



**COMPLETION PROCEDURE**

**Cascade Creek 697-09-54B well**

**Cascade Creek – Valley Operations  
Garfield County, Colorado**

**October 30, 2014**

Prepared by: \_\_\_\_\_ 10/30/14  
Seun Awosanya date

## **SAFETY**

Safety of personnel and protection of the environment are the highest priority on Oxy operations. A Job Permit should be filled out and discussed prior to each crew change and prior to any significant change in operations. Any safety concerns brought to the attention of the Oxy Completion Supervisor should be addressed and reported to the project engineer.

Report all accidents, incidents, and near misses to the Completion Supervisor, Production Coordinator and Operations Engineer. All incidents and near misses should be reported to the Oxy Completion Supervisor, no matter how small. Complete all sections of the "Rockies Initial Injury Report Form". These reports will be communicated to Oxy's Rockies HES Department by the Completion Supervisor immediately. Any injury or illness resulting in evacuation of personnel from the rig should also be reported. Mail the original signed form to the Rockies HES Department.

The morning reports should be emailed to the Grand Junction office and Project Engineer by 6:30 AM. The morning reports should include the Oxy daily completion report, daily cost report, any vendor reports or drawings, and any incidents that may have occurred for the previous 24 hours.

All vendor field tickets and material manifests should be sent to the Grand Junction office. All paperwork should be properly identified with the complete well name and OneOxy number. The end of well paperwork should also be sent to the Grand Junction office. This should include the **original** morning reports, cost reports, tubing detail, fluid reports, tubular manifest, and any incidents that may have occurred during the project.

## **Objective: Complete CC 697-09-54B well in the Wasatch Utilizing Energized Fracs**

**Narrative Description:** Clean up location. Rig up wireline on the well and RIH with CIBP and set within 50ft of top perforation. RD wireline. Set anchors for the workover rig. Install tubing head and frac valve. Pressure test casing

Rig up flow back equipment utilizing Oxy's vertical separators. Move frac tanks onto or near location for anticipated buffer/surge volumes. Rig-up ancillary water distribution lines as needed. Fill all frac tanks with produced water. Move mountain movers onto location and fill with proppant. Perforate and fracture stimulate stage(s) in the Wasatch formation. Isolate stages with composite frac plugs. MIRU workover rig. Clean out wells with produced water and N2 foam, flow back fracs, land tubing and place on production.

**COMPLETION PROCEDURE**

1. Prepare surface location for completion operations. Set and pull test anchors for workover rig as per API RP4G.
2. MIRU ~ 2 frac tanks and applicable manifolds, transfer pumps and lines, including additional ancillary poly line(s) to compliment existing water distribution system.
3. Install and test "B" section (tubing spool) of wellhead with four 2-1/16" 5M wing valves.
4. Install frac tree consisting of (bottom to top) 7-1/16" 5M X 4-1/16" 10M frac mandrel and 4-1/16" 10M bottom master valve, 4-1/16" 10M frac cross with four 1-13/16" 10M wing valves, and 4-1/16" 10M top master valve. Test frac tree and casing to 6500 psi.
5. MIRU multi-well frac iron and flowback equipment and position to allow access by frac company. MIRU frac equipment, NU frac lines and test lines to 7,500 psig.
6. MIRU e-line unit and crane. RU lubricator and test to 3,000 psi. RIH with 3-1/8" expendable scalloped HSC perforating guns w/ 3 SPF, 120 deg phasing, using Owen 3-1/8", 21 gram SDP Hero NT4 charges, 0.37" EHD. RIH to below completion interval, log on depth and perforate the completion interval (correlate to specific SLB CBL).

**Note: Confirm that e-line unit is rigged up on right well as per attached pad diagram prior to perforating well.**

POOH with e-line.

7. Verify number of open perms. Breakdown perms with 1000 gals of 10% HCl acid. Frac well using 30/50 sand in filtered produced water with additives mixed on the fly according to referenced pump schedule.
8. MIRU e-line unit and crane. RU lubricator and test to 3,000 psi. RIH with 4-1/2" 11.6 #/ft Halliburton Obsidian composite frac plug. RIH and log on depth. Set composite frac plug above just completed zone as specified on Perforation and Volume Sheet.
9. Repeat steps 6 thru 8 for each stage.
10. MIRU e-line unit and crane. RU lubricator and test to 3,000 psi. RIH with 4-1/2" 11.6 #/ft Halliburton Obsidian composite frac plug. RIH, log on depth. Set composite frac plug as specified on Perforation and Volume Sheet. RDMO e-line.

11. MIRU workover rig with power swivel. Test for flow. Remove frac tree and mandrel.
12. Install and test 5M BOPE and rotating head.
13. RIH with bit and pump off bit sub, 1 jt of 2-3/8" L80 tubing, 2-3/8" OD x 1.81" ID "F" nipple and 2-3/8" 4.7 ppf upset, 8 rd, EUE L-80 tubing unless recommended otherwise by operations engineer. Clean out frac plugs, sand and fill to PBTD using produced water and N<sub>2</sub>.
14. Land tubing as specified on Perforation and Volume Sheet. Pump off bit and unload well with N<sub>2</sub>. Flow back well
15. Shut well in.
16. Rig up slick line unit. Install and test lubricator to 3000 psi. RIH and install plug in "F" nipple. Test for flow. Set back pressure valve in wellhead. Set back slick line unit, if needed.
17. Remove BOPE and install production tree.
18. Install and test lubricator to 3000 psi. Equalize and remove back pressure valve from wellhead.
19. RIH with plug retrieval tool. Equalize plug in "F" nipple and remove plug from "F" nipple. Rig down slick line unit.
20. Clean up location and turn well over to production and report in Open Wells.