

# Cement Post Job Report

**Client:** PDC Energy

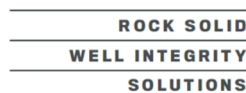
**Well Name:** Erwin 2N

**API #:** 05-123-49381-00

**Job Date:** February 8, 2021

**Job Type:** New Well - 5.5" Production String

**Cement Company & Contact:** EXERO Well Integrity -  
Cheve Meyer 720-239-3819



## Treatment Report

<b>Client:</b>	<b>Well Name and Number:</b>	<b>Rig Name:</b>	<b>Date:</b>		
PDC Energy	Erwin 2N	Ensign 142	2/8/2021		
<b>Job Type:</b>	<b>Well Head Connection:</b>	<b>Casing/Tubing Thread Type:</b>	<b>Well MD:</b>	<b>Well TVD:</b>	<b>Deg. Dev:</b>
Production	5 1/2" HP Cement Head	Buttress	13623	6649	
<b>Max Casing/Tubing/DP PSI:</b>	<b>Max Allowed Ann. PSI:</b>	<b>No. of Stages:</b>	<b>DV Tool Depth (ft):</b>		
50000					
<b>Packer/Retainer Depth (ft)</b>	<b>Top of Perfs:</b>	<b>Bottom of Perfs:</b>	<b>Tapered String:</b>		
			No		

String Details:							
String:	Type:	OD (in)	Wt. (lb/ft)	ID (in)	Bit/OH (in)	Excess %	Depth (ft)
Surface	Casing	9.625	36	8.921		0	1657
Production	Casing	5.5	20	4.778	8.5	0	13616

Preflush/Spacers:		Lead System: Class G		Tail System: Class G		Displacement:	
Spacer 1	Production OBM Spacer	Density	12.90	Density	13.70	Fluid Type	Water
Density	11.5,12.0,12.5	Sacks	851.00	Sacks	1276.00	Vol/bbls	302.2
Volume	75	Vol/bbls	231.89	Vol/bbls	311.34	Density	8.3
Rate	8	Rate	8.00	Rate	8.00	Clay Stab.?	yes
Spacer 2		Yield	1.53	Yield	1.37	Bump to?	
Density		Gal/Sack	7.83	Gal/Sack	6.66	Rate (bpm)	10.0
Volume		% Excess	0.00	% Excess		Last 10 Rate	3.0
Rate		TOL (ft)	500	TOT (ft)	6013	Final volume	

Pre-Job Details:			
Mud Properties:		Circulation Data:	
Mud Type:	Invert	Time Circulated (hrs)	3
Mud Weight (ppg)	10.5	Circulation Rate (bpm)	10
Flow Line Temp (F)	129.0	Full Circulation	Yes
Visc. (sec/qt)	48	Gas Present	Yes
PV (cP)	19	Units of Gas	130
Yield Point	8	Centralizers & Plugs:	
10 Sec Gel	7	Quantity/Type	
10 Min Gel	9	Top Plug Used	
30 Min Gel	10	Bottom Plug Used	

Job Circulation Details:			
Calc. Displacement (bbbls)	302.2	Gas After Placement?	No
Actual Pumped Displ. (bbbls)	302.2	Cement to Surface?	No
Bump Plug?	Yes	Cement to Surface (bbbls)	
Floats Holding?	Yes	Top Out?	No
Qty. Returned to Tank (bbbls)	3	Top Out Volume (bbbls)	N/A

