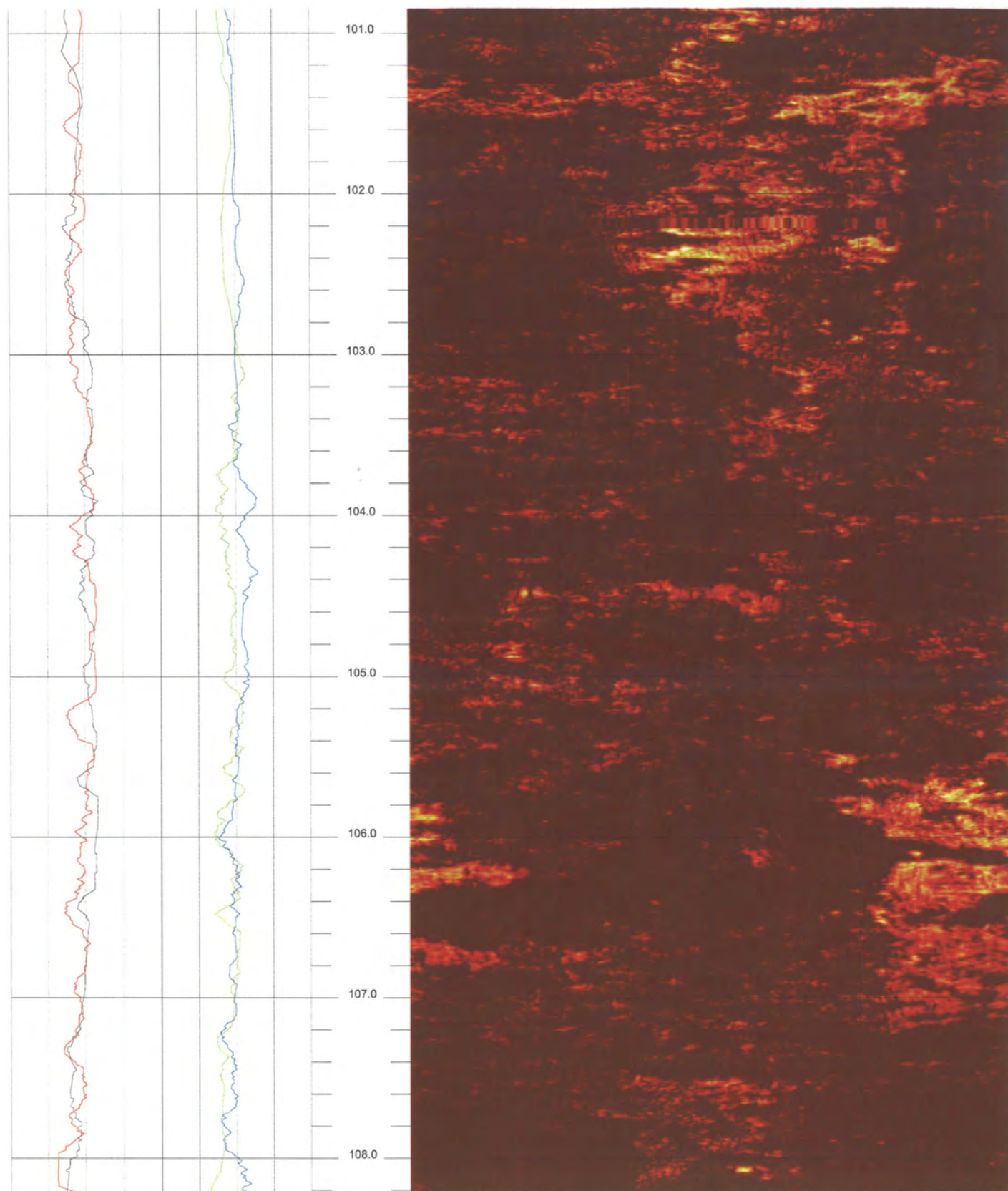


B-720 G (DH)

100.848 to 93.480ft

11

FPL Turkey Point COL Boring B-720 G (DH) Acoustic Televiewer based Caliper rev 1 Sheet 11 of 14

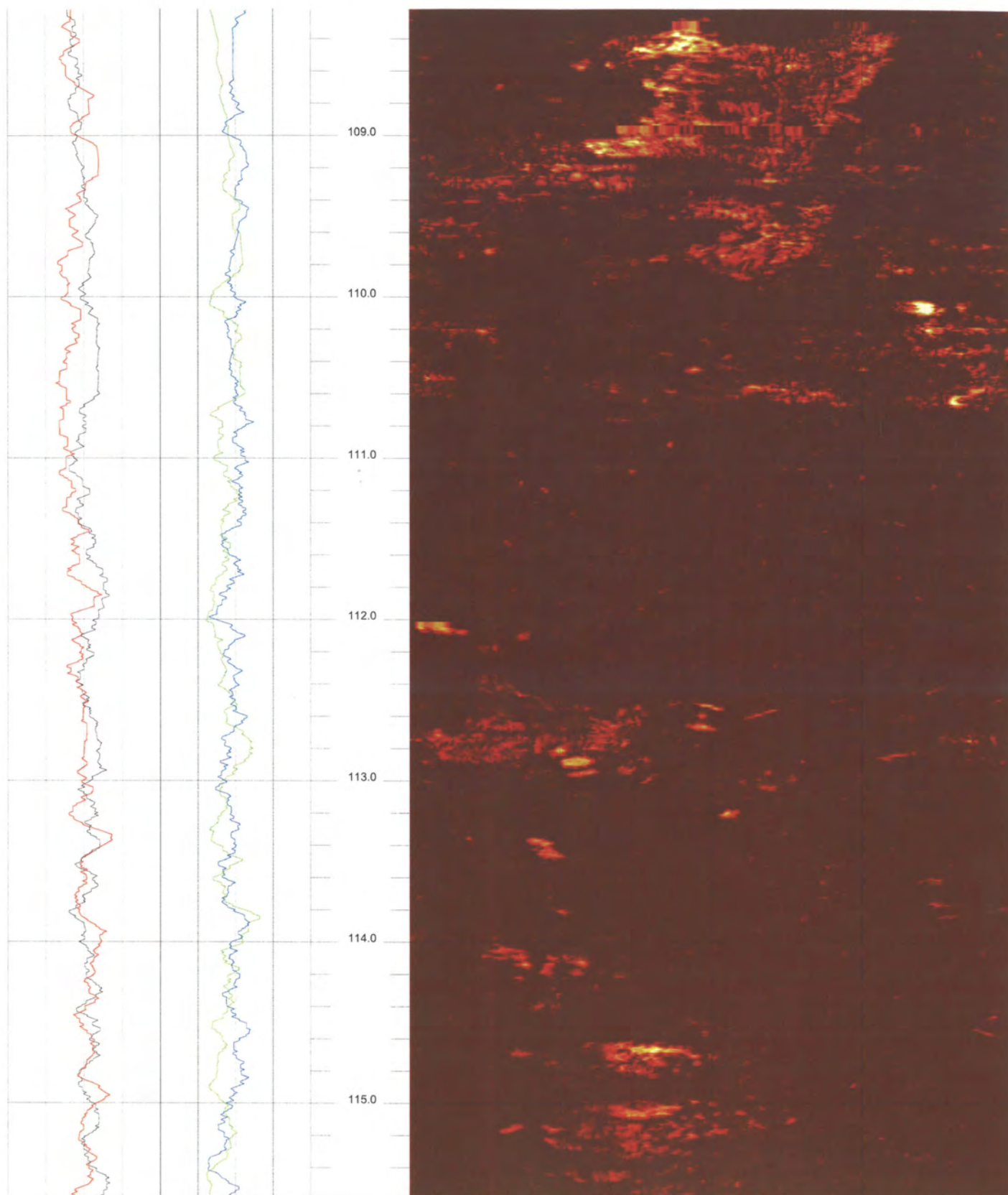


B-720 G (DH)

108.216 to 100.848ft

12

FPL Turkey Point COL Boring B-720 G (DH) Acoustic Televiewer based Caliper rev 1 Sheet 12 of 14

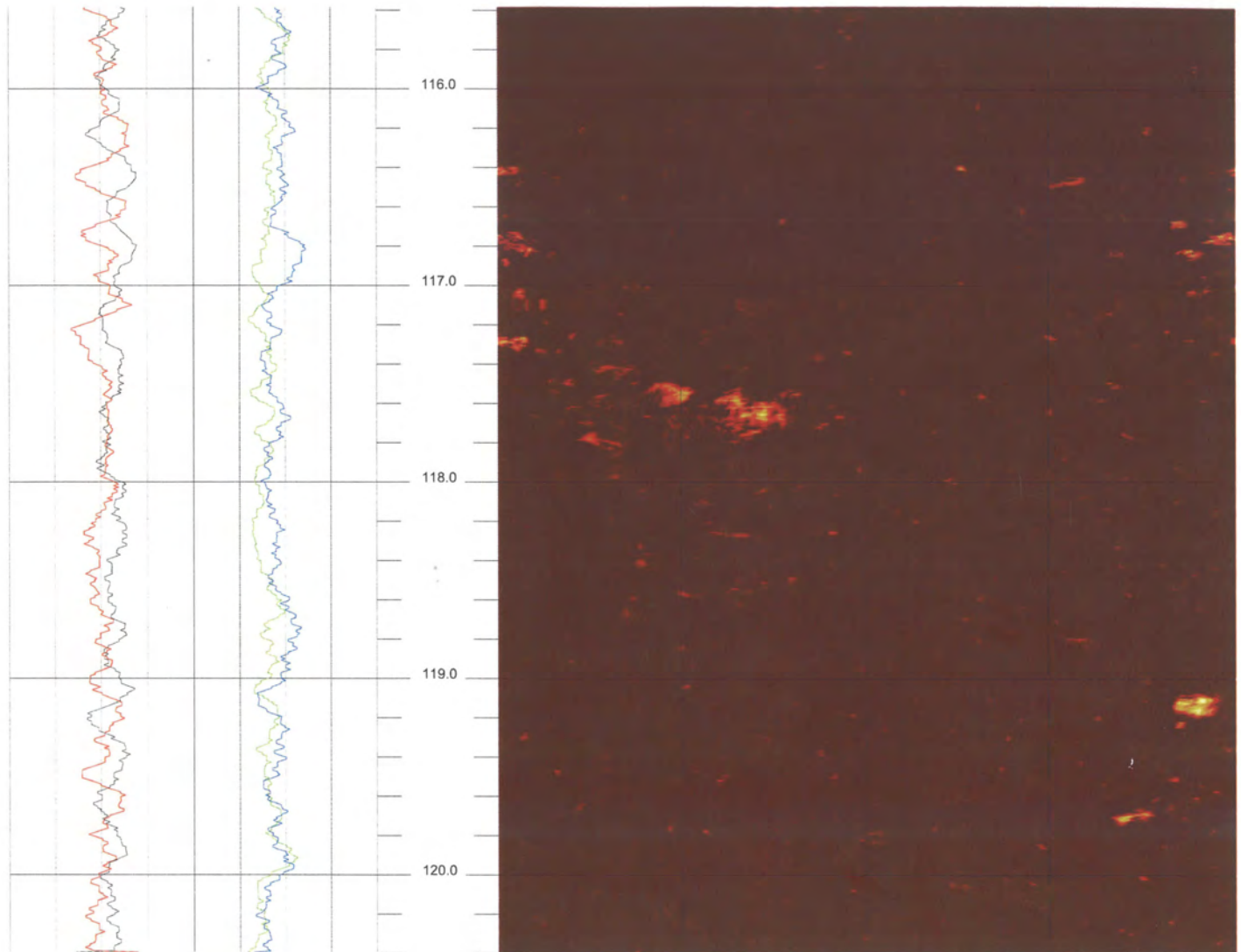


B-720 G (DH)

115.584 to 108.216ft

13

FPL Turkey Point COL Boring B-720 G (DH) Acoustic Televiewer based Caliper rev 1 Sheet 13 of 14



APPENDIX E

GEOPHYSICAL LOGGING SYSTEMS – NIST TRACEABLE CALIBRATION PROCEDURES AND CALIBRATION RECORDS

CALIBRATION PROCEDURE FOR GEOVision SEISMIC RECORDER/LOGGER

Reviewed 4/6/06

Objective

The timing/sampling accuracy of seismic recorders or data loggers is required for several GEOVision field procedures including Seismic Refraction, Downhole Seismic Velocity Logging, and P-S Suspension Logging. This procedure describes the method for measuring the timing accuracy of a seismic data logger, such as the OYO Model 170, OYO/Robertson Model 3403, Geometrics Strataview or Geometrics Geode. The objective of this procedure is to verify that the timing accuracy of the recorder is accurate to within 1%.

Frequency of Calibration

The calibration of each GEOVision seismic data logger is twelve (12) months. In the case of rented seismic data loggers, calibration must be performed prior to use.

Test Equipment Required

The following equipment is required. Item #2 must have current NIST traceable calibration.

1. Function generator, Krohn Hite 5400B or equivalent
2. Frequency counter, HP 5315A or equivalent
3. Test cables, from item 1 to item 2, and from item 1 to subject data logger.

Procedure

This procedure is designed to be performed using the accompanying Seismograph Calibration Data Sheet with the same revision number. All data must be entered and the procedure signed by the technician performing the test.

1. Record all identification data on the form provided.
2. Connect function generator to data logger (such as OYO Model 170) using test cable
3. Connect the function generator to the frequency counter using test cable.



Seismic Recorder/Logger Calibration Procedure
Revision 1.30 Page 1

4. Set up generator to produce a 100.0 Hz, 0.25 volt (amplitude is approximate, modify as necessary to yield less than full scale waveforms on logger display) peak square wave or sine wave. Verify frequency using the counter and initial space on the data sheet.
5. Initialize data logger and record a data record of at least 0.1 second using a 100 microsecond or less sample period.
6. Measure the recorded square wave frequency by measuring the duration of 9 cycles of data. This measurement can be made using the data logger display device, or by printing out a paper tape. If a paper tape can be printed, the resulting printout must be attached to this procedure. Record the data in the space provided.
7. Repeat steps 5 and 6 three more times using separate files.

Criteria

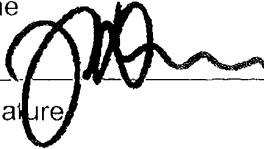
The duration for 9 cycles in any file must be 90.0 milliseconds plus or minus 0.9 milliseconds, corresponding to an average frequency for the nine cycles of 100.0 Hz plus or minus 1 Hz (obtained by dividing 9 cycles by the duration in milliseconds).

If the results are outside this range, the data logger must be marked with a GEOVision REJECT tag until it can be repaired and retested.

If results are acceptable affix label indicating the initials of the person performing the calibration, the date of calibration, and the due date for the next calibration (12 months).

Procedure Approval

Approved by:

John G. Diehl
Name

Signature

President
Title

April 6, 2006
Date

Client Approval (if required):

Name

Signature

Title

Date



Seismic Recorder/Logger Calibration Procedure
Revision 1.30 Page 2



Metrology
7300 Fenwick Lane
Westminster, CA 92683
Phone: 866-723-2257

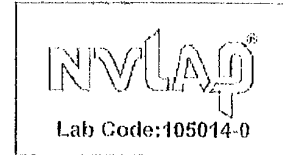
Calibration Report

NVLAP Accredited
Calibration

GEOVision Geophysical Services
1151 Pomona Road, Unit P
Corona, CA 92882



550393



Manufacturer: Oyo
Model Number: 3403
Description: Unit, Suspension Telemetry,
Asset Number: 160023
Serial Number: 100023
PO Number: 8200-080122-01

Condition As Found: In Tolerance
Condition As Left: In Tolerance
Calibration Date: 01/25/2008
Calibration Due Date: 01/25/2009
Calibration Interval: 12 Months

Remarks:

The UUT (unit under test) was calibrated using the customer's procedure. The UUT was operated by the customer's personnel and data collection was observed by SCE personnel. The UUT was found to be in tolerance to customer supplied specifications. The reference standards used are in compliance with ISO/IEC 17025:1999 and laboratory accreditation criteria established by NIST/NVLAP under the specific scope of accreditation for lab code 105014-0. Frequency is accredited. Measurement uncertainty is 0.2×10^{-12} Hz. Please see attached data.

Standards Utilized

I.D. No.	Mfg.	Model No.	Description	Cal. Date	Due Date
S1-01252	Hewlett Packard	5335A OPT 010.203040	Counter, Universal	12/28/2007	06/28/2008
S1-01347	Hewlett Packard	3325A	Generator, Function, Synthesizer	10/09/2007	04/09/2008
S1-03686	Fluke	910	Standard, Frequency, Controlled, Gps	01/22/2008	01/22/2009

Procedure: Customer
Temperature: 23° C
Humidity: 37% RH
Test No.: 550393

Calibration Performed By:		Quality Reviewer:	
Branson, Craig A	Metrologist	714-895-0714	
Name	Title	Phone	Name Date

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SEISMOGRAPH CALIBRATION DATA SHEET REV 4/6/06

INSTRUMENT DATA

SYSTEM MFR: OYO	MODEL NO.: 3403
SERIAL NO.: 160023	CALIBRATION DATE: 01/25/2008
BY: ROBERT STELLER	DUE DATE: 01/25/2009
COUNTER MFR: HEWLETT PACKARD	MODEL NO.: 5335A
SERIAL NO.: 2626A09881	CALIBRATION DATE: 12/28/2007
BY: SCE #S1-01252	DUE DATE: 6/28/2008
FCTN GEN MFR: HEWLETT PACKARD	MODEL NO.: 3325A
SERIAL NO.: 2652A25647	CALIBRATION DATE: 10/9/2007
BY: SCE #S1-01347	DUE DATE: 4/9/2008

SYSTEM SETTINGS:

GAIN:	10
FILTER:	20 KHZ
RANGE:	100 MILLISEC
DELAY:	0
STACK: 1 (STD)	1
PULSE:	1.6
DISPLAY:	NA
SYSTEM: DATE = CORRECT DATE & TIME	01/25/2008, 12:20PM

PROCEDURE:

SET FREQUENCY TO 100.0HZ SQUAREWAVE WITH AMPLITUDE APPROXIMATELY 0.25 VOLT PEAK. RECORD BOTH ON DISK AND PAPER TAPE, IF AVAILABLE. ANALYZE AND PRINT WAVEFORMS FROM ANALYSIS UTILITY. ATTACH PAPER COPIES OF PRINTOUT AND PAPER TAPES, IF AVAILABLE, TO THIS FORM. AVERAGE FREQUENCY MUST BE BETWEEN 99.0 AND 101.0 HZ.

AS FOUND 100.0 AS LEFT 100.0

WAVEFORM	FILE NO	FREQUENCY	TIME FOR 9 CYCLES Hn	TIME FOR 9 CYCLES Hr	TIME FOR 9 CYCLES V	AVERAGE FREQ.
SQUARE	301	100.0	90.0	90.0	90.0	100.0
SQUARE	302	100.0	90.0	90.0	90.0	100.0
SINE	303	100.0	90.0	90.0	90.0	100.0
SINE	304	100.0	90.0	90.0	90.0	100.0

CALIBRATED BY:	ROBERT STELLER	1/25/2008	<i>Robert Steller</i>
	NAME	DATE	SIGNATURE

Page 2 of 2

Seismic recorder/Logger Calibration Data Sheet Rev 1.30 4-6-06
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A SEA FERRIS CALIFORNIA EDISON COMPANY

Metrology

7300 Fenwick Lane
Westminster, CA 92683
Phone: 866-723-2257

Calibration Report

NVLAP Accredited

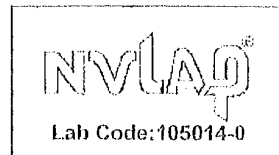
Calibration

GEOVision Geophysical Services

1151 Pomona Road, Unit P
Corona, CA 92882



550394



Manufacturer: Oyo
Model Number: 3403
Description: Unit, Suspension Telemetry,
Asset Number: 160024
Serial Number: 160024
PO Number: 8200-080122-01

Condition As Found: In Tolerance
Condition As Left: In Tolerance
Calibration Date: 01/25/2008
Calibration Due Date: 01/25/2009
Calibration Interval: 12 Months

Remarks:

The UUT (unit under test) was calibrated using the customer's procedure. The UUT was operated by the customer's personnel and data collection was observed by SCE personnel. The UUT was found to be in tolerance to customer supplied specifications. The reference standards used are in compliance with ISO/IEC 17025:1999 and laboratory accreditation criteria established by NIST/NVLAP under the specific scope of accreditation for lab code 105014-0. Frequency is accredited. Measurement uncertainty is $0.2 \times F-12$ Hz. Please see attached data.

Standards Utilized

I.D. No.	Mfg.	Model No.	Description	Cal. Date	Due Date
S1-01252	Hewlett Packard	5335A OPT 010,203040	Counter, Universal,	12/28/2007	06/28/2008
S1-01347	Hewlett Packard	3325A	Generator, Function, Synthesizer	10/09/2007	04/09/2008
S1-03686	Fluke	910	Standard, Frequency, Controlled, Gps	01/22/2008	01/22/2009

Procedure: Customer
Temperature: 23° C
Humidity: 37% RH
Test No.: 550394

Calibration Performed By:			Quality Reviewer:	
Branson, Craig A	Metrologist	714-895-0714	Claudia E. Shuman	1/25/08
Name	Title	Phone	Name	Date

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SEISMOGRAPH CALIBRATION DATA SHEET REV 4/6/06

INSTRUMENT DATA

SYSTEM MFR: OYO	MODEL NO.: 3403
SERIAL NO.: 160024	CALIBRATION DATE: 01/25/2008
BY: ROBERT STELLER	DUE DATE: 01/25/2009
COUNTER MFR: HEWLETT PACKARD	MODEL NO.: 5335A
SERIAL NO.: 2626A09881	CALIBRATION DATE: 12/28/2007
BY: SCE #S1-01252	DUE DATE: 6/28/2008
FCTN GEN MFR: HEWLETT PACKARD	MODEL NO.: 3325A
SERIAL NO.: 2652A25647	CALIBRATION DATE: 10/9/2007
BY: SCE #S1-01347	DUE DATE: 4/9/2008

SYSTEM SETTINGS:

GAIN:	10
FILTER:	20 KHZ
RANGE:	100 MILLISEC
DELAY:	0
STACK: 1 (STD)	1
PULSE:	1.6
DISPLAY:	NA
SYSTEM: DATE = CORRECT DATE & TIME	01/25/2008, 12:20PM

PROCEDURE:

SET FREQUENCY TO 100.0HZ SQUAREWAVE WITH AMPLITUDE APPROXIMATELY 0.25 VOLT PEAK. RECORD BOTH ON DISK AND PAPER TAPE, IF AVAILABLE. ANALYZE AND PRINT WAVEFORMS FROM ANALYSIS UTILITY. ATTACH PAPER COPIES OF PRINTOUT AND PAPER TAPES, IF AVAILABLE, TO THIS FORM. AVERAGE FREQUENCY MUST BE BETWEEN 99.0 AND 101.0 HZ.

AS FOUND 100.0 AS LEFT 100.0

WAVEFORM	FILE NO	FREQUENCY	TIME FOR 9 CYCLES Hn	TIME FOR 9 CYCLES Hr	TIME FOR 9 CYCLES V	AVERAGE FREQ.
SQUARE	401	100.0	90.0	90.0	90.0	100.0
SQUARE	402	100.0	90.0	90.0	90.0	100.0
SINE	403	100.0	90.0	90.0	90.0	100.0
SINE	404	100.0	90.1	90.0	90.0	100.0

CALIBRATED BY:	ROBERT STELLER	1/25/2008	<i>Rob Steller</i>
	NAME	DATE	SIGNATURE

Page 2 of 2

Seismic recorder/Logger Calibration Data Sheet Rev 1.30 4-6-06
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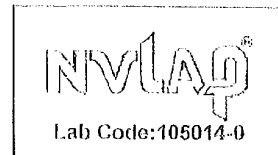
Metrology
7300 Fenwick Lane
Westminster, CA 92683
Phone: 866-723-2257

Calibration Report

NVLAP Accredited

Calibration

GEOVision Geophysical Services
1151 Pomona Road, Unit P
Corona, CA 92882



Manufacturer: Geometrics
Model Number: GEODE
Description: Siesmograph,
Asset Number: 3458
Serial Number: 3458
PO Number: 8200-080122-01

Condition As Found: In Tolerance
Condition As Left: In Tolerance
Calibration Date: 01/25/2008
Calibration Due Date: 01/25/2009
Calibration Interval: 12 Months

Remarks:

The UUT (unit under test) was calibrated using the customer's procedure. The UUT was operated by the customer's personnel and data collection was observed by SCE personnel. The UUT was found to be in tolerance to customer supplied specifications. The reference standards used are in compliance with ISO/IEC 17025:1999 and laboratory accreditation criteria established by NIST/NVLAP under the specific scope of accreditation for lab code 105014-0. Frequency is accredited. Measurement uncertainty is 0.2×10^{-12} Hz. Please see attached data.

Standards Utilized

I.D. No.	Mfg.	Model No.	Description	Cal. Date	Due Date
S1-01252	Hewlett Packard	5335A OPT 010,203040	Counter, Universal,	12/28/2007	06/28/2008
S1-01347	Hewlett Packard	3325A	Generator, Function, Synthesizer	10/09/2007	04/09/2008
S1-03686	Fluke	910	Standard, Frequency, Controlled, Gps	01/22/2008	01/22/2009

Procedure: Customer
Temperature: 23° C
Humidity: 37% RH
Test No.: 550389

Calibration Performed By:			Quality Reviewer:	
Branson, Craig A	Metrologist	714-895-0714		
Name	Title	Phone	Name	Date

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SEISMOGRAPH CALIBRATION DATA SHEET REV 4/6/06

INSTRUMENT DATA

SYSTEM MFR: GEOMETRICS	MODEL NO.: GEODE
SERIAL NO.: 3458	CALIBRATION DATE: 01/25/2008
BY: ROBERT STELLER	DUE DATE: 01/25/2009
COUNTER MFR: HEWLETT PACKARD	MODEL NO.: 5335A
SERIAL NO.: 2626A09881	CALIBRATION DATE: 12/28/2007
BY: SCE #S1-01252	DUE DATE: 6/28/2008
FCTN GEN MFR: HEWLETT PACKARD	MODEL NO.: 3325A
SERIAL NO.: 2652A25647	CALIBRATION DATE: 10/9/2007
BY: SCE #S1-01347	DUE DATE: 4/9/2008

SYSTEM SETTINGS:

GAIN:	24 Db
FILTER:	NONE
RANGE:	SAMPLE = 62.5 MICROSEC, RECORD = 0.1 SEC
DELAY:	0
STACK: 1 (STD)	1
PULSE:	NA
DISPLAY:	NA
SYSTEM: DATE = CORRECT DATE & TIME	01/25/2008, 1:10PM

PROCEDURE:

SET FREQUENCY TO 100.0HZ SQUAREWAVE WITH AMPLITUDE APPROXIMATELY 0.25 VOLT PEAK. RECORD BOTH ON DISK AND PAPER TAPE, IF AVAILABLE. ANALYZE AND PRINT WAVEFORMS FROM ANALYSIS UTILITY. ATTACH PAPER COPIES OF PRINTOUT AND PAPER TAPES, IF AVAILABLE, TO THIS FORM. AVERAGE FREQUENCY MUST BE BETWEEN 99.0 AND 101.0 HZ.

AS FOUND 100 AS LEFT 100

WAVEFORM	FILE NO	FREQUENCY	TIME FOR 9 CYCLES Hn	TIME FOR 9 CYCLES Hr	TIME FOR 9 CYCLES V	AVERAGE FREQ.
SQUARE	601	100.0	90	90	90	100
SQUARE	602	100.0	90	90	90	100
SINE	603	100.0	90	90	90	100
SINE	604	100.0	90	90	90	100

CALIBRATED BY:	ROBERT STELLER	1/25/2008	<i>Rob Steller</i>
	NAME	DATE	SIGNATURE

Page 2 of 2

Seismic recorder/Logger Calibration Data Sheet Rev 1.30 4-6-06



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Southern California Edison Company
7300 Fenwick Lane
Westminster, CA 92683
Ms. Jennifer E. Smith
Phone: 714-895-0133 Fax: 714-895-0781
E-mail: Jennifer.Smith@sce.com
URL: <http://www.edisonmetrology.com>

CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

NVLAP Code: 20/A01

ANSI/NCCL Z540-1-1994; Part 1

Compliant

DIMENSIONAL

NVLAP Code: 20/D03
Gage Blocks

Nominal Length in in

Best Uncertainty (\pm) in μin ^{note 1}

0.01 to \leq 0.05	1.9
0.05 to \leq 0.1	1.7
0.1 to \leq 1.0	1.2
1.0	1.4
2.0	1.8
3.0	2.2
4.0	2.9
5.0	5.4
6.0	5.6
7.0	5.8
8.0	6.0
10.0	6.8
12.0	7.2
16.0	8.1
20.0	9.4

2007-04-01 through 2008-03-31

Effective dates

Sally S. Bruce

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

Nominal Length in mm

Best Uncertainty (\pm) in mm ^{note 1}

0.5 to < 1.0	52
1.0 to < 2.5	44
2.5 to < 25.0	39
25.0	44
50.0	47
75.0	60
100.0	80

NVLAP Code: 20/D11

Spherical Diameter; Ring Gages

Range in inches

Best Uncertainty (\pm) in μ in ^{note 1}

Remarks

0.040 to 0.825	10	Comparison to gage blocks
> 0.825 to 1.510	8	Comparison to gage blocks
> 1.510 to 2.510	9	Comparison to gage blocks
> 2.510 to 4.510	14	Comparison to gage blocks
> 4.510 to 6.510	21	Comparison to gage blocks
> 6.510 to 9.010	29	Comparison to gage blocks
> 9.010 to 12.010	40	Comparison to gage blocks
> 12.010 to 13.25	44	Comparison to gage blocks

ELECTROMAGNETICS - DC/LOW FREQUENCY

NVLAP Code: 20/E02

AC Current

Best Uncertainty (\pm) in ppm ^{note 1}

Frequency in Hz

Range	10	20	40	400 to 10 k
10 mA	278	209	142	132
20 mA	278	209	142	132
30 mA	278	209	142	132
50 mA	300	202	124	109
100 mA	278	209	142	132

2007-04-01 through 2008-03-31

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

200 mA		278		209		142		132
300 mA		278		209		142		132
500 mA		300		203		124		109
	10	20	40	400 to 5 k	10 k			
1A	300	203	125	110	112			
	10	20	40	400 to 10 k				
2A	305	200	127	113				
3A	305	200	127	113				
	10	20	40	400 to 5 k	10 k			
5A	309	210	134	120	123			
	10	20	40	400	1 k	5 k	10 k	
10A	318	216	140	127	127	127	128	
							400 to 10 k	
20A							135	

NVLAP Code: 20/E05
DC Current

Range	Best Uncertainty (\pm) in ppm ^{note 1}
10 nA	4.0
100 nA	3.6
1 μ A	3.0
10 μ A	2.3
100 μ A	1.9
1 mA	1.9
10 mA	1.9
100 mA	1.9
1 A	10.4
10 A	10.4
30 A	20.6

2007-04-01 through 2008-03-31

Effective dates

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

DC Resistance

<i>Nominal Value in Ω</i>	<i>Best Uncertainty (\pm) in ppm ^{note 1}</i>	<i>Remarks</i>
100 μ	6.1	Automated DC Resistance Calibration System
1 m	4.1	Automated DC Resistance Calibration System
10 m	3.1	Automated DC Resistance Calibration System
100 m	0.3	Automated DC Resistance Calibration System
1	0.2	Automated DC Resistance Calibration System
10	0.2	Automated DC Resistance Calibration System
25	0.3	Automated DC Resistance Calibration System
100	0.3	Automated DC Resistance Calibration System
1 k	0.3	Automated DC Resistance Calibration System
10 k	0.4	Automated DC Resistance Calibration System
100 k	1.2	Automated DC Resistance Calibration System
1 M	1.7	Automated DC Resistance Calibration System
10 M	2.1	Automated DC Resistance Calibration System
100 M	2.6	Automated DC Resistance Calibration System

NVLAP Code: 20/1306

DC Voltage

<i>Range</i>	<i>Best Uncertainty (\pm) in ppm ^{notes 1,2}</i>	<i>Remarks</i>
1.018 V	1.1	Automated DC Calibration System
10.00 V	0.4	Automated DC Calibration System
1.000 V	1.1	Automated DC Calibration System
1 mV to 100 mV	1.3 ^{note 6}	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
100 mV	0.7	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
1.0 V	0.4	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage

2007-04-01 through 2008-03-31

Dally S. Bruce

Effective dates

For the National Institute of Standards and Technology



CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

10.0 V	0.4	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
20.0 V	0.6	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
100.0 V	0.4	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
1000.0 V	0.8	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage

NVLAP Code: 20/E09
LF AC Voltage

*Best Uncertainty (\pm) in ppm ^{notes 1,3,4}
Frequency in Hz*

Range	10	20	40	100	1 k	5 kHz	10 k	15 kHz	20 k	25 kHz
2 mV	306	893	835	873	376	599	854	889	854	825
10 mV	109	166	96	176	188	180	166	169	166	175
20 mV	79	69	65	65	65	66	66	69	66	81
30 mV	131	123	84	105	65	72	86	75	70	78
100 mV	33	37	22	33	33	32	31	32	32	34
190 mV	35	27	29	21	24	23	23	20	19	22
300 mV	47	47	23	23	27	23	19	22	26	27
1 V	120	34	18	9	12	12	12	12	11	12
1.9 V	36	22	19	10	8	8	8	8	8	9
3 V	31	34	25	17	16	15	15	15	15	17
10 V	21	33	19	11	10	10	11	11	12	11
19 V	31	23	20	11	10	10	10	10	11	11
30 V	29	34	25	16	16	17	18	18	18	20
100 V	85	36	20	16	15	15	16	14	12	15
190 V	45	24	20	19	13	13	13	15	17	16
300 V			36	29	18	22	27	24	22	23
500 V			30	25	17	18	19	19	19	21

2007-04-01 through 2008-03-31

Dolly S. Bruce

Effective dates

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

700 V			27	23	18	18	18	18	18	22
1000 V			26	25	22	21	21	21	22	25
Range	30 kHz	50 k	60 kHz	100 k	300 k	500 K	700 kHz	800 k		1M
2 mV	730	395	529	1020	1237	2090	2308	2419		2419
10 mV	182	205	233	299	234	631	459	373		403
20 mV	94	128	167	202	301	451	371	333		373
30 mV	87	127	144	216	342	515	560	590		643
100 mV	35	42	49	76	156	201	247	271		192
190 mV	26	41	49	81	137	119	208	252		191
300 mv	29	37	42	64	120	155	172	189		152
1 V	13	18	18	11	70	90	103	95		75
1.9 V	10	15	14	14	90	95	85	81		82
3 V	19	27	24	24	90	94	96	97		112
10 V	11	11	11	12	70	95	99	104		100
19 V	11	11	12	16	84	91	89	93		104
30 V	22	31	31	31	91					
100 V	18	31	28	17						
190 V	16	18	18	21						
300 V	24	28	31	43						
500 V	24	35	37	51						
700 V	25	40	42	58						
1 kV	29									

TIME AND FREQUENCY

NVLAP Code: 20/F01
Frequency Dissemination

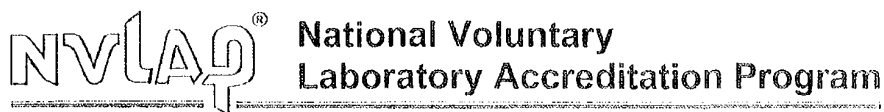
Range	Best Uncertainty (\pm) ^{note 1}	Remarks
10 MHz	1.2×10^{-12}	GPS Receiver

2007-04-01 through 2008-03-31

Sally S. Bruce

Effective dates

For the National Institute of Standards and Technology



CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

MECHANICAL

NVLAP Code: 20/M05

Flow Rate

Nominal Flow Rate

Best Uncertainty (±) in percent ^{notes 1, 5}

(0.8 to 30) L/s

0.3

(0.1 to 800) mL/s

0.4

NVLAP Code: 20/M06

Force

Nominal Force in lb

Best Uncertainty (±) ^{note 1}

Remarks

2 to 200

0.025 %

Dead Weight

> 200 to 300

0.086 lb

Proving Ring

> 300 to 500

0.14 lb

Proving Ring

> 500 to 1000

0.28 lb

Proving Ring

> 1000 to 2000

0.55 lb

Proving Ring

> 2000 to 5000

0.84 lb

Proving Ring

> 5000 to 10 000

1.7 lb

Proving Ring

> 10 000 to 20 000

5.5 lb

Proving Ring

> 20 000 to 35 000

5.8 lb

Proving Ring

> 35 000 to 50 000

13 lb

Proving Ring

> 50 000 to 60 000

16 lb

Proving Ring

> 60 000 to 100 000

26 lb

Proving Ring

> 100 000 to 300 000

113 lb

Proving Ring

NVLAP Code: 20/M08

Mass

Range

Best Uncertainty (±) in mg ^{notes 1,2}

Remarks

10 kg

2.3

Echelon I

5 kg

0.93

Echelon I

3 kg

0.65

Echelon I

2 kg

0.43

Echelon I

2007-04-01 through 2008-03-31

Dolly S. Bruce

Effective dates

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

1 kg	0.052	Echelon I
500 g	0.043	Echelon I
300 g	0.041	Echelon I
200 g	0.034	Echelon I
100 g	0.020	Echelon I
50 g	0.013	Echelon I
30 g	0.013	Echelon I
20 g	0.0095	Echelon I
10 g	0.0073	Echelon I
5 g	0.0048	Echelon I
3 g	0.0038	Echelon I
2 g	0.0029	Echelon I
1 g	0.0030	Echelon I
500 mg	0.0017	Echelon I
300 mg	0.0013	Echelon I
200 mg	0.0010	Echelon I
100 mg	0.0009	Echelon I
50 mg	0.0007	Echelon I
30 mg	0.0007	Echelon I
20 mg	0.0005	Echelon I
10 mg	0.0005	Echelon I
5 mg	0.0006	Echelon I
3 mg	0.0006	Echelon I
2 mg	0.0005	Echelon I
1 mg	0.0005	Echelon I
30 kg	56	Echelon II
20 kg	22	Echelon II

2007-04-01 through 2008-03-31

Sally S. Bruce

Effective dates

For the National Institute of Standards and Technology



CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0
Scope Revised : 2007-04-20

THERMODYNAMIC

NVLAP Code: 20/T05
Pressure

<i>Range in psi</i>	<i>Best Uncertainty (±) in ppm ^{note 1}</i>	<i>Remarks</i>
0 to 50	25	Gas
> 50 to 1450	48	Gas
> 1450 to 16 000	90	Gas
> 1000 to 10 000	62	Oil
> 10 000 to 30 000	113	Oil
> 30 000 to 50 000	213	Oil

NVLAP Code: 20/T07
Resistance Thermometry

<i>Range</i>	<i>Best Uncertainty (±) in mK ^{note 1}</i>	<i>Remarks</i>
77.348 K	-195.80 °C	4.0
234.3156 K	-38.83 °C	0.7
273.16 K	0.01 °C	0.6
505.078 K	231.93 °C	1.6
692.77 K	419.53 °C	2.3

2007-04-01 through 2008-03-31

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For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

1. Represents an expanded uncertainty using a coverage factor, $k = 2$, at an approximate level of confidence of 95 %.
2. Approximate value. Actual value determined by the test statistics.
3. All ACV measurements performed via AC/DC transfer system.
4. Uncertainties listed are representative of the laboratory's accredited capabilities within the stated ranges. Accreditation is not limited to only those fixed values shown.
5. Dependent upon principle of operation of device being calibrated and its performance relative to standards at the time of the test.
6. The equation: $\text{uncert.} = (A + B/mVDC)^{0.5}$ (where $A = 0.16$ and $B = 0.013333$) is provided in order for potential customers to calculate approximate uncertainties for values down to 1 mV. Example: uncertainty at 1 mVDC would calculate to approximately ± 115.47 ppm.
7. The laboratory maintains Echelon II capability for ranges 20 kg to 1 mg and separate Echelon III for all ranges.
8. Avoirdupois mass calibration services are available by comparison to equivalent metric standards. Uncertainties may be appropriately larger.

2007-04-01 through 2008-03-31

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology

GEOVision Borehole Geophysics depth wheel verification

Performed by Robert Steller on September 23, 2006

	Depth reading in #1	Depth reading out	Depth reading in #2
Depth wheel S/N 101 500 pulse/revolution Circumference = 983mm (3225.07 millifeet)	100.1 feet (30.51 m)	99.95 feet (30.46 m)	100.05 feet (30.50 m)
Depth wheel S/N 102 500 pulse/revolution Circumference = 994mm (3261.15 millifeet)	100.00 feet (30.48) m	100.05 feet (30.50 m)	100.00 feet (30.48) m
Aries winch 200 pulse/revolution Circumference = 305.9mm (1003.51 millifeet)	100.05 feet (30.50) m	100.05 feet (30.50 m)	100.00 feet (30.48) m
Depth wheel S/N 103 500 pulse/revolution Circumference = 1000mm (3.281 feet)			
Comprobe winch 500 pulse/revolution Circumference = 1000mm (3.281 feet)			

All measurements taken with a Stanley 100ft flexible stainless steel tape model number 34-130, and a Keeson 300 foot fiberglass tape, both marked in feet, inches and 1/8ths of inches. Enough cable was spooled off of the winch to allow the cable and tape measures to be laid flat on the parking lot surface side-by-side. A permanent marker was used to mark a 100.0 foot interval on the cable, and the marks were also tagged with electrical tape for visibility. The cable was then spooled back onto the winch. When the first mark was at the top of the measuring wheel, a matching permanent mark was placed, and the recording system (Robertson Micrologger) was set to 0.0 feet depth. The cable was spooled in to the second mark, and the distance was recorded. The recording system was set to 0.0 feet again, and the cable spooled out to the first mark again, and the distance was recorded. The process was repeated one more time to spool the cable back onto the winch, and the distance was recorded.

Estimated accuracy of these measurements is +/- 0.1 foot or +/- 0.03m.

GEOVision Suspension PS probe Receiver 1–Receiver 2 (R1-R2) spacing verification

Performed by Robert Steller on September 23, 2006

	R2 center to R1 center hanging dry	R2 center to R1 center hanging submerged	R1 bottom to source center hanging submerged with 1m isolation tube S/N 280068
Receiver S/N 30086	40.2in 1.02m	40.0in 1.02m	76.0in 1.93m
Receiver S/N 20042	39.8in 1.01m	39.6in 1.01m	75.7in 1.92m
Receiver S/N 12008	40.2in 1.02m	40.0in 1.02m	76.0in 1.93m

All measurements taken with a Lufkin 3.7m flexible steel tape model number HV1034DM, marked in mm and 100th of feet. Probe suspended in 3-inch diameter clear PVC pipe, using chain clamp placed between bottom and center of Receiver 2 hard section (See Figure). Probe “bounced” to establish unrestricted hanging length before measurement. Probe allowed to relax for 5 minutes prior to each measurement. Water level set to submerge bottom of Receiver 2 hard section.. Estimated accuracy due to hysteresis in rubber section approximately +/- 0.01' or +/- 0.003m.



APPENDIX F

BORING GEOPHYSICAL LOGGING

FIELD DATA LOGS



B-601 D#1 BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 3/10/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF 2

CONTACT: _____

PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____

UNCASED ☒

DIAMETERS AND DEPTH RANGES: 6" 0 TO 25 ft; 5" 25 ft TO 139 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 139 ft (3/10) / 420 ft (3/28/08)

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25 ft / NO

DEPTH TO BEDROCK: ~3 ft 153 / 117

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____

LOGGING CREW: C. Carter

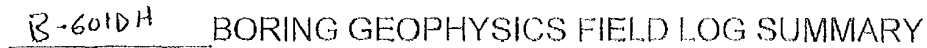
LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B601DHELOGTEST01		3/10/08	3:14 - 3:15 pm
ELOG	B601DHELOGUP01	137.65 - 37.9 ft	3/10/08	3:50 - 4:01 pm
PS Velocity	B601DHSUSPDOWN01	27.89 - 123.03 ft	3/10/08	4:29 - 5:05 pm
ATV	B601DHAUUP01	121.5 - 22.0 ft	3/10/08	5:42 - 6:13 pm
Caliper	B601DHCALTEST01		3/10/08	6:38 - 6:40 pm
Caliper	B601DHCALUP01	131.95 - 14.9 ft	3/10/08	6:55 - 7:06 pm
Caliper	B601DHCALTEST02		3/10/08	7:25 - 7:26 pm
ELOG	B601DHELOGTEST02		3/26/08	8:32 - 8:33 am
ELOG	B601DHELOGUP02	416.25 - 140.4 ft	3/26/08	9:41 - 10:08 am
ELOG	B601DHELOGUP03	169.4 - 110.75 ft	3/26/08	4:45 - 4:53 pm
ELOG	B601DHELOGTEST03		3/26/08	5:09 - 5:10 pm
PS velocity	B601DHSUSPDOWN02	150.92 - 400.26 ft	3/26/08	11:07 - 12:18 pm
PS velocity	B601DHSUSPDOWN03	118.1 - 157.5 ft	3/26/08	5:33 - 5:49 pm
Deviation	B601DHAUUP02	401.4 - 117.4 ft	3/26/08	1:17 - 1:32 pm
Caliper	B601DHCALTEST03		3/26/08	2:03 - 2:04 pm
Caliper	B601DHCALUP02	411.2 - 146.95 ft	3/26/08	2:21 - 2:48 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236



LOGGING CREW: C. Carter

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-601 DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 25 ft; 3 7/8" 25' TO 138.3 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 138.3 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 3pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:30 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-6010A ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	1.58	
DEPTH REF. OFFSET AT START*	39.42	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.40	
AFTER SURVEY DEPTH ERROR*	.02	

cc 3/10/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B601ELOGTEST01				
B601ELOGUP				
B601DHELOGTEST01		3:14		3:15 pm
B601DHELOGUP01	137.65 ft	3:50	37.9 ft	4:01 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-601 DM P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4 *

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DIRECTIONS TO SITE:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION*: CASED UNCASED X

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 25 ft ; 5" 25 TO 139 ft cc 7/24/08

BOREHOLE TOTAL DEPTH AS DRILLED*: 139 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 25 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER; FRESH WATER MUD X; SALT WATER MUD;

OTHER:

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 3pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 11511 Pomona Road, Suite P, Corona, CA 92622 (951) 649-1234 Fx (951) 549-1238

P-S FIELD LOG REV V1.31a



B-601DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:30 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:
LOGGING STARTED: 4:29 pm LOGGING COMPLETED: 5:05 pm

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH ☐
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* ~.48
DEPTH REF. OFFSET AT START* 2.02
DEPTH REF. OFFSET AT END* 2.02
AFTER SURVEY DEPTH ERROR* ϕ } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B601DH SUSP DOWN 01	27.89 ft	4:29	123.03'	5:05 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-601DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/10/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25			
8.5	27.89	001		4:29
9.0	29.53	2		
9.5	31.17	3		
10.0	32.81	4		
10.5	34.45	5		
11.0	36.09	6		
11.5	37.73	7		
12.0	39.37	8		
12.5	41.01	9		
13.0	42.65	10		
13.5	44.29	11		
14.0	45.93	12		
14.5	47.57	13		
15.0	49.21	14		
15.5	50.85	15		
16.0	52.49	16		
16.5	54.13	17		
17.0	55.77	18		
17.5	57.41	19		
18.0	59.06	20		
18.5	60.70	21		
19.0	62.34	22		
19.5	63.98	23		
20.0	65.62	24		
20.5	67.26	25		

P-S FIELD LOG REV V1.31a

B-601DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/10/08, 3/26/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 484 OF 484 *cc 3/26/08 cl 7/24/08*

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL *cl 7/24/08*

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (If any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	26		
21.5	70.54	27		
22.0	72.18	28		
22.5	73.82	29		
23.0	75.46	30		
23.5	77.10	31		
24.0	78.74	32		
24.5	80.38	33		
25.0	82.02	34		
25.5	83.66	35		
26.0	85.30	36		
26.5	86.94	37		
27.0	88.58	38		
27.5	90.22	39		
28.0	91.86	40		
28.5	93.50	41		
29.0	95.14	42		
29.5	96.78	43		
30.0	98.43	44		
30.5	100.07	45		
31.0	101.71	46		
31.5	103.35	47		
32.0	104.99	48		
32.5	106.63	49		
33.0	108.27	50		
33.5	109.91	51		
34.0	111.55	52		
34.5	113.19	53		
35.0	114.83	54		
35.5	116.47	55		
36.0	118.11	56 212		5:33 3/26/08
36.5	119.75	57 213		
37.0	121.39	58 214		
37.5	123.03	59 215		5:05 (3/10/08)
38.0	124.67	216		
38.5	126.31	217		
39.0	127.95	218		
39.5	129.59	219		
40.0	131.23	220		
40.5	132.87	221		
41.0	134.51	222		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-601DP ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION: CASED UNCASD X

DIAMETERS AND DEPTH RANGES: 2.5" 0 TO 2.5' ; 5" 25 TO 139 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 139 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25'

DEPTH TO BEDROCK: ~3 DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD

OTHER:

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 3pm

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE:

MOBILIZED FROM: Florida City DEPARTURE TIME: 6:30am

ARRIVED ON SITE: 1am

STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-601DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 86.93 BRUNTON TILT* 86
2 PROBE TILT TEST* 25.4 BRUNTON TILT* 25
3 PROBE TILT TEST* 68.15 BRUNTON TILT* 68 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 265.2 BRUNTON AZIMUTH* 269
2 PROBE AZIMUTH TEST* 172.5 BRUNTON AZIMUTH* 170
3 PROBE AZIMUTH TEST* 302.7 BRUNTON AZIMUTH* 299 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.58	
DEPTH REF. OFFSET AT START*	3.14	
DEPTH REF. OFFSET AT END*	3.10	
AFTER SURVEY DEPTH ERROR*	.04	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B601DH AUGUST	121.5 ft	5:42	22 ft	6:13 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-601 DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/10/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION: 1

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 25 ft; 5" 25 TO 137

BOREHOLE TOTAL DEPTH AS DRILLED*: 139 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25 ft; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER; FRESH WATER MUD X; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 3pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:30am
ARRIVED ON SITE: 7am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-606 DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.58	
DEPTH REF. OFFSET AT START*	5.24	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.15	
AFTER SURVEY DEPTH ERROR*	.09	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B601DHCA TEST01	131.95	6:38	144.95	6:40 pm
B601DHCA LUP01	131.95 ft	6:55	144.9 ft	7:08 pm
B601DHCA TEST02		7:25		7:26 pm

cc 3/10/08

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B601DHCA TEST01	1.976	4.00	8.03	4.54
AS MEAS.*	B601DHCA TEST02	2.02	4.02	8.07	4.56
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

cc 3/10/08
4.510

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-601Dh

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/26/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 5" 0 TO 139'; 3 7/8" 139 TO 420 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 143' / 117' NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7:50 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-601011 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
ELOG PROBE* 5490 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.8 32.8
MINUS CASING STICK-UP*	1.92 2.15
DEPTH REF. OFFSET AT START*	39.08 38.25 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.10 38.25
AFTER SURVEY DEPTH ERROR*	.02 0

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B601DHELOGTEST02		8:32		8:33am
B601DHELOGUP02	416.25	9:41am	140.45 ft	10:08am
B601DHELOGUP03	169.4 ft	4:45pm	110.75	4:53pm
B601DHELOGTEST03		5:09pm		5:16pm

MAINTENANCE PERFORMED ON SITE*: (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: Bentonite, Polymer mud, tiger salt
used in mud
Mostly Bentonite + tiger salt
Very conductive above 200 ft

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL


P-S FIELD LOG REV V1.31a



B-6010H P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a


Borehole

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 7

CONTACT:  PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell

DIRECTIONS TO SITE:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION*: CASED UNCASD X
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 150 ; 3 7/8" 150 TO 420 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft
SURFACE CASING?: X DEPTH TO BOTTOM OF CASING ~150 ft / 117 ft NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD X; SALT WATER MUD;
OTHER:
DEPTH TO BOREHOLE FLUID*:  TIME SINCE LAST CIRCULATION: 9am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 115 F Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-601Dth P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF * 7

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45
ARRIVED ON SITE: 7:50
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW 6.0V

WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH ☐
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☒ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☐
ISOLATION TUBE S/N* 300083 ☐ 24053 ☒ 28068 ☐ 28072 ☐ 2M ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .59m / .84m
DEPTH REF. OFFSET AT START* 1.91 / 1.66
DEPTH REF. OFFSET AT END* 1.90 / 1.65
AFTER SURVEY DEPTH ERROR* .01 / .01
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B601DHSUSPDOWN02	150.92'	11:07 am	100.26 ft	12:18 pm
B601DHSUSPDOWN03	118.11 ft	5:33 pm	157.5	5:49 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-601D11

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/10/08, 3/26/08

CLIENT*: MACTEC

JOB*: 8083

cc 3/26/08

AUTHOR*: C. Carter

PAGE* 43

OF 47

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	26		
21.5	70.54	27		
22.0	72.18	28		
22.5	73.82	29		
23.0	75.46	30		
23.5	77.10	31		
24.0	78.74	32		
24.5	80.38	33		
25.0	82.02	34		
25.5	83.66	35		
26.0	85.30	36		
26.5	86.94	37		
27.0	88.58	38		
27.5	90.22	39		
28.0	91.86	40		
28.5	93.50	41		
29.0	95.14	42		
29.5	96.78	43		
30.0	98.43	44		
30.5	100.07	45		
31.0	101.71	46		
31.5	103.35	47		
32.0	104.99	48		
32.5	106.63	49		
33.0	108.27	50		
33.5	109.91	51		
34.0	111.55	52		
34.5	113.19	53		
35.0	114.83	54		
35.5	116.47	55		
36.0	118.11	56	212	5:33 3/26/08
36.5	119.75	57	213	
37.0	121.39	58	214	
37.5	123.03	59	215	5:05 (3/10/08)
38.0	124.67		216	
38.5	126.31		217	
39.0	127.95		218	
39.5	129.59		219	
40.0	131.23		220	
40.5	132.87		221	
41.0	134.51		222	

P-S FIELD LOG REV V1.31a

B-601VH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	223		
42.0	137.80	224		
42.5	139.44	225		
43.0	141.08	226		
43.5	142.72	227		
44.0	144.36	228		
44.5	146.00	229		
45.0	147.64	230		
45.5	149.28	231		
46.0	150.92	60 232		11:07 am
46.5	152.56	61 233		
47.0	154.20	62 234		
47.5	155.84	63 235		
48.0	157.48	64 236		5:41 pm 3/26/08
48.5	159.12	65		
49.0	160.76	66		
49.5	162.40	67		
50.0	164.04	68		
50.5	165.68	69		
51.0	167.32	70		
51.5	168.96	71		
52.0	170.60	72		
52.5	172.24	73		
53.0	173.88	74		
53.5	175.52	75		
54.0	177.17	76		
54.5	178.81	77		
55.0	180.45	78		
55.5	182.09	79		
56.0	183.73	80		
56.5	185.37	81		
57.0	187.01	82		
57.5	188.65	83		
58.0	190.29	84		
58.5	191.93	85		
59.0	193.57	86		
59.5	195.21			
60.0	196.85	87		
60.5	198.49	88		
61.0	200.13	89		
61.5	201.77	90		

P-S FIELD LOG REV V1.31a

8-60104 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP

DATE*: 3/26/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 5

OF 7 COR 7/10/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	91		
62.5	205.05	92		
63.0	206.69	93		
63.5	208.33	94		
64.0	209.97	95		
64.5	211.61	96		
65.0	213.25	97		
65.5	214.90	98		
66.0	216.54	99		
66.5	218.18	100		
67.0	219.82	101		
67.5	221.46	102		
68.0	223.10	103		
68.5	224.74	104		
69.0	226.38	105		
69.5	228.02	106		
70.0	229.66	107		
70.5	231.30	108		
71.0	232.94	109		
71.5	234.58	110		
72.0	236.22	111		
72.5	237.86	112		
73.0	239.50	113		slower
73.5	241.14	114		
74.0	242.78	115		
74.5	244.42	116		
75.0	246.06	117		
75.5	247.70	118		
76.0	249.34	119		
76.5	250.98	120		
77.0	252.62	121		
77.5	254.27	122		
78.0	255.91	123		
78.5	257.55	124		
79.0	259.19	125		
79.5	260.83	126		
80.0	262.47	127		
80.5	264.11	128		
81.0	265.75	129		
81.5	267.39	130		
82.0	269.03	131		

P-S FIELD LOG REV V1.31a

B-601DH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE* 6 OF 7 ca 7/26/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
82.5	270.67	132		
83.0	272.31	133		
83.5	273.95	134		
84.0	275.59	135		
84.5	277.23	136		
85.0	278.87	137		
85.5	280.51	138		
86.0	282.15	139		
86.5	283.79	140		
87.0	285.43	141		
87.5	287.07	142		
88.0	288.71	143		
88.5	290.35	144		
89.0	291.99	145		
89.5	293.64	146		
90.0	295.28	147		
90.5	296.92	148		
91.0	298.56	149		
91.5	300.20	150		
92.0	301.84	151		
92.5	303.48	152		
93.0	305.12	153		
93.5	306.76	154		
94.0	308.40	155		
94.5	310.04	156		
95.0	311.68	157		slower
95.5	313.32	158		
96.0	314.96	159		
96.5	316.60	160		
97.0	318.24	161		
97.5	319.88	162		
98.0	321.52	163		
98.5	323.16	164		
99.0	324.80	165		
99.5	326.44	166		
100.0	328.08	167		
100.5	329.72	168		
101.0	331.36	169		
101.5	333.01	170		
102.0	334.65	171		
102.5	336.29	172		

P-S FIELD LOG REV V1.31a

B-60174 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 7 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
103.0	337.93	173		
103.5	339.57	174		
104.0	341.21	175		
104.5	342.85	176		
105.0	344.49	177		
105.5	346.13	178		
106.0	347.77	179		
106.5	349.41	180		
107.0	351.05	181		
107.5	352.69	182		
108.0	354.33	183		
108.5	355.97	184		
109.0	357.61	185		
109.5	359.25	186		
110.0	360.89	187		
110.5	362.53	188		
111.0	364.17	189		
111.5	365.81	190		
112.0	367.45	191		
112.5	369.09	192		
113.0	370.73	193		
113.5	372.38	194		
114.0	374.02	195		
114.5	375.66	196		
115.0	377.30	197		
115.5	378.94	198		
116.0	380.58	199		
116.5	382.22	200		
117.0	383.86	201		
117.5	385.50	202		
118.0	387.14	203		
118.5	388.78	204		
119.0	390.42	205		
119.5	392.06	206		
120.0	393.70	207		
120.5	395.34	208		
121.0	396.98	209		
121.5	398.62	210		
122.0	400.26	211		12:18 pm
122.5	401.90			
123.0	403.54			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-60104 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 5" 0 TO 139"; 3 1/8" 143" TO 420 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 153'; NO _____
DEPTH TO BEDROCK: ~39ft DEPTH TO WATER TABLE: ~1.6ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7:50 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-601DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 90.08 BRUNTON TILT* 90
2 PROBE TILT TEST* 23.46 BRUNTON TILT* 23
3 PROBE TILT TEST* 13.2 BRUNTON TILT* 13 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 323.3 BRUNTON AZIMUTH* 319
2 PROBE AZIMUTH TEST* 222.0 BRUNTON AZIMUTH* 225
3 PROBE AZIMUTH TEST* 297.6 BRUNTON AZIMUTH* 295 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.92	
DEPTH REF. OFFSET AT START*	2.8	
DEPTH REF. OFFSET AT END*	2.8	
AFTER SURVEY DEPTH ERROR*	.0	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B601DH AUP02	401.4	1:17 pm	417.4 ft	1:32 pm
cc 3/26/08				

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-601D4

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/26/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED ☒ UNCASD _____
DIAMETERS AND DEPTH RANGES: _____ 0 TO _____; 3 7/8" 143 ft TO 420

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 153' 11", NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7:50 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG RE-V1.1a.PDF



3-601DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/26/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.92 / 2.25	
DEPTH REF. OFFSET AT START*	4.9 / 4.07	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	4.9 / 4.00	
AFTER SURVEY DEPTH ERROR*	0 / .07	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B601DHCALEST03		2:03 pm		2:10 pm
B601DHCALEST02	411.2 ft	2:21 pm	146.95 ft	2:48
B601DHCALEST04		3:25		3:26 pm
B601DHCALEST05		3:53		3:54 pm
B601DHCALEST03	157.2'	4:08	110.45'	4:15 pm
B601DHCALEST06		4:24		4:25 pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B601DHCALEST03	1.951	3.939	7.966	4.527
AS MEAS.*	B601DHCALEST04	1.99	3.94	8.03	4.54
AS MEAS.	B601DHCALEST05	1.99	3.951	7.999	4.522
AS MEAS.	B601DHCALEST06	1.99	3.94	7.98	4.516
AS MEAS.					
AS MEAS.					

4.510 in 3/26/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236



B-604DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 3/21/08, 3/22/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF 2

CONTACT:

PHONE:

BOREHOLE CONSTRUCTION: Cased

UNCASED ☒

DIAMETERS AND DEPTH RANGES: 9" 0 TO 24' 30" 3 1/8" 24' 30" TO TD (118' 165')

BOREHOLE TOTAL DEPTH AS DRILLED*: 118 ft / 165 ft

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 24' 30" NO

DEPTH TO BEDROCK: 3.5 ft

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B604DHELOGTEST01		3/21/08	4:04 - 4:05 pm
ELOG	B604DHELOGUP01	112.65 - 66.45 ft	3/21/08	4:49 - 4:55 pm
ELOG	B604DHELOGUP02	112.1 - 39.25 ft	3/21/08	5:01 - 5:08 pm
P-S velocity	B604DHSUSPDM01	8.0m - 30.0m	3/21/08	5:33 - 5:58 pm
ATV	B604DHAVUP01	91.8 - 30 ft	3/22/08	8:50 - 9:12 am
ATV	B604DHAVUP02	35.2 - 22.9 ft	3/22/08	9:13 - 9:17 am
Caliper	B604DHACALTEST01		3/22/08	9:37 - 9:38 am
Caliper	B604DHACALUP01	103.65 - 19.75 ft	3/22/08	9:50 - 9:59 am
Caliper	B604DHACALTEST02		3/22/08	10:10 - 10:12 am
ELOG	B604DHELOGTEST02		3/24/08	8:22 - 8:23 am
ELOG	B604DHELOGUP03	163.25 - 39.1 ft	3/24/08	8:45 - 8:57 am
P-S velocity	B604DHSUSPDM02	91.86 - 150.9 ft	3/24/08	9:39 - 9:59 am
Caliper	B604DHACALTEST03		3/24/08	10:46 - 10:47 am
Caliper	B604DHACALUP02	160.6 - 36.9 ft	3/24/08	11:02 - 11:15 am
Caliper	B604DHACALTEST04		3/24/08	11:30 - 11:32 am
Deviation	B604DHDEV01			

c 3/24/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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Ph (951) 549-1234 Fax (951) 549-1236



CONTACT: _____ PHONE: _____

LOGGING CREW: C. Carter

[illegible]

Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-604DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/21/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 24 ft; 3 7/8" 24 TO 118

BOREHOLE TOTAL DEPTH AS DRILLED*: 118 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 24 ft; NO _____
DEPTH TO BEDROCK: ~ 3.5 ft DEPTH TO WATER TABLE: ~ 1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 3 min

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-604DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.8
MINUS CASING STICK-UP*	~ 1.0
DEPTH REF. OFFSET AT START*	40.0
DEPTH REF. OFFSET AT END*	40.0
AFTER SURVEY DEPTH ERROR*	.05

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B604DHELOGTEST01		4:04 pm		4:05 pm
B604DHELOGUP01	112.65'	4:49 pm	66.45'	4:55
B604DHELOGUP02	112.1 ft	5:01	39.25 ft	5:08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: Yoke electrode got stuck on casing on 1st run. (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: No tiger salt

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-604DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/22/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 24 ft; 3 1/8" 24 TO 118'

BOREHOLE TOTAL DEPTH AS DRILLED*: 118 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 24 ft; NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 3pm 3/21

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15am
ARRIVED ON SITE: 7:30am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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CALIPER FIELD LOG REV 1.1a.PDF



B-604DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/22/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	-1.0	
DEPTH REF. OFFSET AT START*	5.82	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.85	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B604DHCA TEST01		9:37		9:38 am
B604DHCA LUP01	103.65'	9:50	19.75 ft	9:59 am
B604DHCA TEST02		10:10		10:12 am

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B604DHCA TEST01	1.942	3.940	8.01	4.533
AS MEAS.*	B604DHCA TEST02	1.98	3.98	8.06	4.533
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510 cc 3/22/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-6040H ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 7/22/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 24 ft; 3 1/8" 24 TO 118 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 118 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24'; NO
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD X; SALT WATER MUD;
OTHER:

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 3pm 7/21

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-604DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/22/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 45.08 BRUNTON TILT* 45
2 PROBE TILT TEST* 90.08 BRUNTON TILT* 90
3 PROBE TILT TEST* 31.38 BRUNTON TILT* 31 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 356.9 BRUNTON AZIMUTH* 354
2 PROBE AZIMUTH TEST* 280.0 BRUNTON AZIMUTH* 275
3 PROBE AZIMUTH TEST* 356.7 BRUNTON AZIMUTH* 357 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1	
DEPTH REF. OFFSET AT START*	3.72	
DEPTH REF. OFFSET AT END*	3.34	
AFTER SURVEY DEPTH ERROR*	0.38	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B-604DH A00P01	91.8 ft	8:50 am	30 ft	9:12
B-604DH A00P01				
B-604DH A00P02	35.2 ft	9:13	22.9 ft	9:17 am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: Got stuck coming into casing (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

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P-S FIELD LOG REV V1.31a



2-604DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD, X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 24 ft; 3 1/2", 24 TO 118 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 118 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 24 ft; NO

DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 3pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services—11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-60410 H

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME:
ARRIVED ON SITE:
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .31
DEPTH REF. OFFSET AT START* 2.19
DEPTH REF. OFFSET AT END* 2.18
AFTER SURVEY DEPTH ERROR* .01
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B60410H5V1PDR5WJ01	8.0m	5:33	30.0m	5:58pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

B-66454

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	001		S:33
8.5	27.89	2		
9.0	29.53	3		
9.5	31.17	4		
10.0	32.81	5		
10.5	34.45	6		
11.0	36.09	7		
11.5	37.73	8		
12.0	39.37	9		
12.5	41.01	10		
13.0	42.65	11		
13.5	44.29	12		
14.0	45.93	13		
14.5	47.57	14		
15.0	49.21	15		
15.5	50.85	16		
16.0	52.49	17		
16.5	54.13	18		
17.0	55.77	19		
17.5	57.41	20		
18.0	59.06	21		
18.5	60.70	22		
19.0	62.34	23		
19.5	63.98	24		
20.0	65.62	25		
20.5	67.26	26		

P-S FIELD LOG REV V1.31a

3-604 DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/21/08, 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	21		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41 46		9:39 am 3/24
28.5	93.50	42 47		
29.0	95.14	43 48		
29.5	96.78	44 49		
30.0	98.43	45 50		5:58 3/21
30.5	100.07	51		
31.0	101.71	52		
31.5	103.35	53		
32.0	104.99	54		
32.5	106.63	55		
33.0	108.27	56		
33.5	109.91	57		
34.0	111.55	58		
34.5	113.19	59		
35.0	114.83	60		
35.5	116.47	61		
36.0	118.11	62		
36.5	119.75	63		
37.0	121.39	64		
37.5	123.03	65		
38.0	124.67	66		
38.5	126.31	67		
39.0	127.95	68		
39.5	129.59	69		
40.0	131.23	70		
40.5	132.87	71		
41.0	134.51	72		

ELOG FIELD LOG REV 1.1a



B-604DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/24/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 30 ; 3 7/8, 30 TO 165 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 165 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 30 ft; NO _____
DEPTH TO BEDROCK: ~3.5 ft DEPTH TO WATER TABLE: ~1
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 8 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-604D11 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
ELOG PROBE* 5490 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	1.42	
DEPTH REF. OFFSET AT START*	39.58	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.55	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B604DHELOGTEST02		8:22		8:23am
B604DHELOGLP03	163.25 ft	8:45	39.1 ft	8:57am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: No tugir salt just "super gel x"
Very low resistivity.

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-604DL1 **P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a**

Borehole

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 30 ft; 3 7/8" 30 TO 165 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 165 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 30 ft; NO _____

DEPTH TO BEDROCK: ~3.5 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 8 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services—11511 Pomona Road, Suite P, Corona, CA 92682 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-6040H P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 7/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES; NO X; STORED WITH NEW 6.14V

WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH ☐
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☒ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☐
ISOLATION TUBE S/N* 300083 ☐ 24053 ☒ 28068 ☐ 28072 ☐ 2M ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .44
DEPTH REF. OFFSET AT START* 2.06
DEPTH REF. OFFSET AT END* 2.05
AFTER SURVEY DEPTH ERROR* .01

} REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B6040H SUSP DOWN 02</u>	<u>91.86 ft</u>	<u>9:39 am</u>	<u>150.7</u>	<u>9:59 am</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

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P-S FIELD LOG REV V1.31a

3-60424

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/21/08, 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 / 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	21		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41 46		9:39 am 3/24
28.5	93.50	42 47		
29.0	95.14	43 48		
29.5	96.78	44 49		
30.0	98.43	45 50		5:58 3/21
30.5	100.07	51		
31.0	101.71	52		
31.5	103.35	53		
32.0	104.99	54		
32.5	106.63	55		
33.0	108.27	56		
33.5	109.91	57		
34.0	111.55	58		
34.5	113.19	59		
35.0	114.83	60		
35.5	116.47	61		
36.0	118.11	62		
36.5	119.75	63		
37.0	121.39	64		
37.5	123.03	65		
38.0	124.67	66		
38.5	126.31	67		
39.0	127.95	68		
39.5	129.59	69		
40.0	131.23	70		
40.5	132.87	71		
41.0	134.51	72		

P-S FIELD LOG REV V1.31a

B-604DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083 cc 3/24/08
AUTHOR*: C. Carter PAGE*: 24 OF 4
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	73		
42.0	137.80	74		
42.5	139.44	75		
43.0	141.08	76		
43.5	142.72	77		
44.0	144.36	78		
44.5	146.00	79		
45.0	147.64	80		
45.5	149.28	81		
46.0	150.92	82		maybe on bottom 9:59 am
46.5	152.56			
47.0	154.20			
47.5	155.84			
48.0	157.48			
48.5	159.12			
49.0	160.76			
49.5	162.40			
50.0	164.04			
50.5	165.68			
51.0	167.32			
51.5	168.96			
52.0	170.60			
52.5	172.24			
53.0	173.88			
53.5	175.52			
54.0	177.17			
54.5	178.81			
55.0	180.45			
55.5	182.09			
56.0	183.73			
56.5	185.37			
57.0	187.01			
57.5	188.65			
58.0	190.29			
58.5	191.93			
59.0	193.57			
59.5	195.21			
60.0	196.85			
60.5	198.49			
61.0	200.13			
61.5	201.77			

CALIPER FIELD LOG REV 1.1a PDF



B-664DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 30 ft; 3 3/4" 30 TO 165 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 165 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 30 ft; NO
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 2 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD
OTHER:

DEPTH TO BOREHOLE FLUID: TIME SINCE LAST CIRCULATION: 8:30 am cc 3/24/08
8:00 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-6040H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☒ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	-1.42	
DEPTH REF. OFFSET AT START*	5.4	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.45	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B6040H CAL TEST 03		10:46		10:47
B6040H CAL UP 02	160.6	11:02 am	36.9	11:15 am
B6040H CAL TEST 04		11:30		11:32

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS.*	B6040H CAL TEST 03	1.999	3.986	8.04	4.56
AS MEAS.*	B6040H CAL TEST 04	1.99	3.98	8.03	4.56
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510 cc 3/24/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.ppt



B-604011 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 30ft ; 3 7/8" 30 TO 165 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 165 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 30ft ; NO ☐
DEPTH TO BEDROCK: ~3.5 ft DEPTH TO WATER TABLE: ~1.0 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD ☒ ; SALT WATER MUD ☐
OTHER:

DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 8:30am cc 3/24/08
8:00 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:00am
ARRIVED ON SITE: 7:30am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-604DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 42.0 BRUNTON TILT* 42
2 PROBE TILT TEST* 89.67 BRUNTON TILT* 90
3 PROBE TILT TEST* 42.01 BRUNTON TILT* 42 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 355.0 BRUNTON AZIMUTH* 356
2 PROBE AZIMUTH TEST* 35.0 BRUNTON AZIMUTH* 57
3 PROBE AZIMUTH TEST* 358.5 BRUNTON AZIMUTH* 353 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)
MINUS CASING STICK-UP*	~ 1.42 / 1.42
DEPTH REF. OFFSET AT START*	3.3 3.3
DEPTH REF. OFFSET AT END*	3.27 3.30
AFTER SURVEY DEPTH ERROR*	.03 0

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B604DHAVUP03	160.4 ft	11:58	4.0 ft	12:06
B604DHAVUP04	121.1 ft	12:49	77.5 ft	1:05

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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ELOG FIELD LOG REV 1.1a



B-608DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 117 ; 3 7/8" 117 TO 265 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 265 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 117' / 20'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-608DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 4/3/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF 1 cc 7/10/08

CONTACT:

PHONE:

BOREHOLE CONSTRUCTION: CASSED

UNCASSED ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 117 ft; 3 1/8" 117 TO 263 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 263 ft

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 117/20'; NO

DEPTH TO BEDROCK: ~ 3 ft

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B608DHELOGTEST01		4/3/08	8:18 - 8:19 am
ELOG	B608DHELOGUP01	262.35 - 112.75 ft	4/3/08	9:25 - 9:41 am
ELOG	B608DHELOGUP02	139.0 - 37.4 ft	4/3/08	3:26 - 3:36 pm
P-S velocity	B608DH SUSPDOWN01	119.75 - 249.35 ft	4/3/08	10:20 - 10:57 am
P-S velocity	B608DH SUSPDOWN02	22.97 - 127.95 ft	4/3/08	3:56 - 4:30 pm
Deviation	B608DHAUUP01	253.3 - 105.7 ft	4/3/08	11:46 - 11:54 am
Caliper	B608DHCALTEST01		4/3/08	12:16 - 12:17 pm
Caliper	B608DHCALUP01	254.35 - 109.7 ft	4/3/08	12:30 - 12:45 pm
Caliper	B608DHCALTEST02		4/3/08	1:00 - 1:01
Caliper	B608DHCALUP02	122.95 - 15.05 ft	4/3/08	2:49 - 3:00 pm
Caliper	B608DHCALTEST03		4/3/08	3:10 - 3:11 pm
ATV	B608DHAUUP02	120.3 - 19.8 ft	4/3/08	5:13 - 5:43 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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ELOG FIELD LOG REV 1.1a



B-608DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.8 32.8
MINUS CASING STICK-UP*	1.67 1.67
DEPTH REF. OFFSET AT START*	39.33 39.33 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.30 39.30
AFTER SURVEY DEPTH ERROR*	.03 .03

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B608DH ELOG TEST 01		8:18am		8:19am
B608DH ELOG UP 01	262.35'	9:25	112.75'	9:41am
B608DH ELOG UP 02	139.6'	3:26pm	37.4'	3:36

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
Super gel is drilling mud
Cannot see drilling mud after casing is pulled to 20', no mud on cable, just water.

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-608DRT P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 6

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 117' ; 3 1/8" 117 TO 263 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 263 ft
SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 117' / 20' ; NO
DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: ~1'
BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ☒ ; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ϕ TIME SINCE LAST CIRCULATION: 9 am

ITEMS WITH * MUST BE COMPLETED, OTHER INFORMATION IS OPTIONAL
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P-S FIELD LOG REV V1.31a



B-608DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 7/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 6

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☒ 28072 ☐ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .51 | .51
DEPTH REF. OFFSET AT START* 1.99 | 1.99
DEPTH REF. OFFSET AT END* 1.98 | 2.01
AFTER SURVEY DEPTH ERROR* .01 | .02
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B608DH SUSP DOWN 01	119.75'	10:20 am	249.34'	10:57 am
B608DH SUSP DOWN 02	22.97'	3:56 pm	127.95'	4:30 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

B-608BH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE* 3 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97	81		3:56 pm
7.5	24.61	82		
8.0	26.25	83		
8.5	27.89	84		
9.0	29.53	85		
9.5	31.17	86		
10.0	32.81	87		
10.5	34.45	88		
11.0	36.09	89		
11.5	37.73	90		
12.0	39.37	91		
12.5	41.01	92		
13.0	42.65	93		
13.5	44.29	94		
14.0	45.93	95		
14.5	47.57	96		
15.0	49.21	97		
15.5	50.85	98		
16.0	52.49	99		
16.5	54.13	100		
17.0	55.77	101		
17.5	57.41	102		
18.0	59.06	103		
18.5	60.70	104		
19.0	62.34	105		
19.5	63.98	106		
20.0	65.62	107		
20.5	67.26	108		

P-S FIELD LOG REV V1.31a

3 - 6080H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	109		
21.5	70.54	110		
22.0	72.18	111		
22.5	73.82	112		
23.0	75.46	113		
23.5	77.10	114		
24.0	78.74	115		
24.5	80.38	116		
25.0	82.02	117		
25.5	83.66	118		
26.0	85.30	119		
26.5	86.94	120		
27.0	88.58	121		
27.5	90.22	122		
28.0	91.86	123		
28.5	93.50	124		
29.0	95.14	125		
29.5	96.78	126		
30.0	98.43	127		
30.5	100.07	128		
31.0	101.71	129		
31.5	103.35	130		
32.0	104.99	131		
32.5	106.63	132		
33.0	108.27	133		
33.5	109.91	134		
34.0	111.55	135		
34.5	113.19	136		
35.0	114.83	137		
35.5	116.47	138		
36.0	118.11	139		
36.5	119.75	001 140		10:20 am
37.0	121.39	2 141		
37.5	123.03	3 142		
38.0	124.67	4 143		
38.5	126.31	5 144		
39.0	127.95	6 145		4:30 pm
39.5	129.59	7		
40.0	131.23	8		
40.5	132.87	9		
41.0	134.51	10		

P-S FIELD LOG REV V1.31a

B-6080H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE* 5 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	11		
42.0	137.80	12		
42.5	139.44	13		
43.0	141.08	14		
43.5	142.72	15		
44.0	144.36	16		
44.5	146.00	17		
45.0	147.64	18		
45.5	149.28	19		
46.0	150.92	20		
46.5	152.56	21		
47.0	154.20	22		
47.5	155.84	23		
48.0	157.48	24		
48.5	159.12	25		
49.0	160.76	26		
49.5	162.40	27		
50.0	164.04	28		
50.5	165.68	29		
51.0	167.32	30		
51.5	168.96	31		
52.0	170.60	32		
52.5	172.24	33		
53.0	173.88	34		
53.5	175.52	35		
54.0	177.17	36		
54.5	178.81	37		
55.0	180.45	38		
55.5	182.09	39		
56.0	183.73	40		
56.5	185.37	41		
57.0	187.01	42		
57.5	188.65	43		
58.0	190.29	44		
58.5	191.93	45		
59.0	193.57	46		
59.5	195.21	47		
60.0	196.85	48		
60.5	198.49	49		
61.0	200.13	50		
61.5	201.77	51		

P-S FIELD LOG REV V1.31a

B-608DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 6 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	52		
62.5	205.05	53		
63.0	206.69	54		
63.5	208.33	55		
64.0	209.97	56		
64.5	211.61	57		
65.0	213.25	58		
65.5	214.90	59		
66.0	216.54	60		
66.5	218.18	61		
67.0	219.82	62		
67.5	221.46	63		
68.0	223.10	64		
68.5	224.74	65		
69.0	226.38	66		
69.5	228.02	67		
70.0	229.66	68		
70.5	231.30	69		
71.0	232.94	70		
71.5	234.58	71		
72.0	236.22	72		
72.5	237.86	73		
73.0	239.50	74		
73.5	241.14	75		
74.0	242.78	76		
74.5	244.42	77		
75.0	246.06	78		
75.5	247.70	79		
76.0	249.34	80		10:57 am bit @ 76.19m
76.5	250.98			
77.0	252.62			
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-60804 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASSED UNCASSED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 117' ; 3 1/8" 117' TO 263'

BOREHOLE TOTAL DEPTH AS DRILLED*: 263 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 117' ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-608DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 54.17 BRUNTON TILT* 54
2 PROBE TILT TEST* 89.47 BRUNTON TILT* 89
3 PROBE TILT TEST* 11.42 BRUNTON TILT* 11 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 186.0 BRUNTON AZIMUTH* 180
2 PROBE AZIMUTH TEST* 13.8 BRUNTON AZIMUTH* 75
3 PROBE AZIMUTH TEST* 145.0 BRUNTON AZIMUTH* 149 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.67	
DEPTH REF. OFFSET AT START*	3.05	
DEPTH REF. OFFSET AT END*	3.02	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B608DHAVV001	253.3 ft	11:46am	105.7 ft	11:54am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-60804

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 117 ; 3 7/8" 117 TO 263 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 263 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 117' / 20' ; NO
DEPTH TO BEDROCK: ~ 3 ft DEPTH TO WATER TABLE: ~ 1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD ☒ ; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-608 DH Borehole* CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.67 1.67	
DEPTH REF. OFFSET AT START*	5.15 5.15	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.05 5.05	
AFTER SURVEY DEPTH ERROR*	10 1.05	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B608DH CAL TEST 01		12:16		12:17
B608DH CAL UP 01	254.35'	12:30	109.7 ft	12:45 pm
B608DH CAL TEST 02		1:00		1:01 pm
B608DH CAL UP 02	122.55'	2:49	15.05'	3:00 pm
B608DH CAL TEST 03		3:10		3:11 pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS.*	B608DH CAL TEST 01	1.95	3.908	8.01	4.502
AS MEAS.*	B608DH CAL TEST 02	2.00	3.94	8.04	4.506
AS MEAS.	B608DH CAL TEST 03	1.99	3.95	7.98	4.53
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.516 cc 4/3/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-6080H ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASED X cc 7/24/08
DIAMETERS AND DEPTH RANGES: 4" 0 TO 117 ; 3 1/8 117 TO 263

BOREHOLE TOTAL DEPTH AS DRILLED*: 263

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 20'; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD*; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 1 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:14 am
ARRIVED ON SITE: 1 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-60804

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 89.86 BRUNTON TILT* 90
2 PROBE TILT TEST* 33.13 BRUNTON TILT* 34
3 PROBE TILT TEST* 26.44 BRUNTON TILT* 26 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 173.7 BRUNTON AZIMUTH* 174
2 PROBE AZIMUTH TEST* 93.8 BRUNTON AZIMUTH* 99
3 PROBE AZIMUTH TEST* 254.7 BRUNTON AZIMUTH* 260 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.67	
DEPTH REF. OFFSET AT START*	3.05	
DEPTH REF. OFFSET AT END*	3.00	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B6080400002	120.3 ft	5:13 pm	19.8	5:43 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236



B-610DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*
SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 4/2/08
JOB*: 8083
PAGE*: 1 OF 1 cc7/10/08
CONTACT: _____ PHONE: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 1/8" 105 TO 269 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft
CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING 105/20 ft; NO _____
DEPTH TO BEDROCK: ~ 3 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B610DHELOGTEST01		4/2/08	9:40 - 9:41 am
ELOG	B610DHELOGUP01	266.45 - 102.7 ft	4/2/08	11:32 - 11:50 am
ELOG	B610DHELOGUP02	124.2 - 39.35 ft	4/2/08	4:51 - 4:59 pm
P-S velocity	B610DHSUSPDOWN01	106.6 - 250.9 ft	4/2/08	12:34 - 1:27 pm
P-S velocity	B610DHSUSPDOWN02	22.97 - 113.2 ft	4/2/08	5:21 - 5:52 pm
Deviation	B610DHAUUP01	252.2 - 102.3 ft	4/2/08	2:21 - 2:30 pm
Caliper	B610DHCAUUP01		4/2/08	2:49 - 2:50 pm
Caliper	B610DHCAUUP01	256.15 - 98.7 ft	4/2/08	3:06 - 3:26 pm
Caliper	B610DHCAUUP02		4/2/08	3:36 - 3:37 pm
Caliper	B610DHCAUUP02	111.45 - 14.7 ft	4/2/08	4:12 - 4:22 pm
Caliper	B610DHCAUUP03		4/2/08	4:31 - 4:32 pm
ATV	B610DHAUUP02	120.9 - 19 ft	4/2/08	6:55 - 7:21 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



B-610 DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 4/2/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 7/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 105/20'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 16 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-610 D H ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.8 32.8
MINUS CASING STICK-UP*	-1.08 -1.5
DEPTH REF. OFFSET AT START*	39.92 39.5 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	40.00 39.59
AFTER SURVEY DEPTH ERROR*	.08 .05

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B610DHELOGTEST01		9:40am		9:41am
B610DHELOGUP01	266.45 ft	11:32am	102.7 ft	11:50am
B610DHELOGUP02	124.2 ft	4:51pm	39.35	4:59pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: Drillers used tiger salt, sure mud
+ 1 bag soda ash super gel x, 1 bag high grade bentonite

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-610D+1 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 6

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED UNCASED X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 103 ft; 3 7/8" 105 TO 268 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 105/106'; NO _____

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD: _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 4 TIME SINCE LAST CIRCULATION: 11 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services—11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-610DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 6

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7:00 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☒ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☐
ISOLATION TUBE S/N* 300083 ☐ 24053 ☒ 28068 ☐ 28072 ☐ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .37 | .46
DEPTH REF. OFFSET AT START* 2.17 | 2.04
DEPTH REF. OFFSET AT END* 2.16 | 2.05
AFTER SURVEY DEPTH ERROR* .01 | .01
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B610DH SUSPDOWN01	106.6'	12:34	250.98'	1:27 pm
B610DH SUSPDOWN02	22.97'	5:21 pm	113.2'	5:52 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92702 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-61004

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 4/2/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 3 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97	90		5'21
7.5	24.61	91		
8.0	26.25	92		
8.5	27.89	93		
9.0	29.53	94		
9.5	31.17	95		
10.0	32.81	96		
10.5	34.45	97		
11.0	36.09	98		
11.5	37.73	99		
12.0	39.37	100		
12.5	41.01	101		
13.0	42.65	102		
13.5	44.29	103		
14.0	45.93	104		
14.5	47.57	105		
15.0	49.21	106		
15.5	50.85	107		
16.0	52.49	108		
16.5	54.13	109		
17.0	55.77	110		
17.5	57.41	111		
18.0	59.06	112		
18.5	60.70	113		
19.0	62.34	114		
19.5	63.98	115		
20.0	65.62	116		
20.5	67.26	117		

P-S FIELD LOG REV V1.31a

B-610011 GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	118		
21.5	70.54	119		
22.0	72.18	120		
22.5	73.82	121		
23.0	75.46	122		
23.5	77.10	123		
24.0	78.74	124		
24.5	80.38	125		
25.0	82.02	126		
25.5	83.66	127		
26.0	85.30	128		
26.5	86.94	129		
27.0	88.58	130		
27.5	90.22	131		
28.0	91.86	132		
28.5	93.50	133		
29.0	95.14	134		
29.5	96.78	135		
30.0	98.43	136		
30.5	100.07	137		
31.0	101.71	138		
31.5	103.35	139		
32.0	104.99	140		
32.5	106.63	001 141		12134
33.0	108.27	2 142		
33.5	109.91	3 143		
34.0	111.55	4 144		
34.5	113.19	5 145		5:52
35.0	114.83	6		
35.5	116.47	7		
36.0	118.11	8		
36.5	119.75	9		
37.0	121.39	10		
37.5	123.03	11		
38.0	124.67	12		
38.5	126.31	13		
39.0	127.95	14		
39.5	129.59	15		
40.0	131.23	16		
40.5	132.87	17		
41.0	134.51	18		

P-S FIELD LOG REV V1.31a

B-610011 GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 5 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	19		
42.0	137.80	20		
42.5	139.44	21		
43.0	141.08	22		
43.5	142.72	23		
44.0	144.36	24		
44.5	146.00	25		
45.0	147.64	26		
45.5	149.28	27		
46.0	150.92	28		
46.5	152.56	29		
47.0	154.20	30		
47.5	155.84	31		
48.0	157.48	32		
48.5	159.12	33		
49.0	160.76	34		
49.5	162.40	35		
50.0	164.04	36		
50.5	165.68	37		
51.0	167.32	38		
51.5	168.96	39		
52.0	170.60	40		
52.5	172.24	41		
53.0	173.88	42		
53.5	175.52	43		
54.0	177.17	44		
54.5	178.81	45		
55.0	180.45	46		
55.5	182.09	47		
56.0	183.73	48		
56.5	185.37	49		
57.0	187.01	50		
57.5	188.65	51		
58.0	190.29	52		
58.5	191.93	53		
59.0	193.57	54		
59.5	195.21	55		
60.0	196.85	56		
60.5	198.49	56 c.c. 4/2/08 57		
61.0	200.13	58		
61.5	201.77	59		

P-S FIELD LOG REV V1.31a

B-610066

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 9/2/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 6 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	60		
62.5	205.05	61		
63.0	206.69	62		
63.5	208.33	63		
64.0	209.97	64		
64.5	211.61	65		
65.0	213.25	66		
65.5	214.90	67		
66.0	216.54	68		
66.5	218.18	69		
67.0	219.82	70		
67.5	221.46	71		
68.0	223.10	72		
68.5	224.74	73		
69.0	226.38	74		
69.5	228.02	75		
70.0	229.66	76		
70.5	231.30	77		
71.0	232.94	78		
71.5	234.58	79		
72.0	236.22	80		
72.5	237.86	81		
73.0	239.50	82		
73.5	241.14	83		
74.0	242.78	84		
74.5	244.42	85		
75.0	246.06	86		
75.5	247.70	87		
76.0	249.34	88		
76.5	250.98	89		1:27 pm
77.0	252.62			
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-610DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASED ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 7/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 105'; NO
DEPTH TO BEDROCK: 3 ft DEPTH TO WATER TABLE: 21 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 6 TIME SINCE LAST CIRCULATION: 11 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:43 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-610btl ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 37.65 BRUNTON TILT* 38
2 PROBE TILT TEST* 90.66 BRUNTON TILT* 90
3 PROBE TILT TEST* 8.1 BRUNTON TILT* 8 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 246.2 BRUNTON AZIMUTH* 242
2 PROBE AZIMUTH TEST* 184.9 BRUNTON AZIMUTH* 183
3 PROBE AZIMUTH TEST* 262.5 BRUNTON AZIMUTH* 260 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.08	
DEPTH REF. OFFSET AT START*	3.64	
DEPTH REF. OFFSET AT END*	3.63	
AFTER SURVEY DEPTH ERROR*	.01	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B610b4A00P01	252.2 ft	2:21 pm	102.3 ft	2:30 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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CALIPER FIELD LOG REV 1.1a PDF



B-6600H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 7/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 105' / 20' NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 11 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 1 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-6LDDth

Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE OYO 10 ☐ 10 ☒ 10 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.08 / 1.5	
DEPTH REF. OFFSET AT START*	5.74 / 5.32	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.75 / 5.30	
AFTER SURVEY DEPTH ERROR*	.01 / .02	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B610DHCACTEST01		2:49		2:50 pm
B610DHCACTEST01	256.15'	3:06	98.7 ft	3:21 pm
B610DHCACTEST02		3:36		3:37
B610DHCACTEST02	111.45	4:12	14.7 ft	4:22 pm
B610DHCACTEST03		4:31		4:32 pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B610DHCACTEST01	1.99	3.908	8.03	4.502
AS MEAS.*	B610DHCACTEST02	1.97	3.940	7.99	4.502
AS MEAS.	B610DHCACTEST03	1.961	3.908	8.01	4.502
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510 cc 4/2/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

ACOUSTIC TELEVIEWER LOG COVER 1.0a pdf



B-61074 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105' ; 3 3/8" 105 TO 269 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 269 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 20 ft ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD ;

OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 11am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE:

MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45am

ARRIVED ON SITE: 7am

STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-610 Dtt ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 36.5 BRUNTON TILT* 36
2 PROBE TILT TEST* 89.27 BRUNTON TILT* 89
3 PROBE TILT TEST* 3.80 BRUNTON TILT* 4 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 253.4 BRUNTON AZIMUTH* 252
2 PROBE AZIMUTH TEST* 176.7 BRUNTON AZIMUTH* 180
3 PROBE AZIMUTH TEST* 250.5 BRUNTON AZIMUTH* 250 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.5	
DEPTH REF. OFFSET AT START*	3.22	
DEPTH REF. OFFSET AT END*	3.17	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B610 Dtt H400 P02	120.9 ft	6:55 pm	19 ft	7:21 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236



B-620DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*
SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/21/08, 3/23/08
JOB*: 8083
PAGE*: 1 OF 1
CONTACT: _____ PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 3.5" 0 TO 125 ft; 3" 125 TO 130 / 4" 10-105; 3 1/8" 105-215
BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft / 215 ft
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: ~ 3 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B620DH ELOG TEST01		3/21/08	8:59 - 9:00 am
ELOG	B620DH ELOG UP01	122.05 - 39.3 ft	3/21/08	9:29 - 9:37 am
P-S velocity	B620DH SUSP DOWN01	26.25 - 109.9 ft	3/21/08	10:20 am - 10:55 am
ATV	B620DH AVUP01	119.1 - 24 ft	3/21/08	12:10 - 12:35 pm
Caliper	B620DH CAL TEST01		3/21/08	1:02 - 1:03 pm
Caliper	B620DH CAL UP01	120.15 - 13.55 ft	3/21/08	1:16 - 1:28 pm
Caliper	B620DH CAL TEST02	cc 3/23/08	3/21/08	1:37 - 1:38 pm
ELOG	B620DH ELOG TEST03	9:00 - 9:01 am	3/23/08	9:00 - 9:01 am
ELOG	B620DH ELOG UP02	214.7 - 101.55 ft	3/23/08	11:00 - 11:11 am
P-S velocity	B620DH SUSP DOWN02	106.6 - 129.6 ft	3/23/08	11:44 - 12:00 pm
P-S velocity	B620DH SUSP DOWN03	121.4 - 200.13 ft	3/23/08	1:23 - 1:46 pm
Deviation	B620DH AVUP02	201.5 - 102 ft	3/23/08	4:53 - 4:58 pm
Caliper	B620DH CAL TEST03		3/23/08	5:16 - 5:17 pm
Caliper	B620DH CAL UP02	205.95 - 97.5 ft	3/23/08	5:31 - 5:42 pm
Caliper	B620DH CAL TEST04		3/23/08	5:51 - 5:52 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-620DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/21/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: _____ 0 TO _____; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 135 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25.5 ft NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____

OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 3/20 2:30pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-620604 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-1.33	
DEPTH REF. OFFSET AT START*	39.67	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.65	
AFTER SURVEY DEPTH ERROR*	.02	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B620604ELOGPES01		8:59		9:00am
B620604ELOGUP01	122.05'	9:29	38.3 ft	9:37

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: Used Super gel-x + sure mud
no tiger salt

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



P-S FIELD LOG REV V1.31a



B-620 BH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DIRECTIONS TO SITE:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION*: CASSED UNCASSED X

DIAMETERS AND DEPTH RANGES*: 3.5" 0 TO 12.5' ; 3" 12.5' TO 13.5'

BOREHOLE TOTAL DEPTH AS DRILLED*: 13.5 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 25.5 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER; FRESH WATER MUD X; SALT WATER MUD;

OTHER:

DEPTH TO BOREHOLE FLUID*: 6 TIME SINCE LAST CIRCULATION: 3/20 2:30pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
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P-S FIELD LOG REV V1.31a



B-62004 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW 6.6V

WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH ☐
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .40
DEPTH REF. OFFSET AT START* 2.1
DEPTH REF. OFFSET AT END* 2.09
AFTER SURVEY DEPTH ERROR* .01
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B62004 SUSP DOWN 101	26.25 ft	10:20 am	109.9 ft	10:55 am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

8-6200H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	001		10:20 am
8.5	27.89	2		
9.0	29.53	3		
9.5	31.17	4		
10.0	32.81	5		
10.5	34.45	6		
11.0	36.09	7		
11.5	37.73	8		
12.0	39.37	9		
12.5	41.01	10		
13.0	42.65	11		
13.5	44.29	12		
14.0	45.93	13		
14.5	47.57	14		
15.0	49.21	15		
15.5	50.85	16		
16.0	52.49	17		
16.5	54.13	18		
17.0	55.77	19		
17.5	57.41	20		
18.0	59.06	21		
18.5	60.70	22		
19.0	62.34	23		
19.5	63.98	24		
20.0	65.62	25		
20.5	67.26	26		

P-S FIELD LOG REV V1.31B

B-6200H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/21/08 3/23/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 4-22 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL cc 7/16/08

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (If any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50	53	11:44 am 3/23
33.0	108.27	51	54	
33.5	109.91	52	55	10:55 (3/23)
34.0	111.55		56	
34.5	113.19		57	
35.0	114.83		58	
35.5	116.47		59	
36.0	118.11		60	
36.5	119.75		61	
37.0	121.39	62	62	1:23 (3/23)
37.5	123.03	63	63	
38.0	124.67	64	64	
38.5	126.31	65	65	
39.0	127.95	66	66	
39.5	129.59	67	67	cc 3/23/08 12:00 (3/23)
40.0	131.23	73		
40.5	132.87	74		
41.0	134.51	75		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-620DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 3.5" 0 TO 12.5 ft; 3" 12.5 TO 13.5 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 13.5 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25.5'; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 7/20 2:30pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-6200H ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 91.05 BRUNTON TILT* 91
2 PROBE TILT TEST* 29.65 BRUNTON TILT* 30
3 PROBE TILT TEST* 44.50 BRUNTON TILT* 44 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 311.1 BRUNTON AZIMUTH* 310
2 PROBE AZIMUTH TEST* 132.6 BRUNTON AZIMUTH* 125
3 PROBE AZIMUTH TEST* 77.2 BRUNTON AZIMUTH* 79 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.33	
DEPTH REF. OFFSET AT START*	3.39	
DEPTH REF. OFFSET AT END*	3.31	
AFTER SURVEY DEPTH ERROR*	.08	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B6200H AVUP01	119.1 ft	12:02 pm	24 ft	12:35 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



8-620DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/21/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 3.5 0 TO 125 ft; 3" 125 TO 135 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 135 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25.5'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 3/20 2:30 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:45 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-620DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 10 ☐ 102 ☒ 101 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.33	
DEPTH REF. OFFSET AT START*	5.49	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.45	
AFTER SURVEY DEPTH ERROR*	.04	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B620DHCACTEST01		1:02		1:03pm
B620DHCACTEST01	120.15 ft	1:16pm	13.55 ft	1:28pm
B620DHCACTEST02		1:37		1:38pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B620DHCACTEST01	1.978	3.977	8.03	4.519
AS MEAS.*	B620DHCACTEST02	1.970	3.971	8.03	4.513
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510 cal 3/21/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-620DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105' ; 3 7/8" 105 TO 215 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 215 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING: 105 ft ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD ☒ ; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 10 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:10 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: 7:30 - 10:30 CAUSE: Drillers still drilling

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-620DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
ELOG PROBE* 5490 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	<u>32.8</u>
MINUS CASING STICK-UP*	<u>- 1.5</u>
DEPTH REF. OFFSET AT START*	<u>39.5</u>
DEPTH REF. OFFSET AT END*	<u>39.45</u>
AFTER SURVEY DEPTH ERROR*	<u>.05</u>

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B620DH6LOGT3T03</u>		<u>9:00 am</u>		<u>9:01 am</u>
<u>B620DH6LOGUP02</u>	<u>214.7 ft</u>	<u>11:00 am</u>	<u>101.55 ft</u>	<u>11:11 am</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: very conductive above 200 ft. Drillers used super gel + tiger salt

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-620Dtt P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 105 ft; 3 1/2" 105 TO 215 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 215 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 105 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD: _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: Ø TIME SINCE LAST CIRCULATION: 10 am / 12:30 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services—11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-620dtl P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00am
ARRIVED ON SITE: 7:30am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW

WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH

INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐

RECEIVER S/N* 12008 ☒ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒

ISOLATION TUBE S/N* 300083 ☒ 24053 ☐ 28068 ☐ 28072 ☒ 2M

SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐

PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒

MINUS CASING STICK-UP* .46 | .66
DEPTH REF. OFFSET AT START* 2.04 | 1.84
DEPTH REF. OFFSET AT END* 2.04 | 1.82
AFTER SURVEY DEPTH ERROR* 2.0 | .02
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B620DH SUSPOMNO2	106.6 ft	11:44am	129.6	12:00pm
B620DH SUSPOMNO3	121.4	1:23pm	200.13 ft	1:46pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: Receiver broke during (N/A if none)

B620DH SUSPOMNO2 when it got caught by hole cave in.

SUGGESTIONS, ADDITIONS, CHANGES:

COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-6200H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/21/08 3/23/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 4-3 cc 3/23/08 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50 53		11:44 am 3/23
33.0	108.27	51 54		
33.5	109.91	52 55		10:55 (3/21)
34.0	111.55	56		
34.5	113.19	57		
35.0	114.83	58		
35.5	116.47	59		
36.0	118.11	60		
36.5	119.75	61		
37.0	121.39	62 67		1:23 (3/23)
37.5	123.03	68 63		
38.0	124.67	69 64		
38.5	126.31	70 65		
39.0	127.95	71 66		
39.5	129.59	72 67	cc 3/23/08	12:00 (3/23)
40.0	131.23	73		
40.5	132.87	74		
41.0	134.51	75		

P-S FIELD LOG REV V1.31a

B-620BH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	76		
42.0	137.80	77		
42.5	139.44	78		
43.0	141.08	79		
43.5	142.72	80		
44.0	144.36	81		
44.5	146.00	82		
45.0	147.64	83		
45.5	149.28	84		
46.0	150.92	85		
46.5	152.56	86		
47.0	154.20	87		
47.5	155.84	88		
48.0	157.48	89		
48.5	159.12	90		
49.0	160.76	91		
49.5	162.40	92		
50.0	164.04	93		
50.5	165.68	94		
51.0	167.32	95		
51.5	168.96	96		
52.0	170.60	97		
52.5	172.24	98		
53.0	173.88	99		
53.5	175.52	100		
54.0	177.17	101		
54.5	178.81	102		
55.0	180.45	103		
55.5	182.09	104		
56.0	183.73	105		
56.5	185.37	106		
57.0	187.01	107		
57.5	188.65	108		
58.0	190.29	109		
58.5	191.93	110		
59.0	193.57	111		
59.5	195.21	112		
60.0	196.85	113		
60.5	198.49	114		
61.0	200.13	115		1:46pm
61.5	201.77			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-620BH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ; 3 7/8 105 TO 215'

BOREHOLE TOTAL DEPTH AS DRILLED*: 215'

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 215'; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 12:30 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:10 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: 2-4:30 pm CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-620DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 7/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

(PROBE TILT TEST* 90.07 BRUNTON TILT* 90
2. PROBE TILT TEST* 34.79 BRUNTON TILT* 35
3. PROBE TILT TEST* 8.4 BRUNTON TILT* 8 AFTER LOG* yes
1. PROBE AZIMUTH TEST* 268.3 BRUNTON AZIMUTH* 270
2. PROBE AZIMUTH TEST* 333.0 BRUNTON AZIMUTH* 331
3. PROBE AZIMUTH TEST* 237 BRUNTON AZIMUTH* 240 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	1.5	
DEPTH REF. OFFSET AT START*	3.22	
DEPTH REF. OFFSET AT END*	3.12	
AFTER SURVEY DEPTH ERROR*	.10	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B620DH A00P02	201.5 ft	4:53 pm	102 ft	4:58 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-620DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/23/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 105 ft; 3 7/8" 105 TO 215 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 215 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105 ft; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 12:30 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:10 am on 3/23/08
ARRIVED ON SITE: 7:30 am
STANDBY TIME: 2-4:30 CAUSE: Thunder/Lightning

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-620DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/23/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.5	
DEPTH REF. OFFSET AT START*	5.32	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.35	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B620DH CAL TEST 03		5:16 pm		5:17 pm
B620DH CAL UP 02	205.95 ft	5:31 pm	97.5 ft	5:42 pm
B620DH CAL TEST 04		5:51		5:52

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS.*	B620DH CAL TEST 03	1.995	3.977	8.03	4.529
AS MEAS.*	B620DH CAL TEST 04	1.970	3.971	8.047	4.519
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510 cc 3/23/11

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

* ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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Ph (951) 549-1234 Ex (951) 549-1236

DH FIELD LOG REV 1.1a.pdf



B646 DH DOWNHOLE VELOCITY FIELD LOG REV 1.1a

Borehole*
SITE*: Turkey Point DATE*: 6/5/08, 6/6/08
CLIENT*: Maeda JOB*: 8083
AUTHOR*: A. Horta PAGE 1 OF 3

CONTACT: Matt Cochran PHONE: Off Cell 803-261-5792

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED ☒ TIME SINCE GROUT 5/21 & 22/08

DIAMETERS AND DEPTH RANGES: 2" 0 TO 150' TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 150'

DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: ~2'

WATER PUMPED FROM BOREHOLE*? YES ☒ NO - then what
DEPTH TO WATER _____

to ~ 120' 6/5/08

to ~ 127' 6/6/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DHFIELD LOG REV 1.1a.pdf



B640 DHT **DOWNHOLE VELOCITY FIELD LOG**
Borehole*

SITE*: Turkey Point DATE*: 6/5/08 & 6/6/08
CLIENT*: Mactec JOB*: 2 8083
AUTHOR*: A. Martin PAGE 1 OF 3

LOGGING CREW*: A. Martin / N. Beldrum
MOBILIZED FROM: Florida City DEPARTURE TIME: 0645 (6/5/08) 0930 (6/6/08) Hold for fed. env
ARRIVED ON SITE: 0705 (6/5/08) 1015 (6/6/08) - here at first get
STANDBY TIME: 1015 - 1145 hrs (6/6/08) CAUSE: pumps well
LOGGING STARTED: 1155 (6/6/08) LOGGING COMPLETED: 1700 (6/6/08)

WINCH HAND ☒ OTHER
INSTRUMENT* Geode 3458 ☒ 3459 ☐ Other
GEOPHONES* BHG3 9501 ☒ Other BH43 B3079

Plank Orientation*: N 15° E (MN) Sh Source Offset* 8' 4" P Source Offset* 6' 8"
Surface geophones - if any - Offset Sh 10' 7" P Offset 8' 10"

P SOURCE Triph weight Drop Source
Sh SOURCE " " " "

CHANNEL ASSIGNMENTS 1 - borehole vertical, 2 - borehole horiz. long., 3 - borehole horiz. trans.
4 - surface vertical, 5 - surface H1, 6 - surface H2

SAMPLE RATES: sample rate / record length
Depth range 5 - 124.7' Sh-wave 20.833ms / 0.128s P-wave same
Depth range Sh-wave P-wave
Depth range Sh-wave P-wave

MAINTENANCE PERFORMED ON SITE*: repair geophone clamp 1425-1600 hrs, clamp
breaks again @ 1700 hrs, new clamps to be fed ex to site

EQUIPMENT PROBLEMS OR FAILURES*: 6/6/08 - 1200 hrs geophone not attached
correctly to cable and drops into casing.

