

1103 Oak Park Drive, Suite 110  
Fort Collins, CO 80525  
Phone (970) 377-1600  
Fax (970) 377-1880  
www.paragoncg.com

SENT VIA EMAIL (robert.chesson@state.co.us)

February 22, 2012

Mr. Robert Chesson  
Colorado Oil & Gas Conservation Commission, Department of Natural Resources  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

DAVID M. RAU, P.E., BCEE  
SCOTT A. RUTHERFORD, P.E.  
BRICK SMITH, P.E.  
BRAD C. WOHLER  
AMY D. WEBER, P.E.  
HEATHER S. ALDERMAN  
DAVID L. WALKER

RE: August 2011 Quarterly Monitoring Report  
Berger Tank Battery (API Number 05-123-08554)  
County Road 11 and County Road 20  
Frederick, Weld County, Colorado  
Project Number 1007004

Dear Mr. Chesson:

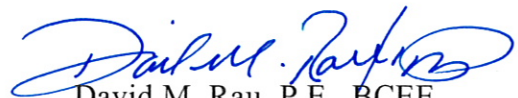
Enclosed is the August 2011 Quarterly Monitoring Report for the above-referenced site. Please read the attached report for a summary of the sampling activities performed at the site. If you have any questions or require additional information, please contact us.

Sincerely,  
PARAGON CONSULTING GROUP, INC.



Amy Weber, P.E.  
Project Engineer

ADW/DMR:adwl



David M. Rau, P.E., BCEE  
Principal Engineer

enc: August 2011 Quarterly Monitoring Report

cc: Ms. Jessica Reale/Misty Mountain Operating, LLC (via email)  
Mr. Neil Rehkop/SBC Global (via email)  
Machii-Ross Petroleum Company  
Jennifer Biever, Esq./Hogan Lovells US LLP (via email)

February 22, 2012

Machii-Ross Petroleum Company  
2901 28<sup>th</sup> Street, Suite 205  
Santa Monica, California 90405

RE: August 2011 Quarterly Monitoring Report  
Berger Tank Battery (API Number 05-123-08554)  
County Road 11 and County Road 20  
Frederick, Weld County, Colorado  
Project Number 1007004

1103 Oak Park Drive, Suite 110  
Fort Collins, CO 80525  
Phone (970) 377-1600  
Fax (970) 377-1880  
www.paragoncg.com

DAVID M. RAU, P.E., BCEE  
SCOTT A. RUTHERFORD, P.E.  
BRICK SMITH, P.E.  
BRAD C. WOHLER  
AMY D. WEBER, P.E.  
HEATHER S. ALDERMAN  
DAVID L. WALKER

Machii-Ross Petroleum Company:

The purpose of this report is to summarize the results of the August 2011 quarterly sampling event performed at the subject site by Paragon Consulting Group, Inc. (Paragon). A copy of this report was submitted to the Colorado Oil & Gas Conservation Commission (COGCC). The approximate location of the site is shown on Figures 1 and 2 which are attached to this letter. The approximate locations of the groundwater monitoring wells located at the site are shown on Figures 3 and 4 which are also attached to this report.

## 1. BACKGROUND

Previous site assessment activities and remedial activities are discussed below. The soil and groundwater analytical results in this chapter are compared to the former COGCC Allowable Concentrations in effect prior to April 1, 2009. Series 900 of the COGCC Rules and Regulations were revised and issued on April 1, 2009. Table 910-1 in Series 900 describes Concentration Levels for contaminants in soil and groundwater which are different than the Allowable Concentrations. For work performed after April 1, 2009, contaminant levels are compared to the COGCC Concentration Levels.

Seven (7) direct-push probes, SB-1 through SB-7, were completed at the site on January 9, 2007 by ENVIRON of Denver, Colorado. Two (2) soil samples were analyzed from SB-1 and one (1) soil sample was analyzed from SB-2 through SB-7. The laboratory report and site diagram were included in ENVIRON's draft memorandum dated January 15, 2007. The soil samples were analyzed for benzene-toluene-ethylbenzene-xylenes (BTEX), methyl-tertiary-butyl-ether (MTBE), total petroleum hydrocarbons (TPH), total petroleum hydrocarbons - gasoline range organics (TPH-GRO), diesel fuel, fuel oil, jet fuel, kerosene, mineral spirits and motor. TPH was observed to range from not observed above the laboratory detection limit to 30,200 mg/Kg in soil samples submitted for analyses by ENVIRON. TPH-GRO ranged from not observed above the laboratory detection limit to 15,000 mg/Kg in soil samples submitted for analyses by ENVIRON. The TPH and TPH-

GRO concentrations observed in the soil sample analyzed from SB-1 (at 13 feet) exceeded the Allowable Concentration for total recoverable petroleum hydrocarbons (TRPH). The soil in this area was removed during the initial abatement activities. Groundwater samples were collected by ENVIRON from probes SB-3 through SB-6 for BTEX analyses. BTEX concentrations observed in the groundwater samples collected from SB-3 and SB-5 exceeded the Allowable Concentrations. It should be noted that probe water samples are generally considered qualitative since they were not collected from completed and developed groundwater monitoring wells.

Laboratory results for split groundwater samples BTB-SB-3 and BTB-4 collected during ENVIRON site assessment activities on January 9, 2007 are summarized in Table 2 attached to this letter. BTB-SB-3 and BTB-4 were collected from ENVIRON's probes SB-3 and SB-4, respectively, on January 9, 2007. BTEX concentrations were observed at relatively low concentrations in groundwater sample BTB-4 collected from SB-4 on January 9, 2007. Relatively high BTEX concentrations were observed in the groundwater sample collected by Paragon from probe SB-3 on January 9, 2007. BTEX concentrations observed in BTB-4 collected by Paragon from SB-4 in January 2007 were not observed above the Allowable Concentrations. The BTEX concentrations observed in the groundwater sample collected by Paragon from probe SB-3 exceeded the Allowable Concentrations. It should be noted that probe water samples are generally considered qualitative since they were not collected from completed and developed groundwater monitoring wells.

During a routine site inspection on January 7, 2007, Machii-Ross Petroleum Company personnel observed crude oil (product) in the bermed area for the southern aboveground storage tank (AST). The leak from the AST was repaired on January 7, 2007. It was estimated by Machii-Ross Petroleum Company personnel that approximately 70 barrels (bbls) of oil were released. Key Energy was mobilized to the site to recover the product on January 8, 2007 using a vacuum truck. Excavation activities were also initiated on January 8, 2007. Soil abatement activities consisting of the excavation and off-site disposal of contaminated soil was performed at the site by Flint Energy Services, Inc. (Flint) between January 8, 2007 and January 16, 2007. The approximate limits of the excavation are shown on Figure 3 attached to this letter.

A subsurface drain located to the west of the tank battery was impacted and subsequently excavated. The drain was replaced and the former drain was connected to riser to be used as groundwater recovery points if necessary. In the excavation trench performed during removal of the subsurface drain, four (4) separate slotted horizontal drain lines were installed with risers extending approximately three (3) feet above ground surface. These remedial drains were constructed with two (2) and three (3) inch diameter PVC pipe. The trenches were excavated below observed hydrocarbon impact into what appeared to be a relatively

impermeable, hard and dry siltstone. During the trench excavation, oil/groundwater was removed by a vacuum truck directly from the excavation and from the risers once installed.

On January 11, 2007 following interviews with the property owners, it was discovered that the subsurface drain was connected to an unnamed creek located to the west of the site. Product was then observed on the creek and the release was reported to the National Response Center, the COGCC and the Colorado Department of Public Health and Environment on January 11, 2007. Paragon and Peterson Energy Management personnel installed booms at the outlet of the subsurface drain to the creek and at several other locations downstream. The booms were maintained and periodically replaced by Peterson Energy Management. Periodically, vacuum trucks were used to remove product from the creek and from vegetation near the creek. On January 12, 2007, the subsurface drain was flushed with approximately 500 gallons of BioSolve and the mixture was recovered from the downstream end of the pipe.

Approximately 100 cubic yards of contaminated soil were excavated from the subsurface drain area. The soil was transported by Flint to the Denver Regional Landfill in Erie, Colorado. Groundwater encountered in the bottom of the excavation during the abatement activities was removed using a vacuum truck. Approximately 10 bbls of oil were recovered during abatement activities. The excavation was backfilled with imported soil.

Seven (7) soil samples, T-1 through T-7, and 12 surface water samples were collected during the abatement process. The TRPH concentration observed in soil sample T-1 exceeded the Allowable Concentration. The excavation area could not be increased to the east of sample location T-1 due to the location of the ASTs. The TRPH concentrations observed in the remaining soil samples collected from the excavation were not observed above the Allowable Concentration. Six (6) Creek Samples were collected from an area of the creek located to the north of County Road 20. Three (3) Tile Drain samples were collected approximately 60 feet upgradient of where the subsurface drain flowed into the creek. Three (3) Drain Outlet samples were collected from the subsurface drain outfall into the creek. BTEX concentrations observed in the surface water samples collected near the site in January and February 2007 were not observed above the Surface Water Standards.

