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By OCD District 1 at 8:13 am, Aug 06, 2015

Response/Remediation Plan
Microbial Energy Inc
Crownquest Operating: Midland Texas (Operator)
Location: Unit Letter G Section 14 Township 145 Range 33E
API No. 30-025-28824
March 30, 2015

Remediation Plan Flow Line Leak

Microbial Energy Inc., is submitting this response/remediation plan to the Oil Conservation Division (OCD) to mitigate the release of oil/produced water on surface level through production equipment. This proposal is for an on site bio remediation. The production equipment is owned and maintained by Crownquest Operating of Midland TX (500 W Texas Ave #500, Midland, TX 79701) (432) 685-3116. The release was discovered February 11th, 2015. The release site is located in Unit Letter G, Section 14, Township 145, East Range 33. The GPS coordinates for the release site is 33°.06'.19.48", 103°.35'.02.17".

Site History

On February 11th, 2015 Lease Manager Zachariah Jones of Crownquest Operating, Midland Texas, noticed a flow line leak coming from well location NM BG 1-6 of Crownquest Operating. Zachariah called in a vacuum truck immediately to pick up residual standing oil/produced water and also notified Div. 3 OCD of Aztec NM. Dr. Thomas Oberding is the contact with OCD of NM for this specific site. The flow line was fixed and pressure tested on February 12th, 2015 by 24/7 Oil Field Services. The flow of production material was immediately stopped the day and time of incident. No watercourses were affected. An area of soil staining of approximately 375 feet in diameter and approximately 700 yds. saturated was observed on the ground surface. Soil samples from surface for laboratory analysis were collected on Tuesday March 3, 2015. Follow up delineation samples were also collected to show percent of change from zone to zone (results included in PDF file). Chloride samples were also collected in comparison areas to assess the difference in mg/Kg. A temporary gate was place around affected site to ensure free range live stock were not to be in the contaminated area.

Site Ranking

The ranking for release site has been determined by site-specific criteria outlined in the NMOCD/BLM guidelines for Remediation of Leaks, Spills and Releases (1993). Samples were collected for TPH and chloride results. Upon collecting samples, we discovered bedrock as low as 18" down to 30" within the entire area. This release location has been assigned NMOCD/BLM ranking of 0-9. Benzene needs to be below 10ppm, BTEX needs to be below 50, and Total Petroleum Hydrocarbons need to be below 1000

