



Electronic Correspondence

June 22, 2015

Mike Bratcher
State of New Mexico
Oil Conservation Division
811 S. 1st Street
Atresia, NM 88210
mike.bratcher@state.nm.us

Re: **Assessment Corrective Action Plan**
Memorial Resource Development, KLM Battery - RP No.: Pending
API No.: 30-025-28421
Legal: Sec 31, T17S, R30E - Eddy Co., NM
GPS: 32.791267, -104.012383
Depth to Groundwater: No Groundwater in this area
Release Type: Crude Oil

Contaminants of Concern (COC's)	Threshold Levels
Total Petroleum Hydrocarbons (TPH)	5000 mg/kg
Benzene	10 mg/kg
BTEX	50 mg/kg

Dear Mike:

Etech Environmental & Safety Solutions, Inc. (Etech) is pleased to submit the following corrective action plan on the aforementioned site for your review and approval.

Background

The release occurred due to failure of a circulating pump in its ability to hold back fluid. The fluid overflowed its containment around the pump and migrated approximately 200 feet on the lease road before pooling adjacent to a county road. All free standing liquids were removed and the areas assessed. A small amount of pasture areas (less than 800 SF) was impacted. A copy of the initial C-141 is provided in Attachment A. An annotated aerial photograph showing the release area and TPH levels is provided in Attachment B. Photographs of the release area are provided in Attachment C.

Scope of Work

The scope of this project is for the remediation of a hydrocarbon impact. After discussion with the BLM and NMOCD the BLM verbally approved a technical approach for remediation involving the maximum of resource conservation. Completion of remediation will involve the following actions:

1. Placement of a one-call for utility location.
2. Analytical data has indicated that the surface interval of the impacted area is above regulatory threshold levels. All other areas are below corrective action goals. The soils on the road will be graded to ensure they are uniform and that there are no free phase hydrocarbons and that they

are below corrective action levels. Copies of analytical data from the assessment are provided in Attachment D.

3. Pasture impacts will be remediated using a biological amendment and blending the amendment with the surface soils.
4. Confirmation samples will be collected from the sampling points established during the assessment and one additional area in the pasture to and verify the treated areas are below corrective action levels.

Notifications and Special Conditions

1. The BLM and NMOCD will be notified prior to the commencement of on-site operations.
2. The OCD will be notified prior to each sampling event to allow the opportunity to witness the sampling events. Splits will be made available if requested.
3. The SLO and OCD will be notified when the site is closed for final inspection prior to seeding.
4. A final report documenting the closure of the site will be submitted along with a final C-141 to SLO and OCD.

Thank you for your assistance on this matter. Should you have any questions, require additional information, or have any additional stipulations for this site, please contact Kit Prichard or myself at (432) 563-2200 (office) or via email at fred@etechnv.com, or Kit@etechnv.com.

Respectfully:



Fred Holmes
Principal Environmental Professional

Cc: stucker@blm.gov

Attachment A
Initial C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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 August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR Initial Report Final Report

Name of Company	Memorial Production Operating LLC	Contact	Heather Dolphin
Address	500 Dallas Street, Suite 1800, Houston, TX 77002	Telephone No.	832-797-1334
Facility Name	KLM Battery	Facility Type	Production

Surface Owner	Mineral Owner	API No.	30-015-04411
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	31	17S	30E					Eddy

Latitude 32°47'28.56"N Longitude 104° 0'44.58"W

NATURE OF RELEASE

Type of Release	Oil	Volume of Release	7bbls Oil 23bbls PWV	Volume Recovered	30bbls
Source of Release	Battery	Date and Hour of Occurrence	8/2/15	Date and Hour of Discovery	8/2/15 10am
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Jim Amos, BLM & Heather Patterson, NMOCD		
By Whom?	Heather Dolphin Sr. Regulatory Specialist	Date and Hour	8/2/15 4:17pm		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	n/a		

If a Watercourse was Impacted, Describe Fully.*

n/a

Describe Cause of Problem and Remedial Action Taken.*

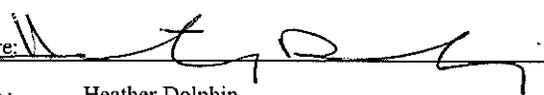
A valve upstream from the circulating pump washed out and wouldn't hold fluid back. The spill filled up the berm around the circ. Pump and overflowed it.

