MERIT ENERGY CORPORATION

INITIAL C-141 AND WORK PLAN

KEEL B BATTERY

PROJECT REF: MER-KB-040505

UL-D (NW ¼ OF THE NW¼) OF SECTION 8 T17S R31E

~8 MILES NORTHEAST OF LOCO HILLS
EDDY COUNTY, NEW MEXICO

April 8, 2005

PREPARED FOR MERIT ENERGY CORPORATION BY:

John Good – Environmental Consultant/Project Manager
4614 N. Grimes
Hobbs, New Mexico 88240
(505) 631-3277

Table of Contents

1.0 Introduction and Background

This report addresses the produced water release that occurred at the Merit Energy Keel B Battery on the morning of April 5, 2005. The cause of the release was a failure of a transfer pump causing the overflow of a produced water storage tank within the battery containment area. The release overflowed the battery containment area and flowed out onto the well pad south of the battery facility. A previously installed peripheral berm on the well pad prevented outflow of the release onto pasture land south and west of the battery. The release volume was ~400-bbl, with 310-bbl recovery by vacuum truck.

This release site is located on BLM land in Unit Letter D, (NW¼ of the NW¼), Section 8, T17S, R31E. . A location map, topographical map of the site and a site 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 (*Querqus 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. The tank battery release affected the battery containment area (3000-ft^2); a narrow southwesterly flow path; and, the west portion of the well pad adjacent to the battery facility (3600-ft^2). (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

A profile of the vertical contamination extent beneath the battery location will be determined by excavation during the remediation process. With the timely recovery of most of the released produced water, vertical contaminant migration is anticipated to be less than 3-ft. Laboratory analytical samples will be collected and submitted to confirm that hydrocarbon contaminant action levels have been achieved.

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^{8015m}, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylenes (BTEX^{8260}), 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	[illegible]	10	0
Benzene	[illegible] ppm	10 ppm	10 ppm
BTEX	[illegible] ppm	50 ppm	50 ppm
TPH	100 ppm	1000 ppm	5000 ppm

6.0 Remediation Action Plan

The contaminated soil within the battery confinement area will be excavated to necessary depth and stockpiled on the caliche well pad south of the battery. The excavated battery area will be backfilled with clean material. The pooling area on the well pad will also be excavated to a depth of 12-inches and combined with the stockpiled material from the battery area. The contaminated material will be blended with clean caliche as necessary to bring TPH and BTEX concentrations below the remedial action levels (5000-ppm TPH; 50-ppm BTEX; 10-ppm Benzene) and utilized for berm reconstruction at various Merit facilities.

ATTACHMENTS

Keel B Battery
Keel A Battery
Keel A Well #29
US Hwy 82
Plate 1
Release Site Location
Merit Energy Corporation
Keel B Battery
Eddy County, New Mexico
UL-D SECTION 8 T17S R31E
Grayburg-Jackson Field
Elevation: ~3800-ft amsl
Drawing by: John Good
April - 2005
Rev:
1
SCALE: 1"= 1644'
0
Feet
3600
N

Keel A Battery
Keel B Battery
3769
3730
3703
3691
Plate 2
Release Site Topography
Merit Energy Corporation
Keel B Battery
Eddy County, New Mexico
UL-D SECTION 8 T17S R31E
Grayburg-Jackson Field
Elevation: ~3800-ft amsl
Drawing by: John Good
April - 2005
Rev:
1
SCALE: 1"= 654'
0
Feet
1200
N