Based on the soil and water contamination observed during excavation activities, additional site assessment was performed at the site in February 2007. Four (4) monitoring wells, PMW-1 through PMW-4, and three (3) direct-push probes, PB-1 through PB-3, were installed at the site on February 12 and 14, 2007 to obtain information regarding potential petroleum hydrocarbon contamination. The approximate locations of the monitoring wells and direct-push probes are shown on Figure 3 attached to this letter. The TRPH

concentration observed in the soil sample analyzed from PB-2 exceeded the Allowable Concentration. The TRPH concentrations in soil samples analyzed from PMW-1, PMW-2, PMW-3, PMW-4, PB-1 and PB-3 were not observed above the Allowable Concentration of 1,000 mg/Kg.

## **2. GEOHYDROLOGY**

Groundwater elevations in wells PMW-1, PMW-2, PMW-3 and PMW-4 were measured by Paragon on August 12, 2011. Groundwater elevation data for the site is summarized in Table 1 which is attached to this report. Groundwater was observed in wells PMW-1, PMW-2, PMW-3 and PMW-4 to range from approximately 4.3 to 7.5 feet below the top of casings on August 12, 2011. Free-phase product was not observed in monitoring wells PMW-1 through PMW-4 on August 12, 2011.

A piezometric surface diagram for groundwater elevations observed during the August 2011 sampling event is attached to this report as Figure 3. The piezometric surface was estimated using the Surfer<sup>®</sup> software distributed by Golden Software based on groundwater table measurements in wells PMW-1, PMW-2, PMW-3 and PMW-4. As seen from Figure 3, the general groundwater flow direction appeared to be towards the northwest. The hydraulic gradient observed at the site on August 12, 2011 was estimated to range from approximately 0.02 to 0.04. The groundwater flow direction and hydraulic gradient estimated for August 2011 are similar to previous observations at the site. It should be noted that local geohydrologic characteristics may change due to variations in precipitation, recharge, stratigraphy or conditions not apparent at the time of sampling.

## **3. GROUNDWATER QUALITY RESULTS**

Information collected during the August 2011 sampling event relative to groundwater quality at the site is summarized below. That information includes temperature, electrical conductance and pH measurements, dissolved oxygen (DO) measurements, and laboratory results.

### **3.1 Field Data**

Groundwater temperature, electrical conductance and pH measurements were performed on August 12, 2011 during purging of wells PMW-1 through PMW-4 prior to collecting groundwater samples for laboratory analysis. Purging of monitoring wells prior to sampling was accomplished using clean disposable bailers. Purging of the recovery wells was accomplished using a vacuum truck the week before sampling. Measurements were recorded during the removal of water from the monitoring wells. The monitoring wells were considered purged when temperature, electrical conductance, and pH measurements stabilized to within ten (10) percent for three (3) consecutive measurements and a minimum

of three (3) well volumes were removed from the well or after the well was purged essentially dry. The wells were allowed to recharge prior to sampling.

DO measurements were performed in wells PMW-1 and PMW-2 on August 12, 2011. DO monitoring results are summarized in Table 2 attached to this report. As seen from Table 2, DO concentrations were observed to range from approximately 1.0 to 1.3 milligrams per liter (mg/L) during the August 2011 sampling episode. In general, an obvious correlation was not observed between BTEX concentrations observed in groundwater samples and DO measurements in August 2011.

### **3.2 Groundwater Analytical Results**

Groundwater samples were collected from monitoring wells PMW-1 through PMW-4 and trench recovery locations T-2 through T-5 on August 12, 2011 for laboratory analysis. The riser pipe for recovery trench sample location T-1 has been destroyed and could not be sampled on August 12, 2011. Groundwater samples were transported under standard chain-of-custody procedures to Technology Laboratory, Inc. (TLI) in Fort Collins, Colorado for BTEX analysis by EPA Method 8260B. Groundwater sample results are summarized in Table 2 attached to this letter. The approximate locations of PMW-1 through PMW-4 and T-1 through T-5 are shown on Figure 4 attached to this letter. The TLI laboratory report for wells PMW-1 through PMW-4 and T-1 through T-5 is also attached to this letter.

BTEX concentrations were not observed above the laboratory detection limit of 1.0 micrograms per liter ( $\mu\text{g/L}$ ) or were observed at relatively low concentrations in the groundwater samples collected from PMW-1 through PMW-4 and T-2, T-3, T-4 and T-5 on August 12, 2011. The benzene, ethylbenzene and xylenes concentrations observed in the groundwater samples collected from T-2 and T-3 in August 2011 decreased compared to previous sample results. In general, the remaining BTEX concentrations observed in the groundwater samples collected from PMW-1 through PMW-4 and T-2 through T-5 in August 2011 were similar to previous sample results.

The BTEX concentrations observed in the groundwater samples collected from PMW-1 through PMW-4 and T-2 through T-5 on August 12, 2011 were not observed above the COGCC Concentration Levels.

## **4. VACUUM-ENHANCED RECOVERY EVENTS**

A vacuum-enhanced recovery (VER) event using a Key Energy vacuum truck was performed at the recovery trenches, T-2 through T-5, on August 9, 2011, prior to sampling since the recovery trench locations can not be purged manually. T-1 riser pipe is damaged and Key Energy was unable to recover from this riser pipe location. As seen from Table 3, approximately 273,600 gallons of groundwater have been recovered from recovery wells T-1

through T-5 between March 2007 and August 2011. The recovered groundwater was transported to a COGCC-approved disposal well operated by Conquest Disposal Service. The Key Energy work ticket is attached to this report.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

The following conclusions are made based on information obtained during the quarterly sampling event.

1. Groundwater was observed in wells PMW-1, PMW-2, PMW-3 and PMW-4 to range from approximately 4.3 to 7.5 feet below the top of casings on August 12, 2011. Free-phase product was not observed in monitoring wells PMW-1 through PMW-4 on August 12, 2011.
2. The general groundwater flow direction on August 12, 2011 appeared to be towards the northwest. The hydraulic gradient observed at the site on August 12, 2011 was estimated to range from approximately 0.02 to 0.04. The groundwater flow direction and hydraulic gradient estimated for August 12, 2011 are similar to previous observations at the site.
3. The benzene, ethylbenzene and xylenes concentrations observed in the groundwater samples collected from T-2 and T-3 in August 2011 decreased compared to previous sample results. In general, the remaining BTEX concentrations observed in the groundwater samples collected from PMW-1 through PMW-4 and T-2 through T-5 in August 2011 were similar to previous sample results.
4. The BTEX concentrations observed in the groundwater samples collected from PMW-1 through PMW-4 and T-2 through T-5 on August 12, 2011 were not observed above the COGCC Concentration Levels.
5. The extent of groundwater impacts at the site appears to be limited and bracketed.
6. Approximately 273,600 gallons of groundwater have been recovered from recovery wells T-1 through T-5 between March 2007 and August 2011. The recovered groundwater was transported to a COGCC-approved disposal well operated by Conquest Disposal Service.

The following recommendations are made based on information obtained during the quarterly sampling event.

1. Quarterly groundwater sampling should continue at the site.



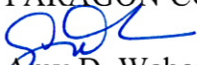
## 6. GENERAL COMMENTS

The analyses and opinions expressed in this report are based on data obtained from the indicated locations along with other information described in the report. The report does not reflect any variations in subsurface geohydrology or contaminant distribution which may occur between sample locations and or across the site. Actual subsurface conditions may vary and may not become evident without further exploration. Due to the dynamic nature of groundwater flow and contaminant migration, subsurface conditions will vary with time.

This report was prepared for the exclusive use of Machii-Ross Petroleum Company for specific application to the subject property and has been prepared in accordance with generally accepted geo-environmental engineering practices. No warranties, either express or implied, are intended or made. In the event that changes in the nature or location of suspected sources of contamination as outlined in this report are observed, the conclusions and recommendations contained in this report shall not be valid unless these changes are reviewed and the opinions of this report are modified and verified in writing by Paragon. If you have questions or require additional information regarding this site, please do not hesitate to contact us.


