ation Division <b>Must be notified</b> the beginning of plugging operations
Spud Date:	Rig Release Date:	
I hereby certify that the information above is true and	complete to the best of my knowled	ge and belief.
Ale. A	President	-
SIGNATURE Colleguine	THE	9/26/2008 DATE
Steve Ginnings Type or print name	E-mail address:	@wf.net 940/723-4351 PHONE:
For State Use Only	OC FOOD REPRESENTATIVE IV	STAFF MANAGER OCT 0 2 2008
APPROVED BY:		DATE

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BRIDWELL OIL CO.

#### COMMISSIONER'S OFFICE

Phone (505) 827-5760 Fax (505) 827-5766 www.nmstatelands.org

PATRICK H. LYONS COMMISSIONER

# State of New Mexico Commissioner of Public Lands

310 OLD SANTA FE TRAIL P.O. BOX 1148 SANTA FE, NEW MEXICO 87504-1148

September 29, 2008

#### <u>CERTIFIED MAIL RETURN RECEIPT REQUESTED</u>

Charles D. Ray PO Box 51608 Midland, TX 79710

Re: P&A RECLAMATION / REVEGETATION REQUIREMENTS V07586-0000, BRIDWELL NM STATE #7, PRODUCTION WELL API # 30-025-24388 UL H, Sec 7, TWP 9S, RNG 33E Lea County, NM

Dear Mr. Ray:

The New Mexico State Land Office (Land Office) understands that the above-mentioned well bore is scheduled to be plugged and abandoned and that New Mexico Oil Conservation Division (NMOCD) approval is pending. Recent inspection revealed that unacceptable damages exist on the site, including obsolete equipment and surface staining. Under the terms of the State Land Office Rules NMAC §§ 19.2.100.67, it is the responsibility of Charles D. Ray as the lessee of record to ensure that the site is fully reclaimed and restored in accordance with a reclamation plan approved by the Land Office. The following are the required corrective actions to be implemented at the site, including the reclamation/reseeding requirements and standards; Charles D. Ray may provide an alternate reclamation plan for written approval by the Land Office.

- Charles D. Ray shall contact the New Mexico Oil Conservation Division to obtain requirements for the investigation, mitigation, and remediation of stained soils on the subject property.
- Removal of all caliche pads and roads utilized for the sole purpose of accessing and operating the easement.
- After remediation of all contaminated soils and removal of the caliche pads and roads, Charles D. Ray shall revegetate the site in accordance with the attached State Land Office requirements, which are summarized as follows:

SEED MIXTURE:Sandy with Tall Grass (ST)Based on the following existing site conditions:MLRA:HP-3SOIL TYPE:Amarillo-Arvana loamy fine sandsESD:Sandy Plains

-State Land Office Beneficiaries -

Carrie Tingley Hospital • Charitable Penal & Reform • Common Schools • Fastern NM University • Rio Grande Improvement • Miners' Hospital of NM •NM Boys School = NM Highlands University • NM Institute of Mining & Technology • New Mexico Military Institute•NM School for the Deal • NM School for the Visually Handicapped • NM State Hospital = New Mexico State University = Northern NM Community College • Penitentiary of New Mexico • Public Buildings at Capital = State Park Commission • University of New Mexico • UNM Saline Lands • Water Reservoirs • Western New Mexico University ÷

#### New Mexico State Land Office

**REVEGETATION PROCEDURAL REQUIREMENTS** (details attached):

- 1. Seedbed Preparation
- 2. Seeding

#### ADDITIONAL REQUIREMENTS:

- 1. At least 5 working days prior to initiating the seeding, you must notify the State Land Office District Resource Manager (DRM) at (575) 392-8736, of your scheduled dates for seeding.
- 2. The following documentation shall be submitted to the State Land Office:
  - a. <u>Original seedbag tags</u> or copies of tags & receipt (invoice), preferably provided during the witnessing of seeding.
  - b. <u>Photo documentation</u> of the site before, during and after each procedural requirement performed at the site.

Contingent upon meeting the reclamation/reseeding requirements, the reclaimed area will be eligible for release 2 years, or 3 growing seasons, following initial reseeding efforts. The State Land Office will conduct a field inspection following the second growing season. If the field inspection determines that reseeding efforts have failed, you will be required to reseed prior to the 2-year termination date and possibly make modifications to the seedbed.

Contact Thaddcus Kostrubala at (505) 827-5723 with any questions your company may have regarding closure requirements. Should reclamation / revegetation be required after the expiration of the lease a Right-of-Entry (ROE) Easement will be required; in such case, please contact Anna Villa at (505) 827-5789 for a ROE easement.

The State Land Office appreciates the opportunity to work with Charles D. Ray in performing successful remediation on trust lands.

Sincerely. PATRICK H. LYONS COMMISSIONER OF PUBLIC LANDS

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By: Jim Norwick, Director Field Operations Division (505) 827-5745

Cc: File: V0-7586-000 Steve Ginnings, Bridwell Oil Co. Thaddeus Kostrubala, P.E., NMSLO Myra Meyers, NMSLO Scott Dawson, NMSLO

### 2.4 RECLAMATION PRACTICES

#### Placement of Soils - Compaction, Ripping & Grading

All soils placed for purposes of reclaiming a site shall utilize the following procedures, or alternate procedures approved by the SLO.

All soils, excluding topsoil, shall be compacted to 90% of maximum proctor density. This may require the addition of water for dry soils. Compaction shall occur in a maximum of 18 inch lifts. Under correct soil-water content conditions, proper compaction can typically be achieved through the double-pass of heavy equipment, walk-behind vibratory compaction, or single press compaction with a heavy equipment bucket attachment.

Following compaction, the upper one (1) foot of soils shall be ripped or disced to key in the topsoil.

Topsoil shall be placed uncompacted on the ripped soils. Seedbed preparation procedures shall be followed to prepare the topsoil for seeding.

The final elevation of the topsoil shall meet the grade surrounding the site. The site shall be graded to mimic the surrounding landscape. For example, final grading should be approximately flat in flat landscapes; the final grading shall produce a hummocky landform in hummocky landscapes.

#### Flipping Soils

The practice of "flipping" soils places the upper soil layer beneath a lower layer via mechanical excavation and placement. Soil flipping is best suited for sites where unsuitable surface soils exist and subsurface soils are desirable below the topsoil level. Examples of sites where flipping soils may be a preferred option are: caliche pads and shallow saline/sodie soils that exist above suitable soils. Sites where subsurface soils are caliche or limestone are unsuitable for soil flipping.

The operator shall have SLO approval to flip soils as part of the Revegetation Plan. The following is a typical procedure for flipping soils.

- 1. Unsuitable soils are excavated and stockpiled;
- 2. Clean soils beneath excavated unsuitable soils are removed, creating a burial pit or trench;
- 3. Unsuitable soils are placed in the burial pit or trench; and,
- 4. Clean soils are placed on top of the unsuitable soils.

Reclamation of linear disturbance areas, such as roads or pipeline rights-of-way, can be well suited for reclamation through a process of trenching and flipping. Trenching and flipping of soils occurs via excavation of subsurface soils immediately adjacent to and parallel to a road. The excavated material is stockpiled, the road surface material is placed in the trench and the excavated subsurface material is placed as the upper-layer.

#### Soil Blending

Blending existing soil with hauled-in soils can be an effective method of handling unsuitable soils such as saline soils. Blending of soils should occur in a manner that creates a well mixed homogeneous soil. The SLO will require blended soils to be sampled to assure suitable soil conditions have been achieved.

Adding sandy soils to clay, or clay-loamy soils, and blending is not recommended. The mixture may result in a hardened soil. Sandy soils may be added on top of clay soils, but should be keyed-in by first ripping the clay soils and then placing the sandy soils on top.



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New Mexico State Land Office - Southeastern New Mexico Revegetation Handbook - Version 1 - 200808

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## SANDY with TALL GRASS (ST) SEED MIXTURE:

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
an a			
<b>C</b>			
Grasses:	FUL THE C.	2.0	F
Sand bluestem	Elida, VNS, So. Vaught, El Bana	2.0 4.0	F
Sideoats grama	Vaughn, El Reno Bornero Cimmoron	4.0 6.0	F
Little bluestem	Pastura, Cimmaron	6.0 1.0	r D
Plains bristlegrass	VNS, Southern VNS, Southern	2,0	D S
Sand dropseed	VNS, Southern		U
Forbs:	and the state of the	All and a free free free free to be a free t	
<u>Fords:</u> Indian blanketflower	WNS, Southern	Ports	D
Plains corcopsis	VNS Southern	And A Mark	S S
	The second second	CONT CARE	
1 Decision	Total PLS/a	icre 17:0.2	Ving wardship
514 C			1. Topos
S = Small seedidrill box, T	De Standard seed drill box, F	F = Fluffy seed drill box	and the second
VNS = Variety Not/Slafed	y 1	- Alle Tels	
AND			
• Seed mixes should be provid	ed in bags separating seed ty	pes-infoithe three categories:	small (S), standard (D)
<ul> <li>and fluffy (F)</li> <li>VNS, Southern – Seed should</li> <li>Double above seed application</li> <li>If one species usaget available other species usaget available</li> </ul>			Streem C
• VNS, Southern - Seed should	d be from a southern latitude	collection of this species.	
Double above seed application	n rate for broadcast or hydro	SCeding	
• If one species is not available	: contact the ShiO torsan and	toyed substitute, alternatively	y the SLO may require
		NY SAMAJAN LEW TRANS WERE AN INC.	
<ul> <li>Additional intermation on the</li> </ul>	esé seedispecies can obrount	n on the USDA Plants Databa	ase website at
http://plants usda gov			Same AS
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### 4.3 SEEDBED PREPARATION

Proper seedbed preparation will provide the best environment for successful germination and plant development.

The topsoil (loosely defined as the upper 6 inches to 1 foot of soil) shall be in a "mellow" state, i.e. in a firm condition, between compacted and loose and fluffy. The topsoil should be loose enough to allow water penetration and percolation, yet firm enough to hold the seed at the desired elevation in the soil profile. This allows the seed to be in full contact with the soil, enable proper crimping and assist with appropriate root development and moisture percolation.

The top 2 inches of soil shall be reasonably free of clods, caliche chunks, rocks and clumps. All rocks, including caliche, greater than 2 inches in diameter shall be removed from the site. If soil is hauled to the site it should be of a similar texture as surrounding soils. Under no circumstances will caliche or pulverized caliche be accepted as the upper 6 inches of soil. All miscellaneous equipment, trash and debtis shall be removed and properly disposed of.

The site should be graded smooth to allow a drill seeder to properly seed to the edge of disturbance. The site may be undulating but should contain no high or low spots that would prevent a portion of a drill seeder from contacting the soil.

#### **Procedures**

Utilize the following procedures to create a mellow seedbed for suitable soils to a depth of 1 foot. If 1 foot of suitable soils does not exist, soils shall be added to the site (see section Reclamation Practices). Caliche subsoils, or other rocky soils, that are shallower than 1 foot shall have a minimum of 6 inches of suitable soil placed on top of the subsoil.

- 1. Scarify (rip) on the contour for sloping areas and perpendicular to the prevailing wind on flat areas to a depth of I foot, or applicable depth based on subsoil conditions (i.e. caliche). See scarifying subsection below for more information.
- 2. Disc to a minimum depth of 6 inches, in the same direction as scarifying. Leaving definite furrows, continue discing until a mellow, loose soil is prepared. Roller packing may be used instead of discing, depending on soil conditions (i.e. sandy soils).

<u>Caution</u>: Shallow sites where caliche subsoil is less than 6 inches below ground surface should not be scarified. When scarifying above caliche or rocky subsoils deeper than 6 inches, caution should be exercised in order not to bring up rocks to the surface.

Discing only (no scarifying) may be all that is required for sites where soils have been hauled in and exist in a loose condition following grading. In this case, soil amendments (if required) can be spread prior to discing. If the soils are very soft, then roller packing to firm the soils may be required. Sandy soils are especially susceptible to erosional forces and roller harrowing is the preferred method of preparing a mellow seedbed. See Discing and Roller Packing subsections below for more information.

On small sites (less than ¼ of an acre), or when scarifying and discing is not possible or economical, then one or multiple of the following methods of seedbed preparation shall occur. Additional information can be found in the subsections below. The methods are listed in order of preference:

- 1. Dragging with a chain harrow, slope chain, log chain, spike tooth harrow, chain link fence or similar equipment.
- Hand raking.

#### Scarifying:

Scarifying shall be done on the contour on sloping surfaces and perpendicular to prevailing winds on flat areas. Equipment capable of penetration to a minimum depth of 1 foot is required. Spaces between scarifier teeth should



be close enough to provide for complete fracturing of the soils between rip marks. Generally, scarifier teeth on 18 inch spacing or closer will accomplish this fracturing. Otherwise, perform multiple passes to obtain scarified rows spaced approximately 18 inches. In tight soils, additional passes might be needed to adequately loosen compacted soils. On soils existing above caliche or rocky subsoils, scarifying should be done carefully or not at all to prevent pulling rocks to the surface.

#### Discing:

Discing shall be done on the contour on sloping areas and perpendicular to prevailing winds on flat areas. Equipment shall be able to properly disc the soil to a depth of 6 inches. If discing to a depth of 6 inches is not possible due to site conditions, additional scarifying and discing may be required. Tandem discs with a minimum of 20 inch diameter disc blades are recommended to obtain adequate penetration on finer textured soils. Disc blades should have 9 inch, or closer, spacing between blades. A maximum 10 foot wide disc implement is recommended. Wider implements are difficult to use on small revegetation sites and are less likely to guarantee uniform soil preparation on rough sites. Some large construction discs have 12 inches or more between blades and will often not provide adequate discing results. When a large construction disc is utilized, roller packing on course textured soils or tandem discing on finer textured soils will be necessary following the heavy discing operation to properly prepare the seedbed.

#### Roller Packing:

Roller packing, like scarifying and discing, should be done on the contour or perpendicular to prevailing winds on flat areas. Use roller packers (cultipackers) on soils that exhibit soft, powdery conditions and are loose and fluffy.

A 10 or 12 foot wide roller packer is recommended. Wider implements are difficult to use on small revegetation sites and are less likely to assure uniform soil preparation on rough sites. Roller packers may have either 1 or 2 rollers the full width of the implement. Generally, a pull type roller packer has a front roller, chisel teeth in the center, and a back roller. Roller surface configurations vary and are long, round cylindrical sections with a diameter of 12 to 20 inches.

#### Chain Harrowing:

A four wheel drive tractor or ATV shall be used to pull the chain harrow by traveling up and down the slope. This same implement may be used to cover seed, spread fertilizer, and soil amendments after broadcast applications.

#### Slope Chaining, Chain Dragging, and Raking:

Slope chaining is an excellent soil manipulation procedure for steep slopes, but is seldom used because of the infrequent availability of this equipment.

Slope chains are typically comprised of a 30 foot long chain with a large metal disc at the end attached by a swivel to a heavy boat anchor. Welded to the links of the chain are round rods that churn and loosen the soil as the unit is rolled along a steep slope from above by a tractor or other power unit. The disc at the base of the hill moves with the tractor at the top of the slope and the soil is worked and loosened for seeding. The slope chain can be used following seeding to lightly cover the seed.

Chain drags are any assortment of chains either dragged along slopes by hand, or attached to some sort of power equipment (ATV, tractor). Chains are typically 5/16" or 3/8" diameter links and can be any length, depending on the capacity of the power equipment.

Hand taking should occur only as a last choice. Rake soils to loosen to the greatest depth feasible. Hand taking typically can produce a mellow soil to a maximum depth of two inches. First take to create a mellow seedbed, then take to cover seed and soil amendments to the appropriate depth.



## 4.4 SEEDING

Drill seeding is the SLO prefetted method for applying and incorporating the seed into the soil surface. Other methods of seeding shall only be used when drill seeding is not possible or practical (see Table 3).

	commended seeding met	
Preference	Sceding Method	Situation Best Suited for Seeding Method
Ist	Drill Seeding	All applications
2 <sup>nd</sup>	Hydrosceding	Steep slopes - greater than 3 horizontal to 1 vertical*
3 <sup>rd</sup>	Broadcast Seeding - Mechanical	Small areas – less than ¼ acres
ATT 1 1'	1	

Table 3 Recommended seeding methods

\*Hydrosceding may occur when more economical for smaller sites.

#### Seed Mixtures

The seed mixtures developed by the SLO are designed to address the soil types and post-reclamation land use, soil stabilization, erosion control issues, seed availability and seed costs. Expensive seed was only specified when absolutely required.

Secding rates shall be doubled when hydroseeding or broadcast seeding.

The Operator should request the seed supplier to divide the specified seed mixtures into submixtures of: small seed (S), standard sized seed (D), and fluffy and thrashy seed (F).

No substitution of species, variety, or collection for non-varietal species will be allowed unless evidence is submitted in writing by the Operator to the SLO showing that the specified materials are not reasonably available during the seeding period. The substitution of a species, variety, or collection shall be made only with the written approval of the SLO, prior to making a substitution.

"Pure Live Seed" (PLS) is a means of expressing seed quality. Drills need to be calibrated on the basis of PLS/acre. The amount of PLS required for a planting is based on the quality of a given seed lot. Therefore, prior to calibrating a drill, seed lot quality must be known. PLS and bulk seed required are determined by using the seed analysis information on the seed tag in the following formula.

% PLS =  $[(\% \text{ germination} + \% \text{ hard or dormant}) \times \% \text{ purity})] / 100$ 

Bulk Seed (lbs/ac) = PLS seeding rate recommendation (lbs/ac) / (% PLS / 100)

Recommended seeding rates provide an adequate amount of PLS seed per acre even though seed lots differ in seed size, shape, weight, viability, etc. The variation in individual seed lots causes the amount of bulk seed planted per acre to vary considerably while the actual PLS sceding rates remain constant.

#### **Best Times to Seed**

Seeding just prior to the summer monsoon season is recommended. The arrival of the summer monsoon season typically occurs somewhere between the middle of June through the end of August. If seeding immediately prior to the summer monsoons is not practical, the SLO recommends seeding during the monsoons, or after the monsoons and before the first frost. Seeding following the summer monsoons may be successful if rain initiates sufficient growth to allow the plants to go through cool, dry, windy, and hot weather prior to the next summer precipitation events.

Seeding during other times of the year is allowed, however, the risk of failure increases due to spring winds and early germination followed by a dry period. Seeding should not be done when the ground is frozen. Seeding may



proceed when there is evidence of frost, providing the seedbed can be kept in a workable condition so that the seed is planted at the correct depth.

Table 4. Recommended Seeding Times						
Preference	Seeding Times					
1 <sup>st</sup>	Prior to summer monsoon					
	June - August					
2 <sup>nd</sup>	During summer monsoon					
3rd	After summer monsoon					
	Before first frost					

#### Seed Certification

All seed utilized must be purchased through a licensed dealer and meet standards established by the New Mexico Department of Agriculture (NMDA). All seed shall be furnished in sealed, undamaged containers and shall be plainly labeled on tags in accordance with NMDA standards. Following seeding operations, the Operator shall furnish to the SLO the seed tags and one copy of a materials certification signed by the vendor. One or more random samples may be taken by the SLO or his representative prior to, or during drill seeding operations for testing and analysis by an independent seed laboratory.

#### Drill Seeding

Drill seeding is the most effective seeding method for revegetation of disturbed sites.

#### Equipment:

Only rangeland drills are recommended. Drills shall be capable of applying the seed in uniform rows spaced at a maximum of 12 inches; 6 to 8 inch spacing between drill rows is most common. Rangeland drills including Truax Flex II drills, Laird rangeland drills, Great Plains rangeland drills, and equivalent are recommended for use.

Light duty drills (drills incapable of withstanding site and soil conditions on sites to be revegetated), standard farm drills, and drills in poor working condition are not acceptable. Use of these drills will result in less than satisfactory revegetation success due to poor seed application and placement. Turf grass type seeders can be utilized, but may have difficulty seeding in rough and rocky terrain and may be subject to considerable damage.

Rangeland drills capable of seeding a variety of seed types are best. Rangeland drills generally have three seed boxes, which can be used for the 3 seed submixtures.

- 1. Small seed box for small seed.
- 2. Standard box for average, non fluffy, non trashy seed
- 3. Fluffy box for fluffy, trashy, or similar seed

All three boxes shall have their own flow metering system. The drill manufacturer will provide operator's instructions for setting flow rates for the drill boxes. Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).

#### Application Rates:

The seed mixture shall be applied at the drill seed application rate indicated in the seed mixture tables of the Revegetation Plan with adjustments for hydroseeding or broadcast seeding if needed. Variations from the specified seed mixtures must be approved in writing by the SLO.

Application rates identified in the Revegetation Plan seed mixtures are designed to address more factors than the soil type and the standard recommended seeds per acre. The application rates also address practical issues such as



equipment efficiency, operator error, wind, wildlife impact, seed survivability, seed planting depth, and related factors that negatively impact seed placement and survival.

#### Seeding Depth:

The SLO recommends seed be drilled to a depth of 1/4 to 1/4 inch regardless of the size or type.

#### Drill Calibration:

Calibrating the drill at the beginning of drill seeding operations is required for each seed mixture. Continual checking and adjusting the drill settings is necessary. Frequency of checking and adjustments depends on the uniformity of the mixed seed, humidity, dust and trash accumulation in the drill metering system, and variability in the roughness of the soil surface.

Drills can be calibrated by a number of different techniques. Utilize drill manufacturers calibration procedures if available; otherwise, the NMSLO recommends the following drill seeding calibration methods described by the NRCS (USDA, 1985. <u>www.mt.nrcs.usda.gov/technical/ccs/plants/technotes/pmtechnotesMT30.html</u>).

#### Hydraulic Sceding

Hydraulic seeding, or hydroseeding, is the process of broadcast seed using water and a small amount of wood fiber mulch to carry the seed via a hydroseeder. Hydroseeding is typically best suited for steep slope areas where drill seeding is not practical. While the SLO recommends drill seeding as the method of choice for all sites, economics of smaller sites may make hydroseeding more practical. Hydraulic mulching (hydromulching) shall follow hydroseeding on all sites (see section 4.5 Mulching).

#### Procedures

Following are the three steps for hydroseeding and hydromulching:

- 1. Preparing the area for seeding;
- 2. Hydraulic seeding; and,
- 3. Hydraulic mulching.

#### 1. Preparing the Arca for Seeding:

The Operator should first prepare the seedbed (seed section 4.3 Seedbed Preparation).

#### 2. Hydraulic Seeding:

Mix seed, water, and hydraulic mulch fiber into a homogenous slurry and uniformly apply to the areas to be seeded. The slurry must be constantly agitated during application to assure even application and distribution of seed and hydromulch.

Seed should be applied at double the drill seed application rate. At least 1,000 gallons of water should be used per acre for applying the seed and hydraulic mulch. 400 pounds of hydraulic mulch fiber per acre should be included in the mixture to assist the hydrosecder applicator in visually determining the evenness of the seed application and the accuracy of the application rate.

Seed should not be left in the tank with water for more than 2 hours. If this occurs due to equipment failure, or for any other reason, then the mixed material may need to be disposed of either off-site, or applied to the slopes at the Operator's expense. If applied to the slopes, it should not be counted as applied seed and new seed will need to be applied.

#### 3. Hydraulic Mulching (Hydromulching):

Hydromulching is a technique to provide short term soil stabilization and erosion protection while seedlings germinate and begin to establish. Hydromulching differs from hydroseeding in that only hydraulic mulch fiber and tackifier are applied during hydromulching operations. It serves the same purpose as hay mulching and erimping.



Combining seed with all the hydromulch woodfiber and applying everything in a one step operation is highly discouraged and success will be unlikely.

For best results, measure the area(s) to be seeded, divide the disturbed area into small components, depending on the capacity of the hydroseeder, and prepare a chart or plan for determining the number of seed loads and the location(s) for each load. The hydraulic mulch and tackifier should be mixed with water and uniformly applied after seeding, preferably during the same day or within 36 hours. See section 4.5 Mulching for more details on Hydromulching.

#### Application Rates

Seed mixtures should be applied at double the drill seed application rates in the Revegetation Plans.

#### Equipment

The hydroseeder shall be equipped with a mechanical power-driven agitator capable of keeping all solids in suspension in a homogeneous slurry until distributed. The pump pressure must maintain a continuous non-fluctuating spray capable of reaching the extremities of the seeding area.

#### Broadcast Seeding

Broadcast seeding is recommended only for areas inaccessible to a rangeland drill, or too small to warrant the use of a rangeland drill (less than ½ acres), the SLO recommends drill seeding in all accessible locations. Because the seed is not carefully placed in the soil profile to a controlled depth when broadcast seeding, seed is lost to environmental impacts including wind, rain, wildlife (birds and rodents), sunlight (UV light, heat) and other factors.

#### Application Rates:

When broadcasting, seed mixtures shall be applied at double the drill seed application rates in the Revegetation Plan.

#### Procedures:

Areas to be broadcast seeded should receive the same topsoil placement and seedbed preparation as drill seeded areas. If equipment access limitations exist, then some type of soil surface loosening is still necessary such that the topsoil is in a mellow, loosened condition. If slopes are too steep to apply on the contour by drill seeding, broadcast up and down the slope or at a diagonal. Broadcast seeding should not be done during windy conditions.

Do not broadcast an area larger than can be quickly raked, dragged, or chained to cover the seed (within approximately 30 minutes after broadcasting). The seed should be covered approximately ¼ to ½ inches by raking, dragging, chaining, or chain harrowing, unless prevented by equipment access limitations. Care should be taken by the operators and laborers to minimize dragging seed down slope or dragging seed off high spots and concentrating that seed in the low spots. Failure to cover the seed soon after broadcasting, or at all, may result in revegetation failure.

#### Equipment:

Mechanical broadcast seeding is always recommended over hand broadcast seeding. Mechanical broadcast seeding can be accomplished with any equipment that will evenly spread the seed on the soil surface. A broad range of hand held, ATV mounted, 3-point, and pull type broadcast spreaders are available on the market.

Mechanical broadcasting units must be capable of distributing fluffy and thrashy seed. Most residential type units are not capable. One example of a mechanical broadcasting unit capable of handling fuffy/thrashy seed is distributed by Truax (<u>http://www.truaxcomp.com/seed-slinger.html</u>), other types are available.



Submit 3 Copies To Appropriate District State of New N Office	
District I 1625 N. French Dr., Hobbs, NM 88240 RECEIVED	Itural Resources June 19, 2008 WELL API NO.
District III District III District III	5. Indicate Type of Lease
District III 1000 Rio Brazos Rd, Aztec, NM 87410	ancis Dr. STATE STATE FEE
1000 Rio Brazos Rd, Aztec, NM 87410 District IV 1220 S St Francis Dr., Santa Fe, NM 87505	6. State Oil & Gas Lease No. K-03354
SUNDRY NOTICES AND REPORTS ON WELL (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR I DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101)	PLUG BACK TO A New Mexico State -7-
PROPOSALS) 1. Type of Well: Oil Well 🖾 Gas Well 🗌 Other 🖌	8. Well Number 1
2. Name of Operator 5 Bridwell Oil Company	9. OGRID Number 2832
3. Address of Operator	10. Pool name or Wildcat
Post Office Box 1830, Wichita Falls, Texas 76307	Flying M ; 5A
4. Well Location	/
Unit Letter H: 1980 feet from the North line and 660 feet	
Section 007 Township 9S	Range 33E NMPM County Lea
11. Elevation (Show whether L 4380 GL	)R, RKB, RT, GR, etc.)
4380 GL	
12. Check Appropriate Box to Indicate	Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK PLUG AND ABANDON	
TEMPORARILY ABANDON CHANGE PLANS	COMMENCE DRILLING OPNS. P AND A
PULL OR ALTER CASING	
DOWNHOLE COMMINGLE	
OTHER:	OTHER:
	Il pertinent details, and give pertinent dates, including estimated date
of starting any proposed work). SEE RULE 1103. For Mult	tiple Completions: Attach wellbore diagram of proposed completion
or recompletion.	
Plug & Abandon	
1. MIRU J&B Well Service.	
2. Set Plug 1 at 4,249' to 4,420'.	
3. Circulate hole with 12.5 ppg mud. Shot squeeze	
4. Set Plug 2 at 2,223' to 2,497', 25 sacks, tagged. 5. Set Plug 3 at 1,768' to 1,928', 25 sacks, tagged.	Approved for plugging of well hore only. Lightlity under hond is retained pending receipt
6. Set Plug 4 at 264' to 422', 50 sacks, tagged.	of C-103 (Subsequent Report of Well Plugging)
7. Set Plug 5 to 60' below ground level, 15 sacks.	which may be found at OCD Web Page under Forms, www.cmnrd.state.nm.us/ocd.
8. Cut casing 3' below surface, weld plate, cover.	
9. Steel marker not set as per instructions by OCD t	leid agent.
Spud Date: Rig Release	Date:
I hereby certify that the information above is true and complete to the	hast of my browledge and hall of
Thereby centry that the information above is true and complete to the	best of my knowledge and bener.
At a former	President 1/28/2009
SIGNATURE TITLE	DATE
Steve Ginnings Type or print name E-mail add	sginnings@wf.net 940/723-4351
Type or print name E-mail addr For State Use Only	ress: PHONE:
	STRICT 1 SUPERVISOF DATE FEB 0 3 2009
	STRICT 1 SUPERVISOF DATE FEB 0 3 2009
Conditions of Approval (if any):	

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# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON Governor Joanna Prukop Cabinet Secretary Mark E. Fesmire, P.E. Director Oil Conservation Division

Field Inspection Program "Preserving the Integrity of Our Environment"

29-Jan-09

**BRIDWELL OIL CO** PO DRAWER 1830 WICHITA FALLS TX 76307

**LETTER OF VIOLATION - Inspection** 

Dear Operator:

The following inspection(s) indicate that the well, equipment, location or operational status of the well(s) failed to meet standards of the New Mexico Oil Conservation Division as described in the detail section below. To comply with standards imposed by Rules and Regulations of the Division, corrective action must be taken immediately and the situation brought into compliance. The detail section indicates preliminary findings and/or probable nature of the violation. This determination is based on an inspection of your well or facility by an inspector employed by the Oil Conservation Division on the date(s) indicated.

Please notify the proper district office of the Division, in writing, of the date corrective actions are scheduled to be made so that arrangements can be made to reinspect the well and/or facility.

			INSPECTIO	N DETAIL	SECTION		
NEW MEXI Inspection Date	CO 7 STATE		Inspector	Violation?	H-7-9S-33E *Significant Non-Compliance?	30-025-24388-00- Corrective Action Due By:	00 Inspection No.
01/28/2009	Plugged Well	Surface Restor	Maxey Brown	Yes	No	5/3/2009	iMGB0902860668
Comments o	on Inspection:	DIRT, REMOVE (WELDED PLAT	E FLOWLINE, SEV TE MARKER OK)	/ERAL JTS ( . ALSO SUB	OF TBG FROM LOC	T/B SITE OF PILES OF ATION. FILL IN CE QUENT REPORT OF 5.	LLAR

P/A'D. OK TO RELEASE

DATE: 7/1/2009 COMPANY: BRIDWELL OIL COMPANY LEASE NAME and #. NEW MEXICO STATE 7 #1 API# 30-025-24388 UL H SECTION 7 TOWNSHIP 95 RANGE 33E SIGNED: Maley Shown GPS N 33° 32.956 W 103° 36.032

District I 1625 N. French Dr., Hobbs, NM 88240 District II J301 W Grand Avenue, Artesia, NM 88210 District III

State of New Mexico Energy Minerals and Natural Resources

RE	C	EI	V	E	D
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Form C-141 Revised October 10, 2003

1000 Rio Brazos Road, Aztec, NM 87410       1220 Sou         District IV       1220 Sou         1220 S St Francis Dr , Santa Fe, NM 87505       Santa I	JAN 13 2009Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of formFe, NM 87505HOBBSOCD								
Release Notification	OPERATOR X Initial Report Final Report								
Name of Company: Bridwell Oil Company	Contact: Steve Ginnings, President								
Address: 810 8 <sup>th</sup> Street, Wichita Falls, TX 76301	Telephone No.: (940) 723-4351								
Facility Name: NM State #7	Facility Type: Well and Tank Battery								
Surface Owner: State Land Mineral Owner									
LOCATIO	ON OF RELEASE (۲۰۰۵۲۵، ۲۹۹۵)								
Unit Letter Section Township Range Feet from the Nor A 7 9S 33E	th/South Line Feet from the East/West Line County Lea								
Latitude: N 33° 32' 57.6" Longitude: W 103° 36' 02.0"									
NATUR	E OF RELEASE								
Type of Release: Crude Oil	Volume of Release: Unknown Volume Recovered: Unknown								
Source of Release: Legacy Spill	Date and Hour of Occurrence: Date and Hour of Discovery:								
Was Immediate Notice Given?	Unknown Unknown If YES, To Whom?								
Yes X No □ Not Required									
By Whom?	Date and Hour								
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.								
Yes X No									
If a Watercourse was Impacted, Describe Fully.*									
Describe Cause of Problem and Remedial Action Taken.* Legacy spill									
proposed by scraping soil from affected areas to achieve NMOCD reco	approximately 20' X 100' at well and 200' X 300' at tank battery. Cleanup is mmended remediation action levels, collect confirmation soil samples and restore soil will be transported to an NMOCD permitted surface waste management or								
I hereby certify that the information given above is true and complete to regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by should their operations have failed to adequately investigate and remedi	to the best of my knowledge and understand that pursuant to NMOCD rules and e notifications and perform corrective actions for releases which may endanger the NMOCD marked as "Final Report" does not relieve the operator of liability iate contamination that pose a threat to ground water, surface water, human health t does not relieve the operator of responsibility for compliance with any other								
Signature: Stoul Annul	OIL CONSERVATION DIVISION								
Printed Name: Steve Ginnings	Approved by District Supervisor: Sut pluson								
Title: President Approval Date: 1.13.09 Expiration Date: 3.13.									
Title: President	Approval Date: 1.13.09 Expiration Date: 3.13.09								
Title: President         E-mail Address: sginnings@wf.net         Date: January 9, 2009       Phone: (970) 723-4351	Approval Date:       1.13.09       Expiration Date:       3.13.09         Conditions of Approval:       Attached       1         IRP# 2049								

# RECEIVED

JAN 13 2009

HOBBSOCD

<u>District I</u> 1625 N. French <u>District II</u> 1301 W. Grand <u>District III</u> 1000 Rio Brazo <u>District IV</u> 1220 S. St Fran	Avenue, Arto s Road, Azteo	esia, NM 88210 c, NM 87410		Energy Minerals Oil Conse 1220 Sout			ew Mexico d Natural Resources ation Division St. Francis Dr. NM 87505			Revised C Submit 2 Copies District Office	Form C-141 Detober 10, 2003 to appropriate in accordance le 116 on back side of form
			Rele	ease Notific	atio	n and Co	rrective	Actio	n		
						OPERA			X Initia	al Report	Final Report
Name of Co	ompany: E	Bridwell Oil	Company	/	]		eve Ginnings,	Preside			
Address: 8	10 8 <sup>th</sup> Stree	et, Wichita F	alls, TX	76301		Telephone 1	No.: (940) 72	3-4351			
Facility Nat	ne: NM S	tate #7				Facility Typ	e: Well and	fank Ba	ttery		
Surface Ow	ner: State	Land		Mineral C	wner		·		Lease N	ło.	
L				LOCA	TIO	N OF RE	FASE	API	30.0	25. 000	
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from the	East	West Line	<b>24398</b> County	
A	7	9S	33E			2000				Lea	
н		L		l	l						
			Lat	itude: N 33° 32	' 57.6	" Longitud	e: W 103° 30	5' 02.0"			
				NAT	URF	E OF REL	EASE				4
Type of Rele							Release: Unkn			Recovered: Unkn	
Source of Re	lease: Lega	acy Spill				Date and Hour of Occurrence:         Date and Hour of Discovery:           Unknown         Unknown					у:
Was Immedi	ate Notice (	Given?				If YES, To Whom?					
			Yes X	]No 🗌 Not Re	quired						
By Whom?		1 10				Date and Hour If YES, Volume Impacting the Watercourse.					
Was a Water	course Read		Yes X	lNo		If YES, Vo	olume Impactin	g the Wa	itercourse.		
If a Watercou	Irse was Im										
		pacieu, Deser	ibe runy.								
Describe Cau	ise of Probl	em and Reme	dial Actio	n Taken.* Legac	y spills	at plugged we	ll and out-of-se	rvice tar	ik battery.		
				ken.* Affected ar							
				achieve NMOCE rements. Contami							
disposal facil	ity.						-		·		
I hereby certi regulations a	fy that the i	information gi	ven above o report a	e is true and comp nd/or file certain r	lete to	the best of my	knowledge and nd perform cor	d underst	and that pur	suant to NMOCD	rules and endanger
public health	or the envir	ronment. The	acceptan	ce of a C-141 repo	ort by t	he NMOCD m	arked as "Final	Report"	does not rel	ieve the operator	of liability
should their of or the environ	perations h ment In a	ave failed to a	adequately	v investigate and r stance of a C-141	emedia renort	ate contaminati	ion that pose a time the operator.	hreat to	ground wate	r, surface water, h	uman health
federal, state,											
		11	6	•			OIL CO	NSER	VATION	DIVISION	
Signature:		Your L	-lan	mm			et. 1 1		10 -		
Printed Name	v: Steve Gir	nnings	5	r		Approved by District Supervisor					
									- nec	moon	
Title: President					Approval Da	te: 1.13.6	<b>)</b> 9	Expiration	Date: 3.13.1	09	

Date: January 9, 2009	Phone: (970	)) 723-4351
Attach Additional Sheets If Necessary		

E-mail Address: sginnings@wf.net

# RECEIVED

Attached  $\Box$  $1RP \pm 2049$ 

Conditions of Approval:

JAN 13 2009

HOBBSOCD

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

RECEIVED

Form C-141 Revised October 10, 2003

JAN 13 2009 Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

## HOBBSOCD

]	<b>Release Notificatio</b>	n and Corrective	Actio	n	
		OPERATOR		X Initial Report Final Report	
Name of Company: Bridwell Oil Con	Contact: Steve Ginnings, President				
Address: 810 8 <sup>th</sup> Street, Wichita Falls	Telephone No.: (940) 723-4351				
Facility Name: NM State #7		Facility Type: Well and	l Tank Ba	attery	
Surface Owner: State Land	Mineral Owner			Lease No.	
			API	30.025.	

