

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTNMOCD
HobbsFORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

- 1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

2. Name of Operator CHEVRON USA INC
Contact: DENISE PINKERTON
E-Mail: leakejd@chevron.com

3. Address 1616 W. BENDER BLVD
HOBBS, NM 88240

3a. Phone No. (include area code)
Ph: 432-687-7375

4. Location of Well (Report location clearly and in accordance with Federal requirements)*

At surface SESE 215FSL 673FEL
At top prod interval reported below SESE 109FSL 958FEL
At total depth SESE 109FSL 958FEL

14. Date Spudded
04/17/2016

15. Date T.D. Reached
05/25/2016

16. Date Completed
☐ D & A ☒ Ready to Prod.
06/29/2016

17. Elevations (DF, KB, RT, GL)*
3165 GL

18. Total Depth: MD
TVD

14043
9017

19. Plug Back T.D.: MD
TVD

13980
9017

20. Depth Bridge Plug Set: MD
TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
CBL

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 J-55	54.5	0	822		960		0	
12.250	9.625 HCK-55	40.0	0	4568		1475		0	
8.750	5.500 HCP-110	20.0	0	14027		1730		3148	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	8508	8490						

25. Producing Intervals

26. Perforation Record

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
BONE SPRINGS UPPER SHAL	9403	13845	9403 TO 13845			PRODUCING ***SEE DETAILED F
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
9403 TO 13845	FRAC W/TOTAL SAND (100 MESH & 20/40) = 6,310,764 LBS ***DETAILED FRAC REPORT ATTACHED

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
08/01/2016	09/20/2016	24	→	1037.0	1934.0	1048.0			FLows FROM WELL
Choke Size	Tbg. Press. Flwg. 921 SI	Csg. Press. 403.0	24 Hr. Rate →	Oil BBL 1037	Gas MCF 1934	Water BBL 1048	Gas:Oil Ratio 1865	Well Status POW	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #353475 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED

RECLAMATION DUE:
FEB 01 2017

DAVID R. GLASS

RECEIVED FOR RECORD
S/ DAVID R. GLASS
NOV 04 2016

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

29. Disposition of Gas(Sold, used for fuel, vented, etc.)
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
CASTILE	2840	4579	ANHYDRITE	CASTILE	2840
DELAWARE	4580	4629	LIMESTONE	DELAWARE	4580
BELL CANYON	4630	5689	SANDSTONE	BELL CANYON	4630
CHERRY CANYON	5690	7279	SANDSTONE	CHERRY CANYON	5690
BRUSHY CANYON	7280	8819	SANDSTONE	BRUSHY CANYON	7280
BONE SPRING LIME	8820	8869	SHALE/LIMESTONE	BONE SPRING LIME	8820
BONE SPRINGS UPPER SHAL	8870	14043	SHALE/LIMESTONE	BONE SPRINGS UPPER SHAL	8870

32. Additional remarks (include plugging procedure):

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7 Other: | |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #353475 Verified by the BLM Well Information System.

For CHEVRON USA INC, sent to the Hobbs

Committed to AFMSS for processing by DEBORAH HAM on 10/26/2016 (17DMH0012SE)

Name (please print) DENISE PINKERTON

Title PERMITTING SPECIALIST

Signature (Electronic Submission)

Date 10/04/2016

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ****

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

60047

OPERATOR

Chevron

WELL NAME SD WE 23 Fed P7 3H

COUNTY & STATE

Lea County, NM

API WELL NUMBER

30-025-43088

PROPOSED DIRECTION

183.13

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
807.00 ft	806.97 ft	0.7°	268.0°	1.91 N	2.16 E	Teledrift

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
16-May	948 ft	1.1°	281.6°

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
21-May-16	8,483 ft	1	189.7

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
21-May-16	8,540 ft	1	189.7

Robert Brewer

PRINT YOUR NAME ABOVE

Robert Brewer

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.60
DECLINATION OR GRID	GRID

05/21/16

TODAY'S DATE

MWD SUPERVISOR 1

Robert Brewer

DIRECTIONAL DRILLER 1

Casey Tubbe

MWD SUPERVISOR 2

Lance Mosby

DIRECTIONAL DRILLER 2

Monte Gordon

12329 Cutten Rd., Houston, Texas 77066 (713)337-0600 (Voice), (713)337-0599 (Fax)



Chevron

Lea County, NM (NAD27 NME)

SD WE 23 Fed

P7 3H

OH / Job 60047

Survey: Phoenix MWD Surveys

Standard Survey Report

23 May, 2016





Phoenix Technology Services

Survey Report



Company: Chevron
 Project: Lea County, NM (NAD27 NME)
 Site: SD WE 23 Fed
 Well: P7 3H
 Wellbore: OH / Job 60047
 Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well P7 3H
 TVD Reference: RKB @ 3198.00usft (Pace X30)
 MD Reference: RKB @ 3198.00usft (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	SD WE 23 Fed			
Site Position:		Northing:	377,312.00 usft	Latitude: 32° 2' 7.84590 N
From:	Map	Easting:	711,242.00 usft	Longitude: 103° 39' 5.90418 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.36 "

Well	P7 3H			
Well Position	+N/-S	0.00 usft	Northing:	377,548.00 usft
	+E/-W	0.00 usft	Easting:	715,248.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3.165.00 usft

Wellbore	OH / Job 60047				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/18/2016	6.97	59.75	48,036

Design	Surveys (Pace X30)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	183.13	

Survey Program	Date 5/23/2016				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
165.00	807.00	Teledrift MWD Surveys (OH / Job 60047)	MWD	MWD - Standard	
948.00	8 540.00	Phoenix MWD Surveys (OH / Job 60047)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