Sincerely,

PARAGON CONSULTING

  
Amy D. Weber, P.E.  
Colorado No. 37665

ADW/DMR:adw1



  
David M. Rau, P.E., BCEE  
Principal Engineer

enc: Figure 1 - General Location Diagram  
Figure 2 - Vicinity Map  
Figure 3 - Piezometric Surface Diagram  
Figure 4 - Groundwater Sample Results Diagram  
Table 1 - Summary of Groundwater Elevation Data  
Table 2 - Summary of Water Quality Results  
Table 3 - Groundwater Recovery  
Laboratory Report  
Key Energy Work Ticket

cc: Mr. Neil Rehkop/SBC Global (via email)  
Mr. Robert Chesson/COGCC (via email)  
Ms. Jessica Reale/Misty Mountain Operating, LLC (via email)  
Jennifer Biever, Esq./Hogan Lovells US LLP (via email)



Figure 1 General Location Map  
Machii-Ross Petroleum  
Weld County Road 11, Weld County, Colorado  
Project No. 1007001-1007004 March 2007 Drawn by PJH(04fig1)

PARAGON

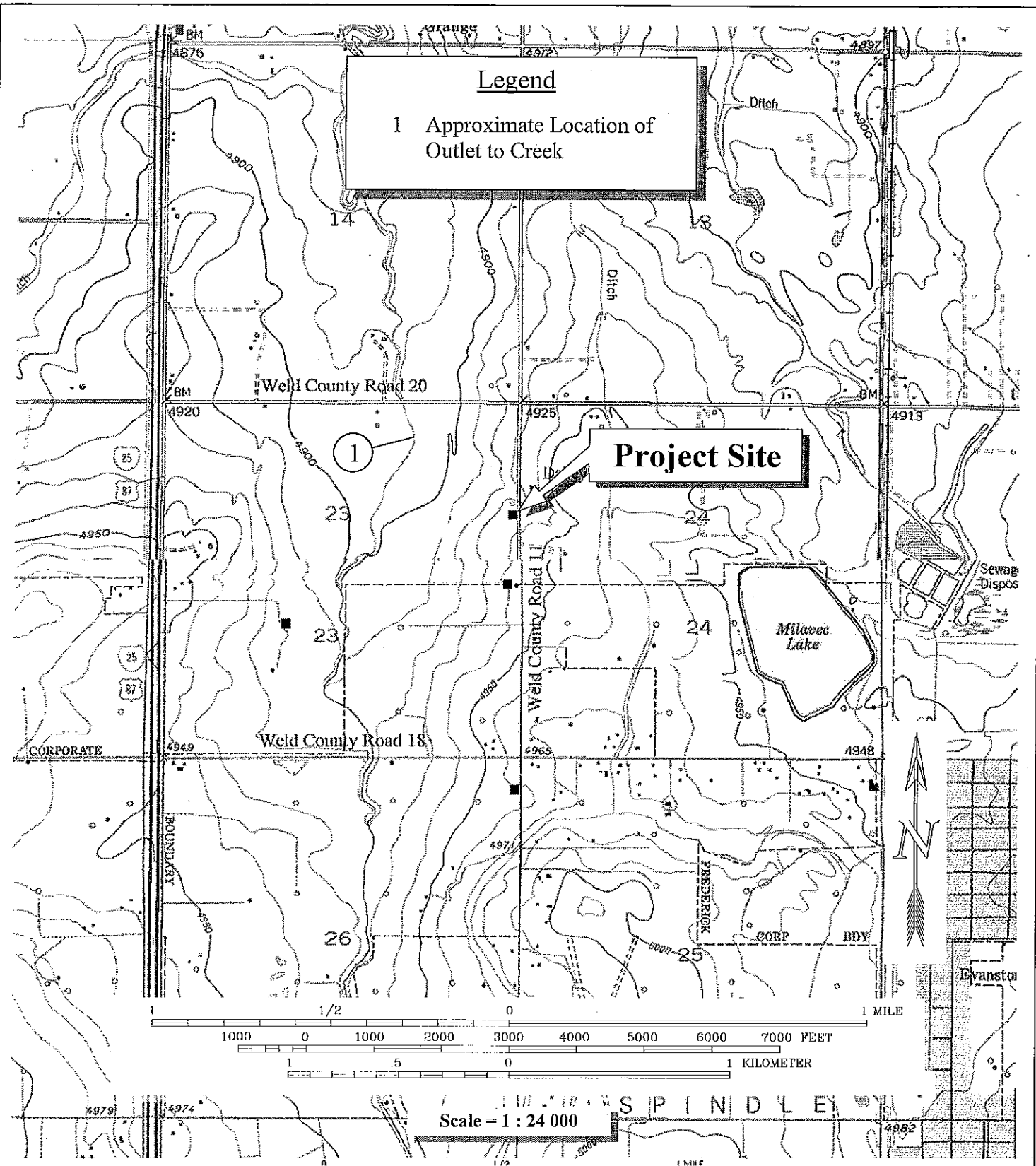
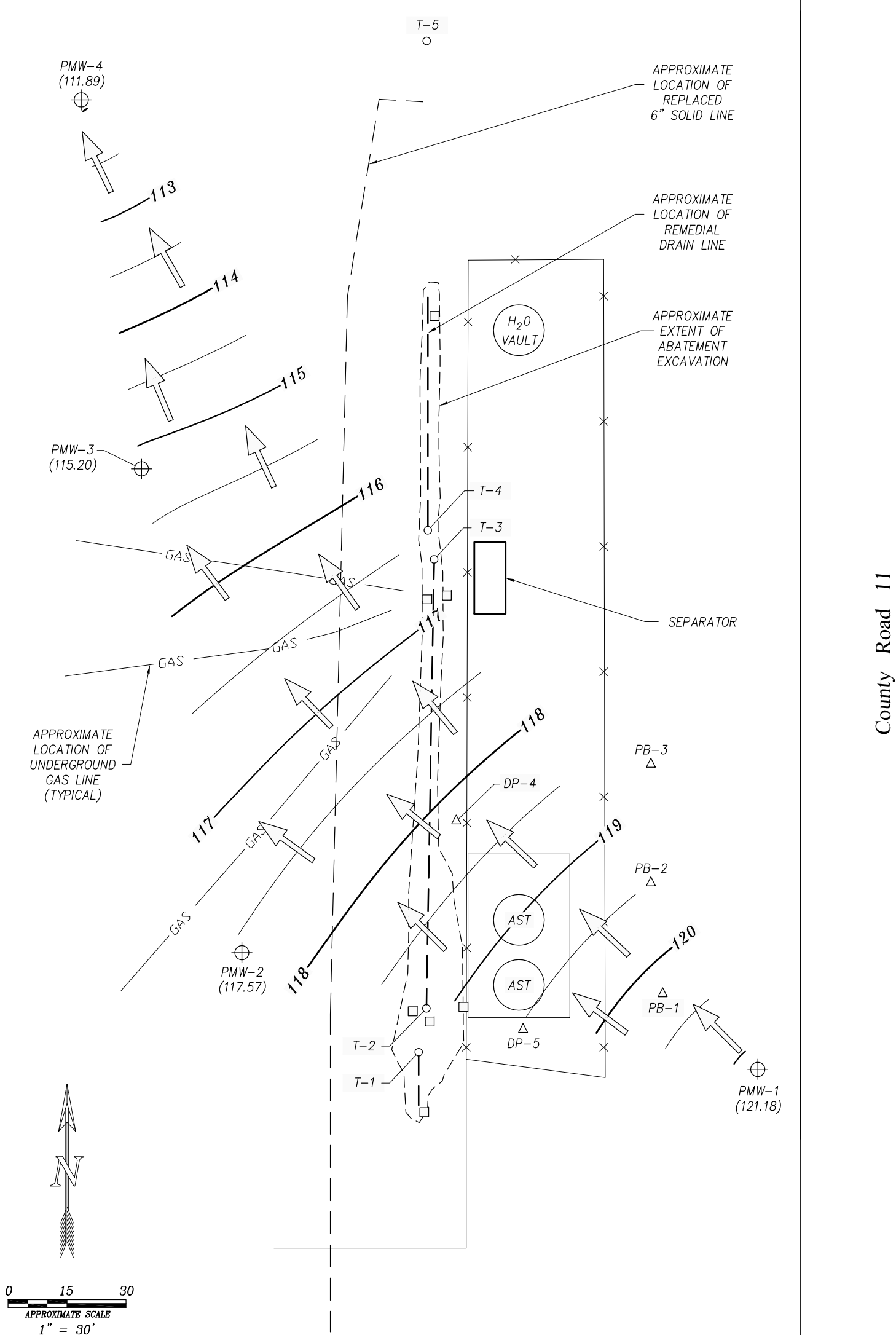


Figure 2 Vicinity Map  
Machii-Ross Petroleum – Berger Tank Battery  
Weld County Road 11 and Weld County Road 20, Weld County, Colorado  
Project No. 1007004 June 2007 Drawn by PJH(04fig2a)