				LOCA	ATION OF REL	LEASE	-	24388
Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
А	7	9S	33E					Lea
н		1						

Latitude: N 33° 32' 57.6" Longitude: W 103° 36' 02.0"

### NATURE OF RELEASE

Type of Release: Crude Oil	Volume of Release: Unknown	Volume Re	covered: Unknown			
Source of Release: Legacy Spill	Date and Hour of Occurrence:	Date and H	our of Discovery:			
	Unknown	Unknown				
Was Immediate Notice Given?	If YES, To Whom?					
🗌 Yes 🔀 No 🔲 Not Required						
By Whom?	Date and Hour					
Was a Watercourse Reached?	If YES, Volume Impacting the Wa	atercourse.				
🗌 Yes 🔀 No						
If a Watercourse was Impacted, Describe Fully.*	- 1					
If a watercourse was impacted, Describe Funy.						
Describe Cause of Problem and Remedial Action Taken.* Legacy spills	s at plugged well and out-of-service tar	nk battery.				
		001 11 2001				
Describe Area Affected and Cleanup Action Taken.* Affected area is a						
proposed by scraping soil from affected areas to achieve NMOCD recor surface to New Mexico State Land Office requirements. Contaminated						
disposal facility.	son will be transported to an NMOCD	permitted sur	ace waste management of			
I hereby certify that the information given above is true and complete to	the best of my knowledge and unders	tand that pursu	ant to NMOCD rules and			
regulations all operators are required to report and/or file certain release	notifications and perform corrective a	ctions for relea	uses which may endanger			
public health or the environment. The acceptance of a C-141 report by	the NMOCD marked as "Final Report"	' does not relie	ve the operator of liability			
should their operations have failed to adequately investigate and remedi	ate 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 respon	nsibility for con	mpliance with any other			
federal, state, or local laws and/or regulations.		-				
	OIL CONSER	VATION I	DIVISION			
a Ak. A sol						
Signature:	ENVIRO FA					
Printed Name: Steve Ginnings						
Printed Name: Steve Ginnings	Jupluson					
Title: President	Approval Data: 1 12 .09	Evaluation	ate: 3.13.09			
	Approval Date: 1.13.09					
E-mail Address. sginnings@wf.net	Conditions of Approval:					
			Attached			
Date: January 9, 2009 Phone: (970) 723-4351			1RP# 2049			

Attach Additional Sheets If Necessary

# RECEIVED

JAN 13 2009

HOBBSOCD

Submit 2 Copies To Appropriate District Office	State of New Mexico Energy, Minerals and Natural Resources	Form C-103 October 25, 2007
District I 1625 N French Dr., Hobbs, NM 88240	Energy, Minerals and Natural Resources	WELL API NO.
<u>District II</u> 1301 W Grand Ave , Artesia, NM 88210	OIL CONSERVATION DIVISION	5. Indicate Type of Lease
<u>District III</u> 1000 Rio Brazos Rd , Aztec, NM 87410	1220 South St. Francis Dr.	STATE FEE
<u>District IV</u> 1220 S St Francis Dr., Santa Fe, NM	Santa Fe, NM 87505	6. State Oil & Gas Lease No.
87505 SUNDRY NOTIO	CES AND REPORTS ON WELLS	7. Lease Name or Unit Agreement Name
(DO NOT USE THIS FORM FOR PROPOS DIFFERENT RESERVOIR USE "APPLIC	ALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A ATION FOR PERMIT" (FORM C-101) FOR SUCH	
PROPOSALS)	Gas Well 🔲 Other	8. Well Number
2. Name of Operator		9. OGRID Number
3. Address of Operator		10. Pool name or Wildcat
4. Well Location		- ]
	feet from the line andfeet from the	
	ip Range NMPM County_	
	11. Elevation (Show whether DR, RKB, RT, GR, etc.	
12. Check Appropriate Box to	Indicate Nature of Notice, Report or Other	Data
NOTICE OF IN	FENTION TO: SUI	BSEQUENT REPORT OF:
PERFORM REMEDIAL WORK	PLUG AND ABANDON 🗌 🛛 REMEDIAL WO	RK 🛛 ALTERING CASING 🗌
	— 1	
PULL OR ALTER CASING	MULTIPLE COMPL	NT JOB
OTHER <sup>.</sup>		ready for OCD inspection after P&A
	compliance with OCD rules and the terms of the Op	
	led and leveled. Cathodic protection holes have bee neter and at least 4' above ground level has been set	
<b>OPERATOR NAME, LEA</b>	<u>SE NAME, WELL NUMBER, API NUMBER, Ç</u>	DUARTER/QUARTER LO <u>CATION OR</u>
UNIT LETTER, SECTION	N, TOWNSHIP, AND RANGE. All INFORMAT	
<u>PERMANENTLY STAME</u>	YED ON THE MARKER'S SURFACE.	
The location has been leveled as	nearly as possible to original ground contour and ha	s been cleared of all junk, trash, flow lines and
other production equipment.		
	nd risers have been cut off at least two feet below gro remaining well on lease, the battery and pit location	
	ator's pit permit and closure plan. All flow lines, pro-	
from lease and well location.		
	s have been removed. Portable bases have been ren	noved. (Poured onsite concrete bases do not have
to be removed.)	s have been addressed as per OCD rules.	
	en abandoned in accordance with 19.15.9.714.B(4)(t	b) NMAC. All fluids have been removed from
non-retrieved flow lines and pipelines		
When all work has been completed r	eturn this form to the appropriate District office to so	chedule an inspection. If more than one
	ocation because it does not meet the criteria above, a	
SIGNATURE	TITLE	DATE
TYPE OR PRINT NAME	E-MAIL:	PHONE:
For State Use Only		
APPROVED BY	TITLE	DATE

Conditions	of Approval (if any):	

Í

**APPENDIX B** 

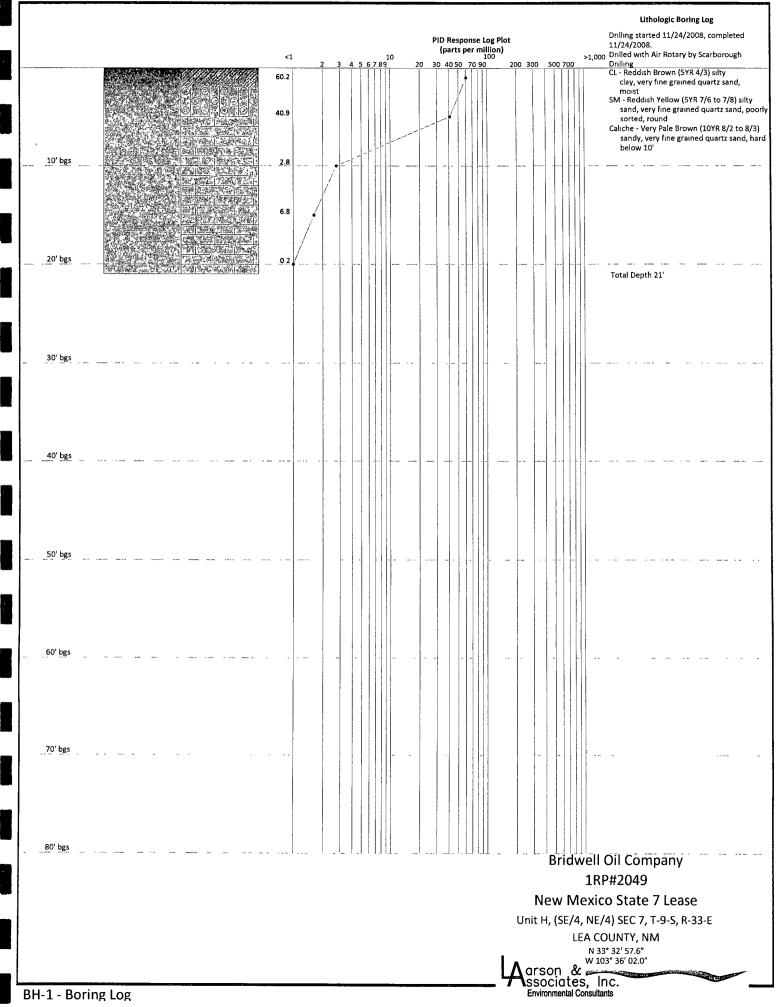
·

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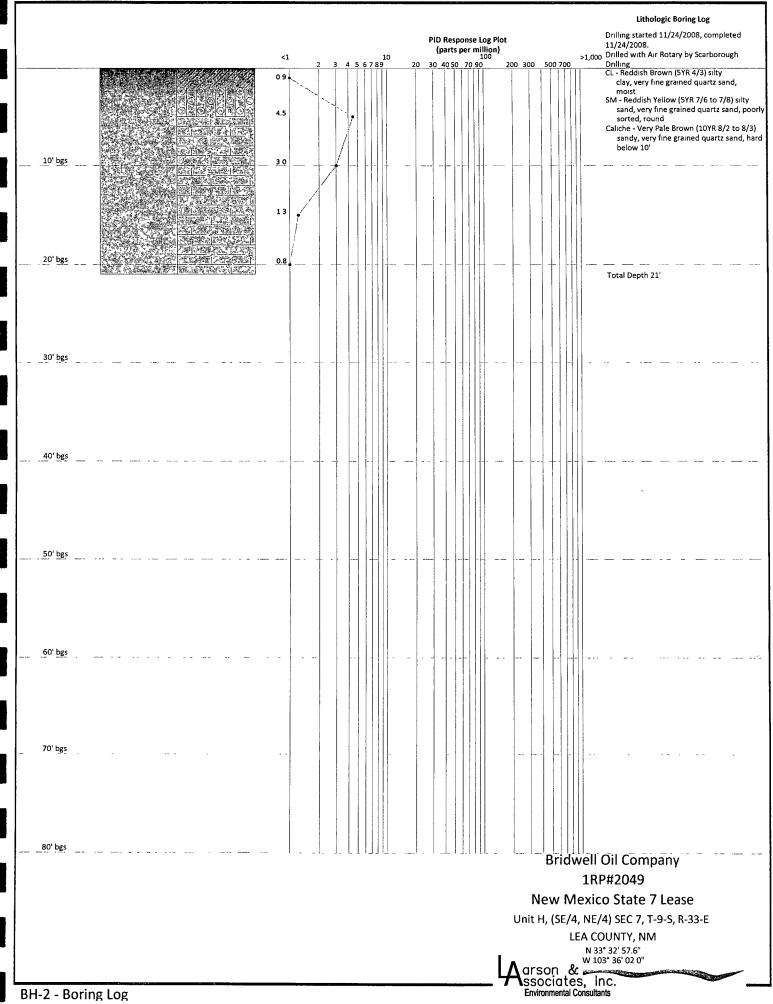
ļ

**Boring Logs** 

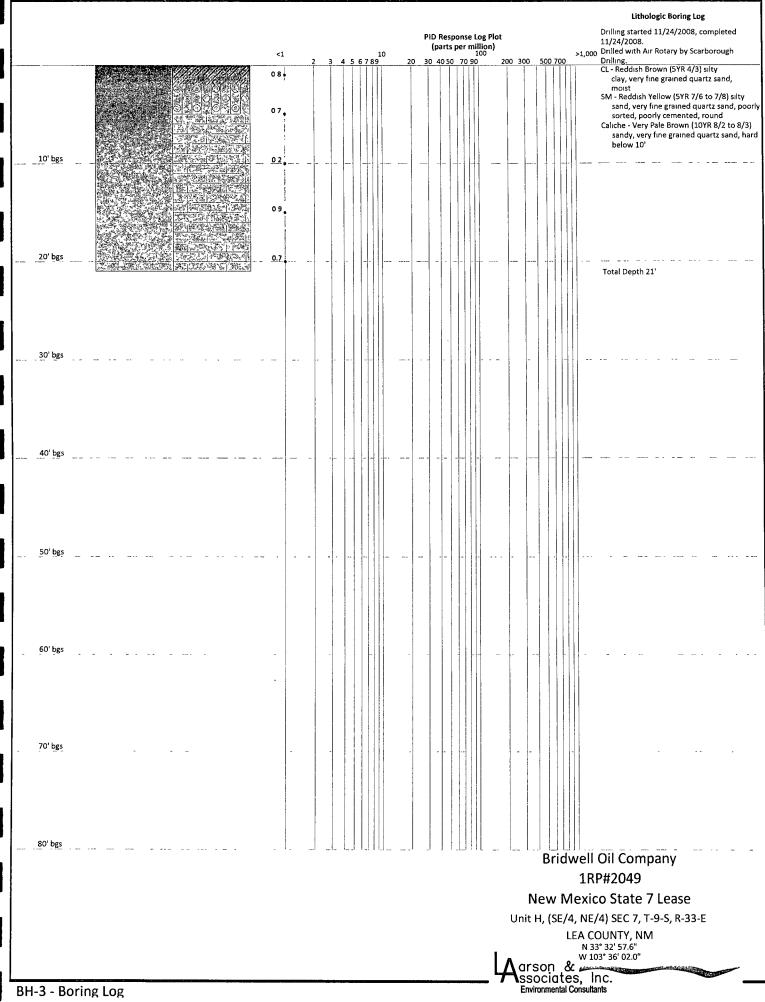
JWW



JWW

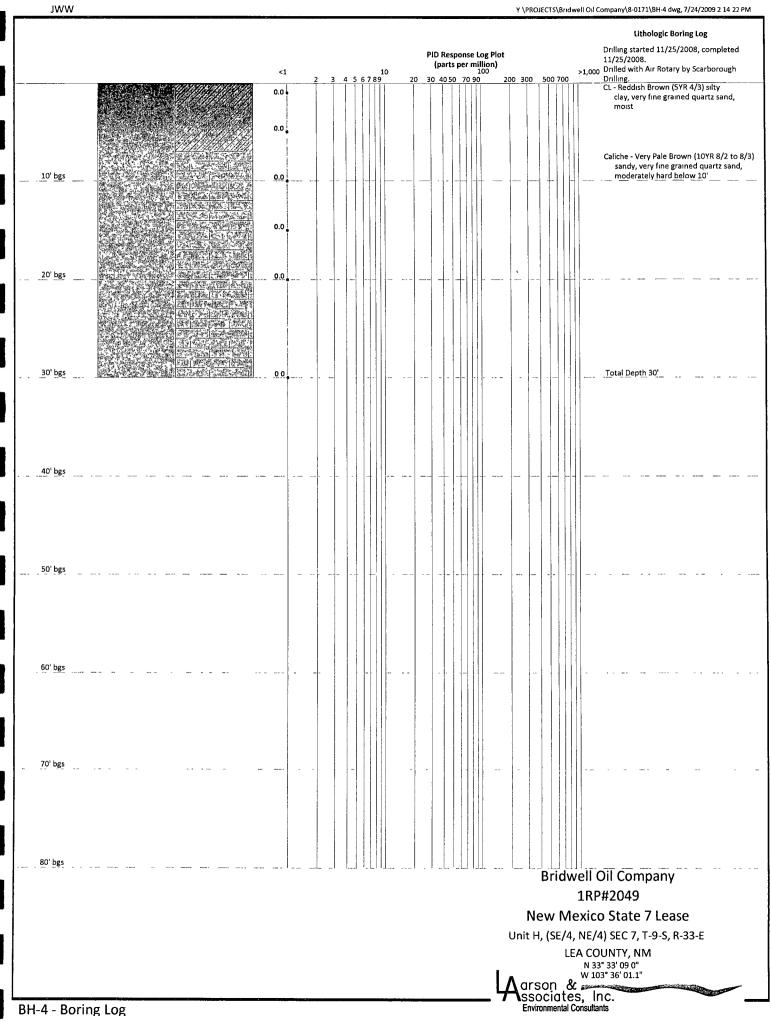


Y \PROJECTS\Bridwell Oil Company\8-0171\BH-3 dwg, 7/24/2009 2 13 29 PM

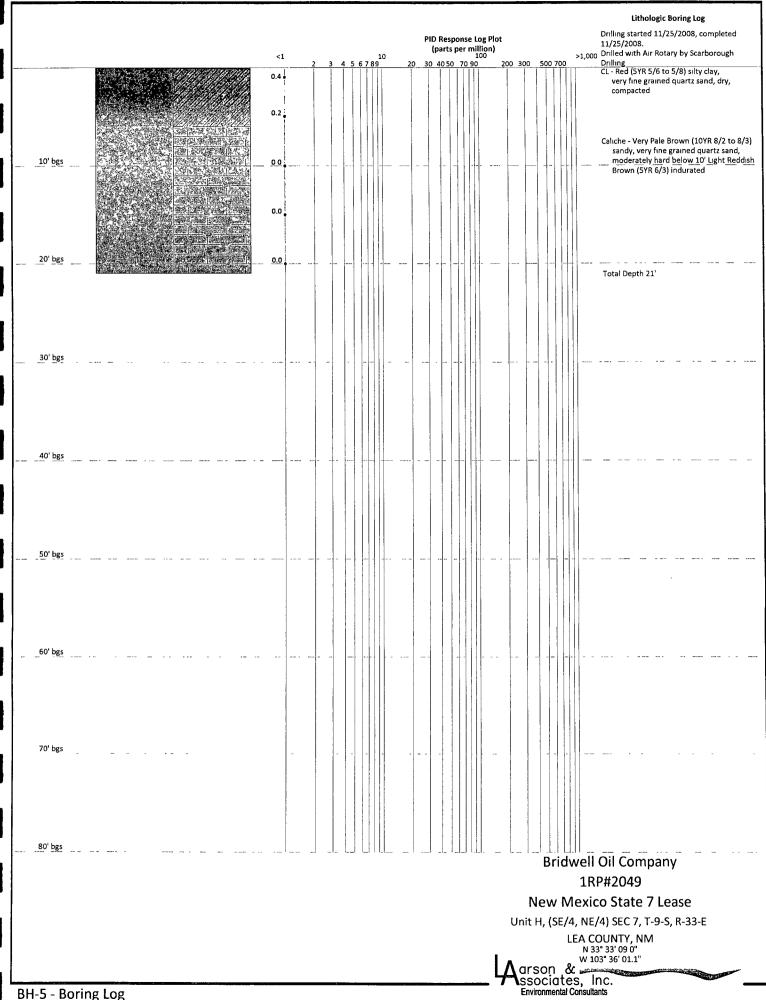


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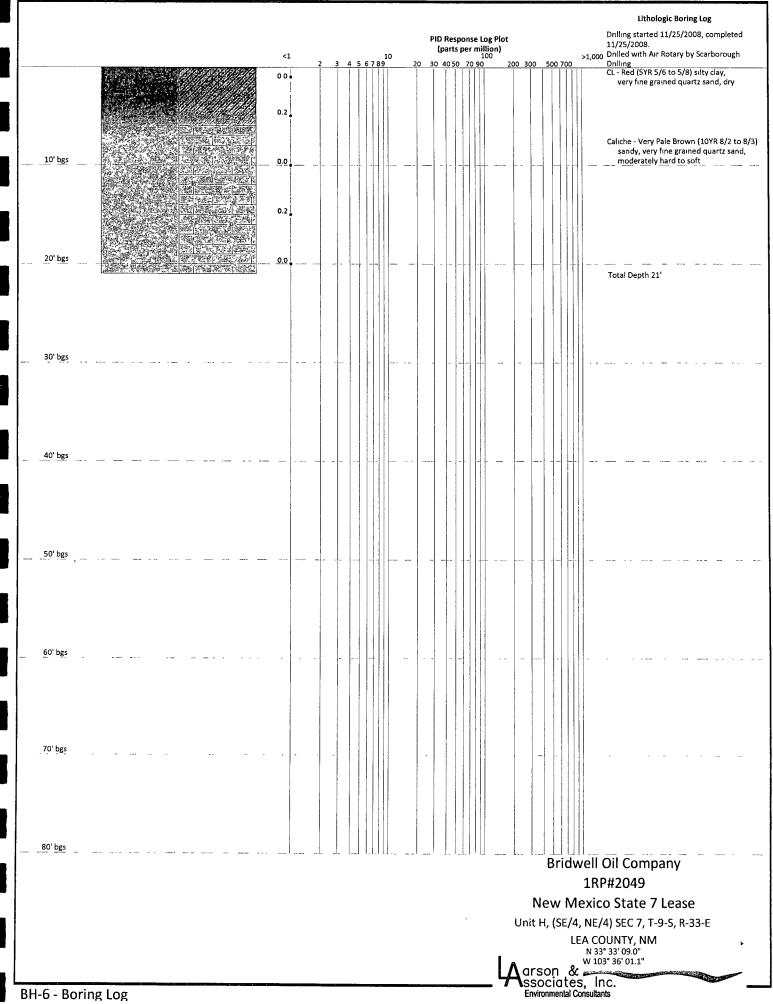
Y \PROJECTS\Bridwell Oil Company\8-0171\BH-4 dwg, 7/24/2009 2 14 22 PM



JWW

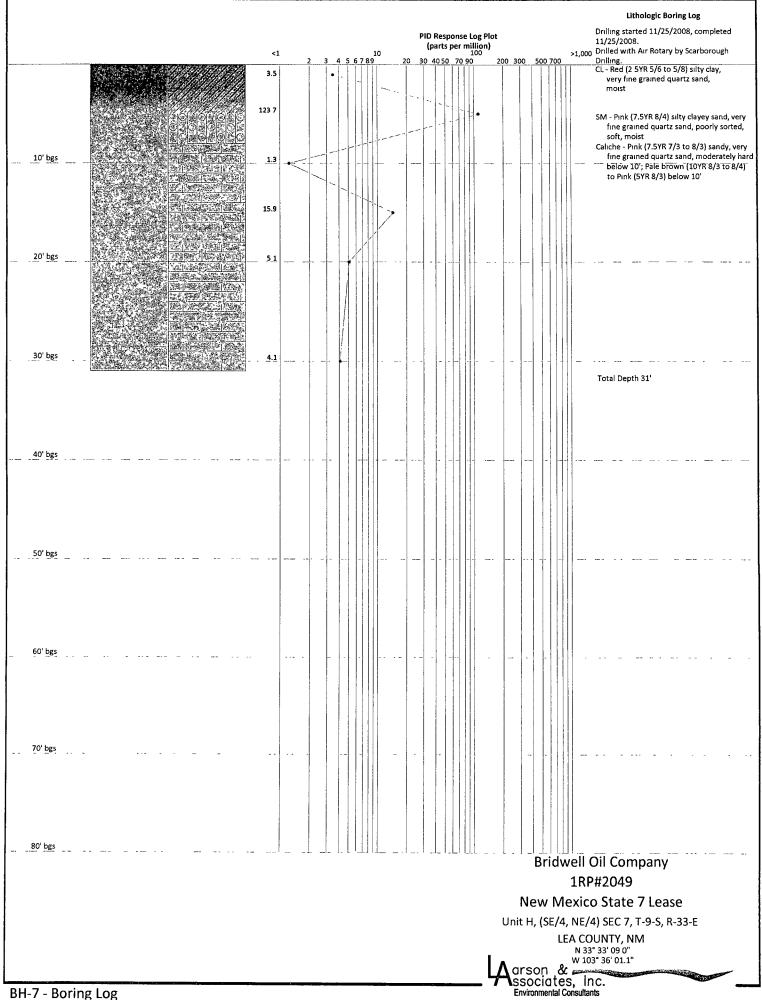


Y \PROJECTS\Bridwell Oil Company\8-0171\BH-6 dwg, 7/24/2009 2 23 24 PM

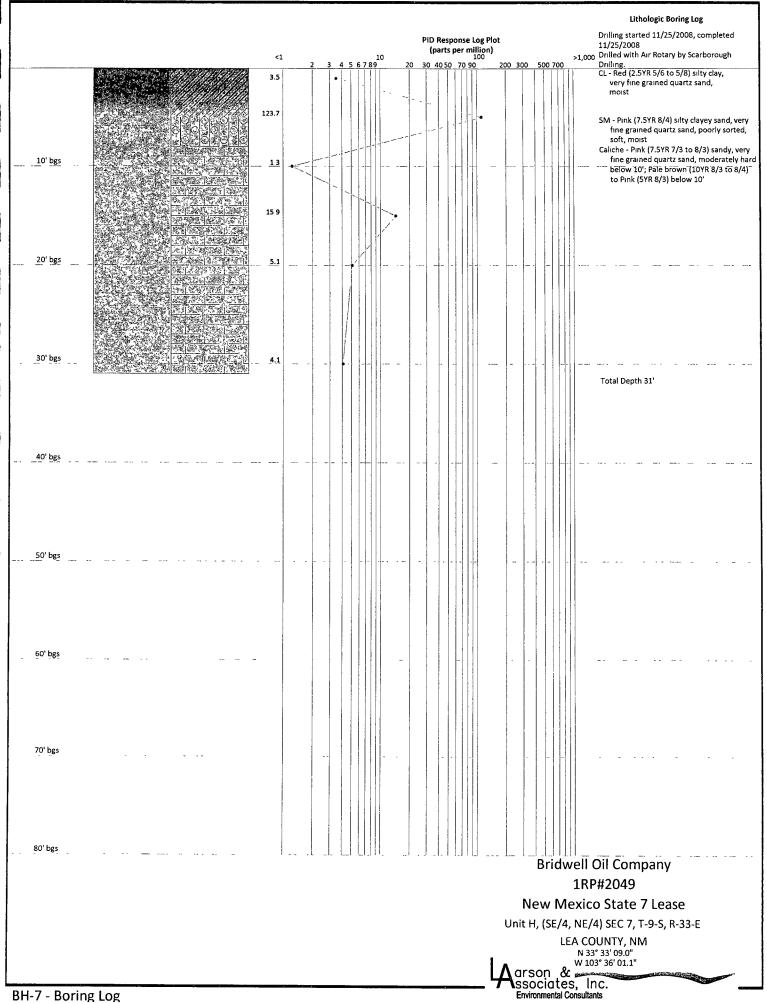


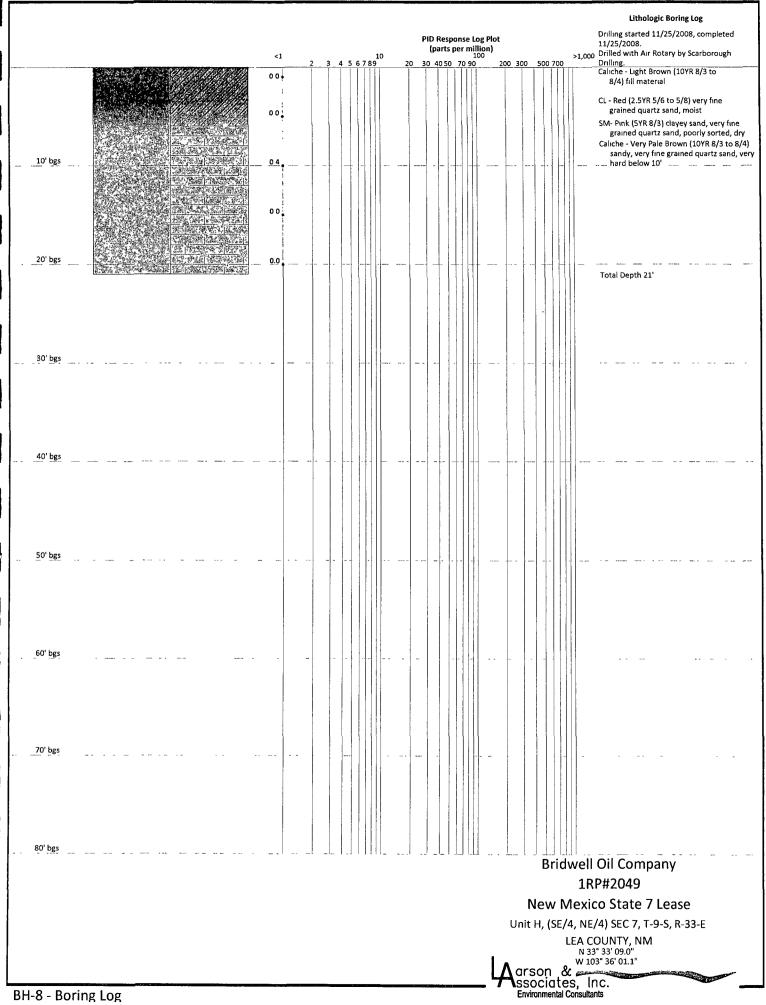
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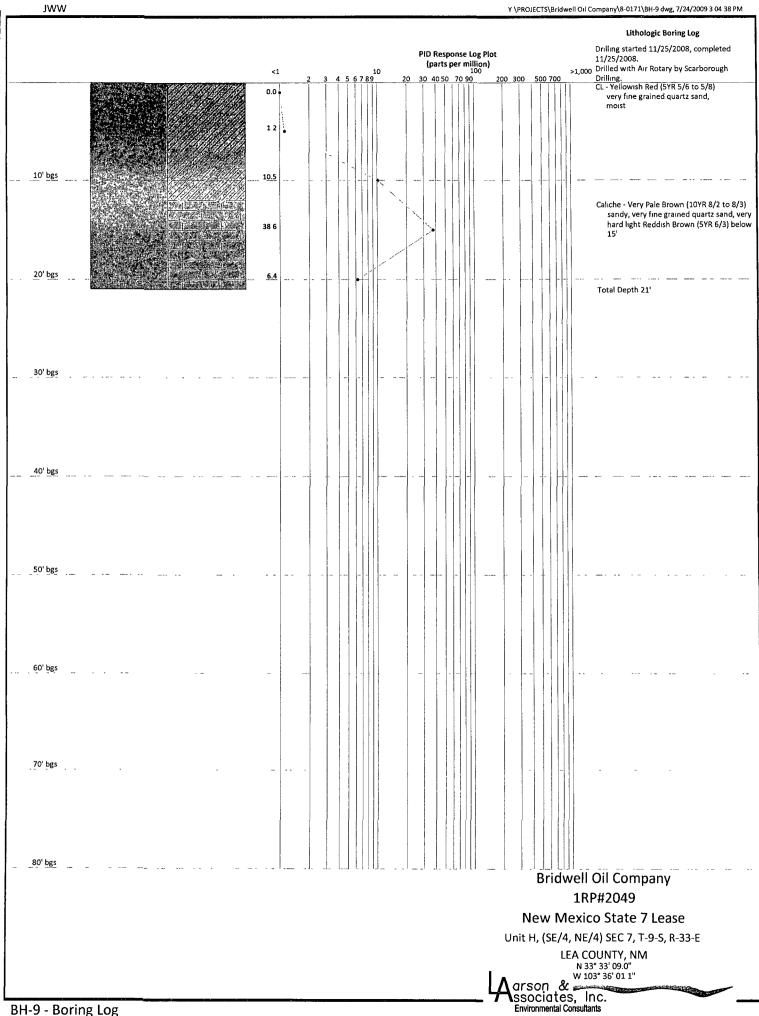
JWW



JWW

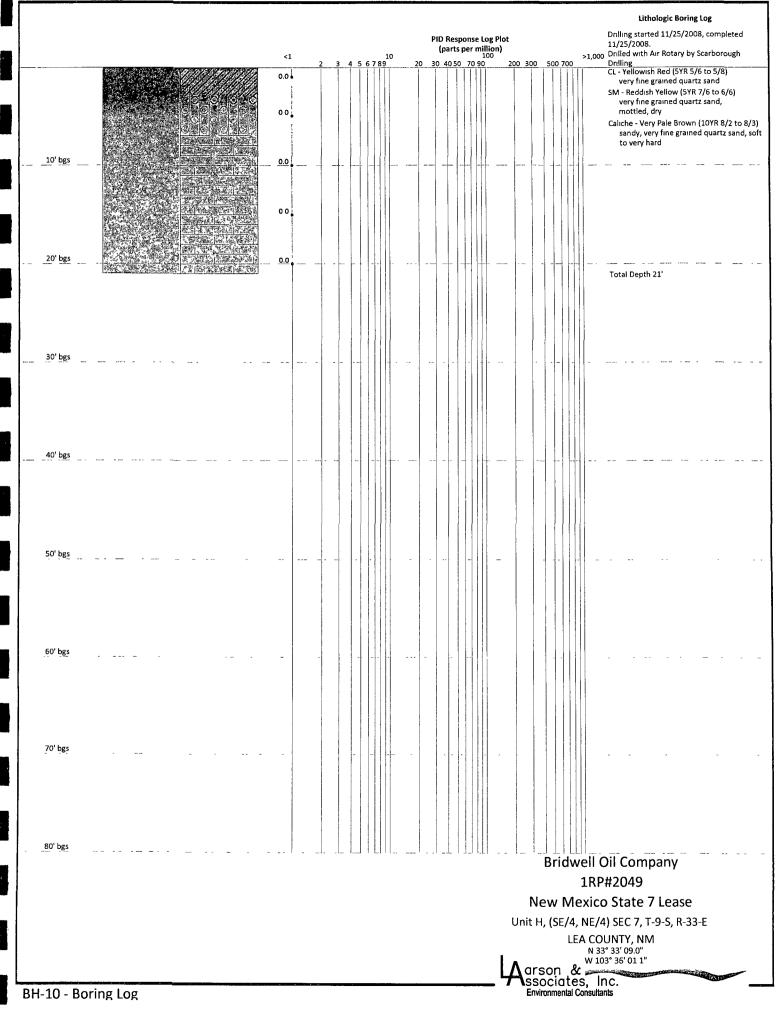




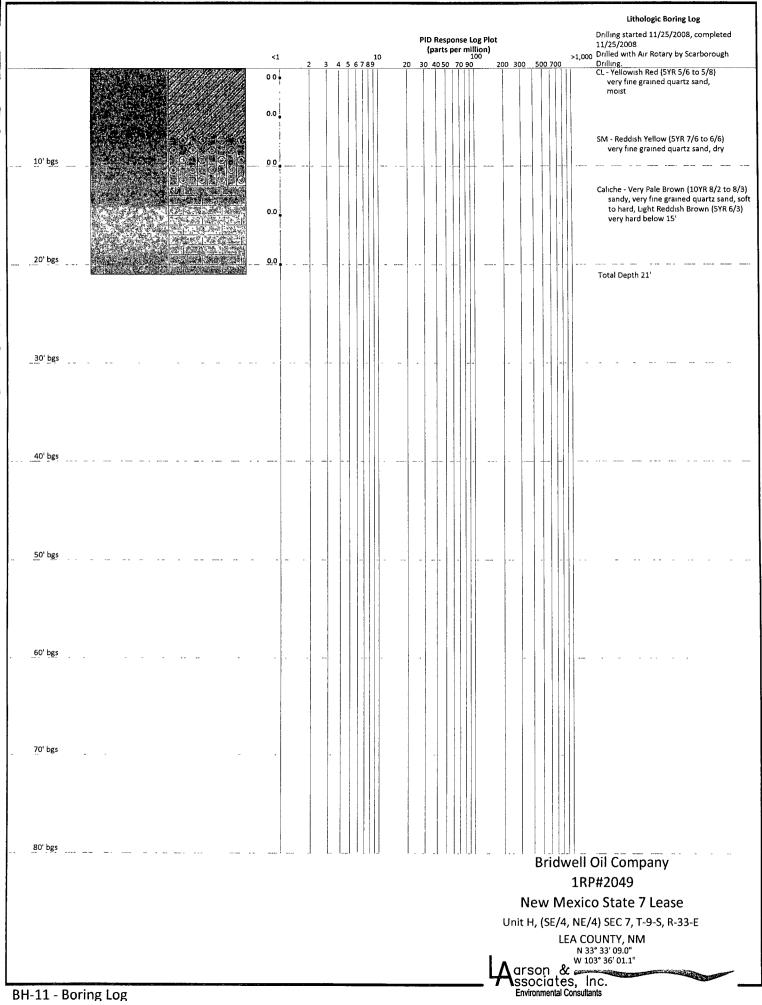


JWW

Y \PROJECTS\Bridwell Oil Company\8-0171\BH-10 dwg, 7/24/2009 3.29 44 PM

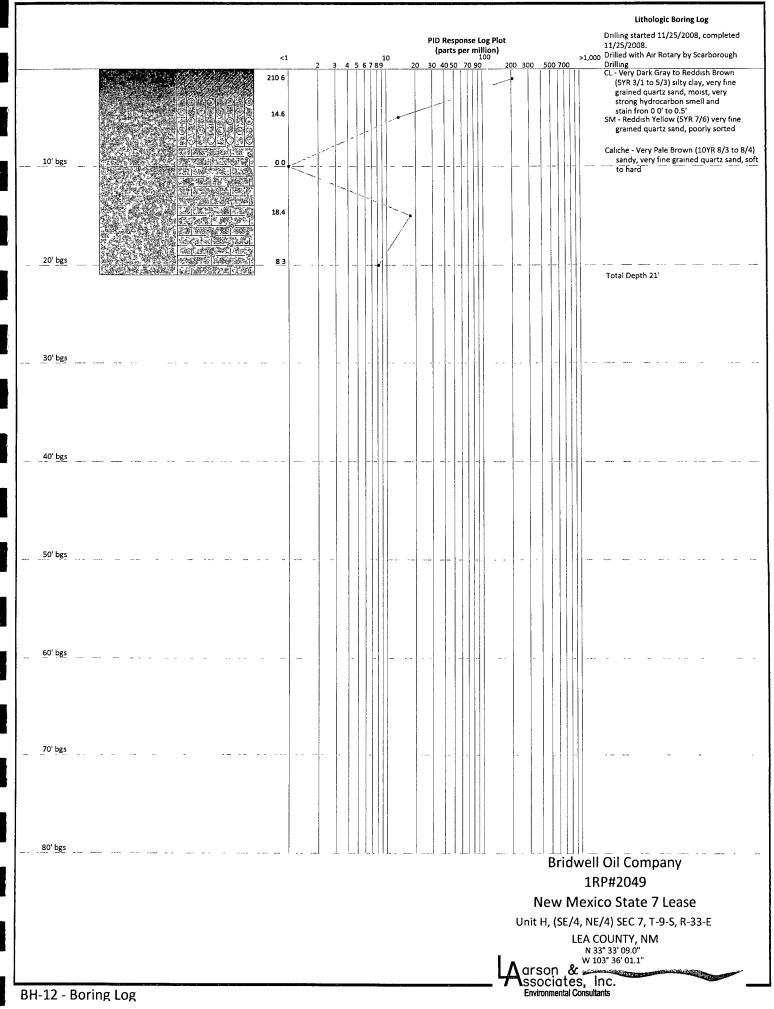


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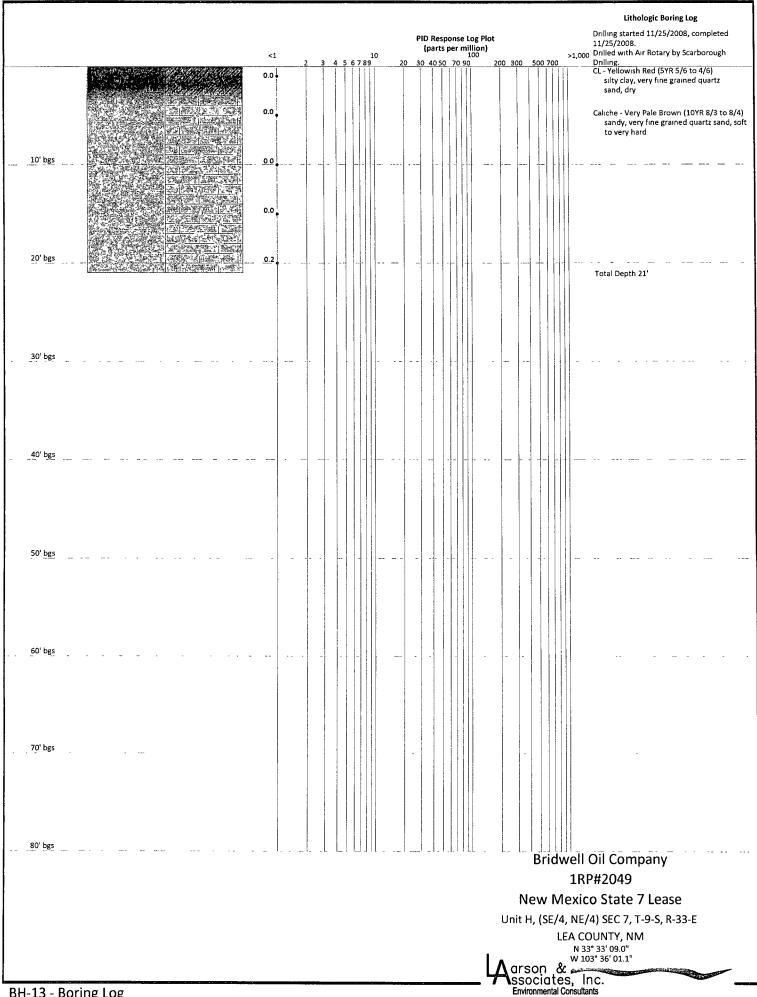


JWW

Y \PROJECTS\Bridwell Oil Company\8-0171\BH-12 dwg, 7/24/2009 3 30 54 PM



JWW



**APPENDIX C** 

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Laboratory Reports

# MULTURA TRACEANALYSIS, INC.

 6701 Aberdeen Avenue, Suite 9
 Lubbock, Texas 79424

 200 East Sunset Road, Suite E
 El Paso, Texas 79922

 5002 Basin Streot, Suite A1
 Midland Texas 79703

 6015 Harris Parkway Suite 110
 Ft, Worth, Texas 76132

Lubbock, Texas 79424 800 • 378 • 1296 El Paso, Texas 79922 888 • 588 • 3443 Midland Texas 79703 Ft, Worth, Texas 76132 E-Mail Tab@traceanalysis.com

800•378•1296 888•588•3443 915•585•3443 432•689•6301 817•201•5260

FAX 806+794+1298 FAX 915+585+4944 FAX 432+689+6313

WBENC: 237019

HUB:1752439743100-86536NCTRCAWFWB38444Y0909

Certifications

**DBE:** VN 20657

# **NELAP** Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 El Paso: T104704221-08-TX LELAP-02002 Midland: T104704392-08-TX

# Analytical and Quality Control Report

Michelle Green Larson and Associates, Inc.

