



July 31, 2017

Randy Bayliss  
New Mexico Oil Conservation Division  
1220 S. St. Francis Drive  
Santa Fe, New Mexico 87505

**Re: Remediation Plan Update  
Benson-Montin-Greer  
Highway 537 Truck Receiving Station 2009 Release  
Rio Arriba County, New Mexico  
NMOCD ORDER #3RP-448-0**

Dear Mr. Bayliss:

On behalf of Benson-Montin-Greer Drilling Corporation (BMG), Animas Environmental Services, LLC (AES) has prepared this Remediation Plan Update, which provides details of proposed remedial activities at the BMG Highway 537 Truck Receiving Station 2009 release location. Semi-annual monitoring and sampling have been on going at the site, in conjunction with interim hand-bailing of free product. The remediation plan update was requested in a meeting with New Mexico Oil Conservation Division (NMOCD) with AES, on behalf of BMG, on June 29, 2017.

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## 1.0 Site Information

The BMG Highway 537 Truck Receiving Station previously consisted of eight 500 barrel (bbl) oil storage tanks, one 600 bbl oil storage tank, one 80 bbl open top waste tank, and various pumps and meters associated with crude oil transport truck loading, unloading, and pipeline transport. Surface ownership in the area where the release occurred includes private land owned by the Schmitz Ranch.

### 1.1 Site Location

The truck receiving station is located along the south side of NM State Highway 537 and is adjacent to the Los Ojitos Arroyo, which eventually drains to Largo Canyon. The facility is described legally as being located within the SW $\frac{1}{4}$  NW $\frac{1}{4}$  Section 18, T25N, R3W in Rio Arriba County, New Mexico. Latitude and longitude were recorded as being N36.39866 and W107.19328, respectively. A topographic site location map, based on an excerpt from the U.S. Geological

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505-564-2281

1911 Main, Ste 206  
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970-403-3084

Survey (USGS) 7.5-minute Schmitz Ranch, Rio Arriba County, New Mexico topographic quadrangle (USGS 1963), is included as Figure 1. Site plans, including existing monitor wells, are presented as Figures 2A and 2B.

## 1.2 Release History

In January 2009, a Western Refining truck driver discovered crude condensate within the bermed area around the storage tanks, on the south side of Tank #1. BMG personnel arrived on-site and confirmed a leak at a buried 6-inch line between the storage tanks and the truck loading pump. BMG isolated the line and emptied it of residual oil. BMG then contacted Brandon Powell of New Mexico Oil Conservation Division (NMOCD) to provide notification and intended response to the release.

The release was the result of a corrosion hole along the bottom of the pipe near the truck loading pumps. Because it was determined that the leak had impacted soils to at least 15 feet bgs, and due to the presence of tanks, buried pipe, buried conduit, and fixed pumps and meters within the release area, BMG and AES, in consultation with NMOCD, concluded that an assessment of the release area by installing soil borings and monitor wells would be the most appropriate assessment method.

On February 2, 2009, the 6-inch line was repaired, and the excavation was backfilled with clean fill material. Approximately 100 cubic yards of contaminated soil were transported to the TNT Landfarm for disposal. From February 16 through 20, 2009, site investigation activities were conducted by AES in order to delineate the full extent of petroleum hydrocarbon impact on surface and subsurface soils and groundwater resulting from the release. The investigation procedures included the installation of 11 monitor wells (MW-1 through MW-11) and collection of soil and groundwater samples. Work was completed in accordance with the *Sampling and Analysis Plan* prepared by AES and dated February 3, 2009, and also in accordance with U.S. Environmental Protection Agency (USEPA) Environmental Response Team's Standard Operating Procedures (SOPs), and applicable American Society of Testing and Materials (ASTM) standards. Details of the site investigation are included in the *AES Site Investigation Report* submitted to NMOCD in April 2009.

