



3001543363

Apache Corporation

Eddy County, NM (NAD27 NME)

~~Raven Federal~~ Cedar Lake Federal CA #724H
#24H

OH / Job #1514707

Design: Surveys (Capstar 114)

Standard Survey Report

10 December, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 05 2016

RECEIVED



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #24H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3735.00usft (Capstar 114)
Site:	Raven Federal	MD Reference:	KB @ 3735.00usft (Capstar 114)
Well:	#24H	North Reference:	Grid
Wellbore:	OH / Job #1514707	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

Project	Eddy County, NM (NAD27 NME)		
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	Raven Federal		
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Site Position:		Northing:	673,239.70 usft	Latitude:	32° 51' 0.24298 N
From:	Map	Easting:	633,303.50 usft	Longitude:	103° 53' 57.35087 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.24 °

Well	#24H					
Well Position	+N/-S	0.00 usft	Northing:	672,390.00 usft	Latitude:	32° 50' 52.02357 N
	+E/-W	0.00 usft	Easting:	628,585.40 usft	Longitude:	103° 54' 52.69693 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,724.00 usft	

Wellbore	OH / Job #1514707				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/1/2015	7.63	60.77	48,533

Design	Surveys (Capstar 114)				
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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	88.76

Survey Program		Date	12/10/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,200.00	Phoenix Gyro Surveys (OH / Job #151470	PHX_SPT_GTD	PHX Continuous north-seeking gyro	
4,234.00	9,264.00	Phoenix MWD Surveys (OH / Job #151470	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

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)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	100.00	0.20	60.64	100.00	0.09	0.15	0.15	0.20	0.20	0.00
	200.00	0.64	268.71	200.00	0.16	-0.25	-0.25	0.82	0.44	-151.93
	300.00	1.49	245.53	299.98	-0.39	-2.00	-2.00	0.94	0.85	-23.18
	400.00	2.64	239.79	399.91	-2.09	-5.17	-5.21	1.17	1.15	-5.74
	500.00	2.86	237.40	499.80	-4.59	-9.26	-9.36	0.25	0.22	-2.39
	600.00	2.55	236.10	599.69	-7.18	-13.21	-13.36	0.32	-0.31	-1.30
	700.00	1.99	228.54	699.61	-9.57	-16.36	-16.56	0.63	-0.56	-7.56
	800.00	1.87	222.81	799.55	-11.91	-18.77	-19.02	0.23	-0.12	-5.73
	900.00	1.78	226.49	899.50	-14.18	-21.00	-21.30	0.15	-0.09	3.68

