30-025-43117

2 Surface Casing

2.1 Job Information Surface Casing

Job Criticality Status: GREEN
Well Name: COUNTY FAIR BTY STATE Well #: 001H

17-1/2" Hole	0 - 900 ft (MD)
Inner Diameter	17.5 in
Excess Factor	80 %
Surface Casing	0 - 900 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.615 in
Linear Weight	54.5 lbm/ft
Casing Grade	J-55
Shoe Joint Length	40 ft
Thread Type	STC
Mud Type	Spud Mud
Mud Weight	8.4 lbm/gal

2.2 Estimated Calculations Surface Casing

Stage 1

CEMENT: (600 ft fill)	
600 ft * 0.6946 ft3/ft * 80 %	= 750.21 ft3
ExtendaCem™ CZ	= 750.21 ft3
	= 133.6 bbl
Total Lead	= 424.51 sack
CEMENT: (300 ft fill)	
300 ft * 0.6946 ft3/ft * 80 %	= 375.1 ft3
HalCem™ C	= 375.1 ft3
	= 66.8 bbl
Shoe Joint Volume: (40 ft fill)	
40 ft * 0.868 ft3/ft	= 34.72 ft3
	= 6.2 bbl
Tail plus shoe joint	= 409.86 ft3
	= 73 bbl
Total Tail	= 300.49 sack
Total Pipe Capacity:	
900 ft * 0.868 ft3/ft	= 781.17 ft3
	= 139.1 bbl
Displacement Volume to Shoe Joint:	
Capacity of Pipe - Shoe Joint	= 139.1 bbl - 6.2 bbl
	= 132.9 bbl

2.3 Job Volume Estimates Surface Casing

Stage 1

Fluid 1: Spacer Sweep

Gel Spacer w/Red Dye
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG
0.10 lbm/bbl Rhodamine Red Dye No. 2

Fluid Density:	8.5 lbm/gal
Volume:	**20 bbl**

Fluid 2: Lead Slurry

EXTENDACEM (TM) SYSTEM

Fluid Weight:	13.5 lbm/gal
Slurry Yield:	1.767 ft3/sack
Total Mixing Fluid:	9.46 Gal/sack
Calculated Volume:	**133.6 bbl**
Proposed Volume:	**133.6 bbl**
Top Of Fluid:	0 ft
Calculated Fill:	600 ft
Calculated sack:	424.57 sack
Proposed sack:	425 sack

Fluid 3: Tail Slurry

HALCEM (TM) SYSTEM
2 % Calcium Chloride, Pellet

Fluid Weight:	14.8 lbm/gal
Slurry Yield:	1.364 ft3/sack
Total Mixing Fluid:	6.61 Gal/sack
Calculated Volume:	**73 bbl**
Proposed Volume:	**73 bbl**
Top Of Fluid:	600 ft
Calculated Fill:	300 ft
Calculated sack:	300.46 sack
Proposed sack:	305 sack

2.4 Volume Estimate Table Surface Casing

Calculations are used for volume estimation. Well conditions will dictate final cement job design.
Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer w/Red Dye	8.5		20 bbl
2	CEMENT	ExtendaCem™ CZ	13.5		425 sack
3	CEMENT	HalCem™ C	14.8		305 sack

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.

3 Intermediate Casing

3.1 Job Information Intermediate Casing

Job Criticality Status: GREEN
Well Name: COUNTY FAIR BTY STATE Well #: 001H

Surface Casing	0 - 900 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.615 in
Linear Weight	54.5 lbm/ft
Casing Grade	J-55
Thread Type	STC
12-1/4" Hole	900 - 5030 ft (MD)
Inner Diameter	12.25 in
Excess Factor	100 %
Intermediate Casing	0 - 5030 ft (MD)
Outer Diameter	9.625 in
Inner Diameter	8.835 in
Linear Weight	40 lbm/ft
Casing Grade	L-80
Shoe Joint Length	40 ft
Thread Type	LTC
Mud Type	Brine
Mud Weight	10 lbm/gal

3.2 Estimated Calculations Intermediate Casing

Stage 1

CEMENT: (4030 ft fill)	
3130 ft * 0.3132 ft3/ft * 100 %	= 1960.56 ft3
900 ft * 0.3627 ft3/ft * 0 %	= 326.42 ft3
EconoCem™ HLC	= 2286.98 ft3
	= 407.3 bbl
Total Lead	= 1340.46 sack
CEMENT: (1000 ft fill)	
1000 ft * 0.3132 ft3/ft * 100 %	= 626.38 ft3
HalCem™ C	= 626.38 ft3
	= 111.6 bbl
Shoe Joint Volume: (40 ft fill)	
40 ft * 0.4257 ft3/ft	= 17.03 ft3
	= 3 bbl
Tail plus shoe joint	= 643.43 ft3
	= 114.6 bbl
Total Tail	= 483.06 sack
Total Pipe Capacity:	
900 ft * 0.4257 ft3/ft	= 383.16 ft3
4130 ft * 0.4257 ft3/ft	= 1758.29 ft3
	= 381.4 bbl
Displacement Volume to Shoe Joint:	
Capacity of Pipe - Shoe Joint	= 381.4 bbl - 3 bbl
	= 378.4 bbl

3.3 Job Volume Estimates Intermediate Casing

Stage 1

Fluid 1: Spacer Sweep

Gel Spacer w/Red Dye	Fluid Density:	8.4 lbm/gal
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG	**Volume:**	**20 bbl**
0.10 lbm/bbl Rhodamine Red Dye No. 2		