## 1.3 Excavation Assessment, May-June 2014

On May 12 and June 4, 2014, AES conducted a site assessment on behalf of BMG as part of termination of the site lease. The work included soil sampling during the excavation of hydrocarbon contaminated soils that were discovered when the storage tanks and truck loading station were removed from the site, and a subsequent assessment of subsurface soils, utilizing a Geoprobe. Approximately 600 cubic yards of petroleum impacted soil were removed from the excavated areas and transported to the BMG Landfarm by TPC, LLC.

Results of the excavation assessment confirmed that residual contaminants are present under the former loading area. However, with the exception of one discrete location there are minimal residual contaminants below the former tank area. Results of the excavation assessment were reported under a separate cover dated November 12, 2014.

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## 2.0 NAPL Recovery Efforts

NAPL recovery efforts through use of a high vacuum multi-phase extraction (MPE) RSI unit are summarized below.

### Petroleum Hydrocarbon Mass Removal to Date BMG Hwy 537 2009 Release

<i>Time Period</i>	<i>Mass Petroleum Hydrocarbons Removed (lbs)</i>
August to November 2014	1,957
January 2015 (Solar Sipper)	8
April to May 2015	1,874
<b>Cumulative</b>	<b>3,839</b>

During 2016, NAPL was hand-bailed from MW-1 during gauging and sampling events and disposed of into an on-site waste storage tank. A total of 6 gallons of NAPL (approximately 36 lbs) was recovered as part of hand-bailing. Most recently, the site was gauged and hand-bailed on June 21, 2017. During that event, measured well thickness in MW-1 was recorded as 1.91 feet and approximately 0.5 gallons of NAPL were recovered.

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## 3.0 Proposed Remedial Actions

Although high vacuum MPE operations were moderately successful for removing the initial portion of petroleum hydrocarbon mass in the vicinity of MW-1, it has proven less effective at addressing the residual mass. In order to identify additional mitigation methods for removing residual hydrocarbon mass, several technologies were evaluated for technical feasibility, cost, and labor requirements. Based on current site conditions along with technology factors, it is currently proposed to:

- Install a passive skimmer (utilizing a skimmer with a hydrophobic filter) that will be manually maintained by AES and BMG personnel; and

- Conduct a pilot study with active skimming and with low vacuum enhanced skimming systems in late August 2017, subsequent to pilot studies to be conducted at the adjacent BMG Hwy 537 2008 release site.

Note that high altitude (over 7,000 feet) precludes operation of any mechanical system over the winter months because of freezing lines and limited site accessibility. Additionally, the site is located on private land, and the land owner wants no further earth disturbance at the site. Therefore, any mechanical system installed will be taken out of service over the winter months and then started up again in the spring.

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## 4.0 Scheduled Site Activities

The following site activities have been scheduled for August 2017:

- **Week of August 7, 2017** - Plug and abandon eight monitor wells (MW-3, and MW-5 through MW-11) in August 2017, per approval from NMOCD. Note that two wells, MW-2 (upgradient) and MW-4 (downgradient), will be left open to measure depth to groundwater and to assist in calculating hydraulic gradient;
- **Week of August 7, 2017** – Install passive skimmer in MW-1 for collection of free product during summer months; and
- **Late August or Early September 2017** - Conduct both active skimming and enhanced low vacuum skimming system pilot studies at the site.

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## 5.0 Deliverables

A progress report will be prepared and submitted to NMOCD by September 30, 2017. The report will include the P&A reports for plugged and abandoned monitor wells, the recovered volumes of NAPL via passive skimming, and the results of pilot studies for active skimming and low vacuum enhanced skimming systems.

If you have any questions regarding this workplan, proposed schedule, or site conditions, please do not hesitate to contact me or Elizabeth McNally at (505) 564-2281.

Respectfully Submitted,



Robert "Bob" Flegal, P.E.  
Sr. Project Manager



Elizabeth McNally, P.E.

