

HOBBS OCD

OCT 27 2016

Phoenix Technology Services SURVEY DATA CERTIFICATION

RECEIVED


PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER

1514334

OPERATOR

Chevron

WELL NAME

Salado Draw 29-26-33 Fed Com 2H

COUNTY & STATE

Lea County, NM

API WELL NUMBER

30-025-42637

PROPOSED DIRECTION

182.15

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
0 ft	.00 ft	.0 ft	.0 ft	.00 ft	.00 ft	Surface

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
14-Nov-15	185 ft	0.30	262.00

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
8-Jan-16	16,485 ft	90.2	180

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
8-Jan-16	16,535 ft	90.2	180

Robert Brewer

PRINT YOUR NAME ABOVE

Robert Brewer

SIGN YOUR NAME ABOVE

1/8/2016

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	6.63
DECLINATION OR GRID	GRID

MWD SUPERVISOR 1

Robert Brewer

DIRECTIONAL DRILLER 1

Casey Tubbe

MWD SUPERVISOR 2

Lance Mosby

DIRECTIONAL DRILLER 2

Justin Jackson

12329 Cutten Road

Houston, Texas 77066

(713)337-0609 (Voice), (713)337-0599 (Fax)



HOBBS OCD

OCT 27 2016

RECEIVED

Chevron

**Lea County, NM (NAD27 NME)
Salado Draw 29 26 33 Fed Com
2H - Slot 2H**

OH / Job 1514334

Survey: Phoenix MWD Surveys

Standard Survey Report

08 January, 2016





Phoenix Technology Services

Survey Report



Company: Chevron
 Project: Lea County, NM (NAD27 NME)
 Site: Salado Draw 29 28 33 Fed Com
 Well: 2H
 Wellbore: OH / Job 1514334
 Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well 2H - Slot 2H
 TVD Reference: RKB @ 3242.00usft (Pace X30)
 MD Reference: RKB @ 3242.00usft (Pace X30)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Compass 5000 GCR

Project	Lea County, NM (NAD27 NME)		
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		

Site	Salado Draw 29 28 33 Fed Com		
Site Position:		Northing:	372,173.00 usft
From:	Map	Easting:	727,838.00 usft
Position Uncertainty:	0.00 usft	Spot Radius:	13-3/16 "
		Latitude:	32° 1' 15.91374 N
		Longitude:	103° 35' 53.52012 W
		Grid Convergence:	0.39 "

Well	2H - Slot 2H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 1' 15.91205 N
		Longitude:	103° 35' 53.22975 W
		Ground Level:	3.215 00 usft

Wellbore	OH / Job 1514334		
Magnetics	Model Name	Sample Date	Declination
	HDGM	10/7/2015	7.02
		Dip Angle	59.75
		Field Strength	48,070

Design	Surveys (Pace X30)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD)	+N/-S	Tie On Depth:
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
		Direction	182.15
		(°)	

Survey Program	Date 1/8/2016		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
185.00	16,535.00	Phoenix MWD Surveys (OH / Job 1514334)	PHX+MWD+HDGM
			Description
			PHX+OWSG MWD + HDGM

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185.00	0.30	262.00	185.00	-0.07	-0.48	0.09	0.16	0.16	0.00
First Phoenix Survey									
375.00	0.30	250.60	375.00	-0.30	-1.44	0.36	0.03	0.00	-8.00
559.00	0.50	241.90	558.99	-0.84	-2.60	0.94	0.11	0.11	-4.73
728.00	0.50	244.90	727.99	-1.50	-3.92	1.65	0.02	0.00	1.78
796.00	0.50	238.70	795.98	-1.78	-4.44	1.95	0.08	0.00	-8.12
962.00	0.40	254.60	961.98	-2.31	-5.62	2.52	0.10	-0.08	9.58
1,147.00	0.40	255.50	1,146.97	-2.64	-6.87	2.90	0.00	0.00	0.49
1,328.00	0.40	278.90	1,327.97	-2.70	-8.11	3.01	0.09	0.00	12.93
1,506.00	0.80	358.40	1,505.96	-1.37	-8.75	1.69	0.46	0.22	44.66



