

OKLAHOMA CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION
P.O. BOX 52000
OKLAHOMA CITY, OK 73152-2000
(Rule 165:10-3-1)

API NUMBER: 017 25169 A

Approval Date: 01/30/2018

Expiration Date: 07/30/2018

Horizontal Hole Oil & Gas

Amend reason: ADD/DELETE FORMATION; UPDATE ORDERS;
CHANGE SHL

AMEND PERMIT TO DRILL

WELL LOCATION: Sec: 12 Twp: 10N Rge: 7W

County: CANADIAN

SPOT LOCATION:

FEET FROM QUARTER: FROM NORTH FROM WEST

SECTION LINES: 251 242

Lease Name: BARBOUR 1-10-7

Well No: 1H

Well will be 242 feet from nearest unit or lease boundary.

Operator Name: ROAN RESOURCES LLC

Telephone: 4058968453

OTC/OCC Number: 24127 0

ROAN RESOURCES LLC
14701 HERTZ QUAIL SPRINGS PKWY
OKLAHOMA CITY, OK 73134-2641

ELAINE W. ALBERS
18835 SW 104TH
UNION CITY OK 73090

Formation(s) (Permit Valid for Listed Formations Only):

Name	Depth	Name	Depth
1 MISSISSIPPI LIME	10550	6	
2		7	
3		8	
4		9	
5		10	

Spacing Orders: 107705

Location Exception Orders: 697893

Increased Density Orders: 677588

687904

699310

Pending CD Numbers:

Special Orders:

Total Depth: 15798

Ground Elevation: 1244

Surface Casing: 1500

Depth to base of Treatable Water-Bearing FM: 220

Under Federal Jurisdiction: No

Fresh Water Supply Well Drilled: Yes

Surface Water used to Drill: No

PIT 1 INFORMATION

Type of Pit System: ON SITE

Type of Mud System: WATER BASED

Chlorides Max: 5000 Average: 3000

Is depth to top of ground water greater than 10ft below base of pit? Y

Within 1 mile of municipal water well? N

Wellhead Protection Area? N

Pit is located in a Hydrologically Sensitive Area.

Category of Pit: 1A

Liner required for Category: 1A

Pit Location is ALLUVIAL

Pit Location Formation: ALLUVIUM

Approved Method for disposal of Drilling Fluids:

A. Evaporation/dewater and backfilling of reserve pit.

B. Solidification of pit contents.

D. One time land application -- (REQUIRES PERMIT)

PERMIT NO: 18-33797

H. SEE MEMO

This permit does not address the right of entry or settlement of surface damages.

The duration of this permit is SIX MONTHS, except as otherwise provided by Rule 165: 10-3-1.

Rule 165: 10-3-4 (c) (7) (e) - The Operator shall give 24 Hours notice by telephone to the appropriate District Office of the Conservation Division as to when Surface Casing will be run.

PIT 2 INFORMATION

Type of Pit System: ON SITE

Type of Mud System: OIL BASED

Chlorides Max: 300000 Average: 200000

Is depth to top of ground water greater than 10ft below base of pit? Y

Within 1 mile of municipal water well? N

Wellhead Protection Area? N

Pit is located in a Hydrologically Sensitive Area.

Category of Pit: 3

Liner required for Category: 3

Pit Location is ALLUVIAL

Pit Location Formation: ALLUVIUM

HORIZONTAL HOLE 1

Sec 01 Twp 10N Rge 7W County CANADIAN

Spot Location of End Point: NE NW NW NW

Feet From: NORTH 1/4 Section Line: 65

Feet From: WEST 1/4 Section Line: 540

Depth of Deviation: 9992

Radius of Turn: 477

Direction: 5

Total Length: 5057

Measured Total Depth: 15798

True Vertical Depth: 10700

End Point Location from Lease,
Unit, or Property Line: 65

Notes:

Category

Description

DEEP SURFACE CASING

1/23/2018 - G71 - APPROVED; NOTIFY OCC FIELD INSPECTOR IMMEDIATELY FOR ANY LOSS OF CIRCULATION OR FAILURE TO CIRCULATE CEMENT TO SURFACE ON CONDUCTOR OR SURFACE CASING

EXCEPTION TO RULE - 687904

4/11/2019 - G75 - (I.O.) 1-10N-7W
X165:10-3-28(C)(2)(B) MSSLM (BARBOUR 1-10-7 1H)
MAY BE CLOSER THAN 600' TO RAMSEY 1 (API 017-23803)
ROAN RESOURCES, LLC
12-7-2018