Additional Treatment Comments:	
TOL @ 897 TOT 6300	



ROCK SOLID  
WELL INTEGRITY  
SOLUTIONS

## Job Treatment Log

Client: PDC Energy		Well Name and Number: Erwin 2N		Rig Name: Ensign 142		Date: 2/8/2021	Ambient Conditions (Temperature/ Humidity/ Air Pressure) 23 deg F / 60% / 24.77 in	
Date (MM/DD/YY)	Time (HH-MM)	Density (ppg)	Rate (BPM)	Volume	Cumulative Volume	Pressure	Comments	
2/8/2021	7:00:00 AM						Arrive on Location	
	8:00:00 AM						Spot Equipment Rig Up Pump and lines	
	9:00:00 AM						Waiting on Rig	
	12:15:00 PM						Safety Meeting	
	12:25:00 PM						Rig up Floor Iron	
	12:33:00 PM	8.3	5.0	2.0		500.0	Fill Lines	
	12:35:00 PM					4900.0	Pressure test Lines to 5000 PSI	
	12:37:00 PM	11.5	4.0	25.0	2.0	900.0	25 BBLS Spacer @ 11.5 PPG With surfactant and Fiber	
	12:43:00 PM	12.0	5.0	25.0	27.0	850.0	25 BBLS Spacer @ 12 PPG With surfactant and Fiber	
	12:48:00 PM	12.5	5.0	25.0	52.0	500.0	25 BBLS Scavenger @ 12.5 PPG Yield 1.68 WR- 8.93 GAL/Sk	
	12:52:00 PM				77.0		Shut Down Drop Bottom Plug	
	12:58:00 PM	12.9	10.6	232.0		2000.0	851 Sacks Lead @ 12.9 Yield 1.53 WR- 7.83 Gal/SK	
	1:18:00 PM	13.7	10.6	311.0	309.0	1400.0	1276 Sacks Tail @ 13.7 Yield 1.37 WR- 6.66 GAL/SK	
	1:49:00 PM				620.0		Shut down	
	1:51:00 PM						Wash Pump and Lines	
	1:51:00 PM						Drop Top Plug	
	1:59:00 PM	8.3	7.8	50.0		300.0	Displace, First 10 BBLS With Sugar, First 100 BBLS with 1 gal/10BBLS Biocide	
	2:07:00 PM	8.3	10.0	50.0	670.0	1500.0	50 BBLS Away Displacement	
	2:12:00 PM	8.3	10.0	50.0	720.0	2000.0	100 BBLS Away Displacement	
	2:17:00 PM	8.3	10.0	50.0	770.0	2615.0	150 BBLS Away Displacement	
	2:22:00 PM	8.3	10.0	50.0	820.0		200 BBLS Away Displacement	
	2:28:00 PM	8.3	9.5	32.0	870.0	3000.0	250 BBLS Away Displacement	
	2:31:00 PM	8.3	2.7	20.0	902.0	1900.0	282 BBLS Away slow rate last 20 BBLS	
	2:39:00 PM	8.3	2.7		922.0	2000.0	Land Plug	
	2:39:00 PM	8.3				2500.0	Bumped plug to 2500 PSI. 32 BBLS Spacer To surface	
	2:41:00 PM	8.3	1.0	2.0		2500.0	Pressure up on sleeve	
	2:42:00 PM	8.3	1.0			3700.0	Wet shoe sleeve opened	
	2:42:00 PM	8.3	5.0	5.0		2000.0	Pump 5 BBL Wet Shoe	
	2:44:00 PM					1600.0	Shut down Hold Pressure	
	2:45:00 PM					1600.0	Check Floats Held. 3 BBLS Back	
	2:50:00 PM						Wash out Stack	
	3:00:00 PM						Rig Down	
	3:30:00 PM						End of job	



## Centralizer Depths

Well Name: Erwin 2N

Production, Set Depth: 13,616.0ftKB

API 05123493810000		Surface Legal Location SWSE 27 5N 64W		Field Name Wattenberg		State CO		Well Configuration Type Horizontal					
Ground Elevation (ft) 4,639.00		Original KB Elevation (ft) 4,667.00		KB-Ground Distance (ft) 28.00		Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date	