Phoenix Technology Services Survey Report



Company: Chevron
Project: Lea County, NM (NAD27 NME)
Site: Salado Draw 20 26 33 Fed Com
Well: 2H
Wellbore: OH / Job 1514334
Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well 2H - Slot 2H
TVD Reference: RKB @ 3242.00usft (Pace X30)
MD Reference: RKB @ 3242.00usft (Pace X30)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,083.00	3.70	350.50	1,082.81	5.58	-8.84	-5.25	1.84	1.84	0.62
1,080.00	1.80	20.80	1,059.81	13.80	-8.01	-13.29	1.29	-1.19	12.03
2,038.00	2.50	7.80	2,037.50	19.77	-8.80	-19.51	0.57	0.51	-7.30
2,215.00	2.40	5.80	2,214.33	27.28	-5.70	-27.05	0.07	-0.08	-1.13
2,392.00	2.50	358.10	2,391.17	34.83	-5.48	-34.60	0.19	0.08	-4.35
2,569.00	2.70	1.30	2,567.99	42.88	-5.49	-42.82	0.14	0.11	1.81
2,746.00	2.80	0.90	2,744.79	51.35	-5.33	-51.11	0.06	0.08	-0.23
2,923.00	3.00	3.40	2,921.58	60.29	-4.98	-60.06	0.13	0.11	1.41
3,101.00	2.30	348.00	3,099.37	88.44	-5.45	-68.18	0.56	-0.39	-8.85
3,278.00	2.40	340.70	3,276.22	75.41	-7.41	-75.08	0.18	0.06	-4.12
3,455.00	2.20	350.10	3,453.08	82.25	-9.22	-81.85	0.24	-0.11	5.31
3,632.00	2.40	9.30	3,629.94	89.26	-9.21	-88.85	0.45	0.11	10.85
3,810.00	2.60	3.20	3,807.77	98.97	-8.38	-98.58	0.19	0.11	-3.43
3,987.00	3.70	316.10	3,984.53	105.09	-12.12	-104.56	1.53	0.62	-28.81
4,164.00	2.70	277.30	4,161.27	109.74	-20.21	-108.90	1.31	-0.56	-21.92
4,341.00	2.30	284.10	4,338.10	108.80	-27.88	-108.78	0.39	-0.23	-7.46
4,519.00	2.20	257.00	4,515.97	108.77	-34.76	-107.38	0.17	-0.06	-3.99
4,696.00	2.30	253.90	4,692.83	107.02	-41.49	-105.38	0.09	0.06	-1.75
4,752.00	2.20	253.50	4,748.79	108.40	-43.60	-104.69	0.18	-0.18	-0.71
4,883.00	2.10	256.70	4,879.89	105.13	-48.34	-103.24	0.12	-0.08	2.44
5,060.00	2.90	264.00	5,056.52	103.92	-55.95	-101.75	0.49	0.45	4.12
5,237.00	4.60	267.70	5,233.14	103.17	-87.50	-100.56	0.97	0.96	2.09
5,414.00	4.40	263.90	5,409.59	102.16	-81.34	-99.03	0.20	-0.11	-2.15
5,592.00	4.00	250.60	5,587.12	99.37	-93.99	-95.77	0.59	-0.22	-7.47
5,769.00	3.50	249.80	5,763.74	95.46	-104.88	-91.45	0.28	-0.28	-0.45
5,946.00	4.10	258.10	5,940.35	92.29	-116.14	-87.86	0.46	0.34	4.69
6,123.00	4.40	262.80	6,116.87	90.13	-129.07	-85.22	0.26	0.17	2.68
6,301.00	4.20	262.70	6,294.36	88.45	-142.31	-83.04	0.11	-0.11	-0.08
6,478.00	4.10	260.00	6,470.90	86.52	-154.97	-80.65	0.12	-0.06	-1.53
6,655.00	3.90	259.00	6,647.47	84.28	-167.11	-77.94	0.12	-0.11	-0.56
6,832.00	3.50	257.60	6,824.10	81.97	-178.30	-75.22	0.23	-0.23	-0.79
7,009.00	3.90	263.30	7,000.73	80.10	-189.55	-72.93	0.31	0.23	3.22
7,186.00	4.40	259.80	7,177.27	78.20	-202.21	-70.56	0.32	0.28	-1.98
7,363.00	4.10	274.50	7,353.78	77.49	-215.20	-69.36	0.64	-0.17	8.31
7,541.00	4.20	269.90	7,531.32	77.98	-228.06	-69.37	0.20	0.06	-2.58
7,718.00	4.00	284.80	7,707.87	77.41	-240.89	-68.32	0.23	-0.11	-2.88
7,895.00	4.10	277.70	7,884.43	77.70	-253.11	-68.15	0.52	0.06	7.29
8,073.00	3.70	276.80	8,062.02	79.23	-265.12	-69.23	0.23	-0.22	-0.51
8,250.00	4.20	270.40	8,238.60	79.95	-277.27	-69.49	0.38	0.28	-3.62
8,427.00	3.80	285.10	8,415.15	79.48	-289.75	-68.55	0.27	-0.17	-2.99
8,605.00	3.30	281.70	8,592.80	78.23	-300.85	-66.88	0.36	-0.34	-1.91
8,640.00	3.10	281.90	8,627.75	77.95	-302.79	-66.53	0.57	-0.57	0.57
8,670.00	3.00	259.20	8,657.70	77.89	-304.36	-66.21	0.58	-0.33	-9.00



