



NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 24 2015

November 7, 2014

RECEIVED

Devon Energy
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

Attn: David Cook

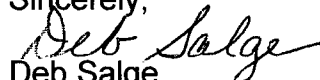
15- 42224

Re: **Daisy Duke 31 State Com No. 003H**

Please find enclosed a copy of the survey from 0.00' to 5960.24' ran on the above referenced well.

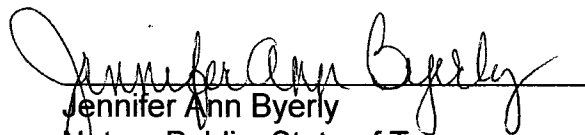
If I can be of any further service please do not hesitate to call me at 800-606-4976.

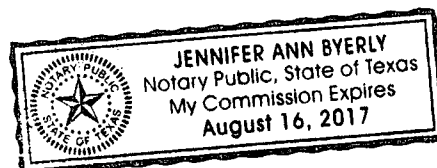
Sincerely,


Deb Salge
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 7 day of November A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: Devon Energy
 Lease/Well: Daisy Duke 31 State Com/No. 003H
 Location: S31 T22S R26E
 Rig Name: HP 251
 State/County: New Mexico/Lea
 Latitude: 32.35, Longitude: -104.32
 GRID North is 0.00 Degrees West of True North
 VS-Azi: 0.00 Degrees



Depth Reference : RKB = 25 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 11/6/2014 / 16:30

VES Survey International

Midland, TX

432-563-5444

Surveyor: Andrew Askew

Daisy Duke 31 State Com No. 003H / API 30-015-42224

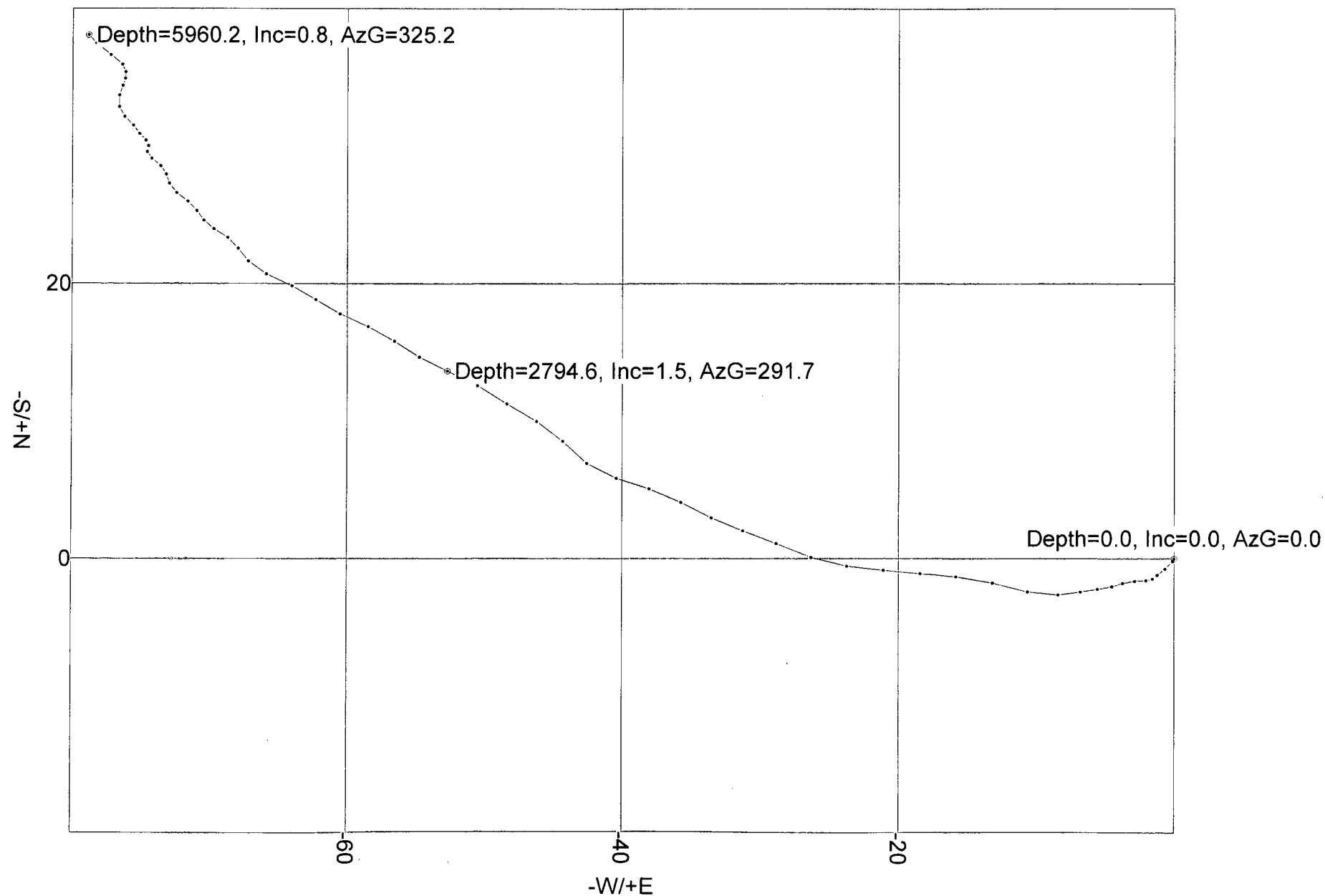
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
65.10	0.40	207.11	65.10	-0.20	-0.10	-0.20	0.23	207.11	0.62
159.22	0.58	237.01	159.22	-0.75	-0.65	-0.75	1.00	220.82	0.32
253.34	0.31	224.70	253.33	-1.19	-1.23	-1.19	1.71	225.82	0.30
347.46	0.23	238.95	347.45	-1.48	-1.57	-1.48	2.16	226.84	0.11
441.58	0.40	265.87	441.57	-1.60	-2.07	-1.60	2.61	232.29	0.23
535.70	0.61	268.28	535.69	-1.64	-2.90	-1.64	3.33	240.52	0.22
629.82	0.48	250.23	629.80	-1.78	-3.76	-1.78	4.17	244.63	0.23
723.94	0.53	253.01	723.92	-2.05	-4.55	-2.05	4.99	245.80	0.06
818.06	0.77	265.67	818.03	-2.22	-5.59	-2.22	6.02	248.36	0.29
912.18	0.77	254.43	912.14	-2.44	-6.83	-2.44	7.25	250.36	0.16
1006.30	1.22	267.04	1006.25	-2.66	-8.44	-2.66	8.85	252.52	0.52
1100.42	1.54	282.72	1100.34	-2.43	-10.68	-2.43	10.95	257.16	0.52
1194.54	1.63	285.52	1194.43	-1.80	-13.20	-1.80	13.32	262.25	0.13
1288.66	1.63	274.38	1288.51	-1.34	-15.83	-1.34	15.88	265.18	0.34
1382.78	1.57	275.45	1382.59	-1.11	-18.44	-1.11	18.48	266.55	0.08
1476.90	1.67	275.37	1476.68	-0.86	-21.09	-0.86	21.11	267.66	0.11
1571.02	1.57	278.11	1570.76	-0.55	-23.74	-0.55	23.74	268.67	0.14
1665.14	1.70	289.13	1664.84	0.09	-26.33	0.09	26.33	270.20	0.36