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)
	807.00	0.70	268.00	806.97	1.91	2.16	-2.03	0.00	0.00	0.00
Tie-in	948.00	1.10	281.60	947.95	2.15	-0.03	-2.15	0.32	0.28	9.65
First Phoenix MWD Survey	1.125.00	1.00	255.10	1.124.92	2.10	-3.18	-1.92	0.28	-0.06	-14.97
	1.302.00	1.10	254.20	1.301.89	1.24	-6.31	-0.89	0.06	0.06	-0.51
	1.480.00	1.30	250.50	1.479.85	0.10	-9.86	0.44	0.12	0.11	-2.08
	1.657.00	1.70	258.10	1.656.79	-1.11	-14.32	1.89	0.25	0.23	4.29
	1.834.00	5.40	242.50	1.833.43	-5.50	-24.28	6.82	2.14	2.09	-8.81



Phoenix Technology Services Survey Report



Company: Chevron
Project: Lea County, NM (NAD27 NME)
Site: SD WE 23 Fed
Well: P7 3H
Wellbore: OH / Job 80047
Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well P7 3H
TVD Reference: RKB @ 3198.00usft (Pace X30)
MD Reference: RKB @ 3198.00usft (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)
2,013.00	6.40	243.10	2,011.47	-13.91	-40.65	16.10	0.56	0.56	0.34
2,191.00	7.50	242.10	2,188.16	-23.83	-59.76	27.06	0.62	0.62	-0.56
2,369.00	6.30	231.20	2,364.88	-35.39	-77.64	39.57	1.00	-0.67	-6.12
2,546.00	4.90	232.40	2,541.03	-46.08	-91.20	51.00	0.79	-0.79	0.68
2,723.00	5.50	257.40	2,717.32	-52.55	-105.47	58.23	1.31	0.34	14.12
2,900.00	5.90	258.20	2,893.45	-56.26	-122.85	62.87	0.23	0.23	0.45
3,078.00	5.80	243.00	3,070.53	-62.21	-139.62	69.74	0.87	-0.06	-8.54
3,256.00	5.60	236.80	3,247.65	-71.05	-154.90	79.40	0.36	-0.11	-3.48
3,433.00	5.00	248.70	3,423.90	-78.58	-169.32	87.71	0.71	-0.34	6.72
3,611.00	5.40	251.10	3,601.17	-84.11	-184.47	94.06	0.26	0.22	1.35
3,789.00	5.40	249.90	3,778.38	-89.71	-200.26	100.51	0.06	0.00	-0.67
3,966.00	5.00	246.30	3,954.65	-95.67	-215.14	107.27	0.29	-0.23	-2.03
4,143.00	5.40	246.00	4,130.92	-102.16	-229.81	114.55	0.23	0.23	-0.17
4,321.00	5.50	236.50	4,308.12	-110.27	-244.58	123.46	0.51	0.06	-5.34
4,498.00	5.40	242.80	4,484.32	-118.76	-259.06	132.73	0.34	-0.06	3.56
4,519.00	5.80	245.10	4,505.22	-119.66	-260.90	133.72	2.18	1.90	10.95
4,599.00	5.60	244.90	4,584.83	-123.02	-268.10	137.47	0.25	-0.25	-0.25
4,776.00	5.50	244.30	4,761.00	-130.36	-283.57	145.65	0.07	-0.06	-0.34
4,954.00	4.30	253.60	4,938.35	-135.94	-297.66	151.99	0.81	-0.67	5.22
5,132.00	1.80	258.50	5,116.08	-138.38	-306.80	154.93	1.41	-1.40	2.75
5,309.00	0.50	80.30	5,293.06	-138.81	-308.76	155.46	1.30	-0.73	-100.68
5,486.00	0.40	71.30	5,470.05	-138.48	-307.41	155.06	0.07	-0.06	-5.08
5,662.00	1.10	212.10	5,646.04	-139.71	-307.73	156.31	0.81	0.40	80.00
5,840.00	1.30	220.00	5,824.00	-142.71	-309.94	159.42	0.15	0.11	4.44
6,017.00	1.30	223.90	6,000.96	-145.69	-312.62	162.54	0.05	0.00	2.20
6,194.00	1.40	214.60	6,177.91	-148.92	-315.24	165.91	0.14	0.06	-5.25
6,372.00	1.30	220.40	6,355.86	-152.25	-317.78	169.37	0.10	-0.06	3.26
6,549.00	1.70	289.10	6,532.81	-152.92	-321.56	170.25	0.97	0.23	38.81
6,727.00	2.50	332.60	6,710.70	-148.61	-325.85	166.17	0.97	0.45	24.44
6,904.00	0.90	11.50	6,887.62	-143.82	-327.35	161.47	1.07	-0.90	21.98
7,082.00	0.70	349.10	7,065.60	-141.38	-327.27	159.04	0.21	-0.11	-12.58
7,260.00	1.10	63.30	7,243.59	-139.54	-325.95	157.13	0.64	0.22	41.69
7,437.00	1.00	42.90	7,420.56	-137.65	-323.38	155.10	0.22	-0.06	-11.53
7,614.00	1.10	49.20	7,597.53	-135.41	-321.05	152.73	0.09	0.06	3.56
7,792.00	1.10	78.20	7,775.50	-133.94	-318.08	151.11	0.31	0.00	16.29
7,970.00	0.70	103.40	7,953.47	-133.84	-315.35	150.86	0.31	-0.22	14.16
8,148.00	0.70	138.40	8,131.46	-134.91	-313.57	151.83	0.24	0.00	19.66
8,326.00	1.10	159.40	8,309.44	-137.32	-312.25	154.16	0.29	0.22	11.80
8,483.00	1.00	189.70	8,466.42	-140.08	-311.95	156.90	0.35	-0.06	19.30
Final Phoenix MWD Survey									
8,540.00	1.00	189.70	8,523.41	-141.06	-312.11	157.89	0.00	0.00	0.00
Projection to TD									



