

**Schlagel 5-2HZ**

API: 0512351483

1. Identify the hydraulic fracture treatment well(s).

a. Swartz 2-4HZ well pad location (482983): Swartz 4-6HZ, Swartz 4-7HZ, Swartz 4-8HZ, Swartz 4-9HZ, Swartz 4-10HZ, Swartz 4-11HZ, Swartz 4-12HZ, Swartz 4-13HZ, Swartz 4-14HZ, Swartz 4-15HZ, Swartz 4-16HZ.

2. Identify any other wells well in which a Pressure Blanket will be applied in relation to the hydraulic fracture treatment well(s).

a. Schlagel 10-5HZ well pad location (416717): Five wells will receive a pressure blanket: Schlagel 5-1HZ, Schlagel 5-2HZ, Schlagel 5-3HZ, Schlagel 5-4HZ, Schlagel 5-5HZ.

3. Describe the relationship between the hydraulic fracture treatment well(s) and the Pressure Blanket well(s).

a. The Schlagel wells are located due South and run parallel to the Swartz HZ wells for 8,500-17,400' of lateral length with 750-1500' of offset distance between wells. Fluid injection into the Schlagel wells will limit excessive frac growth and minimize production impacts.

4. Describe the injection process, including the major pieces of equipment to be used.

a. Injection pressures will be less than fracture pressures. Fresh water will be injected into the Schlagel 5-2HZ (API: 0512351483) at a maximum downhole gradient below 0.95 psi/ft. The injection equipment will consist of quinniplex pumps, mixing tanks and storage tanks.

5. Identify the type of gas (CO<sub>2</sub>, nitrogen, natural gas, other) or water (fresh, produced, recycled, other) to be injected and the source of injected gas or water.

a. A main treatment of surfactant- based chemicals will be injected to make good contact with the reservoir with the objective of improving oil and gas flow in the reservoir, especially after offset frac work at the nearby Swartz location is complete.

6. If natural gas will be used, include the BTU. Note: The COGCC assumes the injected gas will be low BTU, "dry" gas.

a. NA

7. Estimate the volume of gas or water that will be injected.

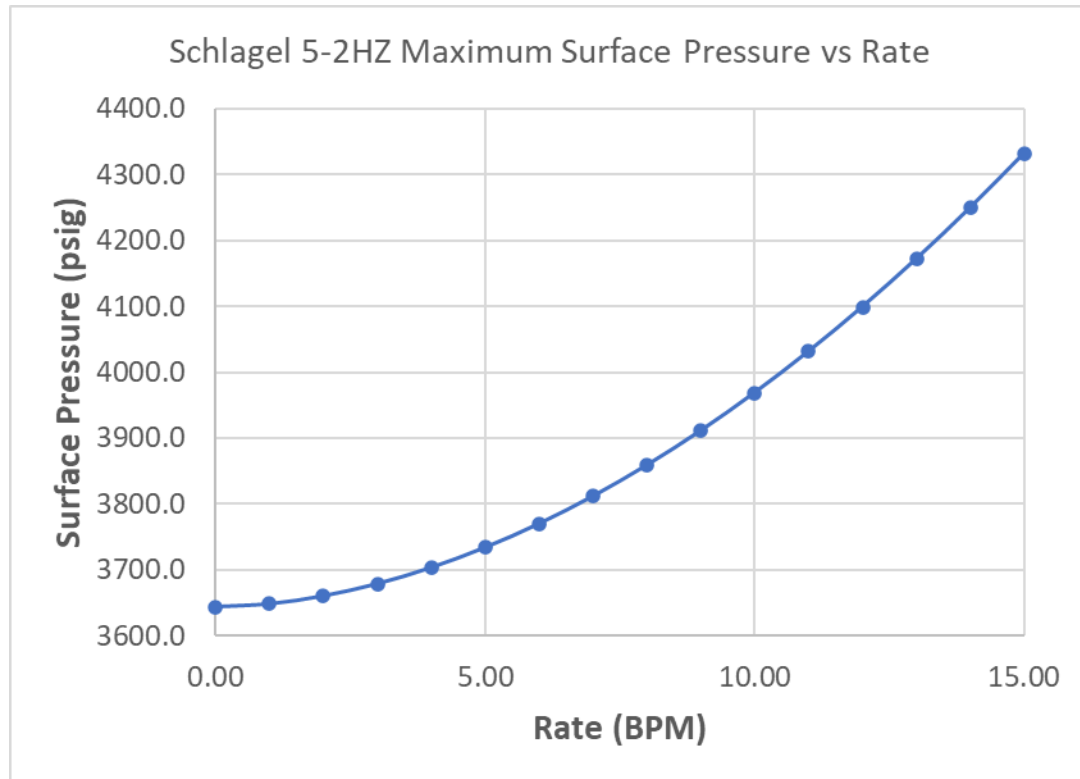
a. Planned volume of 4,500 bbl of fresh water.

8. Report the pre-blanket wellhead pressure, i.e. what is the Pressure Blanket well's initial shut-in pressure before injection commences?

a. NA

9. Provide the planned injection pressure. The pressure is to be less than the fracture extension pressure and can be near or slightly above reservoir pore pressure.

a. The surface pressure is dependent upon flow rate and friction loss in the tubulars. The surface pressure will be maintained such that frac gradient of 0.95 psi/ft in not eclipsed. Expected surface pressure are 1500-2500psi based on prior jobs. Exceeding 4300 psi is not expected at maximum injection rates. The Hazen-Williams correlation was used to estimate friction loss in the tubulars for varying rates to dictate maximum allowed surface pressure while keeping formation pressure below fracture pressure. See table and chart below for a summary of those calculations:



<u>Schlagel 5-2HZ</u>	
EOT MD	6921
Top Perf MD	7354
Top Perf TVD	7047.949345
Allowable Gradient	0.95
Fluid Gradient	0.433
Roughness Coeff	110
Csg ID	4.892
Tbg OD	2.375
Equiv. Diameter	4.277

<u>Rate (BPM)</u>	<u>Max Surf Pressure</u>
0.00	3643.8

1.00	3648.4
2.00	3660.3
3.00	3678.8
4.00	3703.5
5.00	3734.0
6.00	3770.2
7.00	3811.9
8.00	3859.0
9.00	3911.4
10.00	3968.9
11.00	4031.6
12.00	4099.4
13.00	4172.1
14.00	4249.7
15.00	4332.2

10. Describe the withdrawal process, including the major pieces of equipment to be used.

- a. After injection is complete, the combined pad of five wells will be placed on production using the existing plunger lift as well as temporary gas lift equipment (Ecoloop). Temporary gas lift operations are expected to last ~1 month.