

Results of Directional Survey

ZONE: BLINEBRY

API number:	30-025-39654		
OGRID:		Operator:	APACHE CORP
		Property:	MERIT # 3

surface	ULSTR:	O	11	T 20S	R 38E
				37 FSL	2260 FEL

BH Loc	ULSTR:	O	11	T 20S	R 38E
7270 MD		7250.2	TVD	351 FSL	2316 FEL

Top Perf/OH	ULSTR:	O	11	T 20S	R 38E
6055 MD		6035.2	TVD	355 FSL	2317 FEL

Bot Perf/OH	ULSTR:	O	11	T 20S	R 38E
6430 MD		6410.2	TVD	356 FSL	2318 FEL

	MD	N/S	E/W	VD
	5966	318.00	-56.50	5946.2
TOP PERFS/OH	6055	318.42	-56.92	6035.20
	6157	318.90	-57.40	6137.20
	6347	319.50	-57.90	6327.20
BOT PERFS/OH	6430	319.28	-58.03	6410.20
	6538	319.00	-58.20	6518.20

NEXT TO LAST	7109	315.30	-56.90	7089.20
LAST READING	7208	314.80	-56.30	7188.20
TD	7270	314.49	-55.92	7250.20

Surface Location	37 FS	2260 FE
Projected BHL	351 FS	2316 FE
Location of		
Top Perfs/OH	355 FS	2317 FE
Bottom Perfs/OH	356 FS	2318 FE

SUMMARY of Subsurface Locations

Surface Location	O-11-20S-38E	37 FS	2260 FE	Vert. Depth
Top Perfs/OH	O-11-20S-38E	355 FS	2317 FE	6035.20
Bottom Perfs/OH	O-11-20S-38E	356 FS	2318 FE	6410.20
Projected TD	O-11-20S-38E	351 FS	2316 FE	7250.20

Results of Directional Survey

ZONE: TUBB

API number:	30-025-39654		
OGRID:		Operator:	APACHE CORP
		Property:	MERIT # 3

surface	ULSTR:	O	11	T	20S	R	38E
				37	FSL	2260	FEL

BH Loc	ULSTR:	O	11	T	20S	R	38E
7270	MD	7250.2	TVD	351	FSL	2316	FEL

Top Perf/OH	ULSTR:	O	11	T	20S	R	38E
6519	MD	6499.2	TVD	356	FSL	2318	FEL

Bot Perf/OH	ULSTR:	O	11	T	20S	R	38E
6858	MD	6838.2	TVD	354	FSL	2318	FEL

	MD	N/S	E/W	VD
	6347	319.50	-57.90	6327.20
TOP PERFS/OH	6519	319.05	-58.17	6499.20
	6538	319.00	-58.20	6518.20
	6728	317.70	-58.30	6708.20
BOT PERFS/OH	6858	317.02	-57.96	6838.20
	6919	316.70	-57.80	6899.20

NEXT TO LAST	7109	315.30	-56.90	7089.20
LAST READING	7208	314.80	-56.30	7188.20
TD	7270	314.49	-55.92	7250.20

Surface Location	37	FS	2260	FE
Projected BHL	351	FS	2316	FE
Location of				
Top Perfs/OH	356	FS	2318	FE
Bottom Perfs/OH	354	FS	2318	FE

SUMMARY of Subsurface Locations

Surface Location	O-11-20S-38E	37	FS	2260	FE	Vert. Depth
Top Perfs/OH	O-11-20S-38E	356	FS	2318	FE	6499.20
Bottom Perfs/OH	O-11-20S-38E	354	FS	2318	FE	6838.20
Projected TD	O-11-20S-38E	351	FS	2316	FE	7250.20