SUGGESTIONS, ADDITIONS, CHANGES:

COMMENTS: channel 3 - horizontal transverse comp. aligned // to plank

1645 hrs - could not get past bend in casing @ 125'
6/5/08
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

SITE*: Turkey Point

DATE*: 6/5/08 & 6/6/08

CLIENT*: Mofer

JOB*: 8083

AUTHOR*: A. Marten

PAGE* 3 OF 7

DEPTH*	Sh CHANNEL	# OF	SH FILE	P CHANNEL	# OF	P FILE
(Feet)	NUMBERS*	STACKS	NUMBER*	NUMBER*	STACKS	NUMBER*
	HL*	HT*	RED*	GRN*		
5	2	3	5	2	3	1
10			↓	5	6	↓
15			↓	8	9	↓
20			↓	11	12	↓
25			↓	14	15	↓
30			5	17	18	2
35			6	20	21	3
40				23	24	
45				26	27	
50				29	30	
55				32	33	↓
60				35	36	3
65				38	39	4
70				41	42	
75			↓	44	45	
80			↓	47	48	
85			6	50	51	↓
90			7	53	54	↓
95			10	56	57	
100				59	60	4
105				62	63	5
110				65	66	
115			↓	68	69	↓
120			↓	71	72	↓
124.7	↓	↓	10	74	75	5
90	2	3	7	77	78	4
		end of clay C/H		6/5/03		end of clay C/H

adj Pplch
water @ 270'

Wick@162'

ph (951) 549-1234 fx (951) 549-1236

DH FIELD LOG REV 1.1a.pdf



B642(DH) DOWNHOLE VELOCITY FIELD LOG REV 1.1a

Borehole*

SITE*: Turkey Point NP DATE*: 6/26/08
CLIENT*: Mactec JOB*: 8083
AUTHOR*: A. Martin PAGE 1 OF 3

CONTACT: Matt Cooke PHONE: Off Cell 803-261-5792

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED 2" TIME SINCE GROUT 1 month

DIAMETERS AND DEPTH RANGES: 6" 0 TO 150' ; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 150'

DEPTH TO BEDROCK: 23' DEPTH TO WATER TABLE: 21'

WATER PUMPED FROM BOREHOLE*? YES ☒ NO - then what DEPTH TO WATER water pumped to 111'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DHFIELD LOG REV 1.1a.pdf



B640(DAT) **DOWNHOLE VELOCITY FIELD LOG**
Borehole*

SITE*: Turkey Point NP DATE*: 6/26/08
CLIENT*: Mactec JOB*: 2 8083
AUTHOR*: A. Martin PAGE 1 OF 3

LOGGING CREW*: A. Martin / N. Bolden
MOBILIZED FROM: Florida City DEPARTURE TIME: 0630hr
ARRIVED ON SITE: 0700hr
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 1210hr LOGGING COMPLETED: 1555hr

WINCH _____ HAND ☒ OTHER _____
INSTRUMENT* Geode 3458 ☒ 3459 ☐ Other _____
GEOPHONES* BHG3 9501 ☐ Other BH493 51~ B5079

Plank Orientation*: NOTE (NW) Sh Source Offset* 9.5' P Source Offset* 7'10"
Surface geophones - If any-Offset Sh 13'5" P Offset 11'8"

P SOURCE Tryphm accelerated weight drop
" " " "
Sh SOURCE _____

CHANNEL ASSIGNMENTS 1 = borehole V, 2 = borehole HL, 3 = borehole HT
4 = surface V, 5 = surface HT, 6 = surface HL

SAMPLE RATES:
Depth range 0 - 122 ft Sh-wave 20.353ms SR / 1.152 RLP-wave 59ms
Depth range _____ Sh-wave _____ P-wave _____
Depth range _____ Sh-wave _____ P-wave _____

MAINTENANCE PERFORMED ON SITE*: work on weight drops -

EQUIPMENT PROBLEMS OR FAILURES*: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DN FIELD LOG REV 1.1a.pdf

B64(DH) DOWNHOLE VELOCITY FIELD LOG

Borehole*

SITE*: Turkey Point WP

DATE*: 6/26/08

CLIENT*: Mactec

JOB*: 8083

AUTHOR*: A. Martin

PAGE* 3 OF 3

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH* (Feet)	SH CHANNEL NUMBERS*	# OF STACKS	SH FILE NUMBER*	P CHANNEL NUMBER*	# OF STACKS	P FILE NUMBER*
	HL* HT		RED* GRN*			
5	2	3	5 77 78	1	2	76
10			7 74 75		2	73
15			8 71 72		2	70
20			5 68 69		2	67
25			6 65 66		2	64
30			7 62 63		2	61
35			10 59 60		2	58
40			10 56 57		2	55
45			10 53 54		2	52
50			10 50 51		2	49
55			10 47 48		2	46
60			10 44 45		2	43
65			10 41 42		2	40
70			10 38/101 39/102		2	37
75			10 35/99 36/100		2	34/36*
80			10 32/97 33/98		2	28
85			10 29/95/103 30/96/104		2	25
90			10 26/93 27/94		3	22
95			10 23/91 24/92		2	19
100			10 20/89 21/90		2	16
105			10 17/87 18/88		2	13
110			10 14/85 15/86		2	10
115			10 11/83 12/84		2	7
120			10 8/81 9/82		3	4
125	2	3	10 5/79 6/80	1	2	1
END OF LOG, Copy 6/26/08						

GEOVision Geophysical Services

1151 Pomona Rd. #P Corona, CA 92882

ph (951) 549-1234 fx (951) 549-1236

* Let man air out of van tires @ 75' to better disengage vehicle. Red weight (N side) is also beginning to slide more freely. Repeat lower portion of borehole.



B-701DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 4/17/08, 4/18/08, 4/20/08, 4/21/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF

CONTACT:

PHONE:

BOREHOLE CONSTRUCTION: CASSED

UNCASSED ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft; 3 1/8" 116 TO 420 ft / 457.5 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft / 457.5

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 116 ft; NO

DEPTH TO BEDROCK: ~3 ft

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B701DHELOGTEST01		4/17/08	1:02 - 1:04 pm
ELOG	B701DHELOGUP01	419.45 - 114.7 ft	4/17/08	4:24 - 4:55 pm
P-S velocity	B701DHSUSPD001	118.11 - 403.5 ft	4/17/08	5:27 - 6:47 pm
Caliper	B701DHCALTEST01		4/18/08	8:28 - 8:29 am
Caliper	B701DHCALUP01	407.1 - 110.75 ft	4/18/08	10:11 - 10:41 am
Caliper	B701DHCALTEST02		4/18/08	10:53 - 10:55 am
Deviation	B701DHALUP01	411.7 - 110.7 ft	4/18/08	11:29 - 11:46 am
ELOG	B701DHELOGTEST02		4/20/08	8:22 - 8:23 am
ELOG	B701DHELOGUP02	456.9 - 369.15 ft	4/20/08	11:39 - 11:48 am
Caliper	B701DHCALTEST03		4/21/08	11:21 - 11:22 am
Caliper	B701DHCALUP02	455.85 - 389.65 ft	4/21/08	11:43 - 11:50 am
Caliper	B701DHCALTEST04		4/21/08	12:08 - 12:10 pm
P-S velocity	B701DHSUSPD002	397 - 434.7 ft	4/21/08	12:45 - 1:08 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701DA ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116'; 3 1/8" 116 TO 420'

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 116'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 1:30pm / 4pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00am
ARRIVED ON SITE: 7:30am
STANDBY TIME: 8-12 CAUSE: Drillers drilling to 420'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701311 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	38.75	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	78.8	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B70104 BLOG TEST 01		1:02		1:04pm
B70104 BLOG UP 01	419.45 ft	4:24	114.7 ft	4:55

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: tiger salt, tiger mud ~~super~~ super gel
saw mud used in drilling mud

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV 1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole

SITE*: Turkey Point NPP DATE*: 4/17/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 7

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASD X cc 7/24/08
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 116 ft ; 3 1/8" 116 TO 420
BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft
SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 116 ft ; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ϕ TIME SINCE LAST CIRCULATION: 4pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 11511 Pomona Road, Suite P, Coral Gables, FL 33134 (305) 549-1234 Fax (305) 549-1236

P-S FIELD LOG REV V1.31a



B-7010H

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/17/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF * 7

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: CAUSE:
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ☒ ; NO ☐ ; STORED WITH NEW ☐
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH ☐
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☐ 2M ☒ 1m 10 S/N
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* -.69
DEPTH REF. OFFSET AT START* 1.81
DEPTH REF. OFFSET AT END* 1.81
AFTER SURVEY DEPTH ERROR* .0
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B7010H SUSPENSION	118.11 ft	5:27 pm	403.5 ft	6:47 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

R-70104

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 9/11/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 3

OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90			
21.5	70.54			
22.0	72.18			
22.5	73.82			
23.0	75.46			
23.5	77.10			
24.0	78.74			
24.5	80.38			
25.0	82.02			
25.5	83.66			
26.0	85.30			
26.5	86.94			
27.0	88.58			
27.5	90.22			
28.0	91.86			
28.5	93.50			
29.0	95.14			
29.5	96.78			
30.0	98.43			
30.5	100.07			
31.0	101.71			
31.5	103.35			
32.0	104.99			
32.5	106.63			
33.0	108.27			
33.5	109.91			
34.0	111.55			
34.5	113.19			
35.0	114.83			
35.5	116.47			
36.0	118.11	001		S:27
36.5	119.75	2		
37.0	121.39	3		
37.5	123.03	4		
38.0	124.67	5		
38.5	126.31	6		
39.0	127.95	7		
39.5	129.59	8		
40.0	131.23	9		
40.5	132.87	10		
41.0	134.51	11		

P-S FIELD LOG REV V1.31a

B-76104

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 4/17/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 4 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	12		
42.0	137.80	13		
42.5	139.44	14		
43.0	141.08	15		
43.5	142.72	16		
44.0	144.36	17		
44.5	146.00	18		
45.0	147.64	19		
45.5	149.28	20		
46.0	150.92	21		
46.5	152.56	22		
47.0	154.20	23		
47.5	155.84	24		
48.0	157.48	25		
48.5	159.12	26		
49.0	160.76	27		
49.5	162.40	28		
50.0	164.04	29		
50.5	165.68	30		
51.0	167.32	31		
51.5	168.96	32		
52.0	170.60	33		
52.5	172.24	34		
53.0	173.88	35		
53.5	175.52	36		
54.0	177.17	37		
54.5	178.81	38		
55.0	180.45	39		
55.5	182.09	40		
56.0	183.73	41		
56.5	185.37	42		
57.0	187.01	43		
57.5	188.65	44		
58.0	190.29	45		
58.5	191.93	46		
59.0	193.57	47		
59.5	195.21	48		
60.0	196.85	49		
60.5	198.49	50		
61.0	200.13	51		
61.5	201.77	52		

P-S FIELD LOG REV V1.31a

B-701b1

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 7/17/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 5 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	53		
62.5	205.05	54		
63.0	206.69	55		
63.5	208.33	56		
64.0	209.97	57		
64.5	211.61	58		
65.0	213.25	59		
65.5	214.90	60		
66.0	216.54	61		
66.5	218.18	62		
67.0	219.82	63		
67.5	221.46	64		
68.0	223.10	65		
68.5	224.74	66		
69.0	226.38	67		
69.5	228.02	68		
70.0	229.66	69		
70.5	231.30	70		
71.0	232.94	71		
71.5	234.58	72		
72.0	236.22	73		
72.5	237.86	74		
73.0	239.50	75		
73.5	241.14	76		
74.0	242.78	77		
74.5	244.42	78		
75.0	246.06	79		
75.5	247.70	80		
76.0	249.34	81		
76.5	250.98	82		
77.0	252.62	83		
77.5	254.27	84		
78.0	255.91	85		
78.5	257.55	86		
79.0	259.19	87		
79.5	260.83	88		
80.0	262.47	89		
80.5	264.11	90		
81.0	265.75	91		
81.5	267.39	92		
82.0	269.03	93		

P-S FIELD LOG REV V1.31a

B-7010H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 4/17/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 6

OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
82.5	270.67	94		
83.0	272.31	95		
83.5	273.95	96		
84.0	275.59	97		
84.5	277.23	98		
85.0	278.87	99		
85.5	280.51	100		
86.0	282.15	101		
86.5	283.79	102		
87.0	285.43	103		
87.5	287.07	104		
88.0	288.71	105		
88.5	290.35	106		
89.0	291.99	107		
89.5	293.64	108		
90.0	295.28	109		
90.5	296.92	110		
91.0	298.56	111		
91.5	300.20	112		
92.0	301.84	113		
92.5	303.48	114		
93.0	305.12	115		
93.5	306.76	116		
94.0	308.40	117		
94.5	310.04	118		
95.0	311.68	119		
95.5	313.32	120		
96.0	314.96	121		
96.5	316.60	122		
97.0	318.24	123		
97.5	319.88	124		
98.0	321.52	125		
98.5	323.16	126		
99.0	324.80	127		
99.5	326.44	128		
100.0	328.08	129		
100.5	329.72	130		
101.0	331.36	131		
101.5	333.01	132		
102.0	334.65	133		
102.5	336.29	134		

P-S FIELD LOG REV V1 31a

B-70104

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 4/17/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 7 OF 7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
103.0	337.93	135		
103.5	339.57	136		
104.0	341.21	137		
104.5	342.85	138		
105.0	344.49	139		
105.5	346.13	140		
106.0	347.77	141		
106.5	349.41	142		
107.0	351.05	143		
107.5	352.69	144		
108.0	354.33	145		
108.5	355.97	146		
109.0	357.61	147		
109.5	359.25	148		
110.0	360.89	149		
110.5	362.53	150		
111.0	364.17	151		
111.5	365.81	152		
112.0	367.45	153		
112.5	369.09	154		
113.0	370.73	155		
113.5	372.38	156		
114.0	374.02	157		
114.5	375.66	158		
115.0	377.30	159		
115.5	378.94	160		
116.0	380.58	161		
116.5	382.22	162		
117.0	383.86	163		
117.5	385.50	164		
118.0	387.14	165		
118.5	388.78	166		
119.0	390.42	167		
119.5	392.06	168		
120.0	393.70	169		
120.5	395.34	170		
121.0	396.98	171		
121.5	398.62	172		
122.0	400.26	173		
122.5	401.90	174		
123.0	403.54	175		6:47pm

CALIPER FIELD LOG REV 1.1a PDF



B-7010H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 4/18/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft; 3 7/8" 116' TO 470 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 116 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 9:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



B-7016H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 4/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	4.57	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	4.30	
AFTER SURVEY DEPTH ERROR*	.27	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DHICALTEST01		8:28am		8:29am
B701DHICALUP01	467.1 ft	10:11am	110.75 ft	10:41
B701DHICALTEST02		10:53		10:55am

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS.*	B701DHICALTEST01	2.0	3.965	8.01	4.53
AS MEAS.*	B701DHICALTEST02	2.01	3.95	8.01	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 4/8/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116 ft ; 3 1/8" 116 TO 420 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 420 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 116 ft ; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 9 am
ARRIVED ON SITE: 1:30 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-761DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 4/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 16.2 BRUNTON TILT* 16
2 PROBE TILT TEST* 90.1 BRUNTON TILT* 90
3 PROBE TILT TEST* 19.68 BRUNTON TILT* 19 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 197.6 BRUNTON AZIMUTH* 193
2 PROBE AZIMUTH TEST* 199.1 BRUNTON AZIMUTH* 199
3 PROBE AZIMUTH TEST* 247.5 BRUNTON AZIMUTH* 255 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	2.47	
DEPTH REF. OFFSET AT END*	2.49	
AFTER SURVEY DEPTH ERROR*	.03	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B-761DH AUVPO1	411.7 ft	11:29	110.7 ft	11:46 am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-701DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 4/30/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 116' ; 3 7/8" 116' TO 457.5'

BOREHOLE TOTAL DEPTH AS DRILLED*: 457.5'

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 116' ; NO _____
DEPTH TO BEDROCK: ~34ft DEPTH TO WATER TABLE: ~1ft
BOREHOLE FLUID: WATER _____ FRESH WATER MUD ☒ SALT WATER MUD _____
OTHER: _____

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 10:45am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00am
ARRIVED ON SITE: 7:15am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



Borehole

ELOG FIELD LOG

SITE*: Turkey Point NPP DATE*: 4/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	2.25	
DEPTH REF. OFFSET AT START*	38.75	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	38.55	
AFTER SURVEY DEPTH ERROR*	.2	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7010HELOGTEST02		8:22		8:23
B7010HELOGUP02	456.9	11:39	369.15	11:48

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
Quick gel, super gel x sure mud, tiger
salt + tiger mud used for drilling mud

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV 1.31a



B-701 D41 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point COL DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C-Contar PAGE 1 OF 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD ☒

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 160 ft; 3 7/8" 160 TO 457.5 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 457.5 ft

SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 160 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD: _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 10:30 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point WPP DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:00 am
ARRIVED ON SITE: 7:15 am
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: _____ LOGGING COMPLETED: _____

BATTERIES CHANGED BEFORE LOGGING: YES _____; NO X; STORED WITH NEW _____

WINCH _____ COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH _____
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☐ 2M in no s/n
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .76
DEPTH REF. OFFSET AT START* 1.79
DEPTH REF. OFFSET AT END* 1.70
AFTER SURVEY DEPTH ERROR* .09

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B701DH SUSP DOWN 02</u>	<u>39.7</u>	<u>12:45</u>	<u>434.7</u>	<u>1:08</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____
COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

B-70604

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 4/17/08 4/21/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 23 OF 784 4/21/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (If any)	COMMENTS CASING, WATER, ROCK, ETC
103.0	337.93	135		
103.5	339.57	136		
104.0	341.21	137		
104.5	342.85	138		
105.0	344.49	139		
105.5	346.13	140		
106.0	347.77	141		
106.5	349.41	142		
107.0	351.05	143		
107.5	352.69	144		
108.0	354.33	145		
108.5	355.97	146		
109.0	357.61	147		
109.5	359.25	148		
110.0	360.89	149		
110.5	362.53	150		
111.0	364.17	151		
111.5	365.81	152		
112.0	367.45	153		
112.5	369.09	154		
113.0	370.73	155		
113.5	372.38	156		
114.0	374.02	157		
114.5	375.66	158		
115.0	377.30	159		
115.5	378.94	160		
116.0	380.58	161		
116.5	382.22	162		
117.0	383.86	163		
117.5	385.50	164		
118.0	387.14	165		
118.5	388.78	166		
119.0	390.42	167		
119.5	392.06	168		
120.0	393.70	169		
120.5	395.34	170		
121.0	396.98	171	176	12:45 4/21
121.5	398.62	172	177	
122.0	400.26	173	178	
122.5	401.90	174	179	
123.0	403.54	175	180	

P-S FIELD LOG REV V1.31a

B-70104 GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 4 cur/10/08
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18	181		
124.0	406.82	182		
124.5	408.46	183		
125.0	410.10	184		
125.5	411.75	185		
126.0	413.39	186		
126.5	415.03	187		
127.0	416.67	188		
127.5	418.31	189		
128.0	419.95	190		
128.5	421.59	191		
129.0	423.23	192		
129.5	424.87	193		
130.0	426.51	194		
130.5	428.15	195		
131.0	429.79	196		
131.5	431.43	197		
132.0	433.07	198		
132.5	434.71	197		108
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68			
140.0	459.32			
140.5	460.96			
141.0	462.60			
141.5	464.24			
142.0	465.88			
142.5	467.52			
143.0	469.16			
143.5	470.80			

CALIPER FIELD LOG REV 1.1a.PDF



B-701 D4

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 4/21/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION: cc 4/21/08
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: ~~4 1/4~~ 0 TO 160 ft; 3 7/8, 160 ft TO ~~457.5~~ 457.5' cc 4/21/08

BOREHOLE TOTAL DEPTH AS DRILLED*: 457.5

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 160'; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ~1 ft
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: ϕ TIME SINCE LAST CIRCULATION: 10:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:00 am
ARRIVED ON SITE: 7:15 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-701DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 4/24/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 10' ☐ 102' ☒ 10' RG ☐

PROBE OFFSET 2.08M(6.82 FT)
MINUS CASING STICK-UP* cc 4/24/08 2.5 cc 4/24/08 12 IN MAX
DEPTH REF. OFFSET AT START* 4.57 4.82 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END* 4.10
AFTER SURVEY DEPTH ERROR* 22

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CAL TEST 03		11:21		11:22 am
B701DH CAL UP 02	455.85 ft	11:43	389.65 ft	11:50 am
B701DH CAL TEST 04		12:08		12:10 pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B701DH CAL TEST 03	1.976	3.97	8.04	4.55
AS MEAS.*	B701DH CAL TEST 04	2.02	3.92	8.01	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236



B-701DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 5/3/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Garter R. STEUER 5/3/08

PAGE*: 1 OF 1

CONTACT: _____

PHONE: _____

BOREHOLE CONSTRUCTION: CASED

UNCASED ☒

DIAMETERS AND DEPTH RANGES: 6" 0 TO 457 FT ; 3.88" 457 TO 555.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 457 FT NO (HWS LOW)

DEPTH TO BEDROCK: 2.3 FT

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____

LOGGING CREW: R. STEUER

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG TEST	B701DH ELOG TEST 03	Ø	5/3/08	08:50 - 08:55
ELOG/GAMMA	B701DH ELOG/GAMMA 03	555.0 - 457.0 FT	5/3/08	09:10 - 09:20
CALIPER TEST	B701DH CALIPER TEST 03	Ø	5/3/08	09:52 - 09:56
CALIPER/GAMMA	B701DH CALIPER/GAMMA 03	553.0 - 451.0 FT	5/3/08	10:10 - 10:23
CALIPER TEST	B701DH CALIPER TEST 06	Ø	5/3/08	10:36 - 10:39
SUSPENSION PS	B701DH SUSPENSION PS 03	459.3 - 493.8 FT	5/3/08	11:17 - 11:31
SUSPENSION PS	B701DH SUSPENSION PS 04	457.7 - 541.3 FT	5/3/08	11:33 - 12:20

246
5/3/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: G. Carter R. STEWART
DATE*: 5/3/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASSED _____ UNCASSED ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 457' ; 3.08, 457' TO 555.5' ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 ft (HQ3 ROD)

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 457' ; NO _____
DEPTH TO BEDROCK: 12 ft DEPTH TO WATER TABLE: 20
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____;
OTHER: _____

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 1/2 HR

LOGGING CREW: G. Carter R. STEWART 5/3/08
VEHICLE(S) USED AND MILEAGE: Rental
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: NA CAUSE: NA

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B710 DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 6/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter P. Steele PAGE: PAGE 2 OF 2
5/3/08

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	+ 32.8
MINUS CASING STICK-UP*	- 3.3'
DEPTH REF. OFFSET AT START*	37.7' REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	37.6'
AFTER SURVEY DEPTH ERROR*	- 0.1'

B710 LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710 DH ELOG TEST 03	0	08:50	0	09:56
5/3/08				
B710 DH ELOG 03	555.0	09:14	457.0'	09:26

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a PDF



B-701DH CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEUER 5/3/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DRILLER _____ PHONE: Off Cell _____
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: MIAMI-DADE RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASED ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 457'; 3.88", 457 TO 555.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 457 FT NO _____
DEPTH TO BEDROCK: 13 FT DEPTH TO WATER TABLE: 20
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 01 HR

LOGGING CREW: G. Carter R. STEUER 5/3/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: NA CAUSE: NA

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-701DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 8/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. Stewen 1/24/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 10' ☐ 10' ☒ 10' RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	3.3'	
DEPTH REF. OFFSET AT START*	3.52'	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	3.55'	
AFTER SURVEY DEPTH ERROR*	+0.03'	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DHCAUTEST05	0	9:52	0	9:56
B701DHCAUTEST03	353.0'	10:10	451.0'	10:23
B701DHCAUTEST06	0	10:36	0	10:39

CALIBRATION PLATE S/N 201		AS BUILT			PVC FITTING
		1.968 IN	3.937 IN	8.000 IN	4.507 IN
		(50 MM)	(100 MM)	(203.2 MM)	(114.3 MM)
AS MEAS.*	B701DHCAUTEST05	1.96	3.92	7.99	4.56
AS MEAS.*	B701DHCAUTEST06	1.98	3.94	8.00	4.56
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

MAINTENANCE PERFORMED ON SITE*: NA (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: NA (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: NA

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV 1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter Q. STELLER 5/3/08 PAGE 1 OF * 5

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DIRECTIONS TO SITE:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION*: CASED UNCASD ☒

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 457 FT ; 3.88" 457 TO 555.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 555.5 FT

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 457 FT ; NO (1103 ROD)

DEPTH TO BEDROCK: 3 FT DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER ; FRESH WATER MUD ☒ ; SALT WATER MUD:

OTHER:

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 2 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services - 1154 Pomona Road, Suite P, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Garter R. STEVEN 5/3/08 PAGE 2 OF 5

LOGGING CREW*: G. Garter R. STEVEN 5/3/08
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: CAUSE:
LOGGING STARTED: 11:17 LOGGING COMPLETED: 12:20

BATTERIES CHANGED BEFORE LOGGING: YES ☒; NO ☐; STORED WITH NEW ☐
WINCH COMPROBE ☐ GREY ☐ OYO ☐ RG ☐ OTH Slower
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☒ 24053 ☐ 28068 ☐ 28072 ☐ 2M ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* 1.0m
DEPTH REF. OFFSET AT START* 1.5m
DEPTH REF. OFFSET AT END* 1.5m
AFTER SURVEY DEPTH ERROR* 0
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DH SUSP DOWN 03	140m	11:17	151.0m	11:31
B701DH SUSP DOWN 04	150.5m	11:33	179.5m	12:20

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)
EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
SUGGESTIONS, ADDITIONS, CHANGES: N/A
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92702 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-701 DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TRUCKEE POINT COL DATE*: 5/2/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STELLER PAGE* 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18			
124.0	406.82			
124.5	408.46			
125.0	410.10			
125.5	411.75			
126.0	413.39			
126.5	415.03			
127.0	416.67			
127.5	418.31			
128.0	419.95			
128.5	421.59			
129.0	423.23			
129.5	424.87			
130.0	426.51			
130.5	428.15			
131.0	429.79			
131.5	431.43			
132.0	433.07			
132.5	434.71			
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68	373		H&B ROD TO 457 FT
140.0	459.32	300 372		
140.5	460.96	301 371		
141.0	462.60	302 370		
141.5	464.24	303 369		
142.0	465.88	304 368		
142.5	467.52	305 367		
143.0	469.16	306 366		
143.5	470.80	307 365		

P-S FIELD LOG REV V1.31a

B-701DH **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/3/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STELLER PAGE*: 4 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

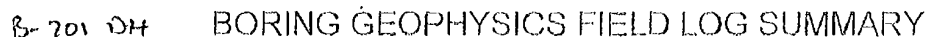
DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
144.0	472.44	308 364		
144.5	474.08	309 363		
145.0	475.72	310 362		
145.5	477.36	311 361		
146.0	479.00	312 360		
146.5	480.64	313 359		
147.0	482.28	314 358		
147.5	483.92	315 357		
148.0	485.56	316 356		
148.5	487.20	317 355		
149.0	488.85	318 354		
149.5	490.49	319 353		
150.0	492.13	320 352		
150.5	493.77	321 351		
151.0	495.41	322		
151.5	497.05	323		
152.0	498.69	324		
152.5	500.33	325		
153.0	501.97	326		
153.5	503.61	327		
154.0	505.25	328		
154.5	506.89	329		
155.0	508.53	330		
155.5	510.17	331		
156.0	511.81	332		
156.5	513.45	333		
157.0	515.09	334		
157.5	516.73	335		
158.0	518.37	336		
158.5	520.01	337		
159.0	521.65	338		
159.5	523.29	339		
160.0	524.93	340		
160.5	526.57	341		
161.0	528.22	342		
161.5	529.86	343		
162.0	531.50	344		
162.5	533.14	345		
163.0	534.78	346		
163.5	536.42	347		
164.0	538.06	348		

P-S FIELD LOG REV V1.31a

B-701 DA **GEOVISION SUSPENSION LOGGING FIELD NOTES**
 SITE*: TURKEY POINT COL DATE*: 5/3/08
 CLIENT*: MACTEC JOB*: 8083
 AUTHOR*: P. STEUER PAGE* 5 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
164.5	539.70	349		
165.0	541.34	350		
165.5	542.98			BOTTOM MEASUREMENT?
166.0	544.62			Ht @ 165.3 m.
166.5	546.26			
167.0	547.90			
167.5	549.54			
168.0	551.18			
168.5	552.82			
169.0	554.46			T.O. @ 555.5'
169.5	556.10			
170.0	557.74			
170.5	559.38			
171.0	561.02			
171.5	562.66			
172.0	564.30			
172.5	565.94			
173.0	567.59			
173.5	569.23			
174.0	570.87			
174.5	572.51			
175.0	574.15			
175.5	575.79			
176.0	577.43			
176.5	579.07			
177.0	580.71			
177.5	582.35			
178.0	583.99			
178.5	585.63			
179.0	587.27			
179.5	588.91			
180.0	590.55			
180.5	592.19			
181.0	593.83			
181.5	595.47			
182.0	597.11			
182.5	598.75			
183.0	600.39			
183.5	602.03			
184.0	603.67			
184.5	605.31			



PAGE*: 1 OF 1

PHONE:

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____;

LOGGING CREW: R. STELLER

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701 DH ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter R. STEWART 5/5/08 PAGE: 1 OF 2
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: GLEN BAKER PHONE: Off Cell 931-242-6501
COMPANY: MILLER

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 3.00" 457 FT TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 457 FT (H43 EOS) NO _____
DEPTH TO BEDROCK: 23 DEPTH TO WATER TABLE: 20

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 1 HR

LOGGING CREW: C. Carter R. STEWART 5/5/08

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:30

ARRIVED ON SITE: 10:00

STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



B-701 DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter R. STELLER 5/5/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+62.2 FT	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-3.3 FT	
DEPTH REF. OFFSET AT START*	37.7 FT	
DEPTH REF. OFFSET AT END*	37.6 FT	
AFTER SURVEY DEPTH ERROR*	-0.1 FT	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHLMTEST04	0	11:20	0	11:24
B701DHLMTEST04	415.3 FT	11:48	450.0 FT	12:04

MAINTENANCE PERFORMED ON SITE*: N/A RAS 7/20/08 (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A RAS 7/20/08 (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



D-701 DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter & STEWEL 5/5/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASED ✓

DIAMETERS AND DEPTH RANGES: 4" 0 TO 457' FT; 3.88, 457 ft TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 457' FT NO (N Q3 Q09)

DEPTH TO BEDROCK: 15 ft DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ✓; SALT WATER MUD _____

OTHER: _____

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 HR

LOGGING CREW: G. Carter & STEWEL 5/5/08

VEHICLE(S) USED AND MILEAGE: 2 ENTAL

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:30

ARRIVED ON SITE: 10:00

STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-701 DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter D. STEWART 5/5/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 10 ☐ 102 ☒ 104 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	3.3 FT	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	3.52 FT	
DEPTH REF. OFFSET AT END*	3.45	
AFTER SURVEY DEPTH ERROR*	-0.07 FT	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CALTEST07	0	12:33	0	12:35
B701DH CALUP 04	612.0 FT	12:46	450.0 FT	13:04
B701DH CALTEST08	0	13:14	0	13:16

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B701DH CALTEST07	1.97	3.93	8.02	4.57
AS MEAS.* B701DH CALTEST08	1.98	3.94	8.03	4.51
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

MAINTENANCE PERFORMED ON SITE*: N/A RAL 7/24/08 (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A RAL 7/24/08 (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Ex (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Garter R. STELLER 5/5/08 PAGE 1 OF * 6

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 457 FT; 5.8" 457 TO 615.5 FT
BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT
SURFACE CASING?: ☒ DEPTH TO BOTTOM OF CASING 457 FT NO (1003 ROD)
DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 8
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 3 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services 11511 Peninsula Road, Suite P, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEUER 5/5/08 PAGE 2 OF * 6

LOGGING CREW*: G. Carter R. STEUER 5/5/08
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:30
ARRIVED ON SITE: 10:00
STANDBY TIME: N/A CAUSE: N/A
LOGGING STARTED: 14:10 LOGGING COMPLETED: 14:50

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☐ OYO ☐ RG ☐ OTH silver
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☐ 2M ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* 1.0m
DEPTH REF. OFFSET AT START* 1.5m
DEPTH REF. OFFSET AT END* 1.5m
AFTER SURVEY DEPTH ERROR* ϕ } REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701 DH SUSPDOWN 05	140m (459.3 FT.)	14:10	183.5m (602.0 FT.)	14:50

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)
EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)
SUGGESTIONS, ADDITIONS, CHANGES: N/A
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point COL DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: P. STELLER PAGE* 3 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18			
124.0	406.82			
124.5	408.46			
125.0	410.10			
125.5	411.75			
126.0	413.39			
126.5	415.03			
127.0	416.67			
127.5	418.31			
128.0	419.95			
128.5	421.59			
129.0	423.23			
129.5	424.87			
130.0	426.51			
130.5	428.15			
131.0	429.79			
131.5	431.43			
132.0	433.07			
132.5	434.71			
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68			N03 200 TO 457 FT
140.0	459.32	A74		
140.5	460.96	A75		
141.0	462.60	A76		
141.5	464.24	A77		
142.0	465.88	A78		
142.5	467.52	A79		
143.0	469.16	A80		
143.5	470.80	A81		

P-S FIELD LOG REV V1.31a

B-701 Dr **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: TURKEY POINT COL DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STEWART PAGE*: 4 OF 6

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
144.0	472.44	482		
144.5	474.08	483		
145.0	475.72	484		
145.5	477.36	485		
146.0	479.00	486		
146.5	480.64	487		
147.0	482.28	488		
147.5	483.92	489		
148.0	485.56	490		
148.5	487.20	491		
149.0	488.85	492		
149.5	490.49	493		
150.0	492.13	494		
150.5	493.77	495		
151.0	495.41	496		
151.5	497.05	497		
152.0	498.69	498		
152.5	500.33	499		
153.0	501.97	500		
153.5	503.61	501		
154.0	505.25	502		
154.5	506.89	503		
155.0	508.53	504		
155.5	510.17	505		
156.0	511.81	506		
156.5	513.45	507		
157.0	515.09	508		
157.5	516.73	509		
158.0	518.37	510		
158.5	520.01	511		
159.0	521.65	512		
159.5	523.29	513		
160.0	524.93	514		
160.5	526.57	515		
161.0	528.22	516		
161.5	529.86	517		
162.0	531.50	518		
162.5	533.14	519		
163.0	534.78	520		
163.5	536.42	521		
164.0	538.06	522		

P-S FIELD LOG REV V1.31a

B-701 DA **GEOVISION SUSPENSION LOGGING FIELD NOTES**
SITE*: TURKEY POINT COL DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STELLER PAGE* 5 OF 6
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
164.5	539.70	523		
165.0	541.34	524		
165.5	542.98	525		
166.0	544.62	526		
166.5	546.26	527		
167.0	547.90	528		
167.5	549.54	529		
168.0	551.18	530		
168.5	552.82	531		
169.0	554.46	532		
169.5	556.10	533		
170.0	557.74	534		
170.5	559.38	535		
171.0	561.02	536		
171.5	562.66	537		
172.0	564.30	538		
172.5	565.94	539		
173.0	567.59	540		
173.5	569.23	541		
174.0	570.87	542		
174.5	572.51	543		
175.0	574.15	544		
175.5	575.79	545		
176.0	577.43	546		
176.5	579.07	547		
177.0	580.71	548		
177.5	582.35	549		
178.0	583.99	550		
178.5	585.63	551		
179.0	587.27	552		
179.5	588.91	553		
180.0	590.55	554		
180.5	592.19	555		
181.0	593.83	556		
181.5	595.47	557		
182.0	597.11	558		
182.5	598.75	559		
183.0	600.39	560		
183.5	602.03	561		HTC 183.75 @ 14:58
184.0	603.67			BOTTOM MEASUREMENT?
184.5	605.31			

P-S FIELD LOG REV VI.31a

B. Toi Dy **GEOVISION SUSPENSION LOGGING FIELD NOTES**
SITE*: TURKEY POINT COL DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STEWART PAGE* 6 OF 6
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
185.0	606.96			
185.5	608.60			
186.0	610.24			
186.5	611.88			
187.0	613.52			
187.5	615.16			T.D @ 615.5 Ft
188.0	616.80			
188.5	618.44			
189.0	620.08			
189.5	621.72			
190.0	623.36			
190.5	625.00			
191.0	626.64			
191.5	628.28			
192.0	629.92			
192.5	631.56			
193.0	633.20			
193.5	634.84			
194.0	636.48			
194.5	638.12			
195.0	639.76			
195.5	641.40			
196.0	643.04			
196.5	644.69			
197.0	646.33			
197.5	647.97			
198.0	649.61			
198.5	651.25			
199.0	652.89			
199.5	654.53			
200.0	656.17			
200.5	657.81			
201.0	659.45			
201.5	661.09			
202.0	662.73			
202.5	664.37			
203.0	666.01			
203.5	667.65			
204.0	669.29			
204.5	670.93			
205.0	672.57			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/5/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEWEN 5/5/08 PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457'; 3.8", 457' TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: _____

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 457'; NO 4" STEEL
DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER ☒; FRESH WATER MUD _____; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 7 HR

LOGGING CREW: G. Carter R. STEWEN 5/5/08
VEHICLE(S) USED AND MILEAGE: RENTAL
MOBILIZED FROM: Florida City DEPARTURE TIME: 09:30
ARRIVED ON SITE: 10:00
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 8/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. Steiner 5/5/08 PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

PROBE TILT TEST* 89.8 BRUNTON TILT* 90°
PROBE TILT TEST* 14.3 BRUNTON TILT* 14°
PROBE TILT TEST* 0.2° BRUNTON TILT* 0° AFTER LOG* ☒
PROBE AZIMUTH TEST* 135.9° BRUNTON AZIMUTH* 126°
PROBE AZIMUTH TEST* 242.1° BRUNTON AZIMUTH* 240°
PROBE AZIMUTH TEST* 32.6° BRUNTON AZIMUTH* 35° AFTER LOG* ☒

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	2.4	
DEPTH REF. OFFSET AT START*	2.32'	
DEPTH REF. OFFSET AT END*	2.20'	
AFTER SURVEY DEPTH ERROR*	-0.12'	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DH AUG 02	010.0 FT	16:47	100.0 FT	17:34

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236



B-701 DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08, 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STELLER 5/6/08 PAGE*: 1 OF 1

CONTACT: PHONE:

BOREHOLE CONSTRUCTION: CASSED UNCASED ☒
DIAMETERS AND DEPTH RANGES: 1" 0 TO 45.7 FT; 3.88" 45.7 TO 615.5 FT
BOREHOLE TOTAL DEPTH AS DRILLED*: 105.5 FT
CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 127 FT, NO
DEPTH TO BEDROCK: 3 FT
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

LOGGING CREW: R. STELLER

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG TEST	B701DH ELOG TEST 05	Ø	5/6/08	09:40 - 09:42
ELOG/GAMMA	B701DH ELOG/GAMMA 05	485.0 - 425.0 FT	5/6/08	13:13 - 13:20
SUSPENSION PS	NO DATA COLLECTED - HOLE		5/6/08	N/A
	OBSTRUCTED @ 424.2 FT			
ELOG TEST	B701DH ELOG TEST 06	Ø	5/7/08	10:14 - 10:16
ELOG/GAMMA	B701DH ELOG/GAMMA 06	155.0 - 20.0 FT	5/7/08	10:20 - 10:41
CALIPER TEST	B701DH CALIPER TEST 09	Ø	5/7/08	10:54 - 10:56
CALIPER/GAMMA	B701DH CALIPER/GAMMA 05	155.0 - Ø	5/7/08	11:05 - 11:22
CALIPER TEST	B701DH CALIPER TEST 10	Ø	5/7/08	11:26 - 11:28
SUSPENSION PS	B701DH SUSPENSION PS 07	16.4 - 134.5 FT	5/7/08	12:15 - 12:47
ACOUSTIC TELE	B701DH ACOUSTIC TELE 03	125.0 - 15.0 FT	5/7/08	13:16 - 13:45
ACOUSTIC TELE	B701DH ACOUSTIC TELE 04	25.0 - 23.0 FT	5/7/08	14:58 - 15:11
SUSPENSION PS	B701DH SUSPENSION PS 08	1.6 - 23.0 FT	5/7/08	15:00 - 15:11
CALIPER TEST	B701DH CALIPER TEST 11	Ø	5/7/08	15:20 - 15:23
CALIPER/GAMMA	B701DH CALIPER/GAMMA 06	155.0 - Ø	5/7/08	15:33 - 15:50
CALIPER TEST	B701DH CALIPER TEST 12	Ø	5/7/08	15:53 - 15:56

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-70104 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter P. Stuebe 5/6/08 PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION: CASED UNCASED ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 457' ft; 3.88" 457 TO 615.5' ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5' ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 427' ft; NO

DEPTH TO BEDROCK: 23' ft DEPTH TO WATER TABLE: 20'

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

OTHER:

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 1/2 hrs

LOGGING CREW: C. Carter P. Stuebe 5/6/08

VEHICLE(S) USED AND MILEAGE: RENTAL

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00

ARRIVED ON SITE: 07:30

STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701 D4 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter R. Stuebel PAGE: PAGE 2 OF 2
5/6/08

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	+ 32.8 FT
MINUS CASING STICK-UP*	- 3.3 FT
DEPTH REF. OFFSET AT START*	37.7 FT
DEPTH REF. OFFSET AT END*	37.8 FT
AFTER SURVEY DEPTH ERROR*	+0.1 FT

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DHELOGTEST05	0	09:40	0	09:42
B701DHELOGUP 05	425.0 FT	13:13	425.0 FT	13:20

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-901D14 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~G. Carter~~ P. STELLER 5/6/08 PAGE 1 OF * 3

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASED ☒

DIAMETERS AND DEPTH RANGES*: 4' 0 TO 457' FT ; 3.88" 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: ☒ DEPTH TO BOTTOM OF CASING 42.7 FT NO

DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 2 FT

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 1 1/2 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 11511 Pomona Road, Suite P, Corona, CA 92612 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701 D4 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole*

SITE*: Turkey Point NPP DATE*: 5/6/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter P. STELLER 5/6/08 PAGE 2 OF * 3

LOGGING CREW*: G. Carter 5/6/08
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 07:00
ARRIVED ON SITE: 07:30
STANDBY TIME: CAUSE:
LOGGING STARTED: NA LOGGING COMPLETED: NA

BATTERIES CHANGED BEFORE LOGGING: YES; NO ☒; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☐ OYO ☐ RG ☐ OTH SILVER
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☒ 24053 ☐ 28068 ☐ 28072 ☐ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* -1.0m
DEPTH REF. OFFSET AT START* 1.5m
DEPTH REF. OFFSET AT END* 1.5m
AFTER SURVEY DEPTH ERROR* 0
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>NO DATA COLLECTED, BORING</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>OBSTRUCTED @ 424.2</u>				

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-701 DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COI

DATE*: 5/6/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: B. STEWART

PAGE* 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
123.5	405.18			
124.0	406.82			
124.5	408.46			
125.0	410.10			
125.5	411.75			
126.0	413.39			CONSTRUCTION @ 125.6m
126.5	415.03			TIP @ 424.2'
127.0	416.67			
127.5	418.31			
128.0	419.95			
128.5	421.59			
129.0	423.23			
129.5	424.87			
130.0	426.51			
130.5	428.15			4" STEEL CASE TO 428'
131.0	429.79			
131.5	431.43	--		
132.0	433.07			
132.5	434.71			
133.0	436.35			
133.5	437.99			
134.0	439.63			
134.5	441.27			
135.0	442.91			
135.5	444.55			
136.0	446.19			
136.5	447.83			
137.0	449.48			
137.5	451.12			
138.0	452.76			
138.5	454.40			
139.0	456.04			
139.5	457.68			
140.0	459.32			
140.5	460.96			
141.0	462.60			
141.5	464.24			
142.0	465.88			
142.5	467.52			
143.0	469.16			
143.5	470.80			BOTTOM MEASUREMENT?

ELOG FIELD LOG REV 1.1a



B-7010H ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: ~~G. Carter~~ R. Stewer 5/7/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 5.08, 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT 10 FT RAS 5/7/08

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING: 27 FT; NO _____
DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: cφ
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: c/HR

LOGGING CREW: ~~G. Carter~~ R. Stewer 5/7/08
VEHICLE(S) USED AND MILEAGE: Rental
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:00
ARRIVED ON SITE: 09:30
STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-701 DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter, R. STEUER 5/7/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	+32.8 10.0 FT	REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.0 7.2 FT	
DEPTH REF. OFFSET AT START*	48.0 FT	
DEPTH REF. OFFSET AT END*	20.0 FT	
AFTER SURVEY DEPTH ERROR*	0	

2AS 5/7/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7010HELOGTEST00	0	10:14	0	10:16
B7010HELOGW006	155.0 FT	10:26	20.0	10:41

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-701 DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STELLER 5/7/08 PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: MIAMI-DADE RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED UNCASED Y

DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 3.88" 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES ✓ DEPTH TO BOTTOM OF CASING 16 FT; NO ✓

DEPTH TO BEDROCK: 0.3 FT DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ✓; SALT WATER MUD _____;

OTHER: _____

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 0.1 HR.

LOGGING CREW: G. Carter R. STELLER 5/7/08

VEHICLE(S) USED AND MILEAGE: RENTAL

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:00

ARRIVED ON SITE: 09:30

STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-701 DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: S. Carter, R. STEWART 5/7/08 PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
CALIPER PROBE* 5368 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 10' ☐ 10' ☒ 10' ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.0 FT	0.5 FT
DEPTH REF. OFFSET AT START*	5.82 FT	4.32 FT
DEPTH REF. OFFSET AT END*	5.8 FT	4.30 FT
AFTER SURVEY DEPTH ERROR*	-0.02 FT	-0.02 FT

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B701DH CALTEST 09	0	10:54	0	10:56
B701DH CALTEST 05	155.0 FT	11:05	0	11:22
B701DH CALTEST 10	0	11:26	0	11:28
B701DH CALTEST 11	0	15:20	0	15:23
B701DH CALTEST 06	155.0	15:33	0	15:50
B701DH CALTEST 12	0	15:53	0	15:56

CALIBRATION PLATE S/N 201		AS BUILT			PVC FITTING
FILE NAME		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B701DH CALTEST 09	2.01	3.96	8.02	4.53
AS MEAS.*	B701DH CALTEST 10	1.96	3.92	8.00	4.49
AS MEAS.	B701DH CALTEST 11	1.92	3.88	7.96	4.46
AS MEAS.	B701DH CALTEST 12	1.93	3.89	7.97	4.46
AS MEAS.					
AS MEAS.					

MAINTENANCE PERFORMED ON SITE*: _____ (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: _____ (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Garter R. SIELLER 5/7/08 PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD ☒

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 45.7 FT; 3.88" 45.7 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: Run 1 DEPTH TO BOTTOM OF CASING 16 FT; NO Run 2

DEPTH TO BEDROCK: ± 3 FT DEPTH TO WATER TABLE: Ø

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: Ø TIME SINCE LAST CIRCULATION: ± 2 HR

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
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P S FIELD LOG REV V1.31a



B-701 DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STEWART 5/7/08 PAGE 2 OF 4

LOGGING CREW*: C. Carter R. STEWART 5/7/08
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 09:00
ARRIVED ON SITE: 09:30
STANDBY TIME: N/A CAUSE: N/A
LOGGING STARTED: 12:15 LOGGING COMPLETED: 15:11

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☐ OYO ☐ RG ☐ OTH SIVEN
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☒ 24053 ☐ 28068 ☐ 28072 ☐ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☐ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* -0.3 m -0.1 m
DEPTH REF. OFFSET AT START* 2.2 m } REF TO GROUND SURFACE 2.4 m
DEPTH REF. OFFSET AT END* 2.2 m
AFTER SURVEY DEPTH ERROR* 0

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701 DH Susp <u>07</u>	16.4 FT	12:15	134.5 FT	12:47
B701 DH Susp <u>08</u>	1.64 FT	15:00	23.0 FT	15:11

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-761 DH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURKEY POINT COL. DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STELLER 5/7/08 PAGE*: 3 OF 4
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64	944		
1.0	3.28	945		
1.5	4.92	946		
2.0	6.56	947		
2.5	8.20	948		
3.0	9.84	949		
3.5	11.48	950		
4.0	13.12	951		
4.5	14.76	952		
5.0	16.40	762 953		
5.5	18.04	763 954		6" STEEL CASE TO 16'
6.0	19.69	764 955		ON RUN #7 (RUN FOR DATA)
6.5	21.33	765 956		
7.0	22.97	766 957		
7.5	24.61	767		
8.0	26.25	768		
8.5	27.89	769		
9.0	29.53	770		
9.5	31.17	771		
10.0	32.81	772		
10.5	34.45	773		
11.0	36.09	774		
11.5	37.73	775		
12.0	39.37	776		
12.5	41.01	777		
13.0	42.65	778		
13.5	44.29	779		
14.0	45.93	780		
14.5	47.57	781		
15.0	49.21	782		
15.5	50.85	783		
16.0	52.49	784		
16.5	54.13	785		
17.0	55.77	786		
17.5	57.41	787		
18.0	59.06	788		
18.5	60.70	789		
19.0	62.34	790		
19.5	63.98	791		
20.0	65.62	792		
20.5	67.26	793		

P-S FIELD LOG REV V1.31a

B-701 DH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: TURNKEY POINT COL DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: R. STELLER PAGE* 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	794		
21.5	70.54	795		
22.0	72.18	796		
22.5	73.82	797		
23.0	75.46	798		
23.5	77.10	799		
24.0	78.74	800		
24.5	80.38	801		
25.0	82.02	802		
25.5	83.66	803		
26.0	85.30	804		
26.5	86.94	805		
27.0	88.58	806		
27.5	90.22	807		
28.0	91.86	808		
28.5	93.50	809		
29.0	95.14	810		
29.5	96.78	811		
30.0	98.43	812		
30.5	100.07	813		
31.0	101.71	814		
31.5	103.35	815	8A3	80ms 1 @ 12:47
32.0	104.99	816	812	
32.5	106.63	817	8A1	
33.0	108.27	818	8A0	
33.5	109.91	819	839	
34.0	111.55	820	838	
34.5	113.19	821	837	
35.0	114.83	822	836	
35.5	116.47	823	835	
36.0	118.11	824		20ms ↓
36.5	119.75	825		
37.0	121.39	826		
37.5	123.03	827		
38.0	124.67	828		
38.5	126.31	829		
39.0	127.95	830		
39.5	129.59	831		
40.0	131.23	832		
40.5	132.87	833		
41.0	134.51	834		@ 12:10

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 D1A ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: G. Carter R. STELLER 5/7/08 PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION: CASED UNCASD ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 457 FT; 3.88" 457 TO 615.5 FT

BOREHOLE TOTAL DEPTH AS DRILLED*: 615.5 FT

SURFACE CASING?: YES Run 1 DEPTH TO BOTTOM OF CASING 16 FT; NO Run 2

DEPTH TO BEDROCK: 23 FT DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

OTHER:

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 2 HR

LOGGING CREW: G. Carter R. STELLER 5/7/08

VEHICLE(S) USED AND MILEAGE: RENTAL

MOBILIZED FROM: Florida City DEPARTURE TIME: 09:00

ARRIVED ON SITE: 09:30

STANDBY TIME: N/A CAUSE: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-701 DIT ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 5/7/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Gatter R. Weller 5/7/08 PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

PROBE TILT TEST* 93.6° BRUNTON TILT* 93°
PROBE TILT TEST* 8.7° BRUNTON TILT* 9°
PROBE TILT TEST* 0.2° BRUNTON TILT* 0° AFTER LOG*
PROBE AZIMUTH TEST* 269.1° BRUNTON AZIMUTH* 263°
PROBE AZIMUTH TEST* 330.6° BRUNTON AZIMUTH* 344°
PROBE AZIMUTH TEST* 75.4° BRUNTON AZIMUTH* 75° AFTER LOG*

PROBE OFFSET*	1.44M(4.72FT)	Run 1	Run 2
MINUS CASING STICK-UP*	1.0 FT	0.5 FT	0.5 FT
DEPTH REF. OFFSET AT START*	3.72 FT	4.20 FT	4.20 FT
DEPTH REF. OFFSET AT END*	5.75	4.20 FT	4.20 FT
AFTER SURVEY DEPTH ERROR*	±0.03	±0.02 FT	±0.02 FT

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B701DITAWP03	125.0 FT	13:16	15.0	13:45
B701DITAWP04	25.0 FT	14:38	6	14:47

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: N/A

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL



B-704GDH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

CLIENT*: MACTEC

AUTHOR*: C. Carter

DATE*: 3/8/08, 3/9/08

JOB*: 8083

PAGE*: 1 OF 1

CONTACT: _____

PHONE: _____

BOREHOLE CONSTRUCTION: CASSED _____

UNCASSED ☒ X

DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft, 5" 24 TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

CONDUCTOR CASING?: YES ☒ X DEPTH TO BOTTOM OF CASING 24' NO _____

DEPTH TO BEDROCK: 4'

BOREHOLE FLUID: WATER _____, FRESH WATER MUD ☒ X, SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B704GDHELOGTEST02		3/8/08	10:09 - 10:10 am
ELOG	B704GDHELOGUP01	129 - 39.5 ft	3/8/08	11:08 - 11:20 am
PS velocity	B704GDHSUSP000001	26.25 - 116.47 ft	3/8/08	12:14 - 1:04 pm
ATV	B704GDH40UP01	119.4 - 5.5 ft	3/8/08	2:11 - 2:47 pm
Caliper	B704GDHCLTEST01		3/8/08	3:05 - 3:06
Caliper	B704GDHCLUP01	121.0 - 8.6 ft	3/8/08	3:22 - 3:33
Caliper	B704GDHCLTEST02		3/8/08	3:41 - 3:42
ELOG	B704GDHELOGUP02	129.5 - 37.45	3/8/08	11:26 - 11:36 am
ELOG	B704GDHELOGTEST03		3/9/08	9:07 - 9:09
ELOG	B704GDHELOGUP03	163.05 - 103.15 ft	3/9/08	10:11 - 10:18
PS velocity	B704GDHSUSP000002	116.47 - 149.28'	3/9/08	10:44 - 11:00 am
Deviation	B704GDH40UP02	157.2 - 108.5 ft	3/9/08	11:46 - 11:48 am
Caliper	B704GDHCLTEST03		3/9/08	12:19 - 12:20 pm
Caliper	B704GDHCLUP02	155.4 - 105.05 ft	3/9/08	12:36 - 12:41 pm
Caliper	B704GDHCLTEST04		3/9/08	12:51 - 12:52 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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ELOG FIELD LOG REV 1.1a



R-704GDH ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft; 5" 24 ft TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: cc 3/8/08
129 ft 133 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24 ft; NO _____

DEPTH TO BEDROCK: 7' DEPTH TO WATER TABLE: φ

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____

OTHER: _____

DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: 4pm 3/7

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am

ARRIVED ON SITE: 7 am

STANDBY TIME: 7:30 - 10:30 cc 3/8/08 CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7046011 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/68
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER OYO ☒ RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.5 02
MINUS CASING STICK-UP*	-1.0
DEPTH REF. OFFSET AT START*	40 40 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.95 39.95
AFTER SURVEY DEPTH ERROR*	.05 .05

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046011 ELOG TEST 02		10:09 am		10:10 am
B7046011 ELOG UP 01	12.9 ft	11:08 am	39.5 ft	11:20 am
B7046011 ELOG UP 02	12.9.5 ft	11:26	37.45 ft	11:36

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-704 GDI **P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a**

Borehole

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED UNCASED
DIAMETERS AND DEPTH RANGES*: 6" 0 TO 24 ft ; 5" 24 TO 133 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft
SURFACE CASING?: yes DEPTH TO BOTTOM OF CASING 24 ft ; NO
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD x; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: Ø TIME SINCE LAST CIRCULATION: 4pm 3/7

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
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P-S FIELD LOG REV V1.31a



B-204GDH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a
Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: 7:30 - 10 am CAUSE: weather
LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .31 m
DEPTH REF. OFFSET AT START* 2.69 m
DEPTH REF. OFFSET AT END* 2.17 m
AFTER SURVEY DEPTH ERROR* .02 m
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046DHSUSPDOWN01	26.25 ft	12:14 pm	116.47 ft	1:04 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92882 (951) 549-1234 Fx (951) 549-1236

B-264^{GDH}

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/8/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	001		12.34 mm
8.5	27.89	2		
9.0	29.53	3		
9.5	31.17	4		
10.0	32.81	5		
10.5	34.45	6		
11.0	36.09	7		
11.5	37.73	8		
12.0	39.37	9		
12.5	41.01	10		
13.0	42.65	11		
13.5	44.29	12		
14.0	45.93	13		
14.5	47.57	14		
15.0	49.21	15		
15.5	50.85	16		
16.0	52.49	17		
16.5	54.13	18		
17.0	55.77	19		
17.5	57.41	20		
18.0	59.06	21		
18.5	60.70	22		
19.0	62.34	23		
19.5	63.98	24		
20.0	65.62	25		
20.5	67.26	26		

P-S FIELD LOG REV VI.31a

B-70160H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP

DATE*: 3/8/08 3/9/08

CLIENT*: MACTEC

JOB*: 8083 cc 3/9/08

AUTHOR*: C. Carter

PAGE*: 43 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50		
33.0	108.27	51		
33.5	109.91	52		
34.0	111.55	53		
34.5	113.19	54		
35.0	114.83	55		
35.5	116.47	56 57		1:07 10:44am (3/9)
36.0	118.11	58		
36.5	119.75	59		
37.0	121.39	60		
37.5	123.03	61		
38.0	124.67	62		
38.5	126.31	63		
39.0	127.95	64		
39.5	129.59	65		
40.0	131.23	66		
40.5	132.87	67		
41.0	134.51	68		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



8-2046DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24' ; 5' 24' TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 24 ft ; NO
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER ; FRESH WATER MUD ☒ ; SALT WATER MUD ;

OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 4pm 3/7

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: 7:30 - 10 CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7046DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 26.65 BRUNTON TILT* 2.6
2 PROBE TILT TEST* 88.36 BRUNTON TILT* 87
3 PROBE TILT TEST* 52.10 BRUNTON TILT* 52 AFTER LOG* ☒
1 PROBE AZIMUTH TEST* 59.1 BRUNTON AZIMUTH* 61
2 PROBE AZIMUTH TEST* 348.9 BRUNTON AZIMUTH* 348
3 PROBE AZIMUTH TEST* 56.8 BRUNTON AZIMUTH* 55 AFTER LOG* ☒

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.0	
DEPTH REF. OFFSET AT START*	3.72	
DEPTH REF. OFFSET AT END*	3.67	
AFTER SURVEY DEPTH ERROR*	.05	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B-7046DH400P01	119.4 ft	2:11 pm	5.5 ft	2:47 pm

MAINTENANCE PERFORMED ON SITE*: ^{cc 3/8/08} ~~not~~ changed to (N/A if none)

6" centralizer due to borehole diameter

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a.PDF



8-70460H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter

DATE*: 3/8/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒

DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft ; 5" 24 ft TO 133 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 24 ft ; NO _____

DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____ FRESH WATER MUD ☒ SALT WATER MUD _____

OTHER: _____

DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 4pm 3/7

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am

ARRIVED ON SITE: 7am

STANDBY TIME: 7:30 - 10:00 on 3/8/08 CAUSE: weather

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-204604

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	-1.0	
DEPTH REF. OFFSET AT START*	5.82	REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.70	
AFTER SURVEY DEPTH ERROR*	.12	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B704GDHICALTEST01		3:05 pm		3:06 pm
B704GDHICALUP01	121.0 ft	3:22 pm	8.6 ft	3:33 pm
B704GDHICALTEST02		3:41 pm		3:42 pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B704GDHICALTEST01	1.99	3.98	8.04	4.53
AS MEAS.*	B704GDHICALTEST02	1.931	3.975	8.02	4.53
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 3/8/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-7041 GDT ELOG FIELD LOG

Borehole* cc 3/9/08

SITE*: Turkey Point NPP DATE*: 3/8/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: _____ 0 TO _____ TO _____
BOREHOLE TOTAL DEPTH AS DRILLED*: 133 ft 163 ft 114 ft
SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 24 ft cc 3/8/08 NO _____
DEPTH TO BEDROCK: 4' DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 4:37 9am
cc 3/9/08

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: 1:30 am CAUSE: _____
cc 3/9/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7046DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-2.0	
DEPTH REF. OFFSET AT START*	39.0	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	38.9	
AFTER SURVEY DEPTH ERROR*	.1	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046DH ELOG TEST 03		9:07		9:09 am
B7046DH ELOG UP 03	163.05 ft	10:01	103.75 ft	10:08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-704GDH **P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a**

Borehole

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED ~~UNCASED~~ 3/8" ~~3/4"~~

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 24 ft ; 3 7/8" 114 TO 163 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 163 ft

SURFACE CASING?: CL 3/4/08 ~~114 ft~~ X DEPTH TO BOTTOM OF CASING 114 ft; NO

DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: Ø

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD; _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: 12 ft TIME SINCE LAST CIRCULATION: 9 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-7046011 P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/88
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am

ARRIVED ON SITE: 7am

STANDBY TIME: CAUSE:

LOGGING STARTED: 10:45am LOGGING COMPLETED: 11:00am

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW

WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH

INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐

RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒

ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M

SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐

PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒

MINUS CASING STICK-UP* -.61m

DEPTH REF. OFFSET AT START* 1.88m

DEPTH REF. OFFSET AT END* 1.88m

AFTER SURVEY DEPTH ERROR* .01m

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046011 SUSP DOWN 02	35.5m	10:44am	45.5m	11:00am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

B-70160H GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/8/08 3/9/08

CLIENT*: MACTEC

JOB*: 8083 cc 3/9/08

AUTHOR*: C. Carter

PAGE* 34 84 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

cc 7/10/08

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	27		
21.5	70.54	28		
22.0	72.18	29		
22.5	73.82	30		
23.0	75.46	31		
23.5	77.10	32		
24.0	78.74	33		
24.5	80.38	34		
25.0	82.02	35		
25.5	83.66	36		
26.0	85.30	37		
26.5	86.94	38		
27.0	88.58	39		
27.5	90.22	40		
28.0	91.86	41		
28.5	93.50	42		
29.0	95.14	43		
29.5	96.78	44		
30.0	98.43	45		
30.5	100.07	46		
31.0	101.71	47		
31.5	103.35	48		
32.0	104.99	49		
32.5	106.63	50		
33.0	108.27	51		
33.5	109.91	52		
34.0	111.55	53		
34.5	113.19	54		
35.0	114.83	55		
35.5	116.47	56 57		1:24 10:44am (3/9)
36.0	118.11	58		
36.5	119.75	59		
37.0	121.39	60		
37.5	123.03	61		
38.0	124.67	62		
38.5	126.31	63		
39.0	127.95	64		
39.5	129.59	65		
40.0	131.23	66		
40.5	132.87	67		
41.0	134.51	68		

P-S FIELD LOG REV V1.31a

B-7046DH

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	69		
42.0	137.80	70		
42.5	139.44	71		
43.0	141.08	72		
43.5	142.72	73		
44.0	144.36	74		
44.5	146.00	75		
45.0	147.64	76		
45.5	149.28	77		hit bottom @ 45.6m 11:00am
46.0	150.92			
46.5	152.56			
47.0	154.20			
47.5	155.84			
48.0	157.48			
48.5	159.12			
49.0	160.76			
49.5	162.40			
50.0	164.04			
50.5	165.68			
51.0	167.32			
51.5	168.96			
52.0	170.60			
52.5	172.24			
53.0	173.88			
53.5	175.52			
54.0	177.17			
54.5	178.81			
55.0	180.45			
55.5	182.09			
56.0	183.73			
56.5	185.37			
57.0	187.01			
57.5	188.65			
58.0	190.29			
58.5	191.93			
59.0	193.57			
59.5	195.21			
60.0	196.85			
60.5	198.49			
61.0	200.13			
61.5	201.77			

CALIPER FIELD LOG REV 1.1a.PDF



B-70460H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/9/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft; 3 7/8" 114 ft TO 163 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 163 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 114 ft; NO _____
DEPTH TO BEDROCK: 4' DEPTH TO WATER TABLE: \emptyset
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 12 ft TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-7046DH

CALIPER FIELD LOG

Borehole

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
CALIPER PROBE* 5368 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 10' ☐ 102' ☒ 103' ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	-2.0	
DEPTH REF. OFFSET AT START*	4.82	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	4.72	
AFTER SURVEY DEPTH ERROR*	.10	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7046DHCALTEST03		12:19		12:20
B7046DHCALUP02	155.4 ft	12:36	105.05 ft	12:41
B7046DHCALTEST04		12:51		12:52

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B7046DHCALTEST03	2.02	4.02	8.04	4.56
AS MEAS.*	B7046DHCALTEST04	2.00	3.99	8.03	4.55
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" as 3/9/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7046D11 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a
Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 24 ft; 3 7/8" 114 TO 163 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 163 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 114 ft; NO
DEPTH TO BEDROCK: 4 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: 12 ft TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7046DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
MICROLOGGER* 5310 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER
SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 52.4 BRUNTON TILT* 52
2 PROBE TILT TEST* 92.18 BRUNTON TILT* 92
3 PROBE TILT TEST* 27.79 BRUNTON TILT* 2.8 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 58.0 BRUNTON AZIMUTH* 61
2 PROBE AZIMUTH TEST* 351.9 BRUNTON AZIMUTH* 351
3 PROBE AZIMUTH TEST* 63.4 BRUNTON AZIMUTH* 61 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>-2.0</u>	
DEPTH REF. OFFSET AT START*	<u>2.72</u>	
DEPTH REF. OFFSET AT END*	<u>2.70</u>	
AFTER SURVEY DEPTH ERROR*	<u>.02</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7046DH AU02	157.2 ft	11:46 am	108.5 ft	11:48 am

MAINTENANCE PERFORMED ON SITE*: N/A cc 7/24/08 (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A cc 7/24/08 (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fax (951) 549-1236



B-708DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 3/9/08, 3/10/08, 3/13/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF 1 cc 7/10/08

CONTACT: _____

PHONE: _____

BOREHOLE CONSTRUCTION: CASED _____

UNCASED ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft ; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: _____

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25.5' ; NO _____

DEPTH TO BEDROCK: 3.5 ft

BOREHOLE FLUID: WATER _____ ; FRESH WATER MUD ☒ ; SALT WATER MUD _____

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B708DHELOGTEST01		3/9/08	2:57 - 2:58 pm
ELOG	B708DHELOGUP01	125.4 - 35.95 ft	3/9/08	4:11 - 4:21 pm
PS velocity	B708DHSUSPDOWN01	27.89 - 72.18 ft	3/9/08	4:53 - 5:13 pm
PS velocity	B708DHSUSPDOWN02	68.9 - 104.99 ft	3/10/08	9:47 - 10:08 am
ATV	B708DHAVUP01	100.9 - 19.9 ft	3/10/08	11:59 - 12:33 pm
Caliper	B708DHCALTEST01		3/10/08	1:27 - 1:28 pm
Caliper	B708DHCALUP01	116.65 - 15.35 ft	3/10/08	1:49 - 2:01 pm
Caliper	B708DHCALTEST02		3/10/08	2:09 - 2:11 pm
ELOG	B708DHELOGTEST02		3/13/08	8:25 - 8:26 am
ELOG	B708DHELOGUP02	260.7 - 102.3 ft	3/13/08	10:59 - 11:15 am
PS velocity	B708DHSUSPDOWN03	108.27 - 247.7 ft	3/13/08	11:52 - 12:44 pm
Caliper	B708DHCALTEST03		3/13/08	1:22 - 1:23 pm
Caliper	B708DHCALUP02	252.25 - 94.35 ft	3/13/08	1:42 - 1:57 pm
Caliper	B708DHCALTEST04		3/13/08	2:07 - 2:08
Deviation	B708DHAVUP02	251.3 - 94.9 ft	3/13/08	3:32 - 3:40 pm
ATV	B708DHAVUP03	118.4 - 97.4 ft	3/13/08	4:12 - 4:20 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-708DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft; 3 3/4" 25.5 TO 130 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 25.5 ft NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____;
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 3 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-708D46 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 10' ☐ 102' ☒ 103' RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-1.33	
DEPTH REF. OFFSET AT START*	39.67	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.35	
AFTER SURVEY DEPTH ERROR*	.32	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708D4ELOGTEST01		2:57		2:58
B708D4ELOGUP01	125.4'	4:11 pm	35.95 ft	4:21 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-708BH

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/9/08, 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 4

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASSED _____ UNCASSED ☒
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 25.5 ft; 3 1/4" 25.5 TO 130 ft
BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft
SURFACE CASING?: ☒ DEPTH TO BOTTOM OF CASING 25.5'; NO
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: ϕ
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD: _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: ϕ TIME SINCE LAST CIRCULATION: 3 pm / 9 am 3:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services — 11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV 1.31a



B-708DH

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/9/08, 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF * 4

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am / 6:30 3/10/08
ARRIVED ON SITE: 7am
STANDBY TIME: CAUSE:
LOGGING STARTED: 4:53 pm / 9:47am LOGGING COMPLETED: 5:13 pm / 10:05am

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .40 .4
DEPTH REF. OFFSET AT START* 2.1 2.1
DEPTH REF. OFFSET AT END* 2.08 2.1
AFTER SURVEY DEPTH ERROR* .02 0
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DH SUSP DOWN 01	27.89 ft	4:53 pm	72.18 ft	5:13 pm
B708DH SUSP DOWN 02	68.9 ft	9:47 am	104.99 ft	10:05 am

3/9
3/10

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92802 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a

B-708BH GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/19/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25			
8.5	27.89	001		4.53
9.0	29.53	2		
9.5	31.17	3		
10.0	32.81	4		
10.5	34.45	5		
11.0	36.09	6		
11.5	37.73	7		
12.0	39.37	8		
12.5	41.01	9		
13.0	42.65	10		
13.5	44.29	11		
14.0	45.93	12		
14.5	47.57	13		
15.0	49.21	14		
15.5	50.85	15		
16.0	52.49	16		
16.5	54.13	17		
17.0	55.77	18		
17.5	57.41	19		
18.0	59.06	20		
18.5	60.70	21		
19.0	62.34	22		
19.5	63.98	23		
20.0	65.62	24		
20.5	67.26	25		

P-S FIELD LOG REV V1.31a

8-7080H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/9/08, 3/10/08, 3/12/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: ~~34~~ 34 OF ~~84~~ 84 *cl*
7/20/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (If any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	26 29		4:47 am (3/10)
21.5	70.54	27 30		
22.0	72.18	28 31		5:13 pm
22.5	73.82	32		
23.0	75.46	33		
23.5	77.10	34		
24.0	78.74	35		
24.5	80.38	36		
25.0	82.02	37		
25.5	83.66	38		
26.0	85.30	39		
26.5	86.94	40		
27.0	88.58	41		
27.5	90.22	42		
28.0	91.86	43		
28.5	93.50	44		
29.0	95.14	45		
29.5	96.78	46		
30.0	98.43	47		
30.5	100.07	48		
31.0	101.71	49		
31.5	103.35	50		
32.0	104.99	51		10:05 (3/10)
32.5	106.63			
33.0	108.27	52		11:52 3/12
33.5	109.91	53 152		
34.0	111.55	54 151		
34.5	113.19	55 150		
35.0	114.83	56 149		
35.5	116.47	57 148		
36.0	118.11	58 147		
36.5	119.75	59 146		
37.0	121.39	60 145		
37.5	123.03	61 144		
38.0	124.67	62 143		
38.5	126.31	63 142		
39.0	127.95	64 141		
39.5	129.59	65 140		
40.0	131.23	66 139		
40.5	132.87	67 138		
41.0	134.51	68		

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708D 4 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell

COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft; 3 3/4" 25.5 TO 130 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 130 ft

SURFACE CASING?: YES * DEPTH TO BOTTOM OF CASING 25.5'; NO
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER; FRESH WATER MUD *; SALT WATER MUD;

OTHER:
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE:

MOBILIZED FROM: Florida City DEPARTURE TIME: 6:30 am

ARRIVED ON SITE: 7 am

STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
MICROLOGGER* 5310 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER
SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 90.05 BRUNTON TILT* 90
2 PROBE TILT TEST* 52.59 BRUNTON TILT* 53
3 PROBE TILT TEST* 12.4 BRUNTON TILT* 12 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 351.2 BRUNTON AZIMUTH* 353
2 PROBE AZIMUTH TEST* 43.4 BRUNTON AZIMUTH* 49
3 PROBE AZIMUTH TEST* 14.1 BRUNTON AZIMUTH* 16 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>-1.33</u>	
DEPTH REF. OFFSET AT START*	<u>7.39</u>	
DEPTH REF. OFFSET AT END*	<u>3.65</u>	
AFTER SURVEY DEPTH ERROR*	<u>.34</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DHADUP01	100.9 ft	11:59	199.8 ft	12:33 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: The cable went slack a number of times from 80' - 100'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a PDF



B-708011

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/10/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft ; 3 3/4" 25.5 TO 130.5 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 130.5 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 25.5' ; NO _____
DEPTH TO BEDROCK: 3.5 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: 0 TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:30 am
ARRIVED ON SITE: 7 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a PDF



3-70801 CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/10/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
CALIPER PROBE* 5368 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 10' ☐ 102' ☒ 103' ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	<u>1.3</u>	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	<u>5.49</u>	
DEPTH REF. OFFSET AT END*	<u>5.30</u>	
AFTER SURVEY DEPTH ERROR*	<u>.19</u>	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B708DHICALTEST01		1:27		1:28 pm
B708DHICALUP01	116.65 ft	1:49	15.35 ft	2:01 pm
B708DHICALTEST02		2:09		2:11 pm

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B708DHICALTEST01	1.961	3.96	7.99	4.53
AS MEAS.*	B708DHICALTEST02	1.946	4.00	8.04	4.54
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

cc 3/10/08
4,510

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-708DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD X

DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5 ft; 3 3/4" 25.5 TO 26.5

BOREHOLE TOTAL DEPTH AS DRILLED*: 26.5 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105.8'; NO _____

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: φ

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____

OTHER: _____

DEPTH TO BOREHOLE FLUID: φ TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45 am

ARRIVED ON SITE: 7 am

STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ELOG FIELD LOG REV 1.1a



R-708DH ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	1.25	
DEPTH REF. OFFSET AT START*	39.75	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	39.60	
AFTER SURVEY DEPTH ERROR*	.15	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
R-708DHELO6TEST02		8:25am		8:26am
R708DHELO6UP02	260.76'	10:59	102.3'	11:15

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-708011
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASED X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5; 3 3/4" 25.5 TO 265 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 265

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105.8'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a PDF



B-268D H

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 10 ☐ 102 ☒ 10 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.25	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT START*	5.57	
DEPTH REF. OFFSET AT END*	5.56	
AFTER SURVEY DEPTH ERROR*	.01	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B708DHCALEST03		1:22		1:23 pm
B708DHCALEUP02	252.25'	1:42	94.35'	1:57
B708DHCALEST04	252.25'	2:07	94.35'	2:08
	cc 3/13/08		cc 3/13/08	

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.510 IN (114.3 MM)
AS MEAS.*	B708DHCALEST03	1.983	3.986	8.06	4.53
AS MEAS.*	B708DHCALEST04	1.99	3.986	8.05	4.517
AS MEAS.					
AS MEAS.					
AS MEAS.					
AS MEAS.					

4.510" cc 3/13/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-708DH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 5

CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____
CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION*: CASED _____ UNCASED ☒
DIAMETERS AND DEPTH RANGES*: 4" 0 TO 25.5' ; 3 3/4" 25.5' TO 265'
BOREHOLE TOTAL DEPTH AS DRILLED*: 265'
SURFACE CASING?: ☒ DEPTH TO BOTTOM OF CASING 105.8'; NO
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD; _____
OTHER: _____
DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 9am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services—1451 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-708D P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 5 cc 7/10/08

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 6:45am
ARRIVED ON SITE: 7am
STANDBY TIME: CAUSE:
LOGGING STARTED: 11:52 LOGGING COMPLETED: 12:44pm

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☐ OYO ☐ RG ☐ OTH ☐
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* -.38
DEPTH REF. OFFSET AT START* 2.12
DEPTH REF. OFFSET AT END* 2.11
AFTER SURVEY DEPTH ERROR* .01
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708D4 SUSPENSION/03	108.27'	11:52	247.7	12:44pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

B-7080H

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/9/08, 3/10/08, 3/13/08

CLIENT*: MACTEC

JOB*: 8083 ec 3/13/08

AUTHOR*: C. Carter

PAGE*: 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	26 29		9:47 am (3/10)
21.5	70.54	27 30		
22.0	72.18	28 31		5:13 pm
22.5	73.82	32		
23.0	75.46	33		
23.5	77.10	34		
24.0	78.74	35		
24.5	80.38	36		
25.0	82.02	37		
25.5	83.66	38		
26.0	85.30	39		
26.5	86.94	40		
27.0	88.58	41		
27.5	90.22	42		
28.0	91.86	43		
28.5	93.50	44		
29.0	95.14	45		
29.5	96.78	46		
30.0	98.43	47		
30.5	100.07	48		
31.0	101.71	49		
31.5	103.35	50		
32.0	104.99	51		10:05 (3/10)
32.5	106.63			
33.0	108.27	52		11:52 3/13
33.5	109.91	53 152		
34.0	111.55	54 151		
34.5	113.19	55 150		
35.0	114.83	56 149		
35.5	116.47	57 148		
36.0	118.11	58 147		
36.5	119.75	59 146		
37.0	121.39	60 145		
37.5	123.03	61 144		
38.0	124.67	62 143		
38.5	126.31	63 142		
39.0	127.95	64 141		
39.5	129.59	65 140		
40.0	131.23	66 139		
40.5	132.87	67 138		
41.0	134.51	68		

P-S FIELD LOG REV V1.31a

B-70815H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 5
ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	69		
42.0	137.80	70		
42.5	139.44	71		
43.0	141.08	72		
43.5	142.72	73		
44.0	144.36	74		
44.5	146.00	75		
45.0	147.64	76		
45.5	149.28	77		
46.0	150.92	78		
46.5	152.56	79		
47.0	154.20	80		
47.5	155.84	81		
48.0	157.48	82		
48.5	159.12	83		
49.0	160.76	84		
49.5	162.40	85		
50.0	164.04	86		
50.5	165.68	87		
51.0	167.32	88		
51.5	168.96	89		
52.0	170.60	90		
52.5	172.24	91		
53.0	173.88	92		
53.5	175.52	93		
54.0	177.17	94		
54.5	178.81	95		
55.0	180.45	96		
55.5	182.09	97		
56.0	183.73	98		
56.5	185.37	99		
57.0	187.01	100		
57.5	188.65	101		
58.0	190.29	102		
58.5	191.93	103		
59.0	193.57	104		
59.5	195.21	105		
60.0	196.85	106		
60.5	198.49	107		
61.0	200.13	108		
61.5	201.77	109		

P-S FIELD LOG REV V1.31a

B-708Dfl

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/13/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE* 5 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	110		
62.5	205.05	111		
63.0	206.69	112		
63.5	208.33	113		
64.0	209.97	114		
64.5	211.61	115		
65.0	213.25	116		
65.5	214.90	117		
66.0	216.54	118		
66.5	218.18	119		
67.0	219.82	120		
67.5	221.46	121		
68.0	223.10	122		
68.5	224.74	123		
69.0	226.38	124		
69.5	228.02	125		
70.0	229.66	126		
70.5	231.30	127		
71.0	232.94	128		
71.5	234.58	129		
72.0	236.22	130		
72.5	237.86	131		
73.0	239.50	132		
73.5	241.14	133		
74.0	242.78	134		
74.5	244.42	135		
75.0	246.06	136		
75.5	247.70	137		12:44 pm
76.0	249.34			
76.5	250.98			
77.0	252.62			
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708-DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD X
DIAMETERS AND DEPTH RANGES: 4" 0 TO 25.5' 3 3/4" 25.5' TO 265'

BOREHOLE TOTAL DEPTH AS DRILLED*: 265 ft

SURFACE CASING?: YES X DEPTH TO BOTTOM OF CASING 105.8/98.5 NO
DEPTH TO BEDROCK: ~3 DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER; FRESH WATER MUD X; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: Ø TIME SINCE LAST CIRCULATION: 7am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 6:45
ARRIVED ON SITE: 7
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-708DN ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/13/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER^X OYO OTHER
MICROLOGGER* 5310 5772^X
TELEVIEWER* ACOUSTIC #5174^X OTHER
SHEAVE* COMPROBE OYO 101 102^X 103 RG

1 PROBE TILT TEST* 43.0 BRUNTON TILT* 43
2 PROBE TILT TEST* 90.4 BRUNTON TILT* 91 cc 3/13/08
3 PROBE TILT TEST* 51.82 BRUNTON TILT* 32.5 52 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 329.4 BRUNTON AZIMUTH* 325
2 PROBE AZIMUTH TEST* 67.8 BRUNTON AZIMUTH* 68
3 PROBE AZIMUTH TEST* 5243.1 BRUNTON AZIMUTH* 49 AFTER LOG* yes
cc 3/13/08

PROBE OFFSET*	1.44M(4.72FT)
MINUS CASING STICK-UP*	1.25 1.35
DEPTH REF. OFFSET AT START*	3.47 1.25 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	3.39 1.15
AFTER SURVEY DEPTH ERROR*	.08 .09

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B708DH400P02	251.3 ft	3:32	94.9 ft	3:40
B708DH400P03	118.4 ft	4:12	97.4 ft	4:20

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: Pulled casing to 98.5' for B708DH400P03

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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Ph (951) 549-1234 Fx (951) 549-1236



B-710GDH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 3/11/08, 3/18/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF 1

CONTACT: _____

PHONE: _____

BOREHOLE CONSTRUCTION: CASSED _____

UNCASSED X

DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5'; 4" 17.5 TO 143ft / 273ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 / 273 ft

CONDUCTOR CASING?: YES X DEPTH TO BOTTOM OF CASING: 125 / 115'; NO _____

DEPTH TO BEDROCK: ~ 3 ft

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD _____

LOGGING CREW: C. Carter

* On 3/19/08 a "G" was added to all digit file names that did not originally have one

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
* ELOG	B710GDHELOGTEST01		3/11/08	11:47 - 11:48 am
* ELOG	B710GDHELOGUP01	140.6 - 384.5 ft	3/11/08	12:34 pm - 12:45 pm
* P-S velocity	B710GDHSPD01	21.33 - 127.95 ft	3/11/08	1:27 - 2:05 pm
* ATV	B710GDHAUP01	120.5 - 17.1 ft	3/11/08	3:06 - 3:38 pm
* Caliper	B710GDHCALTEST01		3/11/08	4:12 - 4:13 pm
* Caliper	B710GDHCALUP01	132.35 - 13.4 ft	3/11/08	4:26 - 4:39 pm
* Caliper	B710GDHCALTEST02		3/11/08	4:46 - 4:47 pm
* ELOG	B710GDHELOGTEST02		3/18/08	10:04 - 10:05 am
* ELOG	B710GDHELOGUP02	270.6 - 94.8 ft	3/18/08	10:29 - 10:49 am
* P-S velocity	B710GDHSPD02	121.4 - 252.6'	3/18/08	12:19 - 1:02 pm
* Deviation	B710GDHAUP02	253.7 - 102.2 ft	3/18/08	2:08 - 2:16 pm
* Caliper	B710GDHCALTEST03		3/18/08	2:40 - 2:42 pm
* Caliper	B710GDHCALUP02	257.95 - 108.6 ft	3/18/08	2:59 - 3:15 pm
* Caliper	B710GDHCALTEST04		3/18/08	3:29 - 3:31 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-71060H 3/18/08 cc 7/24/08
B-71060H ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: *3/11/08*
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
CONTACT: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: *6"* 0 TO *20'*; *4"* *20'* TO *143 ft*

BOREHOLE TOTAL DEPTH AS DRILLED*: *143 ft*

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING *19.5'*; NO
DEPTH TO BEDROCK: *13.5'* DEPTH TO WATER TABLE: *0*
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD
OTHER:
DEPTH TO BOREHOLE FLUID: *0* TIME SINCE LAST CIRCULATION: *12 pm*

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: *9:45 am*
ARRIVED ON SITE: *10 am*
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-710601 CC 3/18/08
B-710601 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)	
PLUS YOKE 10.0M (32.8 FT)*	32.8	
MINUS CASING STICK-UP*	-.92	
DEPTH REF. OFFSET AT START*	40.08	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	40.00	
AFTER SURVEY DEPTH ERROR*	.08	

CC 3/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B710601HELOGTEST01		11:47		11:48am
B710601HELOGUP01	140.6 ft	12:34pm	38.45 ft	12:45pm
B710601HELOGTEST01		11:47am		11:48am
B710601HELOGUP01	140.6 ft	12:34pm	38.45 ft	12:45pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

P-S FIELD LOG REV V1.31a



B-7106DH cc 3/18/08
B-2106H

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 4

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DIRECTIONS TO SITE:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION*: CASED UNCASD X

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 20 ft ; 4" 20 TO 143

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 19.5 ft NO

DEPTH TO BEDROCK: ~3 DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER ; FRESH WATER MUD X ; SALT WATER MUD;

OTHER:

DEPTH TO BOREHOLE FLUID*: 0 TIME SINCE LAST CIRCULATION: 12 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-710GDH
B-710DH

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/1/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 4

LOGGING CREW*: C. Carter cc 3/1/08

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 9:45am

ARRIVED ON SITE: 10am

STANDBY TIME: CAUSE:

LOGGING STARTED: LOGGING COMPLETED:

BATTERIES CHANGED BEFORE LOGGING: YES ☒; NO ☐; STORED WITH NEW ☒

WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH ☐

INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐

RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒

ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M

SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐

PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒

MINUS CASING STICK-UP* -.28

DEPTH REF. OFFSET AT START* 2.22

DEPTH REF. OFFSET AT END* 2.21

AFTER SURVEY DEPTH ERROR* .01

REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
119/08 B-710GDH SUSP DOWN 01	21.33	1:27pm	127.95	2:05pm
B-710GDH SUSP DOWN 01	21.33 ft	1:27pm	127.95 ft	2:05pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

B-71060H cc 3/18/08
~~B-71060H~~

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE* 3 OF 4

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33	cc 1		1:27
7.0	22.97	2 cc 3/11/08		
7.5	24.61	3		
8.0	26.25	4		
8.5	27.89	5		
9.0	29.53	6		
9.5	31.17	7		
10.0	32.81	8		
10.5	34.45	9		
11.0	36.09	10		
11.5	37.73	11		
12.0	39.37	12		
12.5	41.01	13		
13.0	42.65	14		
13.5	44.29	15		
14.0	45.93	16		
14.5	47.57	17		
15.0	49.21	18		
15.5	50.85	19		
16.0	52.49	20		
16.5	54.13	21		
17.0	55.77	22		
17.5	57.41	23		
18.0	59.06	24		
18.5	60.70	25		
19.0	62.34	26		
19.5	63.98	27		
20.0	65.62	28		
20.5	67.26	29		

B-7106DH cc 3/18/08
B-7106DH

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 4 OF 14

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	30		
21.5	70.54	31		
22.0	72.18	32		
22.5	73.82	33		
23.0	75.46	34		
23.5	77.10	35		
24.0	78.74	36		
24.5	80.38	37		
25.0	82.02	38		
25.5	83.66	39		
26.0	85.30	40		
26.5	86.94	41		
27.0	88.58	42		
27.5	90.22	43		
28.0	91.86	44		
28.5	93.50	45		
29.0	95.14	46		
29.5	96.78	47		
30.0	98.43	48		
30.5	100.07	49		
31.0	101.71	50		
31.5	103.35	51		
32.0	104.99	52		
32.5	106.63	53		
33.0	108.27	54		
33.5	109.91	55		
34.0	111.55	56		
34.5	113.19	57		
35.0	114.83	58		
35.5	116.47	59		
36.0	118.11	60		
36.5	119.75	61		
37.0	121.39	62		
37.5	123.03	63		
38.0	124.67	64		
38.5	126.31	65		
39.0	127.95	66		2.05
39.5	129.59			
40.0	131.23			
40.5	132.87			
41.0	134.51			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7106DH cc 3/18/08

~~B-7106DH~~

ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: Miami-Dade RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5' ; 4" 19.5' TO 143'

BOREHOLE TOTAL DEPTH AS DRILLED*: 143'

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 19.5' ; NO
DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER ; FRESH WATER MUD ☒ ; SALT WATER MUD

OTHER:
DEPTH TO BOREHOLE FLUID: 0' TIME SINCE LAST CIRCULATION: 12 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City DEPARTURE TIME: 9:45 am
ARRIVED ON SITE: 10 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



geophysical services

B-7106DH 3/18/08

B-7106DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
MICROLOGGER* 5310 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER
SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 41.88 BRUNTON TILT* 42
2 PROBE TILT TEST* 88.51 BRUNTON TILT* 88
3 PROBE TILT TEST* 28.80 BRUNTON TILT* 29 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 189.2 BRUNTON AZIMUTH* 186
2 PROBE AZIMUTH TEST* 284.9 BRUNTON AZIMUTH* 290
3 PROBE AZIMUTH TEST* 252.7 BRUNTON AZIMUTH* 245 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	.92	
DEPTH REF. OFFSET AT START*	3.8	
DEPTH REF. OFFSET AT END*	3.74	
AFTER SURVEY DEPTH ERROR*	.06	

cc 3/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7106DH400P01	120.5 ft	3:06	17.1 ft	3:38 pm
B7106DH400P01	120.5 ft	3:06 pm	17.1 ft	3:38 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a PDF



geophysical services

B-710 GDI cc 3/11/08
B-710 GDI

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASED ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5 ; 4" 19.5 TO 143

BOREHOLE TOTAL DEPTH AS DRILLED*: 143 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 19.5'; NO
DEPTH TO BEDROCK: ~3.6t DEPTH TO WATER TABLE:
BOREHOLE FLUID: WATER; FRESH WATER MUD; SALT WATER MUD;
OTHER:
DEPTH TO BOREHOLE FLUID: 6 TIME SINCE LAST CIRCULATION: 12 pm

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 9:45 am
ARRIVED ON SITE: 10 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Ex (951) 549-1236

CALIPER FIELD LOG REV 1.1a.MDF



B-710GDH cc 3/18/08
B-710DH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/11/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☐ RG ☐ OTHER ☐
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER ☐
CALIPER PROBE* 5368 ☒ OTHER ☐
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	.92	
DEPTH REF. OFFSET AT START*	5.9	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.85	
AFTER SURVEY DEPTH ERROR*	.05	

cc 3/19/08

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B710DHCA TEST 01	132.35 ft	4:12	13.4 ft	4:13
B710DHCA TEST 02	132.35 ft	4:26 pm	13.4 ft	4:39 pm
B710DHCA TEST 02	132.35 ft	4:46 pm	13.4 ft	4:47 pm
B710GDHCA TEST 01	132.35 ft	4:12	13.4 ft	4:13 pm
B710GDHCA TEST 01	132.35 ft	4:26 pm	13.4 ft	4:39 pm
B710GDHCA TEST 02	132.35 ft	4:46 pm	13.4 ft	4:47 pm

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.607 IN (114.3 MM)
AS MEAS. * B710DHCA TEST 01	1.968	3.912	8.000	4.517
AS MEAS. * B710DHCA TEST 02	1.983	3.953	8.03	4.517
AS MEAS.				
AS MEAS. B710GDHCA TEST 01	1.968	3.912	8.000	4.517
AS MEAS. B710GDHCA TEST 02	1.983	3.953	8.03	4.517
AS MEAS.				

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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Ph (951) 549-1234 Fx (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-710GDH cc 3/18/08
~~B-7102H~~

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/18/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD _____
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5' ; 4" 19.5' TO 273'

BOREHOLE TOTAL DEPTH AS DRILLED*: 273

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 115 ft ; NO _____
DEPTH TO BEDROCK: ~ 3 ft DEPTH TO WATER TABLE: 6
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____

DEPTH TO BOREHOLE FLUID: ~ 10' TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:30 am
ARRIVED ON SITE: 8:45 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7106DH
~~B-7106DH~~ cc 3/18/08
Borehole* ELOG FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	505 +32.8 cc 3/18/08
MINUS CASING STICK-UP*	- 1.08
DEPTH REF. OFFSET AT START*	39.92
DEPTH REF. OFFSET AT END*	39.95
AFTER SURVEY DEPTH ERROR*	.03

REF TO GROUND SURFACE

cc 3/18/08
cc 3/19/08

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7106DHTEST07		10:04		10:05am
B7106DHTEST07		10:04		10:05am
B7106DHLOGUP02	270.6 ft	10:29	94.8 ft	10:49
B7106DHLOGTEST02		10:04am		10:05am
B7106DHLOGTEST02	270.6 ft	10:29am	94.8 ft	10:49am

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: ^{cc 3/18/08} ~~low~~ resistivity above 200'.

