

Cementers Well Information Sheet

Well Name: PHARAOH 5N (Well 5 Of 5)

AFE#: DC003114

API#: 05-123-48834

Surface Casing Set At: 1,715'

Formation: NIO C

Estimated TD: 16831'

Estimated TVD at TD: 6557'

Top Of Lead Cement: 500'

Top Of Tail Cement: 5998'

Production Casing Type: 5 ½" BTC #20

***** Please Note: TD and TVD at TD are based off drilling plan and has the possibility of changing. Any significant changes in depths will be communicated to Cement Company*****



US Treatment Report

Customer: PDC Energy
Rep: Jeremy Stoltz
Supervisor: Stephen Cardos
Job Type: US Primary
 Casing-Production

Rig: Ensign 142
Well: Pharaoh 5N
UWI: Pharaoh 5N
Surface:

Job #: JOB00093305
Job Date: Jan 18 @ 00:00
Time Requested: Jan 18 @ 09:00
Time Arrived: Jan 18 @ 09:00
Time Released: Jan 18 @ 21:00

Scavenger

62.82 sk MAG EV 12.9 + 0.30% MCR-3 + 0.20% MCR-1 + 0.70% MCFL-7 + 1.00% MCA-4 + 0.50% MCGC-1 + 0.20% MCDF-P
 Weight: 12.5lb/gal

Yield: 1.7 ft3/sk = 19bbls Mix Water: 8.98 gal/sk = 564.02 gal

855.4 sk MAG EV 12.9 + 0.30% MCR-3 + 0.20% MCR-1 + 0.70% MCFL-7 + 1.00% MCA-4 + 0.50% MCGC-1 + 0.20% MCDF-P

Yield: 1.53 ft3/sk = 233.09bbls Mix Water: 7.72 gal/sk = 6603.53gal

1841.6 sk MAG EV 13.7 + 0.50% MCA-2 + 0.80% MCFL-7 + 0.30% MCFR-2 + 0.35% MCR-H + 0.30% MCI-2 + 0.50% MCFW-1 + 0.50% MCGC-1 + 0.20% MCDF-P

Yield: 1.35ft3/sack = 442.79bbls Mix Water: 6.40gal/sack = 11786.24gal

BHCT (F)	215	BHST (F)	215	Surface Casing Casing Size (in)	9.625
Surface Casing Weight (lb/ft)	36	Production Casing Casing Size (in)	5.5	Production Casing Grade	P-110
Production Casing Weight (lb/ft)	20	Collapse Csg Pressure (psi)	6648	Float Depth (ft)	16785
Funnel Vis (sec/qt)	55	Hole Size (in)	8.5	Max Csg Pressure (psi)	7584
Max Pressure (psi)	3500	Mud Density (lb/gal)	10.7	Mud Type	OBM
Plug Size (in)	5.5	Plug Type	Rig	TMD (ft)	16827
TVD (ft)	6555	Unkown UDF	Supplie d	Unkown UDF	Surface Casing
			Product ion		
			Casing		

Treatment Info: Sacks Used: 0 Sacks Not Used: 0

Preflush: 5bbls Fresh Water & 38bbls MAG Sweep-H + MAG Clean-1 & 19bbls MAG Sweep -H Displace: 10bbls Sugar Water & 362.2bbls Fresh Water	Circulation Time: 4.5 Slurry Temp: 75 Bulk Sample: Yes Water Temp: 64 Water Sample: Yes Bulk Temp: 68 Slurry Sample: Yes Air Temp: 36 Air Pressure 30.18 Slurry Returns: 0 Plug Bumped: Yes Pump Out Lines: Yes Float Held: Yes Cement Class: Type III Humidity: 39 Precipitation: 20
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Time	Pressure psi	Annular Pressure psi	Volume Per Stage bbls	Total Stage Volume bbls	Rate bbls/min	Treatment Detail