Results of Directional Survey

ZONE: **DRINKARD**

API number:	30-025-39654		
OGRID:		Operator:	APACHE CORP
		Property:	MERIT # 3

surface	ULSTR:	O	11	T	20S	R	38E
				37	FSL	2260	FEL

BH Loc	ULSTR:	O	11	T	20S	R	38E
7270	MD	7250.2	TVD	351	FSL	2316	FEL

Top Perf/OH	ULSTR:	O	11	T	20S	R	38E
6932	MD	6912.2	TVD	354	FSL	2318	FEL

Bot Perf/OH	ULSTR:	O	11	T	20S	R	38E
7110	MD	7090.2	TVD	352	FSL	2317	FEL

	MD	N/S	E/W	VD
	6919	316.70	-57.80	6899.20
TOP PERFS/OH	6932	316.60	-57.74	6912.20
	7109	315.30	-56.90	7089.20
	7109	315.30	-56.90	7089.20
BOT PERFS/OH	7110	315.29	-56.89	7090.20
	7208	314.80	-56.30	7188.20

NEXT TO LAST	7109	315.30	-56.90	7089.20
LAST READING	7208	314.80	-56.30	7188.20
TD	7270	314.49	-55.92	7250.20

Surface Location	37	FS	2260	FE
Projected BHL	351	FS	2316	FE
Location of				
Top Perfs/OH	354	FS	2318	FE
Bottom Perfs/OH	352	FS	2317	FE

SUMMARY of Subsurface Locations

Surface Location	O-11-20S-38E	37	FS	2260	FE	Vert. Depth
Top Perfs/OH	O-11-20S-38E	354	FS	2318	FE	6912.20
Bottom Perfs/OH	O-11-20S-38E	352	FS	2317	FE	7090.20
Projected TD	O-11-20S-38E	351	FS	2316	FE	7250.20

APACHE CORPORATION

Lea County, NM (NAD27 NME)

Merit #3 30-025-39654

Merit #3

32D0710528

DH - Job #32D0710528

RECEIVED

SEP 20 2010

HOBBSOCD

Survey: MWD Survey

Standard Survey Report

18 August, 2010

SUR @ O-11-20S-38e, 37/S & 2260/E
BHL @ O-11-20S-38e, 351/S & 2316/E
API # 30-025-39654

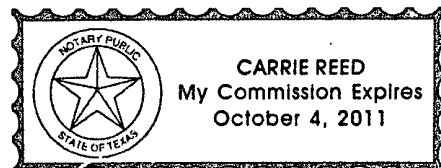
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notorized this date 20th of August, 2010.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

Survey Report

Company:	APACHE CORPORATION	Local Co-ordinate Reference:	Well Merit #3
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Site:	Merit #3	MD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Well:	Merit #3	North Reference:	Grid
Wellbore:	DH - Job #32D0710528	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Project	Lea County, NM (NAD27 NME), USA		
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	Merit #3		
Site Position:		Northing:	576,995 20 usft
From:	Map	Easting:	874,495 20 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 34' 49 383 N
		Longitude:	103° 7' 3.295 W
		Grid Convergence:	0.65 °

Well	Merit #3		
Well Position	+N/-S	0.0 usft	Northing: 576,995.20 usft
	+E/-W	0.0 usft	Easting: 874,495 20 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 34' 49.383 N
		Longitude:	103° 7' 3.295 W
		Ground Level:	3,572 0 usft

Wellbore	DH - Job #32D0710528				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/16/2010	7.50	60.64	49,004

Design	Actual				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0 0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0 0	0 0	0.0	349.70	

Survey Program	Date	8/18/2010			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100 0	1,552 5	Gyro Survey (DH - Job #32D0710528)	Keeper	Keeper Standard Rate Gyro	
1,748.0	7,270 0	MWD Survey (DH - Job #32D0710528)	MWD	MWD - Standard ISCWSA	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.66	289.25	100.0	0.2	-0.5	0.3	0.66	0.66	0.00	
200.0	0.64	282.85	200.0	0.5	-1.6	0.8	0.08	-0.02	-6.40	
300.0	0.48	281.74	300.0	0.7	-2.6	1.2	0.16	-0.16	-1.11	
400.0	0.52	268.76	400.0	0.8	-3.5	1.4	0.12	0.04	-12.98	
500.0	0.47	273.07	500.0	0.8	-4.3	1.6	0.06	-0.05	4.31	
600.0	0.73	300.96	600.0	1.2	-5.3	2.1	0.38	0.26	27.89	
700.0	0.58	287.31	700.0	1.6	-6.3	2.7	0.22	-0.15	-13.65	
800.0	0.37	294.78	800.0	1.9	-7.1	3.1	0.22	-0.21	7.47	
900.0	0.51	265.50	900.0	2.0	-7.8	3.4	0.26	0.14	-29.28	

Scientific Drilling International, Inc.