- DTGW Ranking of 0
- WHPA Ranking of 0
- DTSWB Ranking of 0

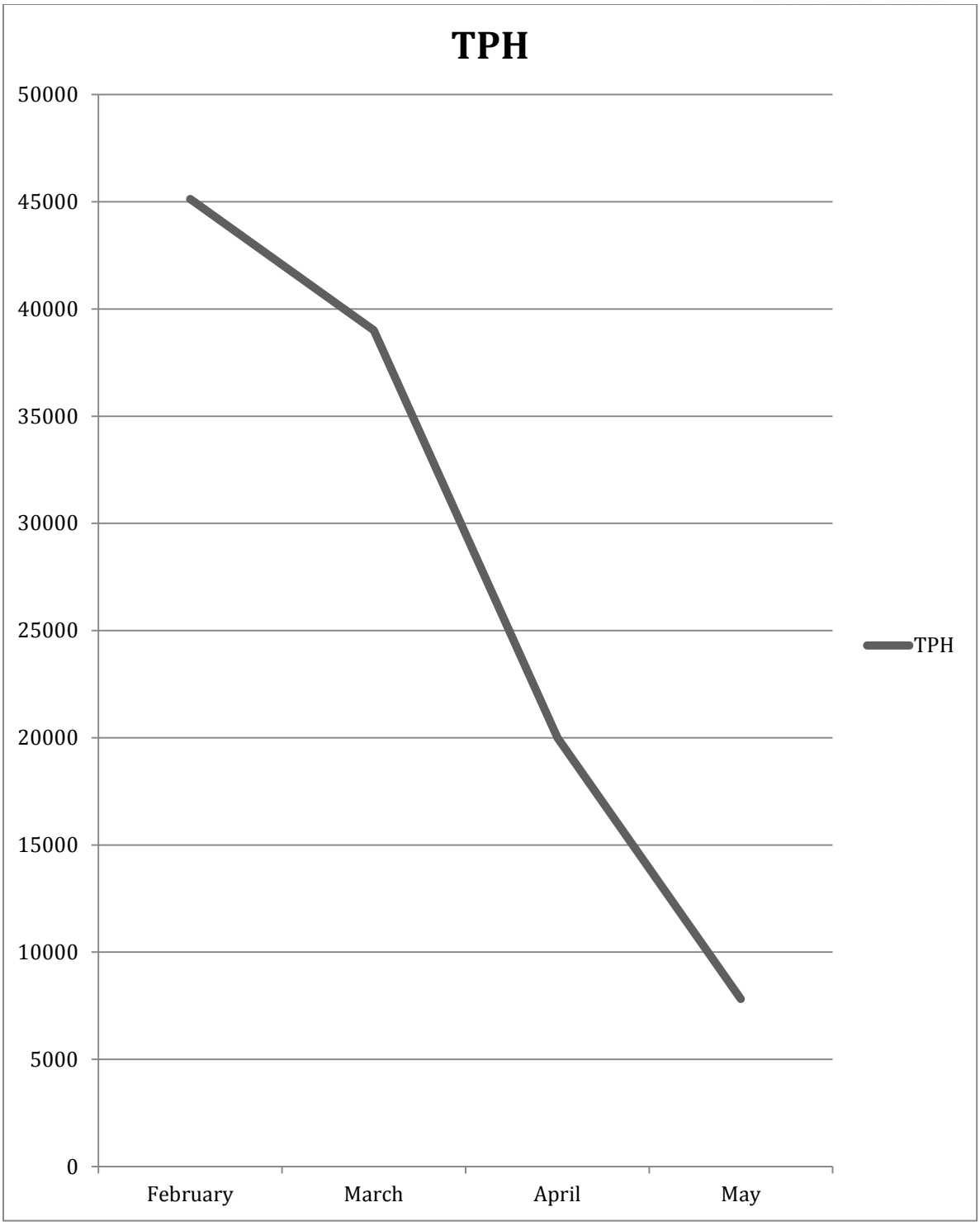
May 22, 2015
NM BG 1-6 Soil Remediation (Lea County)
Second set test sample results and comparison
Sample Analysis completed by Hall Environmental Labs (Albuquerque NM)
Any comments questions of concerns, please contact Dan Failer of Adrian Griego of Microbial Energy

Abstract of remediation:
Performing an on site remediation of this size and stature, we need to be able to move dirt around as much as possible. Ensuring oxygen, moisture and microorganisms are equally distributed. With that being said, samples were collected in the same locations as before, but the results may seem off. Basically, the dirt from surface to bottom hole has been integrated within itself . What we are looking for as far as successful results would be the total degrading of hydrocarbons in total. What we did is put together mathematically the total average for the first set of samples and compared against the total average for the second set collected. As you will see the decline in TPH is exponential.

Percent of change TPH +477%

March/April		May		
	TPH (ppm)		TPH (ppm)	Chlor
	60,049		10,000	1500
	110,000		9,900	230
	19,000		4,500	1500
	68,000		16,000	740
	6,900		1,100	500
	6,800		5,400	520
Total Avg.	45,124(ppm)	Total Avg.	7,816 (ppm)	831

Thank you for your time, and choosing Microbial Energy, a clean energy
Please contact Dan Failer at 970.442.1123 or dan@microbialenergyinc.com
Please contact Adrian Griego at 505.419.0541 or adrian@microbialenergyinc.co



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- Chlorides <1000ppm (results attached)
- TPH (results attached)

