

# MERIT ENERGY CORPORATION

2-R-001

## INITIAL C-141 AND WORK PLAN RUSSELL-TURNER STATION PRODUCED WATER PIPELINE RELEASE

PROJECT REF: MER-RTWF-050205

UL-E (SW¼ OF THE NW¼) OF SECTION 20 T17S R31E  
LATITUDE: N32° 49.262'      LONGITUDE: 103° 53.847'  
~5.1 MILES EAST (BEARING 91.7°) OF LOCO HILLS  
EDDY COUNTY, NEW MEXICO

MAY 18, 2005

PREPARED FOR MERIT ENERGY CORPORATION BY:

*John Good – Environmental Consultant/Project Manager*  
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## **1.0 Introduction and Background**

This report addresses the produced water release that occurred on a 4" fiberglass pipeline north of the Merit Energy Russell-Turner Water Flood Station. The release was the result of a valve failure. The duration of the leak is estimated to be for several hours prior to the discovery of the release at 7:00 AM, May 3, 2005. The total release volume is estimated to be 25 to 30-bbl.

This release site is located on BLM land in Unit Letter E, (SW¼ of the NW¼), Section 20, T17S, R31E. . The GPS coordinates are: Latitude: N32° 49.262' Longitude: 103° 53.847'. A location map, topographical map of the site and a site detail diagram are included as Plates 1-3 in the Attachments.

## **2.0 Site Description**

### ***2.1 Geological Description***

This area of Eddy County is notable for its predominant and extensive red sand dune surface structure with dramatic variations in elevation and contour. The sand dunes area is underlain by a thick layer of caliche at depths ranging from a few feet to greater than 25-ft.

### ***2.2 Ecological Description***

The area is typical of the Upper Chihuahuan Desert Biome consisting primarily of hummocky sand hills covered with Harvard Shin Oak (*Quercus harvardi*) interspersed with Honey Mesquite (*Prosopis glandulosa*) along with typical desert grasses, flowering annuals and flowering perennials. Mammals represented, include Orrd's and Merriam's Kangaroo Rat, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Mule Deer, Bobcat, Red Fox and Coyote. Reptiles, Amphibians, and Birds are numerous and typical of area. A survey of Listed, Threatened, or Endangered species was not conducted.

### ***2.3 Area Ground Water***

There is no groundwater of record in the area according to information obtained from the New Mexico State Engineer online database.

### ***2.4 Area Water Wells***

There are no recorded or observed water wells within 1000 horizontal feet of the site.

### ***2.5 Area Surface Water Features***

No surface water bodies exist within 1000 horizontal feet of the site.

## **3.0 Contaminant and Size of Area**

The primary contaminant is produced water with a slight hydrocarbon component. The release flowed approximately 300-ft south of the release point, primarily along two channels. A GPS measurement of the affected area yielded approximately 12,300-ft<sup>2</sup> (see Plate 3).

The produced water and minor portion of crude oil associated with this release are considered RCRA Exempt oilfield waste. No evidence of other contaminants was observed.

## 4.0 Vertical Extent of Contamination

The vertical contamination extent beneath the flow path area is projected to be less than 2-ft.

## 5.0 NMOCD Site Ranking

Contaminant delineation and remedial work done at this site indicate that the chemical parameters of the soil and the physical parameters of the ground water were characterized consistent with the characterization and remediation/abatement goals and objectives set forth in the following New Mexico Oil Conservation Division (NMOCD) publications:

- *Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)*
- *Unlined Surface Impoundment Closure Guidelines (February 1993)*

Acceptable thresholds for contaminants/constituents of concern (CoCs), i.e., TPH<sup>8015m</sup>, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylenes (BTEX<sup>8260</sup>), was determined based on the NMOCD Ranking Criteria as follows:

- *Depth to Ground water, i.e., distance from the lower most acceptable concentration to the ground water.*
- *Wellhead Protection Area, i.e., distance from fresh water supply wells.*
- *Distance to Surface Water Body, i.e., horizontal distance to all down gradient surface water bodies.*

Based on the proximity of the site to area water wells, surface water bodies, and depth to ground water from the lower most contamination, the NMOCD ranking score for the site is 20 points with the soil remedial goals highlighted in the Site Ranking table presented below.