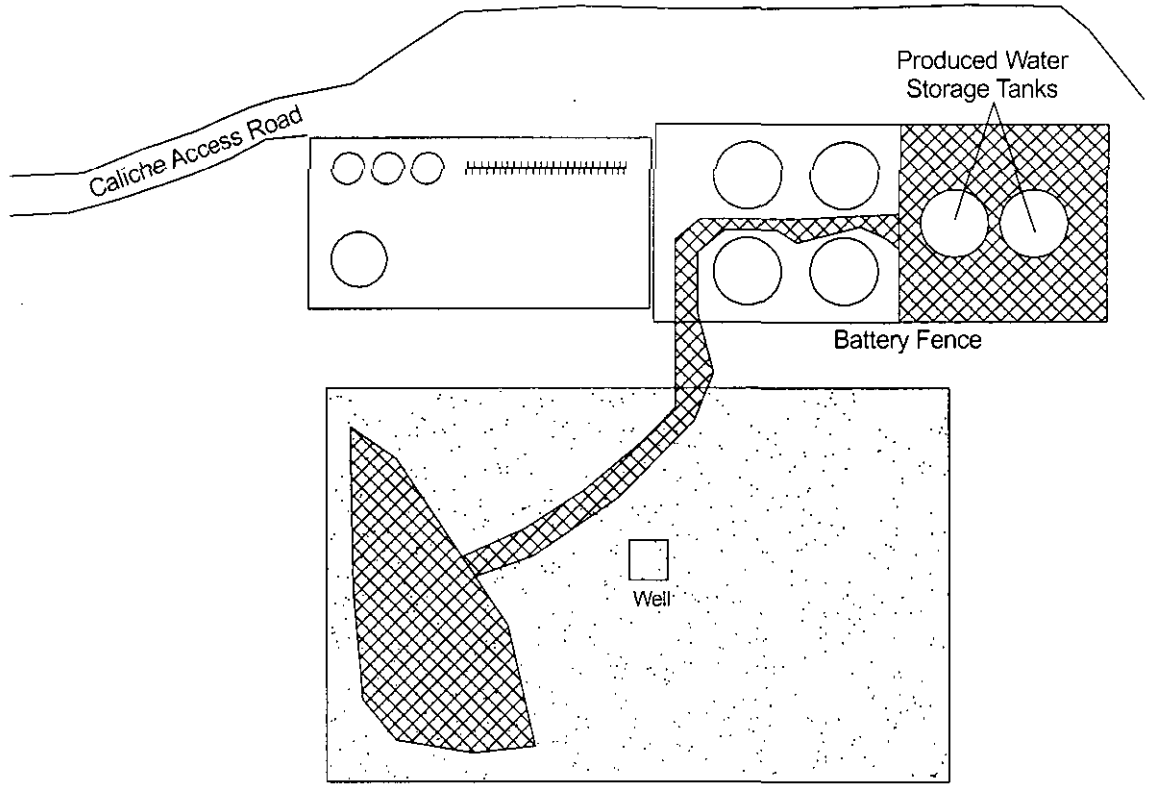


Plate 3 *Release Site Detail* Merit Energy Corporation Keel B Battery	Eddy County, New Mexico UL-D SECTION 8 T17S R31E Grayburg-Jackson Field Elevation: ~3800-ft amsl	Drawing by: John Good April - 2005 Drawing not to Scale	Rev: 1 N

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	**Keel B Battery**	Facility Type	**Tank Battery**

Surface Owner **BLM**	Mineral Owner **BLM**	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from South Line	Feet from West Line	Longitude-W	Latitude-N	County
D	**8**	**17S**	**31E**	**3300**	**660**			**Eddy**

NATURE OF RELEASE

Type of Release **Produced Water w/ minor portion crude oil**	Volume of Release **400 bbl**	Volume Recovered **310 bbl**
Source of Release **Vertical Tank (500-bbl)**	Date and Hour of Occurrence **4/5/05 5:00 AM**	Date and Hour of Discovery **4/5/05 7:00 AM**
Was Immediate Notice Given? ☑ YES ☐ NO ☐ Not Required	If YES, To Whom? **Mike Bratcher, NMOCD-Artesia**	
By Whom? **John Good**	Date and Hour **4/5/05 2:30 PM**	
Was a Watercourse Reached? ☐ YES ☑ NO	If YES, Volume Impacting the Watercourse **NA**	

If a Watercourse was Impacted, Describe Fully*

Describe Cause of Problem and Remedial Action Taken. *
Pump failure at produced water storage, causing one 500-bbl PW storage tank to overflow. When discovered, inflow was stopped and fluid recovery commenced with vacuum trucks. EZ Oilfield Service was contacted for evaluation and remediation. ~400-bbl total release; 310-bbl recovery.

