

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

DISTRICT II
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Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
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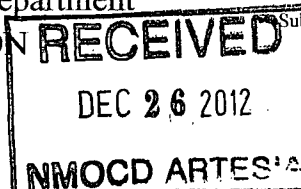
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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 August 1, 2011

Submit one copy to appropriate
District Office



AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015- 40923	Pool Code 96610	Pool Name Empire; Glorieta-Yeso East
Property Code 39603	Property Name CADILLAC 15 STATE	Well Number 1H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3571'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	15	17-S	29-E		2460	NORTH	1965	WEST	EDDY

Bottom Hole Location If Different From Surface

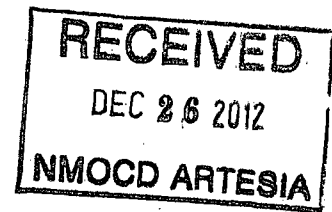
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	15	17-S	29-E		330	SOUTH	1650	WEST	EDDY
Dedicated Acres 120	Joint or Infill	Consolidation Code	Order No.						

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

Estimated Completed Interval: 2310 FSL 1900 FWL Producing Area Project Area GRID AZ = 186°57'37" HORIZ. DIST. = 2514.5' 330' 1650' 1965' 2460' 330' B.H. C D E F G H A B	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=667582.0 N X=582611.7 E LAT.=32.834980° N LONG.=104.064374° W BOTTOM HOLE LOCATION Y=665086.7 N X=582307.1 E	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. 12-20-12 Signature Date Kelly J. Holly Printed Name kholly@concho.com E-mail Address
	CORNER COORDINATES TABLE A - Y=668719.9 N, X=581968.8 E B - Y=668721.5 N, X=583290.5 E C - Y=664756.4 N, X=581977.9 E D - Y=664757.7 N, X=583298.2 E E - Y=667399.2 N, X=581971.8 E F - Y=667401.1 N, X=583293.1 E G - Y=666079.5 N, X=583295.6 E H - Y=666077.9 N, X=581974.9 E	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. OCTOBER 12, 2012 Date of Survey Signature & Seal of Professional Surveyor: 12/17/2012 Certificate Number: Gary O. Eidson 12641 Ronald J. Eidson 3239 AF/BKL REL. 12/11/97 JWSC W.O.: 12.13.2065



Weatherford®



Drilling Services

Proposal



COG OPERATING LLC.

CADILLAC 15 STATE #1H

EDDY CO, NM

WELL FILE: **LOWER LATERAL PLAN 1**
UPPER LATERAL PLAN 1

SHL 2460 FNL 1965 FWL

PP 2310 FSL 1900 FWL

BHL 330 FSL 1650 FWL

DECEMBER 14, 2012

Weatherford International, Ltd.

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Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

Company:	COG Operating	Date:	12/13/2012	Time:	13:51:03	Page:	1
Field:	Eddy Co. NM (Nad27)	Co-ordinate (NE) Reference:	Well: Cadillac 15 State #1H	Grid:	North		
Site:	Cadillac 15 State #1H	Vertical (TVD) Reference:	SITE 3589.5				
Well:	Cadillac 15 State #1H	Section (VS) Reference:	Well (0.00N; 0.00E; 186.96Azi)				
Wellpath:	Lower Lat	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

Plan:	Plan #1	Date Composed:	12/13/2012
Principal:	Yes	Version:	1
		Tied-to:	From Surface

Site:		Cadillac 15 State #1H				
Site Position:		Northing:	667582.00	ft	Latitude:	32 50 5.928 N
From:	Map	Easting:	582611.70	ft	Longitude:	104 3 51.746 W
Position Uncertainty:	0.00				North Reference:	Grid
Ground Level:	3571.00				Grid Convergence:	0.15 deg

Well:	Cadillac 15 State #1H	Slot Name:	
Well Position:	+N/-S 0.00 ft	Northing: 667582.00 ft	Latitude: 32 50 5.928 N
	+E/-W 0.00 ft	Easting: 582611.70 ft	Longitude: 104 3 51.746 W
Position Uncertainty:	0.00 ft		

Wellpath:	Lower Lat	Drilled From:	Surface
Current Datum:	SITE	Tie-on Depth:	0.00 ft
Magnetic Data:	2/1/2013	Above System Datum:	Mean Sea Level
Field Strength:	48792 nT	Declination:	7.66 deg
Vertical Section:	Depth From (TVD)	Mag Dip Angle:	60.63 deg
	ft	+E/-W	Direction
		ft	deg
	0.00	0.00	0.00
			186.96

Plan Section Information

MD	Incl	Azim	TVD	+N/-S	+E/-W	DLS	Build	Turn	TFO	Target
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	deg	
0.00	0.00	186.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4722.61	0.00	186.96	4722.61	0.00	0.00	0.00	0.00	0.00	0.00	
5480.94	91.00	186.96	5200.00	-482.22	-58.86	12.00	12.00	0.00	186.96	
7509.27	91.00	186.96	5164.60	-2495.30	-304.60	0.00	0.00	0.00	0.00	PBHL Lower

