30-025-42596

OXY

Project: HOBBS, SOUTH
Site: SOUTH HOBBS GRAYBURG-SA UNIT
Well: SHU (G/SA) 255
Wellbore: ST00
Design: Plan 2
Rig: H&P 340 - KB - 16.5

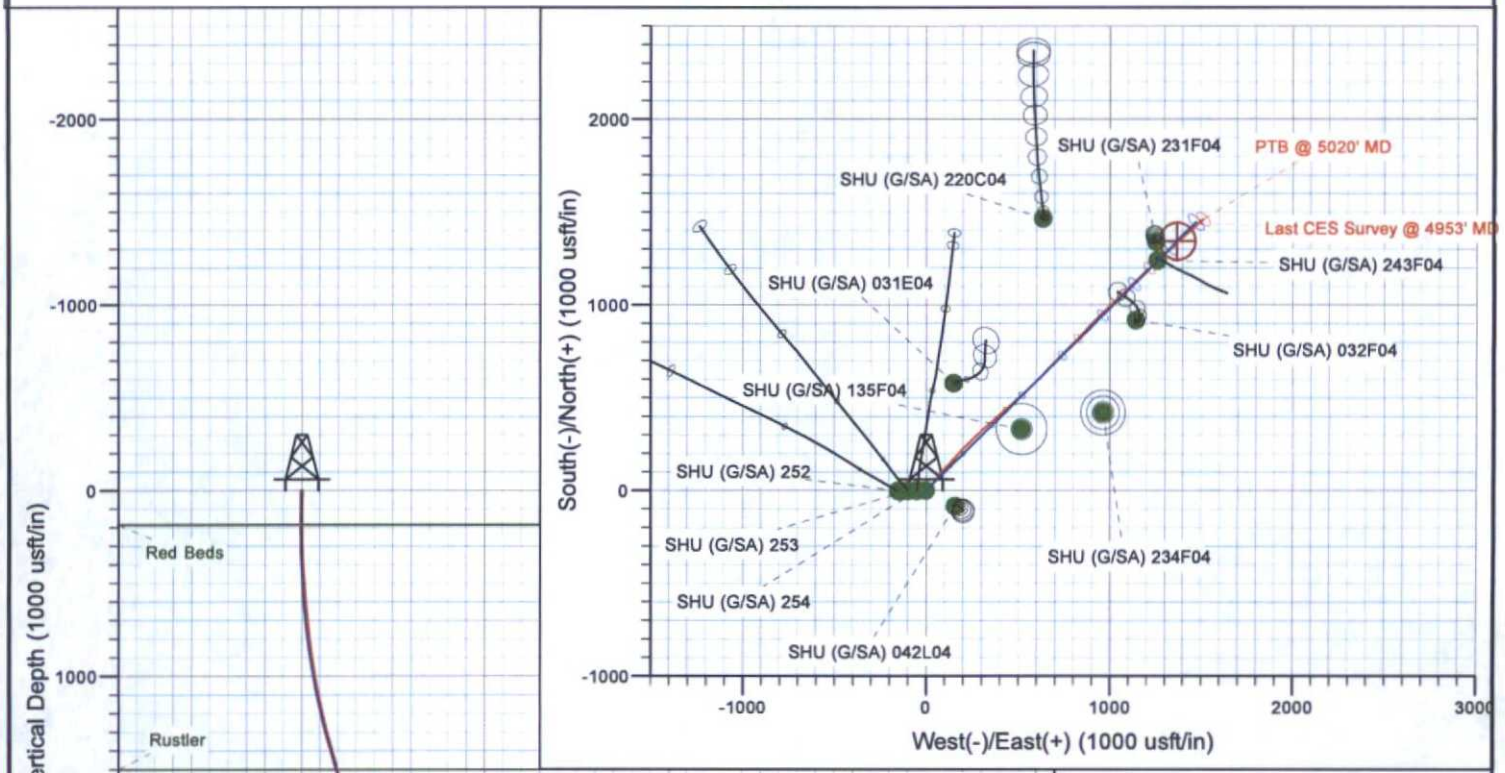
HOBBS OCD
DEC 0 2 2015

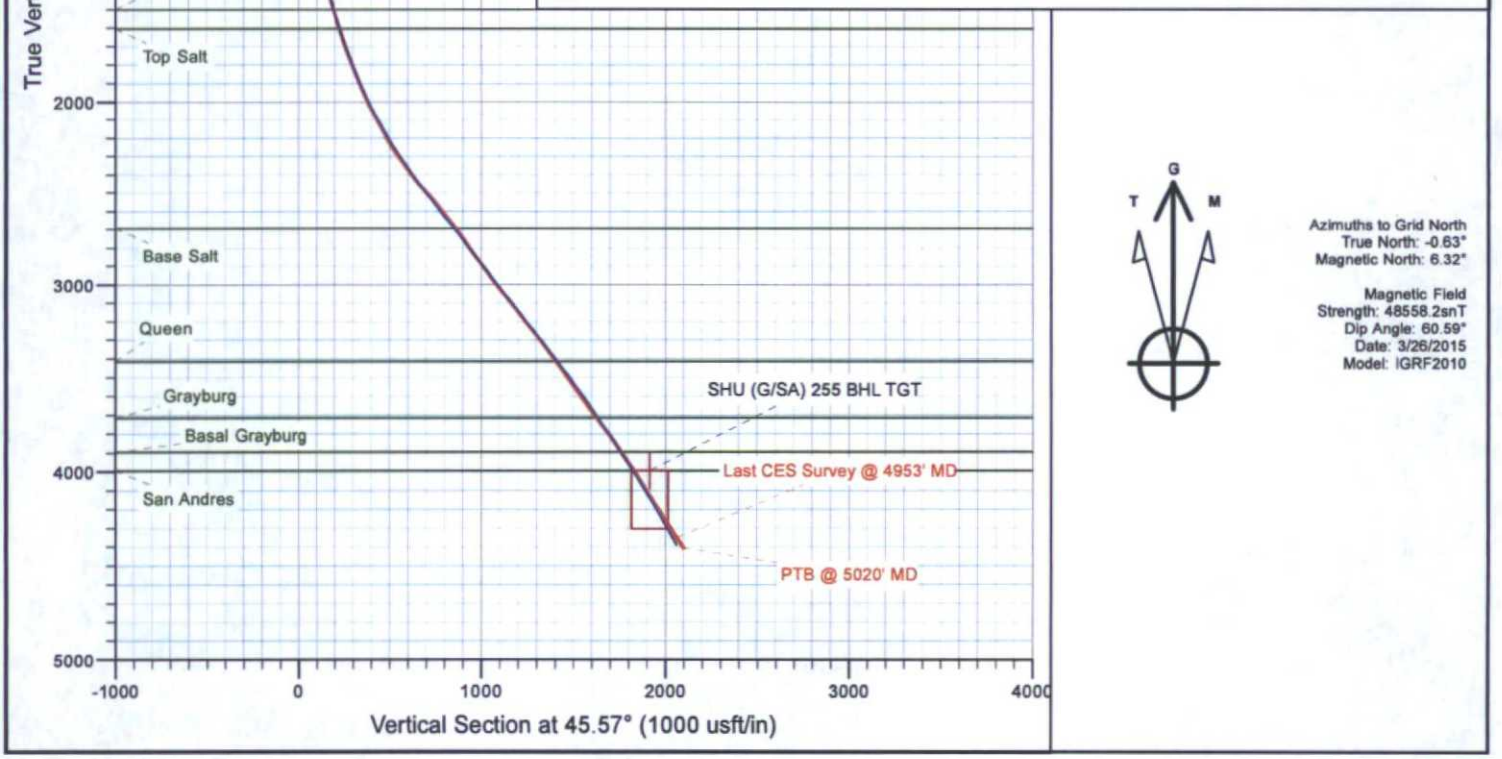
CATHEDRAL

RECEIVED

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0		Build 1.5°/100'
3	1500.0	18.00	45.57	1480.4	130.9	133.5	1.50	45.57	186.9		EOB @ 18° inc
4	1548.0	18.00	45.57	1526.0	141.3	144.1	0.00	0.00	201.8		Start 100.0 hold at 1548.0 MD
5	1648.0	18.00	45.57	1621.1	162.9	166.2	0.00	0.00	232.7		Build 2°/100'
6	2648.0	38.00	45.57	2499.6	489.9	499.7	2.00	0.00	699.8		EOB @ 38° inc
7	3810.9	38.00	45.57	3416.0	991.1	1011.0	0.00	0.00	1415.8		Drop .75°/100'
8	4883.9	29.95	45.57	4305.0	1410.5	1438.8	0.75	-180.00	2014.9		EOD @ 29.95° inc
9	4983.9	29.95	45.57	4391.6	1445.4	1474.5	0.00	0.00	2064.8		PBHL @ 4983.9' MD





Azimuths to Grid North
True North: -0.63°
Magnetic North: 6.32°

Magnetic Field
Strength: 48558.2snT
Dip Angle: 60.59°
Date: 3/26/2015
Model: IGRF2010

DEC 2 1 2015

Cathedral Energy Services

Survey Report

Company:	OXY USA PERMIAN EOR	**Local Co-ordinate Reference:**	Well SHU (G/SA) 255