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jw/ry	Connections	Top (ftKB)	Cum Len (ft)
9	1	Casing Joints	5 1/2	20.00	P-110	Yes	47.01	Yes			13,534.3	81.71
11	3	Casing Joints	5 1/2	20.00	P-110	Yes	47.19	Yes			13,439.7	176.27
13	5	Casing Joints	5 1/2	20.00	P-110	Yes	47.51	Yes			13,344.4	271.62
15	7	Casing Joints	5 1/2	20.00	P-110	Yes	47.32	Yes			13,250.4	365.65
17	9	Casing Joints	5 1/2	20.00	P-110	Yes	47.53	Yes			13,155.3	460.69
19		Marker Joint	5 1/2	20.00	P-110	Yes	10.08	Yes			13,098.0	517.99
21	12	Casing Joints	5 1/2	20.00	P-110	Yes	47.50	Yes			13,003.0	612.96
23	14	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			12,908.5	707.46
25	16	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			12,815.3	800.73
27	18	Casing Joints	5 1/2	20.00	P-110	Yes	47.47	Yes			12,722.8	893.24
29	20	Casing Joints	5 1/2	20.00	P-110	Yes	47.25	Yes			12,631.3	984.71
31	22	Casing Joints	5 1/2	20.00	P-110	Yes	47.28	Yes			12,538.1	1,077.95
33	24	Casing Joints	5 1/2	20.00	P-110	Yes	47.27	Yes			12,444.9	1,171.13
35	26	Casing Joints	5 1/2	20.00	P-110	Yes	47.28	Yes			12,353.2	1,262.79
37	28	Casing Joints	5 1/2	20.00	P-110	Yes	47.42	Yes			12,258.5	1,357.48
39	30	Casing Joints	5 1/2	20.00	P-110	Yes	47.03	Yes			12,164.0	1,451.97
41	32	Casing Joints	5 1/2	20.00	P-110	Yes	46.32	Yes			12,070.2	1,545.84
43	34	Casing Joints	5 1/2	20.00	P-110	Yes	47.55	Yes			11,975.1	1,640.87
45	36	Casing Joints	5 1/2	20.00	P-110	Yes	47.47	Yes			11,883.3	1,732.73
47	38	Casing Joints	5 1/2	20.00	P-110	Yes	47.06	Yes			11,789.0	1,826.99
49	40	Casing Joints	5 1/2	20.00	P-110	Yes	47.31	Yes			11,694.2	1,921.79
51	42	Casing Joints	5 1/2	20.00	P-110	Yes	47.46	Yes			11,600.7	2,015.26
53	44	Casing Joints	5 1/2	20.00	P-110	Yes	44.29	Yes			11,509.1	2,106.93
55	46	Casing Joints	5 1/2	20.00	P-110	Yes	47.11	Yes			11,414.5	2,201.50
57	48	Casing Joints	5 1/2	20.00	P-110	Yes	43.99	Yes			11,323.7	2,292.26
59	50	Casing Joints	5 1/2	20.00	P-110	Yes	47.06	Yes			11,229.7	2,386.35
61	52	Casing Joints	5 1/2	20.00	P-110	Yes	47.27	Yes			11,136.3	2,479.72
63	54	Casing Joints	5 1/2	20.00	P-110	Yes	47.56	Yes			11,041.3	2,574.73
65	56	Casing Joints	5 1/2	20.00	P-110	Yes	46.99	Yes			10,946.8	2,669.24
67	58	Casing Joints	5 1/2	20.00	P-110	Yes	47.25	Yes			10,852.1	2,763.87
69	60	Casing Joints	5 1/2	20.00	P-110	Yes	46.57	Yes			10,758.3	2,857.74



## Centralizer Depths

Well Name: Erwin 2N

Production, Set Depth: 13,616.0ftKB

API 05123493810000		Surface Legal Location SWSE 27 5N 64W		Field Name Wattenberg		State CO		Well Configuration Type Horizontal					
Ground Elevation (ft) 4,639.00		Original KB Elevation (ft) 4,667.00		KB-Ground Distance (ft) 28.00		Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date	

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jw/ry	Connections	Top (ftKB)	Cum Len (ft)
71	62	Casing Joints	5 1/2	20.00	P-110	Yes	45.45	Yes			10,667.0	2,949.02
73	64	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			10,572.0	3,043.99
75	66	Casing Joints	5 1/2	20.00	P-110	Yes	47.47	Yes			10,478.0	3,138.04
77		Marker Joint	5 1/2	20.00	P-110	Yes	10.09	Yes			10,422.7	3,193.35
79	69	Casing Joints	5 1/2	20.00	P-110	Yes	47.82	Yes			10,327.4	3,288.64
81	71	Casing Joints	5 1/2	20.00	P-110	Yes	45.25	Yes			10,234.6	3,381.43
83	73	Casing Joints	5 1/2	20.00	P-110	Yes	47.46	Yes			10,139.7	3,476.31
85	75	Casing Joints	5 1/2	20.00	P-110	Yes	46.24	Yes			10,046.0	3,570.00
87	77	Casing Joints	5 1/2	20.00	P-110	Yes	47.47	Yes			9,952.9	3,663.12
89	79	Casing Joints	5 1/2	20.00	P-110	Yes	46.69	Yes			9,858.9	3,757.15
91	81	Casing Joints	5 1/2	20.00	P-110	Yes	45.43	Yes			9,768.3	3,847.69
93	83	Casing Joints	5 1/2	20.00	P-110	Yes	47.26	Yes			9,673.6	3,942.43
95	85	Casing Joints	5 1/2	20.00	P-110	Yes	47.44	Yes			9,578.6	4,037.44
97	87	Casing Joints	5 1/2	20.00	P-110	Yes	47.25	Yes			9,484.1	4,131.93
99	89	Casing Joints	5 1/2	20.00	P-110	Yes	47.16	Yes			9,391.5	4,224.53
101	91	Casing Joints	5 1/2	20.00	P-110	Yes	46.68	Yes			9,297.6	4,318.41
103	93	Casing Joints	5 1/2	20.00	P-110	Yes	47.25	Yes			9,202.9	4,413.11
105	95	Casing Joints	5 1/2	20.00	P-110	Yes	46.49	Yes			9,109.3	4,506.74
107	97	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			9,017.3	4,598.72
109	99	Casing Joints	5 1/2	20.00	P-110	Yes	47.85	Yes			8,924.1	4,691.95
111	101	Casing Joints	5 1/2	20.00	P-110	Yes	47.48	Yes			8,829.0	4,786.99
113	103	Casing Joints	5 1/2	20.00	P-110	Yes	47.23	Yes			8,734.3	4,881.69
115	105	Casing Joints	5 1/2	20.00	P-110	Yes	47.58	Yes			8,639.3	4,976.73
117	107	Casing Joints	5 1/2	20.00	P-110	Yes	46.35	Yes			8,546.8	5,069.19
119	109	Casing Joints	5 1/2	20.00	P-110	Yes	47.37	Yes			8,454.4	5,161.59
121	111	Casing Joints	5 1/2	20.00	P-110	Yes	43.67	Yes			8,364.8	5,251.24
123	113	Casing Joints	5 1/2	20.00	P-110	Yes	44.99	Yes			8,272.4	5,343.61
125	115	Casing Joints	5 1/2	20.00	P-110	Yes	46.43	Yes			8,180.1	5,435.95
127	117	Casing Joints	5 1/2	20.00	P-110	Yes	47.14	Yes			8,086.4	5,529.60
129	119	Casing Joints	5 1/2	20.00	P-110	Yes	43.53	Yes			7,999.2	5,616.81
131	121	Casing Joints	5 1/2	20.00	P-110	Yes	44.26	Yes			7,911.2	5,704.81