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Site:	Raven Federal	MD Reference:	KB @ 3735.00usft (Capstar 114)
Well:	#24H	North Reference:	Grid
Wellbore:	OH / Job #1514707	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
1,000.00	0.86	230.46	999.47	-15.73	-22.71	-23.04	0.92	-0.92	3.97
1,100.00	0.33	185.30	1,099.47	-16.49	-23.31	-23.66	0.67	-0.53	-45.16
1,200.00	0.69	142.13	1,199.46	-17.25	-22.97	-23.34	0.50	0.36	-43.17
1,300.00	0.67	136.21	1,299.46	-18.15	-22.20	-22.58	0.07	-0.02	-5.92
1,400.00	1.01	127.87	1,399.45	-19.11	-21.10	-21.50	0.36	0.34	-8.34
1,500.00	1.19	140.46	1,499.43	-20.46	-19.74	-20.18	0.30	0.18	12.59
1,600.00	1.15	146.40	1,599.41	-22.09	-18.52	-19.00	0.13	-0.04	5.94
1,700.00	0.88	149.51	1,699.39	-23.59	-17.58	-18.08	0.28	-0.27	3.11
1,800.00	0.68	150.65	1,799.38	-24.77	-16.90	-17.43	0.20	-0.20	1.14
1,900.00	0.52	158.07	1,899.38	-25.71	-16.44	-16.99	0.18	-0.16	7.42
2,000.00	0.39	175.48	1,999.37	-26.47	-16.24	-16.81	0.19	-0.13	17.41
2,100.00	0.32	165.34	2,099.37	-27.08	-16.14	-16.72	0.09	-0.07	-10.14
2,200.00	0.37	150.42	2,199.37	-27.63	-15.91	-16.51	0.10	0.05	-14.92
2,300.00	0.43	112.61	2,299.37	-28.05	-15.41	-16.01	0.27	0.06	-37.81
2,400.00	0.13	153.88	2,399.37	-28.30	-15.01	-15.62	0.34	-0.30	41.27
2,500.00	0.30	174.99	2,499.37	-28.66	-14.94	-15.55	0.18	0.17	21.11
2,600.00	0.54	118.84	2,599.36	-29.15	-14.50	-15.13	0.45	0.24	-56.15
2,700.00	0.28	85.75	2,699.36	-29.36	-13.85	-14.48	0.34	-0.26	-33.09
2,800.00	0.32	142.72	2,799.36	-29.56	-13.43	-14.07	0.29	0.04	56.97
2,900.00	0.58	98.04	2,899.36	-29.86	-12.76	-13.41	0.42	0.26	-44.68
3,000.00	0.18	339.56	2,999.36	-29.78	-12.32	-12.96	0.68	-0.40	-118.48
3,100.00	0.37	112.83	3,099.35	-29.76	-12.07	-12.71	0.51	0.19	133.27
3,200.00	0.18	197.65	3,199.35	-30.03	-11.82	-12.47	0.40	-0.19	84.82
3,300.00	0.28	115.03	3,299.35	-30.29	-11.65	-12.30	0.31	0.10	-82.62
3,400.00	0.20	288.61	3,399.35	-30.33	-11.59	-12.25	0.48	-0.08	173.58
3,500.00	0.30	333.78	3,499.35	-30.04	-11.87	-12.52	0.21	0.10	45.17
3,600.00	0.15	90.34	3,599.35	-29.81	-11.86	-12.50	0.39	-0.15	116.56
3,700.00	0.35	76.14	3,699.35	-29.74	-11.43	-12.07	0.21	0.20	-14.20
3,800.00	0.19	194.91	3,799.35	-29.82	-11.18	-11.82	0.47	-0.16	118.77
3,900.00	0.46	44.03	3,899.35	-29.70	-10.94	-11.58	0.63	0.27	-150.88
4,000.00	0.32	81.65	3,999.35	-29.37	-10.39	-11.02	0.28	-0.14	37.62
4,100.00	0.62	23.32	4,099.34	-28.83	-9.90	-10.52	0.53	0.30	-58.33
4,200.00	0.38	56.23	4,199.34	-28.15	-9.41	-10.01	0.36	-0.24	32.91
Tie In to Phoenix Gyros									
4,234.00	0.20	173.90	4,233.34	-28.14	-9.31	-9.91	1.49	-0.53	346.09
First Phoenix MWD Surveys									
4,334.00	0.20	131.00	4,333.34	-28.43	-9.16	-9.77	0.15	0.00	-42.90
4,434.00	0.30	130.30	4,433.34	-28.72	-8.82	-9.44	0.10	0.10	-0.70
4,534.00	0.30	174.50	4,533.34	-29.15	-8.60	-9.23	0.23	0.00	44.20
4,634.00	0.60	237.90	4,633.33	-29.69	-9.02	-9.66	0.54	0.30	63.40
4,734.00	0.70	242.00	4,733.33	-30.25	-10.00	-10.65	0.11	0.10	4.10
4,819.00	1.50	69.30	4,818.32	-30.10	-9.42	-10.07	2.58	0.94	-203.18
4,861.00	6.10	72.70	4,860.22	-29.24	-6.77	-7.40	10.96	10.95	8.10

