



PHOENIX
TECHNOLOGY SERVICES

October 27, 2013

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210



Dear District 2 – Artesia

Re: Chevron Corporation
Cotton Hills 23-26-27 Fed Com #1H
Eddy County, New Mexico
API # 30-015-41535
Job No. 1310733

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 606018). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Zacharia Dawson	1H	565	13,037	08/10/2013	09/29/2013	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Kelly Jo Walter

Kelly Jo Walter
Operations Administrator

Certified mail receipt number: 7011 1570 0001 9087

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1310733

OPERATOR

Chevron

WELL NAME

Cotton Hills 23-26-27 #1H

COUNTY & STATE

Eddy Co. New Mexico

API WELL NUMBER

30-015-41535

PROPOSED DIRECTION

179.75

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

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
10-Aug-13	565 ft	3.1	156.7

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
29-Sep-13	12,973 ft	89.1	179.8

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

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
29-Sep-13	13,037 ft	89.1	179.8

Zacharia Dawson

PRINT YOUR NAME ABOVE

Zacharia Dawson

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	GRID
7.48	
DECLINATION OR GRID	GRID

10/01/2013

TODAY'S DATE

MWD SUPERVISOR 1

Derek Webster

DIRECTIONAL DRILLER 1

Keith Scheppler

MWD SUPERVISOR 2

Zak Dawson

DIRECTIONAL DRILLER 2

Craig Cannon

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice) (713)337-0599 (Fax)

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
311 S. First St., Artesia, NM 88210
Phone: (575) 745-1253 Fax: (575) 745-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

RECEIVED
NOV 01 2013
NM OCEAN ENERGY

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code 30215		3 Pool Name WILDCAT: WOLFCAMP	
4 Property Code		5 Property Name Cotton Hills 23 26 27 FED COM			6 Well Number 1H
7 GRID No.		8 Operator Name CHESAPEAKE OPERATING, INC.			9 Elevation 3119'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North-South line	Feet from the	East-West line	County
B	23	26 SOUTH	27 EAST, N.M.P.M.		152'	NORTH	1979'	EAST	EDDY

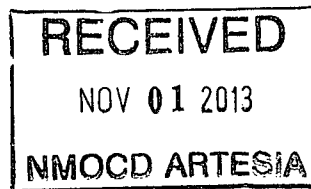
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North-South line	Feet from the	East-West line	County
O	23	26 SOUTH	27 EAST, N.M.P.M.		560'	SOUTH	1979'	EAST	EDDY

12 Dedicated Acres 320	13 Joint or Infill	14 Consolidation Code	15 Order No.
---------------------------	--------------------	-----------------------	--------------

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

COTTON HILLS 23 26 27 FED COM NO 1H WELL X= 554.273 NAD 27 Y= 376.299 LAT. 32.034440 LONG. 104.158190 X= 595.457 NAD83 Y= 376.356 LAT. 32.034563 LONG. 104.158681 ELEVATION = 3119' NAD 83	1979' 675' 600' 152' Proposed Penetration Point 330° FNL & 1979' FEL Producing Area Project Area S 00°14'37"E 4589.36' 670' 560' 660' 1979'	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Bryant Fulk</i> 07/10/2013 Signature Date Bryant Fulk (Agent) Printed Name FULB@chesron.com E-mail Address
PROPOSED BOTTOM HOLE LOCATION X= 554.293 NAD 27 Y= 371.710 LAT. 32.021824 LONG. 104.158151 X= 595.477 NAD83 Y= 371.767 LAT. 32.021947 LONG. 104.158642	PROPOSED TOP PERFORATION X= 554.275 NAD 27 Y= 375.792 LAT. 32.033045 LONG. 104.158186 X= 595.460 NAD83 Y= 375.849 LAT. 32.033167 LONG. 104.158677	18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. July 10 2013 Date of Survey <i>Wm. J. Daniel III</i> Signature and Seal of Professional Surveyor Wm. J. DANIEL III NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 15078 Certificate Number #15078



Chevron

Eddy County NM (NAD27 NME)

Cotton Hills 23-26-27 Fed Com

#1H

WB1/Job #1310733

Survey: Pilot Hole/Phoenix MWD Surveys

Phoenix Final Survey Report

08 October, 2013





Phoenix Technology Services

Phoenix Final Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3143.50usft (Ensign 153)
Site:	Cotton Hills 23-26-27 Fed Com	MD Reference:	KB @ 3143.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1/Job #1310733	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole/Phoenix MWD Surveys	Database:	GCR DB