Survey

MD	Incl	Azim	TVD	N/S	E/W	VS	DLS	MapN	MapE	Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	ft	
4700.00	0.00	186.96	4700.00	0.00	0.00	0.00	0.00	667582.00	582611.70	
4722.61	0.00	186.96	4722.61	0.00	0.00	0.00	0.00	667582.00	582611.70	KOP
4725.00	0.29	186.96	4725.00	-0.01	0.00	0.01	12.00	667581.99	582611.70	
4750.00	3.29	186.96	4749.98	-0.78	-0.10	0.79	12.00	667581.22	582611.60	
4775.00	6.29	186.96	4774.89	-2.85	-0.35	2.87	12.00	667579.15	582611.35	
4800.00	9.29	186.96	4799.66	-6.21	-0.76	6.26	12.00	667575.79	582610.94	
4825.00	12.29	186.96	4824.22	-10.86	-1.33	10.94	12.00	667571.14	582610.37	
4850.00	15.29	186.96	4848.49	-16.77	-2.05	16.89	12.00	667565.23	582609.65	
4875.00	18.29	186.96	4872.43	-23.94	-2.92	24.11	12.00	667558.06	582608.78	
4900.00	21.29	186.96	4895.95	-32.34	-3.95	32.58	12.00	667549.66	582607.75	
4925.00	24.29	186.96	4918.99	-41.95	-5.12	42.26	12.00	667540.05	582606.58	
4950.00	27.29	186.96	4941.50	-52.74	-6.44	53.13	12.00	667529.26	582605.26	
4975.00	30.29	186.96	4963.41	-64.69	-7.90	65.17	12.00	667517.31	582603.80	
5000.00	33.29	186.96	4984.66	-77.76	-9.49	78.34	12.00	667504.24	582602.21	
5025.00	36.29	186.96	5005.19	-91.92	-11.22	92.60	12.00	667490.08	582600.48	
5050.00	39.29	186.96	5024.94	-107.12	-13.08	107.92	12.00	667474.88	582598.62	
5075.00	42.29	186.96	5043.87	-123.33	-15.05	124.24	12.00	667458.67	582596.65	
5100.00	45.29	186.96	5061.91	-140.50	-17.15	141.54	12.00	667441.50	582594.55	
5125.00	48.29	186.96	5079.03	-158.58	-19.36	159.76	12.00	667423.42	582592.34	
5150.00	51.29	186.96	5095.17	-177.53	-21.67	178.85	12.00	667404.47	582590.03	
5175.00	54.29	186.96	5110.29	-197.29	-24.08	198.76	12.00	667384.71	582587.62	
5200.00	57.29	186.96	5124.34	-217.81	-26.59	219.43	12.00	667364.19	582585.11	
5225.00	60.29	186.96	5137.30	-239.03	-29.18	240.81	12.00	667342.97	582582.52	



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WFT Plan Report - X & Y's



Weatherford

Company:	COG Operating	Date:	12/13/2012	Time:	13:51:03	Page:	2
Field:	Eddy Co. NM (Nad27)	Co-ordinate(NE) Reference:	Well: Cadillac 15 State #1H Grid North				
Site:	Cadillac 15 State #1H	Vertical (TVD) Reference:	SITE 3589.5				
Well:	Cadillac 15 State #1H	Section (VS) Reference:	Well (0.00N 0.00E 186.96Azi)				
Wellpath:	Lower Lat	Survey Calculation Method:	Minimum Curvature			Db:	Sybase