P. O. Box 50685 Midland, Tx, 79710

Project Location: NM Project Name: NM State #7 Lease Project Number: 8-0171 Report Date: December 30, 2008

Work Order: 8112601

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
180641	BH-1, 1'	soil	2008-11-24	14:10	2008-11-26
180642	BH-1, 5'	soil	2008-11-24	14:15	2008 - 11 - 26
180643	BH-1, 10'	soil	2008-11-24	14:18	2008 - 11 - 26
180644	BH-1, 15'	soil	2008-11-24	14:33	2008 - 11 - 26
180645	BH-1, 20'	soil	2008-11-24	14:37	2008-11-26
180646	BH-2, 1'	soil	2008-11-24	14:50	2008-11-26
180647	BH-2, 5'	soil	2008-11-24	14:55	2008-11-26
180648	BH-2, 10'	soil	2008-11-24	14:59	2008-11-26
180649	BH-2, 15'	soil	2008-11-24	15:06	2008-11-26

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
180650	BH-2, 20'	soil	2008-11-24	15:12	2008-11-26
180651	BH-3, 1'	soil	2008 - 11 - 24	15:27	2008-11-26
180652	BH-3, 5'	soil	2008-11-24	15:31	2008-11-26
180653	BH-3, 10'	soil	2008-11-24	15:37	2008-11-26
180654	BH-3, 15'	soil	2008-11-24	15:43	2008-11-26
180655	BH-3, 20'	soil	2008-11-24	15:54	2008-11-26
180656	BH-4, 1'	soil	2008-11-25	07:39	2008-11-26
180657	BH-4, 5'	soil	2008-11-25	07:42	2008-11-26
180658	BH-4, 10'	soil	2008-11-25	07:49	2008-11-26
180659	BH-4, 15'	soil	2008-11-25	07:55	2008-11-26
180660	BH-4, 20'	soil	2008-11-25	08:01	2008-11-26
180661	BH-4, 30'	soil	2008-11-25	08:16	2008-11-26
180662	BH-5, 1'	soil	2008-11-25	08:24	2008-11-26
180663	BH-5, 5'	soil	2008-11-25	08:34	2008-11-26
180664	BH-5, 10'	soil	2008-11-25	08:42	2008-11-26
180665	BH-5, 15'	soil	2008-11-25	08:49	2008-11-26
180666	BH-5, 20'	soil	2008-11-25	09:02	2008-11-26
180667	SS-1	soil	2008-11-25	08:55	2008-11-26
180668	BH-6, 1'	soil	2008-11-25	09:15	2008-11-26
180669	BH-6, 5'	soil	2008-11-25	09:21	2008-11-26
180670	BH-6, 10'	soil	2008-11-25	09:26	2008-11-26
180671	BH-6, 15'	soil	2008-11-25	09:30	2008-11-26
180673	BH-7, 1'	soil	2008-11-25	09:52	2008-11-26
180674	BH-7, 5'	soil	2008-11-25	09:57	2008-11-26
180675	BH-7, 10'	soil	2008-11-25	10:04	2008-11-26
180676	BH-7, 15'	soil	2008-11-25	10:13	2008-11-26
180677	BH-7, 20'	soil	2008-11-25	10:19	2008-11-26
180678	BH-7, 30'	soil	2008-11-25	10:42	2008-11-26
180679	BH-8, 1'	soil	2008-11-25	10:55	2008-11-26
180680	BH-8, 5'	soil	2008-11-25	11:00	2008-11-26
180681	BH-8, 10'	soil	2008-11-25	11:03	2008-11-26
180682	BH-8, 15'	soil	2008-11-25	11:11	2008-11-26
180683	BH-8, 20'	soil	2008-11-25	11:29	2008-11-26
180684	BH-9, 1'	soil	2008-11-25	12:27	2008-11-26
180685	BH-9, 5'	soil	2008-11-25	12:31	2008-11-26
180686	BH-9, 10'	soil	2008-11-25	12:37	2008-11-26
180687	BH-9, 15'	soil	2008-11-25	12:47	2008-11-26
180688	BH-9, 20'	soil	2008-11-25	12:56	2008-11-26
180689	BH-10, 1'	soil	2008-11-25	13:06	2008-11-26
180690	BH-10, 5'	soil	2008-11-25	13:10	2008-11-26
180691	BH-10, 10'	soil	2008-11-25	13:15	2008-11-26
180692	BH-10, 15'	soil	2008-11-25	13:21	2008-11-26
180693	BH-10, 20'	soil	2008-11-25	13:27	2008-11-26
180694	BH-11, 1'	soil	2008-11-25	13:37	2008-11-26
180695	BH-11, 5'	soil	2008-11-25	13:40	2008-11-26
180696	BH-11, 10'	soil	2008-11-25	13:46	2008-11-26
180697	BH-11, 15'	soil	2008-11-25	13:50	2008-11-26
180698	BH-11, 20'	soil	2008-11-25	13:59	2008-11-26
180699	BH-12, 1'	soil	2008-11-25	14:11	2008-11-20
100000		1106	2000-11-20	14.11	2000-11-20

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
180700	BH-12, 5'	soil	2008-11-25	14:15	2008-11-26
180701	BH-12, 10'	soil	2008 - 11 - 25	14:20	2008-11-26
180702	BH-12, 15'	soil	2008-11-25	14:23	2008 - 11 - 26
180704	BH-13, 0'	soil	2008 - 11 - 25	14:40	2008-11-26
180705	BH-13, 5'	soil	2008-11-25	14:45	2008 - 11 - 26
180706	BH-13, 10'	soil	2008-11-25	14:49	2008 - 11 - 26
180707	BH-13, 15'	soil	2008-11-25	15:04	2008 - 11 - 26
180708	BH-13, 20'	soil	2008-11-25	15:06	2008-11-26

#### Comment(s)

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 85 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

#### Notes:

All sample results are reported on a dry weight basis.

For inorganic analyses, the term MQL should actually read PQL.

#### Standard Flags

- ${\bf U}\,$  Not detected. The analyte is not detected above the SDL.
- ${f J}$  Estimated. The analyte is positively identified and the value is approximated between the SDL and MQL.
- $\,B\,\,$  The sample contains less than ten times the concentration found in the method blank.
- ${\bf JB} \mbox{ The analyte is positively identified and the value is approximated between the SDL and MQL. The sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL. }$

Blain Lefturch

Dr. Blair Leftwich, Director

# Case Narrative

Samples for project NM State #7 Lease were received by TraceAnalysis, Inc. on 2008-11-26 and assigned to work order 8112601. Samples for work order 8112601 were received intact at a temperature of 3.3 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
BTEX	S 8021B
Chloride (IC)	E 300.0
Moisture Content	ASTM D 2974-87
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8112601 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

# **Analytical Report**

Note: All sample results are reported on a dry weight basis.

#### Sample: 180641 - BH-1, 1'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 55381 47336			Analytica Date Ana Sample P		E 300.0 2008-12-22 2008-12-18		Prep Method: N/A Analyzed By: RD Prepared By: RD	
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	$\operatorname{Result}$	$\operatorname{Result}$	$\mathbf{Units}$	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Chloride		1490	1490	<40.2	mg/Kg	100	40.2	1	0.3527

#### Sample: 180641 - BH-1, 1'

Laboratory: Analysis: QC Batch: Prep Batch:	Moisture Content 54759	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-02 2008-12-01	Prep Method: Analyzed By: Prepared By:	AR
		$\operatorname{RL}$			
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
Moisture		12.2	%	1	0

#### Sample: 180641 - BH-1, 1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midlan TPH E 54826 46719			Analytical M Date Analyz Sample Prej	zed:	Mod. 2008-1 2008-1			Prep M Analyz Prepare	•
		SDL Based	MQL Based	Method Blank					MQL	MDL
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dil	ution	SDL	(Unadjusted)	(Unadjusted)
DRO	В	519	519	96.8	mg/Kg		5	89.8	50	15.765
Surrogate		Flag	Result	Units	Dilu	tion	. *	oike ount	Percent Recovery	Recovery Limits
n-Triacontan	Э	1	533	mg/Kg	5	j	1	00	533	10 - 250.4

Sample: 180641 - BH-1, 1'

<sup>1</sup>High surrogate recovery due to peak interference.

Report Date: December 30, 2008 8-0171				Y	Work Orde NM State	Page Number: 6 of 85 NM			
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 54735 46799			Analytical Method: Date Analyzed: Sample Preparation:		S 8015B 2008-12-01 2008-12-01	Prep Met Analyzed Prepared		By: AG
		SDL Based	MQL Based	Method Blank				MQL	MDL
Parameter	Flag	Result	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
GRO		560	560	< 0.390	mg/Kg	2	0.390	1	0.171
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
	one (TF)	(1	rag	2.02		2		101	75 - 117.2
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) <sup>2</sup>		4.15	mg/Kg mg/Kg	2	$2.00 \\ 2.00$	208	75 - 117.2 56 - 142.8		

# Sample: 180642 - BH-1, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 55381 47336			Date Ana	l Method: lyzed: reparation:	$\begin{array}{c} {\rm E} \ 300.0\\ 2008-12-22\\ 2008-12-18\end{array}$		Prep Method: N/A Analyzed By: RD Prepared By: RD		
		SDL Based	MQL Based	Method Blank				MQL	MDL	
Parameter	Flag	$\operatorname{Result}$	Result	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)	
Chloride		665	665	<37.0	mg/Kg	100	37.0	1	0.3527	

#### Sample: 180642 - BH-1, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 54759 46783	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-02 2008-12-01	Prep Method: Analyzed By: Prepared By:	AR
		$\mathbf{RL}$			
Parameter	Flag	$\operatorname{Result}$	Units	Dilution	$\operatorname{RL}$
Moisture		4.77	%	1	0

#### Sample: 180642 - BH-1, 5'

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	54826	Date Analyzed:	2008-12-03	Analyzed By:	ĹĎ
Prep Batch:	46719	Sample Preparation:	2008-11-26	Prepared By:	LD

<sup>2</sup>High surrogate recovery due to peak interference.

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		$\operatorname{SDL}$	MQL	Method						
		Based	Based	$\operatorname{Blank}$				MQL	MDL	
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilutio	on SDL	(Unadjusted)	(Unadjusted)	
DRO	JB	32.2	<52.5	17.8	mg/Kg	1	16.6	50	15.765	
							Spike	Percent	Recovery	
Surrogate		Flag	Result	Units	Diluti	ion Amount		Recovery	Limits	
n-Triacontane			84.1	mg/Kg	1		100	84	10 - 250.4	

# Sample: 180642 - BH-1, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 54735 46799			Analytical Date Analy Sample Pre	zed:	S 8015B 2008-12-01 2008-12-01		Prep Met Analyzed Prepared	By: AG
		SDL	MQL	Method					
		Based	Based	$\operatorname{Blank}$				MQL	$\mathrm{MDL}$
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
GRO		89.7	89.7	< 0.180	mg/Kg	1	0.180	1	0.171
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolu	ene (TFI	_)		1.02	mg/Kg	1	1.00	102	75 - 117.2
4-Bromofluor	obenzene	e (4-BFB)		0.952	mg/Kg	1	1.00	95	56 - 142.8

# Sample: 180643 - BH-1, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 55381 47336		Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-22 2008-12-18		Prep M Analyz Prepar	v	
		${ m SDL}$ Based	${f MQL}$ Based	Method Blank				MQL	MDL
Parameter	Flag	$\mathbf{Result}$	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Chloride		3360	3360	<38.7	mg/Kg	100	38.7	1	0.3527

#### Sample: 180643 - BH-1, 10'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2974-87	Prep Method:	N/A
QC Batch:	54759	Date Analyzed:	2008-12-02	Analyzed By:	AR
Prep Batch:	46783	Sample Preparation:	2008-12-01	Prepared By:	$\operatorname{AR}$

Report Date: December 30, 2008 8-0171			Order: 8112601 tate #7 Lease	Page Number: 8 of 85 NM		
Parameter	Flag	$\operatorname{RL}$ Result	Units	Dilution	$\operatorname{RL}$	
Moisture		8.91	7%	1	0	

#### Sample: 180643 - BH-1, 10'

n-Triacontane		i iag	82.8	mg/Kg	1		100	83	10 - 250.4
Surrogate	ī	Flag	Result	Units	Dilu	tion	Spike Amount	Percent Recovery	Recovery Limits
DRO	U	<17.3	<54.9	18.7	mg/Kg	1	17.3	50	15.765
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Diluti	on SDL	MQL (Unadjusted)	MDL (Unadjusted)
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH D 54826 46719	TPH DRO 54826		Analytical M Date Analyz Sample Prej	zed:	Mod. 801 2008-12-0 2008-11-2	)3	Prep M Analyz Prepar	v

#### Sample: 180643 - BH-1, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Analysis: TPH GRO QC Batch: 54735		Analytical Method Date Analyzed: Sample Preparation			S 8015B 2008-12-01 2008-12-01		Prep Met Analyzed Prepared	By: AG
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
GRO		29.4	29.4	< 0.188	mg/Kg	1	0.188	1	0.171
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolu	ene (TF7	<u>(</u> )		1.10	mg/Kg	1	1.00	110	75 - 117.2
4-Bromofluor	obenzen	e (4-BFB)		0.908	mg/Kg	1	1.00	91	56 - 142.8

#### Sample: 180644 - BH-1, 15'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	$\to 300.0$	Prep Method:	N/A
QC Batch:	55381	Date Analyzed:	2008-12-22	Analyzed By:	RD
Prep Batch:	47336	Sample Preparation:	2008 - 12 - 18	Prepared By:	RD

8-0171		per 30, 2008	)		Vork Order NM State <del>,</del>	: 8112601 #7 Lease		Page Number: 9 of 85 NM		
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)		DL justed)
Chloride		1160	1160	<36.2	mg/Kg	100	36.2	1	0.3	527
Sample: 18	0644 - E	BH-1, 15'								
Laboratory:	Midland									
Analysis:		e Content		Analytical		ASTM D 29'	74-87	Prep M		N/A
QC Batch:	54759			Date Analy		2008 - 12 - 02		Analyz	•	$\mathbf{AR}$
Prep Batch:	46783			Sample Pre	eparation:	2008-12-01		Prepar	ed By:	AR
D				RL		<b>**</b>				D
Parameter Moisture		Flag		Result		Units		Dilution		RI
				2.50		%		1		0
Sample: 18	0645 - E Lubbocl	,								
Sample: 18 Laboratory: Analysis: QC Batch:		k		Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-22 : 2008-12-18		Prep M Analyz Prepar	•	ŔĎ
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch:	Lubbocl Chloride 55381 47336	k e (IC) SDL Based	MQL Based	Date Ana Sample P Method Blank	lyzed: reparation:	2008-12-22 2008-12-18		Analyz Prepar MQL	ed By: ed By: M	RD RD DL
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter	Lubbocl Chloride 55381	k e (IC) SDL Based Result	Based Result	Date Ana Sample P Method Blank Result	lyzed: reparation: Units	2008-12-22 2008-12-18 Dilution	SDL	Analyz Prepar MQL (Unadjusted)	ed By: ed By: M (Unac	DL ljusted
Sample: 18	Lubbocl Chloride 55381 47336	k e (IC) SDL Based	Based	Date Ana Sample P Method Blank	lyzed: reparation:	2008-12-22 2008-12-18	SDL 37.6	Analyz Prepar MQL	ed By: ed By: M (Unac	RD RD DL
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter Chloride	Lubbock Chloride 55381 47336 Flag	k e (IC) SDL Based Result 1480	Based Result	Date Ana Sample P Method Blank Result	lyzed: reparation: Units	2008-12-22 2008-12-18 Dilution		Analyz Prepar MQL (Unadjusted)	ed By: ed By: M (Unac	RD RD DL
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory:	Lubbock Chloride 55381 47336 Flag 0645 - B Midland	k e (IC) SDL Based Result 1480 BH-1, 20'	Based Result	Date Ana Sample P Method Blank Result <37.6	lyzed: reparation: Units mg/Kg	2008-12-22 2008-12-18 Dilution 100	37.6	Analyz Prepar MQL (Unadjusted) 1	ed By: M (Unac	RD RD DL ljusted
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis:	Lubbock Chloride 55381 47336 Flag 0645 - B Midland Moistur	k e (IC) SDL Based Result 1480 BH-1, 20'	Based Result	Date Ana Sample P Method Blank Result <37.6	lyzed: reparation: <u>Units</u> <u>mg/Kg</u> Method:	2008-12-22 2008-12-18 Dilution 100	37.6	Analyz Prepar MQL (Unadjusted) 1 Prep M	ed By: ed By: M (Unac 0.:	RD RD DL ljusted 3527
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubbock Chloride 55381 47336 Flag 0645 - B Midland Moistur 54759	k e (IC) SDL Based Result 1480 BH-1, 20'	Based Result	Date Ana Sample P Method Blank Result <37.6 Analytical Date Analy	lyzed: reparation: <u>Units</u> mg/Kg Method: zzed:	2008-12-22 2008-12-18 Dilution 100 ASTM D 29' 2008-12-02	37.6	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	ed By: ed By: M (Unac 0.2 fethod: zed By:	RD RD JL ljusted 3527
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis:	Lubbock Chloride 55381 47336 Flag 0645 - B Midland Moistur	k e (IC) SDL Based Result 1480 BH-1, 20'	Based Result	Date Ana Sample P Method Blank Result <37.6 Analytical Date Analy Sample Pre	lyzed: reparation: <u>Units</u> mg/Kg Method: zzed:	2008-12-22 2008-12-18 Dilution 100	37.6	Analyz Prepar MQL (Unadjusted) 1 Prep M	ed By: ed By: M (Unac 0.2 fethod: zed By:	RD RD JL ljusted 3527
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubbock Chloride 55381 47336 Flag 0645 - B Midland Moistur 54759	k e (IC) SDL Based Result 1480 BH-1, 20'	Based Result	Date Ana Sample P Method Blank Result <37.6 Analytical Date Analy	lyzed: reparation: <u>Units</u> mg/Kg Method: zzed:	2008-12-22 2008-12-18 Dilution 100 ASTM D 29' 2008-12-02	37.6	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	ed By: ed By: M (Unac 0.2 fethod: zed By:	RD RD DL ljusted

13 di 0 0 0 0 m				
Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
55327	Date Analyzed:	2008-12-19	Analyzed By:	RD
47290	Sample Preparation:	2008-12-17	Prepared By:	RD
	Chloride (IC) 55327	Chloride (IC)Analytical Method:55327Date Analyzed:	Chloride (IC)Analytical Method:E 300.055327Date Analyzed:2008-12-19	Chloride (IC)Analytical Method:E 300.0Prep Method:55327Date Analyzed:2008-12-19Analyzed By:

Report Date: 8-0171	Decem	ber 30, 200	)8			Work Order: 8112601 NM State #7 Lease				
Parameter	Flag	SDL Based Result 149	MQL Based Result	Method Blank Result	Units	Dilution		MQL (Unadjusted)	MI (Unadj 0.33	usted)
Chloride		149	149	<3.72	mg/Kg	10	3.72	I	0.33	027
Sample: 180	)646 - I	BH-2, 1'								
Laboratory:	Midlan			4 1 1	N.F. (1 1		0054.05		<b>F</b> (1 - 1	<b>NT / A</b>
Analysis:		re Content		Analytical		ASTM D		Prep N		N/A
QC Batch:	54759			Date Analy		2008-12-02		Analyz	•	AR
Prep Batch:	46783			Sample Pre	eparation:	2008-12-0	L	Prepar	ed By:	$\mathbf{AR}$
Parameter		Flor		$\operatorname{RL}$ Result		TT		Dilution		$\mathbf{RL}$
Moisture		Flag				Units %		1		$\frac{\mathbf{nL}}{0}$
		=				·····				
Sample: 180	)646 - I	BH-2, 1'								
Laboratory:	Midlan	d								
Analysis:	TPH D	RO		Analytical I	Method:	Mod. 8015	В	Prep M	lethod:	N/A
QC Batch:	54826			Date Analy	zed:	2008-12-03		Analyz	ed By:	ĹĎ
Prep Batch:	46719			Sample Pre	paration:	2008-11-26		Prepar	ed By:	LD
		SDL	MQL	Method						
		Based	Based	Blank				MQL	MI	DL
Parameter	Flag	Result	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilutior	n SDL	(Unadjusted)	(Unad	justed)
DRO		<16.6	<52.8	17.9	mg/Kg	1	16.6	50		765
							Spike	Percent	Rec	overy
Surrogate	I	Flag	Result	Units	Dilu	tion .	Amount	Recovery	Li	mits
n-Triacontane	2		105	mg/Kg	1	· · · · · · · · · · · · · · · · · · ·	100	105	10 -	250.4
Sample: 180	1646 - T	RH_9 1'								
-										
Laboratory:	Midlan			A	a	0.001-7		D 14	.1 1 0	1 5000
Analysis:	TPH G 54735	Un		Analytical M		S 8015B		Prep Me		5 5038
QC Batch: Prep Batch:	54735 46799			Date Analyz Sample Prej		2008-12-01 2008-12-01		Analyzee Preparec		4G 4G
-		$\operatorname{SDL}$	MOT		-			1		
		Based	MQL Based	Method Blank				MOT	۸.4	DT
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	MQL		DL
GRO		10.9	10.9	<0.180				(Unadjusted)	(Unad	
J110		10.9	10.9	<u>\0.100</u>	mg/Kg	1	0.180	1	U.1	171

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Surrogate			Flag	$\operatorname{Result}$	Units	Dilution	Spike Amount	Percent Recovery	Recover Limits	s
Trifluorotolu				1.12	mg/Kg	1	1.00	112	75 - 117	
4-Bromofluor	obenzene	e (4-BFB)		0.915	mg/Kg	1	1.00	92	56 - 142	2.8
Sample: 18	0647 - E	3H-2, 5'								
Laboratory:	Lubboc	k								
Analysis:	Chlorid	e (IC)		Analytic	al Method:	E 300.0		Prep M	lethod: N/	/A
QC Batch:	55381			Date An		2008-12-22		Analyz		D
Prep Batch:	47336				Preparation	: 2008-12-18		Prepare		D
		SDL	MQL	Method						
		Based	Based	Blank				MQL	MDL	
Parameter	Flag	$\operatorname{Result}$	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjuste	ed)
Chloride		6620	6620	<398	mg/Kg	1000	398	1	0.3527	,
Sample: 18 Laboratory: Analysis:	Midlano Moistur	,		Analytical		ASTM D 293	74-87	Prep M		
Laboratory: Analysis: QC Batch:	Midland	d		Date Ana		ASTM D 297 2008-12-02 2008-12-01	74-87	Prep M Analyz Prepar	ed By: Al	Ŕ
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 54760	d ce Content		Date Anal Sample Pr RL	lyzed:	2008-12-02 2008-12-01	74-87	Analyz Prepar	ed By: Al ed By: Al	R
Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Midland Moistur 54760	d		Date Anal Sample Pr	lyzed:	2008-12-02	74-87	Analyz	ed By: Al ed By: Al	Ŕ R
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture	Midland Moistur 54760 46784	d re Content Flag		Date Anal Sample Pr RL Result	lyzed:	2008-12-02 2008-12-01 Units	74-87	Analyz Prepar Dilution	ed By: Al ed By: Al	R R RL
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18	Midland Moistur 54760 46784	d Flag 3H-2, 5'		Date Anal Sample Pr RL Result	lyzed:	2008-12-02 2008-12-01 Units	74-87	Analyz Prepar Dilution	ed By: Al ed By: Al	R R RI
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis:	Midland Moistur 54760 46784 0647 - E	d Flag 3H-2, 5'		Date Anal Sample Pr RL Result	lyzed: reparation:	2008-12-02 2008-12-01 Units	74-87	Analyz Prepar Dilution	ed By: Al ed By: Al	R R <u>RI</u>
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis:	Midland Moistur 54760 46784 0647 - E Midland	d Flag 3H-2, 5'		Date Anal Sample Pr RL Result 11.3	lyzed: reparation:	2008-12-02 2008-12-01 Units %	74-87	Analyz Prepar Dilution 1	ed By: Al ed By: Al I	$\frac{R}{R}$ $\frac{RI}{0}$
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis: QC Batch:	Midland Moistur 54760 46784 0647 - E Midland TPH D	d Flag 3H-2, 5'		Date Anal Sample Pr RL Result 11.3	lyzed: reparation:  Method: yzed:	2008-12-02 2008-12-01 Units % Mod. 8015B	74-87	Analyz Prepar Dilution 1 Prep M	ed By: Al ed By: Al I fethod: N, ed By: Ll	$\frac{R}{R}$ $\frac{RI}{0}$
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory:	Midland Moistur 54760 46784 0647 - E Midland TPH D 54826	d Flag 3H-2, 5' d RO SDL	MQL	Date Anal Sample Pr RL Result 11.3 Analytical Date Analy Sample Pro Method	lyzed: reparation:  Method: yzed:	2008-12-02 2008-12-01 Units % Mod. 8015B 2008-12-03	74-87	Analyz Prepar Dilution 1 Prep M Analyz Prepar	ed By: Al ed By: Al I fethod: N, ed By: Ll ed By: Ll	R R <u>RI</u> 0 D
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 54760 46784 0647 - E Midland TPH D 54826 46719	d Flag 3H-2, 5' d RO SDL Based	Based	Date Anal Sample Pr RL Result 11.3 Analytical Date Analy Sample Pro Method Blank	lyzed: reparation: Method: yzed: eparation:	2008-12-02 2008-12-01 <u>Units</u> % Mod. 8015B 2008-12-03 2008-11-26		Analyz Prepar Dilution 1 Prep M Analyz Prepar MQL	ed By: Al ed By: Al I fethod: N, ed By: Ll ed By: Ll MDL	$\frac{R}{R}$ $\frac{RI}{0}$
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch:	Midland Moistur 54760 46784 0647 - E Midland TPH D 54826 46719 Flag	d Flag 3H-2, 5' d RO SDL Based Result	Based Result	Date Anal Sample Provide Analytical Date Analytical Date Analy Sample Provide Analytical Date Analytical Date Analytical Date Analytical Date Analytical	lyzed: reparation: Method: yzed: eparation: Units	2008-12-02 2008-12-01 Units % Mod. 8015B 2008-12-03 2008-11-26 Dilution	SDL	Analyz Prepar Dilution 1 Prep M Analyz Prepar MQL (Unadjusted)	ed By: Al ed By: Al I fethod: N ed By: Ll ed By: Ll MDL (Unadjust	R R R D D
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch:	Midland Moistur 54760 46784 0647 - E Midland TPH D 54826 46719	d Flag 3H-2, 5' d RO SDL Based	Based	Date Anal Sample Pr RL Result 11.3 Analytical Date Analy Sample Pro Method Blank	lyzed: reparation: Method: yzed: eparation:	2008-12-02 2008-12-01 <u>Units</u> % Mod. 8015B 2008-12-03 2008-11-26		Analyz Prepar Dilution 1 Prep M Analyz Prepar MQL	ed By: Al ed By: Al I fethod: N, ed By: Ll ed By: Ll MDL	R R I 0
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter DRO	Midland Moistur 54760 46784 0647 - E Midland TPH D 54826 46719 Flag <i>JB</i>	d Flag 3H-2, 5' d RO SDL Based Result 18.5	Based Result	Date Anal Sample Provide Analytical Date Analytical Date Analy Sample Provide Analytical Date	Method: yzed: eparation: Units mg/Kg	2008-12-02 2008-12-01 Units % Mod. 8015B 2008-12-03 2008-11-26 Dilution 1 Sr	SDL	Analyz Prepar Dilution 1 Prep M Analyz Prepar MQL (Unadjusted)	ed By: Al ed By: Al I fethod: N ed By: Ll ed By: Ll MDL (Unadjust	R R 0 /A D D
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 18 Laboratory: Analysis: QC Batch:	Midland Moistur 54760 46784 0647 - E Midland TPH D 54826 46719 Flag JB	d Flag 3H-2, 5' d RO SDL Based Result	Based Result	Date Anal Sample Provide Analytical Date Analytical Date Analy Sample Provide Analytical Date Analytical Date Analytical	lyzed: reparation: Method: yzed: eparation: Units	2008-12-02 2008-12-01 Units % Mod. 8015B 2008-12-03 2008-11-26 Dilution 1 Spicion Am	SDL 17.8	Analyz Prepar Dilution 1 Prep M Analyz Prepar MQL (Unadjusted) 50	ed By: Al ed By: Al I fethod: N ed By: Ll ed By: Ll MDL (Unadjust 15.765	R R I D D ted 5 ery

Sample: 180647 - BH-2, 5'

Report Date 8-0171	: Decemt	oer 30, 2008	8	Work Order: 8112601 NM State #7 Lease				Page Number: 37 of 85 NM		
Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55389 47341			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-22 2008-12-19		Prep M Analyz Prepar	•/	
Parameter Chloride	Flag	SDL Based Result <b>295</b>	MQL Based Result <b>295</b>	Method Blank Result <3.66	Units mg/Kg	Dilution 10	SDL 3.66	MQL (Unadjusted) 1	MDL (Unadjusted) 0.3527	

#### Sample: 180678 - BH-7, 30'

Laboratory: Analysis: QC Batch: Prep Batch:	Moisture Content 55170	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-16 2008-12-15	Prep Method: Analyzed By: Prepared By:	AR
		$\operatorname{RL}$			
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	$\operatorname{RL}$
Moisture		3.70	%	1	0

#### Sample: 180679 - BH-8, 1'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chloride 55389 47341			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-22 2008-12-19		Prep M Analyz Prepar	•
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	$\operatorname{MDL}$ (Unadjusted)
Chloride	Ŭ	187	187	<3.79	mg/Kg	10	3.79	1	0.3527

# Sample: 180679 - BH-8, 1'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2974-87	Prep Method:	N/A
QC Batch:	54762	Date Analyzed:	2008-12-02	Analyzed By:	$\mathbf{AR}$
Prep Batch:	46786	Sample Preparation:	2008-12-01	Prepared By:	AR
		$\operatorname{RL}$			
Parameter	$\operatorname{Flag}$	Result	Units	Dilution	$\operatorname{RL}$
Moisture	· · · · · · · · · · · · · · · · · · ·	6.93	%	1	0

Sample: 180679 - BH-8, 1'

Report Date: 8-0171	Decem	iber 30, 200	08		ork Order M State				Page Nur	nber: 38 of 85 NM
Laboratory: Analysis: QC Batch: Prep Batch:	Midlar TPH I 54826 46719			Analytical M Date Analyz Sample Prep	ed:	Mod. 8 2008-1 2008-1	2-03		Prep M Analyz Prepar	v
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilı	ution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
DRO	<u> </u>	<16.9	<53.7	18.3	mg/Kg		1	16.9	50	15.765
Surrogate n-Triacontane	2	Flag	Result 70.2	Units mg/Kg	Dilu 1	tion	Am	oike iount .00	Percent Recovery 70	Recovery Limits 10 - 250.4

# Sample: 180679 - BH-8, 1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54735 46799	-		Analytical Date Analy Sample Pre	zed:	S 8015B 2008-12-01 2008-12-01		Prep Met Analyzed Prepared	By: AG
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	$\operatorname{Result}$	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
GRO	J	0.922	<1.07	< 0.184	mg/Kg	1	0.184	1	0.171
							Spike	Percent	Recovery
Surrogate			Flag	$\operatorname{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT	.)		0.933	mg/Kg	1	1.00	93	75 - 117.2
4-Bromofluor	obenzene	e(4-BFB)		1.12	mg/Kg	1	1.00	112	56 - 142.8

# Sample: 180680 - BH-8, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboo Chlorid 55498 47431			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-24 2008-12-22		Prep M Analyz Prepar	U
		SDL	MQL	Method					
		Based	Based	$\operatorname{Blank}$				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Chloride		1220	1220	<38.9	mg/Kg	100	38.9	1	0.3527

# Sample: 180680 - BH-8, 5'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2974-87	Prep Method:	N/A

Report Date. December 30, 5 8-0171		der: 8112601 5e #7 Lease	Page Number: 3	89 of 85 NM
QC Batch: 54762	Date Analyzed:	2008-12-02	Analyzed By:	AR
Prep Batch: 46786	Sample Preparatio	n: 2008-12-01	Prepared By:	$\mathbf{AR}$
	$\operatorname{RL}$			
Parameter Fla	ag Result	Units	Dilution	$\operatorname{RL}$
Moisture	9.39	%	1	0

## Sample: 180680 - BH-8, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH D 54826 46719			Analytical M Date Analyz Sample Prep	zed:	Mod. 8 2008-12 2008-11	2-03		Prep M Analyz Prepar	v
		$\operatorname{SDL}$	MQL	Method						
		Based	Based	$\operatorname{Blank}$			•		MQL	MDL
Parameter	Flag	Result	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilu	tion	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
DRO	U	<17.4	$<\!55.2$	18.8	mg/Kg	]		17.4	50	15.765
Surrogate	1	Flag	Result	Units	Dilu	tion		oike ount	Percent Recovery	$\begin{array}{c} \operatorname{Recovery} \\ \operatorname{Limits} \end{array}$
		LIAB			1	1011			· · · · · · · · · · · · · · · · · · ·	
n-Triacontan	e		86.4	mg/Kg	1		1	00	86	10 - 250.4

# Sample: 180680 - BH-8, 5'

Laboratory:	Midlan	d							
Analysis:	TPH G	RO		Analytical	Method:	S 8015B		Prep Me	thod: S 5035
QC Batch:	54812			Date Analy	yzed:	2008-12-02		Analyzed	l By: ME
Prep Batch:	46849			Sample Pr	eparation:	2008-12-02		Prepared	By: ME
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
GRO	J	1.01	<1.10	< 0.488	mg/Kg	1	0.488	1	0.442
							Spike	Percent	Recovery
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TF]	[)		0.947	mg/Kg	1	1.00	95	67.5 - 135.2
4-Bromofluor	obenzene	e (4-BFB)		0.962	mg/Kg	1	1.00	96	63.8 - 141

## Sample: 180681 - BH-8, 10'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method.	N/A
QC Batch:	55498	Date Analyzed:	2008 - 12 - 24	Analyzed By:	RD
Prep Batch:	47431	Sample Preparation:	2008 - 12 - 22	Prepared By:	RD

Report Date 8-0171	: Decem	ber 30, 2008	3		′ork Order: VM State #			Page Nur	nber: 40	NM
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	(Unad	. ,
Chloride		746	746	<36.8	mg/Kg	100	36.8	1	0.3	527
Sample: 18	0681 - I	<b>3H-8, 10'</b>								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 54762 46786	d re Content		Analytical Date Analy Sample Pre	vzed:	ASTM D 29 2008-12-02 2008-12-01	74-87	Prep M Analyz Prepar	-	N/A AR AR
_				RL						
Parameter Moisture		Flag		Result 4.05		Units %		Dilution 1		$\frac{\text{RL}}{0}$
<b>G</b> ] 10	0.000 T									
Laboratory: Analysis: QC Batch:	Lubboc Chlorid 55498	k		Date Ana		E 300.0 2008-12-24		Analyz	Aethod: zed By:	RD
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Lubboc Chlorid 55498 47431	k le (IC) SDL Based	MQL Based Basult	Date Ana Sample P Method Blank	lyzed: reparation	2008-12-24 : 2008-12-22	SDI	Analyz Prepar MQL	zed By: red By: M	RD RD DL
Laboratory: Analysis: QC Batch:	Lubboc Chlorid 55498	k le (IC) SDL		Date Ana Sample P Method	lyzed:	2008-12-24	SDL 38.3	Analyz Prepar	ed By: ed By: M (Unac	RD
Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Lubboc Chlorid 55498 47431 Flag 0682 - H Midland	k le (IC) SDL Based Result 2090 3H-8, 15'	Based Result	Date Ana Sample P Method Blank Result	lyzed: reparation Units mg/Kg Method: vzed:	2008-12-24 2008-12-22 Dilution	38.3	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	ed By: ed By: M (Unac	RD RD UL Ujusted 527
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubboc Chlorid 55498 47431 Flag 0682 - H Midland Moistur 54775	k le (IC) Based Result <b>2090</b> <b>3H-8, 15'</b> d	Based Result	Date Ana Sample P Method Blank Result <38.3 Analytical Date Analy	lyzed: reparation Units mg/Kg Method: vzed:	2008-12-24 : 2008-12-22 Dilution 100 ASTM D 29 2008-12-03	38.3	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	Method: zed By:	RD RD DL ljusted

