

Hydraulic Fracturing Plan Example

1. Estimated Wellbore Geology

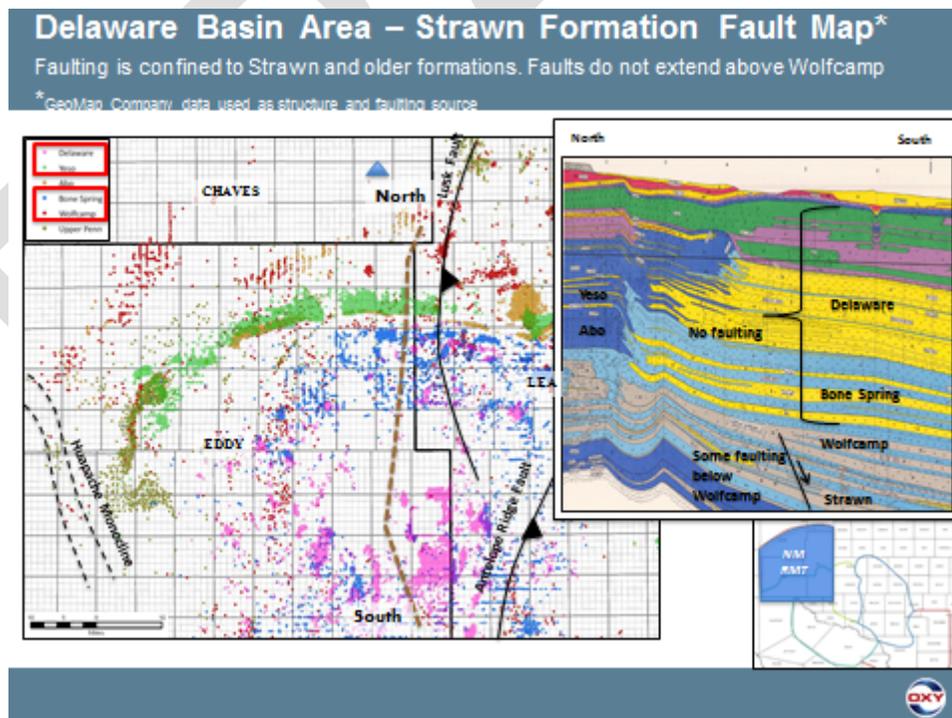
1(a)-1(c)

Table XX—Estimated Tops of Geological Formations – Well name and number

Formation	Top (TVD & MD)	Bottom (TVD& MD)	Zone Type (Usable water zone, Confining zone, Frac'ing zone)
Rustler	1085' - TVD	1273' - TVD	Usable Water
	1085' - MD	1273' - MD	
Salado – Cherry Canyon	1273' - TVD	6387 - TVD	Confining Zone
	1273' - MD	6387' - MD	
Brushy Canyon	7750' - TVD	9000' TVD	Zone to be Frac'd
	7750- MD	9327' - MD	