Phoenix Technology Services Survey Report



Company: Chevron
Project: Lea County, NM (NAD27 NME)
Site: Salado Draw 29 28 33 Fed Com
Well: 2H
Wellbore: OH / Job 1514334
Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well 2H - Slot 2H
TVD Reference: RKB @ 3242.00usft (Pace X30)
MD Reference: RKB @ 3242.00usft (Pace X30)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,715.00	4.80	259.50	8,702.60	77.14	-307.29	-85.55	3.58	3.58	0.87
8,759.00	8.90	234.60	8,746.30	74.84	-311.81	-83.09	11.60	9.77	-56.59
8,804.00	17.00	224.10	8,790.12	68.09	-319.23	-56.06	18.67	18.00	-23.33
8,848.00	23.20	216.20	8,831.43	56.46	-328.84	-44.08	15.35	14.09	-17.95
8,892.00	27.90	202.40	8,871.15	39.93	-337.89	-27.22	17.17	10.68	-31.36
8,937.00	31.60	191.40	8,910.24	18.61	-344.24	-5.68	14.62	8.22	-24.44
8,982.00	33.60	181.70	8,948.18	-5.41	-346.95	18.42	12.42	4.44	-21.56
9,026.00	37.60	176.40	8,983.96	-30.99	-346.46	43.97	11.47	9.09	-12.05
9,071.00	43.00	175.20	9,018.26	-60.00	-344.32	72.88	12.12	12.00	-2.67
9,115.00	49.30	175.20	9,048.73	-91.61	-341.66	104.37	14.32	14.32	0.00
9,159.00	56.40	177.10	9,075.29	-126.58	-339.34	139.22	16.50	16.14	4.32
9,204.00	62.40	179.20	9,098.18	-165.27	-338.11	177.84	13.92	13.33	4.67
9,248.00	66.50	180.30	9,117.16	-204.96	-337.94	217.50	9.59	9.32	2.50
9,301.00	73.40	180.30	9,135.32	-254.71	-338.20	267.23	13.02	13.02	0.00
9,333.00	76.20	180.10	9,143.71	-285.59	-338.31	298.09	8.77	8.75	-0.63
9,364.00	80.40	180.80	9,149.99	-315.94	-338.50	328.42	13.64	13.55	1.61
9,396.00	82.90	181.50	9,154.64	-347.59	-339.08	360.07	8.29	7.81	2.81
9,427.00	85.50	182.10	9,157.77	-376.41	-340.05	390.91	8.61	8.39	1.94
9,522.00	88.30	182.10	9,162.81	-473.20	-343.52	465.76	2.95	2.95	0.00
9,616.00	88.90	182.20	9,165.20	-567.11	-347.05	579.73	0.65	0.64	0.11
9,711.00	89.00	180.80	9,166.95	-662.06	-349.53	674.71	1.48	0.11	-1.47
9,805.00	88.00	179.90	9,169.41	-756.02	-350.11	768.63	1.43	-1.06	-0.96
9,899.00	87.30	180.30	9,173.26	-849.94	-350.27	862.49	0.88	-0.74	0.43
9,994.00	89.20	181.30	9,176.16	-944.88	-351.60	957.41	2.26	2.00	1.05
10,088.00	90.50	180.00	9,176.41	-1,038.67	-352.66	1,051.38	1.96	1.38	-1.38
10,183.00	92.00	179.50	9,174.34	-1,133.84	-352.25	1,146.27	1.66	1.58	-0.53
10,277.00	92.20	178.70	9,170.89	-1,227.77	-350.77	1,240.07	0.88	0.21	-0.85
10,372.00	93.10	178.40	9,166.50	-1,322.64	-348.37	1,334.78	1.00	0.95	-0.32
10,466.00	90.00	178.20	9,163.86	-1,416.55	-345.59	1,428.52	3.30	-3.30	-0.21
10,561.00	90.30	177.90	9,163.71	-1,511.49	-342.35	1,523.28	0.45	0.32	-0.32
10,655.00	90.30	177.60	9,163.22	-1,605.42	-338.66	1,617.00	0.32	0.00	-0.32
10,750.00	90.40	178.50	9,162.63	-1,700.36	-335.43	1,711.75	0.95	0.11	0.95
10,845.00	91.30	178.60	9,161.23	-1,795.32	-333.03	1,806.55	0.95	0.95	0.11
10,939.00	91.09	179.74	9,159.27	-1,889.29	-331.67	1,900.40	1.23	-0.22	1.21
11,034.00	91.51	180.43	9,157.11	-1,984.26	-331.81	1,995.32	0.65	0.44	0.73
11,128.00	87.76	178.74	9,157.71	-2,078.24	-331.13	2,089.20	4.38	-3.99	-1.80
11,223.00	86.28	177.55	9,162.65	-2,173.06	-328.06	2,183.84	2.00	-1.56	-1.25
11,318.00	87.79	178.29	9,167.56	-2,267.86	-324.61	2,278.45	1.77	1.59	0.78
11,412.00	87.82	177.18	9,171.16	-2,361.72	-320.90	2,372.10	1.18	0.03	-1.18
11,507.00	89.05	177.81	9,173.76	-2,456.59	-316.75	2,466.75	1.45	1.29	0.66
11,601.00	89.75	178.15	9,174.74	-2,550.53	-313.44	2,560.49	0.83	0.74	0.36
11,696.00	93.64	181.50	9,171.93	-2,645.45	-313.14	2,655.34	5.40	4.09	3.53
11,790.00	89.05	180.66	9,169.72	-2,739.38	-314.91	2,749.27	4.96	-4.88	-0.89