## Figures

Figure 1. Topographic Site Location Map

Figure 2. Site Plan, January 2017

Remediation Evaluation Matrix

Cc: Matt Dimond  
Zach Stradling  
Benson-Montin-Greer Drilling Corp.  
4900 College Blvd  
Farmington, NM 87401

Craig Schmitz, Private Land Owner  
#70 County Road 405  
Lindrith, NM 87029

*Via electronic mail:*  
Brandon Powell ([brandon.powell@state.nm.us](mailto:brandon.powell@state.nm.us))  
New Mexico Oil Conservation Division  
1000 Rio Brazos Road  
Aztec, NM 87410

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Dropbox\2017 Client Projects\BMG\HWY 537 2009 Release\Workplans and Reports 2017\BMG Hwy 537  
2009 Release Remediation Plan 073117 EM.docx

**FIGURE 3B**

**GROUNDWATER  
CONTAMINANT CONCENTRATIONS  
JANUARY 2017**  
BENSON-MONTIN-GREER  
LLAVES PIPELINE HWY. 537  
TRUCK RECEIVING STATION 2009 RELEASE  
SW¼ NW¼ SECTION 18, T25N, R3W  
RIO ARRIBA COUNTY, NEW MEXICO  
N36.39866, W107.19328

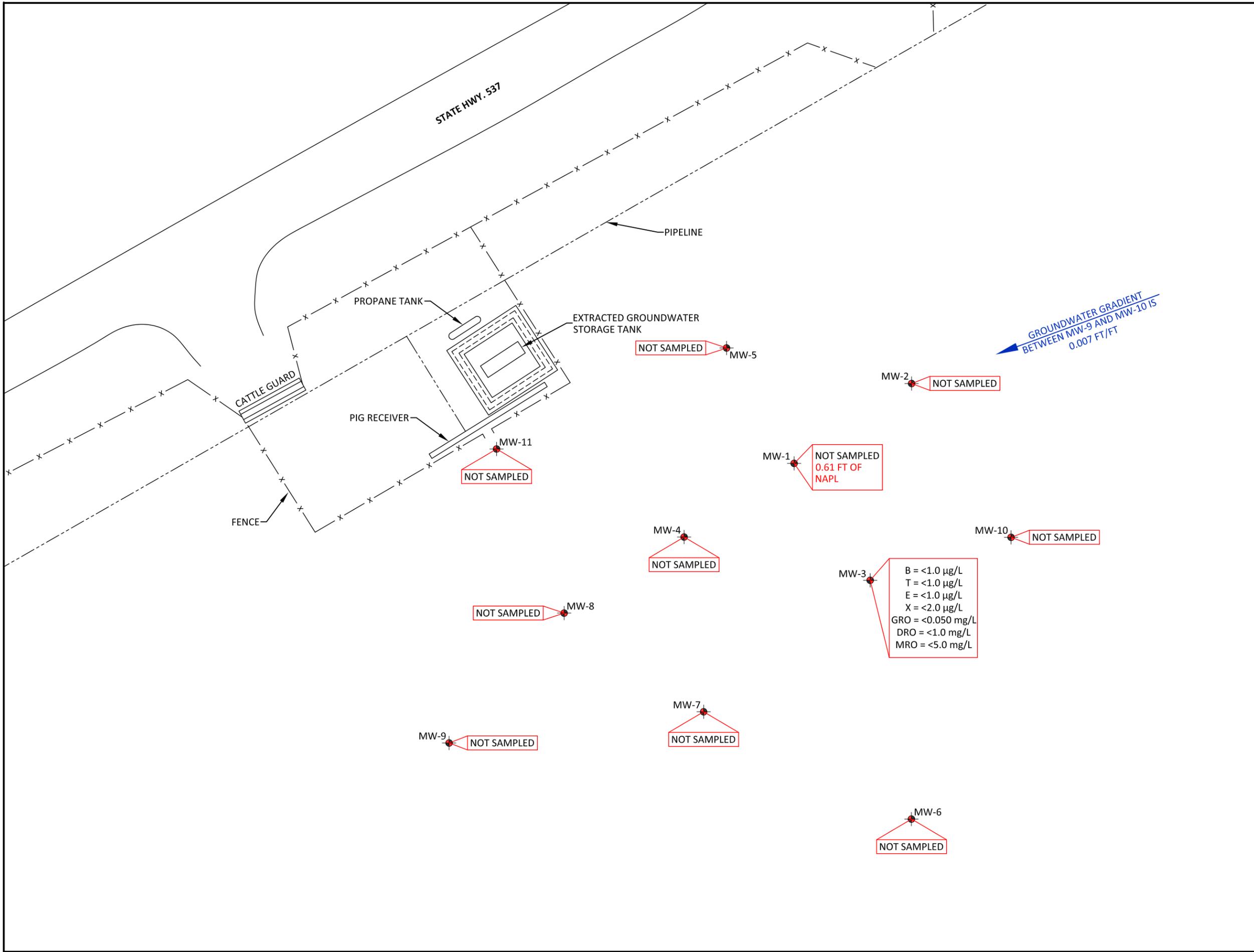
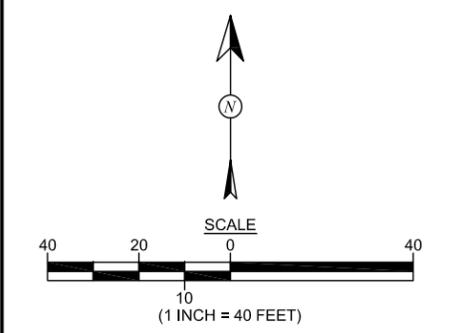