PARAGON



County Road 11

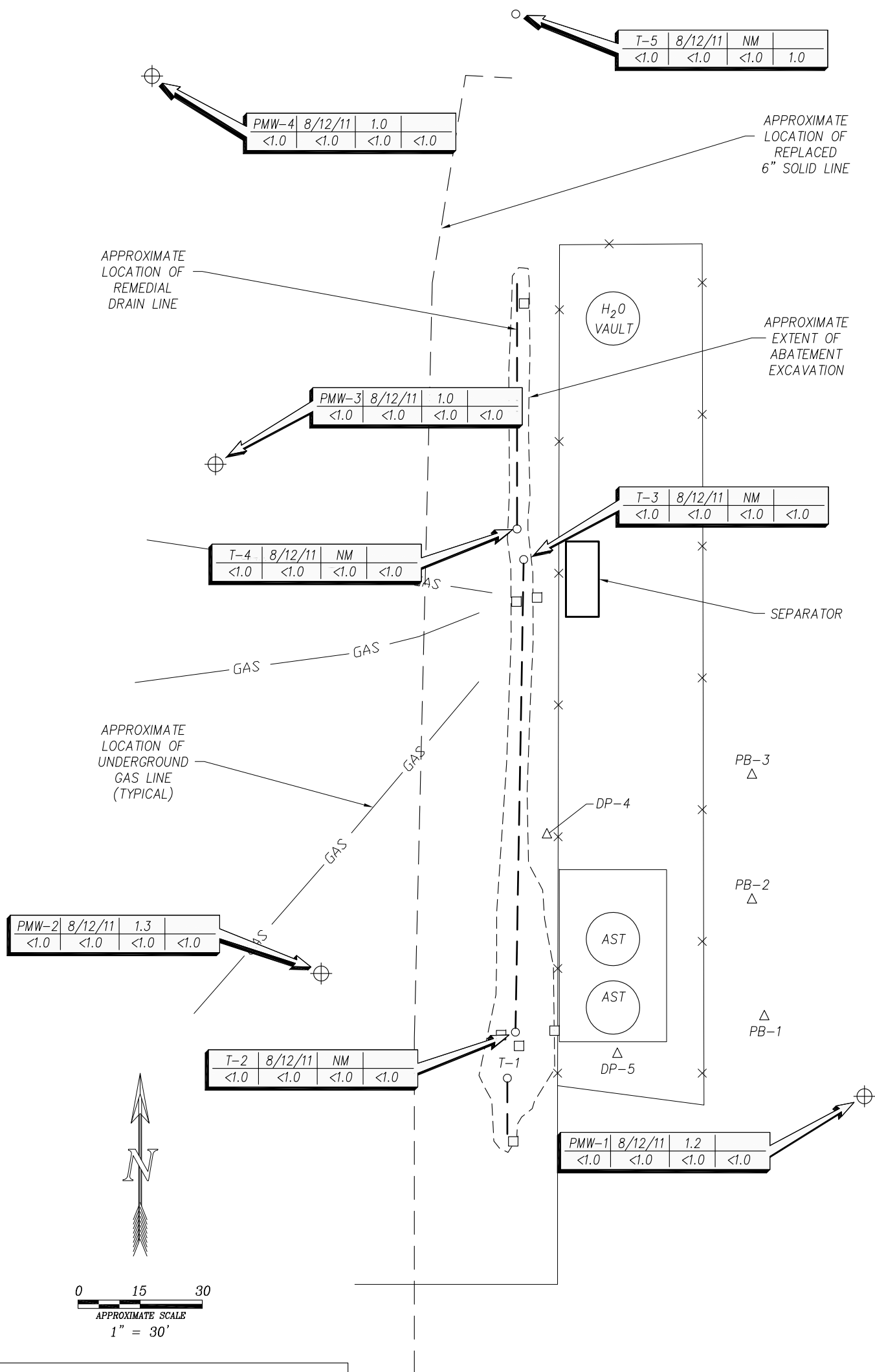
**Legend**

- APPROXIMATE LOCATION OF REMEDIAL DRAIN LINE RISER
- △ APPROXIMATE LOCATION OF SOIL BORING
- ⊕ APPROXIMATE LOCATION OF MONITORING WELL
- APPROXIMATE LOCATION OF SOIL SAMPLE
- ← ESTIMATED DIRECTION OF GROUNDWATER FLOW
- 120 — ESTIMATED GROUNDWATER ELEVATION IN FEET ABOVE A COMMON DATUM

NOTE: GROUNDWATER CONTOURS WERE ESTIMATED USING THE "SURFER" PROGRAM FROM GOLDEN SOFTWARE BASED ON DATA COLLECTED FROM WELLS PMW-1, PMW-2, PMW-3, & PMW-4 ON AUGUST 12, 2011. ACTUAL CONDITIONS MAY VARY.

**Figure 3 Piezometric Surface Diagram  
Berger Tank Battery  
Machii-Ross Petroleum Company  
Weld County Road 11 & 20  
Weld County, Colorado**

Project Mngr: ADW	<b>PARAGON</b> Consulting Group Environmental Engineering and Geohydrology 6901 Broadway Denver, Colorado 80221	Project No: 1007004
Designed by:		Scale: As Shown
Drawn by: JDH		File No: 04aug11
Checked by: ADW		Date: Aug 2011
Approved by: DMR		Sheet No:



### Legend

- APPROXIMATE LOCATION OF REMEDIAL DRAIN LINE RISER
- △ APPROXIMATE LOCATION OF SOIL BORING
- ⊕ APPROXIMATE LOCATION OF MONITORING WELL
- APPROXIMATE LOCATION OF SOIL SAMPLE

WHERE:

SAMPLE NAME	SAMPLE DATE	DO	X
B	T	E	X
B	T	E	X

B = BENZENE CONCENTRATION IN µg/L.  
T = TOLUENE CONCENTRATION IN µg/L.  
E = ETHYLBENZENE CONCENTRATION IN µg/L.  
X = TOTAL XYLENES CONCENTRATION IN µg/L.  
DO = DISSOLVED OXYGEN CONCENTRATION IN mg/L.  
NM = NOT MEASURED.

Figure 4 Groundwater Quality Results Diagram  
Berger Tank Battery  
Machii-Ross Petroleum Company  
Weld County Road 11 & 20  
Weld County, Colorado

Project Mngr:  
ADW

Designed by:

Drawn by:  
JDH

Checked by:  
ADW

Approved by:  
DMR

**PARAGON**  
Consulting Group  
Environmental Engineering  
and Geohydrology  
6901 Broadway  
Denver, Colorado 80221

Project No:  
1007004

Scale:  
As Shown

File No:  
04w0810

Date:  
Aug 2011

Sheet No:

**TABLE 1**  
**SUMMARY OF GROUNDWATER ELEVATION DATA**

**PROJECT NAME:** Machii Ross/Berger Battery  
**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado  
**PROJECT NUMBER:** 1007004

Well Name	PMW-1	PMW-2	PMW-3	PMW-4
Casing Elevation (feet)	125.44	124.82	121.50	119.41
<u>Date Measured: March 1, 2007</u>				
Depth to Water (feet)	11.38	3.96	7.02	10.42
Groundwater Elevation (feet)	114.06	120.86	114.48	108.99
<u>Date Measured: April 9, 2007</u>				
Depth to Water (feet)	3.99	7.60	6.71	9.61
Groundwater Elevation (feet)	121.45	117.22	114.79	109.80
<u>Date Measured: June 13, 2007</u>				
Depth to Water (feet)	4.11	4.70	7.20	10.61
Groundwater Elevation (feet)	121.33	120.12	114.30	108.80
<u>Date Measured: September 28, 2007</u>				
Depth to Water (feet)	3.85	8.25	8.00	11.18
Groundwater Elevation (feet)	121.59	116.57	113.50	108.23
<u>Date Measured: January 28, 2008</u>				
Depth to Water (feet)	4.90	7.96	NM	9.79
Groundwater Elevation (feet)	120.54	116.86	NM	109.62
<u>Date Measured: April 30, 2008</u>				
Depth to Water (feet)	4.68	7.60	6.80	9.52
Groundwater Elevation (feet)	120.76	117.22	114.70	109.89
<u>Date Measured: July 21, 2008</u>				
Depth to Water (feet)	4.15	8.49	7.54	10.89
Groundwater Elevation (feet)	121.29	116.33	113.96	108.52
<u>Date Measured: October 6, 2008</u>				
Depth to Water (feet)	3.82	8.26	7.08	9.58
Groundwater Elevation (feet)	121.62	116.56	114.42	109.83
<u>Date Measured: May 12, 2009</u>				
Depth to Water (feet)	3.95	7.45	6.39	8.03
Groundwater Elevation (feet)	121.49	117.37	115.11	111.38
<u>Date Measured: August 6, 2009</u>				
Depth to Water (feet)	3.11	8.13	6.94	8.78
Groundwater Elevation (feet)	122.33	116.69	114.56	110.63
<u>Date Measured: November 3, 2009</u>				
Depth to Water (feet)	3.92	7.60	6.88	8.53
Groundwater Elevation (feet)	121.52	117.22	114.62	110.88
<u>Date Measured: February 5, 2010</u>				
Depth to Water (feet)	6.39	7.43	6.70	7.69
Groundwater Elevation (feet)	119.05	117.39	114.80	111.72
<u>Date Measured: June 22, 2010</u>				
Depth to Water (feet)	3.23	5.59	5.37	7.00
Groundwater Elevation (feet)	122.21	119.23	116.13	112.41