#### Sample: 180683 - BH-8, 20'

;

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	55498	Date Analyzed:	2008 - 12 - 24	Analyzed By:	RD
Prep Batch:	47431	Sample Preparation:	2008 - 12 - 22	Prepared By:	RD

Report Date 8-0171	e: Decemi	ber 30, 2008	5		′ork Order: VM State ≢			Page Number: 41 of 8 N		
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MI (Unadj	
Chloride		1750	1750	<35.9	mg/Kg	100	35.9	1	0.3	527
Sample: 18	0683 - I	3H-8, 20'								
Laboratory:	Midlan									
Analysis:		re Content		Analytical		ASTM D 29	74-87		lethod:	N/A
QC Batch:	55170			Date Analy		2008-12-16		Analyz	-	$\mathbf{AR}$
Prep Batch:	47137			Sample Pre	eparation:	2008-12-15		Prepar	ed By:	AR
D ·		-		RL		<b>T</b> T •:				<b>D</b> 7
Parameter		Flag		Result		Units		Dilution		RI
Moisture				1.84		%		1		0
Sample: 18 Laboratory:	0684 - I Lubboc	,								
Laboratory: Analysis: QC Batch:		kle (IC) SDL	MQL Based	Date Ana Sample P Method	l Method: lyzed: reparation	E 300.0 2008-12-22 : 2008-12-19		Analyz Prepar	Aethod: zed By: red By: M	RD RD
Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55391 47343	k le (IC) SDL Based	Based	Date Ana Sample P Method Blank	lyzed: reparation	2008-12-22 : 2008-12-19	SDL	Analyz Prepar MQL	zed By: red By: M	RD RD DL
Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Lubboc Chlorid 55391	kle (IC) SDL		Date Ana Sample P Method	lyzed:	2008-12-22	SDL 3.71	Analyz Prepar	zed By: red By: M (Unad	RD DL
Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Chloride Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch:	Lubboo Chlorid 55391 47343 Flag 0684 - H Midland	sk le (IC) SDL Based Result <b>159</b> <b>3H-9, 1'</b> d re Content	Based Result	Date Ana Sample P Method Blank Result <3.71 Analytical Date Analy Sample Pro RL	lyzed: reparation Units mg/Kg Method: yzed:	2008-12-22 2008-12-19 Dilution 10 ASTM D 29 2008-12-03 2008-12-02	3.71	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz Prepar	zed By: red By: M (Unad	RD RD JL Justed 527 N/A AR AR
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubboo Chlorid 55391 47343 Flag 0684 - I Midland Moistur 54775	sk le (IC) Based Result <b>159</b> <b>3H-9, 1'</b>	Based Result	Date Ana Sample P Method Blank Result <3.71 Analytical Date Analy Sample Pre	lyzed: reparation Units mg/Kg Method: yzed:	2008-12-22 2008-12-19 Dilution 10 ASTM D 29 2008-12-03	3.71	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	zed By: red By: (Unad 0.3 Method: zed By:	RD RD DL justed

# Sample: 180684 - BH-9, 1'

4

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	54883	Date Analyzed:	2008-12-04	Analyzed By:	LD
Prep Batch:	46895	Sample Preparation:	2008-12-04	Prepared By:	LD

Report Date: 8-0171	Decer	nber 30, 20	08		Work Order: 8112601 NM State #7 Lease				Page Number: 42 of 85 NM		
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilutic	n SDL	MQL (Unadjusted)	MDL (Unadjusted)		
DRO	U	<16.6	<52.6	<16.6	mg/Kg	1	16.6	50	15.765		
Surrogate		Flag	Result	Units	Diluti	on	Spike Amount	Percent Recovery	Recovery Limits		
n-Triacontane			144	mg/Kg	1		100	144	10 - 250.4		

#### Sample: 180684 - BH-9, 1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849			Analytical Date Analy Sample Pr	yzed:	S 8015B 2008-12-02 2008-12-02		Prep Mer Analyzed Prepared	l By: ME
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
GRO	J	0.949	$<\!1.05$	< 0.465	mg/Kg	1	0.465	1	0.442
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolu	ene (TFT	C)		0.936	mg/Kg	1	1.00	94	67.5 - 135.2
4-Bromofluor	obenzene	e (4-BFB)		0.939	mg/Kg	1	1.00	94	63.8 - 141

#### Sample: 180685 - BH-9, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55498 47431			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-24 2008-12-22		Prep M Analyz Prepar	·
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	$\mathbf{Flag}$	$\mathbf{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Chloride		805	805	<37.5	mg/Kg	100	37.5	1	0.3527

#### Sample: 180685 - BH-9, 5'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2974-87	Prep Method:	N/A
QC Batch:	54775	Date Analyzed:	2008-12-03	Analyzed By:	$\overline{AR}$
Prep Batch:	46800	Sample Preparation:	2008-12-02	Prepared By:	$\operatorname{AR}$

Report Date 8-0171	: Decemi	oer 30, 200	)8	Work Order: 8112601 NM State #7 Lease					Page Number: 43 of 85 NM		
		171		RL		TT				DI	
Parameter Moisture		Flag		Result 6.07		Unit %	55	<u>_</u>	Dilution 1	<u>RL</u> 0	
Moisture				0.07		/0		<u> </u>	1		
Sample: 18	0685 - I	3H-9, 5'									
Laboratory:	Midland	d									
Analysis:	TPH D	RO		Analytical M	/lethod:	Mod. 8	3015B		Prep M	lethod: N/A	
QC Batch:	54883			Date Analyz	zed:	2008-12	2-04		Analyz	ed By: LD	
Prep Batch:	46895			Sample Prep	paration:	2008-1	2-04		Prepar	ed By: LD	
		SDL	MQL	Method							
		Based	Based	Blank					MQL	MDL	
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilu	ition	SDL	(Unadjusted)	(Unadjusted)	
DRO	<u> </u>	<16.8	<53.2	<16.8	mg/Kg		1	16.8	50	15.765	
							S	oike	Percent	Recovery	
Surrogate	1	Flag	Result	Units	Dilu	tion		ount	Recovery	Limits	

mg/Kg

94.0

#### Sample: 180685 - BH-9, 5'

n-Triacontane

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849			Analytical Date Anal Sample Pre	yzed:	S 8015B 2008-12-02 2008-12-02		Prep Mer Analyzed Prepared	l By: ME
		${ m SDL} { m Based}$	MQL Based	Method Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
GRO	J	0.932	<1.06	< 0.470	mg/Kg	1	0.470	1	0.442
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT	Γ)	<u>v</u>	0.910	mg/Kg	1	1.00	91	67.5 - 135.2
4-Bromofluor	obenzene	e (4-BFB)		0.908	mg/Kg	1	1.00	91	63.8 - 141

1

100

94

10 - 250.4

#### Sample: 180686 - BH-9, 10'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	55498	Date Analyzed:	2008-12-24	Analyzed By:	RD
Prep Batch:	47431	Sample Preparation:	2008-12-22	Prepared By:	RD

Report Date 8-0171	: Deceml	ber 30, 200	)8		′ork Order IM State 7			Page Nun	nber: 44 of 85 NM
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	n SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1740	1740	<39.8	mg/Kg	100	39.8	1	0.3527
Sample: 18		,							
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 54775 46800	d re Content		Analytical Date Analy Sample Pre	vzed:	ASTM D 2008-12-0 2008-12-0	3	Prep M Analyz Prepare	ed By: AR
				$\operatorname{RL}$					
Parameter Moisture		Flag		Result 11.3		Units %		Dilution 1	RL 0
Sample: 18	0686 - T	3H-9, 10 <sup>3</sup>							
Laboratory:	Midlan								
Analysis:	TPH D			Analytical I	Method:	Mod. 8013	5B	Prep M	fethod: N/A
QC Batch:	54883			Date Analy		2008-12-04	1	Analyz	ed By: LD
Prep Batch:	46895			Sample Pre	paration:	2008-12-04	1	Prepar	ed By: LD
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilutio		(Unadjusted)	(Unadjusted)
DRO	U	<17.8	<56.4	<17.8	mg/Kg	1	17.8	50	15.765
<b>a</b>			<b>n</b> 1				Spike	Percent	Recovery
Surrogate n-Triacontan		Flag	Result 86.6	Units	Dilu 1		Amount 100	Recovery 87	Limits 10 - 250.4
				mg/Kg	1		100		10 - 200.9
Sample: 18	0686 - 1	$3H-9, 10^{\circ}$							
Laboratory:	Midlan								
Analysis:	TPH G	RO		Analytical M		S 8015B	<b>`</b>	Prep Me	
QC Batch: Prep Batch:	$\begin{array}{c} 54812\\ 46849 \end{array}$			Date Analy: Sample Pre		2008-12-02 2008-12-02		Analyzec Preparec	
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter GRO	Flag J	Result	Result	Result	Units	Dilutior		(Unadjusted)	(Unadjusted)
		0.950	<1.13	< 0.498	mg/Kg	1	0.498	1	0.442

8-0171	per <b>3</b> 0, 200	8		Work Order: NM State #			Page Nu	mber: 45 of 85 NM	
Surrogate			Flag	$\operatorname{Result}$	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue				0.877	mg/Kg	1	1.00	88	67.5 - 135.2
4-Bromofluor	obenzene	e (4-BFB)		0.874	mg/Kg	1	1.00	87	63.8 - 141
Sample: 180	0687 - E	3H-9, 15'							
Laboratory:	Lubboc	ŀ							
Analysis:	Chlorid			Analytic	al Method:	E 300.0		Pren M	fethod: N/A
QC Batch:	55498	c (10)		Date An		2008-12-24	L	~	ed By: RD
Prep Batch:	47431				Preparation			•	red By: RD
Tiop Daten.	11 101			Dumpie	roparation	. 2000 12 22		Topos	ou 291 -102
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	$\operatorname{Result}$	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Chloride		810	810	<37.0	mg/Kg	100	37.0	1	0.3527
Laboratory:	Midland								
Analysis: QC Batch:	Midland	ŕ		Date Ana	l Method: lyzed: reparation:	ASTM D 29 2008-12-03 2008-12-02	974-87	Analy	Method: N/A zed By: AR red By: AR
Analysis: QC Batch: Prep Batch:	Midlanc Moistur 54775	d re Content		Date Ana Sample P RL	lyzed:	2008-12-03 2008-12-02	974-87	Analy: Prepa	zed By: AR red By: AR
Analysis: QC Batch: Prep Batch: Parameter	Midlanc Moistur 54775	đ		Date Ana Sample P RL Result	lyzed:	2008-12-03 2008-12-02 Units	974-87	Analy: Prepar Dilution	zed By: AR red By: AR RL
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Moisture	Midlanc Moistur 54775	d re Content		Date Ana Sample P RL	lyzed:	2008-12-03 2008-12-02	974-87	Analy: Prepa	zed By: AR red By: AR
Analysis: QC Batch: Prep Batch: Parameter Moisture	Midland Moistur 54775 46800	d re Content Flag		Date Ana Sample P RL Result	lyzed:	2008-12-03 2008-12-02 Units	974-87	Analy: Prepar Dilution	zed By: AR red By: AR RL
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180	Midland Moistur 54775 46800	d Flag 3 <b>H-9, 15</b> '		Date Ana Sample P RL Result	lyzed:	2008-12-03 2008-12-02 Units	974-87	Analy: Prepar Dilution	zed By: AR red By: AR RL
Analysis: QC Batch: Prep Batch: Parameter	Midland Moistur 54775 46800	d Flag 3H-9, 15' d		Date Ana Sample P RL Result	lyzed: reparation:	2008-12-03 2008-12-02 Units		Analy: Prepar Dilution 1	zed By: AR red By: AR RL
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180 Laboratory: Analysis:	Midland Moistur 54775 46800 0687 - E Midland TPH D 54883	d Flag 3H-9, 15' d		Date Ana Sample P RL Result 4.55	lyzed: reparation:	2008-12-03 2008-12-02 Units %		Analy: Prepar Dilution 1 Prep I Analy	zed By: AR red By: AR RL 0 Wethod: N/A zed By: LD
Analysis: QC Batch: Prep Batch: Moisture Sample: 180 Laboratory: Analysis: QC Batch:	Midland Moistur 54775 46800 0 <b>687 - E</b> Midland TPH D	d Flag 3H-9, 15' d		Date Ana Sample P RL Result 4.55 Analytical Date Anal	lyzed: reparation:	2008-12-03 2008-12-02 Units % Mod. 8015B		Analy: Prepar Dilution 1 Prep I Analy	zed By: AR red By: AR RL 0 Wethod: N/A
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180 Laboratory:	Midland Moistur 54775 46800 0687 - E Midland TPH D 54883	d Flag 3H-9, 15' d RO		Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr	lyzed: reparation:  Method: yzed:	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04		Analy: Prepar Dilution 1 Prep I Analy	zed By: AR red By: AR RL 0 Wethod: N/A zed By: LD
Analysis: QC Batch: Prep Batch: Moisture Sample: 180 Laboratory: Analysis: QC Batch:	Midland Moistur 54775 46800 0687 - E Midland TPH D 54883	d Flag 3H-9, 15' d RO SDL	MQL	Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr Method	lyzed: reparation:  Method: yzed:	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04		Analy: Prepar Dilution 1 Prep I Analy Prepa	zed By: AR red By: AR
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180 Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 54775 46800 0687 - E Midland TPH D 54883 46895	d Flag BH-9, 15' d RO SDL Based	MQL Based	Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr Method Blank	lyzed: reparation: Method: yzed: eparation:	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04 2008-12-04		Analy: Prepar Dilution 1 Prep I Analy Prepa MQL	zed By: AR red By: AR RL 0 Wethod: N/A zed By: LD red By: LD MDL
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter	Midland Moistur 54775 46800 0687 - E Midland TPH D 54883	flag Flag 3H-9, 15' d RO SDL Based Result	MQL Based Result	Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr Method Blank Result	lyzed: reparation: Method: yzed: reparation: Units	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04	SDL	Analy: Prepar Dilution 1 Prep I Analy Prepa	zed By: AR red By: AR RL 0 Method: N/A zed By: LD red By: LD MDL (Unadjusted)
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter	Midland Moistur 54775 46800 0 <b>687 - E</b> Midland TPH D 54883 46895	d Flag BH-9, 15' d RO SDL Based	MQL Based	Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr Method Blank	lyzed: reparation: Method: yzed: eparation:	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04 2008-12-04 Dilution		Analy: Prepar Dilution 1 Prep I Analy Prepa MQL (Unadjusted)	zed By: AR red By: AR RL 0 Wethod: N/A zed By: LD red By: LD MDL
Analysis: QC Batch: Prep Batch: Moisture Sample: 180 Laboratory: Analysis: QC Batch:	Midland Moistur 54775 46800 0 <b>687 - E</b> Midland TPH D 54883 46895	flag Flag 3H-9, 15' d RO SDL Based Result	MQL Based Result	Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr Method Blank Result	lyzed: reparation: Method: yzed: reparation: Units	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04 2008-12-04 Dilution 1	SDL	Analy: Prepar Dilution 1 Prep I Analy Prepa MQL (Unadjusted)	zed By: AR red By: AR RL 0 Method: N/A zed By: LD red By: LD MDL (Unadjusted)
Analysis: QC Batch: Prep Batch: Parameter Moisture Sample: 180 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter	Midland Moistur 54775 46800 0687 - E Midland TPH D 54883 46895 Flag U	flag Flag 3H-9, 15' d RO SDL Based Result	MQL Based Result	Date Ana Sample P RL Result 4.55 Analytical Date Anal Sample Pr Method Blank Result	lyzed: reparation: Method: yzed: reparation: Units	2008-12-03 2008-12-02 Units % Mod. 8015B 2008-12-04 2008-12-04 2008-12-04	SDL 16.5	Analy: Prepar Dilution 1 Prep I Analy Prepa MQL (Unadjusted) 50	zed By: AR red By: AR Method: N/A zed By: LD red By: LD MDL (Unadjusted) 15.765

# Sample: 180687 - BH-9, 15'

Report Date: December 30, 2008 8-0171				Work Order: 8112601 NM State #7 Lease				Page Number: 46 of 85 NM		
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849	-		Analytical Method: Date Analyzed: Sample Preparation:		S 8015B 2008-12-02 2008-12-02	Prep Metho Analyzed B Prepared B		By: ME	
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	$\operatorname{SDL}$	MQL (Unadjusted)	MDL (Unadjusted)	
GRO	<u>J</u>	0.941	<1.05	< 0.463	mg/Kg	1	0.463	1	0.442	
Surrogate	on o. (TTT	(1	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits 67.5 - 135.2	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$\begin{array}{c} 0.932 \\ 0.932 \end{array}$	mg/Kg mg/Kg	1	1.00 1.00	93 93	63.8 - 141		

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# Sample: 180688 - BH-9, 20'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (IC) 55391 47343			Analytical Method: Date Analyzed: Sample Preparation:		E 300.0 2008-12-22 2008-12-19		Prep Method: N/A Analyzed By: RD Prepared By: RD	
		SDL	MQL	Method					
		Based	Based	$\operatorname{Blank}$				$\mathrm{MQL}$	MDL
Parameter	Flag	Result	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Chloride		345	345	< 3.58	mg/Kg	10	3.58	1	0.3527

#### Sample: 180688 - BH-9, 20'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 54775 46800	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-03 2008-12-02	Prep Method: Analyzed By: Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Moisture		1.38	%	1	0

#### Sample: 180689 - BH-10, 1'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	55391	Date Analyzed:	2008-12-22	Analyzed By:	RD
Prep Batch:	47343	Sample Preparation:	2008-12-19	Prepared By:	RD

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Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilutior		MQL (Unadjusted)	MDL (Unadjusted)	
Chloride		38.5	38.5	<3.88	mg/Kg	10	3.88	1	0.3527	
Sample: 18	0689 - H	3H-10, 1'								
Laboratory:	Midlan									
Analysis:		re Content		Analytical		ASTM D		Prep M		
QC Batch:	54775			Date Analy		2008-12-0		Analyz		
Prep Batch:	46800			Sample Pre	eparation:	2008-12-0	2	Prepar	ed By: AR	
<b>D</b>		-		RL		<b></b>		<b>D</b> .1	5.4	
Parameter		Flag		Result 9.05		Units %		Dilution 1		
Sample: 18	0689 - I	3H-10, 1'								
Laboratory:	Midlan	d								
Analysis:	TPH D	RO		Analytical 1		Mod. 8015	B		fethod: N/A	
QC Batch:	54883			Date Analy		2008-12-04		Analyz	v	
Prep Batch:	46895			Sample Pre	paration:	2008-12-04	:	Prepar	ed By: LD	
		$\operatorname{SDL}$	MQL	Method						
D		Based	Based	Blank	<b>-</b>		6 <b>F</b> F	MQL	MDL	
Parameter	$\frac{Flag}{U}$	Result	Result	Result	Units	Dilution		(Unadjusted)	(Unadjusted)	
DRO		<17.3	<55.0	<17.3	mg/Kg	1	17.3	50	15.765	
a ,			D I	<b>T</b> T <b>N</b>	D.1		Spike	Percent	Recovery	
Surrogate n-Triacontan		Flag	Result 108	Units	Dilu 1		$\frac{\text{Amount}}{100}$	Recovery 108	Limits 10 - 250.4	
				mg/Kg	1	·	100	100	10 - 200.4	
Sample: 18										
Laboratory:	Midlan							_		
Analysis:	TPH G	RO		Analytical I		S 8015B		Prep Me		
QC Batch: Prep Batch:	$54812 \\ 46849$			Date Analy Sample Pre		2008-12-02 2008-12-02		Analyzee Preparee		
		SDL	MQL	Method						
		Based	Based	$\operatorname{Blank}$				MQL	MDL	
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	1 SDL	(Unadjusted)	(Unadjusted)	
GRO	J	0.937	<1.10	< 0.486	mg/Kg	1	0.486	1	0.442	

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Report Date 8-0171	: Decemi	ber 30, 2008	3		Work Order NM State 7		Page Number: 48 of 85 NM			
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recover Limits	•
Trifluorotolu	ene (TFT	[)		0.884	mg/Kg	1	1.00	88	67.5 - 13	5.2
4-Bromofluor				0.888	mg/Kg	1	1.00	89	63.8 - 14	41
Sample: 18	0690 - E	3H-10, 5'								
Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55391 47343			Date Ar	cal Method. nalyzed: Preparation	E 300.0 2008-12-22 : 2008-12-19			ed By: R	/A D D
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjust	
Chloride	1100	127	127	<3.87	mg/Kg	10	3.87	1	0.352	
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 54775 46800	d re Content		Date Ana	l Method: llyzed: reparation:	ASTM D 29 2008-12-03 2008-12-02	974-87	Analyz	zed By: A	I/A R R
Parameter		Flag		$\operatorname{RL}$ Result		Units		Dilution		RL
Moisture	<u> </u>	1146		8.79		%		1		0
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch:		d	MQL Based	Analytical Date Anal Sample Pr Method Blank		Mod. 8015B 2008-12-04 2008-12-04		Analy	•	.D .D
Parameter	Flag	Result	Result	Result	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjus	
	$\frac{1}{U}$			1005010			17.2	(Unaujusieu)	15 7C	

DRO	U	<17.3	<54.8	<17.3	mg/Kg	1	17.3	50	15.765
Surrogate		Flag	Result	Units	Dilution		Spike mount	Percent Recovery	Recovery Limits
n-Triacontane			84.9	mg/Kg	1		100	85	10 - 250.4

Sample: 180690 - BH-10, 5'

Report Date 8-0171	e: Decemi	ber 30, 200	8		Work Order NM State			Page Number: 49 of 85 NM		
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849	-		Analytical Method: Date Analyzed: Sample Preparation:		S 8015B 2008-12-02 2008-12-02		Prep Met Analyzed Prepared	By: ME	
Parameter	Flag	SDL Based Result	$egin{array}{c} \mathrm{MQL} \ \mathrm{Based} \ \mathrm{Result} \end{array}$	Method Blank Result	Units	Dilution	$\operatorname{SDL}$	MQL (Unadjusted)	MDL (Unadjusted)	
GRO		0.982	<1.10	< 0.484	mg/Kg	1	0.484	1	0.442	
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$\begin{array}{c} 0.930\\ 0.932\end{array}$	mg/Kg mg/Kg	1 1	$\begin{array}{c} 1.00 \\ 1.00 \end{array}$	93 93	67.5 - 135.2 63.8 - 141		

## Sample: 180691 - BH-10, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55391 47343	-		Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-22 2008-12-19		Prep Method: N/A Analyzed By: RD Prepared By: RD		
*		${ m SDL} { m Based}$	MQL Based	Method Blank	reparation.			MQL	MDL	
Parameter	$\operatorname{Flag}$	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)	
Chloride		134	134	<3.85	mg/Kg	10	3.85	1	0.3527	

### Sample: 180691 - BH-10, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 54775 46800	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-03 2008-12-02	Prep Method: Analyzed By: Prepared By:	$\overline{AR}$
D	-	RL			
Parameter	Flag	$\operatorname{Result}$	Units	Dilution	$\operatorname{RL}$
Moisture		8.39	%	1	0

### Sample: 180692 - BH-10, 15'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	55393	Date Analyzed:	2008-12-22	Analyzed By:	$\mathbf{R}\mathbf{D}$
Prep Batch:	47345	Sample Preparation:	2008-12-19	Prepared By:	RD

Report Date 8-0171	Decemb	er 30, 2008	3		'ork Order: IM State #	Page Number: 50 of 85 NM			
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	$\operatorname{SDL}$	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		57.3	57.3	<3.58	mg/Kg	10	3.58	1	0.3527
Sample: 18	0692 - E	H-10, 15'							
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 55170 47137	l e Content		Analytical Date Analy Sample Pre	vzed:	ASTM D 293 2008-12-16 2008-12-15	74-87	Prep M Analyz Prepar	ed By: AR
Demonster		Elam		RL Bogult		Units		Dilution	$\operatorname{RL}$
Parameter		Flag		Result		<u> </u>		Dilution	
Moisture Sample: 18				1.51		70		1	
	0 <b>693 - E</b> Lubbocl Chloridd 55393 47345	ĸ		Analytica Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-22			fethod: N/A ed By: RD
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride 55393 47345	k e (IC) SDL Based	MQL Based	Analytica Date Ana Sample P Method Blank	lyzed: reparation:	E 300.0 2008-12-22 2008-12-19	SDL	Prep M Analyz Prepar MQL	fethod: N/A ed By: RD ed By: RD MDL
Sample: 18 Laboratory: Analysis: QC Batch:	Lubbock Chloride 55393	k e (IC) SDL	MQL	Analytica Date Ana Sample P Method	lyzed:	E 300.0 2008-12-22	SDL 3.58	Prep M Analyz Prepar	fethod: N/A ed By: RD ed By: RD
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Lubbock Chloride 55393 47345 Flag D693 - E Midland	K e (IC) SDL Based Result 40.9 8H-10, 20'	MQL Based Result 40.9	Analytica Date Ana Sample P Method Blank Result	lyzed: reparation: <u>Units</u> mg/Kg Method: yzed:	E 300.0 2008-12-22 2008-12-19 Dilution	3.58	Prep M Analyz Prepar MQL (Unadjusted) 1 Prep M	fethod: N/A ed By: RD ed By: RD MDL (Unadjusted) 0.3527 // // // // // // // // // // // // //
Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubbock Chloride 55393 47345 Flag 0693 - E Midland Moistur 55170	K e (IC) SDL Based Result 40.9 BH-10, 20'	MQL Based Result 40.9	Analytica Date Ana Sample P Method Blank Result <3.58 Analytical Date Analy	lyzed: reparation: <u>Units</u> mg/Kg Method: yzed:	E 300.0 2008-12-22 2008-12-19 Dilution 10 ASTM D 29 2008-12-16	3.58	Prep M Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	fethod: N/A ed By: RD ed By: RD MDL (Unadjusted) 0.3527 // // // // // // // // // // // // //

## Sample: 180694 - BH-11, 1'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	$E \ 300.0$	Prep Method:	N/A
QC Batch:	55393	Date Analyzed:	2008-12-22	Analyzed By:	RD
Prep Batch:	47345	Sample Preparation:	2008-12-19	Prepared By:	RD

Report Date 8-0171	: Decemb	oer 30, 200	)8		Vork Order			Page Number: 51 of 85 NM		
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilutio	n SDL	MQL (Unadjusted)	MDL (Unadjusted)	
Chloride		79.9	79.9	<3.76	mg/Kg	10	3.76	1	0.3527	
Sample: 18	0694 - E	BH-11, 1'								
Laboratory:	Midland	1								
Analysis:		e Content		Analytical		ASTM D		Prep M		
QC Batch:	54775			Date Analy		2008-12-0		Analyz	•	
Prep Batch:	46800			Sample Pre	eparation:	2008-12-0	2	Prepar	ed By: AR	
				$\operatorname{RL}$						
Parameter		Flag		Result		Units		Dilution	RL	
Moisture				6.34		%		1	0	
Analysis: QC Batch: Prep Batch:	TPH D 54883 46895	no		Analytical I Date Analys Sample Pre	zed:	Mod. 8018 2008-12-04 2008-12-04	1	Analyz Prepar		
		SDL	MQL	Method				1101	MDI	
D	<b>T</b> 1	Based	Based	Blank	TT	י, וים	CDI	MQL	MDL	
Parameter DRO	$\frac{\text{Flag}}{v}$	Result <16.8	$\frac{\text{Result}}{<53.4}$	Result <16.8	Units mg/Kg	Dilutio	n SDL 16.8	(Unadjusted) 50	(Unadjusted) 15.765	
		<u> </u>	<u></u>	<10.0	mg/ Kg					
Surrogate	т	Flag	Result	Units	Dilu	+:	Spike Amount	$\operatorname{Percent}$ Recovery	Recovery Limits	
n-Triacontan		Tag	95.2	mg/Kg	Diiu		100	95	10 - 250.4	
Sample: 18		3H-11, 1'	1							
Laboratory:	Midland					0.00157		<b>P</b>		
Analysis: QC Batch:	TPH G 54812	кO		Analytical M		S 8015B	)	Prep Me		
QC Batch: Prep Batch:	54812 46849			Date Analys Sample Pre		2008-12-02 2008-12-02		Analyzed Prepared	v	
		SDL	MQL Based	Method				мот	MDL	
Parameter	Flag	Based Result	Result	${f Blank} {f Result}$	Units	Dilution	1 SDL	MQL (Unadjusted)		
GRO	$\frac{1}{J}$	0.934	<1.07	<0.472	mg/Kg	1	$\frac{1}{0.472}$	(Unadjusted) 1	(Unadjusted) 0.442	
~ - v ~		0.001	< 1.01	<b>NO.714</b>	1116/118	*	0.114	Ť	0.114	

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Report Date 8-0171	: Decemi	ber 30, 2008	;		Work Order: NM State #		Page Number: 52 of 85 NM		
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolu	ene (TFT	<u></u>	0	0.907	mg/Kg	1	1.00	91	67.5 - 135.2
4-Bromofluorobenzene (4-BFB)				0.914	mg/Kg	1	1.00	91	63.8 - 141
Sample: 18	0695 - E	3H-11, 5'							
Laboratory: Analysis:	Lubboc Chlorid			Analytic	al Method:	E <b>3</b> 00.0		Pren I	Method: N/A
QC Batch:					alyzed:	2008-12-22	2		zed By: RD
Prep Batch: 47345					Preparation:			•	red By: RD
		SDL	MQL	Method				MOT	MDL
Parameter	Flag	$\begin{array}{c} \mathbf{Based} \\ \mathbf{Result} \end{array}$	$\begin{array}{c} { m Based} \\ { m Result} \end{array}$	Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride	<u>I lag</u>	40.2	40.2	<3.73	mg/Kg	10	3.73	<u>(Unadjusted)</u> 1	0.3527
Sample: 18	0695 - I	3H-11, 5'							
Laboratory:	Midlane	d							
Analysis:		re Content			l Method:	ASTM D 29	974-87		Method: N/A
QC Batch:				Date Ana	•	2008-12-03			zed By: AR
Prep Batch:	ep Batch: 46801			Sample Preparation:		2008-12-02		Prepa	red By: AR
<b>.</b>				RL					
Parameter		Flag		Result		Units		Dilution	RL
Moisture				5.40		%		1	0

# Sample: 180695 - BH-11, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO 54883 46895			Analytical M Date Analyz Sample Prej	zed:	Mod. 8 2008-1 2008-1	2-04		Prep M Analyz Prepare	ed By: LD
		SDL	MQL	Method						
		Based	Based	$\operatorname{Blank}$					MQL	MDL
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilı	ution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
DRO	U	<16.7	<52.8	<16.7	mg/Kg		1	16.7	50	15.765
Surrogata	1		Desult	T. i.i.	Dila			oike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilu	tion		iount	Recovery	Limits
n-Triacontane	9		108	mg/Kg	1		1	00	108	10 - 250.4

Sample: 180695 - BH-11, 5'

Report Date 8-0171	: Deceml	ber 30, 2008			Work Order NM State		Page Number: 53 of 85 NM		
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849	-		Analytical Method: Date Analyzed: Sample Preparation:		S 8015B 2008-12-02 2008-12-02		Prep Met Analyzed Prepared	By: ME
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	$\operatorname{SDL}$	MQL (Unadjusted)	MDL (Unadjusted)
GRO		0.925	<1.06	<0.467	mg/Kg	1	0.467	(Unadjusted)	0.442
Surrogate Trifluorotolu	ene (TFI	Γ)	Flag	Result 0.928	Units mg/Kg	Dilution1	Spike Amount 1.00	Percent Recovery 93	Recovery Limits 67.5 - 135.2
4-Bromofluorobenzene (4-BFB)			0.924	mg/Kg	1	1.00	92	63.8 - 141	

## Sample: 180696 - BH-11, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc. Chlorid 55499 47432			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-24 2008-12-22		Prep Method: N Analyzed By: R Prepared By: R		
Parameter Chloride	Flag	SDL Based Result 724	MQL Based Result 724	Method Blank Result <39.7	Units mg/Kg	Dilution 100	SDL 39.7	MQL (Unadjusted) 1	MDL (Unadjusted) 0.3527	

### Sample: 180696 - BH-11, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 54776 46801	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-03 2008-12-02	Prep Method: Analyzed By: Prepared By:	AR
Parameter	Flor	RL	Units	Dilution	$\mathbf{RL}$
Moisture	Flag	Result 11.2	<u>%</u>	1	$\frac{\text{RL}}{0}$

### Sample: 180697 - BH-11, 15'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	55499	Date Analyzed:	2008 - 12 - 24	Analyzed By:	RD
Prep Batch:	47432	Sample Preparation:	2008 - 12 - 22	Prepared By:	RD

8-0171	: Decemt	oer 30, 2008	3		ork Order: M State #			Page Number: 54 of 85 NM		
Parameter Chloride	Flag	SDL Based Result 543	MQL Based Result 543	Method Blank Result <37.1	Units mg/Kg	Dilution 100	SDL 37.1	MQL (Unadjusted) 1	MI (Unad 0.3	
Sample: 18	0697 - E	8H-11, 15'								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moistur 55170 47137	l e Content		Analytical Date Analy Sample Pre	zed:	ASTM D 297 2008-12-16 2008-12-15	74-87	Prep M Analyz Prepar	-	N/A AR AR
				$\operatorname{RL}$						
Parameter		Flag		Result		Units		Dilution		$\operatorname{RL}$
Moisture				5.02		%		1		0
Laboratory:	Lubboc	k							£ .1 1	<b>DT</b> / A
Laboratory: Analysis: QC Batch:	Lubboc Chlorid 55 <b>393</b>	k		Date Ana		E 300.0 2008-12-22		Analyz	Aethod: zed By:	RD
•	Lubboc Chlorid	k e (IC) SDL	MQL	Date Ana Sample P Method		2008-12-22		Analyz Prepar	zed By: red By:	RD
Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55 <b>393</b>	k e (IC)		Date Ana Sample P	lyzed:	2008-12-22	SDL	Analyz	zed By: red By: M	RD
Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Lubboc Chlorid 55393 47345	k e (IC) SDL Based	MQL Based	Date Ana Sample P Method Blank	lyzed: reparation:	2008-12-22 2008-12-19	SDL 3.60	Analyz Prepar MQL	zed By: red By: M (Unad	RD RD DL
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	Lubboc Chlorid 55393 47345 Flag	k e (IC) SDL Based Result <b>173</b>	MQL Based Result 173	Date Ana Sample P Method Blank Result	lyzed: reparation: Units	2008-12-22 2008-12-19 Dilution		Analyz Prepar MQL (Unadjusted)	zed By: red By: M (Unad	RD RD DL ljusted)
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory:	Lubboc Chlorid 55393 47345 Flag 0698 - E Midland	k e (IC) SDL Based Result <b>173</b> BH-11, 20'	MQL Based Result 173	Date Ana Sample P Method Blank Result <3.60	lyzed: reparation: Units mg/Kg	2008-12-22 2008-12-19 Dilution 10	3.60	Analyz Prepar MQL (Unadjusted) 1	zed By: red By: M (Unad 0.3	RD RD DL ljusted)
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis:	Lubboc Chlorid 55393 47345 Flag 0698 - E Midland Moistur	k e (IC) SDL Based Result 173 BH-11, 20'	MQL Based Result 173	Date Ana Sample P Method Blank Result <3.60	lyzed: reparation: <u>Units</u> <u>mg/Kg</u> Method:	2008-12-22 2008-12-19 Dilution 10	3.60	Analyz Prepar MQL (Unadjusted) 1 Prep M	zed By: red By: M (Unad 0.3	RD RD DL ljusted) 527
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubboc Chlorid 55393 47345 Flag 0698 - E Midland	k e (IC) SDL Based Result <b>173</b> BH-11, 20'	MQL Based Result 173	Date Ana Sample P Method Blank Result <3.60	lyzed: reparation: <u>Units</u> <u>mg/Kg</u> Method: vzed:	2008-12-22 2008-12-19 Dilution 10	3.60	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	zed By: red By: M (Unad 0.3	RD RD DL ljusted)
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride Sample: 18 Laboratory: Analysis: QC Batch:	Lubboc Chlorid 55393 47345 Flag 0698 - E Midland Moistur 55170	k e (IC) SDL Based Result <b>173</b> BH-11, 20'	MQL Based Result 173	Date Ana Sample P Method Blank Result <3.60 Analytical Date Analy	lyzed: reparation: <u>Units</u> <u>mg/Kg</u> Method: vzed:	2008-12-22 2008-12-19 Dilution 10 ASTM D 29 2008-12-16	3.60	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	zed By: red By: M (Unad 0.3 Method: zed By.	RD RD DL ljusted) 5527 N/A AR
Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Lubboc Chlorid 55393 47345 Flag 0698 - E Midland Moistur 55170	k e (IC) SDL Based Result <b>173</b> BH-11, 20'	MQL Based Result 173	Date Ana Sample P Method Blank Result <3.60 Analytical Date Analy Sample Pre	lyzed: reparation: <u>Units</u> <u>mg/Kg</u> Method: vzed:	2008-12-22 2008-12-19 Dilution 10 ASTM D 29 2008-12-16	3.60	Analyz Prepar MQL (Unadjusted) 1 Prep M Analyz	zed By: red By: M (Unad 0.3 Method: zed By.	RD RD DL ljusted) 5527 N/A AR

# Sample: 180699 - BH-12, 1'

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	55393	Date Analyzed:	2008-12-22	Analyzed By:	RD
Prep Batch:	47345	Sample Preparation:	2008-12-19	Prepared By:	RD

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Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted
Chloride		25.6	25.6	<4.02	mg/Kg	10	4.02	1	0.3527
Sample: 18	0699 - I	3H-12, 1'							
Laboratory:	Midlan								
Analysis:		re Content		Analytical		ASTM D 29	74-87	Prep M	
QC Batch:	54776			Date Analy		2008-12-03		Analyz	•
Prep Batch:	46801			Sample Pre	eparation:	2008-12-02		Prepare	ed By: AR
				RL					
Parameter		Flag		Result		Units		Dilution	R
Moisture		· · · · · · · · · · · · · · · · · · ·		12.2		%		1	C
Laboratory: Analysis: QC Batch: Prep Batch:	Midlan TPH D 54883 46895			Analytical M Date Analyz Sample Prej	zed:	Mod. 8015B 2008-12-04 2008-12-04		Prep M Analyz Prepar	ed By: LD
		$\operatorname{SDL}$	MQL	Method					
				D11				MQL	
_		Based	Based	$\mathbf{B}$ lank				•	MDL
	Flag	$\begin{array}{c} \mathbf{Based} \\ \mathbf{Result} \end{array}$	$\operatorname{Result}$	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted
	Flag	Based			Units mg/Kg	Dilution 5	SDL 89.8	•	
DRO		Based Result <b>3960</b>	Result 3960	Result <89.8	mg/Kg	5 S	89.8 pike	(Unadjusted) 50 Percent	(Unadjusted 15.765 Recover
DRO Surrogate		Based Result <b>3960</b> Flag	Result 3960 Result	Result <89.8 Units	mg/Kg Dilu	5 S tion An	89.8 pike nount	(Unadjusted) 50 Percent Recovery	(Unadjusted 15.765 Recover Limits
Parameter DRO Surrogate n-Triacontan		Based Result <b>3960</b>	Result 3960	Result <89.8	mg/Kg	5 S tion An	89.8 pike	(Unadjusted) 50 Percent	(Unadjusted 15.765 Recover
DRO Surrogate	e	Based Result <b>3960</b> Flag	Result 3960 Result 1040	Result <89.8 Units	mg/Kg Dilu	5 S tion An	89.8 pike nount	(Unadjusted) 50 Percent Recovery	(Unadjusted 15.765 Recover Limits
DRO Surrogate n-Triacontan Sample: 18 Laboratory:	e 0699 - 1 Midlan	Based Result <b>3960</b> Flag 5 <b>3H-12, 1'</b> d	Result 3960 Result 1040	Result <89.8 Units	mg/Kg Dilu	5 S tion An	89.8 pike nount	(Unadjusted) 50 Percent Recovery	(Unadjusted 15.765 Recover Limits
DRO Surrogate n-Triacontan Sample: 18 Laboratory: Analysis:	e 0699 - 1 Midlan TPH G	Based Result <b>3960</b> Flag 5 <b>3H-12, 1'</b> d	Result 3960 Result 1040	Result <89.8 Units mg/Kg	mg/Kg Dilu 5 Method:	5 S tion An S 8015B	89.8 pike nount	(Unadjusted) 50 Percent Recovery 1040 Prep Me	(Unadjusted 15.765 Recover Limits 10 - 250 thod: S 503
DRO Surrogate n-Triacontan Sample: 18 Laboratory: Analysis: QC Batch:	e 0699 - 1 Midlan TPH G 54812	Based Result <b>3960</b> Flag 5 <b>3H-12, 1'</b> d	Result 3960 Result 1040	Result <89.8 Units mg/Kg Analytical M Date Analyz	mg/Kg Dilu 5 Method: zed:	5 S tion An S 8015B 2008-12-02	89.8 pike nount	(Unadjusted) 50 Percent Recovery 1040 Prep Me Analyzeo	(Unadjusted 15.765 Recover Limits 10 - 250 thod: S 503 d By: ME
DRO Surrogate n-Triacontan Sample: 18 Laboratory: Analysis: QC Batch:	e 0699 - 1 Midlan TPH G	Based Result <b>3960</b> Flag 5 <b>3H-12, 1'</b> d	Result 3960 Result 1040	Result <89.8 Units mg/Kg	mg/Kg Dilu 5 Method: zed:	5 S tion An S 8015B	89.8 pike nount	(Unadjusted) 50 Percent Recovery 1040 Prep Me	(Unadjusted 15.765 Recover Limits 10 - 250 thod: S 503 d By: ME
DRO Surrogate n-Triacontan Sample: 18 Laboratory: Analysis: QC Batch:	e 0699 - 1 Midlan TPH G 54812	Based Result 3960 Flag 5 3H-12, 1' d BRO SDL	Result 3960 Result 1040	Result <89.8 Units mg/Kg Analytical M Date Analyz	mg/Kg Dilu 5 Method: zed:	5 S tion An S 8015B 2008-12-02	89.8 pike nount	(Unadjusted) 50 Percent Recovery 1040 Prep Me Analyzeo	(Unadjusted 15.765 Recover Limits 10 - 250 thod: S 503 d By: ME
DRO Surrogate n-Triacontan Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch:	e 0 <b>699 - 1</b> Midlan TPH G 54812 46849	Based Result 3960 Flag 5 3H-12, 1' d RO SDL Based	Result 3960 Result 1040	Result <89.8 Units mg/Kg Analytical M Date Analyz Sample Prej Method Blank	mg/Kg Dilu 5 Method: zed: paration:	5 tion An S 8015B 2008-12-02 2008-12-02	89.8 pike nount 100	(Unadjusted) 50 Percent Recovery 1040 Prep Me Analyzeo	(Unadjusted 15.765 Recover Limits 10 - 250 thod: S 503 d By: ME
DRO Surrogate n-Triacontan Sample: 18 Laboratory: Analysis: QC Batch:	e 0699 - 1 Midlan TPH G 54812	Based Result 3960 Flag 5 3H-12, 1' d BRO SDL	Result 3960 Result 1040 MQL	Result <89.8 Units mg/Kg Analytical M Date Analyz Sample Prep Method	mg/Kg Dilu 5 Method: zed:	5 S tion An S 8015B 2008-12-02	89.8 pike nount	(Unadjusted) 50 Percent Recovery 1040 Prep Me Analyzeo Prepareo	(Unadjusted 15.765 Recover Limits 10 - 250 thod: S 503 d By: ME d By: ME

<sup>5</sup>High surrogate recovery due to peak interference.