NMOCD Site Ranking Table

1. GROUND WATER		2. WELLHEAD PROTECTION		3. DISTANCE TO SURFACE WATER	
DEPTH TO GW <50 FEET: 20 POINTS		IF <1000' FROM WATER SOURCE, OR; <200' FROM PRIVATE DOMESTIC WATER SOURCE: 20 POINTS		<200 HORIZONTAL FEET: 20 POINTS	
DEPTH TO GW 50 TO 99 FEET: 10 POINTS				200-1000 HORIZONTAL FEET: 10 POINTS	
DEPTH TO GW >100 FEET: 0 POINTS		IF >1000' FROM WATER SOURCE, OR; >200' FROM PRIVATE DOMESTIC WATER SOURCE: 0 POINTS		>1000 HORIZONTAL FEET: 0 POINTS	
GROUND WATER SCORE = 0		WELLHEAD PROTECTION SCORE= 0		SURFACE WATER SCORE= 0	
SITE RANK (1+2+3) = 0 + 0 + 0 = 0 POINTS					
TOTAL SITE RANKING SCORE AND ACCEPTABLE REMEDIAL GOAL CONCENTRATIONS					
PARAMETER	20+	10		0	
BENZENE	10 PPM	10 PPM		10 PPM	
BTEX	50 PPM	50 PPM		50 PPM	
TPH	100 PPM	1000 PPM		5000 PPM	

## **6.0 Remediation Action Plan**

The chloride/hydrocarbon contaminated area of the flow path will be blended with clean soil obtained from the areas adjacent to the flow path to achieve contaminant levels below the remedial action levels (5000-ppm TPH; 50-ppm BTEX; 10-ppm Benzene).

**ATTACHMENTS**

Plate 1: Site Location Map .....	7
Plate 2: Site Topography Map .....	8
Plate 3: Site Features .....	9
Initial NMOCD C-141 Form .....	10
Site Information and Metrics Form .....	11