Notes:

1. Approximate well locations are shown on Figure 3.
2. NM = Not Measured.

**TABLE 1**  
**SUMMARY OF GROUNDWATER ELEVATION DATA**

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

Well Name	PMW-1	PMW-2	PMW-3	PMW-4
Casing Elevation (feet)	125.44	124.82	121.50	119.41
Date Measured: August 12, 2011				
Depth to Water (feet)	4.26	7.25	6.30	7.52
Groundwater Elevation (feet)	121.18	117.57	115.20	111.89

Notes:

1. Approximate well locations are shown on Figure 3.
2. NM = Not Measured.



**TABLE 2**  
**SUMMARY OF WATER QUALITY RESULTS**  
 (Page 1 of 4)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

Sample Point Name	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Dissolved Oxygen (mg/L)
PMW-1 <sup>11</sup> .	03/01/07	<0.5	<0.5	<0.5	<0.5	2.6
PMW-1	04/09/07	NS	NS	NS	NS	1.1
PMW-1	06/13/07	<0.5	<0.5	<0.5	<0.5	0.7
PMW-1	09/28/07	<0.5	<0.5	<0.5	<0.5	0.1
PMW-1	01/28/08	<0.5	<0.5	<0.5	<0.5	0.8
PMW-1	04/30/08	<0.5	<0.5	<0.5	<0.5	NM
PMW-1	07/21/08	<0.5	<0.5	<0.5	<0.5	0.9
PMW-1	10/06/08	<1.	<1.	<1.	<1.	1.0
PMW-1	05/12/09	<1.	<1.	<1.	<1.	0.8
PMW-1	08/06/09	<1.	<1.	<1.	<1.	0.9
PMW-1	11/03/09	<1.	<1.	<1.	<1.	1.3
PMW-1	02/05/10	<1.	<1.	<1.	<1.	0.9
PMW-1	06/22/10	<1.	<1.	<1.	<1.	0.9
PMW-1	08/12/11	<1.	<1.	<1.	<1.	1.2
PMW-2	03/01/07	NS	NS	NS	NS	1.2
PMW-2	04/09/07	<0.5	<0.5	<0.5	<0.5	1.1
PMW-2	06/13/07	<0.5	<0.5	<0.5	<0.5	0.9
PMW-2	09/28/07	<0.5	<0.5	<0.5	<0.5	0.3
PMW-2	01/28/08	<0.5	<0.5	<0.5	<0.5	0.7
PMW-2	04/30/08	<0.5	<0.5	<0.5	<0.5	NM
PMW-2	07/21/08	<0.5	<0.5	<0.5	<0.5	1.0
PMW-2	10/06/08	<1.	<1.	<1.	<1.	1.1
PMW-2	05/12/09	<1.	<1.	<1.	<1.	1.1
PMW-2	08/06/09	<1.	<1.	<1.	<1.	1.3
PMW-2	11/03/09	<1.	<1.	<1.	<1.	1.0
PMW-2	02/05/10	<1.	<1.	<1.	<1.	1.2
PMW-2	06/22/10	<1.	<1.	<1.	<1.	1.3
PMW-2	08/12/11	<1.	<1.	<1.	<1.	1.3
Concentration Levels		5.0	560.	700.	1,400.	NR

Notes:

1. Approximate sample locations are shown on Figure 4.
2. µg/L = micrograms per liter.
3. mg/L = milligrams per liter.
4. Concentration Levels for groundwater are described in Table 910-1 of Series 900 of the Colorado Oil & Gas Conservation Commission Rules and Regulations established April 1, 2009.
5. **Bold** concentrations indicate an exceedance of the Concentration Levels.
6. NR = Not Regulated.
7. NM = Not Measured.
8. NS = Not Sampled.
9. Groundwater levels did not appear to have stabilized in PMW-1, PMW-2 and PMW-3 since drilling and groundwater samples were not collected from these wells.
10. Groundwater samples BTB-SB-3 and BTB-4 were split samples collected from ENVIRON's probes SB-3 and SB-4, respectively, by Paragon personnel.
11. PMW-1 was inadvertently labeled as PMW-4 during the groundwater sampling performed in March 2007.

**TABLE 2**  
**SUMMARY OF WATER QUALITY RESULTS**  
 (Page 2 of 4)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

Sample Point Name	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Dissolved Oxygen (mg/L)
PMW-3	03/01/07	NS	NS	NS	NS	1.4
PMW-3	04/09/07	<0.5	<0.5	<0.5	<0.5	1.0
PMW-3	06/13/07	<0.5	<0.5	<0.5	<0.5	1.0
PMW-3	09/28/07	<0.5	<0.5	<0.5	<0.5	0.4
PMW-3	01/28/08	<0.5	<0.5	<0.5	<0.5	0.8
PMW-3	04/30/08	<0.5	<0.5	<0.5	<0.5	NM
PMW-3	07/21/08	<0.5	<0.5	<0.5	<0.5	1.1
PMW-3	10/06/08	<1.	<1.	<1.	<1.	1.2
PMW-3	05/12/09	<1.	<1.	<1.	<1.	1.0
PMW-3	08/06/09	<1.	<1.	<1.	<1.	1.1
PMW-3	11/03/09	<1.	<1.	<1.	<1.	1.0
PMW-3	02/05/10	<1.	<1.	<1.	<1.	1.3
PMW-3	06/22/10	<1.	<1.	<1.	<1.	NM
PMW-3	08/12/11	<1.	<1.	<1.	<1.	1.0
PMW-4	03/01/07	NS	NS	NS	NS	1.8
PMW-4	04/09/07	<0.5	<0.5	<0.5	<0.5	1.0
PMW-4	06/13/07	<0.5	<0.5	<0.5	<0.5	1.0
PMW-4	09/28/07	<0.5	<0.5	<0.5	<0.5	2.2
PMW-4	01/28/08	<0.5	<0.5	<0.5	<0.5	0.9
PMW-4	04/30/08	<0.5	<0.5	<0.5	<0.5	NM
PMW-4	07/21/08	<0.5	<0.5	<0.5	<0.5	1.3
PMW-4	10/06/08	<1.	<1.	<1.	<1.	1.0
PMW-4	05/12/09	<1.	<1.	<1.	<1.	1.1
PMW-4	08/06/09	<1.	<1.	<1.	<1.	1.0
PMW-4	11/03/09	<1.	<1.	<1.	<1.	1.2
PMW-4	02/05/10	<1.	<1.	<1.	<1.	1.3
PMW-4	06/22/10	<1.	<1.	<1.	<1.	NM
PMW-4	08/12/11	<1.	<1.	<1.	<1.	1.0
BTB-SB-3	01/09/07	<b>20,047.</b>	<b>97,441.</b>	<b>10,824.</b>	<b>142,796.</b>	NM
BTB-4	01/09/07	3.5	65.	6.0	98.	NM
Concentration Levels		5.0	560.	700.	1,400.	NR

Notes:

1. Approximate sample locations are shown on Figure 4.
2. µg/L = micrograms per liter.
3. mg/L = milligrams per liter.
4. Concentration Levels for groundwater are described in Table 910-1 of Series 900 of the Colorado Oil & Gas Conservation Commission Rules and Regulations established April 1, 2009.
5. **Bold** concentrations indicate an exceedance of the Concentration Levels.
6. NR = Not Regulated.
7. NM = Not Measured.
8. NS = Not Sampled.
9. Groundwater levels did not appear to have stabilized in PMW-1, PMW-2 and PMW-3 since drilling and groundwater samples were not collected from these wells.
10. Groundwater samples BTB-SB-3 and BTB-4 were split samples collected from ENVIRON's probes SB-3 and SB-4, respectively, by Paragon personnel.
11. PMW-1 was inadvertently labeled as PMW-4 during the groundwater sampling performed in March 2007.

