

Reservoir Development
PathFinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
Fax: (405) 789-1519

15-42646

Well Reference:

0

N 32.13812 W 104.24329

I, Ben Moore certify that: I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of November 09, 2015 through November 12, 2015, conduct or supervise the taking of the SlimPulse surveys from a depth of 6710.00 feet to a depth of 11738.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Cimarex for the Marquardt Federal #17H, Well (Original Hole) API No. 30-015-42646-00 and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Ben Moore
MWD



Subscribed and Sworn to before me this 17th day of November (month) 2015 (yr)

My Commission expires:

September 5, 2016

Michelle Ellwood

Notary Public

Midland, TX
(County State)



Reservoir Development

PathFinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
Fax: (405) 789-1519



December 8, 2015

Cimarex
600 N MARIENFELD STREET SUITE 600
MIDLAND, TX 79701

Re:

0
N 32.13812 W 104.24329

CLIENT: Cimarex
WELL: Marquardt Federal #17H.
FIELD: Cottonwood Draw; Bone Springs
RIG: H&P 381
COUNTY: Eddy
API NO: 30-015-42646-00
JOB NO: 15MLD2230

Enclosed, please find the original copy of the survey performed on the referenced well by PathFinder, a division of Schlumberger Technology Corporation.
Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Ben Moore MWD	Marquardt Federal #17H. Original Hole	6710.00 Ft to 11738.00 Ft	November 9, 2015 to November 12, 2015	SlimPulse

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

Jasem Alharer
Field Service Manager

Cimarex Marquardt Federal 17H XEM + MWD Off to Update Survey Report

(Non-Def Survey)

Report Date: November 12, 2015 - 03:58 PM
 Client: Cimarex
 Field: 184 Eddy County (NAD 83)
 Structure / Slot: Cimarex Marquardt Federal 17H / Cimarex Marquardt Federal 17H
 Well: Cimarex Marquardt Federal 17H
 Borehole: Original Borehole
 UWI / APH: Unknown / Unknown
 Survey Name: Cimarex Marquardt Federal 17H XEM + MWD Off to Update
 Survey Date: November 02, 2015
 Tort / AHD / ODI / ERD Ratio: 100.058 * / 5031.808 ft / 5.142 / 0.009
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 8' 17.22135", W 104° 14' 33.82052"
 Location Lat N/E Y/D: N 413994.300 NUS, E 569209.100 NUS
 CRS Grid Convergence Angle: 0.0479°
 Grid Scale Factor: 0.99990988
 Version / Patch: 2.8.572.0