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Well:	#24H	North Reference:	Grid
Wellbore:	OH / Job #1514707	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
4,904.00	11.10	77.30	4,902.72	-27.65	-0.55	-1.15	11.73	11.63	10.70
4,946.00	16.50	80.00	4,943.49	-25.73	9.28	8.72	12.94	12.86	6.43
4,989.00	22.20	81.60	4,984.05	-23.48	23.34	22.82	13.31	13.26	3.72
5,031.00	27.60	80.50	5,022.13	-20.71	40.80	40.34	12.90	12.86	-2.62
5,074.00	33.20	78.30	5,059.20	-16.68	62.17	61.79	13.28	13.02	-5.12
5,117.00	38.80	78.40	5,093.98	-11.58	86.91	86.64	13.02	13.02	0.23
5,160.00	44.70	79.40	5,126.04	-6.08	115.00	114.84	13.81	13.72	2.33
5,202.00	50.90	80.20	5,154.24	-0.58	145.61	145.56	14.83	14.76	1.90
5,245.00	57.00	81.70	5,179.54	4.87	179.92	179.99	14.46	14.19	3.49
5,288.00	61.70	81.80	5,201.45	10.17	216.52	216.69	10.93	10.93	0.23
5,331.00	65.50	81.20	5,220.57	15.87	254.61	254.89	8.93	8.84	-1.40
5,373.00	69.40	80.40	5,236.67	22.07	292.89	293.30	9.45	9.29	-1.90
5,416.00	73.70	80.70	5,250.28	28.76	333.12	333.66	10.02	10.00	0.70
5,459.00	77.70	81.30	5,260.90	35.28	374.26	374.94	9.40	9.30	1.40
5,501.00	81.70	81.70	5,268.40	41.39	415.12	415.92	9.57	9.52	0.95
5,544.00	85.70	81.20	5,273.12	47.74	457.38	458.31	9.37	9.30	-1.16
5,672.00	88.40	80.40	5,279.71	68.18	583.55	584.89	2.20	2.11	-0.63
5,800.00	90.80	84.10	5,280.60	85.43	710.35	712.03	3.45	1.88	2.89
5,928.00	90.00	89.00	5,279.71	93.13	838.08	839.89	3.88	-0.63	3.83
6,056.00	88.00	90.70	5,281.94	93.47	966.04	967.84	2.05	-1.56	1.33
6,184.00	87.40	91.40	5,287.08	91.12	1,093.92	1,095.63	0.72	-0.47	0.55
6,312.00	86.80	91.90	5,293.56	87.44	1,221.70	1,223.31	0.61	-0.47	0.39
6,440.00	86.80	90.40	5,300.70	84.88	1,349.47	1,350.99	1.17	0.00	-1.17
6,568.00	87.80	89.70	5,306.73	84.77	1,477.33	1,478.82	0.95	0.78	-0.55
6,696.00	89.20	89.80	5,310.08	85.33	1,605.28	1,606.75	1.10	1.09	0.08
6,824.00	88.00	89.80	5,313.21	85.77	1,733.24	1,734.69	0.94	-0.94	0.00
6,952.00	87.30	89.70	5,318.46	86.33	1,861.13	1,862.56	0.55	-0.55	-0.08
7,080.00	88.50	90.10	5,323.15	86.55	1,989.04	1,990.45	0.99	0.94	0.31
7,208.00	88.30	89.40	5,326.72	87.11	2,116.99	2,118.38	0.57	-0.16	-0.55
7,336.00	90.00	89.70	5,328.62	88.12	2,244.96	2,246.34	1.35	1.33	0.23
7,464.00	89.80	90.80	5,328.84	87.56	2,372.96	2,374.30	0.87	-0.16	0.86
7,592.00	89.00	90.80	5,330.18	85.77	2,500.94	2,502.21	0.63	-0.63	0.00
7,720.00	89.00	90.60	5,332.42	84.21	2,628.91	2,630.12	0.16	0.00	-0.16
7,848.00	88.50	90.20	5,335.21	83.31	2,756.88	2,758.03	0.50	-0.39	-0.31
7,976.00	88.90	90.20	5,338.11	82.87	2,884.84	2,885.96	0.31	0.31	0.00
8,104.00	88.60	90.30	5,340.91	82.31	3,012.81	3,013.89	0.25	-0.23	0.08
8,232.00	88.90	89.20	5,343.70	82.87	3,140.78	3,141.83	0.89	0.23	-0.86
8,360.00	89.10	88.10	5,345.93	85.88	3,268.72	3,269.81	0.87	0.16	-0.86
8,487.00	89.60	89.20	5,347.37	88.87	3,395.67	3,396.80	0.95	0.39	0.87
8,616.00	89.50	89.20	5,348.39	90.68	3,524.66	3,525.79	0.08	-0.08	0.00
8,744.00	90.00	89.50	5,348.95	92.13	3,652.65	3,653.79	0.46	0.39	0.23
8,872.00	89.30	89.80	5,349.73	92.91	3,780.64	3,781.77	0.59	-0.55	0.23
9,000.00	89.50	90.00	5,351.07	93.13	3,908.63	3,909.73	0.22	0.16	0.16
9,128.00	88.60	89.90	5,353.19	93.24	4,036.62	4,037.69	0.71	-0.70	-0.08