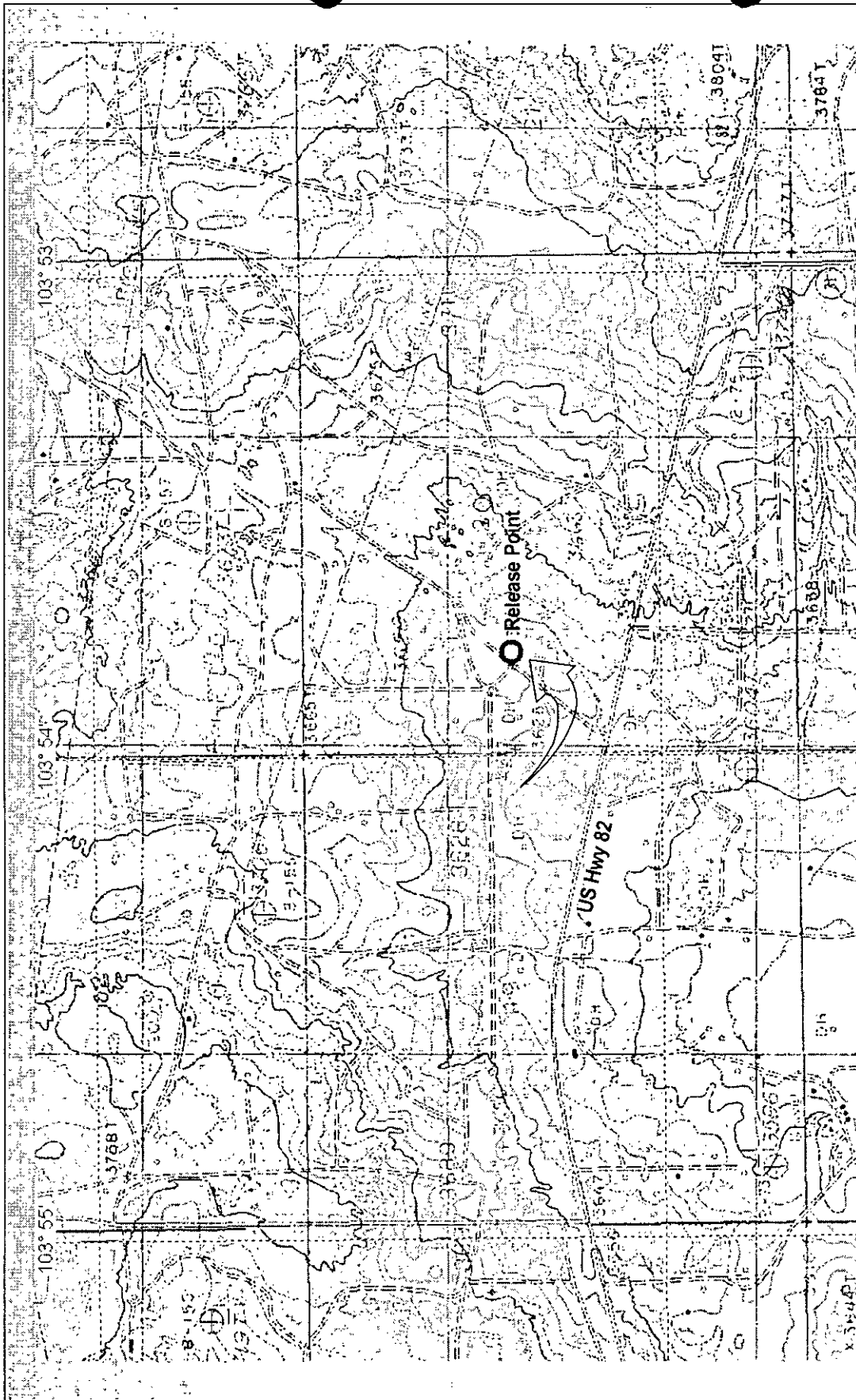
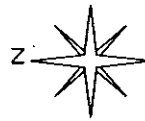