Phoenix Technology Services

Survey Report



Company: Chevron
Project: Lea County, NM (NAD27 NME)
Site: SD WE 23 Fed
Well: P7 3H
Wellbore: OH / Job 60047
Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well P7 3H
TVD Reference: RKB @ 3198.00usft (Pace X30)
MD Reference: RKB @ 3198.00usft (Pace X30)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
807.00	806.97	1.91	2.16	Tie-in
948.00	947.95	2.15	-0.03	First Phoenix MWD Survey
8483.00	8466.42	-140.08	-311.95	Final Phoenix MWD Survey
8540.00	8523.41	-141.06	-312.11	Projection to TD

Checked By: _____ Approved By: _____ Date: _____



Directional Survey

Well Name SALADO DRAW WE 23 FED P7 003H		Lease	Field Name JENNINGS	Business Unit Mid-Continent	
Ground Elevation (ft) 3,165.00	Original RKB (ft) 3,197.60	Current RKB Elevation 3,197.60, 3/28/2016		Mud Line Elevation (ft)	Water Depth (ft)

Wellbore Name Original Hole		Parent Wellbore Original Hole		Min Kick Off Depth (RKB) 8,540.0	Vertical Section Direction (°) 183.10
Northing (Y) (ft)		Easting (X) (ft)		UTM Grid Zone	
Date 5/16/2016	Definitive? N	Description MWD		Planned? N	
MD Tie In (RKB)	TVD Tie In (RKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)

Survey Data													
MD (RKB)	Incl (°)	Azm (°)	TVD (RKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Magn MWD	Rig	0.00	0.00	0.00	N
165	0.70	62.00	165.00	0.47	0.89	-0.52	0.42	Magn MWD	Rig	0.42	1.01	37.58	N
256	0.90	56.00	255.99	1.13	1.97	-1.24	0.24	Magn MWD	Rig	0.22	2.28	-6.59	N
343	0.50	47.00	342.98	1.77	2.82	-1.92	0.48	Magn MWD	Rig	-0.46	3.33	-10.34	N
532	0.20	142.00	531.98	2.08	3.62	-2.27	0.29	Magn MWD	Rig	-0.16	4.18	50.26	N
625	0.10	143.00	624.98	1.88	3.77	-2.09	0.11	Magn MWD	Rig	-0.11	4.22	1.08	N
717	0.70	276.00	716.98	1.88	3.26	-2.05	0.84	Magn MWD	Rig	0.65	3.76	144.57	N
807	0.70	268.00	806.97	1.92	2.17	-2.03	0.11	Magn MWD	Phoenix Directional	0.00	2.89	-8.89	N
948	1.10	281.60	947.95	2.16	-0.02	-2.16	0.32	Magn MWD	Phoenix Directional	0.28	2.16	9.65	N
1,125	1.00	255.10	1,124.92	2.10	-3.18	-1.93	0.28	Magn MWD	Phoenix Directional	-0.06	3.81	-14.97	N
1,302	1.10	254.20	1,301.89	1.24	-6.31	-0.90	0.06	Magn MWD	Phoenix Directional	0.08	6.43	-0.51	N
1,480	1.30	250.50	1,479.85	0.11	-9.85	0.43	0.12	Magn MWD	Phoenix Directional	0.11	9.85	-2.08	N
1,657	1.70	258.10	1,656.79	-1.11	-14.31	1.88	0.25	Magn MWD	Phoenix Directional	0.23	14.36	4.29	N
1,834	5.40	242.50	1,833.43	-5.50	-24.27	6.80	2.14	Magn MWD	Phoenix Directional	2.09	24.89	-8.81	N
2,013	6.40	243.10	2,011.47	-13.90	-40.64	16.08	0.56	Magn MWD	Phoenix Directional	0.56	42.95	0.34	N
2,191	7.50	242.10	2,188.16	-23.82	-59.76	27.02	0.62	Magn MWD	Phoenix Directional	0.62	64.33	-0.56	N
2,369	6.30	231.20	2,364.88	-35.38	-77.64	39.53	1.00	Magn MWD	Phoenix Directional	-0.67	85.32	-6.12	N
2,546	4.90	232.40	2,541.03	-46.08	-91.20	50.94	0.79	Magn MWD	Phoenix Directional	-0.79	102.17	0.68	N
2,723	5.50	257.40	2,717.32	-52.54	-105.46	58.17	1.31	Magn MWD	Phoenix Directional	0.34	117.83	14.12	N
2,900	5.90	258.20	2,893.45	-56.25	-122.65	62.80	0.23	Magn MWD	Phoenix Directional	0.23	134.93	0.45	N
3,078	5.80	243.00	3,070.53	-62.21	-139.62	69.67	0.87	Magn MWD	Phoenix Directional	-0.06	152.85	-8.54	N
3,256	5.60	236.80	3,247.65	-71.05	-154.90	79.32	0.36	Magn MWD	Phoenix Directional	-0.11	170.41	-3.48	N
3,433	5.00	248.70	3,423.90	-78.58	-169.31	87.62	0.71	Magn MWD	Phoenix Directional	-0.34	186.66	6.72	N
3,611	5.40	251.10	3,601.17	-84.11	-184.46	93.96	0.26	Magn MWD	Phoenix Directional	0.22	202.73	1.35	N
3,789	5.40	249.90	3,778.38	-89.70	-200.25	100.40	0.06	Magn MWD	Phoenix Directional	0.00	219.42	-0.67	N
3,966	5.00	246.30	3,954.85	-95.66	-215.14	107.16	0.29	Magn MWD	Phoenix Directional	-0.23	235.45	-2.03	N
4,143	5.40	246.00	4,130.92	-102.15	-229.81	114.43	0.23	Magn MWD	Phoenix Directional	0.23	251.49	-0.17	N