Phoenix Technology Services LP

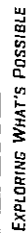
Survey Report



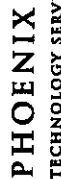
Company:	Apache Corporation	Local Co-ordinate Reference:	Well #24H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3735.00usft (Capstar 114)
Site:	Raven Federal	MD Reference:	KB @ 3735.00usft (Capstar 114)
Well:	#24H	North Reference:	Grid
Wellbore:	OH / Job #1514707	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
9,192.00	88.20	90.00	5,354.98	93.30	4,100.59	4,101.65	0.64	-0.63	0.16
Final Phoenix MWD Survey									
9,264.00	88.20	90.00	5,357.24	93.30	4,172.55	4,173.60	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,200.00	4,199.34	-28.15	-9.41	Tie In to Phoenix Gyros
4,234.00	4,233.34	-28.14	-9.31	First Phoenix MWD Surveys
9,192.00	5,354.98	93.30	4,100.59	Final Phoenix MWD Survey
9,264.00	5,357.24	93.30	4,172.55	Projection to TD



Riq: Capstar 114



Magnetic Field
 Strength: 48533.3nT
 Dip Angle: 60.77°
 Date: 12/17/2015
 Model: RDGM

Sec	MD	Inc	A_{21}	TVD	+MS	+EW	Dlog	TFree	Vsect
1	4734.00	0.70	242.00	4739.32	-39.62	-10.70	0.00	0.00	-10.65
2	4199.70	0.70	242.00	4199.00	-38.25	-10.70	0.00	0.00	-11.36
3	5546.86	89.11	79.15	5261.00	58.17	451.24	12.00	962.85	482.35
4	5808.37	88.11	90.00	5296.64	90.30	810.55	3.00	180.18	812.32
5	8271.23	89.11	90.00	5339.00	90.50	4173.00	0.00	0.00	4173.00

DESIGN TARGET DETAILS					
Name	TVD	+N/S	+E/W	Northing	Easting
Mud Pt. Raven Fed #24H	5310.00	90.47	2316.68	6309.00	6322.00
* plan misses target center by 0.5' south of 7418 58400 MTD (2)					
B-HL V3 Raven Fed #24H	5339.00	90.50	4173.00	67240.50	6322.00
* plan has target center					

