EXELON VICTORIA COL SITE - BORING B-2274A; 408.5' - 410' SAMPLE
OP: SEK

HAMMER ID: MEC-10; CME 85 TRUCK (R. WHITE)
Test date: 18-Dec-2007

AR: 1.49 in^2
LE: 412.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality

FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
2	0.00	24.04	7.86	0.99	1.9	1.13	36	0.327	88	0.310
3	0.00	24.30	8.23	1.03	53.4	1.17	36	0.327	87	0.306
4	0.00	24.50	8.45	1.11	53.3	1.25	37	0.320	85	0.297
5	0.00	23.47	8.25	1.09	52.8	1.12	35	0.331	89	0.313
6	0.00	24.64	8.06	1.00	52.8	1.23	37	0.324	85	0.299
7	0.00	25.18	8.85	1.23	52.9	1.27	38	0.326	84	0.292
8	0.00	23.42	7.92	0.90	53.0	1.09	35	0.341	90	0.314
9	0.00	24.18	8.44	0.83	54.5	1.15	36	0.337	90	0.314
10	0.00	24.71	7.93	0.87	54.7	1.21	37	0.332	89	0.312
11	0.00	25.25	7.89	0.86	54.6	1.25	38	0.337	85	0.298
12	0.00	24.18	7.92	0.89	54.5	0.98	36	0.339	88	0.308
13	0.00	23.74	7.67	0.85	54.6	0.92	35	0.337	90	0.315
14	0.00	25.62	7.03	1.02	54.4	1.28	38	0.330	86	0.300
15	0.00	25.18	8.03	1.02	54.7	1.25	38	0.331	89	0.310
16	0.00	25.49	6.94	1.12	54.6	1.29	38	0.331	87	0.304
17	0.00	25.80	7.15	1.06	54.3	1.27	38	0.333	86	0.302
18	0.00	25.20	6.93	1.13	54.5	1.31	38	0.325	87	0.305
19	0.00	23.17	6.93	0.86	54.8	1.02	35	0.342	89	0.310
20	0.00	23.57	6.89	1.24	54.0	0.96	35	0.342	94	0.328
21	0.00	25.76	7.05	1.32	54.7	1.26	38	0.334	90	0.314
22	0.00	25.67	6.62	1.20	54.7	1.32	38	0.329	87	0.304
23	0.00	25.82	7.11	1.16	54.4	1.27	38	0.333	88	0.308
24	0.00	24.46	7.56	1.23	54.2	0.97	36	0.340	91	0.318
25	0.00	24.02	6.70	1.24	54.7	0.98	36	0.342	91	0.319
26	0.00	23.69	6.61	1.12	54.4	0.93	35	0.340	93	0.325
27	0.00	23.48	6.55	1.39	54.4	0.96	35	0.340	94	0.330
28	0.00	25.87	6.36	1.13	54.7	1.28	39	0.335	88	0.308
29	0.00	23.83	6.38	1.17	54.2	1.12	36	0.341	92	0.321
30	0.00	25.85	6.20	0.87	54.4	1.26	39	0.334	87	0.304
31	0.00	24.27	6.09	0.89	54.2	1.14	36	0.338	89	0.312
32	0.00	25.21	6.01	1.09	54.4	0.95	38	0.342	90	0.313
33	0.00	25.67	5.97	0.79	54.6	1.24	38	0.335	87	0.303
34	0.00	23.21	5.85	0.99	54.3	0.91	35	0.330	91	0.318
35	0.00	26.01	5.60	1.09	54.5	1.31	39	0.330	88	0.306
36	0.00	25.58	5.20	0.84	54.4	0.92	38	0.338	87	0.306
37	0.00	26.05	5.14	0.96	54.2	1.30	39	0.331	87	0.305
38	0.00	24.35	4.98	0.75	54.5	0.85	36	0.332	91	0.318
39	0.00	25.09	4.94	0.77	54.3	1.28	37	0.329	88	0.309
40	0.00	25.35	4.84	0.66	54.3	1.31	38	0.326	86	0.302
41	0.00	23.54	4.93	1.01	54.2	0.90	35	0.334	92	0.321
42	0.00	25.58	4.69	0.67	54.7	1.32	38	0.330	87	0.304
43	0.00	25.87	4.66	0.84	54.3	1.30	39	0.326	86	0.301
44	0.00	25.84	4.53	0.79	54.3	1.31	39	0.327	87	0.303
45	0.00	25.70	4.50	0.70	54.2	1.34	38	0.328	86	0.300
46	0.00	23.72	4.69	0.74	54.2	0.91	35	0.336	91	0.317
47	0.00	23.22	4.66	0.51	54.4	0.97	35	0.333	89	0.313
	Average	24.75	6.56	0.98	53.1	1.15	37	0.333	88	0.310

Total number of blows analyzed: 46

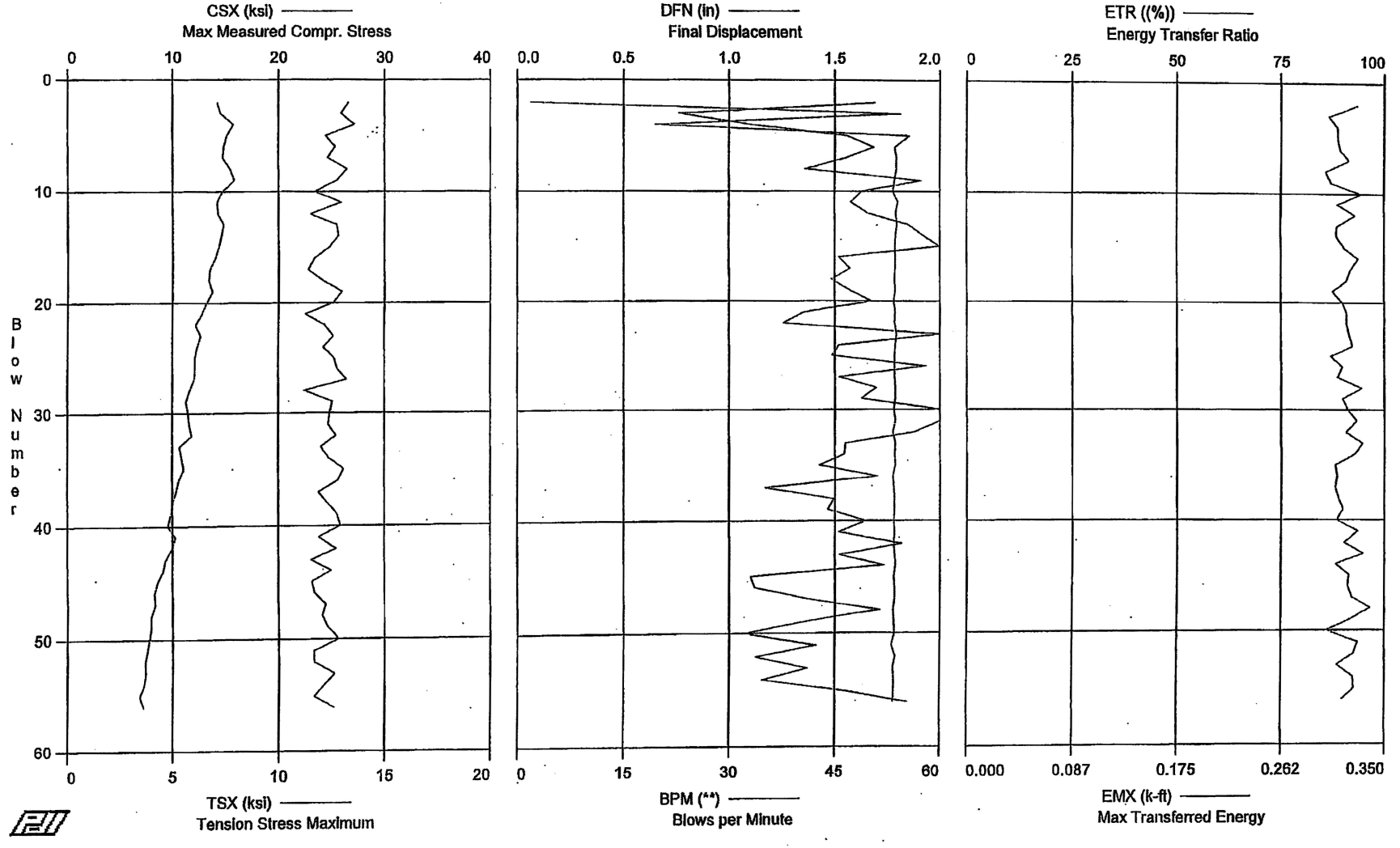
Time Summary
Drive 49 seconds 10:19:03 AM - 10:19:52 AM (12/18/2007) BN 2 - 47

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 11-Mar-2008

Test date: 18-Dec-2007

EXELON VICTORIA COL SITE - BORING B-2274A; 428.3' - 429.8' SAMPLE



EXELON VICTORIA COL SITE - BORING B-2274A; 428.3' - 429.8' SAMPLE
HAMMER ID: MEC-10; CME 85 TRUCK (R. WHITE)
OP: SEK
Test date: 18-Dec-2007

AR: 1.49 in^2
LE: 434.00 ft
WS: 16,807.9 f/s
SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality
FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth	CSX	TSX	DFN	BPM	FVP	FMX	EF2	ETR	EMX
	ft	ksi	ksi	in	**	[]	kips	k-ft	(%)	k-ft
2	0.00	26.60	7.10	1.69	1.9	1.30	40	0.358	93	0.327
3	0.00	25.91	7.26	0.76	54.4	1.29	39	0.344	86	0.303
4	0.00	27.18	7.88	1.11	19.5	1.32	41	0.360	89	0.310
5	0.00	24.43	7.57	1.56	55.6	1.00	36	0.346	89	0.310
6	0.00	25.32	7.42	1.69	53.5	1.27	38	0.341	89	0.312
7	0.00	24.62	7.38	1.55	53.8	1.20	37	0.334	91	0.320
8	0.00	26.47	7.71	1.36	53.8	1.30	39	0.347	86	0.300
9	0.00	25.48	7.91	1.91	53.5	0.96	38	0.346	87	0.305
10	0.00	23.43	7.36	1.63	53.3	0.96	35	0.340	94	0.330
11	0.00	25.91	7.10	1.58	54.0	1.34	39	0.343	89	0.310
12	0.00	23.02	7.14	1.66	53.7	1.04	34	0.346	93	0.325
13	0.00	25.48	7.42	1.85	53.9	0.94	38	0.343	88	0.310
14	0.00	25.66	7.32	1.92	53.7	0.94	38	0.343	88	0.309
15	0.00	24.81	7.18	2.00	53.6	0.97	37	0.343	90	0.316
16	0.00	23.40	7.00	1.52	53.6	0.90	35	0.333	94	0.328
17	0.00	22.78	6.76	1.57	53.6	0.96	34	0.332	92	0.321
18	0.00	24.21	6.71	1.48	53.5	1.24	36	0.327	91	0.318
19	0.00	25.96	6.88	1.57	53.6	1.31	39	0.341	87	0.306
20	0.00	25.14	6.61	1.68	53.4	1.32	37	0.341	90	0.314
21	0.00	22.52	6.38	1.35	53.6	1.03	34	0.344	91	0.318
22	0.00	24.34	6.10	1.26	53.5	1.24	36	0.336	91	0.318
23	0.00	25.16	6.33	2.17	53.8	1.33	37	0.341	92	0.320
24	0.00	24.23	6.18	1.52	53.6	1.23	36	0.327	92	0.323
25	0.00	25.23	6.07	1.49	53.5	0.94	38	0.339	87	0.304
26	0.00	25.52	6.07	1.93	53.5	1.34	38	0.338	90	0.314
27	0.00	26.41	6.02	1.52	53.5	1.34	39	0.343	89	0.310
28	0.00	22.44	5.83	1.70	53.6	1.05	33	0.339	95	0.331
29	0.00	25.10	5.64	1.63	53.6	1.34	37	0.335	90	0.314
30	0.00	24.84	5.73	2.02	53.4	0.96	37	0.344	91	0.319
31	0.00	24.68	5.79	2.20	53.6	0.98	37	0.345	93	0.326
32	0.00	25.40	5.90	1.88	53.3	1.37	38	0.332	91	0.317
33	0.00	23.99	5.33	1.55	53.6	0.88	36	0.331	95	0.331
34	0.00	24.71	5.42	1.55	53.5	1.27	37	0.338	93	0.325
35	0.00	26.15	5.54	1.43	53.6	0.89	39	0.346	88	0.308
36	0.00	25.61	5.30	1.70	53.3	0.91	38	0.341	88	0.310
37	0.00	23.79	5.18	1.17	53.4	1.00	35	0.339	88	0.308
38	0.00	24.66	4.98	1.50	53.5	0.95	37	0.341	89	0.311
39	0.00	25.52	4.94	1.47	53.5	1.24	38	0.344	90	0.315
40	0.00	25.85	4.77	1.65	53.4	0.90	39	0.339	88	0.309
41	0.00	23.80	5.14	1.52	53.5	1.14	35	0.336	94	0.327
42	0.00	25.42	4.96	1.82	53.4	0.93	38	0.343	90	0.316
43	0.00	23.08	4.65	1.52	53.5	1.00	34	0.338	95	0.332
44	0.00	24.97	4.55	1.73	53.6	0.95	37	0.337	88	0.308
45	0.00	23.15	4.30	1.10	53.4	1.10	34	0.338	91	0.320
46	0.00	23.41	4.14	1.12	53.5	1.03	35	0.340	91	0.319
47	0.00	24.46	4.18	1.38	53.5	1.26	36	0.338	92	0.322
48	0.00	24.14	4.00	1.71	53.3	0.83	36	0.333	96	0.338
49	0.00	24.64	3.98	1.35	53.4	0.82	37	0.330	92	0.321
50	0.00	25.65	3.90	1.08	53.5	1.36	38	0.332	86	0.301
51	0.00	23.36	3.80	1.41	53.1	1.07	35	0.343	94	0.327
52	0.00	23.37	3.69	1.13	53.6	0.89	35	0.334	92	0.324
53	0.00	25.26	3.72	1.37	53.3	1.37	38	0.331	88	0.309
54	0.00	24.31	3.64	1.15	53.4	0.84	36	0.333	92	0.323
55	0.00	23.35	3.43	1.56	53.4	1.01	35	0.339	93	0.324
56	0.00	25.15	3.61	1.84	53.3	0.95	37	0.341	90	0.314
	Average	24.72	5.76	1.55	52.0	1.10	37	0.340	91	0.317

Total number of blows analyzed: 55

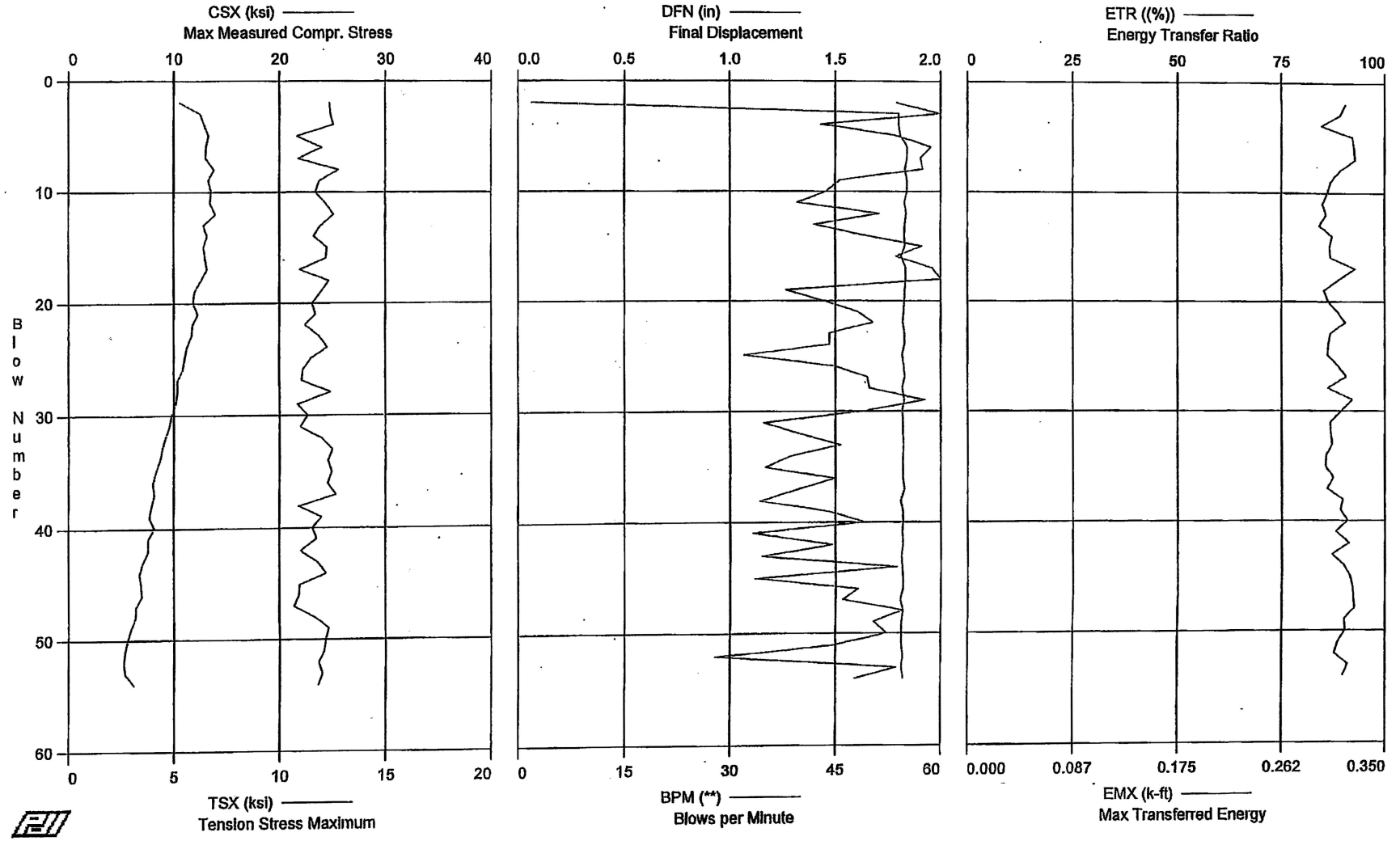
Time Summary
Drive 1 minute 2 seconds 12:21:22 PM - 12:22:24 PM (12/18/2007) BN 2 - 56

