



Test Well for SWD Potential

Well: Cascade Creek 604-12-13

WELL INFORMATION:

Well: Cascade Creek 604-12-13
API #: 05-045-13465-00
Pad: 604-12-13

History: 2005-October Drilled to 9320 TD
2005-November Completed 5 stages in Cameo and WF
2005-November Perforated and squeezed at 7210-7212
2005-December Perforated and squeezed at 5920-5922
2017-September Producing 59 MCFD

Surface Hole: 2804 FNL & 396 FWL SEC 4 T6S R97W
Bottom Hole: 2843 FSL & 160 FWL SEC 4 T6S R97W

Elevation: RKB: 8653.5
KB: 25.0
GL: 8628.5

PBTD: 9252 MD / 9221 TVD (estimated)
TD: 9320 MD / 9289 TVD (estimated)

Casing: Conductor: 16" @ 85
Surface: 9-5/8" 36# K55 @ 3776 (TOC @ surface)
Production: 5-1/2" 17# I80 @ 9298 (TOC @ 5702)

Perforations: Squeezes @ 5920-5922 and 7210-7212
Completion @ 7468-8929

Tubing: 2-3/8" 4.7# @ 8316, grade unknown

Geology: Wasatch G 4676
Fort Union 4942
Ohio Creek 6193
Williams Fork 6554
Cameo 8748
Rollins 9079

PROCEDURE:

Abandon Williams Fork and Cameo Perforations

1. Set BP @ 7100.
2. Place 100 linear feet Class G cement on CIBP.
3. Pressure test and chart 5-1/2" casing to 1500 psi for 15 minutes to verify well integrity.

Cement Squeeze to Isolate Ohio Creek from Fort Union

4. Perforate 4 x 1/2" holes @ 6180.
5. Set drillable cement retainer @ 6150 +/-.
6. Squeeze 1.0 or more bbls class G cement through perforations.
7. Drill out retainer and cement.
8. Run CBL to verify cement placement.

Prepare Well for Ohio Creek and Upper Williams Fork Injection Testing

9. Perforate the following intervals:
 - a. 6700-6702 – Williams Fork
 - b. 6548-6550 – Ohio Creek
 - c. 6494-6496 – Ohio Creek
 - d. 6408-6410 – Ohio Creek
 - e. 6344-6346 – Ohio Creek
 - f. 6288-6290 – Ohio Creek
10. Set packer @ 6250 +/- with memory pressure gauge in tubing tail.
11. Pressure test and chart 5-1/2" casing to 1500 psi for 15 minutes to verify well integrity.

Collect Proposed Injection Zone Water Samples for Analysis

12. Swab well to collect 3 x 1 gallon samples of Ohio Creek formation water. (Recover 2 x the volume to the top perforation before collecting samples. Volume to top perforation = 25 bbls, so recover 50 bbls.)
13. Send water samples to lab for analysis.

Pump Step Rate Test

14. Install memory pressure gauges on tubing and casing.

15. Pump Step Rate Test as follows:

Step Number	Step Time Duration (minutes)	Step Time Duration (hours)	Time Cumulative (minutes)	Time Cumulative (hours)	Pump Rate (BPM)	Step Volume (BBLs)	Volume Cumulative (BBLs)
1	60	1	60	1	0.00	0	0
2	60	1	120	2	0.40	24	24
3	60	1	180	3	0.70	42	66
4	60	1	240	4	1.00	60	126
5	60	1	300	5	1.33	80	206
6	60	1	360	6	1.67	100	306
7	60	1	420	7	2.00	120	426
8	60	1	480	8	2.50	150	576
9	60	1	540	9	3.00	180	756
10	60	1	600	10	4.00	240	996
11	60	1	660	11	5.00	300	1296
12	60	1	720	12	6.00	360	1656
13	60	1	780	13	7.00	420	2076
14	1440	24	2220	37	0.00	0	2076
TOTAL	2220	37	2220	37			2076

After pumping, shut in well upstream of the tubing pressure gauge. Continue collecting data for at least 1 full day even if surface tubing gauge indicates no pressure.

16. Recover all pressure gauges and send to Engineering.