**TABLE 2**  
**SUMMARY OF WATER QUALITY RESULTS**  
 (Page 3 of 4)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

Sample Point Name	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Dissolved Oxygen (mg/L)
T-1	06/25/07	<b>517.</b>	<b>1,877.</b>	11.	<b>4,397.</b>	NM
T-1	09/28/07	NS	NS	NS	NS	NM
T-1	01/28/08	NS	NS	NS	NS	NM
T-1	04/30/08	NS	NS	NS	NS	NM
T-1	07/21/08	<b>134.</b>	129.	124.	<b>1,550.</b>	NM
T-1	10/06/08	NS	NS	NS	NS	NM
T-1	05/12/09	NS	NS	NS	NS	NM
T-1	08/06/09	NS	NS	NS	NS	NM
T-1	11/03/09	1.	<1.	3.	13.	NM
T-1	02/05/10	NS	NS	NS	NS	NM
T-1	06/22/10	<1.	<1.	<1.	<1.	NM
T-1	08/12/11	NS	NS	NS	NS	NM
T-2	06/25/07	<b>868.</b>	<b>775.</b>	12.	<b>6,330.</b>	NM
T-2	09/28/07	NS	NS	NS	NS	NM
T-2	01/28/08	<b>300.</b>	49.	<0.5	<b>1,415.</b>	NM
T-2	04/30/08	NS	NS	NS	NS	NM
T-2	07/21/08	<b>289.</b>	55.	150.	<b>1,961.</b>	NM
T-2	10/06/08	NS	NS	NS	NS	NM
T-2	05/12/09	<b>94.</b>	65.	32.	663.	NM
T-2	08/06/09	NS	NS	NS	NS	NM
T-2	11/03/09	2.	<1.	4.	2.	NM
T-2	02/05/10	NS	NS	NS	NS	NM
T-2	06/22/10	<b>12.</b>	<1.	8.	54.	NM
T-2	08/12/11	<1.	<1.	<1.	<1.	NM
T-3	06/25/07	<b>394.</b>	24.	<0.5	<b>3,449.</b>	NM
T-3	09/28/07	NS	NS	NS	NS	NM
T-3	01/28/08	<b>214.</b>	8.1	<0.5	627.	NM
T-3	04/30/08	NS	NS	NS	NS	NM
T-3	07/21/08	<b>199.</b>	3.5	48.	246.	NM
T-3	10/06/08	NS	NS	NS	NS	NM
T-3	05/12/09	<1.	<1.	<1.	<1.	NM
T-3	08/06/09	NS	NS	NS	NS	NM
T-3	11/03/09	<b>7.</b>	<1.	4.	2.	NM
T-3	02/05/10	NS	NS	NS	NS	NM
T-3	06/22/10	<b>8.</b>	<1.	2.	7.	NM
T-3	08/12/11	<1.	<1.	<1.	<1.	NM
Concentration Levels		5.0	560.	700.	1,400.	NR

Notes:

1. Approximate sample locations are shown on Figure 4.
2. µg/L = micrograms per liter.
3. mg/L = milligrams per liter.
4. Concentration Levels for groundwater are described in Table 910-1 of Series 900 of the Colorado Oil & Gas Conservation Commission Rules and Regulations established April 1, 2009.
5. **Bold** concentrations indicate an exceedance of the Concentration Levels.
6. NR = Not Regulated.
7. NM = Not Measured.
8. NS = Not Sampled.
9. Groundwater levels did not appear to have stabilized in PMW-1, PMW-2 and PMW-3 since drilling and groundwater samples were not collected from these wells.
10. Groundwater samples BTB-SB-3 and BTB-4 were split samples collected from ENVIRON's probes SB-3 and SB-4, respectively, by Paragon personnel.
11. PMW-1 was inadvertently labeled as PMW-4 during the groundwater sampling performed in March 2007.

**TABLE 2**  
**SUMMARY OF WATER QUALITY RESULTS**  
 (Page 4 of 4)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

Sample Point Name	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Dissolved Oxygen (mg/L)
T-4	06/25/07	<b>240.</b>	2.2	<0.5	<b>1,270.</b>	NM
T-4	09/28/07	NS	NS	NS	NS	NM
T-4	01/28/08	<b>44.</b>	0.7	<0.5	28.	NM
T-4	04/30/08	NS	NS	NS	NS	NM
T-4	07/21/08	<b>172.</b>	6.6	17.	66.	NM
T-4	10/06/08	NS	NS	NS	NS	NM
T-4	05/12/09	<1.	<1.	<1.	<1.	NM
T-4	08/06/09	NS	NS	NS	NS	NM
T-4	11/03/09	<b>5.</b>	<1.	<1.	<1.	NM
T-4	02/05/10	NS	NS	NS	NS	NM
T-4	06/22/10	<1.	<1.	<1.	<1.	NM
T-4	08/12/11	<1.	<1.	<1.	<1.	NM
T-5	06/25/07	<b>1,451.</b>	<b>692.</b>	426.	<b>6,938.</b>	NM
T-5	09/28/07	NS	NS	NS	NS	NM
T-5	01/28/08	<b>168.</b>	<0.5	132.	<b>1,547.</b>	NM
T-5	04/30/08	NS	NS	NS	NS	NM
T-5	07/21/08	<b>177.</b>	7.5	226.	1,216.	NM
T-5	10/06/08	NS	NS	NS	NS	NM
T-5	05/12/09	<b>11.</b>	<1.	40.	165.	NM
T-5	08/06/09	NS	NS	NS	NS	NM
T-5	11/03/09	<1.	<1.	2.	10.	NM
T-5	02/05/10	NS	NS	NS	NS	NM
T-5	06/22/10	<1.	<1.	2.	6.	NM
T-5	08/12/11	<1.	<1.	<1.	1.	NM
Concentration Levels		5.0	560.	700.	1,400.	NR

Notes:

1. Approximate sample locations are shown on Figure 4.
2. µg/L = micrograms per liter.
3. mg/L = milligrams per liter.
4. Concentration Levels for groundwater are described in Table 910-1 of Series 900 of the Colorado Oil & Gas Conservation Commission Rules and Regulations established April 1, 2009.
5. **Bold** concentrations indicate an exceedance of the Concentration Levels.
6. NR = Not Regulated.
7. NM = Not Measured.
8. NS = Not Sampled.
9. Groundwater levels did not appear to have stabilized in PMW-1, PMW-2 and PMW-3 since drilling and groundwater samples were not collected from these wells.
10. Groundwater samples BTB-SB-3 and BTB-4 were split samples collected from ENVIRON's probes SB-3 and SB-4, respectively, by Paragon personnel.
11. PMW-1 was inadvertently labeled as PMW-4 during the groundwater sampling performed in March 2007.

**TABLE 3**  
**GROUNDWATER RECOVERY**  
(Page 1 of 3)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

DATE	WELL NAME	AMOUNT RECOVERED (gal)	RECOVERY METHOD
3/23/2007	T-1 through T-5	1,050	vacuum extraction truck
5/29/2007	T-1 through T-5	2,310	vacuum extraction truck
5/31/2007	T-1 through T-5	2,100	vacuum extraction truck
6/4/2007	T-1 through T-5	2,310	vacuum extraction truck
7/3/2007	T-1 through T-5	2,730	vacuum extraction truck
7/5/2007	T-1 through T-5	2,310	vacuum extraction truck
7/9/2007	T-1 through T-5	2,310	vacuum extraction truck
7/16/2007	T-1 through T-5	2,520	vacuum extraction truck
7/23/2007	T-1 through T-5	2,184	vacuum extraction truck
7/30/2007	T-1 through T-5	2,730	vacuum extraction truck
8/20/2007	T-1 through T-5	2,520	vacuum extraction truck
8/27/2007	T-1 through T-5	1,890	vacuum extraction truck
9/4/2007	T-1 through T-5	2,730	vacuum extraction truck
9/18/2007	T-1 through T-5	1,680	vacuum extraction truck
10/8/2007	T-1 through T-5	2,100	vacuum extraction truck
10/15/2007	T-1 through T-5	1,680	vacuum extraction truck
10/22/2007	T-1 through T-5	2,730	vacuum extraction truck
10/29/2007	T-1 through T-5	2,184	vacuum extraction truck
11/5/2007	T-1 through T-5	2,730	vacuum extraction truck
11/14/2007	T-1 through T-5	2,730	vacuum extraction truck
11/19/2007	T-1 through T-5	2,730	vacuum extraction truck
12/3/2007	T-1 through T-5	1,470	vacuum extraction truck
12/10/2007	T-1 through T-5	1,722	vacuum extraction truck
12/17/2007	T-1 through T-5	1,638	vacuum extraction truck
12/26/2007	T-1 through T-5	2,940	vacuum extraction truck
1/2/2008	T-1 through T-5	2,520	vacuum extraction truck
1/7/2008	T-1 through T-5	1,974	vacuum extraction truck
1/14/2008	T-1 through T-5	2,520	vacuum extraction truck
1/21/2008	T-1 through T-5	2,646	vacuum extraction truck
1/29/2008	T-1 through T-5	1,764	vacuum extraction truck
2/4/2008	T-1 through T-5	2,730	vacuum extraction truck
2/11/2008	T-1 through T-5	2,520	vacuum extraction truck
2/18/2008	T-1 through T-5	2,520	vacuum extraction truck
3/3/2008	T-1 through T-5	2,730	vacuum extraction truck
3/10/2008	T-1 through T-5	2,940	vacuum extraction truck
3/17/2008	T-1 through T-5	2,730	vacuum extraction truck
3/24/2008	T-1 through T-5	2,730	vacuum extraction truck
3/31/2008	T-1 through T-5	2940	vacuum extraction truck
4/8/2008	T-1 through T-5	2,058	vacuum extraction truck
4/14/2008	T-1 through T-5	2,436	vacuum extraction truck
4/23/2008	T-1 through T-5	2,100	vacuum extraction truck
4/28/2008	T-1 through T-5	NR	vacuum extraction truck
5/5/2008	T-1 through T-5	2,436	vacuum extraction truck
5/15/2008	T-1 through T-5	2,730	vacuum extraction truck
5/19/2008	T-1 through T-5	2,730	vacuum extraction truck
5/27/2008	T-1 through T-5	NR	vacuum extraction truck

Notes:

1) Approximate sample locations are shown on Figure 3.