Describe Area Affected and Cleanup Action Taken.*

100ftx1ft all the way down to the County Road 217 were it puddled 2ft x4ft. Vacuumed up all free standing liquid, then the pumper spread dirt over the spill on the asphalt. Will wait on further instruction from BLM and OCD to give us some direction on how they want this cleaned up.

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.

OIL CONSERVATION DIVISION

Signature: 	Approved by Environmental Specialist:		
Printed Name: Heather Dolphin	Title: Sr. Regulatory Specialist	Approval Date:	Expiration Date:
E-mail Address: heather.dolphin@memorialrd.com	Date: 08/3/2015	Phone: 832-797-1334	Attached <input type="checkbox"/>

* Attach Additional Sheets If Necessary

Attachment B
Annotated Aerial Imagery

**Attachment C
Photograph Log**

Photo No:
1.

Direction Taken:
North

Description:
View of the impacted area from the release point.



Photo No:
2.

Direction Taken:
North

Description:
View of the impacted area from the battery migrating north on associated lease road.





<p>Photo No: 7.</p>	
<p>Direction Taken: Northeast</p>	
<p>Description: View of the impacted area where release stopped.</p>	

Attachment D
Analytical Results

Extended Diesel Range Organic Hydrocarbons Analysis Report

siteLAB® EDRO C10-C40 Aromatics in Soil, Sediment & Water

Client: Memorial
Address:

Phone:
Contact:

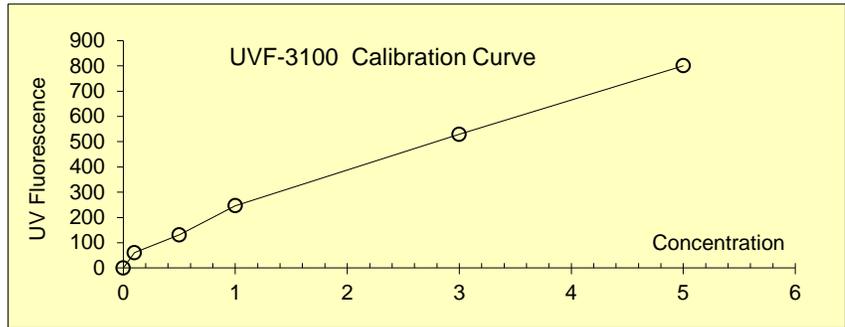
Operator:
Signature:

Project Name: KLM Battery
Job #: 416-6439-000
File #: 1
Matrix: soil
Date Collected: 8/5/2015
Date Received: 8/5/2015
Date Extracted: 8/7/2015
Date Analyzed: 8/7/2015
Date Reported: 8/7/2015

Date: _____ Time: _____

Standard Concentration	UVF-3100 Calibration Raw Fluorescence
0	0
0.1	60.6
0.5	131.0
1.0	246.2
3.0	529.4
5.0	800.6

siteLAB
Calibration Product #: CAL-042
Units (ppm or mg/Kg): ppm



Linearity = 0.995

UVF Run#:	Sample ID & Description	UVF Raw Fluorescence	Test Sample Concentration (ppm)	Dilution Factor	Test Result:
1	AH 1 SURFACE	605.00	3.557	2,000	7,114.0 ppm
2	AH 1 1'	673.10	4.06	1,000	4,060.0 ppm
3	AH 1 2'	592.90	3.468	1,000	3,468.0 ppm
4	AH 1 3'	489.50	2.718	1,000	2,718.0 ppm
5	AH 2 SURFACE	768.30	4.762	2,000	9,524.0 ppm
6	AH 2 1'	563.10	3.249	2,000	6,498.0 ppm
7	AH 2 2'	292.80	1.329	1,000	1,329.0 ppm
8	AH 2 3'	113.00	0.398	1,000	398.0 ppm
9	AH 3 SURFACE	675.10	4.074	4,000	16,296.0 ppm
10	AH 3 1'	405.10	2.123	1,000	2,123.0 ppm
11	AH 3 2'	410.10	2.157	1,000	2,157.0 ppm
12	AH 3 3'	38.37	0.063	10,000	Concentration... Too Low (ND)
13		1.00	1	1	1.0 ppm
14		1.00	1	1	1.0 ppm
15		1.00	1	1	1.0 ppm
16		1.00	1	1	1.0 ppm
17		1.00	1	1	1.0 ppm
18		1.00	1	1	1.0 ppm
19		1.00	1	1	1.0 ppm
20		1.00	1	1	1.0 ppm

Comments: Results reported in wet weight.

