

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

Original To NMOC

Form C-141  
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company RESOURCE DEVELOPMENT TECHNOLOGY, LLC	Contact Robert A. Schwering, P.E. Operations Manager	
Address: PO Box 1020, Morrison, CO 80465	Telephone No.: (303) 716-3200	
Facility Name: Theodore Zink Fed. Com. #1	Facility Type: 400 Bbl. Tank in Tank Battery @ Oil Well	
Surface Owner: United States of America: BLM	Mineral Owner: United States of America: MMS	Lease No.: USA NM23231

LOCATION OF RELEASE

Unit Letter "D"	Section 15	Township T 23 N	Range R 6 W	Feet from the 460'	North/South Line FNL	Feet from the 1005'	East/West Line FWL	County Rio Arriba
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API Number 30-039-22923

Latitude

Longitude

RCVD MAY18'07

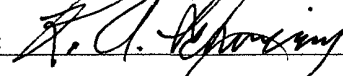
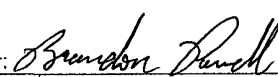
OIL CONS. DIV.

DIST. 3

NATURE OF RELEASE

Type of Release: Oil Spill from Tank.	Volume of Release: 86 Bbl.	Volume Recovered: 4 Bbl.
Source of Release: Bullet-Hole in 400 Barrel Oil Tank 5' 6" above ground. The feet of head in the tank (approx. 11' 11") caused the leak stream to shoot past the dike containment onto the location.	Date and Hour of Occurrence: In the am on 5/2/2005 or in pm on 5/1/2005: someone shot a hole in the 400 Bbl. Oil Tank.	Date and Hour of Discovery: 5/2/2005 @ 0700 Hrs. by Giant Oil Hauler who plugged the bullet hole with a stick. Notified our pumper who arrived at 0815 Hrs. & confirmed leak & SI Well.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Gave Verbal Notice at 0815 Hrs. am to Mr. Charlie Perrin @ NMOC.	
By Whom? Robert A. Schwering, P.E.	Date and Hour: 0815 Hours On 5/2/2005.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. NONE: NOT APPLICABLE.	
If a Watercourse was Impacted, Describe Fully.* NO		
Describe Cause of Problem and Remedial Action Taken.*: An Unknown Person shot a hole in the Theodore Zink Fed. Com. #1 Oil Tank. The hole was high enough up the tank (5' 6"), and the tank was full enough @ 11' 11"+: approx. 239 STBO, that the resulting stream arced out past the containment dike onto the location pad. A Giant Oil Hauler (Mr. Joe Bixler) spotted the leak, plugged the leak with a stick & then called Resource Development Technology, LLC (RDT). The RDT Pumper arrived at the well 75 min. later & SI the well. The tank gauge was @ 7' 8": 153 STBO. RDT called out: R&S Water Haulers Vacuum Truck & sucked up all the dirty free product on the surface (approx. 4 STBO) & put it in Fiberglass Tank on location. Giant hauled off all of the oil they could get (Top Gauge @ 7' 8" to Bottom Gauge @ 1' 1" = 131 STBO). This left 22 STBO & BS&W in the Tank. DCA (Salmon Ruins) conducted an Archaeological Survey of the impacted area across the County Road from the Location & cleared this area for excavation on 5/3-4/2005. Vaughn Oilfield Services 1-Called the Excavation Area on 5/3/2005 & met w/ the Pipeline Utilities in am 5/5/2005. (continued)		
Describe Area Affected and Cleanup Action Taken.* ADDITIONAL SHEETS ATTACHED.		

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Robert A. Schwering, P.E.	Approved by District Supervisor:  For: Charlie Perrin	
Title: Operations Manager	Approval Date: 5-18-07	Expiration Date:
E-mail Address: ras.rdt@mindspring.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 5/2/2005	Phone: (303) 716-3200	

• Attach Additional Sheets If Necessary

nCTP0512236985

34

Top Gauge on 5/1/2005:	11' 11" =	238.33 Bbl.
Est 12 Hour Production:	+1.00 Bbl.	(This is a Strpper Well averaging 2 BOPD)
Total Oil Available to Leak:	239.33 Bbl.	
Top Gauge on 5/2/2005:	7' 8" =	-153.33 Bbl. (After Leak Plugged & well Shut-Down & Shut-In)
Total Oil Spilled:	86 Bbl.	
Total Oil Recovered:	-4 Bbl.	(4" in the 10' diameter Water Tank)
Net Oil Spilled Onto Dirt & Soaked-In:	82 Bbl.	(This oil had soaked into the dirt on and off the site)

Sold Free Oil out of Tank on 5/2/2005:

Top Gauge on 5/2/2005:	7' 8" =	153.33 Bbl. (The well had high bottoms & we pulled off of clean-out line)
Bottom Gauge on 5/2/2005:	1' 1" =	21.67 Bbl. (The well had high bottoms & we pulled off of clean-out line)
Oil Sold to Giant on 5/2/2005:	131	(Gauge Volume sold to Giant on Run Ticket)

Oil Remaining On-Location:

Bottom Gauge on 5/2/2005:	1' 1" =	21.67 Bbl. (BS&W & Oil Left in Tank Awaiting Clean-Out)
Oil in 40 Bbl. SW Tank on 5/2/2005:	4" =	4.67 Bbl. (Dirty Oil Recovered from Spill)
Maximum Oil Left On-Location:	26.34 Bbl.	

#### DESCRIPTION OF CAUSE OF SPILL AND REMEDIAL ACTION UNDERTAKEN: CONTINUED:

Vaughn's Oilfield Services began to excavate & clean-up contamination on-location on 5/3/2005 & began off-site excavation on 5/5/2005 AFTER RDT obtained verbal BLM Clearance to commence Off-Site Excavation Operations. All of the On-Site Excavation met the applicable clean-up standard in tests undertaken on 5/5/2005 (TPH < 1000 PPM). All of the Off-Site Excavation met clean-up standards on 5/5/2005 or on 6/15/2005 after widened/deepened (TPH < 100 PPM). Excavation Operations continued until 6/20/2005 whereupon RA Schwering inspected the site and determined that NO Visibly-Stained or Odiferous Soils remained in the Excavations. Excavation had continued after Test Results received indicated that the Excavations "Passed" as RDT desired to entirely clean-up Visible Staining & Odiferous Materials beyond the applicable standards.

RDT obtained BLM Permission (Verbal from Mark Kelly) to Back-Fill the Excavations as Follows:

The OFF-Site Excavation had 600# Fertilizer placed in the Bottom & then was Back-Filled with Remediated Fill from the Land Farms at the Glenmorangie Com. #1 Wellsite created during Earthen Pit Closure Operations which were below the OFF-Site Closure Standard of TPH = 100 PPM (TPH @ 41.6 PPM @ Small Land Farm & TPH @ 95 PPM @ Large Land Farm) after mixing 100# Fertilizer in the Small Land Farm & 200# Fertilizer in the Large Land Farm.

