

## Plan Report for County Fair BTY State 1H - Plan 3

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,700.00	5,700.00	0.00	0.00	Start Nudge
5,949.93	5,949.62	10.89	0.32	Hold 5° Inc
7,421.30	7,415.38	139.04	4.10	EOH
7,671.23	7,665.00	149.93	4.42	Vertical
11,458.89	11,452.66	149.93	4.42	KOP
12,198.05	11,930.00	-316.70	4.55	Landing Point
16,622.19	12,030.37	-4,739.70	5.80	BHL

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	179.98	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	16,622.19	Plan 3	MWD+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
900.00	900.00	13 3/8"	13-3/8	17-1/2
5,030.00	5,030.00	9 5/8"	9-5/8	12-1/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
780.00	780.00	Rustler		0.00	
1,155.00	1,155.00	Top of Salt		0.00	
4,595.00	4,595.00	Base of Salt		0.00	
4,980.00	4,980.00	Delaware		0.00	
8,681.23	8,675.00	Bone Spring		0.00	
8,721.23	8,715.00	Avalon		0.00	
9,996.23	9,990.00	1st Bone Spring		0.00	
10,571.23	10,565.00	2nd Bone Spring		0.00	
11,662.33	11,650.00	3rd Bone Spring		0.00	
12,198.13	11,930.00	Target (0 KBTVD @ 88.7°)		0.00	
13,300.07	11,955.00	Wolfcamp		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
County Fair BTY State #1H PP	0.00	-477.20	4.60	Point
County Fair BTY State #1H BHL	12,324.66	-4,739.70	5.80	Point

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**Directional Difficulty Index**

Average Dogleg over Survey:	0.59 °/100usft	Maximum Dogleg over Survey:	12.00 °/100usft at 12,205.24 usft
Net Tortousity applicable to Plans:	0.59 °/100usft	Directional Difficulty Index:	6.087

**Audit Info**

**HALLIBURTON****North Reference Sheet for County Fair BTY State - County Fair BTY State 1H - Wellbore #1**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to Plat @ 3279.00usft (GL3254'+25ft=3279ft (Precision 554)). Northing and Easting are relative to County Fair BTY State

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104.33°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°

False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 1.00001609

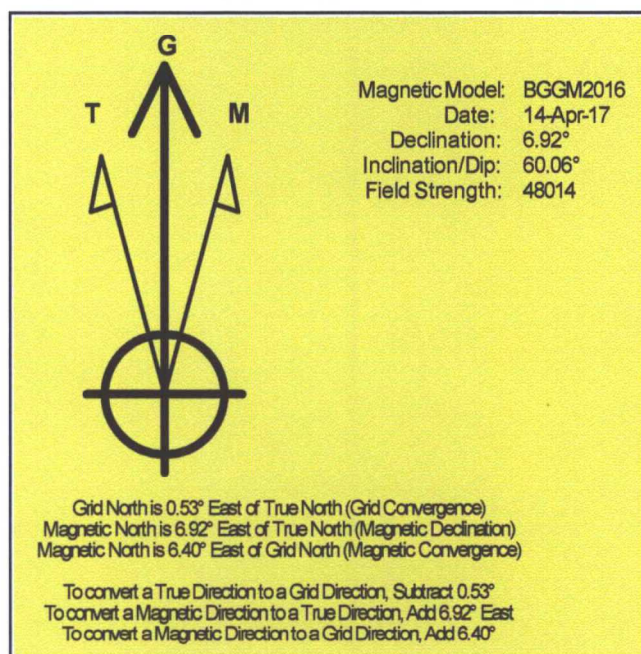
Grid Coordinates of Well: 425,592.90 usft N, 846,989.80 usft E

Geographical Coordinates of Well: 32° 09' 58.24" N, 103° 20' 44.00" W

Grid Convergence at Surface is: 0.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,622.19usft the Bottom Hole Displacement is 4,739.70usft in the Direction of 179.93° (Grid).

