

**WILLISTON BASIN
OPERATOR SPOTLIGHT**

Operator	Well Count*	Wells Put Online				Lateral Length (ft)				Fluid Intensity (bbls/ft)			
		4Q18	1Q19	2Q19	3Q19	4Q18	1Q19	2Q19	3Q19	4Q18	1Q19	2Q19	3Q19
CONTINENTAL RESOURCES	507	22	37	36	45	9,690	9,495	9,702	8,523	19	24	22	25
WHITING PETROLEUM	374	41	9	53	40	9,481	7,225	9,027	8,380	20	27	17	18
HESS	355	35	25	39	33	8,236	10,183	9,800	9,993	20	18	18	19
OASIS PETROLEUM	286	28	12	24	18	7,180	4,811	8,515	8,717	30	53	33	28
MARATHON OIL	236	29	19	31	29	5,081	5,161	8,574	8,813	30	18	19	22
EXXON MOBIL	225	7	31	21	19	9,762	10,026	10,048	8,706	40	40	35	31
CONOCOPHILLIPS	212	13	13	13	13	9,825	10,389	9,657	9,699	18	17	21	18
WPX ENERGY	202	20	13	15	23	7,872	9,661	10,331	9,267	21	16	17	12
KRAKEN OPERATING, LLC	169	19	19	18	15	5,844	8,339	7,303	8,121	35	33	30	26
EQUINOR	161	12	11	9	19	8,289	4,422	8,469	9,135	14	24	13	17
EOG RESOURCES	139	7			14	7,313			10,585	25			25
ENERPLUS	120	1	3	26	11	4,102	9,431	9,743	8,960	30	26	18	30
BRUIN E&P PARTNERS	112	11	5	17	7	4,535	9,860	10,797	10,062	49	23	25	26
PETRO-HUNT	107	7	5	4	4	5,537	7,755	10,049	8,674	56	14	36	39
SLAWSON	104	19	5	7	8	10,110	3,754	14,544	9,226	23	39	29	29
CRESCENT POINT ENERGY U.S. CORP	89	14			9				9,971				22
OVINTIV INC.	79	4		10	8	10,112		9,484	9,987	23		23	26
QEP RESOURCES	74				3				10,144				22
RIMROCK OIL & GAS	55	6	6	4	5	9,959	7,183	8,595	9,962	19	19	18	19
NINE POINT ENERGY, LLC	51	6	3	6	8	10,927	9,790	9,718	9,826	17	19	19	18
LIME ROCK	47	5		1	8	7,664		9,857	9,854	22		30	26
LIBERTY RESOURCES MGMT	46	4	6	2	5	12,787	11,931	15,250	10,051	18	18	17	16