Directional Survey

Well Name SALADO DRAW WE 23 FED P7 003H		Lease	Field Name JENNINGS	Business Unit Mid-Continent	
Ground Elevation (ft) 3,165.00	Original RKB (ft) 3,197.60	Current RKB Elevation 3,197.60, 3/28/2016		Mud Line Elevation (ft)	Water Depth (ft)

Survey Data

MD (ft)	Incl (°)	Azm (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
4,321	5.50	236.50	4,308.12	-110.26	-244.57	123.33	0.51	Magn MWD	Phoenix Directional	0.06	268.28	-5.34	N
4,498	5.40	242.80	4,484.32	-118.75	-259.05	132.59	0.34	Magn MWD	Phoenix Directional	-0.06	284.98	3.56	N
4,519	5.80	245.10	4,505.22	-119.65	-260.90	133.58	2.18	Magn MWD	Phoenix Directional	1.90	287.02	10.95	N
4,599	5.60	244.90	4,584.83	-123.01	-268.10	137.33	0.25	Magn MWD	Phoenix Directional	-0.25	294.97	-0.25	N
4,776	5.50	244.30	4,761.00	-130.35	-283.56	145.49	0.07	Magn MWD	Phoenix Directional	-0.06	312.09	-0.34	N
4,954	4.30	253.60	4,938.35	-135.93	-297.65	151.83	0.81	Magn MWD	Phoenix Directional	-0.67	327.22	5.22	N
5,132	1.80	258.50	5,116.08	-138.38	-306.79	154.76	1.41	Magn MWD	Phoenix Directional	-1.40	336.55	2.75	N
5,309	0.50	80.30	5,293.06	-138.80	-308.76	155.29	1.30	Magn MWD	Phoenix Directional	-0.73	338.52	-	N
5,486	0.40	71.30	5,470.05	-138.47	-307.41	154.89	0.07	Magn MWD	Phoenix Directional	-0.06	337.16	-5.08	N
5,662	1.10	212.10	5,646.04	-139.71	-307.72	156.14	0.81	Magn MWD	Phoenix Directional	0.40	337.95	80.00	N
5,840	1.30	220.00	5,824.00	-142.70	-309.93	159.25	0.15	Magn MWD	Phoenix Directional	0.11	341.20	4.44	N
6,017	1.30	223.90	6,000.96	-145.69	-312.61	162.38	0.05	Magn MWD	Phoenix Directional	0.00	344.89	2.20	N
6,194	1.40	214.60	6,177.91	-148.91	-315.23	165.74	0.14	Magn MWD	Phoenix Directional	0.06	348.64	-5.25	N
6,372	1.30	220.40	6,355.86	-152.24	-317.78	169.20	0.10	Magn MWD	Phoenix Directional	-0.06	352.36	3.26	N
6,549	1.70	289.10	6,532.81	-152.91	-321.56	170.07	0.97	Magn MWD	Phoenix Directional	0.23	358.06	38.81	N
6,727	2.50	332.60	6,710.70	-148.60	-325.84	166.00	0.97	Magn MWD	Phoenix Directional	0.45	358.13	24.44	N
6,904	0.90	11.50	6,887.62	-143.81	-327.34	161.30	1.07	Magn MWD	Phoenix Directional	-0.90	357.54	-	N
7,082	0.70	349.10	7,065.60	-141.37	-327.27	158.86	0.21	Magn MWD	Phoenix Directional	-0.11	356.50	189.66	N
7,260	1.10	63.30	7,243.59	-139.54	-325.95	156.96	0.64	Magn MWD	Phoenix Directional	0.22	354.56	-	N
7,437	1.00	42.90	7,420.56	-137.64	-323.38	154.93	0.22	Magn MWD	Phoenix Directional	-0.06	351.45	-11.53	N
7,614	1.10	49.20	7,597.53	-135.40	-321.04	152.56	0.09	Magn MWD	Phoenix Directional	0.06	348.42	3.56	N
7,792	1.10	78.20	7,775.50	-133.93	-318.07	150.94	0.31	Magn MWD	Phoenix Directional	0.00	345.12	16.29	N
7,970	0.70	103.40	7,953.47	-133.84	-315.34	150.69	0.31	Magn MWD	Phoenix Directional	-0.22	342.57	14.16	N
8,148	0.70	138.40	8,131.46	-134.90	-313.56	151.66	0.24	Magn MWD	Phoenix Directional	0.00	341.35	19.66	N
8,326	1.10	159.40	8,309.44	-137.31	-312.24	154.00	0.29	Magn MWD	Phoenix Directional	0.22	341.10	11.80	N
8,483	1.00	189.70	8,466.41	-140.07	-311.94	156.74	0.35	Magn MWD	Phoenix Directional	-0.06	341.95	19.30	N
8,557	2.67	182.59	8,540.37	-142.43	-312.13	159.10	2.27	Magn MWD	Baker Hughes	2.26	343.09	-9.61	N
8,602	10.86	182.22	8,585.02	-147.72	-312.34	164.40	18.20	Magn MWD	Baker Hughes	18.20	345.51	-0.82	N
8,646	17.56	181.17	8,627.65	-158.52	-312.64	175.19	15.24	Magn MWD	Baker Hughes	15.23	350.53	-2.39	N
8,735	29.26	178.57	8,709.19	-193.81	-312.37	210.41	13.19	Magn MWD	Baker Hughes	13.15	367.61	-2.92	N