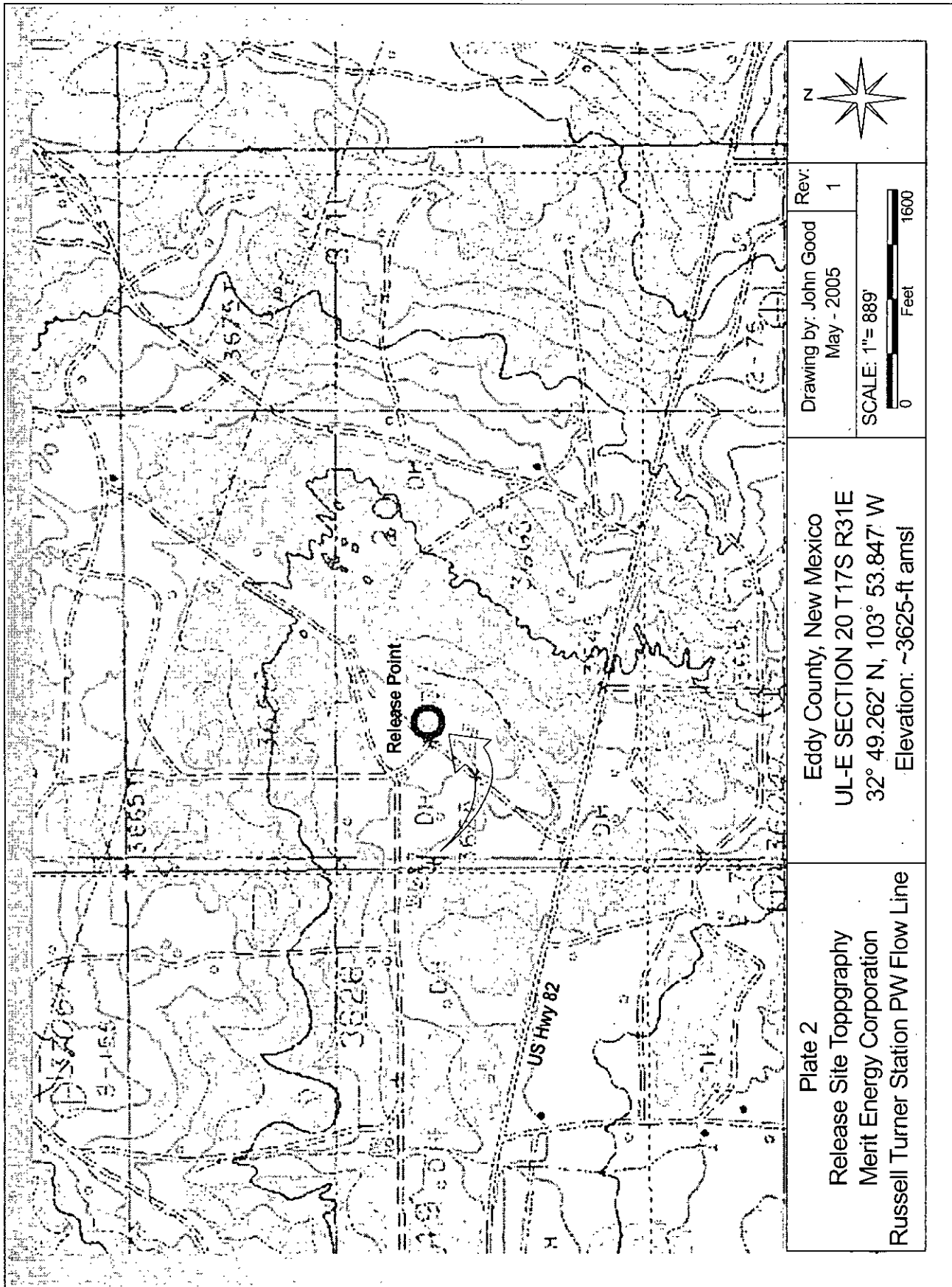