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



B-710GDH cc 3/18/08

B-710GDH

P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 5

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED _____ UNCASD ☒

DIAMETERS AND DEPTH RANGES*: 6" 0 TO 19.5' ; 4" 19.5' TO 273 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft

SURFACE CASING?: ☒ DEPTH TO BOTTOM OF CASING 11.5 ft; NO

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD: _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: ~10 ft TIME SINCE LAST CIRCULATION: 9 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL
GEOVision Geophysical Services—11511 Pomona Road, Suite P, Corona, CA 92602 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



^{cc 3/18/08}
B-710GDH P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 5

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:30 am
ARRIVED ON SITE: 8:45 am
STANDBY TIME: CAUSE:
LOGGING STARTED: 12:19 pm LOGGING COMPLETED: 1:02 pm

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☐ RG 2.5M ☒
MINUS CASING STICK-UP* .33
DEPTH REF. OFFSET AT START* 2.17
DEPTH REF. OFFSET AT END* 2.14
AFTER SURVEY DEPTH ERROR* .03
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B-710GDH SUSP DOWN 02	121.4 ft	12:19 pm	252.6	1:02 pm
B-710GDH				
B-710GDH SUSP DOWN 02	121.4 ft	12:19 pm	252.6 ft	1:02 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:
COMMENTS:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Suite P, Corona, CA 92632 (951) 549-1234 Fx (951) 549-1236

B-710GDH cc 3/18/08
B-710GDH

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/11/08, 3/18/08
CLIENT*: MACTEC JOB*: 8083 cc 3/18/08
AUTHOR*: C. Carter PAGE*: 513 OF 515

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	30		
21.5	70.54	31		
22.0	72.18	32		
22.5	73.82	33		
23.0	75.46	34		
23.5	77.10	35		
24.0	78.74	36		
24.5	80.38	37		
25.0	82.02	38		
25.5	83.66	39		
26.0	85.30	40		
26.5	86.94	41		
27.0	88.58	42		
27.5	90.22	43		
28.0	91.86	44		
28.5	93.50	45		
29.0	95.14	46		
29.5	96.78	47		
30.0	98.43	48		
30.5	100.07	49		
31.0	101.71	50		
31.5	103.35	51		
32.0	104.99	52		
32.5	106.63	53		
33.0	108.27	54		
33.5	109.91	55		
34.0	111.55	56		
34.5	113.19	57		
35.0	114.83	58		
35.5	116.47	59		
36.0	118.11	60		
36.5	119.75	61		
37.0	121.39	62	67	12:19 pm (3/18)
37.5	123.03	63	68	
38.0	124.67	64	69	
38.5	126.31	65	70	
39.0	127.95	66	71	2:05 (3/18)
39.5	129.59		72	
40.0	131.23		73	
40.5	132.87		74	
41.0	134.51		75	

B-710GDH 3/18/08
B-710DH

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 7 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	76		
42.0	137.80	77		
42.5	139.44	78		
43.0	141.08	79		
43.5	142.72	80		
44.0	144.36	81		
44.5	146.00	82		
45.0	147.64	83		
45.5	149.28	84		
46.0	150.92	85		
46.5	152.56	86		
47.0	154.20	87		
47.5	155.84	88		
48.0	157.48	89		
48.5	159.12	90		
49.0	160.76	91		
49.5	162.40	92		
50.0	164.04	93		
50.5	165.68	94		
51.0	167.32	95		
51.5	168.96	96		
52.0	170.60	97		
52.5	172.24	98		
53.0	173.88	99		
53.5	175.52	100		
54.0	177.17	101		
54.5	178.81	102		
55.0	180.45	103		
55.5	182.09	104		
56.0	183.73	105		
56.5	185.37	106		
57.0	187.01	107		
57.5	188.65	108		
58.0	190.29	109		
58.5	191.93	110		
59.0	193.57	111		
59.5	195.21	112		
60.0	196.85	113		
60.5	198.49	114		
61.0	200.13	115		
61.5	201.77	116		

B-710 GDH cc 3/15/08
B-710-H

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE*: 5 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
62.0	203.41	117		
62.5	205.05	118		
63.0	206.69	119		
63.5	208.33	120		
64.0	209.97	121		
64.5	211.61	122		
65.0	213.25	123		
65.5	214.90	124		
66.0	216.54	125		
66.5	218.18	126		
67.0	219.82	127		
67.5	221.46	128		
68.0	223.10	129		
68.5	224.74	130		
69.0	226.38	131		
69.5	228.02	132		
70.0	229.66	133		
70.5	*231.30	134		
71.0	232.94	135		
71.5	234.58	136		
72.0	236.22	137		
72.5	237.86	138		
73.0	239.50	139		
73.5	241.14	140		
74.0	242.78	141		
74.5	244.42	142		
75.0	246.06	143		
75.5	247.70	144		
76.0	249.34	145		
76.5	250.98	146		
77.0	252.62	147		1:02 pm
77.5	254.27			
78.0	255.91			
78.5	257.55			
79.0	259.19			
79.5	260.83			
80.0	262.47			
80.5	264.11			
81.0	265.75			
81.5	267.39			
82.0	269.03			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



8-7106DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5'; 4" 17.5' TO 273'

BOREHOLE TOTAL DEPTH AS DRILLED*: 273-ft

SURFACE CASING?: YES DEPTH TO BOTTOM OF CASING 115'; NO _____
DEPTH TO BEDROCK: ~3-ft DEPTH TO WATER TABLE: ~0
BOREHOLE FLUID: WATER; FRESH WATER MUD +; SALT WATER MUD _____
OTHER: _____

DEPTH TO BOREHOLE FLUID: ~10-ft TIME SINCE LAST CIRCULATION: 9am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 8:30am
ARRIVED ON SITE: 8:45am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7106 DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO OTHER
MICROLOGGER* 5310 5772 ☒
TELEVIEWER* ACOUSTIC #5174 ☒ OTHER
SHEAVE* COMPROBE OYO 101 102 ☒ 103 RG

1 PROBE TILT TEST* 34.04 BRUNTON TILT* 34
2 PROBE TILT TEST* 86.06 BRUNTON TILT* 86
3 PROBE TILT TEST* 19.8 BRUNTON TILT* 20 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 183.6 BRUNTON AZIMUTH* 187
2 PROBE AZIMUTH TEST* 295.5 BRUNTON AZIMUTH* 300
3 PROBE AZIMUTH TEST* 244.0 BRUNTON AZIMUTH* 247 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	-1.08	
DEPTH REF. OFFSET AT START*	3.64	
DEPTH REF. OFFSET AT END*	3.57	
AFTER SURVEY DEPTH ERROR*	.07	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B7106 DH ACOUSTIC	253.7 ft	2:08 pm	102.2 ft	2:16

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services 1151 Pomona Road, Unit P, Corona, CA 92882 Ph (951) 549-1234 Fx (951) 549-1236

CALIPER FIELD LOG REV 1.1a PDF



B-7106DH

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER: PHONE: Off Cell
COMPANY:

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:
BOREHOLE CONSTRUCTION: CASED UNCASD ☒
DIAMETERS AND DEPTH RANGES: 6" 0 TO 19.5 ft; 4" 17.5' TO 273 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 273 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 115 ft; NO ☐
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0
BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD ☐
OTHER:
DEPTH TO BOREHOLE FLUID: ~10 ft TIME SINCE LAST CIRCULATION: 9 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE:
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:30 am
ARRIVED ON SITE: 8:45 am
STANDBY TIME: CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

CALIPER FIELD LOG REV 1.1a.PDF



B-7106BH CALIPER FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/18/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	1.08	
DEPTH REF. OFFSET AT START*	5.74	} REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	5.65	
AFTER SURVEY DEPTH ERROR*	.09	

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7106DH CAL TEST 03		2:40		2:42 pm
B7106DH CAL UP 02	257.95	2:59 pm	108.6	3:15 pm
B7106DH CAL TEST 04		3:29 pm		3:31 pm

CALIBRATION PLATE S/N 201

FILE NAME	AS BUILT			PVC FITTING
	1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.* B7106DH CAL TEST 03	1.977	3.971	7.999	4.543
AS MEAS.* B7106DH CAL UP 02	1.999	3.986	8.09	4.517
AS MEAS.				
AS MEAS.				
AS MEAS.				
AS MEAS.				

cc 3/18/08

4.510

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Ex (951) 549-1236



B-7206DH BORING GEOPHYSICS FIELD LOG SUMMARY

Borehole*

SITE*: Turkey Point NPP

DATE*: 3/20/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 1 OF 1

CONTACT:

PHONE:

BOREHOLE CONSTRUCTION: CASSED

UNCASSED ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft; 3 7/8" 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

CONDUCTOR CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 73/20'; NO

DEPTH TO BEDROCK: ~3 ft

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

LOGGING CREW: C. Carter

LOG TYPE*	FILE NAME*	DEPTH RANGE*	DATE*	TIMES*
ELOG	B7206 ^{PH} ELOGTEST01		3/20/08	11:07 - 11:08 am
ELOG	B7206DH ELOG UP01	219.4 - 69.7 ft	3/20/08	11:37 - 11:54 am
P-S velocity	B7206DHSUSPDOWN01	23.0m - 61.0m	3/20/08	12:44 - 1:29 pm
Deviation	B7206DH AVUP01	200.4 - 7 ft	3/20/08	2:37 - 2:47
Caliper	B7206DH CALTEST01		3/20/08	3:15 - 3:16
Caliper	B7206DH CALUP01	202.5 - 59.55 ft	3/20/08	3:33 - 3:47
Caliper	B7206DH CALTEST02		3/20/08	4:00 - 4:01
ELOG	B7206 ^{PH} ELOGUP02	131.15 - 30.95 ft	3/20/08	5:00 - 5:11 pm
P-S velocity	P7206DHSUSPDOWN02	8.0m - 37.0m	3/20/08	5:34 - 6:07 pm
ATV	B7206DH AVUP02	120.4 - 19.7 ft	3/20/08	6:53 - 7:22 pm
Caliper	B7206DH CALTEST03		3/20/08	7:41 - 7:42 pm
Caliper	B7206DH CALUP02	82.1 - 16.3 ft	3/20/08	7:53 - 8:00 pm
Caliper	B7206DH CALTEST04		3/20/08	8:07 - 8:08 pm

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

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Ph (951) 549-1234 Ex (951) 549-1236

ELOG FIELD LOG REV 1.1a



B-7206DH

ELOG FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/20/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73' ; 3 1/8" 73 TO 220'

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 73 1/2'; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: ☒
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~0 TIME SINCE LAST CIRCULATION: 10:30am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:15
ARRIVED ON SITE: 7:30
STANDBY TIME: 8-5 3/4 CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ELOG FIELD LOG REV 1.1a



B-7206011 ELOG FIELD LOG
Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO RG OTHER
MICROLOGGER* 5310 ☐ 5772 ☒ OTHER
ELOG PROBE* 5490 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐

PROBE LENGTH	2.50M(8.20 FT)
PLUS YOKE 10.0M (32.8 FT)*	32.8 32.8
MINUS CASING STICK-UP*	8.08 10.08
DEPTH REF. OFFSET AT START*	32.92 30.92 REF TO GROUND SURFACE
DEPTH REF. OFFSET AT END*	32.35 30.90
AFTER SURVEY DEPTH ERROR*	.37 .02

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B720604ELOGTEST01		11:07am		11:08am
B720604ELOGUP01	219.4 ft	11:37am	69.7 ft	11:54am
B720604ELOGUP02	131.15 ft	5:00pm	30.95 ft	5:11pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: "Tiger salt" was added to high yield bentonite drilling mud from 0-73 ft. Resistivity is very low above 200 ft.
cc 3/20/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

P-S FIELD LOG REV V1.31a



8-7206011 **P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a**

Borehole

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF * 5

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION*: CASED UNCASED X

DIAMETERS AND DEPTH RANGES*: 4" 0 TO 73'; 3 7/8" 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: X DEPTH TO BOTTOM OF CASING 73-ft; NO 125 ft

DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: 0

BOREHOLE FLUID: WATER _____; FRESH WATER MUD X; SALT WATER MUD: _____

OTHER: _____

DEPTH TO BOREHOLE FLUID*: ~0 TIME SINCE LAST CIRCULATION: 10:30 am

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.
GEOVision Geophysical Services — 11511 Pomona Road, Suite P, Corona, CA 92622 (951) 549-1234 Fx (951) 549-1236

P-S FIELD LOG REV V1.31a



B-72060H P-S SUSPENSION VELOCITY FIELD LOG REV 1.31a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 45 cc 3/20/08

LOGGING CREW*: C. Carter
MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 8:15am
ARRIVED ON SITE: 7:30am
STANDBY TIME: 8-5 3/4 " CAUSE:
LOGGING STARTED: 12:44 LOGGING COMPLETED: 1:29pm

BATTERIES CHANGED BEFORE LOGGING: YES ; NO ☒ ; STORED WITH NEW
WINCH COMPROBE ☐ GREY ☒ OYO ☐ RG ☐ OTH
INSTRUMENT* OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☒ 160024 ☐
RECEIVER S/N* 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐ 30086 ☒
ISOLATION TUBE S/N* 300083 ☐ 24053 ☐ 28068 ☐ 28072 ☒ 2M
SHEAVE* COMPROBE ☐ OYO 101 ☐ 102 ☒ 103 ☐ RG ☐
MICROLOGGER* 5310 ☐ 5772 ☒ NOT APPLICABLE (OYO) ☐
PROBE OFFSET* OYO 2.0M ☒ cc 3/20/08 RG 2.5M ☒
MINUS CASING STICK-UP* 2.46m 3.08m
DEPTH REF. OFFSET AT START* .09m .58
DEPTH REF. OFFSET AT END* .28 .57
AFTER SURVEY DEPTH ERROR* .24 .01
REF TO GROUND SURFACE

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
B72060H SUSP DOWN 01	23.0m	12:44pm	61.0m	1:29pm
B72060H SUSP DOWN 02	8.0m	5:34pm	37.0m	6:07pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: Run 1: Wireline on drill rig pulled down (N/A if none)
2m when probe came out of borehole fluid. Depth read - 2.19m @ Ref pt.
SUGGESTIONS, ADDITIONS, CHANGES: After running the ATV I realized the
COMMENTS: casing was set @ 20.5ft. I was told it was set at 25ft

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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P-S FIELD LOG REV V1.31a

8-120664 **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE* 3 OF 5

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO* (if any)	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25	78		5:34
8.5	27.89	79		
9.0	29.53	80		
9.5	31.17	81		
10.0	32.81	82		
10.5	34.45	83		
11.0	36.09	84		
11.5	37.73	85		
12.0	39.37	86		
12.5	41.01	87		
13.0	42.65	88		
13.5	44.29	89		
14.0	45.93	90		
14.5	47.57	91		
15.0	49.21	92		
15.5	50.85	93		
16.0	52.49	94		
16.5	54.13	95		
17.0	55.77	96		
17.5	57.41	97		
18.0	59.06	98		
18.5	60.70	99		
19.0	62.34	100		
19.5	63.98	101		
20.0	65.62	102		
20.5	67.26	103		

13-720 GPH

P-S FIELD LOG REV V1.31a

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE*: Turkey Point NPP

DATE*: 3/20/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: C. Carter

PAGE*: 34 of 32008 OF 45

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*.	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
21.0	68.90	104		
21.5	70.54	105		
22.0	72.18	106		
22.5	73.82	107		
23.0	75.46	108		12:44
23.5	77.10	2	109	
24.0	78.74	3	110	
24.5	80.38	4	111	
25.0	82.02	5	112	
25.5	83.66	6	113	
26.0	85.30	7	114	
26.5	86.94	8	115	
27.0	88.58	9	116	
27.5	90.22	10	117	
28.0	91.86	11	118	
28.5	93.50	12	119	
29.0	95.14	13	120	
29.5	96.78	14	121	
30.0	98.43	15	122	
30.5	100.07	16	123	
31.0	101.71	17	124	
31.5	103.35	18	125	
32.0	104.99	19	126	
32.5	106.63	20	127	
33.0	108.27	21	128	
33.5	109.91	22	129	
34.0	111.55	23	130	
34.5	113.19	24	131	
35.0	114.83	25	132	
35.5	116.47	26	133	
36.0	118.11	27	134	
36.5	119.75	28	135	
37.0	121.39	29	136	6:07
37.5	123.03	30		
38.0	124.67	31		
38.5	126.31	32		
39.0	127.95	33		
39.5	129.59	34		
40.0	131.23	35		
40.5	132.87	36		
41.0	134.51	37		

P-S FIELD LOG REV V1.31a

8-72060H **GEOVISION SUSPENSION LOGGING FIELD NOTES**

SITE*: Turkey Point NPP _____ DATE*: 3/20/08
CLIENT*: MACTEC _____ JOB*: 8083
AUTHOR*: C. Carter _____ PAGE* 45 OF 45 u 3/24/08

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO*	FILTERED FILE NO*. (if any)	COMMENTS CASING, WATER, ROCK, ETC
41.5	136.15	38		
42.0	137.80	39		
42.5	139.44	40		
43.0	141.08	41		
43.5	142.72	42		
44.0	144.36	43		
44.5	146.00	44		
45.0	147.64	45		
45.5	149.28	46		
46.0	150.92	47		
46.5	152.56	48		
47.0	154.20	49		
47.5	155.84	50		
48.0	157.48	51		
48.5	159.12	52		
49.0	160.76	53		
49.5	162.40	54		
50.0	164.04	55		
50.5	165.68	56		
51.0	167.32	57		
51.5	168.96	58		
52.0	170.60	59		
52.5	172.24	60		
53.0	173.88	61		
53.5	175.52	62		
54.0	177.17	63		
54.5	178.81	64		
55.0	180.45	65		
55.5	182.09	66		
56.0	183.73	67		
56.5	185.37	68		
57.0	187.01	69		
57.5	188.65	70		
58.0	190.29	71		
58.5	191.93	72		
59.0	193.57	73		
59.5	195.21	74		
60.0	196.85	75		
60.5	198.49	76		
61.0	200.13	77		1:29
61.5	201.77			

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-720GDH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
CONTACT: _____ PHONE: Off Cell
DRILLER Phillip PHONE: Off Cell
COMPANY: MACTEC

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED _____ UNCASD ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft; 3 1/8" 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 73 ft; NO _____
DEPTH TO BEDROCK: ~3 ft DEPTH TO WATER TABLE: Ø
BOREHOLE FLUID: WATER _____; FRESH WATER MUD ☒; SALT WATER MUD _____
OTHER: _____
DEPTH TO BOREHOLE FLUID: ~ Ø TIME SINCE LAST CIRCULATION: 10:30 am

LOGGING CREW: C. Carter
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: Florida City DEPARTURE TIME: 7:15 am
ARRIVED ON SITE: 7:30 am
STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7206DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
MICROLOGGER* 5310 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER
SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 96.22 BRUNTON TILT* 90
2 PROBE TILT TEST* 10.16 BRUNTON TILT* 10
3 PROBE TILT TEST* 19.24 BRUNTON TILT* 19 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 33.6 BRUNTON AZIMUTH* 36
2 PROBE AZIMUTH TEST* 72.10 BRUNTON AZIMUTH* 74
3 PROBE AZIMUTH TEST* 115.5 BRUNTON AZIMUTH* 119 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>8.08</u>	
DEPTH REF. OFFSET AT START*	<u>-3.36</u>	
DEPTH REF. OFFSET AT END*	<u>-3.36</u>	
AFTER SURVEY DEPTH ERROR*	<u>0</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH *	END TIME
B7206DH10001	200.4 ft	2:37 pm	~7 ft	2:47 pm

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-7206DH ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 1 OF 2

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

CONTACT: _____ PHONE: Off Cell

DRILLER _____ PHONE: Off Cell

COMPANY: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: Miami-Dade RANGE: _____ TOWNSHIP: _____ SECTION: _____
BOREHOLE CONSTRUCTION: CASED UNCASED ☒
DIAMETERS AND DEPTH RANGES: 4" 0 TO 73'; 3 7/8" 73 TO 220'

BOREHOLE TOTAL DEPTH AS DRILLED*: 220

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 21'; NO _____

DEPTH TO BEDROCK: ~3ft DEPTH TO WATER TABLE: ~0

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD _____

OTHER: _____
DEPTH TO BOREHOLE FLUID: ~0 TIME SINCE LAST CIRCULATION: 10:30 am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE: _____

MOBILIZED FROM: Florida City DEPARTURE TIME: 7:15 am

ARRIVED ON SITE: 7:30 am

STANDBY TIME: _____ CAUSE: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

ACOUSTIC TELEVIEWER LOG COVER 1.0a.pdf



B-720604 ACOUSTIC TELEVIEWER FIELD LOG Rev 1.0a

Borehole*

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE 2 OF 2

WINCH: COMPROBE SILVER X OYO OTHER
MICROLOGGER* 5310 5772 X
TELEVIEWER* ACOUSTIC #5174 X OTHER
SHEAVE* COMPROBE OYO 101 102 X 103 RG

1 PROBE TILT TEST* 19.01 BRUNTON TILT* 19
2 PROBE TILT TEST* 90.43 BRUNTON TILT* 90
3 PROBE TILT TEST* 10.88 BRUNTON TILT* 11 AFTER LOG* yes
1 PROBE AZIMUTH TEST* 19.3 BRUNTON AZIMUTH* 21
2 PROBE AZIMUTH TEST* 70.3 BRUNTON AZIMUTH* 74
3 PROBE AZIMUTH TEST* 144.6 BRUNTON AZIMUTH* 146 AFTER LOG* yes

PROBE OFFSET*	1.44M(4.72FT)	} REF TO GROUND SURFACE
MINUS CASING STICK-UP*	<u>-10.08</u>	
DEPTH REF. OFFSET AT START*	<u>-5.36</u>	
DEPTH REF. OFFSET AT END*	<u>-5.34</u>	
AFTER SURVEY DEPTH ERROR*	<u>.02</u>	

LOG NAME*	START DEPTH*	START TIME	END DEPTH*	END TIME
<u>B-720604A VVP02</u>	<u>120.4 SL</u>	<u>6:53</u>	<u>19.7 ft</u>	<u>7:22 pm</u>

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

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CALIPER FIELD LOG REV 1.1a.PDF



8-720604

CALIPER FIELD LOG

Borehole*

SITE*: Turkey Point NPP
CLIENT*: MACTEC
AUTHOR*: C. Carter
DATE*: 3/20/08
JOB*: 8083
PAGE: 1 OF 2

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

CONTACT: PHONE: Off Cell

DRILLER
COMPANY: PHONE: Off Cell

GENERAL SITE CONDITIONS/LOCATION:

COUNTY: RANGE: TOWNSHIP: SECTION:

BOREHOLE CONSTRUCTION: CASED UNCASED ☒

DIAMETERS AND DEPTH RANGES: 4" 0 TO 73 ft; 3 7/8" 73 TO 220 ft

BOREHOLE TOTAL DEPTH AS DRILLED*: 220 ft

SURFACE CASING?: YES ☒ DEPTH TO BOTTOM OF CASING 73 ft / 20.5'

DEPTH TO BEDROCK: ~ 3 ft DEPTH TO WATER TABLE: ϕ

BOREHOLE FLUID: WATER; FRESH WATER MUD ☒; SALT WATER MUD

OTHER:

DEPTH TO BOREHOLE FLUID: ~ ϕ TIME SINCE LAST CIRCULATION: 10:30 am

LOGGING CREW: C. Carter

VEHICLE(S) USED AND MILEAGE:

MOBILIZED FROM: Florida City, FL DEPARTURE TIME: 7:45 am

ARRIVED ON SITE: 7:30 am

STANDBY TIME: 8-5 3/19 CAUSE:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

CALIPER FIELD LOG REV 1.1a PDF



B-7206DH
Borehole*

CALIPER FIELD LOG

SITE*: Turkey Point NPP DATE*: 3/20/08
CLIENT*: MACTEC JOB*: 8083
AUTHOR*: C. Carter PAGE: PAGE 2 OF 2

WINCH: COMPROBE SILVER ☒ OYO ☒ RG OTHER
MICROLOGGER* 5310 5772 ☒ OTHER
CALIPER PROBE* 5368 ☒ OTHER
SHEAVE* COMPROBE ☐ OYO 101 ☒ 102 ☒ 103 ☐ RG ☐

PROBE OFFSET	2.08M(6.82 FT)	12 IN MAX
MINUS CASING STICK-UP*	8.08	10.68
DEPTH REF. OFFSET AT START*	-1.23	-3.26
DEPTH REF. OFFSET AT END*	-1.25	-3.20
AFTER SURVEY DEPTH ERROR*	.02	.06

LOG NAME*	START DEPTH*	START TIME*	END DEPTH*	END TIME*
B7206DH CAL TEST 01		3:15		3:16
B7206DH CAL UP 01	202.5 ft	3:33	59.55 ft	3:47
B7206DH CAL TEST 02		4:00		4:01
B7206DH CAL TEST 03		7:41		7:42
B7206DH CAL TEST 04		8:07		8:08
B7206DH CAL UP 02	82.1 ft	7:53	16.3 ft	8:00

CALIBRATION PLATE S/N 201

	FILE NAME	AS BUILT			PVC FITTING
		1.968 IN (50 MM)	3.937 IN (100 MM)	8.000 IN (203.2 MM)	4.507 IN (114.3 MM)
AS MEAS.*	B7206DH CAL TEST 01	1.968	3.978	8.02	4.530
AS MEAS.*	B7206DH CAL TEST 02	1.942	3.927	7.999	4.504
AS MEAS.*	B7206DH CAL TEST 03	1.977	3.953	8.05	4.513
AS MEAS.*	B7206DH CAL TEST 04	1.977	3.986	8.02	4.50
AS MEAS.*					
AS MEAS.*					

4.510 cc 3/20/08

MAINTENANCE PERFORMED ON SITE*: N/A (N/A if none)

EQUIPMENT PROBLEMS OR FAILURES*: N/A (N/A if none)

SUGGESTIONS, ADDITIONS, CHANGES:

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

GEOVision Geophysical Services

1151 Pomona Road, Unit P, Corona, CA 92882

Ph (951) 549-1234 Fx (951) 549-1236

DIT FIELD LOG REV 1.1a.pdf



B740 (DIT) **DOWNHOLE VELOCITY FIELD LOG REV 1.1a**

Borehole*
SITE*: Turkey Pt NP DATE*: 6/24/08 & 6/25/08
CLIENT*: Mactec JOB*: 8083
AUTHOR*: A. Martin PAGE 1 OF 3

CONTACT: Mark Cook PHONE: Off Cell 803-261-5792

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

CONTACT: _____ PHONE: Off Cell _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED ☒ 2" TIME SINCE GROUT 3+ weeks

DIAMETERS AND DEPTH RANGES: 6" 0 TO 150'; _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED*: 150'

DEPTH TO BEDROCK: ~3' DEPTH TO WATER TABLE: ~1'

WATER PUMPED FROM BOREHOLE*? YES ☒ NO - then what DEPTH TO WATER water pump to 110'

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DIFFIELD LOG REV 1.1a.pdf



B740(DH) **DOWNHOLE VELOCITY FIELD LOG**
Borehole*

SITE*: Turkey Point WP DATE*: 6/24/08 & 6/25/08
CLIENT*: Mectec JOB*: 8083
AUTHOR*: P. Martin PAGE: 2 OF 3

LOGGING CREW*: A. Martin / N. Bolew
MOBILIZED FROM: Florida City DEPARTURE TIME: 0715am
ARRIVED ON SITE: 0745hr
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: 1145hr / 0800hr LOGGING COMPLETED: 1440 / 1100hrs
6/24/08 6/25/08 6/24/08 6/25/08

WINCH _____ OTHER _____
INSTRUMENT* Geode 3458 ☒ 3459 ☐ Other _____
GEOPHONES* BHG3 9501 ☒ Other BHG3 9501 ☐ B3079

Plank Orientation*: N82W (MN) Sh Source Offset* 9'11" P Source Offset* 11'
Surface geophones - If any-Offset Sh 16'8" P Offset 17'8"

P SOURCE Trip hammer weight drop

Sh SOURCE _____

CHANNEL ASSIGNMENTS 1 = borehole V, 2 = borehole H-L, 3 = borehole H-S
4 = surface V, 5 = surface H-L, 6 = surface H-S

SAMPLE RATES:
Depth range 5'-148' Sh-wave 20.833m SL/0.175s ^{RL} P-wave 20.833m SL/0.075s ^{RL}
Depth range _____ Sh-wave _____ P-wave _____
Depth range _____ Sh-wave _____ P-wave _____

MAINTENANCE PERFORMED ON SITE*: NA ^{6/24/08}

EQUIPMENT PROBLEMS OR FAILURES*: Difficulty with contact closure triggers on
highly conductive ground - no impact on data quality.

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: _____

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL.

OH FIELD LOG REV 1.1a.p3f

B740 (DHT) DOWNHOLE VELOCITY FIELD LOG

Borehole*

SITE*: Turkey Point NP

DATE*: 6/24/08 & 6/25/08

CLIENT*: MACTEC

JOB*: 8083

AUTHOR*: A. Martin

PAGE* 3 OF 3

ITEMS WITH * MUST BE COMPLETED. OTHER INFORMATION IS OPTIONAL

DEPTH* (Feet)	SH CHANNEL NUMBERS*		# OF STACKS	SH FILE NUMBER*		P CHANNEL NUMBER*	# OF STACKS	P FILE NUMBER*
	HL*	HT		RED*	GRN*			
5	2	3	8	59	60	1	5	107
10			8	57	58		5	102
15			8	55	56		5	101
20			8	53	54		5	100
25			8	51	52		1/5	98/99
30			8	49/71	50/72		2	97
35			8	47	48		5	96
40			8	45	46		5	95
45			8	43	44		5	94
50			9	41	42		5	93
55			8	39	40		7	92
60			8	37	38		5	91
65			10	35	36		6	90
70			10	33	34		6	89
75			10	31	32		6	88
80			10	29	30		5	87
85			10	27	28		5	86
90			10	25/63	26/64		6	85
95			12	23	24		5	84
100			10	21	22		5	83
105			10	19	20		6	82
110			10	17	18		6	81
115			10	15	16		6	80
120			12	13	14		6	79
125			12	11	12		6	78
130			12	9	10		6	77
135			10	7	8		8	76
140	✓	✓	10	5	6	✓	8	75
145			10	3	4		8	74
148 *	2	3	10	1/61	2/62	1	5	73
90'	Noise		65 - 70					
			END OF LOG	CGH	6/25/08			
			Note: File 99 - 103	with	16lb sledge hammer			

GEOVision Geophysical Services

1151 Pomona Rd. #P Corona, CA 92882

ph (951) 549-1234 fx (951) 549-1236

* edit data

APPENDIX G

BORING GEOPHYSICAL LOGGING

FIELD MEASUREMENT PROCEDURES

PROCEDURE FOR OYO P-S SUSPENSION SEISMIC VELOCITY LOGGING

Background

This procedure describes a method for measuring shear and compressional wave velocities in soil and rock. The OYO P-S Suspension Method is applied by generating shear and compressional waves in a borehole using the OYO P-S Suspension Logger borehole tool and measuring the travel time between two receiver geophones or hydrophones located in the same tool.

Objective

The outcome of this procedure is a plot and table of P and S_H wave velocity versus depth for each borehole. Standard analysis is performed on receiver to receiver data. Data is presented in report format, with digital data files transmitted in Excel, Word or ASCII format.

Instrumentation

1. OYO Model 170 Digital Logging Recorder or equivalent
2. OYO P-S Suspension Logger probe or equivalent, including two sets horizontal and vertical geophones, seismic source, and power supply for the source and receivers
3. Winch and winch controller, with logging cable
4. Batteries to operate P-S Logger and winch

The Suspension P-S Logger system, manufactured by OYO Corporation, or the Robertson Digital P-S Suspension Probe with the Robertson Micrologger2 are currently the only commercially available suspension logging systems. As shown in Figure 1, these systems consists of a borehole probe suspended by a cable and a recording/control electronics package on the surface.

The suspension system probe consists of a combined reversible polarity solenoid horizontal shear-wave generator (S_H) and compressional-wave generator (P), joined to



two biaxial geophones by a flexible isolation cylinder. The separation of the two geophones is one meter, allowing average wave velocity in the region between the geophones to be determined by inversion of the wave travel time between the two geophones. The total length of the probe is approximately 7 meters; the center point of the geophones is approximately 4 meters above the bottom end of the probe.

The probe receives control signals from, and sends the amplified geophone signals to, the instrumentation package on the surface via an armored 4 or 7 conductor cable. The cable is wound onto the drum of a winch and is used to support the probe. Cable travel is measured by a rotary encoder to provide probe depth data.

The entire probe is suspended by the cable and may be centered in the borehole by nylon "whiskers." Therefore, source motion is not coupled directly to the borehole walls; rather, the source motion creates a horizontally propagating pressure wave in the fluid filling the borehole and surrounding the source. This pressure wave produces a horizontal displacement of the soil forming the wall of the borehole. This displacement propagates up and down the borehole wall, in turn causing a pressure wave to be generated in the fluid surrounding the geophones as the soil displacement wave passes their location.

Environmental Conditions

The OYO P-S Suspension Logging Method can be used in either cased or uncased boreholes. For best results, the uncased borehole must be between 10 and 20 cm in diameter, or 4 to 8 inches. A cased borehole may be as small as 3 inches, if properly grouted (see below) and the grout annulus does not exceed 1 inch.

Uncased boreholes are preferred because the effects of the casing and grouting are removed. It is recommended that the borehole be drilled using the rotary mud method. This method does little damage to the borehole wall, and the drilling fluid coats and seals the borehole wall reducing fluid loss and wall collapse. The borehole fluid is required for the logging, and must be well circulated prior to logging.

If the borehole must be cased, the casing must be PVC and properly installed and grouted. Any voids in the grout will cause problems with the data. Likewise, large grout bulbs used to fill cavities will also cause problems. The grout must be set before testing. This means the grouting must take place at least 48 hours before testing.

For borehole casing, applicable preparation procedures are presented in ASTM Standard D4428/D4428M-91 Section 4.1 (see ASTM website for copy).

Calibration

Calibration of the digital recorder is required. Calibration is limited to the timing accuracy of the recorder. GEOVision's Seismograph Calibration Procedure or equivalent should be used. Calibration must be performed on an annual basis.



Procedure for OYO P-S Suspension Seismic Velocity Logging
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Measurement Procedure

The entire probe is lowered into the borehole to a specific measurement depth by the winch. A measurement sequence is then initiated by the operator from the instrumentation package control panel. No further operator intervention is then needed to complete the measurement sequence described below.

The system electronics activates the SH-wave source in one direction and records the output of the two horizontally oriented geophone axes which are situated parallel to the axis of motion of the source. The source is then activated in the opposite direction, and the horizontal output signals are again recorded, producing a SH-wave record of polarity opposite to the previous record. The source is finally actuated in the first direction again, and the responses of the vertical geophone axes to the resultant P-wave are recorded during this sampling.

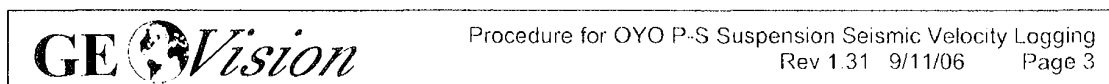
The data from each geophone during each source activation is recorded as a different channel on the recording system. The seismograph has at least six channels (two simultaneous recording channels), each with at least a 12 bit 1024 sample record. Newer seismographs may have longer record lengths. The recorded data is displayed on a CRT or LCD display and possibly on paper tape output as six channels with a common time scale. Data is stored on digital media for further processing. Up to 8 sampling sequences can be stacked (averaged) to improve the signal to noise ratio of the signals.

Review of the data on the display or paper tape allows the operator to set the gains, filters, delay time, pulse length (energy), sample rate, and stacking number in order to optimize the quality of the data before recording. In the case of the Model 170, printed data is verified by the operator prior to moving the probe. In the case of the Robertson Micrologger2, storage on the hard disk should be verified from time-to-time, certainly before exiting the borehole.

Typical depth spacing for measurements is 1.0 meters, or 3.3 feet. Alternative spacing is 0.5 meter, or 1.6 feet.

Required Field Records

- 1) Field log for each borehole showing
 - a) Borehole identification
 - b) Date of test
 - c) Tester or data recorder



- d) Description of measurement
 - e) Any deviations from test plan and action taken as a result
 - f) QA Review
- 2) Paper output records are no longer required, since the Micrologger2 cannot generate them. However, data must be stored in at least 2 places prior to leaving the site
 - 3) List of record ID numbers (for data on digital media) and corresponding depth
 - 4) Diskettes, CD Rom, or USB flash drives with backup copies of data on hard disk, labeled with borehole designation, record ID numbers, date, and tester name.

An example Field Log is attached to this procedure.

Analysis

Following completion of field work, the recorded digital records are processed by computer using the OYO Corporation software program PSLOG and interactively analyzed by an experienced geophysicist to produce plots and tables of P and S_H wave velocity versus depth.

The digital time series records from each depth are transferred to a personal computer for analysis. Figure 2 shows a sample of the data from a single depth. These digital records are analyzed to locate the first minima on the vertical axis records, indicating the arrival of P-wave energy. The difference in travel time between these arrivals is used to calculate the P-wave velocity for that 1-meter interval. When observable, P-wave arrivals on the horizontal axis records are used to verify the velocities determined from the vertical axis data. In addition, the soil velocity calculated from the travel time from source to first receiver is compared to the velocity derived from the travel time between receivers.

The digital records are studied to establish the presence of clear SH-wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the SH-wave signals from the 'normal' and 'reverse' source pulses are very nearly inverted images of each other. Digital FFT – IFFT lowpass filtering are used to remove the higher frequency P-wave signal from the SH-wave signal.

The first maxima are picked for the 'normal' signals and the first minima are picked for the 'reverse' signals. The absolute arrival time of the 'normal' and 'reverse' signals may vary by +/- 0.2 milliseconds, due to differences in actuation time of the solenoid source caused by constant mechanical bias in the source or by borehole inclination. This variation does not affect the velocity determinations, as the differential time is measured between arrivals of waves created by the same source actuation. The final velocity



value is the average of the values obtained from the 'normal' and 'reverse' source actuations.

In Figure 2, the time difference over the 1-meter interval of 1.70 millisecond is equivalent to a SH-wave velocity of 588 m/sec. Whenever possible, time differences are determined from several phase points on the S_H -wave pulse trains to verify the data obtained from the first arrival of the S_H -wave pulse. In addition, the soil velocity calculated from the travel time from source to first receiver is compared to the velocity derived from the travel time between receivers.

Figure 3 is a sample composite plot of the far normal horizontal geophone records for a range of depths. This plot shows the waveforms at each depth, clearly showing the S-wave arrivals. This display format is used during analysis to observe trends in velocity with changing depth.

Once the proper picks are entered in PSLOG, the picks are transferred to an Excel spreadsheet where Vs and Vp are calculated. The spreadsheet allows output for presentation in charts and tables.

Standard analysis is performed on receiver 1 to receiver 2 data, with separate analysis performed on source to receiver data as a quality assurance procedure.

Registered Geophysicist Anthony Martin Date 9/11/06

QA Review [Signature] Date 9/11/06

References:

1. "In Situ P and S Wave Velocity Measurement", Ohya, S. 1986. Proceedings of In-Situ '86, *Use of In-Situ Tests In Geotechnical Engineering*, an ASCE Specialty Conference sponsored by the Geotechnical Engineering Division of ASCE and co-sponsored by the Civil Engineering Dept of Virginia Tech.
2. Guidelines for Determining Design Basis Ground Motions, Report TR-102293, Electric Power Research Institute, Palo Alto, California, November 1993, Sections 7 and 8.
3. "Standard test Methods for Crosshole Seismic Testing", ASTM Standard D4428/D4428M-91, July 1991, Philadelphia, PA



Procedure for OYO P-S Suspension Seismic Velocity Logging
Rev 1.31 9/11/06 Page 5

OYO SUSPENSION P-S VELOCITY LOGGING SETUP

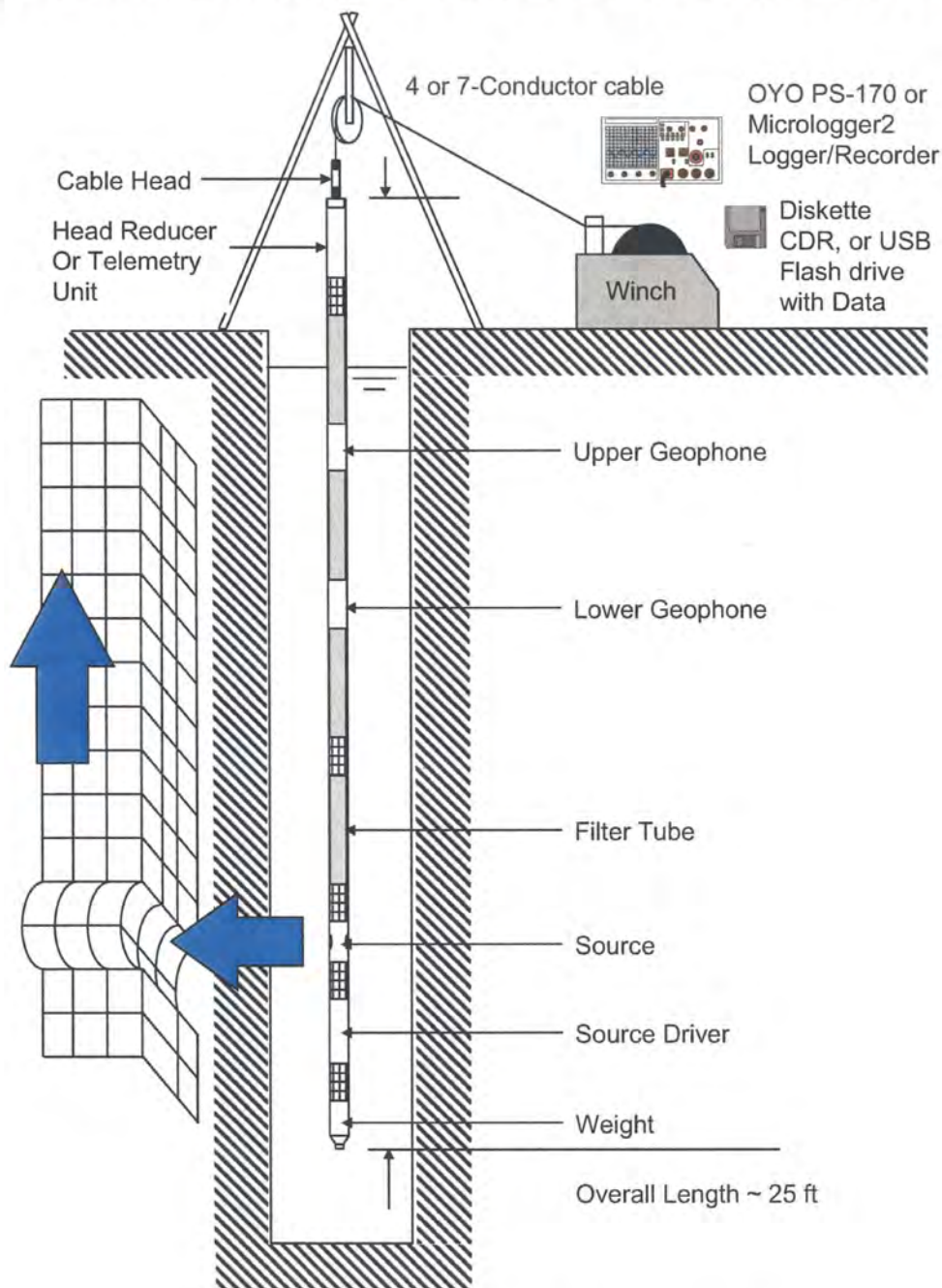


Figure 1. Suspension PS logging method setup

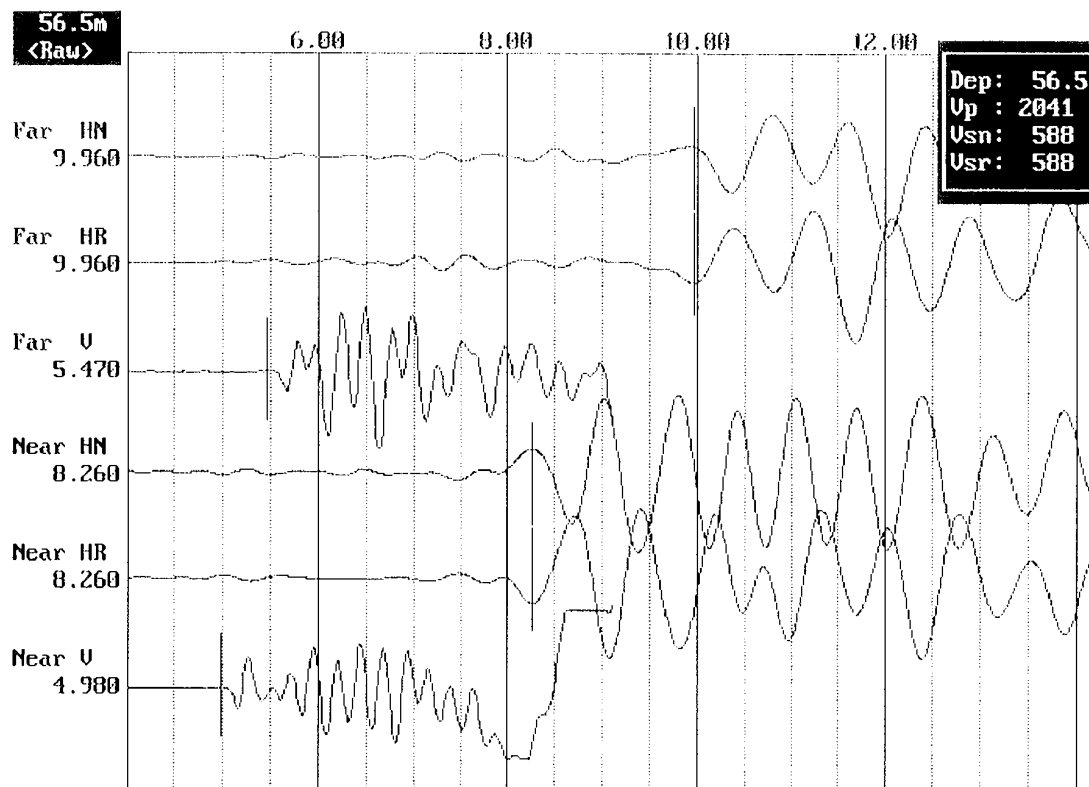


Figure 2. Sample suspension method waveform data showing horizontal normal and reversed (HR and HN), and vertical (V) waveforms received at the near (bottom 3 channels) and far (top 3 channels) geophones. The arrivals in milliseconds for each pick are shown on the left. The box in the upper right corner shows the depth in the borehole and the velocities calculated based on the picks.

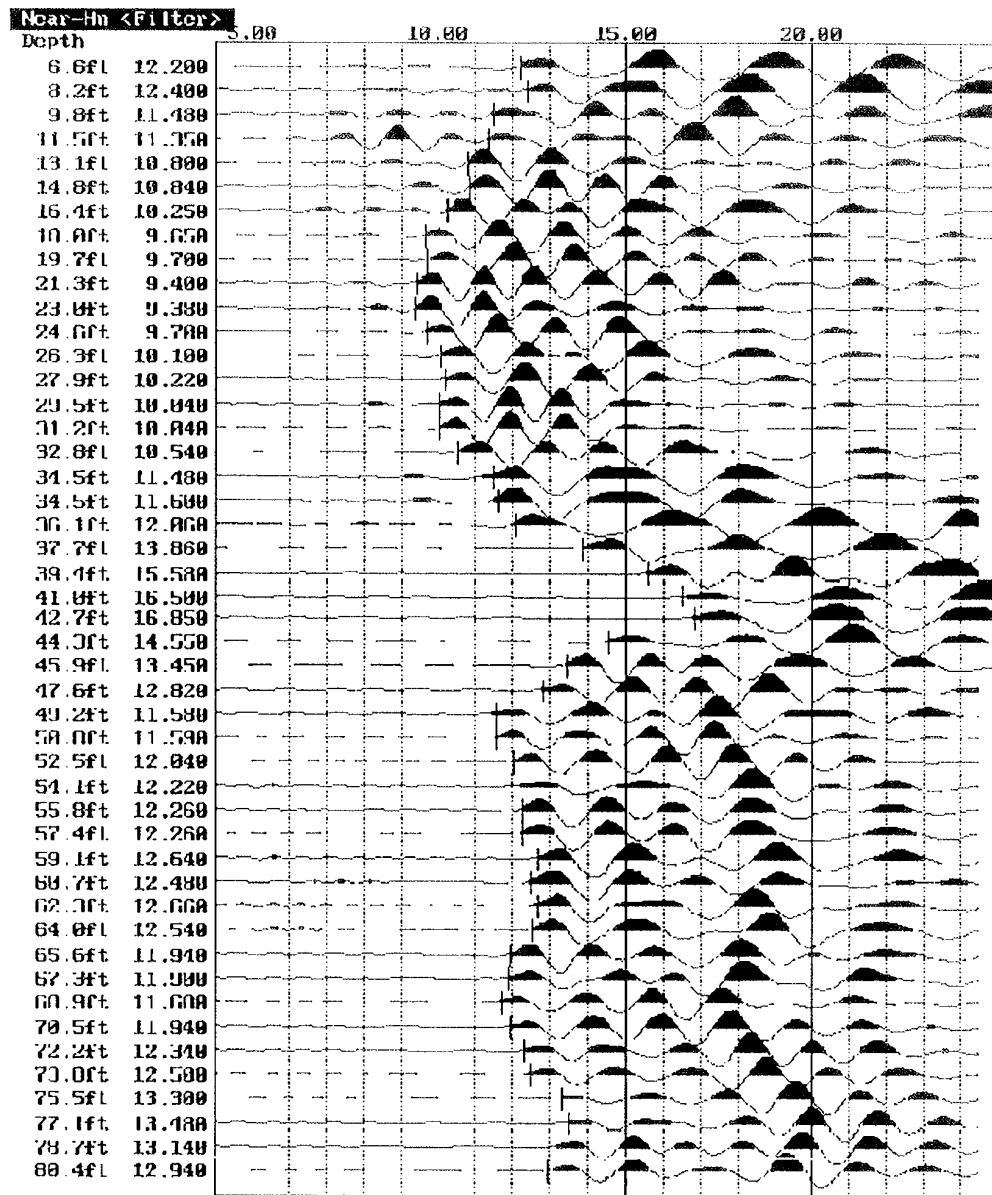


Figure 3. Sample composite waveform plot for normal shear waves received at the near geophone in a single borehole



P-S SUSPENSION VELOCITY FIELD LOG

SITE: _____ DATE: _____
CLIENT: _____ JOB: _____
AUTHOR: _____ PAGE 1 OF _____

CONTACT: _____ OFFICE PHONE: _____
PHONE: _____
CONTACT: _____ OFFICE PHONE: _____
PHONE: _____
CONTACT: _____ PHONE: _____
PHONE: _____
CONTACT: _____ PHONE: _____
PHONE: _____
DRILLER: _____ PHONE: _____
COMPANY: _____ PHONE: _____

DIRECTIONS TO SITE: _____

GENERAL SITE CONDITIONS/LOCATION: _____

EA#: _____
BOREHOLE DESIGNATION: _____ LOCATION: _____

COUNTY: _____ RANGE: _____ TOWNSHIP: _____ SECTION: _____

BOREHOLE CONSTRUCTION: CASED _____ UNCASD _____

DIAMETERS AND DEPTH RANGES: _____ 0 TO _____; _____, _____ TO _____

BOREHOLE TOTAL DEPTH AS DRILLED: _____

CONDUCTOR CASING?: YES _____ DEPTH TO BOTTOM OF CASING _____; NO _____

DEPTH TO BEDROCK: _____ DEPTH TO WATER TABLE: _____

BOREHOLE FLUID: WATER _____; FRESH WATER MUD _____; SALT WATER MUD _____;

OTHER: _____

DEPTH TO BOREHOLE FLUID: _____ TIME SINCE LAST CIRCULATION: _____



SITE: _____ DATE: _____
CLIENT: _____ JOB: _____
AUTHOR: _____ PAGE 2 OF _____

LOGGING CREW: _____
VEHICLE(S) USED AND MILEAGE: _____
MOBILIZED FROM: _____ DEPARTURE TIME: _____
ARRIVED ON SITE: _____
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: _____ LOGGING COMPLETED: _____
STANDBY TIME: _____ CAUSE: _____
LOGGING STARTED: _____ LOGGING COMPLETED: _____
DEMOBILIZED TO: _____ ARRIVAL TIME: _____
ADDITIONAL DEMOB TIME: _____ REASON: _____

BATTERIES CHANGED BEFORE LOGGING: YES _____; NO _____; STORED WITH NEW _____
WINCH _____ COMPROBE ☐ GREY ☐ OYO ☐ RG ☐ OTH ☐
INSTRUMENT OYO 12004 ☐ 15014 ☐ 19029 ☐ RG 160023 ☐ 160024 ☐
RECEIVER S/N 12008 ☐ 20042 ☐ 26066 ☐ 11001 ☐ 23053 ☐

MAINTENANCE PERFORMED ON SITE: _____

EQUIPMENT PROBLEMS OR FAILURES: _____

SUGGESTIONS, ADDITIONS, CHANGES: _____

COMMENTS: _____

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: _____ DATE: _____
CLIENT: _____ JOB: _____
AUTHOR: _____ PAGE _____ OF _____

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
0.5	1.64			
1.0	3.28			
1.5	4.92			
2.0	6.56			
2.5	8.20			
3.0	9.84			
3.5	11.48			
4.0	13.12			
4.5	14.76			
5.0	16.40			
5.5	18.04			
6.0	19.69			
6.5	21.33			
7.0	22.97			
7.5	24.61			
8.0	26.25			
8.5	27.89			
9.0	29.53			
9.5	31.17			
10.0	32.81			
10.5	34.45			
11.0	36.09			
11.5	37.73			
12.0	39.37			
12.5	41.01			
13.0	42.65			
13.5	44.29			
14.0	45.93			
14.5	47.57			
15.0	49.21			
15.5	50.85			
16.0	52.49			
16.5	54.13			
17.0	55.77			
17.5	57.41			
18.0	59.06			

GEOVISION SUSPENSION LOGGING FIELD NOTES

SITE: _____ DATE: _____
CLIENT: _____ JOB: _____
AUTHOR: _____ PAGE _____ OF _____

DEPTH METERS	DEPTH FEET	UNFILTERED FILE NO.	FILTERED FILE NO.	COMMENTS CASING, WATER, ROCK, ETC
18.5	60.70			
19.0	62.34			
19.5	63.98			
20.0	65.62			
20.5	67.26			
21.0	68.90			
21.5	70.54			
22.0	72.18			
22.5	73.82			
23.0	75.46			
23.5	77.10			
24.0	78.74			
24.5	80.38			
25.0	82.02			
25.5	83.66			
26.0	85.30			
26.5	86.94			
27.0	88.58			
27.5	90.22			
28.0	91.86			
28.5	93.50			
29.0	95.14			
29.5	96.78			
30.0	98.43			
30.5	100.07			
31.0	101.71			
31.5	103.35			
32.0	104.99			
32.5	106.63			
33.0	108.27			
33.5	109.91			
34.0	111.55			
34.5	113.19			
35.0	114.83			
35.5	116.47			
36.0	118.11			

PROCEDURE FOR DOWNHOLE SEISMIC VELOCITY LOGGING

Background

This procedure describes a method for measuring shear and compressional wave velocities in soil and rock. The Downhole Method is applied by generating shear and compressional waves at the surface and measuring the travel time between the surface and the borehole.

Objective

The outcome of this procedure is a plot and table of P and S_H wave velocity versus depth for each borehole. Alternatively or additionally, travel time plots may also be produced. Data is presented in report format, with ASCII data files and digital records transmitted on disk.

Instrumentation

1. OYO Model 170 Digital Seismograph, Geometrics Strataview or equivalent
2. Downhole probe, including horizontal and vertical geophones, fluxgate compass for orientation downhole, and system for locking probe against the side of the borehole
3. Sledge hammer with impulse switch to trigger recording
4. Winch and logging cable
5. Batteries to operate seismograph and controls for downhole probe
6. Various cables



GEOVision Downhole Seismic Velocity Logging Procedure
Rev 1.1 04/12/06 Page 1

Downhole soil velocities are measured using a variable azimuth downhole geophone and a seismograph. This system orients the downhole geophones parallel to the axis of excitation at the surface, insuring that signals received at the downhole geophones are of maximum amplitude, and are not subject to errors in travel time caused by incorrect phase of first arrival picks, as found with non-orientable downhole probes.

The downhole probe consists of a horizontal and vertical geophone mounted on a rotatable structure with a fluxgate magnetometer compass sensor. The compass/geophone assembly is mounted with preamplifiers and compass drive circuitry inside a 2.5 inch diameter case approximately 30 inches in length. The compass/geophone assembly can be rotated from the surface control module to match the azimuth of the horizontal geophone axis with the azimuth of the surface shear wave source. The probe receives control signals from, and sends the amplified geophone signals to, instrumentation on the surface via a 4- or 7-conductor cable. Cable travel is measured to provide probe depth data. The probe is locked into the borehole by inflation of an external rubber bladder or motor-driven spring clamp that runs the length of the probe.

Sledge hammer blows against the ends of a steel capped traction plank are used as an S_H -wave energy source. The traction plank is weighted by placing under the wheel or wheels of a truck. Sledge hammer blows against a striker plate on the surface are used as a P-wave energy source. System triggering is performed by a hammer switch mounted on the sledgehammer handle.

In operation, the S_H -wave produced by swinging the hammer in one direction produces an output at the downhole horizontal geophones which is digitized and recorded. The hammer is then swung in the opposite direction, and the horizontal output signals are again recorded, producing a shear-wave record of polarity opposite to the previous record. A vertical hammer blow is executed, and the response of the vertical geophone to the resultant P-wave is recorded.

The signal from each geophone generated by each hammer blow is recorded as a different channel on the recording system. The recorded data is displayed on the seismograph display. Data and all system parameters are stored on disk for further processing. Multiple hammer blows can be summed to improve the signal-to-noise ratio of the signals.

Review of the displayed data on the display allows the operator to set the gains, filters, sample rate, and summing number in order to optimize the quality of the data before recording to disk.



Environmental Conditions

For best results, the borehole should be between 7.5 and 17 cm in diameter, or 3 to 6 inches.

The locking method requires that soil boreholes be cased with PVC for best results. Casing is not required in hard rock boreholes. If installed, the casing must be properly installed and grouted. The best method is using a tremie tube to pump grout from the bottom. Any voids in the grout will cause problems with the data. Likewise, large grout bulbs used to fill cavities will also cause problems. The grout must be set before testing. This means the grouting must take place at least 48 hours before testing.

For borehole casing, applicable preparation procedures are presented in ASTM Standard D4428/D4428M-91 Section 4.1 (see ASTM website for copy).

The seismograph must be protected from rain. The downhole probe may or may not be submersible (depending on type). The procedure below provides for emptying the borehole of water.

Calibration

Calibration of the seismograph is required.

Downhole Measurement Procedure

Prior to performing downhole measurements each borehole casing may be emptied using a submersible pump or bailer. The downhole probe compass azimuth is checked at the surface, and compared to the azimuth of the traction plank S_H -wave source. The mechanical or electronic depth encoders are set to zero with the geophones located at ground level. The probe is then lowered to the bottom of the borehole at the desired intervals. At each desired depth, the probe is locked in place. The compass/geophone assembly is then rotated to match the azimuth of the surface S_H -source. At each sampling depth a minimum of two opposite horizontal records and one vertical record is acquired, and the gains adjusted as necessary to get good signal to noise ratio. The waveform data from each depth is checked on the display, and recorded before moving to the next depth. Upon removal of the probe from the borehole, depth indications are re-checked with the geophones located at ground level.

Typical depth spacing for measurements is 1.5 meters, or 5 feet. Alternative spacing is 1 meter, or 3 feet.



GEOVision Downhole Seismic Velocity Logging Procedure
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Deviations From Above Written Methods And Procedures

It is permissible for on-site personnel to deviate from this procedure with respect to the size and number of sledge hammers, the size of the traction plank, the weight of the truck, removing water from the borehole (not needed for submersible geophone packages), or the use of a winch (manual lowering is acceptable for shallow depths), and sequence of horizontal and vertical records, provided adequate waveforms are obtained.

Required Field Records

- 1) Field log for each borehole showing
 - a) Borehole identification
 - b) Date of test
 - c) Tester or data recorder
 - d) Description of measurement
 - e) Offset of centerpoint of plank and P-wave striker plate from the borehole collar
 - f) Any deviations from test plan and action taken as a result
 - g) Field check of data validity, performed by tester during data collection
 - h) List of record ID numbers (for data on disk) and corresponding depth
- 2) Data on hard disk with backup copies of data on removable media, labeled with borehole designation, record ID numbers, date, and tester name.

Downhole Analysis

Records are analyzed to locate the first arrival of energy on each downhole geophone record. The horizontal records are studied to verify the presence of clear S_H -wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the shear-wave signals from the 'normal' and 'reverse' hammer blows are very nearly inverted images of each other. Digital low-pass filtering may be used to remove the higher frequency converted P-wave signal and cultural noise from the S_H -wave signal.



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Total travel time is corrected for changes in path length due to offset of the source from the borehole collar, and then plotted versus depth.

Results are further presented in the form of velocity profiles with depth for both P- and S_H-wave velocities.

QA Review

This procedure has been reviewed and approved by the undersigned.

Registered Geophysicist *Anthony Martin* Date 04/12/06

QA Review *[Signature]* Date 04/12/06

References:

1. "Standard test Methods for Crosshole Seismic Testing", ASTM Standard D4428/D4428M-91, July 1991, Philadelphia, PA



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PROCEDURE FOR USING THE ROBERTSON GEOLOGGING HI-RESOLUTION ACOUSTIC TELEVIEWER (HiRAT)

Reviewed 2/13/06

Background

The acoustic televiewer is a device for producing a qualitative image of the wall of a borehole. Because it uses ultrasound rather than visible light it is able to work in dirty or opaque borehole fluids, although heavy drilling mud will cause excessive dispersion of the acoustic beam. The picture below shows the sonde's lower nylon section, and one of the bowspring attachments which are used to centralize the sonde in the borehole.



Pulses of ultrasound (0.5 - 1.5MHz) are generated by a piezo-electric resonator. The pulses are transmitted through the oil in which the resonator is immersed, through the wall of the acoustic housing, then propagate through the borehole fluid and are reflected from the wall of the borehole. The reflected energy is picked up by the same transducer, from which is recorded both the **amplitude** of the returned pulse and the **travel-time** which have elapsed. Blanking must be applied to prevent the transducer from registering reflections from the inside surface of the acoustic housing. The material of the housing is chosen so that its acoustic properties are similar to the oil which fills it. The housing is not designed to withstand borehole fluid pressures, but has a piston device to allow equalization between inside and outside pressure.

The **amplitude** of the returned pulse is a function of the acoustic reflectivity of the borehole wall. If the beam strikes a hard borehole wall normally to the surface the energy will be returned to the transducer and a strong return will be recorded. If the formation is softer, then less energy will be reflected. Also, if the surface of the borehole is rough, or effectively missing because of the presence of a fracture or other structure, then energy will be dispersed and a poor return will be recorded.

The **travel-time** is a simple function of the diameter of the borehole and the velocity of sound in the borehole fluid (typically 1.5Km/sec). An A/D converter monitors the output from the transducer once the blanking period has expired and a comparator is used to detect the peak amplitude during the sampling window.

The coaxially-mounted transducer has a planar radiating surface, but the vibration characteristics are such that the acoustic pulse is emitted as a 'pencil' beam. The emitted beam is deflected by a planar mirror so that it leaves the acoustic housing at right angles to the sonde axis. The mirror is rotated to scan the borehole wall. The ultrasound pulses are synchronized with rotation of the mirror so that up to 360 pulses are emitted in every revolution. Because of the time which must elapse for the two-way transit of the borehole fluid, there is an upper limit upon the number of radial samples that may be acquired from a borehole of a particular radius. In larger boreholes, therefore, it may be necessary to reduce the number of radial samples. The sonde is able to operate at 90, 180 or 360 samples per revolution.

An image of the borehole wall is produced by moving the sonde along the borehole axis while it is scanning radially. By the same logic as shown above, it can be seen that any horizontal point will be imaged by more than one sweep of the acoustic beam so long as the axial movement of the sonde during one complete sweep is no greater than the beam diameter. An upper limit is therefore imposed upon the logging speed which will be a function of the rotational speed of the transducer, the radial sampling interval and borehole diameter.

Objective

The objective of this procedure is to provide a pseudo "core" of the borehole, and map the orientation and angles of cracks and voids in rock boreholes.

Instrumentation

This procedure is written specifically for the Robertson Geologging High-Resolution Acoustic Televiwer (HiRAT). The required equipment includes:

1. The Robertson High-Resolution Acoustic Televiwer (HiRAT) sonde with centralizers
2. A 4-conductor wire-line winch with cable at least 30m (100ft) longer than the depth of the borehole (RG Smart Winch or equivalent. GEOVision has adapted all our 4-conductor winches)
3. A sheave with depth encoder with minimum 500 pulse/revolution
4. A Robertson Geologging Micrologger II
5. A laptop with Winlogger installed and the following minimum system requirements:
 - Windows 98SE or above
 - 64M System memory
 - 800x600x24 SVGA Display with DirectX 8.0
 - 500Mhz CPU
 - USB 2.0 connection
6. Battery power supply with cables

Environmental Conditions

This tool is designed for fluid-filled boreholes between 67 and 150mm (3-6in) in rock. Since fine cracks are usually not visible in the walls of soil borings, the televiwers add very little information from a soil boring than a simple video. Now if the boring has soil AND rock, televiwer visuals in the soil may still be useful.



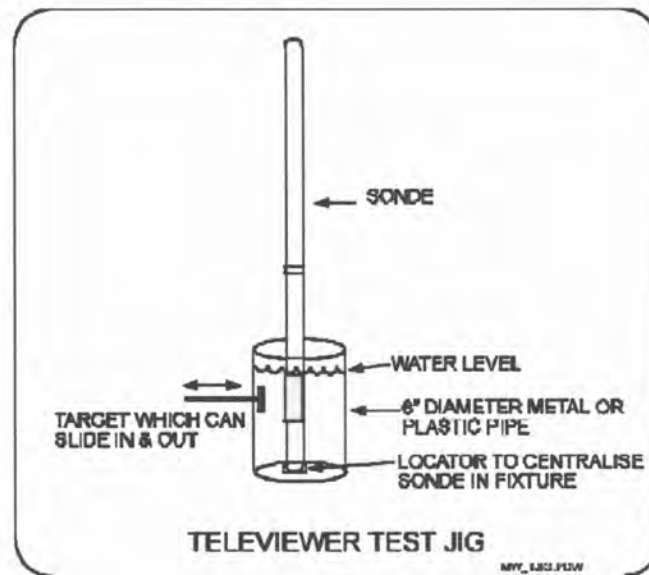
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Calibration

The acoustic televiewer uses the variability in reflectance and the travel time to make an image of the borehole wall, mostly resulting from relative differences of materials and the physical characteristics of the wall. Since these are relative measurements, no field calibration of the sonde is required. However, it is important that the same location in the borehole be checked at the start and finish of the logging to make sure that the response or functionality haven't changed during the measurement.

A test fixture may be used to check function of the acoustic televiewer prior to use. This test fixture should comprise a plastic pipe, with a known internal diameter between 3 and 6 inches. This should be filled with water and the sonde stood upright in the fixture. A target made of metal or metal foil is glued on the inside of the container, or optionally on a seal and shaft so that it can be moved in and out on a line radial to the center-line of the pipe. A representation of this is shown in the figure below.

The purpose of this test fixture is to check the ability of the sonde to differentiate between materials of different acoustic reflectances, and different travel times, and to check the calibration of the caliper function of the sensor using the measured diameter of the pipe. However, if calibrated caliper measurements are required, it is recommended that a mechanical 3-arm caliper tool be used for this purpose because it can be calibrated in the field prior to use. The HiRAT will give very accurate results but this procedure does not cover calibration.

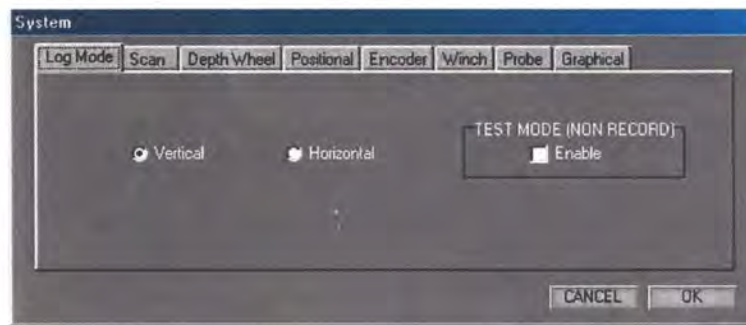


Hi-RAT Field Procedure

Because the logging software is a standalone module, there are a number of settings which must be initialized independently of the WinLogger software. These include the depth measurement subsystem and sonde operating modes. Click on 'System' on the menu bar to show the following dialog boxes:

1.0 Log Mode

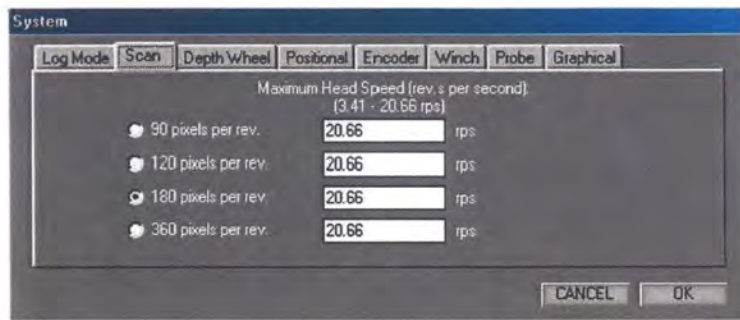
The sonde can operate in three distinct modes:



- Vertical mode is used for boreholes which are drilled from the surface and are deviated at less than 70 degrees from the vertical. Most exploration boreholes will fall into this class. In this mode the image is orientated according to compass directions (magnetic co-ordinates).
- Horizontal mode is used for boreholes which are sub-horizontal so their inclination will probably exceed 70 degrees from the vertical. Boreholes in this class would normally be drilled as part of ground investigations for tunneling and mining, drilling ahead of a drive to determine the nature and extent of fracturing. In this mode the image is orientated according to gravitational coordinates (up/down) since there is no unique point of the image circle which can be orientated to North with any precision.
- Test mode is used to exercise all sonde functions without creating a log. The image will scroll on the screen in the normal fashion, and orientation readouts will be refreshed continuously.

2.0 Scan Parameters

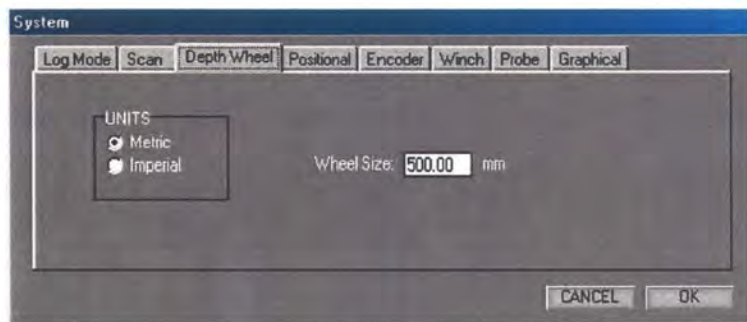
The scan parameters control the radial sampling of the borehole. The values will be retained between logging sessions, so the sonde will be initialized correctly at power-on. There are three parameters in the dialog:



- The radial sampling rate can be set to one of 90, 120, 180, 360 samples per revolution. There is a relationship between the logging speed and the radial sampling rate, since the time taken to send the dataset to the surface depends upon its length. The size of the log file is also determined by the radial sampling rate. The probe will always try to use the maximum head speed entered. If limited by a low Baud rate or a large 'window' setting then the probe will reduce its head speed automatically to compensate - see sonde operation section.

3.0 Depth Wheel Configuration

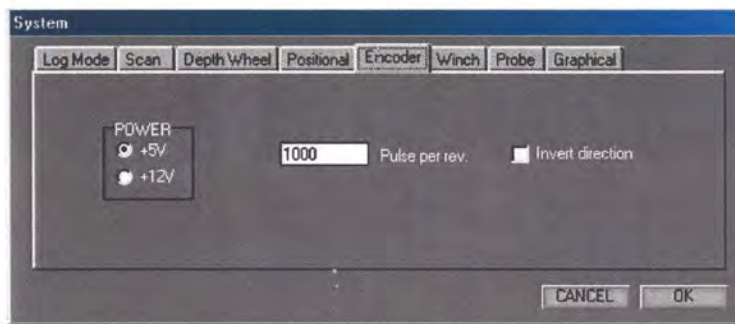
The depth measurement system is dependent upon the combination of depth measurement wheel with its calibrated groove, and the shaft encoder which translates rotation into pulses which are counted by the logging system controller. Two parameters are therefore required: depth wheel circumference and encoder pulse rate. The encoder parameters are covered in a subsequent topic.



- Select Metric or Imperial depth measurement units from the left-hand pane.
- Type the circumference of the depth measurement wheel into the 'wheel size' box. The standard sizes of GEOVision wheels are 1000mm. If you are measuring in Imperial units (or changing back to metric units), the standard wheel size can be converted automatically by clicking the left mouse button and choosing the appropriate conversion. The size is always specified in units of 1/1000 of the depth unit i.e. millimetres (mm) or millifeet (mft).

4.0 Encoder Configuration

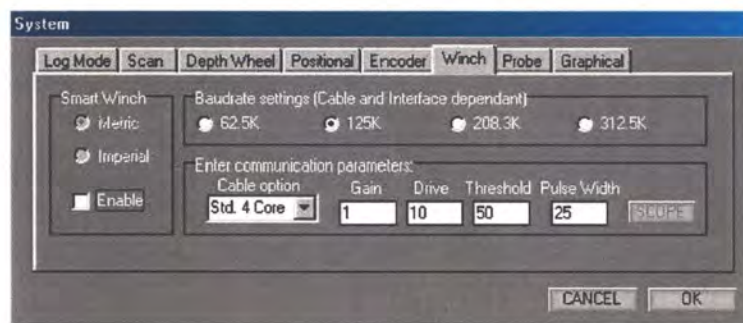
The depth measurement system is dependent upon the combination of depth measurement wheel with its calibrated groove, and the shaft encoder which translates rotation into pulses which are counted by the logging system controller. The depth wheel circumference is covered in a previous topic. In order to accommodate a variety of encoders, their operational characteristics can be configured in the software.



- Select supply voltage from the radio buttons in the left-hand pane. The options are 5 Volt and 12 Volt. GEOVision encoders are always specified for 5 Volt operation.
- Type the number of pulses emitted per revolution into the central box. The standard values for all GEOVision winches are 500 pulses/rev.
- The logical direction of movement can be reversed if required to accommodate the directional characteristics (phase lead or lag) of the different encoder types.

5.0 Winch and Cable Configuration

Support for remote control of the RG Smart Winch is provided, and can be enabled by checking the **Enable** control in the left-hand Smart Winch pane. If the Smart Winch control is enabled, it is also necessary to select the measure units in force - select **Metric** or **Imperial** from the radio buttons on offer.



The Baud settings can be chosen to match the *quality* of the communication channel. The channel will be effected by cable type and length. Typically a Baudrate of 312.5K is used. The remaining controls in the dialog relate to the communications parameters. The operation is entirely compatible with the WinLogger software operation and the values would be expected to be the same as those in force for logging six-channel type sondes with that software. (Certain probe types may be fitted with a digital interface that does not require set-up and in this case the parameter edit boxes will not appear.)

- **Cable Option** is used to select the logging cable type which is available on the winch. The options are *Not Connected*, *Std. 4 Core*, *Differential* and *Monocable*. The only cable types used in GEOVision systems is Std. 4 Core. Select the appropriate type from the drop-down menu box. Note this value can only be changed when the probe power is turned off.
- **Gain** is related to cable length and uphole signal attenuation. Gain values range from 0-3 and control the amplification applied to the incoming signal. Use the *Scope* dialog to visualize the incoming signals. Gain should be set so that the signal reaches between 70% and 100% of the height of the display, generally obtained with a setting of 0 for GEOVision winches. If the peak height exceeds this level, clipping will result in artifacts which will be detected erroneously. Click *Apply* to set the parameters before proceeding to the *Scope* dialog.
- **Threshold** is the level at which the incoming signals are detected. Gain and Threshold are related, and can be visualized using the *Scope* dialog. Set the gain so that the signal reaches between 70% and 100% of the height of the display. Then adjust the threshold so that it is between 50% and 70% of the height of the pulses displayed and clear of any region of 'overshoot' of the positive and negative pulses. This will ensure that peaks are detected and noise is ignored. Generally a setting of 25 is used for GEOVision winches. When the scope dialog is displayed, the position of the mouse is reported as a threshold value to make it simpler to infer the correct setting. The scope option is greyed out when the probe power is turned off.
- **Drive** sets the strength of the downhole signal. It is not possible to visualize the downhole signal, but the effect of insufficient drive is to disable downhole communication, which will result in the commands being ignored by the sonde. Values range from 0 -127, and for GEOVision winches will be around 10. Increase the drive for longer cables.
- **Pulse Width** This is the width of the transmitted communication pulses in 100nS steps. The default is 25 equivalent to 2.5uS. The range is from 8 to 64. The pulse width can be reduced to prevent signal overshoot on short cables. The default value is used in most cases. Note any changes only come into effect during a log. (Note setting too large a pulse width when using the highest Baud rates will automatically be prevented within the probe and the pulse width reduced.)

IMPORTANT Please note the effects of changing 'Baud' will not appear until the first new log is made. The setting for 'threshold' may be effected by an increase in the 'Baud' rate please recheck 'threshold' if 'Baud' is altered using the 'Scope' function after making a short test log.

The parameters which are entered will be applied automatically if you close the dialog with **OK**. The above parameters once set correctly will be remembered by the system and should never need to be altered.

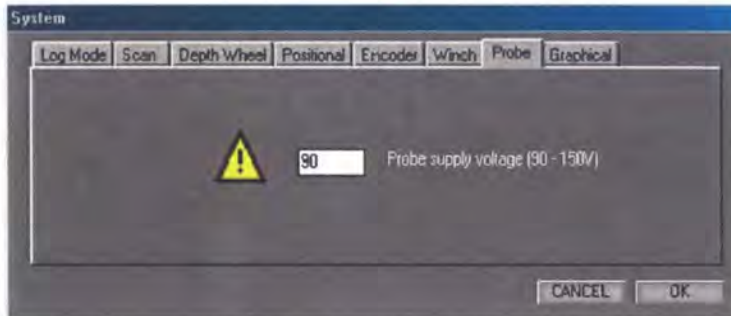
6.0 Probe Configuration

The probe is normally energized at 90 Volts from the surface. However, it may be necessary to compensate for voltage drop on longer cables due to the higher power draw of this sonde. The voltage at



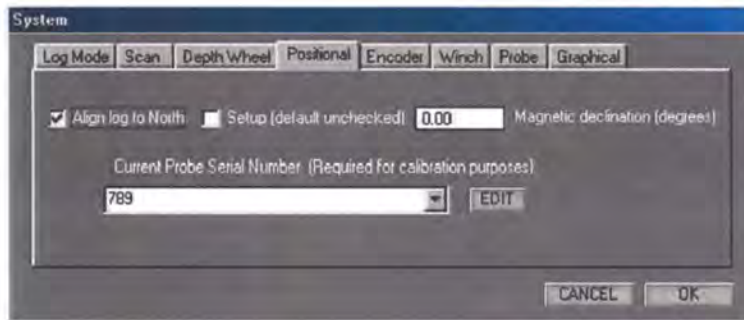
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the surface may be increased in order to deliver 90 Volts at the sonde. Simply type the value into the text box provided. The voltage should be set at 90V for all GEOVision winches. Values outside the indicated range will be rejected.



7.0 Positional Configuration

The probe includes a 3-axis orientation package, and is capable of producing a borehole image aligned to geographic North. This is achieved by determining and applying two image rotation parameters:



- **Magnetic Declination** is used to correct for the difference between Magnetic North and True North. The value varies from place to place, so the local value must be inserted here if you wish to perform this correction during data collection. This correction may also be made during processing. If the value is zero, the log will be referred to Magnetic North.
- **Align to North** is a check-box used to select image rotation to start at Magnetic North. If in addition a value is set for Magnetic Declination (see above) the image will be rotated to start at True North. If the box is not checked, the image will not be oriented to geographic co-ordinates, but will use the local co-ordinate frame of the sonde (X, Y, Z axis of the orientation module). This mode may be used to inspect the inside of magnetic casing, where an orientated image would be subjected to random effects caused by the metalwork.
- Set-up mode is selected by checking the **Setup** box, and is used to determine the required image rotation offset to correct for the angle between the axis of the orientation package and the index mark of the rotating transducer section. In set-up mode the normal sonde azimuth display is modified, and will instead show the 'relative bearing' which is measured between the high side of the borehole and the orientation sensor index. Check **Setup**, then OK to close the dialog. The icon adjacent to the sonde azimuth readout at the top of the screen is modified with the legend CAL when the system is in set-up mode. The sonde must now be placed in a stand or jig so that it



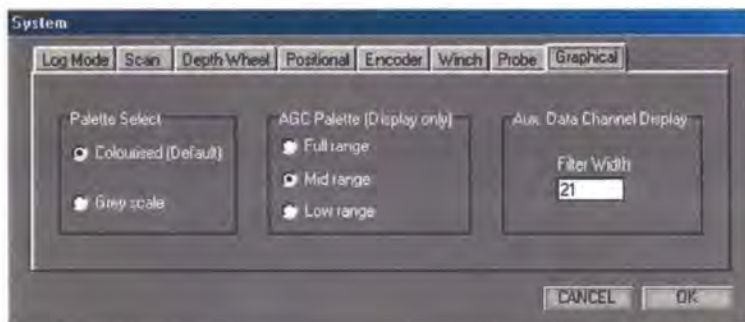
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is inclined at about 20 degrees to the vertical, and adjacent to a target fixed to the jig so that it is directly above the transducer in the vertical plane. Lower the sonde with its attachment into a large bucket of water so that the transducer and target are fully immersed. Start the radial amplitude display, when it will be possible to see the strong signal returning from the target. Rotate the sonde so that the image of the target moves to the top of the display. When the two are coincident, the 'relative bearing' reads out the image rotation offset. This value is fixed for the sonde unless it is disassembled and rebuilt, at which point the procedure **MUST** be repeated. Please see the additional topic on the Radial Amplitude Display for further details.

- The **Serial Number** list box is used to select the sonde which is in use. When the appropriate sonde is selected, the image rotation offset determined by the above procedure is selected. To edit the image offset click the '**Edit**' and enter the new offset. Several serial numbers and associated offsets can be stored and selected as required.

8.0 Graphical

The palette can be changed between a colored and grey scale setting. The changes affect the log screen palette display and are also applied when replaying a log. Selecting Full range in the 'AGC Palette' will cause the software to spread the palette over the full 16bit signal. 'Mid range' will spread the palette over the first quarter of the 16bit range and 'Low range' will spread the palette over the first eighth of the 16 bit range. In most cases the 'Low range' selection is used. Note these settings do not affect the stored log data in any way. The 'Filter Width' is applied to the Natural Gamma trace data and is a simply running average filter. The range of the filter width is from 1 to 50 (x 10 millidepth units ie. mm or mft).



9.0 Sonde Operation

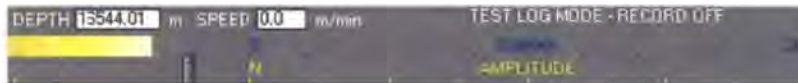
When the operations specified above have been reviewed and the correct settings have been selected, the system is ready for use. The main screen area is divided into 3 horizontal elements. At the top is the depth and orientation readout, together with the scale headings for the scrolling display of unwrapped borehole image.

On the left side of the depth track is the travel time display, with text boxes for sonde inclination, azimuth and head temperature.



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On the right side is the display of amplitude and indication of current operating mode. Located in the center above the depth track are the text boxes for depth and cable speed (computed at the surface). The ranges for the 'Natural Gamma' channel overlay (optional) are shown above the Amplitude.



The central area is utilized for the scrolling display of unwrapped borehole data. The display is orientated with the left edge corresponding to North point of the aligned image data (if orientation is selected) according to the outputs of the sonde's orientation package.

The lower area has controls for the winch (applicable to RG Smart Winch only), depth initialization and sonde control.



The winch control area is only displayed when RG SmartWinch operation is enabled - see section 5 - and has four controls. Set Target Speed by typing the required speed into the window and pressing Enter.

Cable movement is initiated by clicking on either the UP or DOWN arrow control.

Cable movement is halted by clicking on the square STOP control.



Depth is initialized by typing the required value into the entry box and pressing Enter. The entry box is not available at times when the system is in logging mode and the depth should not be changed by user entry.

Sonde power is applied by clicking on the green-colored 1 button. Power is turned off by clicking on the red-colored 0 button. There is no indicator for the state of the power supply on the desktop, so the external indicators should be observed for this purpose.

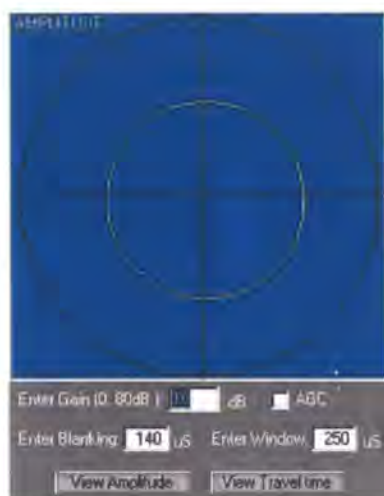
To make a log ensure that the Test Mode is disabled - see section 1, Log Mode setting. Click File|New Log and select a filename. Old logs may be overwritten if necessary -TAKE CARE. The header editor will be started automatically. A previous set of header data may be loaded by clicking LOAD and choosing a template.

To start logging, click on the red Record (circle) control. The log data will start to scroll down the screen after a brief pause for synchronization. The messages "DSP2: Detecting data stream" and "Updating probe settings" will be observed at the bottom of the screen during this process. Note that the screen scrolling direction is not affected by the actual direction of movement of the sonde. To cease logging, click on the black STOP control (square). The data should be immediately backed up to a USB drive, CD, or other data storage prior to beginning another log.

If the data display from a probe which is properly connected appears to occupy only half of the track area,



with the remainder filled with random colors such as green which are not part of the regular palette, then it is most likely that the downhole data communication is not functioning properly. This symptom is due to the fact that the probe settings cannot be communicated properly, and it is operating in its default power-up mode. If this is the case, the Drive setting of the System\Winch dialog should be increased or decreased accordingly. See section 5 for full details.



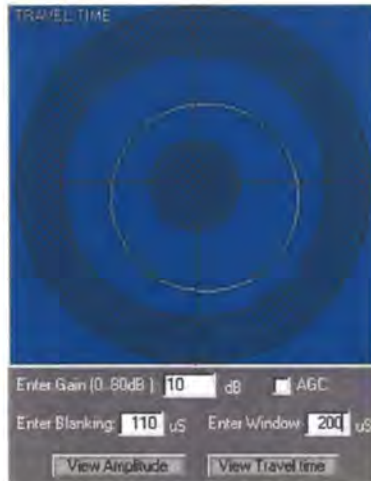
To adjust the sonde gain it is necessary to use the Radial Amplitude plot, which is enabled by clicking on the circle with cross-hairs symbol. When the dialog is active a new window will open on top of the unwrapped data display. In this display, the data is presented as a 'polar' plot. Press the 'View Amplitude' button to display the amplitude plot. This plot shows amplitude increasing towards the outside of the circle and the compass direction following the sweep of the transducer. The line indicating the data is drawn in the regular palette, so that high amplitudes are drawn in white and low amplitudes in black/brown. The picture here shows the image of the inside of a cylinder.

If the data is concentrated in a small circle at the center, the gain is too low and should be increased. If the data is obviously clipped at the outside of the circle, then the gain should be reduced. Type the new gain value into the entry box and press Enter. The ideal would be to set a gain value which allows the peak values to be displayed without clipping, with the majority of the data around the half-way level. It may also be necessary to adjust the blanking to ensure that internal reflections from the acoustic housing are not detected at the new gain value. This will be apparent in the unwrapped data display as pronounced patterning unrelated to the true target. The AGC option causes the probe to set gain automatically thus preventing signal saturation in most cases. (The gain is varied in 6dB steps

Blanking Period and window length can be set independently. Blanking is set to avoid reflections from the housing of the acoustic transducer or random reflections from a rugose borehole, and window length is set to accommodate the range of borehole radius that might be expected. An error will be indicated if the sum of the blanking period and window length would be greater than 409 microseconds, which is the maximum range of the timer. The default value for the blanking period is 145 microseconds, which is the minimum required for the two-way transit from the transceiver to the outer surface of the acoustic housing. It is not advisable to reduce this value beyond the default setting, although it may be increased for larger boreholes at the rate of 1.5mm of one-way travel per microsecond.

Window Length (sample time) defines the period during which the arrival gate remains open to detect the returned acoustic pulse. The acoustic pulse will travel in water at a speed of approximately 1.5mm per microsecond. The default window length is 150 microseconds, which is equivalent to 225 mm of (two-way) travel in the borehole fluid, or approximately 110mm of borehole diameter. If this is added to the default blanking period, which is equivalent to the outside diameter of the acoustic housing, it can be seen that the default set-up will be correct for boreholes up to 150mm. An error will be indicated if the sum of the blanking period and window length would be greater than 409 microseconds, which is the maximum range of the timer. Choose your window setting to best match the borehole diameter.

Pressing the 'View Travel time' button changes the display to that shown below:



The unhatched ring between the two cross hatched zones represents the sample window. The width of this ring will vary with window length value. The profile of a cylinder is represented here appearing as a circle in the sample window.



Pressing this button displays the following dialog box:

This box allows you to enable the Natural Gamma option by checking the 'Enable Overlay' check box. The Overlay appears as a trace upon the Amplitude plot. The trace range and color can also be set by

this dialog. The level of filtering can also be altered (see section 8) (note that any displayed trace data is automatically aligned with the acoustic scan data but only when logging up. The Natural Gamma sensor occupies a higher position in the probe so sufficient data has to be prebuffered so that the acoustic data can depth aligned with gamma. The prebuffering results in a delay at the start of a log before correct gamma data appears this is normal.)

Data Analysis and Interpretation

RG-DIP, the manufacturer's image interpretation package, offers manual and automatic feature recognition options. Feature orientations (dip/strike and azimuth) are automatically calculated. Display options include stereographic projections of zone axes, orientation frequency plots and 'synthetic cores' for comparison with real core data. The last option is invaluable for orientating core samples, particularly in the case of incomplete recovery.

Reporting

The final report will include the objective and scope of the survey, location of the boreholes, discussion of instrumentation and procedures in the field and lab. For each borehole there will be a plot showing the dip/strike and azimuth of features. The next page shows an example.

Assumptions and limitations of the results will be discussed. Supporting references will be listed as necessary

Required Field Records

Field log for each borehole showing

- a) Location and description of the borehole
- b) Date of test
- c) Field personnel
- d) Instrumentation
- e) Any deviations from test plan and action taken as a result

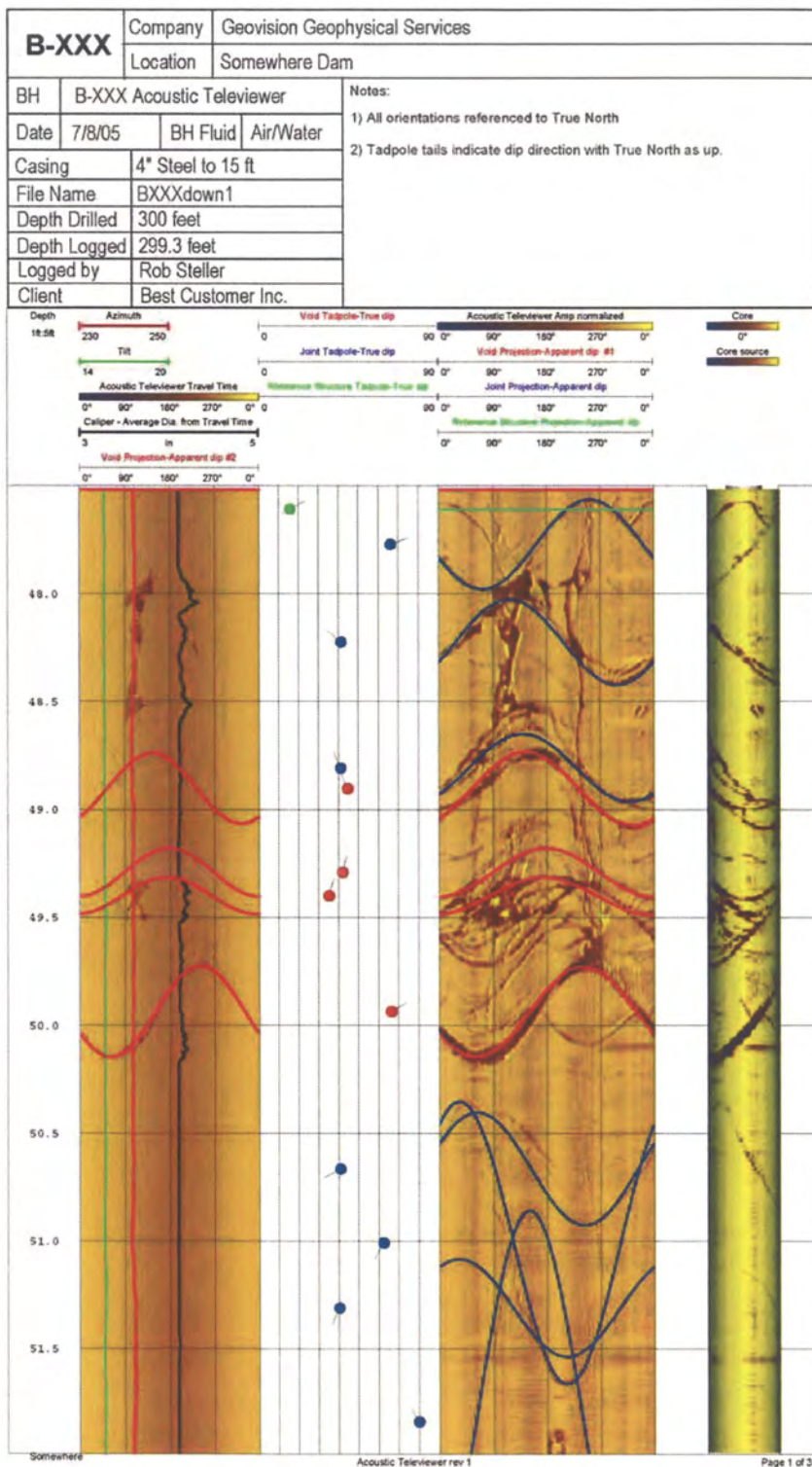
This procedure has been reviewed and approved by the undersigned:

Professional Geophysicist Anthony Martin Date Feb 13, 2006

QA Review [Signature] Date Feb 13, 2006



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**FINAL DATA REPORT Rev. 2
GEOTECHNICAL EXPLORATION AND TESTING**

**TURKEY POINT COL PROJECT
FLORIDA CITY, FLORIDA**

October 6, 2008

**VOLUME 3
Appendix E – Laboratory Test Data**

Prepared By:

**MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina**

MACTEC Project No. 6468-07-1950

Prepared For:

**Bechtel Power Corporation
Subcontract No. 25409-102-HC4-CY00-00001**

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- **Soil Index Tests 700 Series Boreholes**
- **Soil Laboratory Tests Test Pits**
- **Soil Strength Tests**
- **Soil Chemical Tests**
- **Carbonate Content Tests**

E.2 Laboratory Tests on Rock Cores

APPENDIX E.1

LABORATORY TEST RESULTS ON SOIL SAMPLES

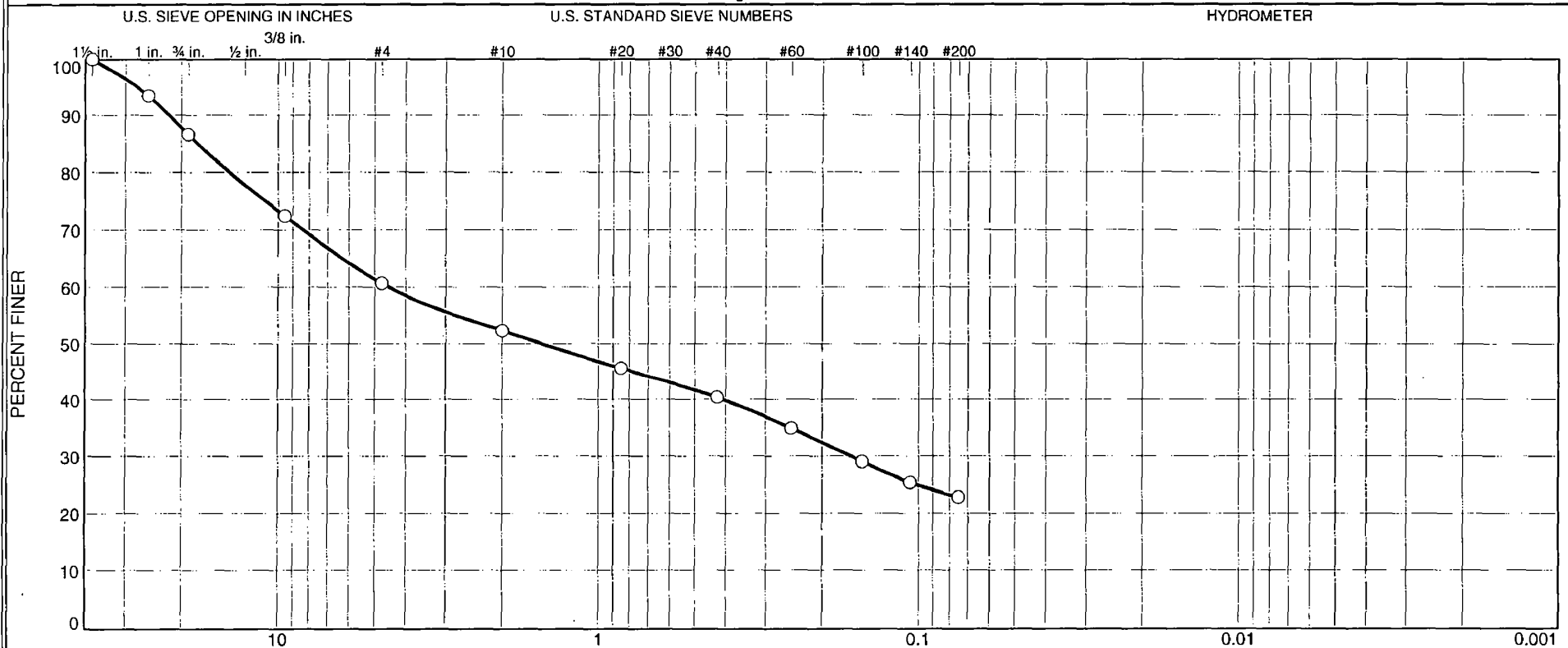
APPENDIX E.1

SOIL LABORATORY TESTS

- **Soil Index Tests 600 Series Boreholes**
- **Soil Index Tests 700 Series Boreholes**
- **Soil Laboratory Tests Test Pits**
- **Soil Strength Tests**
- **Soil Chemical Tests**
- **Carbonate Content Tests**

Soil Index Tests- 600 Series Boreholes

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
13	26	9	12	17	23	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-3	5.3-6.8	2/24/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 5.3-6.8

Sample Number: 601-3

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
395.32	0.00	0.00	1.5	0.00	100
			1	25.55	94
			3/4	53.03	87
			3/8"	109.10	72
			#4	155.32	61
			#10	188.42	52
99.67	0.00	0.00	#20	12.93	46
			#40	22.80	40
			#60	33.13	35
			#100	44.24	29
			#140	51.28	25
			#200	56.13	23

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	13	26	39	9	12	17	38			23

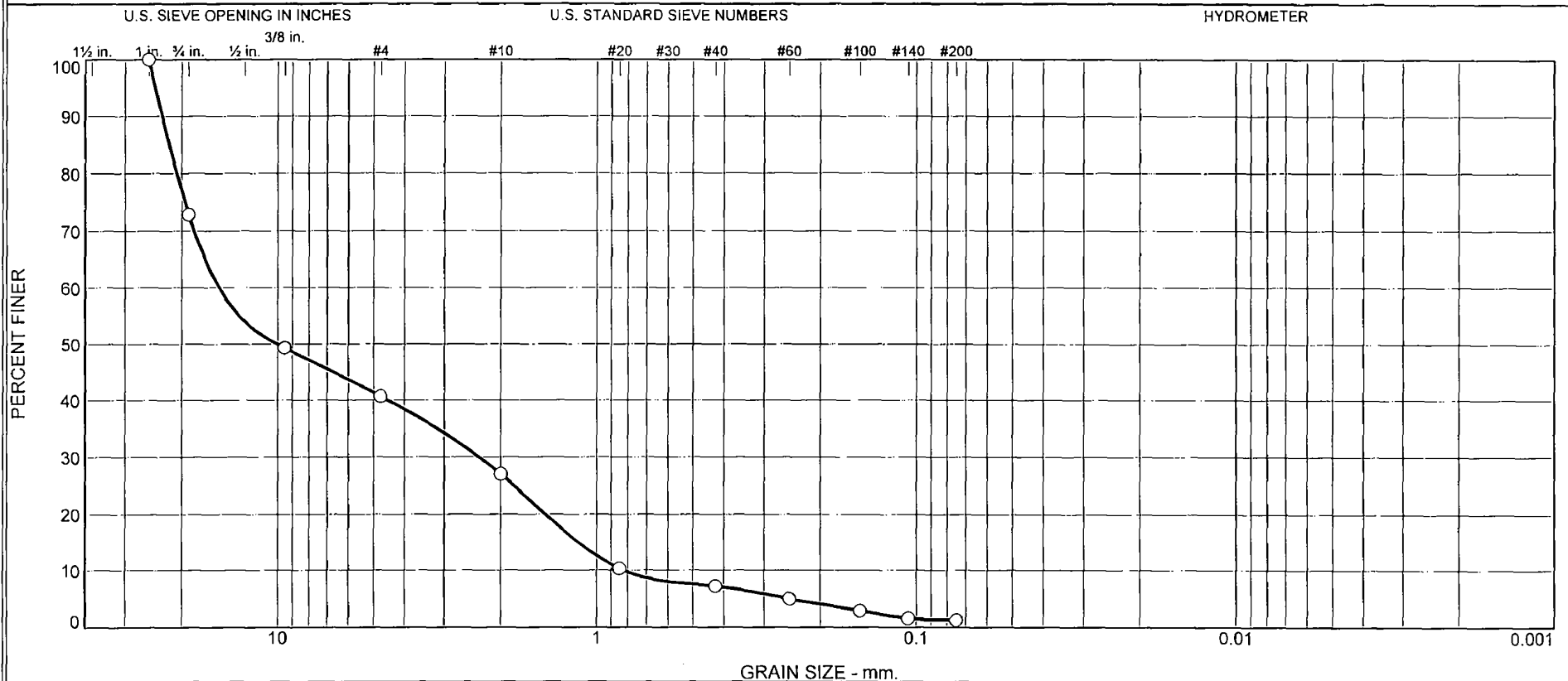
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1621	1.4990	4.5007	14.1689	17.8253	21.8423	27.3405

Fineness Modulus

3.69

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
27	32	14	20	6	1	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-5	9.7-11.2	2/24/08	GP	White Poorly Graded GRAVEL with sand	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined Calcite Equivalent=93% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 9.7-11.2

Sample Number: 601-5

Material Description: White Poorly Graded GRAVEL with sand

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Calcite Equivalent=93% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =239.18

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.18	0.00	0.00	1	0.00	100
			3/4	64.86	73
			3/8"	121.26	49
			#4	141.99	41
			#10	174.55	27
			#20	214.57	10
			#40	222.01	7
			#60	227.31	5
			#100	232.24	3
			#140	235.36	2
			#200	236.18	1

Fractional Components

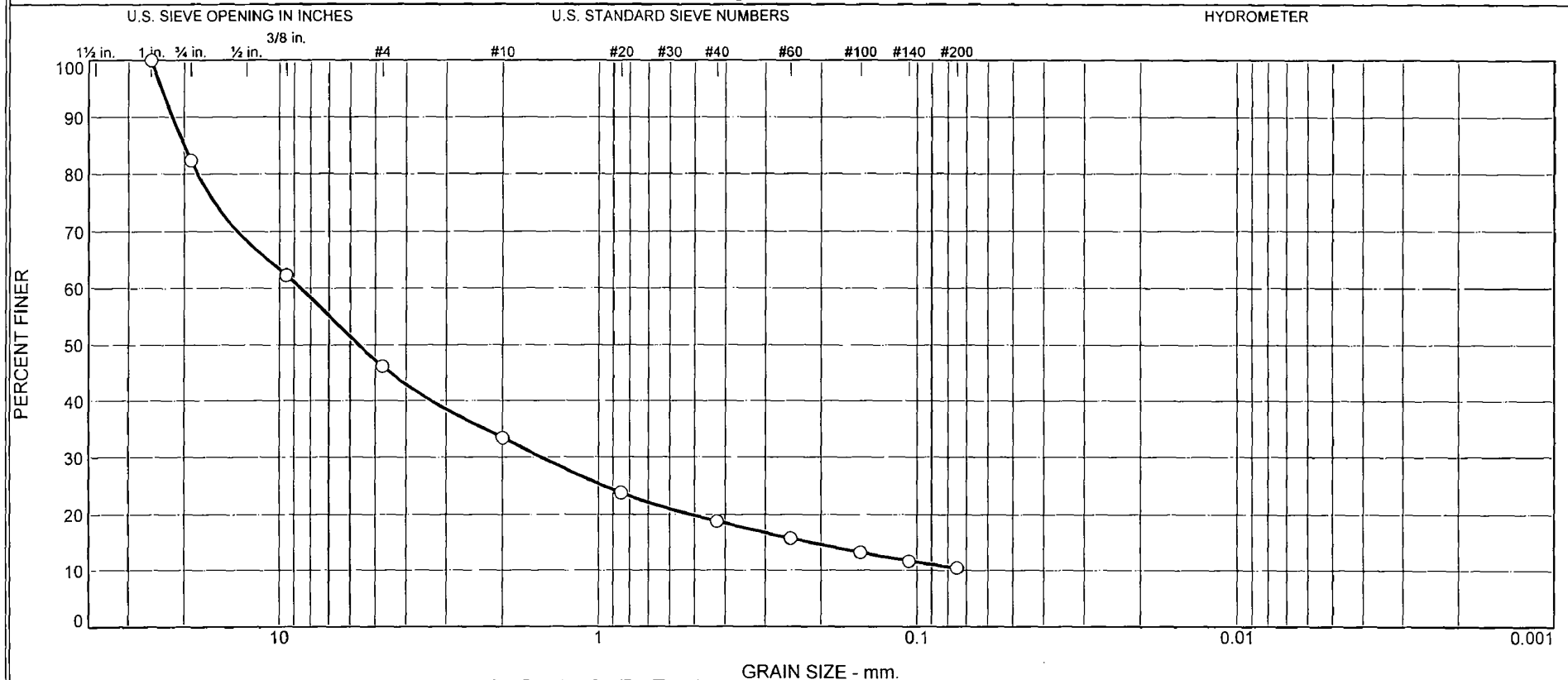
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	27	32	59	14	20	6	40			1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.8281	1.1424	1.4484	2.3339	10.0655	15.2871	20.7412	21.8852	23.0291	24.1944

Fineness Modulus	C _u	C _c
5.75	18.46	0.43

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
18	36	13	14	9	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-6	12.5-14.0	2/24/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 12.5-14.0

Sample Number: 601-6

Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
645.99	0.00	0.00	1	0.00	100
			3/4	113.93	82
			3/8"	243.36	62
			#4	348.05	46
			#10	430.39	33
103.58	0.00	0.00	#20	29.98	24
			#40	45.29	19
			#60	54.69	16
			#100	62.44	13
			#140	67.22	12
			#200	71.16	10

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	18	36	54	13	14	9	36			10

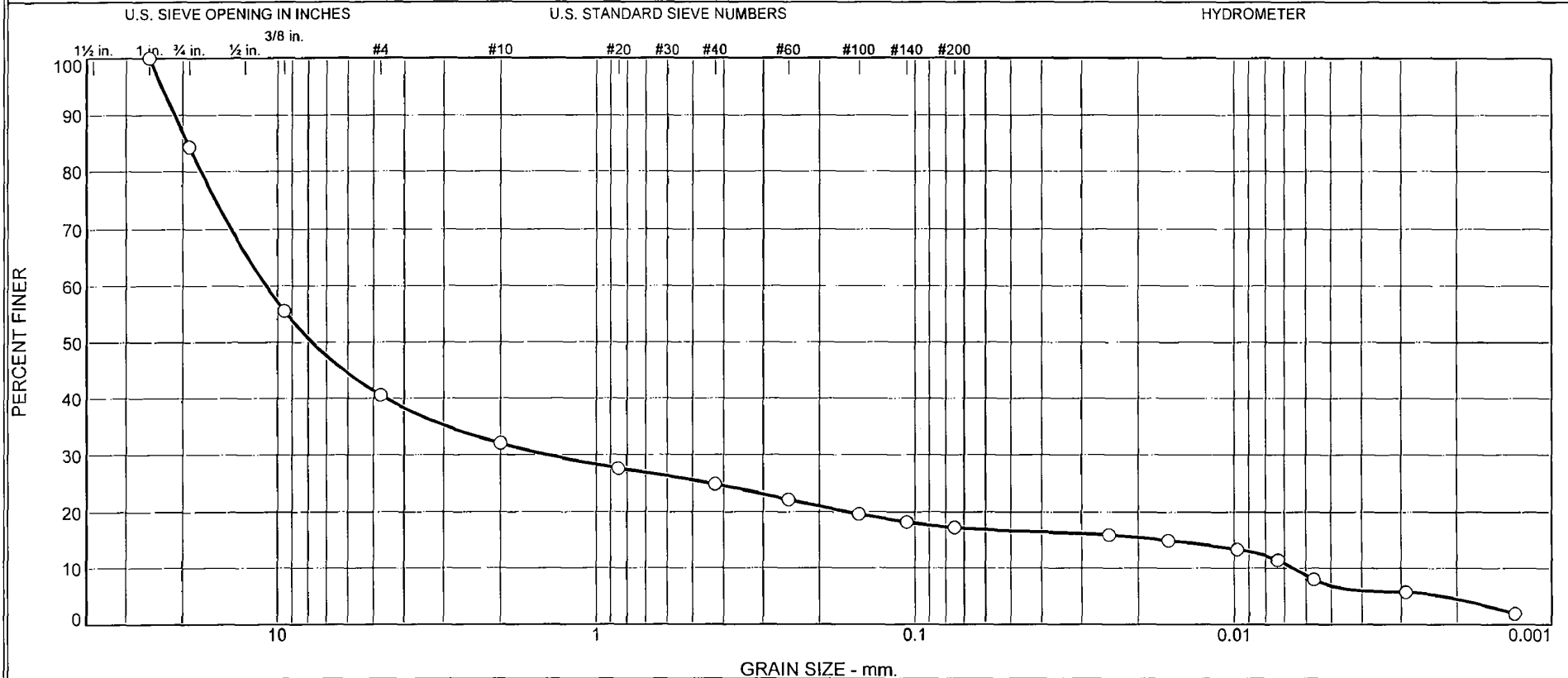
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.2159	0.5182	1.5141	5.6566	8.5737	18.1463	20.0105	21.7746	23.5479

Fineness
Modulus

4.96

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
15.6	43.9	8.5	7.2	7.6	10.4	6.8

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-8	21.4-22.9	2/25/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is Assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 21.4-22.9

Sample Number: 601-8

Material Description: White Silty GRAVEL with sand (Visual)

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is Assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
494.50	0.00	0.00	1	0.00	100.0
			3/4	77.30	84.4
			3/8"	219.50	55.6
			#4	294.00	40.5
			#10	336.30	32.0
99.99	0.00	0.00	#20	13.71	27.6
			#40	22.49	24.8
			#60	30.71	22.2
			#100	38.63	19.6
			#140	43.11	18.2
			#200	46.12	17.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =32.0