## Centralizer Depths

Well Name: Erwin 2N

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Ground Elevation (ft) 4,639.00		Original KB Elevation (ft) 4,667.00		KB-Ground Distance (ft) 28.00		Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date	

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jw/ry	Connections	Top (ftKB)	Cum Len (ft)
133	123	Casing Joints	5 1/2	20.00	P-110	Yes	46.30	Yes			7,821.2	5,794.76
135	125	Casing Joints	5 1/2	20.00	P-110	Yes	44.88	Yes			7,733.0	5,882.99
137	127	Casing Joints	5 1/2	20.00	P-110	Yes	41.59	Yes			7,644.0	5,972.03
139	129	Casing Joints	5 1/2	20.00	P-110	Yes	47.46	Yes			7,549.3	6,066.73
141	131	Casing Joints	5 1/2	20.00	P-110	Yes	45.43	Yes			7,456.6	6,159.43
142		Marker Joint	5 1/2	20.00	P-110	Yes	9.95	Yes			7,446.6	6,169.38
143	132	Casing Joints	5 1/2	20.00	P-110	Yes	46.52	Yes			7,400.1	6,215.90
144	133	Casing Joints	5 1/2	20.00	P-110	Yes	46.65	Yes			7,353.5	6,262.55
145	134	Casing Joints	5 1/2	20.00	P-110	Yes	43.81	Yes			7,309.6	6,306.36
146	135	Casing Joints	5 1/2	20.00	P-110	Yes	43.64	Yes			7,266.0	6,350.00
147	136	Casing Joints	5 1/2	20.00	P-110	Yes	46.47	Yes			7,219.5	6,396.47
148	137	Casing Joints	5 1/2	20.00	P-110	Yes	47.26	Yes			7,172.3	6,443.73
149	138	Casing Joints	5 1/2	20.00	P-110	Yes	43.69	Yes			7,128.6	6,487.42
150	139	Casing Joints	5 1/2	20.00	P-110	Yes	43.27	Yes			7,085.3	6,530.69
151	140	Casing Joints	5 1/2	20.00	P-110	Yes	47.38	Yes			7,037.9	6,578.07
152	141	Casing Joints	5 1/2	20.00	P-110	Yes	43.64	Yes			6,994.3	6,621.71
153	142	Casing Joints	5 1/2	20.00	P-110	Yes	46.18	Yes			6,948.1	6,667.89
154	143	Casing Joints	5 1/2	20.00	P-110	Yes	43.69	Yes			6,904.4	6,711.58
155	144	Casing Joints	5 1/2	20.00	P-110	Yes	43.63	Yes			6,860.8	6,755.21
156	145	Casing Joints	5 1/2	20.00	P-110	Yes	47.45	Yes			6,813.3	6,802.66
157	146	Casing Joints	5 1/2	20.00	P-110	Yes	46.61	Yes			6,766.7	6,849.27
158	147	Casing Joints	5 1/2	20.00	P-110	Yes	42.01	Yes			6,724.7	6,891.28
159	148	Casing Joints	5 1/2	20.00	P-110	Yes	47.45	Yes			6,677.3	6,938.73
160	149	Casing Joints	5 1/2	20.00	P-110	Yes	46.74	Yes			6,630.5	6,985.47
161	150	Casing Joints	5 1/2	20.00	P-110	Yes	46.53	Yes			6,584.0	7,032.00
162	151	Casing Joints	5 1/2	20.00	P-110	Yes	42.07	Yes			6,541.9	7,074.07
163	152	Casing Joints	5 1/2	20.00	P-110	Yes	39.40	Yes			6,502.5	7,113.47
164	153	Casing Joints	5 1/2	20.00	P-110	Yes	45.66	Yes			6,456.9	7,159.13
165	154	Casing Joints	5 1/2	20.00	P-110	Yes	45.30	Yes			6,411.6	7,204.43
166	155	Casing Joints	5 1/2	20.00	P-110	Yes	47.43	Yes			6,364.1	7,251.86
167	156	Casing Joints	5 1/2	20.00	P-110	Yes	42.18	Yes			6,322.0	7,294.04