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1759.26	1.64	293.88	1758.92	1.09	-28.88	1.09	28.90	272.17	0.16
1853.38	1.51	288.48	1853.00	2.03	-31.29	2.03	31.36	273.71	0.20
1947.50	1.49	296.48	1947.09	2.97	-33.57	2.97	33.70	275.06	0.22
2041.62	1.50	297.08	2041.18	4.08	-35.76	4.08	35.99	276.50	0.02
2135.74	1.53	289.95	2135.27	5.07	-38.04	5.07	38.37	277.59	0.20
2229.86	1.51	286.67	2229.35	5.85	-40.41	5.85	40.83	278.24	0.10
2323.98	1.49	306.35	2323.44	6.93	-42.58	6.93	43.14	279.25	0.54
2418.10	1.43	319.20	2417.53	8.55	-44.33	8.55	45.15	280.92	0.35
2512.22	1.53	296.34	2511.62	10.00	-46.23	10.00	47.29	282.20	0.63
2606.34	1.53	304.35	2605.71	11.26	-48.39	11.26	49.68	283.10	0.23
2700.46	1.53	299.57	2699.79	12.59	-50.52	12.59	52.07	284.00	0.14
2794.58	1.47	291.73	2793.88	13.66	-52.73	13.66	54.47	284.52	0.23
2888.70	1.30	302.26	2887.97	14.67	-54.75	14.67	56.68	285.00	0.32
2982.82	1.29	303.79	2982.07	15.83	-56.53	15.83	58.71	285.64	0.04
3076.94	1.37	294.84	3076.17	16.89	-58.44	16.89	60.83	286.12	0.24
3171.06	1.39	292.35	3170.26	17.80	-60.52	17.80	63.08	286.39	0.07
3265.18	1.17	308.92	3264.35	18.84	-62.32	18.84	65.11	286.82	0.46
3359.30	1.31	292.18	3358.45	19.85	-64.06	19.85	67.07	287.21	0.41
3453.42	1.20	297.33	3452.55	20.71	-65.94	20.71	69.11	287.43	0.17
3547.54	0.82	315.86	3546.66	21.64	-67.28	21.64	70.68	287.83	0.53
3641.66	0.63	328.15	3640.77	22.57	-68.03	22.57	71.68	288.35	0.26
3735.78	0.75	304.81	3734.88	23.36	-68.81	23.36	72.67	288.75	0.32
3829.90	0.70	299.16	3828.99	23.99	-69.81	23.99	73.82	288.97	0.09
3924.02	0.51	324.19	3923.11	24.61	-70.56	24.61	74.73	289.23	0.34
4018.14	0.54	325.14	4017.23	25.32	-71.06	25.32	75.44	289.61	0.03
4112.26	0.61	307.77	4111.34	25.99	-71.71	25.99	76.27	289.92	0.20
4206.38	0.64	309.10	4205.45	26.62	-72.51	26.62	77.24	290.16	0.03
4300.50	0.46	340.17	4299.57	27.31	-73.04	27.31	77.98	290.50	0.36
4394.62	0.38	343.65	4393.69	27.96	-73.26	27.96	78.41	290.89	0.08
4488.74	0.53	312.51	4487.81	28.56	-73.67	28.56	79.01	291.19	0.30
4582.86	0.49	307.06	4581.92	29.10	-74.31	29.10	79.81	291.39	0.07
4676.98	0.30	0.87	4676.04	29.59	-74.63	29.59	80.28	291.63	0.42
4771.10	0.26	24.94	4770.16	30.02	-74.54	30.02	80.36	291.94	0.13
4865.22	0.41	305.00	4864.28	30.41	-74.73	30.41	80.68	292.14	0.47
4959.34	0.43	327.69	4958.39	30.90	-75.19	30.90	81.29	292.34	0.18
5053.46	0.50	320.83	5052.51	31.51	-75.64	31.51	81.94	292.62	0.10
5147.58	0.60	309.35	5146.63	32.14	-76.27	32.14	82.77	292.85	0.16
5241.70	0.50	359.21	5240.74	32.87	-76.66	32.87	83.41	293.21	0.50
5335.82	0.49	2.31	5334.86	33.68	-76.65	33.68	83.72	293.72	0.03

