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

Revised February 26, 2004

API No. 30-045-34966
Indian Allotted or Indian Tribe
Operator Name: Chesapeake Operating, Inc.
Property Name: Lybrook 29-09 Com
Well Number: 1H
Ul - Lot: D Section: 29 Township: 23N Range: 9W
Feet From: 1000 N/S: North Feet From: 1000 E/W: West
Latitude: 36.19444 Longitude: -107.79167
NAD: 1983 Surface Owner: State Fee Tribal Federal

HYDRAULIC FRACTURING FLUID DISCLOSURE

☒ Original
☐ Amendment

Date Hydraulic Fracture Started: 10/25/2008
Date Hydraulic Fracture Completed: 10/25/2008
Production Method: Flowing
Perforated Intervals: 7570-7770, 7810-7990, 8050-8250, 8290-8490, 8530-8730
Total Water Volume (gal): 4,200,000
Total Proppant Weight (lbs): 4,000,000
Hydraulic Fracture Treatment Rate (BPM): 50
Hydraulic Fracture Treatment Pressure (PSI): 4500
Formation: GALLUP
Total Depth: 10,000 ft. Date of Test: 10/28/2008

Trade Name: Water, Sand, Acid, Gel, Biocide, Scale Inhibitor, Friction Reducer, Iron Control Agent
Supplier: Various
Purpose: Various
Ingredients: Various
Chemical Abstract Service Number (CAS #): Various
Maximum Ingredient Concentration in Additive (% by weight): Various
Maximum Ingredient Concentration in HF Fluid (% by mass): Various