Survey / DLS Computations:
 Vertical Section Azimuth: 357.896° (Grid North)
 Vertical Section Origin: 0 000 ft, 0 000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3285.000 ft above MSL
 Seabed / Ground Elevation: 3280.000 ft above MSL
 Magnetic Declination: 7.822°
 Total Gravity Field Strength: 988.4390mg (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48189.813 nT
 Magnetic Dip Angle: 59.897°
 Declination Date: November 02, 2015
 Magnetic Declination Model: HDGM 2015
 North Reference: Grid North
 Grid Convergence Used: 0.0479°
 Total Corr Mag North-Grid North: 7.5742°
 Local Coord Reference To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim. Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	TF (ft)	SR (ft/100ft)	TR (ft/100ft)	Closure (ft)	Closure Azimuth (°)
SHL Marquardt Fed 17H 1850' FEL 330' FSL	0.00	0.00	10.00	0.00	0.00	0.00	0.00	N/A	132.17M	N/A	N/A	0.00	0.00
180.00	2.11	132.17	179.86	-2.31	-2.22	2.46	1.17	125.09M	1.17	0.00	0.00	3.31	132.17
239.00	2.11	125.09	238.92	-3.72	-3.58	4.15	0.44	128.87M	0.00	-12.00	0.00	5.48	130.77
331.00	2.20	128.87	330.85	-5.90	-5.66	6.81	0.18	141.97M	0.10	4.11	0.00	8.93	129.32
414.00	2.20	141.97	413.79	-8.23	-7.91	9.13	0.60	142.05M	0.00	15.78	12.08	12.08	130.81
485.00	2.20	142.05	484.74	-10.43	-10.06	10.81	0.00	147.46M	0.00	0.11	14.77	132.55	
575.00	1.89	147.46	574.63	-13.11	-12.08	12.67	0.41	147.68M	-0.34	8.01	17.92	135.01	
665.00	2.29	147.68	664.82	-15.94	-15.45	14.43	0.44	145.57M	0.44	0.24	21.14	138.85	
754.00	2.29	145.57	753.68	-18.82	-18.38	18.35	0.14	149.48M	-0.10	-2.37	24.58	138.32	
844.00	2.29	149.48	843.49	-21.98	-21.33	18.24	0.20	147.06M	0.10	4.34	28.08	139.47	
936.00	2.69	147.06	935.40	-25.38	-24.68	20.30	0.34	146.27M	0.33	-2.83	31.94	140.54	
1029.00	2.69	146.27	1028.30	-29.01	-28.23	22.65	0.10	147.37M	0.10	-0.85	36.19	141.26	
1117.00	2.68	147.37	1116.21	-32.53	-31.68	24.90	0.08	142.45M	0.00	1.25	40.29	141.83	
1210.00	2.21	142.45	1208.09	-36.62	-35.57	27.66	0.83	133.88M	0.57	-5.29	45.05	142.13	
1304.00	2.02	133.88	1302.90	-39.85	-38.91	30.46	1.33	128.08M	-1.27	-9.12	49.33	141.87	
1396.00	2.50	139.86	1394.91	-43.30	-41.17	33.21	0.58	126.19M	0.52	-6.30	52.89	141.11	
1490.00	2.50	136.19	1488.83	-44.89	-43.64	36.48	0.09	118.68M	0.00	-2.01	56.85	140.11	
1585.00	3.21	118.68	1583.71	-47.53	-48.14	40.48	0.84	132.47M	0.75	-7.91	61.38	138.74	
1680.00	2.42	132.47	1678.59	-50.29	-48.77	44.29	1.09	123.28M	-0.83	14.52	65.89	137.75	
1775.00	2.90	123.28	1773.49	-53.09	-51.43	47.78	0.87	163.73M	0.51	-0.66	70.21	137.11	
1868.00	1.32	165.79	1866.43	-55.40	-53.78	50.81	2.28	183.28M	-1.70	45.70	73.44	137.08	
1967.00	1.58	183.28	1965.40	-57.97	-56.24	50.21	0.52	188.96M	0.28	17.67	75.40	136.24	