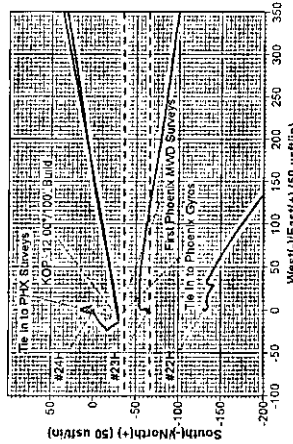
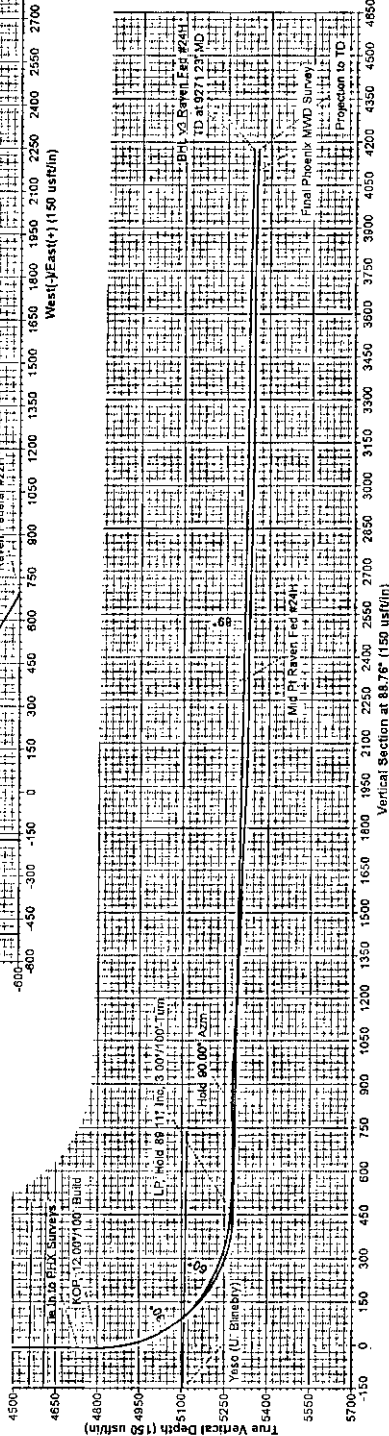
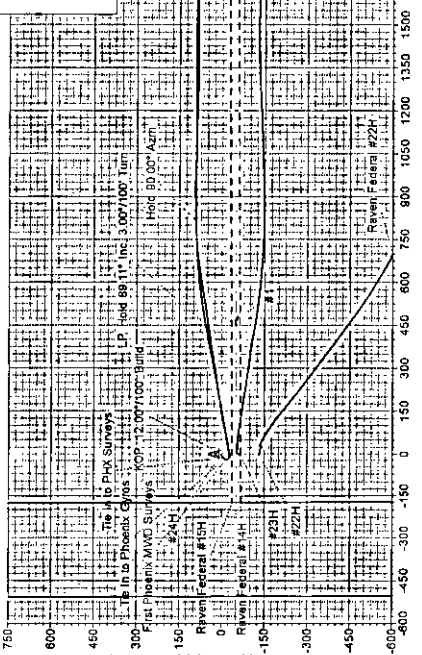
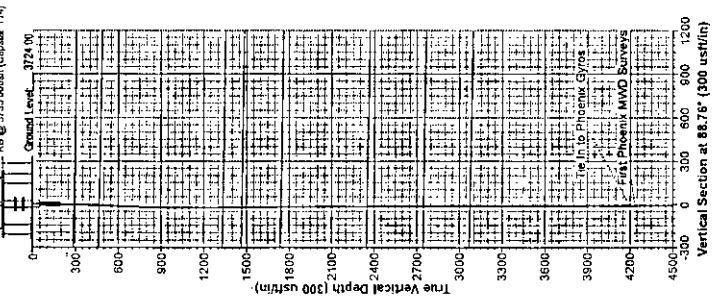
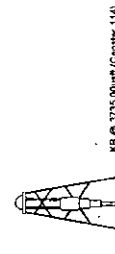
Target	Annotation
	Tie in to PHX Surveys
	KOP, 12.00°/100° Build
	L.P. Hold 89.11° Inc, 3.00°/100° Turn
	Hold 90.00° Azim
	TD at 9271.23 MD
	BHL v3 Raven Fed 4924H

Easting	Latitude	Longitude	Shape
630904 08	32° 59' 52.82761 N	103° 54' 25.51328 W	Point
JD (5310.12 TWD, 90.38 N, 2318.68 E)			
632758 40	32° 50' 52.75274 N	103° 54' 3.77706 W	Point

2745 78	Grayburg
3074 80	San Andres
4559 85	Glorieta
4606 85	Yeso (Piedrock)
5105 53	Yeso (U. Bureary)

