



PDC Energy, Inc.
First Quarter 2013 Groundwater Monitoring Summary

March 25, 2013

Seele 31, 41, 42-31 Tank Battery
NWNW Section 31 T4N R67W
Weld County, API # 05-123-20106

received 01/22/2016
Project 6926
Document 2144847

This groundwater monitoring summary has been prepared by Tasman Geosciences, LLC for the Seele 31, 41, 42-31 tank battery. On January 28, 2013, groundwater sample collection was attempted at three temporary monitoring well locations. However, BH01 through BH03 were gauged and found to be dry during the monitoring period. Analytical results from the previous quarter are summarized in Table 1 and are illustrated on Figure 2.

Bi-weekly enhanced fluid recovery (EFR) with air sparge (AS) was initiated on August 22, 2012. A summary of historic EFR/AS operational data is provided in Table 2. Bi-weekly EFR/AS events have been postponed until groundwater elevations increase at the site.

Second quarter 2013 groundwater sampling will be conducted during April 2013.

TABLE 1
SEELE 31, 41, 42-31
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet)
BH01	1/27/2012	5,300	1,200	180	1,300	13.14
BH01	7/17/2012	900	2.2	10	78	12.60
BH01	10/1/2012	<1.0	<1.0	<1.0	<1.0	13.82
BH01	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH02	1/27/2012	7,500	680	240	1,400	11.93
BH02	7/17/2012	10,000	2,200	220	2,140	10.92
BH02	10/1/2012	DRY	DRY	DRY	DRY	DRY
BH02	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH03	1/27/2012	16,000	4,400	420	2,900	15.02
BH03	7/17/2012	18,000	2,700	15	3,590	12.56
BH03	10/1/2012	7,300	1,400	250	2,400	12.69
BH03	1/28/2013	DRY	DRY	DRY	DRY	DRY
COGCC standards for Groundwater (ug/L) ⁽¹⁾		5	560	700	1,400	

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

Bold red values indicate an exceedance of the COGCC groundwater standards for the Site.

Sample locations are shown on Figure 2.

ug/L= Micrograms per liter.

TABLE 2
SEEL 31, 41, 42-31
AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE

Date	EFR Wells	Total EFR / AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Injection Pressure (psi)
THIRD QUARTER 2012					
8/22/2012	BH-01, BH-02, BH-03	7	42	BH-01, BH-02, BH-03	8
9/5/2012		7	42		8
FOURTH QUARTER 2012					
10/2/2012	BH-01, BH-02, BH-03	7	42	BH-01, BH-02, BH-03	8
10/15/2012		7	42		8
10/29/2012		7	0		8
11/12/2012		6.25	0		8
11/26/2012		6	0		8
FIRST QUARTER 2013					
1/8/2013	BH-01, BH-02, BH-03	5	0	BH-01, BH-02, BH-03	8
1/21/2013		7	6.5		8

Notes:

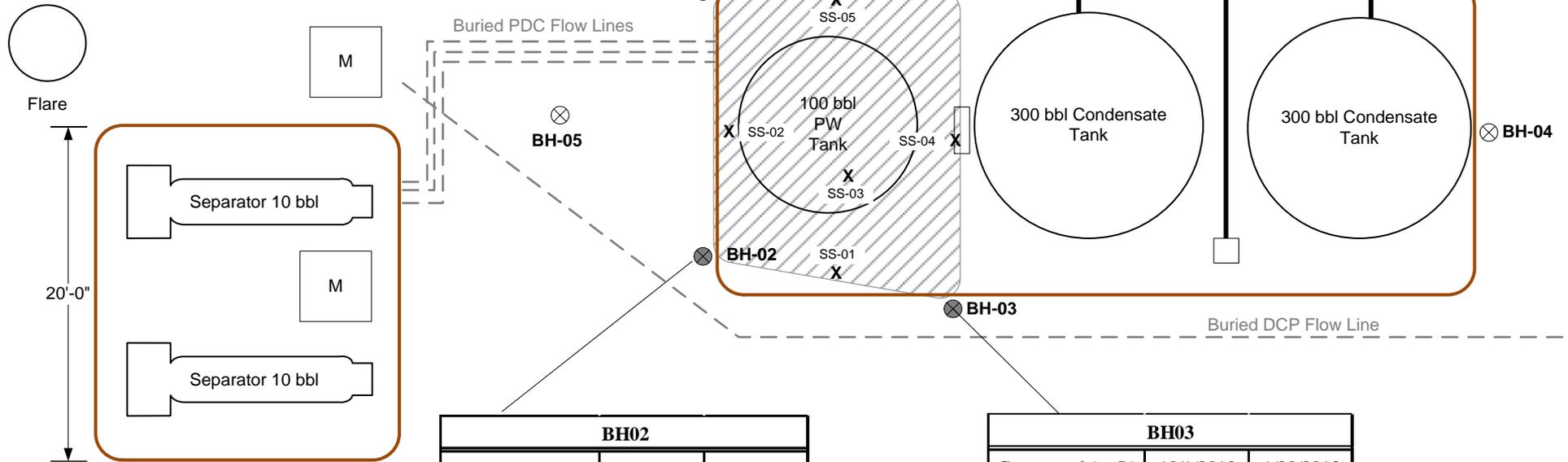
psi = pounds per square inch



↑
**Surface
Drainage**

BH01		
Compound (ug/L)	10/1/2012	1/28/2013
Benzene	<1.0	DRY
Toluene	<1.0	DRY
Ethylbenzene	<1.0	DRY
Total Xylenes	<1.0	DRY

County Road 40



BH02		
Compound (ug/L)	10/1/2012	1/28/2013
Benzene	DRY	DRY
Toluene	DRY	DRY
Ethylbenzene	DRY	DRY
Total Xylenes	DRY	DRY

BH03		
Compound (ug/L)	10/1/2012	1/28/2013
Benzene	7,300	DRY
Toluene	1,400	DRY
Ethylbenzene	250	DRY
Total Xylenes	2,400	DRY

Note:
Surface drainage direction is estimated based on site topography and is not related to regional topography.

PROJECT NO:
DRAWN BY: CAW
DATE: 10/19/2012

Facility Diagram
PDC Energy – DJ Basin
Seele 31, 41, 42-31
T4N R67W S31
Weld County, CO



6899 Pecos St., Unit C
Denver CO 80221

LEGEND

- Earthen Berm
- Bore Hole Location
- Bore Hole Location With Temporary Well Installed
- Approximate Extent of Excavation
- Excavation Soil Sample

Meter Shed

FIGURE 2
GROUNDWATER ANALYTICAL RESULTS