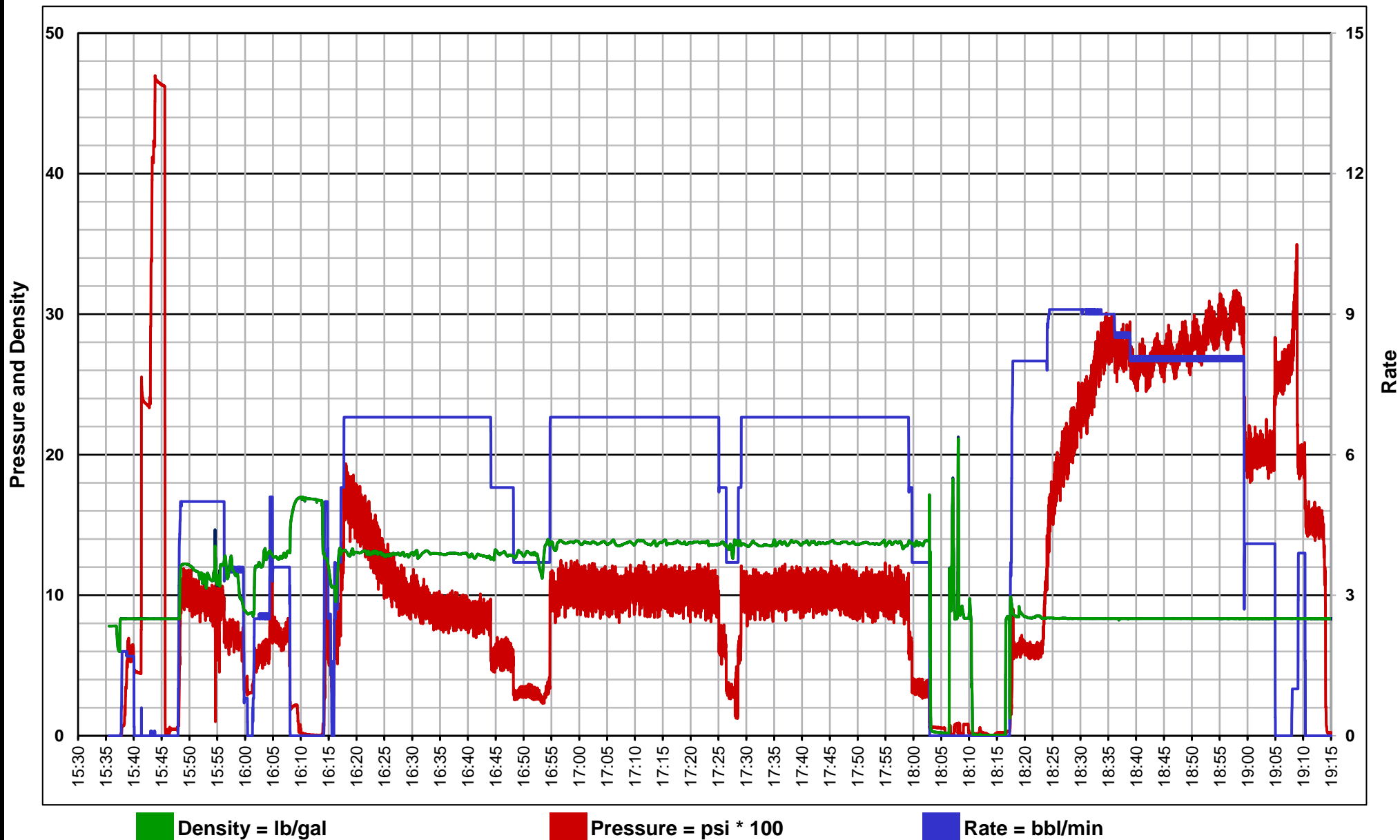
09:00	0.00					Arrive on Location - Arrive on location, met with company man to discuss numbers and safety, O/L time of 0900
15:00	0.00					Safety Meeting - Held safety meeting with company man, rig hands and crew to discuss job and safety
15:33	0.00					Drop Plug - Drop 1st bottom plug, witnessed by company man
15:36	500.00		5		2	Fill Lines - Load pump and lines with fresh water
15:39	4,680.00					Start Pressure Test - Pressure test pump and lines with fresh water
15:45	1,000.00		38		5	Pump Preflush - Pump 38bbls of MAG Sweep H + MAG Clean 1 at 11.5#
15:54	800.00		19		5	Pump Preflush - Pump 19bbls of MAG Sweep H at 12#
16:00	500.00		19		3	Pump Scavenger - Pump 63.5sk/19bbls of scavenger at 12.5# - 1.68Y
16:09	0.00					Drop Plug - Drop 2nd bottom plug, witnessed by company man
16:11	1,200.00		233		6.8	Pump Slurry - Pump 855.4sk/232.8bbls of lead at 12.9#-1.53Y -7.72gps. Top of lead est. at 493'
16:52	1,000.00		443		6.8	Pump Slurry - Pump 1841.6sk/442.7bbls of tail at 13.7#-1.35Y-6.4gps. Top of tail est. at 5985'
18:01	0.00					Stop Pumping
18:04	0.00					Pump Out Treating Lines
18:08	0.00					Drop Plug - Drop top plug witnessed by company man
18:14	2,900.00		160		9	Displace - Calculated displacement 372.2bbls. 1st 10bbls with sugar, rest with Bio-cide.
18:34	2,700.00		190		8	Decrease Rate - Slow rate for high pressures
18:57	2,100.00		22.5		4	Decrease Rate - Slow rate to land plug
19:03	2,700.00					Bump Plug - Landed plug, actual displacement 372.5bbls, got 52bbls of spacer to surface
19:06	3,516.00					Pressure up to shift tool
19:07	1,957.00		5		4	Displace - Pump wet shoe
19:11	1,593.00					Check Floats - Float held, got 3bbls back
19:28	0.00					Wash Up Truck
20:00	0.00					Rig Out
21:00	0.00					Leave Location



Customer: PDC
Date: Jan 18 2020
Ticket: 93305

Well Name: Pharaoh 5N
Location: Pharaoh 5N
Job Type: Production

Unit
1605



5.5" Casing

WELL	PHARAOH 5N	DATE: 1/16/2021							
DEPTH (Ft)	16827.00	K.B. to Wellhead			28.00	Rat Hole	9.00	20.00	
SHOE (Ft)	16818.00	0.0293	Accumulated		0.02220	Mud Wt.	10.6	0.83816794	
Rack#	Description		Closed End Displacement (Bbls)	Capacity (Bbls)	Length (Ft)	Length Accum. (FT)	Top To RT (Ft)	Weight (k#)	Comments
	Float Shoe		0.054205	0.04	1.85	1.85	16816.15	0.03	10K SINGLE VALVE FLOAT SHOE
	Pup Joint		0.405219	0.31	11.98	13.83	16804.17	0.23	5.500" 20# PUP JOINT
	Float Collar #1		0.450341	0.34	1.54	15.37	16802.63	0.26	10K SINGLE VALVE FLOAT COLLAR
	Float Collar #2		0.495463	0.38	1.54	16.91	16801.09	0.28	10K SINGLE VALVE FLOAT COLLAR
	Pup Joint		0.82919	0.63	11.39	28.30	16789.70	0.47	5.500" 20# PUP JOINT
	Wet Shoe Sub		0.956645	0.72	4.35	32.65	16785.35	0.55	WET SHOE PINNED@1660 PSI
	Pup Joint		1.105782	0.84	5.09	37.74	16780.26	0.63	5.500" 20# PUP JOINT
	Ball Seat Sub		1.126585	0.85	0.71	38.45	16779.55	0.64	CASING TEST SUB 4.250" BALL SEAT
1	Casing Joints		2.521265	1.91	47.60	86.05	16731.95	1.44	1 8.25" COMPOSITE
2	Casing Joints		3.901295	2.96	47.10	133.15	16684.85	2.23	
3	Casing Joints		5.243821	3.97	45.82	178.97	16639.03	3.00	2 8.25" COMPOSITE
4	Casing Joints		6.524524	4.94	43.71	222.68	16595.32	3.73	
5	Casing Joints		7.806399	5.91	43.75	266.43	16551.57	4.47	3 8.25" COMPOSITE