Describe Area Affected and Cleanup Action Taken. *
Approximate ~3000-ft^2 within the battery and ~3600-ft^2 surface area affected on the caliche well pad south of the battery. Previous berm installation at pad periphery prevented outflow onto pasture land.

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:		**OIL CONSERVATION DIVISION**	
Printed Name:	**John Good**	Approved by District Supervisor:	
Title:	**EZ - Project Consultant**	Approval Date:	Expiration Date:
E-Mail Address:	jcgood4614@aol.com	Conditions of Approval:	☐ Attached
Date: **4/8/2005**	Phone: **505-631-3277**		

Merit Energy Corporation	Incident Date: 4/5/05	NMOCD Notified: 4/5/05

SITE: Keel B Battery		Assigned Site Reference:	MER-KB-040505
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): ~ 400	Volume Recovered (bbl): 310	Net Release: ~ 90	

>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:	Keel B Battery
Source of Contamination:	Vertical Tank (500-bbl)
Land Owner, i.e. BLM, ST, Fee, Other:	BLM
LSP Dimensions:	~ 40' X 75' at battery; 120' X 30' at well pad below battery
LSP Area	~ 10000 -ft^2
Location of Reference Point (RP):	
Location distance and direction from RP:	
Latitude: North	
Longitude: West	
Elevation above mean sea level (amsl):	feet meters
Distance from South Section Line (feet):	3300
Distance from West Section Line (feet):	660
Location - Unit Letter and 1/4 1/4:	UL- D NW 1/4 of NW 1/4
Location - Section	8
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

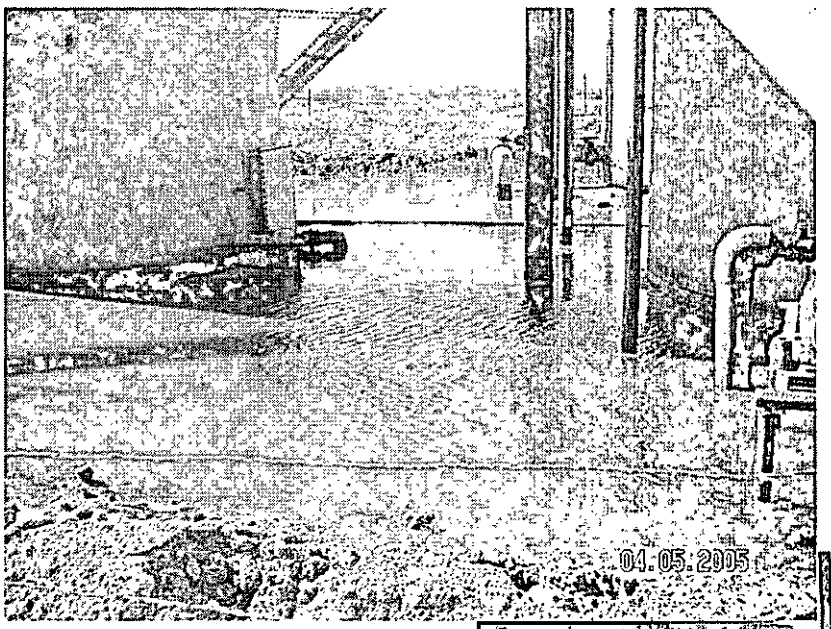
1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water
If Depth to GW <50-feet: 20 points	If <1000' from water source, or, <200' from private domestic water source: 20 points	<200 horizontal feet: 20 points
If Depth to GW 50 to 100-feet: 10 points	If >1000' from water source, or, >200' 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): **0**