Survey

MD ft	Incl deg	Azim. deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
5250.00	63.29	186.96	5149.11	-260.90	-31.85	262.84	12.00	667321.10	582579.85	
5275.00	66.29	186.96	5159.76	-283.35	-34.59	285.45	12.00	667298.65	582577.11	
5300.00	69.29	186.96	5169.21	-306.32	-37.39	308.59	12.00	667275.68	582574.31	
5325.00	72.29	186.96	5177.44	-329.75	-40.25	332.20	12.00	667252.25	582571.45	
5350.00	75.29	186.96	5184.42	-353.58	-43.16	356.20	12.00	667228.42	582568.54	
5375.00	78.29	186.96	5190.13	-377.73	-46.11	380.54	12.00	667204.27	582565.59	
5400.00	81.29	186.96	5194.56	-402.15	-49.09	405.14	12.00	667179.85	582562.61	
5425.00	84.29	186.96	5197.70	-426.77	-52.10	429.94	12.00	667155.23	582559.60	
5450.00	87.29	186.96	5199.54	-451.51	-55.12	454.87	12.00	667130.49	582556.58	
5475.00	90.29	186.96	5200.07	-476.32	-58.14	479.86	12.00	667105.68	582553.56	
5480.94	91.00	186.96	5200.00	-482.22	-58.86	485.80	12.00	667099.78	582552.84	LP
5500.00	91.00	186.96	5199.67	-501.13	-61.17	504.85	0.00	667080.87	582550.53	
5600.00	91.00	186.96	5197.92	-600.38	-73.29	604.84	0.00	666981.62	582538.41	
5700.00	91.00	186.96	5196.18	-699.63	-85.40	704.82	0.00	666882.37	582526.30	
5800.00	91.00	186.96	5194.43	-798.88	-97.52	804.81	0.00	666783.12	582514.18	
5900.00	91.00	186.96	5192.69	-898.13	-109.63	904.79	0.00	666683.87	582502.07	
6000.00	91.00	186.96	5190.94	-997.37	-121.75	1004.78	0.00	666584.63	582489.95	
6100.00	91.00	186.96	5189.20	-1096.62	-133.86	1104.76	0.00	666485.38	582477.84	
6200.00	91.00	186.96	5187.45	-1195.87	-145.98	1204.75	0.00	666386.13	582465.72	
6300.00	91.00	186.96	5185.70	-1295.12	-158.09	1304.73	0.00	666286.88	582453.61	
6400.00	91.00	186.96	5183.96	-1394.37	-170.21	1404.72	0.00	666187.63	582441.49	
6500.00	91.00	186.96	5182.21	-1493.62	-182.32	1504.70	0.00	666088.38	582429.38	
6600.00	91.00	186.96	5180.47	-1592.86	-194.44	1604.69	0.00	665989.14	582417.26	
6700.00	91.00	186.96	5178.72	-1692.11	-206.56	1704.67	0.00	665889.89	582405.14	
6800.00	91.00	186.96	5176.98	-1791.36	-218.67	1804.66	0.00	665790.64	582393.03	
6900.00	91.00	186.96	5175.23	-1890.61	-230.79	1904.64	0.00	665691.39	582380.91	
7000.00	91.00	186.96	5173.49	-1989.86	-242.90	2004.63	0.00	665592.14	582368.80	
7100.00	91.00	186.96	5171.74	-2089.10	-255.02	2104.61	0.00	665492.90	582356.68	
7200.00	91.00	186.96	5170.00	-2188.35	-267.13	2204.60	0.00	665393.65	582344.57	
7300.00	91.00	186.96	5168.25	-2287.60	-279.25	2304.58	0.00	665294.40	582332.45	
7400.00	91.00	186.96	5166.51	-2386.85	-291.36	2404.56	0.00	665195.15	582320.34	
7509.27	91.00	186.96	5164.60	-2495.30	-304.60	2513.82	0.00	665086.70	582307.10	PBHL Lower

Targets

Name	Description Dip. Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg. Min. Sec.	Longitude Deg. Min. Sec.
PBHL Upper		4664.60	-2495.30	-304.60	665086.70	582307.10	32 49 41.244 N	104 3 55.391 W
PBHL Lower		5164.60	-2495.30	-304.60	665086.70	582307.10	32 49 41.244 N	104 3 55.391 W

Casing Points

MD	TVD	Diameter	Hole Size	Name

Annotation

MD ft	TVD ft	
4722.61	4722.61	KOP
5480.94	5200.00	LP
7509.27	5164.60	PBHL



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WFT Plan Report - X & Y's



Weatherford

Company: COG Operating	Date: 12/13/2012	Time: 13:51:03	Page: 3
Field: Eddy Co, NM (Nad27)	Co-ordinate(NE) Reference:	Well: Cadillac 15 State #1H; Grid North	
Site: Cadillac 15 State #1H	Vertical (TVD) Reference:	SITE 3589.5	
Well: Cadillac 15 State #1H	Section (VS) Reference:	Well (0:00N:0:00E:186:96Azi)	
Wellpath: Lower Lat	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Field: Eddy Co, NM (Nad27)

