



Bargath LLC
2717 County Road 215, Suite 200
Parachute, CO 81635

Proposal to Extract LNAPL from Monitoring Well -11

Williams is submitting this proposal to perform LNAPL extraction events on MW-11. Please refer to the following pages for LNAPL thickness in MW-11, and a map of the monitoring wells.

The extraction event(s) will be performed utilizing a vacuum truck. MW-11 is constructed of 2-inch diameter polyvinyl chloride (PVC) riser and well screen. A 30 foot length of well screen is set at total depth at 70 feet below ground surface (bgs). Depth to water in MW-11 has historically ranged from 48 to 58 feet bgs.

- An oil/water interface probe, capable of detecting LNAPL on the water to an accuracy of 0.01 feet, will be used to gauge depth to water and depth to LNAPL (if applicable) in monitor wells MW-9, MW-11 and MW-12 prior to initiation of any fluids extraction from MW-11. Monitor wells MW-9 and MW-12 will be fitted with a 2-inch slip cap to allow the collection of well head vacuum readings before and during fluids extraction from MW-11 with a magnehelic or manometer differential pressure gauge. The goal is to see if the vac applied to MW-11 (and water drawdown) causes any water level or vacuum responses in the 2 closest wells. There will be no concern of contaminating the wells. The data will help with an understanding of the hydraulics.
- A vacuum truck will be utilized to apply vacuum to MW-11 and total fluids extracted using a 1-inch diameter drop tube positioned at the air/LNAPL and water interface within the well. MW-11 will be fitted with a well head adaptor to allow sealing of the well head while sliding the 1-inch diameter PVC down through a O-ring compression fitting into the well.
- The ambient air from the vacuum truck will be monitored soon after the start of operation and as needed for combustible gases and vapors with a lower explosive limit (LEL) combustible gas monitor and a photo ionization detector (PID).
- The total fluids extraction from MW-11 will be completed with a maximum well head vacuum with no ambient bleed air. After approximately 1-hour of the initial fluids extraction, the vacuum will be stopped to allow collection of LNAPL and water level data from MW-11. The total fluids extraction from MW-11 will continue in similar one-hour intervals at a maximum well head vacuum followed by collection of LNAPL and water level data, over a minimum of 4 hour period. The depth of the 1-inch drop tube will be adjusted as needed to allow the continued fluids extraction from the well.
- Water levels and vacuum readings will be measured in the two adjacent monitor wells, MW-9 and MW-12, at least every 30 minutes during the total fluid extraction from MW-11. This will be accomplished with a decontaminated interface probe.

- An estimate of the total fluids recovered into the vacuum truck will be made upon completion.
- Once the vacuum has been removed from MW-11, the water level/LNAPL recovery will be measured every minute for the first 10-minutes and then every ten minutes for a minimum of one hour or until fluid levels have fully recovered to static.
- A disposable bailer will be used to collect a groundwater sample from monitor well MW-11 upon recovery of water level. The sample will be analyzed in the laboratory for benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B and total petroleum hydrocarbons gasoline range organics (TPH GRO) by EPA Method 8015B. The groundwater sample will be submitted to ALS Environmental, Holland, Michigan for analysis.
- If needed and weather allowing, total fluids extraction will be completed on MW-11 if measureable LNAPL is present and continued on a weekly basis until no measureable LNAPL exists. If no measureable LNAPL is present, total fluids extraction will be completed on a monthly basis until an acceptable drop in benzene concentrations in groundwater collected from MW-11 is noted.







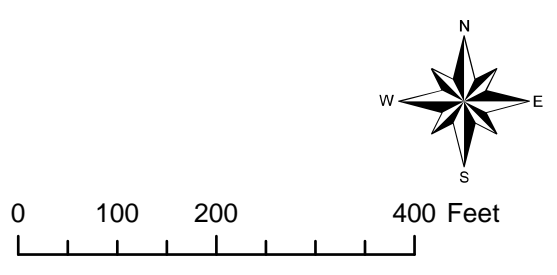
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MW11 Product Thickness	
Date	Thickness (inches)
4/28/2014	Visual estimate
5/28/2014	0.18
6/25/2014	0.15
7/30/2014	0.29
8/26/2014	0.16
9/11/2014	Absorbent Sock Installed
9/11/2014	Absorbent Sock
10/23/2014	Absorbent Sock
11/24/2014	Absorbent Sock
12/22/2014	Absorbent Sock
1/26/2015	Absorbent Sock
2/24/2015	Absorbent Sock
3/31/2015	Absorbent Sock Removed
4/28/2015	0.02
5/27/2015	0.16
6/22/2015	0.15
7/28/2015	0.20
8/25/2015	0.21
9/30/2015	0.05
10/28/2015	0.06
11/23/2015	No Measurable Product
12/17/2015	No Measurable Product
1/27/2016	No Measurable Product
2/25/2016	No Measurable Product
3/22/2016	No Measurable Product
4/25/2016	No Measurable Product
5/31/2016	No Measurable Product
6/24/2016	0.01
7/28/2016	0.18
8/30/2016	0.23
9/16/2016	0.18



Legend

-  Monitoring Well
-  Hydrocarbon Impacted Monitoring Well
-  Proposed Monitoring Well
-  Release Area



Bargath LLC
Figure 1 JANGLES COMPRESSOR STATION PROPOSED MW LOCATIONS
 CB&I Environmental & Infrastructure, Inc. 6380 South Fiddlers Green, Suite 310 Greenwood Village, CO 80111