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Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		6	5.28	mg/Kg	5	5.00	106	67.5 - 135.2
4-Bromofluorobenzene (4	romofluorobenzene (4-BFB)		11.8	mg/Kg	5	5.00	236	63.8 - 141
Sample: 180700 - BH Laboratory: Lubbock Analysis: Chloride (1 QC Batch: 55393 Prep Batch: 47345	·		Date Ar	cal Method: ialyzed: Preparation:	E 300.0 2008-12-22 2008-12-19		-	fethod: N/A ed By: RD ed By: RD
Parameter Flag I	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride	22.1	22.1	<3.98	mg/Kg	10	3.98	1	0.3527

Analysis: QC Batch:	Moisture Content 54776	Analytical Method: Date Analyzed:	ASTM D 2974-87 2008-12-03	Prep Method: Analyzed By:	AR
Prep Batch:	40801	Sample Preparation: RL	2008-12-02	Prepared By:	An
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
Moisture		11.5	%	1	0

# Sample: 180700 - BH-12, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	rsis: TPH DRO atch: 54883		Sample Preparation:				8015B 2-04 2-04		Prep M Analyz Prepare	ed By: LD
Denerseter	T)le si	SDL Based	MQL Based	Method Blank	TT . 1 -	Dil		CDI	MQL	MDL
Parameter DRO	$\frac{Flag}{U}$	$\frac{\text{Result}}{< 17.8}$	$\frac{\text{Result}}{< 56.5}$	$\frac{\text{Result}}{< 17.8}$	Units mg/Kg	Dili	ution	SDL 17.8	(Unadjusted) 50	(Unadjusted) 15.765
		<u> </u>	<00.0	<11.0	mg/ Kg					
Surrogate	ī	Flag	Result	Units	Dilu	tion		oike .ount	Percent	Recovery Limits
<u> </u>		riag			Dilu	61011			Recovery	
n-Triacontan	e		91.1	mg/Kg	1		1	00	91	10 - 250.4

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<sup>6</sup>High surrogate recovery due to peak interference.

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Sample: 18	0700 - I	3H-12, 5'								
Laboratory:	Midlan									
Analysis:	TPH G	RO		Analytical		S 8015B		Prep Me		
QC Batch:	54812			Date Analyzed:		2008-12-02		Analyzeo		
Prep Batch:	46849			Sample Pr	eparation:	2008-12-02		Prepared	l By: ME	
		SDL	MQL	Method						
		Based	Based	Blank				MQL	MDL	
Parameter	Flag	$\mathbf{Result}$	Result	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)	
GRO		47.6	47.6	< 0.499	mg/Kg	1	0.499	1	0.442	
							Chiles	Percent	Recovery	
Surrogate			Flor	Result	Units	Dilution	Spike Amount	Recovery	Limits	
Trifluorotolu	ono (TTT	г)	Flag	1.16		1	1.00	116	67.5 - 135.2	
4-Bromofluoi				$1.10 \\ 1.12$	mg/Kg mg/Kg	1	$1.00 \\ 1.00$	110	63.8 - 141	
Sample: 18			,							
-		,								
Laboratory:	Lubboo					-			r.1 1 3-14	
Analysis:	Chlorid	ie (IC)			cal Method:		2	-	Method: N/A	
QC Batch:	55393			Date Ar	-	2008-12-2		•	zed By: RD	
Prep Batch:	47345			Sample	Preparation	n: 2008-12-1	9	Prepa	red By: RD	
		$\operatorname{SDL}$	MQL	Method						
		Ragod	Record	Blank				MOL	MDL	

		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Chloride		120	120	<3.73	mg/Kg	10	3.73	1	0.3527

## Sample: 180701 - BH-12, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 54776 46801	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-03 2008-12-02	Prep Method: Analyzed By: Prepared By:	AR
		$\operatorname{RL}$			
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
Moisture		5.35	%	1	0

## Sample: 180701 - BH-12, 10'

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	54883	Date Analyzed:	2008-12-04	Analyzed By:	LD
Prep Batch:	46895	Sample Preparation:	2008-12-04	Prepared By:	LD

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Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilutio	on SDL	MQL (Unadjusted)	MDL (Unadjusted)	
DRO	U	<16.6	<52.8	<16.6	mg/Kg	1	16.6	50	15.765	
Surrogate n-Triacontane		Flag	Result 103	Units mg/Kg	Dilutiv 1	on	Spike Amount 100	Percent Recovery 103	Recovery Limits 10 - 250.4	

### Sample: 180701 - BH-12, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849			Analytical Date Analy Sample Pre	yzed:	S 8015B 2008-12-02 2008-12-02		Prep Method: S 5035 Analyzed By: ME Prepared By: ME		
		$\operatorname{SDL}$	MQL	Method						
		Based	Based	$\operatorname{Blank}$				MQL	MDL	
Parameter	Flag	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)	
GRO		16.3	16.3	< 0.934	mg/Kg	2	0.934	1	0.442	
							Spike	Percent	Recovery	
Surrogate			Flag	$\operatorname{Result}$	Units	Dilution	Amount	Recovery	Limits	
Trifluorotolu	ene (TFT	])		1.63	mg/Kg	2	2.00	82	67.5 - 135.2	
4-Bromofluor	obenzene	e (4-BFB)		1.94	mg/Kg	2	2.00	97	63.8 - 141	

## Sample: 180702 - BH-12, 15'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55499 47432			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-24 2008-12-22		Prep M Analyz Prepar	•
		$\operatorname{SDL}$	MQL	Method					
		Based	Based	$\operatorname{Blank}$				MQL	MDL
Parameter	Flag	Result	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Chloride		82.5	82.5	<3.67	mg/Kg	10	3.67	1	0.3527

### Sample: 180702 - BH-12, 15'

Laboratory.	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2974-87	Prep Method:	N/A
QC Batch:	54776	Date Analyzed.	2008-12-03	Analyzed By:	AR
Prep Batch:	46801	Sample Preparation:	2008-12-02	Prepared By:	$\mathbf{AR}$

Report Date 8-0171	eport Date: December 30, 2008 -0171				ork Order: M State #			Page Nun	Page Number: 59 of 85 NM		
<u></u>				RL							
Parameter		Flag		Result		Units	<u> </u>	Dilution		$\operatorname{RL}$	
Moisture		· · · · · ·		3.90	<b>4</b> 00-0-	%		1		0	
Sample: 18	0704 - F	3H-13 0'									
Laboratory:	Lubboc	,									
Analysis:	Chlorid			Analytical	Method:	E 300.0		Prep M	lethod:	N/A	
QC Batch:	55499			Date Ana		2008-12-24		Analyze		RD	
Prep Batch:	47432				reparation			Prepare	•	RD	
		$\operatorname{SDL}$	MQL	Method							
		Based	Based	$\mathbf{B}$ lank				MQL	MI	$^{ m DL}$	
Parameter	Flag	Result	Result	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadj		
Chloride		15.6	15.6	<3.73	mg/Kg	10	3.73	1	0.3	527	
Sample: 18 Jaboratory: Analysis: 2C Batch: Prep Batch:	Midlan	-		Analytical Date Analy Sample Pre	zed:	ASTM D 297 2008-12-03 2008-12-02	74-87	Prep M Analyz Prepar	ed By:	N/A AR AR	
Top Daton.	10001			-	paraeron.	2000 12 02		ropur	ou Dy.		
				RL Result		<b>T</b> T •.		D1 /		D	
<b>D</b> e e e t e								Dilution		R	
		Flag		5.36		Units %	······	1		0	
Parameter Moisture Sample: 189	0704 - I		,					1		0	
	0704 - I Midlan	3H-13, 0 <sup>3</sup>	, ,					1		C	
Moisture Sample: 18 Gaboratory:		<b>3H-13</b> , 0 <sup>;</sup> d	, ,		Aethod:				fethod:		
Moisture Sample: 180 Laboratory: Analysis:	Midlan	<b>3H-13</b> , 0 <sup>;</sup> d	,	5.36		%				N/.	
Moisture Sample: 18 Laboratory: Analysis: QC Batch:	Midlan TPH D	<b>3H-13</b> , 0 <sup>;</sup> d		5.36 Analytical M	zed:	% Mod. 8015B		Prep M	ed By:		
Moisture Sample: 180	Midlan TPH D 54883	<b>3H-13, 0</b> <sup>3</sup> d RO SDL	, MQL	5.36 Analytical M Date Analyz	zed:	% Mod. 8015B 2008-12-04		Prep M Analyz Prepar	ed By: ed By:	N/. LD LD	
Moisture Sample: 18 Caboratory: Analysis: QC Batch: Prep Batch:	Midland TPH D 54883 46895	<b>3H-13</b> , 0 <sup>3</sup> d RO SDL Based	MQL Based	5.36 Analytical M Date Analyz Sample Prep Method Blank	zed: paration:	% Mod. 8015B 2008-12-04 2008-12-04		Prep M Analyz	ed By: ed By:	N/. LD	
Moisture Sample: 18 Jaboratory: Analysis: QC Batch: Prep Batch: Parameter	Midland TPH D 54883 46895 Flag	<b>3H-13</b> , 0 <sup>3</sup> d RO SDL Based Result	MQL Based Result	5.36 Analytical M Date Analyz Sample Prep Method Blank Result	zed: paration: Units	% Mod. 8015B 2008-12-04	SDL	Prep M Analyz Prepar MQL (Unadjusted)	ed By: ed By: M (Unad	N/. LD LD	
Moisture Sample: 18 Caboratory: Analysis: QC Batch:	Midland TPH D 54883 46895	<b>3H-13</b> , 0 <sup>3</sup> d RO SDL Based	MQL Based	5.36 Analytical M Date Analyz Sample Prep Method Blank	zed: paration:	% Mod. 8015B 2008-12-04 2008-12-04	SDL 16.6	Prep M Analyz Prepar MQL	ed By: ed By: M (Unad	N/. LD LD DL	
Moisture Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Prep Batch: Parameter DRO	Midland TPH D 54883 46895 Flag U	<b>3H-13</b> , 0 <sup>3</sup> d RO SDL Based Result <16.6	MQL Based Result <52.8	5.36 Analytical M Date Analyz Sample Prej Method Blank Result <16.6	zed: paration: Units mg/Kg	% Mod. 8015B 2008-12-04 2008-12-04 Dilution 1 SI	16.6 pike	Prep M Analyz Prepar MQL (Unadjusted) 50 Percent	ed By: red By: M (Unad 15. Rec	N/2 LD LD DL Ijusteo 765	
Moisture Sample: 18 Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Midland TPH D 54883 46895 Flag U	<b>3H-13</b> , 0 <sup>3</sup> d RO SDL Based Result	MQL Based Result	5.36 Analytical M Date Analyz Sample Prep Method Blank Result	zed: paration: Units	% Mod. 8015B 2008-12-04 2008-12-04 Dilution 1 Spiion Am	16.6	Prep M Analyz Prepar MQL (Unadjusted) 50	ed By: ed By: (Unad 15. Rec Li	N/. LD LD Justee	

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Report Date 8-0171	e: Decemi	oer 30, 200	8	Work Order: 8112601 NM State #7 Lease				Page Number: 60 of 85 NM		
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849			Analytical Date Analy Sample Pre	zed:	S 8015B 2008-12-02 2008-12-02		Prep Met Analyzed Prepared	By: ME	
Parameter	Flag	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	$\operatorname{SDL}$	MQL (Unadjusted)	MDL (Unadjusted)	
GRO	<u>~</u>	2.36	2.36	< 0.467	mg/Kg	1	0.467	1	0.442	
Surrogate			Flag	$\operatorname{Result}$	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotolu 4-Bromofluo	· ·	/		$\begin{array}{c} 0.899 \\ 0.930 \end{array}$	mg/Kg mg/Kg	1 1	$\begin{array}{c} 1.00\\ 1.00\end{array}$	90 93	67.5 - 135.2 63.8 - 141	

## Sample: 180705 - BH-13, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55499 47432			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-24 2008-12-22		Prep M Analyz Prepar	•
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Chloride		28.9	28.9	< 3.78	mg/Kg	10	3.78	1	0.3527

### Sample: 180705 - BH-13, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Moisture Content 54776 46801	Analytical Method: Date Analyzed: Sample Preparation:	ASTM D 2974-87 2008-12-03 2008-12-02	Prep Method: Analyzed By: Prepared By:	$\overline{AR}$
		$\operatorname{RL}$			
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
Moisture		6.69	%	1	0

### Sample: 180705 - BH-13, 5'

Laboratory:	Midland				
Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	54883	Date Analyzed:	2008-12-04	Analyzed By:	LD
Prep Batch:	46895	Sample Preparation:	2008-12-04	Prepared By:	LD

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Parameter	Flag	SDL Based Result	MQL - Based Result	Method - Blank Result	Units	Dilutio	n SDL	MQL (Unadjusted)	MDL (Unadjusted)	
DRO	0	<16.9	<53.6	<16.9	mg/Kg	1	16.9	50	15.765	
Surrogate		Flag	Result	Units	Dilutio	on	Spike Amount	Percent Recovery	Recovery Limits	
n-Triacontane	!		83.7	mg/Kg	1		100	84	10 - 250.4	

# Sample: 180705 - BH-13, 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH G 54812 46849			Analytical Date Analy Sample Pr	yzed:	S 8015B 2008-12-02 2008-12-02		Prep Mer Analyzed Prepared	l By: ME
		SDL	MQL Basad	Method				мот	MDL
Parameter	Flag	$egin{array}{c} { m Based} \\ { m Result} \end{array}$	Based Result	Blank Result	Units	Dilution	$\operatorname{SDL}$	MQL (Unadjusted)	(Unadjusted)
$\overline{\text{GRO}}$	1 145	1.31	1.31	<0.474	mg/Kg	1	0.474	1	0.442
Surrogate			Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	$egin{array}{c} { m Recovery} \\ { m Limits} \end{array}$
Trifluorotolue	ene (TF7	Γ)		0.884	mg/Kg	1	1.00	88	67.5 - 135.2
4-Bromofluor	obenzen	e (4-BFB)		0.925	mg/Kg	1	1.00	92	63.8 - 141

## Sample: 180706 - BH-13, 10'

Laboratory: Analysis: QC Batch: Prep Batch:	Lubboc Chlorid 55499 47432			Date Ana	l Method: lyzed: reparation:	E 300.0 2008-12-24 2008-12-22		Prep M Analyz Prepare	•
Parameter Chloride	Flag	SDL Based Result 220	MQL Based Result 220	Method Blank Result <3.82	Units mg/Kg	Dilution	SDL 3.82	MQL (Unadjusted)	MDL (Unadjusted) 0.3527

# Sample: 180706 - BH-13, 10'

Laboratory:	Midland				
Analysis:	Moisture Content	Analytical Method:	ASTM D 2974-87	Prep Method:	N/A
QC Batch:	54776	Date Analyzed:	2008-12-03	Analyzed By:	$\overline{AR}$
Prep Batch:	46801	Sample Preparation:	2008-12-02	Prepared By:	$\mathbf{AR}$

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			RL						DI
	Flag		Result		Units		Dilution		$\frac{\text{RL}}{0}$
			7.70	<u> </u>	%	<u>uun</u>	1		0
07 - Bl	H-13, 15'								
ubbock									
	(IC)								N/A
				-					RD
7432			Sample P	reparation:	2008-12-22		Prepare	ed By:	RD
	SDL	MQL	Method						
	Based	Based	Blank				$\operatorname{MQL}$	MI	DL
Flag	Result	Result	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)		
	97.4	97.4	<3.62	mg/Kg	10	3.62	1	0.33	527
Iidland Ioisture						4-87			N/A AR
(137			Sample Pre	paration:	2008-12-15		Prepar	ea By:	AR
			$\operatorname{RL}$						
	Flag				Units		Dilution		RL
	=		2.52		%		1	·	0
ubbock	·		Date Ana	lyzed:	E 300.0 2008-12-24 2008-12-22		Analyz	ed By:	N/A RD RD
	$\operatorname{SDL}$	MQL	Method						
	Based	Based	Blank				MQL		DL
	$\operatorname{Result}$	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(11	
Flag	49.1	49.1	<3.56	mg/Kg	10	3.56	1		justed) 527
	ubbock hloride 5499 7432 Flag 07 - Bl Iidland Ioisture 5170 7137 08 - Bl ubbock hloride 5499	hloride (IC) 5499 7432 SDL Based <sup>1</sup> lag Result <b>97.4</b> <b>97.4</b> <b>07 - BH-13, 15'</b> Iidland Ioisture Content 5170 7137 Flag <b>08 - BH-13, 20'</b> ubbock hloride (IC) 5499	ubbock hloride (IC) 5499 7432 SDL MQL Based Based Flag Result Result 97.4 97.4 07 - BH-13, 15' Iidland Ioisture Content 5170 7137 Flag 08 - BH-13, 20' ubbock hloride (IC) 5499	ubbock hloride (IC) Analytical 5499 Date Anal 7432 Sample Pro- SDL MQL Method Based Based Blank Flag Result Result Result 97.4 97.4 <3.62 07 - BH-13, 15' Iidland Ioisture Content Analytical 5170 Date Analy 7137 Sample Pre- RL Flag Result 2.52 08 - BH-13, 20' ubbock hloride (IC) Analytica 5499 Date Analy	ubbock hloride (IC)Analytical Method: Date Analyzed: Sample Preparation:7432Date Analyzed: Sample Preparation: $SDL$ Based Preparation:MQL Based Based Preparation: $SDL$ Preparation:MQL Based Preparation: $SDL$ Preparation:MQL Based Preparation: $SDL$ Preparation:MQL Based Preparation: $SDL$ Preparation:MQL Preparation: $O7 - BH-13, 15'$ Malytical Method: Date Analyzed: Sample Preparation: $STO$ Preparation:RL Preparation:Flag Preparation:RL Preparation: $Sample Preparation:RLPreparation:Sample Preparati$	ubbock hloride (IC)Analytical Method:E 300.05499Date Analyzed:2008-12-247432Sample Preparation:2008-12-22SDL MQL Method Based Based Blank'lag Result Result Result Units Dilution97.497.4 $<3.62$ mg/Kg 10OF - BH-13, 15'Iidland Ioisture ContentAnalytical Method:ASTM D 297 5170Date Analyzed:2008-12-167137Sample Preparation:2008-12-15RL FlagRL FlagFlagResult Units2.52%08 - BH-13, 20'ubbock hloride (IC)Analytical Method:E 300.0Date Analyzed:2008-12-24	ubbock hloride (IC)Analytical Method:E 300.0 $5499$ Date Analyzed:2008-12-24 $7432$ Sample Preparation:2008-12-22SDL <mql< td="">Method BasedBlank'lagResultResultUnits<math>97.4</math><math>97.4</math><math>&lt;3.62</math>mg/Kg<math>97.4</math><math>97.4</math><math>&lt;3.62</math>mg/Kg<math>10</math><math>3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>20.62</math><math>mg/Kg</math><math>10</math><math>3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>97.4</math><math>&lt;3.62</math><math>97.4</math><math>20.08-12-16</math><math>7137</math><math>Sample Preparation:<math>2008-12-15</math>RLFlagResultUnits<math>2.52</math><math>\%</math><math>98 - BH-13, 20'</math><math>20'</math>ubbockhloride (IC)Analytical Method:E 300.0<math>699</math>Date Analyzed:<math>2008-12-24</math></math></mql<>	ubbock hloride (IC)Analytical Method:E 300.0Prep M $5499$ Date Analyzed:2008-12-24Analyzed $7432$ Sample Preparation:2008-12-22Prepare $7432$ Sample Preparation:2008-12-22Prepare $7432$ Sample Preparation:2008-12-22Prepare $7432$ Sample Preparation:2008-12-22Prepare $7432$ Sample Preparation:2008-12-201 $7432$ $97.4$ $97.4$ $<3.62$ $10$ $97.4$ $97.4$ $<3.62$ $mg/Kg$ $10$ $97.4$ $97.4$ $<3.62$ $10$ $10$ $97.4$ $97.4$ $20.08-12-16497.$	ubbock hloride (IC) Analytical Method: E 300.0 Prep Method: 5499 Date Analyzed: 2008-12-24 Analyzed By: 7432 Sample Preparation: 2008-12-22 Prepared By: SDL MQL Method Based Based Blank MQL MI 'lag Result Result Result Units Dilution SDL (Unadjusted) (Unadjusted) 97.4 97.4 <3.62 mg/Kg 10 3.62 1 0.33 07 - BH-13, 15' lidland loisture Content Analytical Method: ASTM D 2974-87 Prep Method: 5170 Date Analyzed: 2008-12-16 Analyzed By: 7137 Sample Preparation: 2008-12-15 Prepared By: RL Flag Result Units Dilution 2.52 $\%$ 1 08 - BH-13, 20' ubbock hloride (IC) Analytical Method: E 300.0 Prep Method: 5499 Date Analyzed: 2008-12-24 Analyzed By:

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Parameter	Flag	RL Result	Units		Dilution	RL		
Moisture		1.01	%		1	0		
Method Blank (1)								
QC Batch: 54734 Prep Batch: 46799		Date Analyzed: QC Preparation:	2008-12-01 2008-12-01			zed By: AG ced By: ME		
Donouseton	Di	Dee		Unite		Reporting Limits		
Parameter Benzene	Flag	Res <0.008		Units mg/Kg		0.008		
Toluene		<0.008		mg/Kg		0.008		
Ethylbenzene		<0.008		mg/Kg		0.0082		
Xylene		< 0.009		mg/Kg	<u></u>	0.0096		
Cumomoto	Flor	Result Unit	s Dilution	Spike	Percent	Recovery Limits		
Surrogate Trifluorotoluene (TFT	Flag	Result Units		Amount 1.00	Recovery 79	<u>65.6 - 130.6</u>		
4-Biomofluorobenzene		0.875  mg/K	-	1.00	88	51.9 - 128.1		
QC Batch: 54735 Prep Batch: 46799		Date Analyzed: QC Preparation:	2008-12-01 2008-12-01					
QC Batch: 54735 Prep Batch: 46799 Parameter	Flag	QC Preparation: Result	2008-12-01	Units mg/Kg		red By: ME Reporting Limits		
QC Batch: 54735 Prep Batch: 46799 Parameter	Flag	QC Preparation:	2008-12-01	Units mg/Kg		red By: ME Reporting		
QC Batch: 54735 Prep Batch: 46799 Parameter GRO		QC Preparation: Result <0.171	2008-12-01	mg/Kg Spike	Prepa Percent	red By: ME Reporting Limits 0.171 Recovery		
QC Batch: 54735 Prep Batch: 46799 Parameter GRO Surrogate	Flag	QC Preparation: Result <0.171 Result Unit	2008-12-01 s Dilution	mg/Kg Spike Amount	Prepa Percent Recovery	red By: ME Reporting Limits 0.171 Recovery Limits		
Prep Batch: 46799 Parameter GRO Surrogate Trifluorotoluene (TFT	Flag [)	QC Preparation: Result <a href="https://www.example.com" result"="">Result</a> Nesult Unit 0.947 mg/K	2008-12-01 s Dilution G 1	mg/Kg Spike Amount 1.00	Prepa Percent Recovery 95	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3		
QC Batch: 54735 Prep Batch: 46799 Parameter GRO Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene	Flag [)	QC Preparation: Result <0.171 Result Unit	2008-12-01 s Dilution G 1	mg/Kg Spike Amount	Prepa Percent Recovery	red By: ME Reporting Limits 0.171 Recovery Limits		
QC Batch: 54735 Prep Batch: 46799 Parameter GRO Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene Method Blank (1)	Flag [)	QC Preparation: Result <0.171 Result Unit 0.947 mg/K 0.930 mg/K	2008-12-01 <u>s Dilution</u> <u>5 1</u> <u>5 1</u>	mg/Kg Spike Amount 1.00	Prepa Percent Recovery 95 93	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3 57 - 124.9		
QC Batch: 54735 Prep Batch: 46799 Parameter GRO Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene Method Blank (1) QC Batch: 54812	Flag [)	QC Preparation: Result <a href="https://www.example.com" result"="">Result</a> Nesult Unit 0.947 mg/K	2008-12-01 s Dilution G 1	mg/Kg Spike Amount 1.00	Prepa Percent Recovery 95 93 Analy	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3		
QC Batch: 54735 Prep Batch: 46799 Parameter GRO Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene Method Blank (1) QC Batch: 54812	Flag [)	QC Preparation: Result <0.171 Result Unit 0.947 mg/K 0.930 mg/K Date Analyzed:	2008-12-01 <u>s Dilution</u> <u>5g 1</u> 2008-12-02	mg/Kg Spike Amount 1.00	Prepa Percent Recovery 95 93 Analy	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3 57 - 124.9 zed By: ME		

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Surrogate		Flag	Result	Units	Dilutior		Percent Recovery	Recovery Limits
Trifluorotoluene		>	0.876	mg/Kg	1	1.00	88	39.2 - 135.2
4-Bromofluorobe	enzene (4-BF	<u>'B)</u>	0.865	mg/Kg	1	1.00	86	16.8 - 138.1
Method Blank	: (1)							
v	826 719		Date Ana QC Prepa	•	)08-12-03 )08-11-26			rzed By: LD ared By: LD
Parameter		Flag	_	Result		Units		Reporting Limits
DRO				17.0		mg/Kg		15.765
Surrogate	Flag	Result	Units	Dilut	ion	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	****** <u>*******************************</u>	103	mg/Kg	1		100	103	30.9 - 146.4
	: <b>(1)</b> :859		Date Ana		008-12-03		Analy	zed By: ME
v			Date Ana QC Prepa		)08-12-03 )08-12-03		•	zed By: ME red By: ME
QC Batch: 54 Prep Batch: 46 Parameter	859	Flag		aration: 20 Result		Units	•	red By: ME Reporting Limits
QC Batch: 54 Prep Batch: 46 Parameter	859	Flag		aration: 20		Units mg/Kg	•	red By: ME Reporting
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate	.859 .892	Flag	QC Prepa	Result 0.766 Units		mg/Kg Spike Amount	•	red By: ME Reporting Limits 0.171 Recovery Limits
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate Trifluorotoluene	.859 ;892 (TFT)	Flag	QC Prepa	Result 0.766	008-12-03	mg/Kg Spike	Prepa	red By: ME Reporting Limits 0.171 Recovery Limits
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate Trifluorotoluene 4-Bromofluorobe	859 892 (TFT) enzene (4-BF	Flag	QC Prepa Result 0.814	Result 0.766 Units mg/Kg	008-12-03	mg/Kg Spike Amount 1.00	Prepa Percent Recovery 81	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate Trifluorotoluene 4-Bromofluorobe Method Blank QC Batch: 54	859 892 (TFT) enzene (4-BF	Flag	QC Prepa Result 0.814	Result 0.766 Units mg/Kg mg/Kg	008-12-03	mg/Kg Spike Amount 1.00	Prepa Percent Recovery 81 80 Analy	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate Trifluorotoluene 4-Bromofluorobe Method Blank QC Batch: 54 Prep Batch: 463 Parameter	.859 :892 (TFT) enzene (4-BF : (1) :883	Flag	QC Prepa Result 0.814 0.804	Result 0.766 Units mg/Kg mg/Kg alyzed: 20 aration: 20 Result	Dilution 1 1 008-12-04	mg/Kg Spike Amount 1.00 1.00	Prepa Percent Recovery 81 80 Analy	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3 57 - 124.9 yzed By: LD ared By: LD Reporting Limits
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate Trifluorotoluene 4-Bromofluorobe Method Blank QC Batch: 54 Prep Batch: 463 Parameter	.859 :892 (TFT) enzene (4-BF : (1) :883	Flag FB)	QC Prepa Result 0.814 0.804	Aration: 20 Result 0.766 Units mg/Kg mg/Kg mg/Kg alyzed: 20 Aration: 20	Dilution 1 1 008-12-04	mg/Kg Spike 1 Amount 1.00 1.00	Prepa Percent Recovery 81 80 Analy	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3 57 - 124.9 yzed By: LD ared By: LD Reporting
QC Batch: 54 Prep Batch: 46 Parameter GRO Surrogate Trifluorotoluene 4-Bromofluorobe Method Blank QC Batch: 54	.859 :892 (TFT) enzene (4-BF : (1) :883	Flag FB)	QC Prepa Result 0.814 0.804	Result 0.766 Units mg/Kg mg/Kg alyzed: 20 aration: 20 Result	Dilution 1 1 008-12-04 008-12-04	mg/Kg Spike Amount 1.00 1.00	Prepa Percent Recovery 81 80 Analy	red By: ME Reporting Limits 0.171 Recovery Limits 58.3 - 129.3 57 - 124.9 yzed By: LD ared By: LD Reporting Limits

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Method Blank (1)						
QC Batch: 55327 Prep Batch: 47290		ŧ.	2008-12-19 2008-12-17		Analyzed By: Prepared By:	RD RD
_						orting
Parameter Chloride	Flag	Result <0.353		Units mg/Kg		nits 527
				0, 0		
Method Blank (1)						
QC Batch: 55328		÷	2008-12-19		Analyzed By:	RD
Prep Batch: 47291		QC Preparation:	2008-12-17		Prepared By:	RD
						orting
Parameter	Flag	Result		Units		nits
Chloride		< 0.353		mg/Kg	0.3	527
Method Blank (1)						
QC Batch: 55381		Date Analyzed:	2008-12-22		Analyzed By:	RD
Prep Batch: 47336		•	2008-12-18		Prepared By:	RD
Parameter	Flag	Result		Units		orting nits
Chloride	riag	<0.353		mg/Kg		3527
Method Blank (1)						
QC Batch: 55382 Prep Batch: 47337			2008-12-22 2008-12-18		Analyzed By: Prepared By:	RD RD
				<b>T</b> T •	-	orting
Parameter	Flag	Result		Units mg/Kg		mits
Method Blank (1)	Tiag	<0.353		mg/Kg		3527
QC Batch: 55389			2008-12-22		Analyzed By:	
D D I (50.1)		QC Preparation:	2008-12-19		Prepared By:	RD
Prep Batch: 47341						
Prep Batch: 47341 Parameter	Flag	Result		Units	-	orting mits

Chloride Method Blank (1)	Flag Flag	Date Analyzed: QC Preparation: Result <0.353 Date Analyzed: QC Preparation: Result <0.353	2008-12-22 2008-12-19 2008-12-22 2008-12-19	Units mg/Kg Units mg/Kg	Lir 0.3 Analyzed By: Prepared By: • Rep- Lin	RD RD orting mits 5527 RD RD RD orting mits 3527
Prep Batch: 47343 Parameter Chloride Method Blank (1) QC Batch: 55393 Prep Batch: 47345 Parameter Chloride Method Blank (1)		QC Preparation: <u>Result</u> <0.353 Date Analyzed: QC Preparation: Result	2008-12-19	mg/Kg Units	Prepared By: Repo Lir 0.3 Analyzed By: Prepared By: · Repo Lin	RD orting mits 5527 RD RD RD orting mits
Chloride Method Blank (1) QC Batch: 55393 Prep Batch: 47345 Parameter Chloride Method Blank (1)		<0.353 Date Analyzed: QC Preparation: Result		mg/Kg Units	Lir 0.3 Analyzed By: Prepared By: • Rep- Lin	RD RD RD orting mits
Chloride Method Blank (1) QC Batch: 55393 Prep Batch: 47345 Parameter Chloride Method Blank (1)		<0.353 Date Analyzed: QC Preparation: Result		mg/Kg Units	0.3 Analyzed By: Prepared By: · Rep Lin	RD RD RD orting mits
QC Batch: 55393 Prep Batch: 47345 Parameter Chloride Method Blank (1)	Flag	QC Preparation: Result			Prepared By: Rep. Lin	RD orting mits
QC Batch: 55393 Prep Batch: 47345 Parameter Chloride Method Blank (1)	Flag	QC Preparation: Result			Prepared By: Rep. Lin	RD orting mits
Prep Batch: 47345 Parameter Chloride Method Blank (1)	Flag	QC Preparation: Result			Prepared By: Rep. Lin	RD orting mits
Method Blank (1)	Flag				Ĺiı	mits
Chloride Method Blank (1)	Flag					
Method Blank (1)		<u></u>		mg/ <b>n</b> g	0	
QC Batch: 55498		Date Analyzed:	2008-12-24		Analyzed By:	RD
Prep Batch: 47431		QC Preparation:	2008-12-22		Prepared By:	RD
_						orting
Parameter Chloride	Flag	Result <0.353		Units mg/Kg		$\frac{\text{mits}}{3527}$
					0.0	0021
Method Blank (1)						
QC Batch: 55499		Date Analyzed:	2008-12-24		Analyzed By:	
Prep Batch: 47432		QC Preparation:	2008-12-22		Prepared By:	RD
_						orting
Parameter	Flag	Result		Units		mits 2527
Chloride Duplicate (1) Duplicate	ed Sample: 18	<0.353		mg/Kg	0.:	3527
-	la pampie: 16		9009 19 09		Á	٨D
QC Batch: 54759 Prep Batch: 46783		Date Analyzed: QC Preparation:	2008-12-02 2008-12-01		Analyzed By: Prepared By:	
Param	Duplicate	Sample	Iln:to	Dilution	חסק	RPD Limit
Moisture	Result 2.57	Result 3.02	Units %	Dilution 1	RPD 16	Limit 20