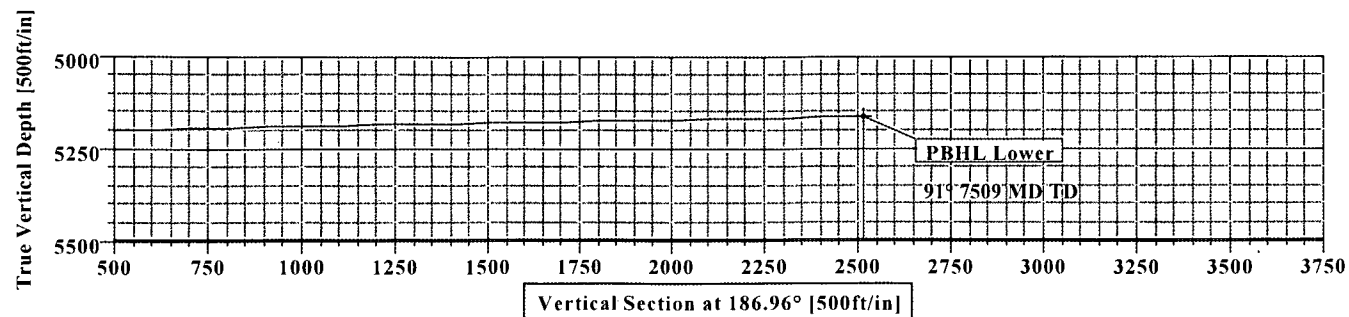
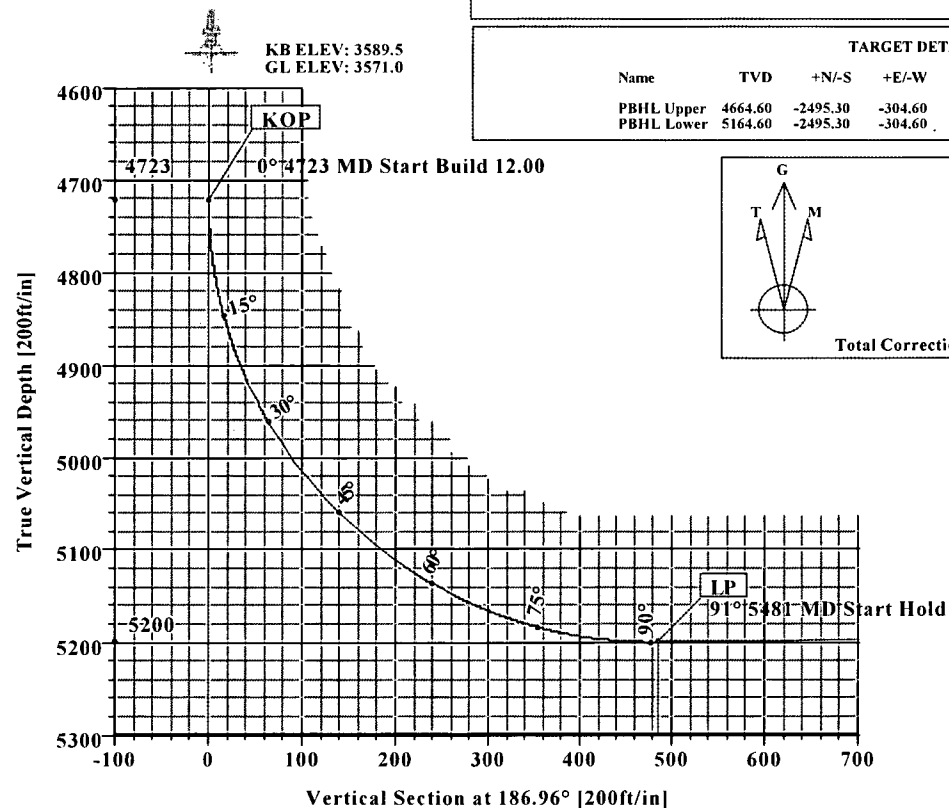
Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Eastern Zone
Coordinate System: Well Centre
Geomagnetic Model: IGRF2010



Cadillac 15 State #1H Eddy Co., NM

Lower Lateral



SECTION DETAILS

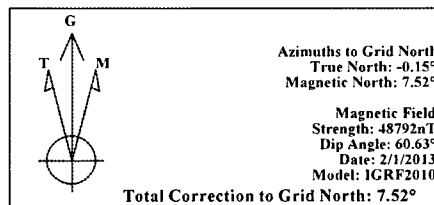
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	186.96	0.00	0.00	0.00	0.00	0.00	0.00	
2	4722.61	0.00	186.96	4722.61	0.00	0.00	0.00	0.00	0.00	
3	5480.94	91.00	186.96	5200.00	-482.22	-58.86	12.00	186.96	485.80	
4	7509.27	91.00	186.96	5164.60	-2495.30	-304.60	0.00	0.00	2513.82	PBHL Lower

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Cadillac 15 State #1H	0.00	0.00	667582.00	582611.70	32°50'05.928N	104°03'51.746W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL Upper	4664.60	-2495.30	-304.60	665086.70	582307.10	Point
PBHL Lower	5164.60	-2495.30	-304.60	665086.70	582307.10	Point



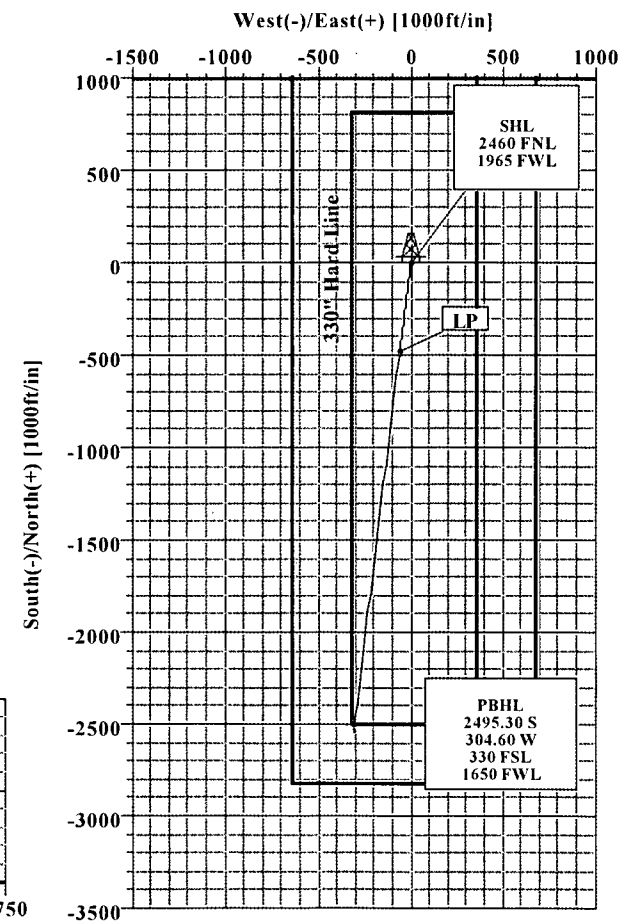
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FIELD DETAILS