**TABLE 3**  
**GROUNDWATER RECOVERY**

(Page 2 of 3)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

DATE	WELL NAME	AMOUNT RECOVERED (gal)	RECOVERY METHOD
6/2/2008	T-1 through T-5	2,730	vacuum extraction truck
6/10/2008	T-1 through T-5	2,814	vacuum extraction truck
6/16/2008	T-1 through T-5	2,142	vacuum extraction truck
6/24/2008	T-1 through T-5	2,604	vacuum extraction truck
6/30/2008	T-1 through T-5	2,814	vacuum extraction truck
7/7/2008	T-1 through T-5	1,848	vacuum extraction truck
7/14/2008	T-1 through T-5	NR	vacuum extraction truck
7/22/2008	T-1 through T-5	1,974	vacuum extraction truck
7/28/2008	T-1 through T-5	3,066	vacuum extraction truck
8/4/2008	T-1 through T-5	2,940	vacuum extraction truck
8/13/2008	T-1 through T-5	1,680	vacuum extraction truck
8/18/2008	T-1 through T-5	2,940	vacuum extraction truck
8/25/2008	T-1 through T-5	2,940	vacuum extraction truck
9/3/2008	T-1 through T-5	2,940	vacuum extraction truck
9/8/2008	T-1 through T-5	1,848	vacuum extraction truck
9/22/2008	T-1 through T-5	2,940	vacuum extraction truck
9/29/2008	T-1 through T-5	2,310	vacuum extraction truck
10/6/2008	T-1 through T-5	2,730	vacuum extraction truck
10/13/2008	T-1 through T-5	2,940	vacuum extraction truck
11/3/2008	T-1 through T-5	2,520	vacuum extraction truck
11/10/2008	T-1 through T-5	2,940	vacuum extraction truck
11/17/2008	T-1 through T-5	2,730	vacuum extraction truck
11/24/2008	T-1 through T-5	2,730	vacuum extraction truck
12/1/2008	T-1 through T-5	2,520	vacuum extraction truck
12/8/2008	T-1 through T-5	2,310	vacuum extraction truck
12/15/2008	T-1 through T-5	2,268	vacuum extraction truck
12/22/2008	T-1 through T-5	1,974	vacuum extraction truck
12/29/2008	T-1 through T-5	2,520	vacuum extraction truck
1/5/2009	T-1 through T-5	2,520	vacuum extraction truck
1/12/2009	T-1 through T-5	2,058	vacuum extraction truck
1/19/2009	T-1 through T-5	1,680	vacuum extraction truck
1/26/2009	T-1 through T-5	2,310	vacuum extraction truck
2/2/2009	T-1 through T-5	2,142	vacuum extraction truck
2/9/2009	T-1 through T-5	1,680	vacuum extraction truck
2/16/2009	T-1 through T-5	2,142	vacuum extraction truck
2/23/2009	T-1 through T-5	2,142	vacuum extraction truck
3/2/2009	T-1 through T-5	1,890	vacuum extraction truck
3/9/2009	T-1 through T-5	2,436	vacuum extraction truck
3/16/2009	T-1 through T-5	2,730	vacuum extraction truck
3/23/2009	T-1 through T-5	2,730	vacuum extraction truck

Notes:

- 1) Approximate sample locations are shown on Figure 3.



**TABLE 3**  
**GROUNDWATER RECOVERY**  
(Page 3 of 3)

**PROJECT NAME:** Machii Ross/Berger Battery

**PROJECT LOCATION:** WCR 11 & WCR 20, Weld County, Colorado

**PROJECT NUMBER:** 1007004

DATE	WELL NAME	AMOUNT RECOVERED (gal)	RECOVERY METHOD
3/30/2009	T-1 through T-5	2,520	vacuum extraction truck
4/6/2009	T-1 through T-5	2,730	vacuum extraction truck
4/13/2009	T-1 through T-5	2,562	vacuum extraction truck
4/20/2009	T-1 through T-5	2,898	vacuum extraction truck
4/27/2009	T-1 through T-5	2,562	vacuum extraction truck
5/4/2009	T-1 through T-5	2,940	vacuum extraction truck
5/11/2009	T-1 through T-5	2,730	vacuum extraction truck
5/18/2009	T-1 through T-5	2,520	vacuum extraction truck
5/26/2009	T-1 through T-5	2,184	vacuum extraction truck
6/1/2009	T-1 through T-5	2,268	vacuum extraction truck
6/8/2009	T-1 through T-5	2,142	vacuum extraction truck
6/15/2009	T-1 through T-5	2,730	vacuum extraction truck
6/22/2009	T-1 through T-5	2,394	vacuum extraction truck
6/29/2009	T-1 through T-5	2,730	vacuum extraction truck
7/6/2009	T-1 through T-5	2,478	vacuum extraction truck
7/13/2009	T-1 through T-5	NR	vacuum extraction truck
7/20/2009	T-1 through T-5	2,562	vacuum extraction truck
7/27/2009	T-1 through T-5	1,806	vacuum extraction truck
8/3/2009	T-1 through T-5	2,730	vacuum extraction truck
8/10/2009	T-1 through T-5	2,940	vacuum extraction truck
8/17/2009	T-1 through T-5	2,940	vacuum extraction truck
8/24/2009	T-1 through T-5	2,940	vacuum extraction truck
8/31/2009	T-1 through T-5	2,268	vacuum extraction truck
9/14/2009	T-1 through T-5	2,940	vacuum extraction truck
9/28/2009	T-1 through T-5	3,150	vacuum extraction truck
10/12/2009	T-1 through T-5	2,268	vacuum extraction truck
10/26/2009	T-1 through T-5	2,436	vacuum extraction truck
11/24/2009	T-1 through T-5	2,520	vacuum extraction truck
6/21/2010	T-2 through T-5	2,184	vacuum extraction truck
8/9/2011	T-2 through T-5	2,520	vacuum extraction truck
<b>TOTAL LIQUID REMOVED</b>		<b>273,546</b>	

Notes:

- 1) Approximate sample locations are shown on Figure 3.



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

Paragon Consulting Group, Inc.  
1103 Oak Park Drive  
Fort Collins, CO 80525

Date Received: 08/12/11

Matrix: Water

Project No.: 1007004

<u>Lab ID</u>	<u>Sample ID</u>	<u>Date Sampled</u>	<u>Date Analyzed</u>	<u>Benzene mg/L</u>	<u>Toluene mg/L</u>	<u>Ethylbenzene mg/L</u>	<u>Total Xylenes mg/L</u>
A4463-01	MW-1	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-02	MW-2	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-03	MW-3	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-04	MW-4	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-05	T-2	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-06	T-3	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-07	T-4	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	< 0.001
A4463-08	T-5	08/12/11	08/18/11	< 0.001	< 0.001	< 0.001	0.001

BTEX Method:

EPA-8260B

TECHNOLOGY LABORATORY, INC.



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

#### QA/QC SURROGATE RECOVERY

Paragon Consulting Group, Inc.  
1103 Oak Park Drive  
Fort Collins, CO 80525

Date Received: 08/12/11

Matrix: Water

Project No.: 1007004

(% Recovery)

<u>Lab ID</u>	<u>Sample ID</u>	Bromofluorobenzene <u>Limits (70-113%)</u>	Dibromofluoromethane <u>Limits (68-120%)</u>	Toluene-d8 <u>Limits (81-128%)</u>
A4463-01	MW-1	93	95	89
A4463-02	MW-2	92	94	87
A4463-03	MW-3	91	93	86
A4463-04	MW-4	95	93	88
A4463-05	T-2	93	96	88
A4463-06	T-3	93	95	89
A4463-07	T-4	92	96	88
A4463-08	T-5	93	94	87

TECHNOLOGY LABORATORY, INC.



Key Energy Services, Inc.  
TRUCKING JSA  
REMIT TO: PO BOX 201858 DALLAS, TX 75320-1858

DRAFT



\*T2416483\*



Date: 8-10-11  
S M T W T F S

Work Ticket No. T241648

Customer Name/No. Machi-Ross	County/Parish Weld	State CO
Contact ANDY	Service Location (Berger Battery) WELL HD	
Directions to Location		
Yard No. 2009-1200	Unit/Asset No. 0106319	Manifest RCC No.
SWD Name <input type="checkbox"/> Key SWD <input type="checkbox"/> Customer SWD <input type="checkbox"/> Public SWD		
Disposal Ticket No.		