Plate 1  
Release Site Location  
Merit Energy Corporation  
Russell Turner Station PW Flow Line

Eddy County, New Mexico  
UL-E SECTION 20 T17S R31E  
32° 49.262' N, 103° 53.847' W  
Elevation: ~3625-ft amsl

Drawing by: John Good  
May - 2005  
Rev. 1  
SCALE: 1"= 1412'  
0 3000  
Feet







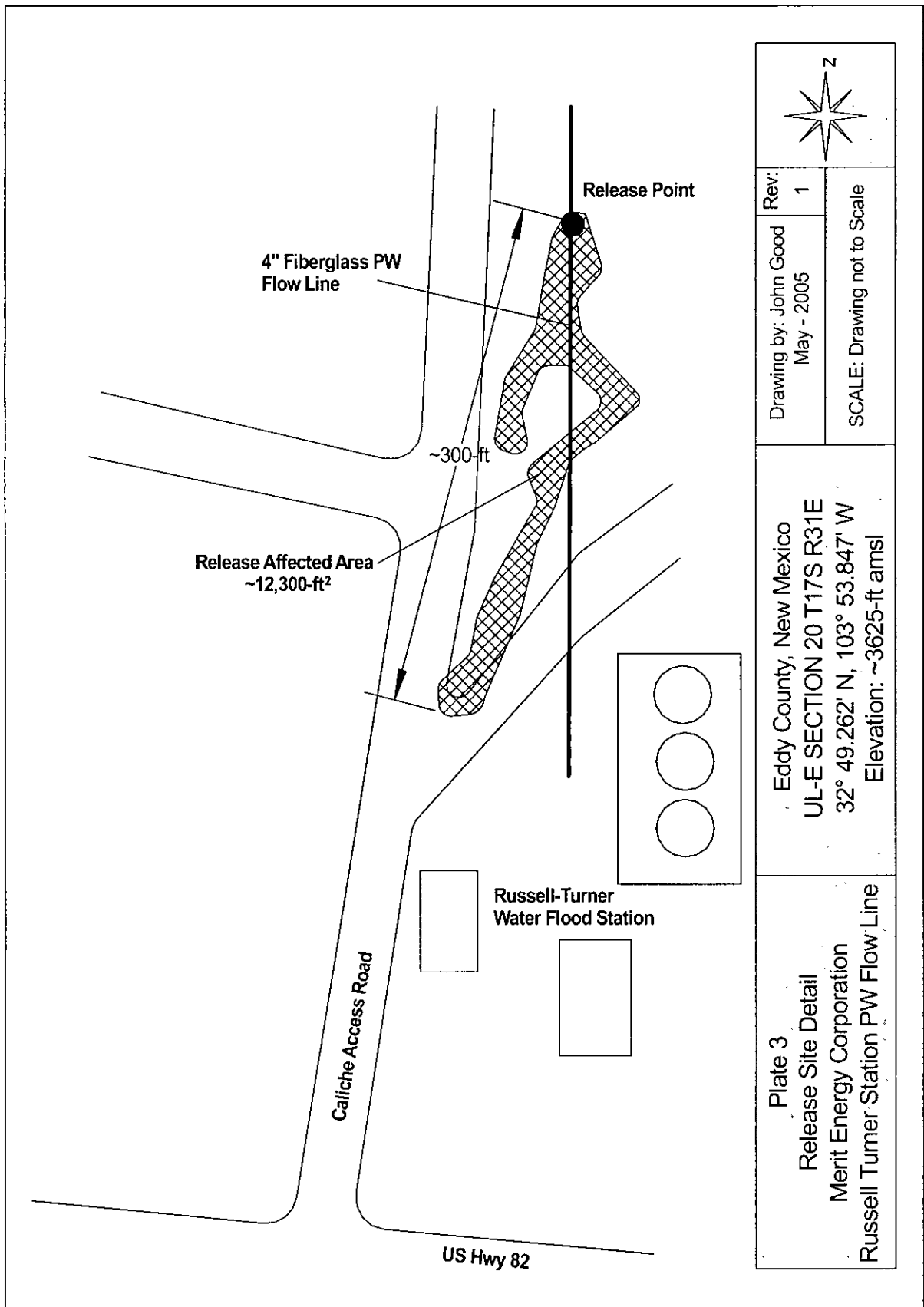



Plate 3 Release Site Detail Merit Energy Corporation Russell Turner Station PW Flow Line	Eddy County, New Mexico UL-E SECTION 20 T17S R31E 32° 49.262' N, 103° 53.847' W Elevation: ~3625-ft amsl		Drawing by: John Good May - 2005	Rev: 1	 z
			SCALE: Drawing not to Scale		

## 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**

Form C-141

Revised June 10, 2003

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

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	Merit Energy Corporation		Contact	Gene Brookshire
Address	P.O. Box 69	Loco Hills, NM 88255	Telephone No.	505-420-5497
Facility Name	Russell Turner Water Flood Station		Facility Type	Produced Water Flow Line

Surface Owner	BLM	Mineral Owner	BLM	Lease No.
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from South Line	Feet from East Line	Longitude-W	Latitude-N	County
L	20	17S	31E	2200	660	103deg 53.847'	32deg 49.262'	Eddy

**NATURE OF RELEASE**

Type of Release	Volume of Release	Volume Recovered
Produced Water with slight oil component	25 bbl	0 bbl
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
4" Produced Water Line - Valve failure	5/2/2005 PM	5/3/05 7:00 AM
Was Immediate Notice Given?	If YES, To Whom?	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Not Required	Mike Bratcher, NMOCD-Artesia	
By Whom?	Date and Hour	
John Good	5/3/05 10:48 AM	
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	NA	

If a Watercourse was Impacted, Describe Fully\*


Describe Cause of Problem and Remedial Action Taken. \*

Valve failure on 4" fiberglass Produced Water flow line just north of the Russell-Turner Water Flood Station. Flow shut off, pipe excavated and repaired. EZ Oilfield Services contracted for evaluation and remediation of site.

Describe Area Affected and Cleanup Action Taken. \*

Numerous narrow flow paths extending approximately 100-ft south from the release location. Remediation to be conducted by EZ Oilfield Services.

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

Signature:				<b>OIL CONSERVATION DIVISION</b>	
Printed Name:	John Good			Approved by District Supervisor:	
Title:	Consultant/Project Manager			Approval Date:	Expiration Date:
E-Mail Address:	jcgood4614@aol.com			Conditions of Approval:	
Date:	5/13/2005	Phone:	505-631-3277	<input type="checkbox"/> Attached	