Weight of hydrometer sample =99.99

Hygroscopic moisture correction:

Moist weight and tare = 27.71

Dry weight and tare = 27.64

Tare weight = 15.65

Hygroscopic moisture =0.6%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	55.0	50.0	0.0131	56.0	7.1	0.0246	15.9
5.00	22.4	52.0	47.0	0.0131	53.0	7.6	0.0161	15.0
15.00	22.3	47.0	42.0	0.0131	48.0	8.4	0.0098	13.4
30.00	22.3	41.0	36.0	0.0131	42.0	9.4	0.0073	11.5
60.00	22.3	30.0	25.0	0.0131	31.0	11.2	0.0056	8.0
250.00	22.4	23.0	18.0	0.0131	24.0	12.4	0.0029	5.7
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	1.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

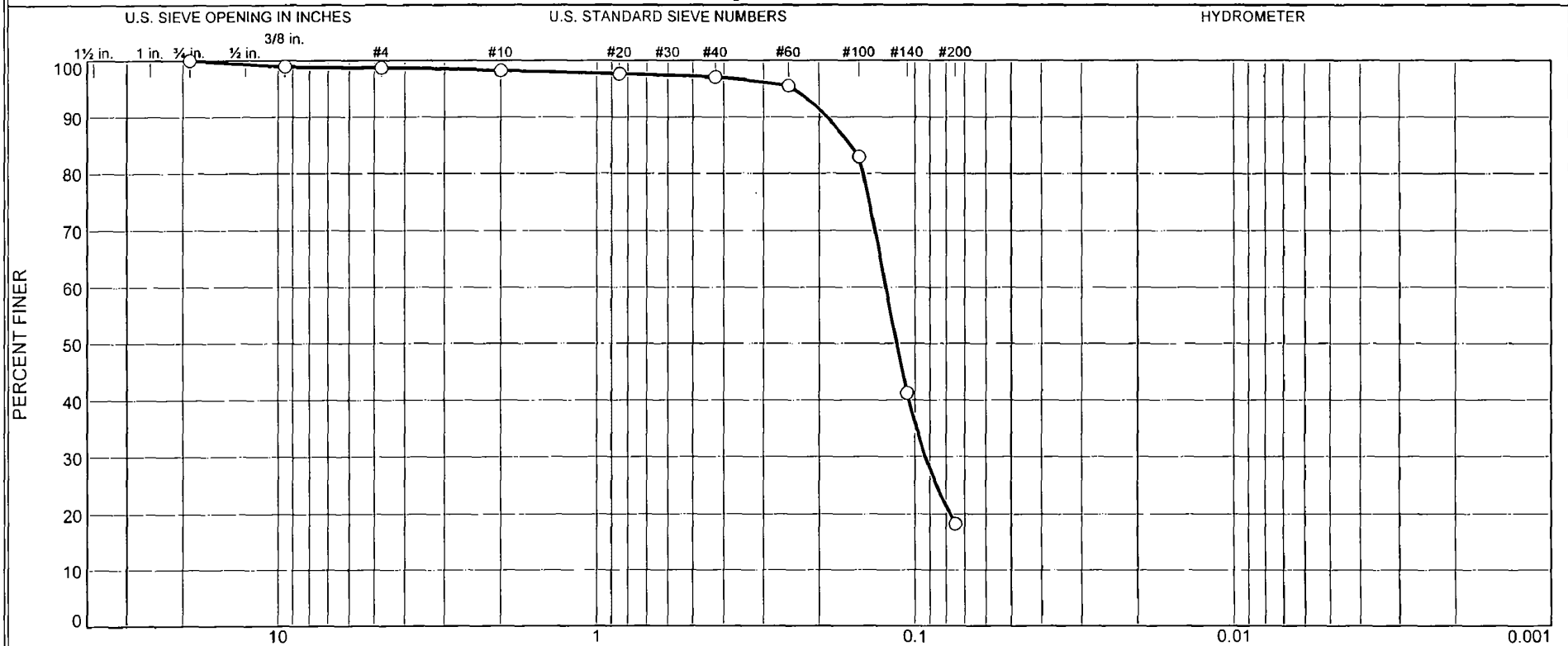
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	15.6	43.9	59.5	8.5	7.2	7.6	23.3	10.4	6.8	17.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0066	0.0163	0.1623	1.4278	7.7783	10.8827	17.4700	19.2837	21.1873	23.2134

Fineness Modulus	C _u	C _c
4.88	1660.90	28.59

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	1	1	79	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-10B	122.0-122.7	3/5/08	SM	Light Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 122.0-122.7

Sample Number: 601-10B

Material Description: Light Gray Silty SAND (Visual)

Date: 3/5/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
376.50	0.00	0.00	3/4	0.00	100
			3/8"	3.87	99
			#4	4.84	99
			#10	6.58	98
101.38	0.00	0.00	#20	0.61	98
			#40	1.17	97
			#60	2.83	96
			#100	15.80	83
			#140	58.88	41
			#200	82.59	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	1	79	81			18

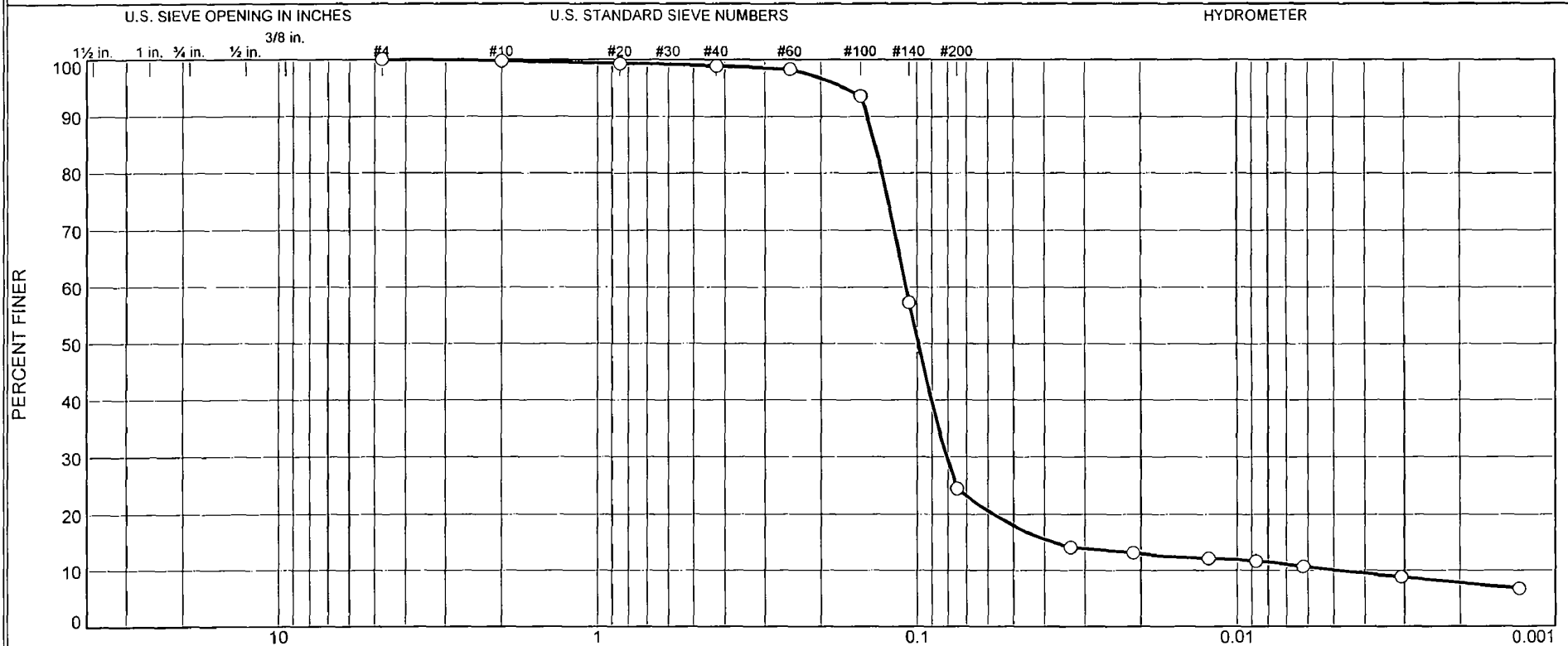
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0779	0.0931	0.1144	0.1236	0.1455	0.1594	0.1893	0.2415

Fineness Modulus

0.30

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 128.3-129.8

Sample Number: 601-11

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
351.05	0.00	0.00	#4	0.00	100.0
			#10	0.79	99.8
101.60	0.00	0.00	#20	0.50	99.3
			#40	0.88	98.9
			#60	1.54	98.3
			#100	6.25	93.6
			#140	43.23	57.3
			#200	76.68	24.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.8

Weight of hydrometer sample = 101.60

Hygroscopic moisture correction:

Moist weight and tare = 29.23

Dry weight and tare = 29.22

Tare weight = 15.25

Hygroscopic moisture = 0.1%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	19.5	14.5	0.0131	20.5	12.9	0.0332	14.1
5.00	22.4	18.5	13.5	0.0131	19.5	13.1	0.0211	13.2
15.00	22.3	17.5	12.5	0.0131	18.5	13.3	0.0123	12.2
30.00	22.3	17.0	12.0	0.0131	18.0	13.3	0.0087	11.7
60.00	22.3	16.0	11.0	0.0131	17.0	13.5	0.0062	10.7
250.00	22.6	14.0	9.1	0.0130	15.0	13.8	0.0031	8.8
1440.00	22.1	12.0	7.0	0.0131	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

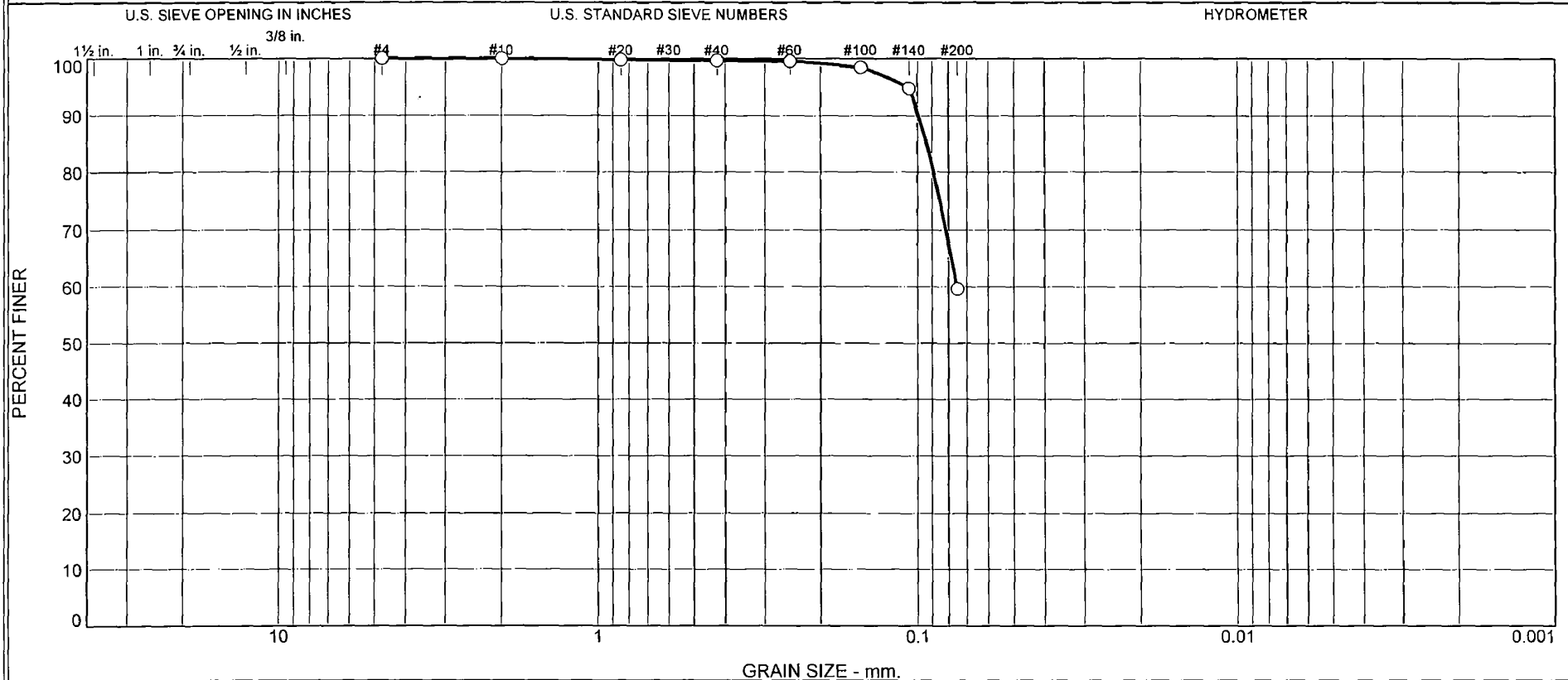
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.9	74.4	75.5	14.4	10.1	24.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0048	0.0376	0.0579	0.0809	0.0994	0.1084	0.1288	0.1352	0.1429	0.1680

Fineness Modulus	C _u	C _c
0.09	22.44	12.49

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	40	60	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-14	158.4-159.9	3/9/08	CL	Greenish Gray Lean CLAY with sand	ND	24	14

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13 ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure	Raleigh, North Carolina	

ZHu 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 158.4-159.9

Sample Number: 601-14

Material Description: Greenish Gray Lean CLAY with sand

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: 24

Plastic Limit: 14

USCS Class.: CL

Testing Remarks: SIEVE ANALYSIS ONLY

ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
328.01	0.00	0.00	#4	0.00	100
			#10	0.04	100
98.01	0.00	0.00	#20	0.19	100
			#40	0.32	100
			#60	0.42	100
			#100	1.50	98
			#140	5.10	95
			#200	39.55	60

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	40	40			60

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0752	0.0889	0.0934	0.0988	0.1077

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Dashed line indicates the approximate upper limit boundary for natural soils

CH or OH

CL or OL

ML or OL

MH or OH

CL-ML

PLASTICITY INDEX

LIQUID LIMIT

<p>MACTEC Engineering and Consulting, Inc.</p> <p>Raleigh, North Carolina</p>	<p>Client: Bechtel</p> <p>Project: Turkey Point COL</p> <p>Project No.: 6468071950</p> <p>Figure</p>
---	--

ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 158.4-159.9

Sample Number: 601-14

Material Description: Greenish Gray Lean CLAY with sand

USCS: CL

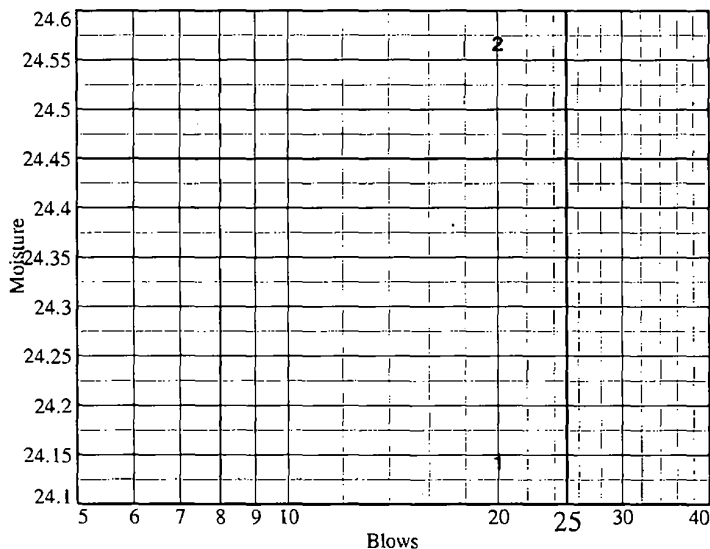
AASHTO: A-4(3)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.97	34.94				
Dry+Tare	30.38	31.11				
Tare	15.51	15.52				
# Blows	20	20				
Moisture	24.1	24.6				



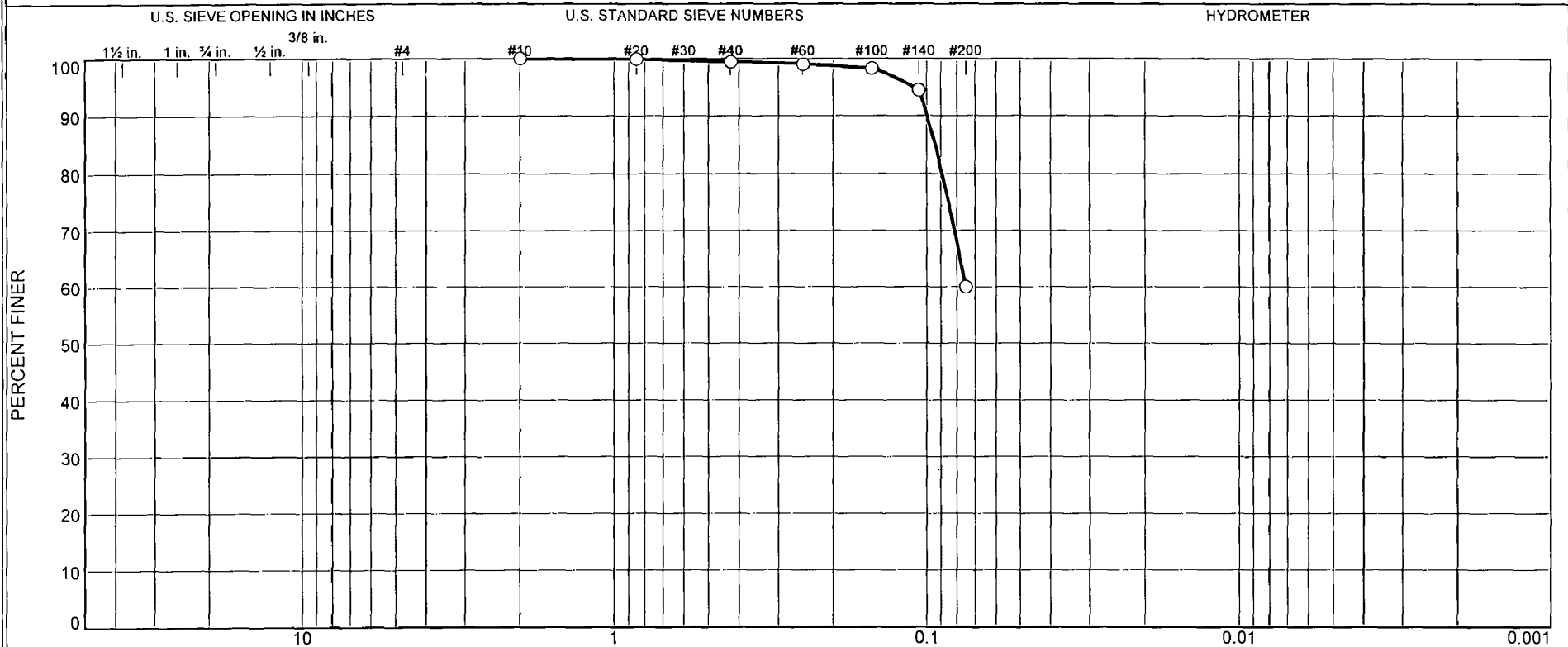
Liquid Limit= 24
 Plastic Limit= 14
 Plasticity Index= 10
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.12	23.91			
Dry+Tare	23.08	22.87			
Tare	15.52	15.57			
Moisture	13.8	14.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	39	60	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-16	178.4-179.9	3/19/08	ML	Greenish Gray Sandy SILT	ND	22	20

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 178.4-179.9

Sample Number: 601-16

Material Description: Greenish Gray Sandy SILT

Date: 3/19/08

Natural Moisture: ND

Liquid Limit: 22

Plastic Limit: 20

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
298.31	0.00	0.00	#10	0.00	100
95.79	0.00	0.00	#20	0.07	100
			#40	0.52	99
			#60	0.91	99
			#100	1.63	98
			#140	5.29	94
			#200	38.30	60

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

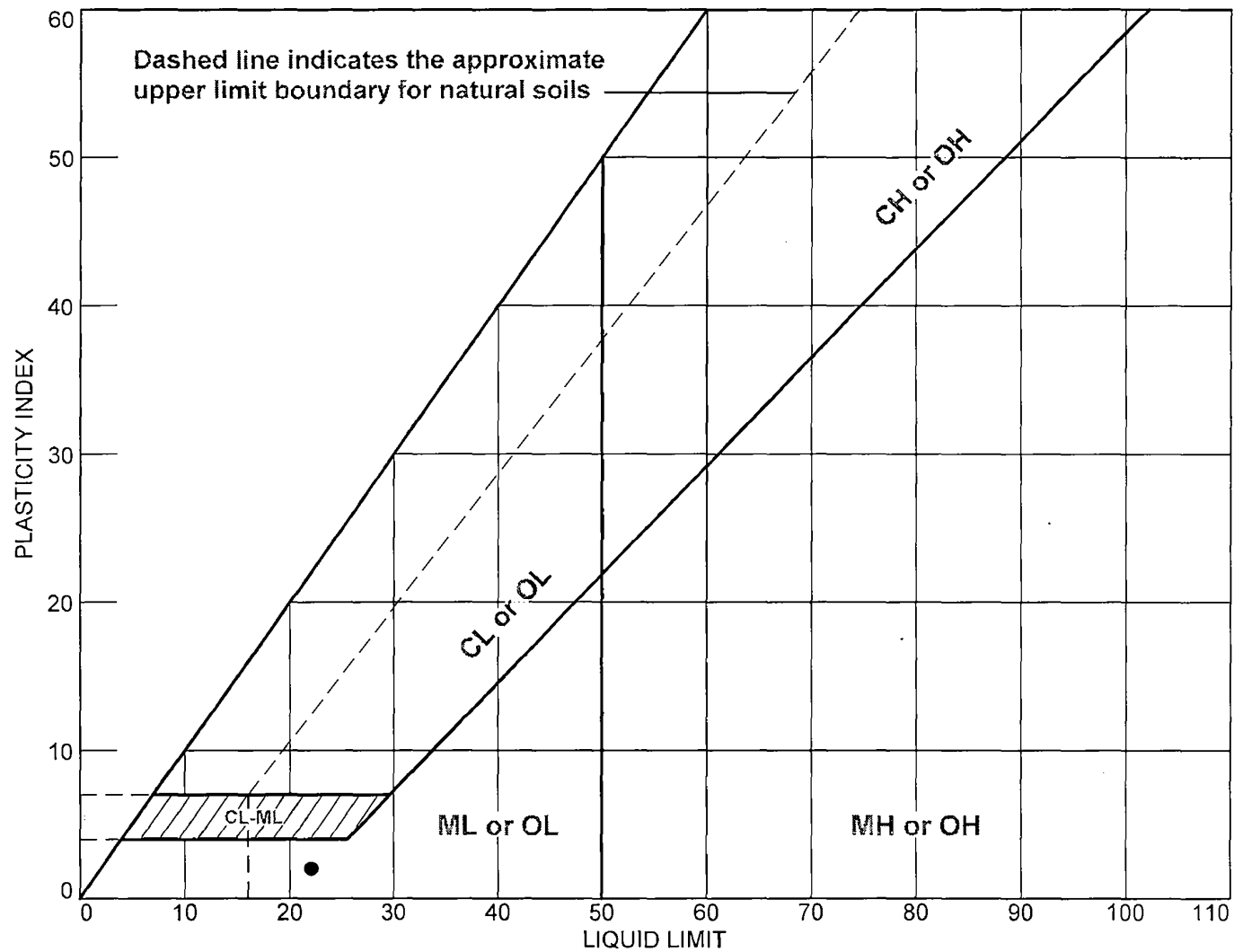
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0890	0.0935	0.0991	0.1099

Fineness Modulus

0.03

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-601(DH)	601-16	178.4-179.9	ND	20	22	2	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 178.4-179.9

Sample Number: 601-16

Material Description: Greenish Gray Sandy SILT

USCS: ML

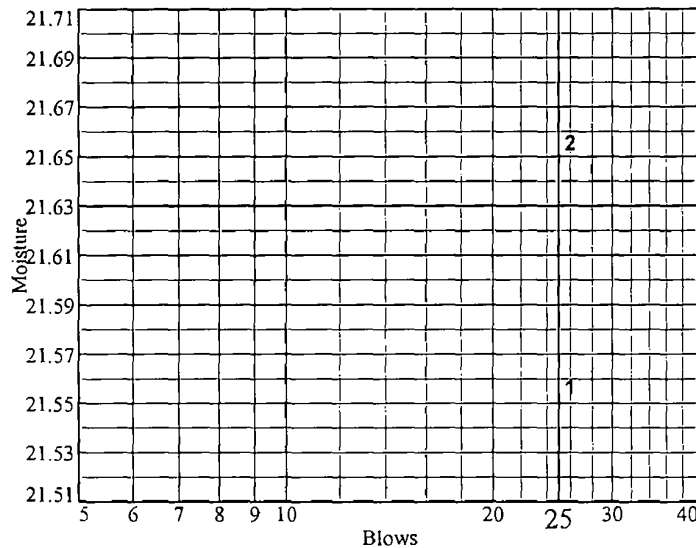
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.67	30.06				
Dry+Tare	27.15	27.47				
Tare	15.46	15.51				
# Blows	26	26				
Moisture	21.6	21.7				



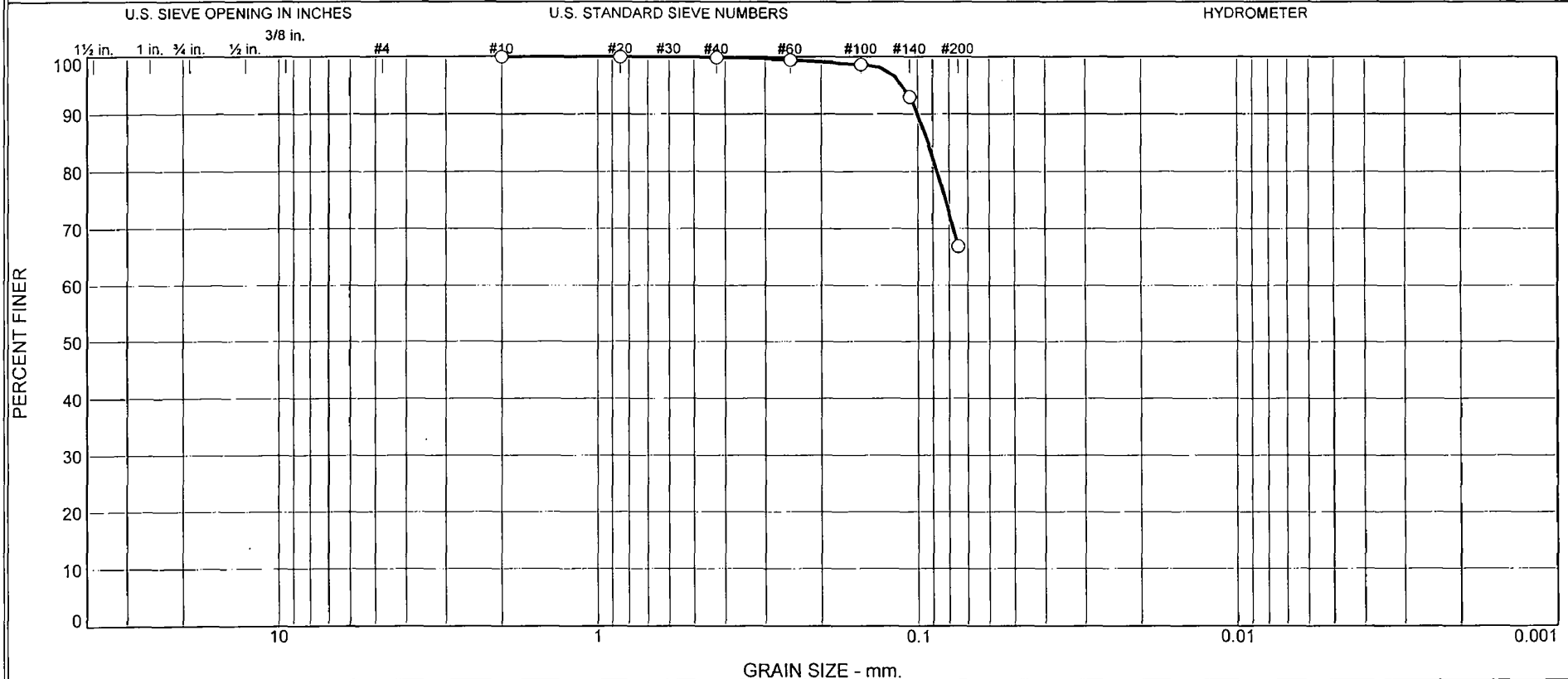
Liquid Limit= 22
 Plastic Limit= 20
 Plasticity Index= 2
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	25.34	20.60		
Dry+Tare	23.67	19.02		
Tare	15.50	11.23		
Moisture	20.4	20.3		

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	33	67	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-18	198.4-199.9	3/20/08	CL	Greenish Gray Lean CLAY with sand	ND	25	12

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13 ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure	Raleigh, North Carolina	

ZHU 7/23/08

Tested By: CS

Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 198.4-199.9

Sample Number: 601-18

Material Description: Greenish Gray Lean CLAY with sand

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: 25

Plastic Limit: 12

USCS Class.: CL

Testing Remarks: SIEVE ANALYSIS ONLY

ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
284.39	0.00	0.00	#10	0.00	100
104.52	0.00	0.00	#20	0.02	100
			#40	0.14	100
			#60	0.56	99
			#100	1.47	99
			#140	7.39	93
			#200	34.56	67

Fractional Components

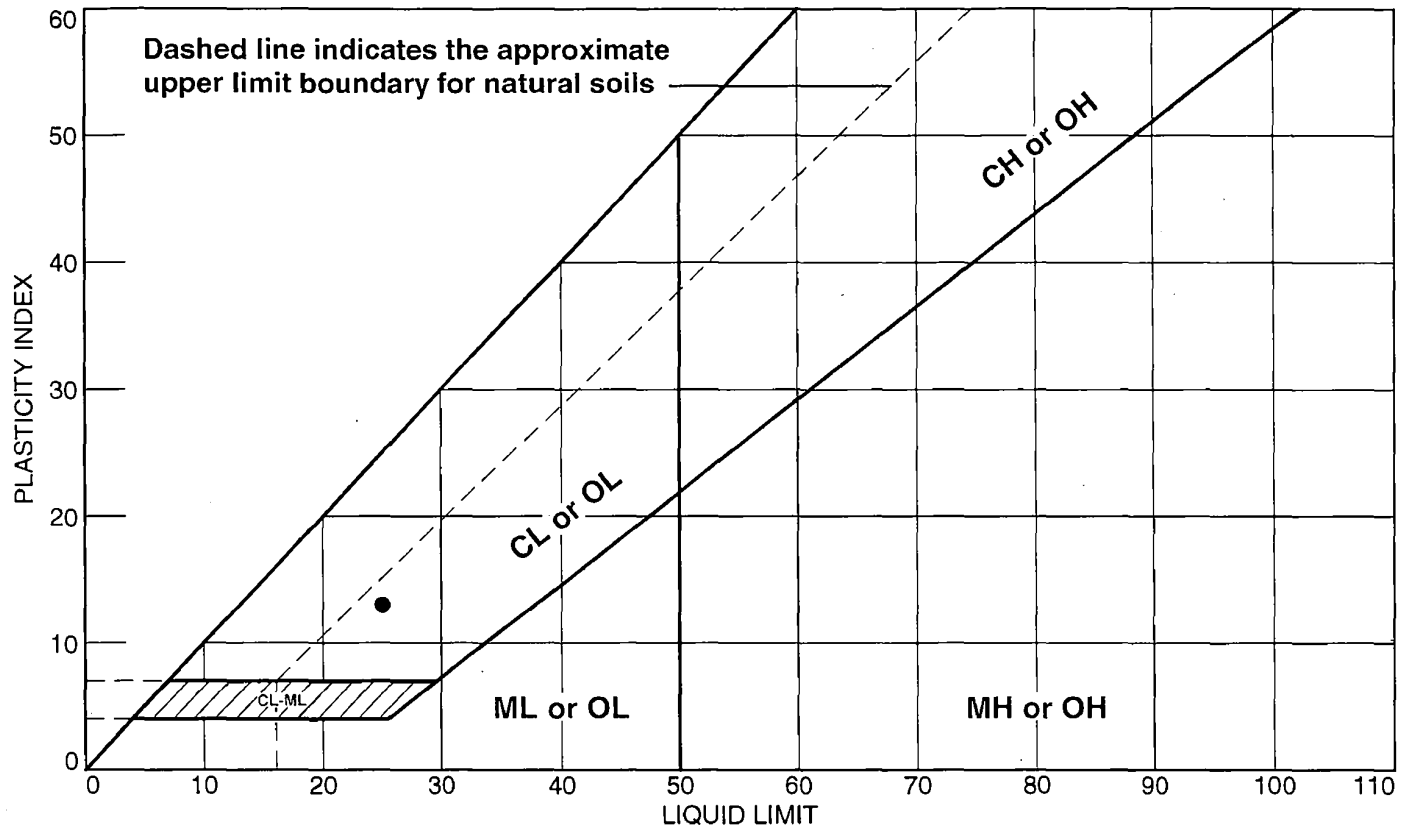
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	33	33			67

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0871	0.0930	0.1002	0.1117

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-601(DH)	601-18	198.4-199.9	ND	12	25	13	CL

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 198.4-199.9

Sample Number: 601-18

Material Description: Greenish Gray Lean CLAY with sand

USCS: CL

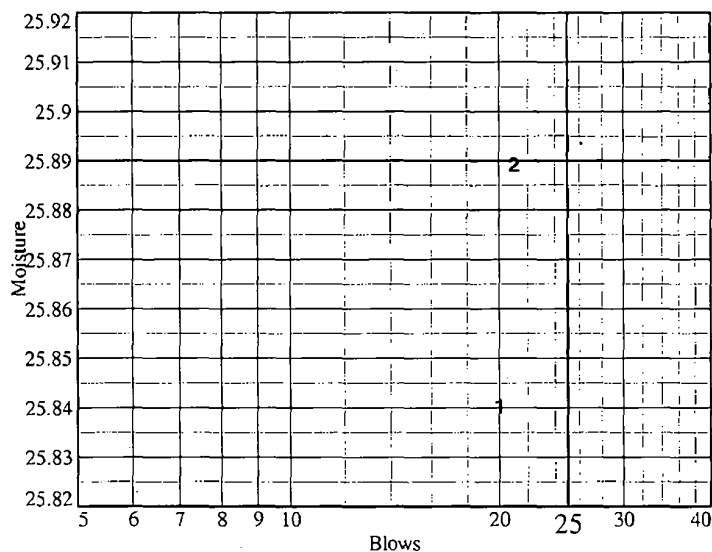
AASHTO: A-6(6)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.45	34.61				
Dry+Tare	29.76	30.68				
Tare	15.48	15.50				
# Blows	20	21				
Moisture	25.8	25.9				

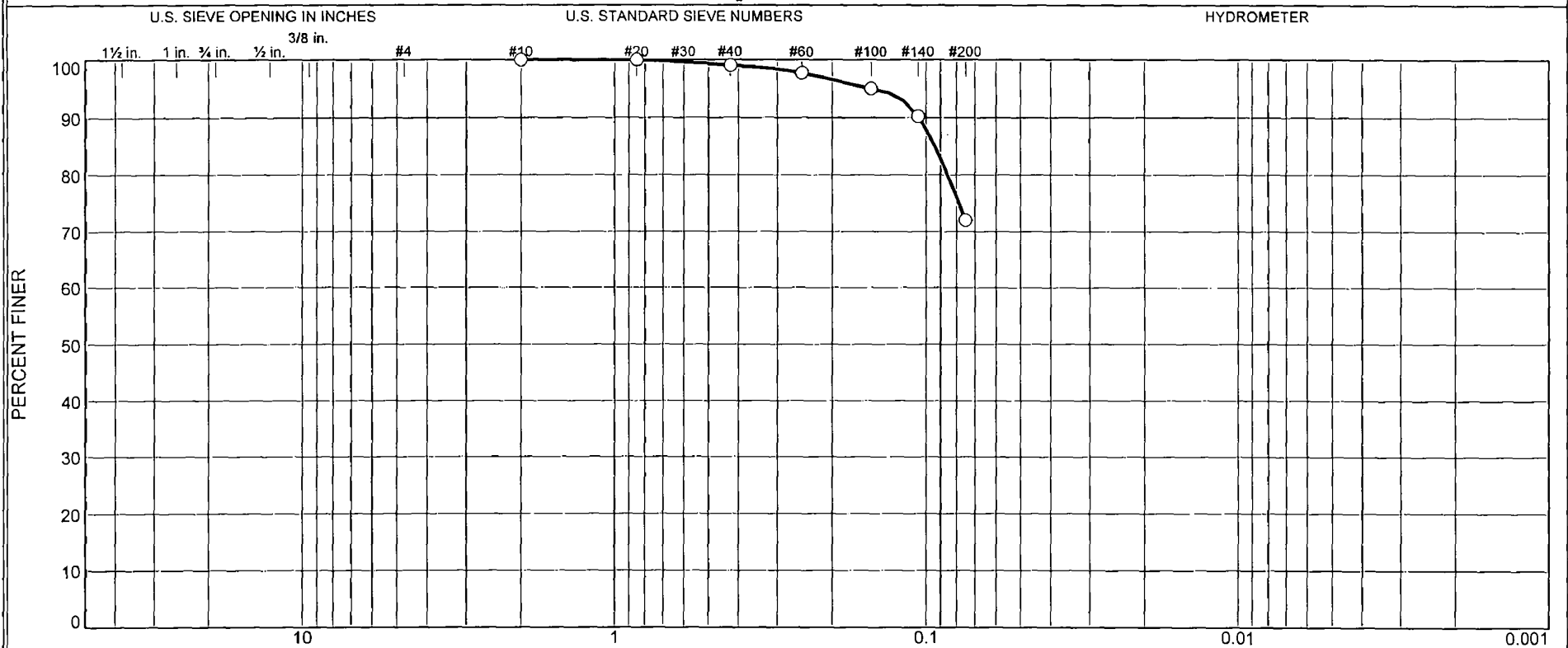


Liquid Limit= 25
 Plastic Limit= 12
 Plasticity Index= 13
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	24.45	24.19		
Dry+Tare	23.48	23.25		
Tare	15.46	15.52		
Moisture	12.1	12.2		

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	27	72	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-19	208.4-209.9	3/20/08	CL	Dark Greenish Gray Lean CLAY with sand	ND	34	21

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 208.4-209.9

Sample Number: 601-19

Material Description: Dark Greenish Gray Lean CLAY with sand

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: 34

Plastic Limit: 21

USCS Class.: CL

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
452.67	0.00	0.00	#10	0.00	100
92.26	0.00	0.00	#20	0.04	100
			#40	0.88	99
			#60	2.11	98
			#100	4.63	95
			#140	8.99	90
			#200	25.79	72

Fractional Components

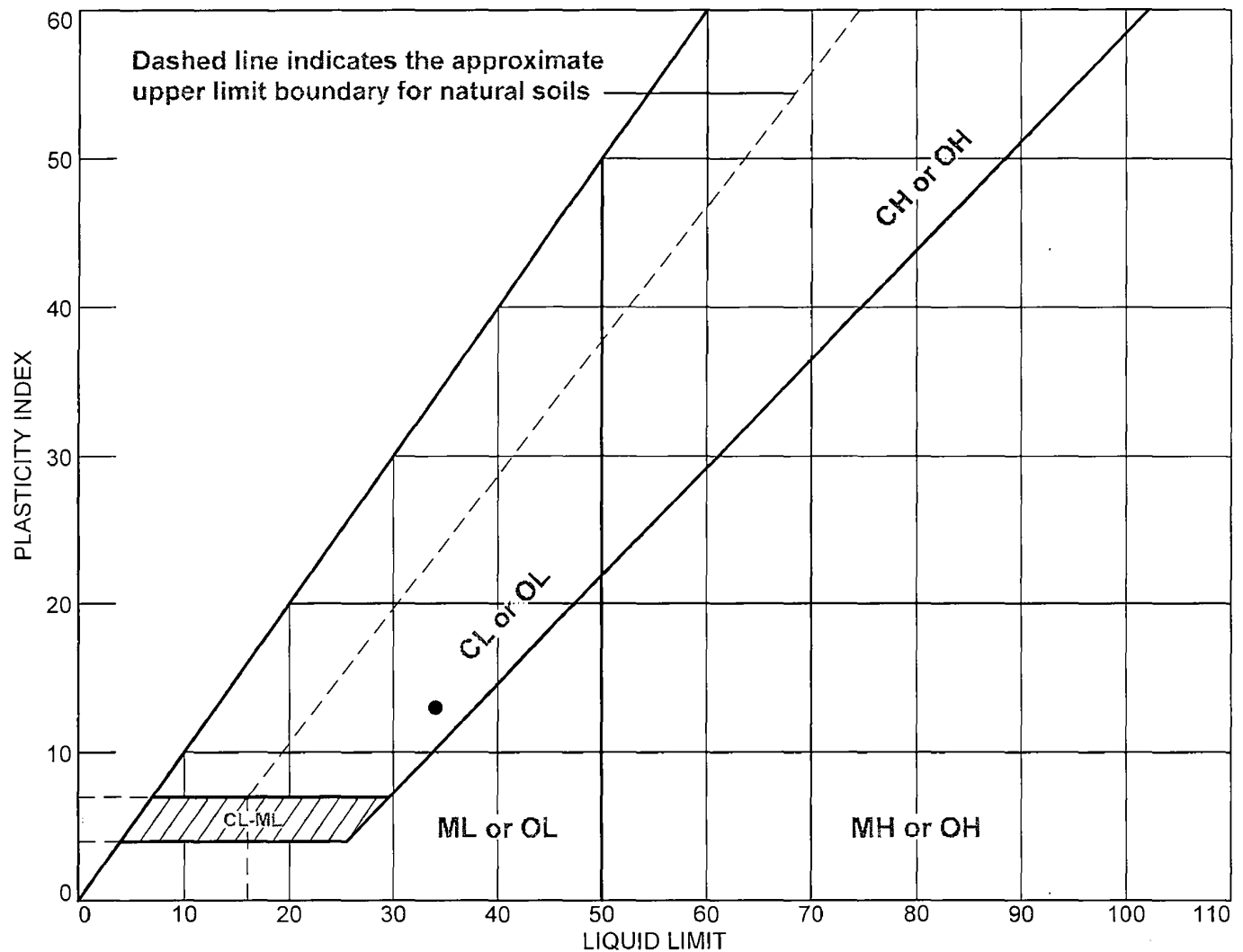
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	27	28			72

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0854	0.0936	0.1052	0.1506

Fineness Modulus
0.07

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-601(DH)	601-19	208.4-209.9	ND	21	34	13	CL

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 208.4-209.9

Sample Number: 601-19

Material Description: Dark Greenish Gray Lean CLAY with sand

USCS: CL

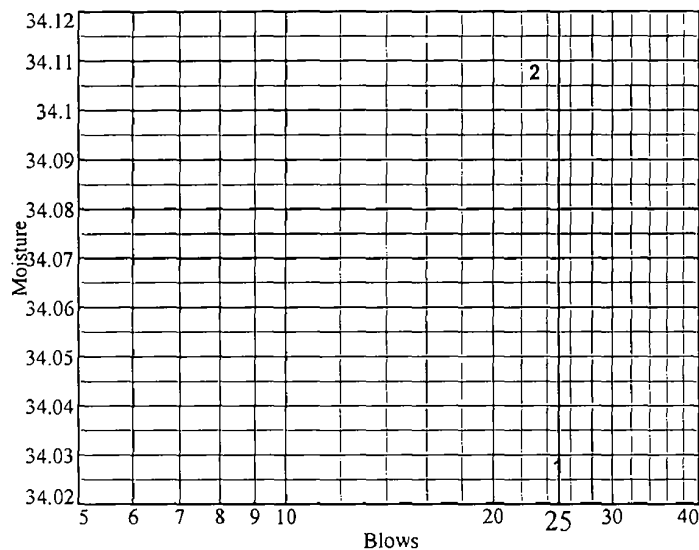
AASHTO: A-6(8)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.00	28.19				
Dry+Tare	24.06	24.96				
Tare	15.42	15.49				
# Blows	25	23				
Moisture	34.0	34.1				



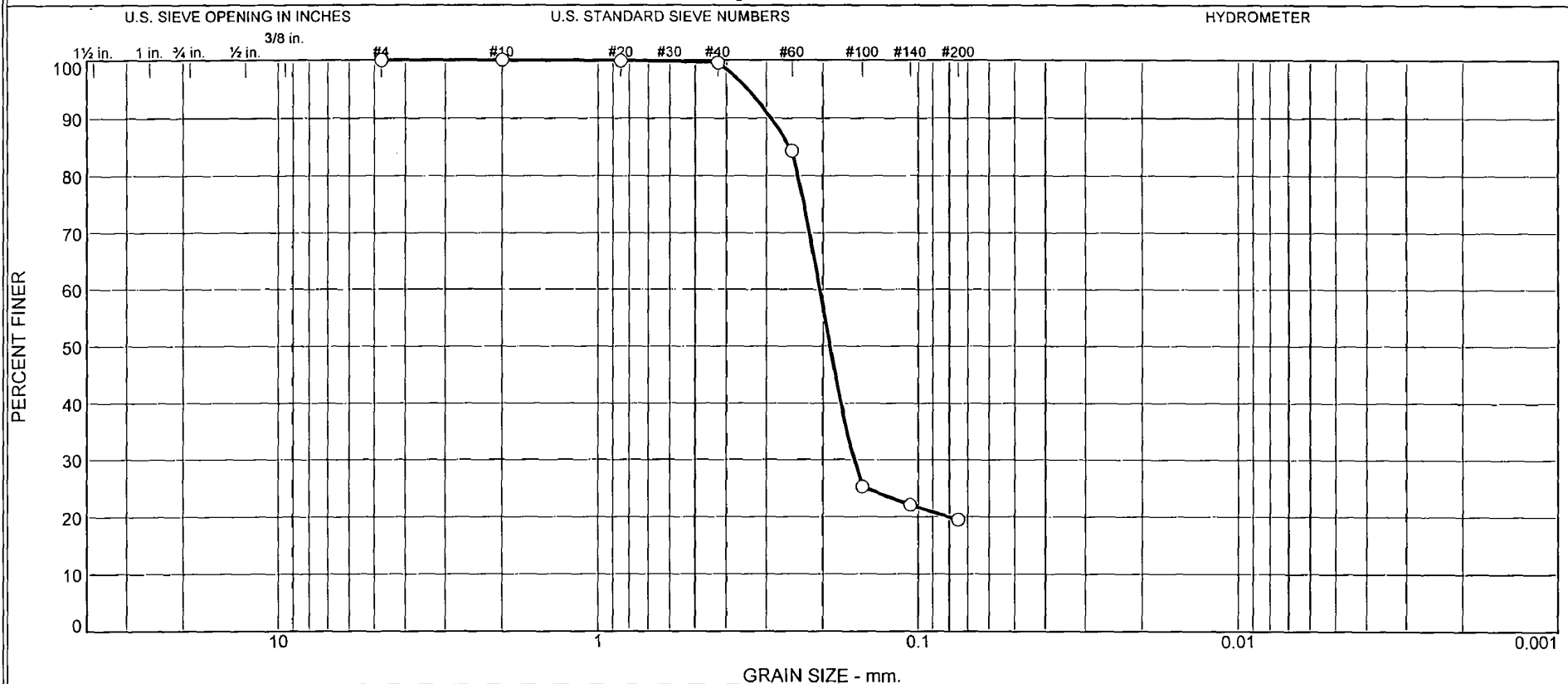
Liquid Limit= 34
 Plastic Limit= 21
 Plasticity Index= 13
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	21.69	19.98			
Dry+Tare	20.56	18.44			
Tare	15.25	11.12			
Moisture	21.3	21.0			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	80	20	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-23	248.4-249.9	3/20/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent=21% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 248.4-249.9

Sample Number: 601-23

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent=21% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
291.65	0.00	0.00	#4	0.00	100
			#10	0.04	100
100.38	0.00	0.00	#20	0.08	100
			#40	0.42	100
			#60	15.69	84
			#100	75.07	25
			#140	78.24	22
			#200	80.76	20

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	80	80			20

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0804	0.1597	0.1898	0.2044	0.2396	0.2540	0.2907	0.3432

Fineness Modulus
0.84

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-601DH-23,(248.4-249.9)

(A) Mass of oven-dried soil, grams:	75.70
(B) Mass of pycnometer filled with water at test temperature (T), grams:	675.77
(C) Mass of pycnometer, water and soil, grams:	723.39
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.696
(F) <i>Correction factor:</i>	0.99970
(G x F) SPECIFIC GRAVITY @ 20°C:	2.695

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

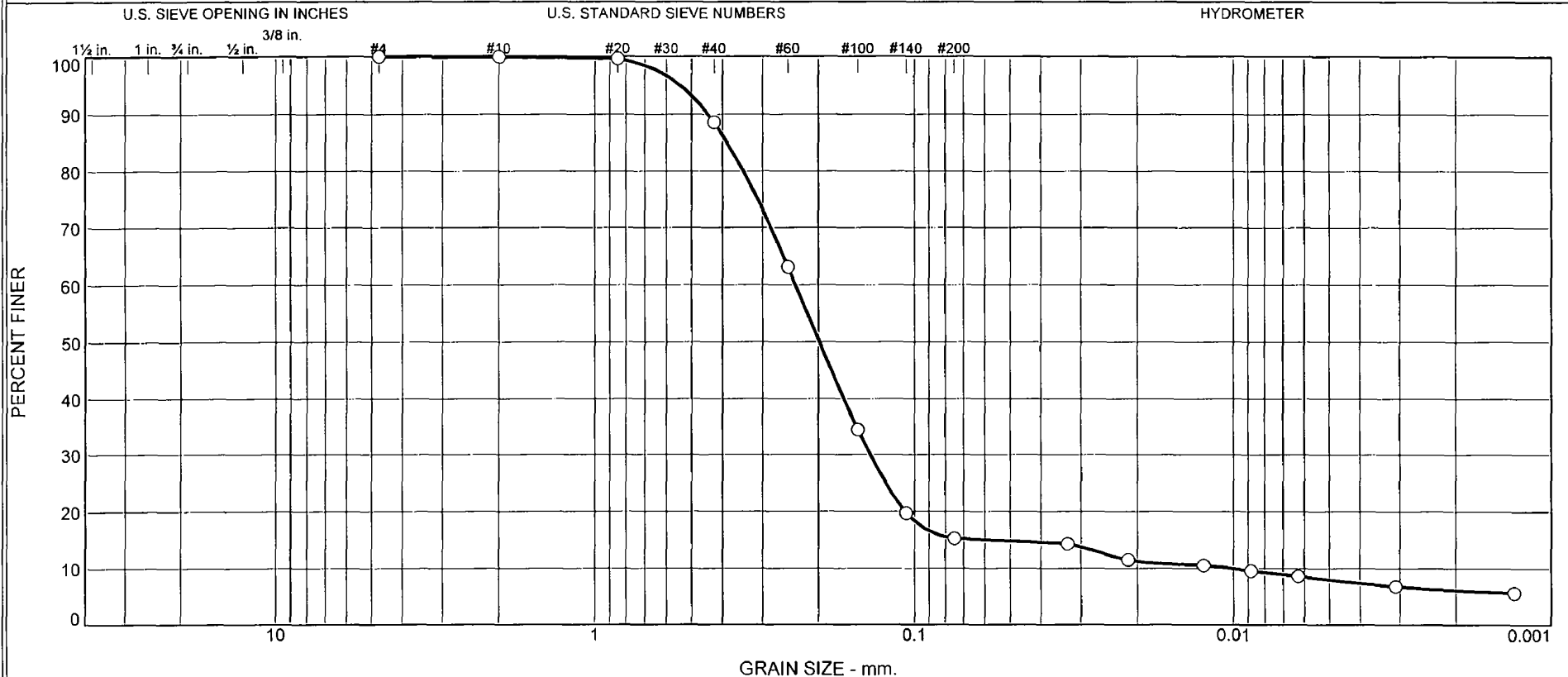
PYCROMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

ZHu 8/19/08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	11.4	73.3	7.3	8.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-28	298.4-299.9	3/23/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950

Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed

Tested By: CS

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Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 298.4-299.9

Sample Number: 601-28

Material Description: Olive Gray Silty SAND (Visual)

Date: 3/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

ND = Not Determined

Specific Gravity is assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
373.62	0.00	0.00	#4	0.00	100.0
			#10	0.15	100.0
104.67	0.00	0.00	#20	0.31	99.7
			#40	11.90	88.6
			#60	38.53	63.2
			#100	68.60	34.4
			#140	84.03	19.7
			#200	88.65	15.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 104.68

Hygroscopic moisture correction:

Moist weight and tare = 25.35

Dry weight and tare = 25.21

Tare weight = 11.17

Hygroscopic moisture = 1.0%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	20.0	15.0	0.0131	21.0	12.9	0.0331	14.4
5.00	22.4	17.0	12.0	0.0131	18.0	13.3	0.0213	11.5
15.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0124	10.5
30.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0088	9.6
60.00	22.5	14.0	9.1	0.0130	15.0	13.8	0.0063	8.7
250.00	22.8	12.0	7.2	0.0130	13.0	14.2	0.0031	6.8
1440.00	22.1	11.0	6.0	0.0131	12.0	14.3	0.0013	5.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

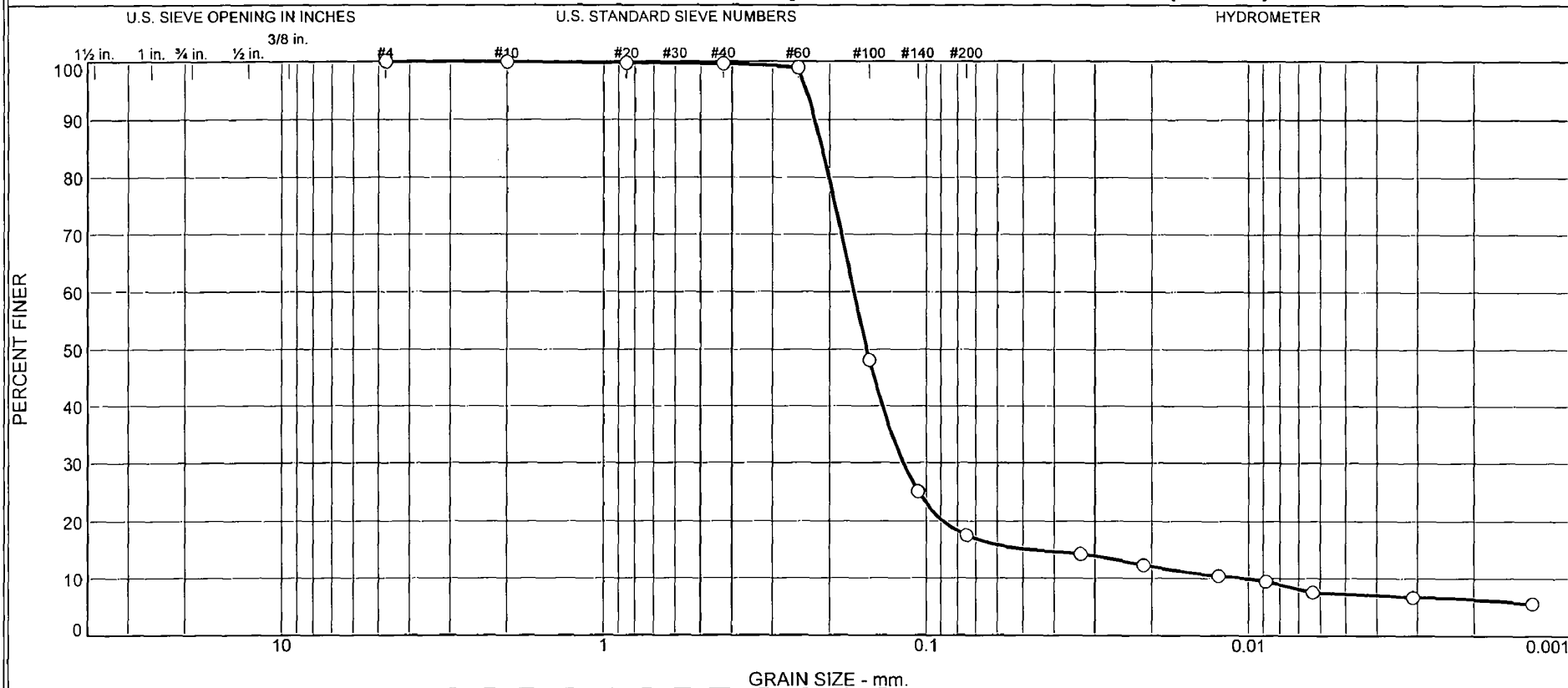
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.4	73.3	84.7	7.3	8.0	15.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0101	0.0579	0.1071	0.1374	0.1986	0.2365	0.3444	0.3861	0.4437	0.5421

Fineness Modulus	C _u	C _c
0.96	23.52	7.95

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	82.1	10.2	7.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-32	338.4-339.2	3/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 338.4-339.2

Sample Number: 601-32

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
326.71	0.00	0.00	#4	0.00	100.0
			#10	0.07	100.0
104.39	0.00	0.00	#20	0.21	99.8
			#40	0.36	99.6
			#60	1.04	99.0
			#100	54.16	48.1
			#140	78.24	25.0
			#200	86.08	17.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =104.39

Hygroscopic moisture correction:

Moist weight and tare = 29.13

Dry weight and tare = 29.10

Tare weight = 15.44

Hygroscopic moisture =0.2%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	20.0	15.0	0.0131	21.0	12.9	0.0331	14.3
5.00	22.3	18.0	13.0	0.0131	19.0	13.2	0.0212	12.4
15.00	22.3	16.0	11.0	0.0131	17.0	13.5	0.0124	10.5
30.00	22.3	15.0	10.0	0.0131	16.0	13.7	0.0088	9.5
60.00	22.3	13.0	8.0	0.0131	14.0	14.0	0.0063	7.6
250.00	22.7	12.0	7.1	0.0130	13.0	14.2	0.0031	6.8
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	5.6

MACTEC Engineering and Consulting, Inc.

Fractional Components

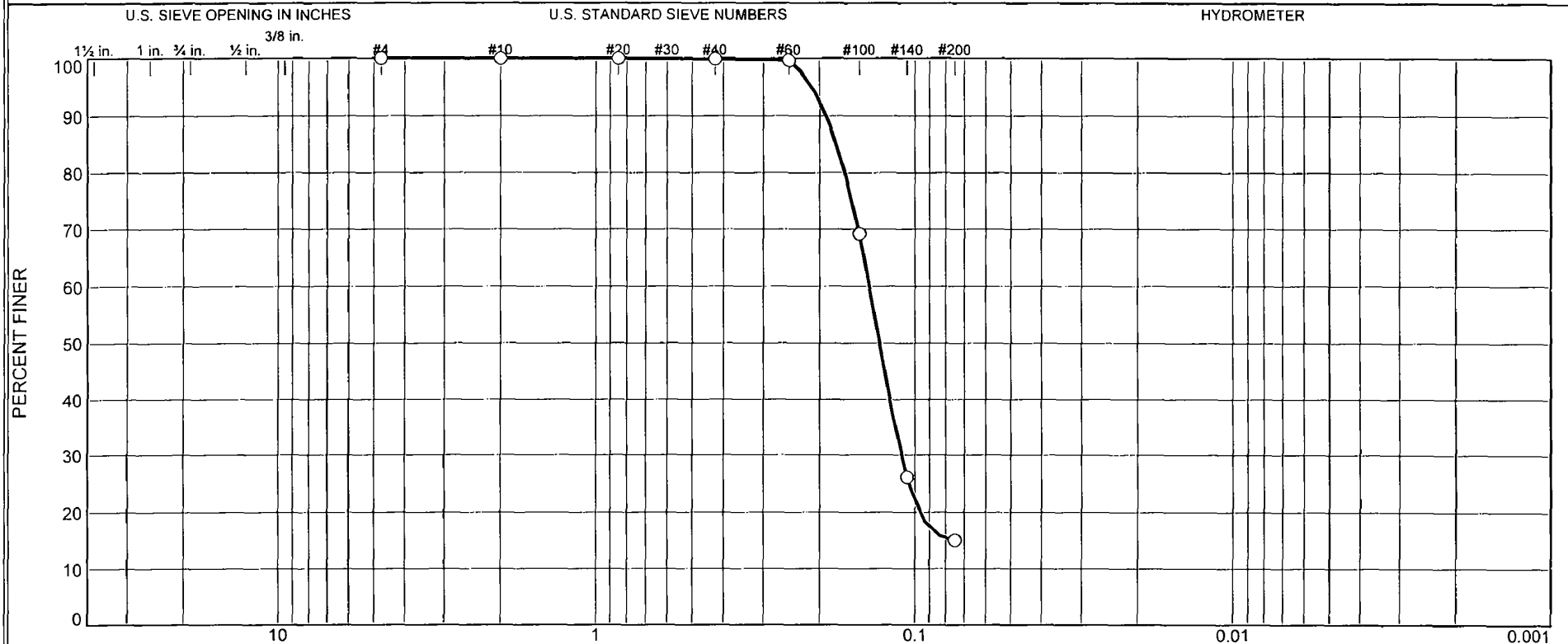
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	82.1	82.5	10.2	7.3	17.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0101	0.0472	0.0890	0.1178	0.1529	0.1679	0.2006	0.2105	0.2217	0.2354

Fineness Modulus	C _u	C _c
0.53	16.58	8.16

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	85	15	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-34	358.4-358.9	3/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 358.4-358.9

Sample Number: 601-34

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
250.25	0.00	0.00	#4	0.00	100
			#10	0.09	100
100.10	0.00	0.00	#20	0.02	100
			#40	0.10	100
			#60	0.36	100
			#100	30.86	69
			#140	74.01	26
			#200	85.01	15

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	85	85			15

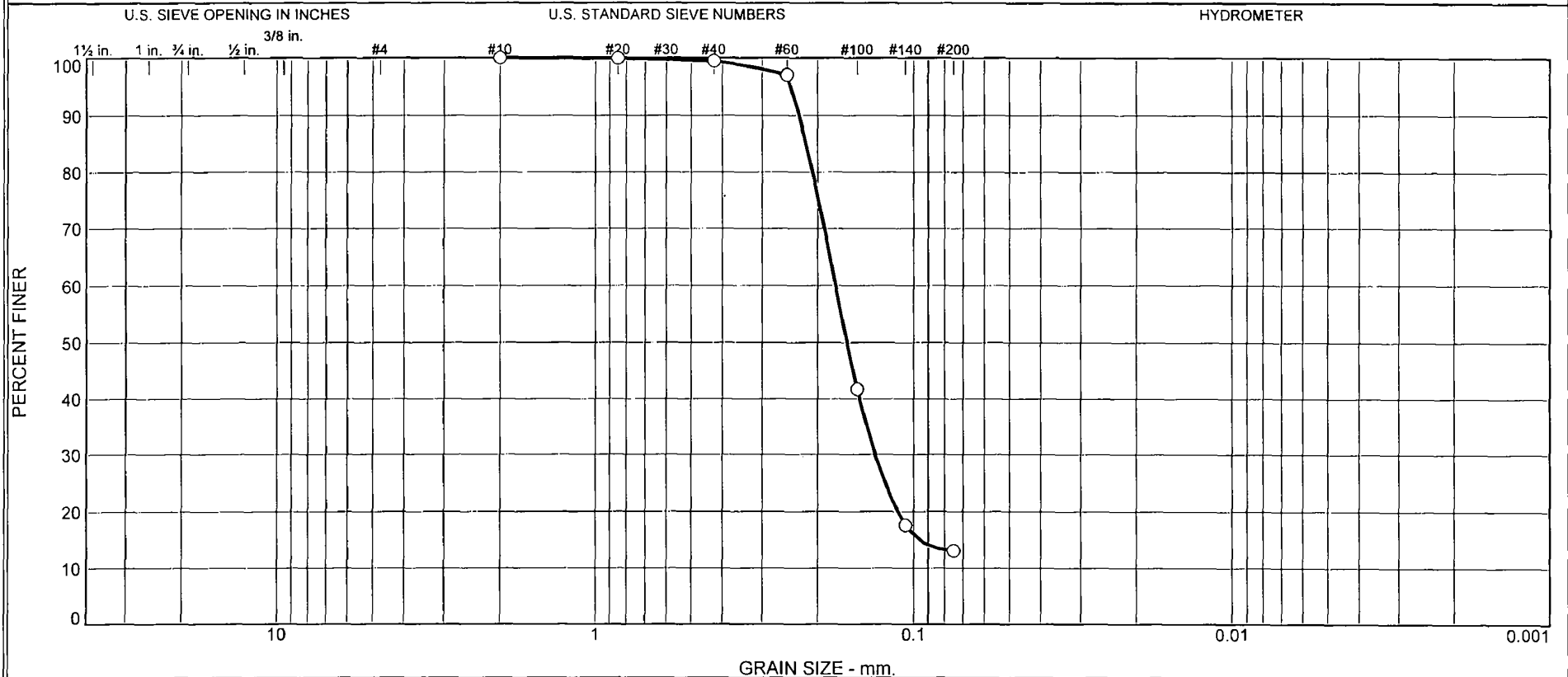
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0968	0.1105	0.1296	0.1395	0.1666	0.1771	0.1909	0.2115

Fineness Modulus

0.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	86	13	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-36	378.4-379.1	3/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 378.4-379.1

Sample Number: 601-36

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: lbj

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
207.13	0.00	0.00	#10	0.00	100
100.79	0.00	0.00	#20	0.10	100
			#40	0.58	99
			#60	3.02	97
			#100	58.74	42
			#140	83.08	18
			#200	87.58	13

Fractional Components

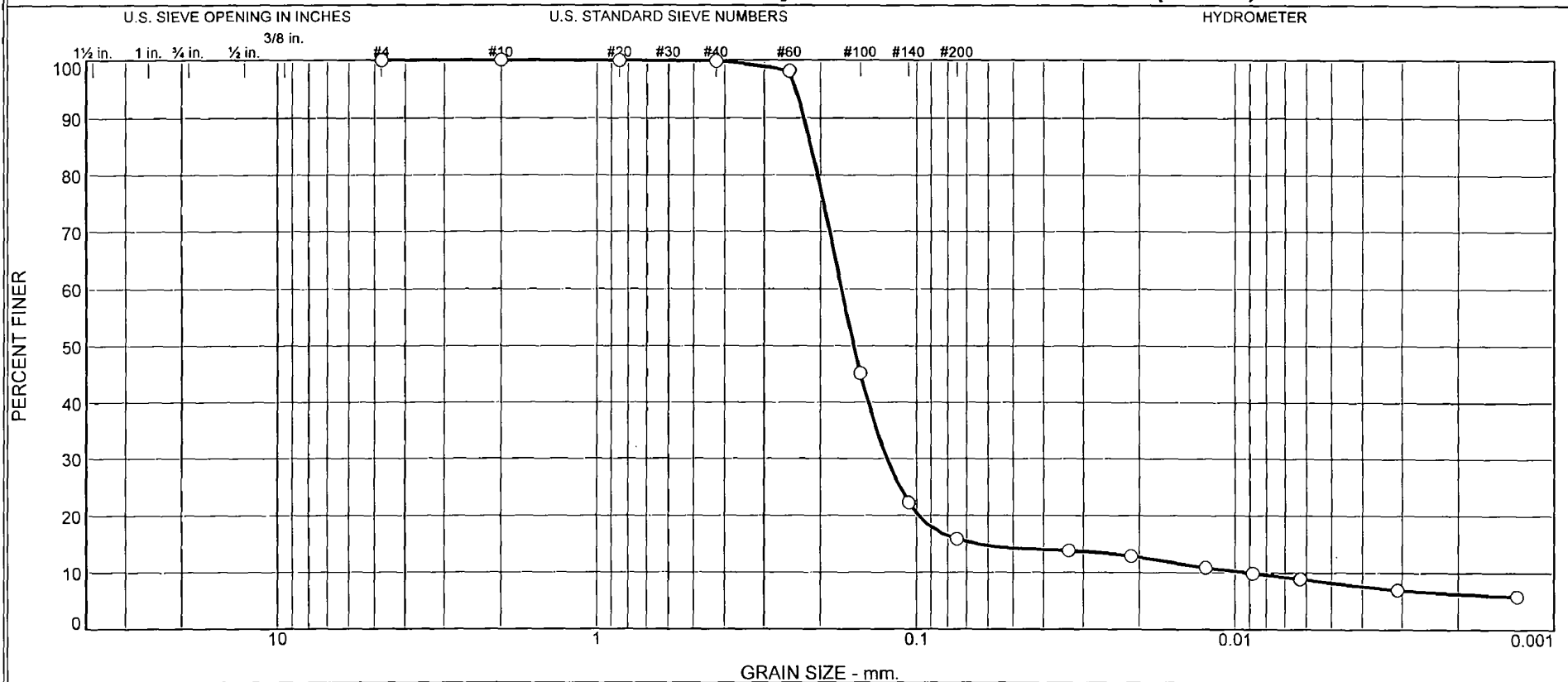
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	86	87			13

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0963	0.1125	0.1320	0.1616	0.1756	0.2074	0.2172	0.2285	0.2428

Fineness Modulus
0.61

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	84.0	7.6	8.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-38	398.4-399.2	3/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 398.4-399.2

Sample Number: 601-38

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
173.68	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
101.30	0.00	0.00	#20	0.03	100.0
			#40	0.14	99.9
			#60	1.89	98.1
			#100	55.51	45.2
			#140	78.76	22.2
			#200	85.17	15.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 101.30

Hygroscopic moisture correction:

Moist weight and tare = 28.03

Dry weight and tare = 27.87

Tare weight = 15.10

Hygroscopic moisture = 1.3%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	19.0	14.0	0.0131	20.0	13.0	0.0333	13.9
5.00	22.4	18.0	13.0	0.0131	19.0	13.2	0.0212	12.9
15.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0124	10.9
30.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0088	9.9
60.00	22.4	14.0	9.0	0.0131	15.0	13.8	0.0063	8.9
250.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0031	7.0
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	5.9

MACTEC Engineering and Consulting, Inc.

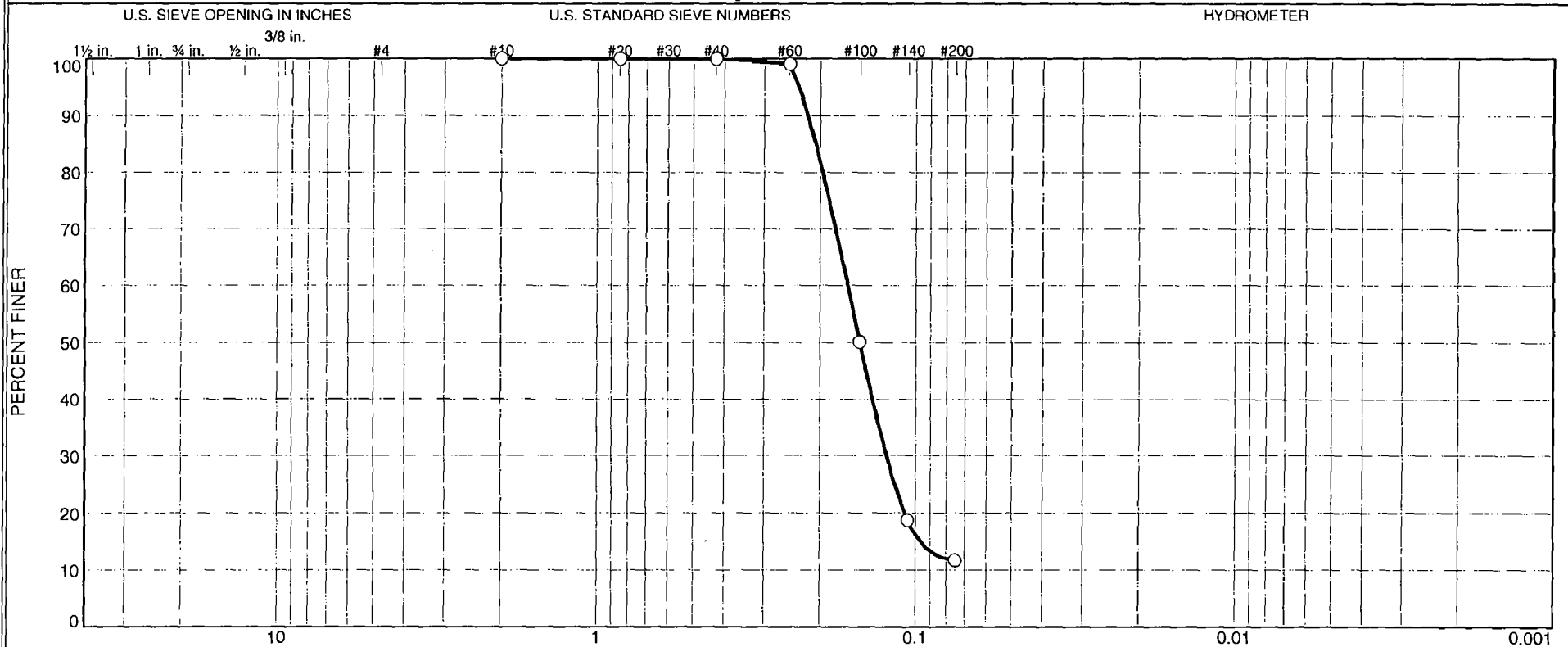
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	84.0	84.1	7.6	8.3	15.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0090	0.0641	0.0987	0.1241	0.1571	0.1717	0.2039	0.2137	0.2250	0.2388

Fineness Modulus	C _u	C _c
0.56	19.02	9.93

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	88	12	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-601(DH)	601-39	418.4-419.2	3/25/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-601(DH)

Depth: 418.4-419.2

Sample Number: 601-39

Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)

Date: 3/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
237.36	0.00	0.00	#10	0.00	100
105.25	0.00	0.00	#20	0.03	100
			#40	0.06	100
			#60	0.99	99
			#100	52.43	50
			#140	85.46	19
			#200	92.96	12

Fractional Components

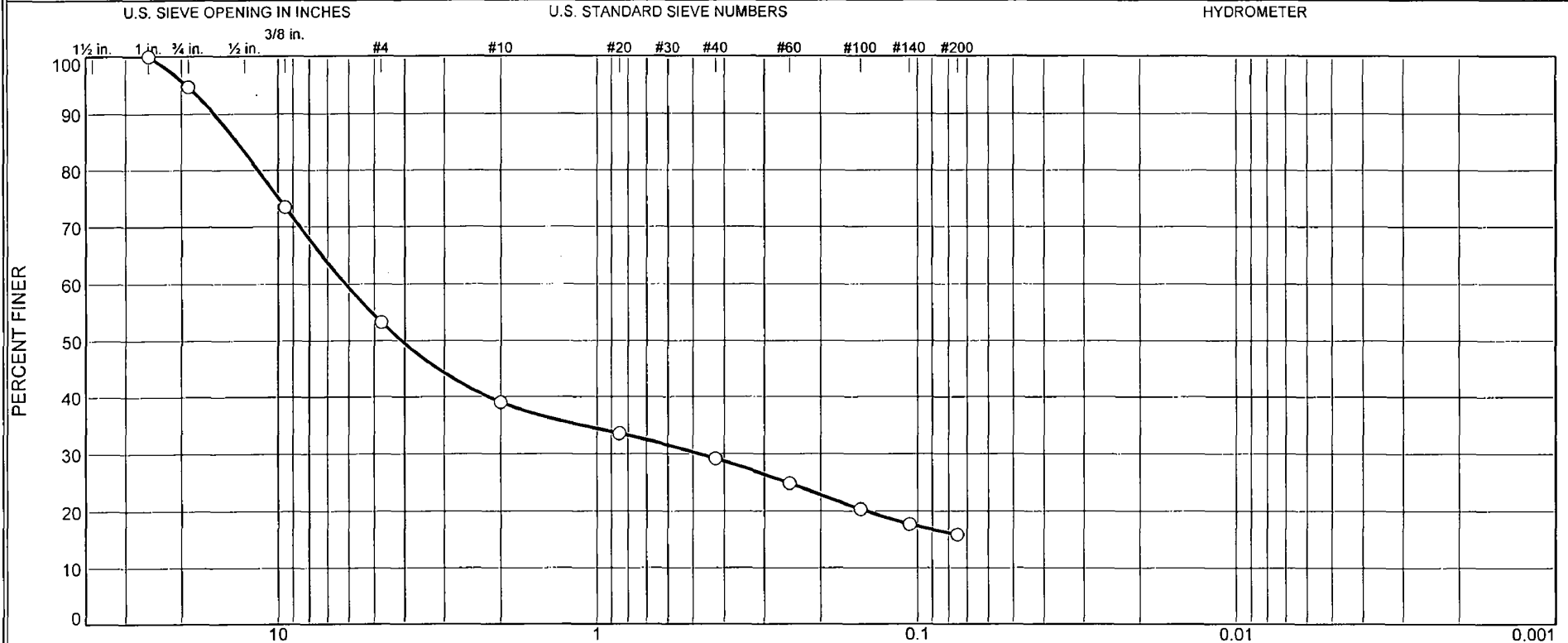
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	88	88			12

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0968	0.1082	0.1235	0.1498	0.1635	0.1961	0.2064	0.2184	0.2333

Fineness Modulus
0.50

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	42	14	10	13	16	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-602	602-3	4.8-6.3	3/10/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-602

Depth: 4.8-6.3

Sample Number: 602-3

Material Description: White Silty GRAVEL with sand (Visual)

Date: 3/10/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
313.60	0.00	0.00	1	0.00	100
			3/4	16.44	95
			3/8"	83.07	74
			#4	146.48	53
			#10	191.25	39
95.03	0.00	0.00	#20	13.26	34
			#40	24.01	29
			#60	34.57	25
			#100	45.46	20
			#140	51.87	18
			#200	56.35	16

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	42	47	14	10	13	37			16

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1438	0.4771	4.1023	6.1498	11.5453	13.4294	15.8185	19.2615

Fineness Modulus

4.24

Particle Size Distribution Report / ASTM D 422-63(2007)e1

U.S. Sieve Opening in Inches	U.S. Standard Sieve Numbers	Hydrometer
1 1/2 in.	#4	
1 in.	#10	
3/4 in.	#20	
1/2 in.	#30	
	#40	
	#60	
	#100	
	#140	
	#200	

Data points from graph:

Sieve Number	Grain Size (mm)	Percent Finer (%)
#4	4.75	100
#10	2.0	100
#20	0.85	100
#40	0.425	100
#60	0.25	98
#100	0.15	88
#140	0.106	45
#200	0.075	22
N/A	0.06	14
N/A	0.0425	13
N/A	0.025	12
N/A	0.015	11
N/A	0.0085	10
N/A	0.006	9
N/A	0.00425	8
N/A	0.0025	7
N/A	0.0015	6

% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.6	0.3	0.8	78.0	11.9	8.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-602	602-9	122.6-124.1	3/18/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-602

Depth: 122.6-124.1

Sample Number: 602-9

Material Description: White Silty SAND (Visual)

Date: 3/18/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
375.70	0.00	0.00	3/8"	0.00	100.0
			#4	2.23	99.4
			#10	3.26	99.1
98.37	0.00	0.00	#20	0.37	98.8
			#40	0.79	98.3
			#60	2.02	97.1
			#100	10.77	88.3
			#140	55.10	43.6
			#200	78.26	20.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.1

Weight of hydrometer sample = 98.37

Hygroscopic moisture correction:

Moist weight and tare = 28.84

Dry weight and tare = 28.74

Tare weight = 15.53

Hygroscopic moisture = 0.8%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0337	13.0
5.00	21.9	17.0	11.9	0.0131	18.0	13.3	0.0215	12.0
15.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0125	11.0
30.00	21.9	15.0	9.9	0.0131	16.0	13.7	0.0089	10.0
60.00	21.7	14.0	8.9	0.0132	15.0	13.8	0.0063	8.9
250.00	21.6	13.0	7.8	0.0132	14.0	14.0	0.0031	7.9
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	5.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

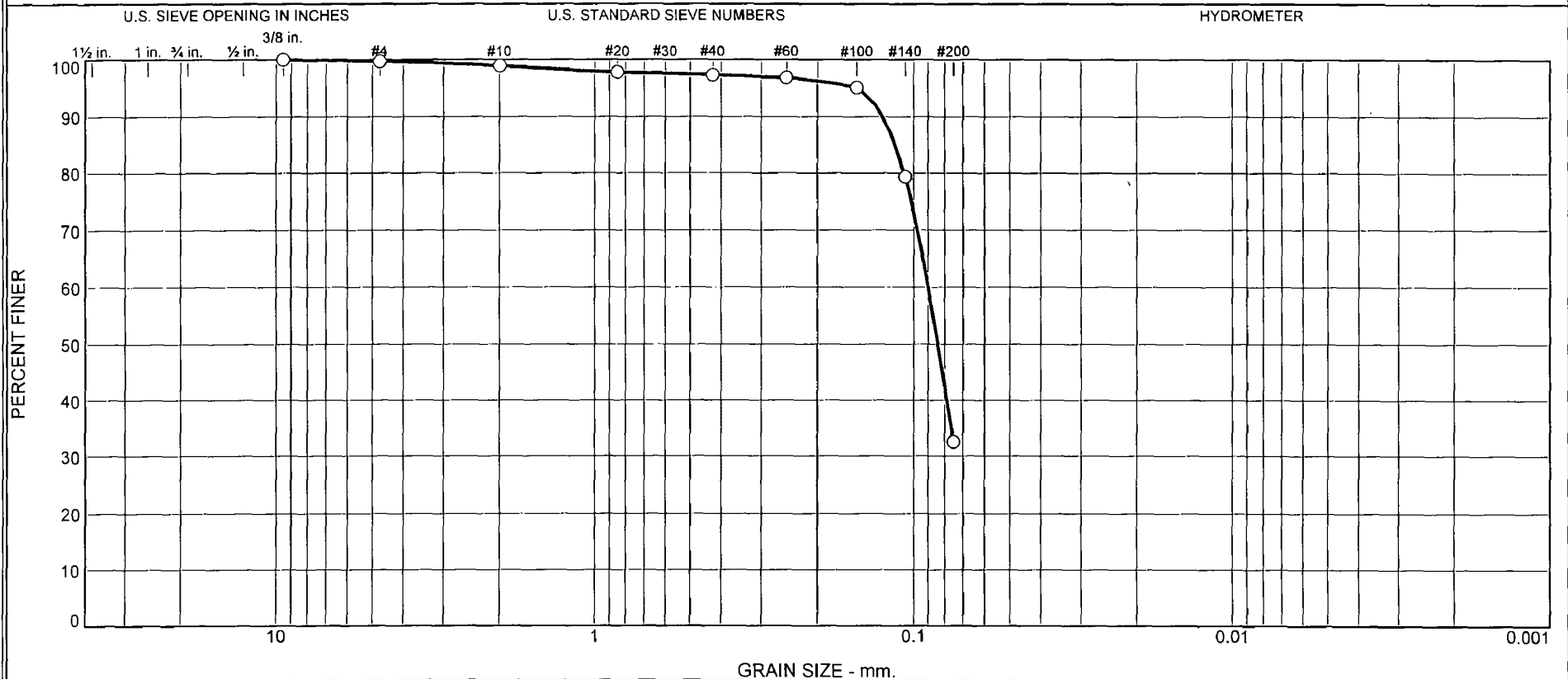
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	0.3	0.8	78.0	79.1	11.9	8.4	20.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0090	0.0462	0.0735	0.0913	0.1116	0.1201	0.1391	0.1452	0.1614	0.2110

Fineness Modulus	C _u	C _c
0.18	13.36	7.71

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	64	33	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-602	602-11	142.5-144.0	3/18/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-602

Depth: 142.5-144.0

Sample Number: 602-11

Material Description: Olive Gray Silty SAND (Visual)

Date: 3/18/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
331.43	0.00	0.00	3/8"	0.00	100
			#4	1.04	100
			#10	3.59	99
99.39	0.00	0.00	#20	1.14	98
			#40	1.63	97
			#60	2.08	97
			#100	3.83	95
			#140	19.66	79
			#200	66.69	33

Fractional Components

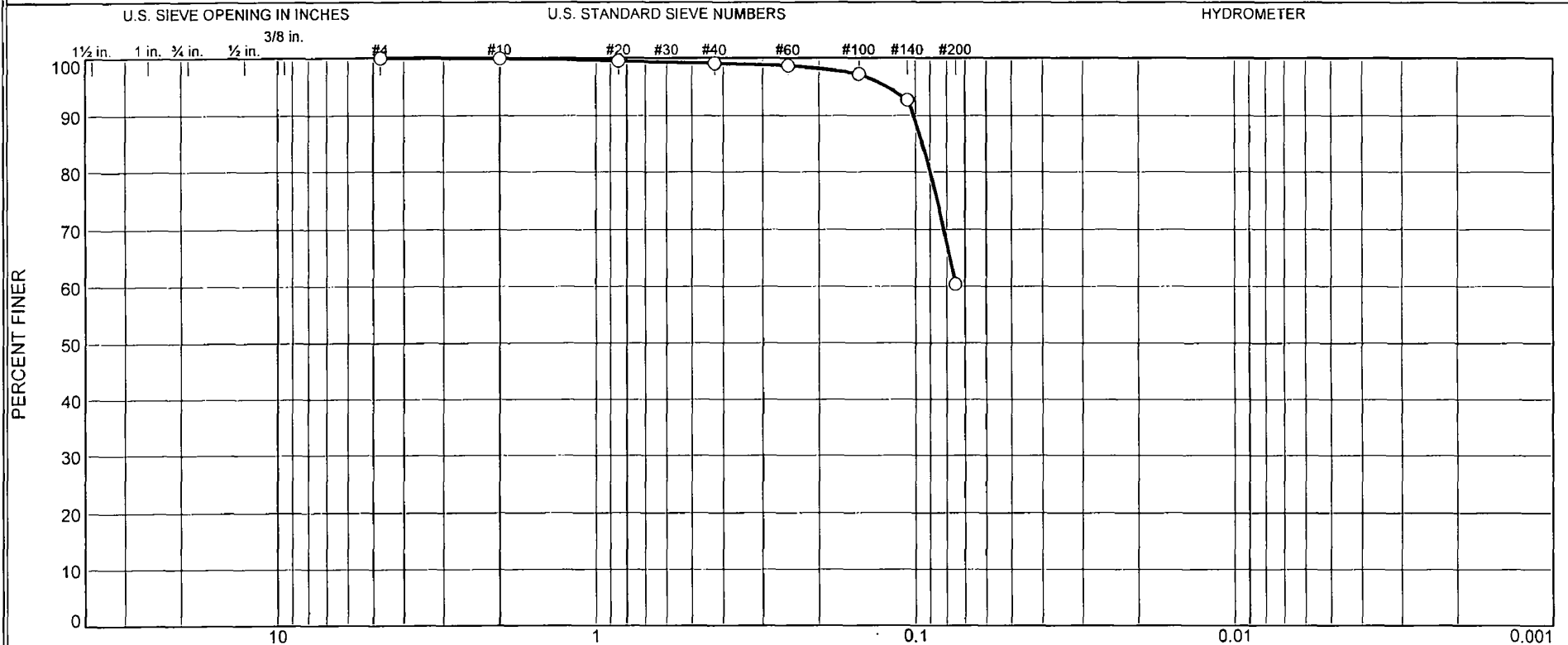
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	2	64	67			33

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0840	0.0900	0.1068	0.1137	0.1244	0.1490

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	39	60	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-602	602-13	162.6-164.1	3/18/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Raleigh, North Carolina

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-602

Depth: 162.6-164.1

Sample Number: 602-13

Material Description: Olive Gray Sandy SILT (Visual)

Date: 3/18/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
381.33	0.00	0.00	#4	0.00	100
			#10	0.28	100
100.44	0.00	0.00	#20	0.43	99
			#40	0.86	99
			#60	1.25	99
			#100	2.73	97
			#140	7.26	93
			#200	39.74	60

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0899	0.0949	0.1013	0.1232

Fineness Modulus

0.05

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	34.9	54.7	10.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-602	602-16	192.6-194.1	3/18/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-602

Depth: 192.6-194.1

Sample Number: 602-16

Material Description: Olive Gray Sandy SILT (Visual)

Date: 3/18/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
275.22	0.00	0.00	#10	0.00	100.0
103.48	0.00	0.00	#20	0.00	100.0
			#40	0.03	100.0
			#60	0.07	99.9
			#100	0.28	99.7
			#140	3.05	97.1
			#200	36.15	65.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 103.48

Hygroscopic moisture correction:

Moist weight and tare = 29.91

Dry weight and tare = 29.83

Tare weight = 15.46

Hygroscopic moisture = 0.6%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	34.0	28.8	0.0132	35.0	10.6	0.0303	27.7
5.00	21.7	30.0	24.9	0.0132	31.0	11.2	0.0197	23.9
15.00	21.5	26.0	20.8	0.0132	27.0	11.9	0.0117	20.0
30.00	21.4	22.5	17.3	0.0132	23.5	12.4	0.0085	16.6
60.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0062	12.3
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.4	10.0	4.8	0.0132	11.0	14.5	0.0013	4.6

MACTEC Engineering and Consulting, Inc.

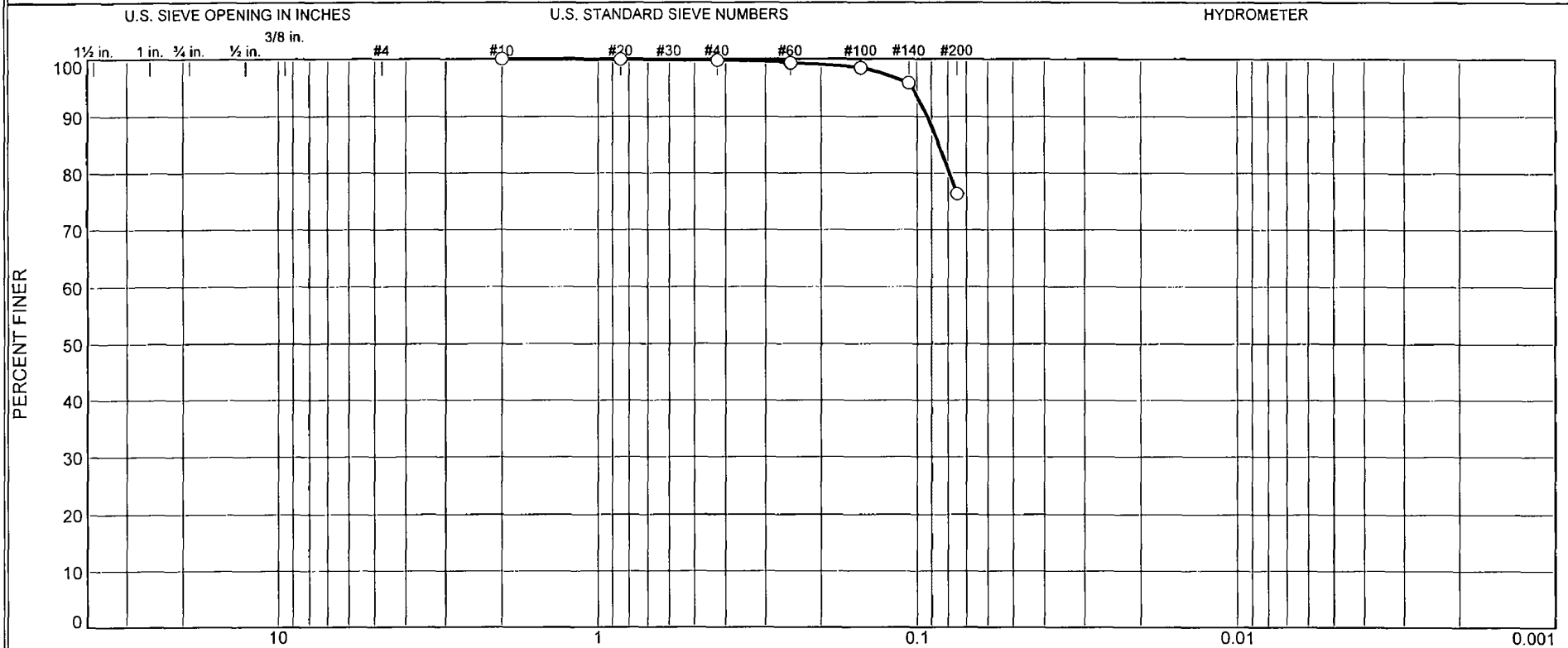
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	34.9	34.9	54.7	10.4	65.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0047	0.0076	0.0118	0.0363	0.0623	0.0710	0.0867	0.0910	0.0961	0.1025

Fineness Modulus	C _u	C _c
0.00	15.07	3.94

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	24	76	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-602	602-17	202.6-204.1	3/19/08	ML	Olive Gray SILT with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-602

Depth: 202.6-204.1

Sample Number: 602-17

Material Description: Olive Gray SILT with sand (Visual)

Date: 3/19/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
277.11	0.00	0.00	#10	0.00	100
100.07	0.00	0.00	#20	0.05	100
			#40	0.21	100
			#60	0.68	99
			#100	1.51	98
			#140	4.20	96
			#200	23.65	76

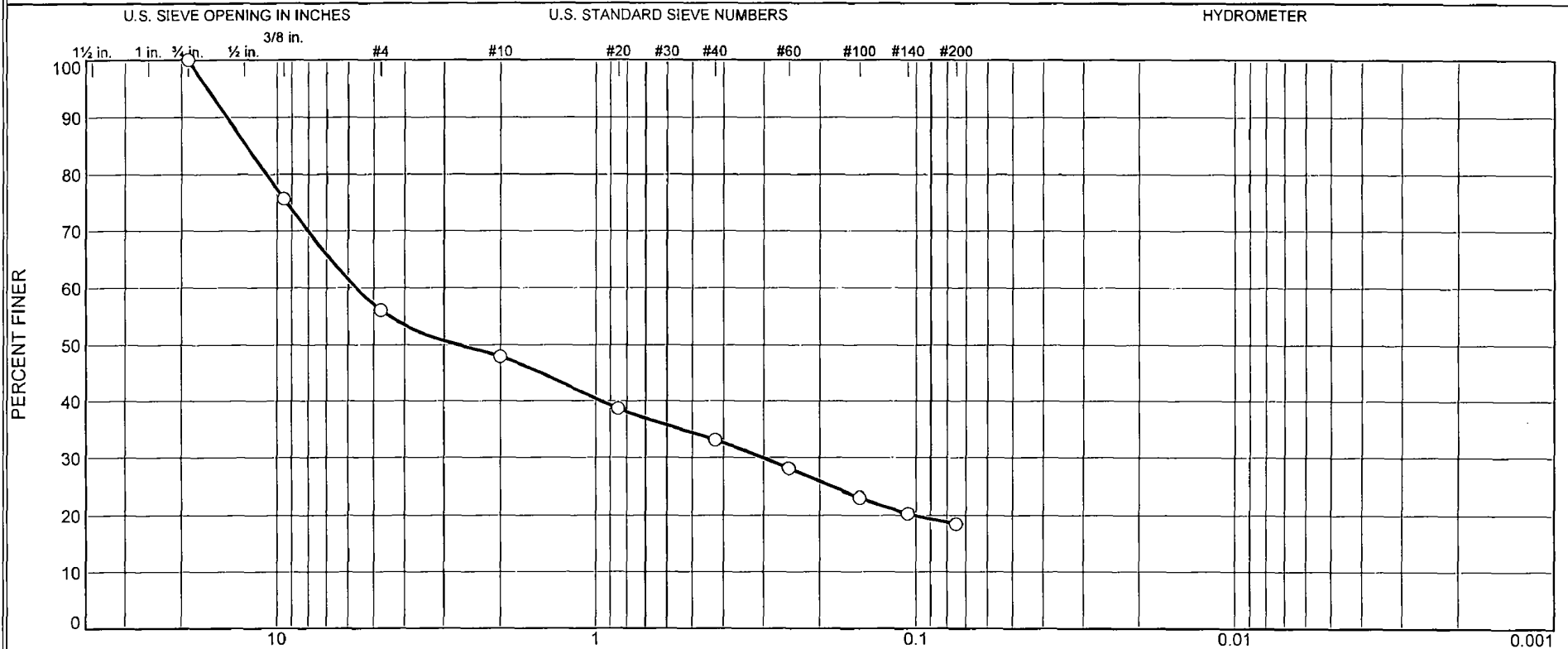
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	24	24			76

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0791	0.0853	0.0928	0.1035

Fineness Modulus
0.02

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	44	8	15	15	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-603	603-3	5.0-6.5	2/14/08	GM	White Silty GRAVEL with sand (Visual)	ND		NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 90% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-603

Depth: 5.0-6.5

Sample Number: 603-3

Material Description: White Silty GRAVEL with sand (Visual)

Date: 2/14/08

Natural Moisture: ND

Plastic Limit: NP

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 90% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
295.21	0.00	0.00	3/4	0.00	100
			3/8"	71.80	76
			#4	129.51	56
			#10	153.80	48
95.46	0.00	0.00	#20	18.45	39
			#40	29.52	33
			#60	39.34	28
			#100	49.46	23
			#140	55.03	20
			#200	58.71	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	44	44	8	15	15	38			18

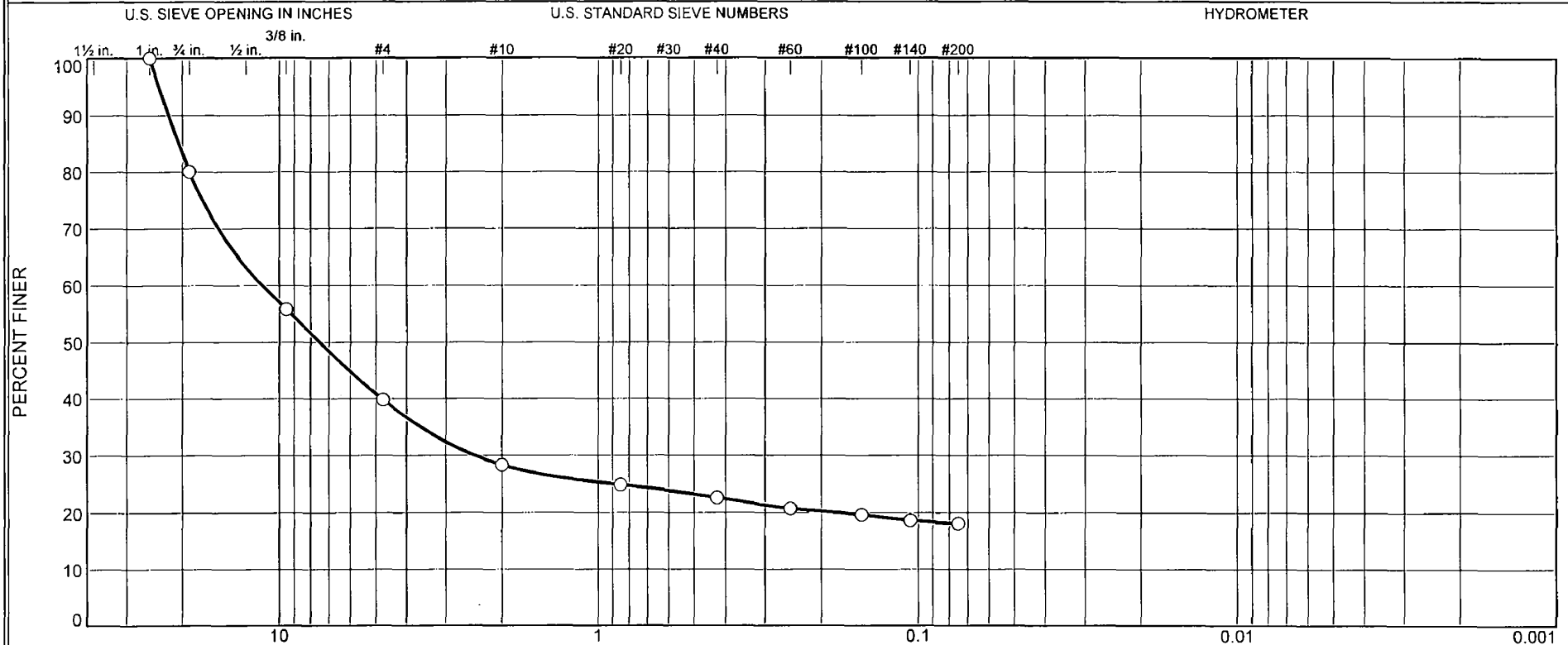
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1013	0.3011	2.7112	5.6772	10.8098	12.4826	14.3864	16.5598

Fineness Modulus

3.88

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
20	40	12	5	5	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-603	603-5	10.0-11.5	12/14/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined Calcite Equivalent = 92% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-603

Depth: 10.0-11.5

Sample Number: 603-5

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 12/14/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Calcite Equivalent = 92% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 211.79

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
211.79	0.00	0.00	1	0.00	100
			3/4	42.18	80
			3/8"	93.44	56
			#4	127.61	40
			#10	151.82	28
			#20	159.05	25
			#40	163.81	23
			#60	167.87	21
			#100	170.22	20
			#140	172.28	19
			#200	173.46	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	20	40	60	12	5	5	22			18

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1772	2.4388	7.4719	11.2948	19.0228	20.6016	22.1566	23.7421

Fineness Modulus

5.04

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.3	1.5	2.5	29.3	49.0	12.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-603	603-8	120.5-122.0	2/21/08	ML	Light Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 19% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-603

Depth: 120.5-122.0

Sample Number: 603-8

Material Description: Light Gray Sandy SILT (Visual)

Date: 2/21/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 19% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
321.25	0.00	0.00	3/4	0.00	100.0
			3/8"	16.24	94.9
			#4	17.03	94.7
			#10	21.96	93.2
50.89	0.00	0.00	#20	0.02	93.1
			#40	1.37	90.7
			#60	1.75	90.0
			#100	3.56	86.6
			#140	9.50	75.8
			#200	17.35	61.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 93.2

Weight of hydrometer sample = 50.89

Hygroscopic moisture correction:

Moist weight and tare = 29.43

Dry weight and tare = 29.40

Tare weight = 15.49

Hygroscopic moisture = 0.2%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	18.0	12.3	0.0133	19.0	13.2	0.0341	22.3
5.00	21.0	16.0	10.3	0.0133	17.0	13.5	0.0218	18.6
15.00	21.0	15.0	9.3	0.0133	16.0	13.7	0.0127	16.8
30.00	21.0	14.0	8.3	0.0133	15.0	13.8	0.0090	15.0
60.00	21.0	13.0	7.3	0.0133	14.0	14.0	0.0064	13.2
240.00	21.3	12.0	6.3	0.0132	13.0	14.2	0.0032	11.5
1440.00	20.9	11.0	5.3	0.0133	12.0	14.3	0.0013	9.5

MACTEC Engineering and Consulting, Inc.