Project:	HOBBS, SOUTH	**TVD Reference:**	Original KB @ 3625.9usft (H&P 340 - KB - 16.5)
Site:	SOUTH HOBBS GRAYBURG-SA UNIT	**MD Reference:**	Original KB @ 3625.9usft (H&P 340 - KB - 16.5)
Well:	SHU (G/SA) 255	**North Reference:**	Grid
Wellbore:	ST00	**Survey Calculation Method:**	Minimum Curvature
Design:	Final	**Database:**	USA EDM 5000 Multi Users DB

Project HOBBS, SOUTH, North America, HOBBS, SOUTH - ALTURA HOBBS-OP

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site SOUTH HOBBS GRAYBURG-SA UNIT

Site Position:		**Northing:**	617,518.60 usft	**Latitude:**	32.692216
From:	Map	**Easting:**	859,408.09 usft	**Longitude:**	-103.165105
Position Uncertainty:	1.0 usft	**Slot Radius:**	600"	**Grid Convergence:**	0.63 °

Well SHU (G/SA) 255

Well Position	**+N/-S**	0.0 usft	**Northing:**	616,213.68 usft	**Latitude:**	32.688571
	+E/-W	0.0 usft	**Easting:**	861,357.19 usft	**Longitude:**	-103.158817
Position Uncertainty		1.0 usft	**Wellhead Elevation:**	3,609.4 usft	**Ground Level:**	3,609.4 usft

Wellbore ST00

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	3/26/2015	6.95	60.59	48,558