Directional Survey

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Survey Data

MD (ft)	Incl (°)	Azm (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depth (ft)	Turn (°/100ft)	Unuse d data
8.824	37.66	178.56	8,783.37	-242.82	-311.14	259.29	9.44	Magn MWD	Baker Hughes	9.44	394.67	-0.01	N
8.913	46.79	180.17	8,849.21	-302.56	-310.55	318.91	10.33	Magn MWD	Baker Hughes	10.26	433.57	1.81	N
9.002	56.18	181.04	8,904.57	-372.11	-311.32	388.40	10.58	Magn MWD	Baker Hughes	10.55	485.17	0.98	N
9.090	64.87	181.32	8,947.83	-448.63	-312.90	464.90	9.88	Magn MWD	Baker Hughes	9.88	546.97	0.32	N
9.180	72.18	182.30	8,980.75	-532.28	-315.57	548.57	8.19	Magn MWD	Baker Hughes	8.12	618.80	1.09	N
9.268	78.53	181.90	9,002.99	-617.32	-318.68	633.66	7.23	Magn MWD	Baker Hughes	7.22	694.73	-0.45	N
9.357	85.99	181.95	9,014.97	-705.40	-321.64	721.76	8.38	Magn MWD	Baker Hughes	8.38	775.27	0.06	N
9.446	87.97	180.24	9,019.66	-794.25	-323.34	810.58	2.94	Magn MWD	Baker Hughes	2.22	857.55	-1.92	N
9.534	88.00	178.52	9,022.75	-882.19	-322.39	898.33	1.95	Magn MWD	Baker Hughes	0.03	939.25	-1.95	N
9.623	88.83	177.98	9,025.21	-971.11	-319.67	986.98	1.11	Magn MWD	Baker Hughes	0.93	1,022.38	-0.61	N
9.712	88.83	176.34	9,027.03	-1,059.98	-315.26	1,075.48	1.84	Magn MWD	Baker Hughes	0.00	1,105.87	-1.84	N
9.801	90.00	178.06	9,027.94	-1,148.87	-310.91	1,164.00	2.34	Magn MWD	Baker Hughes	1.31	1,190.20	1.93	N
9.889	89.91	177.67	9,028.01	-1,236.81	-307.63	1,251.63	0.45	Magn MWD	Baker Hughes	-0.10	1,274.49	-0.44	N
9.978	89.75	176.92	9,028.27	-1,325.71	-303.43	1,340.18	0.86	Magn MWD	Baker Hughes	-0.18	1,359.99	-0.84	N
10.067	89.91	180.21	9,028.54	-1,414.67	-301.21	1,428.88	3.70	Magn MWD	Baker Hughes	0.18	1,446.38	3.70	N
10.156	90.43	179.44	9,028.27	-1,503.66	-300.93	1,517.74	1.04	Magn MWD	Baker Hughes	0.58	1,533.48	-0.87	N
10.244	90.25	177.34	9,027.75	-1,591.62	-298.46	1,605.43	2.40	Magn MWD	Baker Hughes	-0.20	1,619.37	-2.39	N
10.333	90.52	176.86	9,027.15	-1,680.51	-293.96	1,693.94	0.62	Magn MWD	Baker Hughes	0.30	1,706.02	-0.54	N
10.422	90.62	175.92	9,026.27	-1,769.32	-288.36	1,782.33	1.06	Magn MWD	Baker Hughes	0.11	1,792.67	-1.06	N
10.510	90.55	179.88	9,025.37	-1,857.24	-285.13	1,869.95	4.50	Magn MWD	Baker Hughes	-0.08	1,879.00	4.50	N
10.599	90.65	184.61	9,024.44	-1,946.15	-288.62	1,958.91	5.32	Magn MWD	Baker Hughes	0.11	1,967.43	5.31	N
10.688	90.74	184.06	9,023.36	-2,034.88	-295.34	2,047.88	0.63	Magn MWD	Baker Hughes	0.10	2,056.21	-0.62	N
10.776	90.37	182.50	9,022.51	-2,122.73	-300.38	2,135.87	1.82	Magn MWD	Baker Hughes	-0.42	2,143.88	-1.77	N
10.865	90.59	180.86	9,021.76	-2,211.69	-302.99	2,224.84	1.86	Magn MWD	Baker Hughes	0.25	2,232.35	-1.84	N
10.953	90.71	182.23	9,020.76	-2,299.65	-305.36	2,312.80	1.56	Magn MWD	Baker Hughes	0.14	2,319.83	1.56	N
11.042	90.65	182.29	9,019.71	-2,388.57	-308.87	2,401.78	0.10	Magn MWD	Baker Hughes	-0.07	2,408.46	0.07	N
11.131	90.28	181.22	9,018.98	-2,477.53	-311.59	2,490.75	1.27	Magn MWD	Baker Hughes	-0.42	2,497.04	-1.20	N
11.219	90.25	179.58	9,018.58	-2,565.52	-312.21	2,578.65	1.86	Magn MWD	Baker Hughes	-0.03	2,584.45	-1.86	N
11.308	89.05	179.39	9,019.12	-2,654.51	-311.41	2,667.47	1.37	Magn MWD	Baker Hughes	-1.35	2,672.72	-0.21	N
11.396	88.74	179.11	9,020.82	-2,742.49	-310.26	2,755.25	0.47	Magn MWD	Baker Hughes	-0.35	2,759.98	-0.32	N