Phoenix Technology Services

Survey Report



Company: Chevron
 Project: Lea County, NM (NAD27 NME)
 Site: Salado Draw 29 28 33 Fed Com
 Well: 2H
 Wellbore: OH / Job 1514334
 Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well 2H - Slot 2H
 TVD Reference: RKB @ 3242.00usft (Pace X30)
 MD Reference: RKB @ 3242.00usft (Pace X30)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,885.00	88.84	178.70	9,173.30	-2,834.30	-314.39	2,844.11	3.27	-2.54	-2.08
11,979.00	87.08	179.55	9,178.44	-2,928.15	-312.85	2,937.83	1.02	0.48	0.80
12,074.00	84.31	177.02	9,185.56	-3,022.82	-310.12	3,032.33	3.95	-2.93	-2.66
12,168.00	87.46	179.02	9,192.31	-3,116.51	-308.89	3,125.83	3.97	3.35	2.13
12,263.00	85.30	177.55	9,198.30	-3,211.27	-304.05	3,220.42	2.75	-2.27	-1.55
12,357.00	87.03	178.60	9,204.59	-3,305.00	-300.80	3,313.97	2.15	1.84	1.12
12,452.00	90.70	182.96	9,206.47	-3,399.93	-302.20	3,408.88	6.00	3.86	4.59
12,546.00	89.75	179.36	9,206.10	-3,493.90	-304.10	3,502.85	3.96	-1.01	-3.83
12,640.00	91.30	179.10	9,205.24	-3,587.88	-302.84	3,596.72	1.67	1.65	-0.28
12,735.00	92.60	180.60	9,202.01	-3,682.82	-302.59	3,691.58	2.08	1.37	1.58
12,829.00	91.00	181.40	9,199.06	-3,776.76	-304.23	3,785.51	1.90	-1.70	0.85
12,924.00	89.70	180.40	9,198.48	-3,871.74	-305.72	3,880.49	1.73	-1.37	-1.05
13,018.00	89.80	180.10	9,198.89	-3,965.74	-308.13	3,974.43	0.34	0.11	-0.32
13,112.00	89.40	178.50	9,199.54	-4,059.73	-304.98	4,088.31	1.75	-0.43	-1.70
13,207.00	88.30	178.80	9,201.45	-4,154.68	-302.58	4,183.10	1.16	-1.16	0.11
13,301.00	90.40	179.10	9,202.52	-4,248.64	-300.69	4,258.94	2.30	2.23	0.53
13,396.00	93.30	181.50	9,199.45	-4,343.58	-301.19	4,351.82	3.96	3.05	2.53
13,491.00	92.00	179.40	9,195.06	-4,438.46	-301.93	4,446.67	2.80	-1.37	-2.21
13,585.00	88.60	178.30	9,194.57	-4,532.43	-300.04	4,540.50	3.80	-3.62	-1.17
13,680.00	89.70	179.30	9,195.97	-4,627.40	-298.05	4,635.32	1.56	1.16	1.05
13,774.00	90.00	179.30	9,196.22	-4,721.39	-296.91	4,729.20	0.32	0.32	0.00
13,868.00	88.10	178.20	9,197.78	-4,815.35	-294.66	4,823.02	2.34	-2.02	-1.17
13,963.00	94.80	180.10	9,195.29	-4,910.24	-293.45	4,917.80	7.43	7.16	2.00
14,058.00	94.80	181.50	9,187.26	-5,004.89	-294.77	5,012.43	1.47	-0.11	1.47
14,152.00	88.50	181.00	9,184.56	-5,098.78	-296.82	5,106.33	6.72	-6.70	-0.53
14,247.00	87.80	180.60	9,187.62	-5,193.72	-298.14	5,201.25	0.85	-0.74	-0.42
14,341.00	87.40	179.90	9,191.56	-5,287.64	-298.55	5,295.12	0.86	-0.43	-0.74
14,436.00	89.40	180.50	9,194.21	-5,382.60	-298.68	5,390.02	2.20	2.11	0.63
14,531.00	90.60	179.90	9,194.21	-5,477.59	-299.21	5,484.96	1.41	1.26	-0.63
14,625.00	90.70	180.60	9,193.14	-5,571.59	-299.62	5,578.91	0.75	0.11	0.74
14,720.00	87.10	179.40	9,194.97	-5,666.55	-299.63	5,673.80	3.99	-3.79	-1.26
14,815.00	88.70	181.70	9,198.45	-5,761.47	-300.54	5,768.69	2.95	1.68	2.42
14,909.00	89.00	181.10	9,200.34	-5,855.43	-302.83	5,862.67	0.71	0.32	-0.64
15,004.00	89.90	181.80	9,201.25	-5,950.39	-305.24	5,957.65	1.20	0.95	0.74
15,098.00	90.00	181.30	9,201.33	-6,044.36	-307.78	6,051.65	0.54	0.11	-0.53
15,193.00	88.20	181.30	9,202.82	-6,139.32	-309.93	6,146.62	1.89	-1.89	0.00
15,288.00	90.30	180.30	9,204.07	-6,234.29	-311.28	6,241.58	2.45	2.21	-1.05
15,382.00	90.20	177.90	9,203.66	-6,328.27	-309.78	6,335.44	2.56	-0.11	-2.55
15,476.00	90.80	178.50	9,202.84	-6,422.15	-305.19	6,429.08	1.62	0.64	-1.49
15,571.00	91.20	174.90	9,201.18	-6,516.87	-298.07	6,523.46	1.74	0.42	-1.68
15,665.00	90.00	175.80	9,200.19	-6,610.54	-290.29	6,616.78	1.48	-1.28	0.74
15,760.00	92.20	179.00	9,198.37	-6,705.40	-285.81	6,711.40	4.28	2.32	3.58
15,854.00	90.40	179.20	9,196.24	-6,799.36	-284.34	6,805.24	1.93	-1.91	0.21
15,949.00	88.40	181.30	9,197.23	-6,894.34	-284.75	6,900.17	3.05	-2.11	2.21