The ON-Site Excavation had 400# Fertilizer placed in the Bottom & then was Back-Filled with Remediated Fill from the Land Farms at the Theodore Zink Fed. Com. #1 Wellsite & the Rita Fed. Com. #1 Wellsite (Low Land Farm) created during Earthen Pit Closure Operations which were below the ON-Site Closure Standard of TPH = 1000 PPM (TPH @ 140 PPM @ Theodore Zink #1 Land Farm & TPH @ 190 PPM @ Rita #4 Low Land Farm) after mixing 100# Fertilizer each of these Land Farms.

Land Farm Remediation: Remediation was completed on 11/15/2006.

Three Very Large Land Farms were created on the Theodore Zink Fed. Com. #1 Location with the contaminated soil excavated from the ON-Site & OFF-Site Excavations. RDT tilled these farms every 6 months & added fertilizer 2 times to each land farm.

The Separator (Center) Land Farm (75' x 55' x 2': 305 cu. yds.) with the hottest material & an underliner (30 mil) failed on the initial test (11/7/2005) & passed on the final test (11/15/2006). A total of 800# of fertilizer was applied to this land farm in 2 applications in 2 years.

The Pump-Unit (South) Land Farm (160' x 63' x 18": 560 cu. yds.) with the next hottest material failed on the initial test (11/7/2005) & passed on the final test (11/15/2006). A total of 400# of fertilizer was applied to this land farm in 2 applications in 2 years.

The Meter (North) Land Farm (135' x 90' x 18": 675 cu. yds.) with the least contaminated material passed on the initial test (11/7/2005) & passed on the final test (11/15/2006). A total of 400# of fertilizer was applied to this land farm in 2 applications in 2 years.

Attached to this report you will find a spread-sheet with a composite list of ALL Excavation & Land-Farm Testing & Fertilizer Applications. Following this sheet are the individual sampling results from start to finish. Following this you will find 2 spread-sheets with the testing & fertilization history of the land farm materials used in back-filling the excavations.

The Theodore Zink Fed. Com. #1 wellsite is close to Highway 550 & the Counselors Trading Post & is subject to vandalism. The well is a stripper-well & video surveillance is not economical. An RDT Reward for Information posted at the Counselors Trading Post received no responses. RDT has increased the distance of the Berm from the Tank from 6'-12' to 26'-36' & raised the Battery Berm to 24" height from 18" height. While this will not prevent someone from shooting the Oil Tank in the future it will restrict the entire contents of the 400 Bbl. Oil Tank to the interior of the Bermed Tank Battery Area (55' x 65' x 2' Enclosure: Containing 637 Bbl. w/ 1' of Free-Board). Additionally, RDT has a policy of selling its oil as soon as a minimum load (180 Bbl.) can be obtained in order to minimize future incidents should they occur. See Location Diagram & Attached Map.

DESCRIPTION OF AFFECTED AREA: See Location Diagram & Attached Map:

From the outside edge of the Tank Battery Berm the oil ran approx. 127' across the location (5' - 15' wide) to the western edge of location & pooled up behind a secondary pollution abatement berm between the road & location (approx. 5' to 10' wide & 43' long).

The oil then ran over at the north end of this catchment & across the access road & ran along the north side of the access road to the eastern bar ditch of County Road 403 approx. 89' (1' - 7' wide) to a low spot.

The oil then ran approx. 20' across the County Road 403 & into a 50' long section of the western bar ditch (approx. 5' wide) and pooled up.

The oil then overflowed the bar ditch along the west side of County Road 403 & ran west along the drainage approx. 103' (1' - 3' wide) to where it was all soaked-in.

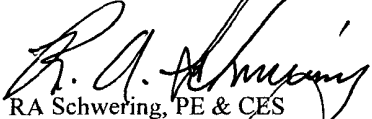
Subsequent Excavation removed approx. 1,295 cubic yards of contaminated materials from ON-site & OFF-site excavations until there was no remaining Visibly Oil-Stained or Odiferous Soils in the excavations.

**Course of Remediation for the Release:**

RDT excavated all visibly oil-stained and/or odiferous contaminated soil in ON-site & OFF-site excavations. All excavations exceeded agreed-upon and/or mandated TPH, Benzene & BTEX Standards (TPH < 100 PPM OFF-site & TPM < 1000 PPM ON-site). The excavations ON-site & OFF-site were back-filled with previously remediated materials that exceeded the Remediation Standards for the excavations.

The contaminated soils were land-farmed on the Theodore Zink #1 Location as shown in the attached diagram. Final tests of these Land Farms on 11/15/2006 on the Theodore Zink Fed. Com. #1 wellsite indicated that the soils in these land farms were all less than the TPH = 1000 PPM site standard. This completed remediation of the contamination caused by the Release resulting from the Tank Shooting Incident the night of 5/1-2/2005.

No bedrock was encountered in these excavations distant from the rock face on the east side of location.



RA Schwering, PE & CES  
Operations Manager: NM & WYO  
Resource Development Technology, LLC

Attachments:

- Site Diagram for Spill Report (Revised)
- Computer Generated Site Diagram by EME Solutions (Revised)
- Excavation & Land Farm Tables
- Topographic Map f/ Well Location
- Existing Facilities, Excavation Outlines & Land Farms on 8/15/2005
- Current Site Schematic: Excavation Locations & Former Land Farm Locations
- Summary of Mitigation Methods & Soil Test Results @ Theodore Zink Fed. Com. #1 Wellsite Oil-Spill:
  - Individual Test Results Attached
- Summary of Mitigation Methods & Soil Test Results @ Theodore Zink Fed. Com. #1 Wellsite: Earthen Pit Remediation:
  - Final Land Farm Test Result Attached
- Summary of Mitigation Methods & Soil Test Results @ Glenmorangie Com. #1 Wellsite: Earthen Pit Remediation & Improperly Installed Below-Grade Tank Removal: Final Land Farm Test Results Attached.
- Summary of Mitigation Methods & Soil Test Results @ Rita Fed. Com. #4 Wellsite: Earthen Pit Remediation & Improperly Installed Below-Grade Tank Removal: Final Low Land Farm Test Results Attached.

N

New Land Farm  
Est @ 2500 cu. ft.

No. 937 811 700  
Engineer's Office

No More Than 19-31 wide  
Approx 100lb

Run across & along access road

Pooled  
in  
Road  
&  
Bar  
Ditch

Looked  
Along  
West  
Edge  
OF  
Location

Lockin  
 11410-173-64  
 Pumping Unit  
 w/  
 Arrow C-66  
 Gas Engine

Buried 2"  
Flow Line

Oil Stained  
Dirt

Barred 2  
Oil Pump Line

Divisor - Health  
3 of Separator  
250 = W x 260 MBTU

40 Bbl. 10'x3' Fiberglass  
Produced Water Tank  
15'x15'x18" Enclosure

Excavated & Remediated  
Earth Production Pit  
20' x 16' x 9' @ Bottom

4500 Bbl. Oil Tank

	Existing	After Spill
36' x 36' x 12" Berm		
25' x 25' x 12" Berm		

Existed PRIOR TO Spill

Someone shot our tank 5'6" above  
the bottom with a large caliber rifle  
on 5/2/2005 in a.m. or 5/1/2005 in p.m.