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 11-Mar-2008

Test date: 18-Dec-2007

EXELON VICTORIA COL SITE - BORING B-2274A; 448.3' - 449.8' SAMPLE



EXELON VICTORIA COL SITE - BORING B-2274A; 448.3' - 449.8' SAMPLE
OP: SEK

HAMMER ID: MEC-10; CME 85 TRUCK (R. WHITE)
Test date: 18-Dec-2007

AR: 1.49 in^2
LE: 454.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality

FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
2	0.00	24.70	5.29	1.79	1.9	1.11	37	0.305	90	0.316
3	0.00	24.80	6.23	2.39	54.0	1.15	37	0.300	89	0.312
4	0.00	25.11	6.44	1.43	54.0	1.17	37	0.308	85	0.296
5	0.00	21.64	6.65	1.79	54.3	0.92	32	0.314	92	0.322
6	0.00	23.97	6.54	1.96	55.2	1.05	36	0.315	92	0.324
7	0.00	21.75	6.51	1.90	55.2	0.97	32	0.313	93	0.325
8	0.00	25.57	6.91	1.92	54.9	1.18	38	0.312	89	0.312
9	0.00	23.76	6.64	1.52	55.2	1.14	35	0.305	87	0.304
10	0.00	23.38	6.78	1.46	55.2	1.14	35	0.300	86	0.301
11	0.00	24.37	6.72	1.32	54.8	1.21	36	0.300	85	0.297
12	0.00	25.12	6.98	1.71	55.1	1.17	37	0.308	86	0.300
13	0.00	23.88	6.41	1.40	54.9	1.19	36	0.299	84	0.294
14	0.00	23.22	6.59	1.63	54.8	0.91	35	0.308	87	0.305
15	0.00	24.48	6.42	1.91	54.9	1.16	36	0.307	87	0.303
16	0.00	24.42	6.48	1.79	54.4	1.19	36	0.301	87	0.304
17	0.00	21.91	6.58	1.96	55.0	0.88	33	0.309	93	0.325
18	0.00	24.67	6.28	2.02	55.0	1.16	37	0.309	89	0.311
19	0.00	23.89	5.98	1.27	54.9	1.23	36	0.297	85	0.298
20	0.00	23.06	5.91	1.45	54.8	1.15	34	0.296	86	0.302
21	0.00	23.37	6.13	1.61	54.7	1.16	35	0.299	89	0.310
22	0.00	22.42	5.89	1.68	54.6	0.88	33	0.304	90	0.316
23	0.00	23.70	5.84	1.47	54.8	1.08	35	0.311	87	0.304
24	0.00	24.50	5.62	1.47	54.8	1.12	37	0.307	86	0.302
25	0.00	22.99	5.53	1.07	54.5	1.11	34	0.300	86	0.301
26	0.00	22.24	5.44	1.49	54.7	1.01	33	0.309	89	0.310
27	0.00	22.08	5.18	1.65	54.9	0.89	33	0.309	91	0.317
28	0.00	24.85	5.17	1.66	54.5	1.16	37	0.307	86	0.301
29	0.00	21.66	5.08	1.93	54.8	0.98	32	0.305	92	0.322
30	0.00	22.65	4.89	1.63	54.5	0.86	34	0.304	89	0.313
31	0.00	21.92	4.78	1.16	54.6	0.91	33	0.299	87	0.304
32	0.00	23.96	4.59	1.33	54.6	1.17	36	0.297	87	0.304
33	0.00	25.01	4.44	1.52	54.7	1.21	37	0.303	87	0.305
34	0.00	24.56	4.34	1.29	54.6	1.13	37	0.312	86	0.300
35	0.00	24.96	4.14	1.17	54.6	1.16	37	0.307	86	0.299
36	0.00	24.54	3.99	1.50	54.6	1.16	37	0.310	87	0.306
37	0.00	25.35	4.08	1.32	54.8	1.20	38	0.303	86	0.301
38	0.00	21.75	3.94	1.14	54.3	0.99	32	0.308	90	0.314
39	0.00	23.99	3.86	1.47	54.6	1.19	36	0.297	89	0.312
40	0.00	23.08	4.07	1.64	54.6	1.02	34	0.308	91	0.318
41	0.00	23.49	3.78	1.11	54.5	1.07	35	0.309	88	0.308
42	0.00	21.97	3.78	1.49	54.6	0.97	33	0.305	91	0.319
43	0.00	23.58	3.54	1.15	54.4	1.09	35	0.314	87	0.305
44	0.00	24.39	3.37	1.79	54.5	1.20	36	0.298	90	0.315
45	0.00	21.87	3.43	1.12	54.6	0.91	33	0.303	91	0.320
46	0.00	21.83	3.48	1.61	54.6	0.90	33	0.300	92	0.322
47	0.00	21.33	3.21	1.53	54.2	0.95	32	0.304	92	0.323
48	0.00	23.29	3.19	1.82	54.6	1.15	35	0.298	93	0.324
49	0.00	24.66	2.96	1.68	54.4	1.14	37	0.314	90	0.315
50	0.00	24.35	2.81	1.74	54.4	1.16	36	0.313	90	0.316
51	0.00	24.20	2.69	1.49	54.4	1.19	36	0.299	88	0.310
52	0.00	23.66	2.62	0.93	54.6	1.16	35	0.298	88	0.307
53	0.00	24.02	2.68	1.79	54.4	1.22	36	0.297	91	0.318
54	0.00	23.66	3.11	1.59	54.6	1.17	35	0.298	90	0.314
	Average	23.58	4.98	1.56	53.7	1.09	35	0.305	89	0.310

Total number of blows analyzed: 53

Time Summary
Drive 57 seconds

3:16:13 PM - 3:17:10 PM (12/18/2007) BN 2 - 54

March 14, 2008

Memorandum to File
From: Steve Kiser
Reviewed By: Kathryn White KAW 3/14/08

Subject: **Report of SPT Energy – Environmental Exploration CME 75 Truck Hammer Serial No. MEC-11 Automatic Hammer**
WORK INSTRUCTION 19
Exelon COL Project
Victoria County, Texas
MACTEC Project No. 6468-07-1777

Kyle Miller and Steve Kiser, of MACTEC Engineering and Consulting, Inc. (MACTEC), performed energy measurements on the drill rig at the subject site per the referenced Work Instructions. This memorandum summarizes the field testing activities and presents the results of the energy measurements.

SPT Energy Field Measurements

SPT energy measurements were made on December 3, 18, and 20, 2007, during drilling of Borings B-2251, B-2171, and B-2171 OFFSET at the referenced site. The testing was performed at various times during each of these days (please refer to the individual data sheets for times of each sample). Testing conditions consisted of partly cloudy skies and a temperature range of about 60 to 72 degrees Fahrenheit on December 3 and 18, and sunny skies and a temperature of about 68 degrees Fahrenheit on December 20. The borings were drilled with personnel and equipment from Environmental Exploration, Inc. The drilling equipment consisted of a CME 75 model truck-mounted drill rig with an SPT automatic hammer. The drilling tools consisted of AW-J-, Mayhew-Jr., and NW-J-sized drilling rods and a 2-foot long split tube sampler. These rod sizes were tested on December 3, 18, and 20, respectively. Mud rotary drilling techniques were used to advance the borings below the depth at which groundwater was encountered at the time of energy testing. The drill rig operator during sampling was Mr. David Nalls. Energy measurements were recorded during sampling at the depth intervals shown in Table 1.

The energy measurements were performed with a Pile Driving Analyzer (PDA) model PAX (Serial No. 3622L), and calibrated accelerometers (Serial Nos. P5953, P5992, K990, and K983) and strain gages (Serial Nos. AW #75/1, AW#75/2, NW #146/1, and NW #146/2). A steel drill rod, 2 feet long and instrumented with dedicated strain gages, was inserted at the top of the drill rod string immediately below the SPT hammer. The inserted rod was also instrumented with two piezoresistive accelerometers that were bolted to the outside of the rod. The instrumented AW-sized rod insert had a cross-sectional area of approximately 1.19 square inches and an outside diameter of approximately 1.75 inches at the gage location. The drill rods included in the AW-sized drill rod string were hollow rods in 5 to 10 foot long sections, with an outside and inside diameter of approximately 1.75 and 1.375 inches, respectively. The instrumented NW-sized rod insert had a cross-sectional area of approximately 1.49 square inches and an outside diameter of approximately 2.625 inches at the gage location. The drill rods included in the NW-sized drill rod string were hollow rods in 5 to 10 foot long sections, with an outside and inside diameter of approximately 2.625 and 2.25 inches, respectively.

42 Pages Total

The recommended operation rate of the hammer is not known. Due to the closed hammer system, the hammer lubrication condition and anvil dimensions could not be observed.

Calibration Records

The calibration records for all the above are filed in DCN EXE 315.

Calculations for EFV

The work was done in general accordance with ASTM D 4633-05. The strain and acceleration signals were converted to force and velocity by the PDA, and the data was interpreted by the PDA according to the Case Method equation. The maximum energy transmitted to the drill rod string (as measured at the location of the strain gages and accelerometers) was calculated by the PDA using the EFV method equation, as shown below:

$$EFV = \int F(t) * V(t) * dt$$

Where: EFV = Transferred energy (EFV equation), or Energy of FV
F(t) = Calculated force at time t
V(t) = Calculated velocity at time t

The EFV method of energy calculation is recommended in ASTM Standard D4633-05. The EFV equation, integrated over the complete wave event, measures the total energy content of the event using both force and velocity measurements. The EFV values associated with each blow analyzed are tabulated in the attached PDIPLOT tables and are also shown graphically in the PDIPLOT charts.

Calculations for ETR

The ratio of the measured transferred energy (EFV) to the theoretical potential energy of the SPT system (140 lb weight with the specified 30 inch fall) is the ETR. The ETR values (as percent of the theoretical value) are shown in Table 1.

Comparison of ETR to Typical Energy Transfer Ratio Range

Based on a research report published by the Florida Department of Transportation (FDOT) (Report WPI No. 0510859, 1999), the average ETR measured for automatic hammers is 79.6%. The standard deviation was 7.9%; therefore, the range of ETRs within one standard deviation of the average was reported to be 71.7% to 87.5%. This range of ETRs was also consistent with other research that was cited in the FDOT research paper; however, maximum and minimum ETR values of up to 98% and 56%, respectively, were reported in the literature. The ETR values shown in Table 1 are generally within the range of typical values for automatic hammers as reported in the literature.

Discussion

Based on the field testing results, observations from the SPT energy measurements are summarized below:

- The data obtained by the PDA are consistent between individual hammer blows and between the sample depths tested. In general, the first and last one (and sometimes two) hammer blow records recorded by the PDA produced poor quality data (which is relatively common) and, as such, the record(s) was(were) not used in the data reduction.

- The range of average energy transferred from the hammer to the drill rods for each individual depth interval using the EFV method is shown in Table 1 below for each rod size tested. The corresponding energy transfer ratio of the SPT hammer system is also shown.

Table 1: Average Energy Transfer Range for the Depth Intervals Tested

Rod Size	Range of Average Energy Transferred, Per Individual Sample (foot-pounds)	Range of Average Energy Transfer Ratio (ETR)
AW-J	308 to 316	88% to 90%
Mayhew, Jr.	294 to 309	84% to 88%
NW-J	306 to 309	87% to 88%

- The average at each depth interval was calculated as the transferred energy for each analyzed blow of the depth intervals divided by the total number of hammer blows analyzed. The overall average energy transfer of the SPT system (for all the depth intervals tested) is shown in Table 2 below for each rod size tested.

Table 2: Overall Energy Testing Results for Each Rod Size

Rod Size	Overall Average Energy Transferred (foot-pounds)	Range of Overall Average Energy Transfer Ratio (ETR)
AW-J	310.9	88.8%
Mayhew, Jr.	304.2	86.9%
NW-J	307.9	88.0%

Attachments: Page 4 – 5 Table 3 - Summary of SPT Energy Measurements – 2 Pages
Page 6 Work Instruction – DCN EXE 19 – 1 Page
Page 7 – 9 Record of SPT Energy Measurement – 3 Pages
Pages 10 – 42 PDIPLOT Output – 33 Pages

TABLE 3
SUMMARY OF SPT ENERGY MEASUREMENTS (ASTM D4633-05)
Exelon COL Project
Matagorda County, Texas
MACTEC Project No. 6468-07-1777

Hammer Serial No.	Rig Owner	Rig Operator	Boring No. Tested	Rod Size	Date Tested	Sample Depth (feet)	SPT Blow Count (blows per six inches)	No. of Blows Analyzed	Average Measured Energy (Average EFV) (ft-lbs)[a]	Energy Transfer Ratio (%)[b] (Average ETR)
MEC-11 (CME 75 Truck)	Environmental Exploration, Inc.	David Nalls	B-2251	AW-J	12/3/2007	83.5 - 85.0	8 - 11 - 12	31	308	88.0%
						88.5 - 90.0	23 - 35 - 50/0.5'	93	309	88.3%
						93.5 - 95.0	40 - 50/0.4'	97	309	88.3%
						98.5 - 100.0	45 - 50/0.5'	97	310	88.6%
						108.5 - 110.0	27 - 43 - 32	102	316	90.3%
							Average for AW-J Rods:		**310.9**	**88.8%**
			B-2171	Mayhew, Jr. (Large)	12/18/2007	38.5 - 40.0	33 - 27 - 33	93	305	87.1%
						43.5 - 45.0	11 - 14 - 19	44	302	86.3%
						63.5 - 65.0	5 - 8 - 10	23	304	86.9%
				Mayhew, Jr. (Small)		74.0 - 75.5	11 - 15 - 19	45	307	87.7%
						77.0 - 78.5	12 - 14 - 13	37	294	84.0%
						80.0 - 81.5	12 - 22 - 22	56	309	88.3%
							Average for Mayhew, Jr. Rods:		**304.2**	**86.9%**

TABLE 3
SUMMARY OF SPT ENERGY MEASUREMENTS (ASTM D4633-05)
Exelon COL Project
Matagorda County, Texas
MACTEC Project No. 6468-07-1777

Hammer Serial No.	Rig Owner	Rig Operator	Boring No. Tested	Rod Size	Date Tested	Sample Depth (feet)	SPT Blow Count (blows per six inches)	No. of Blows Analyzed	Average Measured Energy (Average EFV) (ft-lbs)[a]	Energy Transfer Ratio (%)[b] (Average ETR)
MEC-11 (CME 75 Truck)	Environmental Exploration, Inc.	David Nalls	B-2171 R	NW-J	12/20/2007	53.5 - 55.0	18 - 17 - 18	54	309	88.3%
						58.5 - 60.0	8 - 13 - 19	40	308	88.0%
						63.5 - 65.0	8 - 10 - 13	31	306	87.4%
							Average for NW-J Rods:		**307.9**	**88.0%**
							Average for Rig:		**308.1**	**88.0%**

[a]Measured Energy is energy based on the EFV method, as outlined in ASTM D4633-05, for each blow recorded by the PDA. In some cases, the initial and final one to two blows produced poor quality data, and were not used to calculate the Average Measured Energy.