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5429.94	0.47	35.89	5428.98	34.40	-76.40	34.40	83.79	294.24	0.30
5524.06	0.25	343.24	5523.10	34.91	-76.23	34.91	83.85	294.61	0.40
5618.18	0.35	18.42	5617.21	35.38	-76.20	35.38	84.02	294.90	0.22
5712.30	0.53	311.37	5711.33	35.94	-76.44	35.94	84.47	295.18	0.54
5806.42	0.79	307.70	5805.45	36.63	-77.28	36.63	85.52	295.36	0.28
5900.54	0.82	311.26	5899.56	37.47	-78.30	37.47	86.80	295.57	0.06
5960.24	0.78	325.17	5959.25	38.08	-78.86	38.08	87.57	295.78	0.33



VES Survey International
Midland, TX
432-563-5444
Surveyor: Andrew Askew
Daisy Duke 31 State Com No. 003H / API 30-015-42224



V.E.S. Survey Date: 10/21/2014



Weatherford

Evaluation, Drilling & Intervention
10000 West County Rd. 116
P.O. Box 61028
Midland, TX USA 79711
Tel. (432) 561-8892 Fax (432) 561-8895

Devon Energy
333 W. Sherridan Ave
Oklahoma City, OK, 73102

Date: November 5, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 24 2015

Attention: Scott Schmidt

Re: Devon Energy
Well: Daisy Duke 31 State Com 3H
Eddy County, New Mexico

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Enclosed, please find the original survey performed on the referenced well by Precision Energy Services, Inc. (P-5 No. 676004), a Weatherford company. Other information required by your office is as follows:

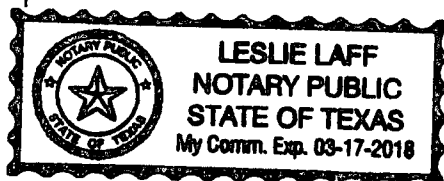
Name & Title Of Surveyor	Well Number	Surveyed Depths	Dates Performed	Type of Survey
Jesus Lopez	3H	5964 MD	10/21/2014	Measurement
MWD Supervisor		10679 MD	10/3/2014	While Drilling

A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Jesus Aguilar
MWD Coordinator

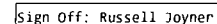
On this, the 6th day of November, 2014, before me a notary public, the undersigned officer, personally appeared Jesus Aguilar, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

In witness hereof, I hereunto set my hand and official seal.

Notary Public



Weatherford



NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 24 2015

RECEIVED

5D Survey Report

Devon Energy

Field Name: *Eddy Co, NM (Nad 83 NME)*

Site Name: *Daisy Duke 31 State Com 3H*

Well Name: *Daisy Duke 31 State Com 3H Lateral*

Survey: *Wft MWD Svy Lat*

03 November 2014



Weatherford®

Daisy Duke 31 State Com 3H Lateral

Field Name	Map Units : US ft		Company Name : Devon Energy	
Eddy Co, NM (Nad 83 NME)	Vertical Reference Datum (VRD) : Mean Sea Level			
	Projected Coordinate System : NAD83 / New Mexico East (ftUS)			
	Comment :			
Site Name	Units : US ft	North Reference : Grid	Convergence Angle : 0.00	
	Position	Northing : 489769.61 US ft	Latitude : 32° 20' 47.21"	
		Easting : 544111.00 US ft	Longitude : -104° 19' 27.67"	
	Elevation above Mean Sea Level: 3370.00 US ft			
Daisy Duke 31 State Com 3H	Comment :			
Slot Name	Position (Offsets relative to Site Centre)			
	+N / -S : 0.00 US ft	Northing : 489769.61 US ft	Latitude : 32° 20' 47.21"	
	+E / -W : 0.00 US ft	Easting : 544111.00 US ft	Longitude : -104° 19' 27.67"	
	Elevation above Mean Sea Level : 3370.00 US ft			
Daisy Duke 31 State Com 3H	Comment :			
Well Name	Type : Sidetrack	UWI :		
	Parent : Daisy Duke 31 State Com 3H Pilot	Tie Point Method : MD	Tie Point : 5845.00 US ft	
	Rig Height Well TVD Reference : 25.00 US ft	Comment :		
	Relative to Mean Sea Level: 3395.00 US ft			
	Closure Distance : 4687.17 US ft	Closure Azimuth : 269.367°		
	Vertical Section (Position of Origin Relative to Slot)			
Daisy Duke 31 State Com 3H Lateral	+N / -S : 0.00 US ft	+E / -W : 0.00 US ft	Az : 269.43°	

Target Set

Name : Daisy Duke 31 State Com 3H **Number of Targets :** 1

Comment :

