



PHOENIX SURVEYS, INC.

POST DRILL
DIRECTIONAL
SURVEY

Company	Petroleum Development Corp.
Well	Leffler 41-27
Field	Wattenberg
County	Weld
State/Province	Colorado
Location	475' FNL & 475' FEL NE NE Sec 27, Twp - 7N, Rge - 66W
Other Services Density Neutron Induction	
Permanent Datum GL	Elevation 4890
Log Measured From KB	K.B. 4904 D.F. 4903 G.L. 4890
Drilling Measured From KB	
Date	February 04, 2010
Run Number	1
Depth Driller	7570
Depth Logger	7588
Bottom Logged Interval	7588
Top Log Interval	Casing
Casing Driller	649
Casing Logger	649
Bit Size	7-7/8"
Type Fluid in Hole	Chemical Gel
Density / Viscosity	9.2 / 55
pH / Fluid Loss	8.0 / 10.4
Source of Sample	Flowline
Rm @ Meas. Temp	2.96 @ 68° F
Rmtc @ Meas. Temp	2.22 @ 68° F
Rmtc @ Meas. Temp	3.70 @ 68° F
Source of Rmt / Rmtc	Measure / Calc
Rm @ BHT	1.01 @ 211° F
Time Circulation Stopped	0815
Time Logger on Bottom	1630
Maximum Recorded Temperature	211° F
Equipment Number	52
Location	Brighton, CO
Recorded By	Maclj Station
Witnessed By	Tom Leflor

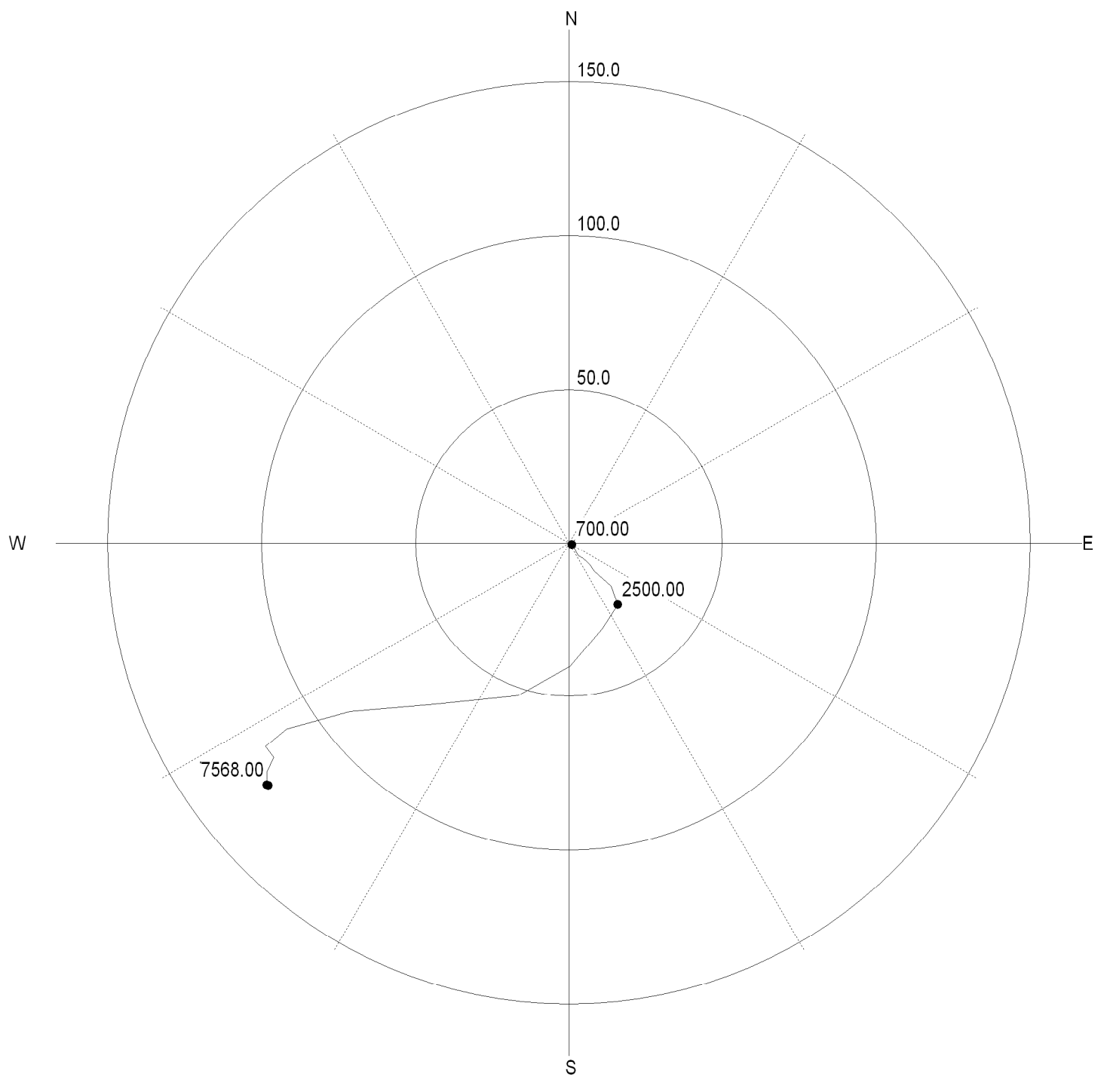
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Annular volume calculated for 4.5" casing
Ensign Drilling Rig 5
Thank you for using Phoenix Surveys.
API #: 05-123-26688-00