EFV = EMX * 1000 lbs/kip, where EMX equals the maximum transferred energy measured by the PDA (see attached PDA data).

[b]Energy Transfer Ratio is the Measured Energy divided by the theoretical SPT energy of 350 foot-pounds (140 pound hammer falling 2.5 feet).

The average ETR values may differ slightly and insignificantly from those in the PDIPLOT tables due to roundoff.

Prepared By: STEVE KISER	Date: 3-14-08	Checked By: KAW 3/14/08	Date: 3/14/08

Work Instruction No. 19
Exelon COL Project
MACTEC Engineering and Consulting, Inc.
MACTEC Project 6468-07-1777

Issued To: Stephen E. Kiser, Kyle B. Miller **Rev. No.** 0
Issued By: Kathryn A. White **Date:** 8-19-07
Valid From: 8-19-07 **To:** 8-19-08

Task Description: Perform SPT Hammer Energy Measurements

Applicable Technical Procedures or Plans, or other reference: Geotechnical Work Plan (current revision), Bechtel Engineering Specification 25352-102-3PS-CY00-00001, Rev 000, and ASTM D 4633-05. Copies of the Work Plan and Bechtel Engineering Specification are provided in the Site Office. A copy of ASTM procedure are attached.

Specific Instructions (note attachments where necessary): Energy measurement will be performed in accordance with ASTM D 4633-05 at borings and depths selected by Bechtel. For drill rigs using both AW and NW drill rods, energy measurements must be made for both rod types as indicated in assignment sheet provided by Site Coordinator prior to start of work. Prepare and submit an energy measurement report containing information described in Section 8 of ASTM D 4633-05.

Special Instructions (note attachments where necessary): If changed conditions are encountered contact Project Manager and Project Principal Engineer immediately.

Report Format: Standard MACTEC forms provided by Project Manager and Project Principal Engineer.

Specific Quality Assurance Procedures Applicable: MACTEC QA Manual, QAPD, HASP and QAP-25-1; current revisions apply.

Hold Points or Witness Points:

- Calibration information is submitted to Bechtel
- Deviations from QAPD/HASP/Work Plan

Records: All records generated shall be considered QA Records.

Reviewed and Approved by: (Note: Only one signature is required for issuance)
Project Manager: _____ Date: _____
Project Principal Engineer: _____ Date: _____
Site Manager/Coordinator: _____ Date: 8-20-07

Pages: 8 **DCN:** EXE

1/8

MACTEC

2801 YORKMONT ROAD, SUITE 100 □ CHARLOTTE, NC 28208
Telephone: (704) 357-8600 / Facsimile: (704) 357-8638

RECORD OF SPT ENERGY MEASUREMENT

GENERAL INFORMATION		DRILL RIG DATA	
PROJECT:	Exelon 2 (Victoria) COL Site	MAKE:	CME
LOCATION:	Victoria, Texas	MODEL:	75
PROJECT NO.:	6468-07-1777	SERIAL NO.:	MEC-11
DATE:	12/3/07	HAMMER TYPE:	Auto
WEATHER:	~60°F P. Cloudy	ROPE CONDITION:	N/A
INSPECTOR:	Kyle Miller	ROD SIZE:	AW-J
DRILLING COMPANY:	Environmental Exploration, Inc.	NO. OF SHEAVES:	N/A

BORING DATA			
BORING NUMBER:	B-2251		
DEPTH DRILLED:	~~83.5~~ 83.5' to 110'		
TIME DRIVEN:	10:50 AM to 11:50 AM		
RIG OPERATOR:	D. Nalls		
HAMMER OPERATOR:	N/A		
PDA PAK SERIAL NO.:	3622L		
INSTR. ROD AREA:	1.19 in²		
ACCEL. SERIAL NOS.:	K990; K983		
STRAIN SERIAL NOS.:	75AW-1; 75AW-2		

SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)	SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)	SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)
no data obtained KBM 12/3/07 → ~~78.5~~											
83.5	8-11-12										
~~88.5~~ KBM 12/3/07 →											
88.5	23-35-50/0.5										
93.5	40-50/0.4										
98.5	45-50/0.5										
103.5	27-43-32										

No data for approx. first 20 blows (Trigger) KBM 12/3/07

REMARKS: NONE

MACTEC
2801 YORKMONT ROAD, SUITE 100 □ CHARLOTTE, NC 28208
Telephone: (704) 357-8600 / Facsimile: (704) 357-8638

RECORD OF SPT ENERGY MEASUREMENT

GENERAL INFORMATION		DRILL RIG DATA	
PROJECT:	Exelon 2 (Victoria) COL Site	MAKE:	CME
LOCATION:	Victoria, Texas	MODEL:	75 TRUCK
PROJECT NO.:	6468-07-1777	SERIAL NO.:	MEC-11
DATE:	12-18-07	HAMMER TYPE:	AUTOMATIC
WEATHER:	PARTLY CLOUDY 72°	ROPE CONDITION:	N/A
INSPECTOR:	~~Kyle Miller~~ STEVE KISER	ROD SIZE:	N - MAYHEW JR. (NW-J THREADS)
DRILLING COMPANY:	ENV. EXPLORATION INC.	NO. OF SHEAVES:	N/A

BORING DATA			
BORING NUMBER:	B-2171		
DEPTH DRILLED:	300' PLANNED		
TIME DRIVEN:	VARIOUS		
RIG OPERATOR:	D. NALLS		
HAMMER OPERATOR:	N/A		
PDA PAK SERIAL NO.:	3622L		
INSTR. ROD AREA:	1.49 in^2		
ACCEL. SERIAL NOS.:	PS933 PS992		
STRAIN SERIAL NOS.:	146 NW #112		

SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)	SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)	SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)
38.5/40'	33-27-33										
43.5/45	11-14-19										
63.5/65	5-8-10										
SAL 73/74.5											
74/75.5	11-15-19										
77/78.5	12-14-13										
80/81.5	12-22-22										

REMARKS: SAMPLES TESTED AT 40', 45', AND 65' WERE WITH LARGER O.D. ROD.

SAMPLES AT 75.5', 78.5', AND 81.5' WERE WITH SMALLER O.D. MAYHEW RODS

MACTEC

2801 YORKMONT ROAD, SUITE 100 □ CHARLOTTE, NC 28208
Telephone: (704) 357-8600 / Facsimile: (704) 357-8638

RECORD OF SPT ENERGY MEASUREMENT

GENERAL INFORMATION		DRILL RIG DATA	
PROJECT:	Exelon 2 (Victoria) COL Site	MAKE:	CME
LOCATION:	Victoria, Texas	MODEL:	75 TRUCK
PROJECT NO.:	6468-07-1777	SERIAL NO.:	MEC-11
DATE:	12-20-07	HAMMER TYPE:	AUTOMATIC
WEATHER:	SUNNY 60°	ROPE CONDITION:	N/A
INSPECTOR:	~~Kyle Miller~~ STEVE KISER	ROD SIZE:	NW-J
DRILLING COMPANY:	ENV. EXPLORATION, INC.	NO. OF SHEAVES:	N/A

BORING DATA			
BORING NUMBER:	B-2171 OFFSET		
DEPTH DRILLED:	300' PLANNED		
TIME DRIVEN:	VARIOUS		
RIG OPERATOR:	NALLS		
HAMMER OPERATOR:	N/A		
PDA PAK SERIAL NO.:	3622L		
INSTR. ROD AREA:	1.49 in^2		
ACCEL. SERIAL NOS.:	P5953 P5992		
STRAIN SERIAL NOS.:	146 NW #1/2		

SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)	SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)	SAMPLE DEPTH (feet)	SPT N-VALUE (bpf)	DEPTH cont. (feet)	SPT N-VALUE (bpf)
53.5/55'	18-17-18										
58.5/60'	8-13-19										
63.5/65'	8-10-13										

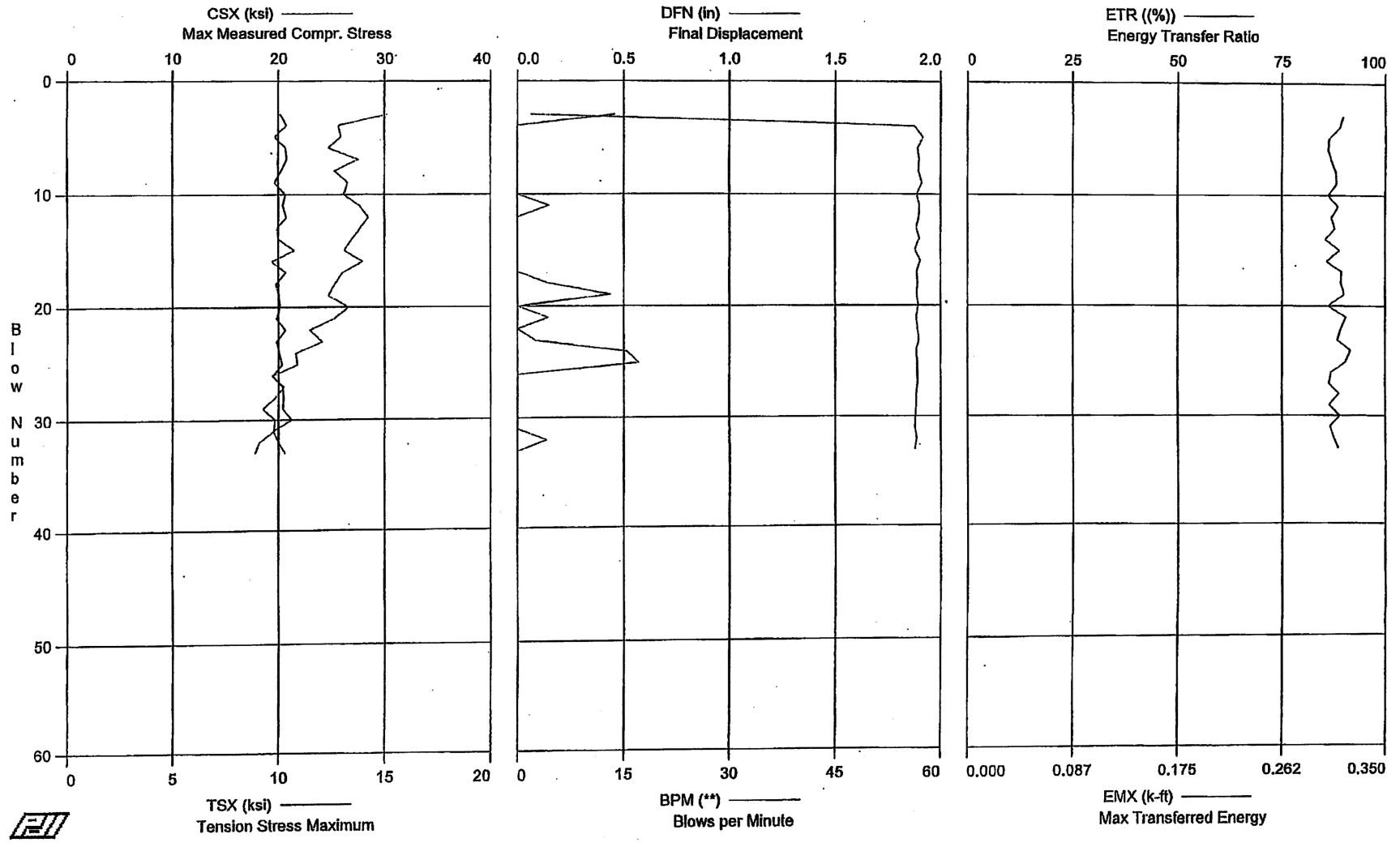
REMARKS: TRADITIONAL NW-J RODS.

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 10-Mar-2008

Test date: 3-Dec-2007

EXCELON VICTORIA COL SITE - BORING B-2251; 83.5' - 85' SAMPLE



EXCELON VICTORIA COL SITE - BORING B-2251; 83.5' - 85' SAMPLE
OP: KBM

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 3-Dec-2007

AR: 1.19 in^2
LE: 90.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality

FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
3	0.00	20.18	15.08	0.46	1.9	0.60	24	0.241	90	0.314
4	0.00	20.76	12.82	-0.11	56.2	0.61	25	0.238	89	0.311
5	0.00	19.66	12.94	-0.65	57.5	0.62	23	0.237	86	0.302
6	0.00	20.66	12.35	-0.63	56.7	0.61	25	0.243	86	0.301
7	0.00	20.80	13.75	-0.74	56.9	0.61	25	0.249	87	0.304
8	0.00	20.25	12.63	-0.36	56.8	0.60	24	0.239	88	0.308
9	0.00	19.64	13.27	-0.02	57.3	0.60	23	0.242	88	0.308
10	0.00	20.65	13.07	-0.09	56.6	0.63	25	0.243	86	0.301
11	0.00	20.40	13.82	0.15	57.0	0.65	24	0.244	88	0.310
12	0.00	20.74	14.22	-0.77	56.9	0.57	25	0.242	87	0.304
13	0.00	19.85	13.83	-0.31	56.5	0.59	24	0.244	88	0.307
14	0.00	20.00	13.46	-0.59	57.0	0.63	24	0.232	85	0.299
15	0.00	21.48	13.09	-0.05	56.3	0.64	26	0.251	89	0.311
16	0.00	19.39	13.96	-0.86	57.1	0.56	23	0.235	86	0.300
17	0.00	20.71	13.02	-0.02	56.6	0.63	25	0.240	89	0.313
18	0.00	19.78	12.67	0.14	56.7	0.58	24	0.234	89	0.312
19	0.00	20.02	12.35	0.44	56.6	0.63	24	0.237	90	0.315
20	0.00	20.15	13.30	-0.43	56.8	0.58	24	0.240	86	0.301
21	0.00	19.80	12.63	0.14	56.5	0.57	24	0.242	90	0.316
22	0.00	20.65	11.47	0.00	56.7	0.62	25	0.241	89	0.312
23	0.00	19.80	12.06	0.09	56.9	0.59	24	0.237	88	0.309
24	0.00	20.09	10.80	0.52	56.5	0.57	24	0.243	91	0.320
25	0.00	20.34	10.88	0.57	56.7	0.59	24	0.241	90	0.316
26	0.00	19.42	9.68	-0.01	56.7	0.57	23	0.236	87	0.304
27	0.00	20.37	10.24	-0.39	56.7	0.64	24	0.232	86	0.302
28	0.00	20.45	9.84	-0.13	56.5	0.60	24	0.240	89	0.311
29	0.00	20.39	9.25	-0.37	56.5	0.55	24	0.242	86	0.302
30	0.00	21.23	9.82	-0.16	56.4	0.58	25	0.243	89	0.311
31	0.00	19.50	9.79	-0.56	56.3	0.57	23	0.241	86	0.303
32	0.00	20.01	9.10	0.14	56.6	0.59	24	0.241	87	0.306
33	0.00	20.61	8.90	-0.24	56.3	0.64	25	0.242	88	0.310
	Average	20.25	12.07	-0.16	54.9	0.60	24	0.240	88	0.308

