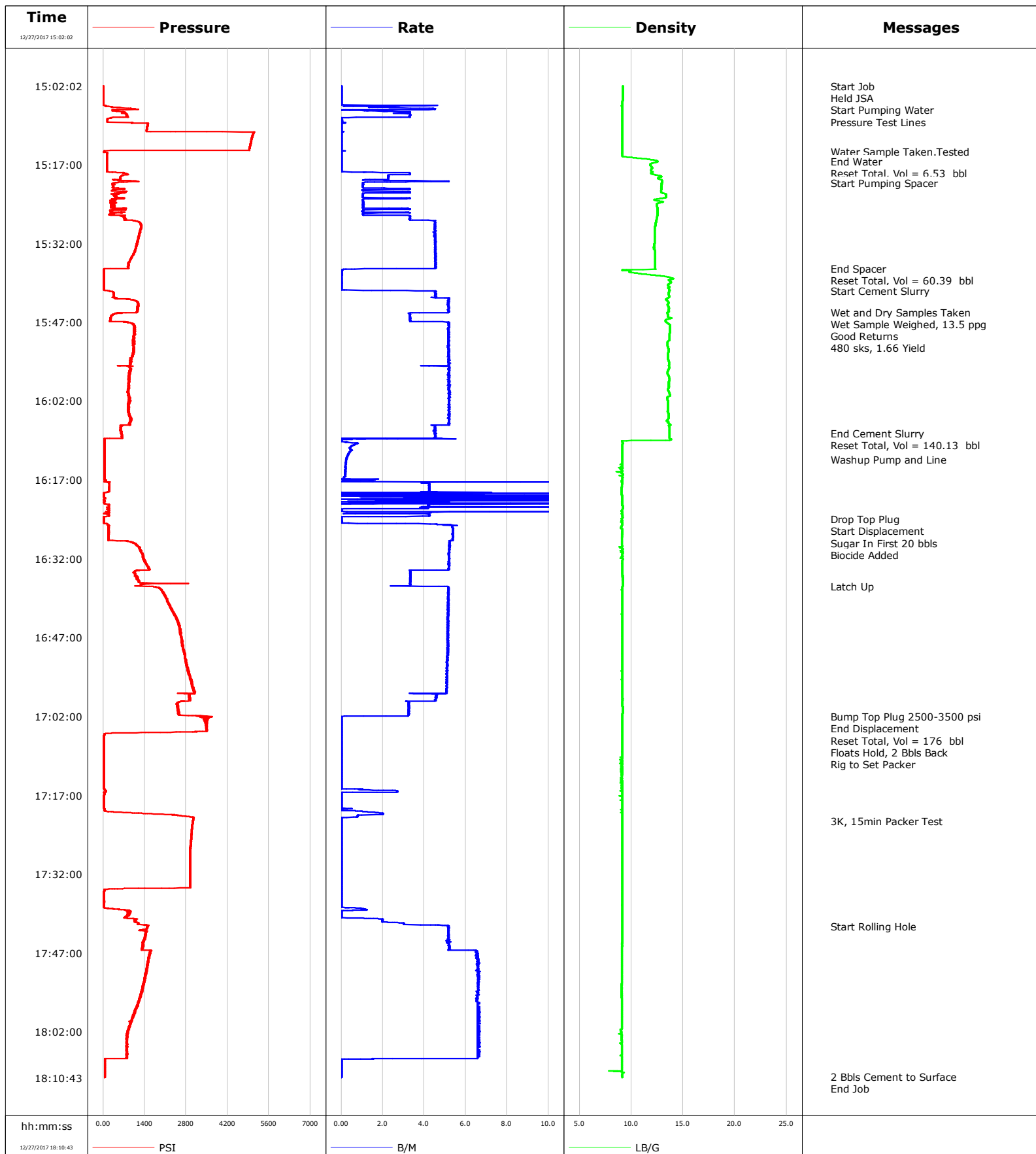


**Well** Yellowhammer 34C-17HZ  
**Field** Wattenberg  
**Engineer** Ryan Drilling/Ken Sovereign  
**Country** United States