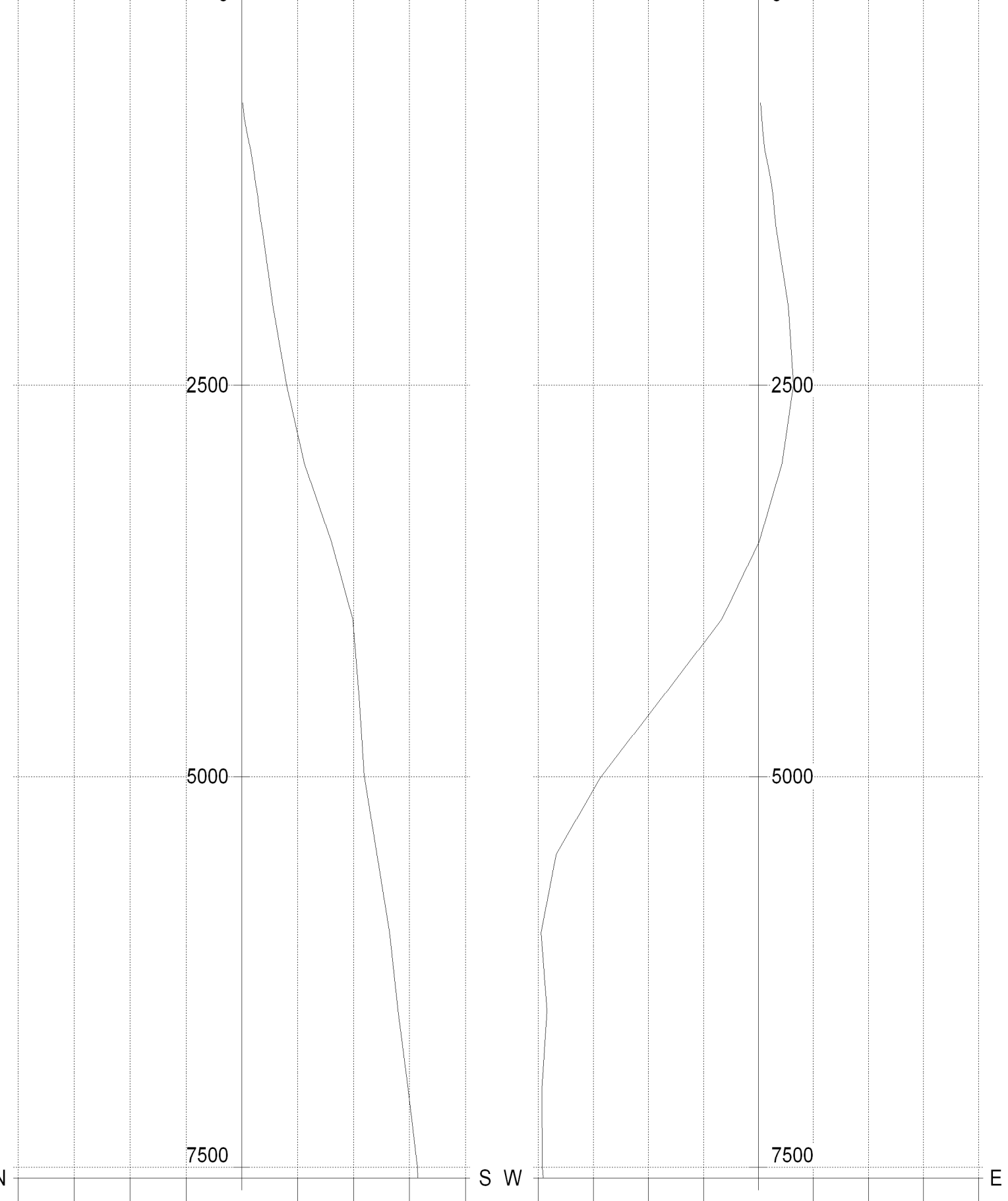
CROSS - SECTION
(Displacement in ft)