Total number of blows analyzed: 31

Time Summary

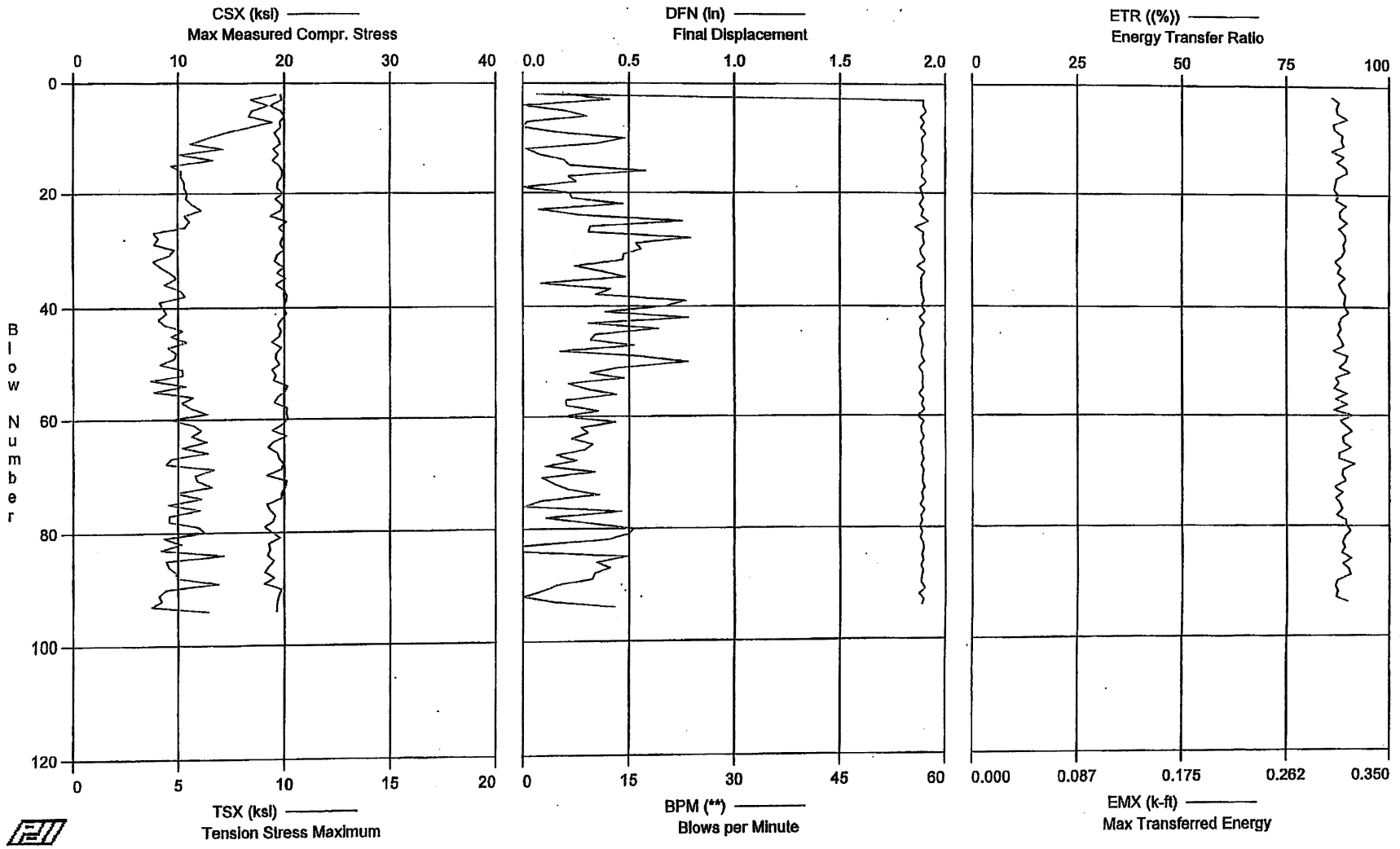
Drive 8 minutes 59 seconds 10:44:01 AM - 10:53:00 AM (12/3/2007) BN 1 - 33

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 10-Mar-2008

Test date: 3-Dec-2007

EXCELON VICTORIA COL SITE - BORING B-2251; 88.5' - 90' SAMPLE



EXCELON VICTORIA COL SITE - BORING B-2251; 88.5' - 90' SAMPLE
OP: KBM

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 3-Dec-2007

AR: 1.19 in^2
LE: 95.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality

FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
2	0.00	19.65	9.64	0.21	1.9	0.58	23	0.225	86	0.301
3	0.00	19.78	8.43	0.41	56.9	0.59	24	0.222	88	0.307
4	0.00	18.72	9.23	-0.58	56.8	0.53	22	0.222	87	0.305
5	0.00	19.71	8.50	0.20	57.3	0.49	23	0.223	87	0.306
6	0.00	20.03	8.32	0.30	56.5	0.47	24	0.224	90	0.314
7	0.00	19.60	9.47	0.02	57.0	0.50	23	0.217	86	0.302
8	0.00	19.68	8.40	-0.01	56.5	0.56	23	0.220	87	0.303
9	0.00	19.09	7.20	0.18	57.2	0.55	23	0.223	89	0.310
10	0.00	19.49	6.36	0.48	56.6	0.52	23	0.222	88	0.309
11	0.00	19.68	5.56	0.35	56.8	0.51	23	0.220	89	0.311
12	0.00	18.99	7.11	0.02	56.8	0.52	23	0.215	86	0.301
13	0.00	19.48	5.06	0.08	56.6	0.56	23	0.220	89	0.311
14	0.00	18.95	6.65	0.19	57.3	0.55	23	0.211	87	0.305
15	0.00	19.60	4.67	0.22	56.6	0.50	23	0.221	89	0.313
16	0.00	19.86	5.15	0.58	56.8	0.56	24	0.222	90	0.314
17	0.00	19.82	5.12	0.21	56.6	0.57	24	0.218	87	0.305
18	0.00	19.44	5.29	0.25	57.3	0.56	23	0.218	87	0.304
19	0.00	19.36	5.28	-0.07	56.4	0.52	23	0.215	87	0.303
20	0.00	19.96	5.44	0.22	56.7	0.59	24	0.218	88	0.307
21	0.00	19.20	5.38	0.23	56.9	0.52	23	0.214	87	0.305
22	0.00	19.87	5.66	0.47	56.3	0.53	24	0.222	90	0.313
23	0.00	19.79	6.12	0.08	56.9	0.61	24	0.218	88	0.308
24	0.00	18.74	5.32	0.27	56.6	0.54	22	0.221	88	0.308
25	0.00	20.30	5.54	0.75	57.6	0.61	24	0.220	90	0.314
26	0.00	19.56	5.34	0.32	55.7	0.57	23	0.218	88	0.307
27	0.00	20.02	3.84	0.31	56.9	0.60	24	0.222	89	0.312
28	0.00	19.86	4.06	0.80	56.8	0.61	24	0.220	89	0.313
29	0.00	19.67	3.86	0.53	57.0	0.57	23	0.217	89	0.311
30	0.00	20.04	4.82	0.56	56.4	0.59	24	0.223	89	0.312
31	0.00	19.36	4.58	0.48	56.6	0.56	23	0.217	88	0.310
32	0.00	19.14	3.81	0.47	57.2	0.56	23	0.215	87	0.304
33	0.00	19.97	4.17	0.24	56.0	0.57	24	0.221	88	0.309
34	0.00	19.34	4.61	0.38	57.1	0.56	23	0.217	87	0.306
35	0.00	20.17	4.91	0.48	56.6	0.60	24	0.219	89	0.312
36	0.00	19.21	4.35	0.09	56.6	0.54	23	0.220	88	0.307
37	0.00	20.05	5.13	0.41	56.6	0.59	24	0.215	88	0.309
38	0.00	20.25	5.31	0.34	56.7	0.59	24	0.223	89	0.313
39	0.00	20.14	4.10	0.77	57.0	0.60	24	0.219	89	0.312
40	0.00	19.94	4.26	0.67	56.6	0.57	24	0.218	89	0.312
41	0.00	20.24	4.43	0.39	57.1	0.48	24	0.221	90	0.315
42	0.00	19.77	4.04	0.78	56.3	0.52	24	0.216	88	0.309
43	0.00	19.40	4.34	0.31	57.0	0.50	23	0.214	88	0.307
44	0.00	19.70	5.21	0.64	56.4	0.53	23	0.213	88	0.309
45	0.00	19.54	4.66	0.34	56.4	0.57	23	0.218	87	0.306
46	0.00	18.82	5.41	0.32	56.6	0.55	22	0.215	88	0.309
47	0.00	19.76	4.50	0.52	56.8	0.57	24	0.218	89	0.311
48	0.00	19.27	4.89	0.18	56.6	0.53	23	0.218	86	0.302
49	0.00	19.20	4.80	0.55	56.6	0.52	23	0.218	90	0.314
50	0.00	19.58	4.12	0.78	57.0	0.51	23	0.219	89	0.313
51	0.00	18.86	5.21	0.46	56.2	0.54	22	0.217	88	0.307
52	0.00	19.23	5.22	0.31	56.7	0.54	23	0.221	90	0.316
53	0.00	18.98	3.68	0.48	56.8	0.53	23	0.213	87	0.304
54	0.00	20.29	5.38	0.21	56.7	0.58	24	0.215	88	0.307
55	0.00	20.11	3.83	0.30	56.8	0.61	24	0.216	86	0.303
56	0.00	19.42	5.69	0.44	56.2	0.51	23	0.221	90	0.314
57	0.00	19.06	5.16	0.20	56.9	0.52	23	0.214	87	0.304
58	0.00	20.31	5.61	0.20	56.6	0.60	24	0.221	90	0.314
59	0.00	20.20	6.38	0.36	57.0	0.60	24	0.217	86	0.303
60	0.00	20.38	4.58	0.19	56.0	0.47	24	0.225	91	0.319
61	0.00	19.75	5.74	0.44	56.9	0.53	24	0.216	88	0.308
62	0.00	18.89	6.08	0.27	56.5	0.49	22	0.219	89	0.313
63	0.00	20.24	5.62	0.31	56.6	0.49	24	0.225	91	0.318
64	0.00	19.03	6.37	0.23	56.9	0.54	23	0.220	89	0.310
65	0.00	18.47	5.17	0.33	56.4	0.53	22	0.217	89	0.311
66	0.00	19.35	6.42	0.29	56.7	0.54	23	0.222	91	0.317

EXCELON VICTORIA COL SITE - BORING B-2251; 88.5' - 90' SAMPLE
HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
OP: KBM
Test date: 3-Dec-2007

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
67	0.00	19.54	4.67	0.16	56.6	0.51	23	0.217	88	0.307
68	0.00	19.94	4.41	0.25	56.9	0.59	24	0.219	88	0.307
69	0.00	19.74	6.71	0.10	56.5	0.48	23	0.222	91	0.320
70	0.00	18.28	5.78	0.34	56.9	0.53	22	0.214	89	0.310
71	0.00	20.23	5.90	0.09	56.7	0.60	24	0.225	88	0.310
72	0.00	20.16	6.59	0.14	56.7	0.58	24	0.223	89	0.313
73	0.00	19.78	4.90	0.21	57.0	0.60	24	0.216	86	0.303
74	0.00	19.76	6.10	0.36	56.6	0.50	24	0.218	89	0.310
75	0.00	18.39	4.51	0.09	56.8	0.54	22	0.216	87	0.304
76	0.00	18.63	6.03	-0.02	56.4	0.53	22	0.218	88	0.308
77	0.00	19.17	4.60	0.46	57.0	0.57	23	0.215	89	0.310
78	0.00	18.99	4.58	0.11	56.5	0.51	23	0.218	87	0.305
79	0.00	18.16	5.97	0.30	56.7	0.51	22	0.216	89	0.313
80	0.00	18.87	6.28	0.52	56.3	0.55	22	0.220	89	0.313
81	0.00	19.67	4.31	0.50	56.7	0.50	23	0.222	90	0.317
82	0.00	18.52	5.17	0.41	56.4	0.49	22	0.221	89	0.312
83	0.00	18.69	4.20	0.00	56.8	0.52	22	0.221	89	0.310
84	0.00	18.43	7.16	-0.10	56.9	0.49	22	0.217	89	0.312
85	0.00	19.05	4.44	0.50	56.6	0.57	23	0.216	88	0.309
86	0.00	18.57	4.57	0.35	56.8	0.45	22	0.218	91	0.317
87	0.00	18.19	4.89	0.41	56.5	0.53	22	0.217	89	0.310
88	0.00	19.08	4.96	0.34	56.8	0.48	23	0.221	90	0.315
89	0.00	18.15	6.93	0.33	56.6	0.49	22	0.220	90	0.317
90	0.00	19.73	4.41	0.16	56.5	0.60	23	0.217	87	0.306
91	0.00	19.56	4.08	0.09	57.1	0.56	23	0.218	87	0.304
92	0.00	19.42	4.22	-0.10	56.2	0.57	23	0.218	88	0.306
93	0.00	19.31	3.74	0.15	56.9	0.56	23	0.215	87	0.304
94	0.00	19.32	6.46	0.44	56.6	0.49	23	0.218	90	0.314
	Average	19.45	5.43	0.30	56.1	0.54	23	0.219	88	0.309

Total number of blows analyzed: 93

Time Summary

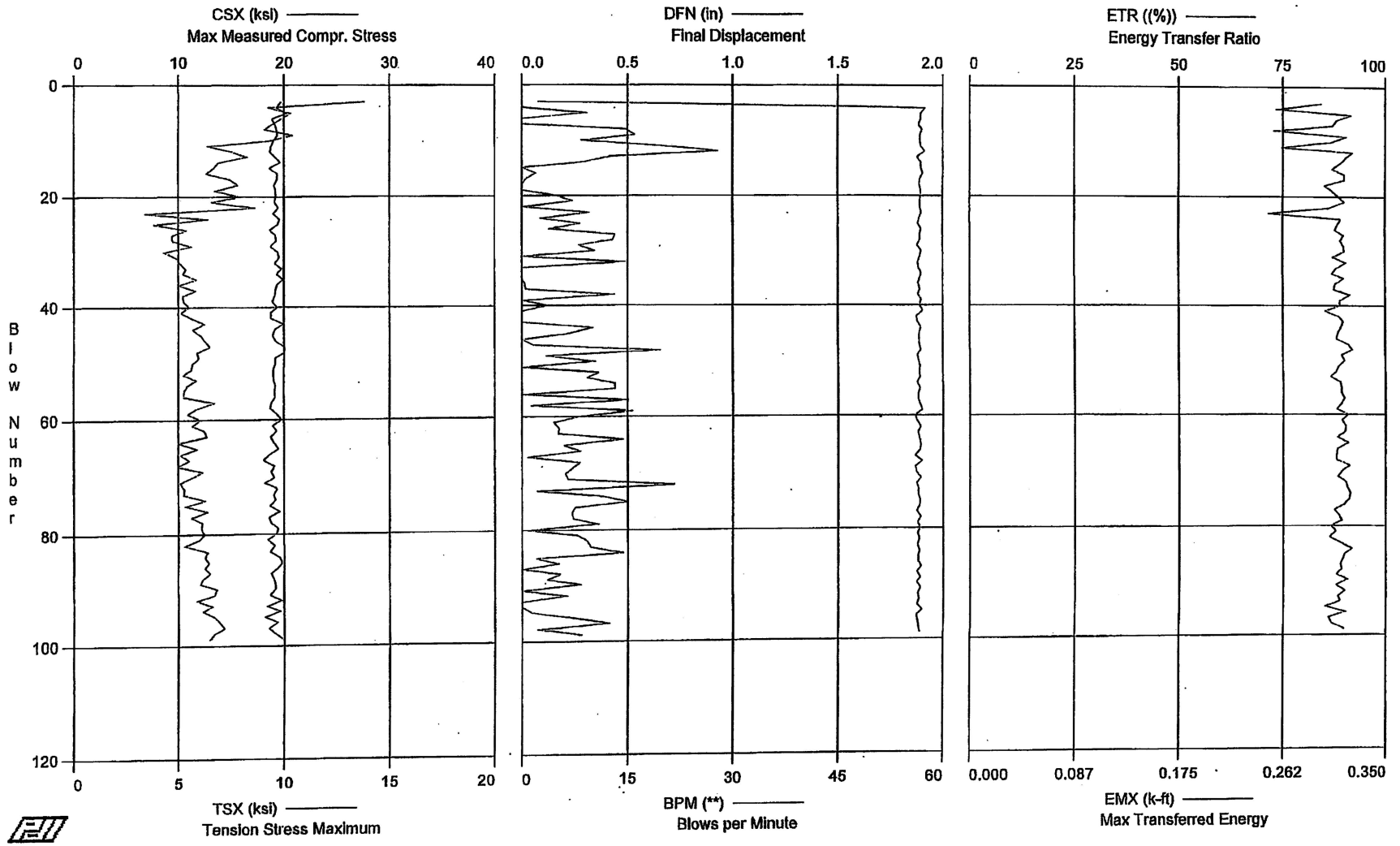
Drive 8 minutes 4 seconds 10:58:06 AM - 11:06:10 AM (12/3/2007) BN 1 - 94

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 10-Mar-2008

Test date: 3-Dec-2007

EXCELON VICTORIA COL SITE - BORING B-2251; 93.5' - 95' SAMPLE



EXCELON VICTORIA COL SITE - BORING B-2251; 93.5' - 95' SAMPLE
HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
OP: KBM
Test date: 3-Dec-2007

