



wpb

Laramie Energy, LLC
Remediation No. 11939
HCWTF 441238
Pond 2
Mesa County, CO

Event Chronology

- 8/11/2018: Water discovered in sump of Pond 2.
Pond Volume: 336,167 bbls (17.02')
Initiated continuous pumping of Sump 24 hours a day.
- 8/12/2018: Third party contractor (Entrada) collected water samples from Pond 2 sump and adjacent monitoring wells (MW-01 and MW-02). Reference [Doc. No. 402418954](#) for analytical results
- 8/13/2018: Third party contractor (Leak Location Services, Inc.) contacted to schedule leak survey of pond 2. Survey scheduled for 8/28/2018.
- 8/14/2018: Initial Form 19 ([Doc No. 401732577](#)) submitted
Spill release Point ID 456666
Initiated pulling water from pond
Pond Volume: 321,974 bbls (16.47')
- 8/15/2018: Pond Volume: 286,784 bbls (15.10')
- 8/16/2018: Pond Volume: 244,887 bbls (13.40')
- 8/17/2018: **Began Pumping Freshwater in to pond in preparation for Leak survey**
Pond Volume: 272,685 bbls (14.53')
- 8/18/2018: Pond Volume: 325,222 bbls (16.60')
- 8/19/2018: Pond Volume: 372,840 bbls (18.40')
- 8/19/2018: Supplemental Form 19 ([Doc. No. 402149558](#)) submitted
Plans to leak survey. Pond and space between liners must be full of water.
Freshwater to be pumped in to fill pond and space between liners.
- 8/20/2018: Pond Volume: 411,862 bbls (19.83')
- 8/21/2018: Pond Volume: 467,114 bbls (21.78')
- 8/22/2018: Pond Volume: 488,167 bbls (22.51')
End Pumping of Freshwater Waiting on Leak Surveyor
- 8/28/2018: Leak Location Services, Inc. completed leak survey of pond. Five points were identified as possible leak sites. Leaks needed to be visually verified or by other means.
Reference [Doc. No.s 402410336 and 40177745](#) for survey report and results.
- 8/30/2018: Began pumping pond and sump in preparation to inspect potential leak points and repairs. Water pumped going to Laramie Completion Operations.
Pond Volume: 478,996 bbls (22.19')



8/31/2018-9/17/2018:

Continued pumping of pond 2 to completions operations. Continuous pumping of sump also.

9/17/2018- 9/26/2018:

Pond Volume: 192,009 bbls (11.16').

Sump volumes decreased after the 11.16' level was reached indicating the water level was below the holes in liner. Reference 9/28/18 e-mail from Field Supervisor ([Doc. No. 402410347](#)).

9/27/2018: H&H Lining repaired holes identified in liner. Reference repair log ([Doc. No 402410350](#)).

Because the sump volumes steadily decreased after the 11.16' water depth was reached 9/17/18, Laramie personnel concluded the two potential leaks identified on the pond bottom (Point 2 and 3 in [Doc. No. 401777455](#)) were anomalies and not actually holes in the liner. Because the two locations were approximately three feet apart, the conclusion was a sandbag used during installation to hold the liner down might have created a false reading during the leak survey.

Form 27 ([Doc. No 401777422](#)) filed. Remediation No. 11939 assigned.

9/28/2018- 10/9/2018

Began filling Pond 2 with DAF treated water from Laramie's "Harrison Creek Water Treatment DAF Unit" to conduct 72 hour hydro test first two leak repairs.

10/09/2018: Pond Volume: 395,812 bbls (19.25')

10/09/2018-10/11/2018:

72 hr hydro-test. No change in pond volume. Test 1 complete.

Commenced filling pond to next 72 hr. hydro-test level.

Pond Volume: 395,812 bbls (19.25')

10/16/2018-10/19/2018:

Pond Volume: 483,855 bbls (22.36')

72 hr hydro test. No change in pond volume. Test 2 complete

Monitoring Wells and Hydro Geologic Report

[Ref. Doc. No 402410353](#) for bore logs

11/19/2018: Commence Drilling and completing MW-05 and MW-06.

11/20/2018: Commence Drilling and completing MW-07.

11/21/2018: Commence Drilling and completing MW-08.

12/2018: Hydro Geologic report completed. [Ref. Doc. No 402410353](#)



HCWTF Pond 2 Sump Record From Daily E-mail Reports		
Date	Volume (gallons)	Time(minutes/ day)
8/11/2018 Leak Detected		
8/11-16/2018	No volume recorded continuous pumping	
8/17-28/2018	No Pumping. Prepping for Leak Survey. Liner annulus filling with Fresh Water/Pond Water mix	
8/28/2018	No pumping. Leak Survey	
8/29-9/17/2018	No volume recorded. Continuous pumping. Prepping for repairs.	
9/17-27/2018	0-40 gallons	30-60
9/28/2018	31	28
9/29/2018	No Record	No Record
9/30/2018	20	30
10/01/2018	34	54
10/02/2018	21	31
10/03/2018	20	33
10/04/2018	18	30
10/05/2018	18	33
10/06/2018	14	30
10/07/2018	12	30
10/08/2018	14	30
10/09/2018	11	30
10/10/2018	11	30
10/11/2018	9	30
10/12/2018	8	30
10/13/2018	8	30
10/14-15/2018	No Record	No Record
10/16/2018	6	30
10/17/2018	6	30
10/18/2018	5.5	30
10/19/2018	5	30
10/20/2018	4.8	30
10/21/2018	4.3	30
10/22-28/2018	No Record	No Record
10/29/2018	5	30
10/30/2018	3.6	30
10/31/2018	3	30
11/1-2-2018	No Record	No Record
11/3/2018	0.5	30
11/2/2018	2.9	30