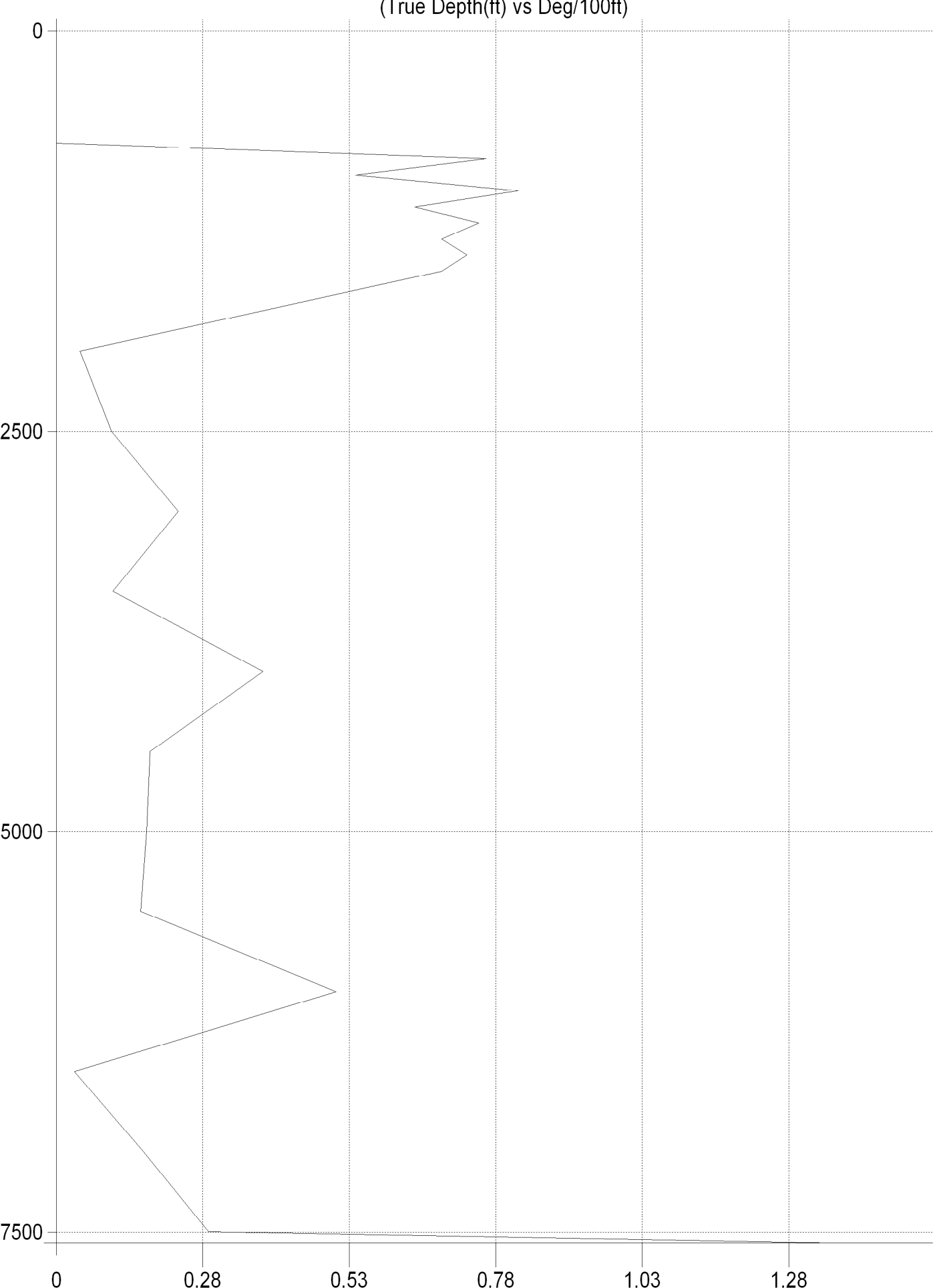
VERTICAL SECTIONS
(True Depth vs. Displacement (ft))