Phoenix Technology Services

Survey Report



Company: Chevron
Project: Lea County, NM (NAD27 NME)
Site: Salado Draw 29 26 33 Fed Com
Well: 2H
Wellbore: OH / Job 1514334
Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well 2H - Slot 2H
TVD Reference: RKB @ 3242.00usft (Pace X30)
MD Reference: RKB @ 3242.00usft (Pace X30)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,043.00	89.30	181.40	9,199.12	-6,988.29	-286.97	6,984.14	0.96	0.96	0.11
16,138.00	89.60	182.00	9,200.03	-7,083.25	-289.78	7,089.13	0.71	0.32	0.63
16,232.00	90.90	180.80	9,199.62	-7,177.22	-291.92	7,183.12	2.03	1.38	-1.49
16,327.00	88.60	179.80	9,200.03	-7,272.21	-292.25	7,278.05	2.56	-2.42	-0.84
16,421.00	89.30	179.30	9,201.76	-7,366.19	-291.51	7,371.84	0.92	0.74	-0.53
16,485.00	90.20	180.00	9,202.04	-7,430.19	-291.12	7,435.88	1.78	1.41	1.09
Final Phoenix Survey									
16,535.00	90.20	180.00	9,201.86	-7,480.19	-291.12	7,485.84	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
185.00	185.00	-0.07	-0.48	First Phoenix Survey
16,485.00	9,202.04	-7,430.19	-291.12	Final Phoenix Survey
16,535.00	9,201.86	-7,480.19	-291.12	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

SALADO DRAW 29 26 33 FED COM #002H

PERF & FRAC INFORMATION

STAGE 1: 16335, 16275, 16215, 16155, 16095

6 spf, .41 dia hole. Pump down using 485 bbls treat water @ 15bpm. Max press-7820psi.

PUMP STAGE 1:

Sand in formation 312,000lbs 132% Prime up & test lines to 9500psi.
Equalize/open well @ 1391 psi. Avg Rate 80.0bpm. Avg press:7672psi.
Max Rate: 87.0 bpm Max Press:8086psi. ISIP:1735 psi
Pump Time 124 mins Total clean fluid 8937 bbls Total slurry volume 9402 bbls
Sand pumped: Sand 100 – 33,000 lbs Sand 40/70 – 380,240 lbs TOTAL:413,240 lbs

STAGE 2: 16035, 15972, 15915, 15855, 15795

6 jspf, .41 dia hole. Pump down @ 13 bpm 1900 psi line tension before set 1520# 1450# after 493 bbls pmpd.

PUMP STAGE 2:

Sand in formation 419,850 lbs: 98% Test lines to 9500 psi.
Equalize/open well @ 1366 psi. Avg Rate: 85.0bpm Avg Pressure 7000psi
Max rate: 85.0bpm Max Pressure 8022 psi ISIP 1717psi
Pump Time: 126 mins. Total clean fluid:8831 bbls Total Slurry volume:9284 bbls
Sand pumped: Sand 100 – 32,000 lbs, Sand 40/70: 378,600 lbs TOTAL: 410,600 lbs

STAGE 3: 15735, 15675, 15612, 15555, 15495

6 jspf, .41 dia hole. Pump down @ 14bpm. Line tension: 1352psi before, 1295psi after 368 bbls pmpd.

PUMP STAGE 3:

Sand in formation 419,850lbs, 99% Prime up & test lines to 9500psi.
Equalize/open well @ 1156psi. Ave Rate: 80.0bpm Ave Pressure: 7555psi
Max Rate: 84.0bpm, Max Pressure: 8444psi. ISIP:1724psi.
Pump Time: 122mins. Total clean fluid: 8469bbls. Total slurry volume: 8899 bbls
Sand Pumped: Sand 100 – 31,920lbs, Sand 40/70: 383,520lbs. TOTAL: 415,440lbs

STAGE 4: 15438, 15375, 15315, 15252, 15195

6 JSPF, .41 dia hole. Pump dn @ 14bpm. Line tension before set 1540psi & 1465 after. Max press of 2050psi w/346 bbls pumped.