6	Casing Joints		9.195219	6.97	47.40	313.83	16504.17	5.26	
7	Casing Joints		10.569389	8.01	46.90	360.73	16457.27	6.05	4 8.25" COMPOSITE
8	Casing Joints		11.964069	9.06	47.60	408.33	16409.67	6.84	
9	Casing Joints		13.330914	10.10	46.65	454.98	16363.02	7.63	5 8.25" COMPOSITE
10	Casing Joints		14.634764	11.09	44.50	499.48	16318.52	8.37	
	Marker A		14.974937	11.35	11.61	511.09	16306.91	8.57	6 8.25" COMPOSITE
11	Casing Joints		16.36405	12.40	47.41	558.50	16259.50	9.36	
12	Casing Joints		17.757265	13.45	47.55	606.05	16211.95	10.16	7 8.25" COMPOSITE
13	Casing Joints		19.149015	14.51	47.50	653.55	16164.45	10.96	
14	Casing Joints		20.541351	15.56	47.52	701.07	16116.93	11.75	8 8.25" COMPOSITE
15	Casing Joints		21.933394	16.62	47.51	748.58	16069.42	12.55	
16	Casing Joints		23.268888	17.63	45.58	794.16	16023.84	13.31	9 8.25" COMPOSITE
17	Casing Joints		24.656243	18.68	47.35	841.51	15976.49	14.11	
18	Casing Joints		25.992323	19.69	45.60	887.11	15930.89	14.87	10 8.25" COMPOSITE
19	Casing Joints		27.384366	20.75	47.51	934.62	15883.38	15.67	
20	Casing Joints		28.745351	21.78	46.45	981.07	15836.93	16.45	11 8.25" COMPOSITE
21	Casing Joints		30.137394	22.83	47.51	1028.58	15789.42	17.24	
22	Casing Joints		31.472009	23.85	45.55	1074.13	15743.87	18.01	12 8.25" COMPOSITE
23	Casing Joints		32.811019	24.86	45.70	1119.83	15698.17	18.77	
24	Casing Joints		34.193979	25.91	47.20	1167.03	15650.97	19.56	13 8.25" COMPOSITE
25	Casing Joints		35.585729	26.96	47.50	1214.53	15603.47	20.36	
26	Casing Joints		36.977479	28.02	47.50	1262.03	15555.97	21.16	14 8.25" COMPOSITE
27	Casing Joints		38.376554	29.08	47.75	1309.78	15508.22	21.96	
28	Casing Joints		39.768597	30.13	47.51	1357.29	15460.71	22.75	15 8.25" COMPOSITE
29	Casing Joints		41.158882	31.19	47.45	1404.74	15413.26	23.55	
30	Casing Joints		42.546237	32.24	47.35	1452.09	15365.91	24.34	16 8.25" COMPOSITE
31	Casing Joints		43.927732	33.28	47.15	1499.24	15318.76	25.13	
32	Casing Joints		45.238907	34.28	44.75	1543.99	15274.01	25.88	17 8.25" COMPOSITE
33	Casing Joints		46.627727	35.33	47.40	1591.39	15226.61	26.68	
34	Casing Joints		48.020649	36.38	47.54	1638.93	15179.07	27.47	18 8.25" COMPOSITE
35	Casing Joints		49.378704	37.41	46.35	1685.28	15132.72	28.25	
36	Casing Joints		50.770747	38.47	47.51	1732.79	15085.21	29.05	19 8.25" COMPOSITE
37	Casing Joints		52.163962	39.52	47.55	1780.34	15037.66	29.84	
38	Casing Joints		53.554247	40.58	47.45	1827.79	14990.21	30.64	20 8.25" COMPOSITE
39	Casing Joints		54.924022	41.61	46.75	1874.54	14943.46	31.42	
40	Casing Joints		56.299657	42.66	46.95	1921.49	14896.51	32.21	21 8.25" COMPOSITE
41	Casing Joints		57.687012	43.71	47.35	1968.84	14849.16	33.00	
42	Casing Joints		59.084915	44.77	47.71	2016.55	14801.45	33.80	22 8.25" COMPOSITE
43	Casing Joints		60.426855	45.78	45.80	2062.35	14755.65	34.57	
44	Casing Joints		61.82007	46.84	47.55	2109.90	14708.10	35.37	23 8.25" COMPOSITE
45	Casing Joints		63.14736	47.85	45.30	2155.20	14662.80	36.13	
46	Casing Joints		64.47758	48.85	45.40	2200.60	14617.40	36.89	24 8.25" COMPOSITE
47	Casing Joints		65.870795	49.91	47.55	2248.15	14569.85	37.69	
48	Casing Joints		67.23178	50.94	46.45	2294.60	14523.40	38.47	25 8.25" COMPOSITE
49	Casing Joints		68.604485	51.98	46.85	2341.45	14476.55	39.25	