Magnetic Convergence at surface is: -6.40° (14 April 2017, , BGGM2016)





## Geologic Well Prognosis

County Fair BTY State #1H

Prepared By:

Date:

Geologist:

Engineer:

Greg Clark
4/14/2017
Greg Clark; (c.) 713-819-3129
Vladimir Roudakov; (c.) 720-933-9784

Proposed Well:	County Fair BTY State #1H
Legals:	NWNW Sec. 2 T25S R35E
API:	30-025-43117
Lat/Long (Nad 83)	32°09'57.78", 103° 20' 42.32"
County and State	Lea Co., NM
Ground Elev:	3254'
Kelly Bushing Elev:	3279

Surface  
BHL  
Side-track  
Side-track

Surface/Bottom Hole	FNL	FSL	FEL	FWL
NWNW Sec. 2 T25S R35E	200			400
SWSW Sec. 2 T25S R35E		330		400

Vertical Correlation Well:	Oxy Banana Girl Fed 2
Legals:	NE1/4 SW1/4 W1/2 Sec10 T25S R35E
API:	30-025-35322
Lat/Long (Nad 83)	32.1430359, -103.357058
County and State	Lea Co., NM
Ground Elev:	3235
Kelly Bushing Elev:	3259

Formations	Lithology	TVD (RKB)	(calc)		Sample Top	Δft	(calc)		Actual Log	Δft	(calc)		Adjusted Prog Top	(calc)	
			KB: 3279	Iso to Target			Sample <Lo   Hi>				Log <Lo   Hi>			TVD (RKB)	Iso to Target
Rustler	Mixed lithologies	780	2499	780		780				780				0	
Top of Salt	Salt (Halite)	1155	2124	10775		1155				1155				0	
Base of Salt	Limestone/Anhydrite	4595	-1316	7335		4595				4595				0	
Delaware	Sand/Siltstone/Shale/Limestone	4980	-1701	6950		4980				4980				0	
Bone Spring	Limestone	8675	-5396	3255		8675				8675				0	
Avalon	Shale	8715	-5436	3215		8715				8715				0	
1st Bone Spring	Sand/Siltstone/Shale/Limestone	9990	-6711	1940		9990				9990				0	
2nd Bone Spring	Sand/Siltstone/Shale/Limestone	10565	-7286	1365		10565				10565				0	
3rd Bone Spring	Siltstone	11650	-8371	280		11650				11650				0	
Target (0 KBTVD @ 88.7')		11930	-8651	0		11930				11930					
Wolfcamp	Shale/Limestone	11955	-8676	-25		11955				11955				0	

MUDLOGGING

Field Geo Services, Inc. Geologic to be on location and logging above the base of the last salt. Scott Field - (970) 270-4940

ELECTRIC LOGS

Will run triple combo OH logs

DIRECTIONAL  
PLANNING

Phoenix Technologies

(Hard Lines)

330 FNL., 330' FSL and 330 FWL Sec 2 T25S R35E

(Target Dimension)

(DST)

## 2 Surface Casing

### 2.1 Job Information Surface Casing

Job Criticality Status: GREEN

Well Name: COUNTY FAIR BTY STATE

Well #: 001H

12-1/4" Hole

0 - 900 ft (MD)

Inner Diameter

12.25 in

Excess Factor

80 %

Surface Casing

0 - 900 ft (MD)

Outer Diameter

9.625 in

Inner Diameter

8.835 in

Linear Weight

40 lbm/ft

Casing Grade

J-55

Shoe Joint Length

40 ft

Thread Type

LTC

Mud Type

Spud Mud

Mud Weight

8.4 lbm/gal



## 2.2 Estimated Calculations      Surface Casing

### Stage 1

CEMENT: (600 ft fill)	
600 ft * 0.3132 ft <sup>3</sup> /ft * 80 %	= 338.24 ft <sup>3</sup>
ExtendaCem™ CZ	= 338.24 ft <sup>3</sup>
	= 60.2 bbl
Total Lead	= 191.28 sack
CEMENT: (300 ft fill)	
300 ft * 0.3132 ft <sup>3</sup> /ft * 80 %	= 169.12 ft <sup>3</sup>
HalCem™ C	= 169.12 ft <sup>3</sup>
	= 30.2 bbl
Shoe Joint Volume: ( 40 ft fill )	
40 ft * 0.4257 ft <sup>3</sup> /ft	= 17.03 ft <sup>3</sup>
	= 3 bbl
Tail plus shoe joint	= 186.4 ft <sup>3</sup>
	= 33.2 bbl
Total Tail	= 136.66 sack
Total Pipe Capacity:	
900 ft * 0.4257 ft <sup>3</sup> /ft	= 383.16 ft <sup>3</sup>
	= 68.2 bbl
Displacement Volume to Shoe Joint:	
Capacity of Pipe - Shoe Joint	= 68.2 bbl - 3 bbl
	= 65.2 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 ft<sup>3</sup>/sack  
Total Mixing Fluid: 9.46 Gal/sack  
**Calculated Volume: 60.2 bbl**  
Proposed Volume: **60.2 bbl**  
Top Of Fluid: 0 ft  
Calculated Fill: 600 ft  
Calculated sack: 191.42 sack  
Proposed sack: 195 sack