Eddy Co, NM (Nad27)
Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: NAD27 (Clarke 1866)
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010
System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Cadillac 15 State #1H
Site Centre Northing: 667582.00
Easting: 582611.70
Ground Level: 3571.00
Positional Uncertainty: 0.00
Convergence: 0.15



Plan: Plan #1 (Cadillac 15 State #1H/Lower Lat)

Created By: Patrick Rudolph

Date: 12/13/2012



Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

Company:	COG Operating	Date:	12/13/2012	Time:	13:53:13	Page:	1
Field:	Eddy Co NM (Nad27)	Co-ordinate(NE) Reference:	Well: Cadillac 15 State #1H	Grid:	North		
Site:	Cadillac 15 State #1H	Vertical (TVD) Reference:	SITE 3589.5				
Well:	Cadillac 15 State #1H	Section (VS) Reference:	Well: (0.00N:0.00E:186.96Azi)				
Wellpath:	Upper Lat	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

Plan:	Plan #1	Date Composed:	12/13/2012
Principal:	Yes	Version:	1
		Tied-to:	From Surface

Site:	Cadillac 15 State #1H				
Site Position:	Northing:	667582.00 ft	Latitude:	32 50 5.928 N	
From: Map	Easting:	582611.70 ft	Longitude:	104 3 51.746 W	
Position Uncertainty:	0.00 ft		North Reference:	Grid	
Ground Level:	3571.00 ft		Grid Convergence:	0.15 deg	

Well:	Cadillac 15 State #1H				Slot Name:			
Well Position:	+N/-S	0.00	ft	Northing:	667582.00	ft	Latitude:	32 50 5.928 N
	+E/-W	0.00	ft	Easting :	582611.70	ft	Longitude:	104 3 51.746 W
Position Uncertainty:		0.00	ft					

Wellpath: Upper Lat		Drilled From:		Lower Lat
Current Datum: SITE		Tie-on Depth:		0.00 ft
Magnetic Data: 2/1/2013		Above System Datum:		Mean Sea Level
Field Strength: 48792 nT		Declination:		7.66 deg
Vertical Section: Depth From (TVD)		Mag Dip Angle:		60.63 deg
ft		+N/-S		Direction
		ft		deg
0.00		0.00		0.00
				186.96

Plan Section Information										
MD	Incl	Azim	TVD	+N/-S	+E/-W	DLS	Build	Turn	TFO	Target
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	deg	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4219.27	0.00	0.00	4219.27	0.00	0.00	0.00	0.00	0.00	0.00	
4234.27	2.00	186.96	4234.27	-0.26	-0.03	13.33	13.33	0.00	186.96	
4239.27	2.00	186.96	4239.26	-0.43	-0.05	0.00	0.00	0.00	0.00	
4980.94	91.00	186.96	4700.00	-482.36	-58.88	12.00	12.00	0.00	0.00	
7009.13	91.00	186.96	4664.60	-2495.30	-304.60	0.00	0.00	0.00	0.00	PBHL Upper

Survey										
MD	Incl	Azim	TVD	N/S	E/W	VS	DLS	MapN	MapE	Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	ft	
4200.00	0.00	0.00	4200.00	0.00	0.00	0.00	0.00	667582.00	582611.70	
4219.27	0.00	0.00	4219.27	0.00	0.00	0.00	0.00	667582.00	582611.70	Top of Whip
4225.00	0.76	186.96	4225.00	-0.04	0.00	0.04	13.33	667581.96	582611.70	
4234.27	2.00	186.96	4234.27	-0.26	-0.03	0.26	13.33	667581.74	582611.67	Bottom of Whip
4239.27	2.00	186.96	4239.26	-0.43	-0.05	0.44	0.00	667581.57	582611.65	KOP
4250.00	3.29	186.96	4249.98	-0.92	-0.11	0.93	12.00	667581.08	582611.59	
4275.00	6.29	186.96	4274.89	-2.99	-0.37	3.02	12.00	667579.01	582611.33	
4300.00	9.29	186.96	4299.66	-6.36	-0.78	6.40	12.00	667575.64	582610.92	
4325.00	12.29	186.96	4324.21	-11.00	-1.34	11.08	12.00	667571.00	582610.36	
4350.00	15.29	186.96	4348.49	-16.91	-2.06	17.04	12.00	667565.09	582609.64	
4375.00	18.29	186.96	4372.42	-24.08	-2.94	24.26	12.00	667557.92	582608.76	
4400.00	21.29	186.96	4395.94	-32.48	-3.96	32.72	12.00	667549.52	582607.74	
4425.00	24.29	186.96	4418.99	-42.09	-5.14	42.40	12.00	667539.91	582606.56	
4450.00	27.29	186.96	4441.50	-52.88	-6.46	53.28	12.00	667529.12	582605.24	
4475.00	30.29	186.96	4463.41	-64.83	-7.91	65.32	12.00	667517.17	582603.79	
4500.00	33.29	186.96	4484.65	-77.90	-9.51	78.48	12.00	667504.10	582602.19	
4525.00	36.29	186.96	4505.18	-92.06	-11.24	92.74	12.00	667489.94	582600.46	
4550.00	39.29	186.96	4524.94	-107.26	-13.09	108.06	12.00	667474.74	582598.61	
4575.00	42.29	186.96	4543.87	-123.47	-15.07	124.39	12.00	667458.53	582596.63	
4600.00	45.29	186.96	4561.91	-140.64	-17.17	141.69	12.00	667441.36	582594.53	
4625.00	48.29	186.96	4579.03	-158.73	-19.38	159.91	12.00	667423.27	582592.32	



Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

Company:	COG Operating	Date:	12/13/2012	Time:	13:53:13	Page:	2
Field:	Eddy Co. NM (Nad27)	Co-ordinate(NE) Reference:	Well: Cadillac 15 State #1H	Grid North			
Site:	Cadillac 15 State #1H	Vertical (TVD) Reference:	SITE 3589.5				
Well:	Cadillac 15 State #1H	Section (VS) Reference:	Well: 0'00N 0'00E 186.96Azi)				
Wellpath:	Upper Lat	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
4650.00	51.29	186.96	4595.17	-177.68	-21.69	179.00	12.00	667404.32	582590.01	
4675.00	54.29	186.96	4610.28	-197.44	-24.10	198.90	12.00	667384.56	582587.60	
4700.00	57.29	186.96	4624.34	-217.96	-26.61	219.57	12.00	667364.04	582585.09	
4725.00	60.29	186.96	4637.29	-239.18	-29.20	240.95	12.00	667342.82	582582.50	
4750.00	63.29	186.96	4649.11	-261.04	-31.87	262.98	12.00	667320.96	582579.83	
4775.00	66.29	186.96	4659.76	-283.49	-34.61	285.60	12.00	667298.51	582577.09	
4800.00	69.29	186.96	4669.21	-306.46	-37.41	308.74	12.00	667275.54	582574.29	
4825.00	72.29	186.96	4677.43	-329.89	-40.27	332.34	12.00	667252.11	582571.43	
4850.00	75.29	186.96	4684.41	-353.72	-43.18	356.35	12.00	667228.28	582568.52	
4875.00	78.29	186.96	4690.13	-377.88	-46.13	380.68	12.00	667204.12	582565.57	
4900.00	81.29	186.96	4694.56	-402.30	-49.11	405.28	12.00	667179.70	582562.59	
4925.00	84.29	186.96	4697.70	-426.91	-52.11	430.08	12.00	667155.09	582559.59	
4950.00	87.29	186.96	4699.53	-451.66	-55.13	455.01	12.00	667130.34	582556.57	
4975.00	90.29	186.96	4700.06	-476.47	-58.16	480.00	12.00	667105.53	582553.54	
4980.94	91.00	186.96	4700.00	-482.36	-58.88	485.94	12.00	667099.64	582552.82	LP
5000.00	91.00	186.96	4699.66	-501.28	-61.19	505.00	0.00	667080.72	582550.51	
5100.00	91.00	186.96	4697.92	-600.53	-73.31	604.98	0.00	666981.47	582538.39	
5200.00	91.00	186.96	4696.17	-699.77	-85.42	704.97	0.00	666882.23	582526.28	
5300.00	91.00	186.96	4694.43	-799.02	-97.54	804.95	0.00	666782.98	582514.16	
5400.00	91.00	186.96	4692.68	-898.27	-109.65	904.94	0.00	666683.73	582502.05	
5500.00	91.00	186.96	4690.94	-997.52	-121.77	1004.92	0.00	666584.48	582489.93	
5600.00	91.00	186.96	4689.19	-1096.77	-133.88	1104.91	0.00	666485.23	582477.82	
5700.00	91.00	186.96	4687.45	-1196.01	-146.00	1204.89	0.00	666385.99	582465.70	
5800.00	91.00	186.96	4685.70	-1295.26	-158.11	1304.88	0.00	666286.74	582453.59	
5900.00	91.00	186.96	4683.96	-1394.51	-170.23	1404.86	0.00	666187.49	582441.47	
6000.00	91.00	186.96	4682.21	-1493.76	-182.34	1504.85	0.00	666088.24	582429.36	
6100.00	91.00	186.96	4680.47	-1593.01	-194.46	1604.83	0.00	665988.99	582417.24	
6200.00	91.00	186.96	4678.72	-1692.26	-206.57	1704.82	0.00	665889.74	582405.13	
6300.00	91.00	186.96	4676.98	-1791.50	-218.69	1804.80	0.00	665790.50	582393.01	
6400.00	91.00	186.96	4675.23	-1890.75	-230.80	1904.79	0.00	665691.25	582380.90	
6500.00	91.00	186.96	4673.49	-1990.00	-242.92	2004.77	0.00	665592.00	582368.78	
6600.00	91.00	186.96	4671.74	-2089.25	-255.03	2104.76	0.00	665492.75	582356.67	
6700.00	91.00	186.96	4670.00	-2188.50	-267.15	2204.74	0.00	665393.50	582344.55	
6800.00	91.00	186.96	4668.25	-2287.74	-279.26	2304.73	0.00	665294.26	582332.44	
6900.00	91.00	186.96	4666.50	-2386.99	-291.38	2404.71	0.00	665195.01	582320.32	
7009.13	91.00	186.96	4664.60	-2495.30	-304.60	2513.82	0.00	665086.70	582307.10	PBHL Upper

