



30-015-39509

Chesapeake - WT

Eddy County NM (NAD 27)

Sec 14, T16S, R28E

Crow Flats 14-16-28 USA #5H

Curve & Lateral

Survey: DDC MWD

DDC Survey Report

25 January, 2012





DDC
Survey Report



Company:	Chesapeake - WT	Local Co-ordinate Reference:	Well Crow Flats 14-16-28 USA #5H
Project:	Eddy County NM (NAD 27)	TVD Reference:	WELL @ 3592.0usft (Cactus #120)
Site:	Sec 14, T16S, R28E	MD Reference:	WELL @ 3592.0usft (Cactus #120)
Well:	Crow Flats 14-16-28 USA #5H	North Reference:	Grid
Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	Database:	EDM 5000.1 Single User Db

Project	Eddy County NM (NAD 27)		
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	Sec 14, T16S, R28E		
Site Position:		Northing:	701,715 80 usft
From:	Map	Easting:	554,983 00 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 55' 44 271 N
		Longitude:	104° 9' 14.889 W
		Grid Convergence:	0.10 °

Well	Crow Flats 14-16-28 USA #5H		
Well Position	+N/-S	0 0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 55' 44.271 N
		Longitude:	104° 9' 14.889 W
		Ground Level:	3,569.0 usft

Wellbore	Curve & Lateral		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/26/2011	7 86	60.73	48,938

Design	Curve & Lateral		
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Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 6,015.8

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0 0	0.0	89.98

Survey Program	Date 1/25/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
96.1	6,015.8	Gyro (Pilot Hole)	Good_gyro
6,059.0	10,977.0	DDC MWD (Curve & Lateral)	MWD default
			Description
			Good Gyro
			MWD - Standard

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)
Tie-In @ 6016' MD / 6015' TVD									
6,015.8	1.43	75.64	6,015.0	83.7	8.3	8.3	0.00	0.00	0.00
6,059.0	4.60	100.10	6,058.1	83.5	10.6	10.6	7.76	7.34	56.62
6,091.0	7.60	101.50	6,089.9	82.9	13.9	13.9	9.39	9.38	4.38
6,123.0	11.00	100.60	6,121.5	81.9	19.0	19.0	10.63	10.63	-2.81
6,155.0	14.30	104.30	6,152.7	80.4	25.8	25.8	10.61	10.31	11.56
6,186.0	17.90	108.50	6,182.5	77.9	34.0	34.0	12.20	11.61	13.55
6,218.0	21.60	111.10	6,212.6	74.2	44.2	44.2	11.88	11.56	8.13
6,250.0	25.60	112.00	6,241.9	69.5	56.1	56.1	12.55	12.50	2.81
6,282.0	30.00	112.00	6,270.2	63.9	69.9	70.0	13.75	13.75	0.00



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Site:	Sec 14, T16S, R28E	MD Reference:	WELL @ 3592.0usft (Cactus #120)
Well:	Crow Flats 14-16-28 USA #5H	North Reference:	Grid
Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	Database:	EDM 5000 1-Single User Db