<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 10, 2013
<b>REVISIONS BY:</b> S. Glasses	<b>DATE REVISED:</b> February 14, 2017
<b>CHECKED BY:</b> E. McNally	<b>DATE CHECKED:</b> February 14, 2017
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> February 14, 2017

**LEGEND**

- MONITORING WELL INSTALLED FEBRUARY 2009
- FENCE
- B BENZENE
- T TOLUENE
- E ETHYL-BENZENE
- X XYLENES
- GRO GASOLINE RANGE ORGANICS
- DRO DIESEL RANGE ORGANICS
- MRO MOTOR OIL RANGE ORGANICS
- µg/L PARTS PER BILLION (PPB)
- mg/L PARTS PER MILLION (PPM)
- < BELOW DETECTION LIMIT

*NOTE: ALL SAMPLES COLLECTED ON JANUARY 26, 2017. ANALYZED PER EPA METHOD 8021B AND 8015D. ALL ANALYTICAL RESULTS REPORTED AS µg/L (PPB), mg/L (PPB) AND mg/L (PPM).*



BMG Hwy 537 2009 Release - Remediation Evaluation Matrix, July 31, 2017

	<i>Hand Bailing Recovery</i>	<i>Passive Skimmers</i>	<i>Active Skimmer</i>	<i>Vacuum Enhanced Active Skimmer</i>	<i>High Vacuum RSI MPE</i>
Status	Present Remediation	Available	Available	Available pending pilot study	Available
Period	Quarterly	As scheduled	No Winter	No Winter	No Winter
Readily Available	Yes	Yes	Yes	TBD	Yes
Recovery Effectiveness	Product/Water	Product Only	Product Only	Product Only	Product/Water (Primarily Water)
Vacuum Assist	No	No	No	Yes, typically 5 to 20 in Hg	Yes, typically >20 in Hg
Manpower Requirement	Completely manual, infrequent	Labor Intensive	Low	Low	Labor Intensive
Complexity	Basic	Basic	Automated, avg. to high	Automated, avg. to high	Tends to be high
Utilities Needed	None	None	Propane	Propane	Propane or Natl Gas
Installation Cost	--	Low	Low to Mod	Low to Mod	Mod to High
Maintenance Cost	--	Low	Low to Mod	Low to Mod	High