

# 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

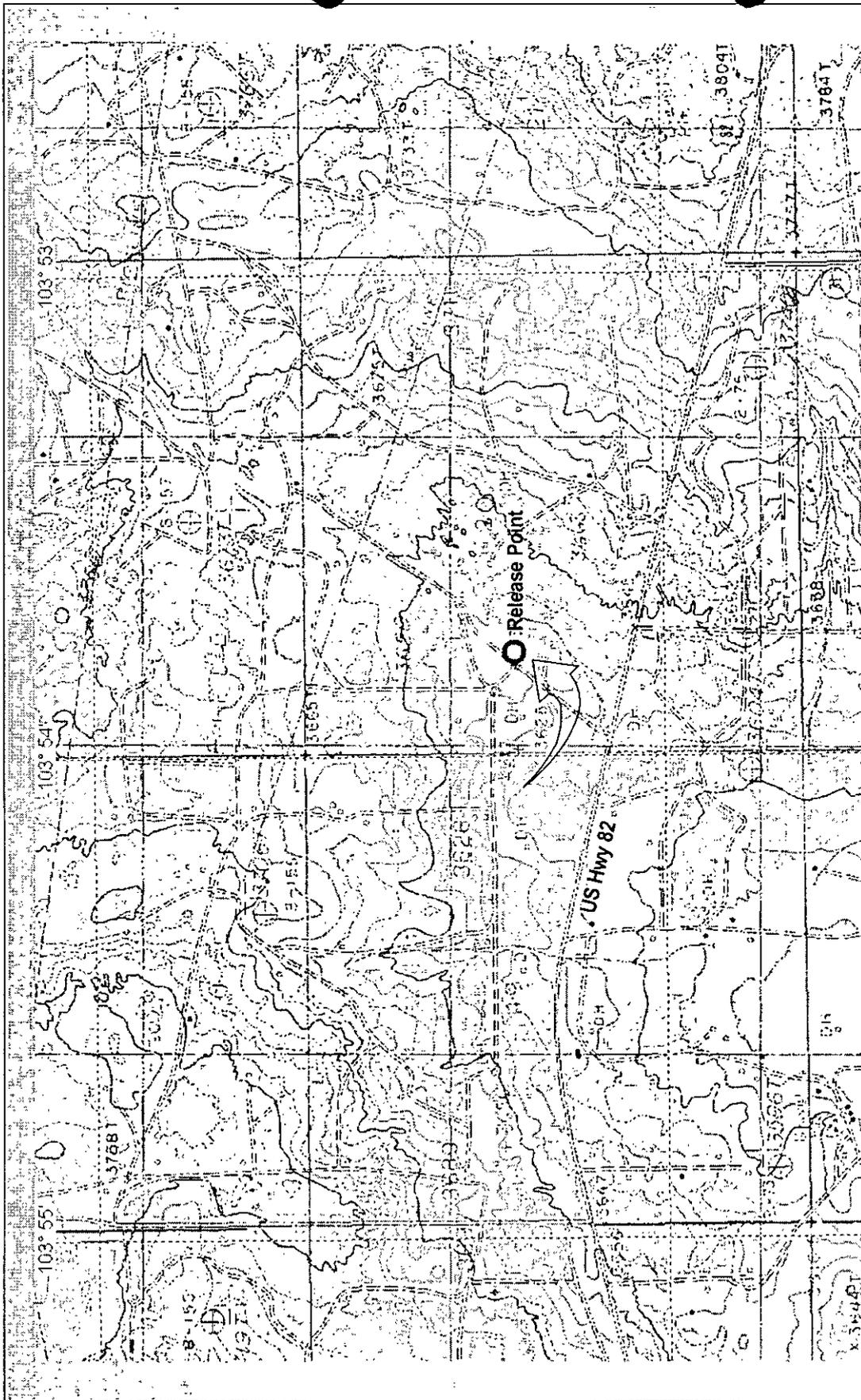
1. GROUND WATER		2. WELLHEAD PROTECTION		3. DISTANCE TO SURFACE WATER	
DEPTH TO GW <50 FEET: 20 POINTS		IF <1000' FROM WATER SOURCE, OR; <200' FROM PRIVATE DOMESTIC WATER SOURCE: 20 POINTS		<200 HORIZONTAL FEET: 20 POINTS	
DEPTH TO GW 50 TO 99 FEET: 10 POINTS				200-1000 HORIZONTAL FEET: 10 POINTS	
DEPTH 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**