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)
6,314.0	34.20	110.90	6,297.3	57.7	85.8	85.8	13.25	13.13	-3.44
6,345.0	38.20	108.30	6,322.3	51.6	103.0	103.0	13.82	12.90	-8.39
6,377.0	42.40	106.60	6,346.7	45.4	122.8	122.8	13.57	13.13	-5.31
Crossed Hard Line @ 6388' MD / 6355' TVD									
6,388.0	43.98	106.38	6,354.8	43.3	130.0	130.0	14.44	14.37	-1.98
6,409.0	47.00	106.00	6,369.5	39.1	144.4	144.4	14.44	14.38	-1.82
6,441.0	50.80	105.70	6,390.5	32.5	167.5	167.6	11.90	11.88	-0.94
6,473.0	52.90	105.30	6,410.3	25.8	191.8	191.8	6.64	6.56	-1.25
6,504.0	55.50	105.00	6,428.4	19.2	216.1	216.1	8.42	8.39	-0.97
6,536.0	59.10	103.90	6,445.7	12.5	242.1	242.1	11.62	11.25	-3.44
6,568.0	62.20	101.50	6,461.4	6.4	269.3	269.3	11.69	9.69	-7.50
6,600.0	65.00	99.00	6,475.6	1.3	297.5	297.5	11.20	8.75	-7.81
6,632.0	67.60	97.20	6,488.5	-2.8	326.5	326.5	9.62	8.13	-5.63
6,664.0	70.00	95.00	6,500.0	-6.0	356.2	356.2	9.87	7.50	-6.88
6,696.0	72.20	92.70	6,510.4	-8.0	386.4	386.4	9.67	6.88	-7.19
6,728.0	74.50	92.50	6,519.6	-9.4	417.0	417.0	7.21	7.19	-0.63
6,760.0	76.90	92.00	6,527.5	-10.6	448.0	448.0	7.65	7.50	-1.56
6,792.0	79.10	91.30	6,534.1	-11.5	479.3	479.3	7.20	6.88	-2.19
6,823.0	81.00	90.40	6,539.5	-12.0	509.8	509.8	6.76	6.13	-2.90
6,855.0	81.90	88.80	6,544.2	-11.8	541.5	541.5	5.69	2.81	-5.00
6,887.0	83.00	86.90	6,548.4	-10.6	573.2	573.2	6.82	3.44	-5.94
6,918.0	84.10	85.30	6,551.9	-8.5	603.9	603.9	6.24	3.55	-5.16
6,950.0	87.30	85.60	6,554.3	-5.9	635.7	635.7	10.04	10.00	0.94
7,014.0	90.60	85.60	6,555.5	-1.0	699.5	699.5	5.16	5.16	0.00
7,109.0	90.70	86.50	6,554.4	5.5	794.3	794.3	0.95	0.11	0.95
7,205.0	90.80	89.50	6,553.2	8.9	890.2	890.2	3.13	0.10	3.13
7,300.0	88.80	90.20	6,553.5	9.1	985.2	985.2	2.23	-2.11	0.74
7,396.0	89.80	91.40	6,554.7	7.8	1,081.2	1,081.2	1.63	1.04	1.25
7,491.0	88.90	92.50	6,555.7	4.5	1,176.1	1,176.1	1.50	-0.95	1.16
7,586.0	88.70	92.00	6,557.7	0.8	1,271.0	1,271.0	0.57	-0.21	-0.53
7,682.0	88.30	91.40	6,560.2	-2.0	1,366.9	1,366.9	0.75	-0.42	-0.63
7,777.0	88.10	91.10	6,563.2	-4.1	1,461.9	1,461.9	0.38	-0.21	-0.32
7,873.0	87.80	90.90	6,566.7	-5.8	1,557.8	1,557.8	0.38	-0.31	-0.21
7,968.0	87.80	90.20	6,570.3	-6.7	1,652.7	1,652.7	0.74	0.00	-0.74
8,064.0	87.60	89.70	6,574.2	-6.6	1,748.6	1,748.6	0.56	-0.21	-0.52
8,158.0	87.80	89.70	6,577.9	-6.1	1,842.6	1,842.6	0.21	0.21	0.00
8,254.0	88.50	89.90	6,581.0	-5.8	1,938.5	1,938.5	0.76	0.73	0.21
8,348.0	89.00	90.00	6,583.1	-5.7	2,032.5	2,032.5	0.54	0.53	0.11
8,444.0	87.00	89.50	6,586.4	-5.3	2,128.4	2,128.4	2.15	-2.08	-0.52
8,539.0	86.90	89.50	6,591.5	-4.5	2,223.3	2,223.3	0.11	-0.11	0.00
8,635.0	87.60	89.30	6,596.1	-3.5	2,319.2	2,319.2	0.76	0.73	-0.21
8,730.0	88.10	88.80	6,599.7	-1.9	2,414.1	2,414.1	0.74	0.53	-0.53
8,826.0	89.30	88.80	6,601.8	0.1	2,510.0	2,510.0	1.25	1.25	0.00



DDC
Survey Report



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Site:	Sec 14 T16S R28E	MD Reference:	WELL @ 3592.0usft (Cactus #120)
Well:	Crow Flats 14-16-28 USA #5H	North Reference:	Grid
Wellbore:	Curve & Lateral	Survey Calculation Method:	Minimum Curvature
Design:	Curve & Lateral	Database:	EDM 5000:1 Single User Db