2062.00	1.71	188.96	2060.36	-60.86	-58.95	49.89	0.34	198.15M	0.14	7.03	77.23	139.75	
2157.00	1.71	198.15	2155.32	-63.39	-61.71	49.26	0.19	193.47M	0.00	6.52	78.95	141.40	
2252.00	1.80	193.47	2250.27	-66.18	-64.52	48.51	0.13	197.07M	0.09	-2.82	80.72	143.06	
2347.00	1.71	197.07	2345.23	-68.95	-67.32	47.75	0.15	195.58M	-0.09	3.79	82.54	144.65	
2442.00	1.80	195.58	2440.18	-71.71	-70.12	46.83	0.11	199.89M	0.09	-1.57	84.37	146.20	
2537.00	1.80	199.89	2535.14	-74.52	-72.96	45.82	0.14	200.15M	0.00	4.54	88.26	147.75	
2631.00	1.58	200.15	2629.10	-77.09	-75.56	45.08	0.23	200.85M	-0.23	0.28	87.98	148.18	
2728.00	1.80	200.85	2724.05	-79.68	-78.19	44.09	0.23	202.48M	0.23	0.74	89.78	150.58	
2821.00	1.71	202.48	2819.01	-82.34	-80.89	43.02	0.11	207.75M	-0.09	1.72	91.62	151.99	
2916.00	1.58	207.75	2913.97	-84.77	-83.36	41.87	0.21	205.78M	-0.14	5.55	93.23	153.23	
3011.00	1.71	205.78	3008.93	-87.18	-85.79	40.64	0.15	200.40M	0.14	-2.07	94.93	154.65	
3105.00	1.71	200.40	3102.89	-89.70	-88.37	39.54	0.17	203.35M	0.00	-5.86	96.81	155.89	
3200.00	1.80	203.35	3197.84	-92.36	-91.07	38.48	0.13	208.08M	0.09	3.05	98.85	157.11	
3295.00	1.80	208.08	3292.80	-95.02	-93.78	37.21	0.09	209.25M	0.00	2.88	100.89	158.36	
3390.00	1.71	208.29	3387.75	-97.55	-96.35	35.86	0.14	208.06M	-0.09	3.39	102.81	159.59	
3484.00	1.80	208.06	3481.71	-100.03	-98.88	34.48	0.10	206.87M	0.10	-1.31	104.72	160.78	
3579.00	1.58	208.87	3576.67	-102.46	-101.37	33.18	0.23	208.96M	-0.23	-1.25	106.68	161.87	
3674.00	1.71	208.96	3671.63	-104.85	-103.80	31.95	0.14	208.06M	0.14	0.09	108.60	162.89	
3769.00	1.80	208.06	3766.68	-107.38	-106.38	30.60	0.10	208.79M	0.09	1.16	110.69	163.95	
3864.00	1.71	208.79	3861.54	-109.88	-108.94	29.22	0.10	213.69M	-0.09	0.74	112.79	164.98	
3959.00	1.71	213.69	3955.50	-112.23	-111.33	27.76	0.16	220.98M	0.00	5.43	114.74	166.00	
4053.00	1.49	220.98	4050.46	-114.29	-113.44	26.17	0.31	221.55M	-0.23	7.49	116.42	167.01	
4148.00	1.49	221.55	4145.43	-116.08	-115.30	24.54	0.02	221.07M	0.00	0.80	117.88	167.99	
4243.00	1.49	221.07	4240.40	-117.88	-117.15	22.91	0.01	227.97M	0.00	-0.51	119.37	168.94	
4337.00	1.58	227.97	4334.36	-119.61	-118.94	21.14	0.22	220.98M	0.10	7.34	120.80	169.92	
4432.00	1.49	220.98	4429.33	-121.35	-120.75	19.36	0.22	224.98M	-0.09	-7.96	122.29	170.89	
4527.00	1.58	224.98	4524.29	-123.15	-122.61	17.62	0.15	220.98M	0.09	4.12	123.87	171.82	
4622.00	1.49	220.98	4619.26	-124.85	-124.47	15.89	0.16	217.28M	-0.09	-4.12	125.46	172.73	
4716.00	1.41	217.28	4713.23	-126.74	-126.31	14.39	0.13	214.56M	-0.09	-3.93	127.13	173.50	
4811.00	1.41	214.56	4808.20	-128.56	-128.21	13.01	0.07	202.28M	0.00	-2.87	128.86	174.20	
4906.00	1.41	202.28	4903.17	-130.69	-130.25	11.81	0.32	209.38M	0.00	-12.85	130.79	174.78	