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
10014 SCR 1213
Midland, TX 79706**



Analytical Report

Prepared for:

Brandon Wilson
E Tech Environmental & Safety Solutions, Inc.
13000 West County Road 100
Odessa, TX 79765

Project: KLM Battery
Project Number: 416-6439-000
Location: Memorial
Lab Order Number: 5H11009



NELAP/TCEQ # T104704156-13-3

Report Date: 08/20/15

E Tech Environmental & Safety Solutions, Inc.
13000 West County Road 100
Odessa TX, 79765

Project: KLM Battery
Project Number: 416-6439-000
Project Manager: Brandon Wilson

Fax: (432) 563-2213

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH1 @ 1'	5H11009-01	Soil	08/05/15 00:00	08-11-2015 10:16
AH1 @ 3'	5H11009-02	Soil	08/05/15 00:00	08-11-2015 10:16
AH2 @ 1'	5H11009-03	Soil	08/05/15 00:00	08-11-2015 10:16
AH2 @ 3'	5H11009-04	Soil	08/05/15 00:00	08-11-2015 10:16
AH3 @ 1'	5H11009-05	Soil	08/05/15 00:00	08-11-2015 10:16
AH3 @ 3'	5H11009-06	Soil	08/05/15 00:00	08-11-2015 10:16

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

AH1 @ 1'
5H11009-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	1.0	0.1	%	1	P5H1301	08/13/15	08/13/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	64.9	25.3	mg/kg dry	1	P5H1304	08/12/15	08/13/15	TPH 8015M	
>C12-C28	1860	25.3	mg/kg dry	1	P5H1304	08/12/15	08/13/15	TPH 8015M	
>C28-C35	632	25.3	mg/kg dry	1	P5H1304	08/12/15	08/13/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		69.8 %	70-130		P5H1304	08/12/15	08/13/15	TPH 8015M	S-GC
<i>Surrogate: o-Terphenyl</i>		85.3 %	70-130		P5H1304	08/12/15	08/13/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	2560	25.3	mg/kg dry	1	[CALC]	08/12/15	08/13/15	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

AH1 @ 3'
5H11009-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	2.0	0.1	%	1	P5H1301	08/13/15	08/13/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	36.9	25.5	mg/kg dry	1	P5H1304	08/12/15	08/14/15	TPH 8015M	
>C12-C28	786	25.5	mg/kg dry	1	P5H1304	08/12/15	08/14/15	TPH 8015M	
>C28-C35	308	25.5	mg/kg dry	1	P5H1304	08/12/15	08/14/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		105 %	70-130		P5H1304	08/12/15	08/14/15	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		133 %	70-130		P5H1304	08/12/15	08/14/15	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	1130	25.5	mg/kg dry	1	[CALC]	08/12/15	08/14/15	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

AH2 @ 1'
5H11009-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	5.0	0.1	%	1	P5H1301	08/13/15	08/13/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	132	mg/kg dry	5	P5H1304	08/12/15	08/13/15	TPH 8015M	
>C12-C28	3840	132	mg/kg dry	5	P5H1304	08/12/15	08/13/15	TPH 8015M	
>C28-C35	979	132	mg/kg dry	5	P5H1304	08/12/15	08/13/15	TPH 8015M	
Surrogate: 1-Chlorooctane		58.3 %	70-130		P5H1304	08/12/15	08/13/15	TPH 8015M	S-GC
Surrogate: o-Terphenyl		72.2 %	70-130		P5H1304	08/12/15	08/13/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	4820	132	mg/kg dry	5	[CALC]	08/12/15	08/13/15	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