Assessment and Field Work required for remediation

1. Anticipated start date is the beginning of April 2015, but not before plan is approved by OCD representative Dr. Tomas Oberding.
2. Excavations will go up to, 48" based on visual and olfactory methods to determine the depth of contamination. Dirt from the north end of the site will be placed on the south end by way of 40-to 70 thousand lb. excavator, and vice versa during the remediation process for treatment purposes. After moving contaminated soils each time, the LTC will be graded, tilled and treated. (Adding hydrocarbon degrading microorganisms, nitrogen phosphorous as well as oxygenation). With this process we would be creating an on site land treatment cell or LTC. Soils will be placed in designated area with liner protecting native soil from cross contamination if needed to place other than opposite side of excavation. (Photos of this initial part of the project will be documented) During excavation, contaminated dirt will be treated with microbial soil products. Where contamination falls below 48" from surface, an OCD approved liner will be placed throughout such area to keep separated from remediated soils and or further leaching. The above soil will be treated for the degrading of hydrocarbon and dilution of chloride. Clean, like soil may need to be hauled in and turned in with native soil for the assistance in degrading hydrocarbon and the dilution of chlorides (soil samples will determine,). Follow up treatments, and modifications weekly/monthly will be determined by results of soil samples, until decided a closure can be performed.
3. Both the RP and NMOCD offices will be notified prior 48 hours when samples will be collected for Hall Environmental analysis. Discrete samples will be taken of the exposed soil to determine delineation of contamination throughout project.
4. Soil sample results will be emailed and or mailed to the RP and NMOCD representative for review, and clearance prior to backfilling excavation towards the end of the proposed project.
5. Microbial Energy Team Members will monitor the location on a weekly/monthly basis, detailed notes/samples will be sent to the required RP (Crownquest Rep) and OCD members.
6. A sketch of the release area for proposed sample grabs is attached.

Fieldwork preformed

March 3, 2015

Preliminary soil samples were taken.

March 10, 2015

Preliminary soil samples results came back and where shared with appropriate parties. See attachment (Preliminary soil samples)

May 4, 2015

Microbial Energy meet with Zack Johnes, at the oil spill sight, to get a good assessment of the sight and discus action plan. Microbial Energy built a fence around the site, to prevent any livestock or unauthorized personnel to enter.

May 6, 2015

Microbial Energy preformed an onsite remediation to contaminated area. The entailed was as followed: (1) excavate the whole site from north to south, digging down 36"- 48". This will allow for new oxygen to be introduced into the contaminated soil. (2) Apply a concentrated amount of microbial solution, to start degrading the hydrocarbons. (3) Turn the soil again to mix microbial solution into the soil, this will help the microbes penetrate deeper into the contaminated soil.

May 7, 2015

Meet with Kellie Jones at the OCD office and discussed parameters of the reclamation. The meeting went well and all parties where satisfied.

May 8, 2015

Second set of soil samples were collected and sent to Hall Environmental for analysis.

May 11, 2015

Microbial Energy turned soil and added treated contaminated soil with microbial solution.

May 12, 2015

Microbial Energy turned soil and added treated contaminated soil with microbial solution.

May 22, 2015

Revived results for 2nd set of soil analysis. Sent results to appropriate parties. The TPS had dropped by over 400 percent. See attached doc (2nd soil test).

May 25, 2015

Microbial Energy turned soil and added treated contaminated soil with microbial solution.

May 27, 2015

Microbial Energy turned soil and added treated contaminated soil with microbial solution.

May 28, 2015

Talked with Kellie Jones, with the OVD, and she was pleased with the 2nd set of soil analysis.

June 19, 2015

Microbial Energy turned soil again to re oxygenate the soil and treat with a microbial solution that degrades hydrocarbons.

July 14, 2015

Microbial Energy turned soil again to re oxygenate the soil and treat with a microbial solution that degrades hydrocarbons.