Survey Report

Company:	APACHE CORPORATION	Local Co-ordinate Reference:	Well Merit #3
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Site:	Merit #3	MD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Well:	Merit #3	North Reference:	Grid
Wellbore:	DH - Job #32D0710528	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

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)
1,000.0	0.20	225.16	1,000.0	1.9	-8.4	3.3	0.38	-0.31	-40.34
1,100.0	0.13	247.74	1,100.0	1.7	-8.6	3.2	0.09	-0.07	22.58
1,200.0	0.25	276.39	1,200.0	1.7	-8.9	3.2	0.15	0.12	28.65
1,300.0	0.30	32.03	1,300.0	1.9	-9.0	3.5	0.47	0.05	115.64
1,400.0	0.38	333.46	1,400.0	2.4	-9.0	4.0	0.34	0.08	-58.57
1,457.9	0.05	114.03	1,457.9	2.6	-9.1	4.2	0.73	-0.57	242.78
1,552.5	0.20	335.84	1,552.5	2.7	-9.1	4.3	0.25	0.16	-146.08

Scientific Drilling International, Inc.
Survey Report

Company:	APACHE CORPORATION	Local Co-ordinate Reference:	Well Merit #3
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Site:	Merit #3	MD Reference:	RKB Elev (11') @ 3583 0usft (Capstar #19)
Well:	Ment #3	North Reference:	Grd
Wellbore:	DH - Job #32D0710528	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Project	Lea County, NM (NAD27 NME), USA		
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	Merit #3				
Site Position:		Northing:	576,995.20 usft	Latitude:	32° 34' 49 383 N
From:	Map	Easting:	874,495.20 usft	Longitude:	103° 7' 3.295 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0 65 °

Well	Merit #3					
Well Position	+N/-S	0 0 usft	Northing:	576,995.20 usft	Latitude:	32° 34' 49.383 N
	+E/-W	0.0 usft	Easting:	874,495.20 usft	Longitude:	103° 7' 3.295 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	3,572.0 usft

Wellbore	DH - Job #32D0710528				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/16/2010	7.50	60.64	49,004

Design	Actual			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0 0	0.0	349.70

Survey Program	Date	8/18/2010			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	1,552.5	Gyro Survey (DH - Job #32D0710528)	Keeper	Keeper Standard Rate Gyro	
1,748.0	7,270.0	MWD Survey (DH - Job #32D0710528)	MWD	MWD - Standard ISCWSA	

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)	
1,552.5	0.20	335.84	1,552.5	2.7	-9.1	4.3	0.00	0.00	0.00	
1,748.0	0.44	38.14	1,748.0	3.6	-8.8	5.1	0.20	0.12	31.87	
1,938.0	0.61	62.37	1,937.9	4.7	-7.4	5.9	0.15	0.09	12.75	
2,128.0	0.60	70.29	2,127.9	5.5	-5.6	6.4	0.04	-0.01	4.17	
2,319.0	1.19	66.00	2,318.9	6.6	-2.9	7.0	0.31	0.31	-2.25	
2,509.0	1.82	62.34	2,508.8	8.8	1.6	8.4	0.34	0.33	-1.93	
2,700.0	3.16	62.45	2,699.7	12.7	9.0	10.9	0.70	0.70	0.06	
2,796.0	3.34	39.57	2,795.5	16.1	13.1	13.5	1.35	0.19	-23.83	
2,891.0	2.86	48.09	2,890.4	19.8	16.6	16.5	0.70	-0.51	8.97	
2,987.0	4.25	22.15	2,986.2	24.7	19.8	20.7	2.18	1.45	-27.02	

Scientific Drilling International, Inc.
Survey Report

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Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Site:	Merit #3	MD Reference:	RKB Elev (11') @ 3583.0usft (Capstar #19)
Well:	Merit #3	North Reference:	Grid
Wellbore:	DH - Job #32D0710528	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