PUMP STAGE 4:

Sand in formation 419,850lbs, 97% Prime up & test lines to 9500psi.
Equalize/open well @ 1309 psi. Avg Rate: 78.4bpm, Avg Pressure: 6690psi.
Max Rate: 84.0bpm, Max Pressure: 7706psi. ISIP:1815psi.
Pump Time: 139mins. Total clean fluid: 8903bbls, Total slurry volume: 9371bbls
Sand pumped: sand 100: 30,000lbs, Sand 40/70L 376,120lbs, TOTAL: 406,120lbs

STAGE 5: 15135, 15078, 15015, 14955, 14895

6 JSPF, .41 dia hole. Pump dn @ 12bpm. Line tension before set 1483 psi, & 1438 after. Max pressure of 2024 psi w/328bbls pumped.

PUMP STAGE 5:

Sand in formation: 419,850 lbs, 97%, Prime up & test lines to 9500psi.
Equalize/open well @ 1087psi. Ave Rate: 82.6bpm, Avg pressure: 7110psi

Max Rate: 82.6bpm, Max Pressure: 7110psi. ISIP: 1953psi.
Pump Time: 137 mins. Total clean fluid: 9176 bbls, Total Slurry volume: 9646 bbls
Sand pumped: Sand 100: 32,000 lbs, Sand 40/70: 374,060 lbs, TOTAL: 406,060 lbs

STAGE 6: 14835, 14775, 14715, 14655, 14595

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1458 psi, & 1378 after. Max Pressure of 1981 psi w/312 bbls pumped.

PUMP STAGE 6:

Sand in formation: 419,850 lbs, 98%. Prime up & test lines to 9500 psi.
Equalize/open well @ 1108 psi. Ave Rate: 84.9bpm, Ave Pressure: 6941psi.
Max rate: 86.0bpm, Max Pressure: 7914 psi. ISIP: 1981psi.
Pump time: 123 mins. Total clean fluid: 8569 bbls, Total Slurry volume: 9018 bbls
Sand pumped: sand 100: 33,000 lbs, sand 40/70: 379,260 lbs. TOTAL: 412,260 lbs

STAGE 7: 14535, 14475, 14415, 14355, 14295

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1405 psi & 1348 after. Max pressure of 2124 psi w/325 bbls pumped.

PUMP STAGE 7:

Sand in formation: 419,850 lbs, 99%, Prime up & test lines to 9500 psi.
Equalize/open hole @ 1337 psi. Ave rate: 84.0 bpm, Ave Pressure: 7088 psi
Max rate: 85.4 bpm, Max Pressure: 8007 psi. ISIP: 2202 psi.
Pump time: 129 mins. Total clean fluid: 8826 bbls, Total slurry volume: 9288 bbls.
Sand Pumped: Sand 100: 32,000 lbs, Sand 40/70: 383,200 lbs, TOTAL: 415,200 lbs

STAGE 8: 14235, 14175, 14115, 14055, 13995

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1305 psi, & 1253 after. Max pressure of 2360 psi w/284 bbls pumped.

PUMP STAGE 8:

Sand in formation: 419850 lbs, 98%, Prime up & test lines to 9500 psi.
Equalize/open hole @ 1437 psi. Ave Rate: 85.4 bpm, Ave pressure: 6972 psi
Max Rate: 85.0 bpm, Max pressure: 8426 psi. ISIP: 2074 psi.
Pump time: 126 mins. Total clean fluid: 8797 bbls, Total slurry volume: 9268 bbls
Sand pumped: Sand 100: 32,000 lbs, Sand 40/70: 379,750 lbs. TOTAL 411,750 lbs

STAGE 9: 13935, 13875, 13815, 13755, 13695

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1425 lbs & 1360 after. Max pressure of 2252 psi w/293 bbls pumped.

PUMP STAGE 9:

Sand in Formation: 419,850 lbs, 97% Prime up & test lines to 9500 psi.
Equalize/open well @ 1352 psi. Ave Rate: 84.7 bpm, Ave Pressure: 7129 psi.
Max rate: 86.0 bpm, Max pressure: 8039 psi. ISIP: 2296 psi.
Pump time: 123 mins. Total Clean fluid: 8611 bbls, Total slurry volume: 9049 bbls
Sand pumped: Sand 100: 32,040 lbs, Sand 40/70: 373,8600 lbs. TOTAL: 405,900 lbs

STAGE 10: 13635, 13575, 13515, 13455, 13395

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1420 lbs & 1350 after. Max press of 2325 psi w/259 bbls pumped.

PUMP STAGE 10:

Sand in formation: 419,850 lbs, 97% Prime up and test lines to 9500 psi.
Equalize/open well @ 1437 psi. Ave Rate: 82.0 bpm, Ave Pressure: 7013 psi.
Max Rate: 86.0 bpm, Max pressure: 8032 psi. ISIP: 1938 psi.
Pump time: 130 mins. Total clean fluid: 8642 bbls, Total slurry volume: 9091 bbls
Sand pumped: Sand 100: 30,000 lbs, Sand 40/70: 378,400 lbs. TOTAL 408,400 lbs

STAGE 11: 13335, 13275, 13215, 13155, 13095

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1458 lbs & 1300 after. Max Press 2006 psi w/272 bbls pumped.

