



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

HOBBS OCD

NOV 18 2013

September 17, 2013

RECEIVED

Apache Corporation
303 Veterans Airpark Lane
Suite 3000
Midland, TX 79705

RE: Northeast Drinkard Unit #565
95' FNL & 960' FWL
Sec. 14, T21S, R37E
Lea County, New Mexico

30-025-41168

Dear Sir,

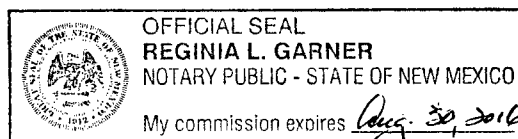
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 17th day of September, 2013.

Notary Public

NOV 25 2013

September 17, 2013

Northeast Drinkard Unit 565

Apache Corporation
303 Veterans Airpark Lane
Suite 3000
Midland, TX 79705

30-025-41168

RE: Northeast Drinkard Unit #565
95' FNL & 960' FWL
Sec. 14, T21S, R37E
Lea County, New Mexico

Date	Depth	Deviation	Direction
9/8/2013	242	0.20	0.00
9/8/2013	539	0.60	0.00
9/8/2013	753	0.40	0.00
9/8/2013	1003	0.20	0.00
9/8/2013	1253	0.10	0.00
9/10/2013	1248	0.10	149.30
9/10/2013	1311	0.20	249.60
9/10/2013	1373	0.90	282.60
9/10/2013	1436	2.00	308.00
9/10/2013	1498	2.70	315.00
9/10/2013	1561	3.30	321.00
9/10/2013	1686	4.00	296.00
9/10/2013	1749	4.40	297.00
9/10/2013	1811	4.00	293.30
9/10/2013	1873	6.60	285.50
9/11/2013	2058	6.20	279.30
9/11/2013	2121	5.80	280.60
9/11/2013	2183	4.70	291.50
9/11/2013	2248	4.40	292.40
9/11/2013	2311	3.70	277.40
9/11/2013	2373	3.40	271.80
9/11/2013	2436	3.40	272.50
9/11/2013	2498	3.20	272.80
9/11/2013	2561	3.00	272.20
9/11/2013	2623	2.80	272.00
9/11/2013	2685	2.60	283.50
9/11/2013	2747	2.50	271.10
9/11/2013	2810	2.50	271.00
9/11/2013	2873	2.50	271.10
9/11/2013	2935	2.50	273.10
9/11/2013	2998	2.40	280.20
9/12/2013	3060	2.50	283.50
9/12/2013	3123	2.50	284.30
9/12/2013	3185	2.30	287.70
9/12/2013	3247	2.20	289.80
9/12/2013	3310	2.80	292.10
9/12/2013	3372	2.70	290.90
9/12/2013	3435	2.50	291.40
9/12/2013	3559	2.70	286.90
9/12/2013	3684	3.20	285.00
9/12/2013	3809	3.10	283.90
9/12/2013	3934	3.10	282.70
9/12/2013	4059	2.90	282.40

September 17, 2013

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30-025-41168

RE: Northeast Drinkard Unit #565
95' FNL & 960' FWL
Sec. 14, T21S, R37E
Lea County, New Mexico

Date	Depth	Deviation	Direction
9/12/2013	4091	2.90	0.00
9/13/2013	4184	2.80	286.30
9/13/2013	4309	3.70	284.30
9/13/2013	4434	3.30	283.30
9/13/2013	4559	3.30	289.90
9/13/2013	4685	3.30	292.70
9/13/2013	4810	3.20	292.00
9/13/2013	4935	3.00	291.80
9/13/2013	5060	3.10	295.30
9/13/2013	5186	2.90	292.90
9/13/2013	5310	3.40	293.20
9/14/2013	5436	3.20	293.30
9/14/2013	5561	4.00	285.30
9/14/2013	5686	3.80	283.00
9/14/2013	5811	3.60	284.40
9/14/2013	5936	3.50	284.20
9/14/2013	6061	3.30	284.80
9/14/2013	6186	3.30	283.00
9/14/2013	6311	3.80	284.00
9/14/2013	6435	3.70	248.20
9/15/2013	6560	3.40	285.10
9/15/2013	6685	3.90	285.10
9/15/2013	6810	3.60	283.30

EOF



HOBBS OCD

NOV 18 2013

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Apache Corporation

Lea County, NM (NAD83 NME)