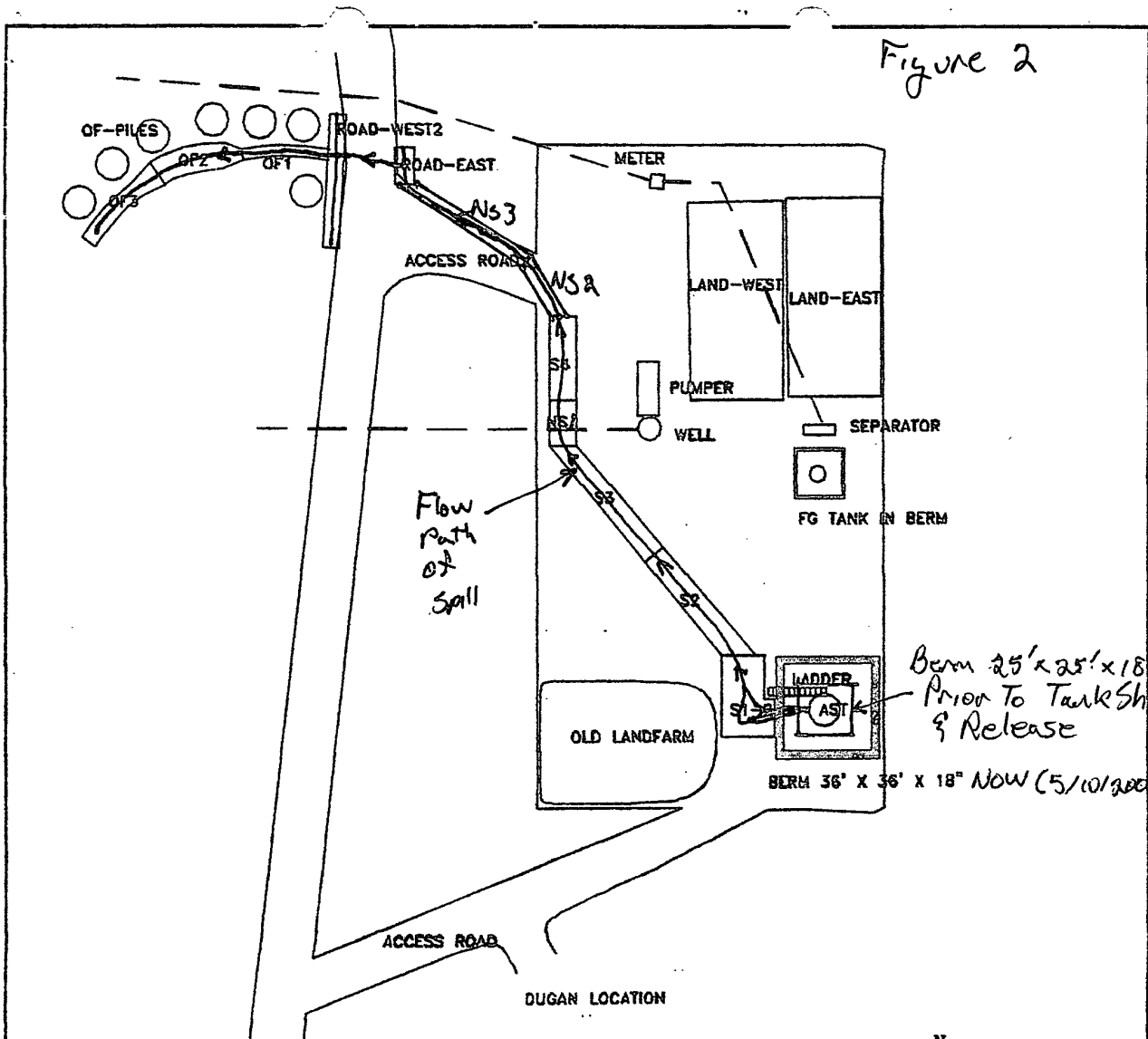
The Tank contained approx. 238 Ob. of  
0.1 when Gauged in pm on 5/1/2005.

A passing oil hauler saw leak & road & plugged the hole in the Tank & Notified RDT @ 7am on 5/2/2005.

The well was SI @ 0800 hrs. 5/2/2005  
 Top Gauge = 11' 11"  
 Gauge @ 0800 =  $\frac{7' 8''}{4' 3''}$  Recovery = 40%.

Dugan  
Location

Figure 2



ALL SAMPLES 3-PART COMPOSITE OR MORE  
BOTTOM AND SIDES COMPOSITE AS NECESSARY

#### LIST OF SAMPLING AREAS

S1-2 = 31' (N-S) X 16' TO 20' X 4' DEEP

S2 = 48' X 10' X 2' DEEP

S3 = 48' X 10' X 2' DEEP

NS = NO SAMPLE BECAUSE OF PIPELINE

S4 = 28' X 10' X 2' DEEP

ROAD-EAST = 14' (N-S) X 7' X 7' DEEP

ROAD-WEST2 = 50' X 6' X 4' DEEP

OF1 = 33' X 4' X 4' DEEP

OF2 = 34' X 10' X 4' DEEP

OF3 = 36' X 6' X 4' DEEP

LAND-EAST = 75' (N-S) X 50' X 4' HIGH

LAND-WEST = 75' (N-S) X 50' X 6' HIGH

OF-PILES = OFFSITE PILES PRIOR TO MOVING TO LANDFARM

Excavated 9350 cu. ft. of Soil = 346.3 cu. yd.

**KEY**  
— PIPING, ABOVEGROUND  
- - PIPING, BURIED  
+ PIPE AND VALVE  
▬ BERM



PREPARED BY



**EME SOLUTIONS, INC.**  
15249 W. ELLSWORTH DR.  
GOLDEN, CO 80401  
303-279-1707

PREPARED FOR

**Resource Development Technology**  
P.O. Box 1020  
Morrison, CO 80465

TITLE

**THEO ZINK #1**  
**OIL SPILL MAY 2005**  
**SITE DRAWING**

Project: RDT

Date: 5-10-05

Revision

Scale: 1" = 60'

File: TheoZink1



# Excavation & Land Farm Tables

Sampling & Excavated Areas: Theodore Zink Fed. Com. #1 Well

Oil Spill: 5/1-2/2005: Tank-Shooting Incident

SITE	Initial Excavation			5/6/2005
	Length	Width	Depth	Cu. Yds.
S1-2	31	18	4	83
S2	48	10	2	36
S3	48	10	2	36
NS1	15	10	2	11
S4	28	10	2	21
NS2	20	5	2	7
NS3	55	5	2	20
RE	14	7	7	25
RW	50	6	4	44
OF1	33	4	4	20
OF2	34	10	4	50
OF3	36	6	4	32
TOTAL				385