HYDRAULIC FRACTURING

1/23/2018 - G71 - OCC 165:10-3-10 REQUIRES:

1) PRIOR TO COMMENCEMENT OF HYDRAULIC FRACTURING OPERATIONS FOR HORIZONTAL WELLS, NOTICE GIVEN FIVE BUSINESS DAYS IN ADVANCE TO OFFSET OPERATORS WITH WELLS COMPLETED IN THE SAME COMMON SOURCE OF SUPPLY WITHIN 1/2 MILE;

2) WITH NOTICE ALSO GIVEN 48 HOURS IN ADVANCE OF HYDRAULIC FRACTURING ALL WELLS TO BOTH THE OCC CENTRAL OFFICE AND LOCAL DISTRICT OFFICES, USING THE "FRAC NOTICE FORM" FOUND AT THE FOLLOWING LINK: OCCWEB.COM/OG/OGFORMS.HTML; AND,

3) THE CHEMICAL DISCLOSURE OF HYDRAULIC FRACTURING INGREDIENTS FOR ALL WELLS TO BE REPORTED TO FRACFOCUS WITHIN 60 DAYS AFTER THE CONCLUSION THE HYDRAULIC FRACTURING OPERATIONS, USING THE FOLLOWING LINK: FRACFOCUS.ORG

This permit does not address the right of entry or settlement of surface damages.

The duration of this permit is SIX MONTHS, except as otherwise provided by Rule 165: 10-3-1.

Rule 165: 10-3-4 (c) (7) (e) - The Operator shall give 24 Hours notice by telephone to the appropriate District Office of the Conservation Division as to when Surface Casing will be run.

017 25169 BARBOUR 1-10-7 1H

Category	Description
INCREASED DENSITY - 677588	4/11/2019 - G75 - 1-10N-7W X107705 MSSLM 1 WELL LINN OP., LLC ** 5-10-2018 (WELL SPUD 2-17-2018) ** S/B ROAN RESOURCES LLC;
INCREASED DENSITY - 699310	7/30/2019 - GB1 - 1-10N-7W X677588 CHANGING OPERATOR TO ROAN RESOURCES, LLC
LOCATION EXCEPTION - 697893	6/27/2019 - G75 - (F.O.) 1-10N-7W X107705 MSSLM SHL (12-10N-7W) 251' FNL, 242' FWL ** FIRST PERF (1-10N-7W) 125' FSL, 513' FWL LAST PERF (1-10N-7W) 203' FNL, 538' FWL ROAN RESOURCES, LLC 6-11-2019 ** ITD HAS SHL (12-10N-7W) 250' FNL, 242' FWL;
MEMO	1/23/2018 - G71 - PIT 1 & 2 - CONCRETE-LINED PIT PER OPERATOR REQUEST; PIT 2 - OBM TO VENDOR, OBM CUTTINGS PER DISTRICT
SPACING - 107705	4/11/2019 - G75 - (640) 1-10N-7W CONSOL/EXT OTHER EXT OTHERS CONFIRM/EXT 98732 MSSLM, OTHERS



Well Name	Barbour 1-10-7 1H
Location	Section 1-T10N-R7W
County	Canadian
Operator	Roan