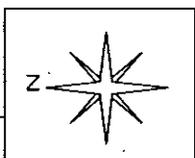
Plate 1: Site Location Map .....	7
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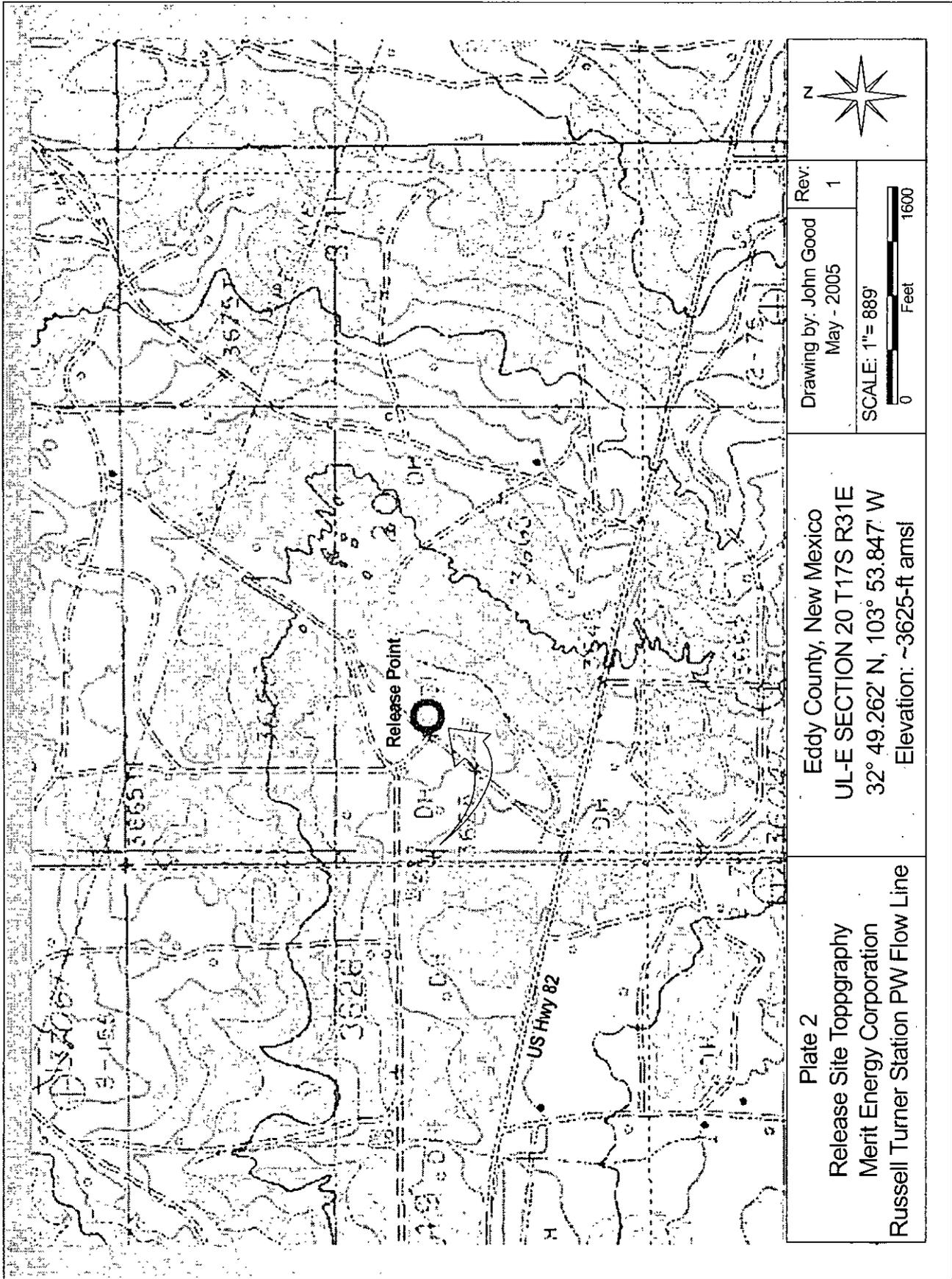