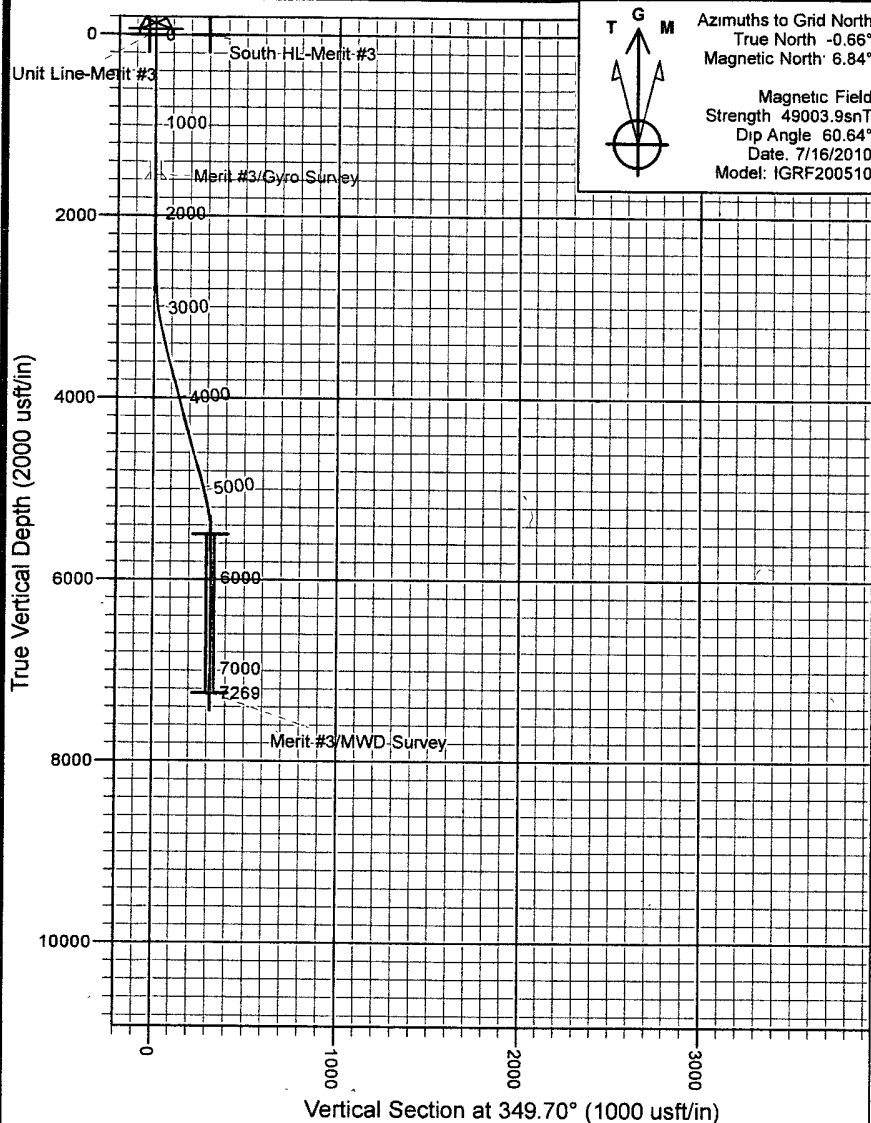
Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,081.0	5.42	357.43	3,079.9	32.3	20.9	28.1	2.51	1.24	-26.30	
3,177.0	6.43	349.12	3,175.4	42.1	19.6	37.9	1.38	1.05	-8.66	
3,270.0	6.77	342.30	3,267.7	52.5	17.0	48.6	0.92	0.37	-7.33	
3,365.0	6.27	339.62	3,362.1	62.7	13.5	59.2	0.62	-0.53	-2.82	
3,461.0	6.77	336.11	3,457.5	72.8	9.4	69.9	0.67	0.52	-3.66	
3,554.0	8.05	336.71	3,549.7	83.7	4.6	81.6	1.38	1.38	0.65	
3,650.0	7.38	347.33	3,644.9	95.9	0.6	94.3	1.64	-0.70	11.06	
3,746.0	8.17	343.35	3,740.0	108.5	-2.7	107.2	1.00	0.82	-4.15	
3,841.0	7.76	345.30	3,834.1	121.2	-6.3	120.3	0.52	-0.43	2.05	
3,937.0	7.21	345.40	3,929.2	133.3	-9.5	132.8	0.57	-0.57	0.10	
4,032.0	6.97	347.04	4,023.5	144.6	-12.3	144.5	0.33	-0.25	1.73	
4,127.0	7.24	344.69	4,117.8	156.0	-15.1	156.2	0.42	0.28	-2.47	
4,223.0	7.60	344.88	4,213.0	168.0	-18.4	168.6	0.38	0.38	0.20	
4,350.0	7.35	341.17	4,338.9	183.8	-23.2	185.0	0.43	-0.20	-2.92	
4,445.0	8.49	343.14	4,433.0	196.3	-27.2	198.0	1.23	1.20	2.07	
4,540.0	8.55	343.09	4,526.9	209.7	-31.3	211.9	0.06	0.06	-0.05	
4,731.0	8.23	343.36	4,715.9	236.4	-39.3	239.6	0.17	-0.17	0.14	