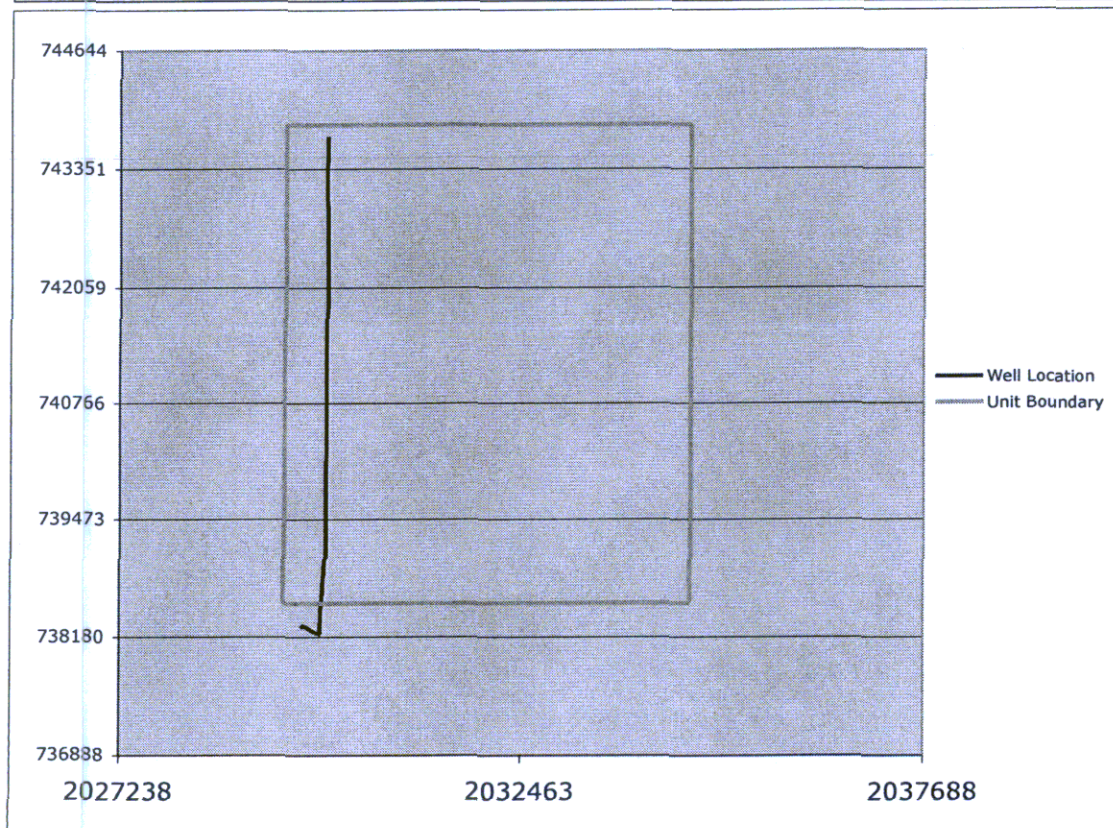
Operator		Roan		Permitted Distance	
		Sec 12			
Surface location of well is		251	from North line		
		249	from West line		
		<i>249</i>			
	X	Y			
Northwest	2029420	743826	Perforations 165 from North line		
North Mid Section	2032048	743826	No Closer than 165 From South line		
Northeast	2034677	743827	330 from West line		
Southwest	2029390	738540			
South Mid Section	2032033	738544			
Southeast	2034675	738549			
Surface XY	2029629	738289			

Height of Unit	5287
Width of Unit	5290

Comp Type
CASED & PERFS

Formations	Depth	TVD	Location of each specific point			
Perfs - first	10743	10492	125	from South line	513	from West line
Perfs - last	15705	10496	203	from North line	538	from West line