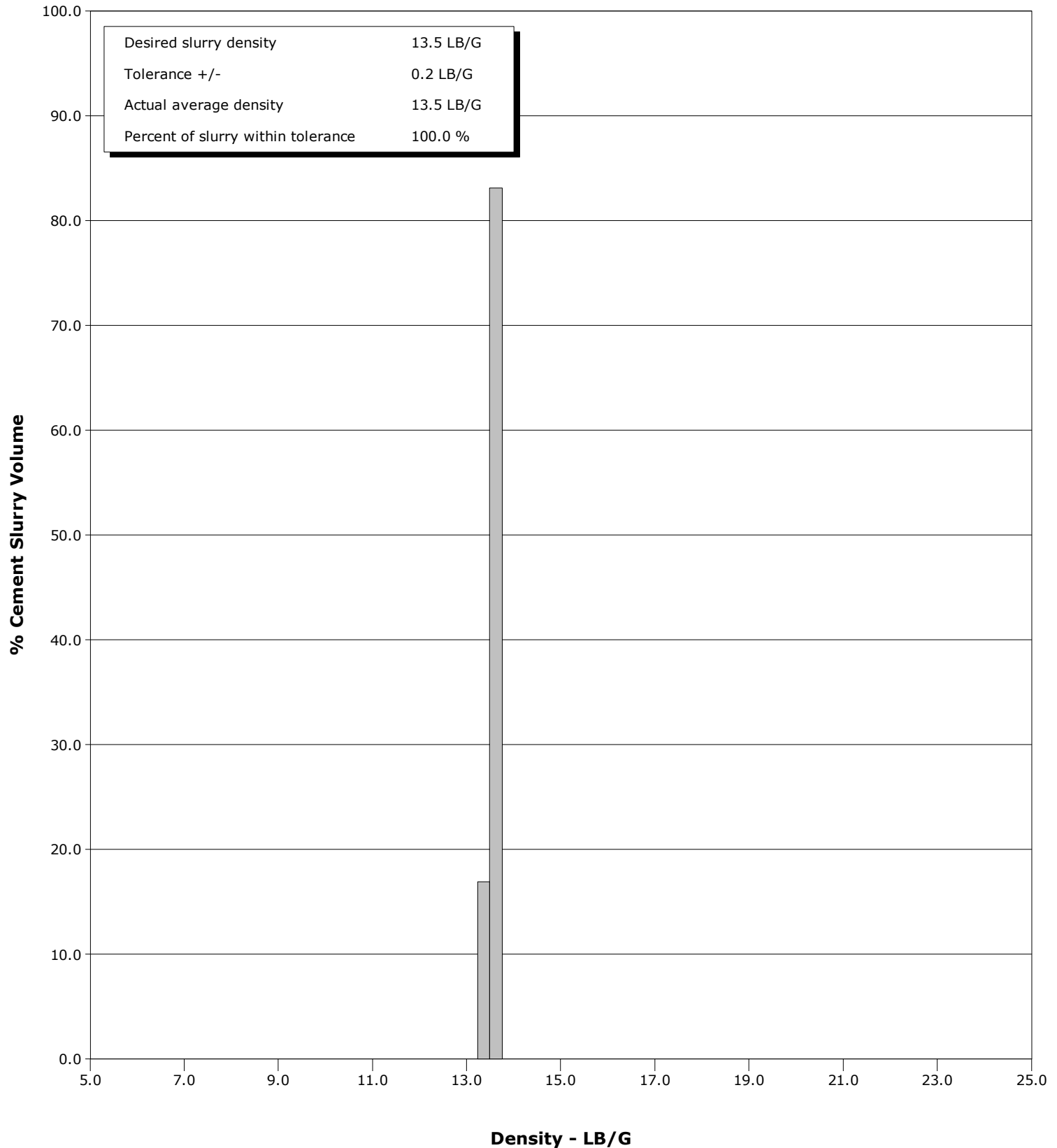
**Client** Anadarko  
**SIR No.** D8WD-00931  
**Job Type** 4.5" Liner  
**Job Date** 12-27-2017



**Well** Yellowhammer 34C-17HZ  
**Field** Wattenberg  
**Engineer** Ryan Drilling/Ken Sovereign  
**Country** United States

