



Fox Engineering Solutions, Inc.

June 24, 2013

Karolina Blaney
Environmental Specialist
WPX Energy Rocky Mountain, LLC
1058 County Road 215
Parachute, CO 81635

Re: SG 31-32-796 Smith Gulch – Hydrotest Results
NEW ¼ Section 32, Township 7 South, Range 96 West, 6th P.M. Garfield County, CO

Dear Karolina,

Attached are the results of the 72-hour hydrotest conducted June 17 through June 20, 2013 at WPX Energy's SG 31-32-796 Pit. The hydrotest indicated no observed loss in liner system integrity. The summary results, attached, include a data and calculation sheet, survey plat with water surface area and elevation data, and an outline of the procedures employed.

As per COGCC requirements, the pit was tested with the water level exceeding 70% of operating capacity and monitored for 72 hours. A weather station, consisting of a National Weather Service Class A evaporation pan and two precipitation gauges, was installed at the site. Survey data including vertical and horizontal control points along with pit water elevations and surface areas were established and collected by Sexton Survey Company.

The lining system consists of a primary 60 mil polypropylene liner and a secondary 40 mil polypropylene liner underlain with a tertiary geo-synthetic clay liner. An interstitial monitoring sump is located on the south side of the pit. Visible portions of liner, approximately the top 8-10 ft., had no visible tears, delamination or seam failures. The liner installation had recently been completed and appeared to be in excellent condition.

The fluid level of the pit dropped 1.08 inches over the 72-hour test duration. Correspondingly, evaporation and precipitation measurements provided a calculated or expected fluid level drop of 1.11 inches. An evaporation pan coefficient of 0.72 was applied to the gross pan evaporation.

Side slope measurements in the interstitial observation pipe were taken on June 17th and June 20th and indicated the presents of moisture in the sump. The moisture level in the sump did not change over the 72-hour test period, measuring 50.08 ft. at both the initiation and termination of the hydrotest. Construction water may be present between the primary and secondary liners.

In conclusion, the hydrotest results indicated no observed loss in liner system integrity. The mass balance calculations, utilizing measured evaporation and precipitation data, correlated with the fluid level change in the pit. The interstitial monitoring sump moisture level showed no apparent change over the 72-hour hydrotest period. Continued monitoring of the interstitial sump is recommended.

Should you have any questions or require additional information, please let me know.

Best regards,

David Fox, P.E.

Fox Engineering Solutions, Inc.

670 Canyon Creek Drive
Grand Junction, CO 81503
Ph: (970) 250-5505 Fax (626) 784-0667
Email: coloradofox@bresnan.net

Hydrostatic Pit Testing

Data Collection & Computation Form

Fox Engineering Solutions, Inc.



Pit Owner: WPX Energy Rocky Mountain, LLC
Pit Name: SG 31-32-796 (Smith Gulch)
COGCC Facility No.
Pit Location: NE 1/4 Section 32, T7S, R96W, 6th P.M.
 Latitude: N 39.398863° Longitude: W108.129210° (NAD83)
Reported Liner: 60 mil Primary/40 mil Secondary HDPE Liners with Tertiary GCL.
Approximate Elevation: 5140 ft. msl
Test Conducted By: David Fox P.E., Fox Engineering Solutions, Inc.

Test Initiation:

Date: 6/17/2012
 Time: 4:45 PM
 Total Duration: 72 hours

Test Termination:

Date: 6/20/2012
 Time: 4:45 PM

	<u>Length</u>	<u>Width</u>	<u>Area</u>		<u>Comments</u>
Tributary Pit Liner Surface Area (ft ²):	-	-	59,043	ft. ²	Surveyed by Sexton Survey
Initial Pit Water Surface Area:	-	-	50,070	ft. ²	Surveyed by Sexton Survey
Final Pit Water Surface Area:	-	-	<u>50,070</u>	ft. ²	Surveyed by Sexton Survey
Average Pit Water Surface Area:			50,070	ft. ²	
Initial Pit Fluid Level:					5137.34 ft.
Final Pit Fluid Level:					<u>5137.25</u> ft
Difference					0.09 ft or
Est. Fluid Depth:	12.8 ft.	(from pit capacity table)			1.08 inches
Evaporation Pan Installed: Yes	Location: SE side of pit		Measured Pan Evaporation:		1.55 inches
			(During Test Duration)		
			Evaporation w/ Pan Coeff. 0.72		1.11 inches
			(From published NOAA data)		
Rain Gauge Installed: Yes - 2 Gauges	Location: E & S sides of pit		Recorded Precipitation:		0.00 inches
			Equiv. 72-Hour Precip. Inflow:		0.00 inches
Other Inflow/Outflow:	Inflow (gal)	0	Equivalent Inflow:		0.00 inches
	Outflow (gal)	0	Equivalent Outflow:		0.00 inches
Calculated Fluid Level Change in Inches:	(+ indicates fluid level increased)				
	(Precipitation - 72% Pan Evaporation + Inflows - Outflows)				-1.11 inches
Measure Change in Inches:	(+ indicates fluid level increased)				-1.08 inches
Difference between Calculated and Measured Pit Fluid Level:					0.03 inches

Summary: No observed loss in liner integrity. Fluid level drop correlated with evaporation & precipitation measurements.