AR: 1.19 in^2
LE: 100.00 ft
WS: 16,807.9 f/s
SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality
FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
3	0.00	19.73	13.80	-0.68	2.2	0.60	23	0.226	84	0.295
4	0.00	19.32	9.25	-0.26	57.5	0.67	23	0.230	74	0.257
5	0.00	20.30	10.30	0.31	56.8	0.50	24	0.232	92	0.321
6	0.00	18.86	9.90	-0.14	56.8	0.55	22	0.228	88	0.308
7	0.00	19.12	9.47	-0.01	56.5	0.56	23	0.227	87	0.305
8	0.00	19.30	9.08	0.49	57.0	0.74	23	0.232	73	0.255
9	0.00	19.39	10.39	0.53	56.7	0.52	23	0.226	90	0.317
10	0.00	19.00	9.33	0.28	56.7	0.56	23	0.220	87	0.304
11	0.00	18.79	6.37	0.67	56.8	0.57	22	0.228	75	0.261
12	0.00	18.64	7.51	0.93	57.4	0.55	22	0.224	92	0.322
13	0.00	19.16	8.25	0.42	56.3	0.51	23	0.222	90	0.316
14	0.00	19.66	6.91	0.30	56.8	0.50	23	0.222	89	0.311
15	0.00	18.59	6.66	-0.49	56.8	0.54	22	0.227	87	0.304
16	0.00	19.38	6.32	0.07	57.1	0.51	23	0.228	90	0.315
17	0.00	19.35	7.44	0.02	56.7	0.58	23	0.224	90	0.315
18	0.00	19.04	7.85	-0.66	56.6	0.56	23	0.220	85	0.298
19	0.00	19.20	6.72	-0.14	56.8	0.56	23	0.219	87	0.305
20	0.00	19.24	7.94	0.17	56.8	0.57	23	0.221	89	0.310
21	0.00	19.08	6.58	0.24	56.7	0.55	23	0.223	90	0.315
22	0.00	19.49	8.62	-0.46	56.7	0.53	23	0.224	86	0.302
23	0.00	18.94	3.41	0.32	56.9	0.69	23	0.224	72	0.251
24	0.00	19.60	6.39	0.09	56.6	0.59	23	0.221	89	0.312
25	0.00	19.41	3.83	0.27	56.4	0.53	23	0.220	88	0.309
26	0.00	18.65	5.37	0.13	56.9	0.55	22	0.218	88	0.307
27	0.00	19.21	4.68	0.44	56.7	0.55	23	0.220	90	0.314
28	0.00	19.24	4.70	0.43	56.7	0.53	23	0.216	89	0.311
29	0.00	18.68	5.61	0.27	56.3	0.55	22	0.223	90	0.314
30	0.00	19.42	4.29	0.35	56.9	0.57	23	0.221	90	0.315
31	0.00	19.55	4.88	-0.21	56.7	0.52	23	0.219	87	0.305
32	0.00	19.10	5.08	0.49	56.4	0.54	23	0.218	90	0.316
33	0.00	19.80	5.35	-0.38	56.5	0.61	24	0.225	88	0.308
34	0.00	19.29	5.22	-0.08	56.9	0.57	23	0.219	87	0.304
35	0.00	19.94	5.87	-0.20	56.7	0.50	24	0.225	90	0.314
36	0.00	19.32	4.99	0.01	56.4	0.55	23	0.219	88	0.307
37	0.00	19.19	5.81	0.02	56.7	0.54	23	0.219	87	0.306
38	0.00	19.09	5.20	0.44	56.4	0.54	23	0.222	91	0.320
39	0.00	18.88	5.26	-0.09	56.9	0.56	22	0.222	89	0.311
40	0.00	19.38	5.51	0.12	56.6	0.53	23	0.222	89	0.311
41	0.00	18.74	5.12	-0.56	57.1	0.56	22	0.219	85	0.298
42	0.00	18.77	5.63	-0.23	56.2	0.53	22	0.219	89	0.310
43	0.00	19.95	6.24	-0.06	56.3	0.47	24	0.227	90	0.314
44	0.00	19.14	5.68	0.34	56.8	0.50	23	0.217	89	0.312
45	0.00	18.90	6.05	0.22	56.6	0.46	22	0.215	88	0.309
46	0.00	19.23	6.28	-0.26	56.6	0.53	23	0.222	88	0.308
47	0.00	20.07	6.49	0.06	56.6	0.49	24	0.223	91	0.318
48	0.00	20.02	5.88	0.66	56.8	0.50	24	0.224	92	0.322
49	0.00	19.17	5.95	0.11	56.3	0.57	23	0.222	89	0.312
50	0.00	19.19	5.67	0.35	56.5	0.56	23	0.218	90	0.315
51	0.00	18.98	5.62	-0.17	56.7	0.50	23	0.218	89	0.310
52	0.00	18.97	5.22	0.36	56.6	0.53	23	0.217	88	0.308
53	0.00	19.03	5.85	0.31	56.7	0.56	23	0.217	87	0.303
54	0.00	19.19	5.41	0.44	56.3	0.52	23	0.216	89	0.311
55	0.00	19.10	5.26	0.44	56.7	0.51	23	0.219	89	0.312
56	0.00	19.17	5.27	-0.16	56.5	0.58	23	0.223	89	0.312
57	0.00	18.80	6.72	0.51	56.4	0.58	22	0.220	90	0.315
58	0.00	18.68	5.92	0.05	56.7	0.45	22	0.222	89	0.312
59	0.00	19.34	5.45	0.52	57.0	0.59	23	0.216	88	0.308
60	0.00	19.82	6.05	0.27	56.0	0.48	24	0.222	91	0.318
61	0.00	18.93	5.67	0.15	56.3	0.54	23	0.220	89	0.312
62	0.00	19.37	6.26	0.17	56.8	0.58	23	0.224	90	0.316
63	0.00	18.74	6.35	0.17	56.4	0.52	22	0.220	90	0.316
64	0.00	19.05	4.97	0.48	56.6	0.56	23	0.215	88	0.309
65	0.00	19.50	5.88	0.20	56.8	0.59	23	0.228	91	0.318
66	0.00	18.60	5.09	0.28	56.7	0.55	22	0.219	88	0.309
67	0.00	18.06	5.52	0.03	56.0	0.53	21	0.217	88	0.308

EXCELON VICTORIA COL SITE - BORING B-2251; 93.5' - 95' SAMPLE
HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
OP: KBM
Test date: 3-Dec-2007

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
68	0.00	19.13	4.97	0.28	57.0	0.52	23	0.216	88	0.308
69	0.00	18.76	6.17	0.24	56.0	0.53	22	0.224	91	0.319
70	0.00	19.11	5.59	0.21	56.2	0.58	23	0.222	89	0.313
71	0.00	18.20	5.07	0.22	56.8	0.53	22	0.216	88	0.309
72	0.00	19.43	5.29	0.72	56.2	0.56	23	0.216	90	0.316
73	0.00	19.03	5.26	0.07	56.5	0.54	23	0.224	91	0.317
74	0.00	19.22	6.27	0.37	56.4	0.51	23	0.221	91	0.320
75	0.00	18.65	5.33	0.50	56.7	0.54	22	0.219	91	0.319
76	0.00	19.61	6.41	0.25	56.6	0.46	23	0.219	90	0.315
77	0.00	18.57	5.61	0.24	56.2	0.55	22	0.214	87	0.306
78	0.00	18.77	6.13	0.24	56.8	0.53	22	0.215	89	0.310
79	0.00	19.49	6.07	0.36	56.3	0.44	23	0.219	89	0.312
80	0.00	19.28	6.26	0.02	56.7	0.51	23	0.215	87	0.303
81	0.00	18.44	5.97	0.26	56.3	0.53	22	0.216	88	0.307
82	0.00	19.16	5.29	0.31	56.6	0.50	23	0.211	86	0.302
83	0.00	18.67	6.39	0.33	56.3	0.55	22	0.214	89	0.311
84	0.00	19.60	6.25	0.48	56.6	0.47	23	0.219	92	0.321
85	0.00	19.83	6.45	0.07	56.4	0.50	24	0.223	90	0.315
86	0.00	19.44	6.25	0.18	56.4	0.59	23	0.220	90	0.313
87	0.00	18.77	6.51	-0.06	56.8	0.56	22	0.219	89	0.311
88	0.00	19.02	6.17	0.18	56.2	0.52	23	0.219	89	0.312
89	0.00	19.20	6.03	0.12	56.7	0.50	23	0.218	88	0.308
90	0.00	19.19	6.83	0.28	56.2	0.51	23	0.218	91	0.317
91	0.00	18.67	6.71	-0.03	56.7	0.56	22	0.219	88	0.307
92	0.00	19.76	5.87	0.21	56.3	0.49	24	0.221	90	0.315
93	0.00	18.39	6.61	0.00	56.5	0.55	22	0.215	88	0.309
94	0.00	19.68	6.16	-0.09	56.2	0.45	23	0.222	89	0.311
95	0.00	18.19	6.72	0.05	56.9	0.54	22	0.212	85	0.298
96	0.00	19.42	6.96	0.23	56.1	0.46	23	0.219	90	0.316
97	0.00	18.55	7.17	0.42	56.3	0.55	22	0.213	86	0.301
98	0.00	19.17	6.72	0.07	56.4	0.49	23	0.211	87	0.303
99	0.00	19.95	6.47	0.28	56.6	0.46	24	0.217	90	0.314
Average		19.16	6.30	0.16	56.0	0.54	23	0.220	88	0.309

Total number of blows analyzed: 97

Time Summary

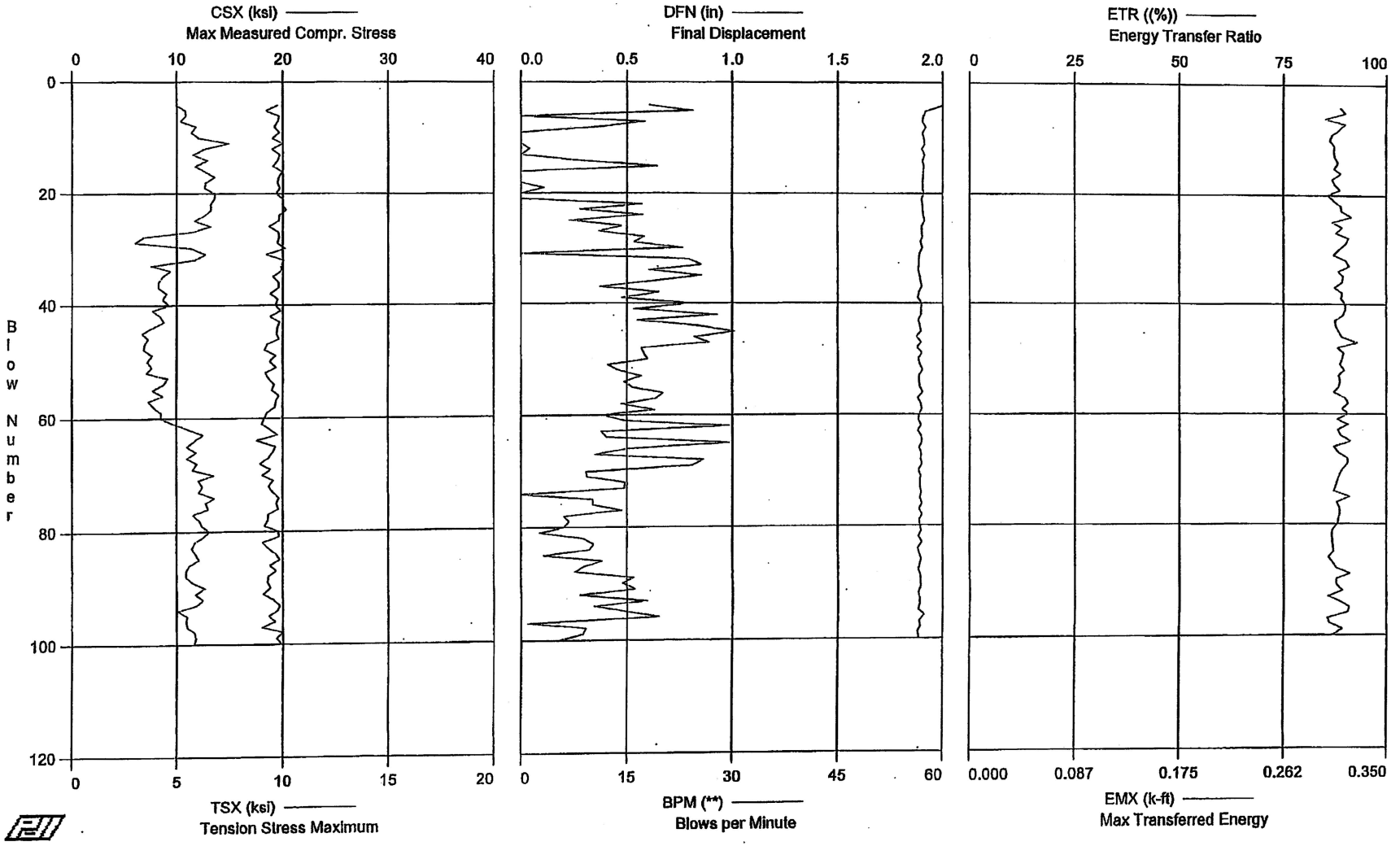
Drive 1 minute 42 seconds 11:18:54 AM - 11:20:36 AM (12/3/2007) BN 3 - 99

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 10-Mar-2008

Test date: 3-Dec-2007

EXCELON VICTORIA COL SITE - BORING B-2251; 98.5' - 100' SAMPLE



EXCELON VICTORIA COL SITE - BORING B-2251; 98.5' - 100' SAMPLE
OP: KBM

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 3-Dec-2007

AR: 1.19 in^2
LE: 106.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality

FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth	CSX	TSX	DFN	BPM	FVP	FMX	EF2	ETR	EMX
	ft	ksi	ksi	in	**	[]	kips	k-ft	(%)	k-ft
4	0.00	19.53	4.95	0.61	61.0	0.60	23	0.225	89	0.311
5	0.00	18.44	5.39	0.81	57.6	0.56	22	0.218	90	0.315
6	0.00	19.67	5.41	-0.06	57.2	0.54	23	0.220	85	0.298
7	0.00	19.54	5.15	0.59	57.1	0.54	23	0.222	90	0.315
8	0.00	19.20	5.92	0.38	57.6	0.57	23	0.223	89	0.310
9	0.00	19.70	5.67	-0.27	57.1	0.59	23	0.224	87	0.304
10	0.00	19.05	6.05	-0.81	57.3	0.57	23	0.225	86	0.302
11	0.00	19.99	7.44	-0.03	57.4	0.54	24	0.220	87	0.306
12	0.00	19.00	6.30	0.04	57.0	0.56	23	0.220	87	0.305
13	0.00	19.74	5.76	-0.39	57.4	0.55	23	0.226	87	0.306
14	0.00	19.53	6.45	0.26	57.1	0.54	23	0.223	88	0.309
15	0.00	19.09	5.85	0.64	57.3	0.53	23	0.217	87	0.306
16	0.00	19.96	6.33	-0.01	57.2	0.55	24	0.222	89	0.311
17	0.00	19.64	6.78	-0.19	57.2	0.62	23	0.223	87	0.304
18	0.00	19.51	6.36	-0.11	57.1	0.59	23	0.221	88	0.306
19	0.00	19.73	6.31	0.11	57.1	0.65	23	0.223	89	0.310
20	0.00	19.39	6.81	-0.06	57.3	0.59	23	0.217	86	0.300
21	0.00	20.02	6.76	-0.05	57.0	0.54	24	0.224	87	0.305
22	0.00	19.95	6.60	0.57	57.1	0.63	24	0.220	89	0.311
23	0.00	20.34	6.62	0.28	57.1	0.52	24	0.224	89	0.312
24	0.00	19.66	6.32	0.58	57.2	0.51	23	0.223	91	0.320
25	0.00	19.63	5.84	0.23	57.4	0.54	23	0.219	87	0.304
26	0.00	18.73	6.60	0.48	57.0	0.57	22	0.220	89	0.312
27	0.00	19.60	5.75	0.37	57.0	0.51	23	0.218	88	0.307
28	0.00	19.69	3.42	0.58	57.1	0.60	23	0.226	91	0.318
29	0.00	19.48	3.01	0.54	56.8	0.56	23	0.221	90	0.315
30	0.00	20.24	5.69	0.77	57.1	0.53	24	0.220	88	0.310
31	0.00	18.41	6.36	-0.46	56.7	0.55	22	0.220	87	0.305
32	0.00	20.07	5.83	0.79	56.6	0.51	24	0.222	90	0.315
33	0.00	19.87	3.76	0.85	56.6	0.63	24	0.221	91	0.318
34	0.00	19.85	4.68	0.60	56.5	0.49	24	0.219	88	0.309
35	0.00	19.11	4.31	0.86	56.7	0.59	23	0.222	90	0.313
36	0.00	19.60	4.13	0.62	56.8	0.60	23	0.218	89	0.312
37	0.00	19.60	4.12	0.37	57.0	0.52	23	0.218	87	0.306
38	0.00	18.84	4.52	0.65	56.6	0.57	22	0.216	89	0.312
39	0.00	19.54	4.31	0.47	56.4	0.60	23	0.218	89	0.311
40	0.00	19.30	4.61	0.80	57.0	0.61	23	0.221	90	0.315
41	0.00	19.82	3.84	0.53	56.9	0.64	24	0.218	90	0.315
42	0.00	18.78	4.19	0.93	56.9	0.53	22	0.213	89	0.313
43	0.00	19.72	4.39	0.55	56.5	0.64	23	0.218	87	0.306
44	0.00	19.49	3.83	0.85	56.7	0.61	23	0.210	88	0.307
45	0.00	19.44	3.34	1.01	56.9	0.63	23	0.214	88	0.309
46	0.00	19.65	3.63	0.82	56.2	0.55	23	0.220	89	0.312
47	0.00	18.57	3.45	0.89	56.9	0.55	22	0.220	93	0.325
48	0.00	18.32	3.43	0.57	56.3	0.60	22	0.220	88	0.308
49	0.00	19.37	3.84	0.58	57.0	0.60	23	0.217	90	0.313
50	0.00	18.78	3.59	0.60	56.5	0.55	22	0.218	89	0.312
51	0.00	19.38	3.81	0.41	56.7	0.62	23	0.221	89	0.310
52	0.00	18.36	3.56	0.47	57.1	0.51	22	0.216	90	0.314
53	0.00	18.68	4.57	0.57	56.6	0.55	22	0.217	88	0.309
54	0.00	19.22	4.36	0.49	56.6	0.58	23	0.217	89	0.310
55	0.00	19.01	3.84	0.53	56.7	0.59	23	0.220	88	0.309
56	0.00	19.67	4.34	0.67	57.1	0.64	23	0.215	87	0.305
57	0.00	19.38	3.66	0.64	56.4	0.65	23	0.219	90	0.314
58	0.00	19.28	3.92	0.47	56.8	0.56	23	0.223	91	0.317
59	0.00	18.55	4.26	0.63	57.0	0.58	22	0.215	89	0.312
60	0.00	18.31	4.23	0.39	56.6	0.55	22	0.221	91	0.317
61	0.00	18.03	4.88	0.49	56.5	0.55	21	0.214	88	0.308
62	0.00	18.81	5.55	0.99	56.9	0.59	22	0.219	90	0.317
63	0.00	19.52	6.26	0.38	56.4	0.63	23	0.224	88	0.308
64	0.00	17.54	5.87	0.40	56.9	0.56	21	0.218	89	0.311
65	0.00	19.33	5.47	0.99	57.0	0.61	23	0.219	91	0.319
66	0.00	19.08	5.93	0.50	56.6	0.59	23	0.214	87	0.305
67	0.00	18.68	5.47	0.35	56.9	0.53	22	0.217	88	0.308
68	0.00	17.86	5.97	0.86	56.8	0.51	21	0.214	90	0.316