Bottom hole location is	15783	10494	125 from North line	538 from West line
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MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Unwrap Displace (ft)	Method	Survey Company
											MWD	Baker Hughes INTEQ
22	0	115.12	22	0	0	0	0	0	523.27	0	MWD	Baker Hughes INTEQ
142	0.26	313.76	142	0.19	-0.2	0.18	0.22	0.22	-134.47	0.27	MWD	Baker Hughes INTEQ
335	0.06	148.07	335	0.41	-0.46	0.38	0.17	-0.1	-85.85	0.61	MWD	Baker Hughes INTEQ
517	0.15	193.18	517	0.09	-0.46	0.06	0.06	0.05	24.79	0.93	MWD	Baker Hughes INTEQ
702	0.16	153.32	702	-0.37	-0.4	-0.4	0.06	0.01	-21.55	1.4	MWD	Baker Hughes INTEQ
884	0.37	104.56	884	-0.75	0.28	-0.73	0.16	0.12	-26.79	2.18	MWD	Baker Hughes INTEQ
1,072.00	0.6	149.99	1,071.99	-1.75	1.36	-1.67	0.23	0.12	24.16	3.65	MWD	Baker Hughes INTEQ
1,259.00	0.57	133.55	1,258.98	-3.24	2.52	-3.09	0.09	-0.02	-8.79	5.54	MWD	Baker Hughes INTEQ
1,412.00	0.93	130.07	1,411.97	-4.57	4.03	-4.32	0.24	0.24	-2.27	7.54	MWD	Baker Hughes INTEQ
1,544.00	0.83	137.52	1,543.95	-5.96	5.49	-5.62	0.11	-0.08	5.64	9.57	MWD	Baker Hughes INTEQ
1,731.00	1.23	112.23	1,730.92	-7.72	8.26	-7.21	0.32	0.21	-13.52	12.85	MWD	Baker Hughes INTEQ
1,918.00	0.76	178.93	1,917.90	-9.72	10.14	-9.09	0.62	-0.25	35.67	15.59	MWD	Baker Hughes INTEQ
2,106.00	1.69	318.75	2,105.88	-8.88	8.34	-8.36	1.24	0.49	74.37	17.58	MWD	Baker Hughes INTEQ
2,293.00	1.07	335.62	2,292.82	-5.22	5.8	-4.86	0.39	-0.33	9.02	22.04	MWD	Baker Hughes INTEQ
2,480.00	0.75	338.66	2,479.80	-2.49	4.64	-2.2	0.17	-0.17	1.63	25.01	MWD	Baker Hughes INTEQ
2,668.00	0.43	359.4	2,667.79	-0.64	4.18	-0.38	0.2	-0.17	11.03	26.92	MWD	Baker Hughes INTEQ
2,855.00	0.41	355.2	2,854.78	0.73	4.12	0.98	0.02	-0.01	-2.25	28.29	MWD	Baker Hughes INTEQ
3,043.00	0.44	15.7	3,042.78	2.1	4.26	2.35	0.08	0.02	10.9	29.66	MWD	Baker Hughes INTEQ
3,230.00	0.33	46.49	3,229.77	3.16	4.84	3.45	0.12	-0.06	16.47	30.87	MWD	Baker Hughes INTEQ
3,417.00	0.64	85.44	3,416.77	3.61	6.27	3.98	0.23	0.17	20.83	32.37	MWD	Baker Hughes INTEQ
3,605.00	0.45	87.57	3,604.76	3.73	8.06	4.21	0.1	-0.1	1.13	34.16	MWD	Baker Hughes INTEQ
3,792.00	0.22	358.83	3,791.76	4.12	8.78	4.64	0.27	-0.12	-47.45	34.98	MWD	Baker Hughes INTEQ
3,980.00	0.46	44.74	3,979.75	5.02	9.31	5.57	0.18	0.13	24.42	36.02	MWD	Baker Hughes INTEQ
4,167.00	0.22	33.2	4,166.75	5.85	10.03	6.44	0.13	-0.13	-6.17	37.13	MWD	Baker Hughes INTEQ
4,355.00	0.43	41.35	4,354.75	6.68	10.7	7.31	0.11	0.11	4.34	38.19	MWD	Baker Hughes INTEQ
4,542.00	0.17	25.32	4,541.74	7.46	11.28	8.12	0.14	-0.14	-8.57	39.16	MWD	Baker Hughes INTEQ
4,729.00	0.32	193.82	4,728.74	7.2	11.27	7.87	0.26	0.08	90.11	39.42	MWD	Baker Hughes INTEQ
4,917.00	0.66	129.29	4,916.74	6.01	11.98	6.72	0.32	0.18	-34.32	40.81	MWD	Baker Hughes INTEQ
5,104.00	0.53	61.96	5,103.73	5.73	13.58	6.54	0.36	-0.07	-36.01	42.43	MWD	Baker Hughes INTEQ
5,292.00	0.32	84.13	5,291.72	6.19	14.87	7.07	0.14	-0.11	11.79	43.8	MWD	Baker Hughes INTEQ
