

**HIGH RES. INDUCTION  
SPECTRAL DENSITY  
TRUE VERTICAL DEPTH  
2"=100'**

COMPANY NORTHWEST NATURAL GAS  
WELL OM 23C-11-65  
FIELD MIST (BRUER POOL STORAGE)  
COUNTY COLUMBIA  
STATE OR

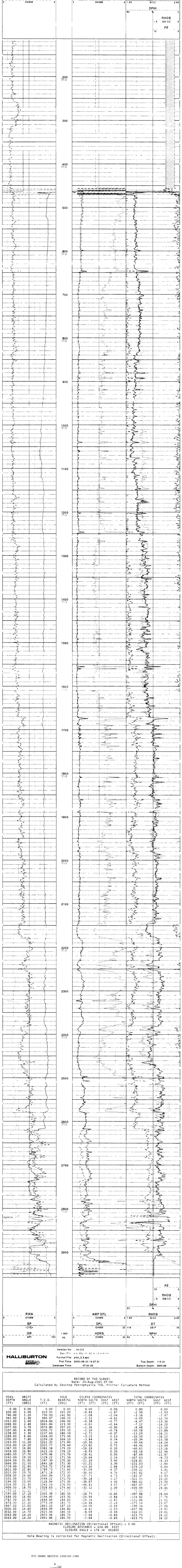
Location: 227 S SOUTH AND WEST 1/4 CORNER OF SECTION 11, W84M

Elevations: K.I. 1006.1 R.T. G.L. 987.1

Date Processed	09-20-2005	Logs Processed	HRID-BCSD-SDLT
Job Number	388416	Data Logged	HRID-BCSD-SDLT
Interval Processed	3096'-454'	Type/Fluid in Hole	CEIL
Processed By	G. ROUSSEAU	Location	WOLD
Processed At	WEIUSSTE		
COMPUTER PROCESSED PRODUCT			

Service Ticket No.: 388416 API Serial No.: 036-008-00361 PGM Version: XL V3.0  
 Maximum Deviation: deg @ KOP  
 Remarks: HRID-BCSD-SDLT-DSNT-UGRT RUN IN COMBINATION.  
 CREW: W. EMERSON, D. BRIGHT. RIG: TAYLOR NO. 9.

Version No.: 1hc3.0  
 Data File: nw\_23c\_11\_65\_hr3\_tvd.cla  
 Format File: plot\_2.3.spc  
 Plot Time: 2005-08-20 14:28:30  
 Database Time: 07:30:35  
 Top Depth: 115.00  
 Bottom Depth: 2955.88



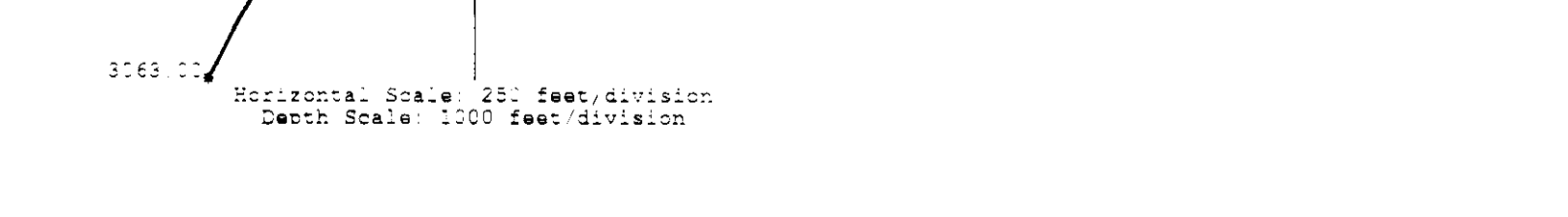
Version No.: 1hc3.0  
 Data File: nw\_23c\_11\_65\_hr3\_tvd.cla  
 Format File: plot\_2.3.spc  
 Plot Time: 2005-08-20 14:27:31  
 Database Time: 07:00:35  
 Top Depth: 115.00  
 Bottom Depth: 2955.88

RECORD OF TVD SURVEY  
 Date: 20-Aug-2005 07:00  
 Calculated by Desktop Petrophysics TVD, Minimum Curvature Method