PUMP STAGE 11:

Sand in formation: 419,850 lbs, 99%, Prime up and test lines to 9500 psi.
Equalize/open well @ 1133 psi. Ave Rate: 84.9 bpm. Ave Pressure: 6808 psi.
Max rate: 86.0 bpm, Max pressure: 7780 psi. ISIP: 2228 psi.
Pump time: 130 mins. Total clean fluid: 9032 bbls, total slurry volume 9503 bbls.
Sand pumped: Sand 100: 31,000 lbs, Sand 40/70: 384,360 lbs, TOTAL: 415,360 lbs

STAGE 12: 13035, 12975, 12915, 12850, 12795

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1320 psi & 1282 after. Max Presre of 2036 psi w/202 bbls puped.

PUMP STAGE 12:

Sand in formation: 419,850 lbs, 100% Prime up and test lines to 9500 psi.
Equalize/open well @ 1434 psi. Ave Rate: 84.0 bpm, Ave pressure: 6591 psi
Max rate: 86.0 bpm, Max pressure: 8029 psi, ISIP: 2224 psi.
Pump time: 129 mins, Total clean fluid: 8838 bbls, Total slurry volume: 9298 bbls.
Sand pumped: Sand 100: 32,580 lbs, Sand 40/70: 388,160 lbs, TOTAL: 420,740 lbs.

STAGE 13: 12735, 12675, 12615, 12555, 12495

6 JSPF, .41 dia holle. Pump dn @ 12 bpm. Line tension before set 1325 lbs & 1200 after. Max pressure of 1974 psi w/209 bbls pumped.

PUMP STAGE 13:

Sand in formation: 419,850 lbs, 96%, Prime up & test lines to 9500 psi.
Equalize/open well @ 1305 psi. Ave Rate: 83.2 bpm, Ave Pressure: 6662 psi.
Max Rate: 84.7 bpm, Max Pressure: 7358 psi. ISIP: 2217 psi.
Pump time: 120 mins. Total clean fluid: 8634 bbls, Total slurry volume: 9082 bbls.
Sand pumped: Sand 100: 31,000 lbs, Sand 40/70: 372,280 lbs TOTAL: 403,280 lbs

STAGE 14: 12435, 12375, 12310, 12255, 12195

6 JSPF, .41 dia hole. Pump down @ 12 bpm. Line tension before set 1382 psi & 1220 after. Max press of 2006 psi w/193 bbls pumped.

PUMP STAGE 14:

Sand in formation: 419,850 lbs 101%. Prime up & test lines to 9500 psi.
Equalize/open hole W 1180 psi. Ave rate: 83.0 bpm, Ave Press: 6084 psi
Max Rate: 86.0 bpm, Max pressure: 7167 psi. ISIP: 1996 psi.
Pump time: 137 mins. Total clean fluid: 9632 bbls, Total slurry volume: 10,102 bbls.
Sand pumped: Sand 100: 30,000 lbs, Sand 40/70: 393,000 lbs, TOTAL 423,000 lbs.

STAGE 15: 12138, 12075, 12015, 11958, 11895

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1411 psi & 1235 after. Max press 1834 psi @ 182 bbls pumped.

PUMP STAGE 15:

Sand in formation: 419850 lbs, 101%. Prime up & test lines to 9500 psi.

Equalize/open well @ 1098 psi. Ave Rate: 76.7 bpm, Ave Pressure: 5852 psi.

Max Rate: 84.9 bpm, Max pressure: 7670 psi, ISIP: psi.

Pump time 142 mins, Total clean fluid: 9239 bbls, Total slurry volume: 9720 bbls

Sand pumped: Sand 100: 34,000 lbs, Sand 40/70: 388,300 lbs, TOTAL 422,300 lbs

STAGE 16: 11835, 11778, 11715, 11655, 11598

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1355 psi & 1185 after. Max press 2175psi w/147 bbls pumped.

PUMP STAGE 16:

Sand in formation: 419,850 lbs, 101%, Prime up & test lines to 9500 psi.

Equalize/open well @ 991 psi. Ave Rate: 83.0 bpm, Ave Press: 6,778 psi.

Max rate: 86.0 bpm, Max Pressure: 7958 psi. ISIP: 2354 psi.

Pump time: 123 mins. Total clean fluid: 8422 bbls, Total Slurry volume: 8851 bbls.

Sand pumped: Sand 100: 32380 lbs, Sand 40/70: 392,040 lbs, TOTAL 424,420 lbs

STAGE 17: 11535, 11475, 11415, 11355, 11295

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1337 lbs & 1155 after. Max press of 2260 psi w/155 bbls pumped.

PUMP STAGE 17:

Sand in formation: 419,850 lbs 102% Prime up & test lines to 9500 psi.

Equalize/open well @ 1498 psi. Ave Rate: 84.7 bpm, Avg Pressure: 6464 psi.

