

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47 - 051 - 01716 County Marshall District Clay  
Quad Glen Easton Pad Name Francis Field/Pool Name \_\_\_\_\_  
Farm name Francis Well Number 9H  
Operator (as registered with the OOG) Chevron Appalachia, LLC  
Address 800 Mountain View Drive City Smithfield State PA Zip 15458

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4413730.243 Easting 526317.847  
Landing Point of Curve Northing 4413571.9 Easting 526672.8  
Bottom Hole Northing 4412497.3 Easting 527536.1

Elevation (ft) 1283 GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
None Aqueous Fluid containing weighting agent, fluid loss additive, emulsifier, Viscosity and Rheological Control agent, Oil-Wetting Agent, fluid rheology conditioner

Date permit issued 3/20/2014 Date drilling commenced 5/20/2014 Date drilling ceased 11/13/2014  
Date completion activities began 3/13/2015 Date completion activities ceased 7/18/2015  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 619 - 648 Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1890' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 105-145', 490-520', 700-840', 1080-1190', 1475-1585', 1640-1660' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No but not sealed

JUL 27 2015  
Reviewed by: JC 8/21/15  
**08/21/2015**







API: 47-051-01716	Well Name: Francis	Well Number: 9H
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PERFORATION RECORD					
Stage No.	Perforation Date	Perforated From TMD Ft.	Perforated To TMD Ft.	Number of Perforations	Formation(s)
1	4/24/2015	11858	11696	50	Marcellus
2	4/24/2015	11658	11496	50	Marcellus
3	4/25/2015	11458	11296	50	Marcellus
4	4/25/2015	11258	11096	50	Marcellus
5	4/26/2015	11052	10896	50	Marcellus
6	4/26/2015	10858	10696	50	Marcellus
7	4/27/2015	10658	10496	50	Marcellus
8	4/27/2015	10458	10298	50	Marcellus
9	4/27/2015	10258	10096	50	Marcellus
10	4/28/2015	10058	9896	50	Marcellus
11	4/28/2015	9858	9696	50	Marcellus
12	4/29/2015	9658	9496	50	Marcellus
13	4/29/2015	6458	9292	50	Marcellus
14	4/29/2015	9253	9092	50	Marcellus
15	4/29/2015	9058	8896	50	Marcellus
16	4/30/2015	8858	8696	50	Marcellus
17	5/1/2015	8655	8496	50	Marcellus
18	5/1/2015	8458	8296	50	Marcellus
19	5/1/2015	8258	8090	50	Marcellus
20	5/2/2015	8061	7896	50	Marcellus
21	5/2/2015	7858	7696	50	Marcellus
22	5/2/2015	7658	7496	50	Marcellus
23	5/3/2015	7454	7296	50	Marcellus
24	5/3/2015	7258	7096	50	Marcellus
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Please insert additional copies of this page if additional rows/stages are needed.

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STIMULATION INFORMATION / STAGE								
Complete a separate record for each stimulation stage. (Please insert additional lines for additional stages or additional pages as applicable).								
Stg No.	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	4/24/2015	88.7	9027	6862	4691	359940	10944	
2	4/24/2015	56	9463	6671	3750	9000	5227	
3	4/25/2015	98.2	8367	n/a	4861	403100	11475	
4	4/25/2015	89.8	9036	6762	4650	2600	3370	
5	4/26/2015	97.7	8224	6937	5142	40050	12055	
6	4/26/2015	96.3	8107	7100	3997	403380	10881	
7	4/27/2015	97.6	9705	6633	4967	401620	11855	
8	4/27/2015	90.7	8599	6633	4067	403300	11037	
9	4/27/2015	98.7	8067	6589	5037	396280	8397	
10	4/28/2015	95.5	8161	6806	5106	399280	8741	
11	4/28/2015	98.1	8154	6325	4829	401600	9186	
12	4/29/2015	97.4	8100	6815	5107	408020	8405	
13	4/29/2015	89.7	8386	7469	4928	396820	10613	
14	4/29/2015	97.5	7904	7015	5098	402460	9220	
15	4/29/2015	95.8	8260	6177	5082	400740	9449	
16	4/30/2015	47.3	8752	7050	4994	3800	3677	
17	5/1/2015	98.3	7975	5920	5012	401680	9474	
18	5/1/2015	76	9056	5922	6092	17960	7706	
19	5/1/2015	99.7	7760	5808	5063	400070	9185	
20	5/2/2015	97.7	7990	6103	4770	400580	9352	
21	5/2/2015	100	7336	6783	4437	396480	9522	
22	5/2/2015	96.8	7828	6678	5103	403010	8699	
23	5/3/2015	93.5	8056	6447	5064	400330	9108	
24	5/3/2015	97.4	7288	7554	5066	402280	9119	
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API 47-051-01716 Farm name Francis Well number 9H

PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs  
 OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  
 Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Monongahela Group Sand	596	635	596	635	Fresh Water 619'-648'MD 2" stream
Pittsburgh Coal	816	820	816	820	Coal
Big Lime	1860	1940	1860	1940	Limestone: crm-wh, hd, crpxln (Brine @ 1890' 25bbbls/hr)
Burgoon (Big Injun)	1940	2130	1938	2128	SS: offwh, wh, cons, clr, trans, lccmt, fg-mg
Weir Sand	2290	2310	2288	2308	SLTST: ltgy-mgy, occ mgy, hrd, vf-fg, tcmt, bio, arg, sl calc
Berea Sand	2525	2550	2522	2547	SS: wh, clr, trans, ltgy-gy, cns, lccmt, mg-fg, sbang-ang, arg, msph, non calc, tr flor, exl fast cut, fnt odr, lse pyr
Burket Shale	6398	6418	6527	6558	SH: drkgy, v. drkgy, frm, slty, grty, sbblky-sbfiss, modcalc, embd calc, lse calct
Tully Limestone	6418	6452	6558	6612	LS: ltgy, gy, mgy, frm-hrd, dns, cln, mic-fxln, v. arg
Hamilton Shale	6452	6536	6612	6804	SH: drkgy, v. drkgy, frm, slty, grty, sbblky-sbfiss, carb, modv. calc, lse calct, w/LS
Marcellus Shale	6536		6804		SH: drkgy, v. drkgy, frm, slty, grty, sbblky-sbfiss, non calc, lse calct, lse pyr, w/LS: gy, ltgy, hrd, mott, mic, fxln, v. arg

Please insert additional pages as applicable.

Drilling Contractor SEE ATTACHED  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company Stratagraph NE Inc  
 Address 116 Ellsworth Avenue City Marietta State OH Zip 45750

Cementing Company Baker Hughes  
 Address 5373 West Alabama, Suite 300 City Houston State TX Zip 77056

Stimulating Company Schlumberger Technology Corp  
 Address Two Robinson Plaza, Suite 200 City Pittsburgh State PA Zip 15207

Please insert additional pages as applicable.