2. Faulting and Fracture Maps

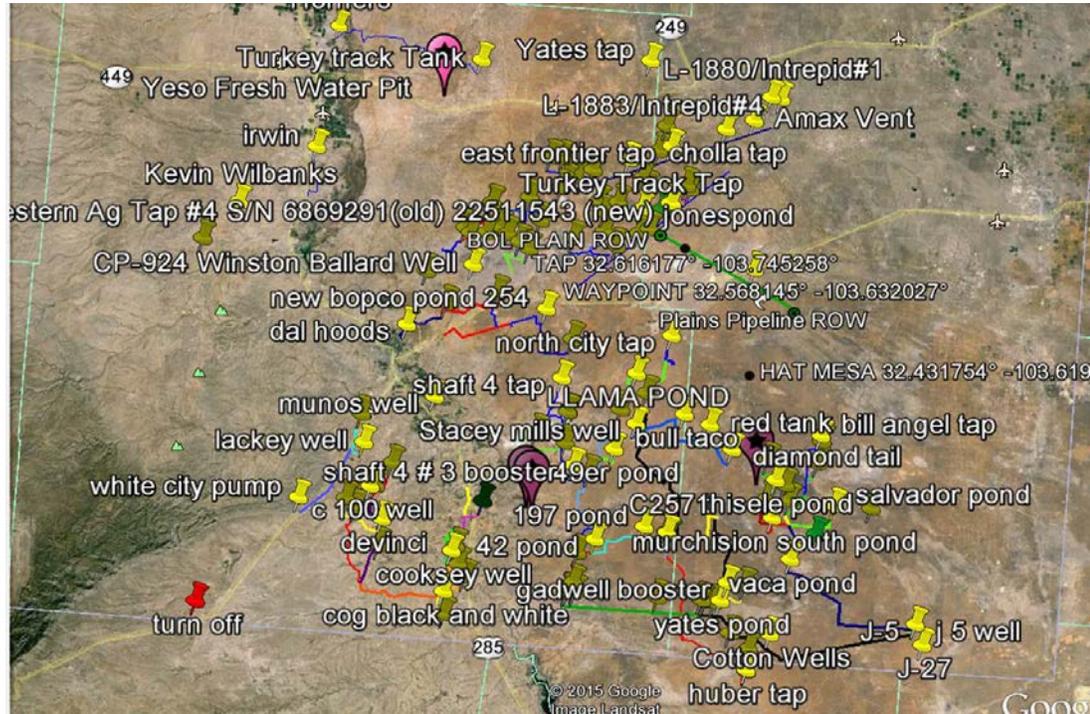
Maps XX showing faults and fractures within ½ mile



3. Water Source Location Description or Map

Description: Ground water obtained from commercial water stations in the area.

Map XX showing source and location (general vicinity, facility name) of water supply.