N - S SECTION

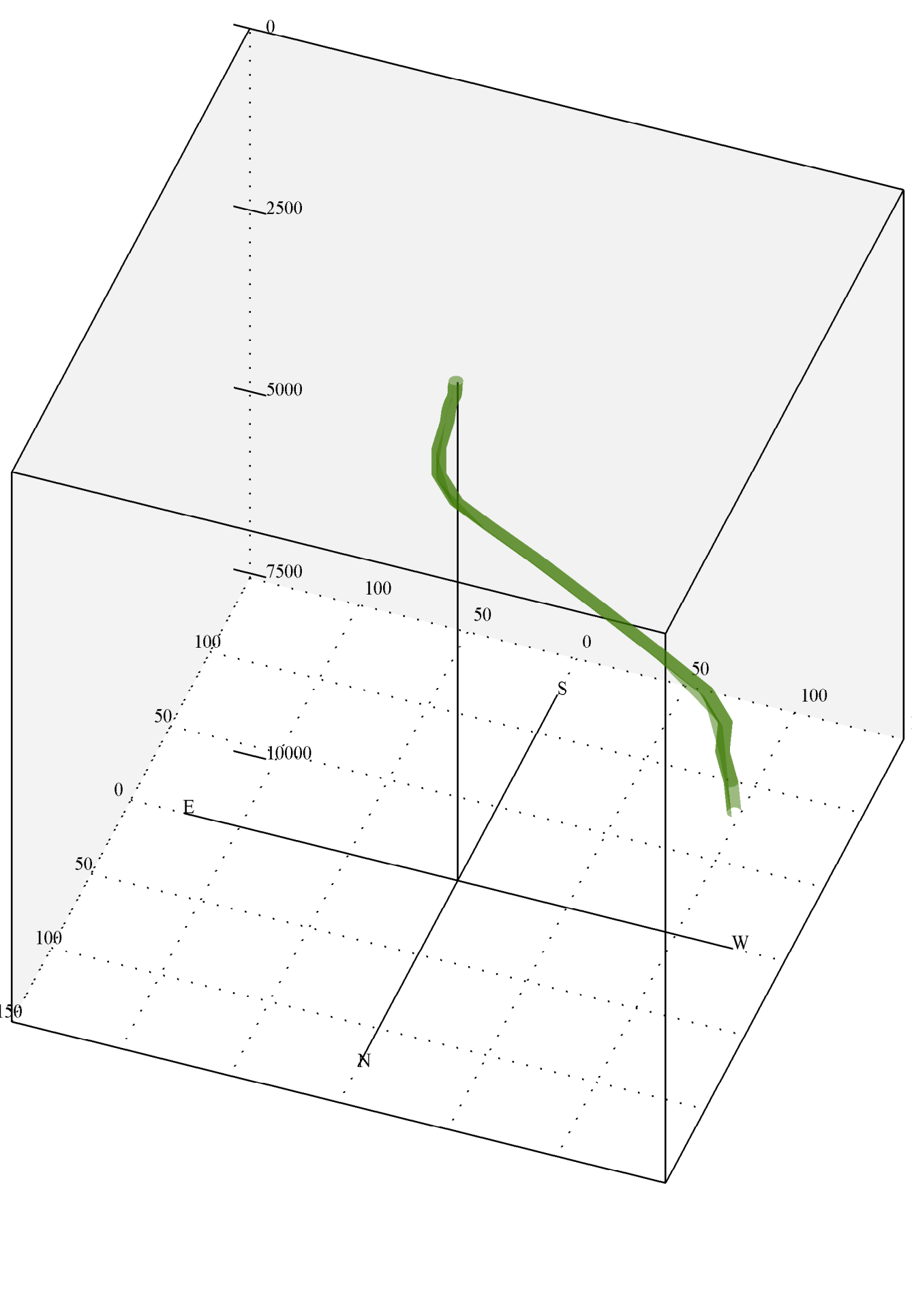
W - E SECTION



DOG LEG
(True Depth(ft) vs Deg/100ft)



3D VIEW OF WELL
(True Depth vs Displacement (ft))



Incl 0.12, Azi 326.54, TVD 7564.87

TVD Report (Minimum Curvature Method)

Database File: 10318.db
Dataset Pathname: \\\localhost\10318.tvd_1
Dataset Creation: Thu Feb 04 20:32:48 2010

Meas. Depth (ft)	Incline	Azimuth	TVD (ft)	North (ft)	East (ft)	Dogleg	Departure (ft)	Dep. Angle
700.00	0.18	117.30	700.00	-0.50	0.98	0.03	1.10	-62.70
800.00	0.92	141.26	799.99	-1.20	1.62	0.76	2.02	-53.40
900.00	0.88	175.85	899.98	-2.59	2.18	0.54	3.39	-40.00
1000.00	1.26	135.87	999.97	-4.15	3.00	0.81	5.12	-35.85
1100.00	0.95	106.39	1099.95	-5.17	4.56	0.64	6.90	-41.39
1200.00	1.05	149.89	1199.93	-6.20	5.81	0.75	8.50	-43.16
1300.00	0.62	111.45	1299.92	-7.19	6.78	0.68	9.88	-43.31