Project	Eddy 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	Cotton Hills 23-26-27 Fed Com		
Site Position:		Northing:	376,299.00 usft
From:	Map	Easting:	554,273.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 2' 3.98230 N
		Longitude:	104° 9' 29.48674 W
		Grid Convergence:	0.09 °

Well	#1H		
Well Position	+N/-S	0.00 usft	Northing: 376,299.00 usft
	+E/-W	0.00 usft	Easting: 554,273.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 2' 3.98230 N
		Longitude:	104° 9' 29.48674 W
		Ground Level:	3,119.00 usft

Wellbore	WB1/Job #1310733				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	08/14/13	7.57	59.86	48,223

Design	Pilot Hole/Phoenix MWD Surveys			
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	218.03

Survey Program	Date 10/08/13			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
565.00	10,354.00	Pilot Hole/Phoenix MWD Surveys (WB1/Jo	MWD	MWD - Standard

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	565.00	3.10	156.70	564.72	-14.03	6.04	7.33	0.55
	751.00	1.50	151.20	750.57	-20.79	9.21	10.70	0.87
	936.00	1.70	166.60	935.50	-25.58	11.01	13.36	0.26
	1,114.00	0.80	259.30	1,113.47	-28.38	10.40	15.95	1.07
	1,293.00	1.10	242.90	1,292.44	-29.39	7.64	18.44	0.22
	1,472.00	1.30	233.00	1,471.40	-31.40	4.49	21.96	0.16
	1,650.00	1.20	207.50	1,649.36	-34.27	2.02	25.75	0.31
	1,829.00	1.00	168.90	1,828.33	-37.46	1.45	28.61	0.42
	2,008.00	1.60	131.00	2,007.29	-40.63	3.64	29.76	0.57
	2,110.00	1.50	128.50	2,109.25	-42.40	5.76	29.85	0.12
	2,294.00	1.10	124.80	2,293.20	-44.91	9.09	29.77	0.22



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3143.50usft (Ensign 153)
Site:	Cotton Hills 23-26-27 Fed Com	MD Reference:	KB @ 3143.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1/Job #1310733	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole/Phoenix MWD Surveys	Database:	GCR DB