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Duplicate (1) Dupli	cated Sample: 18	0658				
QC Batch: 54760 Prep Batch: 46784		Date Analyzed: QC Preparation:	2008-12-02 2008-12-01		Analyzed B Prepared B	
Param Moisture	Duplicate Result 2.11	Sample Result 2.23	Units %	Dilution	RPD 6	RPD Limit 20
Duplicate (1) Dupli	cated Sample: 18	30669				
QC Batch: 54761 Prep Batch: 46785	ľ	Date Analyzed: QC Preparation:	2008-12-02 2008-12-01		Analyzed B Prepared B	-
Param Moisture	Duplicate Result 5.01	Sample Result 5.00	Units %	Dilution	RPD 0	RPD Limit 20
QC Batch: 54762	cated Sample: 18	Date Analyzed:	2008-12-02 2008-12-01		Analyzed B Prepared B	
Prep Batch: 46786 Param Moisture	Duplicate Result 3.98	QC Preparation: Sample Result 4.05	<u>Units</u>	Dilution	RPD2	By: AR RPD Limit 20
	cated Sample: 18					
QC Batch: 54775 Prep Batch: 46800		Date Analyzed: QC Preparation:	2008-12-03 2008-12-02		Analyzed E Prepared B	
Param Moisture	Duplicate Result 6.30	Sample Result 6.34	Units %	Dilution 1	RPD 1	RPD Limit 20
Duplicate (1) Dupli	cated Sample: 18	30706				
QC Batch: 54776 Prep Batch: 46801		Date Analyzed: QC Preparation:	2008-12-03 2008-12-02		Analyzed E Prepared E	
Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Moisture	7.70	7.70	%	1	0	20

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QC Batch: 55170 Prep Batch: 47137 Param Moisture	ed Sample: 180 Duplicate Result 2.55 ed Sample: 180 Duplicate Result 1.06 ke (LCS-1)	Date QC F S F 0708 Date QC F S H Date	Analyzed Preparatio Gample Result 2.52 Analyzed Preparatio Gample Result 1.01 Analyzed Preparatio	n: 2008-1 Unit : 2008-1 n: 2008-1 Unit : 2008-1	12-15 ts 12-16 12-15 ts	Dilut 1 Dilut 1			Prepa RPD 1 Analy	zed By: red By: zed By: red By:	AR AR RPD Limit 20 AR AR AR Limit 20
Prep Batch: 47137 Param Moisture Duplicate (1) Duplicat QC Batch: 55171 Prep Batch: 47138 Param Moisture Laboratory Control Spik QC Batch: 54734 Prep Batch: 46799 Param Benzene	Result 2.55 ed Sample: 18 Duplicate Result 1.06	QC F S P 0708 Date QC F S H Date	Preparatio Gample Result 2.52 Analyzed Preparatio Gample Result 1.01 Analyzed	n: 2008-1 Unit : 2008-1 n: 2008-1 Unit %	12-15 ts 12-16 12-15 ts	1 Dilut			Prepa RPD 1 Analy Prepa RPD	zed By:	AR RPD Limit 20 AR AR AR RPD Limit
Moisture Duplicate (1) Duplicat QC Batch: 55171 Prep Batch: 47138 Param Moisture Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene	Result 2.55 ed Sample: 18 Duplicate Result 1.06	F 0708 Date QC F S H Date	Result 2.52 Analyzed Preparatio Sample Result 1.01 Analyzed	: 2008-: n: 2008-: Unit % : 2008-:	12-16 12-15 ts	1 Dilut			1 Analy Prepa RPD		Limit 20 AR AR AR RPD Limit
Moisture Duplicate (1) Duplicat QC Batch: 55171 Prep Batch: 47138 Param Moisture Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene	2.55 ed Sample: 18 Duplicate Result 1.06	0708 Date QC F S H Date	2.52 Analyzed Preparatio Sample Result 1.01 Analyzed	: 2008-: n: 2008-: Unit % : 2008-:	12-16 12-15 ts	1 Dilut			1 Analy Prepa RPD		20 AR AR RPD Limit
QC Batch: 55171 Prep Batch: 47138 Param Moisture Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene	Duplicate Result 1.06	Date QC F S H Date	Preparatio Sample Result 1.01 Analyzed	n: 2008-1 Unit %	12-15 ts		ion		Prepa RPD		AR RPD Limit
QC Batch: 55171 Prep Batch: 47138 Param Moisture Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene	Duplicate Result 1.06	Date QC F S H Date	Preparatio Sample Result 1.01 Analyzed	n: 2008-1 Unit %	12-15 ts		ion		Prepa RPD		AR RPD Limit
Moisture Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene	Result 1.06	I Date	Result 1.01 Analyzed	: 2008-1			ion				Limit
Moisture Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene	1.06	Date	1.01 Analyzed	: 2008-1							
Laboratory Control Spil QC Batch: 54734 Prep Batch: 46799 Param Benzene			Analyzed	: 2008-2		1			0		
Benzene										·	
		CS sult	Units	Dil.	Spike Amour		Matr Resu		Rec.		lec. mit
Toluene	0.	819	mg/Kg	1	1.00	<	0.008	300	82	72.7	- 129.8
	0.	820	mg/Kg	1	1.00		0.008		82		- 129.6
Ethylbenzene		826	m mg/Kg	1	1.00		0.008		83		- 129.7
Xylene Percent recovery is based or		.50	mg/Kg D is base	$\frac{1}{1}$	<u>3.00</u>		$\frac{0.009}{10000000000000000000000000000000000$		83	70.9	- 129.4
r of cents recovery is based of	LCSD	uno. 101	D 15 54500	Spike	Mati		apire		tec.		RPD
Param	Result	Unit	ts Dil.	Amount	Resi	ılt R	.ec.	Li	imit	RPD	Limit
Benzene	0.836	mg/I	Kg 1	1.00	< 0.00	800 8	34		- 129.8	2	20
Toluene	0.841	mg/I		1.00	< 0.00		84		- 129.6	2	20
Ethylbenzene	0.846	mg/I		1.00	< 0.00		35		- 129.7	2	20
Xylene	2.56	mg/I		3.00	< 0.00		35		- 129.4	2	20
Percent recovery is based or	n the spike res	ult. RP	D is based	l on the sp	pike and	spike d	aplica	ate res	sult.		
Survegete			LCSD Desult	TI:-	וית	Spike		LCS	LCSD		lec.
Surrogate Trifluorotoluene (TFT)		esult 796	Result 0.793	Units mg/Kg	_	Amount 1.00	, <u>1</u>	Rec.	Rec. 79		imit ) - 132
4-Bromofluorobenzene (4-B)		790 914	0.793 0.911	mg/Kg mg/Kg	1 1	$1.00 \\ 1.00$		80 91	79 91		- 132 - 128.9
				0/0				<u> </u>			

#### Laboratory Control Spike (LCS-1)

QC Batch:	54735	Date Analyzed:	2008-12-01	Analyzed By:	$\operatorname{AG}$
Prep Batch:	46799	QC Preparation:	2008-12-01	Prepared By:	ME

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	Limit
GRO	8.69	mg/Kg	1	10.0	< 0.171	87	70 - 130
					•••	•	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\operatorname{Rec.}$		$\operatorname{RPD}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	$\operatorname{RPD}$	Limit
GRO	8.63	mg/Kg	1	10.0	< 0.171	86	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	$\operatorname{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.993	0.988	mg/Kg	1	1.00	99	99	70 - 130
4-Bromofluorobenzene (4-BFB)	0.986	0.987	mg/Kg	1	1.00	99	99	70 - 130

#### Laboratory Control Spike (LCS-1)

QC Batch:	54812	Date Analyzed:	2008-12-02	Analyzed By:	ME
Prep Batch:	46849	QC Preparation:	2008-12-02	Prepared By:	ME

	LCS			Spike	Matrix		Rec.
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	Limit
GRO	8.09	mg/Kg	1	10.0	< 0.442	81	57.5 - 106.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	Limit	$\operatorname{RPD}$	Limit
GRO	7.68	mg/Kg	1	10.0	< 0.442	77	57.5 - 106.4	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	$\operatorname{Result}$	$\operatorname{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.886	0.854	mg/Kg	1	1.00	89	85	63.8 - 134.3
$\underline{\text{4-Bromofluorobenzene}}$ (4-BFB)	0.895	0.884	mg/Kg	1	1.00	90	88	53.3 - 123.6

#### Laboratory Control Spike (LCS-1)

QC Batch:	54826	Date Analyzed:	2008-12-03	Analyzed By:	LD
Prep Batch:	46719	QC Preparation:	2008-11-26	Prepared By:	LD

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		LCS				Spike	Matrix	ζ.	]	Rec.
Param		Result	t	Units	Dil.	Amount	Result	Rec.	L	imit
DRO		252	]	mg/Kg	1	250	17	94	27.8	- 152.1
Percent recovery is based	on the s	pike result.			on the spik	e and spike	e duplicat	e result.		
v	-	LCSD			Spike	Matrix		Rec.		RPD
Param			Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO			mg/K		250	17		7.8 - 152.1	$\frac{10}{13}$	20
Percent recovery is based	l on the s								10	
ercent recovery is based		-	III D	is based	on the spin	-	-			
	LCS	LCSD				Spike	LCS	LCSI		Rec.
Burrogate	Result	Result		Units	Dil.	Amount	Rec.	Rec.		Limit
n-Triacontane	128	127	n	ng/Kg	1	100	128	127	38	- 130.4
Laboratory Control SQC Batch:54859Prep Batch:46892	pike (LC	Ď		nalyzed: eparation					lyzed By pared By	
		LCS	3			Spike	Ma	trix		Rec.
		100	<i>,</i>			~ P		-		<b>.</b>
Param		Resu	lt	Units	Dil.	Amoun	t Res	sult R	.ec.	$\operatorname{Limit}$
GRO	on the s	Result.	L	Units mg/Kg is based		Amoun 10.0 ce and spik	<0.	171 ,	.ec. 70	
GRO Percent recovery is based Param	l on the s	7.01	L	mg/Kg is based s Dil	1 on the spik Spike	10.0 ke and spik Matrix	<0. e duplicat c c Rec.	171 ,		70 - 130 RPI
GRO Percent recovery is based Param GRO		7.01 pike result. LCSD Result 7.37	RPD Unit mg/F	$\frac{mg/Kg}{s based}$	1 on the spik Spike Amoun 10.0	10.0 se and spik Matrix t Result $<0.171$	<0. e duplicat	171 , e result. Rec. Limit 70 - 130	70 RPD	70 - 130 RPI Limi
GRO Percent recovery is based Param GRO		7.01 pike result. LCSD Result 7.37	RPD Unit mg/F RPD	$\frac{mg/Kg}{s based}$	1 on the spik Spike Amoun 10.0	10.0  se and spik Matrix t Result     	<0. e duplicat	171 e result. Rec. Limit 70 - 130 e result.	70 RPD	70 - 130 RPE Limi
GRO Percent recovery is based Param GRO Percent recovery is based		7.01 pike result. LCSD Result 7.37 pike result.	RPD Unit mg/F RPD	mg/Kg is based s Dil Kg 1 is based	1 on the spik Spike Amoun 10.0	10.0 te and spik Matrix t Result < 0.17 te and spik	<0. e duplicat c c <u>Rec.</u> 1 74 e duplicat	171 e result. Rec. Limit 70 - 130 e result. LCS L	70 RPD 5	70 - 130 RPE Limi 20
GRO Percent recovery is based Param GRO Percent recovery is based Surrogate Frifluorotoluene (TFT)	l on the s	7.01 pike result. LCSD Result 7.37 pike result. LCS	L RPD Unit mg/F RPD I t F	mg/Kg is based s Dil Kg 1 is based LCSD	1 on the spike Spike Amoun 10.0 on the spik	10.0 te and spik Matrix t Result $< 0.17$ te and spik Dil. A	<0. e duplicat c Rec. I 74 e duplicat Spike	171 e result. Rec. Limit 70 - 130 e result. LCS L Rec. I	RPD 5 CSD Rec.	70 - 130 RPE Limi 20 Rec.
GRO Percent recovery is based Param GRO Percent recovery is based Surrogate Frifluorotoluene (TFT)	l on the s	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul	L RPD Unit mg/F RPD I Lt F	mg/Kg is based s Dil Kg 1 is based LCSD Result	1 on the spike Amoun 10.0 on the spik Units	10.0 te and spik Matrix t Result $<0.171$ te and spik Dil. A 1	<0. e duplicat c Rec. 1 74 e duplicat Spike mount	171 e result. Rec. Limit 70 - 130 e result. LCS L Rec. I	RPD 5 CSD Rec. 89	70 - 13 RPI Limi 20 Rec. Limit 70 - 13
GRO Percent recovery is based Param GRO Percent recovery is based Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4 Laboratory Control S QC Batch: 54883	l on the s I-BFB)	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.817 CS-1)	Unit MPD Unit Mg/F RPD I I I I I I I I I I I I I	mg/Kg is based s Dil Kg 1 is based LCSD Result 0.888	1 on the spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12	10.0 te and spik Matrix t Result <0.171 te and spik $\frac{0}{11}$ Dil. A 1 1 2-04	<0. e duplicat c Rec. 1 74 e duplicat Spike mount 1.00	171 e result. Rec. Limit 70 - 130 e result. LCS L Rec. I 84 82 An	RPD 5 CSD Rec. 89	70 - 130 RPE Limi 20 Rec. Limit 70 - 13 70 - 13 70 - 13
GRO Percent recovery is based Param GRO Percent recovery is based Surrogate Irifluorotoluene (TFT) 4-Bromofluorobenzene (4 Caboratory Control S QC Batch: 54883 Prep Batch: 46895	l on the s I-BFB)	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.817 CS-1)	L RPD Unit mg/F RPD I I I T I T I C Pro	mg/Kg is based s Dil kg 1 is based LCSD Result 0.888 0.825 	1 on the spik Spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12 n: 2008-12	10.0 te and spik Matrix t Result <0.171 te and spik Dil. A 1 1 2-04 Spike	<0. e duplicat c Rec. I 74 e duplicat Spike mount 1.00 1.00	171 e result. Rec. Limit 70 - 130 e result. LCS L Rec. I 84 82 An Pre	RPD 5 CSD Rec. 89 82 alyzed B epared B	70 - 130 RPD Limit 20 Rec. Limit 70 - 130 70 - 130 y: LD y: LD y: LD Rec.
GRO Percent recovery is based Param GRO Percent recovery is based Surrogate Irifluorotoluene (TFT) I-Bromofluorobenzene (4 Caboratory Control S QC Batch: 54883 Prep Batch: 54895	l on the s I-BFB)	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.817 CS-1)	L RPD Unit mg/F RPD I I I I C Pro L L L L L L L L L L L L L	mg/Kg is based s Dil kg 1 is based LCSD Result 0.888 0.825 	1 on the spik Spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12 n: 2008-12 Dil.	10.0 te and spik Matrix t Result <0.171 te and spik Dil. A 1 1 2-04 2-04 Spike Amount	<0. e duplicat c Rec. 1 74 e duplicat Spike mount 1.00 1.00 Matri Resul	171 ' e result. Rec. Limit 70 - 130 e result. LCS L Rec. I 84 82 An Pre x t Rec.	RPD 5 CSD Rec. 89 82 alyzed B epared B	70 - 130 RPI Limi 20 Rec. Limit 70 - 13 70 - 13 70 - 13 y: LD y: LD y: LD Rec. Limit
GRO         Percent recovery is based         Param         GRO         Percent recovery is based         Burrogate         Grifluorotoluene (TFT)         -Bromofluorobenzene (4         Caboratory Control S         QC Batch:       54883         Prep Batch:       46895         Param         DRO	l on the sj l-BFB) pike (LC	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.817 CS-1) E CS-1)	L RPD Unit mg/F RPD I I I I D Date A QC Pro- t	mg/Kg is based s Dil Kg 1 is based LCSD Result 0.888 0.825 	1 on the spik Spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12 h: 2008-12 h: 2008-12 h: 2008-12	10.0 we and spik Matrix t Result <0.171 we and spik Dil. A 1 1 2-04 2-04 Spike Amount 250	<0. e duplicat Rec. 74 e duplicat Spike mount 1.00 1.00 Matri Resul <15.8	$\begin{array}{c} 171 \\ e \text{ result.} \\ Rec. \\ Limit \\ 70 - 130 \\ e \text{ result.} \\ \\ LCS \\ LCS \\ L \\ Rec. \\ I \\ 84 \\ 82 \\ \\ \end{array}$	RPD 5 CSD Rec. 89 82 alyzed B epared B	70 - 13 RPI Limi 20 Rec. Limit 70 - 13 70 - 13 70 - 13 y: LE y: LE y: LE Rec. Limit
GRO Percent recovery is based Param GRO Percent recovery is based Surrogate Frifluorotoluene (TFT) I-Bromofluorobenzene (4 Caboratory Control S QC Batch: 54883 Prep Batch: 46895 Param DRO	l on the sj l-BFB) pike (LC	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.817 CS-1) E CS-1)	L RPD Unit mg/F RPD I I I I D Date A QC Pro- t	mg/Kg is based s Dil Kg 1 is based LCSD Result 0.888 0.825 	1 on the spik Spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12 h: 2008-12 h: 2008-12 h: 2008-12	10.0 we and spik Matrix t Result <0.171 we and spik Dil. A 1 1 2-04 2-04 Spike Amount 250	<0. e duplicat Rec. 74 e duplicat Spike mount 1.00 1.00 Matri Resul <15.8	$\begin{array}{c} 171 \\ e \text{ result.} \\ Rec. \\ Limit \\ 70 - 130 \\ e \text{ result.} \\ \\ LCS \\ LCS \\ L \\ Rec. \\ I \\ 84 \\ 82 \\ \\ \end{array}$	RPD 5 CSD Rec. 89 82 alyzed B epared B	70 - 13 RPI Limi 20 Rec. Limit 70 - 13 70 - 13 70 - 13 y: LE y: LE y: LE Rec. Limit
GRO Percent recovery is based Param GRO Percent recovery is based Carogate Frifluorotoluene (TFT) I-Bromofluorobenzene (4 Caboratory Control S QC Batch: 54883 Prep Batch: 46895 Prep Batch: 46895 Param DRO Percent recovery is based	l on the sj l-BFB) pike (LC	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.817 CS-1) E CS-1)	L RPD Unit mg/F RPD I I I I D Date A QC Pro- t	mg/Kg is based s Dil Kg 1 is based LCSD Result 0.888 0.825 	1 on the spik Spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12 h: 2008-12 h: 2008-12 h: 2008-12	10.0 we and spik Matrix t Result <0.171 we and spik Dil. A 1 1 2-04 2-04 Spike Amount 250	<0. e duplicat Rec. 74 e duplicat Spike mount 1.00 1.00 Matri Resul <15.8	$\begin{array}{c} 171 \\ e \text{ result.} \\ Rec. \\ Limit \\ 70 - 130 \\ e \text{ result.} \\ \\ LCS \\ LCS \\ L \\ Rec. \\ I \\ 84 \\ 82 \\ \\ \end{array}$	RPD 5 CSD Rec. 89 82 alyzed B epared B	70 - 130 RPI Limi 20 Rec. Limit 70 - 13 70 - 13 70 - 13 y: LD y: LD y: LD Rec.
-	l on the sj l-BFB) pike (LC	7.01 pike result. LCSD Result 7.37 pike result. LCS Resul 0.840 0.840 0.817 CS-1) E CS-1) E CS-1) E CS-1) E CS-1) E CS-1 pike result.	L RPD Unit mg/F RPD I I I I D Date A QC Pro- t	mg/Kg is based s Dil Kg 1 is based CSD Result 0.888 0.825 	1 on the spike Amoun 10.0 on the spik Units mg/Kg mg/Kg 2008-12 h: 2008-12 h: 2008-12 h: 2008-12 h: 2008-12 h: 2008-12	10.0         ce and spike         Matrix         t       Result         <0.171	<0. e duplicat Rec. 74 e duplicat Spike mount 1.00 1.00 Matri Resul <15.8	$\begin{array}{c c} 171 & '\\ e \text{ result.} \\ Rec. \\ Limit \\ 70 - 130 \\ e \text{ result.} \\ LCS & L \\ Rec. & H \\ 84 \\ 82 \\ \hline \\ 84 \\ 84 \\ 82 \\ \hline \\ 84 \\ 85 \\ 85 \\ 85 \\ 85 \\ 85 \\ 85 \\ 85$	RPD 5 CSD Rec. 89 82 alyzed B epared B	RPI           Limi           20           Rec.           Limit           70 - 13           70 - 13           70 - 13           Y:         LD           y:         LD           Rec.         Limit           3 - 152.

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.		CSD Rec.		Rec. Limit
n-Triacontane	79.1	78.5	mg/Kg	1	100	79		78	38	- 130.4
Laboratory Control QC Batch: 55327 Prep Batch: 47290	Spike (LCS	, Date	e Analyzed: Preparation:	2008-12-1 2008-12-1					vzed By ared By	
		LCS			Spike	Mat				Rec.
Param		Result	Units	Dil.	Amount	Res		Rec		Limit
Chloride	· · · · · · · · · · · · · · · · · · ·	12.0	mg/Kg	1	12.5	<0.	353	96		90 - 110
Percent recovery is bas	ed on the sp	ike result. RF	PD is based of	n the spike	and spike	duplicate	e resul	lt.		
		LCSD		Spike	Matrix		$\mathbf{Re}$	c		RPD
Param			nits Dil.	Amount	Result	Rec.	Lin		RPD	Limit
Chloride	8		$\frac{1103}{\text{g/Kg}}$ 1	12.5	<0.353	94	- 90 -		2	20
Percent recovery is bas Laboratory Control QC Batch: 55328	-	S-1) Date	e Analyzed:	2008-12-1	19	duplicate	e resul	Analy	yzed B	
Percent recovery is bas Laboratory Control QC Batch: 55328	-	S-1) Date QC			19 17			Analy	yzed By ared By	/: RD
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291	-	S-1) Date QC LCS	e Analyzed: Preparation:	2008-12-1 2008-12-1	19 17 Spike	Mat	trix	Analy Prepa	ared By	r: RD Rec.
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param	-	S-1) Date QC LCS Result	e Analyzed: Preparation: Units	2008-12-1 2008-12-1 Dil.	19 17 Spike Amount	Mat Res	trix sult	Analy Prepa Ree	ared By c.	v: RD Rec. Limit
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride	Spike (LC	S-1) Date QC LCS Result 12.1	e Analyzed: Preparation: Units mg/Kg	2008-12-1 2008-12-1 Dil. 1	19 17 Spike Amount 12.5	Mat Res <0.	trix sult 353	Analy Prepa Rec 97	ared By c.	r: RD Rec.
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride	Spike (LC	S-1) Date QC LCS Result 12.1 ike result. RF	e Analyzed: Preparation: Units mg/Kg	2008-12-1 2008-12-1 Dil. 1 n the spike	19 7 Spike Amount 12.5 e and spike	Mat Res <0.	trix sult 353 e resu	Analy Prepa Rec 97 lt.	ared By c.	r: RD Rec. Limit 90 - 110
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride Percent recovery is bas	Spike (LC	S-1) Date QC LCS Result 12.1 ike result. RF LCSD	e Analyzed: Preparation: Units mg/Kg PD is based o	2008-12-1 2008-12-1 Dil. 1 n the spike Spike	19 7 Spike Amount 12.5 e and spike Matrix	Mat Res <0. duplicat	trix sult 353 e resu Re	Analy Prepa Rec 97 It.	e.	r: RD Rec. Limit 90 - 110 RPD
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride Percent recovery is bas Param	Spike (LC)	S-1) Date QC LCS Result 12.1 ike result. RF LCSD Result	e Analyzed: Preparation: Units mg/Kg PD is based o Jnits Dil.	2008-12-1 2008-12-1 Dil. 1 n the spike Amount	19 Spike Amount 12.5 e and spike Matrix Result	Mat Res <0. duplicat Rec.	trix sult 353 e resu Re Lin	Analy Prepa Rec 97 It. ec. nit	ared By c. RPD	r: RD Rec. Limit 90 - 110 RPD Limit
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride Percent recovery is bas Param Chloride	Spike (LC:	S-1) Date QC LCS Result 12.1 ike result. RF LCSD Result U 11.9 m	e Analyzed: Preparation: <u>Units</u> PD is based o <u>Units</u> Dil. g/Kg 1	2008-12-1 2008-12-1 Dil. 1 n the spike Amount 12.5	19 Spike Amount 12.5 and spike Matrix Result <0.353	Mat Res <0. duplicat Rec. 95	trix sult 353 e resu Re Lin 90 -	Analy Prepa Rec 97 lt. ec. nit 110	e.	r: RD Rec. Limit 90 - 110 RPD
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Laboratory Control QC Batch: 55381	Spike (LC:	S-1) Date QC LCS Result '12.1 ike result. RF LCSD Result U 11.9 m ike result. RF S-1)	e Analyzed: Preparation: <u>Units</u> PD is based o <u>Units</u> Dil. g/Kg 1	2008-12-1 2008-12-1 Dil. 1 n the spike Amount 12.5	19 Spike Amount 12.5 and spike Matrix Result <0.353 and spike	Mat Res <0. duplicat Rec. 95	trix sult 353 e resu Re Lin 90 -	Analy Prepa Rec 97 lt. ec. nit 110 lt. Analy	ared By c. RPD	r: RD Rec. Limit 90 - 110 RPD Limit 20 y: RD
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Laboratory Control QC Batch: 55381 Prep Batch: 47336	Spike (LC:	S-1) Date QC LCS Result 12.1 ike result. RF LCSD Result U 11.9 m ike result. RF S-1) Date QC LCS	e Analyzed: Preparation: Units mg/Kg PD is based o Units Dil. g/Kg 1 PD is based o e Analyzed:	2008-12-1 2008-12-1 Dil. 1 n the spike Amount 12.5 n the spike 2008-12-2	19 Spike Amount 12.5 and spike Matrix Result <0.353 and spike	Mat Res <0. duplicat 95 duplicat	trix sult 353 e resu Re Lir 90 - e resu trix	Analy Prepa Rec 97 lt. ec. nit 110 lt. Analy Prep	red By c. <u>RPD</u> 2 yzed B ared B	r: RD Rec. Limit 90 - 110 RPD Limit 20 y: RD y: RD y: RD Rec.
Percent recovery is bas Laboratory Control QC Batch: 55328 Prep Batch: 47291 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Laboratory Control QC Batch: 55381	Spike (LC:	S-1) Date QC LCS Result '12.1 ike result. RF LCSD Result U 11.9 m ike result. RF S-1) Date QC	e Analyzed: Preparation: Units mg/Kg PD is based o Units Dil. g/Kg 1 PD is based o e Analyzed:	2008-12-1 2008-12-1 Dil. 1 n the spike Amount 12.5 n the spike 2008-12-2	Spike Amount 12.5 and spike Matrix Result <0.353 and spike	Mat Res <0. duplicat 95 duplicat Ma Res	trix sult 353 e resu Re Lir 90 - e resu trix	Analy Prepa Rec 97 lt. ec. nit 110 lt. Analy	red By c. RPD 2 yzed B ared B; c.	r: RD Rec. Limit 90 - 110 RPD Limit 20 y: RD y: RD

<sup>7</sup>Matrix spikes run with batch, but spiked sample reran in another batch. Use LCS/LCSD to show analysis is in control. •

<sup>8</sup>Matrix spikes run with batch, but spiked sample reran in another batch. Use LCS/LCSD to show analysis is in control. • <sup>9</sup>Matrix spikes run with batch, but spiked sample reran in another batch. Use LCS/LCSD to show analysis is in control. •

<sup>10</sup>Matrix spikes run with batch, but spiked sample reran in another batch. Use LCS/LCSD to show analysis is in control. •

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Percent recovery	y is based on the s	pike result.	. RPD is l	based or	the spike	and spike o	luplicat	e result	t.		
		LCSD			Spike	Matrix		Rec	с.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Lim		RPD	Limit
Chloride		11.8	mg/Kg	1	12.5	< 0.353	94	90 - 1	110	2	20
Percent recovery	y is based on the sp	pike result.	. RPD is l	based or	n the spike	and spike o	luplicat	e result	t.		
Laboratory C	ontrol Spike (LC	CS-1)									
QC Batch: 5	5382		Date Anal	lyzed:	2008-12-2	2			Anal	yzed By	: RD
Prep Batch: 4	7337		QC Prepa	ration:	2008-12-1	8			Prep	ared By	: RD
_		LC		_		Spike		trix	_		Rec.
Param		Res		Jnits	Dil.	Amount	Res		Re		Limit
Chloride		11.		ıg/Kg	1	12.5		.353	94	±	90 - 11
Percent recover	y is based on the s		. RPD is	based or	-	-	duplicat				_
D		LCSD	<b>TT</b>	<b></b>	Spike	Matrix	P	Ree		חחח	RPI
Param		Result	Units	Dil.	Amount	Result	Rec.	Lim		RPD	Lim
Chloride	in the second second	11 0	ma/Ka	1					1 1 1 1		
	y is based on the spontrol Spike (LC		mg/Kg . RPD is	1 based or	12.5 n the spike	<0.353 and spike	95 duplicat	90 - ze resul		1	20
Percent recover Laboratory C QC Batch: 5	ontrol Spike (LC 5389	pike result CS-1)	. RPD is Date Ana	based of lyzed:	n the spike 2008-12-2	and spike of 2			lt. Anal	yzed By	y: RI
Percent recover Laboratory C QC Batch: 5	control Spike (LC	pike result CS-1)	. RPD is	based of lyzed:	n the spike	and spike of 2			lt. Anal		
Percent recover Laboratory C QC Batch: 5	ontrol Spike (LC 5389	pike result CS-1)	. RPD is Date Ana	based of lyzed:	n the spike 2008-12-2	and spike of 2	duplicat		lt. Anal	yzed By	y: RD
Percent recover Laboratory C QC Batch: 5	ontrol Spike (LC 5389	pike result 2 <b>S-1)</b> Lo	. RPD is Date Ana QC Prepa CS	based of lyzed:	n the spike 2008-12-2	and spike of 2 9	duplicat Ma	e resul	lt. Anal	yzed By ared By	y: RE 7: RE
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4	control Spike (LC 5389 7341	pike result 2 <b>S-1)</b> Le Res	. RPD is Date Ana QC Prepa CS sult	based or lyzed: tration:	n the spike 2008-12-2 2008-12-1	and spike of 2 9 Spike	duplicat Ma Re	e resul	lt. Anal Prep	yzed By ared By	y: RE 7: RE Rec. Limit
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride	control Spike (LC 5389 7341	pike result 2 <b>S-1)</b> Le Res 11 12	. RPD is Date Ana QC Prepa CS sult 2.8 1	based or lyzed: tration: Units ng/Kg	n the spike 2008-12-2 2008-12-1 Dil. 1	and spike 2 9 Spike Amount 12.5	duplicat Ma Re <0	e resul atrix sult .353	lt. Anal Prep Re 1(	yzed By ared By	y: RE 7: RE Rec. Limit
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recover	ontrol Spike (LC 5389 7341	pike result CS-1) LCRes Dike result LCSD	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is	based or lyzed: uration: <u>Units</u> ng/Kg based or	n the spike 2008-12-2 2008-12-1 Dil. 1	and spike 2 9 Spike Amount 12.5	Ma Re <0 duplicat	e resul atrix sult .353 te resul Re	It. Anal Prep Re 1( It. ec.	yzed By ared By ec. 02	y: RD 7: RD Rec. Limit 90 - 11
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recover Param	Sontrol Spike (LC 5389 7341 y is based on the sp	pike result CS-1) La Res 11 12 pike result LCSD Result	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is Units	based or lyzed: uration: <u>Units</u> ng/Kg based or Dil.	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Amount	and spike 2 9 Spike Amount 12.5 and spike Matrix Result	Ma Re <0 duplicat Rec.	te resul sutrix sult .353 te resul Re Lin	It. Anal Prep Re 1( It. ec. nit	yzed By ared By ec. )2 RPD	y: RD 7: RD Limit 90 - 11 RP1 Lim
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recover	ontrol Spike (LC 5389 7341	pike result CS-1) La Res 11 12 pike result LCSD Result	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is	based or lyzed: uration: <u>Units</u> ng/Kg based or Dil.	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Spike	and spike 2 9 Spike Amount 12.5 and spike Matrix	Ma Re <0 duplicat	e resul atrix sult .353 te resul Re	It. Anal Prep Re 1( It. ec. nit	yzed By ared By ec. 02	y: RE 7: RE Rec. Limit 90 - 11
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recover Param Chloride	Sontrol Spike (LC 5389 7341 y is based on the sp	pike result 2 <b>S-1)</b> Le Res 11 12 pike result LCSD Result 12.6	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is Units mg/Kg	based or lyzed: tration: <u>Units</u> ng/Kg based or Dil.	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Spike Amount 12.5	2 9 Spike Amount 12.5 and spike Matrix Result <0.353	Ma Re <0 duplicat Rec. 101	etrix sult .353 te resul Lin 90 -	Anal Prep Re 10 It. ec. nit 110	yzed By ared By ec. )2 RPD	y: RI 7: RI Limit 90 - 11 RP Lim
Percent recover Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recover Param Chloride Percent recover	Sontrol Spike (LC 5389 7341 y is based on the sp	pike result CS-1) Le Res 11 12 pike result LCSD Result 12.6 pike result	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is Units mg/Kg	based or lyzed: tration: <u>Units</u> ng/Kg based or Dil.	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Spike Amount 12.5	2 9 Spike Amount 12.5 and spike Matrix Result <0.353	Ma Re <0 duplicat Rec. 101	etrix sult .353 te resul Lin 90 -	Anal Prep Re 10 It. ec. nit 110	yzed By ared By ec. )2 RPD	y: RI 7: RI Limit 90 - 11 RP Lim
Percent recovery Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recovery Param Chloride Percent recovery Laboratory C QC Batch: 55	Sontrol Spike (LC 5389 7341 y is based on the sp y is based on the sp y is based on the sp Sontrol Spike (LC 5391	pike result <b>CS-1</b> ) Le Result LCSD Result 12.6 pike result <b>CS-1</b> )	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is Units mg/Kg	based or lyzed: wration: <u>Units</u> ng/Kg based or <u>Dil.</u> 1 based or	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Spike Amount 12.5	and spike 2 9 Spike Amount 12.5 and spike Matrix Result <0.353 and spike	Ma Re <0 duplicat Rec. 101	etrix sult .353 te resul Lin 90 -	It. Anal Prep Re 1( It. ec. nit 110 It.	yzed By ared By ec. )2 RPD	y: RI 7: RI Limit 90 - 11 RP Lim 20
Percent recovery Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recovery Param Chloride Percent recovery Laboratory C QC Batch: 55	Sontrol Spike (LC 5389 7341 y is based on the sp y is based on the sp y is based on the sp Sontrol Spike (LC	Lecson Lecson Lecson LCSD Result LCSD Result 12.6 pike result CS-1)	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is <u>Units</u> mg/Kg . RPD is	based or lyzed: tration: <u>Units</u> ng/Kg based or <u>Dil.</u> 1 based or lyzed:	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Amount 12.5 n the spike	and spike 2 9 Spike Amount 12.5 and spike Matrix Result <0.353 and spike 2	Ma Re <0 duplicat Rec. 101	etrix sult .353 te resul Lin 90 -	Anal Prep Re 1( lt. ec. nit 110 lt. Ana	yzed By ared By ec. D2 RPD 2	y: RI /: RI I E E E E E E E E E E E E E E E E E E E
Percent recovery Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recovery Param Chloride Percent recovery Laboratory C QC Batch: 55	Sontrol Spike (LC 5389 7341 y is based on the sp y is based on the sp y is based on the sp Sontrol Spike (LC 5391	Lecson Lecson Lecson LCSD Result LCSD Result 12.6 pike result CS-1)	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is <u>Units</u> <u>mg/Kg</u> . RPD is Date Ana	based or lyzed: tration: <u>Units</u> ng/Kg based or <u>Dil.</u> 1 based or lyzed:	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Amount 12.5 n the spike 2008-12-2	and spike 2 9 Spike Amount 12.5 and spike Matrix Result <0.353 and spike 2	Ma Re <0 duplicat Rec. 101	etrix sult .353 te resul Lin 90 -	Anal Prep Re 1( lt. ec. nit 110 lt. Ana	yzed By ared By ec. 02 RPD 2 lyzed B	y: RI /: RI Rec. Limit 90 - 11 RP Lim 20 y: RI
Percent recovery Laboratory C QC Batch: 5 Prep Batch: 4 Param Chloride Percent recovery Param Chloride Percent recovery Laboratory C QC Batch: 55	Sontrol Spike (LC 5389 7341 y is based on the sp y is based on the sp y is based on the sp Sontrol Spike (LC 5391	Lecson Lecson Lecson LCSD Result LCSD Result 12.6 pike result CS-1)	. RPD is Date Ana QC Prepa CS sult 2.8 r . RPD is <u>Units</u> <u>mg/Kg</u> . RPD is Date Ana	based or lyzed: tration: <u>Units</u> ng/Kg based or <u>Dil.</u> 1 based or lyzed:	n the spike 2008-12-2 2008-12-1 Dil. 1 n the spike Amount 12.5 n the spike 2008-12-2	and spike 2 9 Spike Amount 12.5 and spike Matrix Result <0.353 and spike 2	Ma Re <0 duplicat Rec. 101	etrix sult .353 te resul Lin 90 -	Anal Prep Re 1( lt. ec. nit 110 lt. Ana	yzed By ared By ec. 02 RPD 2 lyzed B	y: RI /: RI Limit 90 - 1 RP Lim 20 y: RJ

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	LC	S			Spike	Ma	trix			Rec.
Param	Res		Units	Dil.	Amount	Res		Rec		Limit
Chloride	12.	.4	mg/Kg	1	12.5	<0.	353	99		90 - 110
Percent recovery is based on the sp	ike result	. RPD i	s based or	n the spike	and spike	duplicat	e resul	lt.		
	LCSD			Spike	Matrix		Rec	с.		RPD
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	$\operatorname{Lim}$	nit	RPD	Limit
Chloride	12.1	mg/K	g 1	12.5	< 0.353	97	90 - 1	110	2	20
Percent recovery is based on the sp Laboratory Control Spike (LC		. RPD i	is based o	n the spike	and spike	duplicat	e resul	lt.		
Laboratory Control Spike (LC QC Batch: 55393	S-1)	Date Ar	nalyzed:	2008-12-2	2	duplicat		Analy	yzed B	•
Laboratory Control Spike (LC QC Batch: 55393	S-1)	Date Ar		-	2	duplicat		Analy	yzed B ared B	•
Laboratory Control Spike (LC QC Batch: 55393	S-1)	Date Ar QC Pre	nalyzed:	2008-12-2	2	-		Analy		•
Laboratory Control Spike (LC QC Batch: 55393	S-1)	Date Ar QC Pre	nalyzed:	2008-12-2	2 9	Ma		Analy	ared B	y: RD
Laboratory Control Spike (LC QC Batch: 55393 Prep Batch: 47345 Param	<b>S-1)</b> LC	Date Ar QC Pre 2S ult	nalyzed: paration:	2008-12-2 2008-12-1	2 9 Spike	Ma Res	trix	Analy Prepa	ared B	y: RD Rec. Limit
Laboratory Control Spike (LC QC Batch: 55393 Prep Batch: 47345	S-1) LC Res 12	Date Ar QC Pre CS ult .4	nalyzed: paration: Units mg/Kg	2008-12-2 2008-12-1 Dil.	2 9 Spike Amount 12.5	Ma Re: <0	trix sult 353	Analy Prepa Re	ared B	y: RD Rec.
Laboratory Control Spike (LC QC Batch: 55393 Prep Batch: 47345 Param Chloride	S-1) LC Res 12	Date Ar QC Pre CS ult .4	nalyzed: paration: Units mg/Kg	2008-12-2 2008-12-1 Dil.	2 9 Spike Amount 12.5	Ma Re: <0	trix sult 353	Analy Prepa Re- 99	ared B	y: RD Rec. Limit
Laboratory Control Spike (LC QC Batch: 55393 Prep Batch: 47345 Param Chloride	S-1) LC Res 12 ike result	Date Ar QC Pre CS ult .4	nalyzed: paration: Units mg/Kg is based of	2008-12-2 2008-12-1 Dil. 1 n the spike	2 9 Spike Amount 12.5 and spike	Ma Re: <0	trix sult 353 se resul	Analy Prepa Re 99 It.	ared B	y: RD Rec. Limit 90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

### Laboratory Control Spike (LCS-1)

QC Batch:	55498	Date Analyzed:	2008-12-24	Analyzed By:	RD
Prep Batch:	47431	QC Preparation:	2008-12-22	Prepared By:	RD

	LCS			Spike	Matrix		Rec.
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	11.6	mg/Kg	1	12.5	< 0.353	93	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	Limit	$\operatorname{RPD}$	Limit
Chloride	11.6	mg/Kg	1	12.5	< 0.353	93	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

### Laboratory Control Spike (LCS-1)

QC Batch:	55499	Date Analyzed:	2008-12-24	Analyzed By:	RD
Prep Batch:	47432	QC Preparation:	2008-12-22	Prepared By:	RD

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Param	LC Res		Units	Dil.	Spike Amount	Ma <sup>.</sup> Res		Rec.	Rec. Limit
Chloride	11.	.6	mg/Kg	1	12.5	<0.	353	93	90 - 110
Percent recovery is based on the	spike result	. RPD i	s based o	n the spike	and spike	duplicat	e result.		
referre fore for the subout of the	-								
	LCSD			Spike	Matrix		Rec.		RPD
Param	-	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

#### Matrix Spike (MS-1) Spiked Sample: 180674

QC Batch:	54734	Date Analyzed:	2008-12-01	Analyzed By:	$\mathbf{AG}$
Prep Batch:	46799	QC Preparation:	2008-12-01	Prepared By:	ME

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	$\operatorname{Limit}$
Benzene	13	0.443	mg/Kg	1	1.00	< 0.00800	44	58.6 - 165.2
Toluene	14	0.491	mg/Kg	1	1.00	< 0.00800	49	64.2 - 153.8
Ethylbenzene	15	0.694	mg/Kg	1	1.00	0.1019	59	61.6 - 159.4
Xylene	16	1.71	mg/Kg	1	3.00	0.0724	54	64.4 - 155.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	$\operatorname{Limit}$	RPD	$\operatorname{Limit}$
Benzene	17	0.622	mg/Kg	1	1.00	< 0.00800	62	58.6 - 165.2	34	20
Toluene	18	0.678	mg/Kg	1	1.00	< 0.00800	68	64.2 - 153.8	32	20
Ethylbenzene	19	0.953	mg/Kg	1	1.00	0.1019	85	61.6 - 159.4	31	<b>20</b>
Xylene	20	2.31	mg/Kg	1	3.00	0.0724	74	64.4 - 155.3	30	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	21	0.798	0.746	mg/Kg	1	1	80	75	76 - 127.9
4-Bromofluorobenzene (4-BFB)		1.13	1.20	mg/Kg	1	1	113	120	72 - 127.8

#### Matrix Spike (MS-1) Spiked Sample: 180651

QC Batch:	54735	Date Analyzed:	2008-12-01	Analyzed By:	$\operatorname{AG}$
Prep Batch:	46799	QC Preparation:	2008-12-01	Prepared By:	ME

<sup>13</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>14</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>15</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>16</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

 $^{18}\mathrm{MS}/\mathrm{MSD}$  RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

<sup>19</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

 $^{20}\mathrm{MS}/\mathrm{MSD}$  RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

<sup>21</sup>Surrogate out due to peak interference.