50	Casing Joints		69.99184	53.03	47.35	2388.80	14429.20	40.04	26 8.25" COMPOSITE
51	Casing Joints		71.34843	54.06	46.30	2435.10	14382.90	40.82	
52	Casing Joints		72.740766	55.11	47.52	2482.62	14335.38	41.62	27 8.25" COMPOSITE
53	Casing Joints		74.132809	56.17	47.51	2530.13	14287.87	42.41	
54	Casing Joints		75.521629	57.22	47.40	2577.53	14240.47	43.21	28 8.25" COMPOSITE
55	Casing Joints		76.910449	58.27	47.40	2624.93	14193.07	44.00	
56	Casing Joints		78.072194	59.15	39.65	2664.58	14153.42	44.67	29 8.25" COMPOSITE
57	Casing Joints		79.464237	60.21	47.51	2712.09	14105.91	45.46	
58	Casing Joints		80.839872	61.25	46.95	2759.04	14058.96	46.25	30 8.25" COMPOSITE
59	Casing Joints		82.209647	62.29	46.75	2805.79	14012.21	47.03	
60	Casing Joints		83.523752	63.28	44.85	2850.64	13967.36	47.79	31 8.25" COMPOSITE
61	Casing Joints		84.897922	64.33	46.90	2897.54	13920.46	48.57	
62	Casing Joints		86.279417	65.37	47.15	2944.69	13873.31	49.36	32 8.25" COMPOSITE
63	Casing Joints		87.666772	66.42	47.35	2992.04	13825.96	50.16	
64	Casing Joints		89.001387	67.43	45.55	3037.59	13780.41	50.92	33 8.25" COMPOSITE
65	Casing Joints		90.296447	68.42	44.20	3081.79	13736.21	51.66	
66	Casing Joints		91.68849	69.47	47.51	3129.30	13688.70	52.46	34 8.25" COMPOSITE
67	Casing Joints		93.07731	70.52	47.40	3176.70	13641.30	53.25	
68	Casing Joints		94.466423	71.58	47.41	3224.11	13593.89	54.05	35 8.25" COMPOSITE
69	Casing Joints		95.795178	72.58	45.35	3269.46	13548.54	54.81	
70	Casing Joints		97.137118	73.60	45.80	3315.26	13502.74	55.57	36 8.25" COMPOSITE
71	Casing Joints		98.486383	74.62	46.05	3361.31	13456.69	56.35	
72	Casing Joints		99.801953	75.62	44.90	3406.21	13411.79	57.10	37 8.25" COMPOSITE
73	Casing Joints		101.189308	76.67	47.35	3453.56	13364.44	57.89	
74	Casing Joints		102.522458	77.68	45.50	3499.06	13318.94	58.66	38 8.25" COMPOSITE
75	Casing Joints		103.914208	78.73	47.50	3546.56	13271.44	59.45	
76	Casing Joints		105.285448	79.77	46.80	3593.36	13224.64	60.24	39 8.25" COMPOSITE
77	Casing Joints		106.621528	80.78	45.60	3638.96	13179.04	61.00	
78	Casing Joints		107.997163	81.83	46.95	3685.91	13132.09	61.79	40 8.25" COMPOSITE
79	Casing Joints		109.383053	82.88	47.30	3733.21	13084.79	62.58	
80	Casing Joints		110.768943	83.93	47.30	3780.51	13037.49	63.37	41 8.25" COMPOSITE
81	Casing Joints		112.137253	84.96	46.70	3827.21	12990.79	64.16	
82	Casing Joints		113.523143	86.01	47.30	3874.51	12943.49	64.95	42 8.25" COMPOSITE
83	Casing Joints		114.891453	87.05	46.70	3921.21	12896.79	65.73	
84	Casing Joints		116.283203	88.11	47.50	3968.71	12849.29	66.53	43 8.25" COMPOSITE
85	Casing Joints		117.675246	89.16	47.51	4016.22	12801.78	67.33	
86	Casing Joints		119.068461	90.22	47.55	4063.77	12754.23	68.12	44 8.25" COMPOSITE
87	Casing Joints		120.439701	91.25	46.80	4110.57	12707.43	68.91	
88	Casing Joints		121.831744	92.31	47.51	4158.08	12659.92	69.70	45 8.25" COMPOSITE
89	Casing Joints		123.225838	93.37	47.58	4205.66	12612.34	70.50	
90	Casing Joints		124.614658	94.42	47.40	4253.06	12564.94	71.30	46 8.25" COMPOSITE
91	Casing Joints		125.961872	95.44	45.98	4299.04	12518.96	72.07	
92	Casing Joints		127.345125	96.49	47.21	4346.25	12471.75	72.86	47 8.25" COMPOSITE
93	Casing Joints		128.684135	97.50	45.70	4391.95	12426.05	73.62	
94	Casing Joints		130.052445	98.54	46.70	4438.65	12379.35	74.41	48 8.25" COMPOSITE
95	Casing Joints		131.400245	99.56	46.00	4484.65	12333.35	75.18	
96	Casing Joints		132.7876	100.61	47.35	4532.00	12286.00	75.97	49 8.25" COMPOSITE
97	Casing Joints		134.174955	101.66	47.35	4579.35	12238.65	76.77	
98	Casing Joints		135.543558	102.70	46.71	4626.06	12191.94	77.55	50 8.25" COMPOSITE
99	Casing Joints		136.930913	103.75	47.35	4673.41	12144.59	78.34	
100	Casing Joints		138.302153	104.79	46.80	4720.21	12097.79	79.13	51 8.25" COMPOSITE
101	Casing Joints		139.689508	105.84	47.35	4767.56	12050.44	79.92	
102	Casing Joints		141.071003	106.89	47.15	4814.71	12003.29	80.71	52 8.25" COMPOSITE
	Marker C		141.761311	107.41	23.56	4838.27	11979.73	81.11	
103	Casing Joints		143.155405	108.47	47.58	4885.85	11932.15	81.90	53 8.25" COMPOSITE
104	Casing Joints		144.476835	109.47	45.10	4930.95	11887.05	82.66	
105	Casing Joints		145.871515	110.52	47.60	4978.55	11839.45	83.46	54 8.25" COMPOSITE
106	Casing Joints		147.27059	111.58	47.75	5026.30	11791.70	84.26	
107	Casing Joints		148.659703	112.64	47.41	5073.71	11744.29	85.05	55 8.25" COMPOSITE
108	Casing Joints		150.050281	113.69	47.46	5121.17	11696.83	85.85	
109	Casing Joints		151.440566	114.74	47.45	5168.62	11649.38	86.64	56 8.25" COMPOSITE
110	Casing Joints		152.832316	115.80	47.50	5216.12	11601.88	87.44	
111	Casing Joints		154.147886	116.79	44.90	5261.02	11556.98	88.19	57 8.25" COMPOSITE
112	Casing Joints		155.548719	117.86	47.81	5308.83	11509.17	88.99	
113	Casing Joints		156.942813	118.91	47.58	5356.41	11461.59	89.79	58 8.25" COMPOSITE
114	Casing Joints		158.331633	119.96	47.40	5403.81	11414.19	90.59	
115	Casing Joints		159.723676	121.02	47.51	5451.32	11366.68	91.38	59 8.25" COMPOSITE