Fluid 3: Tail Slurry

HALCEM (TM) SYSTEM

2 % Calcium Chloride, Pellet

Fluid Weight: 14.8 lbm/gal  
Slurry Yield: 1.364 ft<sup>3</sup>/sack  
Total Mixing Fluid: 6.61 Gal/sack  
**Calculated Volume: 33.2 bbl**  
Proposed Volume: **33.2 bbl**  
Top Of Fluid: 600 ft  
Calculated Fill: 300 ft  
Calculated sack: 136.47 sack  
Proposed sack: 140 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		195 sack
3	CEMENT	HalCem™ C	14.8		140 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	9.625 in
Inner Diameter	8.835 in
Linear Weight	40 lbm/ft
Casing Grade	J-55
Thread Type	LTC

8-3/4" Hole 900 - 5030 ft (MD)

Inner Diameter	8.75 in
Excess Factor	100 %

Intermediate Casing 0 - 5030 ft (MD)

Outer Diameter	7 in
Inner Diameter	6.184 in
Linear Weight	29 lbm/ft
Casing Grade	P-110
Shoe Joint Length	40 ft
Thread Type	BTC

Mud Type	Brine
Mud Weight	10 lbm/gal

### 3.2 Estimated Calculations Intermediate Casing

#### Stage 1

CEMENT: (4030 ft fill)		
3130 ft * 0.1503 ft <sup>3</sup> /ft * 100 %	=	941.07 ft <sup>3</sup>
900 ft * 0.1585 ft <sup>3</sup> /ft * 0 %	=	142.63 ft <sup>3</sup>
EconoCem™ HLC	=	1083.70 ft <sup>3</sup>
	=	193 bbl
Total Lead	=	635.18 sack
CEMENT: (1000 ft fill)		
1000 ft * 0.1503 ft <sup>3</sup> /ft * 100 %	=	300.66 ft <sup>3</sup>
HalCem™ C	=	300.66 ft <sup>3</sup>
	=	53.5 bbl
Shoe Joint Volume: ( 40 ft fill )		
40 ft * 0.2086 ft <sup>3</sup> /ft	=	8.34 ft <sup>3</sup>
	=	1.5 bbl
Tail plus shoe joint	=	308.8 ft <sup>3</sup>
	=	55 bbl
Total Tail	=	231.83 sack
Total Pipe Capacity:		
900 ft * 0.2086 ft <sup>3</sup> /ft	=	187.72 ft <sup>3</sup>
4130 ft * 0.2086 ft <sup>3</sup> /ft	=	861.42 ft <sup>3</sup>
	=	186.9 bbl
Displacement Volume to Shoe Joint:		
Capacity of Pipe - Shoe Joint	=	186.9 bbl - 1.5 bbl
	=	185.4 bbl

### 3.3 Job Volume Estimates Intermediate 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: 8.4 lbm/gal  
**Volume: 20 bbl**

Fluid 2: Lead Slurry

ECONOCEM (TM) SYSTEM

5 % Salt

Fluid Weight: 12.9 lbm/gal  
Slurry Yield: 1.706 ft<sup>3</sup>/sack  
Total Mixing Fluid: 8.9 Gal/sack  
**Calculated Volume: 193 bbl**  
Proposed Volume: **193 bbl**  
Top Of Fluid: 0 ft  
Calculated Fill: 4030 ft  
Calculated sack: 635.23 sack  
Proposed sack: 640 sack