5,479.00	0.28	168.29	5,478.72	5.8	15.48	6.72	0.22	-0.02	45.01	44.53	MWD	Baker Hughes INTEQ
5,667.00	0.31	122.17	5,666.72	5.08	16.01	6.03	0.12	0.02	-24.53	45.42	MWD	Baker Hughes INTEQ
5,854.00	0.61	285.34	5,853.72	5.07	15.47	5.99	0.49	0.16	87.26	45.95	MWD	Baker Hughes INTEQ
6,041.00	0.31	324.04	6,040.71	5.75	14.22	6.59	0.22	-0.16	20.7	47.38	MWD	Baker Hughes INTEQ
6,229.00	0.44	317.3	6,228.71	6.69	13.43	7.48	0.07	0.07	-3.59	48.61	MWD	Baker Hughes INTEQ
6,416.00	0.57	42.97	6,415.70	7.9	13.58	8.7	0.37	0.07	45.81	49.82	MWD	Baker Hughes INTEQ
6,604.00	0.65	98.78	6,603.69	8.42	15.27	9.32	0.31	0.04	29.69	51.59	MWD	Baker Hughes INTEQ
6,791.00	0.96	57.99	6,790.67	9.09	17.64	10.13	0.34	0.17	-21.81	54.06	MWD	Baker Hughes INTEQ
6,885.00	1.01	57.96	6,884.66	9.94	19.01	11.07	0.05	0.05	-0.03	55.68	MWD	Baker Hughes INTEQ
6,979.00	2.59	93.65	6,978.61	10.25	21.84	11.54	1.98	1.68	37.97	58.52	MWD	Baker Hughes INTEQ
7,073.00	3.95	110.02	7,072.46	9	27	10.61	1.74	1.45	17.41	63.83	MWD	Baker Hughes INTEQ
7,166.00	5.34	110.34	7,165.15	6.4	34.07	8.44	1.49	1.49	0.34	71.36	MWD	Baker Hughes INTEQ
7,260.00	6.68	107.9	7,258.63	3.2	43.37	5.8	1.45	1.43	-2.6	81.2	MWD	Baker Hughes INTEQ
7,354.00	6.91	108.09	7,351.97	-0.23	53.95	3	0.25	0.24	0.2	92.32	MWD	Baker Hughes INTEQ
7,448.00	7.07	111.51	7,445.28	-4.11	64.71	-0.22	0.47	0.17	3.64	103.75	MWD	Baker Hughes INTEQ
7,541.00	7.87	112.57	7,537.49	-8.65	75.91	-4.08	0.87	0.86	1.14	115.84	MWD	Baker Hughes INTEQ
7,635.00	8.9	116.83	7,630.48	-14.41	88.34	-9.08	1.28	1.1	4.53	129.54	MWD	Baker Hughes INTEQ
7,729.00	8.7	119.28	7,723.37	-21.16	101.03	-15.06	0.45	-0.21	2.61	143.92	MWD	Baker Hughes INTEQ
7,822.00	8.42	124.14	7,815.34	-28.43	112.8	-21.61	0.83	-0.3	5.23	157.75	MWD	Baker Hughes INTEQ
7,916.00	9.37	123.22	7,908.21	-36.48	124.9	-28.92	1.02	1.01	-0.98	172.28	MWD	Baker Hughes INTEQ
8,009.00	9.1	115.86	8,000.01	-43.84	137.85	-35.49	1.3	-0.29	-7.91	187.18	MWD	Baker Hughes INTEQ
8,103.00	9.47	112.77	8,092.77	-50.07	151.67	-40.88	0.66	0.39	-3.29	202.34	MWD	Baker Hughes INTEQ
8,197.00	8.87	112.96	8,185.57	-55.89	165.47	-45.86	0.64	-0.64	0.2	217.32	MWD	Baker Hughes INTEQ
8,291.00	9.94	114.37	8,278.31	-62.07	179.54	-51.18	1.16	1.14	1.5	232.68	MWD	Baker Hughes INTEQ
8,385.00	8.95	113.01	8,371.03	-68.27	193.66	-56.53	1.08	-1.05	-1.45	248.1	MWD	Baker Hughes INTEQ
8,478.00	6.66	106.2	8,463.17	-72.61	205.5	-60.14	2.65	-2.46	-7.32	260.71	MWD	Baker Hughes INTEQ
8,572.00	7.48	109.91	8,556.45	-76.21	216.49	-63.08	1	0.87	3.95	272.27	MWD	Baker Hughes INTEQ
8,666.00	6.56	104.73	8,649.75	-79.66	227.43	-65.87	1.19	-0.98	-5.51	283.75	MWD	Baker Hughes INTEQ
8,760.00	5.27	96.31	8,743.25	-81.5	236.92	-67.14	1.65	-1.37	-8.96	293.41	MWD	Baker Hughes INTEQ
8,853.00	3.67	72.45	8,835.97	-81.07	244	-66.28	2.6	-1.72	-25.66	300.51	MWD	Baker Hughes INTEQ
8,947.00	3.95	54.22	8,929.76	-78.27	249.49	-63.16	1.32	0.3	-19.39	306.68	MWD	Baker Hughes INTEQ