1400.00	0.84	168.75	1399.92	-8.11	7.42	0.73	10.99	-42.48
1500.00	0.81	119.87	1499.91	-9.18	8.18	0.68	12.29	-41.71
2000.00	0.90	141.40	1999.85	-14.01	13.69	0.07	19.59	-44.35
2500.00	0.70	183.22	2499.81	-20.13	15.97	0.12	25.69	-38.44
3000.00	1.58	226.26	2999.71	-27.94	10.82	0.23	29.96	-21.17
3500.00	2.10	216.09	3499.45	-40.11	0.44	0.12	40.11	-0.63
4000.00	2.74	259.66	3999.05	-49.66	-16.71	0.38	52.39	18.60
4500.00	3.57	267.38	4498.29	-52.51	-44.02	0.19	68.52	39.97
5000.00	2.72	261.94	4997.53	-54.89	-71.32	0.18	89.99	52.42
5500.00	2.21	245.99	5497.07	-60.48	-91.87	0.17	109.99	56.64
6000.00	0.60	131.97	5996.95	-66.15	-98.73	0.50	118.84	56.18
6500.00	0.47	159.28	6496.93	-69.82	-96.06	0.06	118.75	53.99
7000.00	0.92	228.72	6996.90	-74.39	-98.35	0.17	123.31	52.90
7500.00	0.81	117.45	7496.87	-78.66	-98.23	0.29	125.85	51.31
7568.00	0.12	326.54	7564.87	-78.83	-97.84	1.35	125.65	51.14