116	Casing Joints		161.118356	122.08	47.60	5498.92	11319.08	92.18	
117	Casing Joints		162.523291	123.14	47.95	5546.87	11271.13	92.98	60 8.25" COMPOSITE
118	Casing Joints		163.918264	124.20	47.61	5594.48	11223.52	93.78	
119	Casing Joints		165.288039	125.24	46.75	5641.23	11176.77	94.57	61 8.25" COMPOSITE
120	Casing Joints		166.679789	126.29	47.50	5688.73	11129.27	95.36	
121	Casing Joints		168.071832	127.34	47.51	5736.24	11081.76	96.16	62 8.25" COMPOSITE
122	Casing Joints		169.458015	128.39	47.31	5783.55	11034.45	96.95	
123	Casing Joints		170.80728	129.42	46.05	5829.60	10988.40	97.72	63 8.25" COMPOSITE
124	Casing Joints		172.111716	130.41	44.52	5874.12	10943.88	98.47	
125	Casing Joints		173.487351	131.45	46.95	5921.07	10896.93	99.26	64 8.25" COMPOSITE
126	Casing Joints		174.881445	132.50	47.58	5968.65	10849.35	100.05	
127	Casing Joints		176.274367	133.56	47.54	6016.19	10801.81	100.85	65 8.25" COMPOSITE
128	Casing Joints		177.667582	134.62	47.55	6063.74	10754.26	101.65	
129	Casing Joints		179.021242	135.64	46.20	6109.94	10708.06	102.42	66 8.25" COMPOSITE
130	Casing Joints		180.412992	136.70	47.50	6157.44	10660.56	103.22	
131	Casing Joints		181.800347	137.75	47.35	6204.79	10613.21	104.01	67 8.25" COMPOSITE
132	Casing Joints		183.18946	138.80	47.41	6252.20	10565.80	104.81	
133	Casing Joints		184.57828	139.85	47.40	6299.60	10518.40	105.60	68 8.25" COMPOSITE
134	Casing Joints		185.882423	140.84	44.51	6344.11	10473.89	106.35	
135	Casing Joints		187.236083	141.86	46.20	6390.31	10427.69	107.12	69 8.25" COMPOSITE
136	Casing Joints		188.617578	142.91	47.15	6437.46	10380.54	107.91	
137	Casing Joints		190.011086	143.97	47.56	6485.02	10332.98	108.71	70 8.25" COMPOSITE
138	Casing Joints		191.398441	145.02	47.35	6532.37	10285.63	109.50	
139	Casing Joints		192.771146	146.06	46.85	6579.22	10238.78	110.29	71 8.25" COMPOSITE
140	Casing Joints		193.949299	146.95	40.21	6619.43	10198.57	110.96	
141	Casing Joints		195.341049	148.01	47.50	6666.93	10151.07	111.76	72 8.25" COMPOSITE
142	Casing Joints		196.686212	149.03	45.91	6712.84	10105.16	112.53	
143	Casing Joints		198.052178	150.06	46.62	6759.46	10058.54	113.31	73 8.25" COMPOSITE
144	Casing Joints		199.444221	151.11	47.51	6806.97	10011.03	114.11	
145	Casing Joints		200.833041	152.17	47.40	6854.37	9963.63	114.90	74 8.25" COMPOSITE
146	Casing Joints		202.202816	153.20	46.75	6901.12	9916.88	115.69	
147	Casing Joints		203.593101	154.26	47.45	6948.57	9869.43	116.48	75 8.25" COMPOSITE
148	Casing Joints		204.983386	155.31	47.45	6996.02	9821.98	117.28	
149	Casing Joints		206.372206	156.36	47.40	7043.42	9774.58	118.07	76 8.25" COMPOSITE
150	Casing Joints		207.75165	157.41	47.08	7090.50	9727.50	118.86	
151	Casing Joints		209.141935	158.46	47.45	7137.95	9680.05	119.66	77 8.25" COMPOSITE
152	Casing Joints		210.44139	159.45	44.35	7182.30	9635.70	120.40	
153	Casing Joints		211.834605	160.50	47.55	7229.85	9588.15	121.20	78 8.25" COMPOSITE
154	Casing Joints		213.161895	161.51	45.30	7275.15	9542.85	121.96	
155	Casing Joints		214.477465	162.51	44.90	7320.05	9497.95	122.71	79 8.25" COMPOSITE
156	Casing Joints		215.869215	163.56	47.50	7367.55	9450.45	123.50	
157	Casing Joints		217.258035	164.61	47.40	7414.95	9403.05	124.30	80 8.25" COMPOSITE
158	Casing Joints		218.62781	165.65	46.75	7461.70	9356.30	125.08	
159	Casing Joints		219.96096	166.66	45.50	7507.20	9310.80	125.85	81 8.25" COMPOSITE
160	Casing Joints		221.32634	167.69	46.60	7553.80	9264.20	126.63	
161	Casing Joints		222.718383	168.75	47.51	7601.31	9216.69	127.42	82 8.25" COMPOSITE
162	Casing Joints		224.105738	169.80	47.35	7648.66	9169.34	128.22	
163	Casing Joints		225.497488	170.85	47.50	7696.16	9121.84	129.01	83 8.25" COMPOSITE
164	Casing Joints		226.890703	171.91	47.55	7743.71	9074.29	129.81	
165	Casing Joints		228.245828	172.94	46.25	7789.96	9028.04	130.59	84 8.25" COMPOSITE
166	Casing Joints		229.629081	173.99	47.21	7837.17	8980.83	131.38	
167	Casing Joints		231.020831	175.04	47.50	7884.67	8933.33	132.17	85 8.25" COMPOSITE
168	Casing Joints		232.364236	176.06	45.85	7930.52	8887.48	132.94	
169	Casing Joints		233.760381	177.12	47.65	7978.17	8839.83	133.74	86 8.25" COMPOSITE
170	Casing Joints		235.149201	178.17	47.40	8025.57	8792.43	134.54	
171	Casing Joints		236.372476	179.09	41.75	8067.32	8750.68	135.24	87 8.25" COMPOSITE
172	Casing Joints		237.563521	180.00	40.65	8107.97	8710.03	135.92	
173	Casing Joints		238.753101	180.90	40.60	8148.57	8669.43	136.60	88 8.25" COMPOSITE
174	Casing Joints		239.954401	181.81	41.00	8189.57	8628.43	137.28	
175	Casing Joints		241.343221	182.86	47.40	8236.97	8581.03	138.08	89 8.25" COMPOSITE
176	Casing Joints		242.515221	183.75	40.00	8276.97	8541.03	138.75	
177	Casing Joints		243.902576	184.80	47.35	8324.32	8493.68	139.54	90 8.25" COMPOSITE
178	Casing Joints		245.289931	185.85	47.35	8371.67	8446.33	140.34	
179	Casing Joints		246.681974	186.91	47.51	8419.18	8398.82	141.13	91 8.25" COMPOSITE
180	Casing Joints		247.833464	187.78	39.30	8458.48	8359.52	141.79	
181	Casing Joints		249.226679	188.83	47.55	8506.03	8311.97	142.59	92 8.25" COMPOSITE
182	Casing Joints		250.621652	189.89	47.61	8553.64	8264.36	143.39	