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
2,472.00	0.90	113.70	2,471.17	-46.44	11.78	29.33	0.16	
2,651.00	1.00	107.90	2,650.15	-47.49	14.55	28.44	0.08	
2,830.00	0.50	335.60	2,829.14	-47.26	15.72	27.54	0.77	
3,009.00	0.40	336.50	3,008.14	-45.97	15.14	26.88	0.06	
3,188.00	0.10	335.60	3,187.13	-45.26	14.83	26.51	0.17	
3,367.00	1.60	319.10	3,366.11	-43.23	13.13	25.96	0.84	
3,546.00	1.80	315.40	3,545.03	-39.34	9.52	25.12	0.13	
3,725.00	1.60	291.20	3,723.95	-36.43	5.21	25.48	0.41	
3,904.00	1.50	271.90	3,902.89	-35.45	0.54	27.59	0.30	
4,082.00	1.80	271.20	4,080.82	-35.31	-4.58	30.64	0.17	
4,261.00	1.80	261.10	4,259.73	-35.69	-10.17	34.38	0.18	
4,440.00	1.60	290.50	4,438.65	-35.25	-15.29	37.18	0.49	
4,619.00	1.40	269.00	4,617.59	-34.41	-19.81	39.31	0.33	
4,798.00	1.20	330.00	4,796.55	-32.83	-22.94	39.99	0.74	
4,977.00	0.90	296.60	4,975.53	-30.57	-25.13	39.57	0.37	
5,156.00	0.90	240.20	5,154.51	-30.64	-27.61	41.15	0.48	
5,334.00	0.70	39.10	5,332.50	-30.49	-28.14	41.35	0.88	
5,513.00	0.20	247.70	5,511.50	-29.76	-27.74	40.53	0.49	
5,692.00	1.20	344.80	5,690.48	-28.07	-28.52	39.68	0.69	
5,871.00	1.20	284.40	5,869.45	-25.80	-30.82	39.31	0.67	
6,050.00	1.80	252.30	6,048.39	-26.19	-35.32	42.39	0.56	
6,229.00	1.60	263.90	6,227.31	-27.31	-40.48	46.45	0.22	
6,408.00	2.40	274.30	6,406.20	-27.29	-46.70	50.27	0.49	
6,587.00	2.20	290.50	6,585.06	-25.81	-53.66	53.39	0.38	
6,766.00	2.40	262.50	6,763.92	-25.09	-60.59	57.10	0.63	
6,945.00	1.00	14.10	6,942.87	-24.07	-63.93	58.34	1.63	
7,123.00	0.60	285.30	7,120.86	-22.32	-64.45	57.28	0.65	
7,301.00	1.10	356.80	7,298.84	-20.36	-65.44	56.36	0.60	
7,480.00	1.40	21.80	7,477.80	-16.62	-64.73	52.97	0.34	
7,658.00	1.20	8.00	7,655.75	-12.75	-63.66	49.27	0.21	
7,837.00	2.50	56.90	7,834.67	-8.77	-60.13	43.95	1.08	
8,016.00	2.50	79.30	8,013.50	-5.91	-53.02	37.32	0.54	
8,195.00	2.90	111.40	8,192.31	-6.84	-44.97	33.09	0.86	
8,373.00	2.30	120.70	8,370.13	-10.30	-37.71	31.35	0.41	
8,552.00	1.10	105.60	8,549.05	-12.60	-32.96	30.23	0.71	
8,731.00	1.30	120.70	8,728.01	-14.10	-29.56	29.32	0.21	
8,910.00	1.40	120.20	8,906.96	-16.23	-25.92	28.76	0.06	
9,089.00	0.90	128.90	9,085.92	-18.22	-22.94	28.48	0.30	
9,268.00	1.70	205.20	9,264.88	-21.50	-22.98	31.09	0.96	
9,446.00	2.10	207.90	9,442.79	-26.77	-25.63	36.88	0.23	
9,625.00	2.20	209.00	9,621.66	-32.68	-28.83	43.50	0.06	
9,804.00	2.20	216.20	9,800.53	-38.45	-32.52	50.33	0.15	
9,983.00	2.20	215.10	9,979.40	-44.04	-36.53	57.19	0.02	
10,162.00	2.50	211.10	10,158.25	-50.19	-40.52	64.50	0.19	



Phoenix Technology Services
Phoenix Final Survey Report

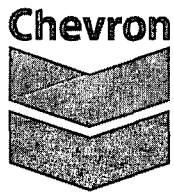


Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3143.50usft (Ensign 153)
Site:	Cotton Hills 23-26-27 Fed Com	MD Reference:	KB @ 3143.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1/Job #1310733	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Hole/Phoenix MWD Surveys	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)
10,301.00	2.50	211.30	10,297.11	-55.38	-43.66	70.52	0.01
10,354.00	2.50	211.30	10,350.06	-57.35	-44.86	72.81	0.00
Pilot Hole							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,354.00	10,350.06	-57.35	-44.86	Pilot Hole

Checked By: _____	Approved By: _____	Date: _____
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Chevron

Eddy County NM (NAD27 NME)

Cotton Hills 23-26-27 Fed Com

#1H

WB2/Job #1310733

Survey: Phoenix MWD Survey

Phoenix Final Survey Report

08 October, 2013





Phoenix Technology Services
Phoenix Final Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3143.50usft (Ensign 153)
Site:	Cotton Hills 23-26-27 Fed Com	MD Reference:	KB @ 3143.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB2/Job #1310733	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	Database:	GCR DB

Project	Eddy 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	Cotton Hills 23-26-27 Fed Com		
Site Position:		Northing:	376,299.00 usft
From:	Map	Easting:	554,273.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 2' 3.98230 N
		Longitude:	104° 9' 29.48674 W
		Grid Convergence:	0.09 °

Well	#1H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 2' 3.98230 N
		Longitude:	104° 9' 29.48674 W
		Ground Level:	3,119.00 usft

Wellbore	WB2/Job #1310733		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010_14	08/06/13	7.58
			Dip Angle
			(°)
			59.86
			Field Strength
			(nT)
			48,225

Design	Surveys (Ensign 153)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	8,552.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			179.75

Survey Program	Date 10/08/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
565.00	8,552.00	Pilot Hole/Phoenix MWD Surveys (WB1/Jo	MWD
8,552.00	13,037.00	Phoenix MWD Survey (WB2/Job #131073	MWD
			Description
			MWD - Standard
			MWD - Standard