SITE	Final Excavation			6/20/2005
	Length	Width	Depth	Cu. Yds.
S1-2	31	25	8	230
S2	48	20	7	249
S3	48	18	7	224
NS1	15	15	5	42
S4	28	15	4	62
NS2	20	5	2	7
NS3	55	5	2	20
RE	14	7	7	25
RW	50	6	4	44
OF1	33	18	8.5	187
OF2	34	21	6.5	172
OF3	36	6	4	32
TOTAL				1,295

SITE	Land Farms			11/15/2006
	Length	Width	Depth	Cu. Yds.
Meter	135	90	1.5	675
Separator	75	55	2.0	306
Pump Unit	160	63	1.5	560
				1,541

Soil Expansion Upon Excavation = 18.97%

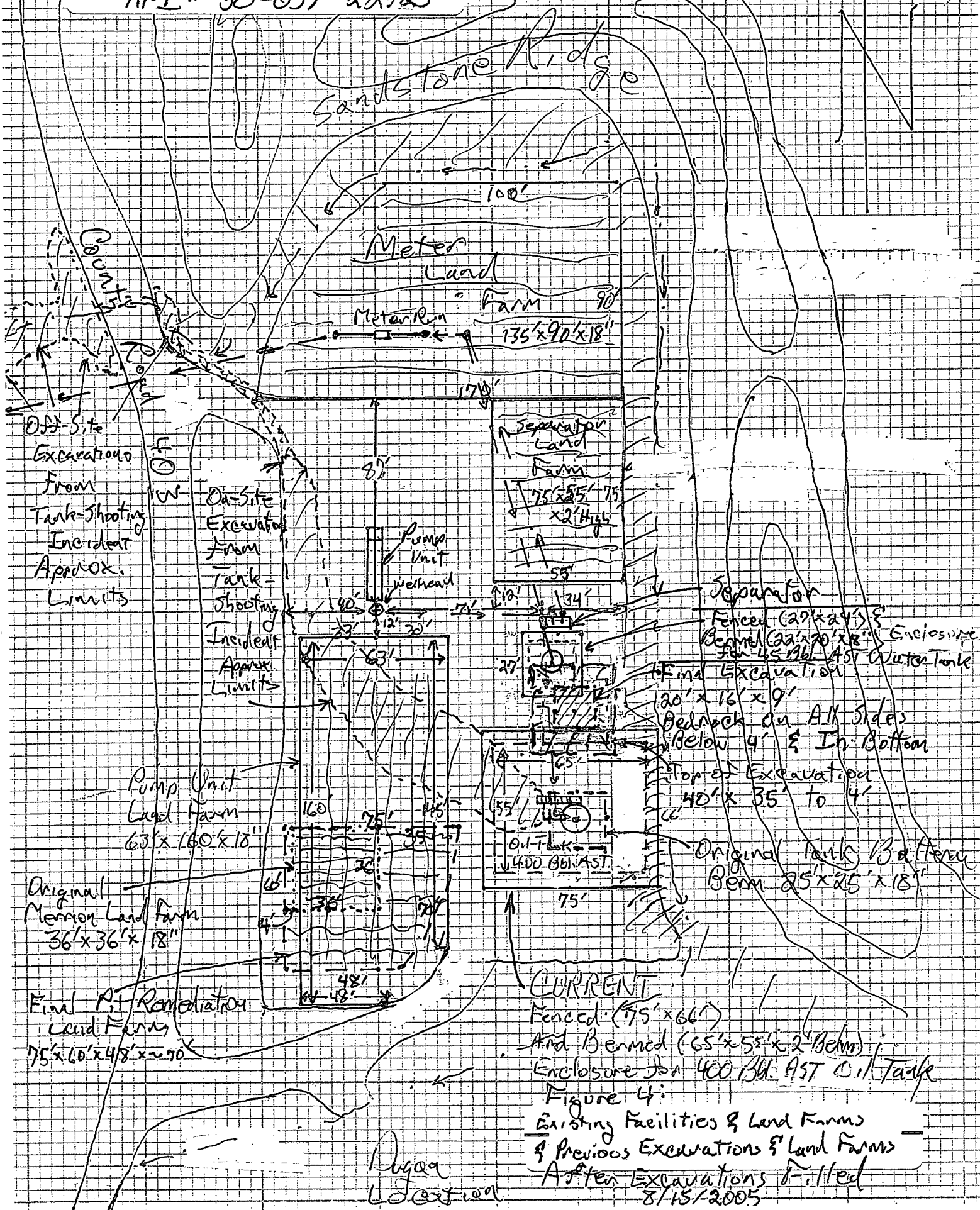


WELL	Comments	Pit #	Date Of Sample	Location	Depth or Lateral	Benzene PPM	BTEX PPM	TPH GRO PPM	TPH DRO PPM	TPH DRO+GRO PPM	Allowable TPH MAX
API #	Mitigation Methodology										
Location	NIMOOD Comments										
OIL SPILL: 5/1-2/2005:											
Theodore Zink Fed. Com. #1	MAP ATTACHED			ON-SITE EXCAVATIONS:							
API: 30-039-22923	Excavated S1-2 to 7' Depth x 25' Wide AFTER Test.	OK	5/5/2005	S1-2: 31' x 18'	4'	ND	1,6100	40.00	660.00	701.61	1000.00
	Excavated S2 to 4' Depth x 15' Wide AFTER Test.	OK	5/5/2005	S2: 48' x 10'	2'	ND	0.0652	7.30	ND	7.37	1000.00
460' FNL & 1005' FWL	Excavated S3 to 6' Depth x 15' Wide AFTER Test.	OK	5/5/2005	S3: 48' x 10'	2'	0.0220	3.3000	120.00	780.00	903.32	1000.00
Unit D' of Section 15	Excavated S4 to 4' Depth x 15' Wide AFTER Test.	OK	5/5/2005	S4: 28' x 10'	2'	ND	ND	2.40	37.00	39.40	1000.00
T23N- R6W	Excavated ON-Site w/ RAS Until NO VISIBLE Oil Stains	OK	5/5/2005	ROAD-EAST: 14' x 7'	7'	ND	ND	ND	ND	0.00	1000.00
Rio Arriba Co., NM	& No Detectable Odors remained in the Excavations ON-Site. Fertilized Bottom of Excavation w/ 400#.										
	Back-Fill ON-Site Excavation w/ Remediated Fill Material from On-Site Land-Farm (TPH=140 PPM) & Rita Fed. Com. #4 Low Land Farm (TPH=190 PPM)										
OIL-SPILL	Containing 200# of Freshly Mixed Fertilizer & Containing NO Visibly-Stained or Odiferous Fill Material.			OFF-SITE EXCAVATIONS:							
REMEDICATION COMPLETE	ON-SITE EXCAVATION REMEDIATION COMPLETE										
TANK-SHOOTING		OK	5/5/2005	ROAD-WEST: 50' x 6'	4'	ND	ND	1.30	12.00	13.30	100.00
		Fail	5/6/2005	OF-1: 33' x 4'	4'	ND	0.2420	9.80	320.00	330.04	100.00
		OK	6/15/2005	OF-1: 33' x 18'	8.5'	ND	ND	0.59	ND	0.59	100.00
		Fail	5/6/2005	OF-2: 34' x 10'	4'	ND	0.0571	2.40	430.00	432.46	100.00
		OK	6/15/2005	OF-2: 34' x 21'	6.5'	ND	ND	ND	ND	0.00	100.00
		OK	5/6/2005	OF-3: 36' x 6'	4'	ND	ND	ND	ND	0.00	100.00
	Fertilize Bottom of Off-Site Excavation w/ 600#.										
	Back-Fill Off-Site Excavation w/ Remediated Fill Material from Glenmorangle Com. #1 Small Land Farm (TPH=41.6 PPM) & Large Land Farm (TPH=95 PPM)										
	Containing 300# of Freshly Mixed Fertilizer & Containing NO Visibly-Stained or Odiferous Fill Material.										
	OFF-SITE EXCAVATION REMEDIATION COMPLETE										
		STOCK-PILED SOILS: BEFORE LAND FARMING:									
		Fail	5/6/2005	LF-EAST: 75' x 50'	4' Tail	ND	85.9000	3000.00	10000.00	13085.90	1000.00
		Fail	5/5/2005	LF-WEST: 75' x 50'	6' Tail	ND	0.2420	9.80	320.00	330.04	1000.00
		Fail	5/6/2005	OF-Piles: 2750 Cu. Ft.		ND	1.0170	23.00	170.00	194.02	1000.00
		LAND FARM TESTING:									
	Fertilize Separator Land Farm w/ 400# in Aug. 2005.	Fail	11/7/2005	Separator Farm: On-Site		ND	1.1260	129.00	2290.00	2420.13	1000.00
	Fertilize Separator Land Farm w/ 400# in Oct. 2006.	OK	11/15/2006	Separator Farm: On-Site		ND	ND	ND	602.00	602.00	1000.00
	Fertilize Pump Unit Land Farm w/ 200# in Aug. 2005.	Fail	11/7/2005	Pump-Unit Farm: On-Site		ND	0.0764	38.60	1490.00	1528.68	1000.00
	Fertilize Pump Unit Land Farm w/ 200# in Oct. 2006.	OK	11/15/2006	Pump-Unit Farm: On-Site		ND	ND	ND	655.00	655.00	1000.00
	Fertilize Meter Land Farm w/ 200# in Aug. 2005.	OK	11/7/2006	Meter Farm: Off-Site		ND	ND	8.45	708.00	716.45	1000.00
	Fertilize Meter Land Farm w/ 200# in Oct. 2006.	OK	11/15/2006	Meter Farm: Off-Site		ND	ND	ND	356.00	356.00	1000.00
	Will Mix Fertilizer in Land Farms (200# in Separator Farm + 200# in Pump Unit Farm + 100# in Meter Farm) & Stock-Pile Material or Use in Berms/Dikes.										
	LAND FARM REMEDIATION COMPLETE										



Theodore Zink Fed. Com. #1 Well  
API # 30-039-22923

Figure 4



Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink S1-2**  
**T500564-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	40	40000	2000	ug/kg	4	5051015	05/10/05	05/11/05	EPA 8015m
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Surrogate: 4-Bromofluorobenzene		106 %	65-135		"	"	"	"	