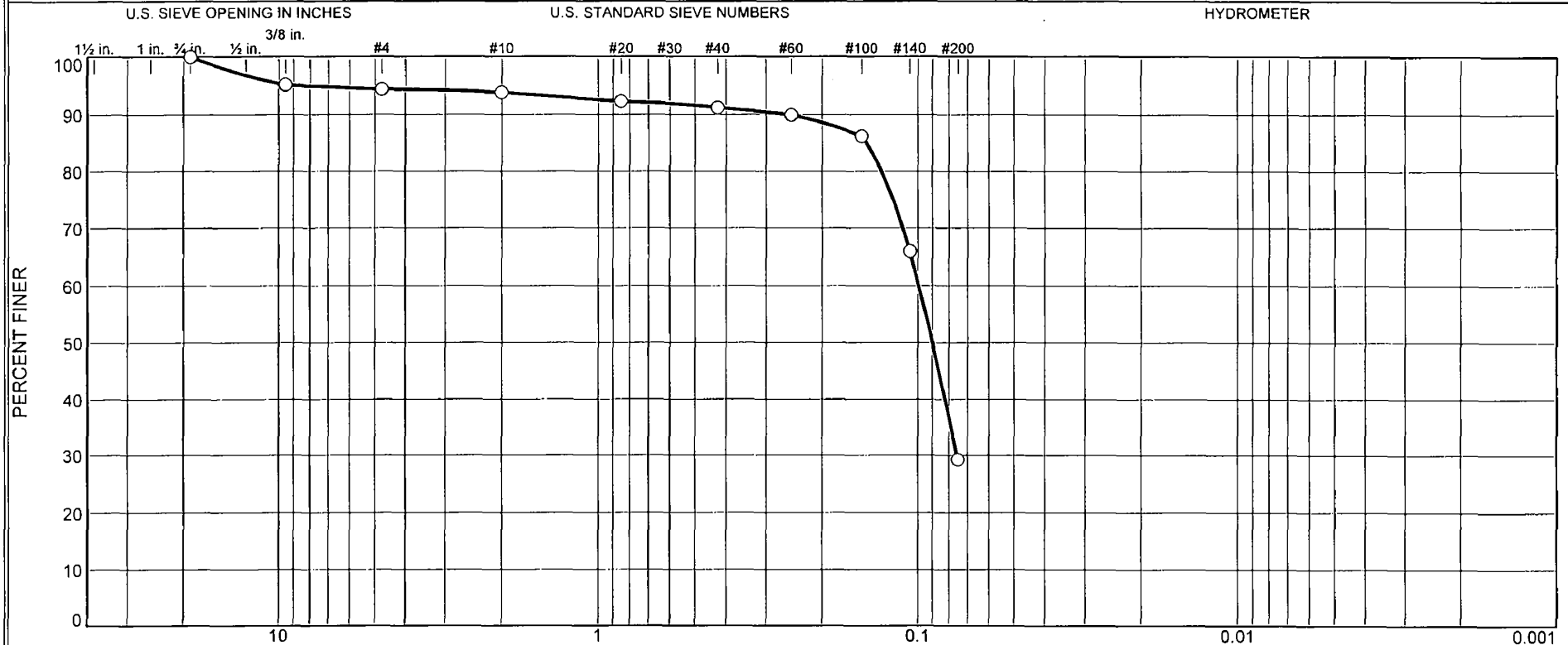
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	1.5	2.5	29.3	33.3	49.0	12.4	61.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0016	0.0090	0.0302	0.0421	0.0608	0.0729	0.1191	0.1399	0.2713	9.6783

Fineness Modulus	C _u	C _c
0.55	45.57	15.16

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	6	0	3	62	29	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-603	603-10	131.7-133.2	2/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-603

Depth: 131.7-133.2

Sample Number: 603-10

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/21/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
310.54	0.00	0.00	3/4	0.00	100
			3/8"	14.89	95
			#4	17.36	94
			#10	19.12	94
101.42	0.00	0.00	#20	1.66	92
			#40	2.85	91
			#60	4.22	90
			#100	8.25	86
			#140	30.10	66
			#200	69.84	29

Fractional Components

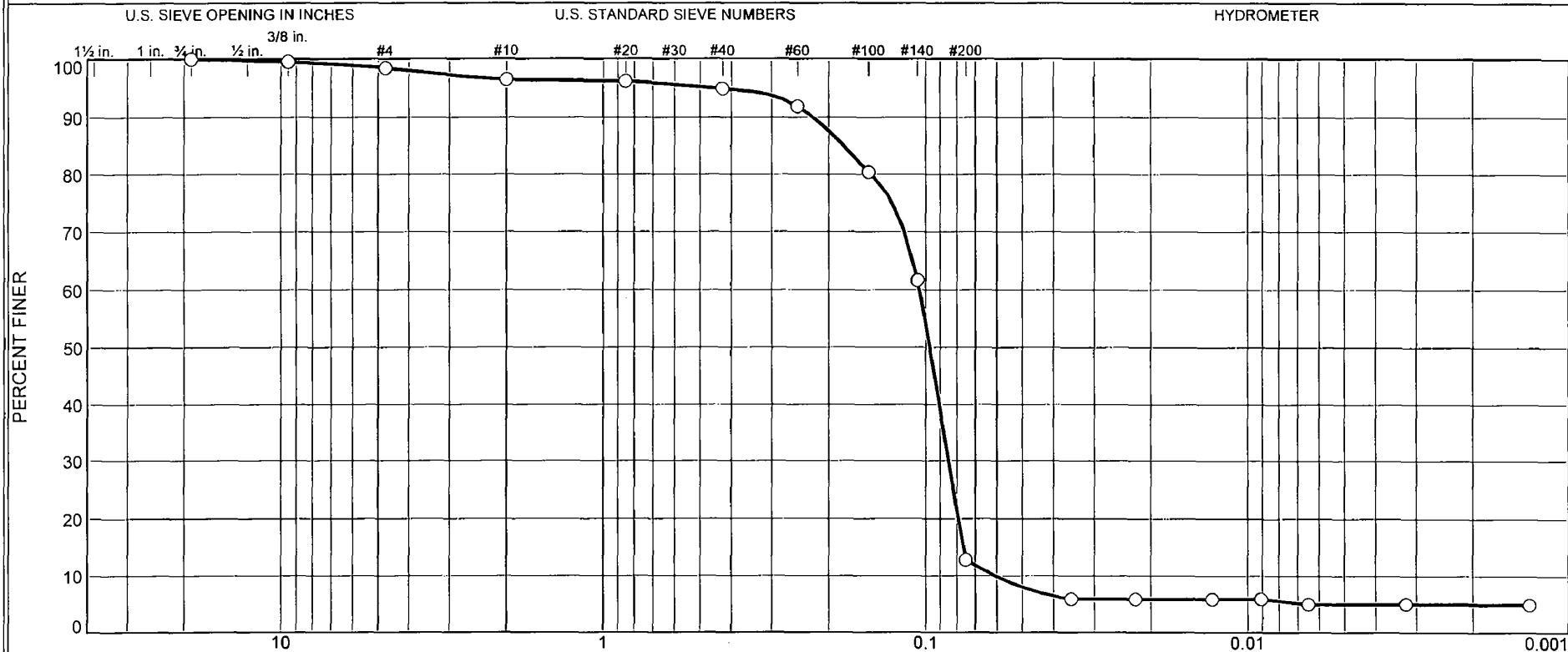
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	0	3	62	65			29

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0755	0.0901	0.0993	0.1295	0.1447	0.2557	8.1462

Fineness Modulus
0.55

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.5	2.0	1.6	82.1	7.8	5.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-603	603-11	136.4-137.9	2/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 40% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-603

Depth: 136.4-137.9

Sample Number: 603-11

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/21/08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 40% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
264.90	0.00	0.00	3/4	0.00	100.0
			3/8"	1.27	99.5
			#4	4.09	98.5
			#10	9.24	96.5
101.57	0.00	0.00	#20	0.31	96.2
			#40	1.69	94.9
			#60	4.91	91.8
			#100	16.91	80.4
			#140	36.66	61.7
			#200	88.09	12.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 96.5

Weight of hydrometer sample = 101.56

Hygroscopic moisture correction:

Moist weight and tare = 27.62

Dry weight and tare = 27.60

Tare weight = 15.42

Hygroscopic moisture = 0.2%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0353	5.9
5.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0223	5.9
15.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0129	5.9
30.00	21.2	12.0	6.3	0.0132	13.0	14.2	0.0091	6.0
60.00	21.2	11.0	5.3	0.0132	12.0	14.3	0.0065	5.0
240.00	21.4	11.0	5.4	0.0132	12.0	14.3	0.0032	5.1
1440.00	20.9	11.0	5.3	0.0133	12.0	14.3	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

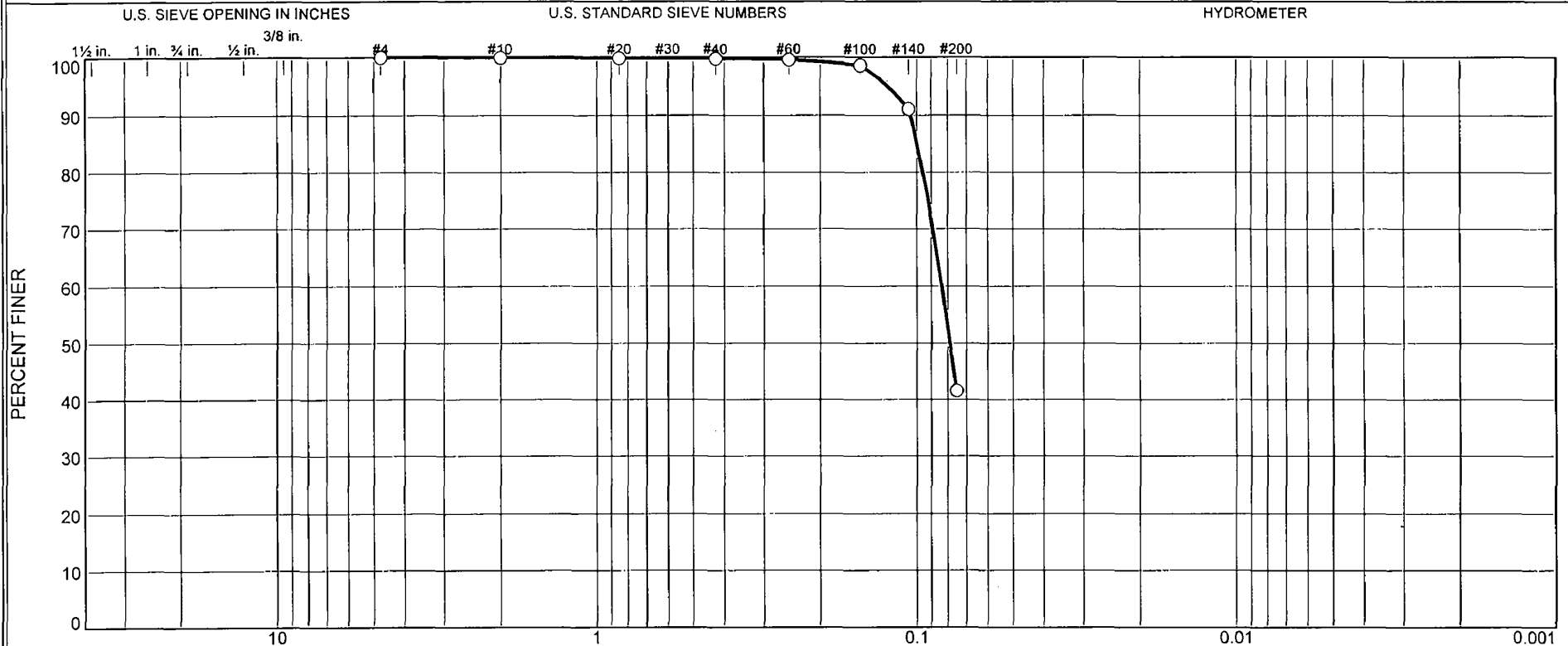
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.5	1.5	2.0	1.6	82.1	85.7	7.8	5.0	12.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0606	0.0764	0.0794	0.0850	0.0969	0.1045	0.1474	0.1792	0.2240	0.4464

Fineness Modulus	C _u	C _c
0.39	1.72	1.14

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	58	42	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-603	603-14	149.7-151.2	1/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-603

Depth: 149.7-151.2

Sample Number: 603-14

Material Description: Greenish Gray Silty SAND (Visual)

Date: 1/21/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
359.67	0.00	0.00	#4	0.00	100
			#10	0.09	100
99.64	0.00	0.00	#20	0.11	100
			#40	0.20	100
			#60	0.38	100
			#100	1.38	99
			#140	8.87	91
			#200	58.20	42

Fractional Components

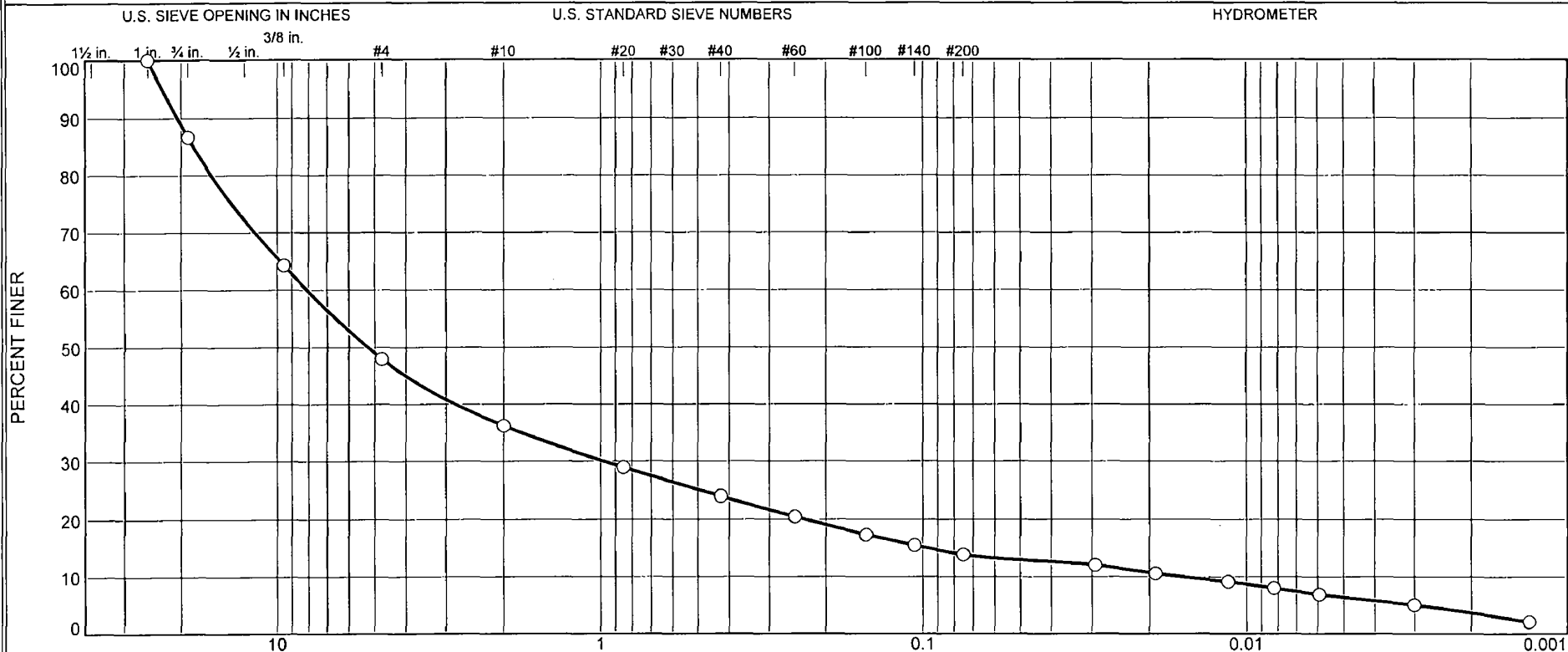
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0787	0.0835	0.0955	0.0996	0.1047	0.1232

Fineness Modulus

0.02

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
13.3	38.7	11.8	12.2	10.1	7.5	6.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-604(DH)	604-4	8.5-10.0	3/19/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-604(DH)

Depth: 8.5-10.0

Sample Number: 604-4

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 3/19/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
381.16	0.00	0.00	1	0.00	100.0
			3/4	50.77	86.7
			3/8"	136.26	64.3
			#4	198.16	48.0
			#10	243.30	36.2
98.26	0.00	0.00	#20	19.67	28.9
			#40	33.11	24.0
			#60	42.71	20.4
			#100	51.23	17.3
			#140	56.22	15.5
			#200	60.58	13.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =36.2

Weight of hydrometer sample =98.26

Hygroscopic moisture correction:

Moist weight and tare = 27.58

Dry weight and tare = 27.50

Tare weight = 15.86

Hygroscopic moisture =0.7%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.7	38.0	32.9	0.0132	39.0	9.9	0.0293	12.0
5.00	21.7	34.0	28.9	0.0132	35.0	10.6	0.0191	10.6
15.00	21.7	30.0	24.9	0.0132	31.0	11.2	0.0114	9.1
30.00	21.7	27.0	21.9	0.0132	28.0	11.7	0.0082	8.0
60.00	21.6	24.0	18.8	0.0132	25.0	12.2	0.0059	6.9
250.00	21.5	19.0	13.8	0.0132	20.0	13.0	0.0030	5.1
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	2.1

MACTEC Engineering and Consulting, Inc.

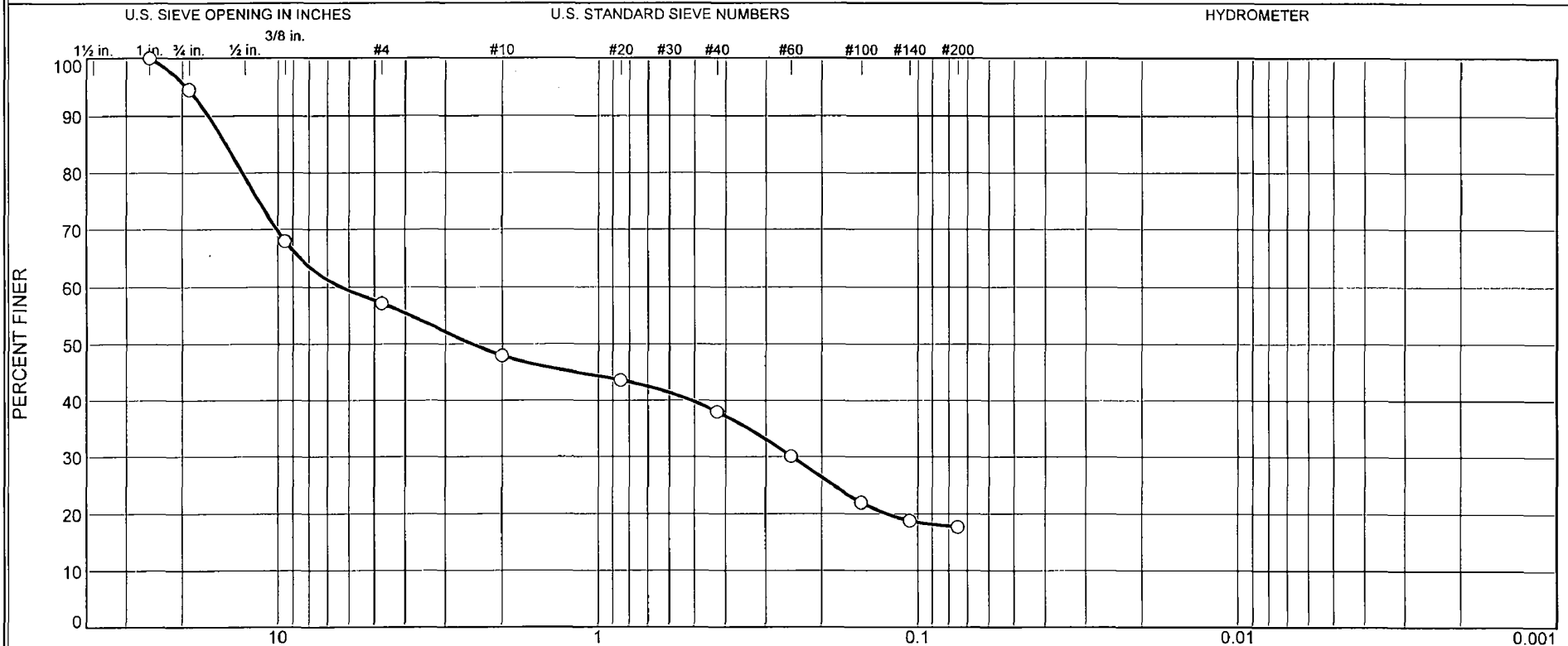
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	13.3	38.7	52.0	11.8	12.2	10.1	34.1	7.5	6.4	13.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0158	0.0966	0.2333	0.9795	5.2522	8.0843	16.0625	18.2956	20.5500	22.8873

Fineness Modulus	C _u	C _c
4.66	513.26	7.53

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	38	9	10	20	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-604(DH)	604-9	28.5-30.0	3/19/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-604(DH)

Depth: 28.5-30.0

Sample Number: 604-9

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 3/19/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =208.56

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
208.56	0.00	0.00	1	0.00	100
			3/4	11.35	95
			3/8"	66.72	68
			#4	89.27	57
			#10	108.54	48
			#20	117.60	44
			#40	129.32	38
			#60	145.83	30
			#100	162.77	22
			#140	169.39	19
			#200	171.61	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	38	43	9	10	20	39			18

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1254	0.2489	2.4815	6.3428	12.9644	14.5801	16.5447	19.3719

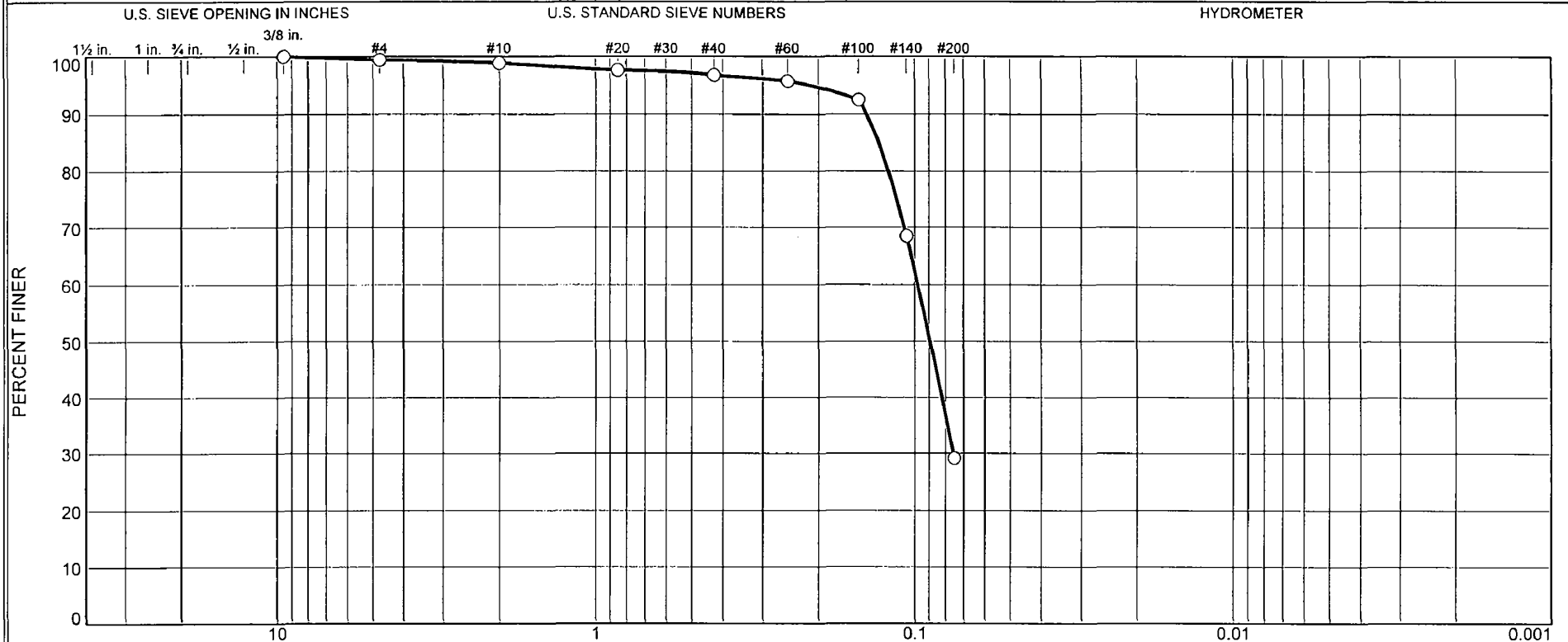
Fineness

Modulus

3.89

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	0	2	68	29	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-604(DH)	604-13	138.5-140.0	3/23/08	SM	Greenish Gray Silty SAND (Visual)	ND		NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-604(DH)

Depth: 138.5-140.0

Sample Number: 604-13

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/23/08

Natural Moisture: ND

Plastic Limit: NP

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
327.18	0.00	0.00	3/8"	0.00	100
			#4	1.98	99
			#10	3.74	99
99.15	0.00	0.00	#20	1.24	98
			#40	2.09	97
			#60	3.08	96
			#100	6.35	93
			#140	30.47	68
			#200	69.96	29

Fractional Components

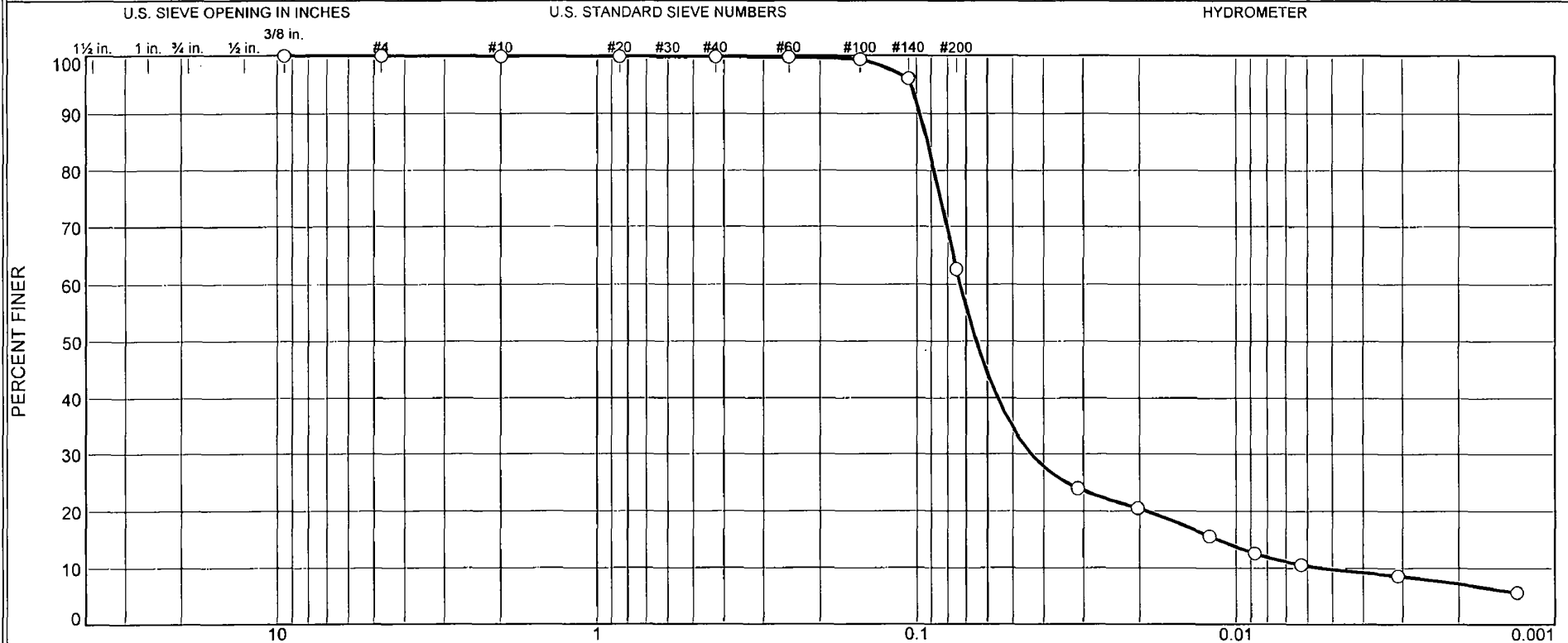
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	0	2	68	70			29

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0756	0.0893	0.0976	0.1209	0.1297	0.1415	0.2127

Fineness Modulus
0.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	37.2	52.8	9.8

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-604(DH)	604-15	163.5-165.0	3/23/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-604(DH)

Depth: 163.5-165.0

Sample Number: 604-15

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 3/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
307.36	0.00	0.00	3/8"	0.00	100.0
			#4	0.13	100.0
			#10	0.38	99.9
100.91	0.00	0.00	#20	0.02	99.9
			#40	0.07	99.8
			#60	0.11	99.8
			#100	0.52	99.4
			#140	3.83	96.1
			#200	37.65	62.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.9

Weight of hydrometer sample = 100.91

Hygroscopic moisture correction:

Moist weight and tare = 28.52

Dry weight and tare = 28.49

Tare weight = 15.54

Hygroscopic moisture = 0.2%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	29.5	24.4	0.0131	30.5	11.3	0.0312	23.9
5.00	21.8	26.0	20.9	0.0131	27.0	11.9	0.0203	20.5
15.00	21.8	21.0	15.9	0.0131	22.0	12.7	0.0121	15.6
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	12.6
60.00	21.4	16.0	10.8	0.0132	17.0	13.5	0.0063	10.6
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.6
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	5.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

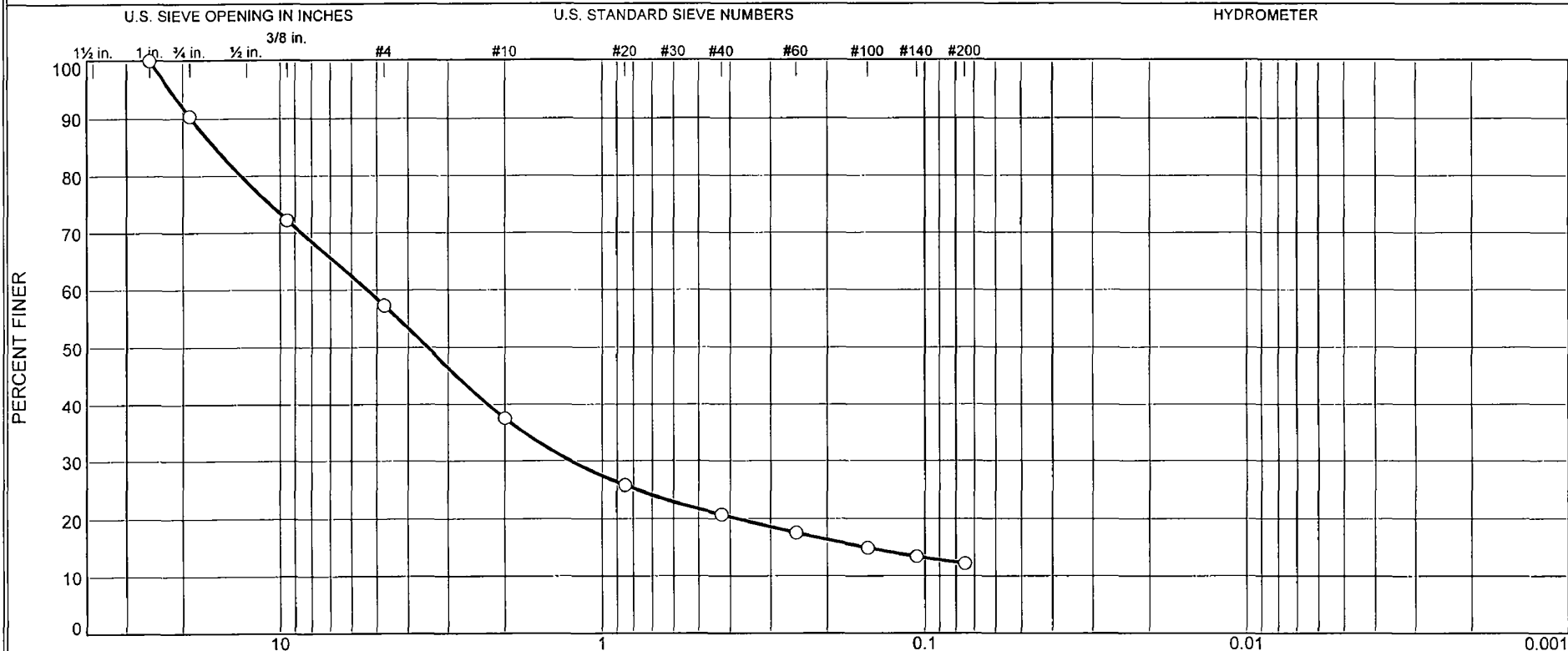
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	37.2	37.4	52.8	9.8	62.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0054	0.0114	0.0191	0.0438	0.0651	0.0730	0.0881	0.0925	0.0975	0.1041

Fineness Modulus	C _u	C _c
0.01	13.54	4.86

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
10	33	19	17	9	12	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-4	7.5-9.0	2/23/08	SP-SM	Light Gray Poorly Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 89% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 7.5-9.0

Sample Number: 605-4

Material Description: Light Gray Poorly Graded SAND with silt and gravel (Visual)

Date: 2/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 89% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
391.14	0.00	0.00	1	0.00	100
			3/4	37.79	90
			3/8"	108.42	72
			#4	166.99	57
			#10	244.46	38
103.60	0.00	0.00	#20	32.55	26
			#40	46.49	21
			#60	55.07	18
			#100	62.35	15
			#140	66.53	13
			#200	69.93	12

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	33	43	19	17	9	45			12

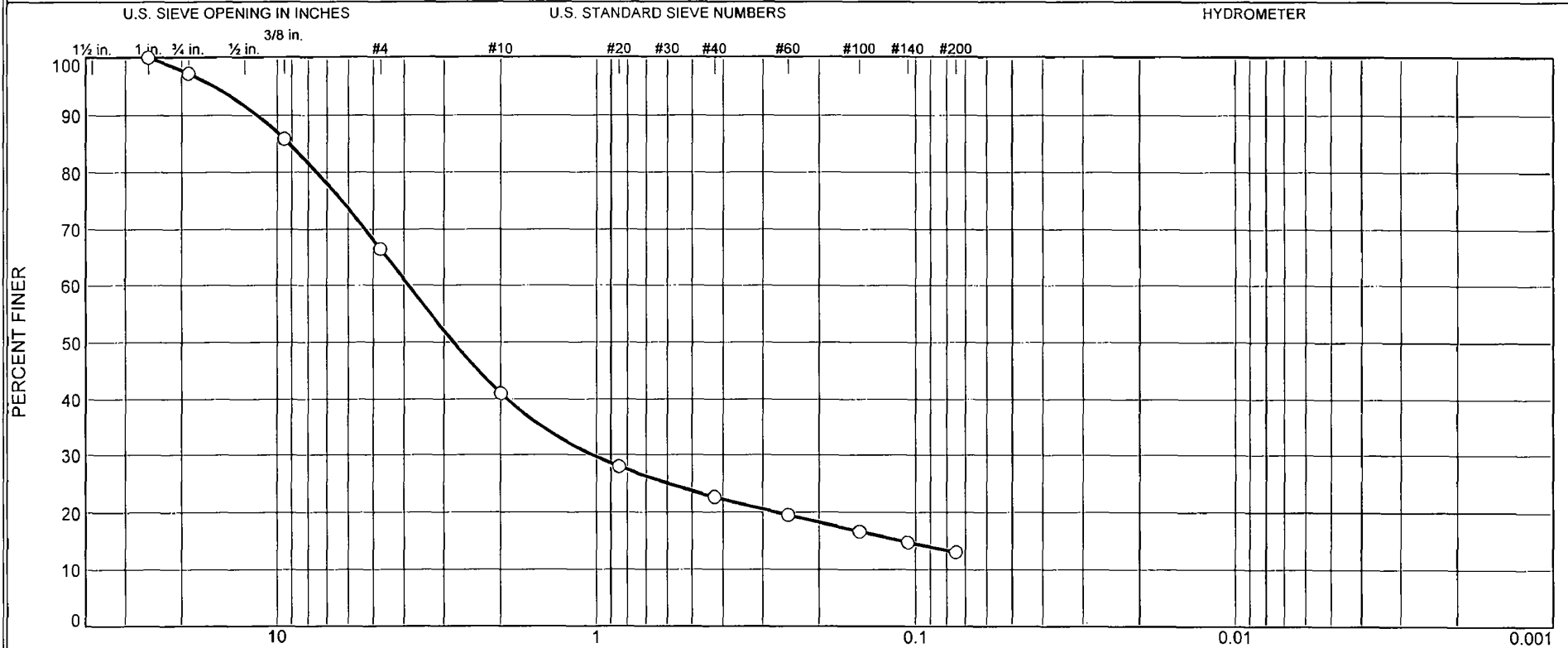
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1522	0.3805	1.2546	3.4858	5.3607	13.2163	15.9319	18.8463	21.9564

Fineness Modulus

4.53

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
3	31	25	18	10	13	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-6	12.5-14.0	2/23/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 12.5-14.0

Sample Number: 605-6

Material Description: White Silty SAND with gravel (Visual)

Date: 2/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
321.47	0.00	0.00	1	0.00	100
			3/4	8.80	97
			3/8"	45.34	86
			#4	107.78	66
			#10	189.72	41
99.21	0.00	0.00	#20	31.59	28
			#40	44.42	23
			#60	51.94	20
			#100	58.80	17
			#140	63.30	15
			#200	67.54	13

Fractional Components

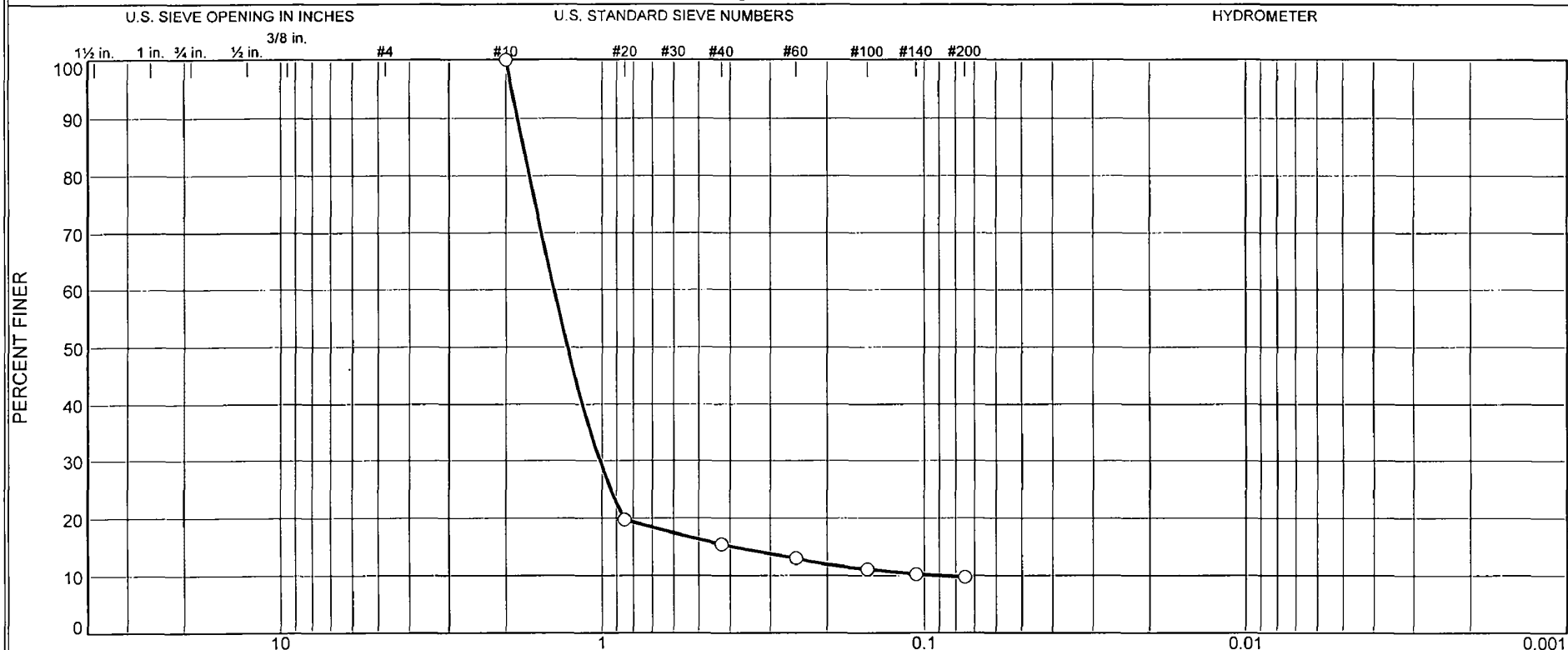
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	31	34	25	18	10	53			13

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1094	0.2719	1.0346	2.8041	3.8740	7.5121	9.1616	11.6114	15.8249

Fineness Modulus

4.11

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	85	5	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-8	20.0-21.5	2/23/08	SP-SM	Light Gray Poorly Graded SAND with silt (Visual)	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Raleigh, North Carolina

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 20.0-21.5

Sample Number: 605-8

Material Description: Light Gray Poorly Graded SAND with silt (Visual)

Date: 2/23/08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 239.71

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.71	0.00	0.00	#10	0.00	100
			#20	192.32	20
			#40	202.63	15
			#60	208.46	13
			#100	213.11	11
			#140	215.17	10
			#200	216.35	10

Fractional Components

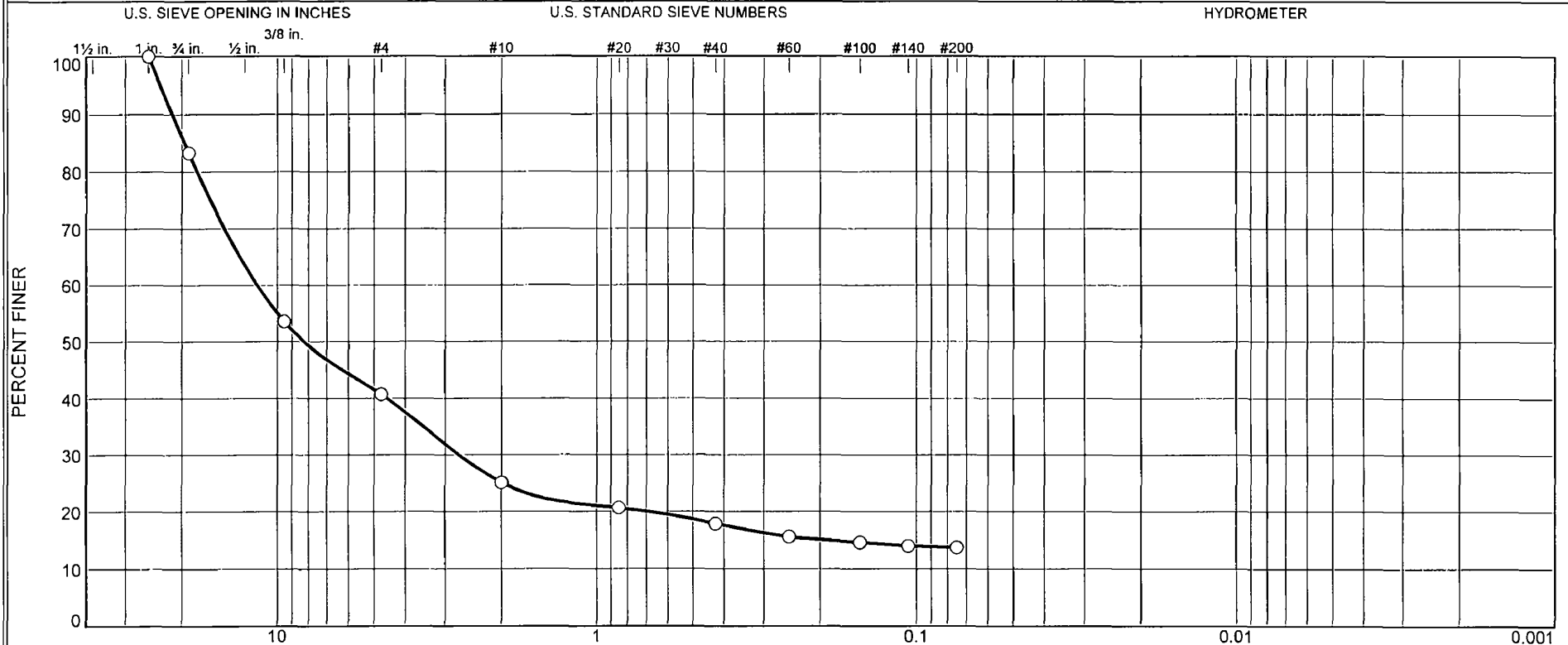
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	85	5	90			10

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0921	0.3863	0.8546	1.0164	1.2830	1.4138	1.6895	1.7631	1.8392	1.9180

Fineness Modulus	C _u	C _c
3.16	15.36	7.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
17	42	16	7	4	14	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-10	30-31.5	2/23/08	GM	Very Pale Brown Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 30-31.5

Sample Number: 605-10

Material Description: Very Pale Brown Silty GRAVEL with sand (Visual)

Date: 2/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =238.36

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
238.36	0.00	0.00	1	0.00	100
			3/4	39.72	83
			3/8"	110.73	54
			#4	141.32	41
			#10	178.74	25
			#20	189.20	21
			#40	195.77	18
			#60	201.12	16
			#100	203.46	15
			#140	204.92	14
			#200	205.63	14

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	42	59	16	7	4	27			14

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1876	0.6960	2.7250	8.2540	11.5952	17.9166	19.6281	21.4271	23.3409

Fineness Modulus

5.23

MACTEC Engineering and Consulting, Inc.

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

Sieve / Hydrometer	Percent Finer (%)
1 1/2 in. / #4	100
1 in. / #10	100
3/4 in. / #20	100
1/2 in. / #30	100
3/8 in. / #40	100
#60	95
#100	77
#140	60
#200	53
0.075 mm (No. 200)	31
0.06 mm (No. 250)	26
0.05 mm (No. 300)	21
0.04 mm (No. 400)	19
0.03 mm (No. 600)	17
0.02 mm (No. 850)	13
0.01 mm (No. 2000)	11

% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.3	45.8	37.1	14.8

[illegible]

Client Bechtel		MACTEC Engineering and Consulting, Inc. Raleigh, North Carolina	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 27% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 119.9-121.4

Sample Number: 605-12

Material Description: Light Gray Sandy SILT (Visual)

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 27% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
342.84	0.00	0.00	#10	0.00	100.0
50.44	0.00	0.00	#20	0.42	99.2
			#40	1.14	97.7
			#60	3.08	93.9
			#100	12.04	76.1
			#140	20.45	59.5
			#200	24.27	51.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 50.44

Hygroscopic moisture correction:

Moist weight and tare = 28.55

Dry weight and tare = 28.50

Tare weight = 15.63

Hygroscopic moisture = 0.4%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	21.0	15.3	0.0133	22.0	12.7	0.0334	30.1
5.00	20.9	18.5	12.8	0.0133	19.5	13.1	0.0215	25.1
15.00	20.9	16.0	10.3	0.0133	17.0	13.5	0.0126	20.2
30.00	20.9	15.0	9.3	0.0133	16.0	13.7	0.0090	18.2
60.00	20.9	14.0	8.3	0.0133	15.0	13.8	0.0064	16.2
240.00	21.4	12.0	6.4	0.0132	13.0	14.2	0.0032	12.5
1440.00	21.0	11.0	5.3	0.0133	12.0	14.3	0.0013	10.4

MACTEC Engineering and Consulting, Inc.

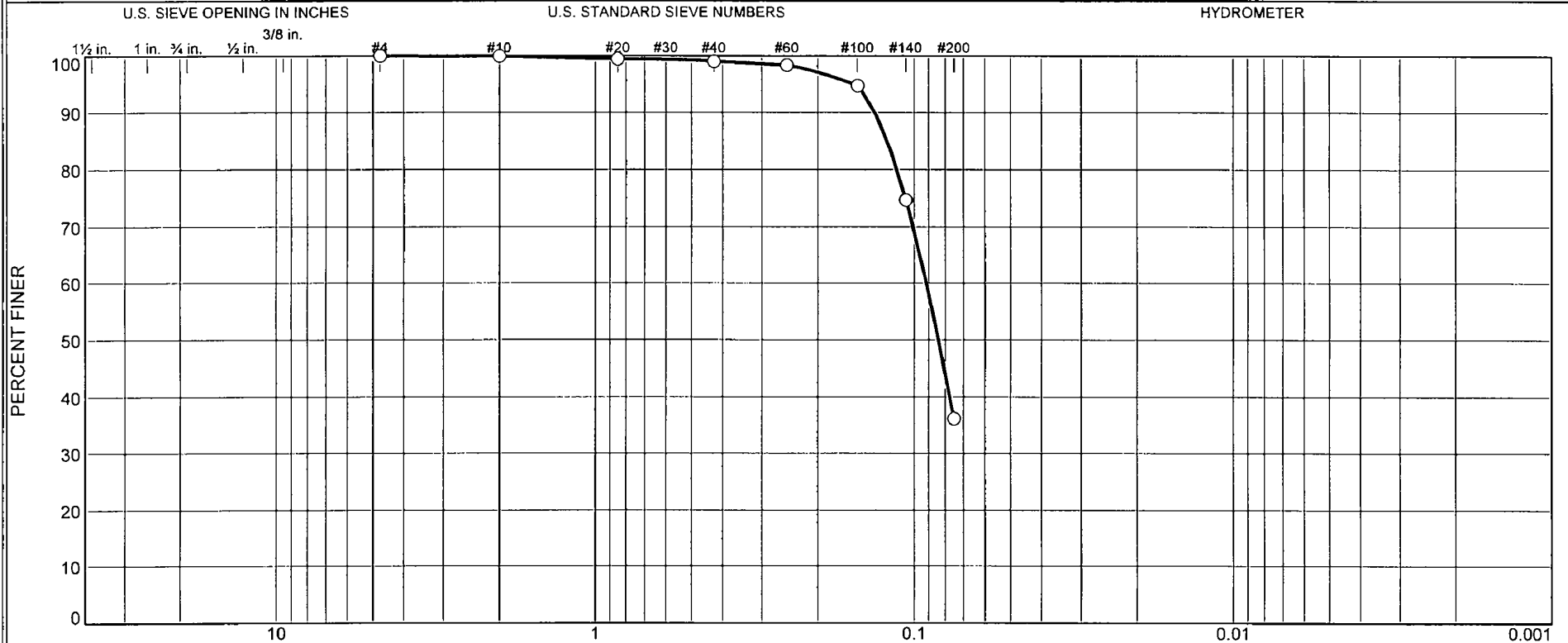
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.3	45.8	48.1	37.1	14.8	51.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0052	0.0123	0.0333	0.0689	0.1076	0.1627	0.1834	0.2126	0.2671

Fineness Modulus
0.29

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	63	36	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-15	131.4-132.9	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity = 2.669 (ASTM D854-06) SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 30% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 131.4-132.9

Sample Number: 605-15

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: Specific Gravity = 2.669 (ASTM D854-06)

SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 30% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
227.90	0.00	0.00	#4	0.00	100
			#10	0.11	100
102.28	0.00	0.00	#20	0.51	99
			#40	0.94	99
			#60	1.61	98
			#100	5.35	95
			#140	25.83	75
			#200	65.29	36

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	63	64			36

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0840	0.0916	0.1130	0.1214	0.1328	0.1542

Fineness Modulus
0.08

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 3/28/08

SAMPLE IDENTIFICATION: B-605-15 (131.4-132.9)

(A) Mass of oven-dried soil, grams:	75.72
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.55
(C) Mass of pycnometer, water and soil, grams:	703.91
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.1
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.670
(F) <i>Correction factor:</i>	0.99977
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.669

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

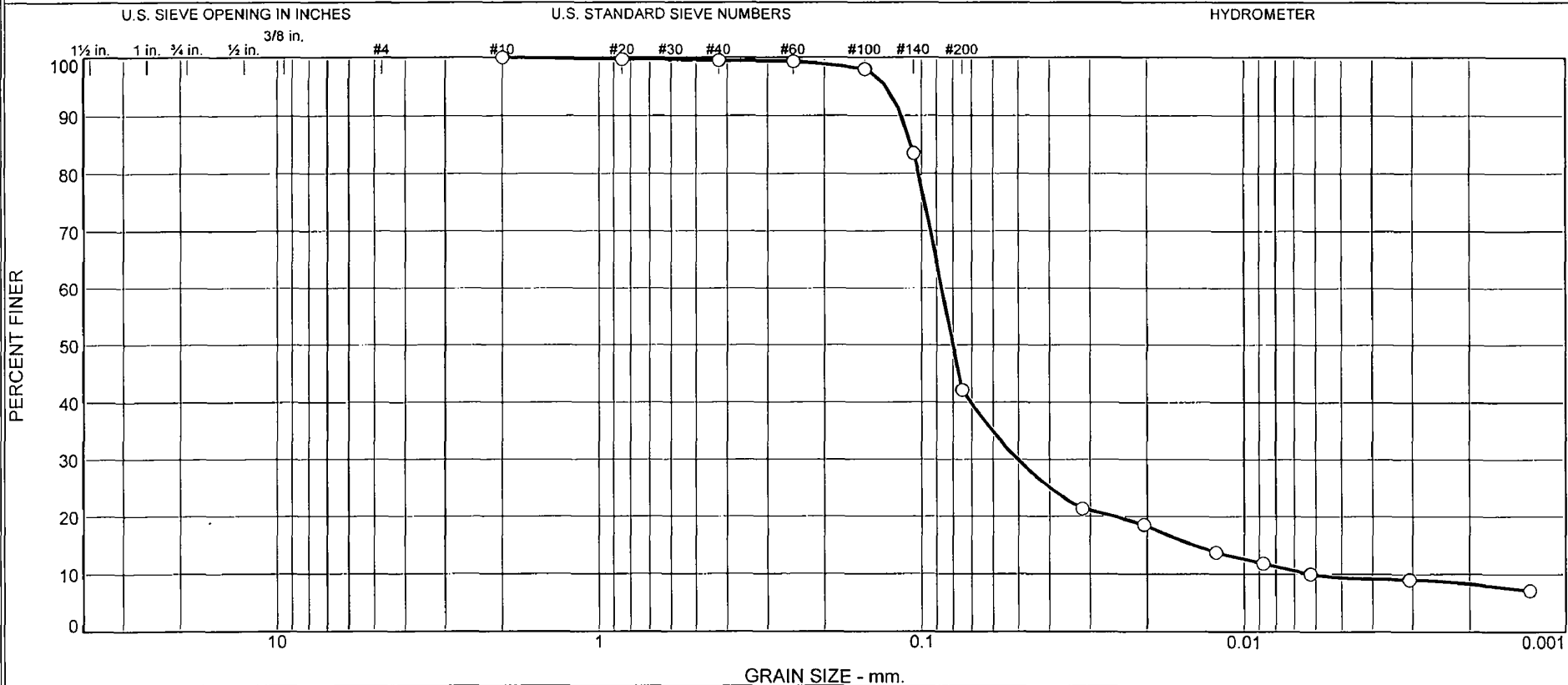
PYCNO METER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



Grain Size	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.075 mm	0.0	0.0	0.0	0.5	57.3	32.8	9.4
0.425 mm							
0.850 mm							
2.0 mm							
4.75 mm							
7.5 mm							
14.75 mm							
30.0 mm							
60.0 mm							
100.0 mm							

[illegible]

Project Turkey Point COL

Raleigh, North Carolina

Figure N/A

○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
--

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 144.9-146.4

Sample Number: 605-18

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
162.22	0.00	0.00	#10	0.00	100.0
104.26	0.00	0.00	#20	0.31	99.7
			#40	0.52	99.5
			#60	0.71	99.3
			#100	2.15	97.9
			#140	17.13	83.6
			#200	60.31	42.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 104.26

Hygroscopic moisture correction:

Moist weight and tare = 29.30

Dry weight and tare = 29.21

Tare weight = 15.52

Hygroscopic moisture = 0.7%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	28.0	22.4	0.0132	29.0	11.5	0.0317	21.4
5.00	21.4	25.0	19.4	0.0132	26.0	12.0	0.0205	18.5
15.00	21.6	20.0	14.4	0.0132	21.0	12.9	0.0122	13.8
30.00	21.6	18.0	12.4	0.0132	19.0	13.2	0.0087	11.9
60.00	21.9	16.0	10.5	0.0131	17.0	13.5	0.0062	10.0
250.00	21.9	15.0	9.5	0.0131	16.0	13.7	0.0031	9.1
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.2

MACTEC Engineering and Consulting, Inc.

Fractional Components

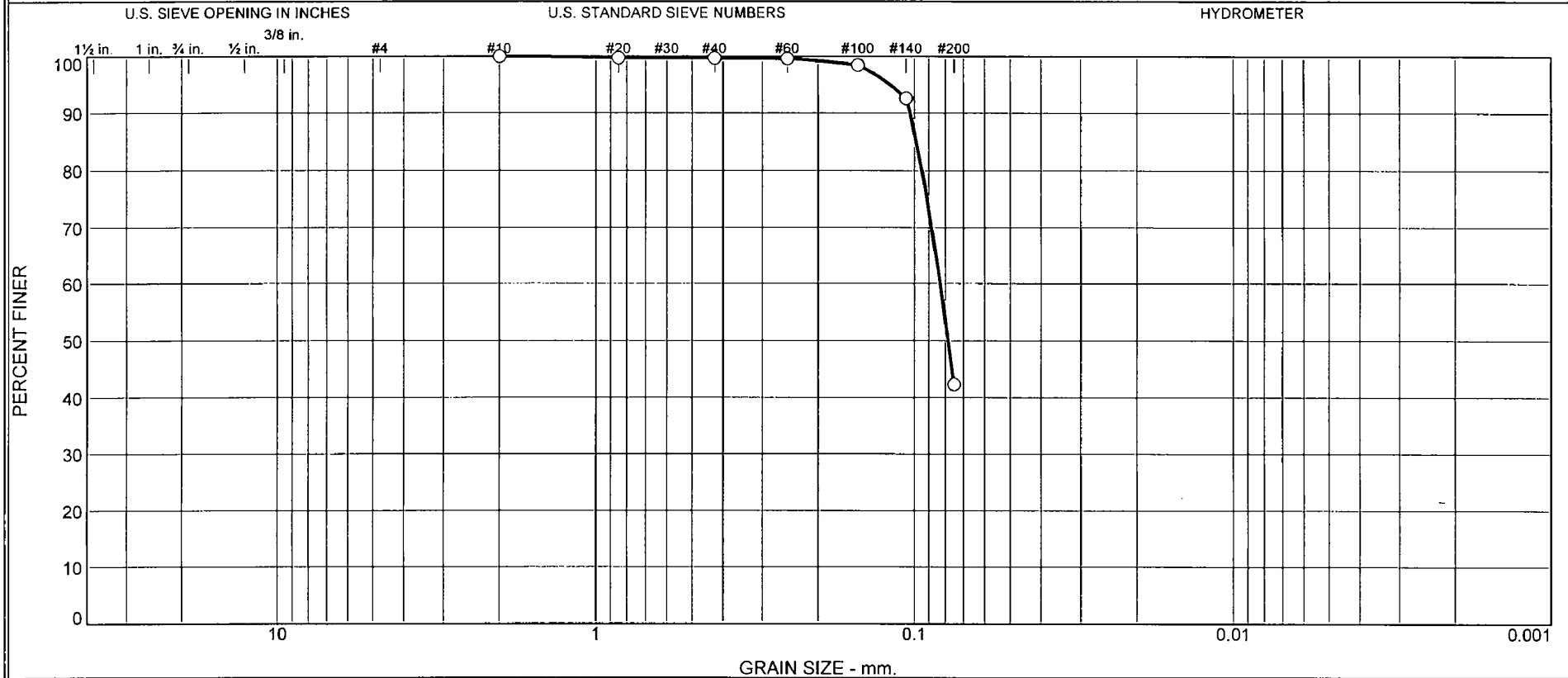
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	57.3	57.8	32.8	9.4	42.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0062	0.0143	0.0253	0.0503	0.0803	0.0868	0.1022	0.1077	0.1154	0.1290

Fineness Modulus	C _u	C _c
0.03	13.98	4.70

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	58	42	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-20	154.9-156.4	2/26/08	SM	Greenish Gray Silty SAND(Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 154.9-156.4

Sample Number: 605-20

Material Description: Greenish Gray Silty SAND(Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =206.16

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
206.16	0.00	0.00	#10	0.00	100
			#20	0.46	100
			#40	0.59	100
			#60	0.77	100
			#100	3.19	98
			#140	15.25	93
			#200	118.89	42

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

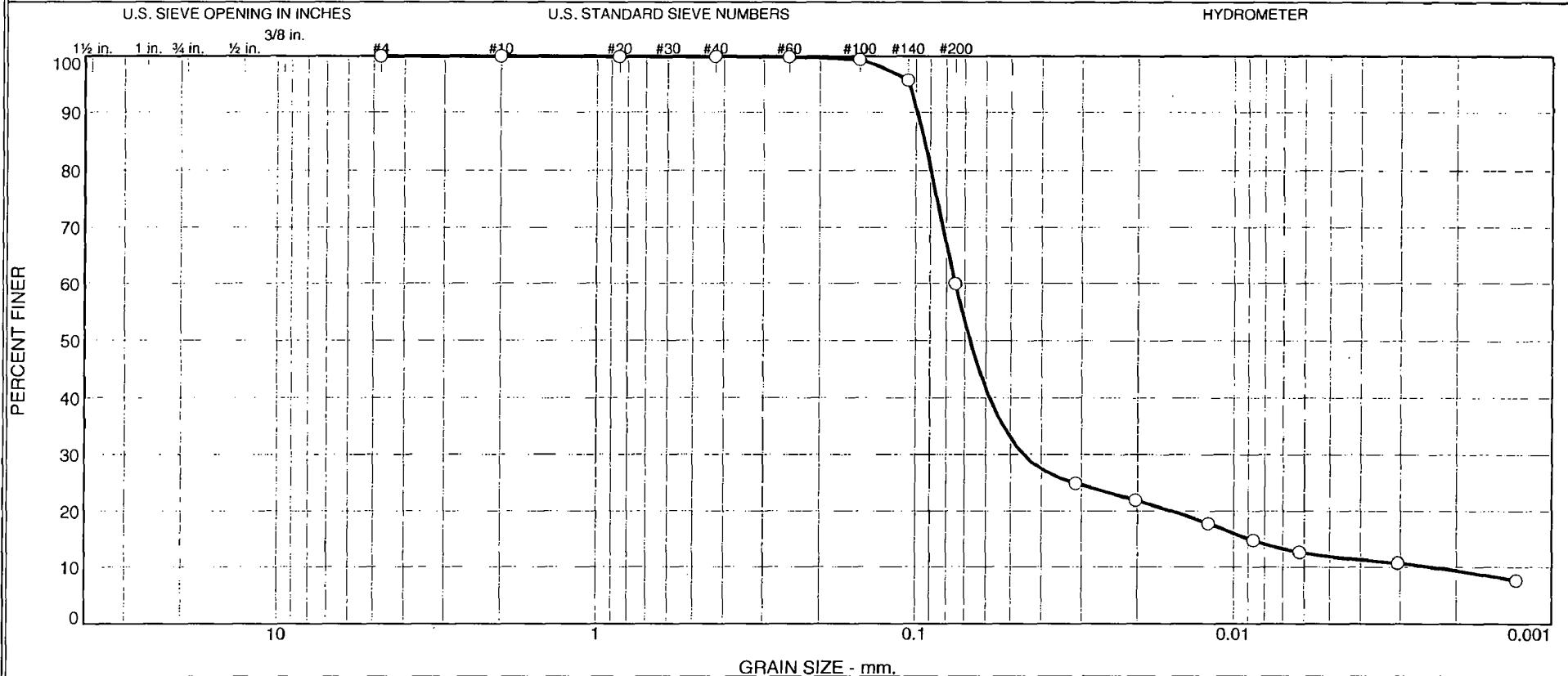
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0783	0.0829	0.0944	0.0982	0.1029	0.1190

Fineness Modulus

0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	39.9	48.1	11.9

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-22	164.5-166.0'	2/26/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 164.5-166.0'

Sample Number: 605-22

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
207.37	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
98.63	0.00	0.00	#20	0.03	100.0
			#40	0.06	99.9
			#60	0.09	99.9
			#100	0.59	99.4
			#140	4.23	95.7
			#200	39.48	60.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 98.63

Hygroscopic moisture correction:

Moist weight and tare = 30.32

Dry weight and tare = 29.97

Tare weight = 15.50

Hygroscopic moisture = 2.4%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	R _m	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.3	30.0	24.3	0.0132	31.0	11.2	0.0313	25.0
5.00	21.2	27.0	21.3	0.0132	28.0	11.7	0.0203	21.9
15.00	21.2	23.0	17.3	0.0132	24.0	12.4	0.0120	17.8
30.00	21.2	20.0	14.3	0.0132	21.0	12.9	0.0087	14.7
60.00	21.2	18.0	12.3	0.0132	19.0	13.2	0.0062	12.7
250.00	21.8	16.0	10.5	0.0131	17.0	13.5	0.0031	10.7
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

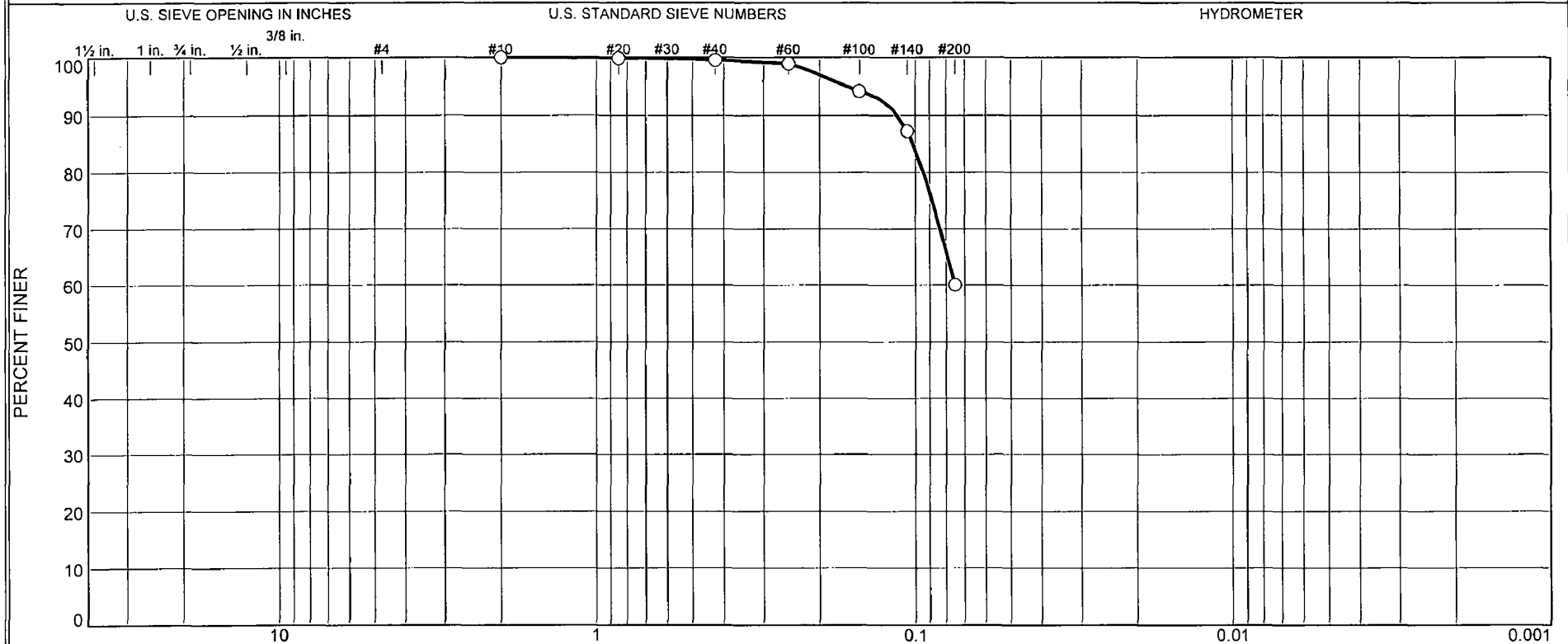
Fracture Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	39.9	40.0	48.1	11.9	60.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0024	0.0090	0.0156	0.0455	0.0674	0.0750	0.0894	0.0936	0.0984	0.1048

Fineness Modulus	C _u	C _c
0.01	31.71	11.65

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	40	60	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-24	174.5-176.0	2/26/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 174.5-176.0

Sample Number: 605-24

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.85

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
92.85	0.00	0.00	#10	0.00	100
			#20	0.11	100
			#40	0.42	100
			#60	0.99	99
			#100	5.39	94
			#140	11.87	87
			#200	37.06	60

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	40	40			60

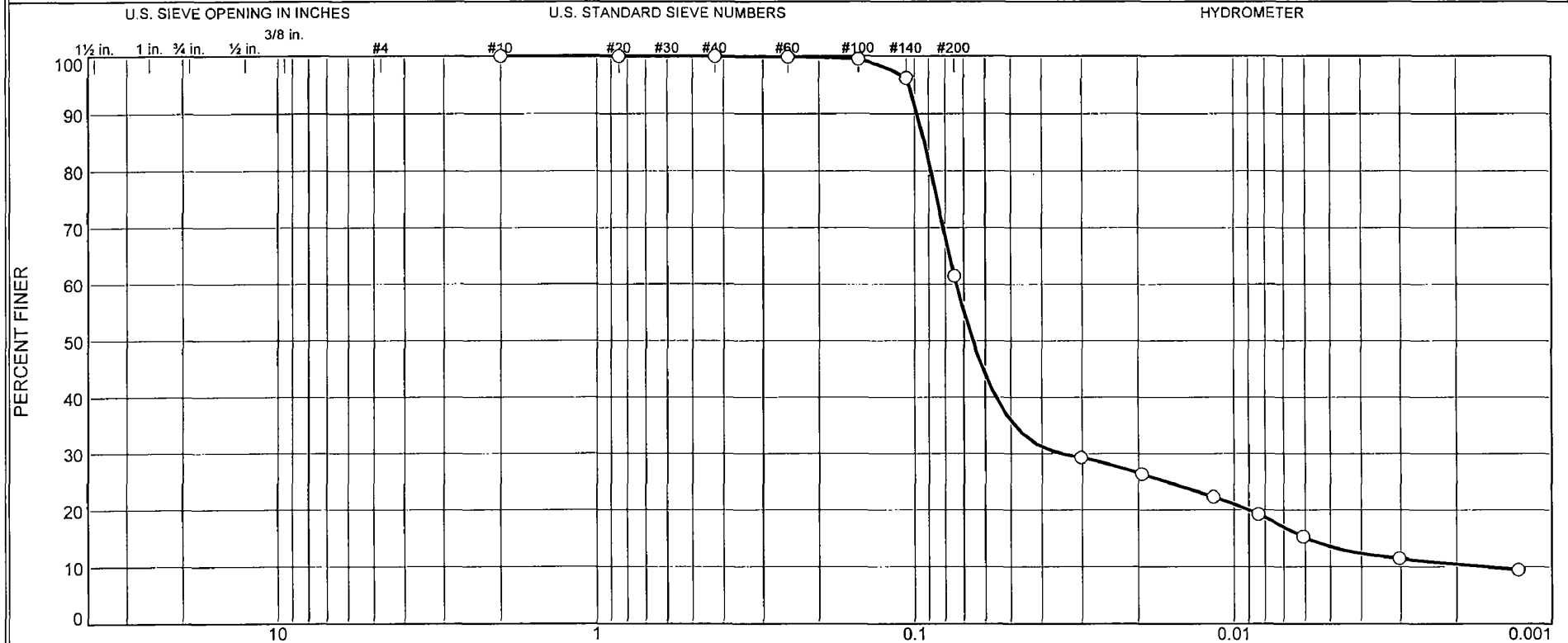
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0944	0.1017	0.1136	0.1644

Fineness Modulus

0.07

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	38.4	47.9	13.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-26	184.5-186.0	2/26/08	ML	Olive Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 24% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 184.5-186.0

Sample Number: 605-26

Material Description: Olive Sandy SILT (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 24% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
176.02	0.00	0.00	#10	0.00	100.0
99.99	0.00	0.00	#20	0.02	100.0
			#40	0.06	99.9
			#60	0.13	99.9
			#100	0.51	99.5
			#140	3.81	96.2
			#200	38.52	61.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 99.99

Hygroscopic moisture correction:

Moist weight and tare = 29.10

Dry weight and tare = 28.98

Tare weight = 15.51

Hygroscopic moisture = 0.9%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	35.0	29.3	0.0132	36.0	10.4	0.0302	29.3
5.00	21.2	32.0	26.3	0.0132	33.0	10.9	0.0195	26.3
15.00	21.1	28.0	22.3	0.0133	29.0	11.5	0.0116	22.3
30.00	21.1	25.0	19.3	0.0133	26.0	12.0	0.0084	19.3
60.00	21.3	21.0	15.3	0.0132	22.0	12.7	0.0061	15.3
250.00	22.0	17.0	11.5	0.0131	18.0	13.3	0.0030	11.5
1440.00	22.0	15.0	9.5	0.0131	16.0	13.7	0.0013	9.5

MACTEC Engineering and Consulting, Inc.

Fractional Components

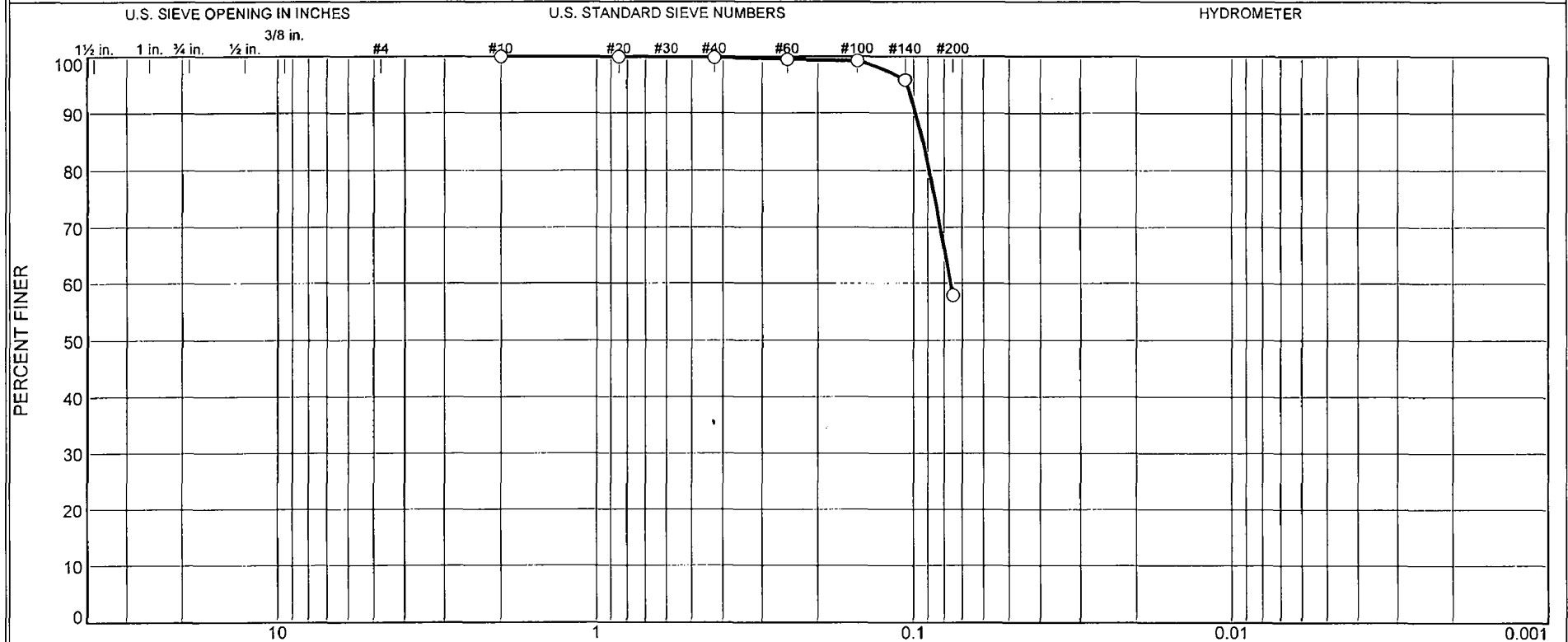
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	38.4	38.5	47.9	13.6	61.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0016	0.0059	0.0090	0.0348	0.0658	0.0739	0.0886	0.0929	0.0977	0.1040

Fineness Modulus	C _u	C _c
0.01	45.71	10.15

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	42	58	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-27	189.5-191.0	2/26/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 189.5-191.0

Sample Number: 605-27

Material Description: Olive Gray Sandy SILT (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
288.65	0.00	0.00	#10	0.00	100
100.61	0.00	0.00	#20	0.04	100
			#40	0.16	100
			#60	0.51	99
			#100	0.76	99
			#140	4.19	96
			#200	42.37	58

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	42	42			58

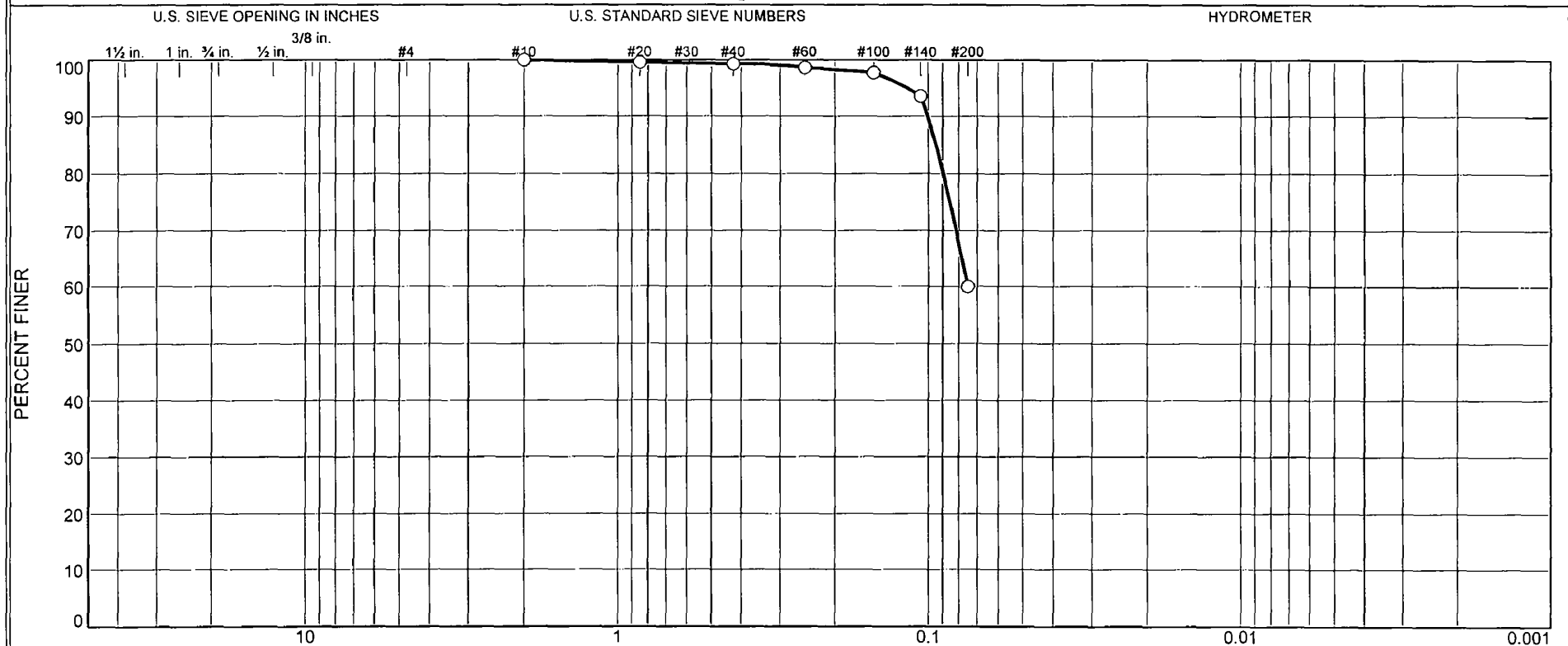
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0762	0.0890	0.0931	0.0980	0.1046

Fineness Modulus

0.01

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	39	60	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-28	194.5-196.0	2/27/08	CL-ML	Olive Gray Sandy Silty CLAY	ND	24	19

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined Calcite Equivalent = 27% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 194.5-196.0

Sample Number: 605-28

Material Description: Olive Gray Sandy Silty CLAY

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: 24

Plastic Limit: 19

USCS Class.: CL-ML

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Calcite Equivalent = 27% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
252.46	0.00	0.00	#10	0.00	100
100.70	0.00	0.00	#20	0.43	100
			#40	0.71	99
			#60	1.39	99
			#100	2.28	98
			#140	6.45	94
			#200	40.27	60

Fractional Components

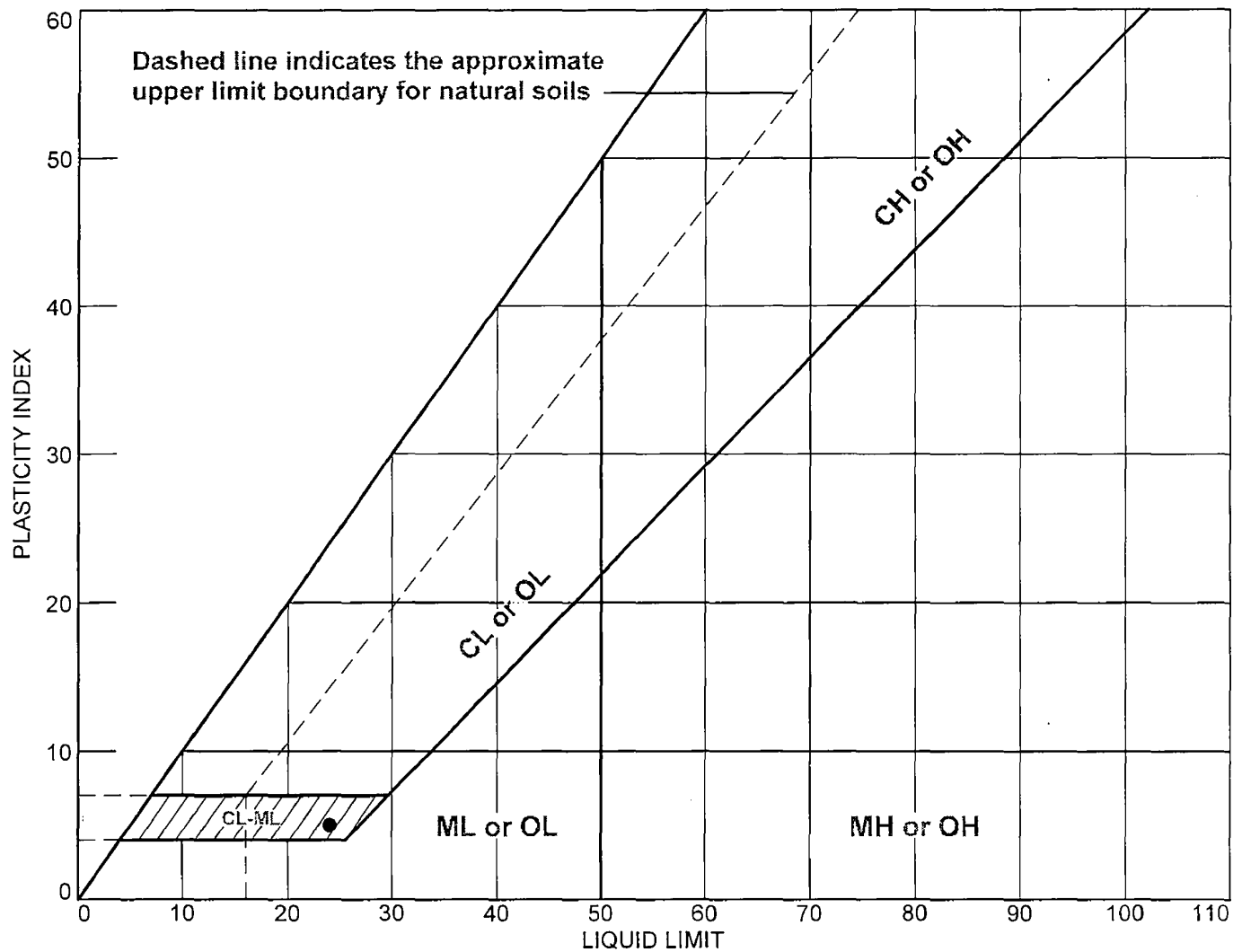
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0895	0.0942	0.1002	0.1165

Fineness Modulus
0.04

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-605	605-28	194.5-196.0	ND	19	24	5	CL-ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 194.5-196.0

Sample Number: 605-28

Material Description: Olive Gray Sandy Silty CLAY

USCS: CL-ML

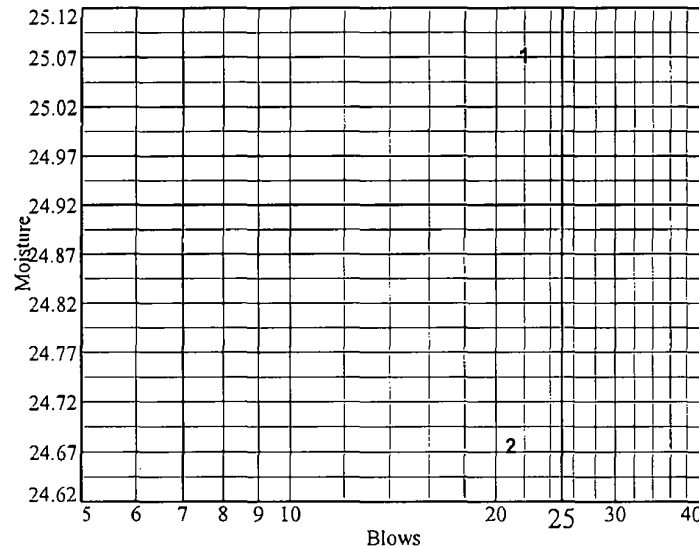
AASHTO: A-4(1)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.18	30.88				
Dry+Tare	21.57	27.83				
Tare	11.16	15.47				
# Blows	22	21				
Moisture	25.1	24.7				



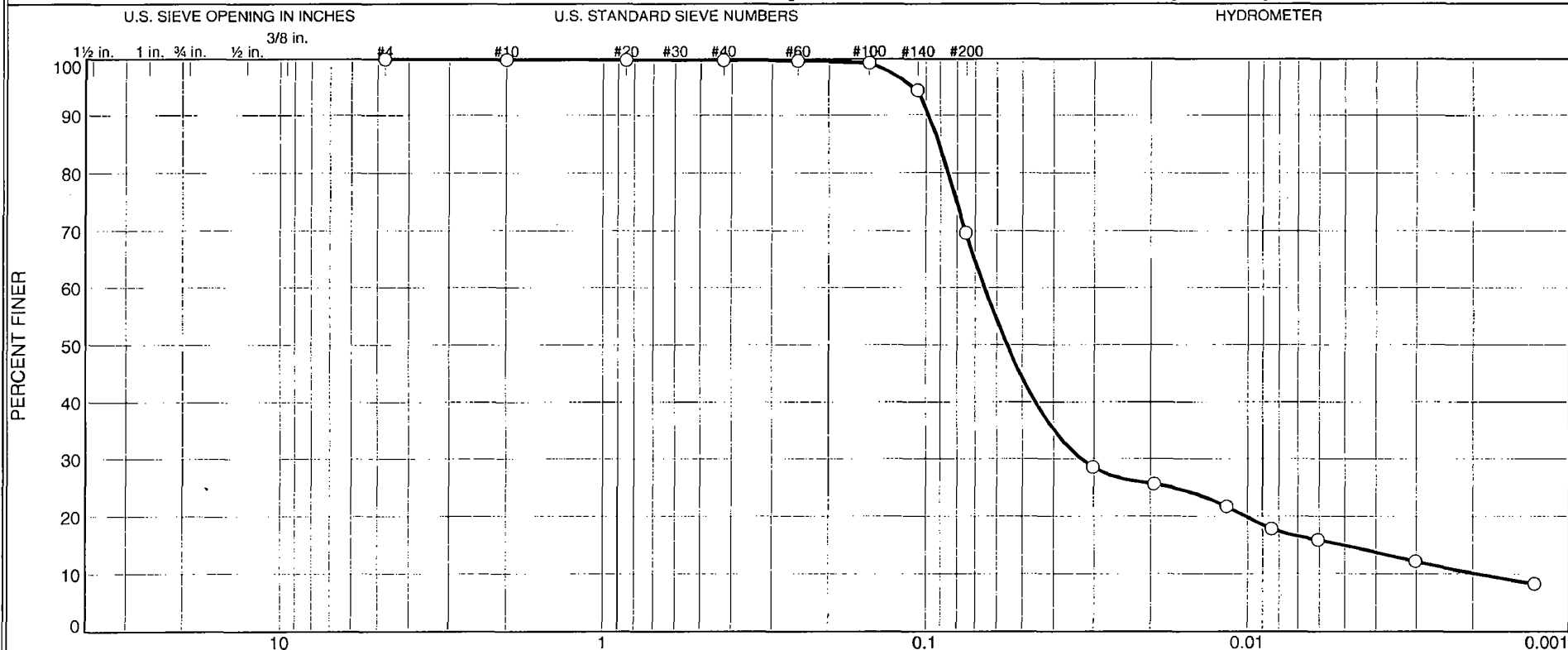
Liquid Limit= 24
 Plastic Limit= 19
 Plasticity Index= 5
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	23.20	24.32		
Dry+Tare	22.00	22.92		
Tare	15.51	15.36		
Moisture	18.5	18.5		

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	30.1	54.7	15.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-605	605-29	199.5-201.0	2/27/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-605

Depth: 199.5-201.0

Sample Number: 605-29

Material Description: Olive Gray Sandy SILT (Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
275.70	0.00	0.00	#4	0.00	100.0
			#10	0.26	99.9
102.52	0.00	0.00	#20	0.05	99.9
			#40	0.11	99.8
			#60	0.19	99.7
			#100	0.57	99.4
			#140	5.54	94.5
			#200	31.00	69.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.9

Weight of hydrometer sample = 102.52

Hygroscopic moisture correction:

Moist weight and tare = 27.88

Dry weight and tare = 27.75

Tare weight = 15.50

Hygroscopic moisture = 1.1%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	35.0	29.3	0.0132	36.0	10.4	0.0302	28.6
5.00	21.2	32.0	26.3	0.0132	33.0	10.9	0.0195	25.6
15.00	21.3	28.0	22.3	0.0132	29.0	11.5	0.0116	21.8
30.00	21.3	24.0	18.3	0.0132	25.0	12.2	0.0084	17.9
60.00	21.3	22.0	16.3	0.0132	23.0	12.5	0.0060	15.9
250.00	21.9	18.0	12.5	0.0131	19.0	13.2	0.0030	12.2
1440.00	22.0	14.0	8.5	0.0131	15.0	13.8	0.0013	8.3

MACTEC Engineering and Consulting, Inc.

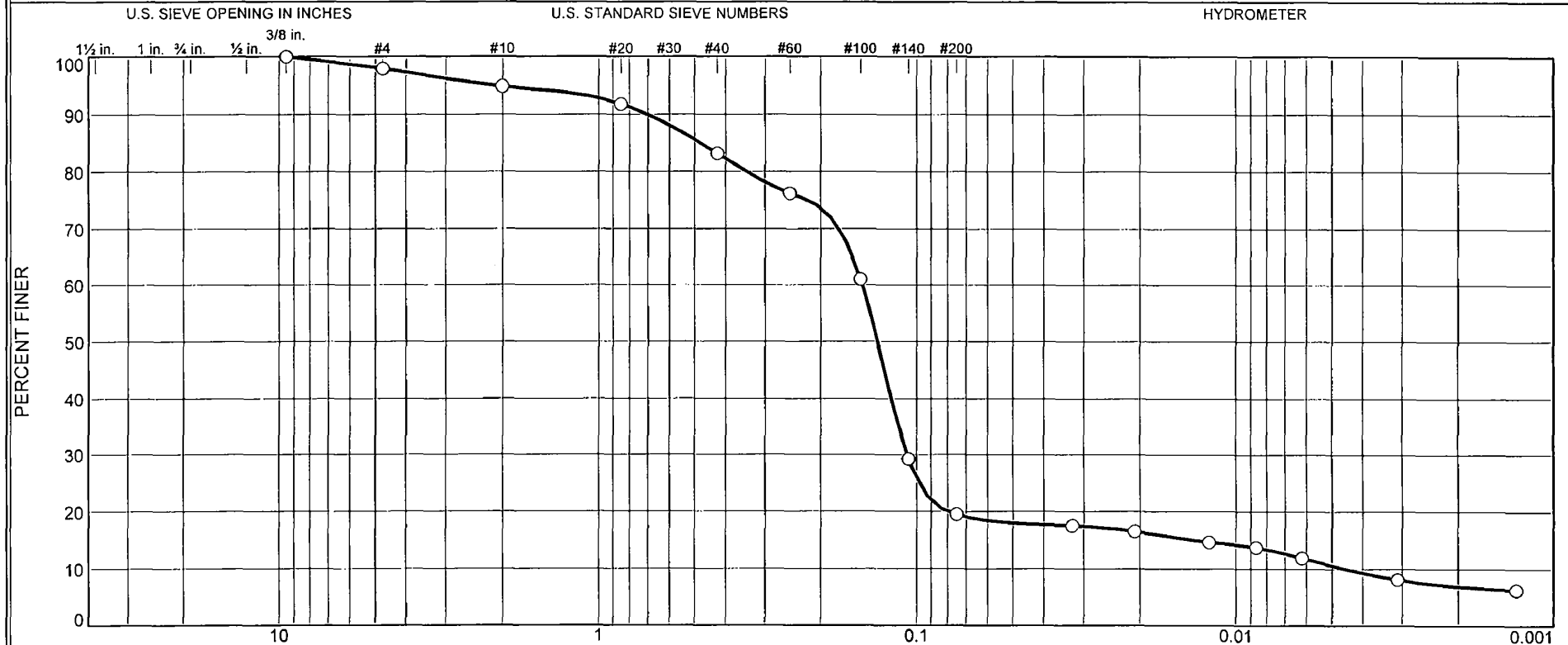
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	30.1	30.3	54.7	15.0	69.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0019	0.0050	0.0101	0.0328	0.0559	0.0657	0.0852	0.0909	0.0976	0.1088

Fineness Modulus	C _u	C _c
0.01	34.08	8.50

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.1	3.0	11.7	63.7	8.9	10.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-606	606-8	119.4-120.9	3/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client <u>Bechtel</u>		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project <u>Turkey Point COL</u>			
Project No. <u>6468071950</u>	Figure <u>N/A</u>	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-606

Depth: 119.4-120.9

Sample Number: 606-8

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/5/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ.

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
361.54	0.00	0.00	3/8"	0.00	100.0
			#4	7.51	97.9
			#10	18.60	94.9
100.87	0.00	0.00	#20	3.29	91.8
			#40	12.40	83.2
			#60	19.86	76.2
			#100	35.94	61.1
			#140	69.81	29.2
			#200	80.16	19.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 94.9

Weight of hydrometer sample = 100.87

Hygroscopic moisture correction:

Moist weight and tare = 28.81

Dry weight and tare = 28.79

Tare weight = 15.55

Hygroscopic moisture = 0.2%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	24.0	18.8	0.0132	25.0	12.2	0.0326	17.5
5.00	21.4	23.0	17.8	0.0132	24.0	12.4	0.0208	16.6
15.00	21.4	21.0	15.8	0.0132	22.0	12.7	0.0122	14.7
30.00	21.4	20.0	14.8	0.0132	21.0	12.9	0.0086	13.8
60.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0062	11.9
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.2
1440.00	21.3	12.0	6.7	0.0132	13.0	14.2	0.0013	6.3

MACTEC Engineering and Consulting, Inc.

Fractional Components

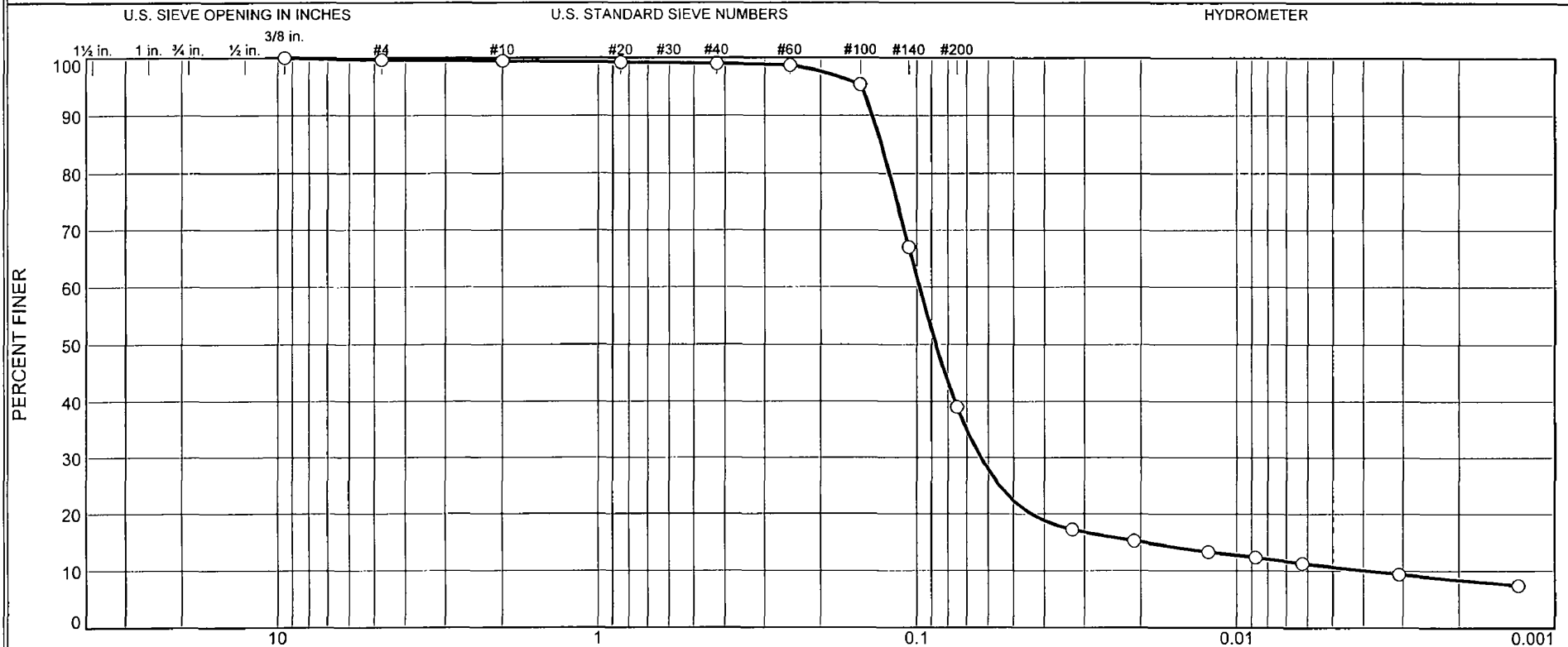
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.1	2.1	3.0	11.7	63.7	78.4	8.9	10.6	19.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0045	0.0135	0.0803	0.1072	0.1328	0.1480	0.3430	0.4801	0.7059	2.1136

Fineness Modulus	C _u	C _c
0.86	32.73	17.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.4	0.2	0.4	60.0	28.3	10.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-606	606-9	129.7-131.2	3/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-606

Depth: 129.7-131.2

Sample Number: 606-9

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/5/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
303.53	0.00	0.00	3/8"	0.00	100.0
			#4	1.08	99.6
			#10	1.71	99.4
102.10	0.00	0.00	#20	0.21	99.2
			#40	0.46	99.0
			#60	0.77	98.7
			#100	4.19	95.4
			#140	33.30	67.0
			#200	62.06	39.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.4

Weight of hydrometer sample = 102.10

Hygroscopic moisture correction:

Moist weight and tare = 24.04

Dry weight and tare = 24.04

Tare weight = 11.09

Hygroscopic moisture = 0.0%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.7	23.0	17.9	0.0132	24.0	12.4	0.0327	17.2
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	15.2
15.00	21.6	19.0	13.8	0.0132	20.0	13.0	0.0123	13.3
30.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0087	12.4
60.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0062	11.3
250.00	21.4	15.0	9.8	0.0132	16.0	13.7	0.0031	9.4
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	7.5

MACTEC Engineering and Consulting, Inc.