Survey	MD	Inc	Azi (azimuth)	TVD	N/S	E/W	V. Sec	DLeg
	(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(%/100usft)
	8,552.00	1.10	105.60	8,549.05	-12.60	-32.96	12.45	0.00
Tie-on	8,731.00	1.30	120.70	8,728.01	-14.10	-29.56	13.97	0.21
First Phoenix MWD Survey	8,757.00	1.10	118.70	8,754.00	-14.37	-29.09	14.24	0.79
	8,801.00	5.10	188.80	8,797.94	-16.50	-29.02	16.38	10.99
	8,846.00	8.10	190.50	8,842.63	-21.60	-29.90	21.47	6.68
	8,891.00	10.60	199.30	8,887.03	-28.62	-31.85	28.48	6.38
	8,935.00	12.70	206.80	8,930.13	-36.76	-35.37	36.61	5.87
	8,980.00	14.20	212.90	8,973.89	-45.81	-40.59	45.63	4.58
	9,025.00	18.70	203.40	9,017.05	-57.07	-46.46	56.87	11.62



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3143.50usft (Ensign 153)
Site:	Cotton Hills 23-26-27 Fed Com	MD Reference:	KB @ 3143.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB2/Job #1310733	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
9,070.00	24.30	194.70	9,058.91	-72.67	-51.68	72.44	14.29
9,115.00	30.60	189.00	9,098.83	-92.96	-55.83	92.72	15.15
9,159.00	35.90	185.30	9,135.62	-116.89	-58.77	116.63	12.89
9,204.00	41.00	179.00	9,170.86	-144.81	-59.74	144.55	14.28
9,249.00	45.80	175.30	9,203.56	-175.67	-58.16	175.41	12.07
9,293.00	51.00	174.00	9,232.76	-208.42	-55.07	208.17	12.02
9,338.00	57.10	173.50	9,259.16	-244.61	-51.10	244.38	13.59
9,398.00	63.40	172.20	9,288.92	-296.27	-44.60	296.07	10.67
9,429.00	65.00	173.20	9,302.42	-323.95	-41.06	323.77	5.92
9,461.00	68.70	174.60	9,314.99	-353.20	-37.94	353.03	12.24
9,493.00	72.10	173.30	9,325.73	-383.17	-34.76	383.02	11.29
9,525.00	75.20	172.00	9,334.74	-413.62	-30.83	413.48	10.44
9,556.00	75.40	171.50	9,342.60	-443.30	-26.53	443.18	1.69
9,588.00	77.00	171.20	9,350.23	-474.02	-21.85	473.92	5.08
9,620.00	79.70	171.20	9,356.70	-504.99	-17.06	504.91	8.44
9,622.00	79.93	171.15	9,357.05	-506.93	-16.76	506.85	11.58
660' FNL/Top Perforation @ 9622' MD							
9,651.00	83.20	170.40	9,361.30	-535.24	-12.16	535.18	11.58
9,683.00	87.10	169.10	9,364.01	-566.61	-6.48	566.58	12.84
9,715.00	88.60	168.80	9,365.21	-598.00	-0.35	597.99	4.78
9,744.00	88.00	169.60	9,366.07	-626.47	5.08	626.49	3.45
9,776.00	87.90	170.60	9,367.21	-657.97	10.58	658.01	3.14
9,814.00	91.40	174.90	9,367.45	-695.65	15.37	695.71	14.59
9,838.00	91.60	176.00	9,366.82	-719.57	17.27	719.64	4.66
9,933.00	93.40	178.30	9,362.67	-814.35	21.99	814.44	3.07
10,028.00	93.90	178.80	9,356.63	-909.13	24.39	909.23	0.74
10,124.00	93.30	178.20	9,350.60	-1,004.90	26.90	1,005.01	0.88
10,218.00	93.20	178.70	9,345.27	-1,098.72	29.44	1,098.84	0.54
10,313.00	93.00	177.60	9,340.13	-1,193.53	32.50	1,193.66	1.18
10,408.00	93.80	178.70	9,334.50	-1,288.31	35.56	1,288.45	1.43
10,503.00	92.40	180.70	9,329.36	-1,383.16	36.06	1,383.31	2.57
10,598.00	93.00	180.10	9,324.88	-1,478.05	35.40	1,478.19	0.89
10,693.00	91.00	181.40	9,321.57	-1,572.98	34.15	1,573.11	2.51
10,788.00	90.40	179.30	9,320.41	-1,667.97	33.57	1,668.10	2.30
10,883.00	91.00	178.60	9,319.25	-1,762.94	35.31	1,763.08	0.97
10,977.00	90.20	178.40	9,318.26	-1,856.90	37.77	1,857.05	0.88
11,073.00	90.90	177.70	9,317.34	-1,952.84	41.04	1,953.00	1.03
11,168.00	93.30	180.60	9,313.86	-2,047.75	42.45	2,047.92	3.96
11,263.00	93.70	180.00	9,308.06	-2,142.57	41.95	2,142.73	0.76
11,358.00	94.20	180.60	9,301.52	-2,237.34	41.46	2,237.50	0.82
11,453.00	94.40	180.20	9,294.39	-2,332.07	40.80	2,332.23	0.47
11,548.00	94.30	180.40	9,287.19	-2,426.80	40.30	2,426.95	0.23
11,643.00	93.10	182.30	9,281.06	-2,521.57	38.06	2,521.71	2.36
11,738.00	91.20	182.20	9,277.49	-2,616.42	34.34	2,616.55	2.00



