OXY USA
Eddy County
AYFU #18
Surveys: 385MD - 4881MD
UWI No. 30-015-41358

National Oilwell Varco
Survey Report

09 April 2014

UWI No. 30-015-41358

Surface Coordinates: 662639.00 N, 544831.10 E (32° 49' 17.7489" N, 104° 11' 14.6337" W)
Grid Coordinate System: NAD27 New Mexico State Planes, Eastern Zone, US Foot

Surface Coordinates relative to Map Coordinates: 662639.00 N, 544831.10 E (Grid)
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Kelly Bushing Elevation: 3647.50ft above Mean Sea Level
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Kelly Bushing Elevation: 14.00ft above Ground Level
Ground Level: 3633.50ft

Survey Ref: svy6

Survey Depth (ft)	Incl. (°)	(Grid) Azim. (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
385.00	0.810	354.374	384.99	2.71 N	0.27 W	2.30	0.210
872.00	0.830	225.244	871.96	3.65 N	3.11 W	4.79	0.304
1108.00	0.400	249.134	1107.95	2.15 N	5.09 W	4.83	0.208
1323.00	0.370	293.964	1322.95	2.17 N	6.43 W	5.66	0.137
1463.00	0.690	312.924	1462.94	2.93 N	7.46 W	6.89	0.258
1626.00	0.700	308.284	1625.93	4.21 N	8.96 W	8.82	0.035
1798.00	0.870	302.784	1797.91	5.57 N	10.88 W	11.08	0.108
2330.00	0.860	305.034	2329.85	10.05 N	17.55 W	18.70	0.007
2821.00	0.520	305.164	2820.82	13.45 N	22.38 W	24.35	0.069
3180.00	0.620	340.394	3179.80	16.21 N	24.37 W	27.76	0.100
3353.00	0.460	338.354	3352.79	17.74 N	24.94 W	29.31	0.093
3526.00	0.640	328.134	3525.78	19.21 N	25.70 W	30.94	0.118
3698.00	0.720	354.234	3697.77	21.10 N	26.32 W	32.81	0.184
3871.00	0.650	20.434	3870.76	23.10 N	26.09 W	34.25	0.184
4044.00	0.570	6.634	4043.75	24.87 N	25.65 W	35.38	0.096
4881.00	0.810	342.534	4880.69	34.65 N	26.94 W	43.89	0.044

All data is in Feet (US Survey) unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to AYFU #18. Northings and Eastings are relative to AYFU #18.

The dogleg severity is in Degrees per 100 feet (US Survey).
Vertical Section is from AYFU #18 calculated along an azimuth of 322.138° (Grid).

Based upon minimum curvature calculations, at a measured depth of 4881.00ft,
the bottom hole displacement is 43.89ft, in the direction of 322.138° (Grid).

The along-hole displacement is 53.18ft. The total accumulated dogleg is 5.594°.
The measured tortuosity is 0.117°/100ft. The directional difficulty index is 2.0.

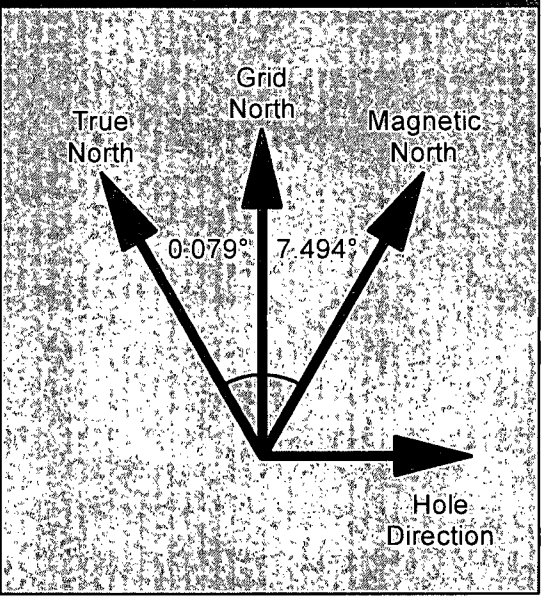
Survey Tool Program for AYFU #18, Surveys: 385MD - 4881MD

From		To		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Survey Tool Description
0.00	0.00	4881.00	4880.69	FloSurvey TiltOnlyMEM

REFERENCE DATA			
Ellipsoid	Clarke - 1866	Unit System	Feet (Us Survey)
Coord. System	NAD27 New Mexico State Planes, Eastern Zone, US Foc	North Ref.	Grid North
Mag. Model	igrf2010.dat	Vertical Ref.	Mean Sea Level
Calc. Date	03 Apr, 2014		

LOCATION DATA			
RKB Elevation	3647.50ft above MSL	Total Field	48625.4 nT
Map North	662639.00 N	Magnetic Dip	60.565°
Map East	544831.10 E	Declination	7.573°
Latitude	32° 49' 17.7489" N	Convergence	0.079°
Longitude	104° 11' 14.6337" W		

NORTH REFERENCE DATA	
Magnetic Model	igrf2010.dat
Calculation Date	Thursday, April 03, 2014
Declination	7.573°
Inclination/Dip	60.565°
Horizontal Component	23896.9 nT
Northerly Component	23689.1 nT
Easterly Component	3148.8 nT
Vertical Component	42348.2 nT
Total Field Strength	48625.4 nT
Grid North is 0.079 degrees East of True North (Grid Convergence) Magnetic North is 7.573 degrees East of True North (Magnetic Declination) Magnetic North is 7.494 degrees East of Grid North (Magnetic Convergence)	
To convert a True Direction to a Grid Direction, Subtract 0.079 degrees To convert a Magnetic Direction to a True Direction, Add 7.573 degrees To convert a Magnetic Direction to a Grid Direction, Add 7.494 degrees	



Disclaimer Notice

NATIONAL OILWELL VARCO

FloSurvey - Real Time Survey Tool
1200 Cypress Creek Road
Cedar Park, TX 78613
Phone: (512)340-5000
Fax: (512)340-5441

April 9, 2014

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

CLIENT: OXY
WELL: AYFU #18
FIELD: N/A
RIG: Savanna #415
COUNTY: Eddy
API NO: 30-015-41358

We hereby certify that the enclosed field survey data performed on the referenced well by National Oilwel Varco, contained in this report represents to the best of our knowledge, a true and accurate survey of the surveyed section of the well at the time the survey was run.

Other information required by your office is as follows.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
Jose Olivas Field Service Technician	AYFU #18 Original Hole	385.00 Ft 4881.00 Ft	to	April 5, 2014 April 7, 2014	to	FloSurvey

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Tyler Andreason
Field Service Manager

CC: OXY
Enclosures: [2]
County of Eddy
State of New Mexico

Attn: Linsay Earle
5 Greenway Plaza, Suite 110
Houston, Texas 77046

Attn: Ryan Yeatman
5 Greenway Plaza, Suite 110
Houston, Texas 77046

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I, Jose Olivas certify that; I am employed by National Oilwell Varco, L.P.; that the surveys taken on the day(s) of April 05, 2014 through April 07, 2014, from a depth of 385.00 Ft feet to a depth of 4881 feet; are to the best of my knowledge, the data is true, correct, complete and within the limitations of the tool as set forth by National Oilwell Varco, L.P.; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY for the AYFU #18 Well (Original Hole) API No. 30-015-41358 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by National Oilwell Varco, L.P.

Signature

Jose Olivas
Field Service Technician