ABRAXAS PETROLEUM	32	6	1	5		6,148		7,650		33		26	
PETROSHALE ENERGY, LLC	23	2		5	6	4,663		8,911	4,272	21		29	19
SINCLAIR OIL	22				8				9,355				25
ZAVANNA LLC	20			5				9,562				21	
HUNT OIL COMPANY	20	5		2	7	9,494		14,808	7,884	32		27	31
ROCKALL ENERGY LLC	19		4	2			8,172	9,290			4	4	
NP RESOURCES	11	1				8,480				15			
KRAKEN DEVELOPMENT III, LLC	8			4	4			10,058	15,426			25	24
DENBURY RESOURCES	8	3	1		1								
IRON OIL OPERATING LLC	6	2				10,087				22			
MISSOURI RIVER RESOURCES ND	4												
RESONANCE EXPLORATION NORTH DAKC	4	2				3,854							
MUREX PETROLEUM CORP	3												
RESOURCE ENERGY CAN-AM	3				2				7,331				6
PEREGRINE PETROLEUM PRTRN. LTD.	2				1				9,736				17
KODA RESOURCES OPERATING, LLC	2				2				9,740				21
FUTURE ACQUISITION	2												
WINDRIDGE OPERATING	2	1				5,962				4			
SHD OIL & GAS, LLC	1												
TRUE OIL LLC	1		1				8,375						

*Horizontal Wells Since 7/1/2016. Arrows compare operators, not quarters. 20:1 BOE Ratio

**WILLISTON BASIN
OPERATOR SPOTLIGHT**

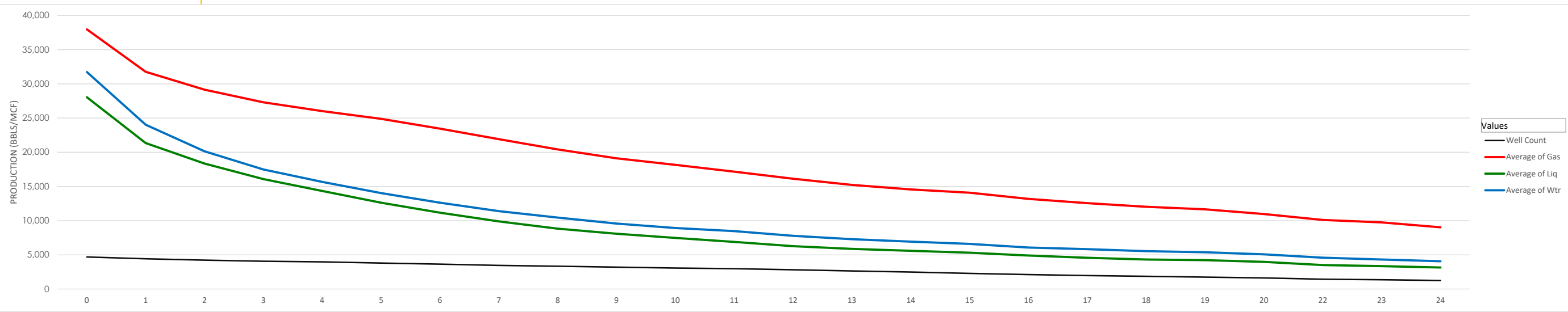
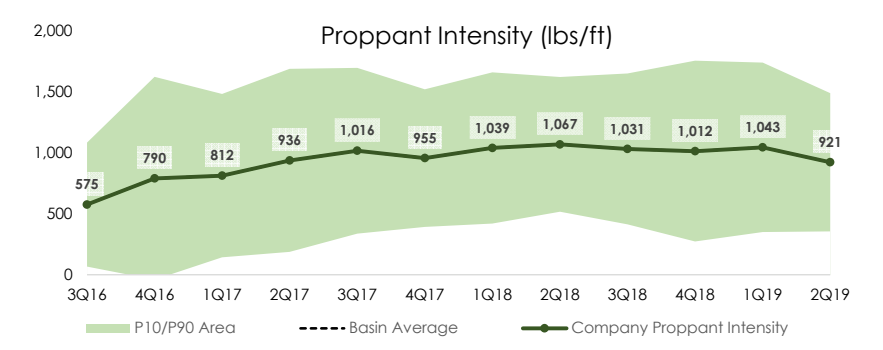
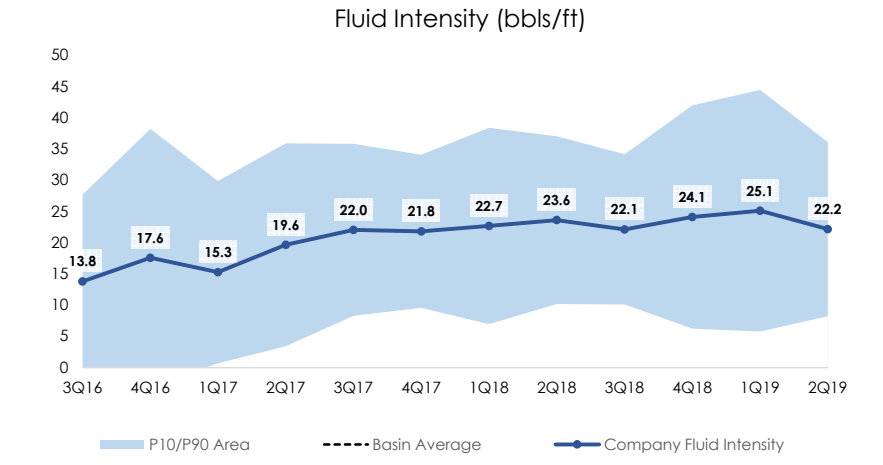
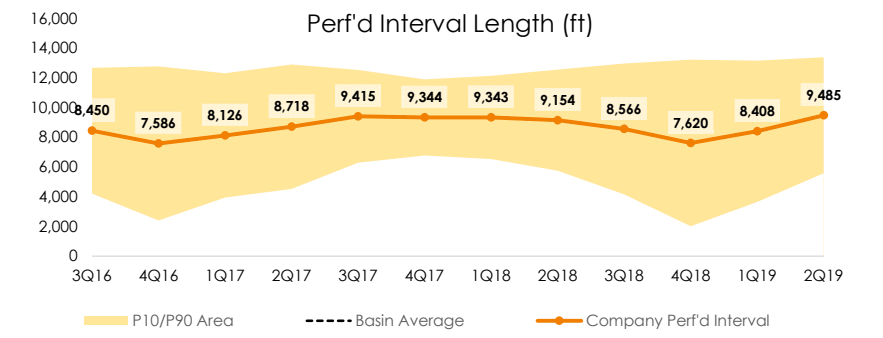
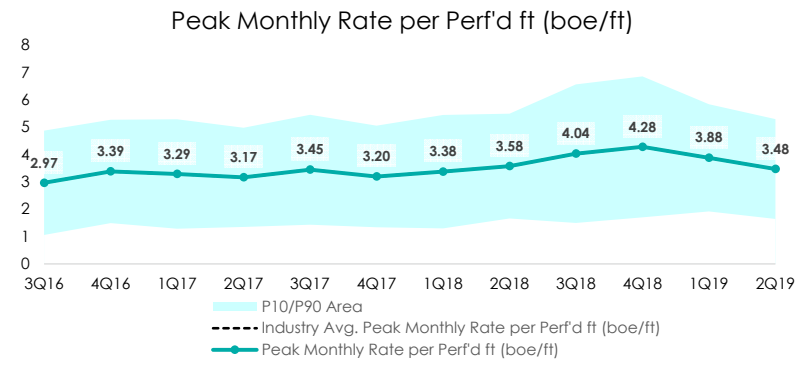
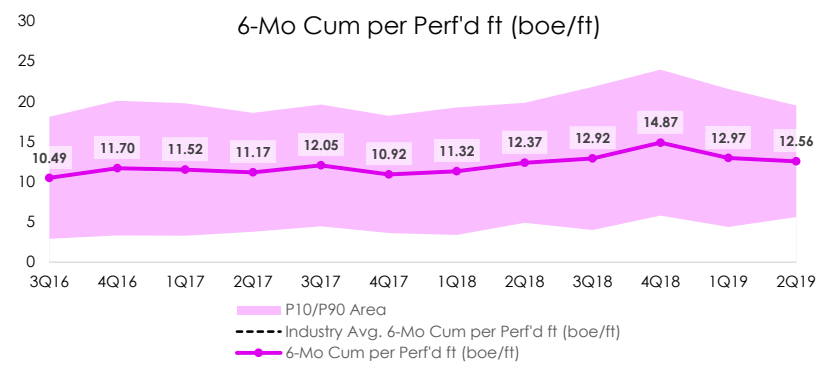
Operator	Well Count*	Proppant Intensity (lbs/ft)				6-Mo Cum BOE per 1,000'				Peak Month BOE per 1,000'			
		4Q18	1Q19	2Q19	3Q19	4Q18	1Q19	2Q19	3Q19	4Q18	1Q19	2Q19	3Q19
CONTINENTAL RESOURCES	507	▼806	■1,220	■1,141	■1,076	▼7,211	▼7,035	▼9,127	▼7,328	▼3,702	■3,964	▲3,833	▲4,372
WHITING PETROLEUM	374	▼745	■906	■698	■754	▼10,955	■15,215	■11,480	▼8,790	▼2,927	■4,258	■2,860	■3,202