5001.00	1.32	209.38	4998.15	-132.59	-132.29	10.93	0.20	200.89M	-0.09	7.48	132.74	175.28	
5096.00	1.41	200.89	5093.12	-134.60	-134.33	9.97	0.23	201.95M	0.09	-8.83	134.70	175.75	
5190.00	1.41	201.95	5187.09	-136.72	-136.48	9.13	0.83	199.58M	0.00	1.02	136.79	176.17	
5285.00	1.41	199.58	5282.06	-138.87	-138.67	8.30	0.06	204.48M	0.00	-2.49	138.82	176.58	
5380.00	1.41	204.48	5377.03	-141.01	-140.83	7.42	0.13	219.35M	0.00	5.14	141.03	176.98	
5475.00	0.88	219.35	5472.01	-142.60	-142.46	6.48	0.84	221.48M	-0.58	15.67	142.61	177.40	
5569.00	1.01	221.48	5566.00	-143.74	-143.64	5.47	0.14	213.77M	0.14	2.24	143.74	177.82	
5664.00	1.19	213.77	5660.98	-145.15	-145.09	4.37	0.24	227.48M	0.19	-8.09	145.15	178.28	
5759.00	1.19	227.48	5755.95	-146.57	-146.57	3.09	0.30	248.38M	0.00	14.43	146.51	178.79	
5854.00	1.32	248.38	5850.94	-147.64	-147.68	1.36	0.45	242.58M	0.14	19.89	147.69	179.47	
5948.00	1.58	242.58	5944.91	-148.59	-148.71	-0.78	0.29	230.56M	0.28	-4.06	148.71	180.30	
6043.00	1.58	230.56	6039.88	-149.95	-150.15	-2.95	0.35	211.27M	0.00	-12.63	150.18	181.13	
6138.00	2.11	211.27	6134.83	-152.21	-152.47	-4.87	0.85	196.65M	0.56	-20.81	152.55	181.83	
6233.00	3.12	196.65	6229.73	-154.23	-154.54	-6.08	1.57	165.65M	1.06	-25.91	154.65	182.22	
6328.00	1.10	165.65	6324.66	-156.07	-156.99	-8.15	2.24	131.29M	-2.13	-22.12	160.11	182.20	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	TF (°)	BR (ft/100ft)	TR (ft/100ft)	Closure (ft)	Closure Azimuth (°)
	8422.00	2.03	131.29	8418.63	-181.39	-181.95	-4.69	1.35	125.75M	0.88	-36.33	162.02	181.84
	8511.00	2.20	125.75	8513.58	-184.00	-184.17	-1.89	0.36	128.17M	0.28	-6.83	164.16	180.86
	8612.00	2.11	128.17	8608.49	-168.29	-168.35	1.03	0.21	129.36M	-0.19	2.55	166.39	179.85
	8665.00	1.89	125.38	8661.46	-187.45	-187.47	2.51	0.45	132.14M	-0.42	-5.30	167.49	179.14
	8710.00	2.14	132.14	8706.43	-168.49	-168.48	3.74	0.77	46.52M	0.56	15.07	168.50	178.73
	8740.00	2.07	46.52	8738.42	-168.52	-168.46	4.54	9.64	13.17M	-0.23	-28.40	168.52	178.45
	8784.00	6.44	13.17	8784.20	-184.54	-184.43	5.88	14.18	7.46L	13.27	-49.48	164.54	177.92
	8836.00	14.86	8.88	8831.17	-155.07	-154.89	7.85	13.65	3.01L	13.58	-6.85	156.08	177.10
	8883.00	21.83	8.91	8875.75	-140.53	-140.28	10.24	14.63	5.12L	14.82	-2.06	140.63	175.82
	8931.00	28.63	7.64	8919.14	-120.40	-120.02	13.16	14.25	8.15R	14.21	-2.65	120.73	173.74
	8978.00	34.91	8.20	8959.07	-86.08	-85.55	18.81	13.43	7.11R	13.32	3.32	97.02	170.02
	7928.00	38.68	10.13	6987.25	-47.61	-46.89	21.70	10.01	3.91R	8.94	1.94	70.32	162.02
	7073.00	44.17	10.67	7052.21	-38.94	-38.00	27.38	8.57	8R	8.55	0.94	45.21	142.78
	7121.00	48.37	11.18	7065.38	-3.13	-1.85	33.69	8.79	8.45R	8.75	1.23	33.95	93.29