EXCELON VICTORIA COL SITE - BORING B-2251; 98.5' - 100' SAMPLE
HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
OP: KBM
Test date: 3-Dec-2007

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
69	0.00	18.88	5.73	0.81	57.0	0.50	22	0.218	91	0.317
70	0.00	18.08	6.77	0.31	56.5	0.56	22	0.221	89	0.312
71	0.00	19.14	6.03	0.31	56.8	0.60	23	0.219	89	0.310
72	0.00	18.65	6.21	0.49	56.7	0.59	22	0.217	88	0.308
73	0.00	19.11	6.04	0.49	56.7	0.60	23	0.217	88	0.307
74	0.00	19.67	6.76	-0.36	56.9	0.54	23	0.224	87	0.305
75	0.00	19.40	6.36	0.34	56.7	0.47	23	0.220	91	0.319
76	0.00	19.60	6.48	0.34	57.0	0.63	23	0.221	88	0.307
77	0.00	18.64	5.77	0.48	56.6	0.60	22	0.217	89	0.310
78	0.00	18.63	6.06	0.20	57.0	0.52	22	0.216	89	0.310
79	0.00	18.28	6.18	0.23	56.6	0.53	22	0.219	88	0.309
80	0.00	19.58	6.54	0.20	56.7	0.64	23	0.222	88	0.308
81	0.00	19.66	6.26	0.09	56.9	0.52	23	0.220	87	0.304
82	0.00	18.10	5.85	0.29	56.5	0.54	22	0.212	87	0.303
83	0.00	18.65	5.70	0.34	57.0	0.60	22	0.218	87	0.304
84	0.00	19.36	5.90	0.32	56.4	0.50	23	0.215	87	0.304
85	0.00	19.71	6.06	0.11	56.6	0.53	23	0.223	87	0.305
86	0.00	18.82	5.58	0.38	56.9	0.59	22	0.213	86	0.300
87	0.00	19.36	5.43	0.30	56.7	0.63	23	0.219	87	0.304
88	0.00	18.65	5.42	0.25	56.5	0.55	22	0.216	88	0.307
89	0.00	18.58	5.72	0.54	56.8	0.59	22	0.224	91	0.319
90	0.00	18.87	6.34	0.48	56.8	0.62	22	0.219	88	0.307
91	0.00	18.14	5.87	0.54	56.8	0.57	22	0.217	88	0.307
92	0.00	19.14	6.24	0.28	56.5	0.54	23	0.221	89	0.312
93	0.00	19.74	5.90	0.60	56.7	0.62	23	0.218	86	0.300
94	0.00	19.53	5.04	0.35	56.7	0.64	23	0.223	89	0.310
95	0.00	18.71	5.48	0.50	56.5	0.58	22	0.221	91	0.318
96	0.00	19.30	5.43	0.66	57.3	0.64	23	0.219	91	0.317
97	0.00	18.04	5.49	0.03	56.6	0.58	21	0.218	86	0.300
98	0.00	19.98	5.84	0.31	56.8	0.52	24	0.216	86	0.301
99	0.00	19.44	5.91	0.29	56.4	0.55	23	0.221	89	0.312
100	0.00	19.89	5.80	0.17	56.6	0.52	24	0.220	87	0.304
	Average	19.20	5.36	0.41	56.9	0.57	23	0.219	88	0.310

Total number of blows analyzed: 97

Time Summary

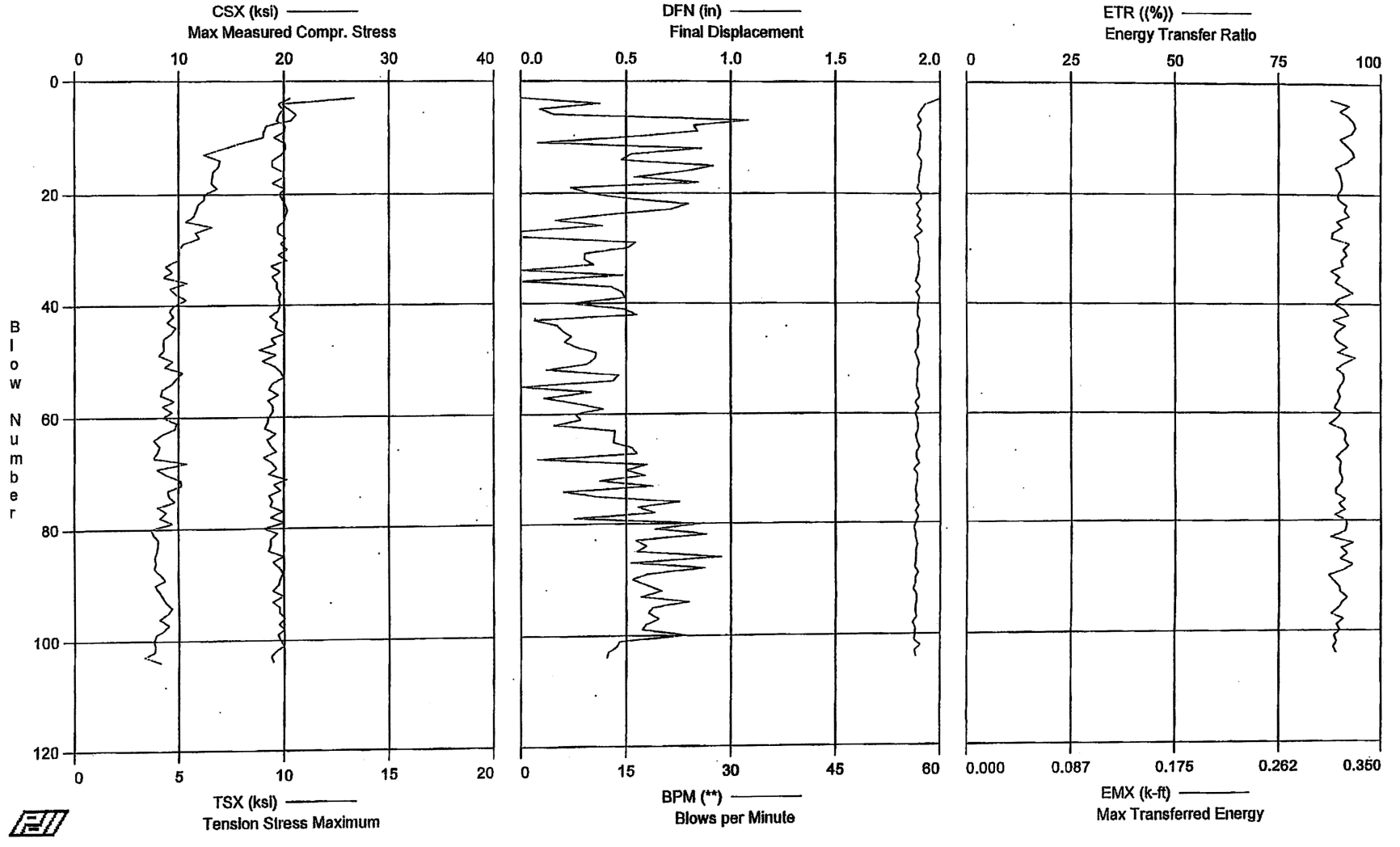
Drive 11 minutes 8 seconds 11:23:04 AM - 11:34:12 AM (12/3/2007) BN 1 - 100

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 10-Mar-2008

Test date: 3-Dec-2007

EXCELON VICTORIA COL SITE - BORING B-2251; 108.5' - 110' SAMPLE



EXCELON VICTORIA COL SITE - BORING B-2251; 108.5' - 110' SAMPLE
HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
OP: KBM
Test date: 3-Dec-2007

AR: 1.19 in^2
LE: 115.00 ft
WS: 16,807.9 f/s
SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
DFN: Final Displacement
BPM: Blows per Minute
FVP: Force/Velocity proportionality
FMX: Maximum Force
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
3	0.00	20.63	13.37	-0.38	61.3	0.66	25	0.229	88	0.307
4	0.00	19.52	9.89	0.38	57.9	0.57	23	0.240	92	0.323
5	0.00	19.94	10.25	0.09	57.3	0.58	24	0.236	90	0.315
6	0.00	19.59	10.61	0.16	56.8	0.59	23	0.239	92	0.322
7	0.00	19.34	10.33	1.08	57.3	0.57	23	0.236	93	0.326
8	0.00	20.11	9.19	0.82	56.7	0.54	24	0.237	94	0.328
9	0.00	20.06	9.05	0.84	57.2	0.55	24	0.236	93	0.325
10	0.00	19.11	9.02	0.52	57.2	0.58	23	0.229	90	0.315
11	0.00	20.14	7.91	0.08	57.1	0.55	24	0.236	91	0.320
12	0.00	20.17	7.07	0.86	57.1	0.53	24	0.236	93	0.325
13	0.00	19.76	6.19	0.52	56.7	0.54	24	0.231	94	0.327
14	0.00	18.90	6.97	0.48	57.3	0.57	22	0.236	92	0.321
15	0.00	18.90	6.90	0.92	57.3	0.57	22	0.223	89	0.311
16	0.00	20.00	6.64	0.77	57.1	0.57	24	0.233	90	0.314
17	0.00	19.85	6.61	0.54	57.0	0.54	24	0.232	90	0.316
18	0.00	18.88	6.56	0.85	57.0	0.58	22	0.231	91	0.317
19	0.00	20.09	6.82	0.24	56.7	0.54	24	0.231	90	0.316
20	0.00	19.61	6.25	0.33	57.3	0.62	23	0.230	89	0.313
21	0.00	19.87	6.21	0.51	57.3	0.54	24	0.228	90	0.314
22	0.00	20.15	5.90	0.80	56.6	0.65	24	0.235	92	0.321
23	0.00	20.33	5.82	0.71	57.2	0.54	24	0.230	91	0.319
24	0.00	20.14	5.72	0.40	56.7	0.53	24	0.233	92	0.323
25	0.00	20.01	5.35	0.17	57.3	0.57	24	0.229	89	0.312
26	0.00	19.40	6.59	0.39	56.7	0.61	23	0.231	90	0.317
27	0.00	19.39	5.79	-0.02	57.5	0.57	23	0.225	88	0.309
28	0.00	20.16	5.96	-0.36	56.3	0.54	24	0.228	88	0.308
29	0.00	19.72	5.20	0.55	56.9	0.56	23	0.231	92	0.323
30	0.00	20.31	5.02	0.51	56.9	0.53	24	0.228	91	0.318
31	0.00	19.48	5.04	0.31	56.9	0.62	23	0.228	92	0.321
32	0.00	20.26	4.89	0.30	57.1	0.53	24	0.229	90	0.316
33	0.00	18.76	4.37	0.35	57.0	0.59	22	0.230	91	0.318
34	0.00	19.68	4.68	-0.11	57.0	0.54	23	0.224	88	0.307
35	0.00	18.89	4.25	0.49	56.8	0.58	22	0.226	90	0.315
36	0.00	19.35	5.39	-0.01	56.5	0.59	23	0.226	89	0.311
37	0.00	19.33	4.56	0.43	57.2	0.57	23	0.229	91	0.319
38	0.00	19.72	4.85	0.48	56.6	0.50	23	0.229	93	0.326
39	0.00	19.53	5.36	0.50	57.1	0.62	23	0.221	90	0.314
40	0.00	19.68	4.78	0.23	56.8	0.54	23	0.226	89	0.310
41	0.00	19.45	4.54	0.49	56.8	0.63	23	0.226	91	0.318
42	0.00	18.62	4.75	0.55	56.7	0.56	22	0.227	92	0.322
43	0.00	19.36	4.41	0.06	57.1	0.49	23	0.228	88	0.309
44	0.00	19.21	4.84	0.17	57.0	0.58	23	0.225	91	0.319
45	0.00	20.09	4.63	0.20	56.7	0.53	24	0.229	89	0.313
46	0.00	18.78	4.27	0.24	56.8	0.52	22	0.224	89	0.310
47	0.00	19.25	4.25	0.21	56.8	0.52	23	0.229	90	0.313
48	0.00	17.67	4.30	0.27	56.8	0.51	21	0.224	92	0.321
49	0.00	19.29	4.05	0.36	56.4	0.63	23	0.229	89	0.313
50	0.00	17.95	4.71	0.35	56.7	0.48	21	0.224	94	0.328
51	0.00	19.17	4.33	0.31	57.0	0.52	23	0.225	91	0.318
52	0.00	19.72	5.17	0.12	56.7	0.53	23	0.226	89	0.312
53	0.00	19.97	4.89	0.46	56.7	0.52	24	0.225	91	0.318
54	0.00	18.88	4.66	0.44	56.7	0.62	22	0.222	91	0.318
55	0.00	18.58	4.19	0.00	56.6	0.53	22	0.229	90	0.315
56	0.00	19.46	4.13	0.33	56.8	0.49	23	0.226	89	0.313
57	0.00	18.49	4.77	0.11	57.0	0.50	22	0.220	90	0.315
58	0.00	18.93	4.22	0.26	56.4	0.60	23	0.225	89	0.313
59	0.00	18.95	4.68	0.39	56.9	0.60	23	0.218	89	0.310
60	0.00	18.55	4.22	0.26	56.4	0.59	22	0.229	90	0.316
61	0.00	18.46	4.90	0.28	56.7	0.56	22	0.224	89	0.312
62	0.00	18.19	4.81	0.16	56.8	0.58	22	0.219	87	0.306
63	0.00	19.24	4.20	0.45	56.8	0.50	23	0.225	91	0.317
64	0.00	18.40	3.79	0.45	56.5	0.58	22	0.225	91	0.320
65	0.00	18.74	4.10	0.44	56.7	0.57	22	0.230	91	0.319
66	0.00	19.27	3.98	0.53	57.0	0.52	23	0.227	92	0.322
67	0.00	18.06	3.78	0.55	56.6	0.56	21	0.226	91	0.317