Fluid 3: Tail Slurry

HALCEM (TM) SYSTEM

Fluid Weight: 14.8 lbm/gal  
Slurry Yield: 1.332 ft<sup>3</sup>/sack  
Total Mixing Fluid: 6.42 Gal/sack  
**Calculated Volume: 55 bbl**  
Proposed Volume: **55 bbl**  
Top Of Fluid: 4030 ft  
Calculated Fill: 1000 ft  
Calculated sack: 231.98 sack  
Proposed sack: 235 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		640 sack
3	CEMENT	HalCem™ C	14.8		235 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

### 4.1 Job Information Production Lateral

Job Criticality Status: YELLOW

Well Name: COUNTY FAIR BTY STATE

Well #: 001H

Intermediate Casing

0 - 5030 ft (MD)

Outer Diameter

7 in

Inner Diameter

6.184 in

Linear Weight

29 lbm/ft

Casing Grade

P-110

Thread Type

BTC

6-1/8" Hole

5030 - 11458 ft (MD)

- 11452 ft (TVD)

Inner Diameter

6.125 in

Excess Factor

50 %

Kick-off Point

- 11458 ft (MD)

6-1/8" Hole

11458 - 16660 ft (MD)

11452- 12030 ft (TVD)

Inner Diameter

6.125 in

Excess Factor

25 %

Production Casing

0 - 16660 ft (MD)

0- 12030 ft (TVD)

Outer Diameter

4.5 in

Inner Diameter

3.92 in

Linear Weight

13.5 lbm/ft

Casing Grade

HCP110

Shoe Joint Length

40 ft

Thread Type

BTC

Mud Type

Brine

Mud Weight

9 lbm/gal



## 4.2 Estimated Calculations      Production Lateral

### Stage 1

CEMENT: (11458 ft fill)

6428 ft \* 0.0942 ft<sup>3</sup>/ft \* 50 % = 907.98 ft<sup>3</sup>

5030 ft \* 0.0981 ft<sup>3</sup>/ft \* 0 % = 493.6 ft<sup>3</sup>

NeoCem™ Light = 1401.58 ft<sup>3</sup>

= 249.6 bbl

Total Lead = 400.29 sack

CEMENT: (5202 ft fill)

5202 ft \* 0.0942 ft<sup>3</sup>/ft \* 25 % = 612.34 ft<sup>3</sup>

NeoCem™ PT = 612.34 ft<sup>3</sup>

= 109.1 bbl

Shoe Joint Volume: ( 40 ft fill )

40 ft \* 0.0838 ft<sup>3</sup>/ft = 3.35 ft<sup>3</sup>

= 0.6 bbl

Tail plus shoe joint

= 615.92 ft<sup>3</sup>

= 109.7 bbl

Total Tail

= 420.71 sack

Total Pipe Capacity:

5030 ft \* 0.0838 ft<sup>3</sup>/ft = 421.57 ft<sup>3</sup>

6428 ft \* 0.0838 ft<sup>3</sup>/ft = 538.74 ft<sup>3</sup>

5202 ft \* 0.0838 ft<sup>3</sup>/ft = 435.98 ft<sup>3</sup>

= 248.7 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint = 248.7 bbl - 0.6 bbl

= 248.1 bbl

## 4.3 Job Volume Estimates      Production Lateral

### 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 ft<sup>3</sup>/sack  
Total Mixing Fluid: 14.21 Gal/sack  
**Calculated Volume: 249.6 bbl**  
Proposed Volume: **249.6 bbl**  
Top Of Fluid: 0 ft  
Calculated Fill: 11458 ft  
Calculated sack: 400.34 sack  
Proposed sack: 405 sack

Fluid 3: Tail Slurry

NeoCem TM

Fluid Weight: 13.2 lbm/gal  
Slurry Yield: 1.464 ft<sup>3</sup>/sack  
Total Mixing Fluid: 7.44 Gal/sack  
**Calculated Volume: 109.7 bbl**  
Proposed Volume: **109.7 bbl**  
Top Of Fluid: 11458 ft  
Calculated Fill: 5202 ft  
Calculated sack: 420.55 sack  
Proposed sack: 425 sack

#### 4.4 Volume Estimate Table      Production Lateral

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		252.5 bbl
3	CEMENT	NeoCem™ PT	13.2		110.8 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.