Preceding Plans

- Microbial Energy has plans to revisit the site around August 15, 2015 to take follow up soil samples.
- Turn soil again
- Treat with microbial solution
- Once TPH levels have reached appropriate levels Microbial Energy will turn soil once more and treat with microbial solution.
- Haul off approximately 40 yards of caliche, in order to return ground to its natural grade.
- Haul in approximately 40 yards of top soil, to cover up most of the remaining un-earthed caliche and allow vegetation to a adequate amount of have good top soil for regrowth

Analytical Report
Lab Order **1503464**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Microbial Energy
Client Sample ID: BG Flowline
Project: Crown Quest
Collection Date: 3/3/2015 9:00:00 AM
Lab ID: 1503464-001
Matrix: SOIL
Received Date: 3/10/2015 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**
Diesel Range Organics (DRO)	74000	10000		mg/Kg	1000	3/13/2015 5:53:01 PM
Motor Oil Range Organics (MRO)	ND	50000		mg/Kg	1000	3/13/2015 5:53:01 PM
Surr: DNOP	0	63.5-128	S	%REC	1000	3/13/2015 5:53:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	68	49		mg/Kg	10	3/12/2015 11:29:27 AM
Surr: BFB	134	80-120	S	%REC	10	3/12/2015 11:29:27 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Microbial Energy
Client Sample ID: Tubb Dirt/Tubbex
Project: Crown Quest
Collection Date: 3/3/2015 9:28:00 AM
Lab ID: 1503464-002
Matrix: SOIL
Received Date: 3/10/2015 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Chloride	1.6	1.5		mg/Kg	1	3/12/2015 10:40:19 AM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Calcium	54000	490		mg/Kg	20	3/19/2015 12:56:54 PM
Magnesium	2500	24		mg/Kg	1	3/18/2015 2:24:39 PM
SM4500-H+B: PH						Analyst: **JRR**
pH	8.52	1.68		pH Units	1	3/16/2015 2:58:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1503464**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Microbial Energy
Client Sample ID: BG Flowline 2
Project: Crown Quest
Collection Date: 3/3/2015 9:42:00 AM
Lab ID: 1503464-003
Matrix: SOIL
Received Date: 3/10/2015 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**
Diesel Range Organics (DRO)	26000	1000		mg/Kg	100	3/13/2015 2:38:01 PM
Motor Oil Range Organics (MRO)	13000	5000		mg/Kg	100	3/13/2015 2:38:01 PM
Surr: DNOP	0	63.5-128	S	%REC	100	3/13/2015 2:38:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	220	48		mg/Kg	10	3/12/2015 11:58:13 AM
Surr: BFB	215	80-120	S	%REC	10	3/12/2015 11:58:13 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Microbial Energy
Client Sample ID: Clean Flowline BG
Project: Crown Quest
Collection Date: 3/3/2015 10:30:00 AM
Lab ID: 1503464-004
Matrix: SOIL
Received Date: 3/10/2015 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/16/2015 12:16:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/16/2015 12:16:55 PM
Surr: DNOP	114	63.5-128		%REC	1	3/16/2015 12:16:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/12/2015 12:55:39 PM
Surr: BFB	90.6	80-120		%REC	1	3/12/2015 12:55:39 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Microbial Energy
Client Sample ID: BG Flowline 4
Project: Crown Quest
Collection Date: 3/3/2015 10:28:00 AM
Lab ID: 1503464-005
Matrix: SOIL
Received Date: 3/10/2015 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**
Diesel Range Organics (DRO)	68000	9900		mg/Kg	1000	3/13/2015 4:48:10 PM
Motor Oil Range Organics (MRO)	ND	49000		mg/Kg	1000	3/13/2015 4:48:10 PM
Surr: DNOP	0	63.5-128	S	%REC	1000	3/13/2015 4:48:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	100		mg/Kg	20	3/12/2015 12:26:56 PM
Surr: BFB	101	80-120		%REC	20	3/12/2015 12:26:56 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		


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