WORK TICKET DESCRIPTION:

Start	End	Description	# BBL	Oil/Water	Rec'd By
4:00 PM	7:00 PM	Pull Water out of the four riggers out around the battery, take to August for disposal 60 BBLs			

Tank No.	Tank No.	Tank No.	Mileage Start	Mileage End
Top Gauge	Top Gauge	Top Gauge		
Bottom Gauge	Bottom Gauge	Bottom Gauge	Ita _____ State	Ita _____ State

SAFETY EQUIPMENT REQUIRED TO DO THIS JOB:

- |   |   |  |   |   |
|---|---|--|---|---|
| <input type="checkbox"/> Hard Hat               | <input type="checkbox"/> Safety Belts       | <input type="checkbox"/> Safety Harness / Anti Fall Device | <input type="checkbox"/> Proper Clothing      | <input type="checkbox"/> Hearing Protection |
| <input type="checkbox"/> Fire Extinguishers     | <input type="checkbox"/> Steel Toed Boots   | <input type="checkbox"/> Cotton/ Rubber Gloves             | <input type="checkbox"/> Safety Glasses       | <input type="checkbox"/> Other - Explain:   |
| <input type="checkbox"/> Face Shields / Goggles | <input type="checkbox"/> Wheel Chock/Cones  | <input type="checkbox"/> Confined Space Permit             | <input type="checkbox"/> Work Permit Required |   |
| <input type="checkbox"/> H2S / Tri-Monitors     | <input type="checkbox"/> Back Support Belts | <input type="checkbox"/> Lock Out/Tag Out                  | <input type="checkbox"/> Ground Cable         |   |

PRE-JOB HAZARD ASSESSMENT:

<b>Lifting</b>	<b>Hazards</b>	<b>Body Position/Movement</b>	<b>Environmental Condition</b>
Manual Lifting (Body Position) <input type="checkbox"/> Y <input type="checkbox"/> N	Proper Tool/Material Placement <input type="checkbox"/> Y <input type="checkbox"/> N	Climbing <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Day <input type="checkbox"/> Night <input type="checkbox"/> Clear
Mechanical Lifting Equipment <input type="checkbox"/> Y <input type="checkbox"/> N	Hot/Cold Surface or Material <input type="checkbox"/> Y <input type="checkbox"/> N	Pulling, Pushing <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Drizzle <input type="checkbox"/> Humid <input type="checkbox"/> Rain
Awkward Body Position <input type="checkbox"/> Y <input type="checkbox"/> N	Inadequate Lighting <input type="checkbox"/> Y <input type="checkbox"/> N	Bending <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Ice <input type="checkbox"/> Snow <input type="checkbox"/> Dust <input type="checkbox"/> Fog
Slip/Trip Potential <input type="checkbox"/> Y <input type="checkbox"/> N	Fall Protection/ Anchor Points <input type="checkbox"/> Y <input type="checkbox"/> N	Twisting Motion <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Temp _____ Degrees
Lifting w/Other Employees <input type="checkbox"/> Y <input type="checkbox"/> N	Pinch Points <input type="checkbox"/> Y <input type="checkbox"/> N	Walking <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Wind _____ mph
Proper Rigging Practices <input type="checkbox"/> Y <input type="checkbox"/> N	Trenching/Excavation <input type="checkbox"/> Y <input type="checkbox"/> N	Swinging <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Chains Required
	Hand and Finger Hazards <input type="checkbox"/> Y <input type="checkbox"/> N	Straining <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Sharp Grades
<b>Access/Exit</b>	Electrical Hazards <input type="checkbox"/> Y <input type="checkbox"/> N	Stretching <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Mud _____ Condition
Scalloped (properly Inspected) <input type="checkbox"/> Y <input type="checkbox"/> N	Welding/Flame Cutting <input type="checkbox"/> Y <input type="checkbox"/> N	Reaching <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> YES to any HAZARDS - Identify:
Ladder <input type="checkbox"/> Y <input type="checkbox"/> N	Mechanical Equipment <input type="checkbox"/> Y <input type="checkbox"/> N	Over Extending <input type="checkbox"/> Y <input type="checkbox"/> N	
Holding of Tools/Materials <input type="checkbox"/> Y <input type="checkbox"/> N	Environmental <input type="checkbox"/> Y <input type="checkbox"/> N	Jumping <input type="checkbox"/> Y <input type="checkbox"/> N	
Secure Footing <input type="checkbox"/> Y <input type="checkbox"/> N	Pollution (Personal Exposure) <input type="checkbox"/> Y <input type="checkbox"/> N	Crawling <input type="checkbox"/> Y <input type="checkbox"/> N	

SEQUENCE OF BASIC JOB STEPS	POTENTIAL AT-RISK BEHAVIORS OR OTHER HAZARDS	POTENTIAL HAND AND/OR FINGER HAZARDS	ACTION TAKEN TO ELIMINATE OR REDUCE POTENTIAL HAZARDS

Key Approval - Date: 8-11-11  
Jerry Sparling

Customer Approval - Date: \_\_\_\_\_

☒ No Signature Required

Asset	Service Code	Description	Qty	Rate	Total
106319	300143	<input type="checkbox"/> Transport <input type="checkbox"/> Trans/Vac <input type="checkbox"/> Vacuum <input type="checkbox"/> Minimum <input type="checkbox"/> 130 BBL <input type="checkbox"/> 60-80 BBL <input type="checkbox"/> 50 BBL <input type="checkbox"/> Hour <input type="checkbox"/> Barrel <input type="checkbox"/> Load <input type="checkbox"/> 130 BBL <input type="checkbox"/> 60-80 BBL <input type="checkbox"/> 50 BBL <input type="checkbox"/> Pump/Kill Truck Minimum <input type="checkbox"/> 130 BBL <input type="checkbox"/> 60-80 BBL <input type="checkbox"/> 50 BBL <input type="checkbox"/> Pump/Kill Truck Hourly <input type="checkbox"/> 130 BBL <input type="checkbox"/> 60-80 BBL <input type="checkbox"/> 50 BBL <input type="checkbox"/> Hot Oil Unit Minimum <input type="checkbox"/> 130 BBL <input type="checkbox"/> 75 BBL <input type="checkbox"/> 50 BBL <input type="checkbox"/> Hot Oil Unit Hourly <input type="checkbox"/> 130 BBL <input type="checkbox"/> 75 BBL <input type="checkbox"/> Hot Oil by the BBL <input type="checkbox"/> Propose <input type="checkbox"/> Winch Truck Minimum <input type="checkbox"/> Light Duty <input type="checkbox"/> Heavy Duty <input type="checkbox"/> Winch Truck Hourly <input type="checkbox"/> Light Duty <input type="checkbox"/> Heavy Duty <input type="checkbox"/> Haul, Set & Deliver Equipment <input type="checkbox"/> Swamper <input type="checkbox"/> Special Fluid Helper <input type="checkbox"/> Supervisor <input type="checkbox"/> Truck <input type="checkbox"/> Acid <input type="checkbox"/> Special Fluid <input type="checkbox"/> Fresh Water Key Owned <input type="checkbox"/> Fresh Water Non Key <input type="checkbox"/> Brine Water Key Owned <input type="checkbox"/> Brine Water Non Key <input type="checkbox"/> Disposal Key Owned <input type="checkbox"/> Solid <input type="checkbox"/> B/S <input type="checkbox"/> Disposal Non Key <input type="checkbox"/> Solid <input type="checkbox"/> B/S <input type="checkbox"/> Disposal Key Owned <input type="checkbox"/> Produced <input type="checkbox"/> Flowback <input type="checkbox"/> Disposal Non Key <input type="checkbox"/> Produced <input type="checkbox"/> Flowback <input type="checkbox"/> Third Party <input type="checkbox"/> KCL (Potassium Chloride) Powdered <input type="checkbox"/> KCL Substitute <input type="checkbox"/> KCL <input type="checkbox"/> 2% <input type="checkbox"/> 3% <input type="checkbox"/> 4% <input type="checkbox"/> Other <input type="checkbox"/> Chemicals - Specify:	3	47	279.0
FUEL <input type="checkbox"/> Fuel Surcharge <input type="checkbox"/> Fuel Charge					

Sales tax calculated on Invoice

Sub Total 279.00

PAYROLL:

Class	Employee No.	Employee Name / Signature	Start	End	Work	Travel	Down	Other	Total Hours
DRIVER	49078	Deniel Dist. R. P. D.	4:00 PM	7:00 PM	3	-	-	-	3
SWAMPER									
TRAINER									

DWT-005 8/06

RECEIVED

PARAGON