## Centralizer Depths

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Production, Set Depth: 13,616.0ftKB

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### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jw/ry	Connections	Top (ftKB)	Cum Len (ft)
168	157	Casing Joints	5 1/2	20.00	P-110	Yes	42.90	Yes			6,279.1	7,336.94
169	158	Casing Joints	5 1/2	20.00	P-110	Yes	47.04	Yes			6,232.0	7,383.98
170	159	Casing Joints	5 1/2	20.00	P-110	Yes	40.23	Yes			6,191.8	7,424.21
171	160	Casing Joints	5 1/2	20.00	P-110	Yes	47.15	Yes			6,144.6	7,471.36
172	161	Casing Joints	5 1/2	20.00	P-110	Yes	47.51	Yes			6,097.1	7,518.87
173	162	Casing Joints	5 1/2	20.00	P-110	Yes	46.17	Yes			6,051.0	7,565.04
174	163	Casing Joints	5 1/2	20.00	P-110	Yes	45.02	Yes			6,005.9	7,610.06
175		Marker Joint	5 1/2	20.00	P-110	Yes	10.11	Yes			5,995.8	7,620.17
176	164	Casing Joints	5 1/2	20.00	P-110	Yes	47.45	Yes			5,948.4	7,667.62
177	165	Casing Joints	5 1/2	20.00	P-110	Yes	46.86	Yes			5,901.5	7,714.48
178	166	Casing Joints	5 1/2	20.00	P-110	Yes	47.06	Yes			5,854.5	7,761.54
179	167	Casing Joints	5 1/2	20.00	P-110	Yes	46.70	Yes			5,807.8	7,808.24
180	168	Casing Joints	5 1/2	20.00	P-110	Yes	46.99	Yes			5,760.8	7,855.23
181	169	Casing Joints	5 1/2	20.00	P-110	Yes	47.32	Yes			5,713.5	7,902.55
182	170	Casing Joints	5 1/2	20.00	P-110	Yes	42.90	Yes			5,670.6	7,945.45
183	171	Casing Joints	5 1/2	20.00	P-110	Yes	46.33	Yes			5,624.2	7,991.78
184	172	Casing Joints	5 1/2	20.00	P-110	Yes	47.05	Yes			5,577.2	8,038.83
185	173	Casing Joints	5 1/2	20.00	P-110	Yes	47.01	Yes			5,530.2	8,085.84
186	174	Casing Joints	5 1/2	20.00	P-110	Yes	47.18	Yes			5,483.0	8,133.02
187	175	Casing Joints	5 1/2	20.00	P-110	Yes	47.17	Yes			5,435.8	8,180.19
188	176	Casing Joints	5 1/2	20.00	P-110	Yes	47.32	Yes			5,388.5	8,227.51
189	177	Casing Joints	5 1/2	20.00	P-110	Yes	42.47	Yes			5,346.0	8,269.98
190	178	Casing Joints	5 1/2	20.00	P-110	Yes	41.02	Yes			5,305.0	8,311.00
191	179	Casing Joints	5 1/2	20.00	P-110	Yes	46.77	Yes			5,258.2	8,357.77
192	180	Casing Joints	5 1/2	20.00	P-110	Yes	36.88	Yes			5,221.4	8,394.65
193	181	Casing Joints	5 1/2	20.00	P-110	Yes	46.76	Yes			5,174.6	8,441.41
194	182	Casing Joints	5 1/2	20.00	P-110	Yes	46.95	Yes			5,127.6	8,488.36
195	183	Casing Joints	5 1/2	20.00	P-110	Yes	41.75	Yes			5,085.9	8,530.11
196	184	Casing Joints	5 1/2	20.00	P-110	Yes	47.53	Yes			5,038.4	8,577.64
197	185	Casing Joints	5 1/2	20.00	P-110	Yes	47.54	Yes			4,990.8	8,625.18
198	186	Casing Joints	5 1/2	20.00	P-110	Yes	46.13	Yes			4,944.7	8,671.31