Max Rate: 86.0 bpm, Max pressure: 6977 psi. ISIP: 2364 psi.

Pump time 127 mins, Total clean fluid: 8828 bbls, Total slurry volume: 9298 bbls

Sand pump: Sand 100: 32,000 lbs, Sand 40/70: 394,320 lbs, TOTAL: 426,320 lbs

STAGE 18: 11235, 11175, 11115, 11055, 10995

6 JSPF, .41 dia hole. Pump dn @ 15 bpm. Line tension before set 1330 lbs & 1130 lbs after. Max press of 2360 psi w/124 bbls pumped.

PUMP STAGE 18:

Sand in formation: 419,850 lbs 100% Prime up & test lines to 9500 psi.

Equalize/open well @ 1552 psi. Ave rate: 86.0 bpm, Avg Pressure: 6641 psi

Max rate: 87.0 bpm, Max Pressure: 7664 psi, ISIP: 2446 psi.

Pump time: 122 mins. Total clean fluid: 8721 bbls, Total slurry volume: 9182 bbls.

Sand pumped: Sand 100: 31,600 lbs, Sand 40/70: 389,320 lbs, TOTAL: 420,920 lbs

STAGE 19: 10935, 10875, 10816, 10755, 10695

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1233 lbs & 1094 after. Max press 2249 psi w/114 bbls pumped.

PUMP STAGE 19:

Sand in formation: 419,850 lbs 100%, Prime up & test lines to 9500 psi.

Equalize/open well @ 1716psi. Ave rate: 85.4 bpm, Ave pressure: 6476 psi.

Max rate: 87.0 bpm, Max pressure: 7211 psi. ISIP: 2454 psi.

Pump time: 142 mins. Total clean fluid: 9386 bbls, Total slurry volume: 9904 bbls.

Sand pumped: Sand 100: 32,000 lbs, Sand 40/70: 389,400 lbs, TOTAL: 421,400 lbs

STAGE 20: 10632, 10575, 10515, 10458, 10395

6 JSPF, .41 dia hole. Pump dn @ 15 bpm. Line tension before set 1330 lbs & 1130 lbs after. Max press of 2607 psi w/90 bbls pumped.

PUMP STAGE 20:

Sand in formation: 419,850 lbs 100% Prime up and test lines to 9500 psi.

Equalize/open well @ 1627 psi. Ave rate: 85.0 bpm, Ave pressure: 6350 psi.

Max rate: 86.0 bpm, Max pressure: 6970 psi. ISIP: 2200 psi.

Pump time: 577 mins, Total Clean fluid: 10168 bbls, Total slurry volume: 10,663 bbls.

Sand pumped: Sand 100: 32,060 lbs, Sand 40/70: 388,480 lbs, TOTAL 420,540 lbs

STAGE 21: 10335, 10277, 10215, 10155, 10095

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1160 lbs & 1160 after. Max press of 2700 psi w/131 bbls pumped.

PUMP STAGE 21:

Sand in formation: 419,850 lbs, 100% Prime up and test lines to 9500 psi.

Equalize/open well @ 1709 psi. Ave rate: 86.0 bpm, Ave Pressure: 6441 psi.

Max rate: 86.5 bpm, Max pressure: 7106 psi. ISIP: 2328 psi.

Pump time: 127 mins. Total clean fluid: 8351 bbls, Total slurry volume: 8796 bbls

Sand pumped: Sand 100: 30,000 lbs, Sand 40/70: 387,340 lbs, TOTAL: 419,340 lbs

STAGE 22: 10035, 9975, 9915, 9855, 9795

6 JSPF. Pump dn @ 12 bpm. Line tension before set @ 1225 lbs & 1062 after. Max press of 2220 psi w/71 bbls pumped.

PUMP STAGE 22:

Sand in formation: 419,850 lbs 101%, Prime up & test lines to 9500 psi.

Equalize/open well @ 1895 psi. Ave Rate: 84.5 bpm, Ave pressure: 5794 psi.

Max rate: 85.0 bpm, Max pressure: 5997 psi. ISIP: 2505 psi.

Pump time: 129 mins. Total clean fluid: 9098 bbls, Total slurry volum: 9594 bbls

Sand pumped: Sand 100: 30,000 lbs, Sand 40/70: 394,220 lbs, TOTAL: 424,220 lbs

STAGE 23: 9735, 9675, 9615, 9555, 9495

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Line tension before set 1275 lbs & 1160 after. Max press 2450 psi w/33 bbls pumped.

PUMP STAGE 23:

Sand in formation: 419,850 lbs 100%, Prime up & test lines to 9500 psi.

Equalize/open well @ 1623 psi. Ave Rate: 86.0 bpm, Ave Pressure: 6126 psi.

Max Rate: 86.6 bpm, Max pressure: 7285 psi. ISIP: 2482 psi.

Pump time: 138 mins. Total clean fluid: 9225 bbls, Total slurry volume: 9733 bbls

Sand Pumped: Sand 100: 34,040 lbs, Sand 40/70: 387,640 lbs, TOTAL: 421,680 lbs.