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**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	660	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	20	ug/kg	4	5051015	05/10/05	05/11/05	EPA 8021B	
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Toluene	100	20	"	"	"	"	"	"	
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Ethylbenzene	170	20	"	"	"	"	"	"	
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m,p-Xylene	950	40	"	"	"	"	"	"	
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o-Xylene	390	20	"	"	"	"	"	"	
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Surrogate: 4-Bromofluorobenzene	1,610	1,610	106 %	65-135	"	"	"	"	
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Passed: TPH = 701.61 PPM < 1,000 PPM Site Standard  
Passed: BTEX = 1.61 PPM < 50 PPM Site Standard  
Initial Test Passed.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink S2**  
**T500564-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	<u>7.3</u>	7300	500	ug/kg	1	5051015	05/10/05	05/10/05	EPA 8015m
Surrogate: 4-Bromofluorobenzene			100 %	65-135		"	"	"	"

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	ND	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	"
Ethylbenzene	7.2	5.0	"	"	"	"	"	"	"
m,p-Xylene	47	10	"	"	"	"	"	"	"
o-Xylene	11	5.0	"	"	"	"	"	"	"
Surrogate: 4-Bromofluorobenzene	.0652	<u>65.2</u>	100 %	65-135	"	"	"	"	"

Passed: TPH = 7.3652 PPM < 1000 PPM Site Standard  
Passed: BTEX = 0.0652 PPM < 50 PPM Site Standard  
Initial Test Passed.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink S3**  
**T500564-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	120	120000	2000	ug/kg	4	5051015	05/10/05	05/11/05	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			173 %	65-135		"	"	"	"	M

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	780	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	22	20	ug/kg	4	5051015	05/10/05	05/11/05	EPA 8021B	
Toluene	510	20	"	"	"	"	"	"	
Ethylbenzene	220	20	"	"	"	"	"	"	
m,p-Xylene	1800	40	"	"	"	"	"	"	
o-Xylene	770	20	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	3.322	3.322	104 %	65-135	"	"	"	"	

Passed: TPH = 903.322 PPM < 1000 PPM Site Standard  
Passed: BTEX = 3.322 PPM < 50 PPM Site Standard  
Initial Test Passed

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink S4**  
**T500564-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	2.4	2400	500	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8015m
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Surrogate: 4-Bromofluorobenzene	76.6 %	65-135	"	"	"	"	"	"	"
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**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	37	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	

Surrogate: 4-Bromofluorobenzene	76.6 %	65-135	"	"	"	"	"	"	
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Passed: TPH = 39.4 PPM < 1000 PPM Site Standard  
Passed: BTEX = NO < 50 PPM Site Standard  
Initial Test Passed.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink Road East  
T500564-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	ND	500	ug/kg	1	5051015	05/10/05	05/10/05	EPA 8015m	
Surrogate: 4-Bromofluorobenzene		80.8 %	65-135		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	ND	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/10/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	

Surrogate: 4-Bromofluorobenzene		80.8 %	65-135		"	"	"	"	
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Passed: TPH = NO < 100 PPM Off-Site Standard  
Passed: BTEX = NO < 50 PPM Off-Site Standard  
Initial Test Passed.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink Road West 2**  
**T500564-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	1.3	1300	500	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8015m
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Surrogate: 4-Bromofluorobenzene	76.6 %	65-135	"	"	"	"	"	"	"
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**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	12	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	

Surrogate: 4-Bromofluorobenzene	76.6 %	65-135	"	"	"	"	"	"	"
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Passed: TPH = 13.3 PPM < 100 PPM Off-Site Standard  
Passed: BTEX = N.D. < 50 PPM Off-Site Standard.