**Client** Anadarko  
**SIR No.** D8WD-00931  
**Job Type** 4.5" Liner  
**Job Date** 12-27-2017

Cement Slurry - 12/27/2017 15:41:05 to 12/27/2017 16:08:03



# Cementing Service Report

				Customer Anadarko			Job Number D8WD-00931				
Well Yellowhammer 34C-17HZ			Location (legal) CWY			Schlumberger Location CWY			Job Start Dec/27/2017		
Field Wattenberg		Formation Name/Type Shale		Deviation 90 deg		Bit Size 6.1 in		Well MD 13547.0 ft		Well TVD 7837.0 ft	
County Weld		State/Province Colorado		BHP psi		BHST 232 degF		BHCT 230 degF		Pore Press. Gradient lb/gal	
Well Master 0631736279		API/UWI									
Rig Name Xtreme 24		Drilled For Oil & Gas		Service Via Land		Casing/Liner					
						Depth, ft		Size, in		Weight, lb/ft	
										Grade	
										Thread	
Offshore Zone		Well Class New		Well Type Development		5876.0		7.0		26.0	
						13547.0		4.5		11.6	
										p110	
										p110	
Drilling Fluid Type OBM		Max. Density 9.80 lb/gal		Plastic Viscosity cP		Tubing/Drill Pipe					
						T/D		Depth, ft		Size, in	
										Weight, lb/ft	
										Grade	
										Thread	
Service Line Cementing		Job Type 4.5" Liner				D					
Max. Allowed Tub. Press psi		Max. Allowed Ann. Press psi		WH Connection 4" DP		Perforations/Open Hole					
						Top, ft		Bottom, ft		shot/ft	
										No. of Shots	
										Total Interval	
						ft		ft		ft	
						ft		ft		Diameter	
						ft		ft		in	
						Treat Down Casing		Displacement 176.0 bbl		Packer Type	
										Packer Depth 5683.0 ft	
						Tubing Vol. bbl		Casing Vol. bbl		Annular Vol. bbl	
										Openhole Vol. bbl	
Casing/Tubing Secured <input checked="" type="checkbox"/>		1 Hole Vol. Circulated prior to Cement <input checked="" type="checkbox"/>		Casing Tools				Squeeze Job			
Lift Pressure 2500 psi				Shoe Type Float				Squeeze Type			
Pipe Rotated <input type="checkbox"/>		Pipe Reciprocated <input type="checkbox"/>		Shoe Depth 13497.0 ft				Tool Type			
No. Centralizers		Top Plugs 1		Bottom Plugs		Stage Tool Type				Tool Depth ft	
Cement Head Type						Stage Tool Depth ft				Tail Pipe Size in	
Job Scheduled For Dec/27/2017 08:00		Arrived on Location Dec/27/2017 08:00		Leave Location Dec/27/2017 19:00		Collar Type Float				Tail Pipe Depth ft	
						Collar Depth ft				Sqz. Total Vol. bbl	
Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message					
12/27/2017	15:02:02	13	0.0	8.32	0.4	Started Acquisition					
12/27/2017	15:02:03	13	0.0	8.32	0.4	Held JSA					
12/27/2017	15:02:05	12	0.0	8.32	0.4	Start Pumping Water					
12/27/2017	15:02:14	12	0.0	8.32	0.5	Pressure Test Lines					
12/27/2017	15:03:02	13	0.0	8.32	0.0						
12/27/2017	15:04:02	12	0.0	8.32	0.0						
12/27/2017	15:05:02	13	0.0	8.32	0.0						
12/27/2017	15:06:02	308	1.5	8.32	0.6						
12/27/2017	15:07:02	658	3.3	8.31	3.1						
12/27/2017	15:08:02	572	2.3	8.33	6.4						
12/27/2017	15:09:02	983	0.1	8.28	0.0						
12/27/2017	15:10:02	1483	0.0	8.35	0.0						
12/27/2017	15:11:02	5076	0.0	8.35	0.0						
12/27/2017	15:12:02	5017	0.0	8.35	0.0						
12/27/2017	15:13:02	4976	0.0	8.35	0.1						
12/27/2017	15:14:02	4938	0.0	8.35	0.1						
12/27/2017	15:14:32	35	0.0	8.35	0.1	Water Sample Taken. Tested					
12/27/2017	15:15:02	131	0.0	8.36	0.0						
12/27/2017	15:16:02	130	0.0	8.36	0.0						
12/27/2017	15:16:23	132	0.0	8.36	0.0	End Water					
12/27/2017	15:16:24	131	0.0	8.36	0.0	Reset Total, Vol = 6.53 bbl					