<sup>&</sup>lt;sup>17</sup>MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

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Param	MS Resul	lt Units	Dil.	Spik Amou		atrix esult	Rec.		Rec. imit
GRO	16.6			10.		.35	102	22.3	- 134.6
Percent recovery is based on the s	pike result.			ke and	spike dupl	icate res	sult.		
	-								מתמ
Param	$\operatorname{MSD}$ Result	Units Dil.	Spike . Amount	Mat: Resi		Re Lit	ec. nit	RPD	RPD Limit
GRO		mg/Kg 1	10.0	6.3			134.6	$\frac{101 \text{ D}}{12}$	20
Percent recovery is based on the s									
	MS	5 MSD			Spike	MS	MSD	1	Rec.
Surrogate	Resu	ılt Result	Units	Dil.	Amount	Rec.	Rec.	I	imit
Trifluorotoluene (TFT)	$^{22}$ 1.12		mg/Kg	1	1	112	114		- 113.1
4-Bromofluorobenzene (4-BFB)	0.99	95 1.02	mg/Kg	1	1	100	102	66.7	- 134.3
Param	MS Resu		Dil.	-		Aatrix Result	Rec.		Rec. Limit
GRO	5.80					(0.442	58		- 139.3
Percent recovery is based on the s	MSD		Spike	Ma	trix	R	lec.	DDD	RPD
Param GRO	Result 5.97	Units Di mg/Kg 1			$\frac{\text{sult}}{.442}  \frac{\text{Rec}}{.60}$		imit 139.3	RPD 3	Limit 20
Percent recovery is based on the s							····	<u></u>	20
, , , , , , , , , , , , , , , , , , ,	MS				Spike	MS	MSI	)	Rec.
Surrogate	Resu		Units	Dil.	Amount				Limit
Trifluorotoluene (TFT)	0.86		mg/Kg	1	1	86	97		.3 - 119
Innuorocondene (IFI)		4 0.071	mg/Kg	1	1	91	97	52	2.5 - 154
· ,	0.91	4 0.971	m6/ m6						
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked QC Batch: 54826	d Sample: 1	.80642 Date Analyze QC Preparati	d: 2008-1	1-26	.,			yzed B ared B	y: LD
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked QC Batch: 54826 Prep Batch: 46719	d Sample: 1	.80642 Date Analyze QC Preparation	d: 2008-1 on: 2008-1	1-26 Sp		Matrix	Prep	-	y: LD Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked QC Batch: 54826	d Sample: 1	.80642 Date Analyze QC Preparations It Units	d: 2008-1 on: 2008-1 Dil.	1-26 Sp Am	ount I	Matrix Result		ared B	y: LD

<sup>22</sup>High surrogate recovery due to peak interference.

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Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result			ec. nit	RPD	RPD Limit
DRO			mg/Kg	g 1	250	30.72	30	18 -	179.5	20	20
Percent recovery is based	on the sp	oike result.	RPD i	is based	on the spil	ke and spil	ke duplic	ate res	ult.		
	MS	MSD				Spike	М	P	MSD		Rec.
Surrogate	Result	Result	1	Units	Dil.	Amoun			Rec.		Jimit
n-Triacontane	67.6	61.4		ng/Kg	1	100	6		61	34.	1 - 158
Matrix Spike (MS-1)	Spiked	Sample: 1	80923								
QC Batch: 54859		г	Date Ar	nalyzed:	2008-12	-03			Analy	zed By:	ME
Prep Batch: 46892				paratio					•	red By:	
		MS				Spike	Mat	riv		F	Rec.
Param		Resul	t.	Units	Dil.	Amount	Res		Rec.		imit
GRO		9.73		ng/Kg	1	10.0	4.4		53		- 134.6
Percent recovery is based	on the sp	oike result.	RPD	is based	on the spil	ke and spi	ke duplic	ate res	ult.		
		MSD			Spike	Matrix		R	ec.		RPD
Param		Result	Units	Dil.	Amount		Rec.		mit	RPD	Limit
GRO	23	4.23	mg/K		10.0	4.46	0		134.6	79	20
Percent recovery is based	on the sp	oike result.		-	on the spil	ke and spi	ke duplic	ate res	ult.		
		MS	M	ISD		g	pike	MS	MSD	r	Rec.
Surrogate		Resul		esult	Units		nount	Rec.	Rec.		imit
Trifluorotoluene (TFT)		0.878			mg/Kg	$\frac{2}{1}$	1	88	78		- 113.1
-Bromofluorobenzene (4	-BFB)	0.857			mg/Kg	1	1	86	83		- 134.3
<b>Matrix Spike (MS-1)</b> QC Batch: 54883	Spiked	Sample: 1		nalyzed	: 2008-12	2-04			Anal	yzed By	7: LD
Q 0 10 10 10 10 10 10 10 10 10 10 10 10 1			C Pre	eparatio	n: 2008-12	2-04			Prep	ared By	: LD
•		,		•							
Prep Batch: 46895		MS	-			Spike		atrix			Rec.
Prep Batch: 46895 Param		MS Resu	lt	Units	Dil.	Amoun	t Re	esult	Rec.		Limit
Prep Batch: 46895 Param DRO		MS Resu 201	lt	Units mg/Kg	1	Amoun 250	t Re	esult 15.8	80		
Prep Batch: 46895 Param DRO	on the sp	MS Resu 201	lt	Units mg/Kg	1	Amoun 250	t Re	esult 15.8	80		Limit
Prep Batch: 46895 Param DRO	on the sp	MS Resu 201	lt	Units mg/Kg	1	Amoun 250	t Re < ke duplic	esult 15.8 cate res	80		Limit
•	on the sp	MS Resu 201 pike result.	lt	Units mg/Kg is based	1 on the spi	Amoun 250 ke and spi Matrix	t Re < ke duplic	esult 15.8 cate res R Li	80 sult.		Limit - 179.8

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

<sup>23</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

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Surrogate	MS Result	MSD Result	U	nits	Dil.	Spike Amount	MS Rec		MSD Rec.		Rec. Jimit
n-Triacontane	86.0	83.1	-	g/Kg	1	100	86		83	34.	1 - 158
							<b></b>				
Matrix Spike (MS-1)	Spiked S	Sample: 1	80647								
QC Batch: 55381		Ι	Date Ana	alyzed:	2008-12-2	22			Analy	zed By	RD
Prep Batch: 47336		(	QC Prep	aration:	2008-12-	18			Prepa	ared By:	RD
		MS				Spike	Ma	trix			Rec.
Param		Resu	lt U	Jnits	Dil.	Amount	Res	$\operatorname{sult}$	Rec	I	limit
Chloride		1700	0 m	g/Kg	1000	12500	58	570	89	68.	7 - 119
Percent recovery is based	d on the spi	ike result.			n the spike	e and spike	duplica	ate res	ult.		
		MSD			Spike	Matrix		В	ec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.		mit	RPD	Limit
Chloride			mg/Kg	1000	12500	5870	90	68.7	- 119	1	20
Percent recovery is based Matrix Spike (MS-1)		Sample: 1	80664				duplica	ate res		vzed Bv	· RD
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382		Sample: 1 I		alyzed:	n the spike 2008-12- 2008-12-	22	duplica	ate res	Anal	yzed By ared By	
Percent recovery is based <b>Matrix Spike (MS-1)</b> QC Batch: 55382 Prep Batch: 47337		Sample: 1 1 ( M:	80664 Date Ana QC Prep S	alyzed: aration:	2008-12- 2008-12-	22 18 Spike	Ma	utrix	Anal; Prepa	ared By	: RD Rec.
Percent recovery is based <b>Matrix Spike (MS-1)</b> QC Batch: 55382 Prep Batch: 47337 Param	Spiked (	Sample: 1 1 ( M: Rest	80664 Date Ana QC Prep S ult	alyzed: aration: Units	2008-12- 2008-12- Dil.	22 18 Spike Amount	Ma Re	utrix sult	Anal Prepa Rec.	ared By	: RD Rec. Limit
Percent recovery is based <b>Matrix Spike (MS-1)</b> QC Batch: 55382 Prep Batch: 47337 Param Chloride	Spiked	Sample: 1 I ( MS Rest	80664 Date Ana QC Prep S ult 50 1	alyzed: aration: Units ng/Kg	2008-12- 2008-12- Dil. 100	22 18 Spike Amount 1250	Ma Re 8	ttrix sult 12	Anal Prepa Rec. 59	ared By	: RD Rec. Limit
Percent recovery is based <b>Matrix Spike (MS-1)</b> QC Batch: 55382 Prep Batch: 47337 Param <u>Chloride</u>	Spiked	Sample: 1 I ( MS Res 155 ike result.	80664 Date Ana QC Prep S ult 50 1	alyzed: aration: Units ng/Kg	2008-12- 2008-12- Dil. 100 n the spike	22 18 Spike Amount 1250 e and spike	Ma Re 8	ttrix sult 12 ate res	Anal; Prep; Rec. 59 sult.	ared By	: RD Rec. Limit 7 - 119
Percent recovery is based <b>Matrix Spike (MS-1)</b> QC Batch: 55382 Prep Batch: 47337 Param <u>Chloride</u> Percent recovery is based	Spiked	Sample: 1 I MS Ress 155 ike result. MSD	80664 Date Ana QC Prep S ult RPD is	alyzed: aration: Units ng/Kg based o	2008-12- 2008-12- Dil. 100 n the spike Spike	22 18 Spike Amount 1250 e and spike Matrix	Ma Re 8 duplica	ttrix sult 12 ate res R	Anal; Prep; Rec. 59 sult. Rec.	ared By	: RD Rec. Limit 7 - 119 RPD
Percent recovery is based <b>Matrix Spike (MS-1)</b> QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param	Spiked	Sample: 1 I MS Result MSD Result	80664 Date Ana QC Prep S ult 50 1 RPD is Units	alyzed: aration: <u>Units</u> ng/Kg based o Dil.	2008-12- 2008-12- Dil. 100 n the spike Amount	22 18 Spike Amount 1250 e and spike Matrix Result	Ma Re duplica Rec.	ttrix sult 12 ate res R Li	Anal; Prepa Rec. 59 sult. Rec. imit	ared By 68 RPD	: RD Rec. Limit 7 - 119 RPD Limit
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param Chloride	Spiked $\frac{24}{2}$ d on the spi	Sample: 1 Mf Rest 155 ike result. MSD Result 970	80664 Date Ana QC Prep S ult RPD is Units mg/Kg	alyzed: aration: <u>Units</u> ng/Kg based o Dil. 5 100	2008-12- 2008-12- Dil. 100 n the spike Amount 1250	22 18 Spike Amount 1250 e and spike Matrix Result 812	Ma Re duplica Rec. 13	ttrix sult 12 ate res R Li 68.7	Analy Prepa Rec. 59 sult. Rec. imit 7 - 119	ared By	: RD Rec. Limit .7 - 119 RPD
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param Chloride Percent recovery is based	Spiked $\frac{24}{24}$ d on the spi d on the spi d on the spi	Sample: 1 Mf Rest 155 ike result. MSD Result 970	80664 Date An: QC Prep S ult <u>50 1</u> RPD is <u>Units</u> <u>mg/Kg</u> RPD is	alyzed: aration: <u>Units</u> ng/Kg based o Dil. 5 100	2008-12- 2008-12- Dil. 100 n the spike Amount 1250	22 18 Spike Amount 1250 e and spike Matrix Result 812	Ma Re duplica Rec. 13	ttrix sult 12 ate res R Li 68.7	Analy Prepa Rec. 59 sult. Rec. imit 7 - 119	ared By 68 RPD	: RD Rec. Limit 7 - 119 RPD Limit
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1)	Spiked $\frac{24}{24}$ d on the spi d on the spi d on the spi	Sample: 1	80664 Date An: QC Prep S ult <u>50 1</u> RPD is <u>mg/Kg</u> RPD is 80691	alyzed: aration: <u>Units</u> ng/Kg based o <u>Dil.</u> 5 100 based o	2008-12- 2008-12- Dil. 100 n the spike Amount 1250 n the spike	22 18 Spike Amount 1250 e and spike Matrix Result 812 e and spike	Ma Re duplica Rec. 13	ttrix sult 12 ate res R Li 68.7	Anal; Prep; Rec. 59 sult. Rec. imit 7 - 119 sult.	ared By 68 RPD 46	RD Rec. 7 - 119 RPD Limit 20
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param	Spiked $\frac{24}{24}$ d on the spi d on the spi d on the spi	Sample: 1 I Mi Result ike result. MSD Result 970 ike result. Sample: 1	80664 Date An: QC Prep S ult <u>50 1</u> RPD is <u>Units</u> <u>mg/Kg</u> RPD is	alyzed: aration: <u>Units</u> ng/Kg based o <u>Dil.</u> 5 100 based o alyzed:	2008-12- 2008-12- Dil. 100 n the spike Amount 1250	22 18 Spike Amount 1250 e and spike Matrix Result 812 e and spike	Ma Re duplica Rec. 13	ttrix sult 12 ate res R Li 68.7	Anal; Prep; Rec. 59 sult. Rec. imit 7 - 119 sult. Anal	ared By 68 RPD	RPD Rec. 7 - 119 RPD Limit 20
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1) QC Batch: 55391 Prep Batch: 47343	Spiked $\frac{24}{24}$ d on the spi d on the spi d on the spi	Sample: 1 I Mi Result ike result. MSD Result 970 ike result. Sample: 1	80664 Date Ana QC Prep S ult 50 1 RPD is <u>Units</u> Mg/Kg RPD is 80691 Date Ana QC Prep	alyzed: aration: <u>Units</u> ng/Kg based o <u>Dil.</u> 5 100 based o alyzed:	2008-12- 2008-12- Dil. 100 n the spike Amount 1250 n the spike 2008-12-	22 18 Spike Amount 1250 e and spike Matrix Result 812 e and spike	Ma Re duplica Rec. 13 duplica	ttrix sult 12 ate res R Li 68.7	Anal; Prep; Rec. 59 sult. Rec. imit 7 - 119 sult. Anal	ared By 68 <u>RPD</u> 46 yzed By	RPD Rec. 7 - 119 RPD Limit 20
Percent recovery is based Matrix Spike (MS-1) QC Batch: 55382 Prep Batch: 47337 Param Chloride Percent recovery is based Param Chloride Percent recovery is based Matrix Spike (MS-1) QC Batch: 55391	Spiked $\frac{24}{24}$ d on the spi d on the spi d on the spi	Sample: 1	80664 Date Ana QC Prep S ult TRPD is Units Mg/Kg RPD is 80691 Date Ana QC Prep	alyzed: aration: <u>Units</u> ng/Kg based o <u>Dil.</u> 5 100 based o alyzed:	2008-12- 2008-12- Dil. 100 n the spike Amount 1250 n the spike 2008-12-	22 18 Spike Amount 1250 e and spike Matrix Result 812 e and spike 22 19	Ma Re duplica Rec. 13 duplica duplica Rea Ma Rea	ttrix sult 12 ate res R Li 68.7 ate res	Anal; Prep; Rec. 59 sult. Rec. imit 7 - 119 sult. Anal	ared By 68 <u>RPD</u> 46 yzed By ared By	: RD Rec. Limit 7 - 119 RPD Limit 20 r: RD : RD

<sup>24</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control. <sup>25</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Report Date: December 30, 2 8-0171	2008	Work Order: 8112601 NM State #7 Lease						Page Number: 78 of 85 NM			
Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limi		RPD	RPD Limit	
Chloride	250	mg/Kg	g 10	125	123	102	68.7 - 1	119	1	20	
Percent recovery is based on t	he spike result.	RPD i	s based o	n the spike	e and spike	duplica	te result	t.			
Matrix Spike (MS-1) Sp	oiked Sample: 1	80701									
QC Batch: 55393	T	Date Ai	nalyzed:	2008-12-	22			Analy	yzed By	RD	
Prep Batch: 47345			paration:	2008-12-					ared By:		
1		~ .	1		-			1	v		
Param	${ m MS}$ Resu		Units	Dil.	Spike Amount	Ma Res		Rec.		Rec. Limit	
Chloride	230		mg/Kg	$\frac{D\Pi}{10}$	125	11		$\frac{1100}{93}$		$\frac{51111}{7} - 119$	
······································	···· • • • • •									. 110	
Percent recovery is based on t		. rru	is pased 0		-	: aupiica					
D	MSD	TT 14	D'1	Spike	Matrix	D	Rec		מתנו	RPD	
Param Chloride	Result 240	Units mg/Kg	$\frac{\text{Dil.}}{10}$	Amount 125	Result 114	Rec. 101	Limi 68.7 -		RPD 4	$\frac{\text{Limit}}{20}$	
	-		is based o	n the spike	e and spike	e duplica	ate resul	lt.			
Matrix Spike (MS-1) S <sub>F</sub> QC Batch: 55498	piked Sample: 1	.80687 Date A1	is based o nalyzed: paration:	on the spike 2008-12- 2008-12-	24	e duplica		Anal	yzed By ared By		
<b>Matrix Spike (MS-1)</b> Sp QC Batch: 55498	piked Sample: 1	.80687 Date Ai QC Pre	nalyzed:	2008-12-	24 22			Anal	• •	: RD	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431	piked Sample: 1 J ( MS	.80687 Date Ai QC Pre	nalyzed: paration:	2008-12- 2008-12-	24 22 Spike	Ма	trix	Anal Prep	ared By	RD Rec.	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431 Param	piked Sample: 1 I MS Resu	.80687 Date Ar QC Pre	nalyzed: paration: Units	2008-12- 2008-12- Dil.	24 22 Spike Amount	Ma Re	trix sult	Anal Prep Rec.	ared By	: RD Rec. Limit	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431 Param Chloride	piked Sample: 1 1 0 MS Resu 1930	.80687 Date A1 QC Pre	nalyzed: paration: Units mg/Kg	2008-12- 2008-12- Dil. 100	24 22 Spike Amount 1250	Ma Re: 7'	trix sult 73	Anal Prep Rec. 92	ared By	: RD Rec. Limit	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431 Param Chloride	piked Sample: 1 H MS Resu 1930 the spike result.	.80687 Date A1 QC Pre	nalyzed: paration: Units mg/Kg	2008-12- 2008-12- Dil. 100 on the spike	24 22 Spike Amount 1250 e and spike	Ma Re: 7'	trix sult 73 ate resul	Anal Prep Rec. 92 It.	ared By	: RD Rec. Limit .7 - 119	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431 Param Chloride Percent recovery is based on t	piked Sample: 1 MS Resu 1930 the spike result. MSD	.80687 Date Af QC Pre dilt 0 . RPD	nalyzed: paration: <u>Units</u> mg/Kg is based o	2008-12- 2008-12- Dil. 100 on the spike Spike	24 22 Spike <u>Amount</u> 1250 e and spike Matrix	Ma Res 7' e duplica	trix sult 73 ate resul Rec	Anal Prep Rec. 92 It.	ared By 68	: RD Rec. Limit .7 - 119 RPD	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431 Param Chloride Percent recovery is based on t Param	piked Sample: 1 MS Resu 1930 the spike result. MSD Result	80687 Date Af QC Pre dt 0 . RPD Units	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil.	2008-12- 2008-12- Dil. 100 on the spike Amount	24 22 Spike Amount 1250 e and spike Matrix Result	Ma Re: 7' e duplica Rec.	trix sult 73 ate resul Rec Lim	Anal Prep <u>Rec.</u> 92 lt. c. iit	ared By 68 RPD	Rec. Limit .7 - 119 RPD Limit	
QC Batch: 55498	piked Sample: 1 MS Resu 1930 the spike result. MSD Result 1980	80687 Date An QC Pre dit 0 . RPD Units mg/Kg	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil. g 100	2008-12- 2008-12- Dil. 100 on the spike Amount 1250	24 22 Amount 1250 e and spike Matrix Result 773	Ma Re: 7' e duplica Rec. 96	trix sult 73 ate resul Rec Lim 68.7 -	Anal Prep Rec. 92 lt. c. iit 119	ared By 68	Rec. Limit 7 - 119 RPD	
Matrix Spike (MS-1) Sp QC Batch: 55498 Prep Batch: 47431 Param Chloride Percent recovery is based on t Param Chloride Percent recovery is based on t	piked Sample: 1 MS Resu 1930 the spike result. MSD Result 1980	80687 Date Af QC Pre dt 0 . RPD Units mg/Kg . RPD	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil. g 100	2008-12- 2008-12- Dil. 100 on the spike Amount 1250	24 22 Amount 1250 e and spike Matrix Result 773	Ma Re: 7' e duplica Rec. 96	trix sult 73 ate resul Rec Lim 68.7 -	Anal Prep Rec. 92 lt. c. iit 119	ared By 68 RPD	RD Rec. Limit .7 - 119 RPD Limit	
Matrix Spike (MS-1)       Spike         QC Batch:       55498         Prep Batch:       47431         Param       Chloride         Percent recovery is based on t       Chloride         Param       Chloride         Param       Chloride         Param       Spike         Chloride       Spike	biked Sample: 1 MS Resu 1930 the spike result. MSD Result 1980 the spike result. biked Sample: 1	80687 Date Af QC Pre dt 0 . RPD Units mg/Kg . RPD . 80697	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil. g 100	2008-12- 2008-12- Dil. 100 on the spike Amount 1250	24 22 Spike Amount 1250 e and spike Matrix Result 773 e and spike	Ma Re: 7' e duplica Rec. 96	trix sult 73 ate resul Rec Lim 68.7 -	Anal Prep Rec. 92 It. c. iit 119 It.	ared By 68 <u>RPD</u> <u>3</u>	: RD Rec. Limit .7 - 119 RPD Limit 20	
Matrix Spike (MS-1)       Spike         QC Batch:       55498         Prep Batch:       47431         Param       Chloride         Percent recovery is based on the	biked Sample: 1 MS Resu 1930 the spike result. MSD Result 1980 the spike result. biked Sample: 1	80687 Date An QC Pre dit 0 . RPD Units mg/Kg . RPD	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil. g 100 is based o	2008-12- 2008-12- Dil. 100 on the spike Amount 1250 on the spike	24 22 Spike Amount 1250 e and spike Matrix Result 773 e and spike 24	Ma Re: 7' e duplica Rec. 96	trix sult 73 ate resul Rec Lim 68.7 -	Anal Prep Rec. 92 lt. c. iit 119 lt. Anal	ared By 68 RPD	: RD Rec. Limit .7 - 119 Limit 20	
Matrix Spike (MS-1)       Spike         QC Batch:       55498         Prep Batch:       47431         Param       Chloride         Percent recovery is based on the	biked Sample: 1 MS Resu 1930 the spike result. MSD Result 1980 the spike result. biked Sample: 1	80687 Date An QC Pre dt 0 . RPD . RPD . RPD . 80697 Date An QC Pre	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil. g 100 is based o nalyzed:	2008-12- 2008-12- Dil. 100 on the spike Amount 1250 on the spike 2008-12-	24 22 Spike Amount 1250 e and spike Matrix Result 773 e and spike 24 22	Ma Rei 7' e duplica <u>Rec.</u> 96 e duplica	trix sult 73 ate resul Lim 68.7 - ate resul	Anal Prep Rec. 92 lt. c. iit 119 lt. Anal	ared By 68 <u>RPD</u> <u>3</u> yzed By	: RD Rec. Limit .7 - 119 RPD Limit 20 7: RD 7: RD	
Matrix Spike (MS-1)       Spike         QC Batch:       55498         Prep Batch:       47431         Param       Chloride         Percent recovery is based on the the theorem       Chloride         Param       Chloride         Param       Chloride         Param       Chloride         Percent recovery is based on the theorem       Spike (MS-1)         QC Batch:       55499	biked Sample: 1 MS Resu 1930 the spike result. MSD Result 1980 the spike result. biked Sample: 1	80687 Date An QC Pre dt . RPD . RPD . RPD . 80697 Date An QC Pre	nalyzed: paration: <u>Units</u> mg/Kg is based o Dil. g 100 is based o nalyzed:	2008-12- 2008-12- Dil. 100 on the spike Amount 1250 on the spike 2008-12-	24 22 Spike Amount 1250 e and spike Matrix Result 773 e and spike 24	Ma Rei 7' e duplica Rec. 96 e duplica Ma	trix sult 73 ate resul Rec Lim 68.7 -	Anal Prep Rec. 92 lt. c. iit 119 lt. Anal	ared By 68 <u>RPD</u> 3 yzed By ared By	: RD Rec. Limit .7 - 119 RPD Limit 20	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date. December 30, 2008 8-0171				Order: 8112 tate #7 Lea			Page Number: Rec. Limit RPD	umber:	79 of 85 NM	
D	MSD	<b>T</b> T <b>*</b> 1	ויס	Spike	Matrix	<b>D</b>		מממ	RPD Limit	
Param	$\operatorname{Result}$	Units	Dil.	$\operatorname{Amount}$	$\operatorname{Result}$	Rec.	Limit	RFD	LIIIII	
Chloride	1710	mg/Kg	100	1250	516	96	68.7 - 119	5	20	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

## Standard (ICV-1)

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QC Batch: 54734			Date Analyz	Analyzed By: AG			
			CCVs	CCVs	CCVs	Percent	Dete
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0868	87	85 - 115	2008-12-01
Toluene		mg/Kg	0.100	0.0882	88	85 - 115	2008 - 12 - 01
Ethylbenzene		mg/Kg	0.100	0.0860	86	85 - 115	2008 - 12 - 01
Xylene		mg/Kg	0.300	0.257	86	85 - 115	2008-12-01

## Standard (CCV-1)

QC Batch: 54734		Date Analyz	ed: 2008-12-0	Analyzed By: AG			
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0903	90	85 - 115	2008-12-01
Toluene		mg/Kg	0.100	0.0908	91	85 - 115	2008 - 12 - 01
Ethylbenzene	2	mg/Kg	0.100	0.0908	91	85 - 115	2008 - 12 - 01
Xylene		mg/Kg	0.300	0.278	93	85 - 115	2008-12-01

## Standard (ICV-1)

QC Batch: 54735			Date Ana	alyzed: 2008-1	2-01	Anal	yzed By: AG
			$\mathrm{CCVs}$	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.01	101	85 - 115	2008-12-01

## Standard (CCV-1)

QC Batch:	QC Batch: 54735		Date Ana	lyzed: 2008-1	2-01	Anal	yzed By: AG
			CCVs True	CCVs Found	$\operatorname{CCVs}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.02	102	85 - 115	2008-12-01

Report Date: December 30, 2008 8-0171			Work Order: 8 NM State #7		Page Nu	1mber: 80 of 85 NM	
Standard	(ICV-1)						
QC Batch:	54812		Date Ana	alyzed: 2008-1	2-02	Anal	yzed By: ME
			CCVs	CCVs	CCVs	Percent	
Domoso	Flam	Units	True	Found	Percent	Recovery	Date
Param GRO	Flag	mg/Kg	Conc. 1.00	Conc. 0.966	Recovery 97	Limits 85 - 115	Analyzed 2008-12-02
GIU		mg/ Kg	1.00	0.900	91	00 - 110	2008-12-02
Standard	(CCV-1)						
QC Batch:	54812		Date Analyzed: 2008-12-02			Anal	yzed By: ME
			$\operatorname{CCVs}$	CCVs	CCVs	Percent	
D	2731	••	True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.926	93	85 - 115	2008-12-02
Standard	(ICV-1)						
QC Batch:	54826	26 Date Analyzed: 2008-12-03					lyzed By: LD
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	234	94	85 - 115	2008-12-03
Standard	(CCV-1)						
QC Batch:	54826		Date Ana	alyzed: 2008-1	12-03	Ana	lyzed By: LD
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	216	86	85 - 115	2008-12-03
Standard	(CCV-2)						
QC Batch:	54826		Date Analyzed: 2008-12-03			Ana	lyzed By: LD
			CCVs	CCVs	CCVs	Percent	
<b>D</b>		<b></b>	True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	220	88	85 - 115	2008-12-03
Standard	(CCV-3)						
QC Batch:	54826		Date Ana	alyzed: 2008-1	12-03	Ana	lyzed By: LD
QC Batch:	54826		Date Ana	alyzed: 2008-1	12-03	Ana	lyzed By:

Report Date: December 30, 2008 8-0171			Work Order: 8 NM State #7	Page Number: 81 of 8 NM			
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	243	97	85 - 115	2008-12-03
Standard	(ICV-1)						
QC Batch:	54859		Date Analyzed: 2008-12-03			Analy	yzed By: ME
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.878	88	85 - 115	2008-12-03
Standard QC Batch:			Date Ana	alyzed: 2008-1	2-03	Anal	yzed By: ME
			CCVs	CCVs	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.910	91	85 - 115	2008-12-03
Standard	(ICV-1)						
QC Batch:	54883		Date Ana	alyzed: 2008-1	12-04	Anal	lyzed By: LD
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	223	89	85 - 115	2008-12-04
Standard	(CCV-1)						
QC Batch:	54883		Date Ana	alyzed: 2008-1	2-04	Ana	lyzed By: LD
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
_			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	221	88	85 - 115	2008-12-0

# Standard (CCV-2)

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QC Batch: 54883

Date Analyzed: 2008-12-04

Analyzed By: LD

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO	<u>_</u>	mg/Kg	250	229	92	85 - 115	2008-12-04
Standard	(ICV-1)						
QC Batch:	55327		Date Analyzed: 2008-12-19			Anal	zed By: RD
D		77. 1.	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Chloride	Flag	Units mg/Kg	Conc. 12.5	Conc. 11.8	Recovery 94	Limits 90 - 110	Analyzed 2008-12-19
QC Batch: 55327		Date Ana	-			yzed By: RD	
		CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2008-12-19
Standard	(ICV-1)						
QC Batch:	55328		Date Ana	lyzed: 2008-1	2-19	Anal	yzed By: RD
D			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Chloride	Flag	Units mg/Kg	Conc. 12.5	Conc. 11.9	Recovery 95	Limits 90 - 110	Analyzed 2008-12-19
Standard QC Batch:	, ,	iiig/itg		lyzed: 2008-1			yzed By: RD
yu Datuli.	00040						yzeu Dy. ID
Param	Flag	Units mg/Kg	CCVs True Conc. 12.5	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride				11.9	95	90 - 110	2008-12-19

QC Batch: 55381

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Date Analyzed: 2008-12-22

Analyzed By: RD

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.8	94	90 - 110	2008-12-22
Standard (	CCV-1)						
QC Batch:	55381		Date Anal	yzed: 2008-12	2-22	Analy	zed By: RD
Davian	<u>Pla</u> r	Theide	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Chloride	Flag	Units mg/Kg	<u>Conc.</u> 12.5	<u>Conc.</u> 11.7	Recovery 94	Limits 90 - 110	Analyzed 2008-12-22
QC Batch:	55382			lyzed: 2008-1			yzed By: RD
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	11.7	94	90 - 110	2008-12-22
Standard (	CCV-1)						
QC Batch:	55382		Date Anal	yzed: 2008-1	2-22	Anal	yzed By: RD
			CCVs	CCVs	CCVs	Percent	
5			True	$\widetilde{Found}$	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2008-12-2
Standard (	ICV-1)						
QC Batch:	55389		Date Anal	lyzed: 2008-1	2-22	Anal	yzed By: RD
			$\mathrm{CCVs}$	CCVs	CCVs	Percent	
<b>D</b>		•• ·	True	$\widetilde{Found}$	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	11.5	92	90 - 110	2008-12-2

## Standard (CCV-1)

QC Batch: 55389

Date Analyzed: 2008-12-22

Analyzed By: RD

Report Date 8-0171	e: December	30, 2008		Vork Order: 81 NM State #7		Page Nu	mber: 84 of 85 NM
Param	Flor	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride	Flag	mg/Kg	12.5	12.5	100	90 - 110	2008-12-22
	uiter 1011 1000 101 101 101 10	mg/ Kg		12.0			2000 12 22
Standard (	(ICV-1)						
QC Batch:	55391		Date Anal	yzed: 2008-11	2-22	Analy	yzed By: RD
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride	······································	mg/Kg	12.5	12.5	100	90 - 110	2008-12-22
Standard (	(CCV-1)						
QC Batch:	55391		Date Anal	yzed: 2008-1	2-22	Anal	yzed By: RD
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	12.4	99	90 - 110	2008-12-22
Standard (	(ICV-1)						
QC Batch:	55393		Date Anal	lyzed: 2008-1	2-22	Anal	yzed By: RD
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	12.4	99	90 - 110	2008-12-22
Standard (	(CCV-1)						
QC Batch:	55393		Date Anal	lyzed: 2008-1	2-22	Anal	yzed By: RD
			CCVs	CCVs	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	12.3	98	90 - 110	2008-12-22

QC Batch: 55498

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Date Analyzed: 2008-12-24

Analyzed By: RD

Report Date 8-0171	e <sup>.</sup> December	30, 2008		Work Order: 8 NM State #7		Page Nu	mber: 85 of 85 NM
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.6	93	90 - 110	2008-12-24
Standard (	CCV-1)						
QC Batch:	55498		Date Anal	yzed: 2008-1	2-24	Anal	vzed By: RD
Deveen	<b>F</b> 1	TT:4-	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date Analyzed
Param Chloride	Flag	Units mg/Kg	<u> </u>	Conc	Recovery 93	Limits 90 - 110	2008-12-24
QC Batch:	55499		Date Anal	yzed: 2008-1	2-24	Anal	yzed By: RD
_			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Chloride	Flag	Units mg/Kg	<u>Conc.</u> 12.5	Conc.	Recovery	Limits	Analyzed
			14.0	11.6	93	90 - 110	2008-12-24
Standard (	CCV-1)	ing/ Ng	12.0	11.6	93	90 - 110	2008-12-24
Standard ( QC Batch:	· · · ·	ing/ Kg		11.6		<u></u>	2008-12-24 yzed By: RD
	· · · ·	Units				<u></u>	