Initial Test Passed

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink OF 1**  
**T500564-09 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	9.8	9800	500	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8015m
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Surrogate: 4-Bromofluorobenzene			105 %	65-135		"	"	"	"
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**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	320		10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND		5.0	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8021B
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Toluene	25		5.0	"	"	"	"	"	"
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Ethylbenzene	19		5.0	"	"	"	"	"	"
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m,p-Xylene	130		10	"	"	"	"	"	"
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o-Xylene	68		5.0	"	"	"	"	"	"
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Surrogate: 4-Bromofluorobenzene	0.242	242	105 %	65-135		"	"	"	"
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\* Failed: TPH = 330. 042 PPM > 100 PPM off-site standard  
Passed: BTEX = 0.242 PPM < 50 PPM off-site standard.

\* Order Additional Excavation

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: [none]  
Project Manager: Debbie Zufelt

Reported:  
06/29/05 14:27

**T Zink OF1 #2**  
**T500742-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SunStar Laboratories, Inc.									
<b>Purgeable Petroleum Hydrocarbons by EPA 8015m</b>									
C6-C12 (GRO)	0.590	590	500	ug/kg	1	5061722	06/17/05	06/23/05	EPA 8015m D-12
Surrogate: 4-Bromofluorobenzene		80.8 %	65-135			"	"	"	"
<b>Extractable Petroleum Hydrocarbons by 8015</b>									
Diesel Range Hydrocarbons	ND	10	mg/kg	1	5061723	06/17/05	06/20/05	EPA 8015m	
<b>Volatile Organic Compounds by EPA Method 8021B</b>									
Benzene	ND	5.0	ug/kg	1	5061722	06/17/05	06/23/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	65-135			"	"	"	"

Passed: TPH = 0.590 PPM < 100 PPM off-site Standard  
Passed: BTEX = NO < 50 PPM off-site Standard

Final Test Passed

SunStar Laboratories, Inc.



John Shepler For Ben Beauchaine, Laboratory Supervisor

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink OF 2**  
**T500564-10 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	2.4	2400	500	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8015m
Surrogate: 4-Bromofluorobenzene			82.4 %	65-135		"	"	"	"

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	430	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	5.1	5.0	"	"	"	"	"	"	
m,p-Xylene	32	10	"	"	"	"	"	"	
o-Xylene	20	5.0	"	"	"	"	"	"	

Surrogate: 4-Bromofluorobenzene	.0571	57.1	82.4 %	65-135	"	"	"	"	
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\* Failed: TPH = 432.4571 PPM > 100 PPM  
Off-Site Standard  
Passed: BTEX = 0.0571 PPM < 50 PPM  
Off-Site Standard  
\* Order Additional Excavation.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical 75 Suttle Street Durango CO, 81303	Project: Resource Development Project Number: [none] Project Manager: Debbie Zufelt	Reported: 06/29/05 14:27
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**T Zink OF2 #2**  
**T500742-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	ND	500	ug/kg	1	5061722	06/17/05	06/23/05	EPA 8015m	D-12
Surrogate: 4-Bromofluorobenzene		83.2 %	65-135		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	ND	10	mg/kg	1	5061723	06/17/05	06/20/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5061722	06/17/05	06/23/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	

Surrogate: 4-Bromofluorobenzene		109 %	65-135		"	"	"	"	
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Passed; TPH = ND < 100 PPM Off-Site Standard  
Passed; BTEX = ND < 50 PPM Off-Site Standard

Final Test Passed

SunStar Laboratories, Inc.



John Shepler For Ben Beauchaine, Laboratory Supervisor

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink OF 3**  
**T500564-11 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	ND	500	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8015m
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Surrogate: 4-Bromofluorobenzene	86.4 %	65-135	"	"	"	"	"
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**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	ND	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8021B
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Toluene	ND	5.0	"	"	"	"	"	"
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Ethylbenzene	ND	5.0	"	"	"	"	"	"
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m,p-Xylene	ND	10	"	"	"	"	"	"
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o-Xylene	ND	5.0	"	"	"	"	"	"
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Surrogate: 4-Bromofluorobenzene	80.8 %	65-135	"	"	"	"	"
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Passed: TPH = ND < 100 PPM Off-Site Standard  
Passed: BTEX = ND < 50 PPM Off-Site Standard  
Initial Test Passed

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink Land - East**  
**T500564-07 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	3,000	3000000	20000	ug/kg	40	5051015	05/10/05	05/11/05	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			390 %	65-135	"	"	"	"	"	M

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	10000	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m	
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	200	ug/kg	40	5051015	05/10/05	05/11/05	EPA 8021B	
Toluene	45000	200	"	"	"	"	"	"	
Ethylbenzene	24000	200	"	"	"	"	"	"	
m,p-Xylene	100000	400	"	"	"	"	"	"	
o-Xylene	6900	200	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	175.90	176900	117 %	65-135	"	"	"	"	

\* TPH = 13,175.90 PPM > 1000 PPM site Standard  
\* BTEX = 175.90 PPM > 50 PPM site Standard

\* Initial Material Test Failed  
Prepare To Land Farm

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink Land - West  
T500564-08 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	1,900	1900000	20000	ug/kg	40	5051015	05/10/05	05/11/05	EPA 8015m
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Surrogate: 4-Bromofluorobenzene			107 %	65-135	"	"	"	"	"
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**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	6800		10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND		200	ug/kg	40	5051015	05/10/05	05/11/05	EPA 8021B
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Toluene	28000		200	"	"	"	"	"	"
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Ethylbenzene	15000		200	"	"	"	"	"	"
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m,p-Xylene	70000		400	"	"	"	"	"	"
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o-Xylene	27000		200	"	"	"	"	"	"
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Surrogate: 4-Bromofluorobenzene	140	140,000	107 %	65-135	"	"	"	"	"
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\* TPH = 8,840 PPM > 1000 PPM site Standard  
\* BTEX = 140 PPM > 50 PPM site Standard  
\* Initial Material Test Failed  
Prepare To Land Farm

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/13/05 14:08

**Zink OF Piles  
T500564-12 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	23	23000	500	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8015m
Surrogate: 4-Bromofluorobenzene			90.4 %	65-135		"	"	"	"

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	170	10	mg/kg	1	5051007	05/10/05	05/12/05	EPA 8015m
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051015	05/10/05	05/11/05	EPA 8021B
Toluene	87	5.0	"	"	"	"	"	"
Ethylbenzene	110	5.0	"	"	"	"	"	"
m,p-Xylene	580	10	"	"	"	"	"	"
o-Xylene	240	5.0	"	"	"	"	"	"
Surrogate: 4-Bromofluorobenzene	1,017	1,817	90.4 %	65-135	"	"	"	"