183	Casing Joints		251.831742	190.81	41.30	8594.94	8223.06	144.08	93 8.25" COMPOSITE
184	Casing Joints		253.053845	191.73	41.71	8636.65	8181.35	144.78	
185	Casing Joints		254.44413	192.79	47.45	8684.10	8133.90	145.57	94 8.25" COMPOSITE
186	Casing Joints		255.83588	193.84	47.50	8731.60	8086.40	146.37	
187	Casing Joints		257.229095	194.90	47.55	8779.15	8038.85	147.17	95 8.25" COMPOSITE
188	Casing Joints		258.588615	195.93	46.40	8825.55	7992.45	147.95	
189	Casing Joints		259.97597	196.98	47.35	8872.90	7945.10	148.74	96 8.25" COMPOSITE
190	Casing Joints		261.309706	197.99	45.52	8918.42	7899.58	149.50	
191	Casing Joints		262.609161	198.97	44.35	8962.77	7855.23	150.25	97 8.25" COMPOSITE
192	Casing Joints		263.954031	199.99	45.90	9008.67	7809.33	151.02	
193	Casing Joints		265.354571	201.05	47.80	9056.47	7761.53	151.82	98 8.25" COMPOSITE
194	Casing Joints		266.682154	202.06	45.31	9101.78	7716.22	152.58	
195	Casing Joints		268.073904	203.11	47.50	9149.28	7668.72	153.37	99 8.25" COMPOSITE
196	Casing Joints		269.465654	204.17	47.50	9196.78	7621.22	154.17	
197	Casing Joints		270.800269	205.18	45.55	9242.33	7575.67	154.93	100 8.25" COMPOSITE
198	Casing Joints		272.090934	206.16	44.05	9286.38	7531.62	155.67	
199	Casing Joints		273.478289	207.21	47.35	9333.73	7484.27	156.46	101 8.25" COMPOSITE
200	Casing Joints		274.872969	208.27	47.60	9381.33	7436.67	157.26	
201	Casing Joints		276.093314	209.19	41.65	9422.98	7395.02	157.96	102 8.25" COMPOSITE
202	Casing Joints		277.327137	210.12	42.11	9465.09	7352.91	158.67	
203	Casing Joints		278.71918	211.18	47.51	9512.60	7305.40	159.46	103 8.25" COMPOSITE
204	Casing Joints		279.90876	212.08	40.60	9553.20	7264.80	160.14	
205	Casing Joints		281.25656	213.10	46.00	9599.20	7218.80	160.91	104 8.25" COMPOSITE
206	Casing Joints		282.648603	214.16	47.51	9646.71	7171.29	161.71	
	Marker E		283.325433	214.67	23.10	9669.81	7148.19	162.10	EOB 7134' 105 8.25" COMPOSITE
207	Casing Joints		284.718648	215.73	47.55	9717.36	7100.64	162.90	106 8.25" COMPOSITE
208	Casing Joints		286.113328	216.78	47.60	9764.96	7053.04	163.69	107 8.25" COMPOSITE
209	Casing Joints		287.452338	217.80	45.70	9810.66	7007.34	164.46	108 8.25" COMPOSITE
210	Casing Joints		288.801603	218.82	46.05	9856.71	6961.29	165.23	109 8.25" COMPOSITE
211	Casing Joints		290.118638	219.82	44.95	9901.66	6916.34	165.99	110 8.25" COMPOSITE
212	Casing Joints		291.444463	220.82	45.25	9946.91	6871.09	166.74	111 8.25" COMPOSITE
213	Casing Joints		292.824493	221.87	47.10	9994.01	6823.99	167.53	112 8.25" COMPOSITE
214	Casing Joints		294.216536	222.92	47.51	10041.52	6776.48	168.33	113 8.25" COMPOSITE
215	Casing Joints		295.592171	223.96	46.95	10088.47	6729.53	169.12	114 8.25" COMPOSITE
216	Casing Joints		296.931474	224.98	45.71	10134.18	6683.82	169.88	115 8.25" COMPOSITE
217	Casing Joints		298.301249	226.02	46.75	10180.93	6637.07	170.67	116 8.25" COMPOSITE
218	Casing Joints		299.690069	227.07	47.40	10228.33	6589.67	171.46	117 8.25" COMPOSITE
219	Casing Joints		301.021754	228.08	45.45	10273.78	6544.22	172.22	118 8.25" COMPOSITE
220	Casing Joints		302.413504	229.13	47.50	10321.28	6496.72	173.02	119 8.25" COMPOSITE
221	Casing Joints		303.734934	230.13	45.10	10366.38	6451.62	173.78	120 8.25" COMPOSITE
222	Casing Joints		305.065154	231.14	45.40	10411.78	6406.22	174.54	121 8.25" COMPOSITE
223	Casing Joints		306.378087	232.14	44.81	10456.59	6361.41	175.29	122 8.25" COMPOSITE
224	Casing Joints		307.725887	233.16	46.00	10502.59	6315.41	176.06	123 8.25" COMPOSITE
225	Casing Joints		309.119102	234.21	47.55	10550.14	6267.86	176.86	124 8.25" COMPOSITE
226	Casing Joints		310.453717	235.22	45.55	10595.69	6222.31	177.62	125 8.25" COMPOSITE
227	Casing Joints		311.844002	236.28	47.45	10643.14	6174.86	178.41	126 8.25" COMPOSITE
228	Casing Joints		313.233115	237.33	47.41	10690.55	6127.45	179.21	127 8.25" COMPOSITE
229	Casing Joints		314.6234	238.38	47.45	10738.00	6080.00	180.00	128 8.25" COMPOSITE
230	Casing Joints		316.01222	239.44	47.40	10785.40	6032.60	180.80	129 8.25" COMPOSITE
	Marker F		316.679967	239.94	22.79	10808.19	6009.81	181.18	KOP 5998' 130 8.25" COMPOSITE
231	Casing Joints		318.036557	240.97	46.30	10854.49	5963.51	181.96	1 8.50" BOWSPRING
232	Casing Joints		319.409262	242.01	46.85	10901.34	5916.66	182.74	2 8.50" BOWSPRING
233	Casing Joints		320.796617	243.06	47.35	10948.69	5869.31	183.54	3 8.50" BOWSPRING
234	Casing Joints		322.140022	244.08	45.85	10994.54	5823.46	184.31	4 8.50" BOWSPRING
235	Casing Joints		323.517122	245.12	47.00	11041.54	5776.46	185.09	5 8.50" BOWSPRING
236	Casing Joints		324.860527	246.14	45.85	11087.39	5730.61	185.86	6 8.50" BOWSPRING
237	Casing Joints		326.249347	247.19	47.40	11134.79	5683.21	186.66	7 8.50" BOWSPRING
238	Casing Joints		327.649887	248.25	47.80	11182.59	5635.41	187.46	8 8.50" BOWSPRING
239	Casing Joints		329.037242	249.30	47.35	11229.94	5588.06	188.25	9 8.50" BOWSPRING
240	Casing Joints		330.409947	250.34	46.85	11276.79	5541.21	189.04	10 8.50" BOWSPRING
241	Casing Joints		331.800232	251.40	47.45	11324.24	5493.76	189.83	11 8.50" BOWSPRING
242	Casing Joints		333.136312	252.41	45.60	11369.84	5448.16	190.60	12 8.50" BOWSPRING
243	Casing Joints		334.52982	253.47	47.56	11417.40	5400.60	191.39	13 8.50" BOWSPRING
244	Casing Joints		335.923035	254.52	47.55	11464.95	5353.05	192.19	14 8.50" BOWSPRING
245	Casing Joints		337.229815	255.51	44.60	11509.55	5308.45	192.94	15 8.50" BOWSPRING
246	Casing Joints		338.61131	256.56	47.15	11556.70	5261.30	193.73	16 8.50" BOWSPRING
247	Casing Joints		339.997493	257.61	47.31	11604.01	5213.99	194.52	17 8.50" BOWSPRING