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)
8,922.0	90.30	88.80	6,602.2	2.1	2,606.0	2,606.0	1.04	1.04	0.00
9,015.0	91.00	88.60	6,601.1	4.2	2,699.0	2,699.0	0.78	0.75	-0.22
9,111.0	89.50	89.20	6,600.7	6.1	2,795.0	2,795.0	1.68	-1.56	0.63
9,206.0	89.90	89.00	6,601.2	7.6	2,889.9	2,889.9	0.47	0.42	-0.21
9,302.0	90.40	89.00	6,600.9	9.3	2,985.9	2,985.9	0.52	0.52	0.00
9,397.0	90.60	90.70	6,600.1	9.5	3,080.9	3,080.9	1.80	0.21	1.79
9,492.0	91.10	90.70	6,598.7	8.3	3,175.9	3,175.9	0.53	0.53	0.00
9,588.0	91.40	90.60	6,596.6	7.3	3,271.9	3,271.9	0.33	0.31	-0.10
9,682.0	89.80	89.70	6,595.6	7.0	3,365.9	3,365.9	1.95	-1.70	-0.96
9,778.0	89.80	89.50	6,596.0	7.7	3,461.9	3,461.9	0.21	0.00	-0.21
9,873.0	91.20	89.70	6,595.1	8.3	3,556.9	3,556.9	1.49	1.47	0.21
9,968.0	91.70	89.30	6,592.7	9.2	3,651.8	3,651.8	0.67	0.53	-0.42
10,064.0	90.20	90.00	6,591.1	9.8	3,747.8	3,747.8	1.72	-1.56	0.73
10,159.0	88.50	90.20	6,592.2	9.6	3,842.8	3,842.8	1.80	-1.79	0.21
10,255.0	89.40	90.60	6,594.0	8.9	3,938.8	3,938.8	1.03	0.94	0.42
10,350.0	90.30	90.40	6,594.2	8.1	4,033.8	4,033.8	0.97	0.95	-0.21
10,446.0	87.50	89.50	6,596.1	8.2	4,129.7	4,129.7	3.06	-2.92	-0.94
10,541.0	87.20	88.80	6,600.5	9.6	4,224.6	4,224.6	0.80	-0.32	-0.74
10,637.0	87.30	88.30	6,605.1	12.0	4,320.5	4,320.5	0.53	0.10	-0.52
10,732.0	88.50	88.10	6,608.5	15.0	4,415.4	4,415.4	1.28	1.26	-0.21
10,828.0	88.60	88.50	6,611.0	17.8	4,511.3	4,511.3	0.43	0.10	0.42
10,925.0	90.10	87.90	6,612.1	20.9	4,608.2	4,608.2	1.67	1.55	-0.62
TD @ 10977' MD / 6612' TVD									
10,977.0	90.10	87.90	6,612.0	22.8	4,660.2	4,660.2	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
6,015.8	6,015.0	83.7	8.3 Tie In @ 6016' MD / 6015' TVD
6,388.0	6,354.8	43.3	130.0 Crossed Hard Line @ 6388' MD / 6355' TVD
10,977.0	6,612.0	22.8	4,660.2 TD @ 10977' MD / 6612' TVD

Checked By: _____ Approved By: _____ Date: _____

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210
DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

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

Form C-102
Revised July 16, 2010
Submit to Appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-39509	Pool Code 97102	Pool Name Crow Flats; Wolfcamp
Property Code 38874	Property Name CROW FLATS 14-16-28 USA	Well Number 5H
GRID No. 147179	Operator Name CHESAPEAKE OPERATING, INC.	Elevation 3569'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	14	16-S	28-E		660	NORTH	200	WEST	EDDY

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
A	14	16-S	28-E		639	NORTH	350	EAST	EDDY
Dedicated Acres 160	Joint or Infill	Consolidation Code	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

FIRST PERFORATIONS: 666' FNL & 836' FWL ACTUAL BOTTOM HOLE LOCATION 639' FNL & 350' FEL GRID AZ = 89°58'55" HORIZ. DIST. = 4661.4' Producing Area Project Area GEODETIC COORDINATES SURFACE LOCATION NAD 27 NME Y=701715.8 N X=554983.0 E LAT.=32.928964° N LONG.=104.154136° W NAD 83 NME Y=701779.3 N X=596162.0 E LAT.=32.929077° N LONG.=104.154648° W BOTTOM HOLE LOCATION NAD 27 NME Y=701717.1 N X=559643.2 E LAT.=32.928945° N LONG.=104.138947° W NAD 83 NME Y=701780.8 N X=600822.2 E LAT.=32.929058° N LONG.=104.139460° W	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Bryan Arrant</i> 4/12/2012 Signature Date Bryan Arrant Printed Name bryan.arrant@clik.com E-mail Address 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. JUNE 17, 2011 Date of Survey Signature & Seal of Professional Surveyor: RONALD J. EIDSON NEW MEXICO 3239 Certified by: Ronald J. Eidson 12641 Professional Surveyor DSS WSC W.O.: 11.11.1248
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AS DRILLED LAND PLAT