	7168.00	53.06	11.84	7094.84	32.44	33.90	41.23	11.96	4.48L	11.89	1.88	53.58	50.57
	7218.00	59.34	11.45	7120.67	70.57	72.34	49.18	11.49	37.32L	11.45	-1.04	87.47	34.21
	7262.00	64.10	7.40	7142.81	111.14	113.16	55.92	12.81	41.33L	10.32	-8.82	126.23	26.30
	7310.00	68.88	3.22	7162.10	154.76	156.95	59.97	12.29	37.84L	9.35	-8.71	168.02	20.91
	7356.00	72.72	359.66	7177.30	198.07	200.33	61.15	11.04	2.43L	8.78	-7.09	209.46	16.98
	7405.00	74.28	359.72	7189.57	245.47	247.75	67.02	11.32	11.58R	11.31	-0.49	255.16	13.84
	7452.00	83.37	0.77	7197.07	291.81	294.13	61.22	11.09	10.72L	10.87	2.23	350.44	11.78
	7500.00	89.35	359.64	7200.12	339.68	342.01	61.38	12.60	14.54L	12.46	-2.35	347.48	10.18
	7536.00	91.20	359.16	7199.88	369.65	372.01	61.08	6.37	41.46L	8.17	-1.60	376.99	9.32
	7578.00	91.89	358.55	7189.68	417.62	419.98	60.12	1.82	20.84L	1.44	-1.27	424.26	8.15
	7633.00	92.31	358.39	7196.67	472.68	474.83	58.65	0.82	94.12R	0.78	-0.29	478.53	7.04
	7728.00	92.13	0.86	7192.99	567.47	569.85	58.03	2.60	68.71L	-0.19	2.60	572.79	5.61
	7823.00	92.55	359.78	7189.11	682.31	684.78	58.58	1.22	107.28L	0.44	-1.14	667.34	5.03
	7918.00	92.27	358.88	7185.11	757.20	759.67	57.45	0.99	134.48L	-0.29	-0.95	761.84	4.32
	8013.00	91.72	358.32	7181.81	852.13	854.58	55.13	0.83	96.11L	-0.58	-0.58	856.38	3.68
	8107.00	91.69	358.04	7178.01	948.09	949.50	52.15	0.30	82.83L	-0.03	-0.30	949.93	3.15
	8202.00	91.17	354.19	7175.81	1040.97	1043.21	45.72	4.88	50.33L	0.51	-4.05	1044.21	2.51
	8297.00	93.13	353.03	7171.42	1133.89	1137.51	35.15	1.58	124.35L	1.01	-1.22	1138.05	1.77
	8392.00	92.31	351.83	7166.91	1230.03	1231.57	22.65	1.53	158.31L	-0.86	-1.26	1231.78	1.05
	8487.00	91.41	351.88	7163.82	1324.41	1325.54	9.02	0.96	108.65R	-0.95	-0.18	1325.57	0.39
	8582.00	90.52	354.15	7162.22	1418.02	1419.79	-2.71	2.78	102.53L	-0.94	2.62	1419.79	359.89
	8676.00	90.48	353.97	7161.40	1512.79	1513.28	-12.44	0.20	99.21R	-0.04	-0.19	1513.33	359.53
	8771.00	90.17	355.68	7160.86	1607.65	1607.90	-20.84	2.04	35.54L	-0.33	2.01	1608.04	359.28
	8866.00	90.45	355.68	7160.35	1702.58	1702.85	-27.83	0.36	23.3L	0.29	-0.21	1702.87	359.06
	8961.00	91.10	355.49	7159.07	1797.48	1797.55	-35.32	0.74	181.03L	0.68	-0.29	1797.59	358.88
	9056.00	90.14	355.07	7158.04	1892.36	1892.01	-43.11	1.07	100.91R	-1.01	-0.35	1892.90	358.69
	9150.00	88.66	357.56	7158.20	1988.31	1988.81	-49.15	2.70	73.67R	-0.51	2.85	1988.42	358.58
	9245.00	88.83	358.14	7158.82	2081.31	2080.74	-52.71	0.64	63.25L	0.18	0.61	2081.41	358.55
	9340.00	90.45	356.91	7158.39	2176.31	2175.65	-56.82	1.45	90L	0.65	-1.29	2176.39	358.50
	9435.00	90.45	356.16	7157.65	2271.27	2270.47	-62.58	0.79	99.87R	0.00	-0.79	2271.34	358.42
	9529.00	90.41	356.39	7156.94	2365.23	2364.27	-68.89	0.25	66.25R	-0.04	0.24	2365.27	358.34
