



**Oxy USA Inc. - Avogato 30-31 State Com 4H**

**1. Casing Program**

**Primary:**

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF		Buoyant	Buoyant
	From (ft)	To (ft)					Collapse	SF Burst	Body SF	Joint SF
									Tension	Tension
17.5	0	1047	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	6400	7.625	26.4	L-80 HC	BTC	1.125	1.2	1.4	1.4
9.875	6400	9529	7.625	26.4	L-80 HC	BTC	1.125	1.2	1.4	1.4
6.75	0	20277	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
SF Values will meet or Exceed										

**\*Note:** The planned design is to drill a 12-1/4" hole to approximately 6400'. If there is H2S and flow, Oxy requests the option to set a 9-5/8" contingency string as shown in the contingency case below. If no flow/H2S is seen, the 12-1/4" hole will be continued until ROP falls (expected 6400-7800'). At this point the hole size will be switched to 9-7/8".

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF		Buoyant	Buoyant
	From (ft)	To (ft)					Collapse	SF Burst	Body SF	Joint SF
									Tension	Tension
17.5	0	1047	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	6400	9.625	40	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	9529	7.625	26.4	L-80 HC	SF (0 ft to ~ 6000 ft) FJ (~6000 ft to 9529 ft)	1.125	1.2	1.4	1.4
6.75	0	20277	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
SF Values will meet or Exceed										

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

\*Cement volumes may be adjusted if 12-1/4" hole is drilled deeper.

\*Oxy requests the option to run production casing with DQX, SF TORQ, and/or DQW TORQ connections to accommodate hole conditions or drilling operations.

**2. Cementing Program**

Casing String	# Sks	Wt. (lb/gal)	Yld (ft <sup>3</sup> /sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	1105	14.8	1.33	6.365	526	Class C Cement, Accelerator
Intermediate 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 1st Stage (Tail)	293	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate 2nd Stage (Tail)	2700	12.9	1.92	10.41	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	825	13.2	1.38	6.686	3:39	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	1047	100%
Intermediate 1st Stage (Lead)	N/A	N/A	N/A
Intermediate 1st Stage (Tail)	7436	9529	5%
Intermediate 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate 2nd Stage (Tail)	0	7436	10%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	9029	20277	20%

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If 9-5/8" Contingency Casing is Set:

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	1105	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	986	11	2.7	16.500	14:22	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.370	12:45	Class C Cement, Accelerator
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	103	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate II 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	86	12.9	1.92	10.410	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	825	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	1047	100%
Intermediate (Lead)	0	5900	50%
Intermediate (Tail)	5900	6400	20%
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	7436	9529	5%
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	5900	7436	25%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	9029	20277	20%

\*Note: Oxy also requests option to cement 2<sup>nd</sup> Intermediate Casing (7-5/8") with a conventional cement job rather than two stage bradenhead squeeze if formation integrity test shows adequate strength. In this case, the Tail would be a 13.2ppg from 2<sup>nd</sup> Intermediate Casing point to 500ft above shoe. Lead would be a 11.0ppg from 500ft above shoe to 500ft above previous casing shoe.

Total estimated cuttings volume: 1864 bbls.