<b>Merit Energy Corporation</b>		Incident Date: 5/2/05 NMOCD Notified: 5/3/05	
SITE: Russell Turner Water Flood Station		Assigned Site Reference: RTWF-050205	
Company: Merit Energy Corporation			
Street Address:			
Mailing Address: P.O. Box 69			
City, State, Zip: Loco Hills, NM 88255			
Representative: Gene Brookshire			
Representative Telephone: 505-420-5497			
Telephone:			
Fluid Volume Released (bbl): > 25		Volume Recovered (bbl): ~ 0	
Net Release: > 25			
>25 bbl: Notify NMOCD verbally within 24 hours and submit C-141 within 15 days.			
5-25 bbl: Submit Form C-141 within 15 days. (Also applies to unauthorized release of >50 mcf Natural Gas).			
Leak, Spill, or Pit (LSP) Name:		Russell Turner Water Flood Station	
Source of Contamination:		4" Produced Water Line - Valve failure	
Land Owner, i.e. BLM, ST, Fee, Other:		BLM	
LSP Dimensions:		irregular narrow flow paths extending 100' south	
LSP Area		~ 2000 -ft <sup>2</sup>	
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude: North		32deg 49.262'	
Longitude: West		103deg 53.847'	
Elevation above mean sea level (amsl):		3625 feet 1117 meters	
Distance from South Section Line (feet):		2200	
Distance from West Section Line (feet):		660	
Location - Unit Letter and 1/4 1/4:		UL- L NW - 1/4 of SW - 1/4	
Location - Section		20	
Location - Township		17S	
Location - Range		31E	
Surface water body within 1000' radius of site:		0	
Surface water body within 1000' radius of site:		0	
Domestic water wells within 1000' radius of site:		0	
Domestic water wells within 1000' radius of site:		0	
Agricultural water wells within 1000' radius of site:		0	
Agricultural water wells within 1000' radius of site:		0	
Public water supply wells within 1000' radius of site:		0	
Public water supply wells within 1000' radius of site:		0	
Depth (feet) from land surface to Ground Water (DG): >		250	
Depth (feet) of lowest contamination (DC):		5	
Depth (feet) to Ground Water (DG - DC = DtGW): >		245	
<b>1. Ground Water</b>		<b>2. Wellhead Protection Area</b>	
If Depth to GW <50-feet: 20 points		If <1000' from water source, or, <200' from private domestic water source: 20 points	
If Depth to GW 50 to 100-feet: 10 points		If >1000' from water source, or, >200' from private domestic water source: 0 points	
If Depth to GW >100-feet: 0 points			
Ground Water Score: 0		Wellhead Protection Score: 0	
Site Ranking (1 + 2 + 3): 0		Surface Water Score: 0	
<b>Total Site Ranking Score and Acceptable Concentrations</b>			
Parameter	20 or >	10	0
Benzene <sup>1</sup>	10-ppm	10-ppm	10-ppm
BTEX <sup>1</sup>	50-ppm	50-ppm	50-ppm
TPH	100-ppm	1000-ppm	5000-ppm

<sup>1</sup> 100-ppm field VOC headspace measurement may be substituted for lab analysis

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side of form.

**Release Notification and Corrective Action**

**OPERATOR**

☒ Initial Report    ☐ Final Report

Name of Company	<b>Merit Energy Corporation</b>	Contact	<b>Gene Brookshire</b>
Address	<b>P.O. Box 69    Loco Hills, NM 88255</b>	Telephone No.	<b>505-420-5497</b>
Facility Name	<b>C.A. Russell Tank Battery</b>	Facility Type	<b>Crude Oil Tank Battery</b>

Surface Owner	<b>BLM</b>	Mineral Owner	<b>BLM</b>	Lease No.	<b>LC-029548-A</b>
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from North Line	Feet from East Line	Longitude-W	Latitude-N	County
<b>B</b>	<b>18</b>	<b>17S</b>	<b>31E</b>	<b>1320</b>	<b>1775</b>	<b>103deg 54.344'</b>	<b>32deg 50.284'</b>	<b>Eddy</b>

**NATURE OF RELEASE**

Type of Release <b>Crude Oil</b>	Volume of Release <b>50      &gt;      bbl</b>	Volume Recovered <b>40      bbl</b>
Source of Release <b>Tank Overflow</b>	Date and Hour of Occurrence <b>5/18/05 3:00 AM</b>	Date and Hour of Discovery <b>5/18/05 7:00 AM</b>
Was Immediate Notice Given? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Not Required	If YES, To Whom? <b>Mike Bratcher, NMOCD-Artesia</b>	
By Whom? <b>John Good</b>	Date and Hour <b>5/18/05 4:30 PM</b>	
Was a Watercourse Reached? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If YES, Volume Impacting the Watercourse <b>NA</b>	