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3143.50usft (Ensign 153)
Site:	Cotton Hills 23-26-27 Fed Com	MD Reference:	KB @ 3143.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB2/Job #1310733	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)
11,833.00	90.20	180.80	9,276.33	-2,711.38	31.85	2,711.49	1.81
11,928.00	89.40	179.90	9,276.66	-2,806.38	31.27	2,806.49	1.27
12,023.00	93.20	181.00	9,274.51	-2,901.33	30.53	2,901.44	4.16
12,118.00	93.50	180.80	9,268.96	-2,996.16	29.04	2,996.25	0.38
12,212.00	93.20	180.50	9,263.46	-3,089.99	27.97	3,090.08	0.45
12,307.00	90.90	181.10	9,260.07	-3,184.91	26.65	3,185.00	2.50
12,403.00	89.40	179.40	9,259.82	-3,280.91	26.23	3,280.99	2.36
12,497.00	89.70	175.60	9,260.55	-3,374.80	30.33	3,374.90	4.06
12,592.00	90.00	176.10	9,260.80	-3,469.55	37.20	3,469.68	0.61
12,687.00	91.30	179.20	9,259.72	-3,564.45	41.10	3,564.59	3.54
12,783.00	89.20	177.30	9,259.31	-3,660.39	44.03	3,660.55	2.95
12,878.00	88.30	178.60	9,261.38	-3,755.30	47.43	3,755.48	1.66
12,973.00	89.10	179.80	9,263.53	-3,850.27	48.75	3,850.44	1.52
Last Phoenix MWD Survey							
13,037.00	89.10	179.80	9,264.54	-3,914.26	48.98	3,914.44	0.00
Projection to TD							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,552.00	8,549.05	-12.60	-32.96	Tie-on
8,731.00	8,728.01	-14.10	-29.56	First Phoenix MWD Survey
9,622.00	9,357.05	-506.93	-16.76	660' FNL/Top Perforation @ 9622' MD
12,973.00	9,263.53	-3,850.27	48.75	Last Phoenix MWD Survey
13,037.00	9,264.54	-3,914.26	48.98	Projection to TD
13,610.00				660' FSL/Bottom Perforation