Well Yellowhammer 34C-17HZ			Field Wattenberg		Job Start Dec/27/2017		Customer Anadarko		Job Number D8WD-00931	
Date	Time 24-hr clock	Treating Pressure PSI		Flow Rate B/M	Density LB/G		Volume BBL		Message	
12/27/2017	15:18:02	131		0.0	8.37		0.0			
12/27/2017	15:19:02	661		2.2	11.35		1.7			
12/27/2017	15:20:02	556		2.1	11.75		3.8			
12/27/2017	15:20:31	362		1.0	11.73		5.2		Start Pumping Spacer	
12/27/2017	15:21:02	346		1.0	11.74		5.8			
12/27/2017	15:22:02	310		1.1	11.78		7.4			
12/27/2017	15:23:02	388		1.0	11.95		9.1			
12/27/2017	15:24:02	297		1.0	12.07		10.7			
12/27/2017	15:25:02	407		1.1	12.16		11.7			
12/27/2017	15:26:02	265		1.0	12.17		13.3			
12/27/2017	15:27:02	738		3.3	12.19		15.5			
12/27/2017	15:28:02	1232		4.6	12.10		19.3			
12/27/2017	15:29:02	1279		4.5	12.08		23.8			
12/27/2017	15:30:02	1218		4.5	12.05		28.4			
12/27/2017	15:31:02	1190		4.5	12.02		32.9			
12/27/2017	15:32:02	1133		4.5	12.01		37.4			
12/27/2017	15:33:02	1090		4.5	11.98		41.9			
12/27/2017	15:34:02	1016		4.6	11.98		46.5			
12/27/2017	15:35:02	929		4.6	11.99		51.0			
12/27/2017	15:36:02	872		4.5	11.99		55.6			
12/27/2017	15:36:52	37		1.1	12.38		59.3		End Spacer	
12/27/2017	15:36:57	31		0.1	12.27		59.4		Reset Total, Vol = 60.39 bbl	
12/27/2017	15:37:02	31		0.1	12.25		59.4			
12/27/2017	15:38:02	30		0.0	12.25		0.0			
12/27/2017	15:39:02	30		0.0	12.15		0.0			
12/27/2017	15:40:02	31		0.0	12.00		0.0			
12/27/2017	15:41:02	201		4.2	13.45		0.2			
12/27/2017	15:41:05	202		4.5	13.49		0.5		Start Cement Slurry	
12/27/2017	15:42:02	360		4.5	13.54		4.8			
12/27/2017	15:43:02	1137		5.2	13.47		9.7			
12/27/2017	15:44:02	1156		5.2	13.50		14.9			
12/27/2017	15:45:02	1135		5.2	13.52		20.1			
12/27/2017	15:45:08	1149		5.2	13.52		20.6		Wet and Dry Samples Taken	
12/27/2017	15:46:02	253		3.3	13.51		23.7			
12/27/2017	15:47:02	819		5.2	13.45		27.2			
12/27/2017	15:48:02	1075		5.2	13.57		32.4			
12/27/2017	15:49:02	1078		5.2	13.63		37.6			
12/27/2017	15:50:02	1057		5.2	13.64		42.8			
12/27/2017	15:51:02	1064		5.2	13.64		48.0			
12/27/2017	15:52:02	1035		5.2	13.60		53.1			
12/27/2017	15:53:02	1021		5.2	13.56		58.3			
12/27/2017	15:54:02	953		5.2	13.53		63.5			
12/27/2017	15:55:02	906		5.2	13.56		68.7			
12/27/2017	15:56:02	940		5.2	13.57		73.8			
12/27/2017	15:57:02	909		5.2	13.50		79.0			
12/27/2017	15:58:02	871		5.2	13.56		84.2			
12/27/2017	15:59:02	872		5.2	13.56		89.4			
12/27/2017	16:00:02	838		5.2	13.46		94.5			
12/27/2017	16:01:02	873		5.2	13.58		99.8			
12/27/2017	16:02:02	883		5.2	13.50		105.0			
12/27/2017	16:03:02	852		5.2	13.51		110.2			
12/27/2017	16:04:02	851		5.2	13.49		115.4			
12/27/2017	16:05:02	893		5.2	13.52		120.6			
12/27/2017	16:06:02	908		5.2	13.51		125.8			