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			áb ()	rde	(ID	# 8	112	<u>(oC</u>	<u>) </u>		
CLIENT NAME:	SITE MANAGER:		ΡΔΡ		TERS/MET		MRER	C	HAIN-	OF-CUSTODY REC	
Bridwell Oilco	m. Loroan								1		
PROJECT NO.:	PROJECT NAME Lane	IERS	X (82216)	n n					∧ arson	&	
8-0171	NIT state 'Trater	ITAIN	S	3 -	3				T SSOCIC Environmen		
PAGE OF H LAB.	PO #	DF CON	ーとへ		5		-	<u>д</u>	507 N. Marie	432-687-090 nfeld, Ste. 202 • Midland, TX	
-2ate 11116 5011 67766	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	87E	Chler.					LAB. I.D. NUMBER	REMARKS (I E , FILTERED, UNFILTERED, PRESERVED, UNPRESERVED,	
11/24/08 1410	BH-1, 1'	 		$\overline{}$	- <u> </u>				AB USE ONLY	GRAB COMPOSITE)	
1415	BH-1, 5'	1	$+\Sigma$	Ť	-{	<u> </u>		/2	642 642		
1418	BH-1 10'	,		E					643		
1433	B14-1, 15'	1	+	V	+				644		
1437	BH-1, 20'	1	+	~					645	ann ann an 2000 - 1000 an an Anna an A	
14:50 V	B1+-2, 1'	1		$\overline{}$	+				646		
14:55 ~	B1+-2, 5'	1		~					647	a da Aliante da Constanti da Constante da Constante da Constante da Constante da Constante da Constante da Const	
1459 ~	BH-2, 10'	1		~					648	n de denne en de la d	
15:04 ~	BH-2, 15'	ł		$\sim$					649		
1512 ~	BH-2, 20'	1						-	650		
1527 N	BH-3, 1'	I	$\geq$	~					651		
1531 V	BH-3, 51	1	~	$\geq$					652		
1537	BH-3, 10'	1		$\geq$	-	<u> </u>			6:53		
1543	BIT-3, 15'	1		<u> </u>		ļ			654	,,	
V 1554 V	BH-3, 201	1	ļ[			<b>_</b>		~	655		
125/08 0739	BH-4. 1'		$- \sum$	$\sim$					656		
V 0742 N	BIT-4, 5'	1		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<u> </u>			657		<u> </u>
MAPLED BY TSignature	BH- 4 10' DATE 75/09 REUNOUSE TIME: 16: 15	ÐBY:	 (Signatur	e)	<u> </u>		22/5	RECE	658 IVED BY: (Signo	iture) DATE: TIME:	
RELINQUISHED BY: (Signature)	DATE: RECEIVED BY:	Isian	churol					SAMA	PLE SHIPPED B	معمر المحمد المحمد المركزة والتركية والمحمد المحمد والمحمد والمحمد والمحمد والمحمد المحمد والمحمد المحمد المحمد ال	
Recinquished br. (signuture)		1/2				TIME:		FEDEX			
		<u> </u>	1 11 0 00	<u> </u>	TURNAROUI				x D Delivered	BUS AIRBILL #: UPS OTHER:	
COMMENTS: Cale ~/	· · · · ·		<u> </u>		Std.			WHI	re - Receivin		20 <u>11</u>
RECEIVING LABORATORY:	te on alyon the. R	ECEIV	ED BY: (Si	gnatur	e)					R RECEIPT)	
CITY: Midland	STATE TX ZIP 79 102 -				TIME:			PINK   GOU		t manager Coordinator	
CONTACT: Ormando Com	PHONE: (432) 689-6301	DATE:			-			<u> </u>			
SAMPLE CONDITION WHEN RECEIVED:		LAC	ONTACT			Theen		SAM	PLE TYPE:		
All tests /	Tidland		T	ich	alle -	rowen			هـ	)oil	

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Lab Order ID # 8112601

CLIENT NAME:		and the second of		AND SAME				an terretaine	an a				
			SITE MANAGER:		P	ARA	METER	S/MET	HOD NUMBE	R	CHAIN-	OF-CUSTOD	Y <u>record</u>
Bridnie	I OU	Co.	M. Larson		8	<u>}_</u>							
PROJECT NO.			PROJECT NAME.	LERS		L C		1			<b>Δ</b> arson	8	
8-01	71		NM Stote "7 base	ITAIN	(9021	8015	او ا	1			SSOCIC Environmer	ites, Inc. Fax: 432-	687-0456
PAGE 2 OF	4		PO #	ģ	1	00	مكمك	~			507 NL Maria	-432 enfeld, Ste. 202 • Midlo	687-0901
			1	NUMBER OF CONTAINERS	X	L H				z	<u>_</u>		
Darz Inne	Vialèp Soy	Ohtep	SAMPLE IDENTIFICATION	MBEF	五		2			79195	LAB I.D. NUMBER	REMARK: (I.E , FILTERED, UN	s Filtered,
13 i		lố		DN N	æ					-	(LAB USE ONLY)	PRESERVED, UNPR GRAB COMPC	ESERVED,
125 08 0755			BH-M, 15'	1		·	~			••••••	180659		
0801	$\sim$		BH-4, 20'	1		[				A	660		
0816	2		BH-4, 30'	1	1						661		
0924	$\sim$		B 14-5, 11	1			~				662		
08 34	2		BH-5, 5'	1			~				663	a <u></u>	
0842			BH.5, 10'	1			$\sim$				664		
0849	$\sim$		B14-5, 151	1							665		
090	2 ~		BH-5, 20'	1						~	666		
0855			55-1	1			~				667		
0915	~		B17-4, 1	1		$\sim$					668		
0921			BH-6, 5'			×	$\sim$				669		
09.26		-	BH-6, 101	1			$\sim$				6:70		
09.30	N N		BH-6, 15'	1			$\mathbf{M}$				671		
0936			BH-6, 20'	1			*			~	672		
0957			BH-7, 1'		1	$\mathbf{\vee}$	×				673	······································	
09157			B1+-7,51		$\geq$				<u> </u>		674	·	
1004			BH-7, 10'	1					<u> </u>		675		
1013			B14-7,151		<u> </u>					4	676	·1	
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RELINQUISHED B	r: (Signalure	2}		r: (Sign	aiure				TIME: 840	-1		. ,	
	~		TIME: 22	<u> //</u>	$\sim$						Dex And Delivered	BUS AIRBILL #: UPS OTHER:	
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RECEIVING LABO	RATORY:	marce	Cinaepio Inc 1	RECEIV	ED BY:	(Siar	ature)			¥		ng lab (to be returned R receipt)	010
ADDRESS:	1 200	JONN	5 5 E. SE AI							_   P		TMANAGER	
CITY: 1 VAL	and (m		STATE: X ZIP: 79703 PHONE: (132) 689- 301	DATE:			T	IME:		G	OLD - QA/QC	COORDINATOR	
SAMPLE CONDITION			( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	1100		CT 0	RSON:			c	Ample type:		
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	ests.	/ //	116711	RECENCIÓN			rch		, y reen	10000000			

# Lab Order ID# 8112601

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CLIENT N				SITE MANAGER:		D		ΛΛΕΤΕ	RS/ME1	ար	NILL	MRED		CHAIN_	-ΩFՐ		' RECORD
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	8-01	71		NM State Thease	TAIN	20	5							A arson ssocia	stes, Inc	Fax: 432-6	87-0456
ß	<b>3</b> OF		Lin	. PO #	CONTAINERS	8	8	9								402-0	107-0901
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Oalt		<sup>1</sup> 1272	Oltre		NUMBER	BTEX (gozi B)	TPH (8015	Chloude				11	Actor	LAB. I.D. NUMBER (LAB USE ONLY)	(I Pi	REMARKS E., FILTERED, UNFI ESERVED, UNPRE GRAB COMPOS	ltered, Served,
11/25/08		/		BH-7, 201	1	1		$\sim$						180677			
	1042			814-7,30	1								~	678			
	1055			BH-8, 1'	1		$\sim$	~						679			
	1100			B14-8, 51	1		$\sim$	~						680			
	1103	~		BH-8, 10'	1			$\sim$						681			
	1111	~		BH-8, 15'	1		`	~						687			
	1129			BH-8,20'	1		1						~	683			
	1227	$\sim$		BH-9, 1'	ł		<u>~</u> `							684			
	1231			BH-9,5'	1	Ì	~							685			
<b></b>	1237			BH-9, 10'	1		$\sim$	$\geq$					щ	686			
	1247			64-9,15'	4		$\geq$	$\sim$					*	687			
	1256	~		BH-9, 201	1			<b>∠</b> ↓				N	w.	688			
	1306	$\sim$		B1+-10, 1	<u> </u>		$\sim$	~						689			
	1310			BIT-10, 5'	1		$\sim$	~		ļ				690			
	1315			BH-10, 10'	1									691			
	1321			BH-10, 15'	1								~	692			
	1327			B1+10, 20'	1						·		~	693			
<b>V</b>	1337 D BY: 50		<u> </u>	DATE 11/25/00 TREUMOCUS				<b>~</b>	<u> </u>	<u> </u>		121	/ FE	694			
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CLIENT N					SITE MANAGER:	an seine seine The seine					D NUMBE		CHAIN		STODY RECORD
Bri	dwiell	0	JG	<b>G</b> .	M. Laron		F		INCIERS/			ĸ			TODI RECORD
PROJECT					PROJECT NAME	ERS	0	F					Λ arson	&	
	8-01	71			Nr State 7 Leone	ITAIN	170	215					7 SSOCIC	Ites, Inc. Fo	ax: 432-687-0456
PAGE	B 4 OF A	1		LAB. F		OF CONTAINERS	BTEX (8021 B)	PL4 (Sol5	hloude						432-687-0901 2 • Midland, TX 79701
		a	1	a		ER O	2	PL	20			old	LAB. I.D.		REMARKS
-0415	IME	MARP	20%	Olyter	SAMPLE IDENTIFICATION	NUMBER (	81	+	บ			T	NUMBER ILAB USE ONLYI	PRESE	ILTERED, UNFILTERED, RVED, UNPRESERVED,
1/25/08	1340	•			BH-11, 5'	1		$\sim$					180695	G	RAB COMPOSITE)
	1346		$\geq$		B1+-11, 10'	1							696		
	1350		~		BH-11, 15'	1						~	697		
	1359		$\sim$		BH-11, 201	1						V	698		
	1411		$\mathbf{\mathbf{N}}$		BH-12, 11	1		$\sim$	$\sim$				699		
	1415		$\sim$		84-12, 5'	1		$\mathbf{\mathbf{\vee}}$	$\sim$				700		
	1420		$\sim$		BH-12, 10'	ł		$\sim$	$\sim$				701		
	1423		$\sim$		BH-12, 15'	1			$\sim$				702		
	1430		$\sim$		BH- 12, 20'	1						$\mathbf{\mathbf{\mathcal{V}}}$	703		
	1440		$\sim$		BH-13, 01	1			$\sim$				704		
	1445		<u>~</u>		84-13, 5'	1		$\sim$					705		
	1449		~		B 14-13, 10'	1			$\sim$				706		
	1504	<u>.</u>	$\sim$		BH-13, 15'	1	ļ					$\sim$	707		
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COMMI	INTS: C	201		Ver	boe reaults to	ve	$\overline{\mathbf{n}}$		TURNA	ROUND TI	ME NEEDED	⊣н	AND DELIVERED	UPS	OTHER:
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CONTAG	Ti Arma	mb	Gom	••••	Onolypus, Inc. st., st. s.1 STATE: <u>7x</u> zip: 79703 PHONE(432) 689-6301	DATE: _			TIM	;		G	OLD - QA/QC	COORDINATOR	
SAMPLE C	QNDITION W	HEN REC	CEIVED.	-			ONTA	CT PF	RSON			S	AMPLE TYPE:	~ <sup>.</sup>	
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# Lab Order ID # 8112601

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ANALYTICAL RESULTS FOR LARSON & ASSOCIATES ATTN: MICHELLE GREEN 507 N. MARIENFELD, STE. 202 MIDLAND, TX 79701 FAX TO: (432) 687-0456

Receiving Date: 02/05/09 Reporting Date: 02/06/09 Project Number: 8-0171 Project Name: 8-0171 Project Location: NOT GIVEN Sampling Date: 02/05/09 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: ML Analyzed By: AB/HM

LAB NUMBER SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	*Cl <sup>-</sup> (mg/kg)
ANALYSIS DATE	02/06/09	02/06/09	02/06/09
H16832-1 SS#3 (0-1')	<10.0	<10.0	32
H16832-2 SS#4 (0-1')	<10.0	<10.0	48
H16832-3 SS#5 (0-1')	<10.0	<10.0	< 16
H16832-4 SS#6 (0-1')	<10.0	82.8	< 16
H16832-5 SS#7 (0-1')	<10.0	103	< 16
	100	<b>F00</b>	500
Quality Control	493	500	500
True Value QC	500	500	500
% Recovery	98.6	100	100
Relative Percent Difference	2.9	3.8	<0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI': Std. Methods 4500-CI'B \*Analyses performed on 1:4 w:v aqueous extracts.

Chemist

<u>02/06/09</u> Date

#### H16832TCL LARSON

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waved unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service in no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors ansing out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laborationes.

CLIENT NAME: LARSON & ASSUCIATES	SITE MANAGER:						METHOD N		CHAIN-OF-CUSTODY RECORD
PROJECT NO .: 8-0171	PROJECT NAME:	CONTAINERS		8015	کاەلا				A arson & SSOCiates, Inc. Fax: 432-687-0456 Environmental Consultants 432-687-0901
PAGE OF LAB.	PO #	OF CO		Q.O.M	1				507 N. Marienfeld, Ste. 202 • Midland, TX 79701
2000 MST delta 100 della	SAMPLE IDENTIFICATION	NUMBER (	ТРА	0	See M	{			LAB. I.D. REMARKS NUMBER (I.E., FILTERED, UNFILTERED, PRESERVED, UNPRESERVED, (LAB USE ONLY) GRAB COMPOSITE)
02-05 X	55#-3(0-1')		X	X	X	X			H16832-1 GRAB
	55# 4 (0-1') 55#5 (0-1')		$\left  \cdot \right $	$\left  \right $	┝┈┠╴	┝╼╁╸			-2
	55#6 (0-1')								-4
X V V	55#7 CO-1)		V	Y	$\mathbf{V}$	$\mathbf{V}$			-5 /
								_	
SAMPLED BY: (Signature)	DATE:02/05/09 RELINQUISHE TIME:14:15	D BY:	Signo	sture)			DATE:_ TIME:_		RECEIVED BY: (Signature) DATE: TIME:
RELINQUISHED BY: (Signature)	DATE 02/09 RECEIVED BY:							215/09	SAMPLE SHIPPED BY: (Circle)
R.W. Brook	TIME: 3:52 Mpty	X	$\frac{l}{\omega}$	Jac	1		TIME:_	3:52	FEDEX BUS AIRBILL #:
COMMENTS:	/ 0						ROUND TIME N	NEEDED	HAND DELIVERED UPS OTHER:
CMAIL RESULTS			0.01/	101	4	18 H	IR :		YELLOW - RECEIVING LAB (TO BE RETURNED TO
RECEIVING LABORATORY:		ECEIVE	UBI:	ISIGU	uure	I			LA AFTER RECEIPT) PINK – PROJECT MANAGER
CITY: CONTACT:	STATE: ZIP: D	DATE: _				TIME:		-	GOLD – QA/QC COORDINATOR
SAMPLE CONDITION WHEN RECEIVED:		LA CO	ONTAG		RSON	:			SAMPLE TYPE:
Coold Intact 7.0	C	MI	CHL	ELL	E	Gri	EEN		

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#### APPENDIX D

Seed Certification and Tags

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# CURTIS & CURTIS, Inc.

IRRIGATED PASTURE GRASSES MOUNTAIN PASTURE GRASSES MATIVE PASTURE GRASSES SORGHUMS 4500 N. PRINCE PHONE (505) 762-4759 // FAX (505) 763-4213 CLOVIS, NEW MEXICO 88101

SEED

G

EXICO 88101 SPECIALISTS GOLF COL

YARD AND PLAYGROUND GRASSES GOLF COURSE GRASSES ALFALFA / CLOVERS FORAGES

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30. Ma

CERTIFICATION May 4, 2009

Larson and Associates 507 n. Marienfield Suite 202 Job: State Land Seeding Millensand, NM

#### TO WHOM IT MAY CONCERN:

CURTIS & CURTIS, INC. CERTIFIES THAT EACH CONTAINER OF SEED IS MIXED AND LABELED IN ACCORDANCE WITH THE FEDERAL SEED ACT AND IS AT LEAST EQUAL TO THE REQUIREMENTS INDICATED BELOW:

KIND	ORIGIN	LOT#	PURITY OF MIX	PURITY	GERM K DORMANT	= PLS%
Sand Bluestem Woodward	Kansas	16196	06.53%	89.07%	93.00%	82.84%
Sideoats Grama Vaughn	Texas	16304	18.98%	69.79%	64.00%	44.67%
Little Bluestem Redondo	Texas	16519	21.69%	50.96%	84.00%(TZ	) 42.81%
Plains Brisgrass Not Stated	Texas	16212	04.90%	69.29%	62.00%(TZ	) 42.96%
Sand Dropseed Not Stated	New Mexico	16385	06.53%	84.24%	93.00%	78.34%
Gaillardia Aristata Not Stated	India	16101	03.75%	97.07%	81.00%	78.63%
Plains Coreopsis Not Stated	Oregon	16427	03.87%	91.46%	78.50%	71.80%

d∦rely Jurtis

Curtis & Curtis Seed 4500 N. Prince Clovis, NM 88101 Phone: 575-762-4759

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#### Larson and Associates State Land Seeding Millensand, NM 2 Acres Custom mix 2 - 1 Acre Bags @ 32.93 Bulk Pounds Each

Item	Origin	Purity	Germ	Dormant	Germ & Dormant	Test Date	Total PLS Pounds
Sand Bluestem Woodward	Kansas	06.53%	47.00%	43.00%	93.00%	02/19	04.00
Sideoats Grama Vaughn	Texas	18.98%	56.00%	08.00%	64.00%	02 09	08.00
Little Bluestem Pastura	Texas	21.69%	84.00%	00.00%	84.00%(TZ)	0 1/09	12.00
Plains Bristlegrass Not Stated	Texas	04.90%	62.00%	00.00%	62.00%(TZ)	)1/09	02.00
Sand Dropseed Not Stated	New Mexico	06.53%	02.00%	91.00%	93.00%	03/09	04.00
Gaillardia Aristata Not Stated	India	03.75%	81.00%	00.00%	81.00%	02/09	02.00
Coreopsis Pisins	Oregon	03.87%	64.50%	14.00%	78.50%	04/09	02.00
Other Crop: 01.50 Weed Seed: 00.51 Inert Matter: 31.75	% This B		s For This 32,93 Bull 1 Acre		Tot al Bu	ilk Pour	nds: 65.863

Curtis & Curtis Seed 4500 N. Prince Clovis, NM 88101 Phone: 575-762-4759

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#### Larson and Associates State Land Seeding Mil ensand, NM 2 Acres Custor i mix 2 - 1 Acre Bags @ 32,93 Julk Pounds Each

Item	Origin	Purity	Gern	Dormant	Germ & Dormant	Test Date	Total PLS Pounds
Sand Bluestem Woodward	Kansas	06.53%	47.10%	43.00%	93.00%	02/09	04.00
Sideoats Grama Vaughn	Texas	1 <b>8.98</b> %	₹».00%	08.00%	64.00%	02/09	08.00
Little Bluestem Pastura	Texas	21.69%	84.00%	00.00%	84.00%(TZ)	04/09	12.00
Plains Bristlegrass Not Stated	Texes	04.90%	62.00%	00.00%	62.00%(TZ)	01/09	02 00
Sand Dropseed Not Stated	New Mexico	06.53'/ə	02 00%	91.00%	93.00%	03/09	04.00
Gaillardia Aristata Not Stated	India	03.75%	81.00%	00.00%	81.00%	02/09	02.00
Coreopsis Plains	Oregon	03 87%	64.50%	14.00%	78.50%	04/09	02.00
Other Crop: 01.50 Weed Seed: 00.51 Inert Matter: 31.75	% This Ba		s For This 32.93 Bull 1 Acre		Total Bi	ilk Pour	ads: 65,865

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**APPENDIX E** 

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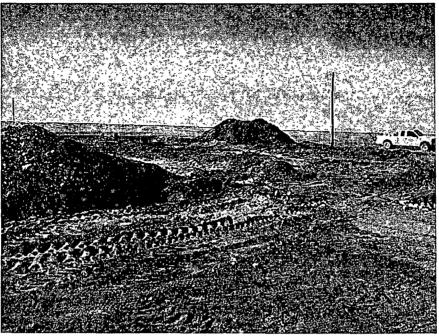
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| s | | t |

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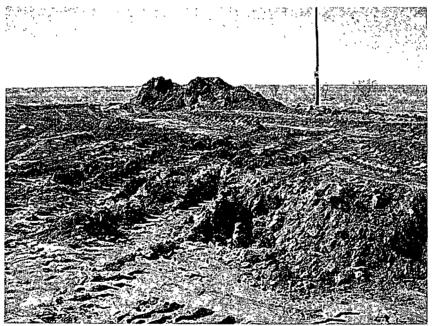
Photographs



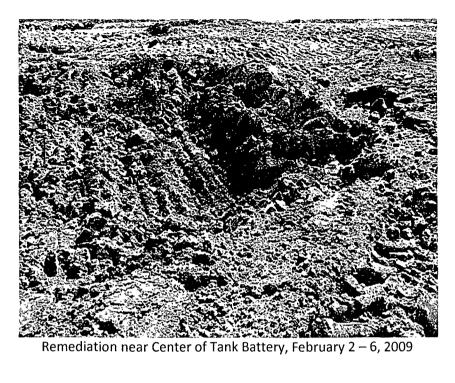
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Tank Battery Remediation Looking West, February 2 - 6, 2009

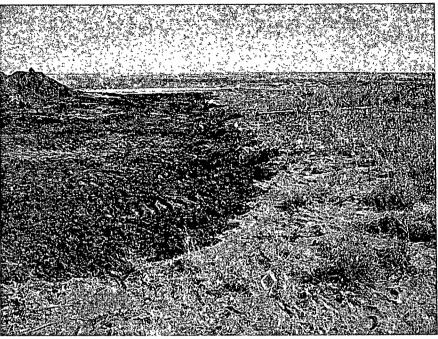


Tank Battery Remediation Looking Southwest, February 2 – 6, 2009





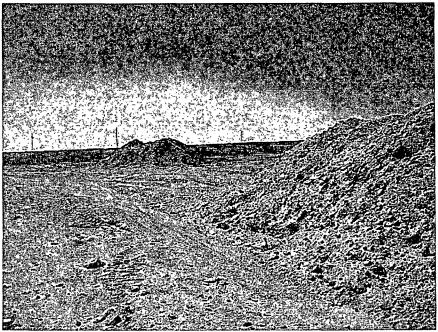
Remediation North of Tank Battery Looking North, February 2 – 6, 2009



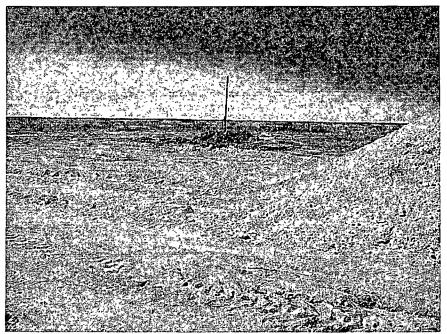
Remediation South of Tank Battery Looking East, February 2 – 6, 2009



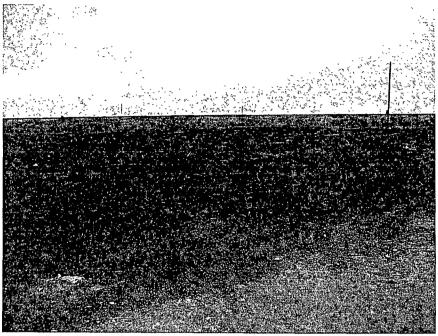
Remediation at Tank Battery Looking South, February 2 - 6, 2009



Well Location Reclamation Looking Southwest, February 2 – 6, 2009



Well Location Reclamation Looking West, February 2 – 6, 2009



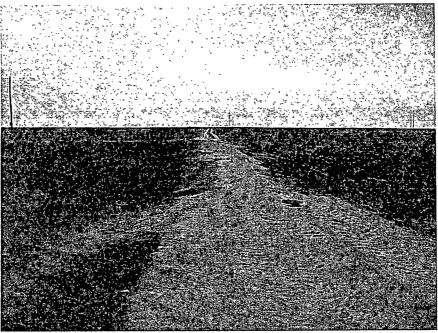
Spreading Clean Soil at Well Location Looking West, February 10, 2009



Spreading Clean Soil North of Tank Battery Looking West, February 10, 2009



Spreading Clean Soil at Tank Battery Looking Southwest, February 10, 2009



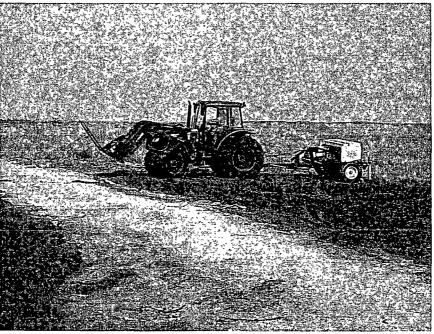
Spreading Clean Soil at Tank Battery Looking West, February 10, 2009



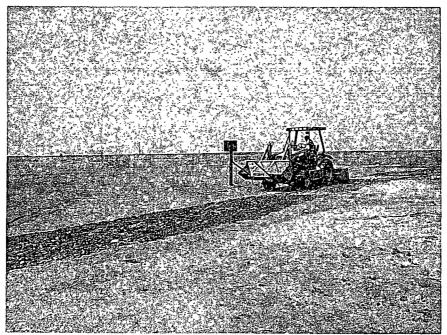
Seed Bed Preparation North of Tank Battery Looking Northwest, May 5, 2009



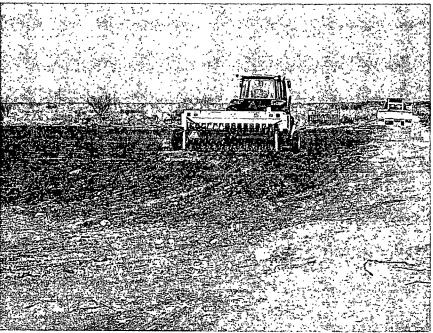
Seed Bed Preparation North of Tank Battery Looking Northwest, May 5, 2009



Seeding North of Tank Battery Looking West, May 5, 2009



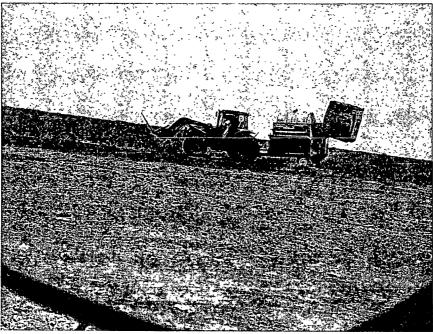
Seed Bed Preparation at Well Location Looking Northwest, May 5, 2009



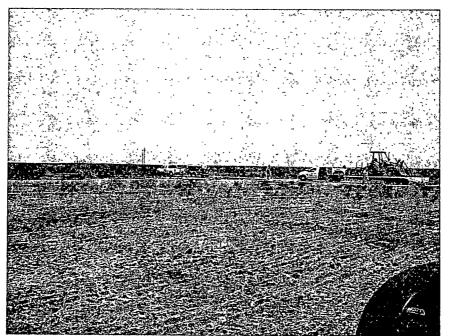
Seeding at Well Location Looking Northwest, May 5, 2009



Mulching and Crimping, May 5, 2009



Mulching and Crimping, May 5, 2009



Completed Seeding Project, May 5, 2009

**APPENDIX F** 

Initial and Final C-141

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District II	Dr , Hobbs, N	IM 88240	ECEI		ate of nerals	New Mexi and Natura	ico l Resources	KEC	EIVE	D Form C-141 Revised October 10, 2002		
1301 W. Grand A <u>District III</u> 1000 Rio Brazos I <u>District IV</u> 1220 S St. Franci	Road, Aztec,	, NM 87410 <b>J</b>	UL 27	2009 Oil C	Conse Sout	rvation Div h St. Franc Fe, NM 875	rision is Dr.	JAN	1 3 2009 380CE	Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form		
				ease Notific	_			Actior				
						OPERA	TOR	(	X Initia	al Report / Final Repo		
							Contact: Steve Ginnings, President					
							Telephone No.: (940) 723-4351 Facility Type: Well and Tank Battery					
						Tuenney Typ						
Surface Owner: State Land Mineral Own								API	Lease No.			
		<u></u>				N OF REI				24388		
Unit Letter A H	Section 7	Township 9S	Range 33E	Feet from the	Nort	h/South Line	Feet from the	e East/	West Line	County Lea		
			Lat	itude: N 33° 32'	, 57.6	" Longitud	e: W 103° 3	6' 02.0"				
				NAT	URI	E OF RELI						
Type of Release: Crude Oil Source of Release: Legacy Spill							Volume of Release: UnknownVolume Recovered: UnknownDate and Hour of Occurrence:Date and Hour of Discovery:UnknownUnknown					
Was Immediat	te Notice G		Yes X	No 🗌 Not Red	quired	If YES, To	Whom?		1 <u></u>			
By Whom?						Date and Hour						
Was a Waterco	No	If YES, Volume Impacting the Watercourse.										
If a Watercour	se was Imr						-					
Describe Cause	e of Proble	m and Reme	dial Actio	n Taken.* Legacy	y spills	at plugged we	ll and out-of-s	service tanl	k battery.			
Describe Area proposed by sc surface to New disposal facilit I hereby certify regulations all public health o should their op	Affected a craping soil v Mexico S y. y that the ir operators a or the enviro perations ha ment. In ac	nd Cleanup A from affecte tate Land Of formation gi are required t onment. The ave failed to a Idition, NMC	Action Tal ed areas to fice requir iven above o report an acceptane adequately OCD accept	cen.* Affected ard achieve NMOCD rements. Contami e is true and comp nd/or file certain r ce of a C-141 report investigate and r	ea is a ) recon nated : lete to elease ort by t emedia	pproximately 2 nmended remea soil will be trar the best of my notifications as he NMOCD m ate contaminati	0' X 100' at w diation action isported to an knowledge ar id perform co arked as "Fina on that pose a	vell and 20 levels, coll NMOCD 1 nd understa rrective ac al Report" threat to g	0' X 300' a ect confirm bermitted su and that pur tions for rel does not rel round wate	t tank battery. Cleanup is nation soil samples and restore irface waste management or suant to NMOCD rules and eases which may endanger ieve the operator of liability r. surface water, human health compliance with any other		
Describe Area proposed by sc surface to New disposal facilit I hereby certify regulations all public health o should their op or the environm	Affected a craping soil v Mexico S y. y that the ir operators a or the enviro perations ha ment. In ac	nd Cleanup A from affecte tate Land Of formation gi are required t onment. The ave failed to a Idition, NMC	Action Tal ed areas to fice requir iven above o report an acceptane adequately OCD accept	cen.* Affected ard achieve NMOCD rements. Contami e is true and comp nd/or file certain r ce of a C-141 report investigate and r	ea is a ) recon nated : lete to elease ort by t emedia	pproximately 2 mended remea soil will be trar the best of my notifications an he NMOCD m ate contaminati does not reliev	0' X 100' at w diation action isported to an knowledge ar nd perform co arked as "Fina on that pose a e the operator <u>OIL CC</u>	vell and 20 levels, coll NMOCD p ind understa rrective ac al Report" threat to g of respons	0' X 300' a ect confirm permitted su ind that pur tions for rel does not rel round wate sibility for c	ation soil samples and restore inface waste management or suant to NMOCD rules and eases which may endanger ieve the operator of liability r. surface water, human health		
Describe Area proposed by sc surface to New disposal facility I hereby certify regulations all public health o should their op or the environm federal, state, c	Affected a craping soil w Mexico S y. y that the ir operators a or the envire perations ha ment. In action or local law	nd Cleanup / from affecte tate Land Of nformation gi are required t onment. The ave failed to a ddition, NMC //s and/or regu	Action Tal ed areas to fice requir iven above o report an acceptane adequately OCD accept	cen.* Affected ard achieve NMOCD rements. Contami e is true and comp nd/or file certain r ce of a C-141 report investigate and r	ea is a ) recon nated : lete to elease ort by t emedia	pproximately 2 nmended remea soil will be trar the best of my notifications as he NMOCD m ate contaminati	0' X 100' at w diation action isported to an knowledge ar nd perform co arked as "Fina on that pose a e the operator <u>OIL CC</u>	vell and 20 levels, coll NMOCD p ind understa rrective ac al Report" threat to g of respons	0' X 300' a ect confirm permitted su ind that pur tions for rel does not rel round wate sibility for c	ation soil samples and restore inface waste management or suant to NMOCD rules and eases which may endanger ieve the operator of liability r. surface water, human health compliance with any other		
Describe Area proposed by sc surface to New disposal facility I hereby certify regulations all public health o should their op or the environm federal, state, c Signature:	Affected a craping soil w Mexico S y. y that the ir operators a or the enviro perations ha ment. In action or local law	nd Cleanup / from affecte tate Land Of nformation gi are required t onment. The ave failed to a ddition, NMC //s and/or regu	Action Tal ed areas to fice requir iven above o report an acceptane adequately OCD accept	cen.* Affected ard achieve NMOCD rements. Contami e is true and comp nd/or file certain r ce of a C-141 report investigate and r	ea is a ) recon nated : lete to elease ort by t emedia	pproximately 2 mended remea soil will be trar the best of my notifications an he NMOCD m ate contaminati does not reliev	0' X 100' at w diation action isported to an knowledge ar nd perform co. arked as "Fina on that pose a e the operator <u>OIL CC</u> District Super	vell and 20 levels, coll NMOCD p ad understa rrective ac al Report" threat to g of respons	0' X 300' a ect confirm permitted su ind that pur tions for rel does not rel does not rel sibility for co /ATION	ation soil samples and restore inface waste management or suant to NMOCD rules and eases which may endanger ieve the operator of liability r. surface water, human health compliance with any other		
Describe Area proposed by sc surface to New disposal facilit I hereby certify regulations all public health o should their op or the environm federal, state, o Signature: Printed Name:	Affected a craping soil w Mexico S cy. y that the ir operators a bor the envire berations ha ment. In action or local law Steve Gin nt s: sginning	Ind Cleanup A from affected tate Land Of information git are required to ave failed to a didition, NMC vs and/or regu foul for nings	Action Tal ed areas to fice requir iven above o report an e acceptance adequately DCD acceptance alations.	cen.* Affected ard achieve NMOCD rements. Contami e is true and comp nd/or file certain r ce of a C-141 report investigate and r	ea is a ) recon nated lete to elease ort by t emedia report	approximately 2 amended remea soil will be trar the best of my notifications an he NMOCD m ate contaminati does not reliev	0' X 100' at w diation action isported to an knowledge ar nd perform co arked as "Fina on that pose a e the operator <u>OIL CC</u> District Super e: 1.13.	vell and 20 levels, coll NMOCD p ad understa rrective ac al Report" threat to g of respons	0' X 300' a ect confirm permitted su ind that pur tions for rel does not rel does not rel sibility for co /ATION	ation soil samples and restore inface waste management or suant to NMOCD rules and eases which may endanger ieve the operator of liability r. surface water, human health compliance with any other DIVISION		

# RECEIVED

JAN 1.3 7009

HOBBSOCD

District 1 1625 N. French Dr., Hobbs, NM 882 District II 1301 W. Grand Avenue, Artesia, NM 88210 State of New Mexico State of New Mexico Minerals and Natural Resources									Form C-141 Revised October 10, 2003			
District III 1000 Rio Brazos	s Road, Azte	009 Oil C 1220	Conse Sout	rvation Division h St. Francis Dr.				Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form				
Santa Fe, NM 8/505												
Release Notification and Corrective Action												
Name of Co	mpany: F	Bridwell Oil	Company	,		OPERA'		Safety (	No. of Concession, Name	al Report ( Final Report		
Address: 8	10 8 <sup>th</sup> Stre	et, Wichita F	alls, Tex	as 76301		Contact: Dudley McMinn, Safety Coordinator Telephone No.: (940) 723-4351						
Facility Nar	ne: New ]	Mexico State	7 Well #	#001	Facility Type: Oil Well and Tank Battery (API No. 30-025-24388)							
Surface Owner: State Land Office Mineral Owner: S							State Land Office I			Lease No.: K-03354		
				LOCA	TIO	N OF RE	LEASE					
Unit Letter H	Section 7	Township 9S	Range 33E	Feet from the 1980	Nort Nort	h/South Line h	Feet from the 660	East/W East	Vest Line	County Lea		
۲ <b>۱</b>	Latitude: N 33° 32' 57.6" Longitude: W 103° 36' 02.0"											
		<u></u>		NAT	URE	E OF REL						
Type of Release					Volume of Release: Unknown Date and Hour of Occurrence:			Volume Recovered: None Date and Hour of Discovery:				
		•••				Unknown			Unknow			
Was Immedia	ate Notice (		Yes 🗵	No 🗌 Not Ro	equired	If YES, To	Whom?					
By Whom?	•					Date and Hour						
Was a Water	course Rea	] No		If YES, Volume Impacting the Watercourse.								
If a Watercou	· .	· · ·	·	* n Taken.* Legac	y spills	s at plugged we	ell and out-of-serv	vice tank	battery.			
Describe Area Affected and Cleanup Action Taken.* Affected area is approximately 20' x 100' at well ad 200' x 30' at tank battery and includes area north of tank battery. Cleanup was accomplished by excavating near well to approximately 3 feet, at tank battery to about 8 feet and to about 3 feet in spill area north of tank battery. Approximately 1,560 cubic yards of hydrocarbon contaminated soil was hauled to Gandy Marley, Inc. The maximum TPH and chloride concentrations in final soil samples were 103 mg/Kg and 48 mg/Kg, respectively. Remediation area was filled with clean top soil and seeded to landowner (SLO) specifications. Plugging bond was released on July 12, 2009.												
regulations al public health should their o	l operators or the environment operations homent. In a	are required to ronment. The ave failed to a ddition, NMC	o report an acceptance adequately CD accept	nd/or file certain r ce of a C-141 report investigate and r	elease ort by t emedia	notifications a he NMOCD m ate contaminat	nd perform correct narked as "Final R ion that pose a the	ctive acti leport" d reat to gr	ions for re loes not re round wate	rsuant to NMOCD rules and leases which may endanger lieve the operator of liability er, surface water, human health compliance with any other		
- <del>{</del>						OIL CONSERVATION DIVISION						
Signature:	<u> </u>		<u> </u>			I duson						
Printed Name	: Mark J. I	arson (Consu	ltant to B	ridwell Oil Comp	any)	Approved by	District Supervis	UNMF	n ENTAL I			
				nd Associates, Inc		Approval Date: 7.27.09 Expiration Date: -						
E-mail Addre	ss: <u>mark@</u>	laenvironment	al.com			Conditions o	f Approval:			Attached		
Date: 07/23/2	009	Phon	e: (432)6	87-0901						18D# 2049		
* Attach Addit						L						

Attach Additional Sheets If Necessary