## Centralizer Depths

Well Name: Erwin 2N

Production, Set Depth: 13,616.0ftKB

API 05123493810000		Surface Legal Location SWSE 27 5N 64W		Field Name Wattenberg		State CO		Well Configuration Type Horizontal					
Ground Elevation (ft) 4,639.00		Original KB Elevation (ft) 4,667.00		KB-Ground Distance (ft) 28.00		Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date	

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jw/ry	Connections	Top (ftKB)	Cum Len (ft)
199	187	Casing Joints	5 1/2	20.00	P-110	Yes	45.92	Yes			4,898.8	8,717.23
200	188	Casing Joints	5 1/2	20.00	P-110	Yes	39.04	Yes			4,859.7	8,756.27
201	189	Casing Joints	5 1/2	20.00	P-110	Yes	47.33	Yes			4,812.4	8,803.60
202	190	Casing Joints	5 1/2	20.00	P-110	Yes	45.27	Yes			4,767.1	8,848.87
203	191	Casing Joints	5 1/2	20.00	P-110	Yes	41.09	Yes			4,726.0	8,889.96
204	192	Casing Joints	5 1/2	20.00	P-110	Yes	46.19	Yes			4,679.9	8,936.15
205	193	Casing Joints	5 1/2	20.00	P-110	Yes	47.23	Yes			4,632.6	8,983.38
206	194	Casing Joints	5 1/2	20.00	P-110	Yes	46.17	Yes			4,586.5	9,029.55
207	195	Casing Joints	5 1/2	20.00	P-110	Yes	46.28	Yes			4,540.2	9,075.83
208	196	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			4,492.7	9,123.32
209	197	Casing Joints	5 1/2	20.00	P-110	Yes	45.38	Yes			4,447.3	9,168.70
210	198	Casing Joints	5 1/2	20.00	P-110	Yes	47.37	Yes			4,399.9	9,216.07
211	199	Casing Joints	5 1/2	20.00	P-110	Yes	45.28	Yes			4,354.7	9,261.35
212	200	Casing Joints	5 1/2	20.00	P-110	Yes	46.07	Yes			4,308.6	9,307.42
213	201	Casing Joints	5 1/2	20.00	P-110	Yes	47.03	Yes			4,261.6	9,354.45
214	202	Casing Joints	5 1/2	20.00	P-110	Yes	47.14	Yes			4,214.4	9,401.59
215	203	Casing Joints	5 1/2	20.00	P-110	Yes	47.29	Yes			4,167.1	9,448.88
216	204	Casing Joints	5 1/2	20.00	P-110	Yes	43.58	Yes			4,123.5	9,492.46
217	205	Casing Joints	5 1/2	20.00	P-110	Yes	47.50	Yes			4,076.0	9,539.96
218	206	Casing Joints	5 1/2	20.00	P-110	Yes	47.09	Yes			4,029.0	9,587.05
219	207	Casing Joints	5 1/2	20.00	P-110	Yes	47.50	Yes			3,981.5	9,634.55
220	208	Casing Joints	5 1/2	20.00	P-110	Yes	47.10	Yes			3,934.4	9,681.65
221	209	Casing Joints	5 1/2	20.00	P-110	Yes	45.99	Yes			3,888.4	9,727.64
222	210	Casing Joints	5 1/2	20.00	P-110	Yes	47.40	Yes			3,841.0	9,775.04
223	211	Casing Joints	5 1/2	20.00	P-110	Yes	45.46	Yes			3,795.5	9,820.50
224	212	Casing Joints	5 1/2	20.00	P-110	Yes	44.89	Yes			3,750.6	9,865.39
225	213	Casing Joints	5 1/2	20.00	P-110	Yes	46.70	Yes			3,703.9	9,912.09
226	214	Casing Joints	5 1/2	20.00	P-110	Yes	47.37	Yes			3,656.5	9,959.46
227	215	Casing Joints	5 1/2	20.00	P-110	Yes	46.24	Yes			3,610.3	10,005.70
228	216	Casing Joints	5 1/2	20.00	P-110	Yes	44.84	Yes			3,565.5	10,050.54
229	217	Casing Joints	5 1/2	20.00	P-110	Yes	47.36	Yes			3,518.1	10,097.90





## Centralizer Depths

Well Name: Erwin 2N

Production, Set Depth: 13,616.0ftKB

API 05123493810000		Surface Legal Location SWSE 27 5N 64W		Field Name Wattenberg		State CO		Well Configuration Type Horizontal					
Ground Elevation (ft) 4,639.00		Original KB Elevation (ft) 4,667.00		KB-Ground Distance (ft) 28.00		Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date	