HESS	355	■1,164	■1,024	■932	■953	■15,314	▼9,774	■13,243	▼6,573	▼3,745	▼2,784	■3,247	▼2,785
OASIS PETROLEUM	286	▼921	■1,173	■696	▼591	■19,402	▲33,533	▲16,793	■11,970	■4,268	▲7,715	▲3,878	■4,012
MARATHON OIL	236	■1,181	■746	■700	■833	▲37,395	▲34,154	▲19,769	■11,754	▲10,712	▲8,345	▲5,230	▲4,846
EXXON MOBIL	225	▼883	■882	■876	■1,088	▼6,468	▼9,773	■9,774	▼7,254	▼2,520	■3,238	■3,658	■2,933
CONOCOPHILLIPS	212	▼948	■931	■1,099	■858	▼10,156	▼12,105	▲15,241	▼5,403	▼2,832	■3,208	▲4,170	■3,358
WPX ENERGY	202	▼1,072	■879	■951	■835	■19,483	■19,566	▲15,241	■14,528	■5,659	■5,167	▲4,528	▲5,561
KRAKEN OPERATING, LLC	169	▲2,065	▲1,784	▲1,463	▲1,338	■24,114	■13,371	▲15,685	▼4,089	■5,937	▼2,991	■3,634	■3,360
EQUINOR	161	▼458	■912	▼398	▼634	▼7,738	■13,166	▼6,231	▼3,749	▼3,476	■5,113	▼2,108	▼2,101
EOG RESOURCES	139	▼1,002			▲1,515	▼9,375			■13,229	▼2,228			▲5,730
ENERPLUS	120	▼1,063	■1,210	■934	▲1,416	■13,672	■19,528	■12,053	▼5,268	■4,134	■4,783	■3,161	▲4,586
BRUIN E&P PARTNERS	112	▲2,514	■1,025	■1,148	▲1,407	▲30,652	■14,157	■13,178	▼3,436	▲9,151	■3,572	■3,632	■3,441
PETRO-HUNT	107	■1,693	▼509	■874	■1,052	■23,950	▼8,561	▼6,967	▲24,097	■5,662	▼2,065	▼1,836	▲5,046
SLAWSON	104	▼872	■1,210	■1,062	■1,001	▼5,488	▼11,181	▼6,396	▼7,905	▼3,945	▲7,050	■2,313	■3,105
CRESCENT POINT ENERGY U.S. CORP	89				■785				▼8,645				▼2,073
OVINTIV INC.	79	▼713		■779	■760	▼9,553		■12,476	▼7,435	▼2,460		■3,236	■3,545
QEP RESOURCES	74				■1,100								▲4,395
RIMROCK OIL & GAS	55	▼1,037	■1,079	■1,023	■1,010	▼12,568	■20,194	■13,985	■13,819	▼3,146	■5,286	■3,404	▼2,854