Weather: Mostly sunny, dry and windy. Temperatures 70° - 85°.

Liner and Pit Condition: Treated water fluid level at approximate 12.8 ft depth (90% full). Liner is new and had just been installed.

Visible portion of liner, approximately the top 8 - 10 ft., had no visible tears, delamination or seam failures.

Pit area fence with 6' high chain link & 1" birdnetting. Top of pit netted with 3" by 3" bird netting.

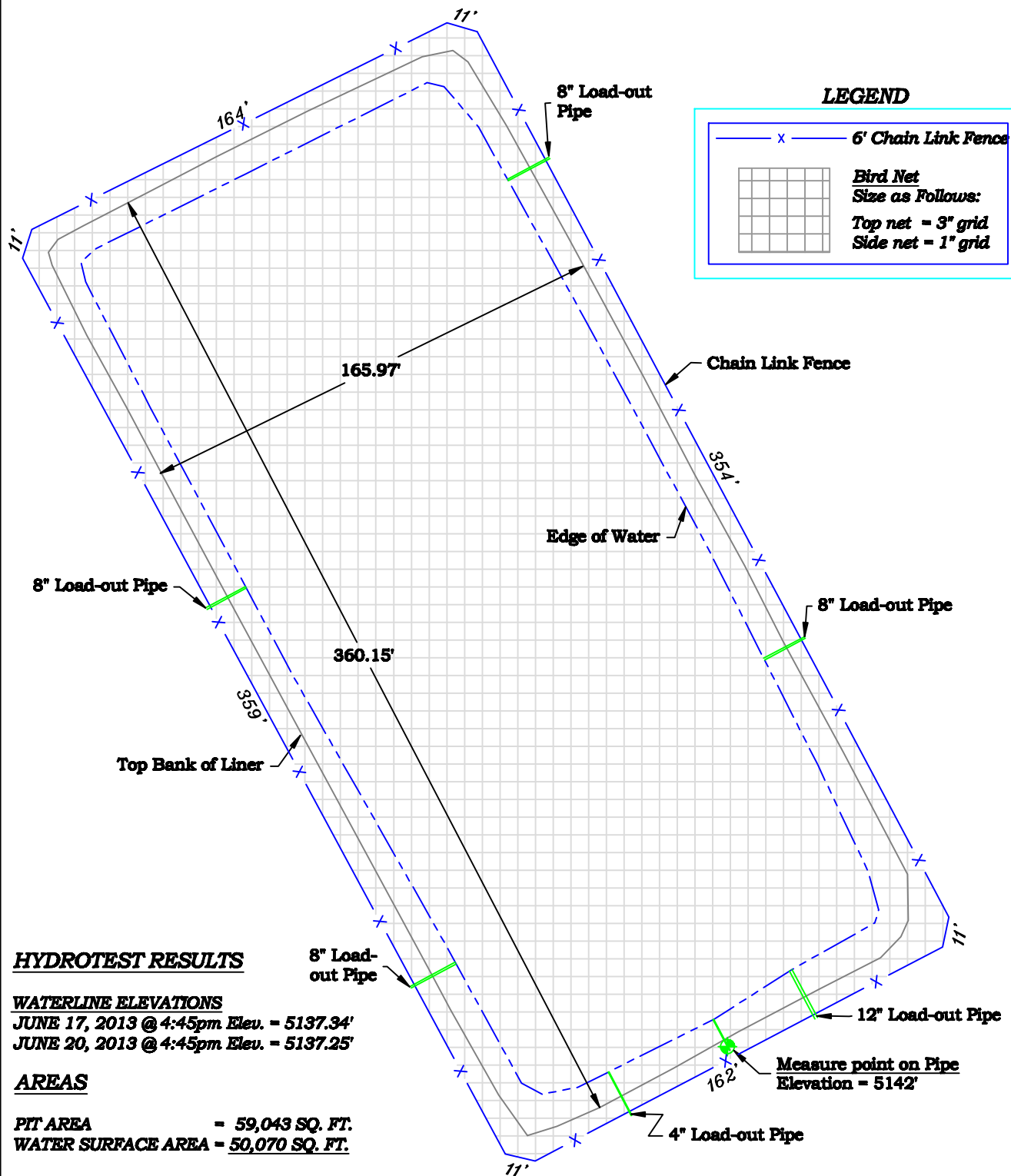
Comments: Sexton Survey utilized a Trimble Total Station for required area and elevation measurements.