Northeast Drinkard Unit 30-025-41168

#565

WB1/Job #1310559

95' FUL + 960' FUL
D-14-215-37E

Survey: Phoenix MWD Survey

Phoenix Final Survey Report

16 September, 2013





Phoenix Technology Services

Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #565
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3447.00usft (Silver Oak 5)
Site:	Northeast Drinkard Unit	MD Reference:	KB @ 3447.00usft (Silver Oak 5)
Well:	#565	North Reference:	Grid
Wellbore:	WB1/Job #1310559	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 5)	Database:	GCR DB

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Northeast Drinkard Unit			
Site Position:		Northing:	549,246.17 usft	Latitude: 32° 30' 15.55234 N
From:	Map	Easting:	907,874.81 usft	Longitude: 103° 8' 39.81023 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence: 0.64 °

Well	#565			
Well Position	+N/-S	0.00 usft	Northing:	542,585.88 usft
	+E/-W	0.00 usft	Easting:	909,535.54 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,429.00 usft

Wellbore	WB1/Job #1310559				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	08/29/13	7.13	60.45	48,599

Design	Surveys (Silver Oak 5)			
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	269.96

Survey Program	Date 09/16/13				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
1,311.00	6,955.00	Phoenix MWD Survey (WB1/Job #131055)	MWD	MWD - Standard	

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
1,200.00	0.16	18.25	1,199.98	0.21	5.70	-5.70	0.00	
Tie-on								
1,311.00	0.20	249.60	1,310.98	0.29	5.57	-5.57	0.29	
First Phoenix MWD Survey								
1,373.00	0.90	282.60	1,372.98	0.36	4.99	-4.99	1.19	
1,436.00	2.00	308.20	1,435.96	1.15	3.64	-3.64	1.98	
1,498.00	2.70	315.00	1,497.90	2.85	1.76	-1.76	1.21	
1,561.00	3.30	321.00	1,560.82	5.31	-0.43	0.43	1.07	
1,624.00	3.60	309.60	1,623.70	7.98	-3.09	3.09	1.19	
1,686.00	4.00	296.00	1,685.57	10.16	-6.54	6.53	1.59	
1,749.00	4.40	297.10	1,748.40	12.23	-10.66	10.66	0.65	
1,811.00	4.00	293.30	1,810.23	14.17	-14.77	14.76	0.79	



Phoenix Technology Services

Phoenix Final Survey Report



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Site:	Northeast Drinkard Unit	MD Reference:	KB @ 3447.00usft (Silver Oak 5)
Well:	#565	North Reference:	Grid
Wellbore:	WB1/Job #1310559	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 5)	Database:	GCR DB