Completed by Jackie M. Scholar Telephone 724.564.3721  
 Signature [Signature] Title Regulatory Compliance Team Lead Date 7/22/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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API: 47-051-01716	Well Name: Francis	Well Number: 9H
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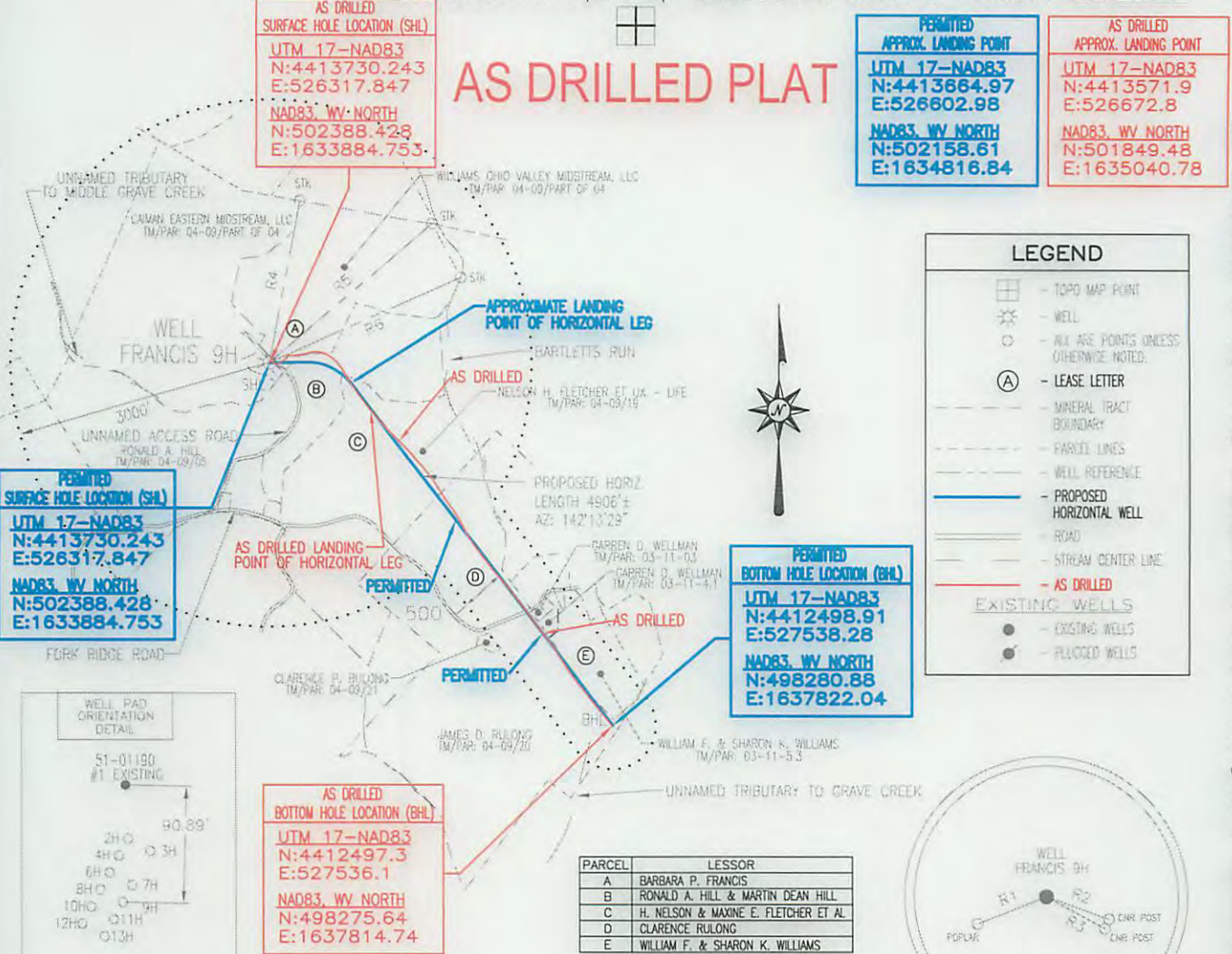
DRILLING CONTRACTORS			
Driller	Driller	Driller	Driller
Name Rocky Mountain Drilling	Name Highlands Drilling LLC	Name Nabors Drilling USA	Name
Address 185 North Vernal Avenue, Suite 2	Address 900 Virginia Street East	Address 10100 NW 10th Street	Address
City - State - Zip Vernal, UT 84078	City - State - Zip Charleston, WV 25301	City - State - Zip Oklahoma City, OK 73127	City - State - Zip

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Well is located on topo map 652 feet south of Latitude: 39° 52' 30"

# AS DRILLED PLAT



Well is located on topo map 7,181 feet west of Longitude: 80° 40' 00"

<b>PERMITTED APPROX. LANDING POINT</b> UTM 17-NAD83 N:4413664.97 E:526602.98 NAD83, WV NORTH N:502158.61 E:1634816.84	<b>AS DRILLED APPROX. LANDING POINT</b> UTM 17-NAD83 N:4413571.9 E:526672.8 NAD83, WV NORTH N:501849.48 E:1635040.78
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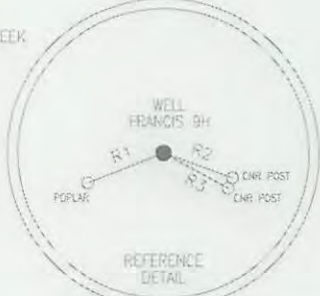
LEGEND	
	- TOPO MAP POINT
	- WELL
	- WELL ARE POINTS UNLESS OTHERWISE NOTED.
	- LEASE LETTER
	- MINERAL TRACT BOUNDARY
	- PARCEL LINES
	- WELL REFERENCE
	- PROPOSED HORIZONTAL WELL
	- ROAD
	- STREAM CENTER LINE
	- AS DRILLED
	- EXISTING WELLS
	- PLUGGED WELLS

<b>PERMITTED SURFACE HOLE LOCATION (SHL)</b> UTM 17-NAD83 N:4413730.243 E:526317.847 NAD83, WV NORTH N:502388.428 E:1633884.753
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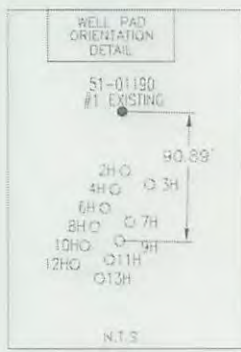
<b>PERMITTED BOTTOM HOLE LOCATION (BHL)</b> UTM 17-NAD83 N:4412498.91 E:527538.28 NAD83, WV NORTH N:498280.88 E:1637822.04
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<b>AS DRILLED BOTTOM HOLE LOCATION (BHL)</b> UTM 17-NAD83 N:4412497.3 E:527536.1 NAD83, WV NORTH N:498275.64 E:1637814.74
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PARCEL	LESSOR
A	BARBARA P. FRANCIS
B	RONALD A. HILL & MARTIN DEAN HILL
C	H. NELSON & MAXINE E. FLETCHER ET AL
D	CLARENCE RULONG
E	WILLIAM F. & SHARON K. WILLIAMS