248	Casing Joints		341.390708	258.66	47.55	11651.56	5166.44	195.32	18 8.50" BOWSPRING
249	Casing Joints		342.780993	259.72	47.45	11699.01	5118.99	196.11	19 8.50" BOWSPRING
250	Casing Joints		344.173036	260.77	47.51	11746.52	5071.48	196.91	20 8.50" BOWSPRING
251	Casing Joints		345.561856	261.83	47.40	11793.92	5024.08	197.71	21 8.50" BOWSPRING
252	Casing Joints		346.955071	262.88	47.55	11841.47	4976.53	198.50	22 8.50" BOWSPRING
253	Casing Joints		348.285291	263.89	45.40	11886.87	4931.13	199.26	23 8.50" BOWSPRING
254	Casing Joints		349.611116	264.89	45.25	11932.12	4885.88	200.02	24 8.50" BOWSPRING
255	Casing Joints		351.001401	265.95	47.45	11979.57	4838.43	200.82	25 8.50" BOWSPRING
256	Casing Joints		352.388756	267.00	47.35	12026.92	4791.08	201.61	26 8.50" BOWSPRING
257	Casing Joints		353.782264	268.05	47.56	12074.48	4743.52	202.41	27 8.50" BOWSPRING
258	Casing Joints		355.175479	269.11	47.55	12122.03	4695.97	203.21	28 8.50" BOWSPRING
259	Casing Joints		356.552579	270.15	47.00	12169.03	4648.97	203.99	29 8.50" BOWSPRING
260	Casing Joints		357.948724	271.21	47.65	12216.68	4601.32	204.79	30 8.50" BOWSPRING
261	Casing Joints		359.341939	272.27	47.55	12264.23	4553.77	205.59	31 8.50" BOWSPRING
262	Casing Joints		360.711714	273.30	46.75	12310.98	4507.02	206.37	32 8.50" BOWSPRING
263	Casing Joints		362.106394	274.36	47.60	12358.58	4459.42	207.17	33 8.50" BOWSPRING
264	Casing Joints		363.435149	275.37	45.35	12403.93	4414.07	207.93	34 8.50" BOWSPRING
265	Casing Joints		364.806389	276.41	46.80	12450.73	4367.27	208.72	35 8.50" BOWSPRING
266	Casing Joints		366.142469	277.42	45.60	12496.33	4321.67	209.48	36 8.50" BOWSPRING
267	Casing Joints		367.535391	278.47	47.54	12543.87	4274.13	210.28	37 8.50" BOWSPRING
268	Casing Joints		368.931536	279.53	47.65	12591.52	4226.48	211.08	38 8.50" BOWSPRING
269	Casing Joints		370.324751	280.59	47.55	12639.07	4178.93	211.87	39 8.50" BOWSPRING
270	Casing Joints		371.719431	281.64	47.60	12686.67	4131.33	212.67	40 8.50" BOWSPRING
271	Casing Joints		373.105321	282.69	47.30	12733.97	4084.03	213.46	41 8.50" BOWSPRING
272	Casing Joints		374.473924	283.73	46.71	12780.68	4037.32	214.25	42 8.50" BOWSPRING
273	Casing Joints		375.862744	284.78	47.40	12828.08	3989.92	215.04	43 8.50" BOWSPRING
274	Casing Joints		377.254494	285.84	47.50	12875.58	3942.42	215.84	44 8.50" BOWSPRING
275	Casing Joints		378.635989	286.88	47.15	12922.73	3895.27	216.63	45 8.50" BOWSPRING
276	Casing Joints		380.028032	287.94	47.51	12970.24	3847.76	217.42	46 8.50" BOWSPRING
277	Casing Joints		381.358545	288.95	45.41	13015.65	3802.35	218.19	47 8.50" BOWSPRING
278	Casing Joints		382.738575	289.99	47.10	13062.75	3755.25	218.98	48 8.50" BOWSPRING
279	Casing Joints		384.09077	291.02	46.15	13108.90	3709.10	219.75	49 8.50" BOWSPRING
280	Casing Joints		385.46494	292.06	46.90	13155.80	3662.20	220.54	50 8.50" BOWSPRING
281	Casing Joints		386.848193	293.11	47.21	13203.01	3614.99	221.33	51 8.50" BOWSPRING
282	Casing Joints		388.162298	294.10	44.85	13247.86	3570.14	222.08	52 8.50" BOWSPRING
283	Casing Joints		389.429523	295.06	43.25	13291.11	3526.89	222.80	53 8.50" BOWSPRING
284	Casing Joints		390.781718	296.09	46.15	13337.26	3480.74	223.58	54 8.50" BOWSPRING
285	Casing Joints		392.174933	297.14	47.55	13384.81	3433.19	224.37	55 8.50" BOWSPRING
286	Casing Joints		393.566683	298.20	47.50	13432.31	3385.69	225.17	56 8.50" BOWSPRING
287	Casing Joints		394.949643	299.25	47.20	13479.51	3338.49	225.96	57 8.50" BOWSPRING
288	Casing Joints		396.341393	300.30	47.50	13527.01	3290.99	226.76	58 8.50" BOWSPRING
289	Casing Joints		397.734608	301.36	47.55	13574.56	3243.44	227.56	59 8.50" BOWSPRING
290	Casing Joints		399.126651	302.41	47.51	13622.07	3195.93	228.35	60 8.50" BOWSPRING
291	Casing Joints		400.518401	303.46	47.50	13669.57	3148.43	229.15	61 8.50" BOWSPRING
292	Casing Joints		401.901654	304.51	47.21	13716.78	3101.22	229.94	62 8.50" BOWSPRING
293	Casing Joints		403.259709	305.54	46.35	13763.13	3054.87	230.72	63 8.50" BOWSPRING
294	Casing Joints		404.604579	306.56	45.90	13809.03	3008.97	231.49	64 8.50" BOWSPRING
295	Casing Joints		405.977284	307.60	46.85	13855.88	2962.12	232.27	65 8.50" BOWSPRING
296	Casing Joints		407.364932	308.65	47.36	13903.24	2914.76	233.07	66 8.50" BOWSPRING
297	Casing Joints		408.752287	309.70	47.35	13950.59	2867.41	233.86	67 8.50" BOWSPRING
298	Casing Joints		410.13554	310.75	47.21	13997.80	2820.20	234.65	68 8.50" BOWSPRING
299	Casing Joints		411.527583	311.81	47.51	14045.31	2772.69	235.45	69 8.50" BOWSPRING
300	Casing Joints		412.920798	312.86	47.55	14092.86	2725.14	236.24	70 8.50" BOWSPRING
301	Casing Joints		414.275923	313.89	46.25	14139.11	2678.89	237.02	71 8.50" BOWSPRING
302	Casing Joints		415.670896	314.95	47.61	14186.72	2631.28	237.82	72 8.50" BOWSPRING
303	Casing Joints		417.06206	316.00	47.48	14234.20	2583.80	238.61	73 8.50" BOWSPRING
304	Casing Joints		418.45088	317.05	47.40	14281.60	2536.40	239.41	74 8.50" BOWSPRING
305	Casing Joints		419.844095	318.11	47.55	14329.15	2488.85	240.20	75 8.50" BOWSPRING
306	Casing Joints		421.236431	319.16	47.52	14376.67	2441.33	241.00	76 8.50" BOWSPRING
307	Casing Joints		422.628474	320.22	47.51	14424.18	2393.82	241.80	77 8.50" BOWSPRING
308	Casing Joints		424.017294	321.27	47.40	14471.58	2346.42	242.59	78 8.50" BOWSPRING
309	Casing Joints		425.412267	322.33	47.61	14519.19	2298.81	243.39	79 8.50" BOWSPRING
310	Casing Joints		426.799622	323.38	47.35	14566.54	2251.46	244.18	80 8.50" BOWSPRING
311	Casing Joints		428.194302	324.43	47.60	14614.14	2203.86	244.98	81 8.50" BOWSPRING
312	Casing Joints		429.588982	325.49	47.60	14661.74	2156.26	245.78	82 8.50" BOWSPRING
313	Casing Joints		430.958757	326.53	46.75	14708.49	2109.51	246.56	83 8.50" BOWSPRING
314	Casing Joints		432.350507	327.58	47.50	14755.99	2062.01	247.36	84 8.50" BOWSPRING