Target Name:	Position (Relative to Slot centre)			
PBHL 3H	+N / -S : -46.68 US ft	Northing : 489722.93 US ft	Latitude : 32° 20' 46.75"	
	+E / -W : -4684.43 US ft	Easting : 539426.57 US ft	Longitude : -104° 20' 22.28"	
Shape:	TVD (Well TVD Reference) : 6232.00 US ft			
Cuboid	Orientation	Azimuth : 268.96°	Inclination : 2.85°	
	Dimensions	Length : 800.00 US ft	Breadth : 50.00 US ft	Height : 20.00 US ft

Survey Name : Wft MWD Svy Lat

Date : 27/Oct/2014 **Survey Tool :** MWD **Comment :** **Company :**

Magnetic Model

Model Name: BGGM **Date:** 15/Nov/2014 **Field Strength:** 48237.9 nT **Declination:** 7.70° **Dip:** 60.07°

Tie Point

MD: 5806.42 **Inclination:** 0.79 **Azimuth:** 307.7 **TVD:** 5805.45 **North Offset:** 36.63 **East Offset:** -77.2843

5D Survey Report

Well path created using minimum curvature

Survey Points (Relative to Slot centre, TVD relative to Well TVD Reference)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Northings (US ft)	Easting (US ft)	Comment	
5964.00	15.34	280.69	5961.06	41.19	-98.74	98.33	0.00	489810.80	544012.26	First Wft Svy	
5995.00	19.14	280.08	5990.66	42.84	-107.78	107.35	12.27	489812.45	544003.22		
6026.00	23.30	278.06	6019.55	44.59	-118.86	118.41	13.62	489814.20	543992.14		
6058.00	27.05	274.91	6048.51	46.10	-132.38	131.91	12.44	489815.71	543978.62		
6089.00	30.64	273.16	6075.66	47.14	-147.29	146.82	11.90	489816.75	543963.71		
6121.00	33.78	272.40	6102.73	47.96	-164.33	163.84	9.89	489817.57	543946.67		
6152.00	36.88	272.19	6128.02	48.67	-182.24	181.75	10.01	489818.28	543928.76		
6184.00	39.80	270.81	6153.12	49.19	-202.08	201.58	9.51	489818.80	543908.92		
6215.00	42.06	268.59	6176.54	49.07	-222.39	221.89	8.67	489818.68	543888.61		
6246.00	44.29	267.27	6199.14	48.30	-243.58	243.09	7.76	489817.91	543867.42		
6278.00	46.62	266.88	6221.59	47.13	-266.35	265.87	7.33	489816.74	543844.65		
6309.00	49.02	267.26	6242.40	45.96	-289.30	288.82	7.80	489815.57	543821.70		
6341.00	51.57	268.01	6262.84	44.95	-313.89	313.43	8.17	489814.56	543797.11		
6372.00	54.90	268.70	6281.40	44.24	-338.71	338.25	10.89	489813.85	543772.29		
6403.00	59.32	269.16	6298.22	43.76	-364.73	364.28	14.31	489813.37	543746.27		
6435.00	63.74	269.24	6313.48	43.36	-392.85	392.40	13.81	489812.97	543718.15		
6466.00	67.78	269.10	6326.20	42.95	-421.11	420.66	13.04	489812.56	543689.89		
6497.00	70.33	268.01	6337.28	42.22	-450.05	449.61	8.86	489811.83	543660.95		
6529.00	72.76	266.70	6347.41	40.82	-480.37	479.94	8.53	489810.43	543630.63		
6560.00	75.57	265.89	6355.87	38.89	-510.13	509.71	9.41	489808.50	543600.87		
6591.00	78.32	265.68	6362.87	36.67	-540.24	539.85	8.90	489806.28	543570.76		
6623.00	81.01	265.68	6368.61	34.30	-571.63	571.26	8.41	489803.91	543539.37		
6654.00	83.84	266.00	6372.70	32.07	-602.27	601.93	9.19	489801.68	543508.73		
6686.00	86.43	266.41	6375.41	29.96	-634.09	633.76	8.19	489799.57	543476.91		
6717.00	89.09	266.72	6376.62	28.11	-665.00	664.69	8.64	489797.72	543446.00		
6748.00	91.12	266.80	6376.57	26.35	-695.95	695.66	6.55	489795.96	543415.05		
6761.00	91.47	266.87	6376.27	25.64	-708.93	708.64	2.75	489795.25	543402.07		
6853.00	93.22	267.25	6372.51	20.92	-800.73	800.48	1.95	489790.53	543310.27		
6944.00	93.08	267.67	6367.51	16.89	-891.50	891.29	0.49	489786.50	543219.50		
7036.00	93.64	268.33	6362.11	13.69	-983.29	983.10	0.94	489783.30	543127.71		
7127.00	91.96	267.92	6357.67	10.71	-1074.12	1073.97	1.90	489780.32	543036.88		
7221.00	90.07	267.97	6356.00	7.34	-1168.05	1167.91	2.01	489776.95	542942.95		
7314.00	89.93	268.58	6356.00	4.55	-1261.00	1260.90	0.67	489774.16	542850.00		
7408.00	89.37	268.61	6356.58	2.24	-1354.97	1354.88	0.60	489771.85	542756.03		
7502.00	90.07	270.00	6357.04	1.10	-1448.96	1448.88	1.66	489770.71	542662.04		
7596.00	90.77	270.89	6356.35	1.83	-1542.95	1542.86	1.20	489771.44	542568.05		
7690.00	90.77	270.58	6355.09	3.04	-1636.94	1636.83	0.33	489772.65	542474.06		
7784.00	90.07	270.67	6354.40	4.06	-1730.93	1730.80	0.75	489773.67	542380.07		
7878.00	90.42	271.14	6354.00	5.55	-1824.92	1824.77	0.62	489775.16	542286.08		
7973.00	90.28	271.73	6353.41	7.93	-1919.88	1919.71	0.64	489777.54	542191.12		
8067.00	89.72	270.57	6353.41	9.81	-2013.86	2013.67	1.37	489779.42	542097.14		
8161.00	90.07	269.81	6353.59	10.12	-2107.86	2107.66	0.89	489779.73	542003.14		
8255.00	90.21	270.41	6353.36	10.30	-2201.86	2201.65	0.66	489779.91	541909.14		
8349.00	90.28	270.71	6352.96	11.22	-2295.86	2295.63	0.33	489780.83	541815.14		
8443.00	90.14	269.44	6352.61	11.35	-2389.85	2389.62	1.36	489780.96	541721.15		
8538.00	89.86	268.12	6352.61	9.32	-2484.83	2484.61	1.42	489778.93	541626.17		
8632.00	89.79	268.12	6352.90	6.24	-2578.78	2578.59	0.07	489775.85	541532.22		
8726.00	92.87	267.28	6350.72	2.47	-2672.67	2672.51	3.40	489772.08	541438.33		
8821.00	93.08	267.65	6345.79	-1.73	-2767.44	2767.32	0.45	489767.88	541343.56		
8915.00	93.78	268.42	6340.16	-4.94	-2861.22	2861.13	1.11	489764.67	541249.78		
9010.00	93.57	268.88	6334.07	-7.18	-2956.00	2955.92	0.53	489762.43	541155.00		
9104.00	93.50	269.60	6328.28	-8.42	-3049.81	3049.74	0.77	489761.19	541061.19		
9199.00	93.85	270.40	6322.19	-8.42	-3144.61	3144.54	0.92	489761.19	540966.39		
9292.00	94.20	268.97	6315.66	-8.93	-3237.38	3237.31	1.58	489760.68	540873.62		
9386.00	94.06	269.25	6308.89	-10.39	-3331.12	3331.06	0.33	489759.22	540779.88		
9481.00	93.43	267.44	6302.68	-13.13	-3425.88	3425.84	2.01	489756.48	540685.12		
9575.00	92.66	266.76	6297.69	-17.88	-3519.62	3519.63	1.09	489751.73	540591.38		