NINE POINT ENERGY, LLC	51	▼921	■951	■1,042	■1,033	▼10,804	▼11,696	▲14,620	▼9,375	▼2,567	▼2,796	■3,396	■2,968
LIME ROCK	47	▼607		■1,011	■863	▼6,677		▼4,958	▼6,384	▼1,672		▼1,642	▼1,643
LIBERTY RESOURCES MGMT	46	▼1,048	■1,050	■1,049	■979	▼7,044	▼8,006	▼6,607	▼8,251	▼1,562	▼1,786	▼1,465	▼1,942
ABRAXAS PETROLEUM	32	■1,241		■1,017		■22,461		■10,947		■5,837		■2,687	
PETROSHALE ENERGY, LLC	23	■1,295		▲1,682	▲1,209	▼9,767		■13,859	▼9,798	▼3,028		▲4,349	▲5,104
SINCLAIR OIL	22				■898				▼4,930				▼2,427
ZAVANNA LLC	20			▼586				■10,323				■3,073	
HUNT OIL COMPANY	20	▼759		■808	■963	▼10,512		▼7,690	▼9,141	▼3,091		▼1,817	▼2,007
ROCKALL ENERGY LLC	19		▼175	▼169			▼4,277	▼3,961			▼1,049	▼821	
NP RESOURCES	11	▼392				▼5,272				▼1,752			
KRAKEN DEVELOPMENT III, LLC	8			▲1,399	▲1,248			■11,417	■12,874			■2,457	■2,988
DENBURY RESOURCES	8												
IRON OIL OPERATING LLC	6	▼917				▼9,400				▼2,178			
MISSOURI RIVER RESOURCES ND	4												
RESONANCE EXPLORATION NORTH DAKC	4					▼1,193				▼613			
MUREX PETROLEUM CORP	3												
RESOURCE ENERGY CAN-AM	3				▼336								▼1,442
PEREGRINE PETROLEUM PRTRN, LTD.	2				▼512								▼2,635
KODA RESOURCES OPERATING, LLC	2				▲1,498								▼2,205
FUTURE ACQUISITION	2												
WINDRIDGE OPERATING	2					▼3,239				▼1,194			
SHD OIL & GAS, LLC	1												
TRUE OIL LLC	1						▼1,396				▼384		

*Horizontal Wells Since 7/1/2016. Arrows compare operators, not quarters. 20:1 BOE Ratio

Operator
ABRAXAS PETROLEUM
BRUIN E&P PARTNERS
CONOCOPHILLIPS
CONTINENTAL RESOURCES
CORNERSTONE NATURAL RESO...
CRESCENT POINT ENERGY U.S. ...
DENBURY RESOURCES
ENERPLUS