Design Final

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.0	0.0	0.0	45.07

Survey Program **Date** 8/25/2015

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
202.0	5,020.0	Survey #1 (ST00)	MWD+HDGM+AX+SAG_B0(	OWSG MWD + HDGM + Axial Corr + Sag Correction

Survey

Measured Depth (usft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Vertical Section (usft)**	**Dogleg Rate (°/100usf**	**Build Rate (°/100u**	**Formations / Comments**
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
202.0	1.00	154.60	202.0	-1.6	0.8	-0.6	0.50	0.50	
323.0	1.70	66.00	323.0	-1.8	2.8	0.7	1.61	0.58	
444.0	5.00	40.00	443.7	3.0	7.9	7.7	2.93	2.73	
624.0	4.40	38.30	623.1	14.4	17.2	22.3	0.34	-0.33	
804.0	7.00	48.20	802.2	27.1	29.7	40.1	1.54	1.44	
984.0	9.60	33.10	980.4	47.0	46.0	65.8	1.87	1.44	
1,164.0	13.00	33.80	1,156.8	76.4	65.5	100.3	1.89	1.89	
1,344.0	15.20	49.10	1,331.5	108.7	94.6	143.8	2.39	1.22	
1,482.0	16.80	41.50	1,464.1	135.5	121.5	181.7	1.91	1.16	
1,609.0	17.90	40.40	1,585.4	164.1	146.3	219.5	0.90	0.87	
1,789.0	20.70	43.50	1,755.2	208.2	186.2	278.9	1.66	1.56	
1,969.0	23.80	46.00	1,921.8	256.6	234.2	347.0	1.80	1.72	