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jwlry	Connections	Top (ftKB)	Cum Len (ft)
230	218	Casing Joints	5 1/2	20.00	P-110	Yes	47.37	Yes			3,470.7	10,145.27
231	219	Casing Joints	5 1/2	20.00	P-110	Yes	47.26	Yes			3,423.5	10,192.53
232	220	Casing Joints	5 1/2	20.00	P-110	Yes	47.37	Yes			3,376.1	10,239.90
233	221	Casing Joints	5 1/2	20.00	P-110	Yes	47.03	Yes			3,329.1	10,286.93
234	222	Casing Joints	5 1/2	20.00	P-110	Yes	47.38	Yes			3,281.7	10,334.31
235	223	Casing Joints	5 1/2	20.00	P-110	Yes	46.13	Yes			3,235.6	10,380.44
236	224	Casing Joints	5 1/2	20.00	P-110	Yes	46.64	Yes			3,188.9	10,427.08
237	225	Casing Joints	5 1/2	20.00	P-110	Yes	47.52	Yes			3,141.4	10,474.60
238	226	Casing Joints	5 1/2	20.00	P-110	Yes	47.60	Yes			3,093.8	10,522.20
239	227	Casing Joints	5 1/2	20.00	P-110	Yes	45.55	Yes			3,048.3	10,567.75
240	228	Casing Joints	5 1/2	20.00	P-110	Yes	47.41	Yes			3,000.8	10,615.16
241	229	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			2,953.4	10,662.65
242	230	Casing Joints	5 1/2	20.00	P-110	Yes	47.52	Yes			2,905.8	10,710.17
243	231	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			2,858.3	10,757.66
244	232	Casing Joints	5 1/2	20.00	P-110	Yes	46.67	Yes			2,811.7	10,804.33
245	233	Casing Joints	5 1/2	20.00	P-110	Yes	46.56	Yes			2,765.1	10,850.89
246	234	Casing Joints	5 1/2	20.00	P-110	Yes	47.34	Yes			2,717.8	10,898.23
247	235	Casing Joints	5 1/2	20.00	P-110	Yes	44.49	Yes			2,673.3	10,942.72
248	236	Casing Joints	5 1/2	20.00	P-110	Yes	47.08	Yes			2,626.2	10,989.80
249	237	Casing Joints	5 1/2	20.00	P-110	Yes	45.75	Yes			2,580.5	11,035.55
250	238	Casing Joints	5 1/2	20.00	P-110	Yes	45.58	Yes			2,534.9	11,081.13
251	239	Casing Joints	5 1/2	20.00	P-110	Yes	44.67	Yes			2,490.2	11,125.80
252	240	Casing Joints	5 1/2	20.00	P-110	Yes	46.74	Yes			2,443.5	11,172.54
253	241	Casing Joints	5 1/2	20.00	P-110	Yes	46.34	Yes			2,397.1	11,218.88
254	242	Casing Joints	5 1/2	20.00	P-110	Yes	46.09	Yes			2,351.0	11,264.97
255	243	Casing Joints	5 1/2	20.00	P-110	Yes	45.50	Yes			2,305.5	11,310.47
256	244	Casing Joints	5 1/2	20.00	P-110	Yes	47.49	Yes			2,258.0	11,357.96
257	245	Casing Joints	5 1/2	20.00	P-110	Yes	47.44	Yes			2,210.6	11,405.40
258	246	Casing Joints	5 1/2	20.00	P-110	Yes	47.21	Yes			2,163.4	11,452.61
259	247	Casing Joints	5 1/2	20.00	P-110	Yes	39.77	Yes			2,123.6	11,492.38
260	248	Casing Joints	5 1/2	20.00	P-110	Yes	42.11	Yes			2,081.5	11,534.49



## Centralizer Depths

Well Name: Erwin 2N

Production, Set Depth: 13,616.0ftKB

API 05123493810000		Surface Legal Location SWSE 27 5N 64W		Field Name Wattenberg		State CO		Well Configuration Type Horizontal					
Ground Elevation (ft) 4,639.00		Original KB Elevation (ft) 4,667.00		KB-Ground Distance (ft) 28.00		Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date	