4,922.0	7.93	343.47	4,905.0	262.1	-47.0	266.3	0.16	-0.16	0.06	
5,017.0	7.95	355.14	4,999.1	275.0	-49.4	279.4	1.69	0.02	12.28	
5,112.0	6.87	357.59	5,093.3	287.2	-50.2	291.5	1.18	-1.14	2.58	
5,208.0	4.99	342.99	5,188.8	296.9	-51.7	301.4	2.50	-1.96	-15.21	
5,303.0	4.35	341.90	5,283.5	304.3	-54.0	309.0	0.68	-0.67	-1.15	
5,398.0	2.92	342.81	5,378.3	310.0	-55.8	315.0	1.51	-1.51	0.96	
5,493.0	0.99	5.61	5,473.2	313.2	-56.5	318.2	2.15	-2.03	24.00	
5,589.0	0.60	11.76	5,569.2	314.5	-56.3	319.5	0.42	-0.41	6.41	
5,778.0	0.65	6.52	5,758.2	316.5	-56.0	321.4	0.04	0.03	-2.77	
5,966.0	0.48	305.10	5,946.2	318.0	-56.5	323.0	0.32	-0.09	-32.67	
6,157.0	0.29	321.30	6,137.2	318.9	-57.4	324.0	0.11	-0.10	8.48	
6,347.0	0.18	333.99	6,327.2	319.5	-57.9	324.7	0.06	-0.06	6.68	
6,538.0	0.48	192.19	6,518.2	319.0	-58.2	324.3	0.33	0.16	-74.24	
6,728.0	0.32	180.64	6,708.2	317.7	-58.3	323.0	0.09	-0.08	-6.08	
6,919.0	0.44	131.32	6,899.2	316.7	-57.8	321.9	0.18	0.06	-25.82	
7,109.0	0.60	160.46	7,089.2	315.3	-56.9	320.3	0.16	0.08	15.34	
7,208.0	0.57	91.23	7,188.2	314.8	-56.3	319.7	0.67	-0.03	-69.93	
7,270.0	0.57	91.20	7,250.2	314.7	-55.6	319.6	0.00	0.00	-0.05	