Directional Survey

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Survey Data

MD (RKB)	Incl (°)	Azm (°)	TVD (RKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depth (ft)	Turn (°/100ft)	Unuse d data
11,485	89.51	176.69	9,022.18	-2,831.41	-307.00	2,843.87	2.85	Magn MWD	Baker Hughes	0.87	2,848. 01	-2.72	N
11,574	90.09	175.34	9,022.49	-2,920.19	-300.81	2,932.19	1.65	Magn MWD	Baker Hughes	0.65	2,935. 65	-1.52	N
11,662	89.88	176.18	9,022.51	-3,007.95	-294.31	3,019.47	0.98	Magn MWD	Baker Hughes	-0.24	3,022. 32	0.95	N
11,751	89.88	174.51	9,022.70	-3,096.66	-287.08	3,107.65	1.88	Magn MWD	Baker Hughes	0.00	3,109. 93	-1.88	N
11,840	90.25	177.76	9,022.59	-3,185.44	-281.08	3,195.98	3.68	Magn MWD	Baker Hughes	0.42	3,197. 82	3.65	N
11,928	90.28	179.12	9,022.19	-3,273.41	-278.69	3,283.69	1.55	Magn MWD	Baker Hughes	0.03	3,285. 25	1.55	N
12,017	90.52	180.64	9,021.57	-3,362.40	-278.50	3,372.54	1.73	Magn MWD	Baker Hughes	0.27	3,373. 91	1.71	N
12,105	90.25	180.00	9,020.98	-3,450.40	-278.99	3,460.43	0.79	Magn MWD	Baker Hughes	-0.31	3,461. 66	-0.73	N
12,194	90.43	181.09	9,020.45	-3,539.39	-279.64	3,549.34	1.24	Magn MWD	Baker Hughes	0.20	3,550. 43	1.22	N
12,284	90.40	185.43	9,019.79	-3,629.22	-284.96	3,639.32	4.82	Magn MWD	Baker Hughes	-0.03	3,640. 39	4.82	N
12,372	89.54	185.91	9,019.84	-3,716.79	-293.65	3,727.23	1.12	Magn MWD	Baker Hughes	-0.98	3,728. 37	0.55	N
12,461	89.45	184.36	9,020.63	-3,805.42	-301.62	3,816.17	1.74	Magn MWD	Baker Hughes	-0.10	3,817. 36	-1.74	N
12,549	89.45	182.20	9,021.47	-3,893.27	-306.65	3,904.16	2.45	Magn MWD	Baker Hughes	0.00	3,905. 33	-2.45	N
12,638	90.18	179.50	9,021.76	-3,982.25	-307.97	3,993.08	3.14	Magn MWD	Baker Hughes	0.82	3,994. 14	-3.03	N
12,726	90.37	178.87	9,021.34	-4,070.24	-306.72	4,080.87	0.75	Magn MWD	Baker Hughes	0.22	4,081. 78	-0.72	N
12,815	90.22	179.24	9,020.88	-4,159.23	-305.25	4,169.65	0.45	Magn MWD	Baker Hughes	-0.17	4,170. 41	0.42	N
12,904	90.40	177.54	9,020.40	-4,248.19	-302.75	4,258.34	1.92	Magn MWD	Baker Hughes	0.20	4,258. 96	-1.91	N
12,992	90.37	178.85	9,019.80	-4,336.14	-299.98	4,346.02	1.49	Magn MWD	Baker Hughes	-0.03	4,346. 51	1.49	N
13,081	90.40	179.93	9,019.21	-4,425.13	-299.03	4,434.83	1.21	Magn MWD	Baker Hughes	0.03	4,435. 22	1.21	N
13,169	90.06	180.37	9,018.85	-4,513.13	-299.26	4,522.71	0.63	Magn MWD	Baker Hughes	-0.39	4,523. 04	0.50	N
13,258	90.37	179.80	9,018.52	-4,602.13	-299.39	4,611.59	0.73	Magn MWD	Baker Hughes	0.35	4,611. 88	-0.64	N
13,347	90.31	180.27	9,017.99	-4,691.13	-299.45	4,700.46	0.53	Magn MWD	Baker Hughes	-0.07	4,700. 68	0.53	N
13,435	90.40	180.40	9,017.45	-4,779.13	-299.96	4,788.35	0.18	Magn MWD	Baker Hughes	0.10	4,788. 53	0.15	N
13,524	89.94	180.76	9,017.18	-4,868.12	-300.86	4,877.27	0.66	Magn MWD	Baker Hughes	-0.52	4,877. 41	0.40	N
13,612	89.94	180.09	9,017.27	-4,956.12	-301.52	4,965.17	0.76	Magn MWD	Baker Hughes	0.00	4,965. 28	-0.76	N
13,701	89.91	177.39	9,017.39	-5,045.09	-299.56	5,053.90	3.03	Magn MWD	Baker Hughes	-0.03	5,053. 97	-3.03	N
13,790	89.85	174.81	9,017.58	-5,133.87	-293.51	5,142.23	2.90	Magn MWD	Baker Hughes	-0.07	5,142. 26	-2.90	N
13,878	90.28	175.55	9,017.48	-5,221.56	-286.11	5,229.39	0.97	Magn MWD	Baker Hughes	0.49	5,229. 39	0.84	N
13,967	90.12	180.87	9,017.17	-5,310.49	-283.33	5,318.04	5.98	Magn MWD	Baker Hughes	-0.18	5,318. 04	5.98	N
14,018	90.15	181.98	9,017.05	-5,361.47	-284.60	5,369.01	2.18	Magn MWD	Baker Hughes	0.06	5,369. 02	2.18	N