Well Yellowhammer 34C-17HZ			Field Wattenberg		Job Start Dec/27/2017	Customer Anadarko		Job Number D8WD-00931
Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message		
12/27/2017	16:08:02	631	4.5	13.59	135.2			
12/27/2017	16:08:03	631	4.6	13.59	135.3	End Cement Slurry		
12/27/2017	16:09:02	651	4.5	13.49	139.7			
12/27/2017	16:09:06	619	4.9	12.91	140.0	Reset Total, Vol = 140.13 bbl		
12/27/2017	16:10:02	39	0.8	9.52	140.6			
12/27/2017	16:11:02	39	0.4	11.10	141.2			
12/27/2017	16:12:02	39	0.3	11.18	141.6			
12/27/2017	16:13:02	40	0.2	11.79	141.9			
12/27/2017	16:13:08	40	0.2	11.83	141.9	Washup Pump and Line		
12/27/2017	16:14:02	40	0.2	12.16	142.1			
12/27/2017	16:15:02	40	0.2	12.39	142.3			
12/27/2017	16:16:02	40	0.2	12.55	142.5			
12/27/2017	16:17:02	97	1.3	10.72	0.0			
12/27/2017	16:18:02	203	4.2	9.16	3.9			
12/27/2017	16:19:02	197	4.2	9.08	8.1			
12/27/2017	16:20:02	31	2.3	1.81	11.8			
12/27/2017	16:21:02	51	4.0	4.74	18.7			
12/27/2017	16:22:02	196	4.2	8.38	22.4			
12/27/2017	16:23:02	85	0.3	8.27	24.7			
12/27/2017	16:24:02	29	0.1	8.36	0.0			
12/27/2017	16:24:29	26	0.0	8.36	0.0	Drop Top Plug		
12/27/2017	16:24:30	25	0.0	8.35	0.0	Start Displacement		
12/27/2017	16:25:02	27	0.0	8.35	0.0			
12/27/2017	16:26:02	185	5.4	8.40	3.7			
12/27/2017	16:26:26	174	5.4	8.40	5.8	Sugar In First 20 bbls		
12/27/2017	16:27:02	185	5.4	8.39	9.0			
12/27/2017	16:27:34	184	5.4	8.37	11.9	Biocide Added		
12/27/2017	16:28:02	182	5.4	8.36	14.4			
12/27/2017	16:29:02	1017	5.2	8.36	19.7			
12/27/2017	16:30:02	1225	5.2	8.37	24.9			
12/27/2017	16:31:02	1316	5.2	8.37	30.2			
12/27/2017	16:32:02	1367	5.2	8.36	35.4			
12/27/2017	16:33:02	1484	5.2	8.36	40.5			
12/27/2017	16:34:02	1582	5.2	8.36	45.7			
12/27/2017	16:36:02	1187	3.3	8.36	52.6			
12/27/2017	16:37:02	1276	3.3	8.36	56.0			
12/27/2017	16:37:13	1159	2.9	8.36	56.6	Latch Up		
12/27/2017	16:38:02	1969	5.2	8.36	60.7			
12/27/2017	16:39:02	2087	5.2	8.36	65.8			
12/27/2017	16:40:02	2149	5.2	8.36	71.0			
12/27/2017	16:41:02	2271	5.2	8.36	76.2			
12/27/2017	16:42:02	2378	5.2	8.36	81.3			
12/27/2017	16:43:02	2468	5.1	8.35	86.5			
12/27/2017	16:44:02	2534	5.1	8.36	91.6			
12/27/2017	16:45:02	2574	5.1	8.35	96.8			
12/27/2017	16:46:02	2630	5.1	8.35	101.9			
12/27/2017	16:47:02	2652	5.2	8.35	107.0			
12/27/2017	16:48:02	2655	5.2	8.36	112.2			
12/27/2017	16:49:02	2685	5.1	8.35	117.3			
12/27/2017	16:50:02	2751	5.1	8.36	122.4			
12/27/2017	16:51:02	2759	5.1	8.30	127.6			
12/27/2017	16:52:02	2809	5.1	8.29	132.7			
12/27/2017	16:53:02	2858	5.1	8.29	137.8			
12/27/2017	16:54:02	2906	5.1	8.29	142.9			