9,041.00	2.78	23.06	9,023.61	-74.28	253.01	-58.96	2.27	-1.24	-33.15	312	MWD	Baker Hughes INTEQ
9,134.00	1.59	11.21	9,116.54	-70.94	254.15	-55.56	1.36	-1.28	-12.74	315.53	MWD	Baker Hughes INTEQ
9,228.00	1.61	307.38	9,210.51	-68.86	253.35	-53.53	1.8	0.02	-67.9	317.75	MWD	Baker Hughes INTEQ
9,322.00	1.03	256.23	9,304.49	-68.26	251.48	-53.04	1.33	-0.62	-54.41	319.72	MWD	Baker Hughes INTEQ
9,416.00	2.05	202.57	9,398.46	-70.01	250.02	-54.88	1.77	1.09	-57.09	322	MWD	Baker Hughes INTEQ
9,509.00	1.06	191.86	9,491.42	-72.39	249.2	-57.31	1.1	-1.06	-11.52	324.52	MWD	Baker Hughes INTEQ
9,603.00	1.95	205.76	9,585.39	-74.68	248.33	-59.64	1.02	0.95	14.79	326.97	MWD	Baker Hughes INTEQ
9,697.00	1.1	189.09	9,679.35	-77.01	247.49	-62.02	1.01	-0.9	-17.73	329.45	MWD	Baker Hughes INTEQ
9,791.00	2.14	208.38	9,773.32	-79.45	246.51	-64.51	1.23	1.11	20.52	332.07	MWD	Baker Hughes INTEQ
9,884.00	1.36	202.77	9,866.27	-81.99	245.26	-67.13	0.86	-0.84	-6.03	334.91	MWD	Baker Hughes INTEQ
9,972.00	3.22	347.93	9,954.23	-80.54	244.34	-65.73	5.01	2.11	164.95	336.63	MWD	Baker Hughes INTEQ
10,019.00	8.73	353.45	10,000.96	-75.7	243.66	-60.94	11.77	11.72	11.74	341.52	MWD	Baker Hughes INTEQ
10,066.00	13.79	358.3	10,047.04	-66.55	243.08	-51.84	10.94	10.77	10.32	350.68	MWD	Baker Hughes INTEQ
10,113.00	16.68	3.99	10,092.39	-54.22	243.39	-39.52	6.92	6.15	12.11	363.02	MWD	Baker Hughes INTEQ
10,160.00	20.53	5.43	10,136.92	-39.28	244.64	-24.53	8.25	8.19	3.06	378.01	MWD	Baker Hughes INTEQ
10,206.00	24.41	0.35	10,179.43	-21.74	245.46	-6.97	9.42	8.43	-11.04	395.57	MWD	Baker Hughes INTEQ
10,253.00	28.27	358.43	10,221.54	-0.89	245.21	13.82	8.41	8.21	-4.09	416.42	MWD	Baker Hughes INTEQ
10,300.00	31.54	2.6	10,262.28	22.52	245.46	37.21	8.24	6.96	8.87	439.83	MWD	Baker Hughes INTEQ
10,347.00	35.17	2.99	10,301.53	48.33	246.73	63.05	7.74	7.72	0.83	465.67	MWD	Baker Hughes INTEQ
10,394.00	38.36	3.87	10,339.18	76.41	248.42	91.17	6.88	6.79	1.87	493.8	MWD	Baker Hughes INTEQ
10,441.00	44.48	2.55	10,374.41	107.44	250.14	122.25	13.15	13.02	-2.81	524.88	MWD	Baker Hughes INTEQ
10,487.00	50.41	2.8	10,405.50	141.27	251.72	156.12	12.9	12.89	0.54	558.75	MWD	Baker Hughes INTEQ
10,534.00	57.16	4.56	10,433.26	179.08	254.18	194.01	14.68	14.36	3.74	596.64	MWD	Baker Hughes INTEQ
10,581.00	64.41	6.45	10,456.18	219.88	258.14	234.98	15.82	15.43	4.02	637.63	MWD	Baker Hughes INTEQ
10,628.00	71.47	6.4	10,473.82	263.14	263.01	278.45	15.02	15.02	-0.11	681.16	MWD	Baker Hughes INTEQ
10,722.00	86.23	4.81	10,491.95	354.67	271.96	370.35	15.79	15.7	-1.69	773.13	MWD	Baker Hughes INTEQ
10,757.00	91.08	4.18	10,492.77	389.55	274.7	405.33	13.97	13.86	-1.8	808.11	MWD	Baker Hughes INTEQ
10,811.00	92.81	4.26	10,490.94	443.37	278.67	459.29	3.21	3.2	0.15	862.08	MWD	Baker Hughes INTEQ
10,874.00	92.84	4.64	10,487.84	506.1	283.55	522.2	0.6	0.05	0.6	925	MWD	Baker Hughes INTEQ