LINE	BEARING	DISTANCE
R1	S 62°31'17" W	167.69'
R2	S 70°11'20" E	150.44'
R3	S 61°06'23" E	150.95'
R4	N 10°35'19" E	1880.89'
R5	N 49°19'48" E	2449.03'
R6	N 65°49'42" E	2394.27'



**NOTES:**

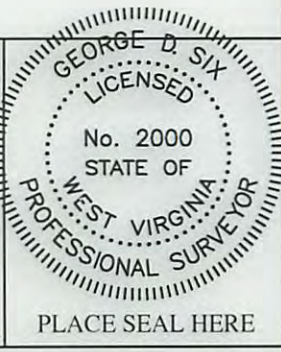
- There are no water wells or developed springs within 250' of proposed well.
- There are no existing buildings within 625' of proposed well.
- Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
- There are no native trout streams within 300' of proposed well.
- Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
- It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

**Blue Mountain Inc.**  
 10125 MASON DIXON HIGHWAY  
 BURTON, WV 26562  
 PHONE: (304) 662-6486

FILE #: FRANCIS 9H-AS DRILLED  
 DRAWING #: FRANCIS 9H-AS DRILLED  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/2500  
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *[Signature]*  
 R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304



DATE: JUNE 23, 2015  
 OPERATOR'S WELL #: FRANCIS 9H-AS DRILLED  
 API WELL #: 47 51  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: MIDDLE GRAVE CREEK ELEVATION: 1260.93'  
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: GLEN EASTON, WV 7.5'  
 SURFACE OWNER: WILLIAMS OHIO VALLEY MIDSTREAM, LLC ACREAGE: 70.41±  
 OIL & GAS ROYALTY OWNER: BARBARA P. FRANCIS ACREAGE: 447.193±

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,512'± TMD: 11,962'±  
 WELL OPERATOR CHEVRON APPALACHIA, LLC DESIGNATED AGENT KENNETH E. TAWNEY  
 Address 800 MOUNTAIN VIEW DRIVE Address 500 LEE STREET, EAST SUITE 1600  
 City SMITHFIELD State PA Zip Code 15478 City CHARLESTON State WV Zip Code 25301-3202

08/21/2015



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/24/2015
Job End Date:	5/3/2015
State:	West Virginia
County:	Marshall
API Number:	47-051-01716-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Francis 9H
Longitude:	-80.69227700
Latitude:	39.87307400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,613
Total Base Water Volume (gal):	9,101,205
Total Base Non Water Volume:	



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Base Fluid	Chevron	Carrier/Base Fluid	Water (including Mix Water Supplied by Client)	7732-18-5	100.00000	90.09052	
Proppant	Schlumberger	Proppant	Crystalline Silica	14808-60-7	100.00000	9.68157	
J580	Schlumberger	Gelling Agent, Water	Carbohydrate Polymer	Proprietary	100.00000	0.06134	
7.5% Acid	Schlumberger	Perf Cleanup	Hydrochloric Acid	7647-01-0	8.00000	0.01126	
J134	Schlumberger	Gel Breaker	Hemicellulase enzyme	9012-54-8	100.00000	0.00396	
M300	BASF Corporation	Biocide	Water	7732-18-5	75.00000	0.00174	
U042	Schlumberger	Iron Chelating Agent	Glutaral	111-30-8	25.00000	0.00058	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	60.00000	0.00173	
			Trisodium nitrotriacetate (im purity)	5064-31-3	10.00000	0.00029	
L058	Schlumberger	Iron Stabilizer	Sodium hydroxide	1310-73-2	5.00000	0.00014	

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B317	Schlumberger	Scale Inhibitor	Sodium erythorbate	6381-77-7	100.00000	0.00068
			Ethane-1,2-diol	107-21-1	5.00000	0.00011
			Trisodium ortho phosphate	7601-54-9	5.00000	0.00011
A264	Schlumberger	Corrosion Inhibitor	Methanol	67-56-1	40.00000	0.00005
			Aliphatic acids	Proprietary	30.00000	0.00004
			Aliphatic alcohols, ethoxylated #1	Proprietary	30.00000	0.00004
			Prop-2-yn-1-ol	107-19-7	10.00000	0.00001
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.						

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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