Targets

Name	Description Dip Dir	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec	Longitude Deg Min Sec
PBHL Upper		4664.60	-2495.30	-304.60	665086.70	582307.10	32 49 41.244 N	104 3 55.391 W

Casing Points

MD	TVD	Diameter	Hole Size	Name



Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

Company:	COG Operating	Date:	12/13/2012	Time:	13:53:13	Page:	3
Field:	Eddy Co, NM (Nad27)	Co-ordinate(NE) Reference:	Well: Cadillac 15 State #1H Grid North	Vertical (TVD) Reference:	SITE 3589.5		
Site:	Cadillac 15 State #1H	Section (VS) Reference:	Well (0'00N:0'00E-186'96Azi)	Survey Calculation Method:	Minimum Curvature	Db:	Sybase
Well:	Cadillac 15 State #1H						
Wellpath:	Upper Lat						

Annotation

MD	TVD	
ft	ft	
4219.27	4219.27	Top of Whip
4234.27	4234.27	Bottom of Whip
4239.27	4239.26	KOP
4980.94	4700.00	LP
7009.12	4664.60	PBHL

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Field: Eddy Co, NM (Nad27)

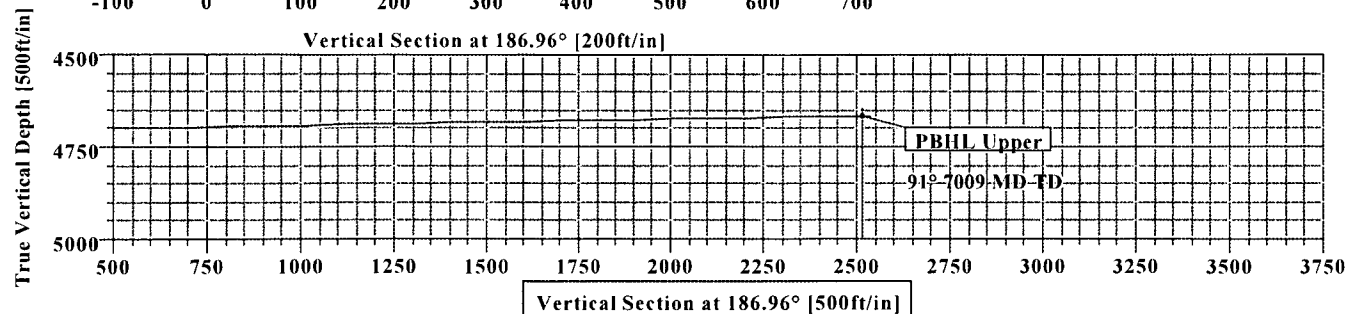
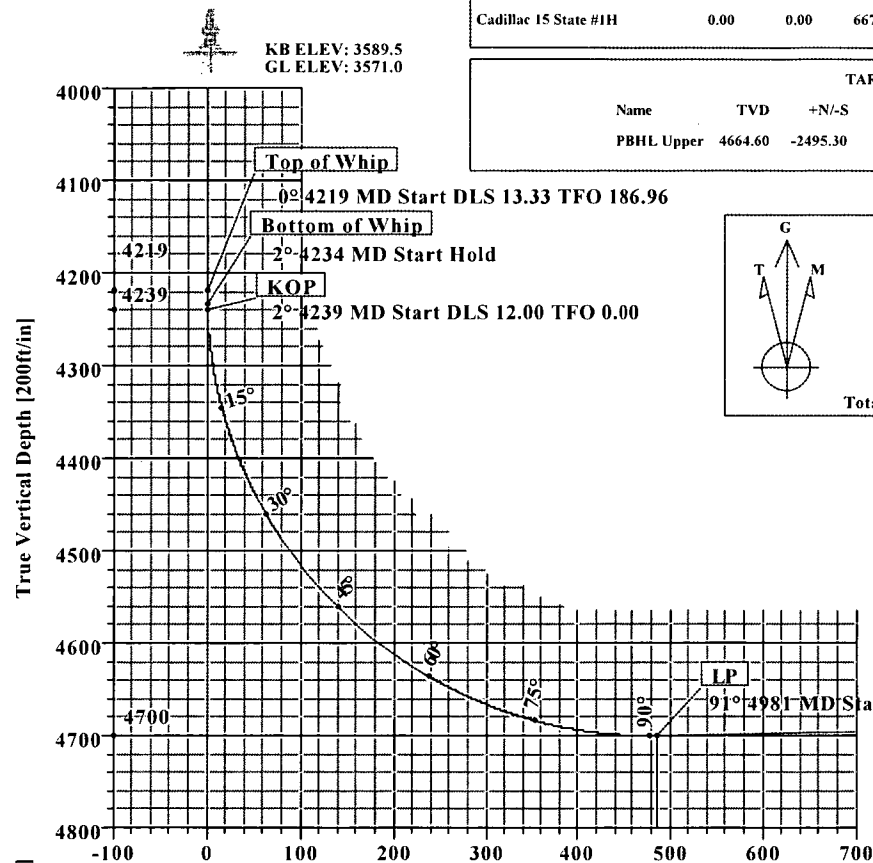
Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Eastern Zone
Coordinate System: Well Centre
Geomagnetic Model: IGRF2010