10,936.00	92.13	5.75	10,485.15	567.79	289.16	584.11	2.12	-1.15	1.79	986.94	MWD	Baker Hughes INTEQ
10,999.00	90.52	5.98	10,483.69	630.44	295.6	647.04	2.58	-2.56	0.37	1,049.92	MWD	Baker Hughes INTEQ
11,062.00	89.6	4.6	10,483.63	693.17	301.4	710	2.63	-1.46	-2.19	1,112.92	MWD	Baker Hughes INTEQ
11,124.00	89.51	3.39	10,484.11	755.01	305.72	772	1.96	-0.15	-1.95	1,174.92	MWD	Baker Hughes INTEQ
11,218.00	88.36	1.38	10,485.85	848.91	309.63	865.96	2.46	-1.22	-2.14	1,268.90	MWD	Baker Hughes INTEQ
11,311.00	89.88	1	10,487.28	941.88	311.57	958.87	1.68	1.63	-0.41	1,361.88	MWD	Baker Hughes INTEQ
11,405.00	90.06	359.64	10,487.33	1,035.87	312.09	1,052.73	1.46	0.19	-1.45	1,455.88	MWD	Baker Hughes INTEQ
11,499.00	89.2	359.69	10,487.94	1,129.87	311.54	1,146.52	0.92	-0.91	0.05	1,549.88	MWD	Baker Hughes INTEQ
11,593.00	91.11	359.87	10,487.68	1,223.86	311.18	1,240.33	2.04	2.03	0.19	1,643.87	MWD	Baker Hughes INTEQ
11,687.00	89.54	0.5	10,487.15	1,317.86	311.48	1,334.17	1.8	-1.67	0.67	1,737.87	MWD	Baker Hughes INTEQ
11,781.00	91.82	359.69	10,486.04	1,411.84	311.64	1,428.00	2.57	2.43	-0.86	1,831.85	MWD	Baker Hughes INTEQ
11,874.00	89.29	0.48	10,485.13	1,504.83	311.78	1,520.83	2.85	-2.72	0.85	1,924.84	MWD	Baker Hughes INTEQ
11,968.00	87.66	0.65	10,487.64	1,598.79	312.7	1,614.67	1.74	-1.73	0.18	2,018.80	MWD	Baker Hughes INTEQ
12,062.00	88.77	0.28	10,490.56	1,692.74	313.47	1,708.50	1.24	1.18	-0.39	2,112.76	MWD	Baker Hughes INTEQ
12,155.00	91.14	0.03	10,490.64	1,785.73	313.72	1,801.34	2.56	2.55	-0.27	2,205.75	MWD	Baker Hughes INTEQ
12,249.00	89.54	1.02	10,490.08	1,879.72	314.58	1,895.21	2	-1.7	1.05	2,299.74	MWD	Baker Hughes INTEQ
12,343.00	90.71	1.04	10,489.87	1,973.70	316.27	1,989.13	1.24	1.24	0.02	2,393.74	MWD	Baker Hughes INTEQ
12,411.00	92.49	1.31	10,487.98	2,041.66	317.66	2,057.04	2.65	2.62	0.4	2,461.71	MWD	Baker Hughes INTEQ
12,505.00	89.14	1.09	10,486.64	2,135.62	319.63	2,150.95	3.57	-3.56	-0.23	2,555.69	MWD	Baker Hughes INTEQ
12,598.00	89.14	359.43	10,488.04	2,228.60	320.05	2,243.79	1.78	0	-1.78	2,648.68	MWD	Baker Hughes INTEQ
12,692.00	91.04	359.27	10,487.89	2,322.59	318.99	2,337.55	2.03	2.02	-0.17	2,742.67	MWD	Baker Hughes INTEQ
12,786.00	91.14	359.85	10,486.10	2,416.57	318.26	2,431.31	0.63	0.11	0.62	2,836.65	MWD	Baker Hughes INTEQ
12,880.00	89.85	0.62	10,485.29	2,510.56	318.65	2,525.16	1.6	-1.37	0.82	2,930.65	MWD	Baker Hughes INTEQ
12,973.00	89.45	359.69	10,485.86	2,603.56	318.9	2,618.01	1.09	-0.43	-1	3,023.65	MWD	Baker Hughes INTEQ
13,067.00	90.77	359.47	10,485.67	2,697.56	318.21	2,711.79	1.42	1.4	-0.23	3,117.64	MWD	Baker Hughes INTEQ
13,161.00	89.51	0.31	10,485.45	2,791.55	318.03	2,805.61	1.61	-1.34	0.89	3,211.64	MWD	Baker Hughes INTEQ
13,254.00	87.78	0.4	10,487.64	2,884.52	318.61	2,898.44	1.86	-1.86	0.1	3,304.61	MWD	Baker Hughes INTEQ