LEGEND

---#224, OH Job #5154540, Surveys (Carpstar 114) V0
 ---#1, OH, Actual Surveys V0
 ---#141, WBI, Plan #2 04-30-14 V0
 ---#134, WBI, Plan #2 04-30-14 V0
 ---#116, OH Job #1310356, Surveys (Basic 44) V0
 ---#121, OH Job #1211707, Surveys (Basic 44) V0
 ---#241, OH Job #1211707, Surveys (Carpstar 114) V0
 ---#231, OH Job #5154730, Surveys (Carpstar 114) V0
 ---#154, WBI, Plan#2 04-30-14 V0
 ---#101, OH Job #1211717, Surveys (Basic 44) V0
 ---#611, OH Job #5154083, Surveys (Carpstar 119) V0
 ---#604, OH Job #5154082, Surveys (Carpstar 119) V0
 ---#284, OH Job #1210211, Surveys (Basic 44) V0
 ---#271, OH Job #1210329, Surveys (Basic 44) V0
 ---#654, OH Job #5154081, Surveys (Carpstar 119) V0



Vertical Section at 88.76' (150 usft/in)

Vertical Section at 88.76° (150 usf/in)

West(-)East(+) (50 usf/in)



PHOENIX
TECHNOLOGY SERVICES

Company: Apache
Well: Raven Federal 24H
Location: Eddy Co, New Mexico
Rig: Capstar 114

Job Number: 1514727
Grid Corr.: -0.23
Lat: 32.85
Long: -103.92

Date: 12/04/15
Calculation Method: Minimum Curvature
Proposed Azimuth: 11°
RKB - MSL in feet: 11'
Tie Into: Surface

gph

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
FIELD COPY, NON-DEFINITIVE													
Enter Tie-In Survey on Line 10													
TIE IN	0			0	0	0	0	0					
Gyro	100.00	0.20	60.64	100	100.00	0.09	0.09 N	0.15 E	0.17	60.64	0.20	0.20	60.64
	200.00	0.64	268.71	100	200.00	0.16	0.16 N	0.25 W	0.30	301.96	0.82	0.44	208.07
	300.00	1.49	245.53	100	299.98	-0.39	0.39 S	2.00 W	2.03	258.87	0.94	0.85	-23.18
	400.00	2.64	239.79	100	399.91	-2.09	2.09 S	5.17 W	5.58	247.99	1.17	1.15	-5.74
	500.00	2.86	237.40	100	499.80	-4.59	4.59 S	9.26 W	10.34	243.62	0.25	0.22	-2.39
	600.00	2.55	236.10	100	599.69	-7.18	7.18 S	13.21 W	15.03	241.48	0.32	-0.31	-1.30
	700.00	1.99	228.54	100	699.61	-9.57	9.57 S	16.36 W	18.95	239.67	0.63	-0.56	-7.56
	800.00	1.87	222.81	100	799.55	-11.91	11.91 S	18.77 W	22.23	237.59	0.23	-0.12	-5.73
	900.00	1.78	226.49	100	899.50	-14.18	14.18 S	21.00 W	25.34	235.97	0.15	-0.09	3.68
	1000.00	0.86	230.46	100	999.47	-15.73	15.73 S	22.71 W	27.62	235.29	0.92	-0.92	3.97
	1100.00	0.33	185.30	100	1099.47	-16.49	16.49 S	23.31 W	28.56	234.72	0.67	-0.53	-45.16
	1200.00	0.69	142.13	100	1199.46	-17.25	17.25 S	22.97 W	28.73	233.09	0.50	0.36	-43.17
	1300.00	0.67	136.21	100	1299.46	-18.15	18.15 S	22.20 W	28.67	230.72	0.07	-0.02	-5.92
	1400.00	1.01	127.87	100	1399.45	-19.11	19.11 S	21.10 W	28.47	227.82	0.36	0.34	-8.34
	1500.00	1.19	140.46	100	1499.43	-20.46	20.46 S	19.74 W	28.43	223.98	0.30	0.18	12.59
	1600.00	1.15	146.40	100	1599.41	-22.09	22.09 S	18.52 W	28.83	219.98	0.13	-0.04	5.94
	1700.00	0.88	149.51	100	1699.39	-23.59	23.59 S	17.58 W	29.42	216.69	0.28	-0.27	3.11
	1800.00	0.68	150.65	100	1799.38	-24.77	24.77 S	16.90 W	29.98	214.30	0.20	-0.20	1.14
	1900.00	0.52	158.07	100	1899.38	-25.71	25.71 S	16.44 W	30.51	212.59	0.18	-0.16	7.42
	2000.00	0.39	175.48	100	1999.37	-26.47	26.47 S	16.24 W	31.05	211.53	0.19	-0.13	17.41
	2100.00	0.32	165.34	100	2099.37	-27.08	27.08 S	16.14 W	31.52	210.80	0.09	-0.07	-10.14
	2200.00	0.37	150.42	100	2199.37	-27.63	27.63 S	15.91 W	31.88	209.94	0.10	0.05	-14.92
	2300.00	0.43	112.61	100	2299.37	-28.05	28.05 S	15.41 W	32.01	208.77	0.27	0.06	-37.81
	2400.00	0.13	153.88	100	2399.37	-28.30	28.30 S	15.01 W	32.03	207.94	0.34	-0.30	41.27
	2500.00	0.30	174.99	100	2499.36	-28.66	28.66 S	14.94 W	32.32	207.53	0.18	0.17	21.11
	2600.00	0.54	118.84	100	2599.36	-29.15	29.15 S	14.50 W	32.56	206.45	0.45	0.24	-56.15
	2700.00	0.28	85.75	100	2699.36	-29.36	29.36 S	13.85 W	32.46	205.25	0.34	-0.26	-33.09
	2800.00	0.32	142.72	100	2799.36	-29.56	29.56 S	13.43 W	32.47	204.44	0.29	0.04	56.97
	2900.00	0.58	98.04	100	2899.36	-29.86	29.86 S	12.76 W	32.47	203.14	0.42	0.26	-44.68
	3000.00	0.18	339.56	100	2999.35	-29.78	29.78 S	12.32 W	32.23	202.47	0.68	-0.40	241.52