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
1,873.00	6.60	285.50	1,871.96	15.98	-20.19	20.18	4.34	
1,936.00	7.30	280.50	1,934.50	17.67	-27.61	27.60	1.47	
1,998.00	6.20	279.30	1,996.07	18.93	-34.79	34.78	1.79	
2,061.00	5.80	280.60	2,058.72	20.07	-41.28	41.26	0.67	
2,123.00	4.70	291.50	2,120.46	21.57	-46.72	46.71	2.39	
2,186.00	4.40	296.40	2,183.27	23.59	-51.29	51.27	0.78	
2,248.00	4.40	292.40	2,245.08	25.56	-55.61	55.60	0.49	
2,311.00	3.70	277.40	2,307.93	26.74	-59.87	59.85	2.01	
2,373.00	3.40	271.80	2,369.81	27.06	-63.69	63.67	0.74	
2,436.00	3.40	272.50	2,432.70	27.20	-67.42	67.40	0.07	
2,498.00	3.20	272.80	2,494.60	27.36	-70.99	70.97	0.32	
2,561.00	3.00	272.20	2,557.50	27.51	-74.39	74.37	0.32	
2,623.00	2.80	272.50	2,619.42	27.64	-77.52	77.51	0.32	
2,685.00	2.60	273.50	2,681.35	27.79	-80.44	80.42	0.33	
2,747.00	2.50	271.10	2,743.29	27.90	-83.20	83.18	0.24	
2,810.00	2.50	271.00	2,806.23	27.95	-85.94	85.92	0.01	
2,873.00	2.50	271.10	2,869.17	28.00	-88.69	88.67	0.01	
2,935.00	2.50	273.10	2,931.11	28.10	-91.39	91.37	0.14	
2,998.00	2.40	280.20	2,994.06	28.41	-94.06	94.04	0.51	
3,060.00	2.50	283.50	3,056.00	28.96	-96.66	96.64	0.28	
3,123.00	2.50	284.30	3,118.94	29.62	-99.32	99.30	0.06	
3,185.00	2.30	287.70	3,180.89	30.33	-101.82	101.80	0.40	
3,247.00	2.20	289.80	3,242.84	31.11	-104.12	104.10	0.21	
3,310.00	2.80	292.10	3,305.78	32.10	-106.69	106.67	0.97	
3,372.00	2.70	290.90	3,367.71	33.19	-109.45	109.43	0.19	
3,435.00	2.50	291.40	3,430.64	34.22	-112.12	112.10	0.32	
3,559.00	2.70	286.90	3,554.51	36.06	-117.43	117.41	0.23	
3,684.00	3.20	285.00	3,679.35	37.81	-123.62	123.59	0.41	
3,809.00	3.10	283.90	3,804.16	39.53	-130.27	130.24	0.09	
3,934.00	3.10	282.70	3,928.98	41.08	-136.85	136.82	0.05	
4,059.00	2.90	282.40	4,053.81	42.51	-143.23	143.21	0.16	
4,184.00	2.80	286.30	4,178.65	44.04	-149.25	149.22	0.17	
4,309.00	3.70	284.30	4,303.45	45.90	-156.09	156.06	0.73	
4,434.00	3.30	283.30	4,428.21	47.72	-163.50	163.47	0.32	
4,559.00	3.30	289.90	4,553.01	49.77	-170.38	170.35	0.30	
4,685.00	3.30	292.70	4,678.80	52.41	-177.14	177.11	0.13	
4,810.00	3.20	292.00	4,803.60	55.10	-183.69	183.66	0.09	
4,935.00	3.00	291.80	4,928.42	57.62	-189.97	189.93	0.16	
5,060.00	3.10	295.30	5,053.24	60.28	-196.06	196.02	0.17	
5,185.00	2.90	292.90	5,178.07	62.96	-202.03	201.99	0.19	
5,310.00	3.40	293.20	5,302.88	65.65	-208.35	208.31	0.40	
5,435.00	3.20	293.30	5,427.67	68.49	-214.96	214.91	0.16	
5,561.00	4.00	285.30	5,553.42	71.04	-222.43	222.38	0.75	
5,686.00	3.80	283.00	5,678.13	73.12	-230.67	230.62	0.20	
5,811.00	3.60	284.40	5,802.87	75.03	-238.51	238.46	0.18	



Phoenix Technology Services
Phoenix Final Survey Report



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Site:	Northeast Drinkard Unit	MD Reference:	KB @ 3447.00usft (Silver Oak 5)
Well:	#565	North Reference:	Grid
Wellbore:	WB1/Job #1310559	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 5)	Database:	GCR DB.

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,936.00	3.50	284.20	5,927.63	76.94	-246.01	245.96	0.08	
6,061.00	3.30	284.80	6,052.41	78.79	-253.18	253.13	0.16	
6,186.00	3.30	283.00	6,177.20	80.52	-260.17	260.12	0.08	
6,311.00	3.80	284.00	6,301.96	82.33	-267.69	267.64	0.40	
6,435.00	3.70	284.20	6,425.70	84.31	-275.56	275.50	0.08	
6,560.00	3.40	285.10	6,550.46	86.27	-283.05	282.99	0.24	
6,685.00	3.90	285.10	6,675.20	88.34	-290.73	290.67	0.40	
6,809.00	3.60	283.30	6,798.94	90.33	-298.59	298.53	0.26	
6,895.00	3.30	285.70	6,884.78	91.62	-303.60	303.54	0.39	
Last Phoenix MWD Survey								
6,955.00	3.30	285.70	6,944.68	92.56	-306.92	306.87	0.00	
Projection to Bit								

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,200.00	1,199.98	0.21	5.70	Tie-on	
1,311.00	1,310.98	0.29	5.57	First Phoenix MWD Survey	
6,895.00	6,884.78	91.62	-303.60	Last Phoenix MWD Survey	
6,955.00	6,944.68	92.56	-306.92	Projection to Bit	

Checked By: _____	Approved By: _____	Date: _____
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