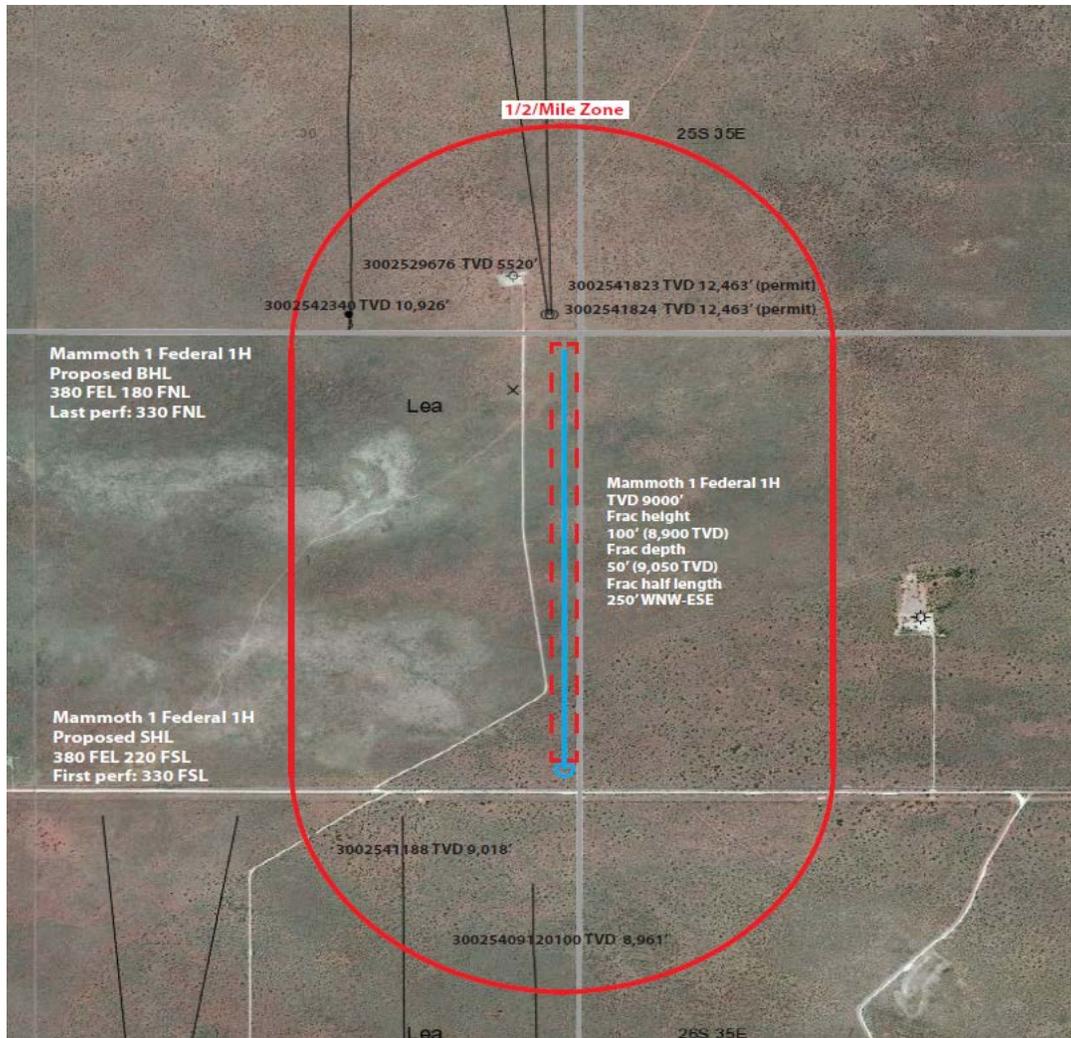
4. Plan for Hydraulic Fracturing Design

(a) Estimated total volume of fluid to be used: 74,000 bbls

(b) Maximum anticipated surface pressure to be applied during HF: 9800 psi

(c) Map(s) not less than 1:24,000:

1. Map XX and proposed deviation survey (attachment XX) with trajectory of wellbore being fraced
2. Map XX including direction and length of propagated fractures showing TVD of top and bottom of the fractures
3. Map XX including existing wellbore trajectories (vertical, horizontal, and directional) and TVD of wells within ½ mile of any portion of the wellbore to be fraced



(d) Estimated minimum vertical distance between the top of the fracture zone and nearest usable water zone: 6477'

(e) MD of proposed perforated or open-hole interval: 11,002-15,402'

5. Handling of fluids: Information about handling of fluids recovered between start of HF and approved plan of disposal of the produced fluids

(a) Estimated volume of fluid to be recovered: 18,500 bbls

(b) Proposed methods of handling recovered fluids: 500 bbl above ground tanks

(c) Proposed disposal method of recovered fluids: Fluids trucked to third party disposal wells.

6. If HF Plan is submitted , for approval, using a Sundry Notice (NOI), 6(a) and 6(b) must be included:

- (a) Surface use plan of operations *if* HF operations will cause *additional surface disturbance*: Attachment xx: Surface use plan
- (b) Documentation demonstrating the casing and cement have isolated usable water zones: MIT, Previously submitted Sundry Notice with cementing details

7. At least 48 hours prior to commencement of fracking operations, the cement operation monitoring report must be submitted on a Sundry Notice.

<p>Casing Record: Part 7 Need flow rate and pump pressure</p>	<ul style="list-style-type: none">• Surface: 11 3/4", 47# J-55 BTC set at 1,008' (TVD) (1,008' MD) cemented w/Lead: 440 sacks at 13.5 ppg. Tail: 250 sacks 14.8ppg}. Circulated 113 bbls to surface.• Intermediate: 8 5/8", 32# J-55, BTC set at 4,763' MD), cemented w/ 960 sacks of Lead at 12.9 ppg and 230 sacks of Tail at 14.8 ppg. ** <p>**Intermediate Casing Cement:</p> <p>INT Casing was cemented with 960sx of 12.9ppg (1.89ft³/sk yield) lead slurry followed with 230sx of 14.8ppg (1.326ft³/sk yield) tail with full returns throughout displacement. Cement did not circulate to surface. Temp log showed cement top at 1,120'. A window was cut in the intermediate casing to perform a top job. The window was repaired and a leak off test performed to see if a bullhead remedial cement job could be performed. Remedial cement job could not be performed and a CBL was run. Results were given to BLM and permission to continue with well was granted. A gauge was installed and monitored, 0 psi reading, on 11-3/4" x 8-5/8" annulus through end of well.</p> <ul style="list-style-type: none">• Production: 5 1/2" OD, P-110, 20#, Tenaris Blue , 4.778" ID, Drift ID 4.653", set at 15,601' (MD) (10,768 TVD). Lead: 10.2ppg (1170sks, 3.075ft³/sk, 15.77gal/sk). Tail: 13.2ppg (850sks, 1.66ft³/sk, 8.49gal/sk). Circ'd to surface 223 bbls.
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