Checked By: _____	Approved By: _____	Date: _____
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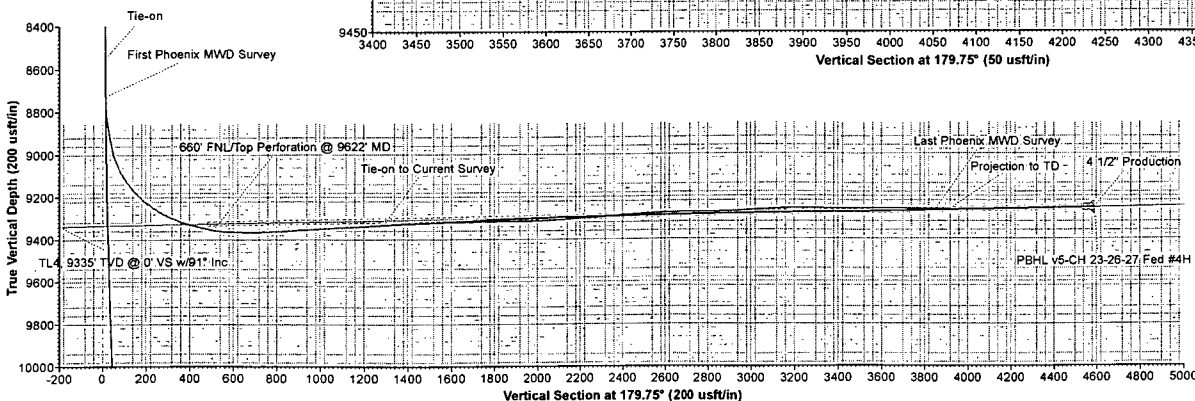
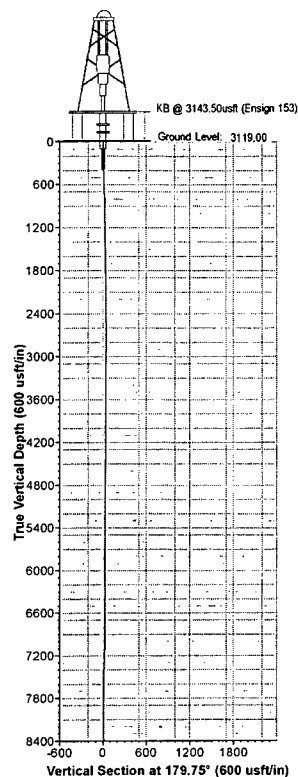
Project: Eddy County NM (NAD27 NME)
Site: Cotton Hills 23-26-27 Fed Com
Well: #1H
Wellbore: WB2/Job #1310733
Design: Plan #5 09-23-13
Rig: Ensign 153



PHOENIX
TECHNOLOGY SERVICES



Azimuths to Grid North
True North: -0.09°
Magnetic North: 7.48°
Magnetic Field
Strength: 48225.4nT
Dip Angle: 59.86°
Date: 08/06/2013
Model: IGRF2010_14



WELL DETAILS						
			Ground Level	3119.00		
+N/-S	+E/-W	Northing			Latitude	Longitude
0.00	0.00	376299.00	554273.00	32° 2' 3.98230 N	104° 9' 29.48674 W	

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	10408.00	93.60	178.70	9334.50	-1288.31	35.56	0.00	0.00	1288.45
2	10460.00	92.50	179.50	9331.64	-1340.22	36.38	2.93	148.41	1340.37
3	11195.00	92.50	179.50	9299.58	-2074.50	42.79	0.00	0.00	2074.66
4	11255.68	91.00	180.53	9291.73	-2135.14	42.77	3.00	145.48	2135.31
5	13710.01	91.00	180.53	9254.90	-4589.00	20.00	0.00	0.00	4589.04
PBHL v5-CH 23-26-27 Fed #4H at 13710.01									

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL v5-CH 23-26-27 Fed #4H	9254.90	-4589.00	20.00	371710.00	554293.00	32° 1' 18.56626 N	104° 9' 29.34084 W	Rectangle (Sides: L20.00 W100.00)	
plan hits target center									

LEGEND									
—	#1H, WB1/Job #1310733, Pilot Hole V0								
—	#1H, WB2/Job #1310733, Surveys (Ensign 153) V0								
—	Plan #5 09-23-13								

CASING DETAILS				
TVD	MD	Name	Size	
9338.00	7"	Intermediate II	7	
9254.91	13709.61	4 1/2" Production	4-1/2	

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well #1H, Grid North
Latitude: 32° 2' 3.98230 N
Longitude: 104° 9' 29.48674 W
Grid East: 554273.00
Grid North: 376299.00
Scale Factor: 1.000
Geomagnetic Model: IGRF2010_14
Sample Date: 06-Aug-13
Magnetic Declination: 7.58°
Dip Angle from Horizontal: 59.86°
Magnetic Field Strength: 48225
To convert a Magnetic Direction to a Grid Direction, Add 7.48°
To convert a Magnetic Direction to a True Direction, Add 7.58° East
To convert a True Direction to a Grid Direction, Subtract 0.09°

PROJECT DETAILS: Eddy County NM (NAD27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Cotton Hills 23-26-27 Fed Com
Site Centre Northing: 376299.00
Easting: 554273.00
Positional Uncertainty: 0.00
Convergence: 0.09
Local North: Grid