If a Watercourse was Impacted, Describe Fully\*

Describe Cause of Problem and Remedial Action Taken. \*

**Failure at heater-treater allowed water to flow to crude oil storage tank. Water forced oil to top and overflow. Flow shut off, heater-treater was repaired and EZ Oilfield Services contracted for evaluation and remediation of site.**

Describe Area Affected and Cleanup Action Taken. \*

**Release did not escape battery containment area (100' X 55'). Remediation to be conducted by EZ Oilfield Services.**

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

Signature:	<b>OIL CONSERVATION DIVISION</b>		
Printed Name:	<b>John Good</b>		
Title:	<b>Consultant/Project Manager</b>		
E-Mail Address:	<b>jcgood4614@aol.com</b>		
Date:	<b>5/19/2005</b>	Phone:	<b>505-631-3277</b>
Approved by District Supervisor:		Approval Date:	Expiration Date:
Conditions of Approval:		<input type="checkbox"/> Attached	

<b>Merit Energy Corporation</b>		Incident Date: 5/18/05 NMOCD Notified: 5/18/05	
SITE: C.A. Russell Tank Battery		Assigned Site Reference: CAR-051805	
Company: Merit Energy Corporation			
Street Address:			
Mailing Address:		P.O. Box 69	
City, State, Zip:		Loco Hills, NM 88255	
Representative:		Gene Brookshire	
Representative Telephone:		505-420-5497	
Telephone:			
Fluid Volume Released (bbl): > 50		Volume Recovered (bbl): ~ 40	
Net Release: > 10			
<p>&gt;25 bbl: Notify NMOCD verbally within 24 hours and submit C-141 within 15 days.</p> <p>5-25 bbl: Submit Form C-141 within 15 days. (Also applies to unauthorized release of &gt;50 mcf Natural Gas).</p>			
Leak, Spill, or Pit (LSP) Name:		C.A. Russell Tank Battery	
Source of Contamination:		Tank Overflow	
Land Owner, i.e. BLM, ST, Fee, Other:		BLM	
LSP Dimensions:		55' X 100'	
LSP Area		~ 5500 -ft <sup>2</sup> (less tank footprints)	
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude: North		32deg 50.284'	
Longitude: West		103deg 54.344'	
Elevation above mean sea level (amsl):		3704 feet 1129 meters	
Distance from North Section Line (feet):		1320	
Distance from East Section Line (feet):		1775	
Location - Unit Letter and 1/4 1/4:		UL- B NW - 1/4 of NE - 1/4	
Location - Section		18	
Location - Township		17S	
Location - Range		31E	
Surface water body within 1000' radius of site:		0	
Surface water body within 1000' radius of site:		0	
Domestic water wells within 1000' radius of site:		0	
Domestic water wells within 1000' radius of site:		0	
Agricultural water wells within 1000' radius of site:		0	
Agricultural water wells within 1000' radius of site:		0	
Public water supply wells within 1000' radius of site:		0	
Public water supply wells within 1000' radius of site:		0	
Depth (feet) from land surface to Ground Water (DG): >		250	
Depth (feet) of lowest contamination (DC):		10	
Depth (feet) to Ground Water (DG - DC = DtGW): >		240	
<b>1. Ground Water</b>		<b>2. Wellhead Protection Area</b>	
If Depth to GW <50-feet: 20 points		If <1000' from water source, or, <200' from private domestic water source: 20 points	
If Depth to GW 50 to 100-feet: 10 points		If >1000' from water source, or, >200' from private domestic water source: 0 points	
If Depth to GW >100-feet: 0 points			
Ground Water Score: 0		Wellhead Protection Score: 0	
Site Ranking (1 + 2 + 3): 0		3. Distance to Surface Water	
		<200 horizontal feet: 20 points	
		200-1000 horizontal feet: 10 points	
		>1000 horizontal feet: 0 points	
		Surface Water Score: 0	
<b>Total Site Ranking Score and Acceptable Concentrations</b>			
Parameter	20 or >	10	0
Benzene <sup>1</sup>	10-ppm	10-ppm	10-ppm
BTEX <sup>1</sup>	50-ppm	50-ppm	50-ppm
TPH	100-ppm	1000-ppm	5000-ppm

<sup>1</sup> 100-ppm field VOC headspace measurement may be substituted for lab analysis