Fluid 2: Lead Slurry

ECONOCEM (TM) SYSTEM	Fluid Weight:	12.9 lbm/gal
5 % Salt	Slurry Yield:	1.706 ft3/sack
	Total Mixing Fluid:	8.9 Gal/sack
	Calculated Volume:	**407.3 bbl**
	Proposed Volume:	**407.3 bbl**
	Top Of Fluid:	0 ft
	Calculated Fill:	4030 ft
	Calculated sack:	1340.55 sack
	Proposed sack:	1345 sack

Fluid 3: Tail Slurry

HALCEM (TM) SYSTEM	Fluid Weight:	14.8 lbm/gal
	Slurry Yield:	1.332 ft3/sack
	Total Mixing Fluid:	6.42 Gal/sack
	Calculated Volume:	**114.6 bbl**
	Proposed Volume:	**114.6 bbl**
	Top Of Fluid:	4030 ft
	Calculated Fill:	1000 ft
	Calculated sack:	483.04 sack
	Proposed sack:	485 sack

3.4 Volume Estimate Table Intermediate Casing

Calculations are used for volume estimation. Well conditions will dictate final cement job design.

Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer w/Red Dye	8.4		20 bbl
2	CEMENT	EconoCem™ HLC	12.9		1345 sack
3	CEMENT	HalCem™ C	14.8		485 sack

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.

4 Production Lateral - Cement to Surface

4.1 Job Information Production Lateral - Cement to Surface

Job Criticality Status: YELLOW
Well Name: COUNTY FAIR BTY STATE Well #: 001H

Intermediate Casing	0 - 5030 ft (MD)
Outer Diameter	9.625 in
Inner Diameter	8.921 in
Linear Weight	36 lbm/ft
Casing Grade	J-55
Thread Type	LTC
8-3/4" Hole	5030 - 11458 ft (MD) - 11452 ft (TVD)
Inner Diameter	8.75 in
Excess Factor	50 %
Kick-off Point	- 11458 ft (MD)
8-3/4" Hole	11458 - 16622 ft (MD) 11452- 12030 ft (TVD)
Inner Diameter	8.75 in
Excess Factor	25 %
Production Casing	0 - 16622 ft (MD) 0- 12030 ft (TVD)
Outer Diameter	5 in
Inner Diameter	4.276 in
Casing Grade	P-110
Shoe Joint Length	40 ft
Thread Type	LTC
Mud Type	Brine
Mud Weight	9 lbm/gal

4.2 Estimated Calculations Production Lateral - Cement to Surface

Stage 1

CEMENT: (11458 ft fill)	
6428 ft * 0.2812 ft3/ft * 50 %	= 2711.62 ft3
5030 ft * 0.2977 ft3/ft * 0 %	= 1497.49 ft3
NeoCem™ Light	= 4209.11 ft3
	= 749.7 bbl
Total Lead	= 1202.30 sack
CEMENT: (5164 ft fill)	
5164 ft * 0.2812 ft3/ft * 25 %	= 1815.34 ft3
NeoCem™ PT	= 1815.34 ft3
	= 323.3 bbl
Shoe Joint Volume: (40 ft fill)	
40 ft * 0.0997 ft3/ft	= 3.99 ft3
	= 0.7 bbl
Tail plus shoe joint	= 1819.13 ft3
	= 324 bbl
Total Tail	= 1242.57 sack
Total Pipe Capacity:	
5030 ft * 0.0997 ft3/ft	= 501.62 ft3
6428 ft * 0.0997 ft3/ft	= 641.03 ft3
5164 ft * 0.0997 ft3/ft	= 514.98 ft3
	= 295.2 bbl
Displacement Volume to Shoe Joint:	
Capacity of Pipe - Shoe Joint	= 295.2 bbl - 0.7 bbl
	= 294.5 bbl

4.3 Job Volume Estimates Production Lateral - Cement to Surface

Stage 1

Fluid 1: Spacer Sweep

9 lbm/gal CleanSpacer III
4 lbm/bbl CHEM, FDP-C1193-15, 50 LB Sack
4 lbm/bbl FDP-C1194-15, 50 LB SACK
0.50 lbm/bbl D-AIR 5000
29.6350 lbm/bbl Barite

Fluid Density:	9 lbm/gal
Volume:	**30 bbl**

Fluid 2: Lead Slurry

NeoCem TM

Fluid Weight:	9 lbm/gal
Slurry Yield:	3.501 ft3/sack
Total Mixing Fluid:	14.21 Gal/sack
Calculated Volume:	**749.7 bbl**
Proposed Volume:	**749.7 bbl**
Top Of Fluid:	0 ft
Calculated Fill:	11458 ft
Calculated sack:	1202.26 sack
Proposed sack:	1205 sack

Fluid 3: Tail Slurry

NeoCem TM

Fluid Weight:	13.2 lbm/gal
Slurry Yield:	1.464 ft3/sack
Total Mixing Fluid:	7.44 Gal/sack
Calculated Volume:	**324 bbl**
Proposed Volume:	**324 bbl**
Top Of Fluid:	11458 ft
Calculated Fill:	5164 ft
Calculated sack:	1242.71 sack
Proposed sack:	1245 sack

4.4 Volume Estimate Table Production Lateral - Cement to Surface

Calculations are used for volume estimation. Well conditions will dictate final cement job design.
Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	9 lbm/gal CleanSpacer III	9		30 bbl
2	CEMENT	NeoCem™ Light	9		751.4 bbl
3	CEMENT	NeoCem™ PT	13.2		324.6 bbl

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.