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jwlry	Connections	Top (ftKB)	Cum Len (ft)
261	249	Casing Joints	5 1/2	20.00	P-110	Yes	47.47	Yes			2,034.0	11,581.96
262	250	Casing Joints	5 1/2	20.00	P-110	Yes	45.51	Yes			1,988.5	11,627.47
263	251	Casing Joints	5 1/2	20.00	P-110	Yes	38.65	Yes			1,949.9	11,666.12
264	252	Casing Joints	5 1/2	20.00	P-110	Yes	46.05	Yes			1,903.8	11,712.17
265	253	Casing Joints	5 1/2	20.00	P-110	Yes	44.79	Yes			1,859.0	11,756.96
266	254	Casing Joints	5 1/2	20.00	P-110	Yes	45.93	Yes			1,813.1	11,802.89
267	255	Casing Joints	5 1/2	20.00	P-110	Yes	46.84	Yes			1,766.3	11,849.73
268	256	Casing Joints	5 1/2	20.00	P-110	Yes	39.67	Yes			1,726.6	11,889.40
269	257	Casing Joints	5 1/2	20.00	P-110	Yes	41.03	Yes			1,685.6	11,930.43
270	258	Casing Joints	5 1/2	20.00	P-110	Yes	41.55	Yes			1,644.0	11,971.98
271	259	Casing Joints	5 1/2	20.00	P-110	Yes	44.60	Yes			1,599.4	12,016.58
272	260	Casing Joints	5 1/2	20.00	P-110	Yes	47.14	Yes			1,552.3	12,063.72
273	261	Casing Joints	5 1/2	20.00	P-110	Yes	38.73	Yes			1,513.6	12,102.45
274	262	Casing Joints	5 1/2	20.00	P-110	Yes	46.98	Yes			1,466.6	12,149.43
275	263	Casing Joints	5 1/2	20.00	P-110	Yes	47.15	Yes			1,419.4	12,196.58
276	264	Casing Joints	5 1/2	20.00	P-110	Yes	47.55	Yes			1,371.9	12,244.13
277	265	Casing Joints	5 1/2	20.00	P-110	Yes	47.31	Yes			1,324.6	12,291.44
278	266	Casing Joints	5 1/2	20.00	P-110	Yes	46.32	Yes			1,278.2	12,337.76
279	267	Casing Joints	5 1/2	20.00	P-110	Yes	44.46	Yes			1,233.8	12,382.22
280	268	Casing Joints	5 1/2	20.00	P-110	Yes	46.63	Yes			1,187.2	12,428.85
281	269	Casing Joints	5 1/2	20.00	P-110	Yes	47.47	Yes			1,139.7	12,476.32
282	270	Casing Joints	5 1/2	20.00	P-110	Yes	41.86	Yes			1,097.8	12,518.18
283	271	Casing Joints	5 1/2	20.00	P-110	Yes	45.38	Yes			1,052.4	12,563.56
284	272	Casing Joints	5 1/2	20.00	P-110	Yes	46.82	Yes			1,005.6	12,610.38
285	273	Casing Joints	5 1/2	20.00	P-110	Yes	43.66	Yes			962.0	12,654.04
286	274	Casing Joints	5 1/2	20.00	P-110	Yes	47.31	Yes			914.6	12,701.35
287	275	Casing Joints	5 1/2	20.00	P-110	Yes	43.63	Yes			871.0	12,744.98
288	276	Casing Joints	5 1/2	20.00	P-110	Yes	44.70	Yes			826.3	12,789.68
289	277	Casing Joints	5 1/2	20.00	P-110	Yes	45.48	Yes			780.8	12,835.16
290	278	Casing Joints	5 1/2	20.00	P-110	Yes	47.20	Yes			733.6	12,882.36
291	279	Casing Joints	5 1/2	20.00	P-110	Yes	47.17	Yes			686.5	12,929.53



## Centralizer Depths

Well Name: Erwin 2N

Production, Set Depth: 13,616.0ftKB

API 05123493810000		Surface Legal Location SWSE 27 5N 64W		Field Name Wattenberg		State CO		Well Configuration Type Horizontal	
Ground Elevation (ft) 4,639.00	Original KB Elevation (ft) 4,667.00	KB-Ground Distance (ft) 28.00	Spud Date 2/6/2021 00:00		Rig Release Date 2/8/2021 17:00		On Production Date		Abandon Date

### Casing Run Tally

Run #	Ref #	Item Des	OD (in)	Wt (lb/ft)	Grade	Run?	Len (ft)	Centralized?	Ext Jw/ry	Connections	Top (ftKB)	Cum Len (ft)
292	280	Casing Joints	5 1/2	20.00	P-110	Yes	43.90	Yes			642.6	12,973.43
293	281	Casing Joints	5 1/2	20.00	P-110	Yes	47.26	Yes			595.3	13,020.69
294	282	Casing Joints	5 1/2	20.00	P-110	Yes	42.68	Yes			552.6	13,063.37
295	283	Casing Joints	5 1/2	20.00	P-110	Yes	46.85	Yes			505.8	13,110.22