Directional Survey

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Survey Data

MD (ft)	Incl (°)	Azm (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
14,043	90.15	181.98	9,016.98	-5,386.45	-285.47	5,394.01	0.00	Magn MWD	Baker Hughes	0.00	5,394.01	0.00	N

SD WE 23 P7 #003H

PERF & FRAC INFORMATION

STAGE 1: 13843, 13783, 13723, 13663, 13603

6 spf, .41 dia hole. Total bbls pumped: 983 bbls. Max pressure: 7742 psi

PUMP STAGE 1:

Sand in formation 419,808 lbs 100% Prime up & test lines to 9500psi.
Equalize/open well @ 1352 psi. Avg Rate 85.7 bpm. Avg press:5935 psi.
Max Rate: 86.2 bpm Max Press:8554 psi. ISIP:1986 psi
Pump Time 127 mins Total clean fluid 9294 bbls Total slurry volume 9752 bbls
Sand pumped: Sand 100 – 32,633 lbs Sand 40/70 – 388,364 lbs TOTAL:420,997 lbs

STAGE 2: 13483, 13423, 13363, 13300

6 jspf, .41 dia hole. Total bbls pmpd: 363 bbls, max pressure 2748 psi

PUMP STAGE 2:

Sand in formation 419,808 lbs: 100% Test lines to 9500 psi.
Equalize/open well @ 1554 psi. Avg Rate: 96.0 bpm Avg Pressure 5654 psi
Max rate: 86.0 bpm Max Pressure 8229 psi ISIP 2314 psi
Pump Time: 122 mins. Total clean fluid:8916 bbls Total Slurry volume:9372 bbls
Sand pumped: Sand 100 – 32,516 lbs, Sand 40/70: 386,625 lbs TOTAL: 419,141 lbs

STAGE 3: 13243, 13183, 13123, 13063, 13003

6 jspf, .41 dia hole. Total bbls pmpd: 222 bbls. Max pressure: 2445 psi

PUMP STAGE 3

Sand in formation 419,808 lbs, 100% Prime up & test lines to 9500psi.
Equalize/open well @ 1585 psi. Ave Rate: 92.0 bpm Ave Pressure: 6001 psi
Max Rate:92.0 bpm, Max Pressure: 8122 psi. ISIP: 2108 psi.
Pump Time: 114 mins. Total clean fluid: 9083 bbls. Total slurry volume:9539 bbls
Sand Pumped: Sand 100 –33,152 lbs, Sand 40/70: 390,210 lbs. TOTAL: 423,362 lbs

STAGE 4: 12943, 12883, 12823, 12766, 12703

6 JSPF, .41 dia hole. . Max press of 1472 psi w/292 bbls pumped.

PUMP STAGE 4:

Sand in formation 419,808 lbs, 100% Prime up & test lines to 9500 psi.
Equalize/open well @ 1566 psi. Avg Rate: 91.1 bpm, Avg Pressure: 5450 psi.
Max Rate: 91.5 bpm, Max Pressure: 8220 psi. ISIP:2287 psi.
Pump Time: 117 mins. Total clean fluid: 9073 bbls, Total slurry volume: 9526 bbls
Sand pumped: Sand 100: 32,866 lbs, Sand 40/70L 387,412 lbs, TOTAL: 420,278 lbs

STAGE 5: 12643, 12583, 12523, 12463, 12403

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. . Max pressure of 2285psi w/225 bbls pumped.

PUMP STAGE 5:

Sand in formation: 419,808 lbs, 100%, Prime up & test lines to 9500psi.
Equalize/open well @1661 psi. Ave Rate: 90.5 bpm, Avg pressure:6462 psi
Max Rate:91.0 bpm, Max Pressure: 8230 psi. ISIP: 2449 psi.
Pump Time: 115 mins. Total clean fluid:8904 bbls, Total Slurry volume:9357 bbls
Sand pumped: Sand 100:32,329 lbs, Sand 40/70:388,524 lbs, TOTAL: 420,853 lbs

STAGE 6: 12343, 12283, 12223, 12163, 12103

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max Pressure of 3316 psi w/267 bbls pumped.

PUMP STAGE 6:

Sand in formation: 419,808 lbs, 100%. Prime up & test lines to 9500 psi.

Equalize/open well @ 1610 psi. Ave Rate: 89.7 bpm, Ave Pressure: 5942 psi.

Max rate: 90.0 bpm, Max Pressure: 8836 psi. ISIP: 2069 psi.

Pump time: 116 mins. Total clean fluid: 9056 bbls, Total Slurry volume: 9509 bbls

Sand pumped: sand 100: 32,683 lbs, sand 40/70: 388,156 lbs. TOTAL: 420,839 lbs

STAGE 7: 12043, 11983, 11920, 11863, 11803

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. . Max pressure of 2462 psi w/162 bbls pumped.

PUMP STAGE 7:

Sand in formation: 419,808 lbs 101 %, Prime up & test lines to 9500 psi.

Equalize/open hole @ 1639 psi. Ave rate: 86.0 bpm, Ave Pressure: 5283 psi

Max rate: 86.0 bpm, Max Pressure: 8402 psi. ISIP: 2110 psi.

Pump time: 125 mins. Total clean fluid: 8913 bbls, Total slurry volume: 9368 bbls.

Sand Pumped: Sand 100: 32,598 lbs, Sand 40/70: 389,640 lbs, TOTAL: 422,238 lbs

STAGE 8: 11743, 11680, 11623, 11563, 11503

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max pressure of 2556 psi w/169 bbls pumped.