EOG RESOURCES
EQUINOR
EXXON MOBIL
FUTURE ACQUISITION
HESS
HUNT OIL COMPANY
IRON OIL OPERATING LLC
KODAK RESOURCES OPERATING

Producing Zone
Bakken Middle
Target Form.-BAKKEN
Target Form.-BAKKEN POOL
Target Form.-LODGEPOLE
Target Form.-MADISON POOL
Target Form.-MIDDLE BAKKEN (BAKK...
Target Form.-MIDDLE BAKKEN (BAKK...
Target Form.-MIDDLE BAKKEN (SANI...
Target Form.-MISSION CANYON
Target Form.-SANISH POOL
Target Form.-SPEARFISH
Target Form.-THREE FORKS (BAKKEN
Target Form.-THREE FORKS (BAKKE...
Target Form.-THREE FORKS (SANIS...
Three Forks Lower
Three Forks Middle
Three Forks Upper

	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	12-Month Trend
HH Price (\$/mmbtu)	\$2.00	\$2.14	\$2.88	\$3.04	\$3.01	\$3.08	\$2.95	\$2.90	\$3.08	\$2.86	\$2.93	\$3.80	\$2.92	
WTI Price (\$/bbl)	\$33.18	\$45.41	\$44.85	\$49.14	\$51.77	\$48.24	\$48.16	\$55.37	\$62.89	\$68.03	\$69.76	\$59.08	\$54.83	
Completion Averages														
Well Count	▼187	▼217	▼181	▼251	⇒279	⇒285	▼225	⇒311	▲426	⇒332	▼229	▲359	▲376	
TVD (ft)	▼59	▼189	▼234	▼200	▼39		▼189	▼267	⇒408	▼279	⇒422	▲1,040	▲2,895	
Perf'd Interval Length (ft)	⇒8,450	▼7,586	▼8,126	⇒8,718	▲9,415	▲9,344	▲9,343	▲9,154	⇒8,566	▼7,620	⇒8,408	▲9,485	▲9,069	
Upper Perf (ft)	⇒9,641	▼8,955	⇒9,794	▲10,622	▲10,867	▲11,096	▲10,873	▲10,536	⇒9,836	▼8,532	⇒9,449	▲10,512	▲10,280	
Stage Count	▼29	▼30	▼33	⇒36	▲43	▲45	▲40	▲44	⇒38	▼34	⇒35	⇒38	▲33	
Fluid Pumped (bbls)	▼116,477	▼133,304	▼124,098	⇒171,298	▲207,530	▲203,786	▲211,799	▲216,117	▲189,483	▲183,755	▲211,181	▲210,212	▲202,543	
Fluid Intensity (bbls/ft)	▼13.8	⇒17.6	▼15.3	⇒19.6	▲22.0	▲21.8	▲22.7	▲23.6	▲22.1	▲24.1	▲25.1	▲22.2	▲22.3	