Failed: \* TPH = 194.017 ppm > 100 ppm off-site  
Standard

Passed: BTEX = 1.017 ppm < 50 ppm off-site  
Standard

\* Initial Test Failed

Move All Material To Land Farm  
On Theodore Zink Fed. Com. #1 Location

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 511-046-13

Date Received: 11/08/05

Date Reported: 11/30/05

QC Batches:

**PROJECT NAME:** Pit Remediation

**PROJECT NUMBER:**

Sample Date: 11/07/05

**SAMPLE I.D.:** S-711-B Theodore Zinc #1 Separator Landfarm

Sample Matrix: Soil

## Petroleum Hydrocarbons

### RESULTS

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE	
		LIMIT	RESULT			ANALYZED	ANALYST
Benzene	8021	5.0	<5.0	1	µg/kg	11/17/05	KP
Ethylbenzene	8021	5.0	190	1	µg/kg	11/17/05	KP
Toluene	8021	5.0	130	1	µg/kg	11/17/05	KP
Xylene, total	8021	5.0	806	1	µg/kg	11/17/05	KP
TPHGRO	8015	100	129000	1	µg/kg	11/17/05	KP
TPHDRO	8015	10	2290	1	mg/kg	11/16/05	KP

\*Failed : TPH = 2420.126 PPM > 1000 PPM Site Standard  
Passed : BTEX = 1.126 PPM < 50 PPM Site Standard  
Continue Remediation  
Add Fertilizer & T.11

for: D. Zupelt  
John Green, Laboratory Manager



Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 611-090-11

Date Received: 11/15/06

Date Reported: 12/12/06

QC Batches:

**PROJECT NAME:** RDT Pits

**PROJECT NUMBER:** 1115-011

**SAMPLE I.D.:** Theodore Zink #1 Center LF

Sample Date: 11/15/06

Sample Matrix: Soil

*Separator Farm*  
**Petroleum Hydrocarbons**

**RESULTS**

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE	
		LIMIT	RESULT			ANALYZED	ANALYST
Benzene	8021	50	<50	1	µg/kg	12/06/06	KP
Ethylbenzene	8021	50	<50	1	µg/kg	12/06/06	KP
Toluene	8021	50	<50	1	µg/kg	12/06/06	KP
Xylene, total	8021	50	<50	1	µg/kg	12/06/06	KP
TPHGRO	8015	1000	<1000	1	µg/kg	12/06/06	KP
TPHDRO	8015	16	602	1	mg/kg	12/06/06	KP

*Passed: TPH = 602 PPM < 1000 PPM Site Standard*

*Passed: BTEX = N.D. < 50 PPM Site Standard*

*Remediation Complete.*

*Add Fertilizer & Wait On Closure Approval*

*D. Ziefelt*  
For: John Green, Laboratory Manager

Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 511-046-14

Date Received: 11/08/05

Date Reported: 11/30/05

QC Batches:

**PROJECT NAME:** Pit Remediation

**PROJECT NUMBER:**

Sample Date: 11/07/05

**SAMPLE I.D.:**

P-711-C Theodore Zinc #1 Pump Unit Landfarm

Sample Matrix:

Soil

## Petroleum Hydrocarbons

### RESULTS

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE ANALYZED	ANALYST
		LIMIT	RESULT				
Benzene	8021	5.0	<5.0	1	µg/kg	11/17/05	KP
Ethylbenzene	8021	5.0	76.4	1	µg/kg	11/17/05	KP
Toluene	8021	5.0	<5.0	1	µg/kg	11/17/05	KP
Xylene, total	8021	5.0	<5.0	1	µg/kg	11/17/05	KP
TPHGRO	8015	100	38600	1	µg/kg	11/17/05	KP
TPHDRO	8015	10	1490	1	mg/kg	11/16/05	KP

\*Failed: TPH = 1528.  $\frac{6764}{1000}$  PPM > 1000 PPM Site Standard

Passed: BTEX = 0.0764 PPM < 50 PPM Site Standard

Continue Remediation

Add Fertilizer & Till

For: D. Zupelt  
John Green Laboratory Manager

Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 611-090-12

Date Received: 11/15/06

Date Reported: 12/12/06

QC Batches:

**PROJECT NAME:** RDT Pits

**PROJECT NUMBER:** 1115-012

**SAMPLE I.D.:** Theodore Zink #1 South LF

Sample Date: 11/15/06

Sample Matrix: Soil

*Pump Unit Farm*

## Petroleum Hydrocarbons

### RESULTS

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE	
		LIMIT	RESULT			ANALYZED	ANALYST
Benzene	8021	50	<50	1	µg/kg	12/06/06	KP
Ethylbenzene	8021	50	<50	1	µg/kg	12/06/06	KP
Toluene	8021	50	<50	1	µg/kg	12/06/06	KP
Xylene, total	8021	50	<50	1	µg/kg	12/06/06	KP
TPHGRO	8015	1000	<1000	1	µg/kg	12/06/06	KP
TPHDRO	8015	16	655	1	mg/kg	12/06/06	KP

*Passed: TPH = 655 PPM < 1000 PPM site standard*

*Passed: BTEX = ND < 50 PPM site standard*

*Remediation Complete*

*Fertilize & Use Material to Re-Contour  
& Berm around Location*

*D. Zink*  
For: John Green, Laboratory Manager

Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 511-046-12

Date Received: 11/08/05

Date Reported: 11/30/05

QC Batches:

**PROJECT NAME:** Pit Remediation

**PROJECT NUMBER:**

**SAMPLE I.D.:** M-711-A Theodore Zinc #1 Meter Landfarm

Sample Date: 11/07/05

Sample Matrix: Soil

## Petroleum Hydrocarbons

### RESULTS

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE	
		LIMIT	RESULT			ANALYZED	ANALYST
Benzene	8021	5.0	<5.0	1	µg/kg	11/23/05	KP
Ethylbenzene	8021	5.0	<5.0	1	µg/kg	11/23/05	KP
Toluene	8021	5.0	<5.0	1	µg/kg	11/23/05	KP
Xylene, total	8021	5.0	<5.0	1	µg/kg	11/23/05	KP
TPHGRO	8015	100	8450	1	µg/kg	11/23/05	KP
TPHDRO	8015	10	708	1	mg/kg	11/16/05	KP

Passed: TPH = 716.45 PPM < 1000 PPM Site Standard

Passed: BTEX = NO < 50 PPM Site Standard

Elect to Continue Remediation

Add Fertilizer & Till

for: D. Zupelt  
John Green, Laboratory Manager

Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 611-090-10

Date Received: 11/15/06

Date Reported: 12/12/06

QC Batches:

**PROJECT NAME:** RDT Pits

**PROJECT NUMBER:** 1115-010

**SAMPLE I.D.:** Theodore Zink #1 North LF

*Meter Farm*

Sample Date: 11/15/06

Sample Matrix: Soil

## Petroleum Hydrocarbons

### RESULTS

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE	
		LIMIT	RESULT			ANALYZED	ANALYST
Benzene	8021	50	<50	1	µg/kg	12/06/06	KP
Ethylbenzene	8021	50	<50	1	µg/kg	12/06/06	KP
Toluene	8021	50	<50	1	µg/kg	12/06/06	KP
Xylene, total	8021	50	<50	1	µg/kg	12/06/06	KP
TPHGRO	8015	1000	<1000	1	µg/kg	12/06/06	KP
TPHDRO	8015	16	356	1	mg/kg	12/06/06	KP