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,552.5	1,552.5	2.7	-9.1	Gyro tie-in
7,208.0	7,188.2	314.8	-56.3	Last MWD Survey
7,270.0	7,250.2	314.7	-55.6	Projection to Bit



Scientific Drilling
Directional Drilling Operations

Project: Lea County, NM (NAD27 NME)
Merit #3
Well: Merit #3
Wellbore: DH - Job #32D0710528
Design: Plan #3 - 7-7/8" Hole
Site:



Azimuths to Grid North
True North -0.66°
Magnetic North 6.84°

Magnetic Field
Strength 49003.9nT
Dip Angle 60.64°
Date: 7/16/2010
Model: IGRF200510

+N/-S
0.0

+E/-W
0.0

Northing
576995.20

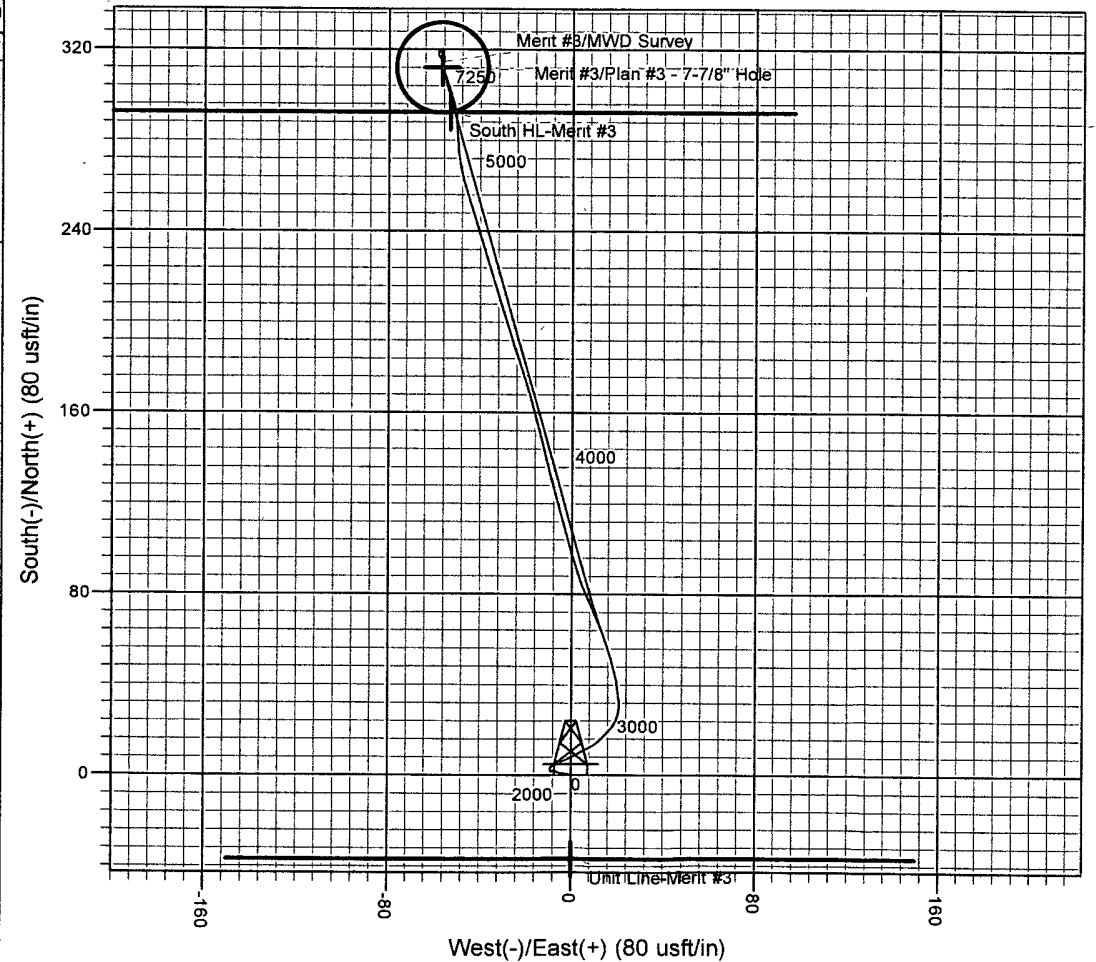
WELL DETAILS: Merit #3
RKB Elev (11') @ 3583.0usft (Capstar #19)
Ground Level: 3572.0

Easting
874495.20

Latitude
32° 34' 49.383 N

Longitude
103° 7' 3.295 W

Slot



PROJECT DETAILS: Lea County, NM (NAD27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Merit #3
Site Centre Latitude: 32° 34' 49.383 N
Longitude: 103° 7' 3.295 W
Positional Uncertainty: 0.0
Convergence: 0.65
Local North: Grid