Well Yellowhammer 34C-17HZ			Field Wattenberg	Job Start Dec/27/2017	Customer Anadarko	Job Number D8WD-00931
Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message
12/27/2017	16:56:02	3000	5.1	8.29	153.1	
12/27/2017	16:57:02	3084	5.1	8.28	158.1	
12/27/2017	16:58:02	2922	4.6	8.28	163.0	
12/27/2017	16:59:02	2914	4.5	8.28	167.5	
12/27/2017	17:00:02	2517	3.3	8.28	170.8	
12/27/2017	17:01:02	2534	3.3	8.28	174.1	
12/27/2017	17:02:02	3344	0.0	8.28	177.1	
12/27/2017	17:02:03	3305	0.0	8.28	177.1	Bump Top Plug 2500-3500 psi
12/27/2017	17:02:08	3336	0.0	8.28	177.1	End Displacement
12/27/2017	17:02:10	3417	0.0	8.28	177.1	Reset Total, Vol = 176 bbl
12/27/2017	17:03:02	3474	0.0	8.28	177.1	
12/27/2017	17:04:02	3497	0.0	8.28	177.1	
12/27/2017	17:05:02	1938	0.0	8.29	177.1	
12/27/2017	17:05:29	36	0.0	8.29	177.1	Floats Hold, 2 Bbls Back
12/27/2017	17:05:53	31	0.0	8.29	177.1	Rig to Set Packer
12/27/2017	17:06:02	31	0.0	8.29	177.1	
12/27/2017	17:07:02	29	0.0	8.29	177.1	
12/27/2017	17:08:02	30	0.0	8.29	177.1	
12/27/2017	17:09:02	31	0.0	8.29	177.1	
12/27/2017	17:11:02	30	0.0	8.29	0.0	
12/27/2017	17:12:02	30	0.0	8.29	0.0	
12/27/2017	17:13:02	30	0.0	8.29	0.0	
12/27/2017	17:14:02	29	0.0	8.29	0.0	
12/27/2017	17:15:02	30	0.0	8.29	0.0	
12/27/2017	17:16:02	65	1.8	8.29	0.2	
12/27/2017	17:17:02	33	0.0	8.29	1.3	
12/27/2017	17:18:02	31	0.0	8.29	1.3	
12/27/2017	17:19:02	31	0.0	8.29	1.3	
12/27/2017	17:20:02	87	1.0	8.29	1.4	
12/27/2017	17:21:02	2820	0.8	8.29	2.9	
12/27/2017	17:21:53	3030	0.0	8.29	3.0	3K, 15min Packer Test
12/27/2017	17:22:02	3026	0.0	8.29	3.0	
12/27/2017	17:23:02	3004	0.0	8.29	3.0	
12/27/2017	17:24:02	2990	0.0	8.29	3.0	
12/27/2017	17:25:02	2972	0.0	8.29	3.0	
12/27/2017	17:26:02	2960	0.0	8.29	3.0	
12/27/2017	17:27:02	2947	0.0	8.29	3.0	
12/27/2017	17:28:02	2941	0.0	8.30	3.0	
12/27/2017	17:29:02	2939	0.0	8.30	3.0	
12/27/2017	17:30:02	2941	0.0	8.30	3.0	
12/27/2017	17:31:02	2938	0.0	8.30	3.0	
12/27/2017	17:32:02	2943	0.0	8.30	3.0	
12/27/2017	17:33:02	2939	0.0	8.30	3.0	
12/27/2017	17:34:02	2936	0.0	8.30	3.0	
12/27/2017	17:35:02	39	0.0	8.30	3.0	
12/27/2017	17:36:02	30	0.0	8.30	0.0	
12/27/2017	17:37:02	29	0.0	8.30	0.0	
12/27/2017	17:38:02	28	0.0	8.30	0.0	
12/27/2017	17:39:02	859	0.0	8.30	0.5	
12/27/2017	17:40:02	770	0.0	8.30	0.5	
12/27/2017	17:41:02	1080	2.0	8.30	1.8	
12/27/2017	17:41:56	1491	5.2	8.29	4.9	Start Rolling Hole
12/27/2017	17:42:02	1522	5.2	8.29	5.4	
12/27/2017	17:43:02	1437	5.2	8.29	10.5	