WPX Energy staff indicated that no fluids were transferred from or to the pit during the duration of the test.

Evaporation pan placed within the fenced and netted area of the pit site.

Fox Engineering Solutions, Inc.

June 2011



HYDROTEST RESULTS

WATERLINE ELEVATIONS

JUNE 17, 2013 @ 4:45pm Elev. = 5137.34'

JUNE 20, 2013 @ 4:45pm Elev. = 5137.25'

AREAS

PIT AREA = 59,043 SQ. FT.

WATER SURFACE AREA = 50,070 SQ. FT.

TRIBUTARY AREA = 8,973 SQ. FT.

SCALE: 1" = 50'



NE1/4 of Section 32
T. 7 S., R. 96 W. of the 6th P.M.
COSP NAD 83 CENTRAL ZONE
LAT: 39.398863
LONG: -108.129210
Garfield County, Colorado

JOB. NO: 13039

DATE: 6/20/13

Hydro-test Exhibit Prepared for:



WPX Energy Rocky Mountain, LLC

SG 31-32-796 (Smith Gulch) Completions Pit

Hydrostatic Pit Test

Hydrostatic Testing Procedures for COGCC Earthen Pits

Vers. 6.0 12-15-11 ©



The purpose for hydrostatic testing earthen pits is to comply with COGCC approval conditions for verifying the fluid holding integrity of the pit lining system. These procedures are specific to existing or active earthen pits holding oil and gas related fluids including, but not limited to, produced water. During testing, the pit shall have fluid level as high as practical, without encroaching into the 2 ft. freeboard, and the test shall be conducted for a minimum of 72 hours, if practical. Visible portions of the liner, including the anchor trench and seams, shall be inspected for defects. The test shall be scheduled and coordinated with personnel to ensure that oil and gas activities do not interfere with the test. Testing procedures may be subject to changes as dictated by field and climatic factors. All personnel involved with testing, while onsite, shall comply with their respective EH&S requirements.

- If practical, a sign shall be placed in a conspicuous location during the test stating "Hydrostatic testing in Progress, Pit Closed to All Water Hauling Activities". Contact information shall also be placed on the sign.
- A semi-permanent datum elevation point shall be established at the pit location. The surface area of the water surface and the surface area of the liner area, tributary to the pit shall be measured. The date and time of each measurement shall be documented.
- The pit fluid level; fluid surface area; and the lined surface area, tributary to the pit, shall be measured and recorded at the beginning of the test. The pit fluid level shall be measured again at the end of the test. A survey grade total station shall be utilized for accuracy to capture this information. The date and time of measurements shall be documented.
- A 4" diameter official rain gauge with funnel inlet shall be installed at the pit site. Precipitation shall be recorded for the duration of the hydrostatic test.
- During ice-free periods, pan evaporation shall be measured during the duration of the test following the procedures established by the National Weather Service – NOAA in the document entitled "National Weather Service - Observing Handbook No. 2, dated July 1989. A Class A evaporation pan shall be placed at the site, or as near as practical, with evaporation measured per established procedures. During ice-over periods at the pit, evaporation is assumed negligible and evaporation measurements will not be taken.
- For the duration of the test, all inflows and outflows, such as truck and piped transfers, shall cease. If the cessation of inflows and outflows is not practical, all pit inflows and outflows shall be accurately metered and documented during the test. 24-hour surveillance monitoring may be warranted.
- If no precipitation has occurred during the test, compare the change in the pit fluid level with the recorded pan evaporation. During ice-over periods, compare the pit levels taken at the start and end of the tests.
- If precipitation has occurred during the test, precipitation falling onto tributary portions of the liner, outside of the fluid surface area, may be added as an inflow to the pit and converted into inches of depth over the fluid surface area. During ice-over and snow conditions, precipitation inflow from tributary portions of the liner may be estimated from snow depth and corresponding water equivalent comparisons at the start and termination of the test. Other factors may also be utilized.
- The calculated change in pit level during the test is: $\Delta L = P + I - O - E$ (all measurements converted to inches)

Where: ΔL = Change in pit fluid level P = Precipitation Inflow E = Evaporation
 I = Measured Inflows O = Measured Outflows
- The measured change in the pit fluid level shall be compared to the calculated change, utilizing precipitation and evaporation data, in the pit fluid level during the test duration. The test procedures and results will be reviewed and analyzed for discrepancies. If the test results indicate integrity issues with the lining system, the test will be repeated.