315	Casing Joints		433.734932	328.63	47.25	14803.24	2014.76	248.15	85 8.50" BOWSPRING
316	Casing Joints		435.122287	329.68	47.35	14850.59	1967.41	248.95	86 8.50" BOWSPRING
317	Casing Joints		436.511107	330.74	47.40	14897.99	1920.01	249.74	87 8.50" BOWSPRING
318	Casing Joints		437.820817	331.73	44.70	14942.69	1875.31	250.49	88 8.50" BOWSPRING
319	Casing Joints		439.202312	332.77	47.15	14989.84	1828.16	251.28	89 8.50" BOWSPRING
320	Casing Joints		440.535462	333.78	45.50	15035.34	1782.66	252.04	90 8.50" BOWSPRING
321	Casing Joints		441.922817	334.84	47.35	15082.69	1735.31	252.84	91 8.50" BOWSPRING
322	Casing Joints		443.24747	335.84	45.21	15127.90	1690.10	253.59	92 8.50" BOWSPRING
323	Casing Joints		444.60113	336.87	46.20	15174.10	1643.90	254.37	93 8.50" BOWSPRING
324	Casing Joints		445.99288	337.92	47.50	15221.60	1596.40	255.17	94 8.50" BOWSPRING
325	Casing Joints		447.383165	338.97	47.45	15269.05	1548.95	255.96	95 8.50" BOWSPRING
326	Casing Joints		448.774915	340.03	47.50	15316.55	1501.45	256.76	96 8.50" BOWSPRING
327	Casing Joints		450.081695	341.02	44.60	15361.15	1456.85	257.50	97 8.50" BOWSPRING
328	Casing Joints		451.38115	342.00	44.35	15405.50	1412.50	258.25	98 8.50" BOWSPRING
329	Casing Joints		452.70258	343.00	45.10	15450.60	1367.40	259.00	99 8.50" BOWSPRING
330	Casing Joints		454.091693	344.06	47.41	15498.01	1319.99	259.80	100 8.50" BOWSPRING
331	Casing Joints		455.462933	345.09	46.80	15544.81	1273.19	260.58	101 8.50" BOWSPRING
332	Casing Joints		456.850288	346.15	47.35	15592.16	1225.84	261.38	102 8.50" BOWSPRING
333	Casing Joints		458.208343	347.17	46.35	15638.51	1179.49	262.15	103 8.50" BOWSPRING
334	Casing Joints		459.600386	348.23	47.51	15686.02	1131.98	262.95	104 8.50" BOWSPRING
335	Casing Joints		460.987741	349.28	47.35	15733.37	1084.63	263.74	105 8.50" BOWSPRING
336	Casing Joints		462.323821	350.29	45.60	15778.97	1039.03	264.51	106 8.50" BOWSPRING
337	Casing Joints		463.705316	351.34	47.15	15826.12	991.88	265.30	107 8.50" BOWSPRING
338	Casing Joints		465.097359	352.39	47.51	15873.63	944.37	266.10	108 8.50" BOWSPRING
339	Casing Joints		466.484714	353.45	47.35	15920.98	897.02	266.89	109 8.50" BOWSPRING
340	Casing Joints		467.780653	354.43	44.23	15965.21	852.79	267.63	110 8.50" BOWSPRING
341	Casing Joints		469.061063	355.40	43.70	16008.91	809.09	268.36	111 8.50" BOWSPRING
342	Casing Joints		470.266758	356.31	41.15	16050.06	767.94	269.05	112 8.50" BOWSPRING
343	Casing Joints		471.487103	357.24	41.65	16091.71	726.29	269.75	113 8.50" BOWSPRING
344	Casing Joints		472.879146	358.29	47.51	16139.22	678.78	270.55	114 8.50" BOWSPRING
345	Casing Joints		474.257711	359.34	47.05	16186.27	631.73	271.34	115 8.50" BOWSPRING
346	Casing Joints		475.650926	360.39	47.55	16233.82	584.18	272.13	116 8.50" BOWSPRING
347	Casing Joints		477.045899	361.45	47.61	16281.43	536.57	272.93	117 8.50" BOWSPRING
348	Casing Joints		478.439407	362.50	47.56	16328.99	489.01	273.73	118 8.50" BOWSPRING
349	Casing Joints		479.832622	363.56	47.55	16376.54	441.46	274.53	
350	Casing Joints		481.225837	364.61	47.55	16424.09	393.91	275.32	
351	Casing Joints		482.507712	365.59	43.75	16467.84	350.16	276.06	
352	Casing Joints		483.900927	366.64	47.55	16515.39	302.61	276.85	
353	Casing Joints		485.28125	367.69	47.11	16562.50	255.50	277.64	
354	Casing Joints		486.67593	368.74	47.60	16610.10	207.90	278.44	
355	Casing Joints		487.977436	369.73	44.42	16654.52	163.48	279.19	
356	Casing Joints		489.256381	370.70	43.65	16698.17	119.83	279.92	
357	Casing Joints		490.432776	371.59	40.15	16738.32	79.68	280.59	
358	Casing Joints		491.549106	372.44	38.10	16776.42	41.58	281.23	
359	Casing Joints		492.853542	373.42	44.52	16820.94	-2.94	281.98	

360	Casing Joints		494.134245	374.40	43.71	16864.65	-46.65	282.71	OUT JOINT 1
361	Casing Joints		495.41612	375.37	43.75	16908.40	-90.40	283.44	OUT JOINT 2
362	Casing Joints		496.600133	376.26	40.41	16948.81	-130.81	284.12	OUT JOINT 3
363	Casing Joints		497.828096	377.19	41.91	16990.72	-172.72	284.82	OUT JOINT 4
364	Casing Joints		499.109092	378.16	43.72	17034.44	-216.44	285.55	OUT JOINT 5
365	Casing Joints		500.388037	379.13	43.65	17078.09	-260.09	286.29	OUT JOINT 6
366	Casing Joints		501.507297	379.98	38.20	17116.29	-298.29	286.93	OUT JOINT 7
367	Casing Joints		502.767783	380.94	43.02	17159.31	-341.31	287.65	OUT JOINT 8
368	Casing Joints		503.951503	381.83	40.40	17199.71	-381.71	288.32	OUT JOINT 9
	MARKER B				11.62				MARKER OUT 1

[illegible]