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
9669.00	92.10	266.94	6293.79	-23.04	-3613.40	3613.45	0.63	489746.57	540497.60	
9764.00	91.54	266.68	6290.77	-28.32	-3708.20	3708.30	0.65	489741.29	540402.80	
9858.00	92.17	267.24	6287.73	-33.30	-3802.02	3802.17	0.90	489736.31	540308.98	
9952.00	93.64	268.31	6282.96	-36.95	-3895.83	3896.00	1.93	489732.66	540215.17	
10046.00	93.92	268.46	6276.77	-39.59	-3989.58	3989.78	0.34	489730.02	540121.42	
10140.00	93.64	268.80	6270.57	-41.83	-4083.35	4083.57	0.47	489727.78	540027.65	
10234.00	93.50	269.08	6264.72	-43.57	-4177.15	4177.38	0.33	489726.04	539933.85	
10329.00	93.78	269.08	6258.68	-45.09	-4271.95	4272.19	0.29	489724.52	539839.05	
10423.00	95.82	269.06	6250.82	-46.61	-4365.60	4365.85	2.17	489723.00	539745.40	
10517.00	96.09	269.03	6241.07	-48.17	-4459.08	4459.34	0.29	489721.44	539651.92	
10612.00	96.02	269.09	6231.05	-49.72	-4553.54	4553.81	0.10	489719.89	539557.46	
10679.00	95.46	269.13	6224.35	-50.76	-4620.20	4620.47	0.84	489718.85	539490.80	Last Wft Svy
10746.00	95.46	269.13	6217.97	-51.77	-4686.88	4687.17	0.00	489717.84	539424.12	Proj. To Bit 3H