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Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
	3100.00	0.37	112.83	100	3099.35	-29.76	29.76 S	12.07 W	32.11	202.08	0.51	0.19	-226.73
	3200.00	0.18	197.65	100	3199.35	-30.03	30.03 S	11.82 W	32.28	201.49	0.40	-0.19	84.82
	3300.00	0.28	115.03	100	3299.35	-30.29	30.29 S	11.65 W	32.45	201.04	0.31	0.10	-82.62
	3400.00	0.20	288.61	100	3399.35	-30.33	30.33 S	11.59 W	32.47	200.92	0.48	-0.08	173.58
	3500.00	0.30	333.78	100	3499.35	-30.04	30.04 S	11.87 W	32.31	201.57	0.21	0.10	45.17
	3600.00	0.15	90.34	100	3599.35	-29.81	29.81 S	11.86 W	32.08	201.69	0.39	-0.15	-243.44
	3700.00	0.35	76.14	100	3699.35	-29.74	29.74 S	11.43 W	31.86	201.03	0.21	0.20	-14.20
	3800.00	0.19	194.91	100	3799.35	-29.82	29.82 S	11.18 W	31.85	200.55	0.47	-0.16	118.77
	3900.00	0.46	44.03	100	3899.35	-29.70	29.70 S	10.94 W	31.65	200.23	0.63	0.27	-150.88
	4000.00	0.32	81.65	100	3999.35	-29.37	29.37 S	10.39 W	31.15	199.48	0.28	-0.14	37.62
	4100.00	0.62	23.32	100	4099.34	-28.83	28.83 S	9.90 W	30.48	198.95	0.53	0.30	-58.33
	4200.00	0.38	56.23	100	4199.34	-28.15	28.15 S	9.41 W	29.68	198.48	0.36	-0.24	32.91
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