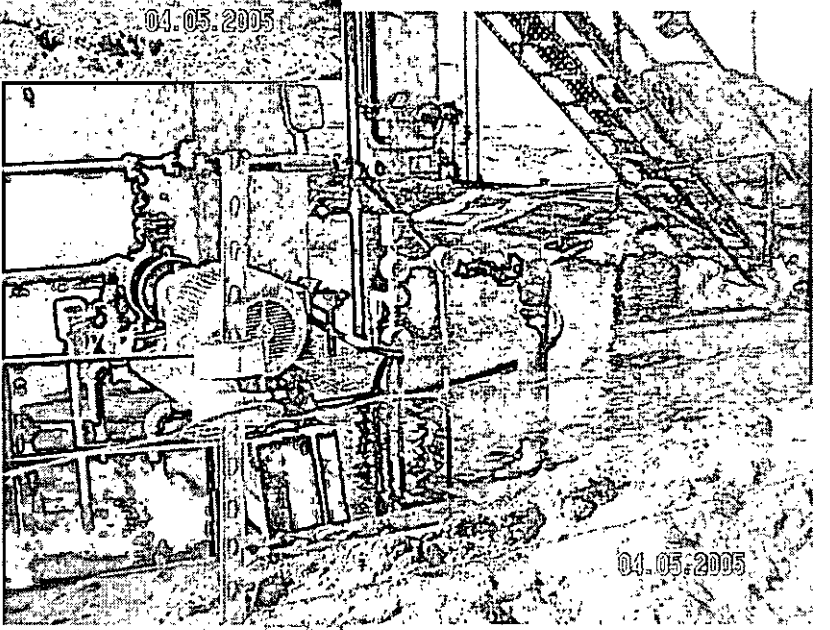
Total Site Ranking Score and Acceptable Concentrations

Parameter	20 or >	10	**0**
Benzene[1]	10-ppm	10-ppm	**10-ppm**
BTEX[1]	50-ppm	50-ppm	**50-ppm**
TPH	100-ppm	1000-ppm	**5000-ppm**

[1] *100-ppm field VOC headspace measurement may be substituted for lab analysis*



Release within the battery containment area.



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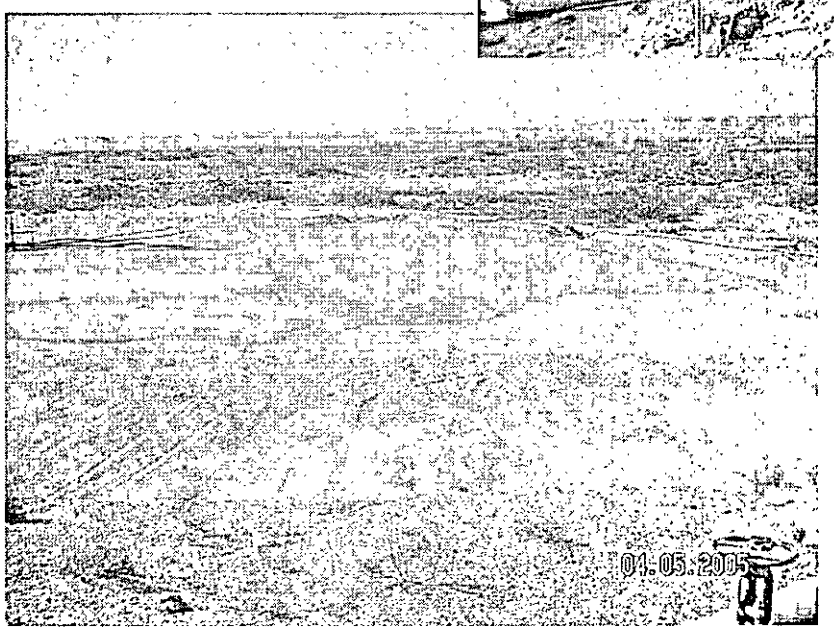

Pooling area on west side of well pad south of battery,