Directional Survey

Well Name: DAISY DUKE 31 STATE COM 3H

Sub-Division DELAWARE BASIN		Region DELAWARE SLOPE WEST		Field Name HAPPY VALLEY			County EDDY		State/Province NM				
Surface Legal Location Sec. 31 T 22S R26E		API/UWI 3001542224		Latitude (°) 32° 20' 47.211" N		Longitude (°) 104° 19' 27.668" W		Orig KB Elevation (ft) 3,394.80		Ground Elev MSL (ft) 3,369.80		KB : GL (ft) 25.00'	
Wellbores													
Wellbore Name OH		Parent Wellbore				SAP Well ID 37158			Vertical Section Direction (°) 269.43				
Kick Offs & Key Depths													
Date				Type					Top Depth (ftKB)				
Actual Deviation Survey				Definitive?		Proposed?		Proposed Deviation Survey					
Deviation Survey													
Date		Description											
MD Tie In (ftKB)		TVD Tie In (ftKB)		Inclination Tie In (°)		Azimuth Tie In (°)		NSTie In (ft)		EWTie In (ft)			
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
Wellbore Name ST01		Parent Wellbore OH				SAP Well ID			Vertical Section Direction (°) 269.43				
Kick Offs & Key Depths													
Date 10/26/2014				Type Kick Off					Top Depth (ftKB) 5,860.0				
Actual Deviation Survey MWD WEATHERFORD, Proposed? No				Definitive? Yes		Proposed? No		Proposed Deviation Survey					
Deviation Survey													
Date 10/26/2014		Description MWD WEATHERFORD											
MD Tie In (ftKB)		TVD Tie In (ftKB)		Inclination Tie In (°)		Azimuth Tie In (°)		NSTie In (ft)		EWTie In (ft)			
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
10/22/2...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	65.10	0.40	207.11	65.10	0.11	-0.20	-0.10	0.61	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	159.22	0.58	237.01	159.22	0.66	-0.75	-0.65	0.33	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	253.34	0.31	224.70	253.33	1.24	-1.19	-1.23	0.30	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	347.46	0.23	238.95	347.45	1.59	-1.47	-1.57	0.11	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	441.58	0.40	265.87	441.57	2.08	-1.59	-2.06	0.23	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	535.70	0.61	268.28	535.69	2.91	-1.63	-2.89	0.22	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	629.82	0.48	250.23	629.80	3.78	-1.78	-3.76	0.23	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	723.94	0.53	253.01	723.92	4.57	-2.04	-4.55	0.06	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	818.06	0.77	265.67	818.03	5.62	-2.22	-5.60	0.30	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	912.18	0.77	254.43	912.14	6.86	-2.43	-6.84	0.16	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,006.30	1.22	267.04	1,006.25	8.47	-2.66	-8.45	0.53	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,100.42	1.54	282.72	1,100.34	10.70	-2.43	-10.68	0.52	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,194.54	1.63	285.52	1,194.43	13.22	-1.79	-13.20	0.13	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,288.66	1.63	274.38	1,288.51	15.84	-1.33	-15.83	0.34	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,382.78	1.57	275.45	1,382.59	18.46	-1.11	-18.45	0.07	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,476.90	1.67	275.37	1,476.68	21.10	-0.86	-21.10	0.11	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,571.02	1.57	278.11	1,570.76	23.74	-0.55	-23.74	0.13	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,665.14	1.70	289.13	1,664.84	26.33	0.09	-26.33	0.36	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,759.26	1.64	293.88	1,758.92	28.87	1.10	-28.88	0.16	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,853.38	1.51	288.48	1,853.00	31.27	2.03	-31.29	0.21	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	1,947.50	1.49	296.48	1,947.09	33.53	2.97	-33.56	0.22	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,041.62	1.50	297.08	2,041.18	35.71	4.08	-35.75	0.02	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,135.74	1.53	289.95	2,135.27	37.98	5.07	-38.03	0.20	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,229.86	1.51	286.67	2,229.35	40.34	5.85	-40.40	0.09	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,323.98	1.49	306.35	2,323.44	42.50	6.93	-42.58	0.55	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,418.10	1.43	319.20	2,417.53	44.24	8.55	-44.33	0.35	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,512.22	1.53	296.34	2,511.62	46.12	10.00	-46.22	0.63	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,606.34	1.53	304.35	2,605.71	48.27	11.26	-48.39	0.23	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,700.46	1.53	299.57	2,699.79	50.39	12.59	-50.52	0.14	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,794.58	1.47	291.73	2,793.88	52.59	13.66	-52.73	0.23	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,888.70	1.30	302.26	2,887.97	54.61	14.67	-54.75	0.32	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	2,982.82	1.29	303.79	2,982.07	56.38	15.83	-56.54	0.04	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,076.94	1.37	294.84	3,076.17	58.27	16.90	-58.44	0.24	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,171.06	1.39	292.35	3,170.26	60.34	17.80	-60.52	0.07	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,265.18	1.17	308.92	3,264.35	62.13	18.84	-62.32	0.46	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,359.30	1.31	292.18	3,358.45	63.86	19.85	-64.06	0.41	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,453.42	1.20	297.33	3,452.55	65.73	20.71	-65.94	0.17	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,547.54	0.82	315.86	3,546.66	67.06	21.64	-67.28	0.53	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,641.66	0.63	328.15	3,640.77	67.79	22.57	-68.02	0.26	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,735.78	0.75	304.81	3,734.88	68.56	23.36	-68.80	0.32	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,829.90	0.70	299.16	3,828.99	69.57	23.99	-69.81	0.09	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	3,924.02	0.51	324.19	3,923.11	70.31	24.61	-70.56	0.34	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,018.14	0.54	325.14	4,017.23	70.80	25.31	-71.05	0.03	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,112.26	0.61	307.77	4,111.34	71.44	25.98	-71.70	0.20	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,206.38	0.64	309.10	4,205.46	72.24	26.62	-72.51	0.04	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,300.50	0.46	340.17	4,299.57	72.77	27.31	-73.04	0.36	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,394.62	0.38	343.65	4,393.69	72.98	27.97	-73.26	0.09	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,488.74	0.53	312.51	4,487.81	73.38	28.56	-73.67	0.30	GYRO	VAUHG N ENERGY SERVICES			
10/22/2...	4,582.86	0.49	307.06	4,581.92	74.02	29.10	-74.31	0.07	GYRO	VAUHG N ENERGY SERVICES			