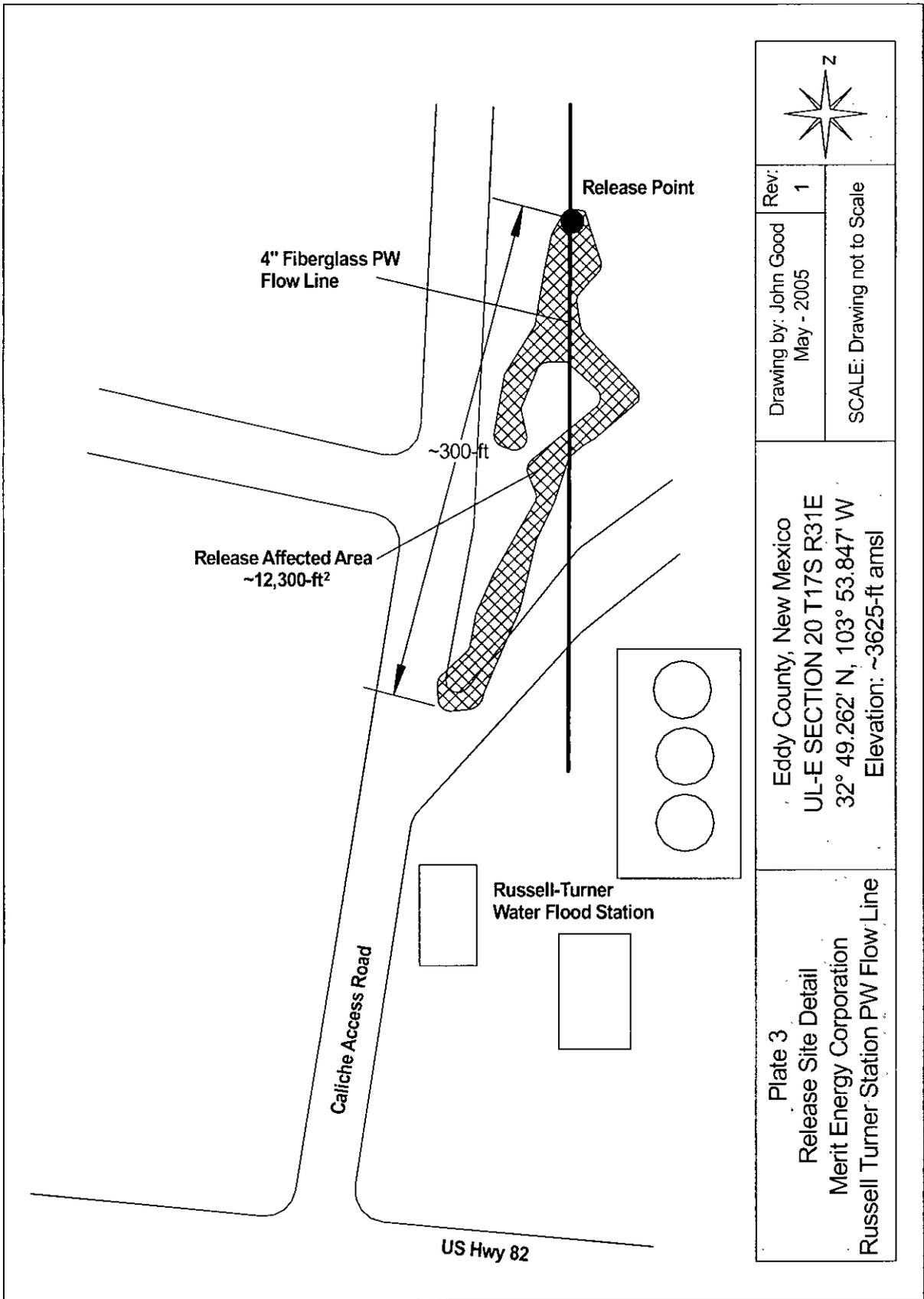
**Plate 1**  
 Release Site Location  
 Merit Energy Corporation  
 Russell Turner Station PW Flow Line

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  
 SCALE: 1"= 1412'  
 0 Feet 3000







Drawing by: John Good May - 2005		Rev: 1	SCALE: Drawing not to Scale
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			

District I

1625 N. French Dr., Hobbs, NM 88240

District II

1301 W. Grand Avenue, Artesia, NM 88210

District III

1000 Rio Brazos Road, Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C-141

Revised June 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	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
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:			
Title:	Consultant/Project Manager	Approved by District Supervisor:	
E-Mail Address:	jcgood4614@aol.com	Approval Date:	Expiration Date:
Date:	5/13/2005	Phone:	505-631-3277
Conditions of Approval:			<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	
<i>&gt;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 &gt;50 mcf Natural Gas).</i>					
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>		<b>3. Distance to Surface Water</b>	
If 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	
If Depth to GW 50 to 100-feet: 10 points		If >1000' from water source, or, >200' from private domestic water source: 0 points		200-1000 horizontal feet: 10 points	
If Depth to GW >100-feet: 0 points				>1000 horizontal feet: 0 points	
Ground Water Score: 0		Wellhead Protection Score: 0		Surface Water Score: 0	
Site Ranking (1 + 2 + 3):		<b>0</b>			
<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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Santa Fe, NM 87505

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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	C.A. Russell Tank Battery	Facility Type	Crude Oil Tank Battery

Surface Owner	BLM	Mineral Owner	BLM	Lease No.	LC-029548-A
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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	18	17S	31E	1320	1775	103deg 54.344'	32deg 50.284'	Eddy

NATURE OF RELEASE

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

Title:	Consultant/Project Manager	Approval Date:	Expiration Date:
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E-Mail Address:	jcgood4614@aol.com	Conditions of Approval:	<input type="checkbox"/> Attached
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Date:	5/19/2005	Phone:	505-631-3277
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<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			
<i>&gt;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 &gt;50 mcf Natural Gas).</i>			
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		Wellhead Protection Score: 0	
Ground Water Score: 0		Surface Water Score: 0	
Site Ranking (1 + 2 + 3): 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