PUMP STAGE 8:

Sand in formation: 419,808 lbs, 100%, Prime up & test lines to 9500 psi.

Equalize/open hole @ 1610 psi. Ave Rate: 85.0 bpm, Ave pressure: 5863 psi

Max Rate: 86.0 bpm, Max pressure: 8423 psi. ISIP: 2163 psi.

Pump time: 121 mins. Total clean fluid: 8927 bbls, Total slurry volume: 9380 bbls

Sand pumped: Sand 100: 32,524 lbs, Sand 40/70: 388,643 lbs. TOTAL 421,167 lbs

STAGE 9: 11443, 11383, 11323, 11263, 11203

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max pressure of 2058 psi w/336 bbls pumped.

PUMP STAGE 9:

Sand in Formation: 419,808 lbs, 100% Prime up & test lines to 9500 psi.

Equalize/open well @ 1673 psi. Ave Rate: 89.9 bpm, Ave Pressure: 5507 psi.

Max rate: 90.2 bpm, Max pressure: 8451 psi. ISIP: 2017 psi.

Pump time: 117 mins. Total Clean fluid: 9013 bbls, Total slurry volume: 9465 bbls

Sand pumped: Sand 100: 33,346 lbs, Sand 40/70: 387,156 lbs. TOTAL: 420,502 lbs

STAGE 10: 11143, 11083, 11023, 10963, 10903

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max press of 2213 psi w/128 bbls pumped.

PUMP STAGE 10:

Sand in formation: 419,808 lbs, 100% Prime up and test lines to 9500 psi.

Equalize/open well @ 1643 psi. Ave Rate: 90.0 bpm, Ave Pressure: 5418 psi.

Max Rate: 90.0 bpm, Max pressure: 8330 psi. ISIP: 2197 psi.

Pump time: 113 mins. Total clean fluid: 8867 bbls, Total slurry volume: 9321 bbls

Sand pumped: Sand 100: 32,490 lbs, Sand 40/70: 388,814 lbs. TOTAL 421,304 lbs

STAGE 11: 10843, 10778, 10723, 10663, 10603

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max Press 2230 psi w/112 bbls pumped.

PUMP STAGE 11:

Sand in formation: 419,808 lbs, 100%, Prime up and test lines to 9500 psi.

Equalize/open well @ 1609 psi. Ave Rate: 90.0 bpm. Ave Pressure: 6506 psi.

Max rate: 90.0 bpm, Max pressure: 8447 psi. ISIP: 2335 psi.

Pump time: 116 mins. Total clean fluid: 8846 bbls, total slurry volume 9299 bbls.

Sand pumped: Sand 100: 32,476 lbs, Sand 40/70: 388,129 lbs, TOTAL: 420,605 lbs

STAGE 12: 10543, 10483, 10423, 10363, 10303

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max Pressure of 2665 psi w/115 bbls pmped.

PUMP STAGE 12:

Sand in formation: 419,808 lbs, 99% Prime up and test lines to 9500 psi.

Equalize/open well @ 1663 psi. Ave Rate: 89.1 bpm, Ave pressure: 6146 psi

Max rate: 90.0 bpm, Max pressure: 8327 psi, ISIP: 2056 psi.

Pump time: 116 mins, Total clean fluid: 9008 bbls, Total slurry volume: 9457 bbls.

Sand pumped: Sand 100: 32,953 lbs, Sand 40/70: 384,036 lbs, TOTAL: 416,989 lbs.

STAGE 13: 10241, 10183, 10123, 10063, 10003

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max pressure of 3902 psi w/82 bbls pumped.

PUMP STAGE 13:

Sand in formation: 419,808 lbs, 99%, Prime up & test lines to 9500 psi.

Equalize/open well @ 1700 psi. Ave Rate: 85.0 bpm, Ave Pressure: 5428 psi.

Max Rate: 85.0 bpm, Max Pressure: 9113 psi. ISIP: 2370 psi.

Pump time: 128 mins. Total clean fluid: 9145 bbls, Total slurry volume: 9600 bbls.

Sand pumped: Sand 100: 32,479 lbs, Sand 40/70: 390,398 lbs TOTAL: 422,877 lbs

STAGE 14: 9943, 9883, 9823, 9763, 9703

6 JSPF, .41 dia hole. Pump down @ 15 bpm. Max press of 2585 psi w/82 bbls pumped.

PUMP STAGE 14:

Sand in formation: 419,808lbs 100%. Prime up & test lines to 9500 psi.

Equalize/open hole W 1874 psi. Ave rate: 88.4 bpm, Ave Press: 5799 psi

Max Rate: 88.9bpm, Max pressure: 8771 psi. ISIP: 2240 psi.

Pump time: 118 mins. Total clean fluid: 9016 bbls, Total slurry volume: 9467 bbls.

Sand pumped: Sand 100: 32,071 lbs, Sand 40/70: 387,263 lbs, TOTAL 419,334 lbs.

STAGE 15: 9643, 9583, 9522, 9463, 9403

6 JSPF, .41 dia hole. Pump dn @ 12 bpm. Max press 2508 psi @ 61 bbls pumped.

PUMP STAGE 15:

Sand in formation: 419808 lbs, 100%. Prime up & test lines to 9500 psi.

Equalize/open well @ 1678 psi. Ave Rate: 85.0 bpm, Ave Pressure: 4317 psi.

Max Rate: 85.0 bpm, Max pressure: 8186 psi, ISIP: 2175 psi.

Pump time 121 mins, Total clean fluid: 8779 bbls, Total slurry volume: 9231 bbls

Sand pumped: Sand 100: 32,528 lbs, Sand 40/70: 387,650 lbs, TOTAL 420,178 lbs