Directional Survey

Well Name: DAISY DUKE 31 STATE COM 3H

Sub-Division DELAWARE BASIN		Region DELAWARE SLOPE WEST		Field Name HAPPY VALLEY			County EDDY		State/Province NM				
Surface Legal Location Sec. 31 T 22S R26E		API/UWI 3001542224		Latitude (°) 32° 20' 47.211" N		Longitude (°) 104° 19' 27.668" W		Orig KB Elevation (ft) 3,394.80		Ground Elev MSL (ft) 3,369.80		KB - GL (ft) 25.00	
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm. (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
10/22/2...	4,676.98	0.30	0.87	4,676.04	74.33	29.58	-74.63	0.42	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	4,771.10	0.26	24.94	4,770.16	74.23	30.02	-74.53	0.13	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	4,865.22	0.41	305.00	4,864.28	74.41	30.41	-74.72	0.47	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	4,959.34	0.43	327.69	4,958.39	74.87	30.90	-75.18	0.18	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,053.46	0.50	320.83	5,052.51	75.32	31.52	-75.63	0.09	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,147.58	0.60	309.35	5,146.63	75.95	32.15	-76.27	0.16	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,241.70	0.50	359.21	5,240.74	76.33	32.87	-76.66	0.50	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,335.82	0.49	2.31	5,334.86	76.31	33.69	-76.65	0.03	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,429.94	0.47	35.89	5,428.98	76.06	34.40	-76.41	0.30	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,524.06	0.25	343.24	5,523.10	75.89	34.91	-76.24	0.40	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,618.18	0.35	18.42	5,617.21	75.85	35.38	-76.21	0.22	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,712.30	0.53	311.37	5,711.33	76.08	35.94	-76.44	0.54	GYRO	VAUHGN ENERGY SERVICES			
10/22/2...	5,806.42	0.79	307.70	5,805.45	76.92	36.62	-77.28	0.28	GYRO	VAUHGN ENERGY SERVICES			
10/26/2...	5,964.00	15.34	280.69	5,961.06	98.33	41.18	-98.74	9.29	MWD	WEATHERFORD			
10/26/2...	5,995.00	19.14	280.08	5,990.66	107.35	42.83	-107.78	12.27	MWD	WEATHERFORD			
10/26/2...	6,026.00	23.30	278.06	6,019.55	118.41	44.58	-118.86	13.62	MWD	WEATHERFORD			
10/26/2...	6,058.00	27.05	274.91	6,048.51	131.91	46.09	-132.38	12.44	MWD	WEATHERFORD			
10/26/2...	6,089.00	30.64	273.16	6,075.66	146.82	47.13	-147.29	11.90	MWD	WEATHERFORD			
10/26/2...	6,121.00	33.78	272.40	6,102.73	163.84	47.95	-164.33	9.89	MWD	WEATHERFORD			
10/26/2...	6,152.00	36.88	272.19	6,128.02	181.75	48.67	-182.24	10.01	MWD	WEATHERFORD			
10/26/2...	6,184.00	39.80	270.81	6,153.12	201.58	49.18	-202.08	9.51	MWD	WEATHERFORD			
10/26/2...	6,215.00	42.06	268.59	6,176.54	221.89	49.07	-222.39	8.67	MWD	WEATHERFORD			
10/26/2...	6,246.00	44.29	267.27	6,199.14	243.09	48.30	-243.58	7.76	MWD	WEATHERFORD			
10/26/2...	6,278.00	46.62	266.88	6,221.59	265.87	47.13	-266.35	7.33	MWD	WEATHERFORD			
10/26/2...	6,309.00	49.02	267.26	6,242.40	288.82	45.96	-289.30	7.80	MWD	WEATHERFORD			
10/26/2...	6,341.00	51.57	268.01	6,262.84	313.43	44.94	-313.89	8.17	MWD	WEATHERFORD			
10/26/2...	6,372.00	54.90	268.70	6,281.40	338.25	44.23	-338.71	10.89	MWD	WEATHERFORD			
10/26/2...	6,403.00	59.32	269.16	6,298.22	364.28	43.75	-364.73	14.31	MWD	WEATHERFORD			
10/26/2...	6,435.00	63.74	269.24	6,313.48	392.40	43.36	-392.85	13.81	MWD	WEATHERFORD			
10/26/2...	6,466.00	67.78	269.10	6,326.20	420.66	42.95	-421.11	13.04	MWD	WEATHERFORD			
10/26/2...	6,497.00	70.33	268.01	6,337.28	449.61	42.22	-450.05	8.86	MWD	WEATHERFORD			
10/26/2...	6,529.00	72.76	266.70	6,347.41	479.94	40.81	-480.37	8.53	MWD	WEATHERFORD			
10/26/2...	6,560.00	75.57	265.89	6,355.87	509.71	38.89	-510.13	9.41	MWD	WEATHERFORD			