AH2 @ 3'
5H11009-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	4.0	0.1	%	1	P5H1301	08/13/15	08/13/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P5H1304	08/12/15	08/13/15	TPH 8015M	
>C12-C28	252	26.0	mg/kg dry	1	P5H1304	08/12/15	08/13/15	TPH 8015M	
>C28-C35	87.0	26.0	mg/kg dry	1	P5H1304	08/12/15	08/13/15	TPH 8015M	
Surrogate: 1-Chlorooctane		57.6 %	70-130		P5H1304	08/12/15	08/13/15	TPH 8015M	S-GC
Surrogate: o-Terphenyl		75.9 %	70-130		P5H1304	08/12/15	08/13/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	339	26.0	mg/kg dry	1	[CALC]	08/12/15	08/13/15	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

AH3 @ 1'
5H11009-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	6.0	0.1	%	1	P5H1301	08/13/15	08/13/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P5H1403	08/13/15	08/13/15	TPH 8015M	
>C12-C28	530	26.6	mg/kg dry	1	P5H1403	08/13/15	08/13/15	TPH 8015M	
>C28-C35	159	26.6	mg/kg dry	1	P5H1403	08/13/15	08/13/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		65.9 %		70-130	P5H1403	08/13/15	08/13/15	TPH 8015M	S-GC
<i>Surrogate: o-Terphenyl</i>		84.2 %		70-130	P5H1403	08/13/15	08/13/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	689	26.6	mg/kg dry	1	[CALC]	08/13/15	08/13/15	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

AH3 @ 3'
5H11009-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	8.0	0.1	%	1	P5H1301	08/13/15	08/13/15	% calculation	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P5H1403	08/13/15	08/13/15	TPH 8015M	
>C12-C28	301	27.2	mg/kg dry	1	P5H1403	08/13/15	08/13/15	TPH 8015M	
>C28-C35	66.8	27.2	mg/kg dry	1	P5H1403	08/13/15	08/13/15	TPH 8015M	
Surrogate: 1-Chlorooctane		65.0 %	70-130		P5H1403	08/13/15	08/13/15	TPH 8015M	S-GC
Surrogate: o-Terphenyl		82.2 %	70-130		P5H1403	08/13/15	08/13/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	367	27.2	mg/kg dry	1	[CALC]	08/13/15	08/13/15	calc	

E Tech Environmental & Safety Solutions, Inc.
 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
 Project Number: 416-6439-000
 Project Manager: Brandon Wilson

Fax: (432) 563-2213

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5H1301 - % Solids										
Blank (P5H1301-BLK1)					Prepared & Analyzed: 08/13/15					
% Moisture	ND	0.1	%							
Duplicate (P5H1301-DUP1)					Source: 5H11005-01 Prepared & Analyzed: 08/13/15					
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P5H1301-DUP2)					Source: 5H11009-03 Prepared & Analyzed: 08/13/15					
% Moisture	4.0	0.1	%		5.0			22.2	20	
Duplicate (P5H1301-DUP3)					Source: 5H12009-08 Prepared & Analyzed: 08/13/15					
% Moisture	5.0	0.1	%		5.0			0.00	20	

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 13000 West County Road 100
 Odessa TX, 79765

Project: KLM Battery
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Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P5H1403 - TX 1005										
Blank (P5H1403-BLK1)										
Prepared & Analyzed: 08/13/15										
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
<i>Surrogate: 1-Chlorooctane</i>	71.8		"	100		71.8	70-130			
<i>Surrogate: o-Terphenyl</i>	45.0		"	50.0		90.0	70-130			
LCS (P5H1403-BS1)										
Prepared & Analyzed: 08/13/15										
C6-C12	857	25.0	mg/kg wet	1000		85.7	75-125			
>C12-C28	999	25.0	"	1000		99.9	75-125			
<i>Surrogate: 1-Chlorooctane</i>	92.1		"	100		92.1	70-130			
<i>Surrogate: o-Terphenyl</i>	46.5		"	50.0		93.1	70-130			
LCS Dup (P5H1403-BSD1)										
Prepared & Analyzed: 08/13/15										
C6-C12	873	25.0	mg/kg wet	1000		87.3	75-125	1.86	20	
>C12-C28	1100	25.0	"	1000		110	75-125	9.58	20	
<i>Surrogate: 1-Chlorooctane</i>	99.7		"	100		99.7	70-130			
<i>Surrogate: o-Terphenyl</i>	48.1		"	50.0		96.2	70-130			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:



Date:

8/20/2015

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