	9624.00	90.52	356.64	7156.17	2460.19	2459.09	-74.44	0.29	96.27R	0.12	0.28	2460.22	358.27
	9719.00	90.41	357.64	7155.40	2555.18	2553.97	-78.18	1.06	157.38R	-0.12	1.05	2555.20	358.22
	9813.00	89.69	357.84	7155.32	2649.18	2647.90	-82.80	0.83	43.84R	-0.77	0.32	2649.20	358.21
	9908.00	90.55	359.78	7155.12	2744.17	2742.86	-85.34	1.25	15.33L	0.61	0.86	2744.19	358.21
	10003.00	91.17	358.59	7153.69	2839.16	2837.82	-87.74	0.88	114.21	0.65	-0.18	2839.18	358.23
	10098.00	90.59	357.30	7152.23	2934.14	2932.75	-91.14	1.49	122.11R	-0.61	-1.36	2934.18	358.22
	10192.00	90.00	358.24	7151.75	3028.14	3026.67	-94.80	1.19	66.45L	-0.63	1.00	3028.16	358.21
	10287.00	90.34	357.48	7151.47	3123.14	3121.61	-88.38	0.90	106.86L	0.36	-0.82	3123.16	358.20
	10382.00	90.14	356.80	7151.07	3218.12	3216.49	-103.12	0.73	10.01L	-0.21	-0.69	3218.14	358.16
	10476.00	90.48	356.74	7150.56	3312.10	3310.33	-108.42	0.37	113.29R	0.38	-0.06	3312.11	358.12
	10571.00	90.24	357.30	7149.98	3407.08	3405.20	-113.35	0.64	67.86L	-0.25	0.59	3407.09	358.09
	10666.00	90.48	356.71	7149.37	3502.07	3500.07	-118.32	0.87	141.89R	0.25	-0.62	3502.07	358.06
	10761.00	89.97	357.11	7148.99	3597.05	3594.93	-123.44	0.88	85.31R	-0.54	0.42	3597.05	358.03
	10855.00	89.83	357.84	7148.08	3691.04	3688.83	-127.83	0.46	68.28R	-0.04	0.48	3691.04	358.02
	10950.00	90.31	358.49	7148.88	3786.04	3783.77	-131.12	1.08	69.74R	0.49	1.00	3786.04	358.02
	11045.00	90.62	359.33	7148.11	3881.03	3878.75	-132.62	0.94	65.1R	0.33	0.88	3881.03	358.04
	11139.00	91.07	0.30	7146.72	3974.97	3972.74	-133.23	1.14	131.42L	0.48	1.03	3974.97	358.08
	11234.00	90.62	359.79	7145.32	4069.90	4067.73	-133.15	0.72	84.21L	-0.47	-0.54	4069.91	358.13
	11329.00	90.78	358.41	7144.17	4164.87	4162.71	-134.84	1.46	79.63L	0.15	-1.45	4164.88	358.15
	11424.00	90.93	357.48	7142.77	4259.85	4257.63	-138.05	1.00	164.06L	0.18	-0.98	4259.87	358.14
	11519.00	90.96	357.48	7141.29	4354.84	4352.53	-142.34	0.08	78.5L	-0.07	-0.02	4354.85	358.13
	11614.00	90.96	356.95	7139.78	4449.82	4447.40	-146.88	0.55	137.94L	0.11	-0.54	4449.83	358.11
	11709.00	90.55	356.58	7138.54	4543.79	4541.25	-152.18	0.59	163.61R	-0.44	-0.39	4543.79	358.08
	11798.00	90.38	356.83	7138.30	4573.78	4571.19	-153.86	0.59	HS	-0.57	0.17	4573.78	358.07
Projection to Bit	11805.00	90.38	356.83	7137.85	4640.76	4638.07	-157.89	0.00		0.00	0.00	4640.76	358.05

Survey Type: Non-Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.00	25.000	1/88.425	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Marquardt Federal 17H XEM +
	1	25.000	25.000	Act Sbs	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Marquardt Federal 17H XEM +
	1	25.000	11805.000	Act Sbs	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Marquardt Federal 17H XEM +