Submit within 45 days of well completion

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Revised November 6, 2013

1. WELL API NO.: 30-039-31339

2. Well Name: LOGOS JICARILLA #024D

3. Well Number: 024D

HYDRAULIC FRACTURING FLUID DISCLOSURE

☒ Original

☐ Amendment

4. Surface Hole Location:
Unit:D Lot:D Section:24 Township:26N Range:05W
Feet from:807 N/S Line:N
Feet from:215 E/W Line:W

5. Bottom Hole Location:
Unit:D Lot:D Section:24 Township:26N Range:05W
Feet from:807 N/S Line:N
Feet from:215 E/W Line:W

6. latitude: 36.477276 longitude: -107.31858

7. County: Rio Arriba

8. Operator Name and Address:
LOGOS OPERATING, LLC
4001 N. Butler, Bldg 7101
Farmington 87401

9. OGRID: 289408

10. Phone Number: 832-794-1355

11. Last Fracture Date: 1/19/2016 Frac Performed by: Halliburton

12. Production Type: O

13. Pool Code(s): 58090

14. Gross Fractured Interval: 5,767 ft to 7,159 ft

15. True Vertical Depth (TVD): 7,159 ft

16. Total Volume of Fluid Pumped: 76,143 gals

17. Total Volume of Re-Use Water Pumped: 0 gals

18. Percent of Re-Use Water in Fluid Pumped: %

19. **HYDRAULIC FLUID COMPOSITION AND CONCENTRATION:**

Trade Name	Supplier	Purpose	Ingredients	(CAS #) Chemical Abstract Service #	Maximum Ingredient Concentration in Additive (% by mass)	Maximum Ingredient Concentration in HF Fluid (% by mass)
Fresh Water	Operator	Base Fluid	Fresh Water	7732-18-5	100%	48.07706%
NITROGEN LIQUEFIED	Halliburton	Fluid	NA	NA	0%	0%
BC-200 UC, BE-6 MICROBIOCIDE, CL-31 CROSSLINKER, C	Halliburton	Additive, Biocide, Breaker, Crosslinker, Gelling Agent, Microbiocide, Non-ionic Surfactant, Proppant	NA	NA	0%	0%
			1,2,4 Trimethylbenzene	95-63-6	1%	0.00023%
			2-Bromo-2-nitro-1,3-propanediol	52-51-7	100%	0.00136%
			2-Ethyl hexanol	104-76-7	1%	0.0008%
			Amine salts	Confidential	0.1%	6E-05%
			Ammonium salt	Confidential	60%	0.01708%
			Bentonite, benzyl (hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4	5%	0.00631%
			Borate salts	Confidential	60%	0.04823%
			Butyl alcohol	71-36-3	0.1%	8E-05%
			C.I. Pigment Red 5	6410-41-9	1%	6E-05%
			Crystalline silica, quartz	14808-60-7	100%	27.68209%
			Crystalline Silica, Quartz	14808-60-7	0.1%	0.00013%
			Cured acrylic resin	Confidential	30%	0.00174%
			Enzyme	Confidential	5%	0.00028%
			Ethanol	64-17-5	60%	0.01402%
			Glycerine	56-81-5	5%	0.00987%
			Guar gum	9000-30-0	100%	0.12613%
			Heavy aromatic petroleum naphtha	64742-94-5	30%	0.00701%
			Inner salt of alkyl amines	Proprietary	30%	0.05923%
			Methanol	67-56-1	0.1%	8E-05%
			Modified alkane	Confidential	60%	0.04823%
			Modified bentonite	Confidential	5%	0.00402%
			Naphthalene	91-20-3	5%	0.00117%
			Nitrogen	7727-37-9	100%	23.75408%
			Organic salt	Confidential	1%	0.0008%
			Oxyalkylated phenolic resin	Confidential	30%	0.00935%
			Poly (oxy-1,2-ethanediyl), alpha-(4-nonylphenyl) -omega-hydroxy-, branched	127087-87-0	5%	0.00117%
			Potassium hydroxide	1310-58-3	5%	0.00099%
			Potassium metaborate	13709-94-9	60%	0.01191%
			Propylene carbonate	108-32-7	1%	0.0008%
			Propylene glycol	57-55-6	1%	0.0008%
			Quaternary amine	Confidential	5%	0.00174%
			Silica gel	112926-00-8	1%	0.00126%
			Sodium carbonate	497-19-8	30%	0.02412%
			Sodium chloride	7647-14-5	30%	0.06066%
			Sodium persulfate	7775-27-1	100%	0.00591%
			Sodium sulfate	7757-82-6	0.1%	1E-05%
			Surfactant mixture	Confidential	1%	0.00252%
			Walnut hulls	NA	100%	0.00561%
			Water	7732-18-5	60%	0.14746%

20. I, as Operator, hereby certify that the information shown on this disclosure form is true and complete to the best of my knowledge and belief.

Signature: Signed Electronically Printed Name: Tamra Sessions Title: Operations Technician

Date: 3/1/2016

E-mail Address: tsessions@logosresourcesllc.com

NMOCD does not require the reporting of information beyond MSDS data as described in 29 CFR 1910.1200. NMOCD does not require the reporting or disclosure of proprietary, trade secret or confidential business information.