WEAS. DEPTH (FT)	DRIFT ANGLE (DEG)	T.V.D. (FT)	HOLE BEARING (DEG)	NORTH COORDINATES (FT)			EAST COORDINATES (FT)		
				NORTH	SOUTH	EAST	WEST	NORTH	SOUTH
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
620.00	1.00	619.95	241.20	0.00	-0.88	-1.87	-2.50	-5.93	-5.93
740.00	1.20	739.93	242.90	-1.08	-2.04	-2.04	-3.58	-7.97	-7.97
981.00	1.30	980.87	240.20	-2.51	-4.62	-4.62	-6.09	-12.59	-12.59
1015.00	1.60	1014.86	246.40	-0.38	-0.77	-0.77	-6.47	-13.36	-13.36
1046.00	2.40	1045.84	223.30	-0.65	-0.84	-0.84	-7.12	-14.20	-14.20
1077.00	2.70	1076.80	207.00	-1.36	-0.90	-0.90	-8.48	-15.10	-15.10
1107.00	4.90	1106.72	195.50	-2.10	-0.78	-0.78	-10.58	-15.88	-15.88
1138.00	5.30	1137.60	180.50	-2.71	-0.37	-0.37	-13.29	-16.25	-16.25
1169.00	6.60	1168.43	175.40	-3.21	0.13	0.13	-16.50	-16.12	-16.12
1200.00	7.80	1199.19	169.10	-3.84	0.34	0.34	-20.34	-15.58	-15.58
1263.00	11.20	1261.32	175.00	-10.30	1.34	1.34	-30.64	-14.24	-14.24
1326.00	14.20	1322.77	178.40	-13.82	0.75	0.75	-44.46	-13.49	-13.49
1387.00	16.60	1381.98	176.20	-16.19	0.33	0.33	-60.63	-13.16	-13.16
1418.00	16.90	1411.26	178.20	-8.93	0.20	0.20	-69.58	-12.96	-12.96
1480.00	17.70	1470.46	175.70	-18.41	0.99	0.99	-87.99	-11.97	-11.97
1542.00	19.50	1529.22	171.50	-19.64	2.24	2.24	-107.53	-9.73	-9.73
1604.00	21.00	1587.39	170.30	-21.19	3.40	3.40	-128.82	-6.33	-6.33
1666.00	21.50	1645.18	172.30	-22.21	3.39	3.39	-151.03	-2.94	-2.94
2008.00	21.90	1703.72	175.00	-23.10	2.98	2.98	-174.13	0.04	0.04
2101.00	23.70	2044.22	172.80	-35.09	4.37	4.37	-208.22	4.41	4.41
1915.00	23.70	1875.18	172.30	-36.40	4.76	4.76	-245.62	9.17	9.17
2008.00	24.60	1960.04	173.00	-37.75	4.76	4.76	-283.37	13.93	13.93
2194.00	23.00	2241.53	175.30	-38.07	4.40	4.40	-360.62	23.50	23.50
2326.00	22.00	2324.53	176.00	-46.85	3.57	3.57	-407.47	27.07	27.07
2409.00	18.70	2328.63	179.40	-32.52	1.39	1.39	-459.99	28.46	28.46
2522.00	15.10	2342.63	177.20	-27.21	1.11	1.11	-477.12	28.46	28.46
2595.00	17.10	2505.39	180.50	-18.75	-0.06	-0.06	-497.88	28.64	28.64
2688.00	16.60	2394.40	183.30	-26.94	-0.86	-0.86	-524.62	27.79	27.79
2782.00	15.90	2684.64	184.60	-26.44	-1.85	-1.85	-531.06	26.95	26.95
2874.00	13.00	2773.29	185.70	-24.48	-2.24	-2.24	-575.34	23.67	23.67
2967.00	13.00	2863.10	187.10	-24.00	-2.69	-2.69	-599.94	20.95	20.95
3000.00	14.80	2894.89	186.60	-8.42	-1.03	-1.03	-607.86	19.95	19.95
3032.00	14.70	2925.94	186.50	-8.09	-0.94	-0.94	-616.03	19.01	19.01
3063.00	14.20	2955.96	186.70	-7.68	-0.89	-0.89	-623.73	18.12	18.12
3063.00	14.20	2955.96	186.70	-7.68	-0.89	-0.89	-623.73	18.12	18.12

MAGNETIC DECLINATION (Directional Offset) = 0.00  
 CLOSE DISTANCE = 624.00 FEET  
 CLOSURE ANGLE = 178.34 DEGREE

Hole Bearing is corrected for Magnetic Declination (Directional Offset).



COMPANY	NORTHWEST NATURAL GAS
WELL	OM 23C-11-65
FIELD	MIST (BRUER POOL STORAGE)
COUNTY	COLUMBIA
STATE	OR

**HALLIBURTON** HIGH RES. INDUCTION SPECTRAL DENSITY TRUE VERTICAL DEPTH 2"=100'