Cathedral Energy Services

Survey Report

Company:	OXY USA PERMIAN EOR	**Local Co-ordinate Reference:**	Well SHU (G/SA) 255
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Site:	SOUTH HOBBS GRAYBURG-SA UNIT	**MD Reference:**	Original KB @ 3625.9usft (H&P 340 - KB - 16.5)
Well:	SHU (G/SA) 255	**North Reference:**	Grid
Wellbore:	ST00	**Survey Calculation Method:**	Minimum Curvature
Design:	Final	**Database:**	USA EDM 5000 Multi Users DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf	Build Rate (°/100u	Formations / Comments
2,149.0	26.50	45.90	2,084.7	309.8	289.2	423.5	1.50	1.50	
2,330.0	31.50	49.60	2,243.0	368.5	354.2	511.1	2.93	2.76	
2,510.0	37.50	48.90	2,391.3	435.1	431.4	612.7	3.34	3.33	
2,690.0	41.70	48.50	2,529.9	510.8	517.6	727.2	2.34	2.33	
2,870.0	37.00	44.70	2,669.1	589.0	600.6	841.2	2.93	-2.61	
3,049.0	35.00	44.30	2,813.9	664.1	674.3	946.4	1.13	-1.12	
3,229.0	37.50	44.80	2,959.1	739.9	749.0	1,052.8	1.40	1.39	
3,409.0	38.60	43.90	3,100.8	819.3	826.5	1,163.7	0.68	0.61	
3,589.0	37.60	44.00	3,242.5	899.2	903.6	1,274.8	0.56	-0.56	
3,769.0	37.60	46.70	3,385.1	976.4	981.7	1,384.6	0.92	0.00	
3,949.0	35.20	46.70	3,529.9	1,049.6	1,059.4	1,491.3	1.33	-1.33	
4,128.0	37.20	46.50	3,674.4	1,122.3	1,136.2	1,597.0	1.12	1.12	
4,308.0	36.70	46.20	3,818.2	1,197.0	1,214.5	1,705.2	0.30	-0.28	
4,488.0	34.20	49.10	3,964.9	1,267.3	1,291.6	1,809.5	1.67	-1.39	
4,667.0	32.20	48.40	4,114.6	1,331.9	1,365.3	1,907.3	1.14	-1.12	
4,847.0	33.80	49.10	4,265.6	1,396.6	1,439.0	2,005.1	0.91	0.89	
4,953.0	34.60	49.10	4,353.3	1,435.6	1,484.1	2,064.5	0.75	0.75	Last CES Survey @ 4953' MD
5,020.0	34.60	49.10	4,408.4	1,460.5	1,512.8	2,102.5	0.00	0.00	PTB @ 5020' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHU (G/SA) 255 BHL TC	0.00	0.00	3,996.0	1,342.6	1,369.6	617,556.38	862,726.88	32.692219	-103.154318
- actual wellpath misses target center by 73.0usft at 4573.3usft MD (4035.8 TVD, 1298.4 N, 1327.3 E)									
- Circle (radius 100.0)									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,953.0	4,353.3	1,435.6	1,484.1	Last CES Survey @ 4953' MD
5,020.0	4,408.4	1,460.5	1,512.8	PTB @ 5020' MD

Checked By: _____ Approved By: _____ Date: _____