10/26/2...	6,591.00	78.32	265.68	6,362.87	539.85	36.67	-540.24	8.90	MWD	WEATHERFORD			
10/26/2...	6,623.00	81.01	265.68	6,368.61	571.26	34.29	-571.63	8.41	MWD	WEATHERFORD			
10/26/2...	6,654.00	83.84	266.00	6,372.70	601.93	32.07	-602.27	9.19	MWD	WEATHERFORD			
10/26/2...	6,686.00	86.43	266.41	6,375.41	633.76	29.96	-634.09	8.19	MWD	WEATHERFORD			
10/26/2...	6,717.00	89.09	266.72	6,376.62	664.69	28.10	-665.00	8.64	MWD	WEATHERFORD			
10/26/2...	6,748.00	91.12	266.80	6,376.57	695.66	26.35	-695.95	6.55	MWD	WEATHERFORD			
10/31/2...	6,761.00	91.47	266.87	6,376.27	708.64	25.63	-708.93	2.75	MWD	WEATHERFORD			
10/31/2...	6,853.00	93.22	267.25	6,372.51	800.48	20.92	-800.73	1.95	MWD	WEATHERFORD			
10/31/2...	6,944.00	93.08	267.67	6,367.51	891.29	16.89	-891.50	0.49	MWD	WEATHERFORD			
10/31/2...	7,036.00	93.64	268.33	6,362.11	983.10	13.68	-983.29	0.94	MWD	WEATHERFORD			
10/31/2...	7,127.00	91.96	267.92	6,357.67	1,073.97	10.71	-1,074.12	1.90	MWD	WEATHERFORD			
10/31/2...	7,220.00	90.07	267.97	6,356.02	1,166.92	7.38	-1,167.05	2.03	MWD	WEATHERFORD			
10/31/2...	7,314.00	89.93	268.58	6,356.02	1,260.90	4.55	-1,261.00	0.67	MWD	WEATHERFORD			
10/31/2...	7,408.00	89.37	268.61	6,356.60	1,354.88	2.24	-1,354.97	0.60	MWD	WEATHERFORD			
10/31/2...	7,502.00	90.07	270.00	6,357.06	1,448.88	1.10	-1,448.96	1.66	MWD	WEATHERFORD			
10/31/2...	7,596.00	90.77	270.89	6,356.37	1,542.86	1.83	-1,542.96	1.20	MWD	WEATHERFORD			
10/31/2...	7,690.00	90.77	270.58	6,355.10	1,636.83	3.04	-1,636.94	0.33	MWD	WEATHERFORD			
10/31/2...	7,784.00	90.07	270.67	6,354.41	1,730.80	4.06	-1,730.93	0.75	MWD	WEATHERFORD			
10/31/2...	7,878.00	90.42	271.14	6,354.01	1,824.77	5.55	-1,824.92	0.62	MWD	WEATHERFORD			
10/31/2...	7,973.00	90.28	271.73	6,353.43	1,919.71	7.93	-1,919.89	0.64	MWD	WEATHERFORD			
10/31/2...	8,067.00	89.72	270.57	6,353.43	2,013.67	9.81	-2,013.86	1.37	MWD	WEATHERFORD			
10/31/2...	8,161.00	90.07	269.81	6,353.60	2,107.66	10.12	-2,107.86	0.89	MWD	WEATHERFORD			
10/31/2...	8,255.00	90.21	270.41	6,353.37	2,201.65	10.30	-2,201.86	0.66	MWD	WEATHERFORD			
10/31/2...	8,349.00	90.28	270.71	6,352.97	2,295.63	11.22	-2,295.86	0.33	MWD	WEATHERFORD			
10/31/2...	8,443.00	90.14	269.44	6,352.63	2,389.62	11.35	-2,389.85	1.36	MWD	WEATHERFORD			
10/31/2...	8,538.00	89.86	268.12	6,352.63	2,484.61	9.32	-2,484.83	1.42	MWD	WEATHERFORD			
10/31/2...	8,632.00	89.79	268.12	6,352.92	2,578.59	6.24	-2,578.78	0.07	MWD	WEATHERFORD			
10/31/2...	8,726.00	92.87	267.28	6,350.73	2,672.51	2.47	-2,672.67	3.40	MWD	WEATHERFORD			
10/31/2...	8,821.00	93.08	267.65	6,345.80	2,767.32	1.73	-2,767.44	0.45	MWD	WEATHERFORD			
10/31/2...	8,915.00	93.78	268.42	6,340.18	2,861.13	4.94	-2,861.22	1.11	MWD	WEATHERFORD			
10/31/2...	9,010.00	93.57	268.88	6,334.09	2,955.92	7.18	-2,956.00	0.53	MWD	WEATHERFORD			
10/31/2...	9,104.00	93.50	269.60	6,328.29	3,049.74	8.42	-3,049.81	0.77	MWD	WEATHERFORD			
10/31/2...	9,199.00	93.85	270.40	6,322.21	3,144.54	8.42	-3,144.61	0.92	MWD	WEATHERFORD			
10/31/2...	9,292.00	94.20	268.97	6,315.68	3,237.31	8.93	-3,237.38	1.58	MWD	WEATHERFORD			
10/31/2...	9,386.00	94.06	269.25	6,308.91	3,331.06	10.39	-3,331.12	0.33	MWD	WEATHERFORD			
10/31/2...	9,481.00	93.43	267.44	6,302.70	3,425.84	13.13	-3,425.88	2.01	MWD	WEATHERFORD			
10/31/2...	9,575.00	92.66	266.76	6,297.71	3,519.63	17.88	-3,519.62	1.09	MWD	WEATHERFORD			
10/31/2...	9,669.00	92.10	266.94	6,293.80	3,613.45	23.04	-3,613.40	0.63	MWD	WEATHERFORD			
10/31/2...	9,764.00	91.54	266.68	6,290.79	3,708.30	28.32	-3,708.20	0.65	MWD	WEATHERFORD			
10/31/2...	9,858.00	92.17	267.24	6,287.74	3,802.17	33.30	-3,802.02	0.90	MWD	WEATHERFORD			
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