Fractional Components

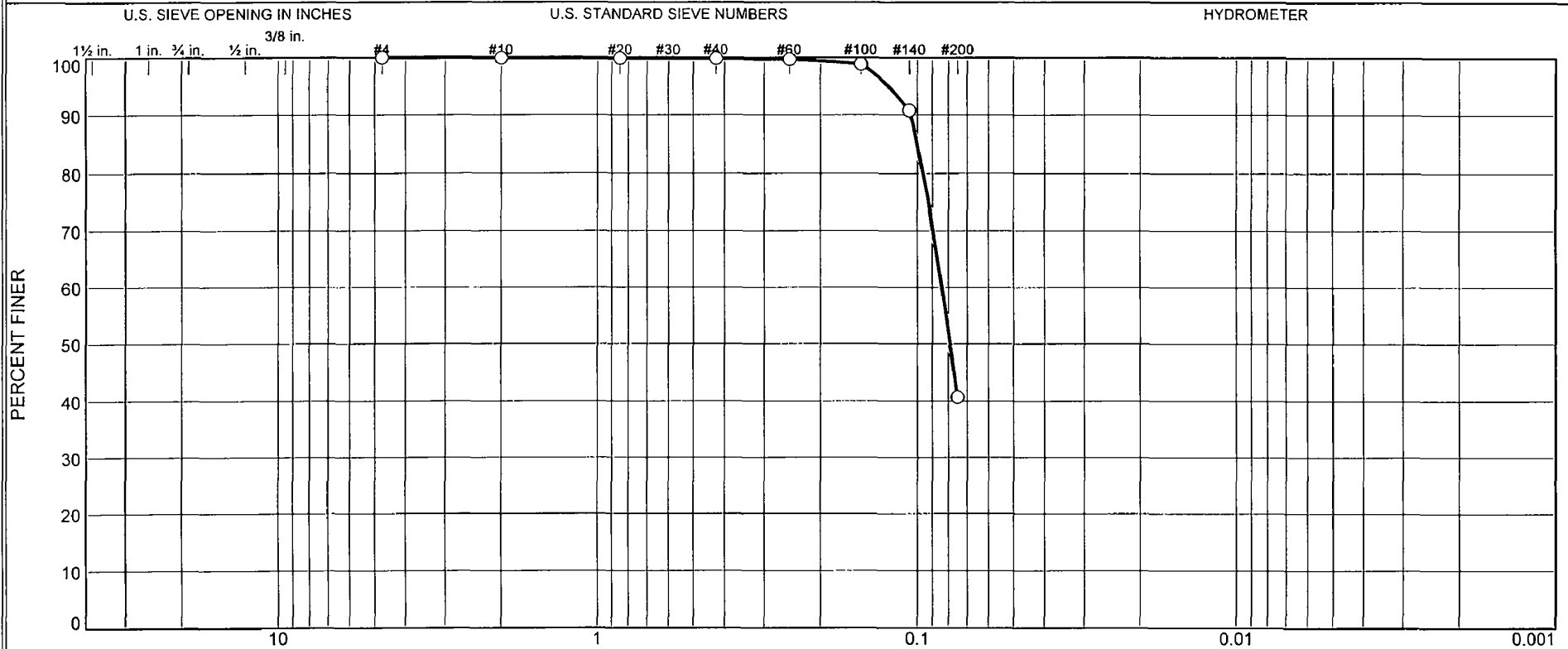
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.2	0.4	60.0	60.6	28.3	10.7	39.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0039	0.0197	0.0442	0.0633	0.0873	0.0982	0.1218	0.1291	0.1376	0.1490

Fineness Modulus	C _u	C _c
0.08	25.29	10.52

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	59	41	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-606	606-11	149.7-151.2	4/7/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-606

Depth: 149.7-151.2

Sample Number: 606-11

Material Description: Olive Gray Silty SAND (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
236.37	0.00	0.00	#4	0.00	100
			#10	0.05	100
99.28	0.00	0.00	#20	0.06	100
			#40	0.12	100
			#60	0.24	100
			#100	1.09	99
			#140	9.14	91
			#200	58.90	41

Fractional Components

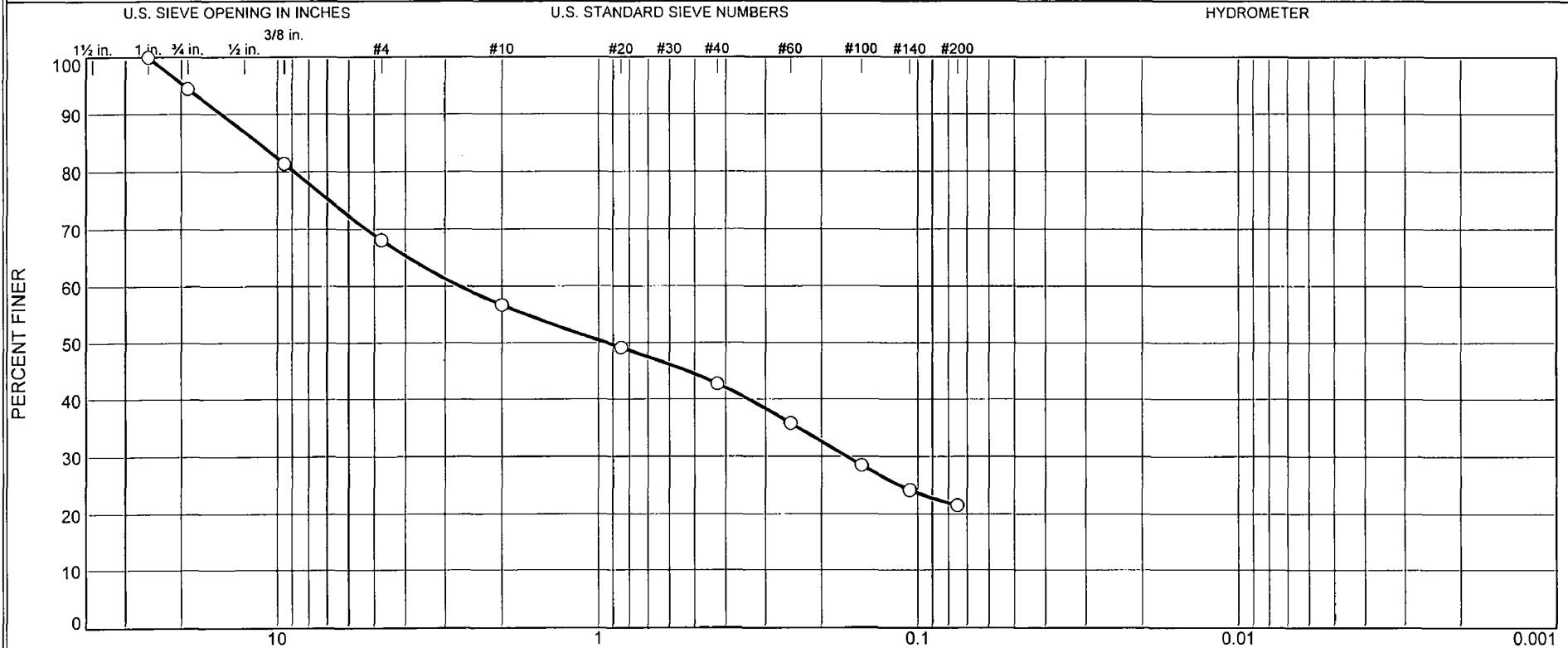
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	59	59			41

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0791	0.0839	0.0959	0.0999	0.1050	0.1230

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	27	11	14	21	22	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-607	607-3	5.0-6.5	3/7/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 89% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-607

Depth: 5.0-6.5

Sample Number: 607-3

Material Description: White Silty SAND with gravel (Visual)

Date: 3/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 89% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
342.18	0.00	0.00	1	0.00	100
			3/4	18.74	95
			3/8"	63.69	81
			#4	109.06	68
			#10	148.16	57
101.52	0.00	0.00	#20	13.61	49
			#40	25.08	43
			#60	37.35	36
			#100	50.58	28
			#140	58.27	24
			#200	63.00	22

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	27	32	11	14	21	46			22

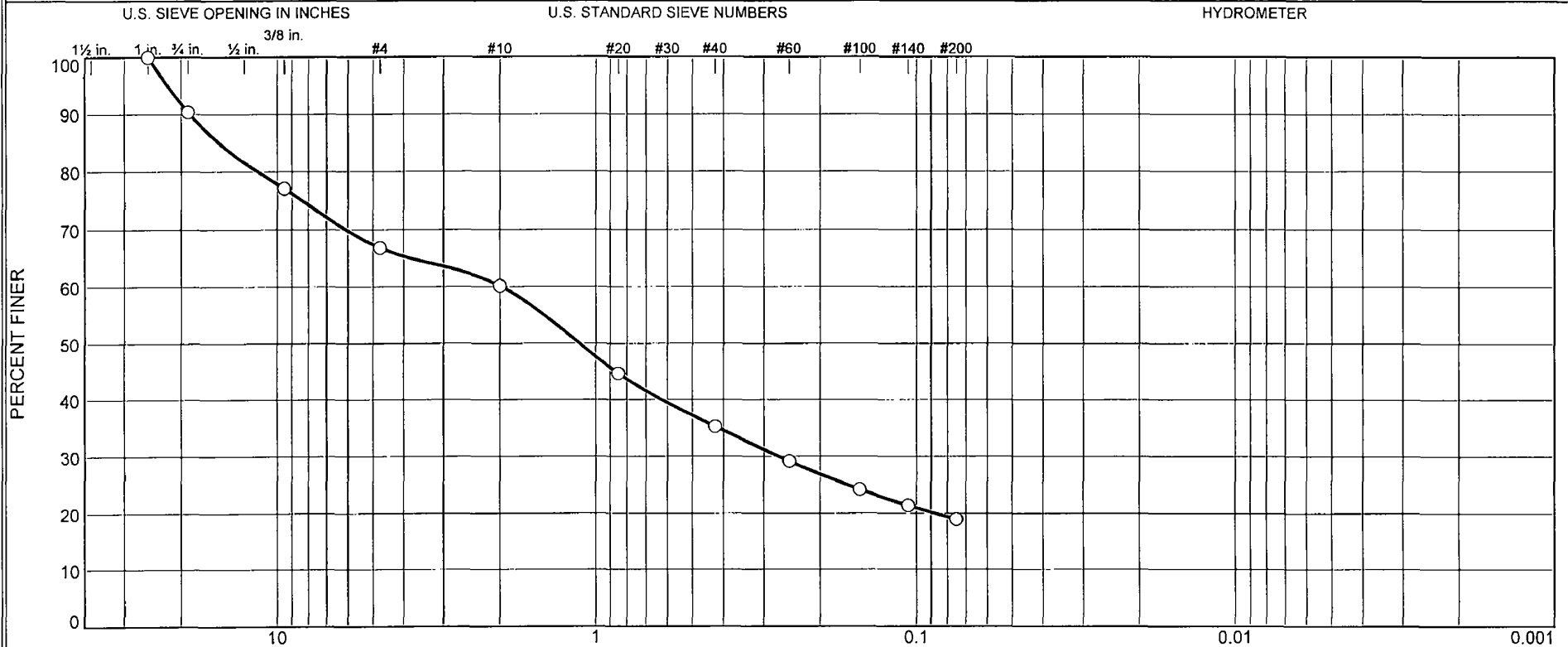
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1673	0.9481	2.6928	8.8753	11.4890	14.9759	19.5360

Fineness Modulus

3.33

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
10	23	7	25	16	19	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-607	607-6	12.5-14.0	3/7/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-607

Depth: 12.5-14.0

Sample Number: 607-6

Material Description: Light Gray Silty SAND with gravel (Visual)

Date: 3/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
490.55	0.00	0.00	1	0.00	100
			3/4	46.98	90
			3/8"	112.26	77
			#4	162.74	67
			#10	195.42	60
95.97	0.00	0.00	#20	24.74	45
			#40	39.77	35
			#60	49.47	29
			#100	57.40	24
			#140	61.88	21
			#200	65.73	19

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	23	33	7	25	16	48			19

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0874	0.2702	1.1255	1.9744	11.4850	15.2601	18.7699	22.0136

Fineness Modulus

3.58

MACTEC Engineering and Consulting, Inc.

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

Sieve Opening (inches)	Sieve Number	Percent Finer (%)
1 1/2		100
1		100
3/4		100
1/2		100
3/8		100
#4		100
#10		100
#20		100
#30		100
#40		100
#60		98
#100		95
#140		68
#200		31
#400		20
#600		19
#800		17
#1000		16
#1200		15
#1400		13
#1600		10

GRAIN SIZE - mm.						
% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.4	0.4	0.9	67.6	16.3	14.4

[illegible]

<p>○ SIEVE ANALYSIS AND HYDROMETER ONLY</p> <p>Specific Gravity is assumed</p> <p>ND = Not Determined</p> <p>Calcite Equivalent = 19% (ASTM D 4373-02)</p>
--

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-607

Depth: 129.5-131.0

Sample Number: 607-9

Material Description: Olive Silty SAND (Visual)

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 19% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
296.07	0.00	0.00	3/8"	0.00	100.0
			#4	1.20	99.6
			#10	2.44	99.2
100.16	0.00	0.00	#20	0.50	98.7
			#40	0.91	98.3
			#60	1.27	97.9
			#100	4.38	94.8
			#140	31.03	68.5
			#200	69.13	30.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.2

Weight of hydrometer sample = 100.16

Hygroscopic moisture correction:

Moist weight and tare = 29.04

Dry weight and tare = 28.93

Tare weight = 15.41

Hygroscopic moisture = 0.8%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	26.0	20.3	0.0132	27.0	11.9	0.0323	20.1
5.00	21.2	25.0	19.3	0.0132	26.0	12.0	0.0205	19.1
15.00	21.2	23.0	17.3	0.0132	24.0	12.4	0.0120	17.1
30.00	21.2	22.0	16.3	0.0132	23.0	12.5	0.0086	16.1
60.00	21.1	21.0	15.3	0.0133	22.0	12.7	0.0061	15.1
250.00	21.8	18.0	12.5	0.0131	19.0	13.2	0.0030	12.3
1440.00	21.9	15.0	9.5	0.0131	16.0	13.7	0.0013	9.4

MACTEC Engineering and Consulting, Inc.

Fractional Components

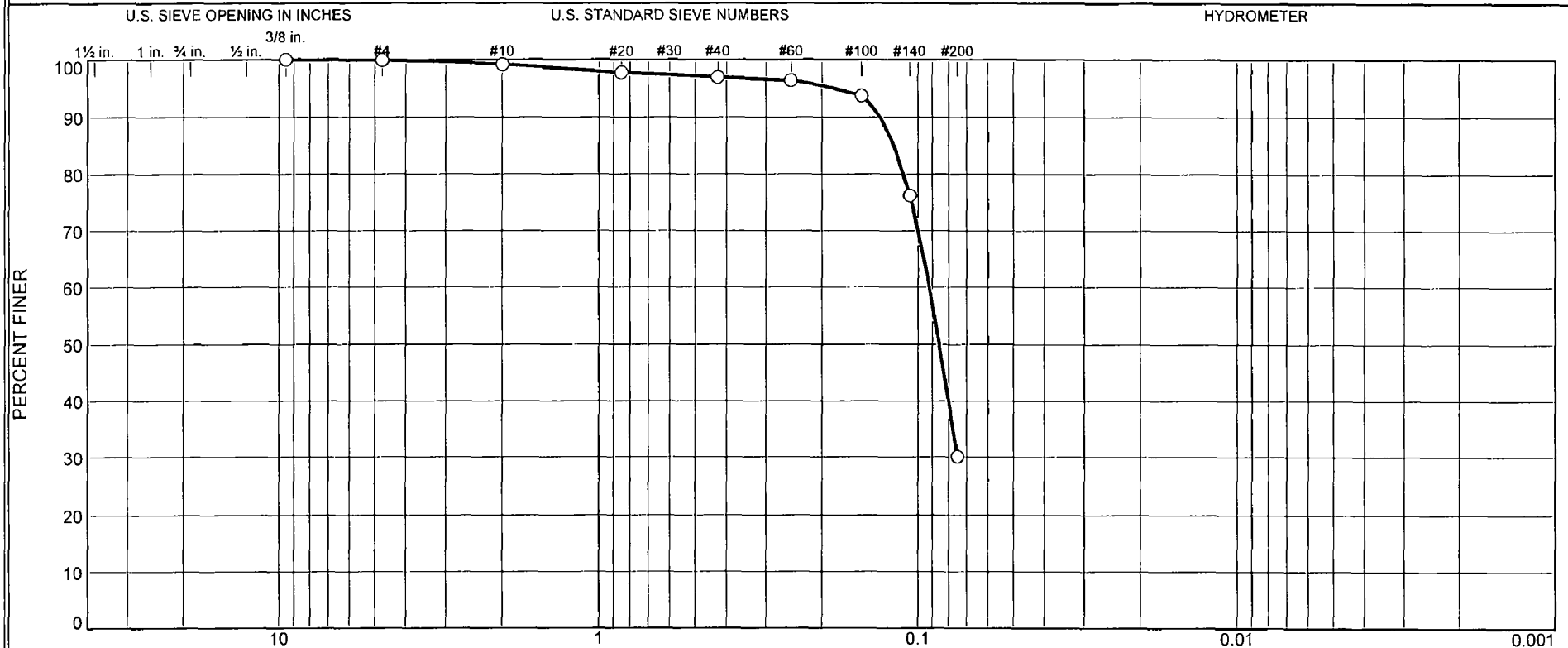
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.4	0.9	67.6	68.9	16.3	14.4	30.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0016	0.0059	0.0310	0.0722	0.0902	0.0983	0.1193	0.1269	0.1364	0.1528

Fineness Modulus	C _u	C _c
0.11	62.90	33.93

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	67	30	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-607	607-10	139.5-141.0	3/9/08	SC-SM	Olive Silty, Clayey SAND	ND	18	14

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950 Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-607

Depth: 139.5-141.0

Sample Number: 607-10

Material Description: Olive Silty, Clayey SAND

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: 18

Plastic Limit: 14

USCS Class.: SC-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
351.90	0.00	0.00	3/8"	0.00	100
			#4	0.48	100
			#10	2.86	99
103.43	0.00	0.00	#20	1.48	98
			#40	2.30	97
			#60	2.89	96
			#100	5.68	94
			#140	23.87	76
			#200	72.04	30

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	2	67	70			30

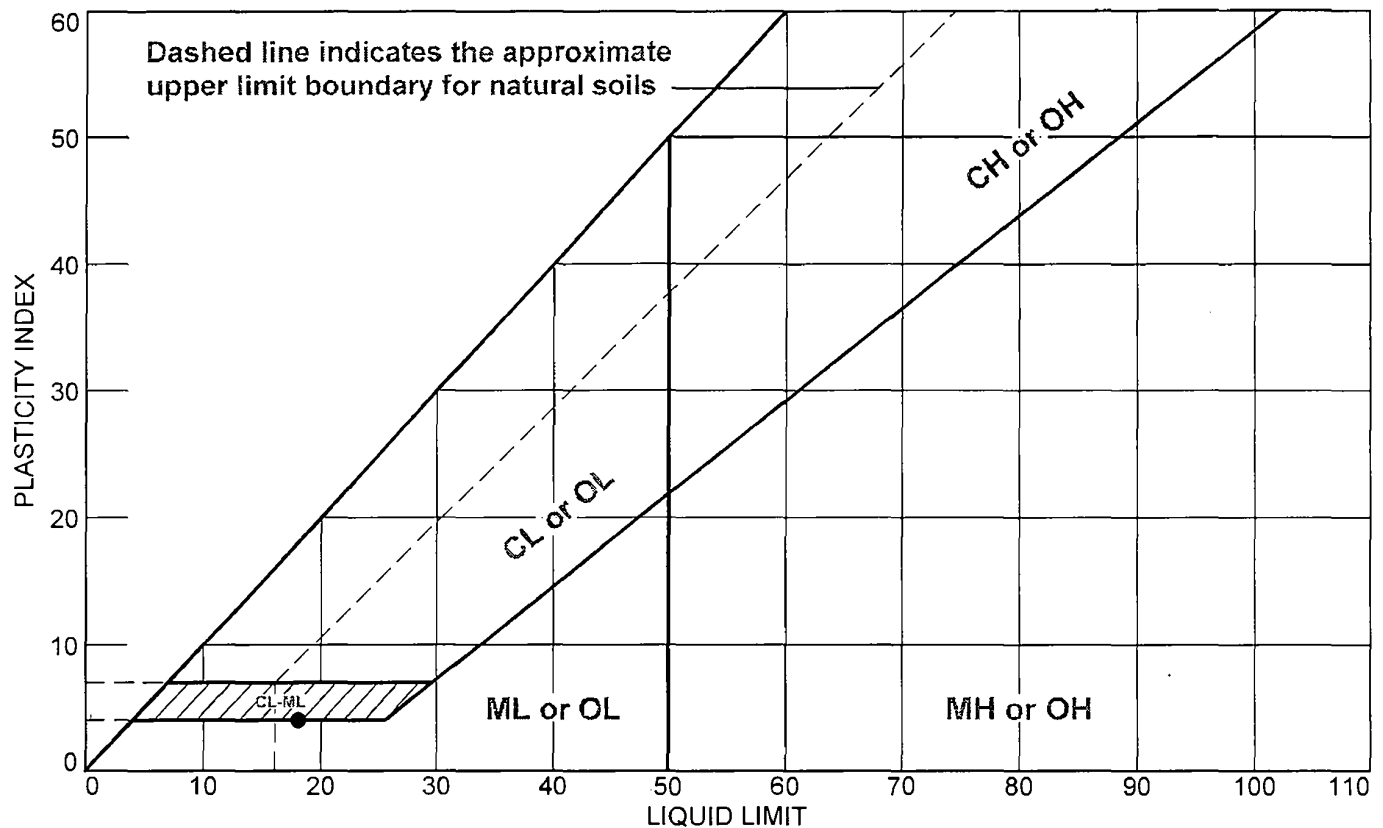
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0856	0.0920	0.1106	0.1187	0.1314	0.1820

Fineness Modulus

0.15

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA							
SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
• Boring B-607	607-10	139.5-141.0	ND	14	18	4	SC-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-607

Depth: 139.5-141.0

Sample Number: 607-10

Material Description: Olive Silty, Clayey SAND

USCS: SC-SM

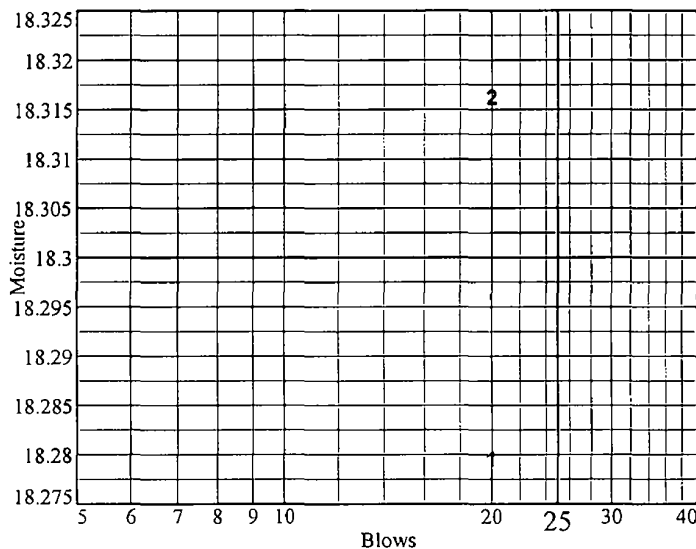
AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.63	25.92				
Dry+Tare	24.93	24.31				
Tare	15.63	15.52				
# Blows	20	20				
Moisture	18.3	18.3				



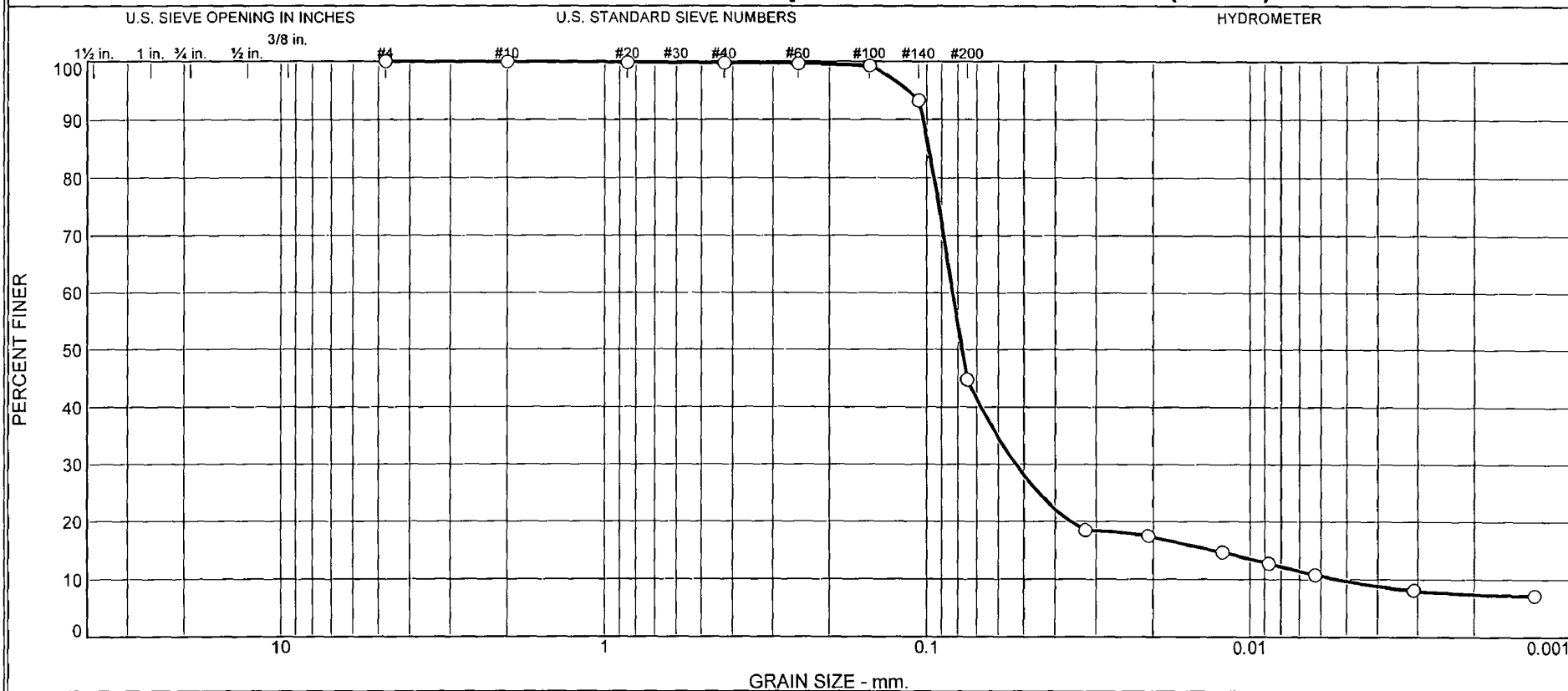
Liquid Limit= 18
 Plastic Limit= 14
 Plasticity Index= 4
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.44	24.61			
Dry+Tare	22.48	23.46			
Tare	15.48	15.62			
Moisture	13.7	14.7			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	55.0	35.0	9.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-607	607-12	151.0-152.5	3/9/08	SM	Olive Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-607

Depth: 151.0-152.5

Sample Number: 607-12

Material Description: Olive Silty SAND (Visual)

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
290.13	0.00	0.00	#4	0.00	100.0
			#10	0.15	99.9
104.30	0.00	0.00	#20	0.13	99.8
			#40	0.21	99.7
			#60	0.28	99.7
			#100	0.70	99.3
			#140	7.00	93.2
			#200	57.62	44.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.9

Weight of hydrometer sample = 104.30

Hygroscopic moisture correction:

Moist weight and tare = 28.90

Dry weight and tare = 28.82

Tare weight = 15.47

Hygroscopic moisture = 0.6%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	25.0	19.4	0.0132	26.0	12.0	0.0324	18.5
5.00	21.2	24.0	18.3	0.0132	25.0	12.2	0.0207	17.5
15.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0122	14.6
30.00	21.2	19.0	13.3	0.0132	20.0	13.0	0.0087	12.7
60.00	21.1	17.0	11.3	0.0133	18.0	13.3	0.0063	10.8
250.00	21.9	14.0	8.5	0.0131	15.0	13.8	0.0031	8.1
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.2

MACTEC Engineering and Consulting, Inc.

Fractional Components

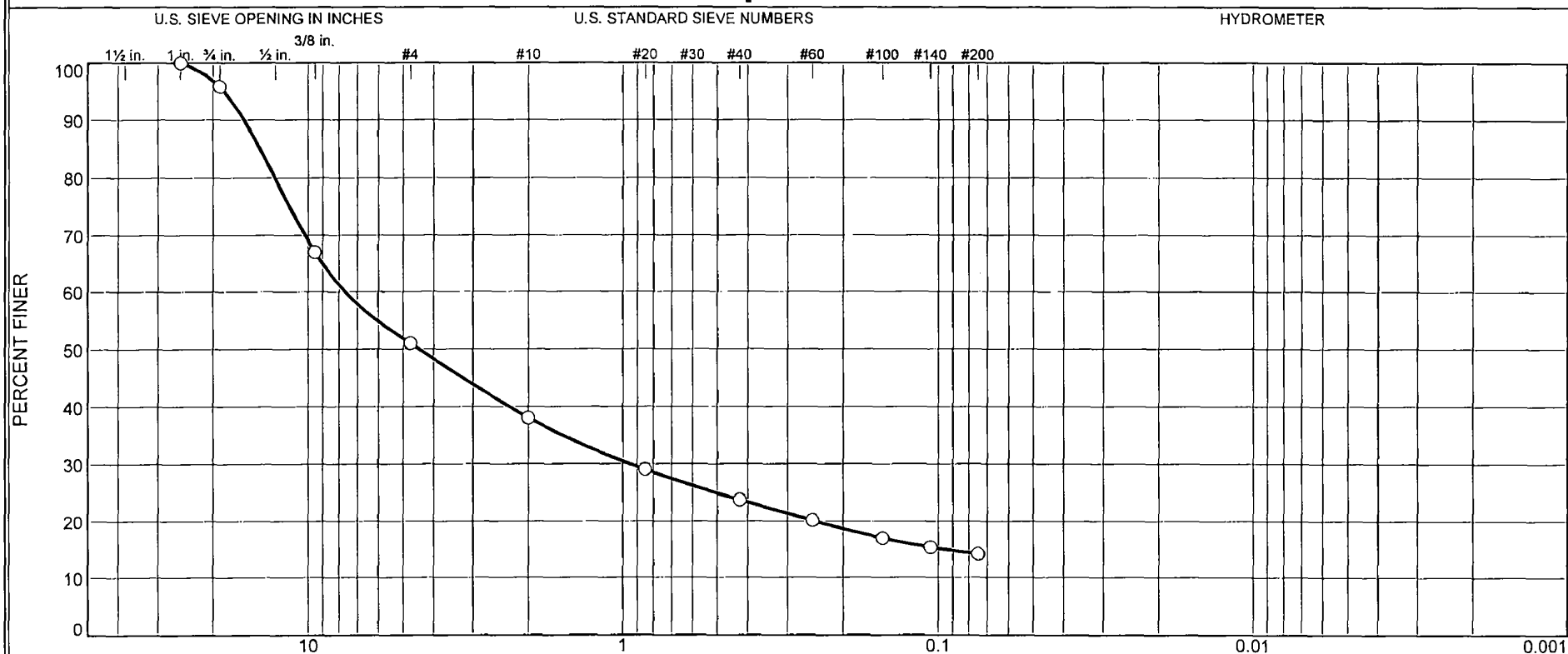
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	55.0	55.3	35.0	9.7	44.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0054	0.0131	0.0360	0.0530	0.0779	0.0832	0.0948	0.0983	0.1026	0.1146

Fineness Modulus	C _u	C _c
0.01	15.53	6.30

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
4	45	13	14	10	14	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-7	18.5-20.0	3/25/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 18.5-20.0

Sample Number: 608-7

Material Description: White Silty GRAVEL with sand (Visual)

Date: 3/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
474.13	0.00	0.00	1	0.00	100
			3/4	19.66	96
			3/8"	156.48	67
			#4	232.30	51
			#10	293.60	38
98.07	0.00	0.00	#20	23.34	29
			#40	37.01	24
			#60	46.24	20
			#100	54.37	17
			#140	58.47	15
			#200	61.48	14

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	45	49	13	14	10	37			14

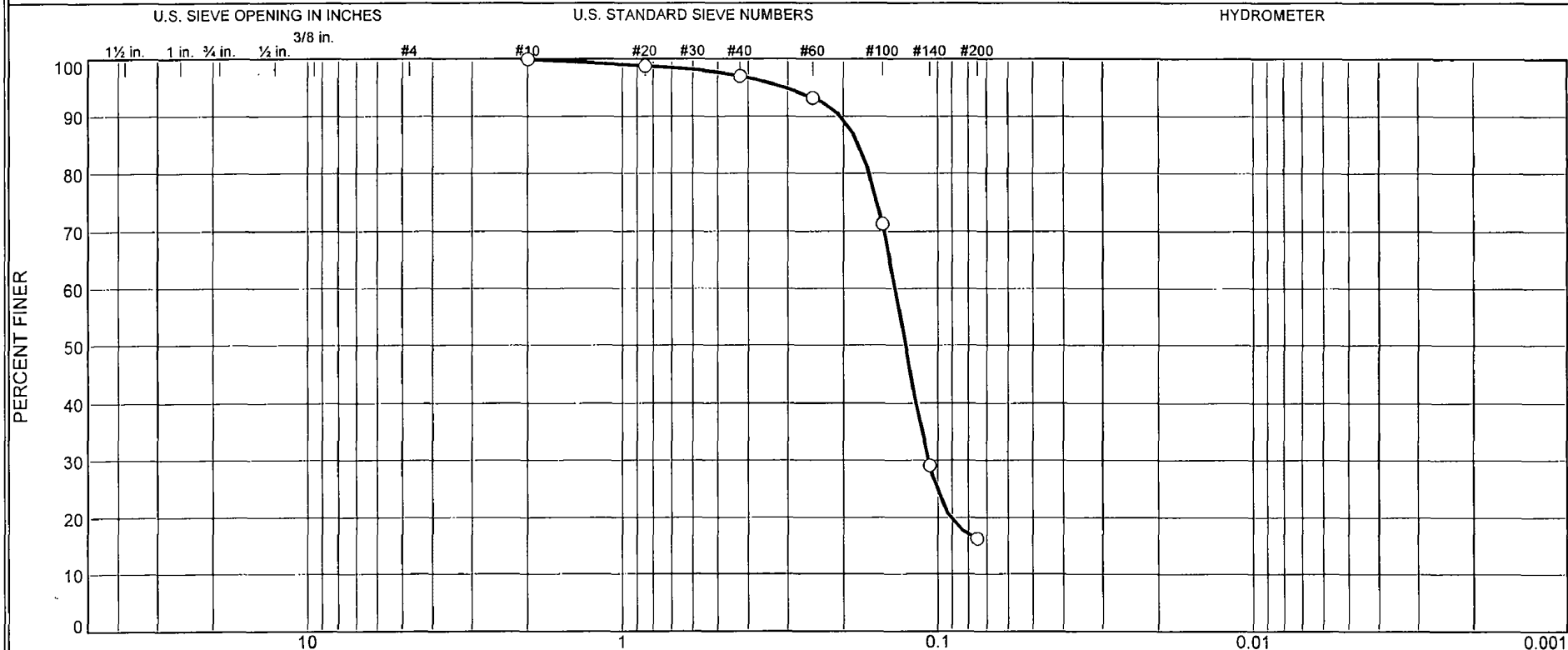
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0957	0.2454	0.9508	4.4531	7.6451	12.7424	14.1861	15.9434	18.4433

Fineness Modulus

4.49

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	3	81	16	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-11	117.8-119.3	3/27/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 117.8-119.3

Sample Number: 608-11

Material Description: Pale Yellow Silty SAND (Visual)

Date: 3/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
312.88	0.00	0.00	#10	0.00	100
95.48	0.00	0.00	#20	1.14	99
			#40	2.84	97
			#60	6.48	93
			#100	27.42	71
			#140	67.72	29
			#200	79.94	16

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	3	81	84			16

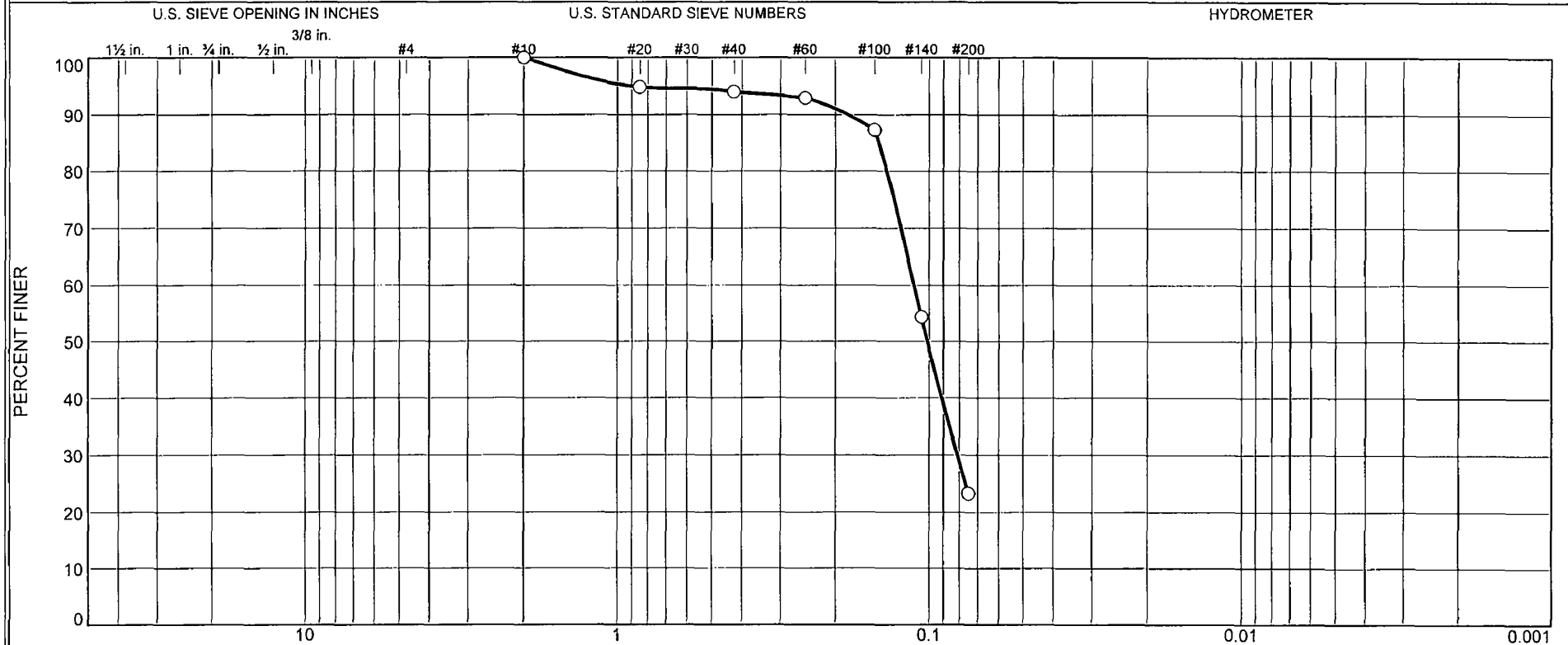
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0912	0.1071	0.1266	0.1365	0.1654	0.1792	0.2042	0.3058

Fineness Modulus

0.36

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel			% Sand			% Fines	
Coarse	Fine		Coarse	Medium	Fine	Silt	Clay
0	0		0	6	71	23	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-12	128.0-129.5	3/27/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 128.0-129.5

Sample Number: 608-12

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 104.19

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
104.19	0.00	0.00	#10	0.00	100
			#20	5.38	95
			#40	6.21	94
			#60	7.35	93
			#100	13.23	87
			#140	47.54	54
			#200	79.91	23

Fractional Components

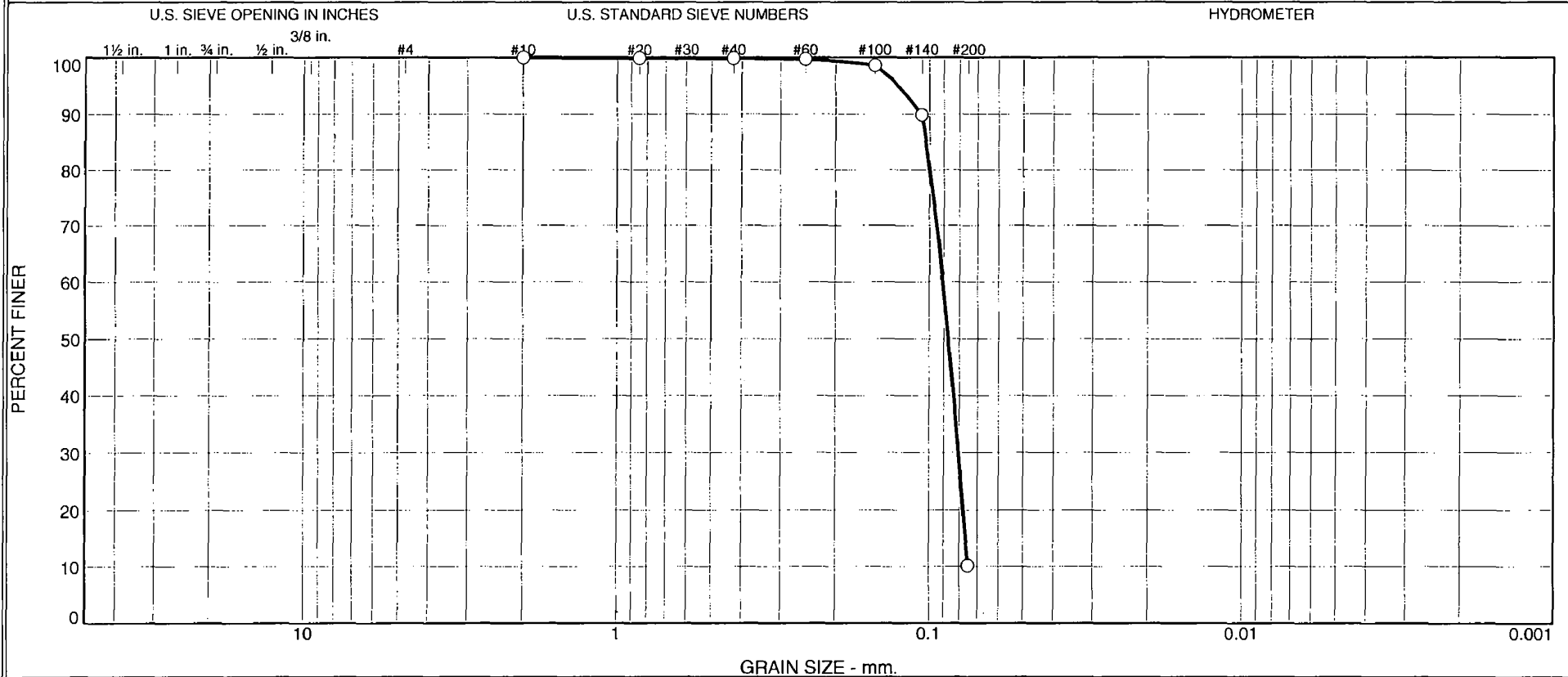
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	6	71	77			23

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0812	0.1015	0.1119	0.1363	0.1450	0.1825	0.9066

Fineness Modulus
0.29

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	90	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-14	148.0-149.5	3/27/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 148.0-149.5

Sample Number: 608-14

Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)

Date: 3/27/08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
282.69	0.00	0.00	#10	0.00	100
99.77	0.00	0.00	#20	0.10	100
			#40	0.15	100
			#60	0.26	100
			#100	1.34	99
			#140	10.10	90
			#200	89.61	10

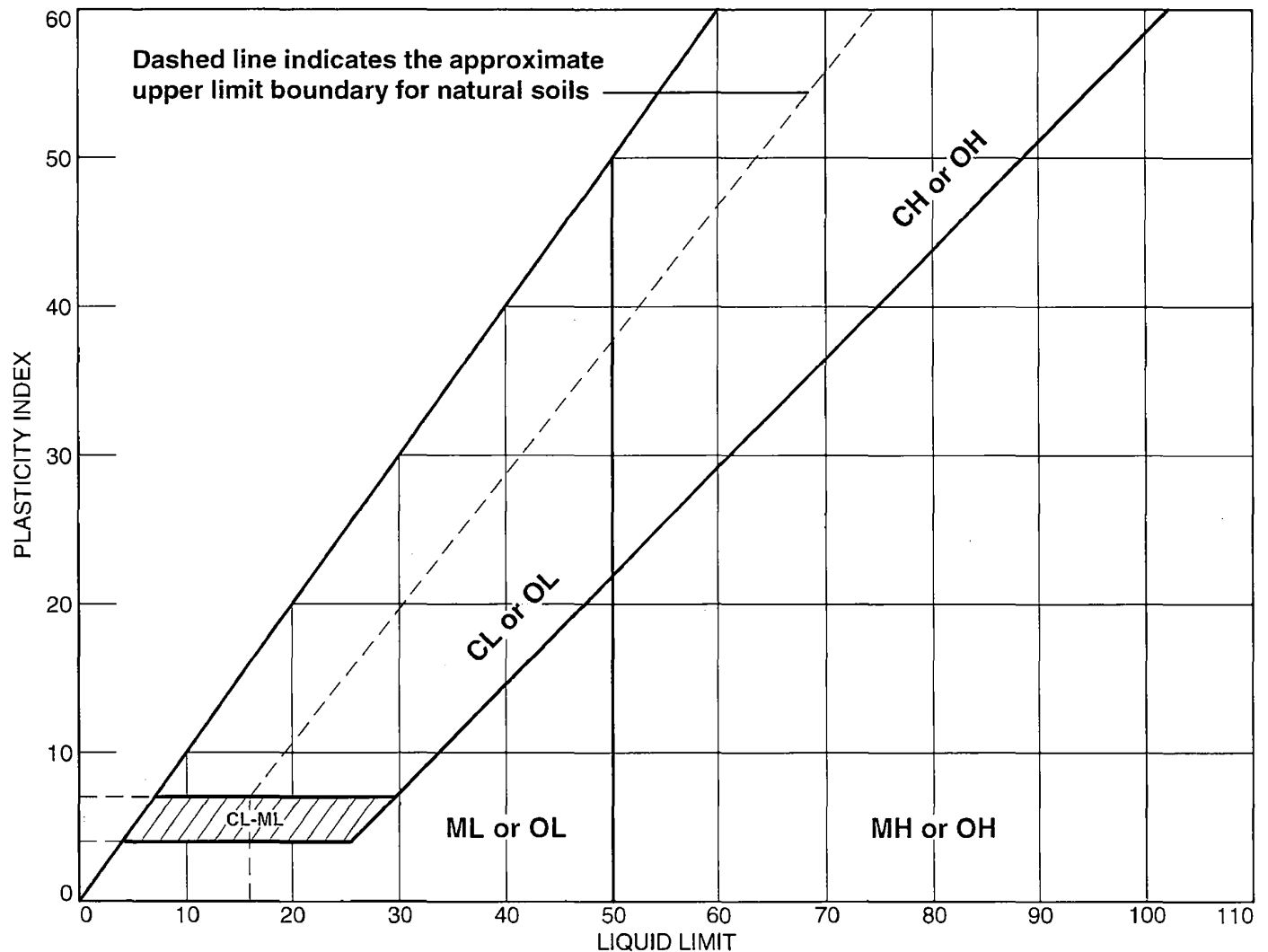
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	90	90			10

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0763	0.0777	0.0805	0.0867	0.0903	0.0994	0.1024	0.1064	0.1257

Fineness Modulus
0.02

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-608(DH)	608-14	148.0-149.5	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 148.0-149.5

Sample Number: 608-14

Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)

USCS: SP-SM

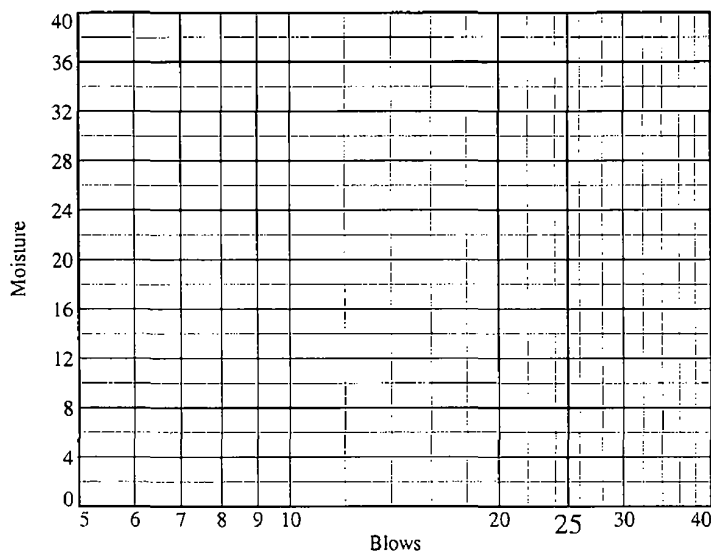
AASHTO: A-3

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



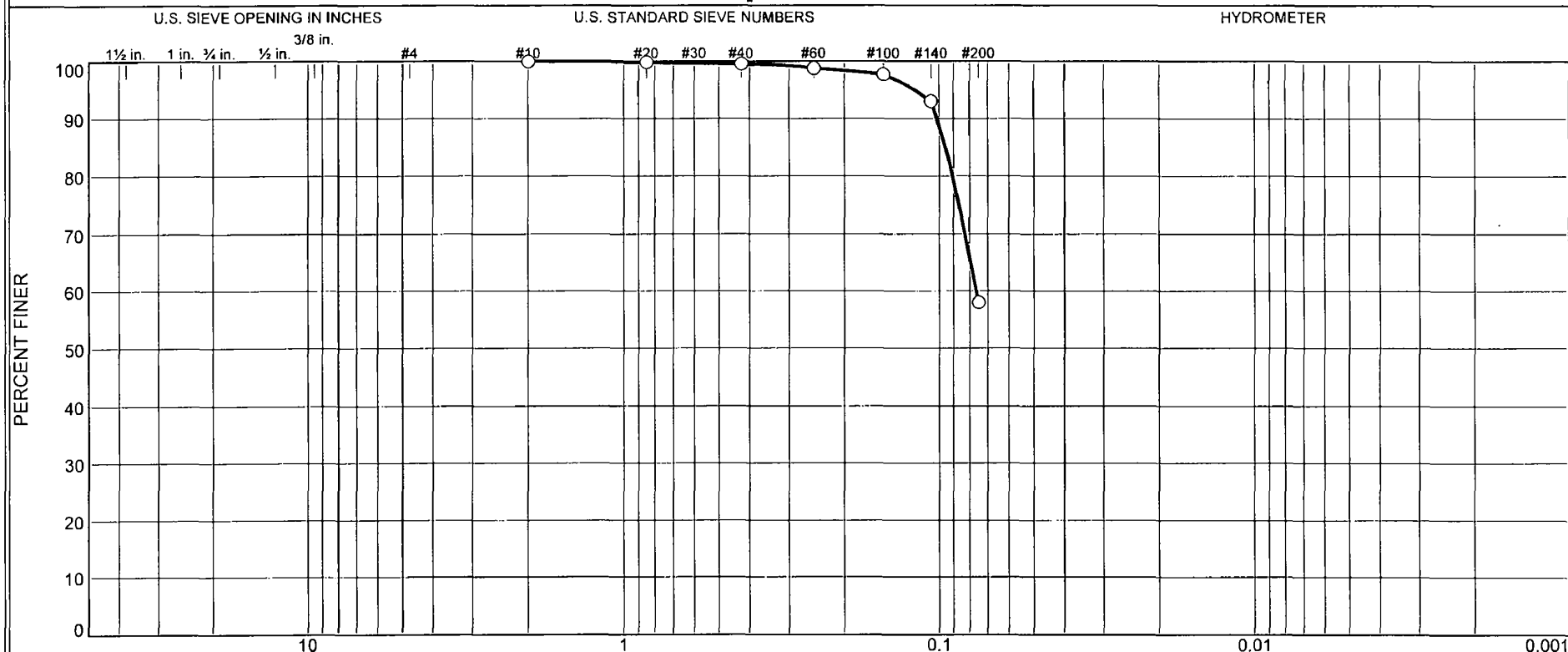
Liquid Limit= NV
 Plastic Limit= NP
 Plasticity Index= NP
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	42	58	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-17	178.0-179.5	4/1/08	ML	Dark Greenish Gray Sandy SILT	ND	24	22

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined Calcite Equivalent = 22% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 178.0-179.5

Sample Number: 608-17

Material Description: Dark Greenish Gray Sandy SILT

Date: 4/1/08

Natural Moisture: ND

Liquid Limit: 24

Plastic Limit: 22

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Calcite Equivalent = 22% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
269.14	0.00	0.00	#10	0.00	100
100.15	0.00	0.00	#20	0.15	100
			#40	0.46	100
			#60	1.21	99
			#100	2.26	98
			#140	6.98	93
			#200	42.10	58

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	42	42			58

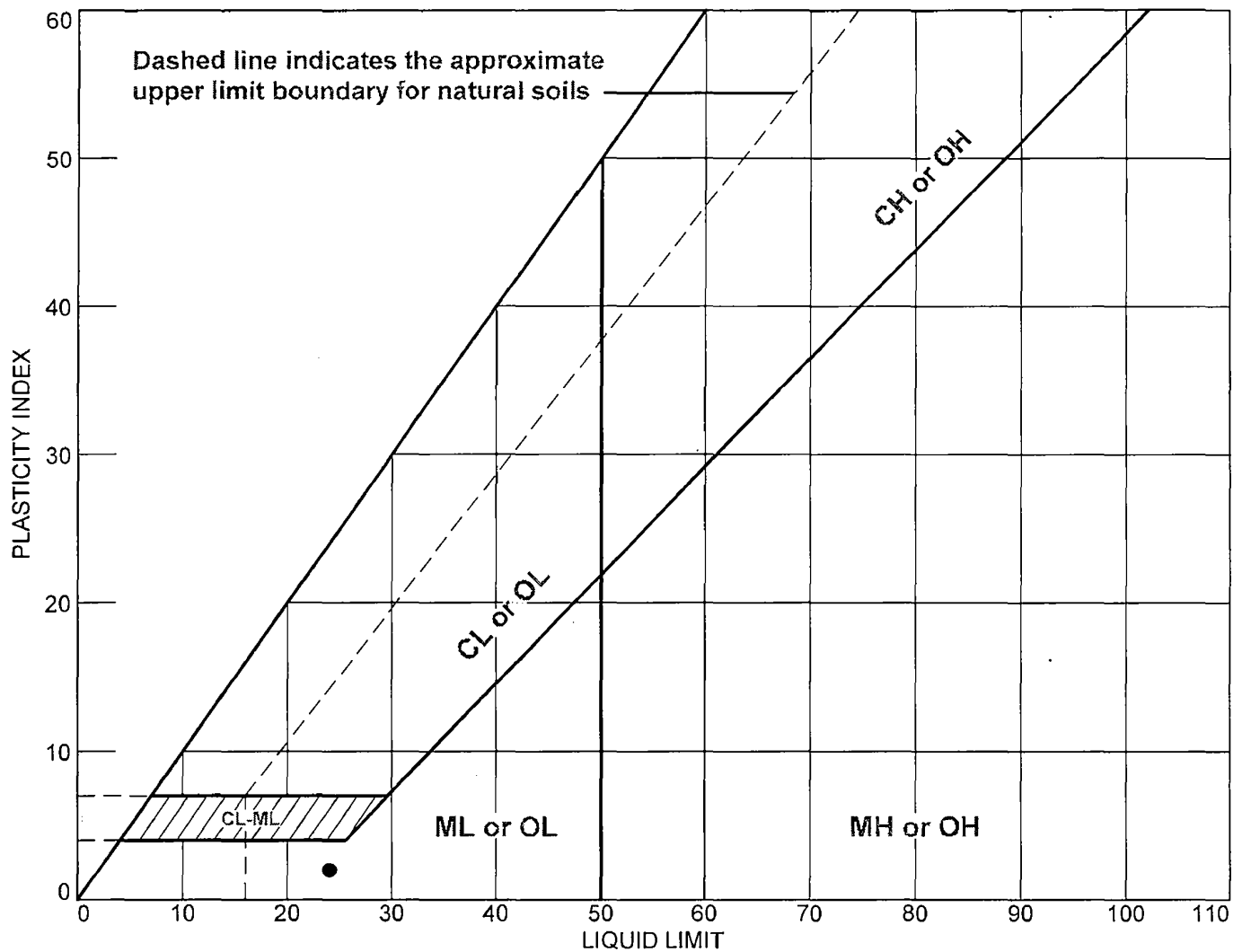
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0762	0.0905	0.0952	0.1012	0.1193

Fineness Modulus

0.03

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-608(DH)	608-17	178.0-179.5	ND	22	24	2	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

PSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 178.0-179.5

Sample Number: 608-17

Material Description: Dark Greenish Gray Sandy SILT

USCS: ML

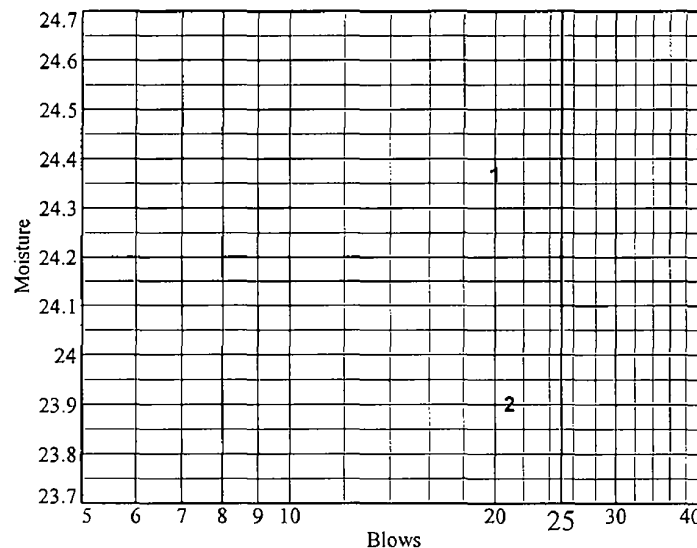
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.84	32.72				
Dry+Tare	29.46	29.40				
Tare	15.59	15.51				
# Blows	20	21				
Moisture	24.4	23.9				



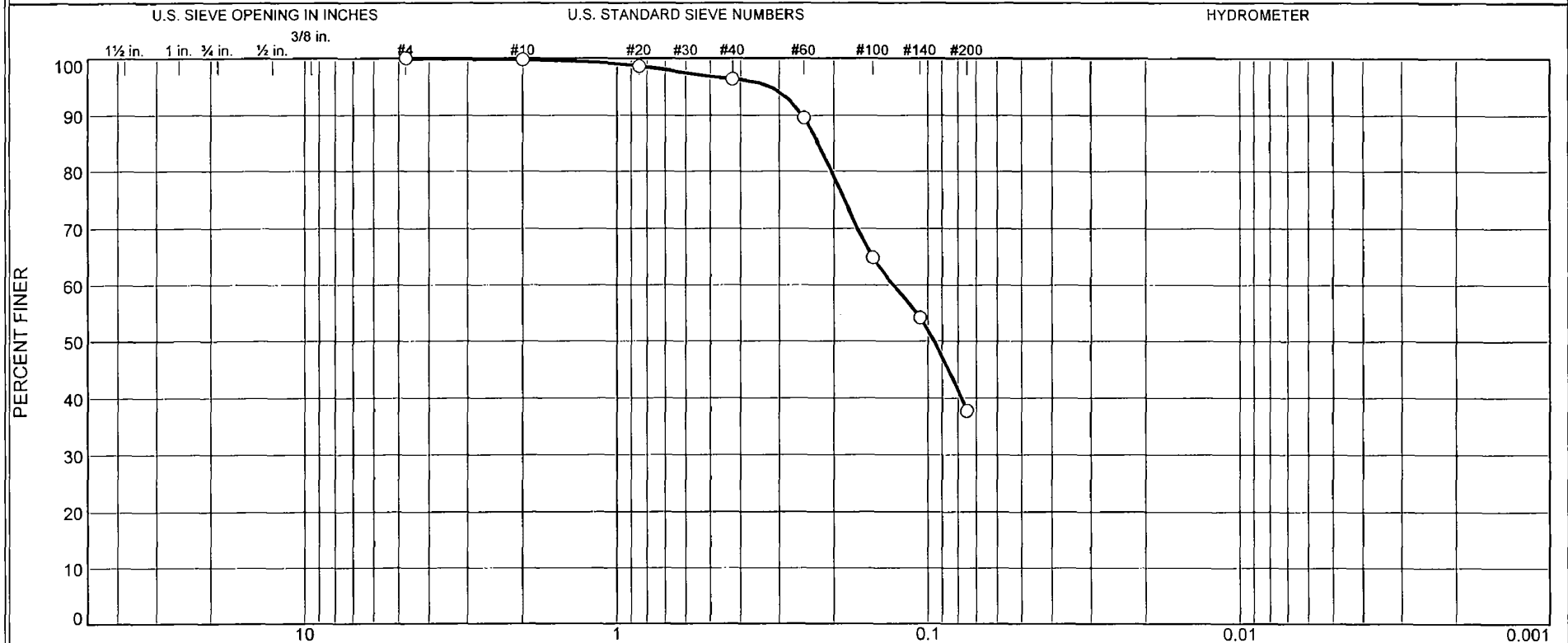
Liquid Limit= 24
 Plastic Limit= 22
 Plasticity Index= 2
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	26.75	28.10		
Dry+Tare	24.67	25.84		
Tare	15.60	15.51		
Moisture	22.9	21.9		

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	4	58	38	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-22	228.0-229.3	4/1/08	SM	Greenish Gray Silty SAND	ND	21	18

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined Calcite Equivalent = 34% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 228.0-229.3

Sample Number: 608-22

Material Description: Greenish Gray Silty SAND

Date: 4/1/08

Natural Moisture: ND

Liquid Limit: 21

Plastic Limit: 18

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Calcite Equivalent = 34% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
263.22	0.00	0.00	#4	0.00	100
			#10	0.61	100
100.66	0.00	0.00	#20	1.13	99
			#40	3.44	96
			#60	10.31	90
			#100	35.21	65
			#140	45.88	54
			#200	62.56	38

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	4	58	62			38

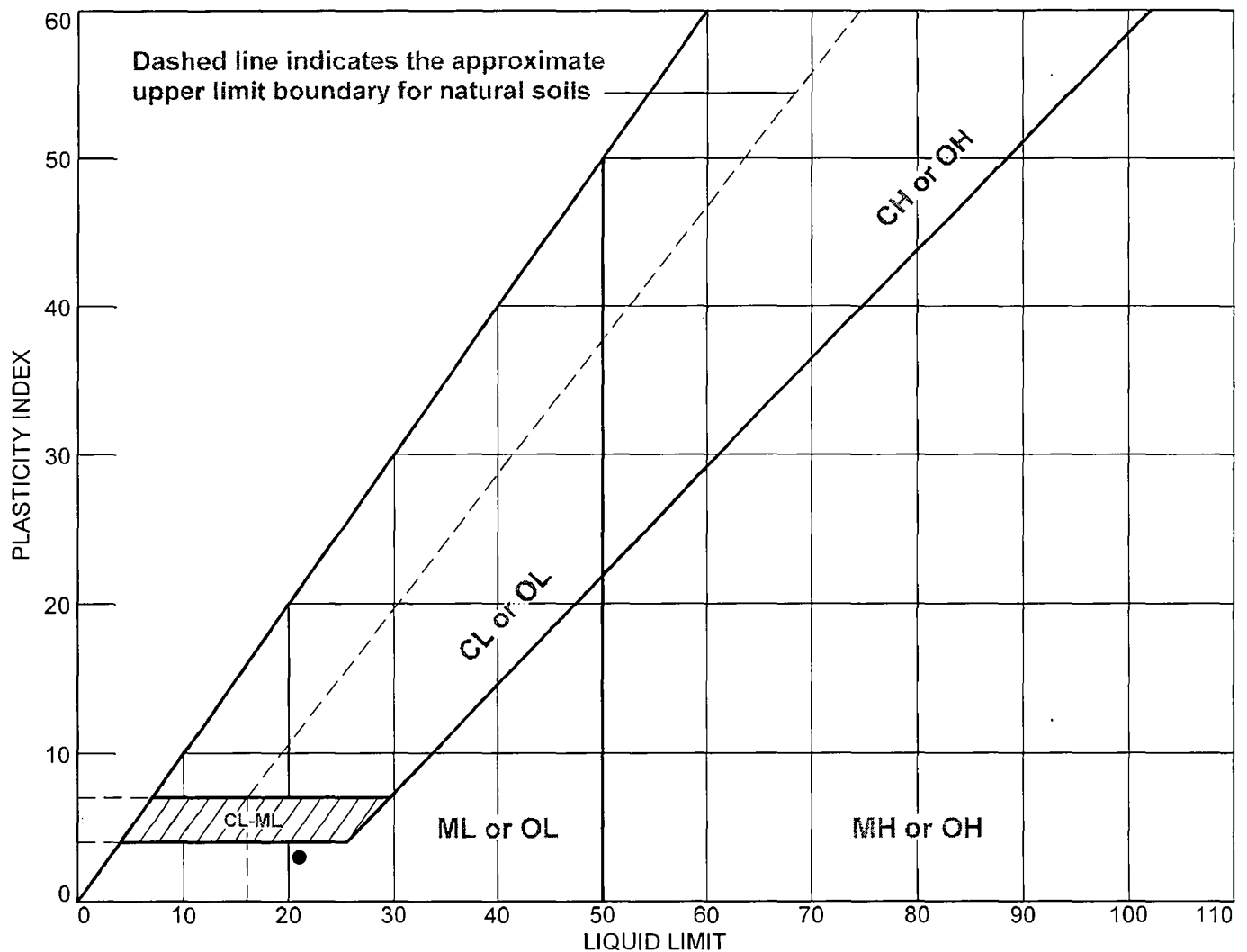
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0954	0.1287	0.2034	0.2245	0.2532	0.3200

Fineness Modulus

0.44

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-608(DH)	608-22	228.0-229.3	ND	18	21	3	SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 228.0-229.3

Sample Number: 608-22

Material Description: Greenish Gray Silty SAND

USCS: SM

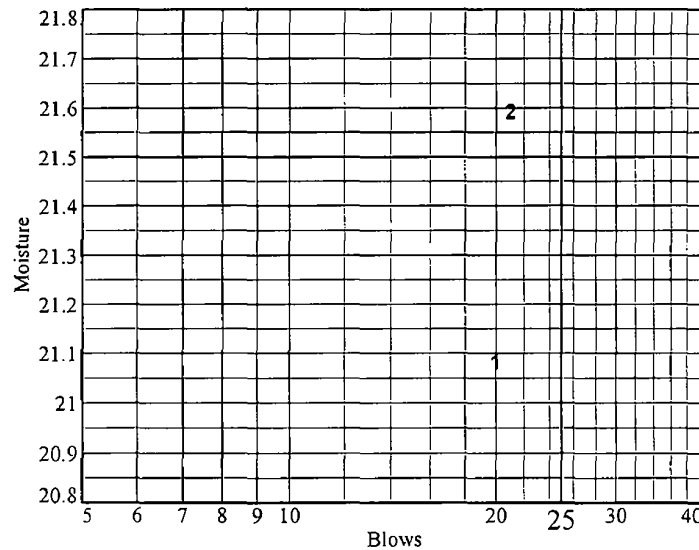
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.91	31.79				
Dry+Tare	25.73	28.89				
Tare	15.39	15.46				
# Blows	20	21				
Moisture	21.1	21.6				



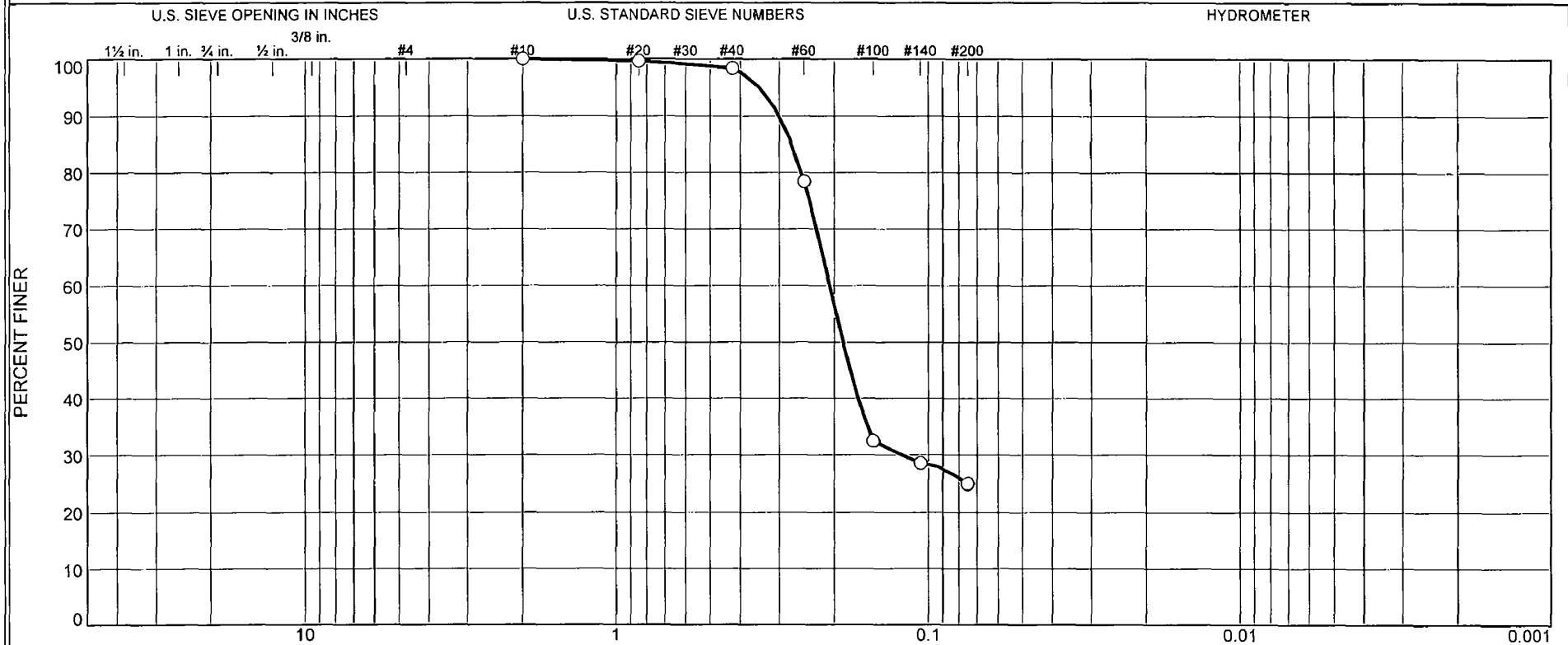
Liquid Limit= 21
 Plastic Limit= 18
 Plasticity Index= 3
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.36	26.36			
Dry+Tare	23.89	24.69			
Tare	15.55	15.49			
Moisture	17.6	18.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	73	25	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-608(DH)	608-24	248.9-250.4	4/2/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-608(DH)

Depth: 248.9-250.4

Sample Number: 608-24

Material Description: Greenish Gray Silty SAND (Visual)

Date: 4/2/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
257.27	0.00	0.00	#10	0.00	100
102.20	0.00	0.00	#20	0.39	100
			#40	1.68	98
			#60	22.02	78
			#100	69.05	32
			#140	73.02	29
			#200	76.66	25

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	2	73	75			25

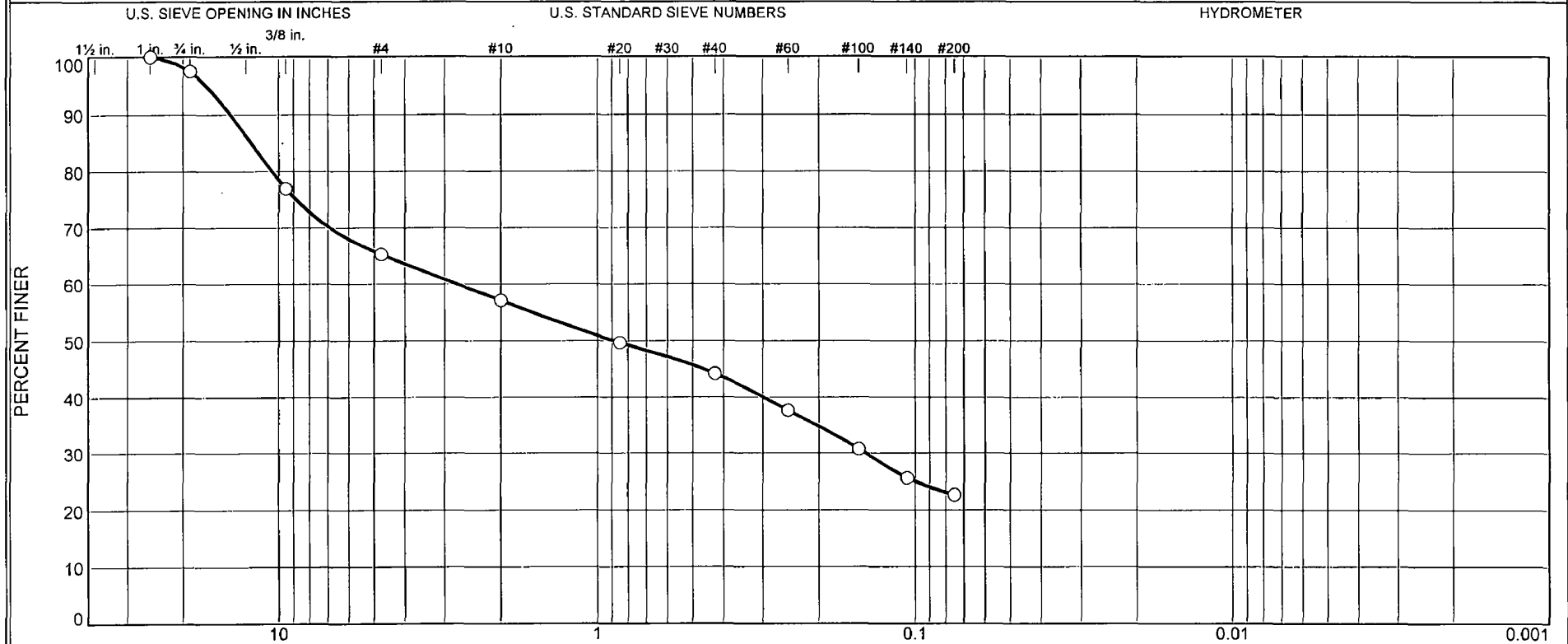
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1210	0.1875	0.2065	0.2549	0.2739	0.3007	0.3473

Fineness Modulus

0.79

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
2	33	8	13	21	23	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-609	609-3	5.0-6.5	3/10/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-609

Depth: 5.0-6.5

Sample Number: 609-3

Material Description: White Silty SAND with gravel (Visual)

Date: 3/10/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
328.03	0.00	0.00	1	0.00	100
			3/4	8.13	98
			3/8"	75.46	77
			#4	113.84	65
			#10	140.65	57
98.00	0.00	0.00	#20	12.79	50
			#40	22.13	44
			#60	33.42	38
			#100	45.28	31
			#140	54.18	26
			#200	59.22	23

Fractional Components

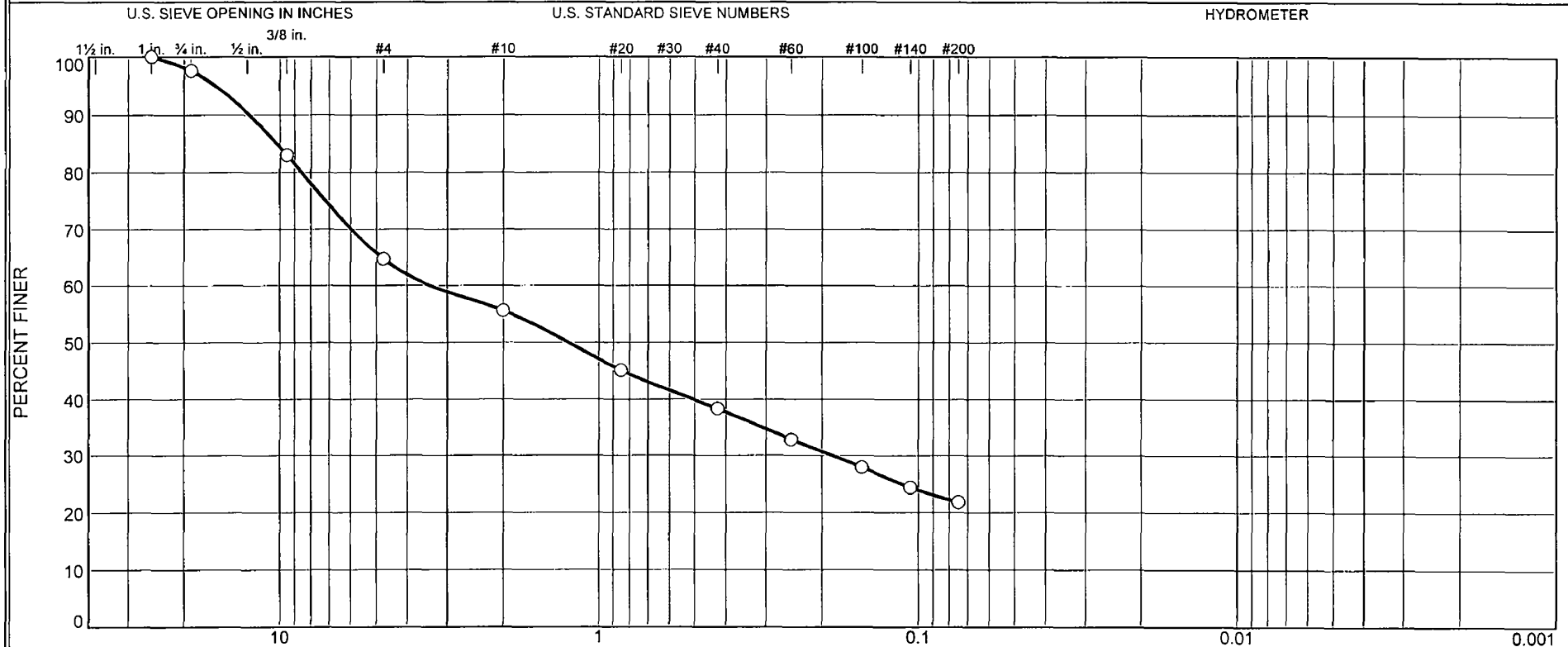
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	33	35	8	13	21	42			23

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1431	0.8882	2.7447	10.5227	12.2262	14.1970	16.8754

Fineness Modulus
3.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
2	33	9	18	16	22	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-610(DH)	610-4	7.5-9.0	3/24/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-610(DH)

Depth: 7.5-9.0

Sample Number: 610-4

Material Description: White Silty SAND with gravel (Visual)

Date: 3/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
425.08	0.00	0.00	1	0.00	100
			3/4	10.07	98
			3/8"	72.07	83
			#4	150.00	65
			#10	188.90	56
96.14	0.00	0.00	#20	18.11	45
			#40	29.81	38
			#60	39.27	33
			#100	47.85	28
			#140	54.05	24
			#200	58.41	22

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	33	35	9	18	16	43			22

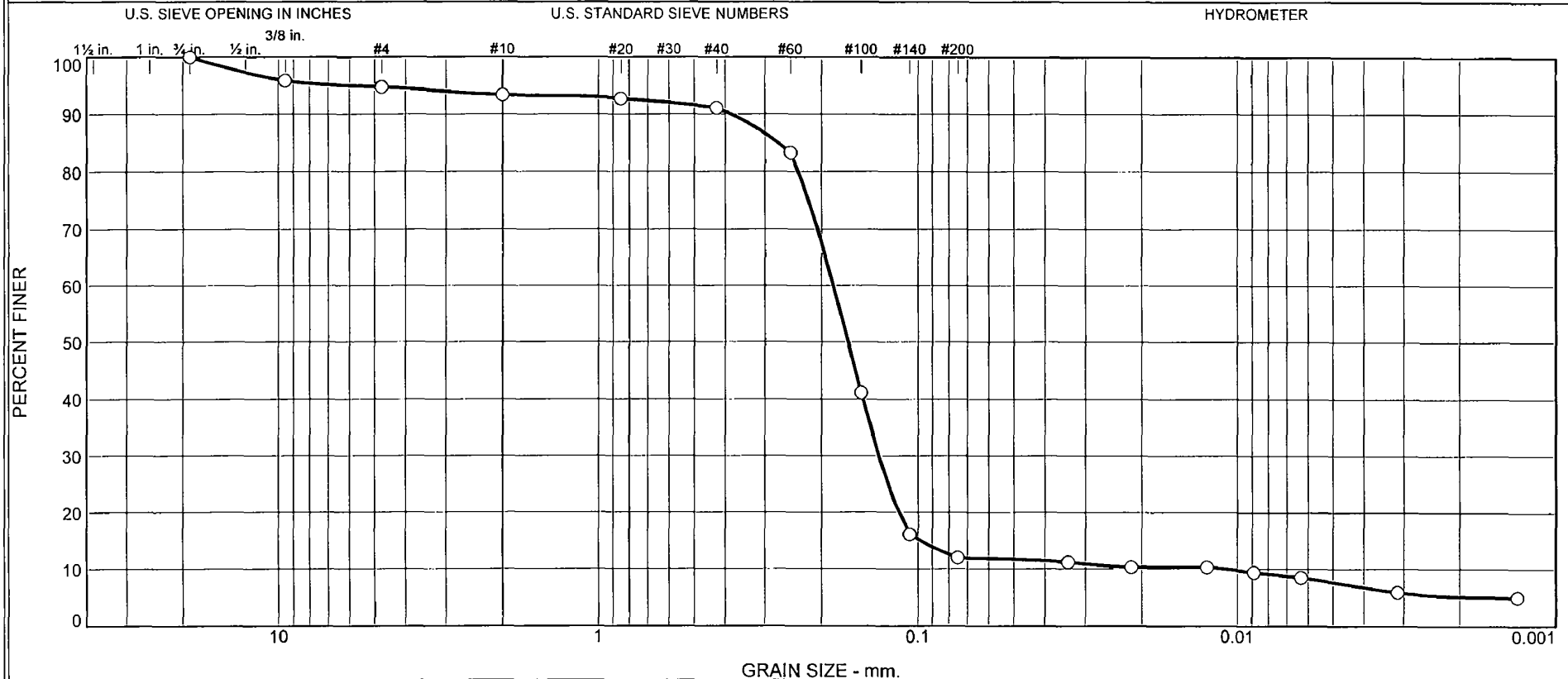
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1853	1.2512	3.3970	8.5554	10.2293	12.4668	15.9006

Fineness Modulus

3.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.3	1.3	2.3	79.1	4.3	7.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-610(DH)	610-8	116.0-117.5	3/26/08	SP-SM	Pale Yellow Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-610(DH)

Depth: 116.0-117.5

Sample Number: 610-8

Material Description: Pale Yellow Poorly Graded SAND with silt (Visual)

Date: 3/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
517.28	0.00	0.00	3/4	0.00	100.0
			3/8"	21.48	95.8
			#4	27.18	94.7
			#10	34.37	93.4
106.09	0.00	0.00	#20	0.77	92.7
			#40	2.61	91.1
			#60	11.46	83.3
			#100	59.38	41.1
			#140	87.83	16.1
			#200	92.50	12.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 93.4

Weight of hydrometer sample = 106.09

Hygroscopic moisture correction:

Moist weight and tare = 23.57

Dry weight and tare = 23.49

Tare weight = 11.14

Hygroscopic moisture = 0.6%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0339	11.2
5.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0216	10.3
15.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0125	10.3
30.00	21.3	16.0	10.7	0.0132	17.0	13.5	0.0089	9.4
60.00	21.3	15.0	9.7	0.0132	16.0	13.7	0.0063	8.5
250.00	21.5	12.0	6.8	0.0132	13.0	14.2	0.0031	6.0
1440.00	21.3	11.0	5.7	0.0132	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	1.3	2.3	79.1	82.7	4.3	7.7	12.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0108	0.0985	0.1147	0.1321	0.1649	0.1835	0.2359	0.2737	0.3837	6.1795

Fineness Modulus	C _u	C _c
1.03	16.96	8.79

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	4	0	2	58	31	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-610(DH)	610-10	132.5-134.0	3/26/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-610(DH)

Depth: 132.5-134.0

Sample Number: 610-10

Material Description: Olive Gray Silty SAND (Visual)

Date: 3/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
528.83	0.00	0.00	1	0.00	100
			3/4	28.41	95
			3/8"	40.83	92
			#4	45.57	91
			#10	46.64	91
98.89	0.00	0.00	#20	1.12	90
			#40	2.17	89
			#60	3.13	88
			#100	7.05	85
			#140	26.59	67
			#200	65.39	31

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	4	9	0	2	58	60			31

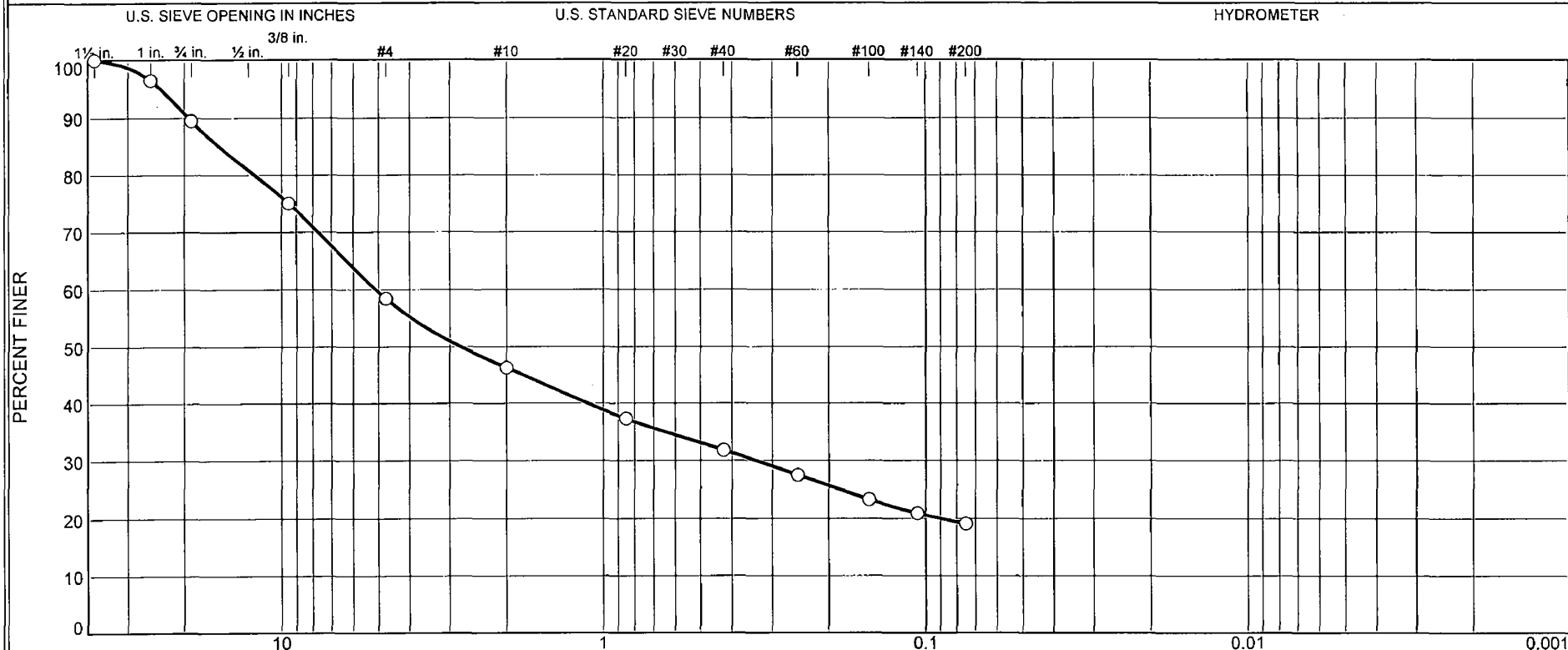
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0890	0.0983	0.1314	0.1551	0.7485	19.5453

Fineness Modulus

0.77

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
10	32	12	14	13	19	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-611	611-4	7.5-9.0	2/26/08	GM	Olive Silty GRAVEL (visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = NOT DETERMINED
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-611

Depth: 7.5-9.0

Sample Number: 611-4

Material Description: Olive Silty GRAVEL (visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = NOT DETERMINED

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
456.37	0.00	0.00	1.5	0.00	100
			1	15.82	97
			3/4	47.83	90
			3/8"	113.65	75
			#4	189.74	58
			#10	244.90	46
101.64	0.00	0.00	#20	19.91	37
			#40	31.89	32
			#60	41.32	27
			#100	50.49	23
			#140	55.78	21
			#200	59.77	19

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	32	42	12	14	13	39			19

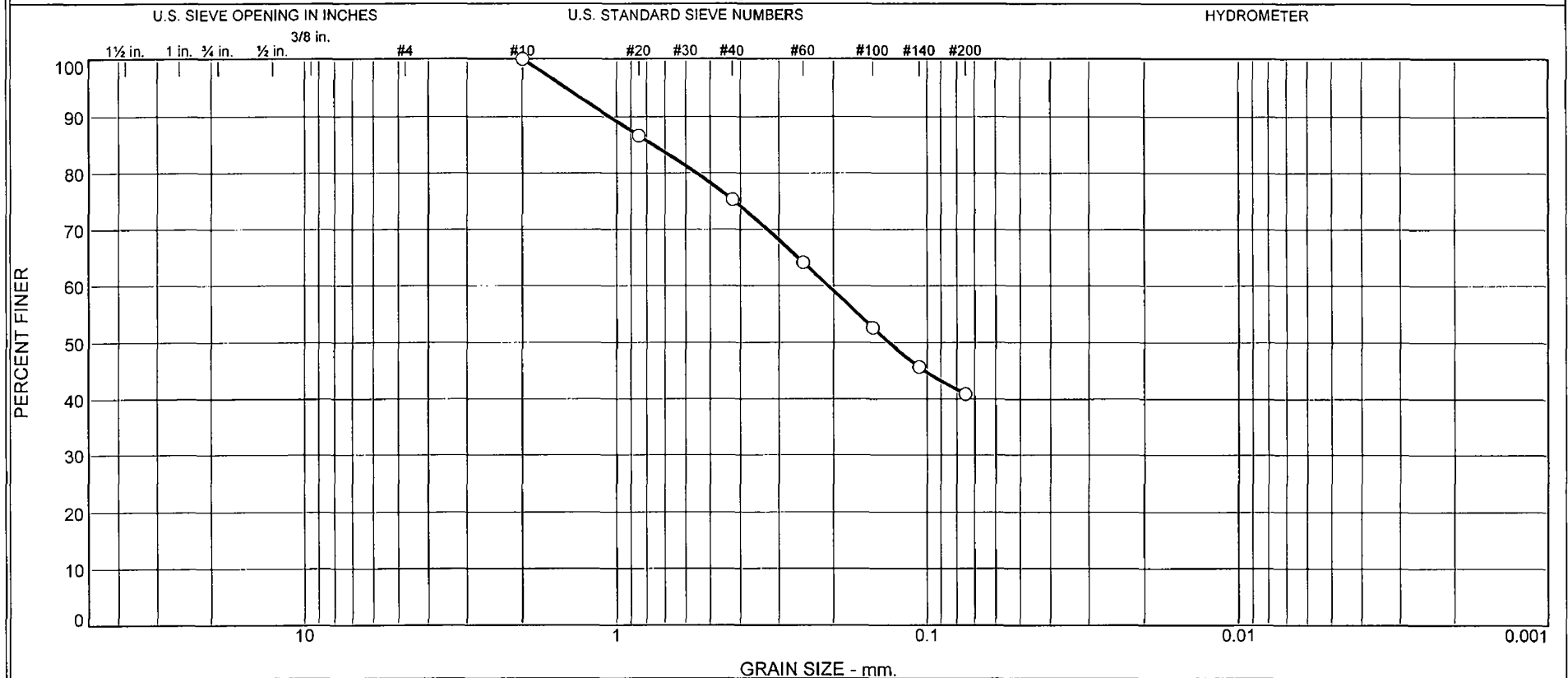
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0900	0.3384	2.7704	5.1110	12.1172	15.6202	19.4134	23.6131

Fineness Modulus

4.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	25	34	41	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-614	614-3	5.1-6.6	3/20/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-614

Depth: 5.1-6.6

Sample Number: 614-3

Material Description: White Silty SAND (Visual)

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
357.66	0.00	0.00	#10	0.00	100
97.88	0.00	0.00	#20	13.07	87
			#40	24.14	75
			#60	35.11	64
			#100	46.37	53
			#140	53.15	46
			#200	57.88	41

Fractional Components

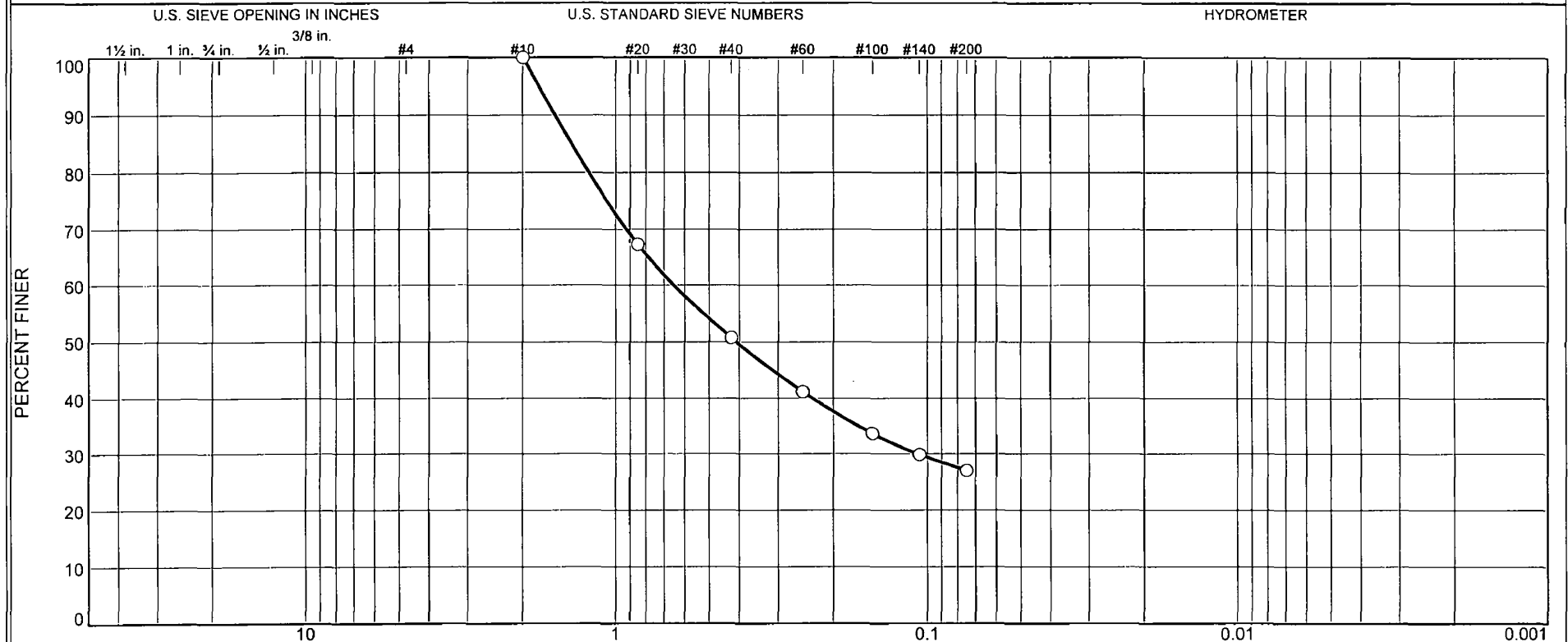
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	25	34	59			41

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1327	0.2084	0.5545	0.7628	1.0571	1.4562

Fineness Modulus
1.06

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	49	24	27	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-614	614-7	14.6-16.1	3/20/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950 Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-614

Depth: 14.6-16.1

Sample Number: 614-7

Material Description: White Silty SAND (Visual)

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
426.31	0.00	0.00	#10	0.00	100
97.89	0.00	0.00	#20	31.95	67
			#40	48.22	51
			#60	57.60	41
			#100	64.92	34
			#140	68.63	30
			#200	71.48	27

Fractional Components

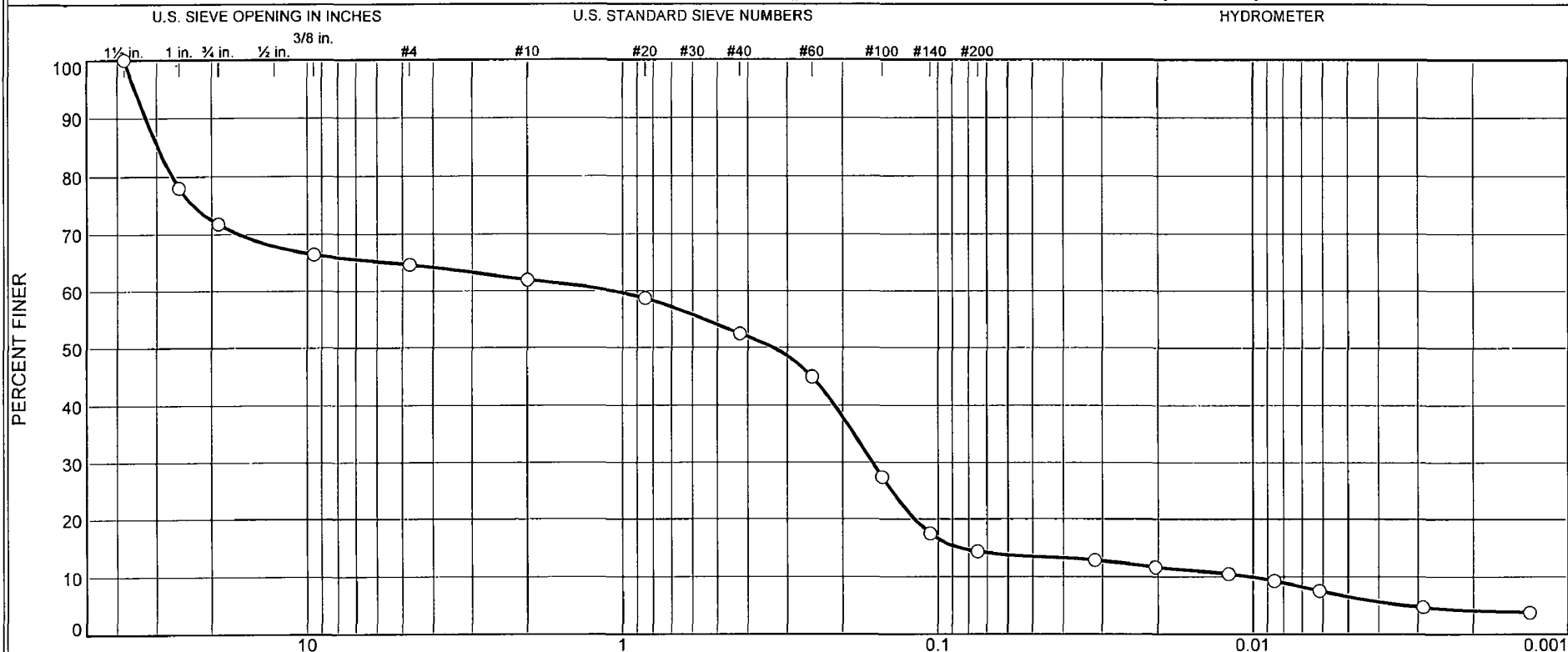
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	49	24	73			27

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1072	0.4092	0.6507	1.2226	1.3896	1.5724	1.7745

Fineness Modulus
1.85

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
28.2	7.1	2.7	9.5	38.2	7.7	6.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-614	614-11	116.4-117.9	3/22/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-614

Depth: 116.4-117.9

Sample Number: 614-11

Material Description: Light Gray Silty SAND with gravel (Visual)

Date: 3/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
405.70	0.00	0.00	1.5	0.00	100.0
			1	89.13	78.0
			3/4	114.60	71.8
			3/8"	136.02	66.5
			#4	143.39	64.7
			#10	154.24	62.0
104.38	0.00	0.00	#20	5.52	58.7
			#40	16.01	52.5
			#60	28.75	44.9
			#100	58.20	27.4
			#140	75.02	17.4
			#200	80.23	14.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 62.0

Weight of hydrometer sample = 104.38

Hygroscopic moisture correction:

Moist weight and tare = 30.10

Dry weight and tare = 30.09

Tare weight = 15.74

Hygroscopic moisture = 0.1%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	27.0	21.9	0.0131	28.0	11.7	0.0318	12.9
5.00	21.7	25.0	19.9	0.0132	26.0	12.0	0.0204	11.7
15.00	21.7	23.0	17.9	0.0132	24.0	12.4	0.0119	10.5
30.00	21.7	21.0	15.9	0.0132	22.0	12.7	0.0086	9.3
60.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0062	7.6
285.00	22.4	13.0	8.0	0.0131	14.0	14.0	0.0029	4.7
1440.00	20.5	12.0	6.5	0.0134	13.0	14.2	0.0013	3.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

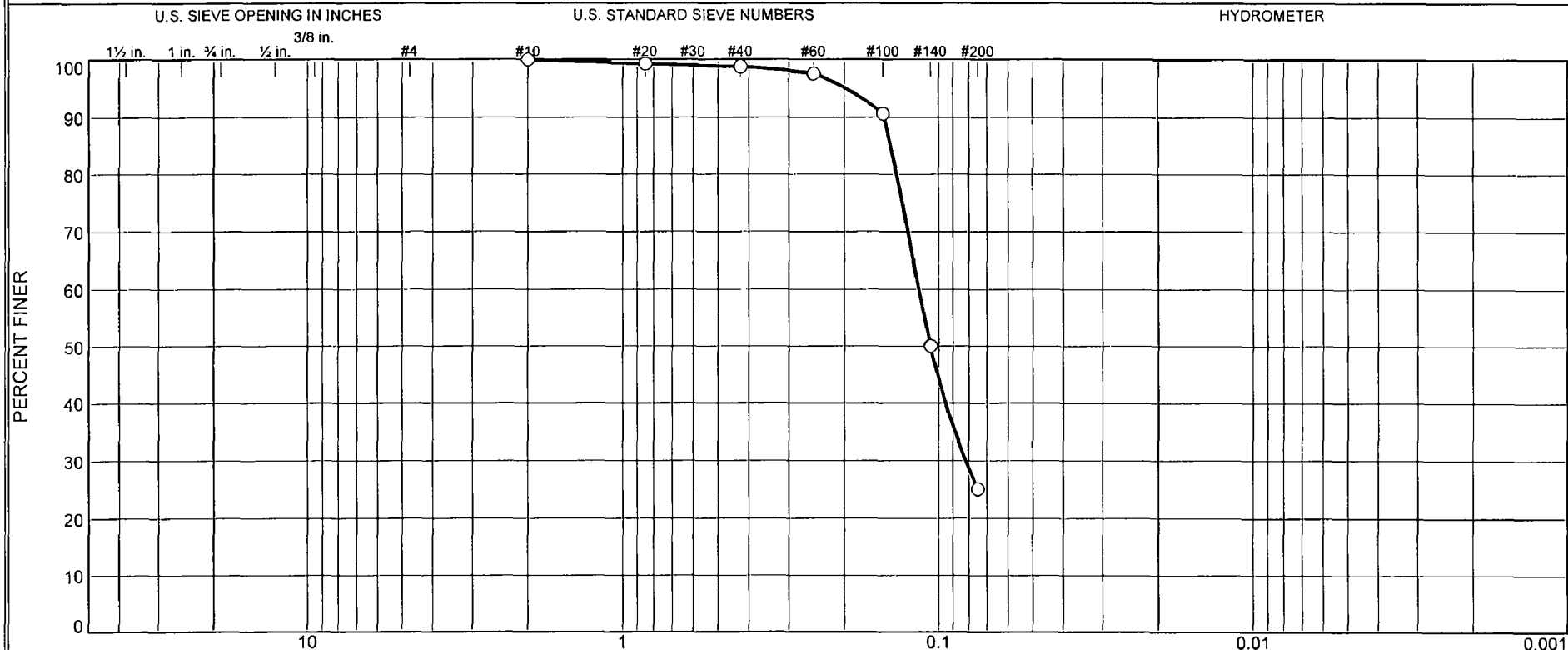
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	28.2	7.1	35.3	2.7	9.5	38.2	50.4	7.7	6.6	14.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0101	0.0863	0.1188	0.1610	0.3327	1.0710	26.7113	29.6533	32.4158	35.1930

Fineness Modulus	C _u	C _c
3.42	105.56	2.38

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	74	25	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-614	614-12	126.5-128.0	3/22/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-614

Depth: 126.5-128.0

Sample Number: 614-12

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
269.90	0.00	0.00	#10	0.00	100
97.72	0.00	0.00	#20	0.71	99
			#40	1.18	99
			#60	2.35	98
			#100	9.17	91
			#140	48.77	50
			#200	73.26	25

Fractional Components

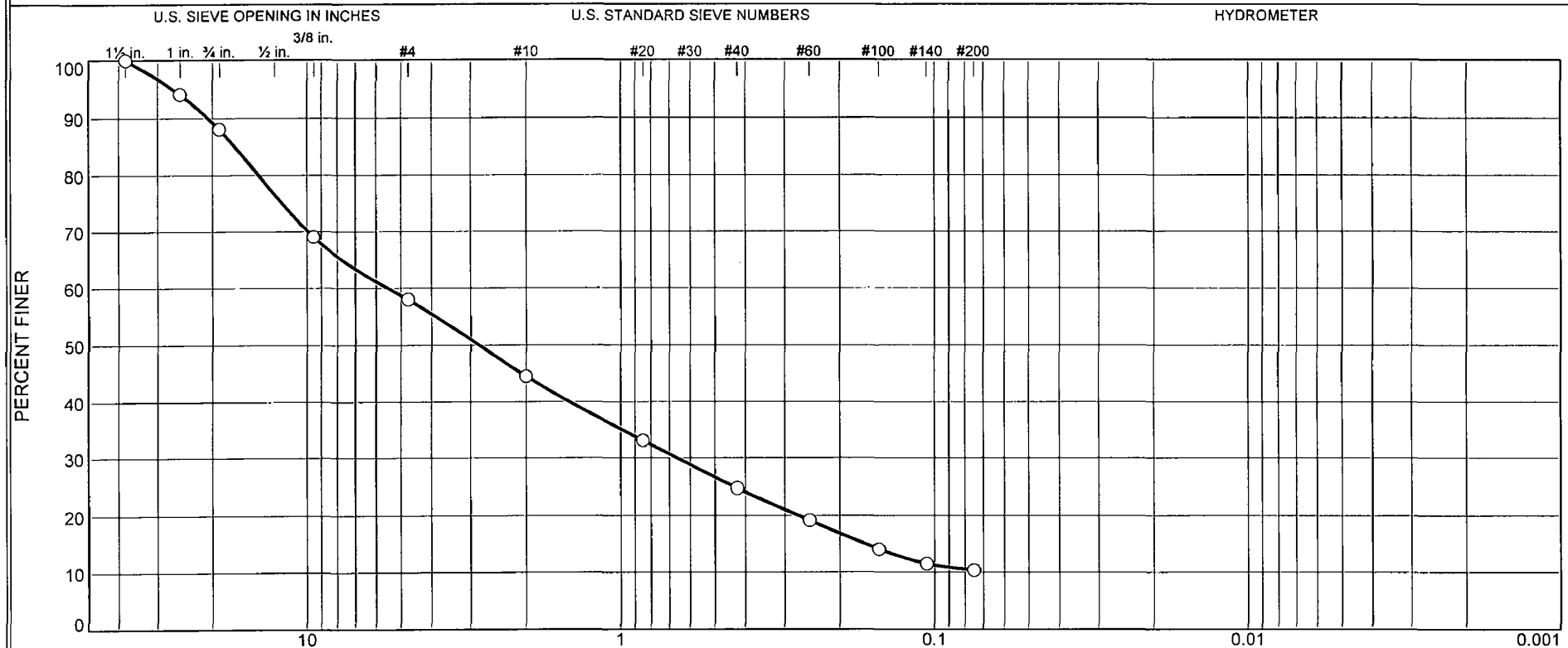
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	74	75			25

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0819	0.1059	0.1153	0.1352	0.1414	0.1489	0.1962

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
12	30	13	20	15	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-616	616-9	24.5-26.0	3/20/08	SW-SM	White Well Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-616

Depth: 24.5-26.0

Sample Number: 616-9

Material Description: White Well Graded SAND with silt and gravel (Visual)

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SW-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
507.56	0.00	0.00	1.5	0.00	100
			1	29.78	94
			3/4	60.69	88
			3/8"	156.96	69
			#4	213.20	58
			#10	281.60	45
98.12	0.00	0.00	#20	25.23	33
			#40	43.73	25
			#60	55.93	19
			#100	67.07	14
			#140	72.74	12
			#200	75.21	10

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	12	30	42	13	20	15	48			10

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1655	0.2720	0.6652	2.8307	5.5053	14.2438	16.9692	20.6824	26.7253

Fineness Modulus

4.37

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
9	4	0	2	67	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-616	616-12	123.5-125.0	3/21/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-616

Depth: 123.5-125.0

Sample Number: 616-12

Material Description: Light Brownish Gray Silty SAND (Visual)

Date: 3/21/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
461.17	0.00	0.00	1.5	0.00	100
			1	27.22	94
			3/4	42.51	91
			3/8"	57.99	87
			#4	58.97	87
			#10	60.82	87
100.73	0.00	0.00	#20	1.33	86
			#40	2.58	85
			#60	4.40	83
			#100	14.07	75
			#140	57.16	38
			#200	79.79	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	9	4	13	0	2	67	69			18

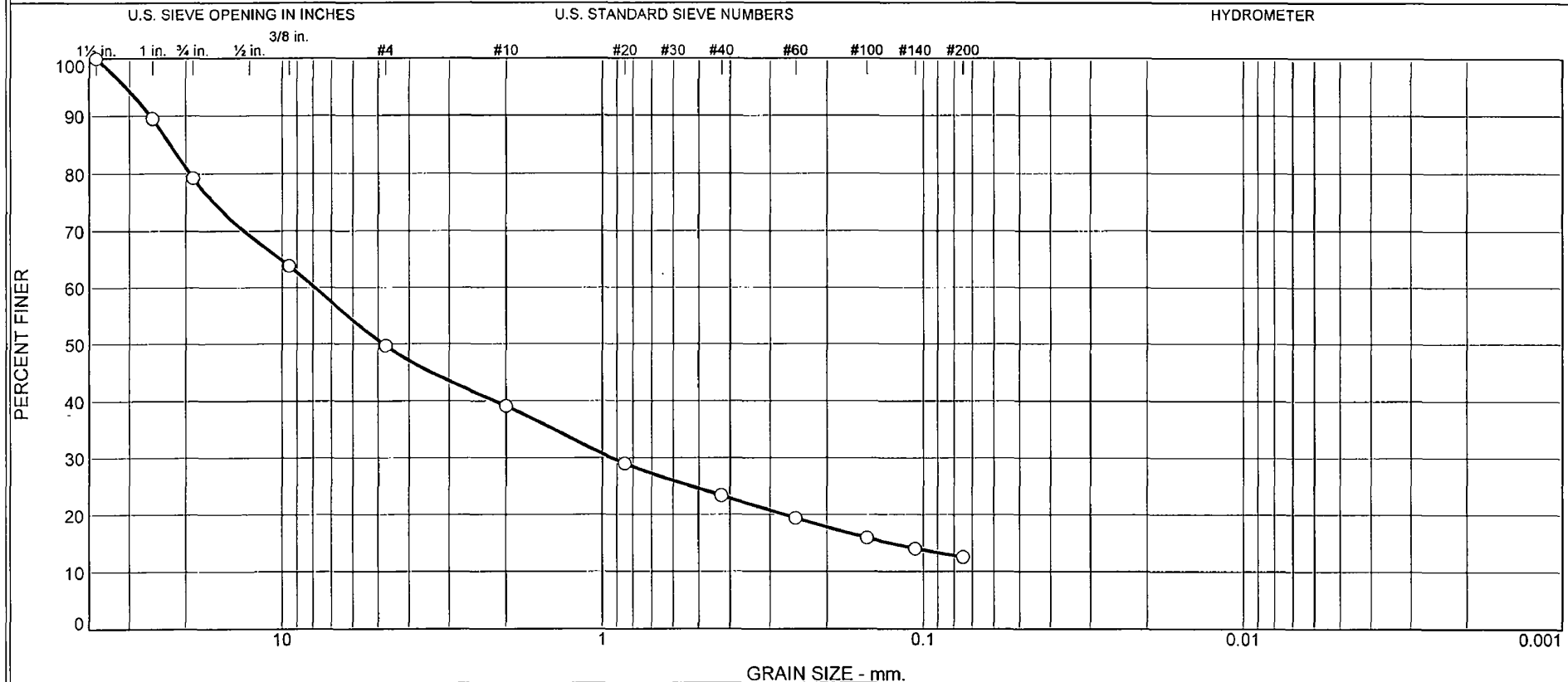
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0789	0.0964	0.1191	0.1297	0.1974	0.4651	17.4110	27.1476

Fineness Modulus

1.18

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
21	29	11	16	10	13	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-619	619-4	7.1-8.6	3/6/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-619

Depth: 7.1-8.6

Sample Number: 619-4

Material Description: White Silty GRAVEL with sand (Visual)

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
282.11	0.00	0.00	1.5	0.00	100
			1	29.71	89
			3/4	58.47	79
			3/8"	102.02	64
			#4	141.93	50
			#10	171.80	39
95.23	0.00	0.00	#20	24.64	29
			#40	38.26	23
			#60	48.03	19
			#100	56.58	16
			#140	61.14	14
			#200	64.73	13

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	29	50	11	16	10	37			13

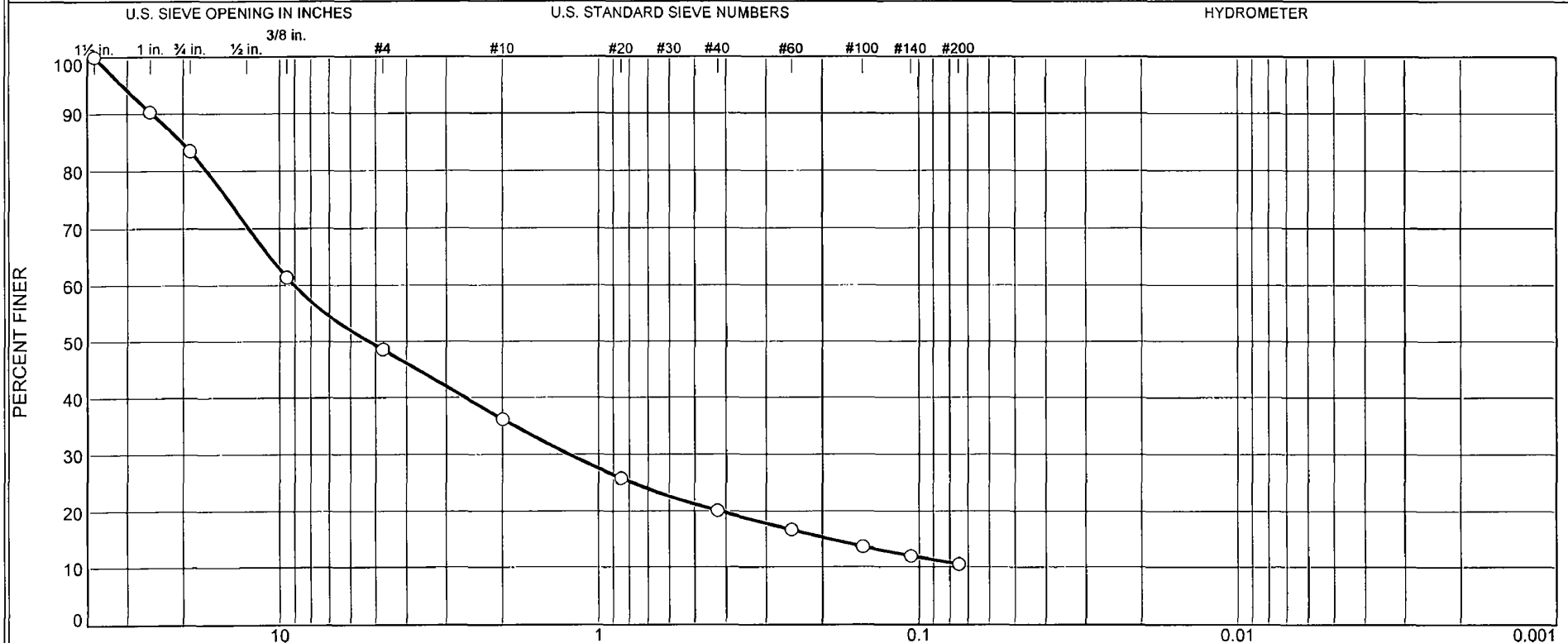
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1290	0.2715	0.9363	4.8355	7.8971	19.4686	22.3803	25.8177	30.7799

Fineness Modulus

4.71

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
17	34	13	16	9	11	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-619	619-6	12.1-13.6	3/6/08	GP-GM	White Well Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 91% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-619

Depth: 12.1-13.6

Sample Number: 619-6

Material Description: White Well Graded GRAVEL with silt and sand (Visual)

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 91% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
380.46	0.00	0.00	1.5	0.00	100
			1	36.98	90
			3/4	62.78	83
			3/8"	146.87	61
			#4	195.80	49
			#10	242.64	36
105.15	0.00	0.00	#20	30.33	26
			#40	46.78	20
			#60	56.79	17
			#100	65.47	14
			#140	70.38	12
			#200	74.60	11

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	34	51	13	16	9	38			11

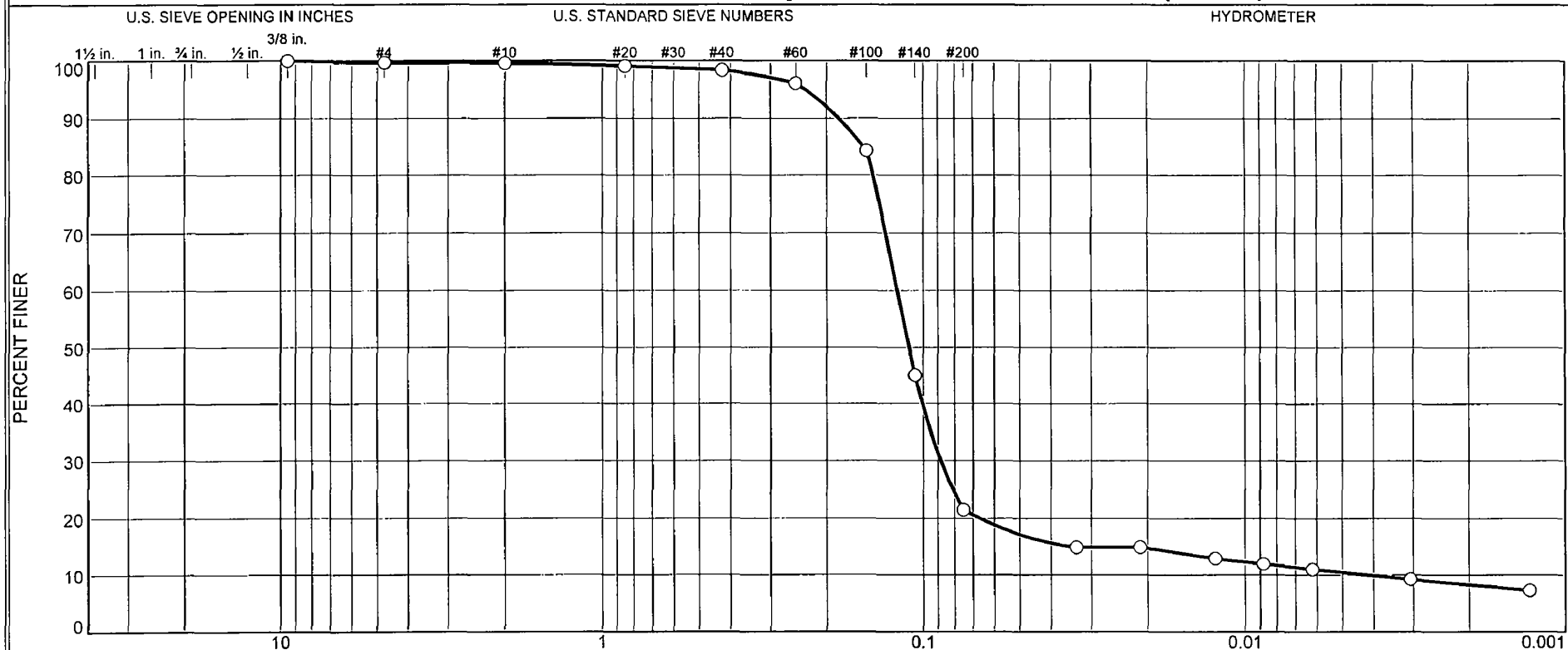
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1901	0.4184	1.2424	5.2646	9.0356	16.8970	20.1859	25.0861	31.0632

Fineness Modulus

4.85

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.3	0.1	1.2	76.9	11.0	10.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-619	619-8	121.6-123.1	3/9/08	SM	Pale Yellow Silty SAND(Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 12% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-619

Depth: 121.6-123.1

Sample Number: 619-8

Material Description: Pale Yellow Silty SAND(Visual)

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 12% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
373.99	0.00	0.00	3/8"	0.00	100.0
			#4	1.26	99.7
			#10	1.48	99.6
101.75	0.00	0.00	#20	0.55	99.1
			#40	1.24	98.4
			#60	3.59	96.1
			#100	15.61	84.3
			#140	55.73	45.0
			#200	79.82	21.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =99.6

Weight of hydrometer sample =101.75

Hygroscopic moisture correction:

Moist weight and tare = 29.66

Dry weight and tare = 29.59

Tare weight = 15.39

Hygroscopic moisture =0.5%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0334	14.9
5.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0211	14.9
15.00	21.1	19.0	13.3	0.0133	20.0	13.0	0.0124	12.9
30.00	21.1	18.0	12.3	0.0133	19.0	13.2	0.0088	12.0
61.00	21.2	17.0	11.3	0.0132	18.0	13.3	0.0062	11.0
250.00	22.0	15.0	9.5	0.0131	16.0	13.7	0.0031	9.3
1440.00	21.9	13.0	7.5	0.0131	14.0	14.0	0.0013	7.3

MACTEC Engineering and Consulting, Inc.