Cadillac 15 State #1H Eddy Co., NM

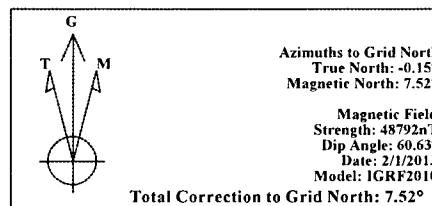
Upper Lateral



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4219.27	0.00	0.00	4219.27	0.00	0.00	0.00	0.00	0.00	
3	4234.27	2.00	186.96	4234.27	-0.26	-0.03	13.33	186.96	0.26	
4	4239.27	2.00	186.96	4239.26	-0.43	-0.05	0.00	0.00	0.44	
5	4980.94	91.00	186.96	4700.00	-482.36	-58.88	12.00	0.00	485.94	
6	7009.13	91.00	186.96	4664.60	-2495.30	-304.60	0.00	0.00	2513.82	PBHL Upper

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Cadillac 15 State #1H	0.00	0.00	667582.00	582611.70	32°50'05.928N	104°03'51.746W	N/A

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL Upper	4664.60	-2495.30	-304.60	665086.70	582307.10	Point

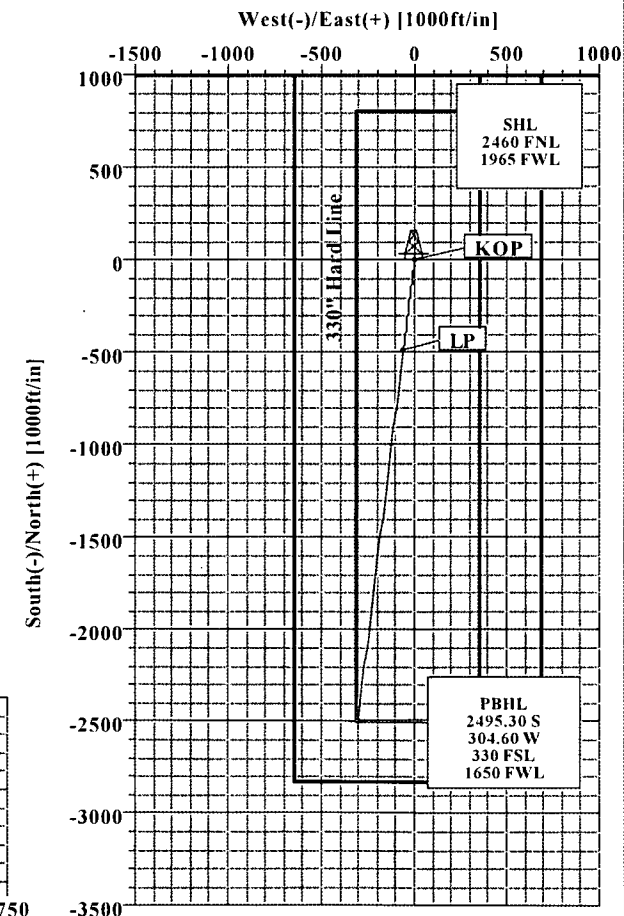


FIELD DETAILS

Eddy Co, NM (Nad27)
Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: NAD27 (Clarke 1866)
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010
System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Cadillac 15 State #1H
Site Centre Northing: 667582.00
Easting: 582611.70
Ground Level: 3571.00
Positional Uncertainty: 0.00
Convergence: 0.15



Plan: Plan #1 (Cadillac 15 State #1H/Upper Lat)
Created By: Patrick Rudolph
Date: 12/13/2012

**Weatherford****Weatherford Drilling Services**

GeoDec v5.03

Report Date: December 13, 2012
Job Number: _____
Customer: COG Operating LLC
Well Name: Cadillac 15 State #1H
API Number: _____
Rig Name: _____
Location: Eddy Co., NM
Block: _____
Engineer: Patrick Rudolph

US State Plane 1927	Geodetic Latitude / Longitude
System: New Mexico East 3001 (NON-EXACT)	System: Latitude / Longitude
Projection: SPC27 Transverse Mercator	Projection: Geodetic Latitude and Longitude
Datum: NAD 1927 (NADCON CONUS)	Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866	Ellipsoid: Clarke 1866
North/South 667582.000 USFT	Latitude 32.8349800 DEG
East/West 582611.700 USFT	Longitude -104.0643740 DEG
Grid Convergence: .15°	
Total Correction: +7.62°	

Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	32.83498° N	32° 50 min 5.928 sec
Longitude =	104.06437° W	104° 3 min 51.747 sec

Magnetic Declination =	7.77°	[True North Offset]
Local Gravity =	.9989 g	Checksum = 6695
Local Field Strength =	48770 nT	Magnetic Vector X = 23729 nT
Magnetic Dip =	60.59°	Magnetic Vector Y = 3238 nT
Magnetic Model =	bggm2012	Magnetic Vector Z = 42485 nT
Spud Date =	Feb 01, 2013	Magnetic Vector H = 23949 nT

Signed: _____

Date: _____