EXCELON VICTORIA COL SITE - BORING B-2251; 108.5' - 110' SAMPLE
OP: KBM

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 3-Dec-2007

BL#	depth ft	CSX ksi	TSX ksi	DFN in	BPM **	FVP []	FMX kips	EF2 k-ft	ETR (%)	EMX k-ft
68	0.00	18.86	5.38	0.08	56.6	0.57	22	0.223	89	0.312
69	0.00	19.31	3.98	0.60	57.0	0.57	23	0.228	90	0.316
70	0.00	18.53	4.40	0.50	56.2	0.58	22	0.223	90	0.315
71	0.00	20.28	5.07	0.59	56.7	0.53	24	0.229	90	0.315
72	0.00	19.03	5.13	0.37	56.7	0.57	23	0.226	91	0.317
73	0.00	19.74	4.47	0.63	56.6	0.51	23	0.225	90	0.316
74	0.00	18.61	4.54	0.20	56.4	0.58	22	0.226	89	0.311
75	0.00	18.95	4.82	0.37	56.6	0.60	23	0.221	89	0.311
76	0.00	18.70	3.98	0.75	56.5	0.60	22	0.225	91	0.319
77	0.00	19.95	4.41	0.56	56.9	0.52	24	0.222	90	0.314
78	0.00	18.75	4.12	0.64	56.4	0.58	22	0.226	91	0.319
79	0.00	20.08	4.70	0.25	56.8	0.56	24	0.225	89	0.310
80	0.00	18.12	3.69	0.86	56.5	0.60	22	0.222	91	0.320
81	0.00	19.44	3.78	0.64	56.2	0.60	23	0.227	92	0.320
82	0.00	18.75	4.03	0.89	56.4	0.61	22	0.223	91	0.319
83	0.00	18.75	4.01	0.55	56.5	0.58	22	0.219	88	0.307
84	0.00	18.56	3.96	0.60	56.7	0.55	22	0.225	93	0.326
85	0.00	20.00	3.84	0.55	56.5	0.53	24	0.226	90	0.316
86	0.00	18.96	3.90	0.95	56.5	0.57	23	0.222	92	0.321
87	0.00	19.59	3.81	0.52	56.5	0.62	23	0.225	90	0.315
88	0.00	19.94	4.09	0.88	56.3	0.55	24	0.229	93	0.326
89	0.00	19.65	4.36	0.60	56.8	0.61	23	0.225	91	0.318
90	0.00	19.54	3.85	0.53	56.4	0.54	23	0.217	87	0.305
91	0.00	18.93	4.06	0.60	56.4	0.59	23	0.224	88	0.310
92	0.00	19.96	4.22	0.67	56.1	0.54	24	0.224	90	0.314
93	0.00	18.92	4.40	0.57	56.6	0.59	23	0.227	90	0.315
94	0.00	19.63	4.68	0.80	56.6	0.56	23	0.224	92	0.321
95	0.00	19.61	4.48	0.63	56.5	0.54	23	0.223	90	0.316
96	0.00	20.11	4.07	0.61	56.4	0.56	24	0.226	90	0.313
97	0.00	19.53	4.51	0.66	56.6	0.55	23	0.223	88	0.307
98	0.00	20.02	4.27	0.60	56.0	0.52	24	0.228	91	0.318
99	0.00	19.42	3.89	0.58	56.4	0.56	23	0.224	89	0.312
100	0.00	19.69	3.79	0.80	56.4	0.52	23	0.223	90	0.315
101	0.00	19.95	3.87	0.47	56.2	0.51	24	0.225	88	0.310
102	0.00	19.21	3.83	0.45	57.1	0.56	23	0.222	89	0.312
103	0.00	18.76	3.35	0.42	56.3	0.63	22	0.224	88	0.309
104	0.00	18.98	4.13	0.41	56.5	0.56	23	0.219	89	0.311
Average		19.36	5.20	0.45	56.8	0.56	23	0.227	90	0.316

Total number of blows analyzed: 102

Time Summary

Drive		11:37:18 AM - 11:37:18 AM (12/3/2007) BN 1 - 1
Stop	11 minutes 39 seconds	11:37:18 AM - 11:48:57 AM
Drive	1 minute 48 seconds	11:48:57 AM - 11:50:45 AM BN 2 - 104

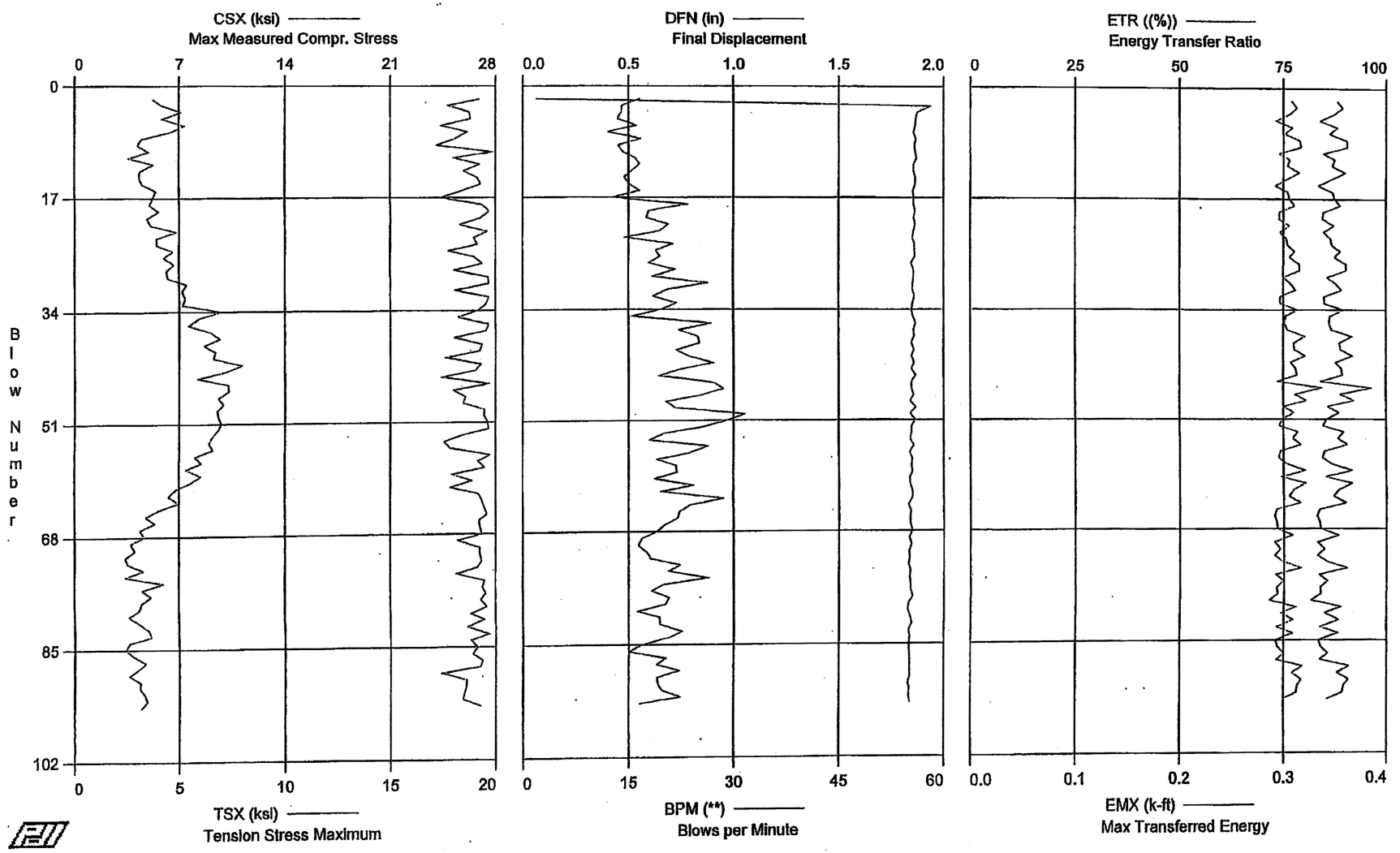
Total time [0:13:27] = (Driving [0:01:48] + Stop [0:11:39])

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 7-Jan-2008

Test date: 18-Dec-2007

EXELON VICTORIA COL SITE - B-2171; 38.5' - 40' Sample



EXELON VICTORIA COL SITE - B-2171; 38.5' - 40' Sample
OP: SEK

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 18-Dec-2007

AR: 1.49 in^2
LE: 44.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000.0 ksi
JC: 0.70

FMX: Maximum Force
VMX: Maximum Velocity
CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
BPM: Blows per Minute

DFN: Final Displacement
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	FMX kips	VMX f/s	CSX ksi	TSX ksi	BPM **	DFN in	EF2 k-ft	ETR (%)	EMX k-ft
2	0.00	40	12.5	27.0	3.7	1.9	0.55	0.332	88	0.308
3	0.00	37	12.6	24.8	4.2	58.1	0.47	0.335	89	0.313
4	0.00	39	12.6	26.3	5.1	56.2	0.47	0.339	87	0.306
5	0.00	39	10.9	26.3	4.2	56.0	0.45	0.327	84	0.293
6	0.00	36	12.8	24.4	5.3	55.9	0.54	0.342	88	0.309
7	0.00	39	12.7	26.1	4.6	55.7	0.40	0.340	86	0.302
8	0.00	38	12.3	25.3	3.2	56.0	0.56	0.336	90	0.316
9	0.00	36	12.3	24.1	3.0	55.8	0.45	0.345	91	0.317
10	0.00	41	11.3	27.8	3.5	55.9	0.47	0.341	85	0.296
11	0.00	38	12.0	25.2	2.6	56.1	0.53	0.327	87	0.306
12	0.00	40	10.8	26.9	3.8	55.7	0.55	0.335	87	0.304
13	0.00	39	11.7	25.9	3.1	55.7	0.52	0.342	90	0.315
14	0.00	40	11.5	26.8	3.1	55.9	0.48	0.332	87	0.304
15	0.00	40	11.6	27.0	3.2	55.9	0.50	0.333	83	0.292
16	0.00	38	13.3	25.7	3.9	55.6	0.55	0.340	87	0.304
17	0.00	36	13.3	24.4	3.7	55.7	0.43	0.335	88	0.306
18	0.00	40	10.8	27.1	3.6	55.7	0.78	0.342	89	0.311
19	0.00	41	12.1	27.6	4.0	55.9	0.60	0.345	85	0.296
20	0.00	40	10.4	27.0	3.4	55.7	0.59	0.335	84	0.296
21	0.00	38	13.2	25.6	3.6	55.9	0.69	0.342	87	0.306
22	0.00	41	12.3	27.4	4.9	55.7	0.65	0.347	85	0.297
23	0.00	40	13.2	26.6	3.9	55.5	0.48	0.343	86	0.303
24	0.00	40	12.8	26.8	3.9	55.8	0.71	0.347	87	0.304
25	0.00	37	13.2	24.9	4.7	55.8	0.63	0.343	89	0.311
26	0.00	40	11.5	26.6	4.3	55.9	0.65	0.336	87	0.306
27	0.00	40	11.2	27.1	4.7	55.3	0.60	0.342	90	0.315
28	0.00	38	13.0	25.3	4.4	55.7	0.72	0.353	90	0.316
29	0.00	41	10.8	27.5	4.4	55.7	0.61	0.338	86	0.300
30	0.00	41	10.4	27.6	5.3	55.6	0.88	0.342	88	0.307
31	0.00	38	12.8	25.3	5.1	55.5	0.69	0.341	89	0.312
32	0.00	41	10.5	27.6	5.3	55.8	0.62	0.339	85	0.297
33	0.00	41	10.3	27.3	5.2	55.6	0.73	0.337	85	0.297
34	0.00	40	11.6	26.8	7.0	55.4	0.66	0.342	90	0.314
35	0.00	38	13.4	25.5	5.9	55.6	0.51	0.335	86	0.302
36	0.00	41	11.9	27.6	5.4	56.0	0.90	0.343	86	0.301
37	0.00	41	10.3	27.3	6.4	55.7	0.74	0.340	87	0.304
38	0.00	38	12.0	25.2	6.9	55.8	0.83	0.347	92	0.321
39	0.00	40	12.6	27.1	6.2	55.4	0.84	0.353	89	0.310
40	0.00	40	10.7	26.9	6.7	55.8	0.73	0.340	89	0.311
41	0.00	37	12.4	24.7	6.6	55.4	0.79	0.352	92	0.321
42	0.00	40	10.4	27.0	8.0	55.8	0.91	0.341	88	0.307
43	0.00	40	11.3	26.7	7.2	55.4	0.75	0.340	89	0.312
44	0.00	36	13.4	24.4	5.9	56.0	0.65	0.342	89	0.313
45	0.00	41	12.5	27.6	7.3	55.4	0.90	0.343	84	0.294
46	0.00	37	12.0	25.2	7.3	55.4	0.95	0.354	96	0.337
47	0.00	39	12.9	26.0	6.9	55.7	0.84	0.353	89	0.311
48	0.00	39	11.8	25.8	7.1	55.2	0.68	0.353	92	0.322
49	0.00	41	12.3	27.3	6.8	56.0	0.72	0.337	86	0.300
50	0.00	41	13.1	27.2	6.9	55.2	1.05	0.351	88	0.310
51	0.00	41	12.8	27.5	7.0	55.9	0.97	0.348	86	0.299
52	0.00	41	12.6	27.5	6.8	55.4	0.86	0.346	85	0.296
53	0.00	38	12.0	25.7	6.6	55.4	0.67	0.336	90	0.314
54	0.00	37	13.1	24.6	6.4	55.2	0.60	0.331	88	0.309
55	0.00	37	12.5	25.0	6.6	55.7	0.88	0.346	91	0.317
56	0.00	41	12.5	27.6	5.7	55.1	0.79	0.349	85	0.297
57	0.00	40	12.8	26.8	6.0	55.5	0.64	0.346	84	0.295
58	0.00	41	11.7	27.3	5.3	55.4	0.72	0.342	87	0.303
59	0.00	37	12.5	25.1	6.0	55.5	0.73	0.353	92	0.321
60	0.00	39	13.4	26.4	5.5	55.1	0.62	0.335	85	0.298
61	0.00	37	13.2	25.0	4.8	55.2	0.81	0.351	92	0.321
62	0.00	40	11.5	26.9	4.5	55.5	0.65	0.343	88	0.310
63	0.00	40	10.1	27.1	5.0	55.5	0.96	0.341	87	0.305
64	0.00	41	11.0	27.2	4.0	54.9	0.79	0.344	90	0.316
65	0.00	41	11.1	27.4	3.4	55.3	0.74	0.339	84	0.293
66	0.00	40	12.9	26.9	3.8	55.2	0.73	0.336	83	0.291

EXELON VICTORIA COL SITE - B-2171; 38.5' - 40' Sample
OP: SEK

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 18-Dec-2007

BL#	depth ft	FMX kips	VMX f/s	CSX ksi	TSX ksi	BPM **	DFN in	EF2 k-ft	ETR (%)	EMX k-ft
67	0.00	40	12.9	26.9	3.1	55.2	0.68	0.339	84	0.293
68	0.00	40	11.0	27.1	3.3	55.5	0.63	0.330	84	0.294
69	0.00	38	12.2	25.5	2.7	55.0	0.57	0.338	88	0.309
70	0.00	40	10.4	26.9	2.9	55.4	0.55	0.327	83	0.291
71	0.00	40	10.5	26.9	2.4	55.0	0.59	0.335	85	0.297
72	0.00	40	12.7	27.1	2.5	55.1	0.61	0.342	83	0.291
73	0.00	40	10.3	26.8	3.3	54.9	0.75	0.328	86	0.299
74	0.00	38	12.7	25.4	2.4	55.2	0.69	0.351	90	0.317
75	0.00	41	10.6	27.3	4.2	55.1	0.89	0.337	83	0.292
76	0.00	40	10.4	27.1	3.2	55.2	0.67	0.335	86	0.300
77	0.00	41	10.9	27.3	3.6	55.2	0.61	0.336	84	0.293
78	0.00	40	10.5	27.0	3.2	55.5	0.69	0.336	84	0.294
79	0.00	41	12.1	27.4	3.1	54.9	0.68	0.338	82	0.286
80	0.00	39	11.9	26.3	2.6	54.8	0.54	0.337	89	0.312
81	0.00	41	12.9	27.3	3.1	55.1	0.65	0.348	85	0.297
82	0.00	39	11.7	26.1	3.5	55.4	0.65	0.338	88	0.309
83	0.00	41	12.4	27.6	3.7	54.9	0.76	0.344	84	0.293
84	0.00	39	11.2	26.3	2.7	55.1	0.69	0.344	88	0.309
85	0.00	40	10.6	26.8	2.4	55.0	0.56	0.328	83	0.292
86	0.00	39	10.2	26.5	2.9	55.0	0.50	0.326	84	0.294
87	0.00	40	10.6	27.2	3.4	55.1	0.68	0.335	86	0.300
88	0.00	40	10.5	27.0	3.1	55.1	0.63	0.333	84	0.293
89	0.00	36	12.7	24.4	2.6	55.1	0.74	0.350	91	0.318
90	0.00	39	11.9	26.1	3.1	55.1	0.64	0.336	88	0.308
91	0.00	39	12.0	26.0	3.1	54.8	0.64	0.345	91	0.317
92	0.00	39	12.2	25.9	3.4	55.0	0.66	0.344	89	0.313
93	0.00	38	12.8	25.8	3.5	54.9	0.75	0.352	89	0.312
94	0.00	40	10.9	27.0	3.2	55.1	0.55	0.333	86	0.299
Average		39	11.9	26.4	4.5	54.9	0.67	0.341	87	0.305