Fractional Components

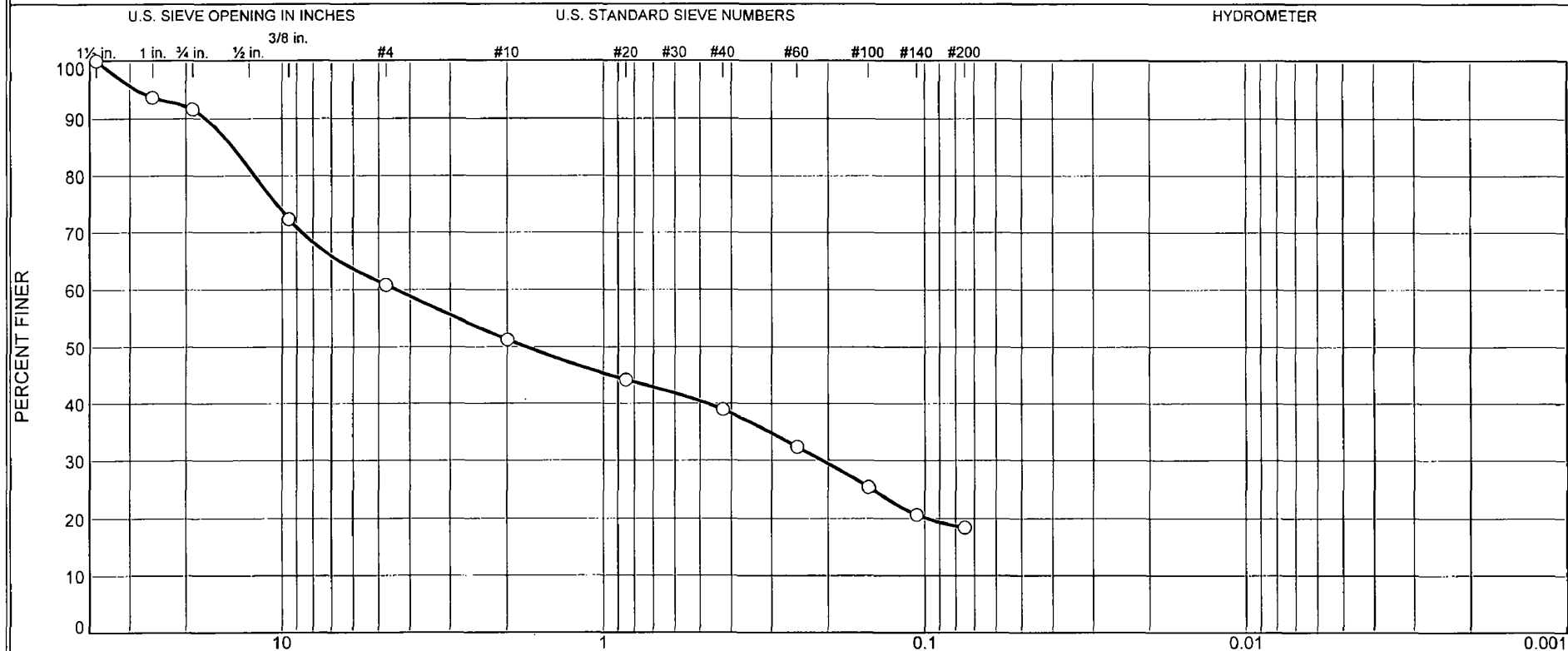
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.3	0.3	0.1	1.2	76.9	78.2	11.0	10.5	21.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0042	0.0343	0.0667	0.0886	0.1109	0.1205	0.1431	0.1532	0.1829	0.2326

Fineness Modulus	C _u	C _c
0.21	28.85	15.61

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
8	31	10	12	21	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-620(DH)	620-3	5.0-6.5	3/18/08	SM	Pale Yellow Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-620(DH)

Depth: 5.0-6.5

Sample Number: 620-3

Material Description: Pale Yellow Silty SAND with gravel (Visual)

Date: 3/18/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
536.13	0.00	0.00	1.5	0.00	100
			1	34.31	94
			3/4	45.17	92
			3/8"	148.13	72
			#4	210.20	61
			#10	261.20	51
102.82	0.00	0.00	#20	14.19	44
			#40	24.84	39
			#60	38.02	32
			#100	51.89	25
			#140	61.40	21
			#200	65.96	18

Fractional Components

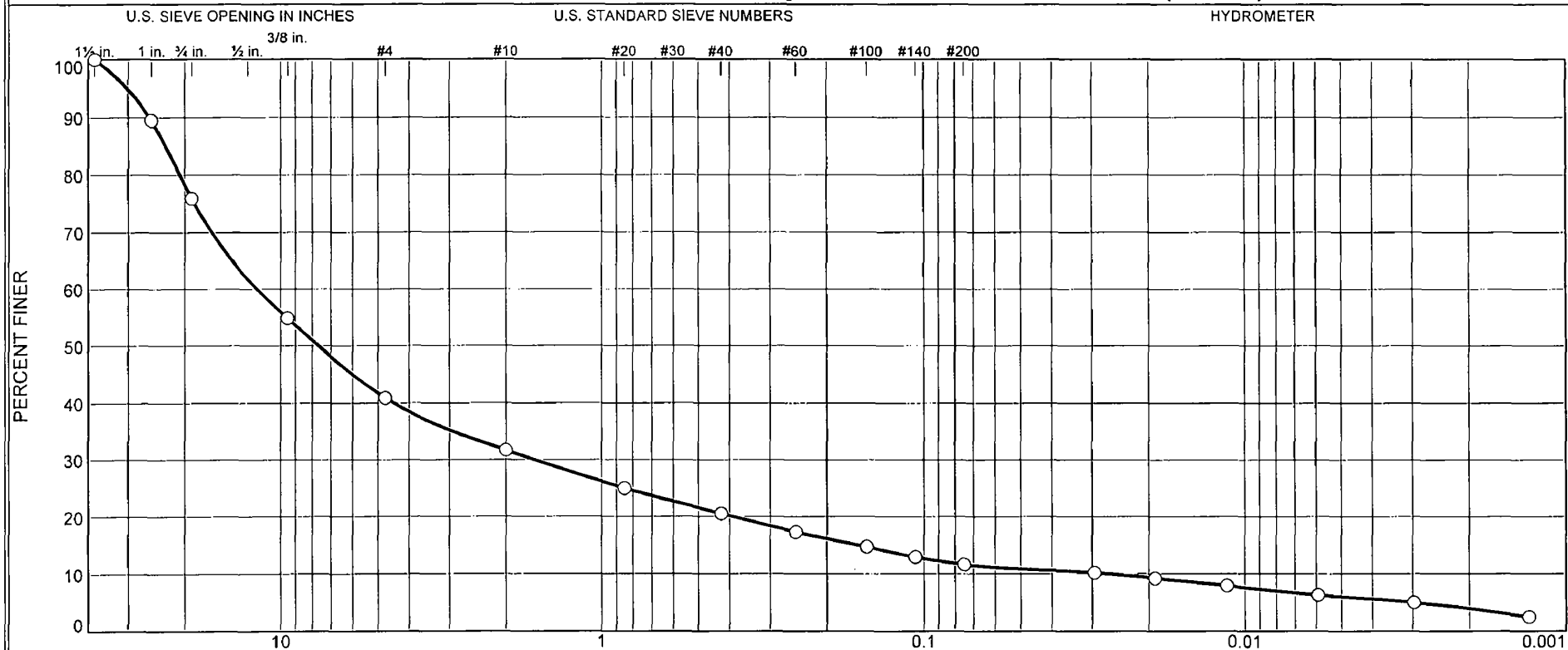
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	8	31	39	10	12	21	43			18

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0987	0.2096	1.7502	4.4323	12.1895	14.2676	17.3281	28.7421

Fineness Modulus
3.74

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
24.0	35.1	9.2	11.2	8.9	5.6	6.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-620(DH)	620-5	10.5-11.5	3/8/08	GP-GM	Pale Brown Poorly graded Silty GRAVEL (visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = NOT DETERMINED
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-620(DH)

Depth: 10.5-11.5

Sample Number: 620-5

Material Description: Pale Brown Poorly graded Silty GRAVEL (visual)

Date: 3/8/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = NOT DETERMINED

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
385.80	0.00	0.00	1.5	0.00	100.0
			1	40.64	89.5
			3/4	92.78	76.0
			3/8"	174.21	54.8
			#4	228.05	40.9
			#10	263.60	31.7
98.79	0.00	0.00	#20	21.00	24.9
			#40	34.82	20.5
			#60	44.91	17.3
			#100	52.88	14.7
			#140	58.40	13.0
			#200	62.51	11.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 31.7

Weight of hydrometer sample = 98.79

Hygroscopic moisture correction:

Moist weight and tare = 28.90

Dry weight and tare = 28.79

Tare weight = 15.50

Hygroscopic moisture = 0.8%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	37.0	31.9	0.0131	38.0	10.1	0.0295	10.2
5.00	21.8	34.0	28.9	0.0131	35.0	10.6	0.0191	9.2
15.00	21.8	30.0	24.9	0.0131	31.0	11.2	0.0114	8.0
60.00	21.5	25.0	19.8	0.0132	26.0	12.0	0.0059	6.3
250.00	21.5	21.0	15.8	0.0132	22.0	12.7	0.0030	5.1
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	2.5

MACTEC Engineering and Consulting, Inc.

Fractional Components

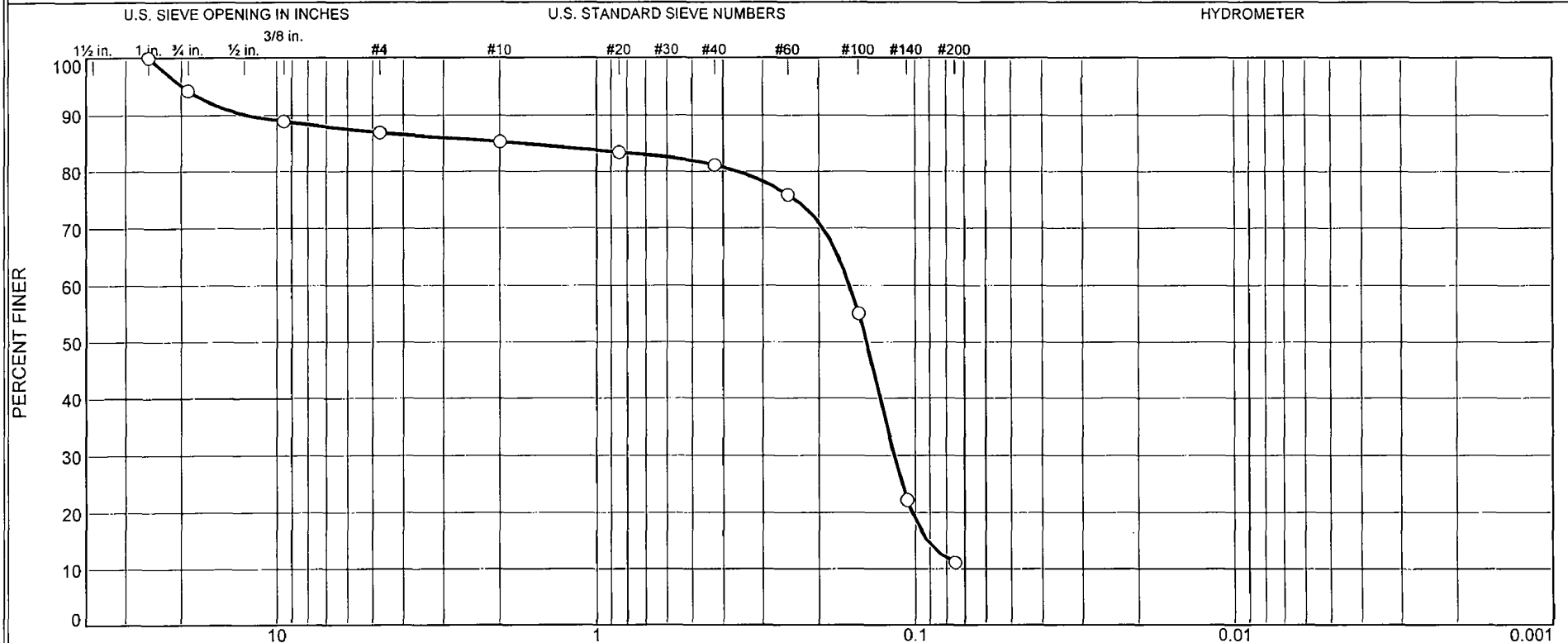
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	24.0	35.1	59.1	9.2	11.2	8.9	29.3	5.6	6.0	11.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0266	0.1586	0.3919	1.6314	7.6536	11.8678	20.7344	22.9670	25.7466	30.1254

Fineness Modulus	C _u	C _c
5.12	445.97	8.43

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
6	7	2	4	70	11	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-620(DH)	620-8	19.5-21.0	3/20/08	SP-SM	Brown Poorly graded Silty SAND (visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = NOT DETERMINED
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-620(DH)

Depth: 19.5-21.0

Sample Number: 620-8

Material Description: Brown Poorly graded Silty SAND (visual)

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = NOT DETERMINED

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
340.56	0.00	0.00	1	0.00	100
			3/4	19.47	94
			3/8"	37.77	89
			#4	44.63	87
			#10	50.08	85
99.83	0.00	0.00	#20	2.22	83
			#40	4.88	81
			#60	11.05	76
			#100	35.35	55
			#140	73.83	22
			#200	86.82	11

Fractional Components

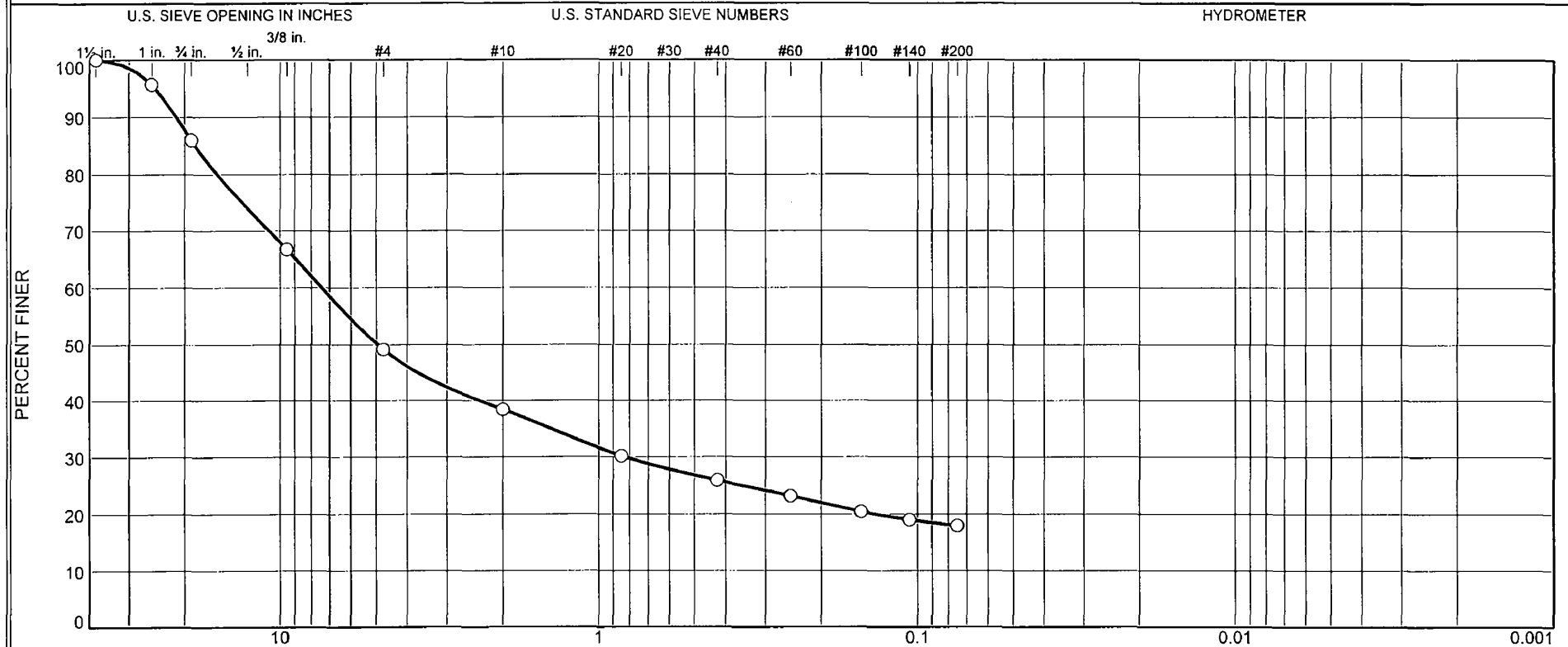
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	7	13	2	4	70	76			11

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0917	0.1025	0.1163	0.1419	0.1598	0.3604	1.7295	12.4642	19.8669

Fineness Modulus
1.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
14	37	11	12	8	18	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-620(DH)	620-10	120.5-122.0	3/20/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-620(DH)

Depth: 120.5-122.0

Sample Number: 620-10

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 3/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
385.40	0.00	0.00	1.5	0.00	100
			1	16.45	96
			3/4	53.92	86
			3/8"	128.16	67
			#4	196.00	49
			#10	237.40	38
97.51	0.00	0.00	#20	20.78	30
			#40	31.65	26
			#60	38.55	23
			#100	45.63	20
			#140	49.26	19
			#200	52.00	18

Fractional Components

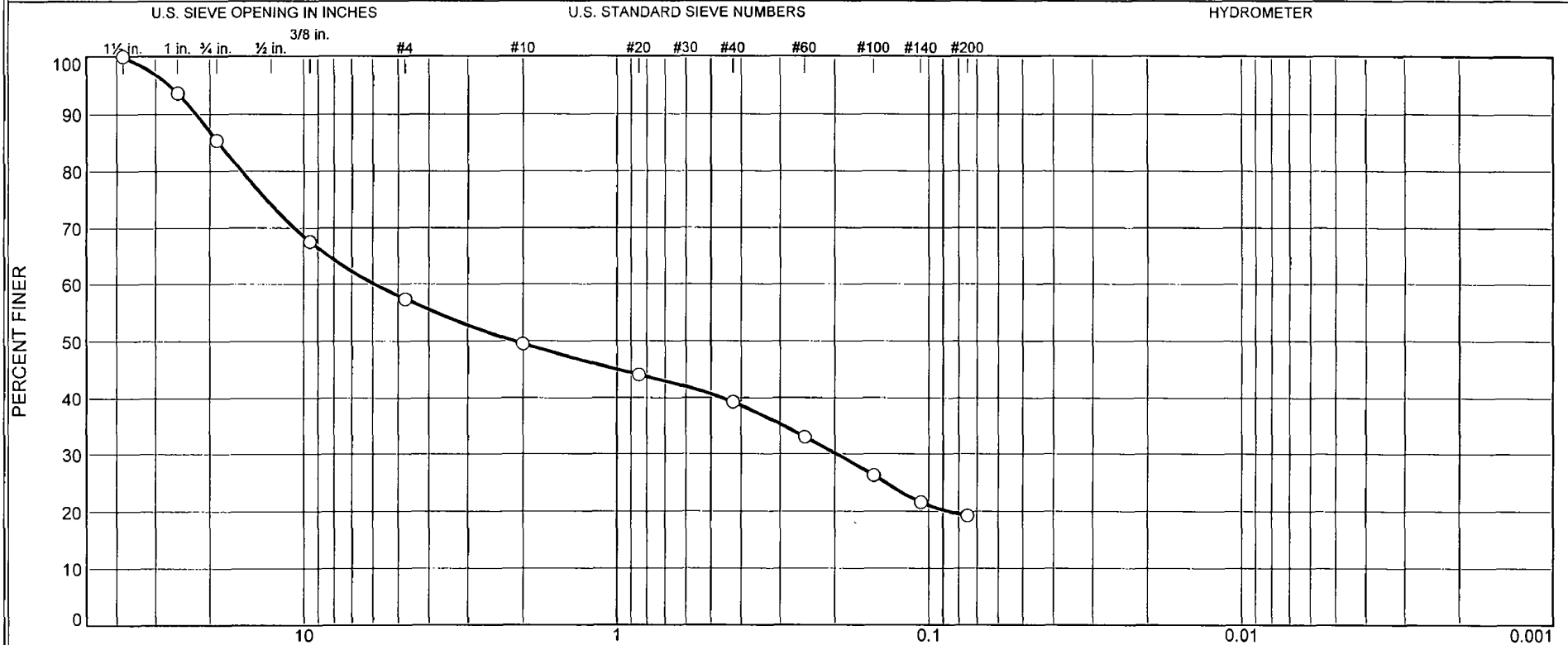
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	37	51	11	12	8	31			18

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1367	0.8269	4.9516	7.4047	15.8044	18.5052	21.2567	24.7118

Fineness Modulus
4.53

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
15	28	7	11	20	19	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-621	621-4	7.5-9.0	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel	MACTEC Engineering and Consulting, Inc.		Raleigh, North Carolina		○ SIEVE ANALYSIS ONLY ND = Not Determined			
Project Turkey Point COL								
Project No. 6468071950	Figure	N/A						

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-621

Depth: 7.5-9.0

Sample Number: 621-4

Material Description: White Silty GRAVEL with sand (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
364.77	0.00	0.00	1.5	0.00	100
			1	23.09	94
			3/4	53.16	85
			3/8"	118.41	68
			#4	155.49	57
			#10	184.03	50
54.34	0.00	0.00	#20	6.00	44
			#40	11.31	39
			#60	18.16	33
			#100	25.60	26
			#140	30.65	22
			#200	33.24	19

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	15	28	43	7	11	20	38			19

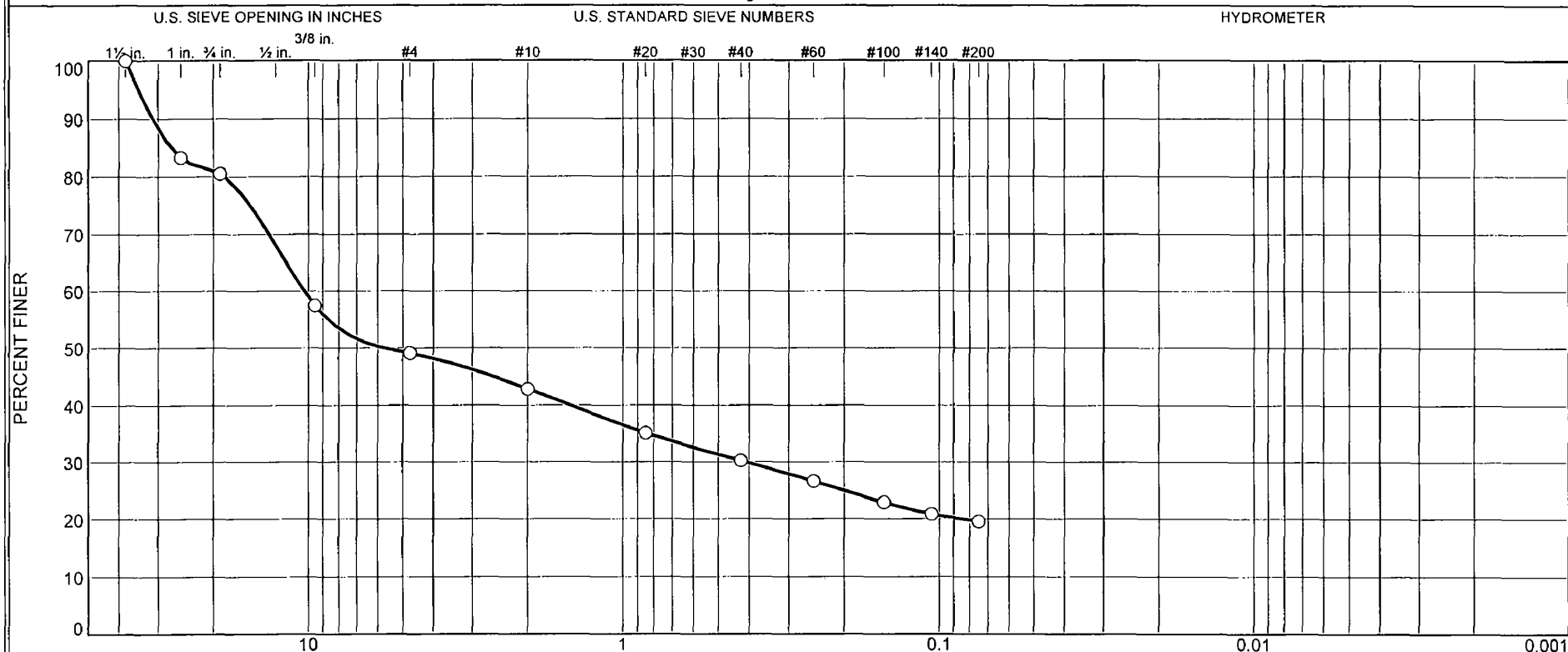
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0863	0.1982	2.1244	5.9352	15.8471	18.7848	22.1482	26.9956

Fineness Modulus

3.89

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
19	32	6	13	10	20	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-621	621-8	18.5-20.0	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-621

Depth: 18.5-20.0

Sample Number: 621-8

Material Description: White Silty GRAVEL with sand (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
367.59	0.00	0.00	1.5	0.00	100
			1	61.38	83
			3/4	71.57	81
			3/8"	156.33	57
			#4	187.07	49
			#10	210.10	43
95.93	0.00	0.00	#20	17.24	35
			#40	28.21	30
			#60	36.47	27
			#100	44.74	23
			#140	49.31	21
			#200	52.08	20

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	32	51	6	13	10	29			20

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0857	0.4098	5.7424	10.3036	18.4203	27.2192	31.1199	34.5760

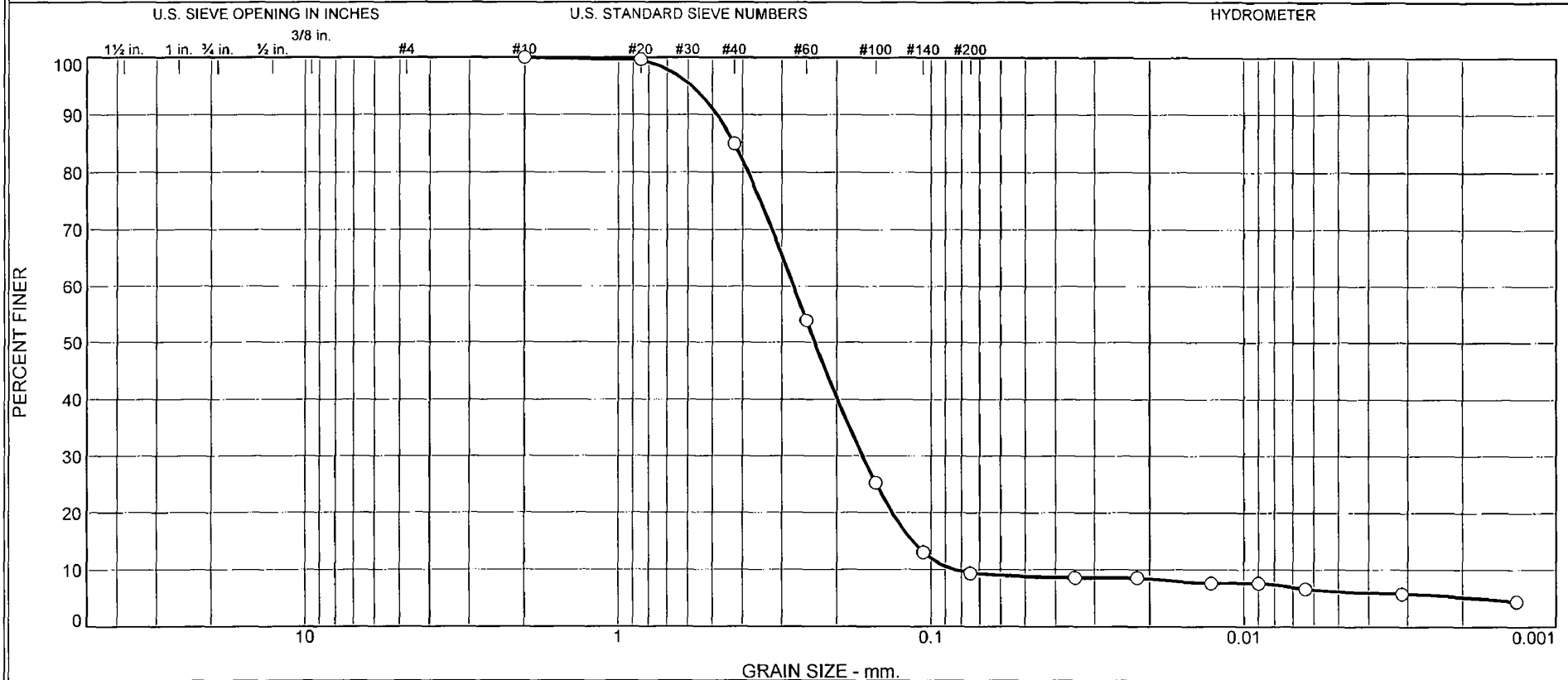
Fineness

Modulus

4.47

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	15.0	75.6	3.2	6.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-621	621-11	115.3-116.8	4/4/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY ND = Not Determined Specific Gravity is assumed.
Project Turkey Point COL			
Project No. 6468071950	Figure NA	Raleigh, North Carolina	

ZHU 7/23/08

Tested By: CS

Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-621

Depth: 115.3-116.8

Sample Number: 621-11

Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)

Date: 4/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
335.75	0.00	0.00	#10	0.00	100.0
102.52	0.00	0.00	#20	0.43	99.6
			#40	15.36	85.0
			#60	47.26	53.9
			#100	76.64	25.2
			#140	89.17	13.0
			#200	92.93	9.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 102.52

Hygroscopic moisture correction:

Moist weight and tare = 24.62

Dry weight and tare = 24.56

Tare weight = 11.16

Hygroscopic moisture = 0.4%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0347	8.6
5.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0219	8.6
15.00	21.8	13.0	7.9	0.0131	14.0	14.0	0.0127	7.6
30.00	21.8	13.0	7.9	0.0131	14.0	14.0	0.0090	7.6
60.00	21.8	12.0	6.9	0.0131	13.0	14.2	0.0064	6.7
250.00	22.3	11.0	6.0	0.0131	12.0	14.3	0.0031	5.8
1440.00	20.7	10.0	4.6	0.0133	11.0	14.5	0.0013	4.4

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	15.0	75.6	90.6	3.2	6.2	9.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0847	0.1146	0.1327	0.1655	0.2349	0.2750	0.3833	0.4248	0.4835	0.5829

Fineness Modulus	C _u	C _c
1.14	3.25	1.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.7	74.4	13.1	10.8

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-621	621-12	125.0-126.5	4/4/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-621

Depth: 125.0-126.5

Sample Number: 621-12

Material Description: Greenish Gray Silty SAND (Visual)

Date: 4/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
270.27	0.00	0.00	#10	0.00	100.0
98.93	0.00	0.00	#20	0.58	99.4
			#40	1.64	98.3
			#60	3.38	96.6
			#100	11.95	87.9
			#140	53.24	46.2
			#200	75.31	23.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 98.93

Hygroscopic moisture correction:

Moist weight and tare = 28.25

Dry weight and tare = 28.02

Tare weight = 15.04

Hygroscopic moisture = 1.8%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.6	22.0	17.1	0.0130	23.0	12.5	0.0326	17.4
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	16.1
15.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0123	13.1
30.00	21.8	17.0	11.9	0.0131	18.0	13.3	0.0088	12.1
60.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0062	11.1
250.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0031	10.2
1440.00	20.8	12.0	6.6	0.0133	13.0	14.2	0.0013	6.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

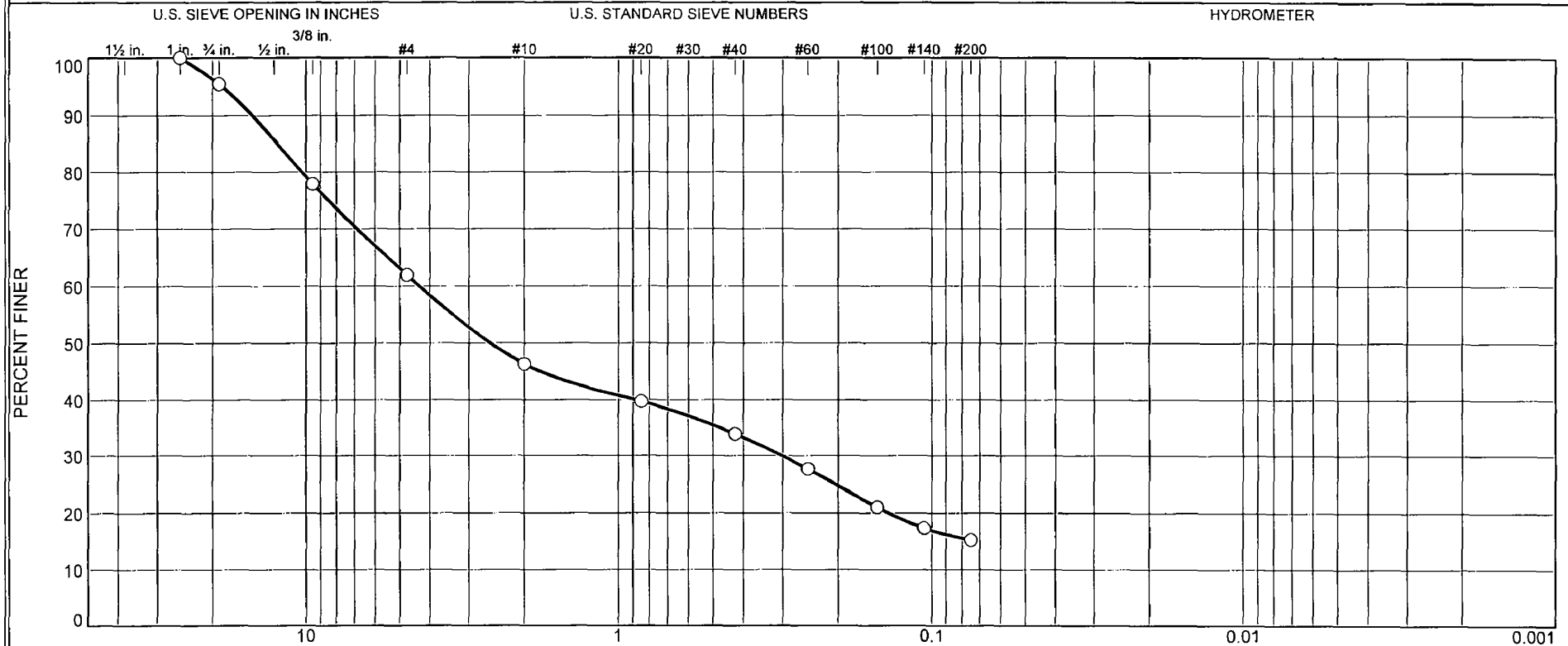
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.7	74.4	76.1	13.1	10.8	23.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0028	0.0174	0.0496	0.0864	0.1096	0.1187	0.1388	0.1454	0.1646	0.2191

Fineness Modulus	C _u	C _c
0.16	42.66	22.62

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
4	34	16	12	19	15	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-625	625-3	5.1-6.6	3/23/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-625

Depth: 5.1-6.6

Sample Number: 625-3

Material Description: White Silty SAND with gravel (Visual)

Date: 3/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
274.76	0.00	0.00	1	0.00	100
			3/4	12.34	96
			3/8"	60.65	78
			#4	104.47	62
			#10	147.47	46
102.31	0.00	0.00	#20	14.61	40
			#40	27.53	34
			#60	41.33	28
			#100	55.94	21
			#140	64.06	17
			#200	68.62	15

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	34	38	16	12	19	47			15

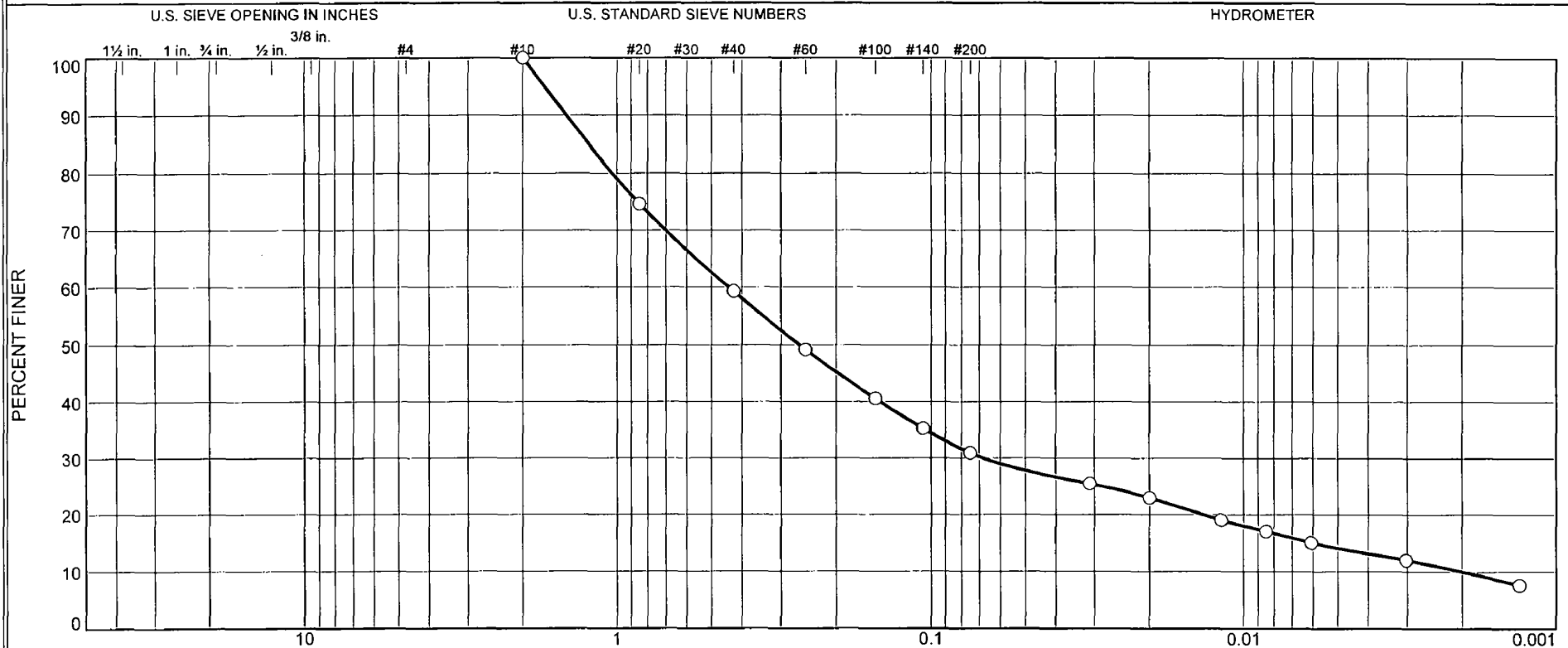
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1381	0.3025	2.5711	4.3240	10.2952	12.3539	14.9108	18.5565

Fineness
Modulus

3.86

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel			% Sand			% Fines	
Coarse	Fine		Coarse	Medium	Fine	Silt	Clay
0.0	0.0		0.0	40.7	28.3	16.9	14.1

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-625	625-6	12.5-14.0	3/23/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-625

Depth: 12.5-14.0

Sample Number: 625-6

Material Description: White Silty SAND (Visual)

Date: 3/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
462.60	0.00	0.00	#10	0.00	100.0
99.30	0.00	0.00	#20	25.16	74.7
			#40	40.41	59.3
			#60	50.50	49.1
			#100	59.06	40.5
			#140	64.27	35.3
			#200	68.56	31.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 99.30

Hygroscopic moisture correction:

Moist weight and tare = 30.01

Dry weight and tare = 29.87

Tare weight = 15.30

Hygroscopic moisture = 1.0%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	30.5	25.3	0.0132	31.5	11.1	0.0311	25.5
5.00	21.6	28.0	22.8	0.0132	29.0	11.5	0.0200	23.0
15.00	21.9	24.0	18.9	0.0131	25.0	12.2	0.0118	19.0
30.00	21.9	22.0	16.9	0.0131	23.0	12.5	0.0085	17.0
60.00	22.0	20.0	14.9	0.0131	21.0	12.9	0.0061	15.0
250.00	22.1	17.0	12.0	0.0131	18.0	13.3	0.0030	12.0
1440.00	20.8	13.0	7.6	0.0133	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

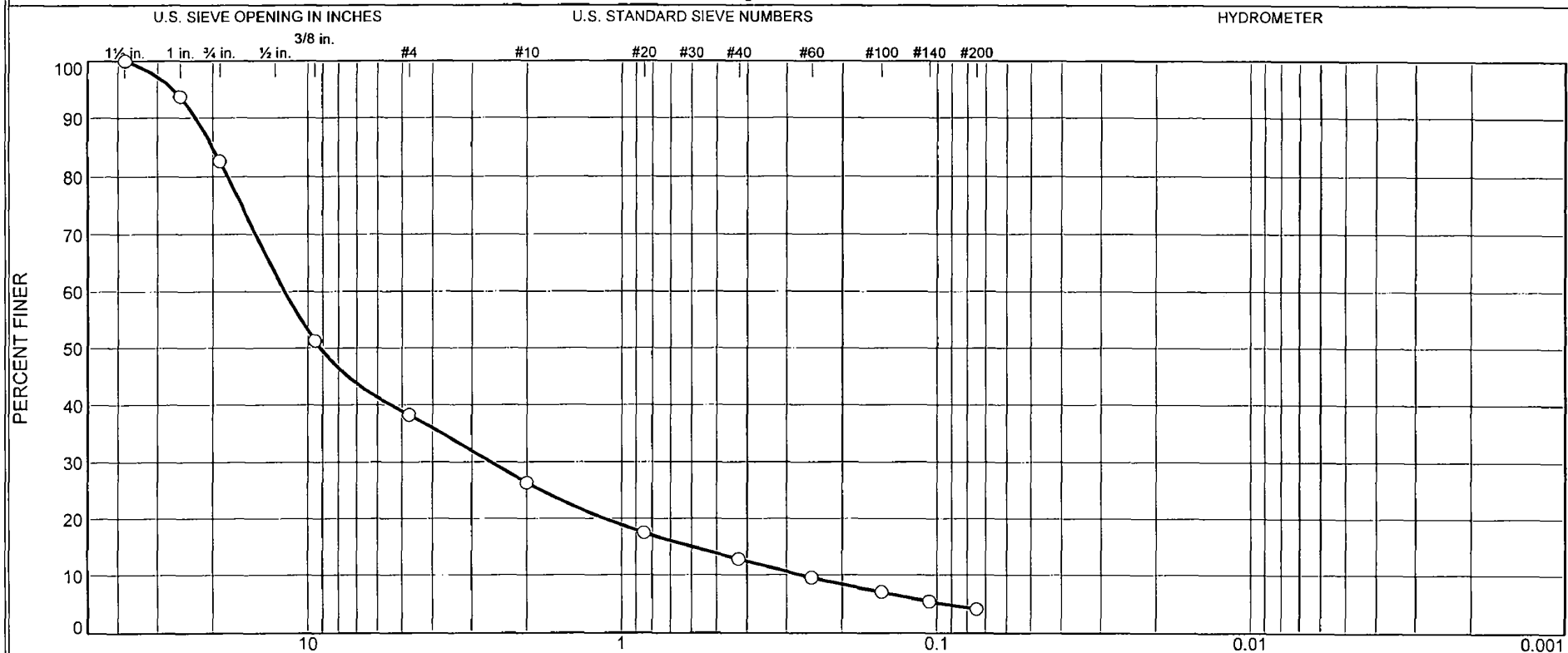
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	40.7	28.3	69.0	16.9	14.1	31.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0020	0.0060	0.0136	0.0679	0.2621	0.4400	1.0364	1.2320	1.4533	1.7067

Fineness Modulus	C _u	C _c
1.57	220.18	5.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
17	45	12	13	9	4	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-625	625-7	15.2-16.4	3/23/08	GW	White Well graded GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-625

Depth: 15.2-16.4

Sample Number: 625-7

Material Description: White Well graded GRAVEL with sand (Visual)

Date: 3/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GW

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 316.87

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
316.87	0.00	0.00	1.5	0.00	100
			1	19.99	94
			3/4	54.88	83
			3/8"	154.26	51
			#4	195.60	38
			#10	233.40	26
			#20	261.50	17
			#40	276.20	13
			#60	286.60	10
			#100	294.50	7
			#140	299.60	5
			#200	303.80	4

Fractional Components

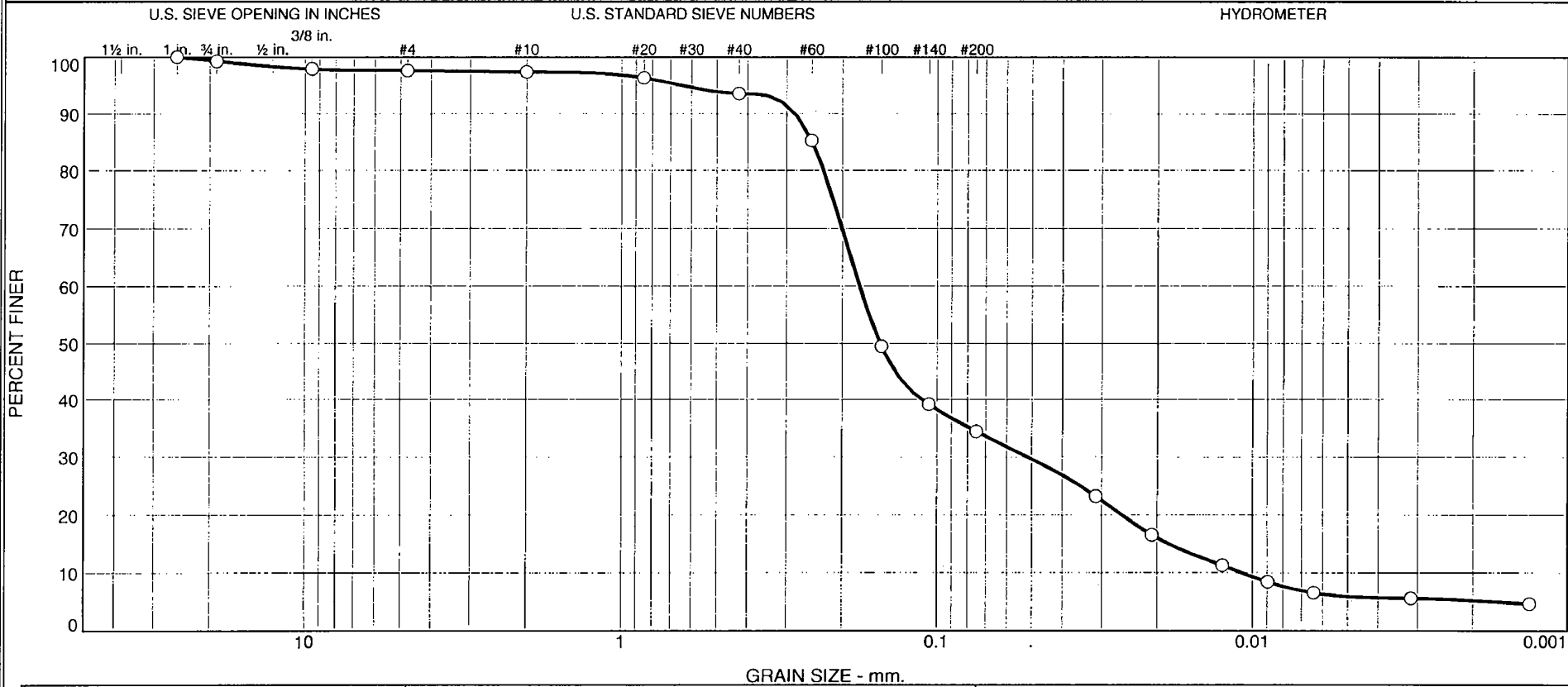
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	45	62	12	13	9	34			4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.2705	0.5988	1.1371	2.6146	9.1418	11.8584	17.9834	20.0626	22.6885	26.7254

Fineness Modulus	C _u	C _c
5.46	43.85	2.13

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Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.7	1.6	0.3	3.8	59.2	28.5	5.9

[illegible]

Client Bechtel

Project Turkey Point COL

Project No. 6468071950

Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-625

Depth: 120.4-121.3

Sample Number: 625-8

Material Description: Light Olive Gray Silty SAND (Visual)

Date: 5/8/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
399.76	0.00	0.00	1	0.00	100.0
			3/4	2.78	99.3
			3/8"	8.19	98.0
			#4	9.19	97.7
			#10	10.20	97.4
101.06	0.00	0.00	#20	1.10	96.4
			#40	3.98	93.6
			#60	12.67	85.2
			#100	49.76	49.5
			#140	60.45	39.2
			#200	65.36	34.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 97.4

Weight of hydrometer sample = 101.06

Hygroscopic moisture correction:

Moist weight and tare = 27.63

Dry weight and tare = 27.58

Tare weight = 15.38

Hygroscopic moisture = 0.4%

Table of composite correction values:

Temp., deg. C: 11.6 29.4

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	29.5	24.3	0.0132	30.5	11.3	0.0313	23.3
5.00	21.6	22.5	17.3	0.0132	23.5	12.4	0.0208	16.6
15.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0124	11.3
30.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0090	8.4
60.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0064	6.5
250.00	21.7	11.0	5.8	0.0132	12.0	14.3	0.0032	5.6
1440.00	21.6	10.0	4.8	0.0132	11.0	14.5	0.0013	4.6

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Fractional Components

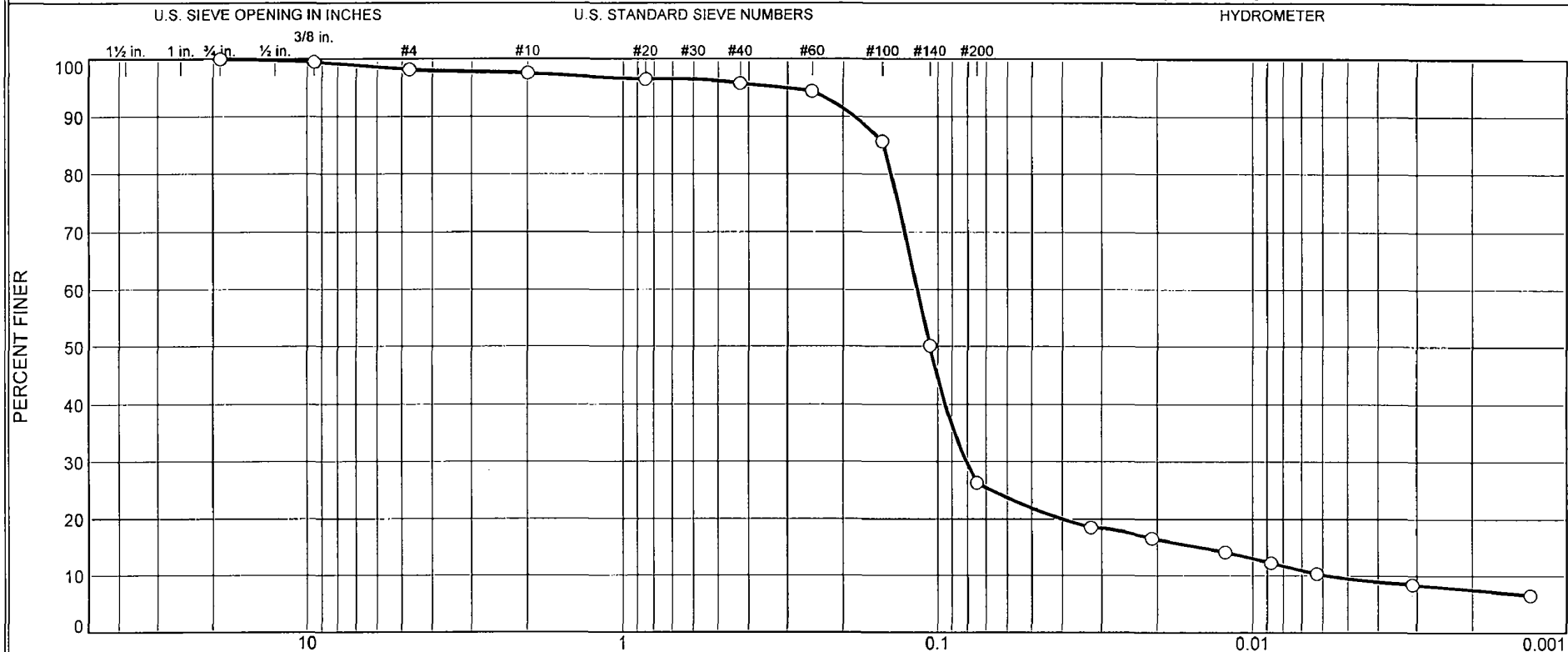
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.7	1.6	2.3	0.3	3.8	59.2	63.3	28.5	5.9	34.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0108	0.0184	0.0258	0.0514	0.1515	0.1758	0.2289	0.2489	0.2820	0.6366

Fineness Modulus	C _u	C _c
0.75	16.34	1.40

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.8	0.6	1.9	69.4	16.8	9.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-625	625-9	125.2-126.7	3/23/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-625

Depth: 125.2-126.7

Sample Number: 625-9

Material Description: Light Olive Gray Silty SAND (Visual)

Date: 3/23/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
341.32	0.00	0.00	3/4	0.00	100.0
			3/8"	1.72	99.5
			#4	6.17	98.2
			#10	8.32	97.6
101.01	0.00	0.00	#20	1.08	96.5
			#40	1.88	95.7
			#60	3.27	94.4
			#100	12.32	85.7
			#140	49.12	50.1
			#200	73.74	26.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 97.6

Weight of hydrometer sample = 101.01

Hygroscopic moisture correction:

Moist weight and tare = 27.36

Dry weight and tare = 27.31

Tare weight = 15.31

Hygroscopic moisture = 0.4%

Table of composite correction values:

Temp., deg. C: 11.6 29.4

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	24.5	19.3	0.0132	25.5	12.1	0.0324	18.5
5.00	21.6	22.5	17.3	0.0132	23.5	12.4	0.0208	16.6
15.00	21.5	20.0	14.8	0.0132	21.0	12.9	0.0122	14.2
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	12.3
60.00	21.5	16.0	10.8	0.0132	17.0	13.5	0.0063	10.3
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0013	6.5

MACTEC Engineering and Consulting, Inc.

Fractional Components

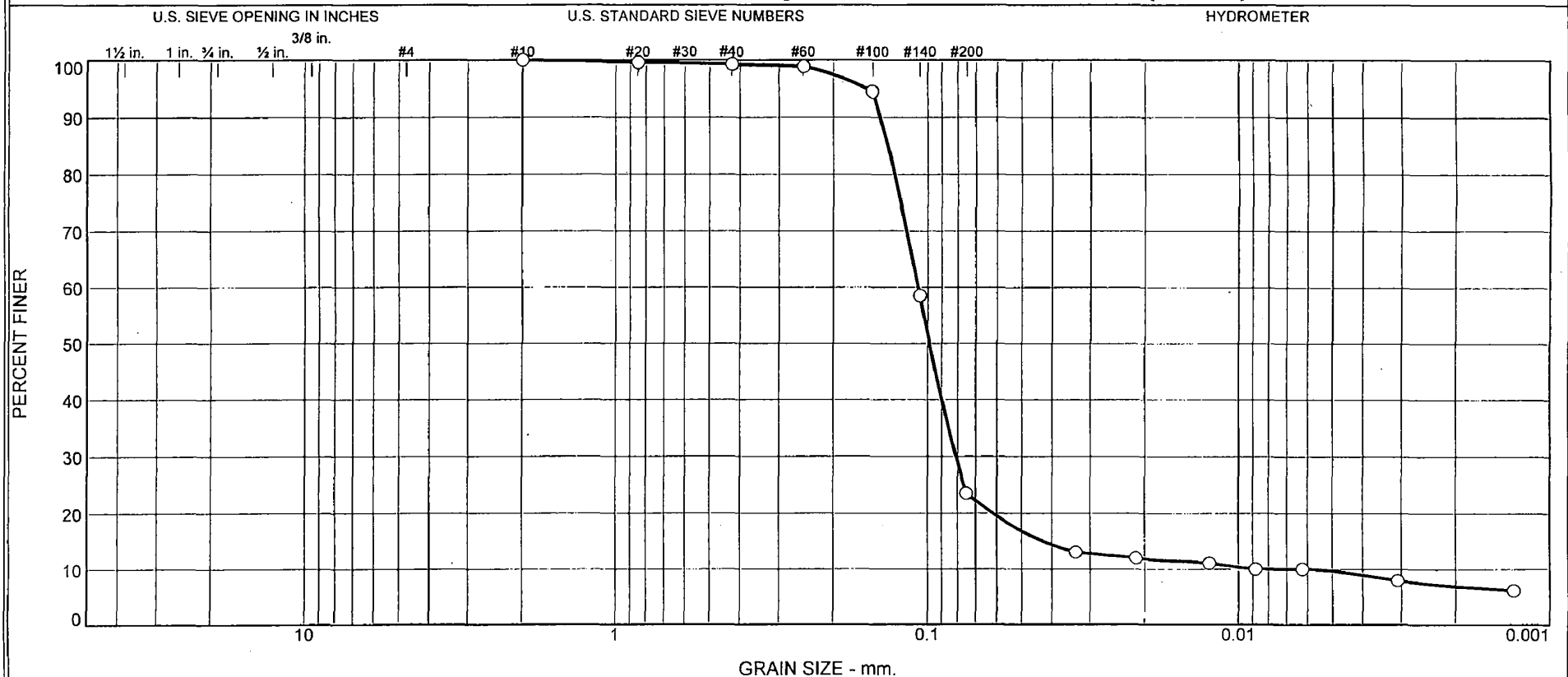
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.8	1.8	0.6	1.9	69.4	71.9	16.8	9.5	26.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0058	0.0147	0.0402	0.0811	0.1059	0.1163	0.1402	0.1487	0.1836	0.3069

Fineness Modulus	C _u	C _c
0.31	20.07	9.75

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	75.8	13.8	9.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-2	129.5-132	4/17/08	SM	Light Yellowish Brown Silty SAND	32.5	25	24

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ Specific Gravity is Assumed
Project Turkey Point COL			
Project No. 6468071950			

Figure *N/A*

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 129.5-132

Sample Number: UD-2

Material Description: Light Yellowish Brown Silty SAND

Date: 4/17/08

Natural Moisture: 32.5

Liquid Limit: 25

Plastic Limit: 24

USCS Class.: SM

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
265.17	0.00	0.00	#10	0.00	100.0
99.11	0.00	0.00	#20	0.40	99.6
			#40	0.74	99.3
			#60	1.08	98.9
			#100	5.44	94.5
			#140	41.05	58.6
			#200	75.78	23.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =

Hygroscopic moisture correction:

Moist weight and tare = 24.98

Dry weight and tare = 24.97

Tare weight = 11.34

Hygroscopic moisture =0.1%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.7

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	19.0	13.1	0.0131	20.0	13.0	0.0335	13.1
5.00	21.9	18.0	12.1	0.0131	19.0	13.2	0.0213	12.1
15.00	21.9	17.0	11.1	0.0131	18.0	13.3	0.0124	11.1
30.00	21.9	16.0	10.1	0.0131	17.0	13.5	0.0088	10.1
60.00	21.9	16.0	10.1	0.0131	17.0	13.5	0.0062	10.1
250.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0031	8.0
1440.00	21.7	12.0	6.2	0.0132	13.0	14.2	0.0013	6.1

MACTEC Engineering and Consulting, Inc.

Fractional Components

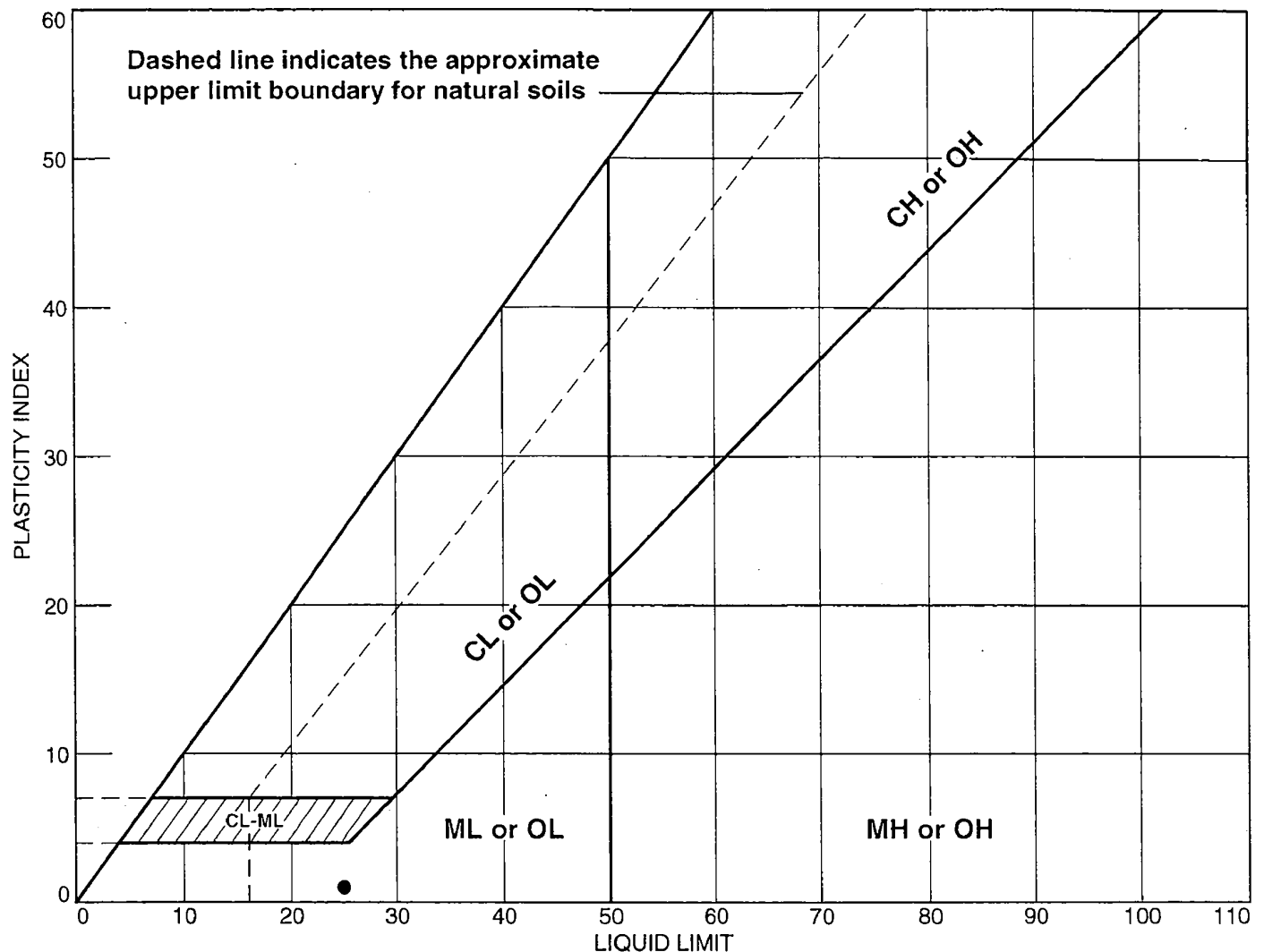
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	75.8	76.5	13.8	9.7	23.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0057	0.0424	0.0618	0.0813	0.0986	0.1073	0.1273	0.1336	0.1412	0.1561

Fineness Modulus	C _u	C _c
0.07	18.88	10.84

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-2	129.5-132	32.5	24	25	1	SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure *A/A*

Tested By: CS

Checked By: LBJ

ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 129.5-132

Sample Number: UD-2

Material Description: Light Yellowish Brown Silty SAND

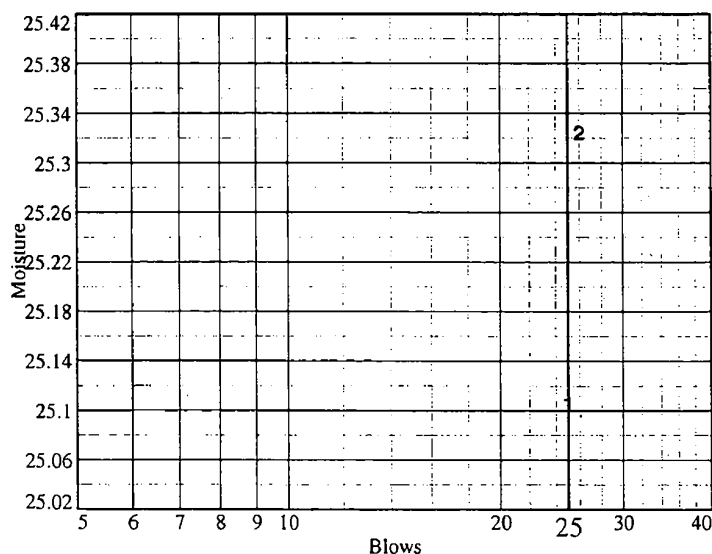
USCS: SM

AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Run No.	1	2	3	4	5	6
Wet+Tare		26.79		33.21		
Dry+Tare	29.65	23.67				
Tare	15.47	11.35				
# Blows	25	26				
Moisture	25.1	25.3				

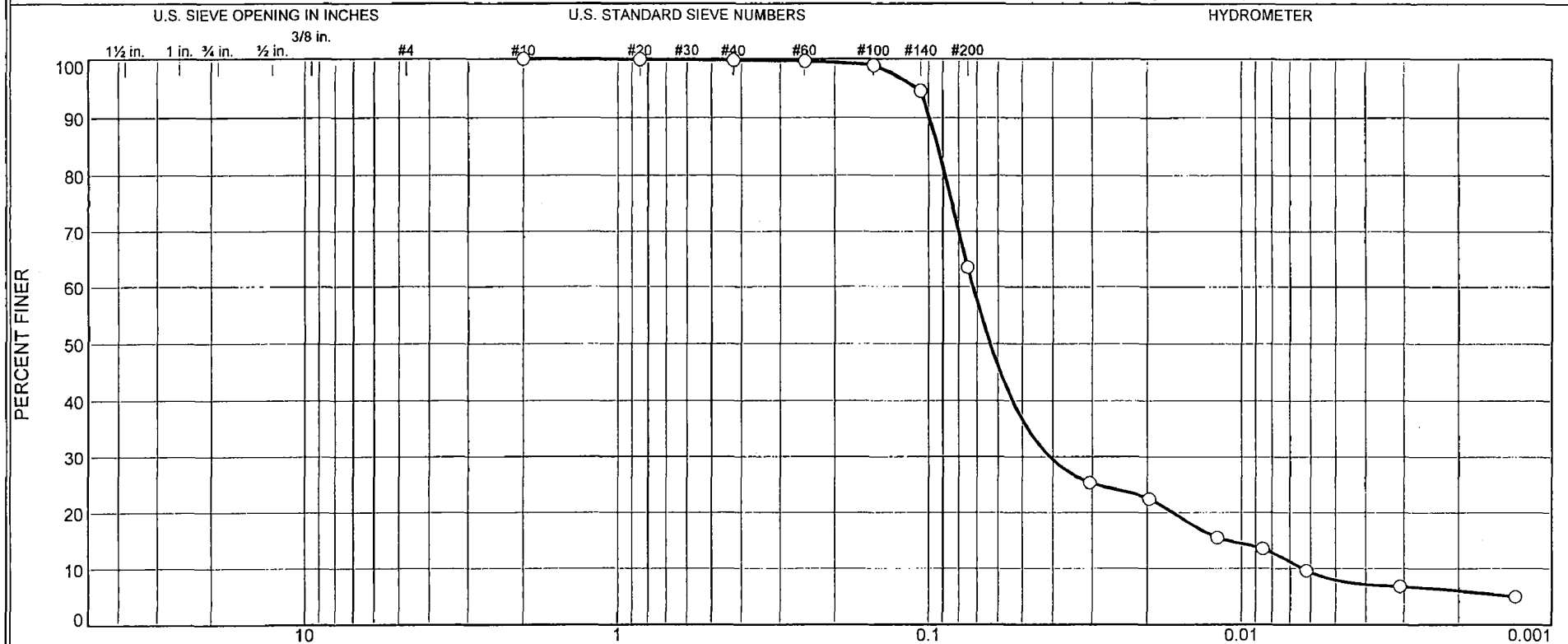


Run No.	1	2	3	4
Wet+Tare	33.26	33.56		
Dry+Tare	29.86	29.99		
Tare	15.50	15.49		
Moisture	23.7	24.6		

Wet+Tare	Dry+Tare	Tare	Moisture
129.58	99.47	6.77	32.5

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	36.3	55.6	7.9

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-8	161.5-163.1	4/18/08	ML	Greenish Gray Sandy SILT	31.4	26	24

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity is Assumed
Project Turkey Point COL			
Project No. 6468071950	Figure <i>N/A</i>	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 161.5-163.1

Sample Number: UD-8

Material Description: Greenish Gray Sandy SILT

Date: 4/18/08

Natural Moisture: 31.4

Liquid Limit: 26

Plastic Limit: 24

USCS Class.: ML

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
260.32	0.00	0.00	#10	0.00	100.0
102.38	0.00	0.00	#20	0.09	99.9
			#40	0.23	99.8
			#60	0.38	99.6
			#100	1.13	98.9
			#140	5.53	94.6
			#200	37.35	63.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =102.38

Hygroscopic moisture correction:

Moist weight and tare = 27.38

Dry weight and tare = 27.30

Tare weight = 15.46

Hygroscopic moisture =0.7%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.7

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	32.0	26.0	0.0131	33.0	10.9	0.0305	25.3
5.00	22.3	29.0	23.0	0.0131	30.0	11.4	0.0197	22.4
15.00	22.3	22.0	16.0	0.0131	23.0	12.5	0.0119	15.5
30.00	22.3	20.0	14.0	0.0131	21.0	12.9	0.0086	13.6
60.00	22.3	16.0	10.0	0.0131	17.0	13.5	0.0062	9.7
250.00	22.3	13.0	7.0	0.0131	14.0	14.0	0.0031	6.8
1440.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

Fractional Components

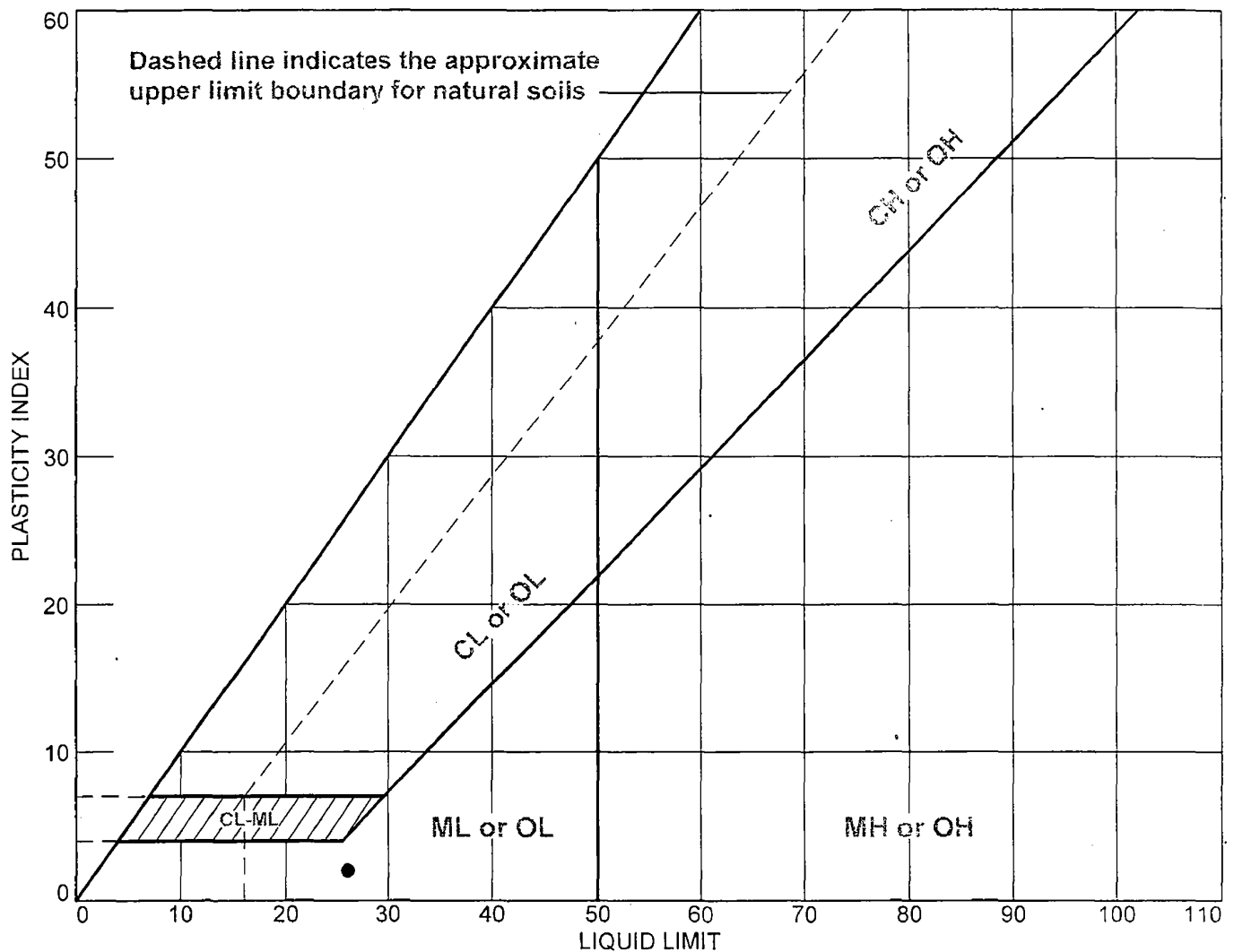
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	36.3	36.5	55.6	7.9	63.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0064	0.0110	0.0165	0.0411	0.0636	0.0722	0.0885	0.0932	0.0989	0.1086

Fineness Modulus	C _u	C _c
0.02	11.36	3.68

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-8	161.5-163.1	31.4	24	26	2	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure *N/A*

Tested By: CS

Checked By: LBJ

ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 161.5-163.1

Sample Number: UD-8

Material Description: Greenish Gray Sandy SILT

USCS: ML

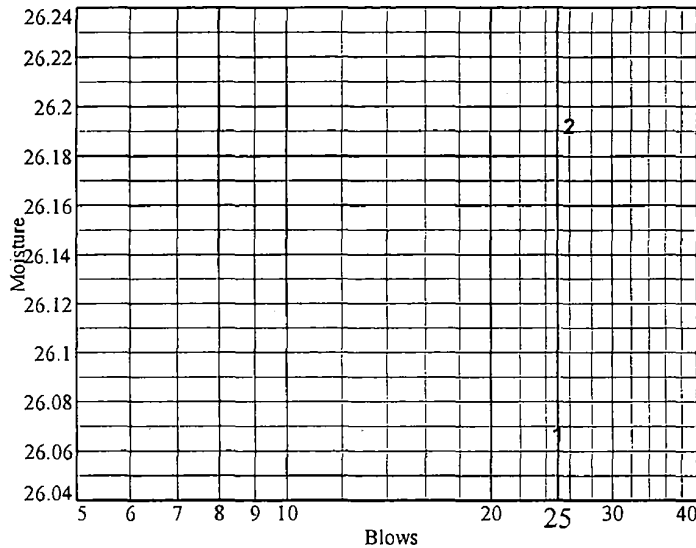
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	37.38	27.86				
Dry+Tare	32.86	24.40				
Tare	15.52	11.19				
# Blows	25	26				
Moisture	26.1	26.2				



Liquid Limit= 26
 Plastic Limit= 24
 Plasticity Index= 2
 Natural Moisture= 31.4
 Liquidity Index= 3.7

Plastic Limit Data

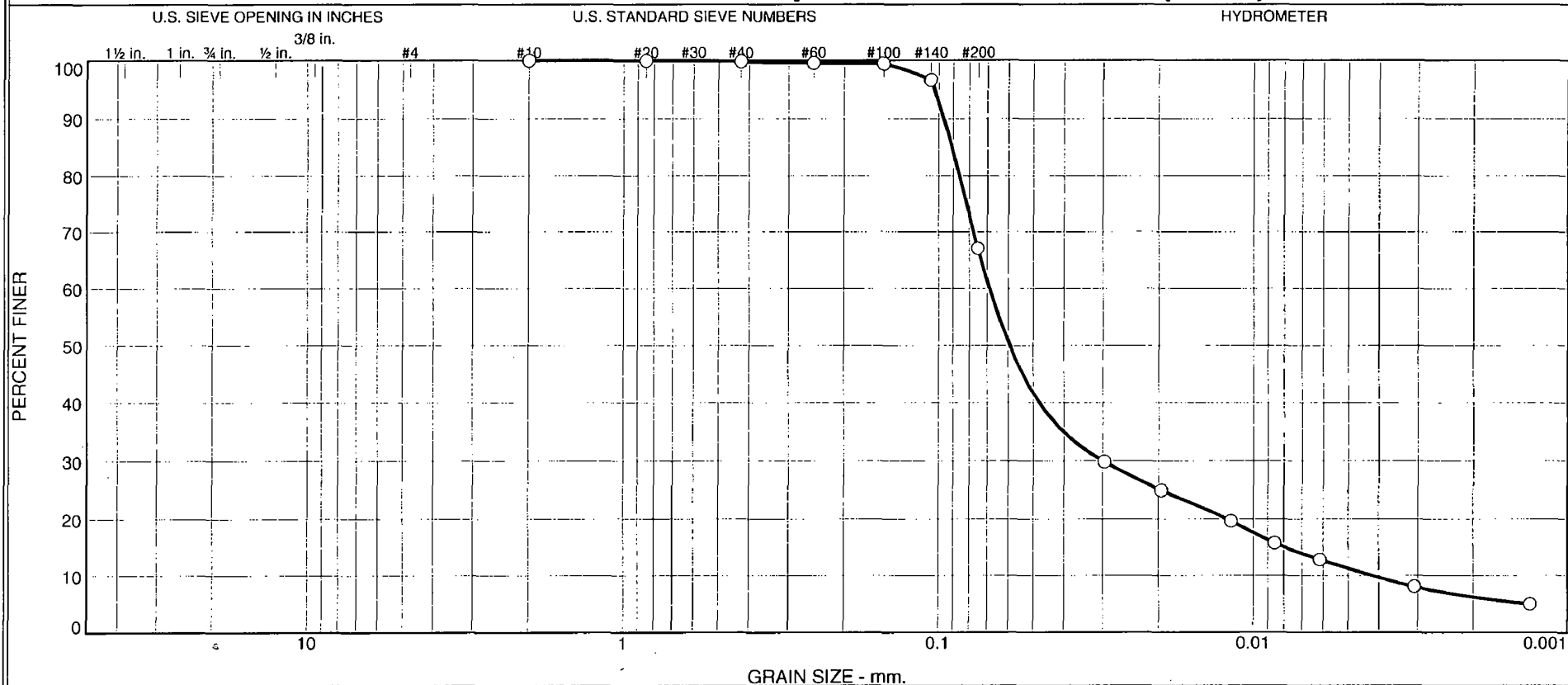
Run No.	1	2	3	4	
Wet+Tare	33.69	24.45			
Dry+Tare	30.25	21.86			
Tare	15.49	11.15			
Moisture	23.3	24.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
104.63	81.86	9.38	31.4

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	32.8	55.7	11.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-12	178.9'	4/19/08	ML	Greenish Gray Sandy SILT	NA	21	20

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity is assumed NA= Not Applicable See triaxial test report for natural moisture.
Project Turkey Point COL			
Project No. 6468071950	Figure NA	Raleigh, North Carolina	

ZHU 8-1-08

GRAIN SIZE DISTRIBUTION TEST DATA

8/1/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 178.9'

Sample Number: UD-12

Material Description: Greenish Gray Sandy SILT

Date: 4/19/08

Natural Moisture: NA

Liquid Limit: 21

Plastic Limit: 20

USCS Class.: ML

Testing Remarks: Specific Gravity is assumed

NA= Not Applicable

See triaxial test report for natural moisture.