Proppant (MMlbs)	▼4.86	▼5.99	⇒6.60	▲8.16	▲9.56	▲8.92	▲9.70	▲9.77	▲8.83	⇒7.71	▲8.77	▲8.74	▲8.72	
Proppant Intensity (lbs/ft)	▼575	⇒790	⇒812	▲936	▲1,016	▲955	▲1,039	▲1,067	▲1,031	▲1,012	▲1,043	▲921	▲962	
P10 Proppant Intensity (lbs/ft)	▼67	▼41	▼143	⇒186	▲338	▲392	▲420	▲515	▲414	⇒271	▲350	▲355	▲441	
Industry Avg. Proppant Intensity (lbs/ft)	▼575	⇒790	⇒812	▲936	▲1,016	▲955	▲1,039	▲1,067	▲1,031	▲1,012	▲1,043	▲921	▲962	
P90 Proppant Intensity (lbs/ft)	▼1,083	▲1,620	⇒1,481	▲1,686	▲1,694	⇒1,518	▲1,657	▲1,619	▲1,648	▲1,752	▲1,737	⇒1,487	▲1,483	
Max Injection Pressure (PSI)														
Performance Averages														
6-Mo Cum (boe)	▼88,655	▼88,732	▼93,612	⇒97,385	▲113,447	⇒102,062	⇒105,736	▲113,250	⇒110,631	▲113,323	⇒109,016	▲119,117	▲76,371	
6-Mo Cum per Perf'd ft (boe/ft)	▼10.49	⇒11.70	⇒11.52	▼11.17	⇒12.05	▼10.92	▼11.32	⇒12.37	⇒12.92	▲14.87	⇒12.97	⇒12.56	▲8.42	
6-Mo Average Daily Rate (boe/d)	▼487	▼488	▼514	⇒535	▲623	⇒561	⇒581	▲622	⇒608	▲623	⇒599	▲654	▲420	
Peak Rate (boe/month)	▼25,084	▼25,690	▼26,762	▼27,636	⇒32,490	⇒29,903	⇒31,564	▲32,789	▲34,565	⇒32,650	⇒32,657	▲32,973	▲32,618	
Peak Monthly Rate per Perf'd ft (boe/ft)	▼2.97	⇒3.39	⇒3.29	▼3.17	⇒3.45	▼3.20	⇒3.38	⇒3.58	▲4.04	▲4.28	⇒3.88	⇒3.48	▲3.60	
Oil Gravity (API)	▲35	▲33	▲34	▲36	⇒32	▼25	⇒31	▼28	⇒29	⇒29	▲34	▼25	▲18	
2nd Month GOR (Mcf/bbl)	▼1,403	▲2,431	▼1,329	▼1,172	▼1,191	▼1,274	▼1,221	▼1,272	▼1,503	▼1,355	▼1,290	▼1,367	▲1,271	
Cum GOR (Mcf/bbl)	▲2,317	⇒1,993	⇒1,876	⇒2,020	⇒2,055	⇒2,040	⇒1,832	⇒1,865	⇒1,909	⇒1,899	▼1,745	▼1,569	▲1,388	



First Prod Year
2016
2017
2018
2019