Total number of blows analyzed: 93

Time Summary

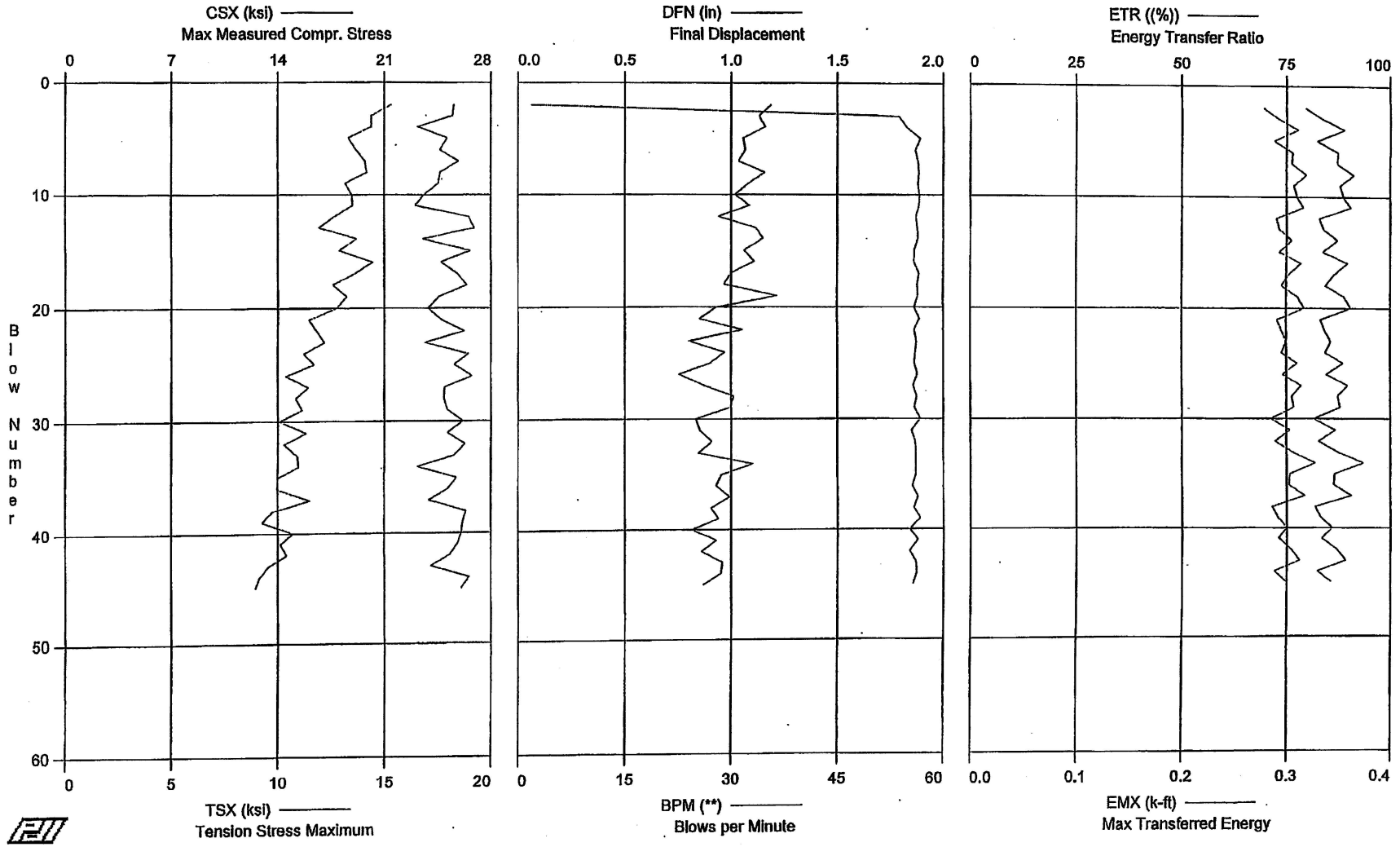
Drive 2 minutes 57 seconds 9:39:33 AM - 9:42:30 AM (12/18/2007) BN 1 - 94

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 7-Jan-2008

Test date: 18-Dec-2007

EXELON VICTORIA COL SITE - Boring B-2171; 43.5' - 45' Sample



EXELON VICTORIA COL SITE - Boring B-2171; 43.5' - 45' Sample
HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
OP: SEK
Test date: 18-Dec-2007

AR: 1.49 in^2
LE: 49.00 ft
WS: 16,807.9 f/s
SP: 0.492 k/ft3
EM: 30,000.0 ksi
JC: 0.70

FMX: Maximum Force
VMX: Maximum Velocity
CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
BPM: Blows per Minute
DFN: Final Displacement
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	FMX kips	VMX f/s	CSX ksi	TSX ksi	BPM **	DFN in	EF2 k-ft	ETR (%)	EMX k-ft
2	0.00	38	11.7	25.6	15.3	1.9	1.19	0.316	80	0.278
3	0.00	38	11.5	25.5	14.4	53.6	1.13	0.326	84	0.292
4	0.00	35	12.2	23.2	14.4	54.8	1.16	0.336	89	0.311
5	0.00	37	12.6	25.2	13.3	56.7	1.06	0.327	82	0.288
6	0.00	37	12.6	24.6	13.7	56.0	1.07	0.345	87	0.306
7	0.00	39	12.2	25.9	14.1	56.4	1.04	0.348	87	0.305
8	0.00	37	11.9	24.7	14.2	56.5	1.16	0.341	91	0.319
9	0.00	37	12.7	24.6	13.1	56.4	1.08	0.340	88	0.307
10	0.00	35	12.5	23.6	13.5	56.6	1.02	0.338	89	0.310
11	0.00	34	12.5	23.0	13.5	56.5	1.09	0.340	90	0.316
12	0.00	40	11.8	26.5	12.7	56.1	0.94	0.336	83	0.290
13	0.00	40	11.2	26.9	11.9	56.3	1.12	0.340	84	0.293
14	0.00	35	12.6	23.6	13.7	56.4	1.15	0.333	87	0.305
15	0.00	40	10.8	26.6	12.9	55.9	1.06	0.335	84	0.293
16	0.00	37	11.7	24.7	14.4	55.8	1.11	0.337	90	0.314
17	0.00	38	11.5	25.8	13.6	56.5	1.00	0.333	86	0.302
18	0.00	39	11.5	26.4	12.6	56.3	0.97	0.341	84	0.295
19	0.00	37	12.2	24.6	13.2	56.4	1.22	0.331	89	0.311
20	0.00	36	11.9	23.9	12.8	55.9	0.93	0.341	90	0.317
21	0.00	37	12.9	24.8	11.4	56.6	0.85	0.328	83	0.291
22	0.00	39	11.3	26.3	11.8	55.9	1.06	0.338	84	0.295
23	0.00	35	12.7	23.7	12.2	56.2	0.80	0.326	86	0.300
24	0.00	39	11.5	26.5	11.2	56.0	0.97	0.341	84	0.295
25	0.00	38	12.8	25.6	11.7	55.9	0.90	0.347	89	0.310
26	0.00	40	12.2	26.8	10.4	56.3	0.75	0.345	84	0.296
27	0.00	37	12.8	24.9	11.4	55.7	0.87	0.345	90	0.314
28	0.00	37	13.0	24.9	10.8	56.2	1.01	0.338	87	0.305
29	0.00	37	11.5	25.2	11.1	55.9	1.00	0.336	88	0.307
30	0.00	39	11.0	26.2	10.1	56.7	0.83	0.329	81	0.285
31	0.00	37	12.9	25.2	11.3	55.5	0.85	0.341	87	0.303
32	0.00	39	12.4	26.3	10.3	56.0	0.91	0.336	83	0.289
33	0.00	38	11.5	25.6	10.9	56.1	0.85	0.331	87	0.306
34	0.00	35	12.1	23.2	11.0	56.1	1.10	0.344	93	0.327
35	0.00	38	11.3	25.7	10.0	56.1	0.96	0.337	86	0.303
36	0.00	38	11.6	25.2	10.0	55.6	0.93	0.331	86	0.302
37	0.00	36	12.4	23.9	11.5	56.4	0.99	0.342	90	0.317
38	0.00	39	12.0	26.4	9.7	55.8	0.91	0.333	82	0.286
39	0.00	39	11.0	26.2	9.3	56.7	0.94	0.330	83	0.291
40	0.00	39	12.7	26.0	10.7	55.2	0.82	0.344	86	0.300
41	0.00	38	12.6	25.8	10.1	56.4	0.93	0.331	83	0.292
42	0.00	38	13.0	25.3	10.4	55.2	0.86	0.341	87	0.304
43	0.00	36	12.2	24.1	9.5	56.1	0.96	0.340	89	0.312
44	0.00	40	11.8	26.6	9.1	56.2	0.95	0.335	82	0.288
45	0.00	39	12.5	26.1	8.9	55.7	0.87	0.345	86	0.299
	Average	38	12.1	25.3	11.9	54.8	0.99	0.337	86	0.302

Total number of blows analyzed: 44

Time Summary

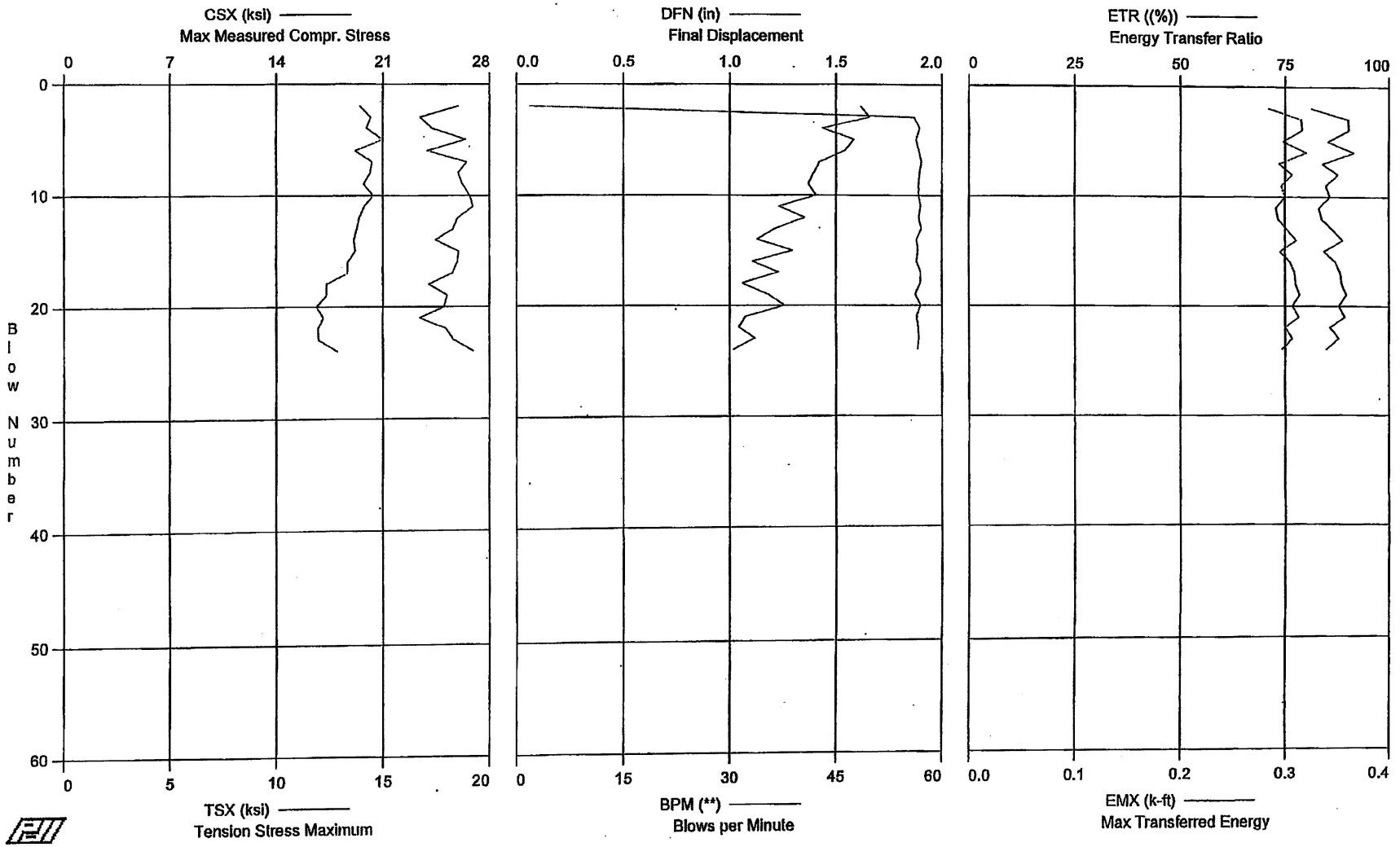
Drive 1 minute 19 seconds 10:00:23 AM - 10:01:42 AM (12/18/2007) BN 1 - 45

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 7-Jan-2008

Test date: 18-Dec-2007

EXELON VICTORIA COL SITE - Boring B-2171; 63.5' - 65' Sample



EXELON VICTORIA COL SITE - Boring B-2171; 63.5' - 65' Sample
OP: SEK

HAMMER ID: MEC-11; CME 75 TRUCK (NALLS)
Test date: 18-Dec-2007

AR: 1.49 in^2
LE: 69.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000.0 ksi
JC: 0.70

FMX: Maximum Force
VMX: Maximum Velocity
CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
BPM: Blows per Minute

DFN: Final Displacement
EF2: Energy of F^2
ETR: Energy Transfer Ratio
EMX: Max Transferred Energy

BL#	depth ft	FMX kips	VMX f/s	CSX ksi	TSX ksi	BPM **	DFN in	EF2 k-ft	ETR (%)	EMX k-ft
2	0.00	39	12.2	25.9	13.9	1.9	1.62	0.332	81	0.284
3	0.00	35	12.2	23.4	14.4	56.0	1.66	0.338	90	0.315
4	0.00	36	12.0	24.2	14.2	56.8	1.44	0.341	90	0.316
5	0.00	39	11.7	26.4	15.0	56.3	1.59	0.344	85	0.298
6	0.00	36	12.0	23.9	13.7	56.7	1.54	0.343	91	0.320
7	0.00	39	11.3	26.5	14.5	57.1	1.42	0.337	84	0.294
8	0.00	39	11.3	25.9	14.4	56.8	1.40	0.336	88	0.307
9	0.00	39	12.4	26.2	14.1	56.7	1.37	0.345	85	0.296
10	0.00	40	11.5	26.7	14.5	56.7	1.41	0.346	86	0.300
11	0.00	40	11.1	26.9	14.1	57.0	1.23	0.341	83	0.291
12	0.00	39	12.4	25.9	13.9	56.7	1.35	0.336	84	0.293
13	0.00	38	11.4	25.6	13.8	57.1	1.22	0.335	86	0.302
14	0.00	36	11.7	24.4	13.6	56.4	1.13	0.337	89	0.311
15	0.00	39	12.4	26.0	13.7	56.6	1.30	0.340	84	0.295
16	0.00	39	11.4	25.9	13.3	56.4	1.11	0.337	87	0.305
17	0.00	38	11.6	25.6	13.3	57.0	1.23	0.331	88	0.309
18	0.00	36	12.1	24.0	12.4	56.9	1.06	0.339	89	0.310
19	0.00	38	12.5	25.3	12.4	56.2	1.18	0.347	90	0.314
20	0.00	37	11.8	25.0	11.9	57.0	1.26	0.332	88	0.307
21	0.00	35	12.6	23.4	12.2	56.4	1.07	0.338	89	0.313
22	0.00	38	12.5	25.2	12.0	56.6	1.04	0.334	86	0.300
23	0.00	38	12.7	25.6	12.0	56.7	1.12	0.344	88	0.307
24	0.00	40	11.3	27.0	12.9	56.5	1.02	0.343	85	0.297
	Average	38	11.9	25.4	13.5	54.3	1.29	0.339	87	0.304

Total number of blows analyzed: 23

Time Summary

Drive 1 minute 49 seconds 11:06:39 AM - 11:08:28 AM (12/18/2007) BN 1 - 24

MACTEC Engineering and Consulting, Inc. - Case Method Results

PDIPLOT Ver. 2008.1 - Printed: 7-Jan-2008

Test date: 18-Dec-2007

EXELON VICTORIA COL SITE - Boring B-2171; 73' - 74.5' Sample