*Passed: TPH = 356 PPM < 1000 PPM Site Standard*

*Passed: BTEX = ND < 50 PPM Site Standard*

*Remediation Complete*

*Fertilize & Use Material to Re-Contour*

*Berm around Location*

*D. Zinfelt*  
For: John Green, Laboratory Manager

[illegible]

Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/16/05 11:22

**Zink Old Land**  
**T500565-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SunStar Laboratories, Inc.									
<b>Purgeable Petroleum Hydrocarbons by EPA 8015m</b>									
C6-C12 (GRO)	ND	500	ug/kg	1	5051014	05/10/05	05/13/05	EPA 8015m	
Surrogate: 4-Bromofluorobenzene		79.4 %	65-135		"	"	"	"	
<b>Extractable Petroleum Hydrocarbons by 8015</b>									
Diesel Range Hydrocarbons	140	10	mg/kg	1	5051006	05/10/05	05/10/05	EPA 8015m	D-09
<b>Volatile Organic Compounds by EPA Method 8021B</b>									
Benzene	ND	5.0	ug/kg	1	5051014	05/10/05	05/13/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		75.0 %	65-135		"	"	"	"	

Passed : TPH = 140 PPM < 1000 PPM Site Standard  
BTCEX = N.D. < 50 PPM Site Standard

Used this remediated material to fill excavations  
due to Tank-Shooting Oil Spill @ Theodore Zink Fed. Com. #1.  
The Tank Shooting Release occurred on 5/1-2/2005.  
The Excavations occurred from 5/2/2007 - 6/20/2007.  
Back-filling of Excavations ON-site with this material  
occurred on 6/22-23/2007 after Excavation Bottoms  
w/ Fertilizer.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

[illegible]



Green Analytical Laboratories, Inc.  
75 Suttle Street  
Durango, CO 81303

Resource Development Technology  
PO Box 1020  
Morrison, CO 80465  
Attention: Bob Schwering

GAL I.D.: 411-061-16

Date Received: 11/11/04

Date Reported: 11/22/04

QC Batches:

**PROJECT NAME:** RDT Pits

**PROJECT NUMBER:** RAS 0020

**SAMPLE I.D.:** Glenmorangie #1 Small Land Farm : *Pass*

Sample Date: 11/10/04

Sample Matrix: Soil

## Petroleum Hydrocarbons

### RESULTS

PARAMETER	METHOD	REPORT		DIL	UNITS	DATE	
		LIMIT	RESULT			ANALYZED	ANALYST
Benzene	8021	5.0	<5.0	1	µg/kg	11/15/04	LM
Ethylbenzene	8021	5.0	<5.0	1	µg/kg	11/15/04	LM
Toluene	8021	5.0	<5.0	1	µg/kg	11/15/04	LM
Xylene, total	8021	5.0	<5.0	1	µg/kg	11/15/04	LM
TPHGRO	8015	100	<100	1	µg/kg	11/17/04	LM
TPHDRO	8015	10	41.6	1	mg/kg	11/22/04	LM

*TPH @ 41.6 PPM < 100 PPM Standard: OK.  
BTEX @ N.D.: OK.*

*remediated  
Used this material to Back-Fill OFF-Site  
Excavations @ Theodore Zink Fed. Com. #1 Oil-Spill  
(Tank-Shooting Incident).*

*This material was mixed with 100# Hi-N<sub>2</sub> Fertilizer  
& transported to fill OFF-Site Excavation.*

*No visibly oil-stained or odiferous material was used.  
Remaining material on Glenmorangie Com. #1 Wellsite was  
used for berms & dikes A/ secondary containment.*

*D. Zupelt*  
For: John Green, Laboratory Manager

Sampled on 5/6/2005

Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/16/05 11:22

Glen 1 Land - Large  
T500565-06 (Soil)

Final Test: Large Landfarm.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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SunStar Laboratories, Inc.

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	ND	500	ug/kg	1	5051014	05/10/05	05/13/05	EPA 8015m	
Surrogate: 4-Bromofluorobenzene		85.6 %	65-135		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	95	10	mg/kg	1	5051006	05/10/05	05/11/05	EPA 8015m	D-09
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051014	05/10/05	05/13/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.2 %	65-135		"	"	"	"	

Final Test: Large Land-Farm!

TPH @ 95 PPM < 100 PPM Standard: Pass.

BTEX @ N.D.: Pass.

Used this remediated material to Back-Fill Off-Site Excavations @ Theodore Zink Fed. Com. #1 Oil-Spill (Tank-Shooting Incident).

This material was mixed w/200# Hi-N<sub>2</sub> Fertilizer & transported to All OFF-SITE Excavation.

No Visibly Oil-Stained or Odorous material was used. Remaining material on Glenmorangie Com. #1 Well site was used for berms & dikes f/ secondary containment.

SunStar Laboratories, Inc.

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Dennis Dorning, Project Manager

Green Analytical  
75 Suttle Street  
Durango CO, 81303

Project: Resource Development  
Project Number: GA05-092  
Project Manager: Debbie Zufelt

Reported:  
05/16/05 11:22

**Rita 4 Land - L**  
**T500565-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SunStar Laboratories, Inc.									

**Purgeable Petroleum Hydrocarbons by EPA 8015m**

C6-C12 (GRO)	ND	500	ug/kg	1	5051014	05/10/05	05/13/05	EPA 8015m	
Surrogate: 4-Bromofluorobenzene	83.2 %	65-135			"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Diesel Range Hydrocarbons	190	10	mg/kg	1	5051006	05/10/05	05/10/05	EPA 8015m	D-09
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**Volatile Organic Compounds by EPA Method 8021B**

Benzene	ND	5.0	ug/kg	1	5051014	05/10/05	05/13/05	EPA 8021B	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	

Surrogate: 4-Bromofluorobenzene

78.9 %

65-135

Final Test: Low Land Farm

Failed: TPH = 190 PPM > 100 PPM Site Standard  
Passed: BTEX = N.D. < 50 PPM Site Standard

Used this remediated material to Back-Fill ON-site Excavations @ Theodore Zink Fed. Com. #1 Well site where fill requirements were TPH < 1000 PPM (Tank-Shooting Incident).

This material w/ mixed w/ 100# Hi-N<sub>2</sub> Fertilizer & transported to fill ON-site Excavations.

NO Visibly Oil-Stained or Oily material was used.

All remaining material on the Rita #4 well site was mixed-in with the High Land Farm & tilled & fertilized for continued on-site remediation.

SunStar Laboratories, Inc.



Dennis Dorning, Project Manager

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