13,348.00	89.05	0.37	10,490.24	2,978.48	319.24	2,992.27	1.35	1.35	-0.03	3,398.57	MWD	Baker Hughes INTEQ
13,442.00	90.46	0.03	10,490.65	3,072.48	319.57	3,086.12	1.54	1.5	-0.36	3,492.57	MWD	Baker Hughes INTEQ
13,535.00	92.5	359.4	10,488.24	3,165.44	319.11	3,178.88	2.3	2.19	-0.68	3,585.53	MWD	Baker Hughes INTEQ
13,629.00	93.23	0.34	10,483.55	3,259.32	318.89	3,272.58	1.27	0.78	1	3,679.41	MWD	Baker Hughes INTEQ
13,723.00	90.83	0.84	10,480.22	3,353.25	319.86	3,366.40	2.61	-2.55	0.53	3,773.35	MWD	Baker Hughes INTEQ
13,816.00	86.68	1.23	10,482.24	3,446.19	321.54	3,459.28	4.48	-4.46	0.42	3,866.30	MWD	Baker Hughes INTEQ
13,910.00	86.79	1.51	10,487.59	3,540.01	323.78	3,553.06	0.32	0.12	0.3	3,960.15	MWD	Baker Hughes INTEQ
14,004.00	89.2	0.57	10,490.88	3,633.93	325.49	3,646.91	2.75	2.56	-1	4,054.09	MWD	Baker Hughes INTEQ
14,097.00	87.01	0.69	10,493.95	3,726.87	326.51	3,739.75	2.36	-2.35	0.13	4,147.03	MWD	Baker Hughes INTEQ
14,191.00	87.26	0.26	10,498.65	3,820.75	327.29	3,833.50	0.53	0.27	-0.46	4,240.91	MWD	Baker Hughes INTEQ
14,284.00	88.8	0.17	10,501.85	3,913.69	327.64	3,926.30	1.66	1.66	-0.1	4,333.85	MWD	Baker Hughes INTEQ
14,378.00	90.09	359.71	10,502.76	4,007.68	327.54	4,020.12	1.46	1.37	-0.49	4,427.85	MWD	Baker Hughes INTEQ
14,472.00	88.83	359.8	10,503.65	4,101.68	327.14	4,113.92	1.34	-1.34	0.1	4,521.84	MWD	Baker Hughes INTEQ
14,565.00	89.66	359.87	10,504.87	4,194.67	326.87	4,206.72	0.9	0.89	0.08	4,614.83	MWD	Baker Hughes INTEQ
14,659.00	90.12	359.25	10,505.05	4,288.66	326.15	4,300.51	0.82	0.49	-0.66	4,708.83	MWD	Baker Hughes INTEQ
14,753.00	91.17	358.35	10,503.99	4,382.64	324.18	4,394.19	1.47	1.12	-0.96	4,802.82	MWD	Baker Hughes INTEQ
14,846.00	89.78	359.82	10,503.22	4,475.62	322.69	4,486.91	2.18	-1.49	1.58	4,895.82	MWD	Baker Hughes INTEQ
14,940.00	88.64	0.09	10,504.52	4,569.60	322.62	4,580.73	1.25	-1.21	0.29	4,989.81	MWD	Baker Hughes INTEQ
15,034.00	90.06	359.7	10,505.58	4,663.60	322.45	4,674.54	1.57	1.51	-0.41	5,083.80	MWD	Baker Hughes INTEQ
15,128.00	91.82	359.2	10,504.04	4,757.57	321.54	4,768.30	1.95	1.87	-0.53	5,177.78	MWD	Baker Hughes INTEQ
15,221.00	90.77	359.56	10,501.94	4,850.54	320.54	4,861.04	1.19	-1.13	0.39	5,270.75	MWD	Baker Hughes INTEQ
15,315.00	90.86	0.57	10,500.60	4,944.53	320.65	4,954.86	1.08	0.1	1.07	5,364.74	MWD	Baker Hughes INTEQ
15,409.00	92.09	0.49	10,498.18	5,038.50	321.51	5,048.71	1.31	1.31	-0.09	5,458.71	MWD	Baker Hughes INTEQ
15,502.00	91.17	0.79	10,495.54	5,131.45	322.55	5,141.56	1.04	-0.99	0.32	5,551.67	MWD	Baker Hughes INTEQ
15,595.00	89.07	1.6	10,495.34	5,224.43	324.49	5,234.48	2.42	-2.26	0.87	5,644.67	MWD	Baker Hughes INTEQ
15,689.00	90.28	0.62	10,495.88	5,318.40	326.31	5,328.40	1.66	1.29	-1.04	5,738.66	MWD	Baker Hughes INTEQ
15,783.00	91.88	0.18	10,494.11	5,412.38	326.97	5,422.25	1.77	1.7	-0.47	5,832.64	MWD	Baker Hughes INTEQ