Total Base Water Volume (gal): 4,200,000
Total Base Non Water Volume: 0

I. HYDRAULIC FLUID COMPOSITION AND CONCENTRATION:

Trade Name	Supplier	Purpose	Ingredients	CAS # (if assigned)	Maximum Ingredient Concentration in Additive (% by weight)	Maximum Ingredient Concentration in HF Fluid (% by mass)
Water	Operator	Base Fluid	Water	7732-18-5	100.00%	99.14000000%
Sand	Various	Proppant	Crystalline silica, quartz (SiO2)	14808-60-7	100.00%	0.95000000%
Acid	Various	Pre-Treatment	Hydrochloric acid	7647-01-0	15%	0.04000000%
			Methanol	67-56-1	60%	0.03000000%
			Phosphonic acid	6419-19-8	50%	0.02000000%
Scale Inhibitor, Iron Control Agent	Halliburton	Scale Inhibitor	Ethylene glycol	107-21-1	30%	0.01000000%
			Phosphonic acid	6419-19-8	50%	0.01000000%
Gel, Friction Reducer	Various	Gelling Agent	Guar gum	9000-30-0	100%	0.07000000%
			Petroleum distillate	64742-47-8	55%	0.04000000%
Biocide	Various	Bacteria Control	Glutaraldehyde	111-30-8	30%	0.01000000%
			Quaternary ammonium compounds	68424-85-1	5%	0.00200000%
			Ethanol	64-17-5	5%	0.00200000%
Scale Inhibitor	Halliburton	Scale Inhibitor	Ethylene glycol	107-21-1	30%	0.01000000%
			Phosphonic acid	6419-19-8	50%	0.01000000%
Iron Control Agent	Halliburton	Iron Control	Citric acid	77-92-9	55%	0.00600000%
			Acetic acid	64-19-7	55%	0.00600000%
Acid Inhibitor	Halliburton	Acid Inhibitor	Methanol	67-56-1	60%	0.00030000%
			Propargyl alcohol	107-19-7	10%	0.00005000%
			Ethoxylated nonylphenol	68412-54-4	55%	0.00028000%
			Organic phosphate	Proprietary	30%	0.00015000%
			Heavy aromatic petroleum naphtha	64742-94-5	30%	0.00015000%
			Fatty acid	Proprietary	30%	0.00015000%
			Organic phosphate	Proprietary	30%	0.00015000%
			Heavy aromatic petroleum naphtha	64742-94-5	30%	0.00015000%
			Fatty acid	Proprietary	30%	0.00015000%
Iron Control	Halliburton	Iron Control	Thioglycolic acid	68527-49-1	70%	0.00042000%
			Hydrochloric acid	7647-01-0	37%	0.00022000%
			Dihydrogen dihydrogen monoxide	7732-18-5	30%	0.00018000%
			Citric acid	77-92-9	60%	0.00015000%
			Acetic acid	64-19-7	50%	0.00013000%
			Methanol	67-56-1	90%	0.00005000%
			Propanal	123-38-6	30%	0.00002000%
			Thiourea polymer	68527-49-1	30%	0.00002000%
			Propargyl alcohol	107-19-7	30%	0.00002000%
			Ethoxylated nonylphenol	68412-54-4	10%	0.00001000%
			Organic phosphate	Proprietary	5%	0.00000000%
			Heavy aromatic petroleum naphtha	64742-94-5	5%	0.00000000%
			Fatty acid	Proprietary	5%	0.00000000%
			Organic phosphate	Proprietary	5%	0.00000000%
			Heavy aromatic petroleum naphtha	64742-94-5	5%	0.00000000%
			Fatty acid	Proprietary	5%	0.00000000%
Gel	Halliburton	Gelling Agent	Guar gum	9000-30-0	100%	0.06000000%
			Petroleum distillate	64742-47-8	55%	0.03000000%
			Ethanol	64-17-5	5%	0.00300000%
			Methanol	67-56-1	60%	0.00200000%
			Phosphonic acid	6419-19-8	50%	0.00200000%
			Ethoxylated nonylphenol	68412-54-4	10%	0.00100000%
			Organic phosphate	Proprietary	5%	0.00050000%
			Heavy aromatic petroleum naphtha	64742-94-5	5%	0.00050000%
			Fatty acid	Proprietary	5%	0.00050000%
			Organic phosphate	Proprietary	5%	0.00050000%
			Heavy aromatic petroleum naphtha	64742-94-5	5%	0.00050000%
			Fatty acid	Proprietary	5%	0.00050000%
Biocide	Halliburton	Bacteria Control	Glutaraldehyde	111-30-8	30%	0.00100000%
			Quaternary ammonium compounds	68424-85-1	5%	0.00020000%
			Ethanol	64-17-5	5%	0.00020000%
Scale Inhibitor	Halliburton	Scale Inhibitor	Ethylene glycol	107-21-1	30%	0.00100000%
			Phosphonic acid	6419-19-8	50%	0.00100000%
Iron Control Agent	Halliburton	Iron Control	Citric acid	77-92-9	55%	0.00060000%
			Acetic acid	64-19-7	55%	0.00060000%
Acid Inhibitor	Halliburton	Acid Inhibitor	Methanol	67-56-1	60%	0.00003000%
			Propargyl alcohol	107-19-7	10%	0.00000500%
			Ethoxylated nonylphenol	68412-54-4	55%	0.00002800%
			Organic phosphate	Proprietary	30%	0.00001500%
			Heavy aromatic petroleum naphtha	64742-94-5	30%	0.00001500%
			Fatty acid	Proprietary	30%	0.00001500%
			Organic phosphate	Proprietary	30%	0.00001500%
			Heavy aromatic petroleum naphtha	64742-94-5	30%	0.00001500%
			Fatty acid	Proprietary	30%	0.00001500%
Iron Control	Halliburton	Iron Control	Thioglycolic acid	68527-49-1	70%	0.00004200%
			Hydrochloric acid	7647-01-0	37%	0.00002200%
			Dihydrogen dihydrogen monoxide	7732-18-5	30%	0.00001800%
			Citric acid	77-92-9	60%	0.00001500%
			Acetic acid	64-19-7	50%	0.00001300%
			Methanol	67-56-1	90%	0.00000500%
			Propanal	123-38-6	30%	0.00000200%
			Thiourea polymer	68527-49-1	30%	0.00000200%
			Propargyl alcohol	107-19-7	30%	0.00000200%
			Ethoxylated nonylphenol	68412-54-4	10%	0.00000100%
			Organic phosphate	Proprietary	5%	0.00000000%
			Heavy aromatic petroleum naphtha	64742-94-5	5%	0.00000000%
			Fatty acid	Proprietary	5%	0.00000000%
			Organic phosphate	Proprietary	5%	0.00000000%
			Heavy aromatic petroleum naphtha	64742-94-5	5%	0.00000000%
			Fatty acid	Proprietary	5%	0.00000