Well Yellowhammer 34C-17HZ			Field Wattenberg		Job Start Dec/27/2017		Customer Anadarko		Job Number D8WD-00931	
Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message				
12/27/2017	17:45:02	1330	5.1	8.20	20.8					
12/27/2017	17:46:02	1317	5.2	8.30	26.1					
12/27/2017	17:47:02	1570	6.6	8.30	32.0					
12/27/2017	17:48:02	1532	6.6	8.30	38.6					
12/27/2017	17:49:02	1509	6.5	8.29	45.2					
12/27/2017	17:50:02	1464	6.6	8.29	51.7					
12/27/2017	17:51:02	1452	6.6	8.28	58.4					
12/27/2017	17:52:02	1417	6.6	8.28	65.0					
12/27/2017	17:53:02	1378	6.6	8.26	71.6					
12/27/2017	17:54:02	1317	6.6	8.26	78.2					
12/27/2017	17:55:02	1270	6.5	8.27	84.8					
12/27/2017	17:56:02	1219	6.6	8.27	91.3					
12/27/2017	17:57:02	1144	6.6	8.27	97.9					
12/27/2017	17:58:02	1079	6.6	8.28	104.5					
12/27/2017	17:59:02	1007	6.7	8.27	111.0					
12/27/2017	18:00:02	929	6.6	8.27	117.6					
12/27/2017	18:01:02	863	6.6	8.27	124.2					
12/27/2017	18:02:02	814	6.6	8.28	130.8					
12/27/2017	18:03:02	792	6.7	8.27	137.4					
12/27/2017	18:04:02	789	6.6	8.27	143.9					
12/27/2017	18:05:02	785	6.6	8.26	150.5					
12/27/2017	18:06:02	822	6.6	8.26	157.1					
12/27/2017	18:07:02	827	6.6	8.27	163.7					
12/27/2017	18:08:02	66	0.0	0.19	164.1					
12/27/2017	18:09:02	55	0.0	0.00	164.1					
12/27/2017	18:10:02	56	0.0	0.00	164.1					
12/27/2017	18:10:36	55	0.0	0.00	164.1	2 Bbls Cement to Surface				

### Post Job Summary

Average Pump Rates, bbl/min					Volume of Fluid Injected, bbl							
Slurry 3.8	N2	Mud	Maximum Rate 25.0		Total Slurry 141.0	Mud 0.0	Spacer 60.0	N2				
Treating Pressure Summary, psi					Breakdown Fluid							
Maximum 5115	Final 55	Average 1199	Bump Plug to 3500	Breakdown	Type	Volume bbl	Density lb/gal					
Avg. N2 Percent %	Designed Slurry Volume 139.0 bbl	Displacement 176.0 bbl	Mix Water Temp 72 degF	Cement Circulated to Surface? <input checked="" type="checkbox"/>		Volume 2.0 bbl						
				Washed Thru Perfs <input type="checkbox"/>		To ft						
Customer or Authorized Representative			Schlumberger Supervisor Ryan Drilling/Ken Sovereign			Circulation Lost <input type="checkbox"/>	Job Completed <input checked="" type="checkbox"/>					
						-	-					