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
289.65	0.00	0.00	#10	0.00	100.0
102.26	0.00	0.00	#20	0.04	100.0
			#40	0.18	99.8
			#60	0.44	99.6
			#100	0.56	99.5
			#140	3.43	96.6
			#200	33.71	67.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 102.26

Hygroscopic moisture correction:

Moist weight and tare = 25.08

Dry weight and tare = 24.98

Tare weight = 11.37

Hygroscopic moisture = 0.7%

Table of composite correction values:

Temp., deg. C: 12.2 29.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	R _m	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	36.5	30.7	0.0132	37.5	10.1	0.0297	29.9
5.00	21.5	31.5	25.7	0.0132	32.5	11.0	0.0195	25.0
15.00	21.5	26.0	20.2	0.0132	27.0	11.9	0.0117	19.6
30.00	21.4	22.0	16.1	0.0132	23.0	12.5	0.0085	15.7
60.00	21.6	19.0	13.2	0.0132	20.0	13.0	0.0061	12.8
250.00	22.2	14.0	8.3	0.0131	15.0	13.8	0.0031	8.1
1440.00	21.4	11.0	5.1	0.0132	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

Fractional Components

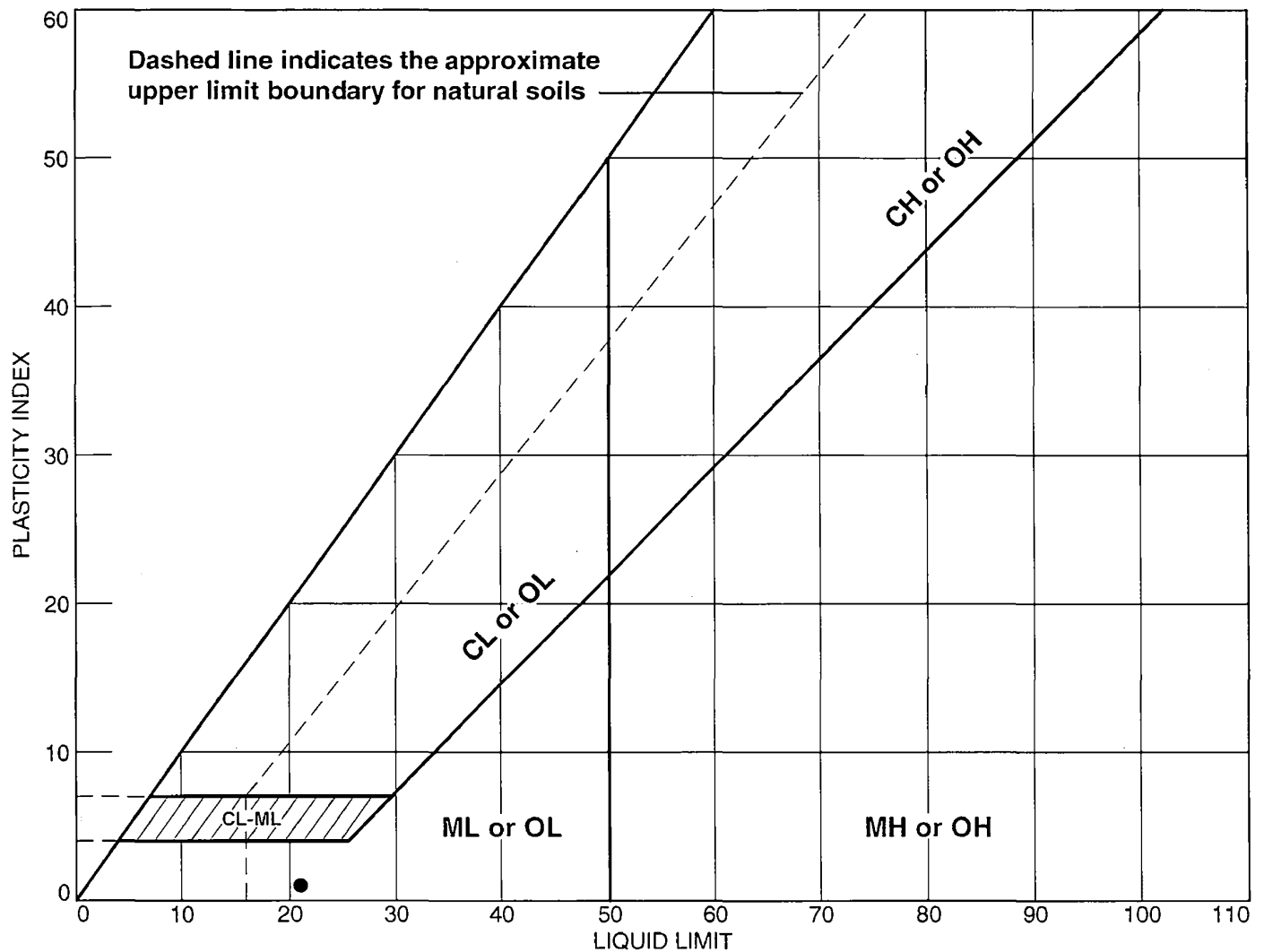
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	32.8	33.0	55.7	11.3	67.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0042	0.0080	0.0121	0.0300	0.0594	0.0689	0.0859	0.0905	0.0959	0.1029

Fineness Modulus	C _u	C _c
0.01	16.52	3.13

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-12	178.9'	NA	20	21	1	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

ZHU 8-1-08

LIQUID AND PLASTIC LIMIT TEST DATA

8/1/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 178.9'

Sample Number: UD-12

Material Description: Greenish Gray Sandy SILT

USCS: ML

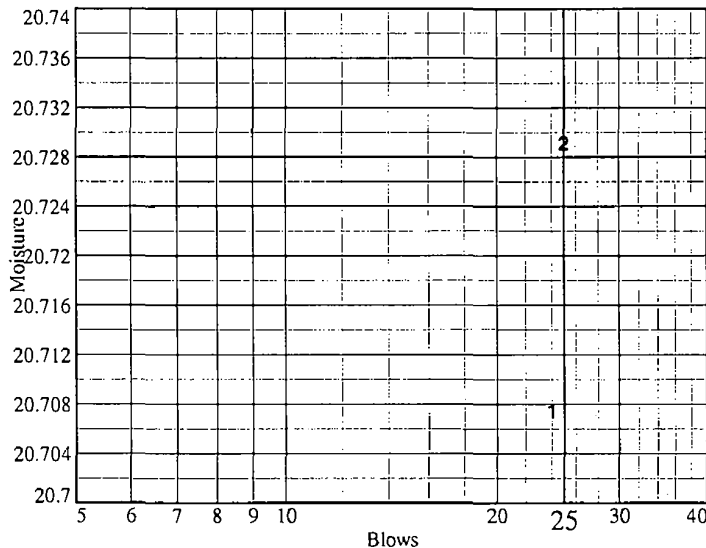
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.89	27.07				
Dry+Tare	29.08	25.08				
Tare	15.51	15.48				
# Blows	24	25				
Moisture	20.7	20.7				



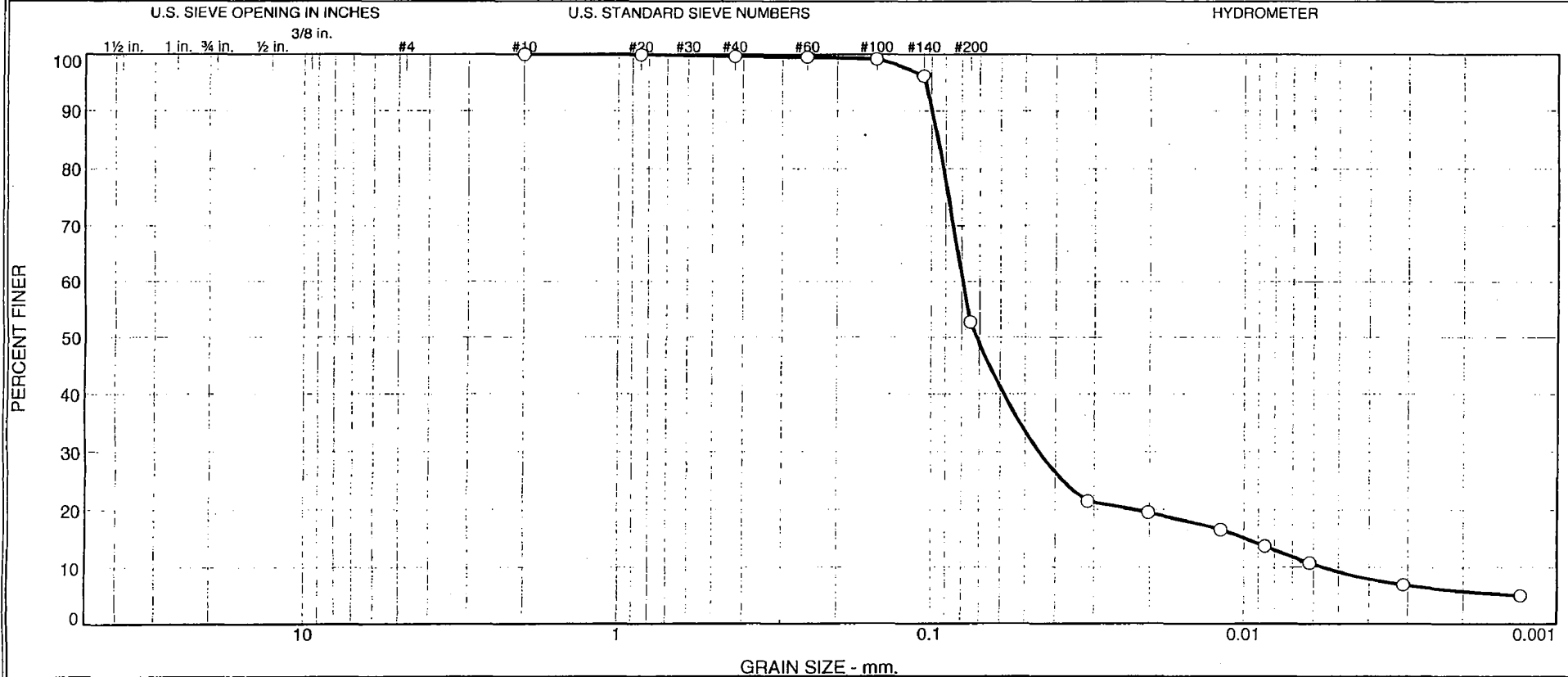
Liquid Limit= 21
 Plastic Limit= 20
 Plasticity Index= 1
 Natural Moisture= NA

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	27.13	31.26		
Dry+Tare	24.53	28.64		
Tare	11.40	15.51		
Moisture	19.8	20.0		

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	46.9	43.5	9.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-13	188.5-191	4/19/08	ML	Greenish Gray Brown Sandy SILT	30.0	22	19

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity is Assumed
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 188.5-191

Sample Number: UD-13

Material Description: Greenish Gray Brown Sandy SILT

Date: 4/19/08

Natural Moisture: 30.0

Liquid Limit: 22

Plastic Limit: 19

USCS Class.: ML

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
229.86	0.00	0.00	#10	0.00	100.0
101.50	0.00	0.00	#20	0.03	100.0
			#40	0.37	99.6
			#60	0.48	99.5
			#100	0.85	99.2
			#140	3.88	96.2
			#200	48.06	52.7

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 101.5

Hygroscopic moisture correction:

Moist weight and tare = 29.71

Dry weight and tare = 29.68

Tare weight = 15.63

Hygroscopic moisture = 0.2%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.7

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

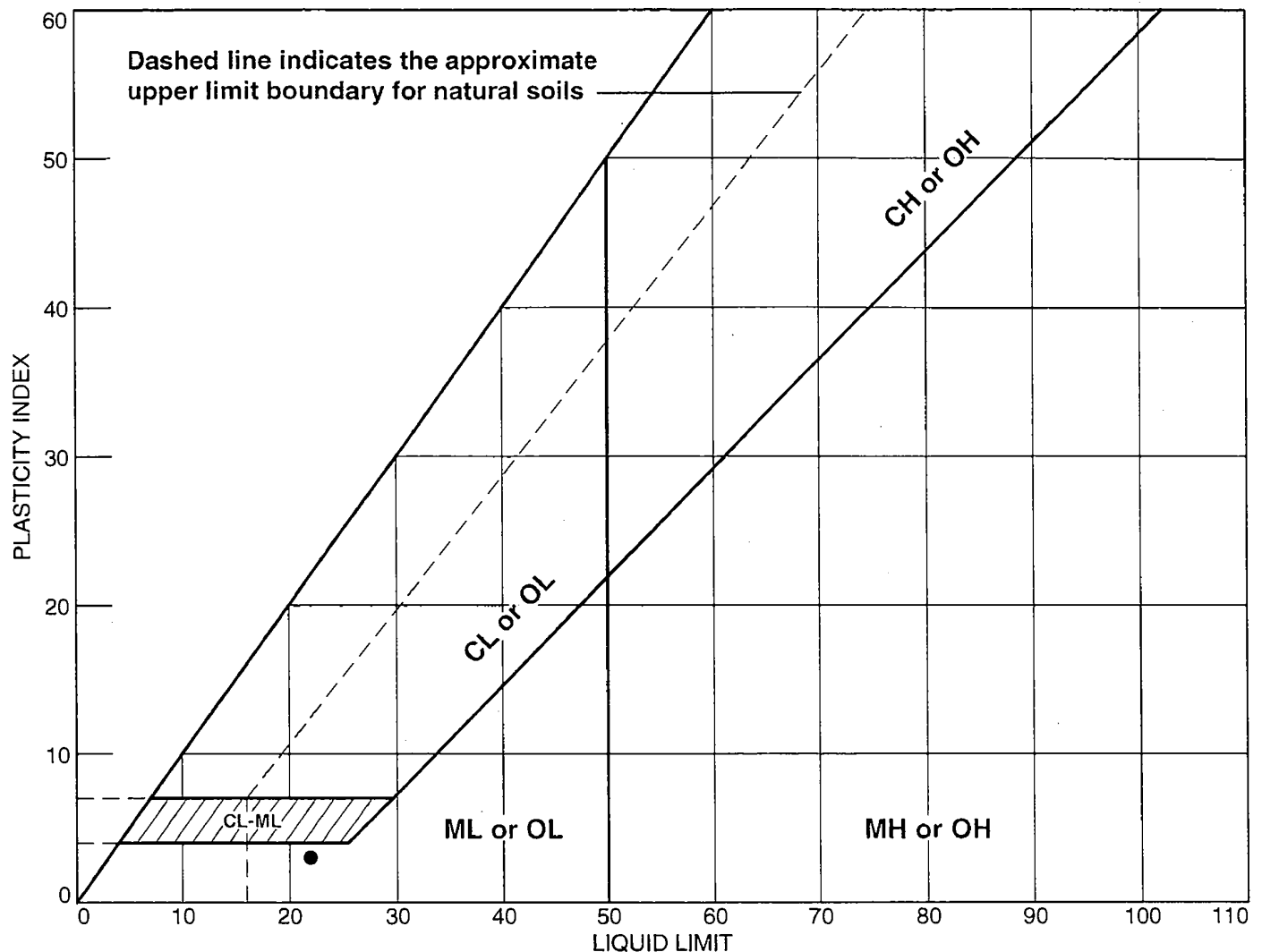
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	28.0	22.0	0.0131	29.0	11.5	0.0314	21.5
5.00	22.3	26.0	20.0	0.0131	27.0	11.9	0.0201	19.5
15.00	22.3	23.0	17.0	0.0131	24.0	12.4	0.0119	16.6
30.00	22.2	20.0	14.0	0.0131	21.0	12.9	0.0086	13.7
60.00	22.2	17.0	11.0	0.0131	18.0	13.3	0.0062	10.8
250.00	22.0	13.0	7.1	0.0131	14.0	14.0	0.0031	6.9
1440.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	46.9	47.3	43.5	9.2	52.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0056	0.0098	0.0223	0.0450	0.0715	0.0793	0.0914	0.0950	0.0991	0.1044

Fineness Modulus	C _u	C _c
0.02	14.20	4.58

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-13	188.5-191	30.0	19	22	3	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure *N/A*

Tested By: CS

Checked By: LBJ

ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 188.5-191

Sample Number: UD-13

Material Description: Greenish Gray Brown Sandy SILT

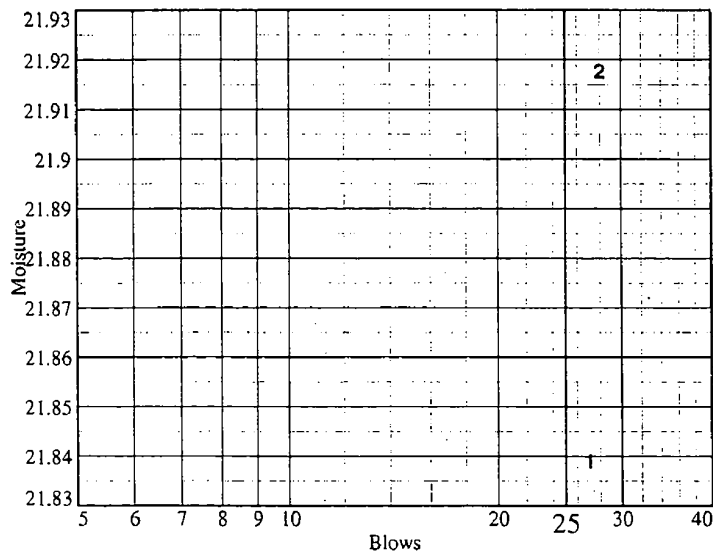
USCS: ML

AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	24.96	22.72				
Dry+Tare	22.49	20.64				
Tare	11.18	11.15				
# Blows	27	28				
Moisture	21.8	21.9				

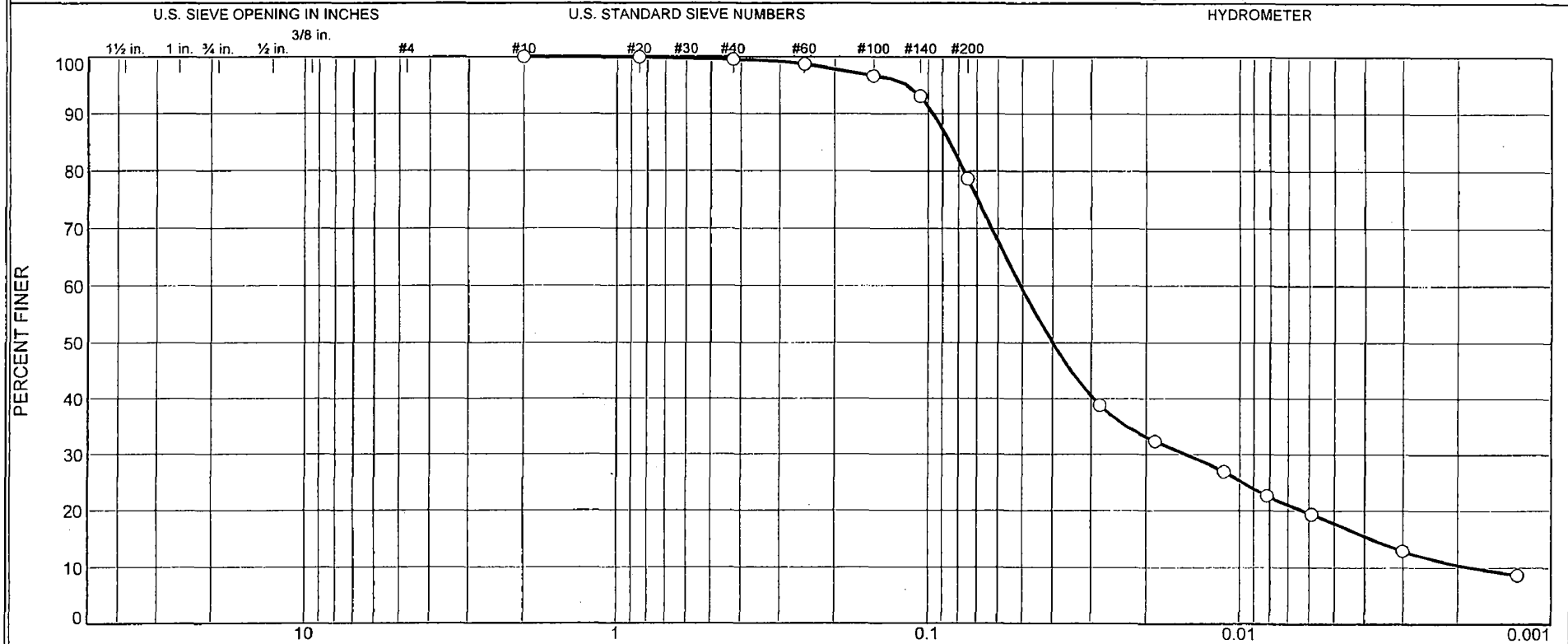


Run No.	1	2	3	4	
Wet+Tare	32.69	32.96			
Dry+Tare	29.89	30.23			
Tare	15.54	15.49			
Moisture	19.5	18.5			

Wet+Tare	Dry+Tare	Tare	Moisture
122.01	95.43	6.87	30.0

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 208.5-211

Sample Number: UD-16

Material Description: Grayish Gray Lean CLAY with sand

Date: 4-21-08

Natural Moisture: 29.8

Liquid Limit: 34

Plastic Limit: 24

USCS Class.: CL

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.26	0.00	0.00	#10	0.00	100.0
97.17	0.00	0.00	#20	0.09	99.9
			#40	0.49	99.5
			#60	1.27	98.7
			#100	3.30	96.6
			#140	6.69	93.1
			#200	20.67	78.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =97.17

Hygroscopic moisture correction:

Moist weight and tare = 22.63

Dry weight and tare = 22.00

Tare weight = 11.19

Hygroscopic moisture =5.8%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.7

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	42.0	36.0	0.0131	43.0	9.2	0.0282	38.8
5.00	22.1	36.0	30.0	0.0131	37.0	10.2	0.0187	32.4
15.00	22.2	31.0	25.0	0.0131	32.0	11.0	0.0112	26.9
30.00	22.2	27.0	21.0	0.0131	28.0	11.7	0.0082	22.6
60.00	22.2	24.0	18.0	0.0131	25.0	12.2	0.0059	19.4
250.00	22.0	18.0	12.1	0.0131	19.0	13.2	0.0030	13.0
1440.00	21.9	14.0	8.1	0.0131	15.0	13.8	0.0013	8.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

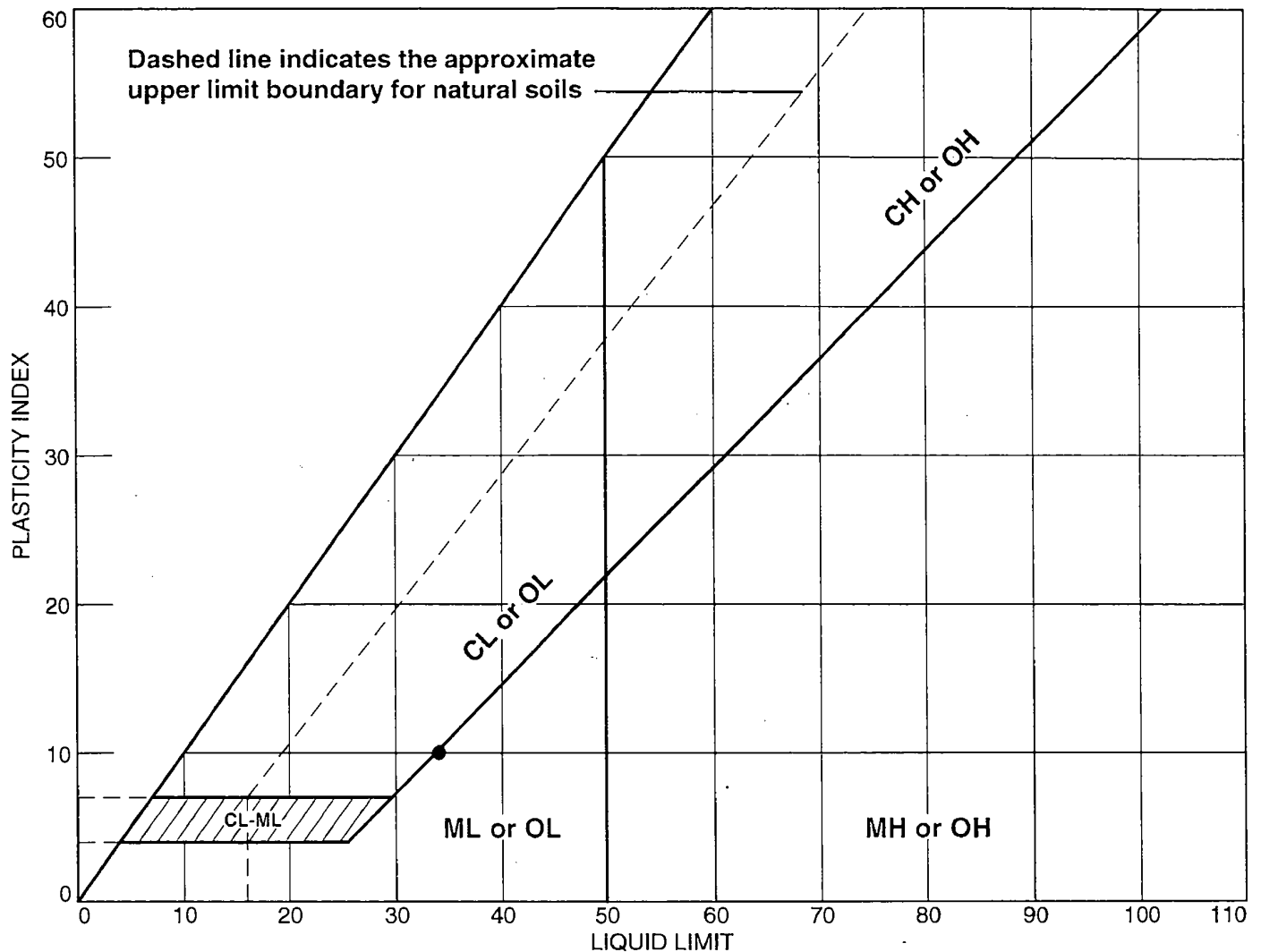
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	20.8	21.3	60.9	17.8	78.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0018	0.0038	0.0063	0.0148	0.0401	0.0508	0.0770	0.0854	0.0961	0.1167

Fineness Modulus	C _u	C _c
0.05	28.25	2.41

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-16	208.5-211	29.8	24	34	10	CL

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure 1/14

Tested By: CS

Checked By: LBJ

ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 208.5-211

Sample Number: UD-16

Material Description: Grayish Gray Lean CLAY with sand

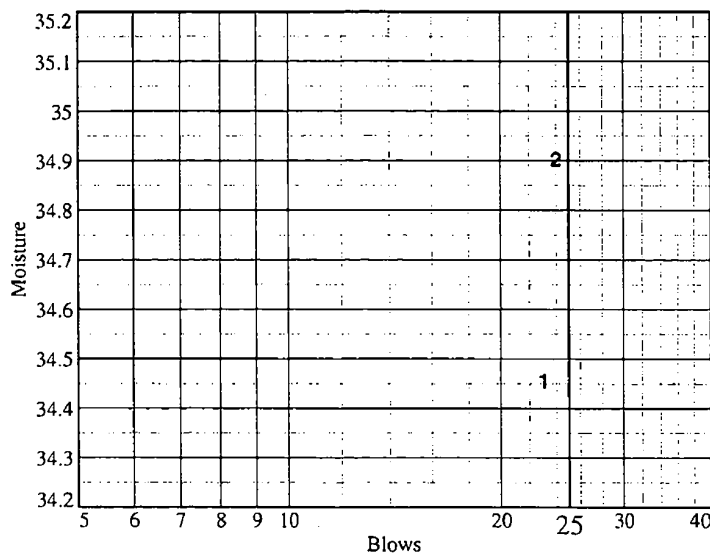
USCS: CL

AASHTO: A-4(7)

Tested by: CS

Checked by: LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	29.43	32.31				
Dry+Tare	25.85	27.94				
Tare	15.46	15.42				
# Blows	23	24				
Moisture	34.5	34.9				



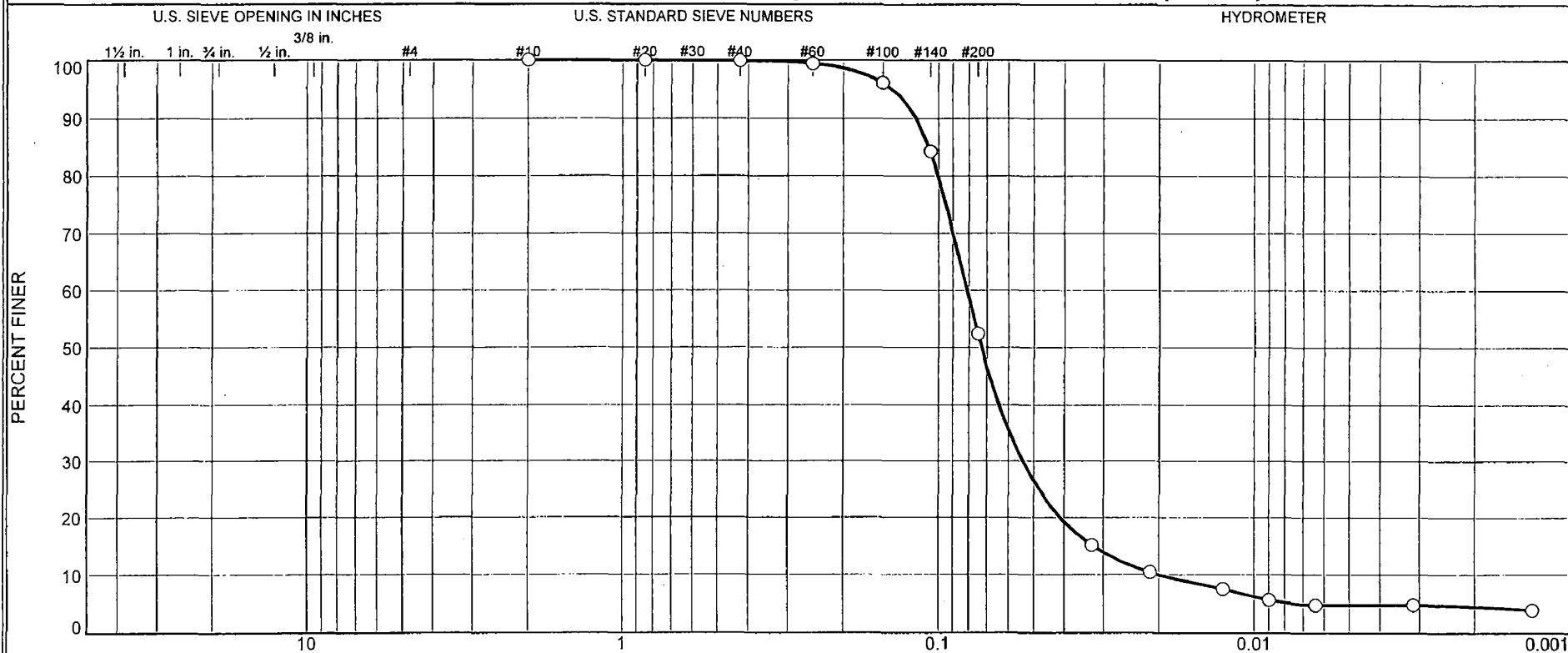
Liquid Limit= 34
 Plastic Limit= 24
 Plasticity Index= 10
 Natural Moisture= 29.8
 Liquidity Index= 0.6

Run No.	1	2	3	4
Wet+Tare	23.58	19.34		
Dry+Tare	22.06	17.80		
Tare	15.68	11.25		
Moisture	23.8	23.5		

Wet+Tare	Dry+Tare	Tare	Moisture
113.39	88.86	6.66	29.8

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	47.5	47.6	4.8

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-19	228.5-231	4/22/08	ML	Greenish Gray Sandy SILT	23.6	24	21

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity is Assumed
Project Turkey Point COL			
Project No. 6468071950	Figure <i>N/A</i>		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 228.5-231

Sample Number: UD-19

Material Description: Greenish Gray Sandy SILT

Date: 4/22/08

Natural Moisture: 23.6

Liquid Limit: 24

Plastic Limit: 21

USCS Class.: ML

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
337.55	0.00	0.00	#10	0.00	100.0
104.79	0.00	0.00	#20	0.06	99.9
			#40	0.15	99.9
			#60	0.61	99.4
			#100	4.13	96.1
			#140	16.40	84.3
			#200	49.88	52.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =104.79

Hygroscopic moisture correction:

Moist weight and tare = 27.48

Dry weight and tare = 27.42

Tare weight = 15.51

Hygroscopic moisture =0.5%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.7

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	22.0	16.0	0.0131	23.0	12.5	0.0327	15.2
5.00	22.3	17.0	11.0	0.0131	18.0	13.3	0.0213	10.4
15.00	22.3	14.0	8.0	0.0131	15.0	13.8	0.0126	7.6
30.00	22.3	12.0	6.0	0.0131	13.0	14.2	0.0090	5.7
60.00	22.3	11.0	5.0	0.0131	12.0	14.3	0.0064	4.7
250.00	22.0	11.0	5.1	0.0131	12.0	14.3	0.0031	4.8
1440.00	21.9	10.0	4.1	0.0131	11.0	14.5	0.0013	3.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

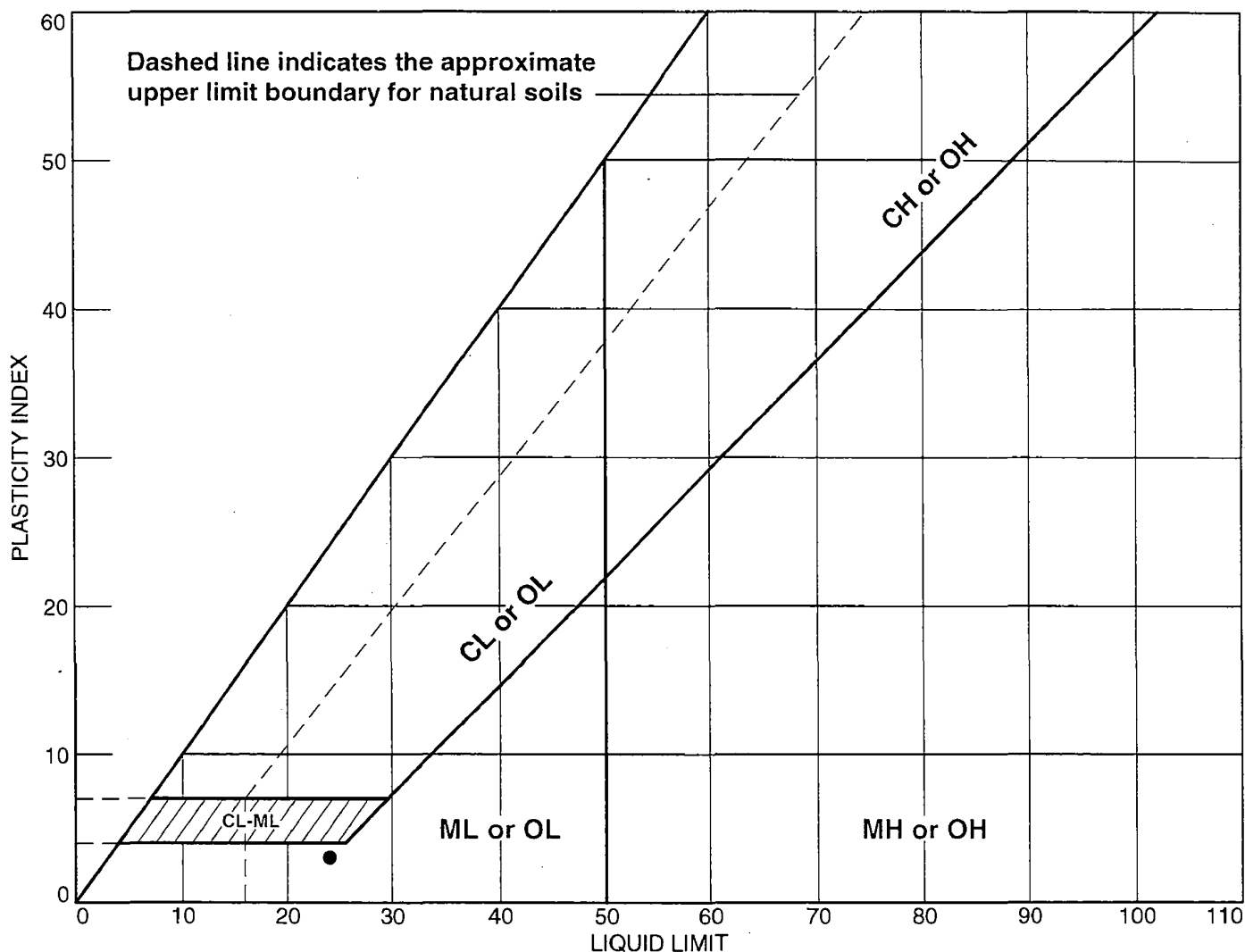
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	47.5	47.6	47.6	4.8	52.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0201	0.0324	0.0413	0.0542	0.0730	0.0812	0.1001	0.1070	0.1174	0.1398

Fineness Modulus	C _u	C _c
0.04	4.05	1.80

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-19	228.5-231	23.6	21	24	3	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure N/A

ZHU 7/22/08

Tested By: CS

Checked By: LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 228.5-231

Sample Number: UD-19

Material Description: Greenish Gray Sandy SILT

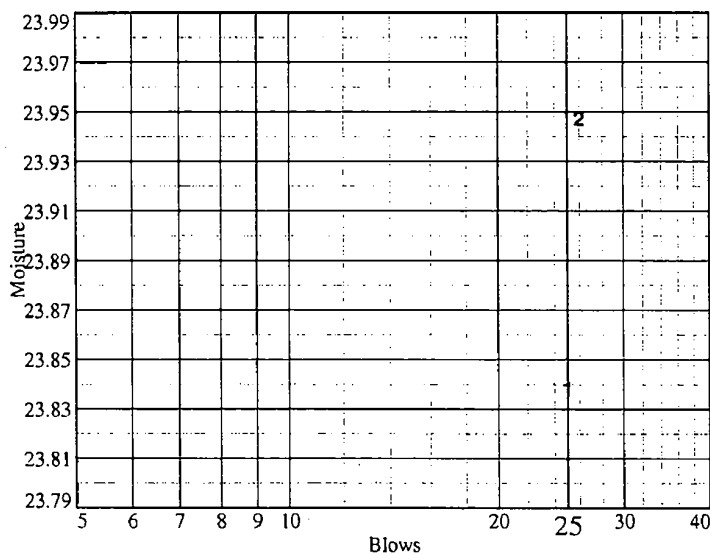
USCS: ML

AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	36.05	33.49				
Dry+Tare	32.10	30.02				
Tare	15.53	15.53				
# Blows	25	26				
Moisture	23.8	23.9				

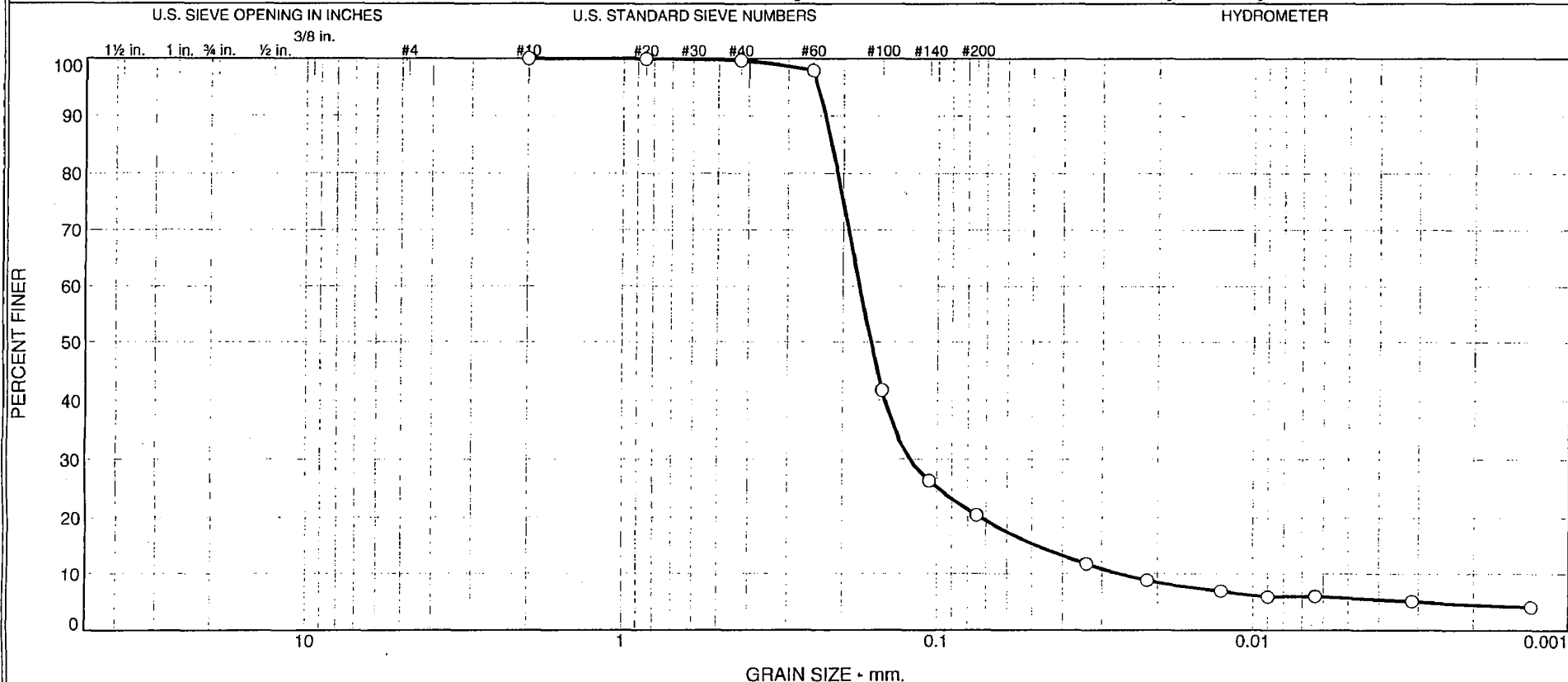


Run No.	1	2	3	4
Wet+Tare	32.26	31.69		
Dry+Tare	29.31	28.86		
Tare	15.55	15.56		
Moisture	21.4	21.3		

Wet+Tare	Dry+Tare	Tare	Moisture
150.70	123.29	6.90	23.6

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	79.3	14.8	5.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-23	258.5-261	4/23/08	SC-SM	Dark Greenish Gray Silty Clayey SAND	22.7	20	15

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity is Assumed
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 258.5-261

Sample Number: UD-23

Material Description: Dark Greenish Gray Silty Clayey SAND

Date: 4/23/08

Natural Moisture: 22.7

Liquid Limit: 20

Plastic Limit: 15

USCS Class.: SC-SM

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
308.25	0.00	0.00	#10	0.00	100.0
101.13	0.00	0.00	#20	0.03	100.0
			#40	0.28	99.7
			#60	2.06	98.0
			#100	58.95	41.7
			#140	74.49	26.3
			#200	80.45	20.4

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 101.13

Hygroscopic moisture correction:

Moist weight and tare = 27.70

Dry weight and tare = 27.68

Tare weight = 15.65

Hygroscopic moisture = 0.2%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.7

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	R _m	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	18.0	12.0	0.0131	19.0	13.2	0.0335	11.7
5.00	22.3	15.0	9.0	0.0131	16.0	13.7	0.0216	8.8
15.00	22.3	13.0	7.0	0.0131	14.0	14.0	0.0126	6.8
30.00	22.3	12.0	6.0	0.0131	13.0	14.2	0.0090	5.9
60.00	22.1	12.0	6.0	0.0131	13.0	14.2	0.0064	5.9
250.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0031	5.0
1440.00	21.9	10.0	4.1	0.0131	11.0	14.5	0.0013	4.0

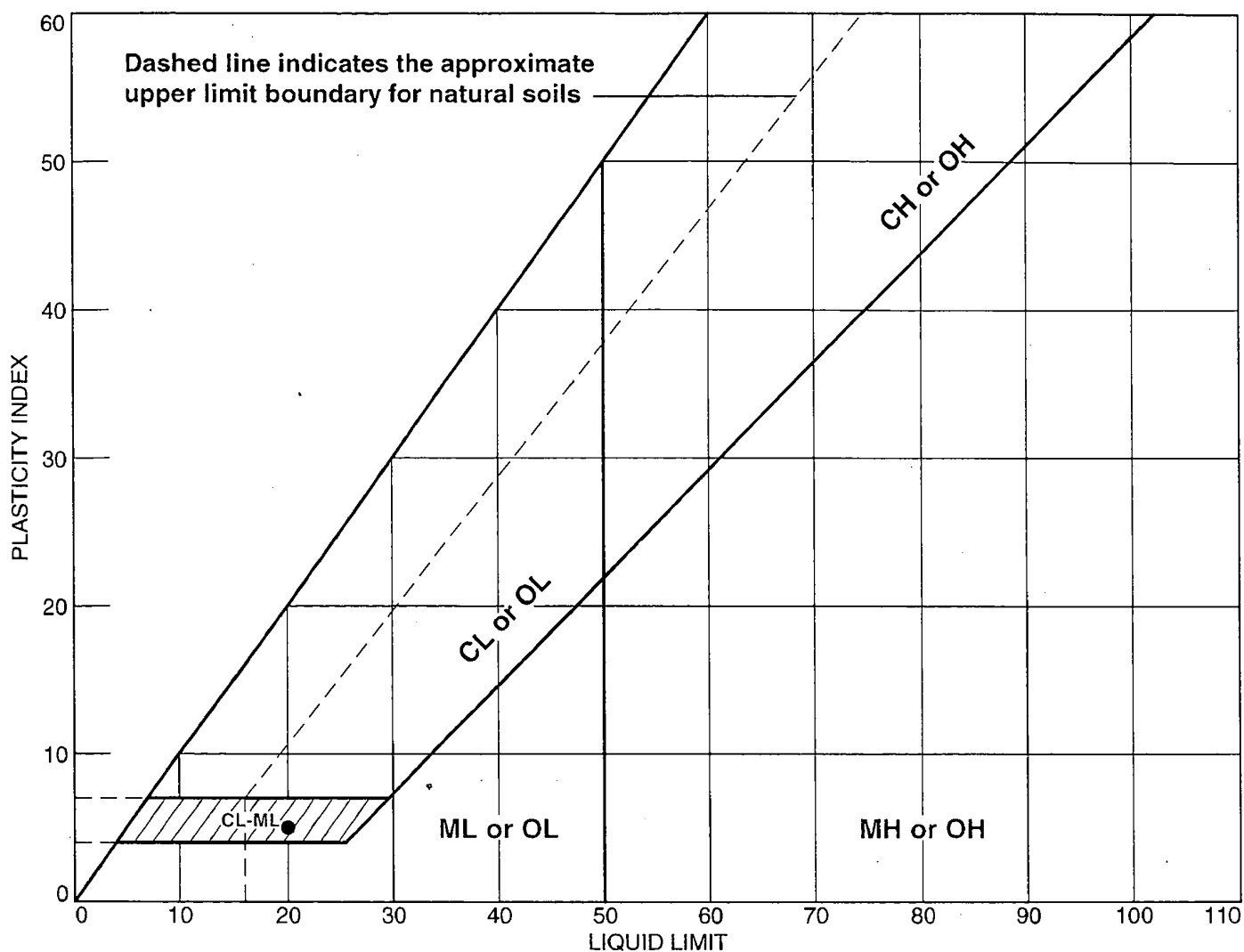
MACTEC Engineering and Consulting, Inc.

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	79.3	79.6	14.8	5.6	20.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0265	0.0479	0.0726	0.1221	0.1631	0.1775	0.2084	0.2175	0.2279	0.2405

Fineness Modulus	C _u	C _c
0.60	6.70	3.17

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-23	258.5-261	22.7	15	20	5	SC-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure *N/A*

ZHU 7/22/08

Tested By: CS

Checked By: LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 258.5-261

Sample Number: UD-23

Material Description: Dark Greenish Gray Silty Clayey SAND

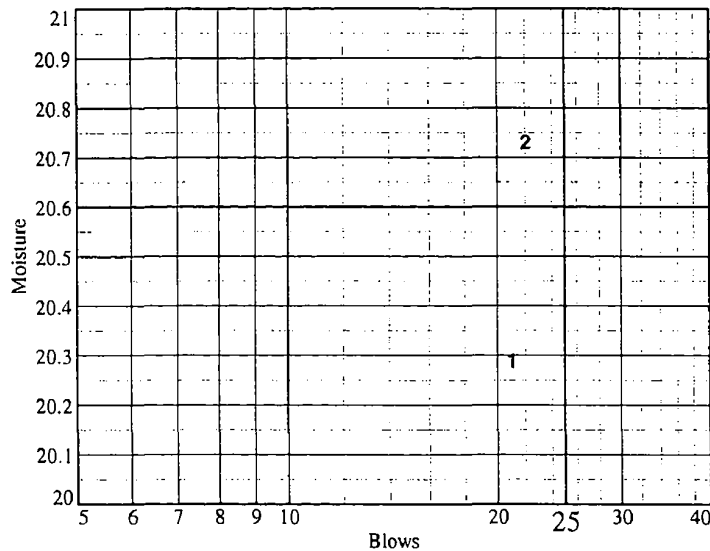
USCS: SC-SM

AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	30.48	26.94				
Dry+Tare	27.96	24.22				
Tare	15.54	11.10				
# Blows	21	22				
Moisture	20.3	20.7				

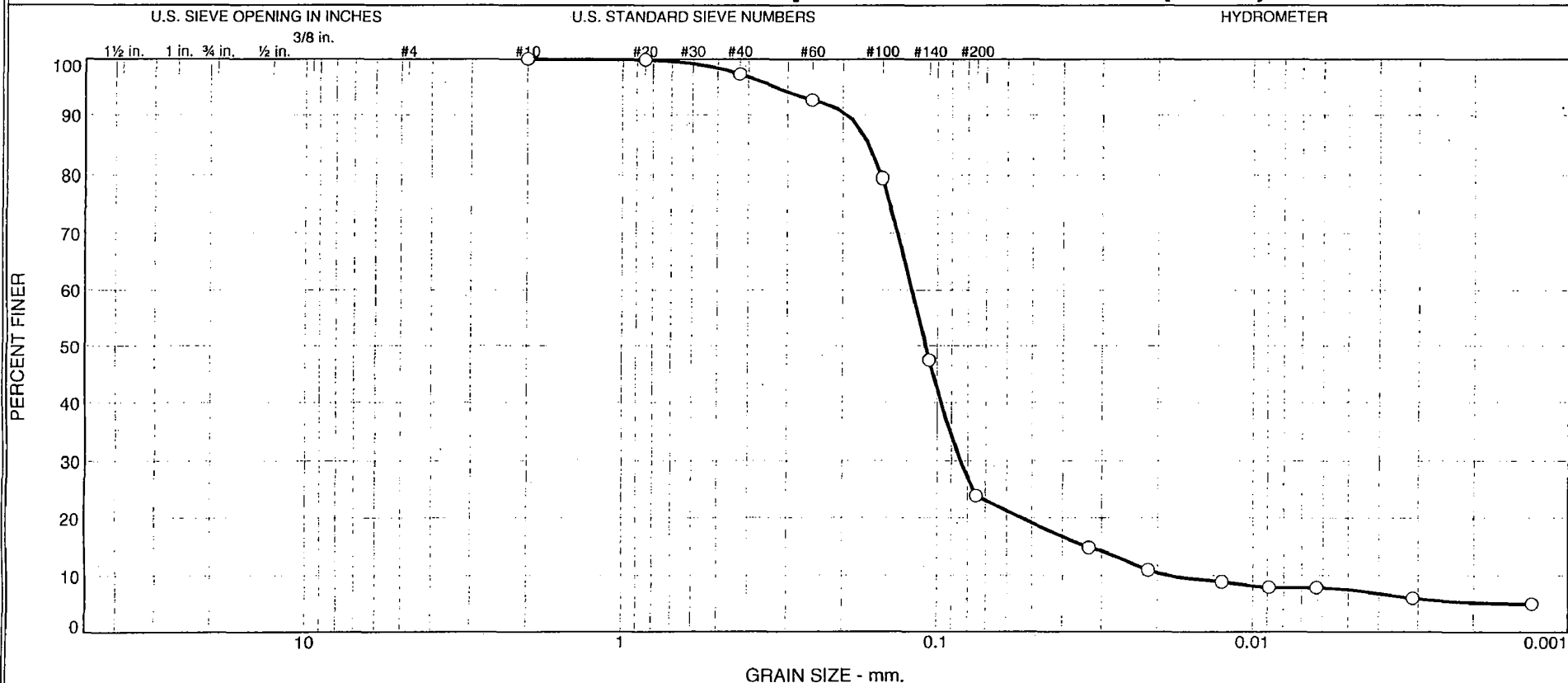


Liquid Limit= 20
 Plastic Limit= 15
 Plasticity Index= 5
 Natural Moisture= 22.7
 Liquidity Index= 1.5

Run No.	1	2	3	4
Wet+Tare	26.56	32.69		
Dry+Tare	24.53	30.36		
Tare	11.15	15.49		
Moisture	15.2	15.7		

Wet+Tare	Dry+Tare	Tare	Moisture
133.08	110.16	9.22	22.7

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.7	73.4	16.4	7.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-630	UD-27	291.5-294	4/29/08	SM	Dark Greenish Gray Silty SAND	22.1	23	20

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Specific Gravity is Assumed
Project Turkey Point COL			
Project No. 6468071950	Figure N/4		
		Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 291.5-294

Sample Number: UD-27

Material Description: Dark Greenish Gray Silty SAND

Date: 4/29/08

Natural Moisture: 22.1

Liquid Limit: 23

Plastic Limit: 20

USCS Class.: SM

Testing Remarks: Specific Gravity is Assumed

Tested by: CS

Checked by: LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
282.14	0.00	0.00	#10	0.00	100.0
100.92	0.00	0.00	#20	0.14	99.9
			#40	2.70	97.3
			#60	7.44	92.6
			#100	20.73	79.5
			#140	53.05	47.4
			#200	76.78	23.9

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 100.92

Hygroscopic moisture correction:

Moist weight and tare = 28.36

Dry weight and tare = 28.30

Tare weight = 15.55

Hygroscopic moisture = 0.5%

Table of composite correction values:

Temp., deg. C: 29.3 11.7

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.7

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	21.0	15.0	0.0131	22.0	12.7	0.0330	14.8
5.00	22.1	17.0	11.0	0.0131	18.0	13.3	0.0214	10.9
15.00	22.1	15.0	9.0	0.0131	16.0	13.7	0.0125	8.9
30.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0089	7.9
60.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0063	7.9
250.00	21.9	12.0	6.1	0.0131	13.0	14.2	0.0031	6.0
1440.00	22.0	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

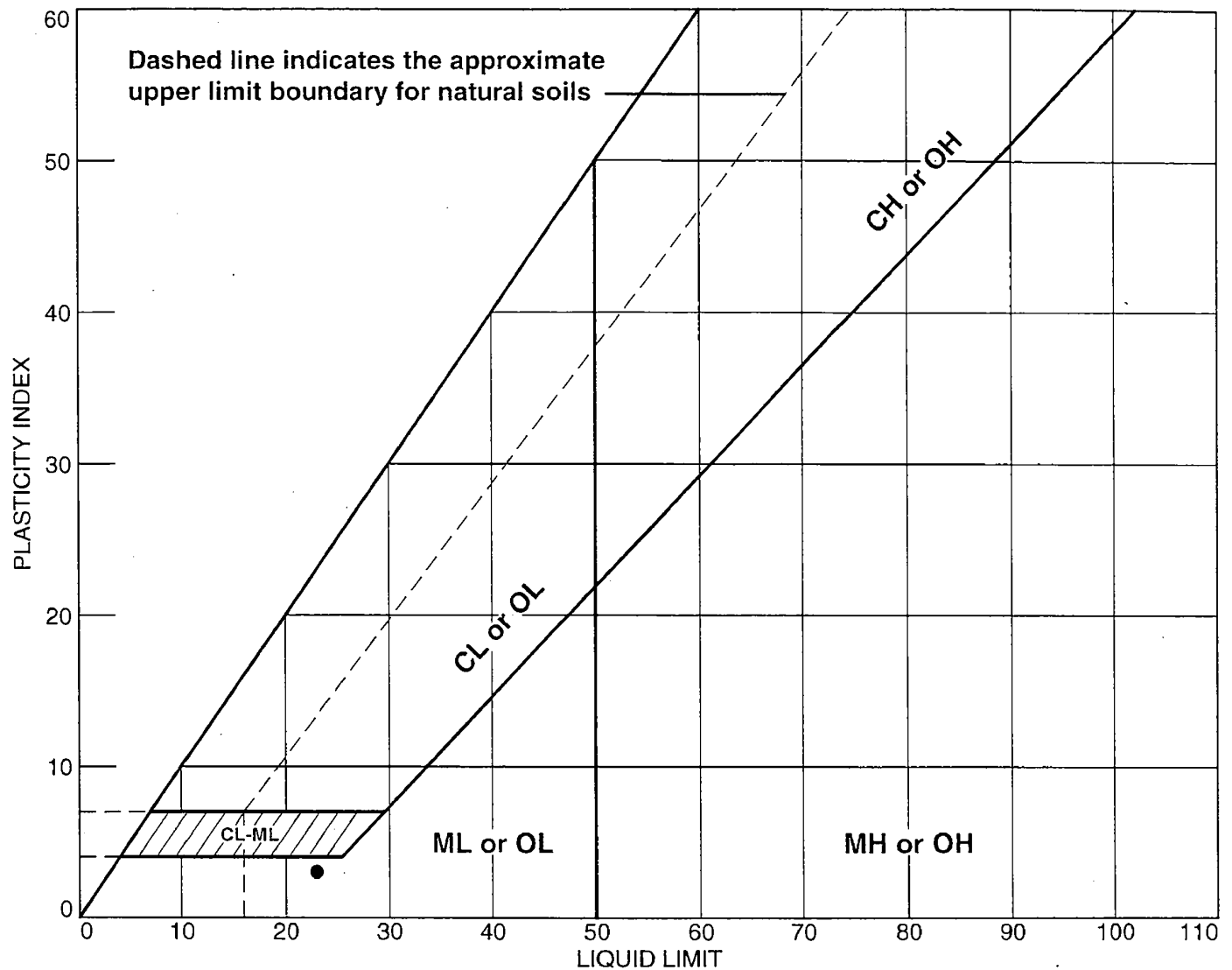
MACTEC Engineering and Consulting, Inc.

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.7	73.4	76.1	16.4	7.5	23.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0186	0.0336	0.0539	0.0843	0.1089	0.1206	0.1512	0.1652	0.1932	0.3293

Fineness Modulus	C _u	C _c
0.27	6.47	3.16

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-630	UD-27	291.5-294	22.1	20	23	3	SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

ZHU 7/22/08

Figure N/A

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-630

Depth: 291.5-294

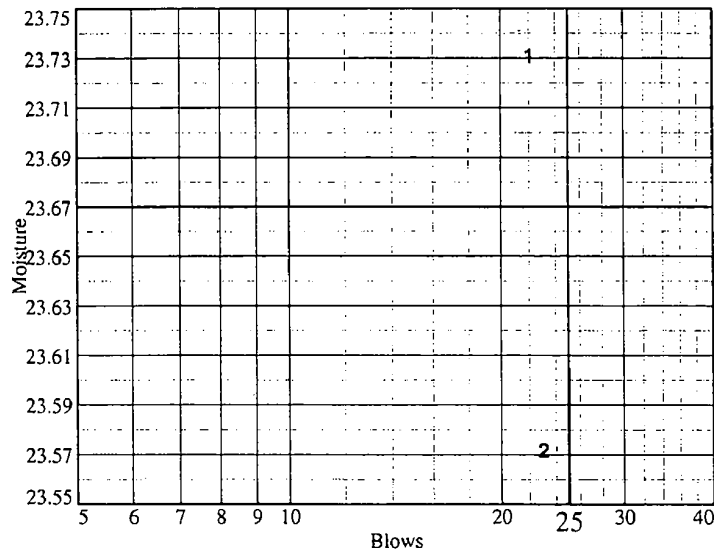
Sample Number: UD-27

Material Description: Dark Greenish Gray Silty SAND

USCS: SM

AASHTO: A-2-4(0)

Run No.	1	2	3	4	5	6
Wet+Tare	35.87	34.36				
Dry+Tare	31.99	30.77				
Tare	15.64	15.54				
# Blows	22	23				
Moisture	23.7	23.6				



Liquid Limit= 23
 Plastic Limit= 20
 Plasticity Index= 3
 Natural Moisture= 22.1
 Liquidity Index= 0.7

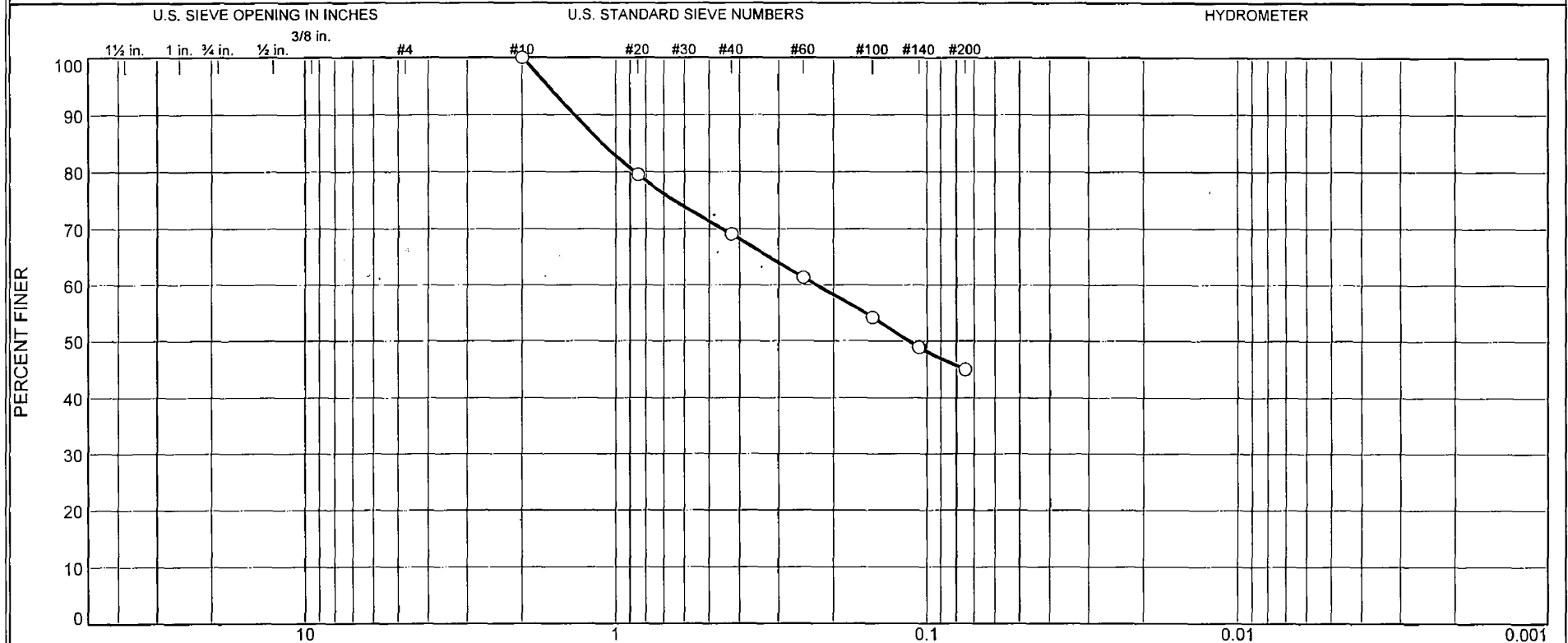
Run No.	1	2	3	4
Wet+Tare	26.36	26.98		
Dry+Tare	24.56	25.02		
Tare	15.59	15.49		
Moisture	20.1	20.6		

Wet+Tare	Dry+Tare	Tare	Moisture
140.21	116.07	6.70	22.1

MACTEC Engineering and Consulting, Inc.

Soil Index Tests- 700 Series Boreholes

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	31	24	45	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-1	0.0-1.5	4/3/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 0.0-1.5

Sample Number: 701-1

Material Description: Olive Gray Silty SAND (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 62.11

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
62.11	0.00	0.00	#10	0.00	100
			#20	12.71	80
			#40	19.22	69
			#60	23.99	61
			#100	28.43	54
			#140	31.74	49
			#200	34.14	45

Fractional Components

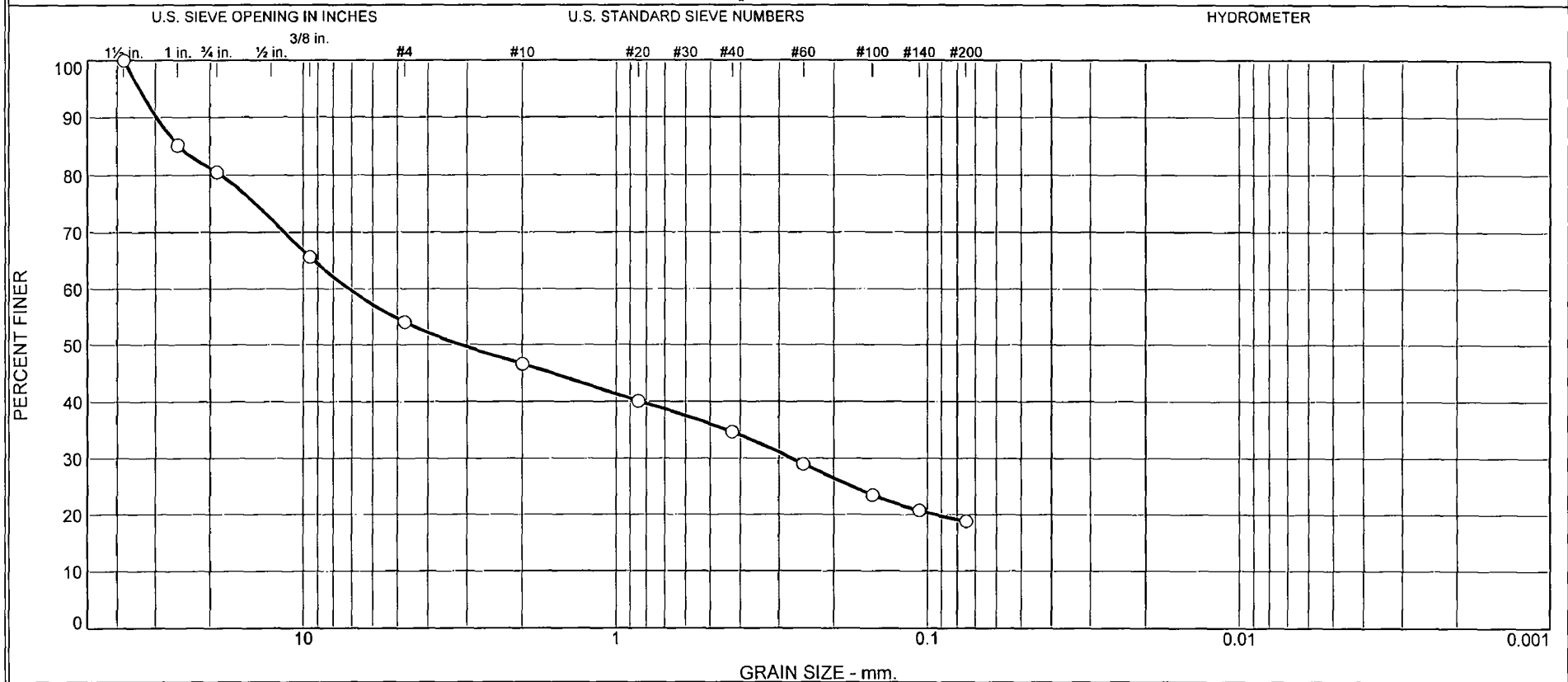
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	31	24	55			45

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1145	0.2262	0.8710	1.1042	1.3608	1.6545

Fineness Modulus
1.21

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
19	27	7	12	16	19	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-2B	2.9-4.0	4/3/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 2.9-4.0

Sample Number: 701-2B

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
548.50	0.00	0.00	1.5	0.00	100
			1	81.31	85
			3/4	106.90	81
			3/8	188.51	66
			#4	252.01	54
			#10	293.08	47
96.30	0.00	0.00	#20	13.42	40
			#40	24.66	35
			#60	36.32	29
			#100	47.72	23
			#140	53.44	21
			#200	57.45	19

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	27	46	7	12	16	35			19

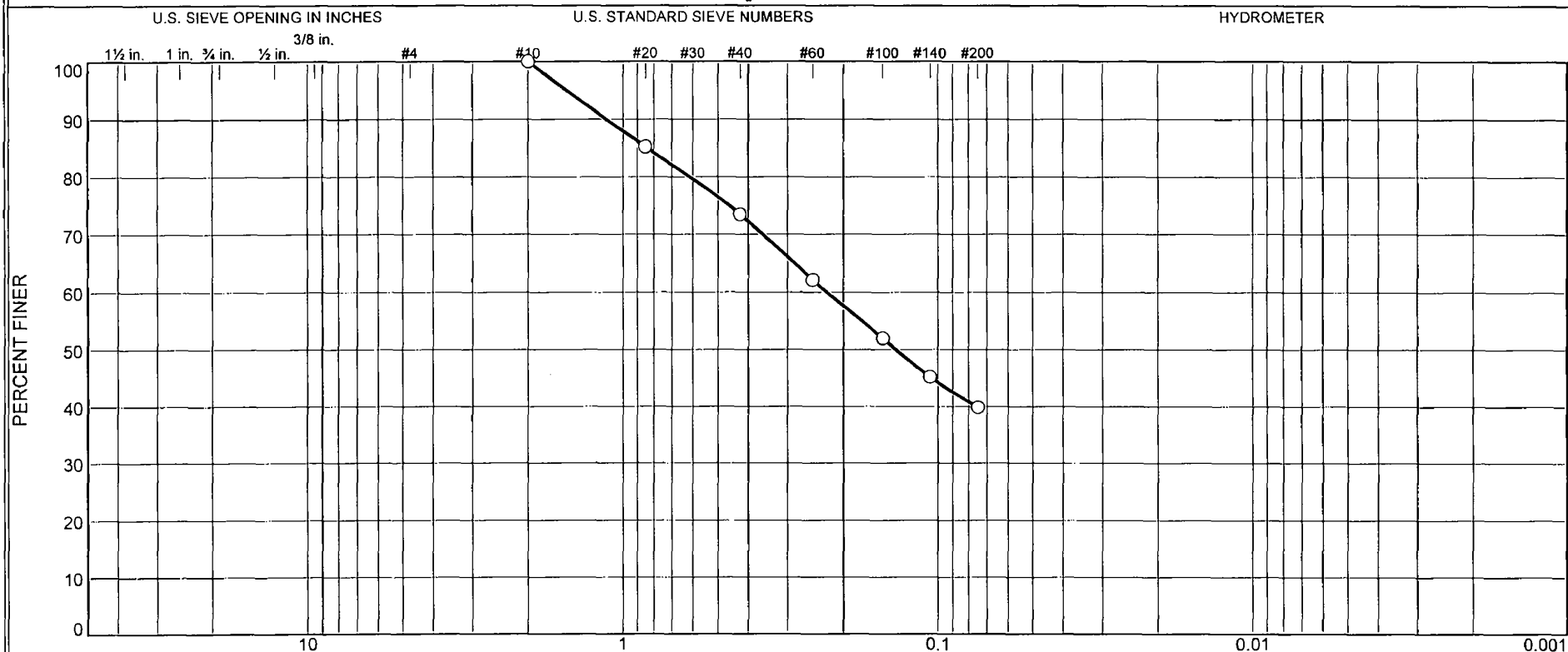
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0941	0.2730	3.1520	7.1427	18.4385	25.2089	29.7887	33.8684

Fineness
Modulus

4.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel			% Sand			% Fines	
Coarse	Fine		Coarse	Medium	Fine	Silt	Clay
0	0		0	27	33	40	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-3	5.6-6.6	4/3/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 92% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 5.6-6.6

Sample Number: 701-3

Material Description: Pale Yellow Silty SAND (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 92% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
311.96	0.00	0.00	#10	0.00	100
98.02	0.00	0.00	#20	14.44	85
			#40	26.03	73
			#60	37.07	62
			#100	47.04	52
			#140	53.68	45
			#200	58.90	40

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	27	33	60			40

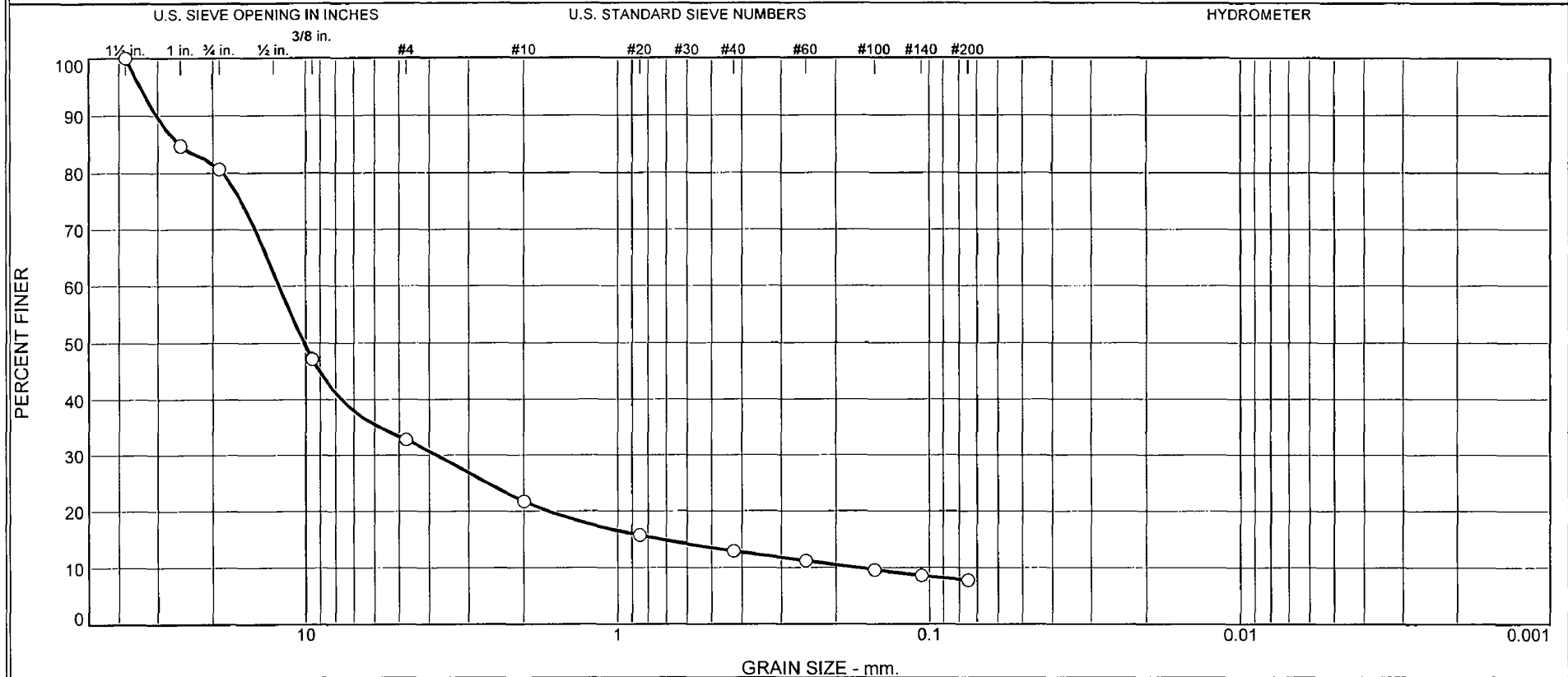
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1358	0.2248	0.6140	0.8361	1.1283	1.5059

Fineness Modulus

1.12

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
19	48	11	9	5	8	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-6	12.5-14.0	4/3/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 12.5-14.0

Sample Number: 701-6

Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
341.78	0.00	0.00	1.5	0.00	100
			1	52.26	85
			3/4	65.92	81
			3/8"	180.66	47
			#4	229.70	33
			#10	267.50	22
			#20	288.00	16
			#40	297.50	13
			#60	303.40	11
			#100	308.91	10
			#140	312.32	9
			#200	315.00	8

Fractional Components

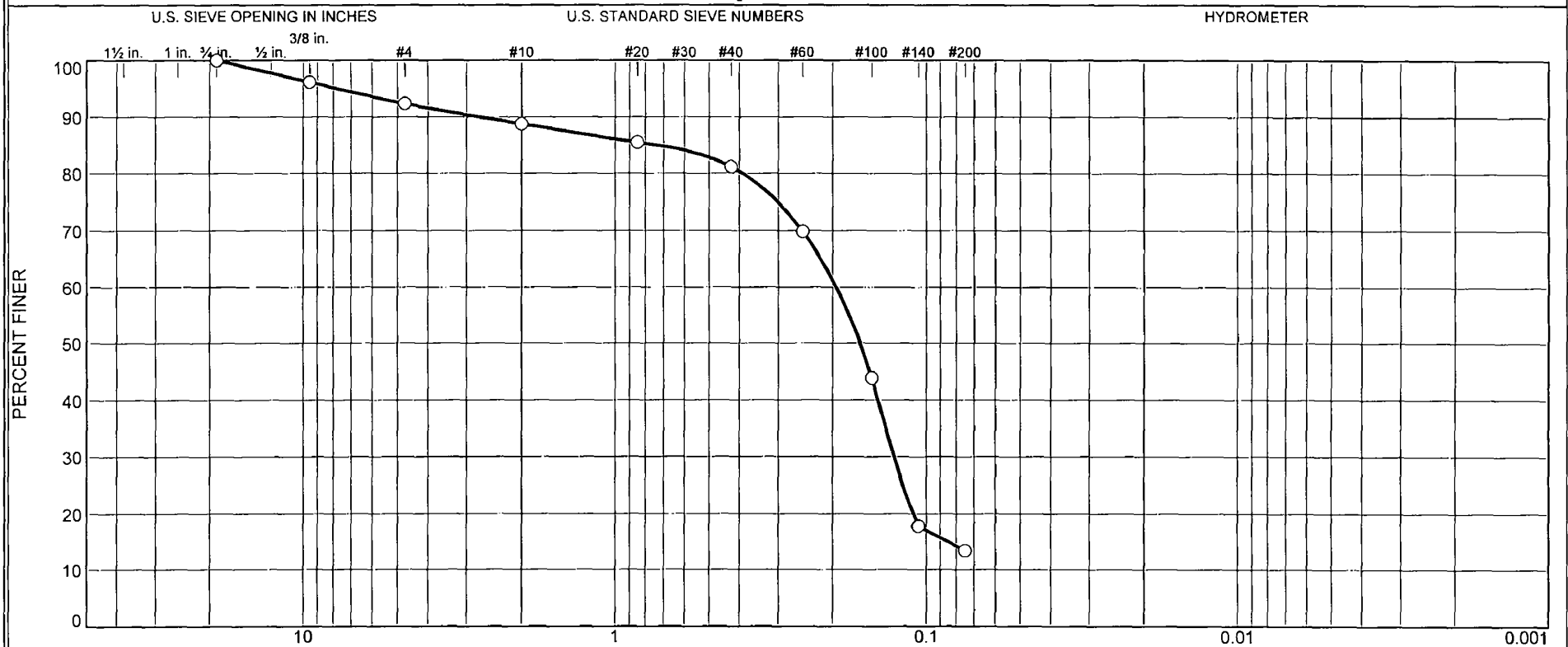
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	48	67	11	9	5	25			8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1696	0.7212	1.6763	3.7878	10.1325	12.1886	18.5175	25.7680	30.3633	34.1997

Fineness Modulus	C _u	C _c
5.63	71.85	6.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	8	3	8	68	13	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-8	115.5-117.0	4/3/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 115.5-117.0

Sample Number: 701-8

Material Description: White Silty SAND (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
316.72	0.00	0.00	3/4	0.00	100
			3/8"	12.11	96
			#4	24.25	92
			#10	35.54	89
101.86	0.00	0.00	#20	3.80	85
			#40	8.75	81
			#60	21.70	70
			#100	51.50	44
			#140	81.45	18
			#200	86.45	13

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	8	8	3	8	68	79			13

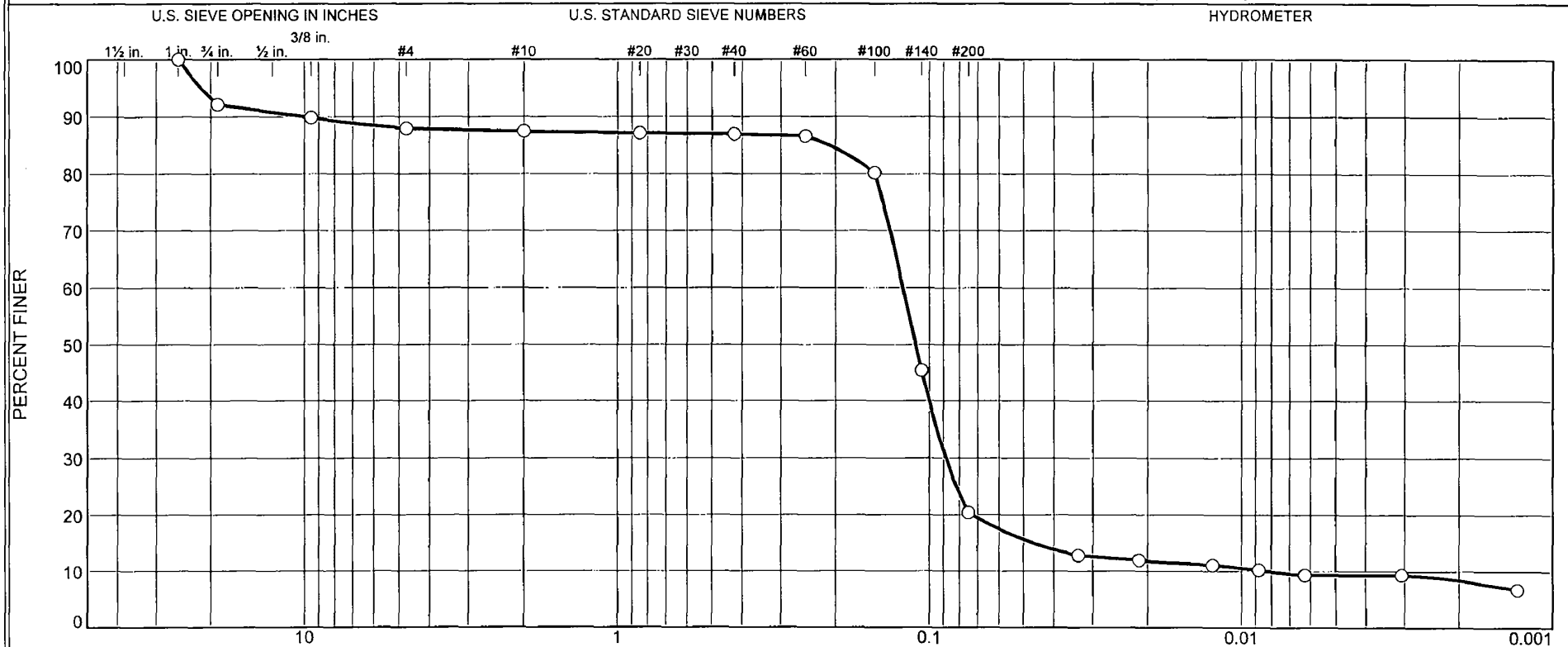
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0849	0.1105	0.1268	0.1633	0.1945	0.3904	0.7430	2.7450	7.7565

Fineness Modulus

1.32

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
7.8	4.3	0.5	0.5	66.5	11.0	9.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-9	122.7-124.2	4/7/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 122.7-124.2

Sample Number: 701-9

Material Description: White Silty SAND (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
452.39	0.00	0.00	1	0.00	100.0
			3/4	35.33	92.2
			3/8"	45.84	89.9
			#4	54.55	87.9
			#10	56.90	87.4
100.73	0.00	0.00	#20	0.37	87.1
			#40	0.61	86.9
			#60	0.99	86.6
			#100	8.33	80.2
			#140	48.37	45.4
			#200	77.28	20.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 87.4

Weight of hydrometer sample = 100.73

Hygroscopic moisture correction:

Moist weight and tare = 28.21

Dry weight and tare = 28.09

Tare weight = 15.44

Hygroscopic moisture = 0.9%

Table of composite correction values:

Temp., deg. C: 11.6 29.4

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	20.0	14.8	0.0132	21.0	12.9	0.0334	12.8
5.00	21.6	19.0	13.8	0.0132	20.0	13.0	0.0213	12.0
15.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0124	11.1
30.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0088	10.2
60.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0063	9.4
250.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0031	9.4
1440.00	21.6	13.0	7.8	0.0132	14.0	14.0	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

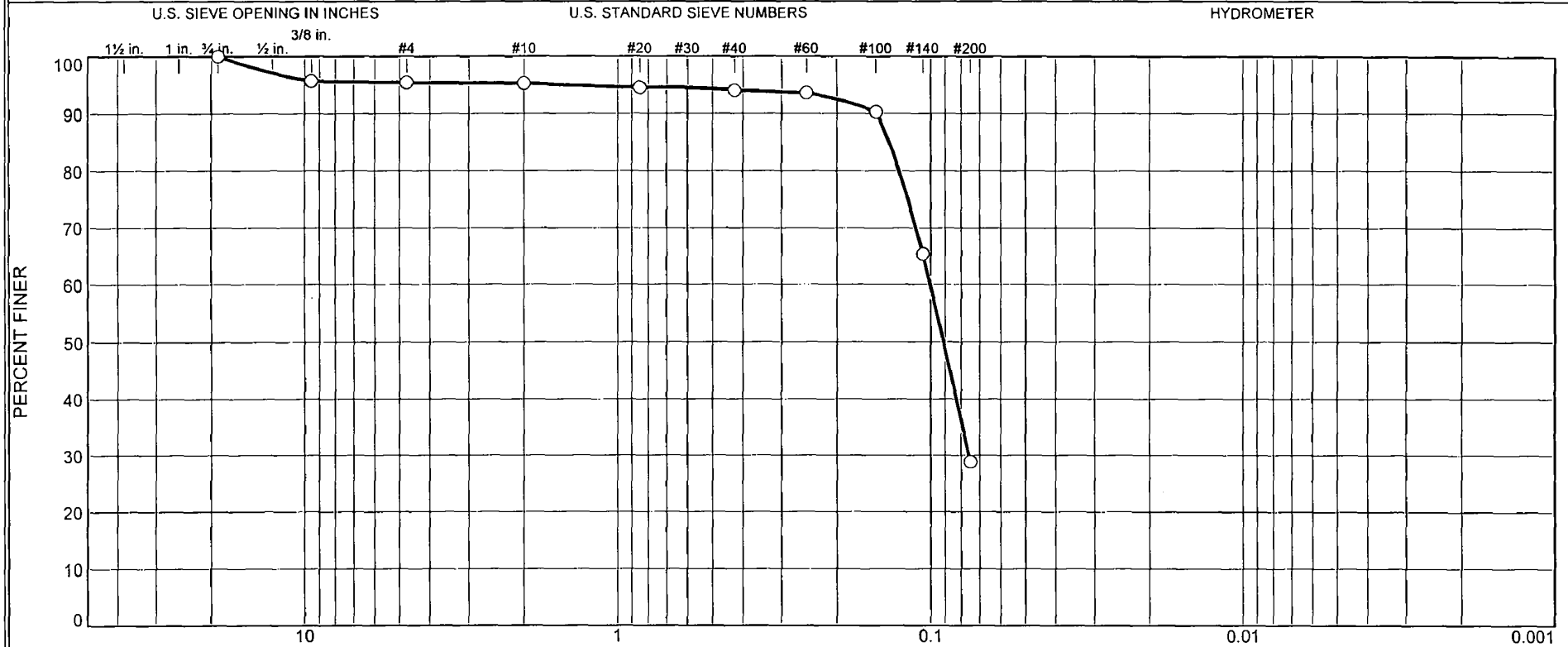
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.8	4.3	12.1	0.5	0.5	66.5	67.5	11.0	9.4	20.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0081	0.0466	0.0731	0.0886	0.1107	0.1213	0.1496	0.2089	9.9451	21.4615

Fineness Modulus	C _u	C _c
1.01	14.90	7.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	5	0	1	65	29	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-10	127.5-129.0	4/7/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

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Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 127.5-129.0

Sample Number: 701-10

Material Description: Light Olive Gray Silty SAND (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
311.68	0.00	0.00	3/4	0.00	100
			3/8"	13.56	96
			#4	14.38	95
			#10	14.78	95
100.12	0.00	0.00	#20	0.78	95
			#40	1.32	94
			#60	1.79	94
			#100	5.23	90
			#140	31.40	65
			#200	69.78	29

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	5	5	0	1	65	66			29

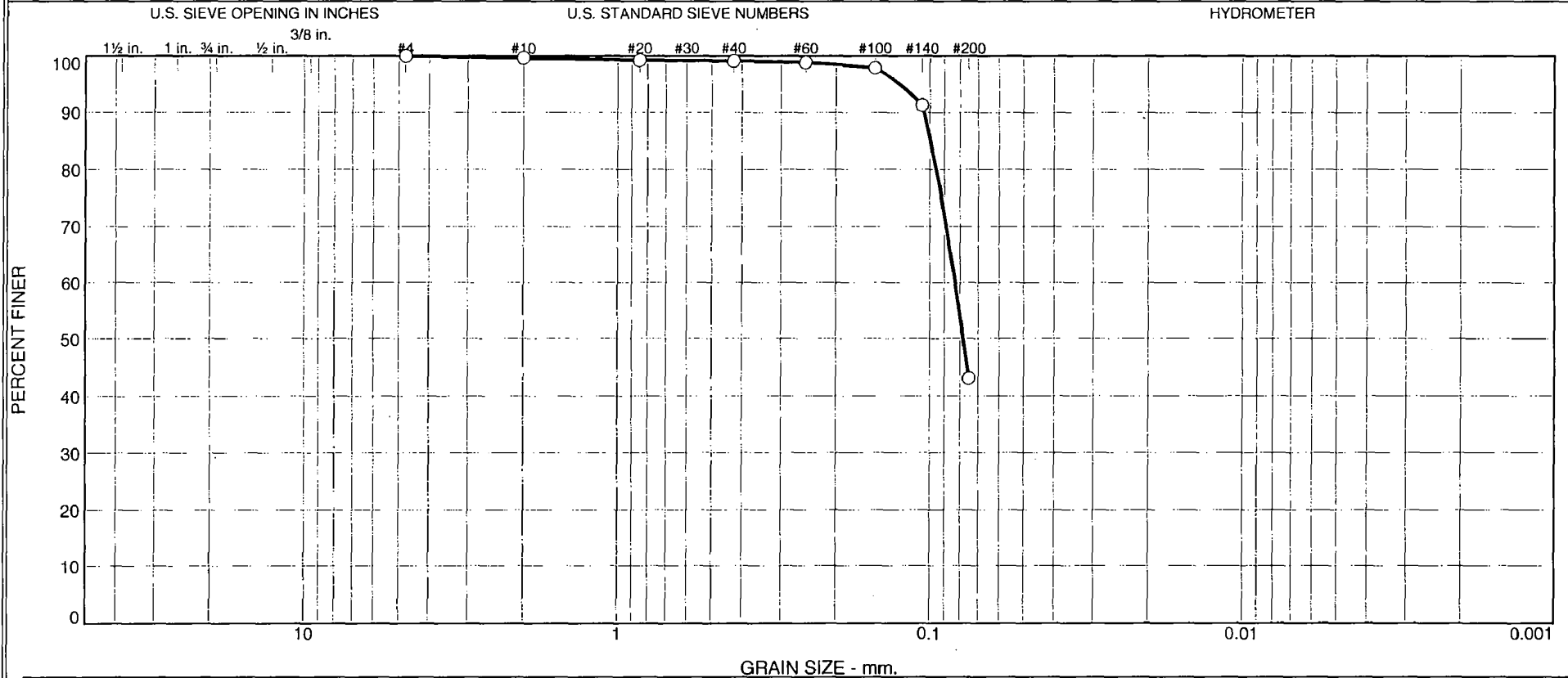
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0758	0.0910	0.1003	0.1258	0.1354	0.1490	1.5439

Fineness Modulus

0.41

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	56	43	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-12	147.5-149.0	4/7/08	SM	Olive Gray Silty SAND	ND	23	22

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 147.5-149.0

Sample Number: 701-12

Material Description: Olive Gray Silty SAND

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: 23

Plastic Limit: 22

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
260.74	0.00	0.00	#4	0.00	100
			#10	0.95	100
103.66	0.00	0.00	#20	0.38	99
			#40	0.52	99
			#60	0.79	99
			#100	1.77	98
			#140	8.69	91
			#200	58.84	43

Fractional Components

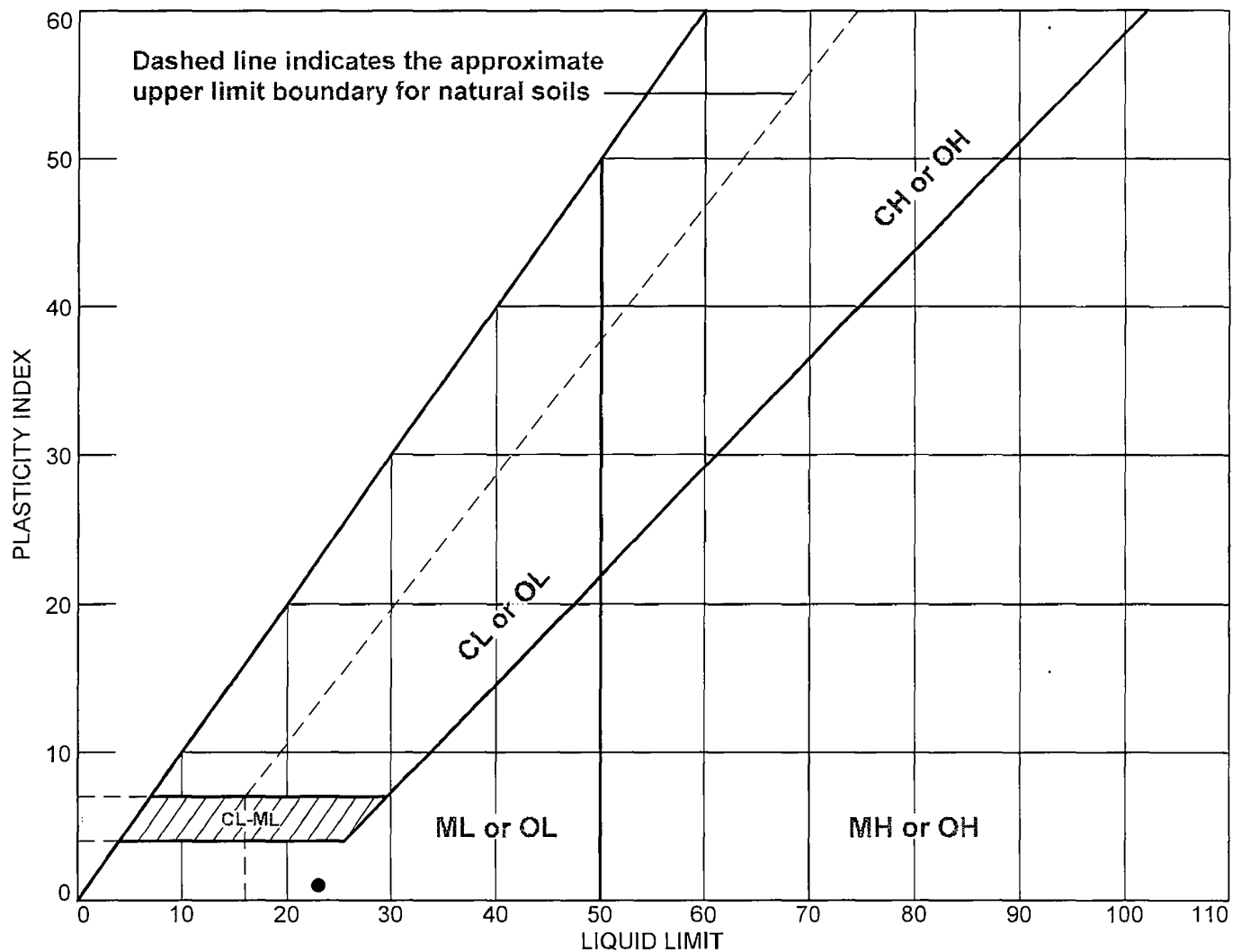
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	56	57			43

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0781	0.0830	0.0951	0.0992	0.1044	0.1247

Fineness Modulus
0.05

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-12	147.5-149.0	ND	22	23	1	SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 147.5-149.0

Sample Number: 701-12

Material Description: Olive Gray Silty SAND

USCS: SM

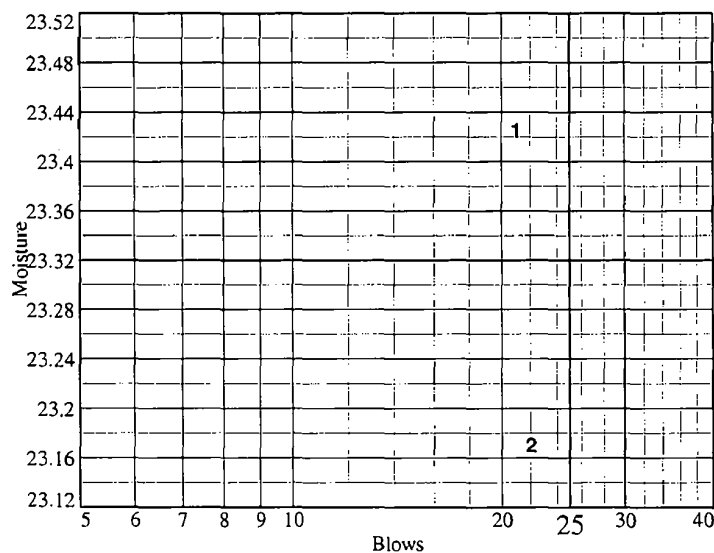
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.47	30.57				
Dry+Tare	28.42	27.72				
Tare	15.40	15.42				
# Blows	21	22				
Moisture	23.4	23.2				

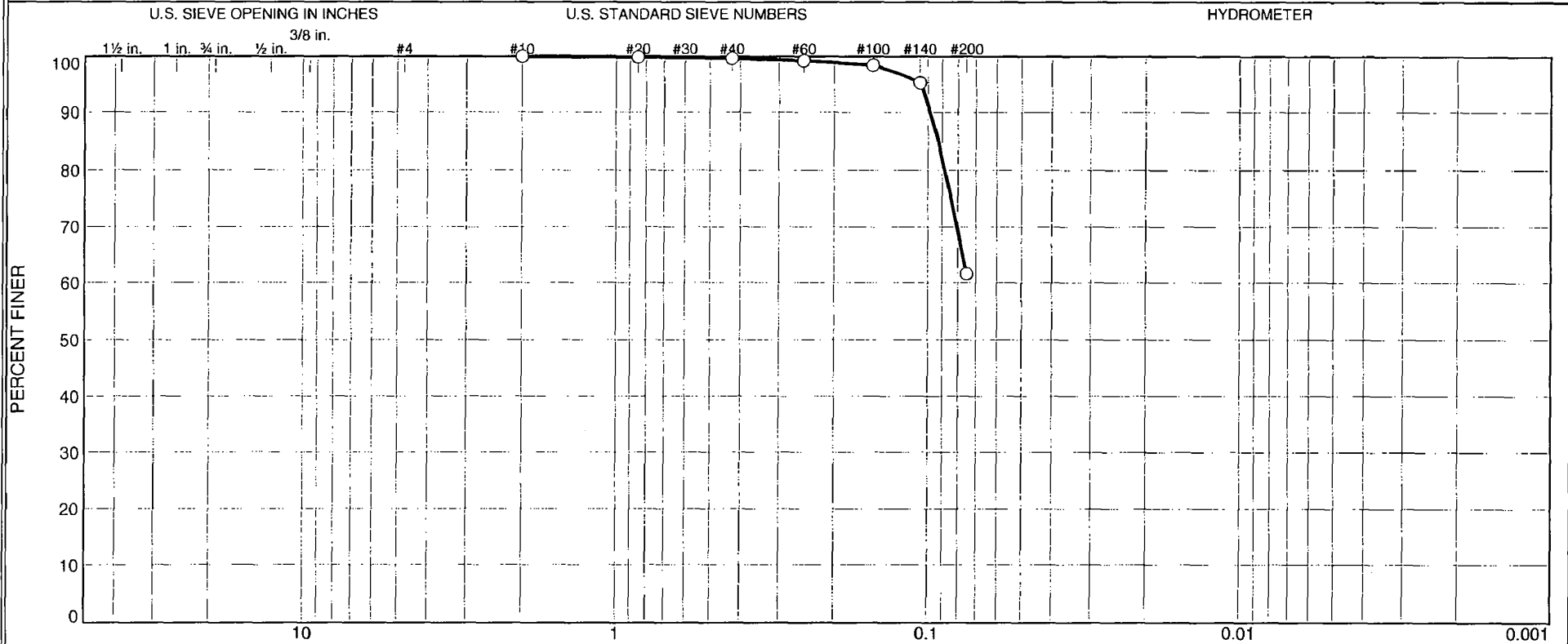


Liquid Limit= 23
 Plastic Limit= 22
 Plasticity Index= 1
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	32.23	28.80			
Dry+Tare	29.24	26.43			
Tare	15.82	15.63			
Moisture	22.3	21.9			

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	38	62	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-15	172.5-174.0	4/7/08	ML	Olive Gray SILT with sand	ND	22	19

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 172.5-174.0

Sample Number: 701-15

Material Description: Olive Gray SILT with sand

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: 22

Plastic Limit: 19

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
372.91	0.00	0.00	#10	0.00	100
100.65	0.00	0.00	#20	0.10	100
			#40	0.34	100
			#60	0.76	99
			#100	1.56	98
			#140	4.73	95
			#200	38.60	62

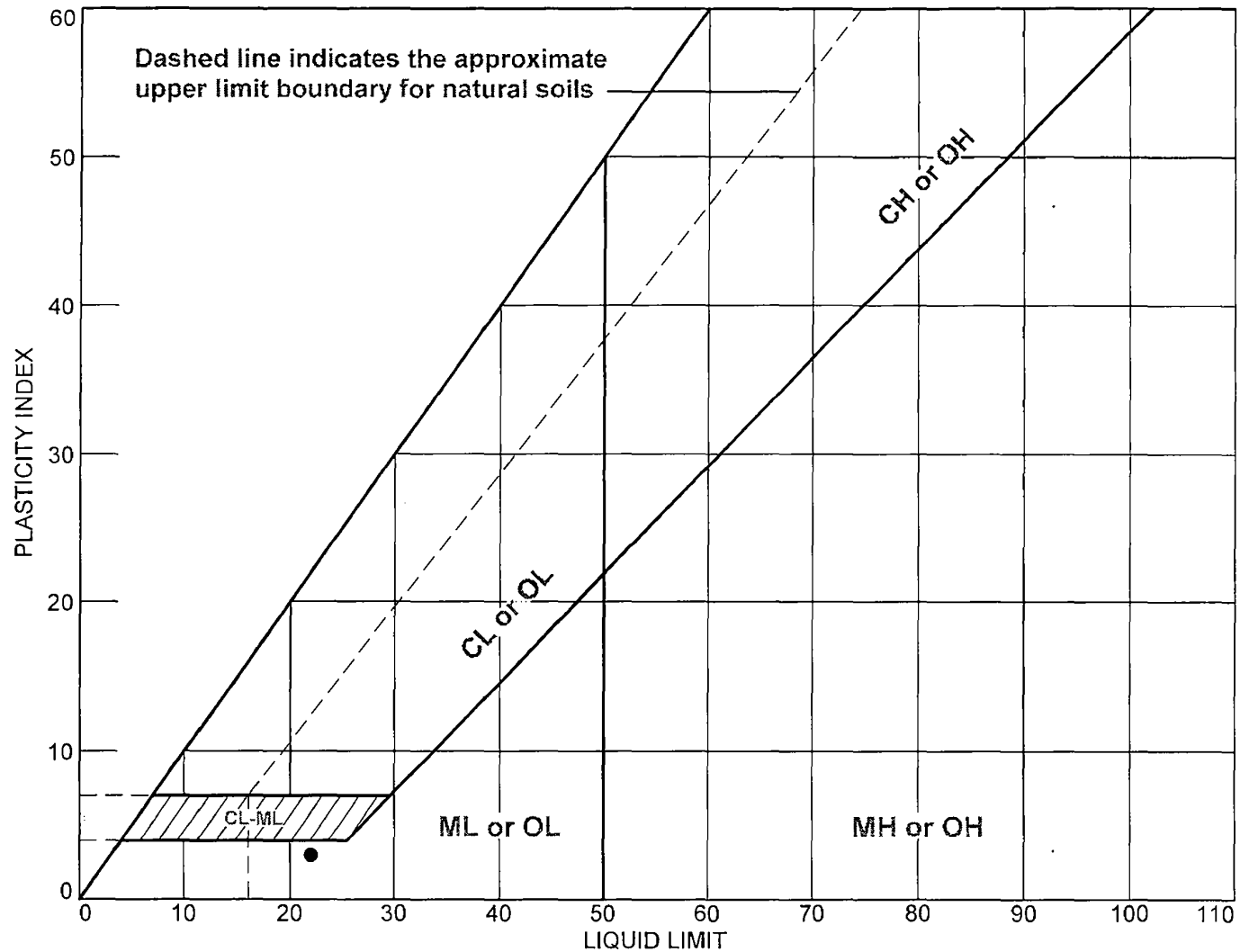
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	38	38			62

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0879	0.0924	0.0978	0.1054

Fineness Modulus
0.02

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-15	172.5-174.0	ND	19	22	3	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 172.5-174.0

Sample Number: 701-15

Material Description: Olive Gray SILT with sand

USCS: ML

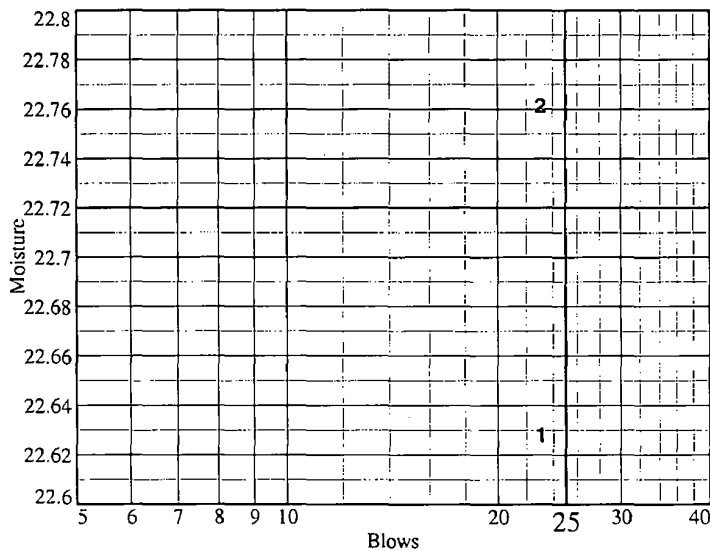
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.91	26.88				
Dry+Tare	29.69	24.77				
Tare	15.46	15.50				
# Blows	23	23				
Moisture	22.6	22.8				

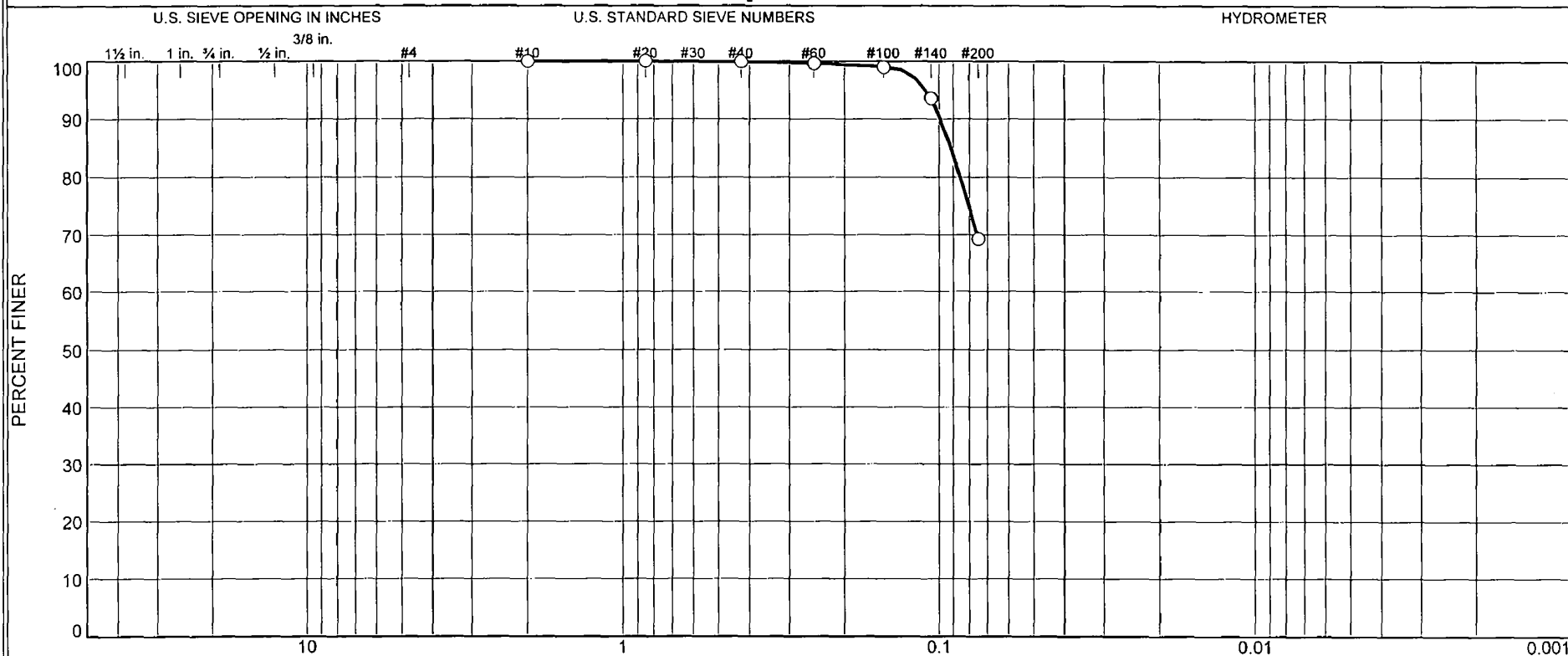


Liquid Limit= 22
 Plastic Limit= 19
 Plasticity Index= 3
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	22.72	27.48		
Dry+Tare	20.89	25.63		
Tare	11.19	15.60		
Moisture	18.9	18.4		

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	31	69	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-18	197.6-199.1	4/8/08	ML	Gray SILT with sand	ND	25	22

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

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Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 197.6-199.1

Sample Number: 701-18

Material Description: Gray SILT with sand

Date: 4/8/08

Natural Moisture: ND

Liquid Limit: 25

Plastic Limit: 22

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
300.26	0.00	0.00	#10	0.00	100
100.24	0.00	0.00	#20	0.01	100
			#40	0.11	100
			#60	0.36	100
			#100	1.02	99
			#140	6.46	94
			#200	30.79	69

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	31	31			69

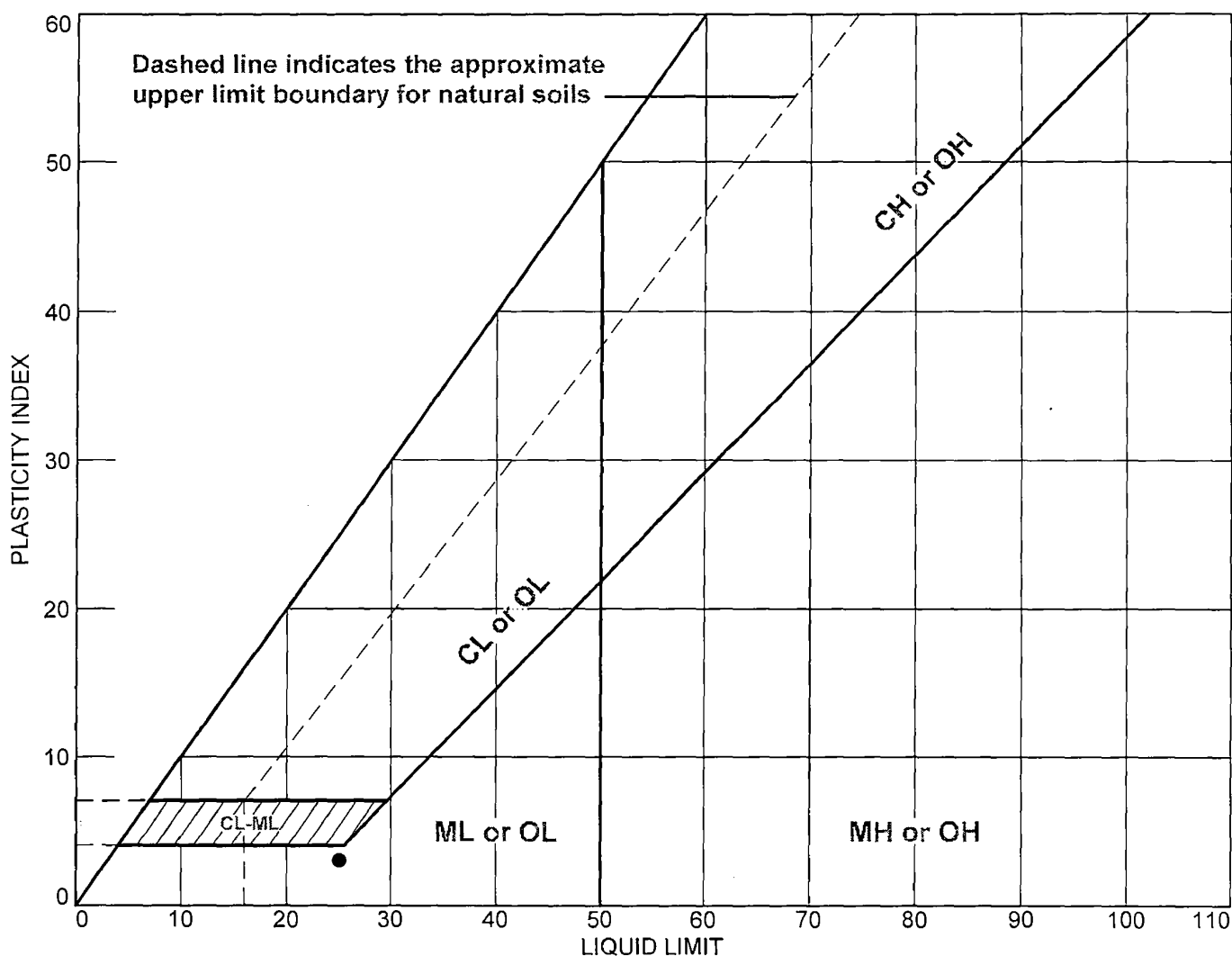
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0855	0.0914	0.0988	0.1100

Fineness Modulus

0.01

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-18	197.6-199.1	ND	22	25	3	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 197.6-199.1

Sample Number: 701-18

Material Description: Gray SILT with sand

USCS: ML

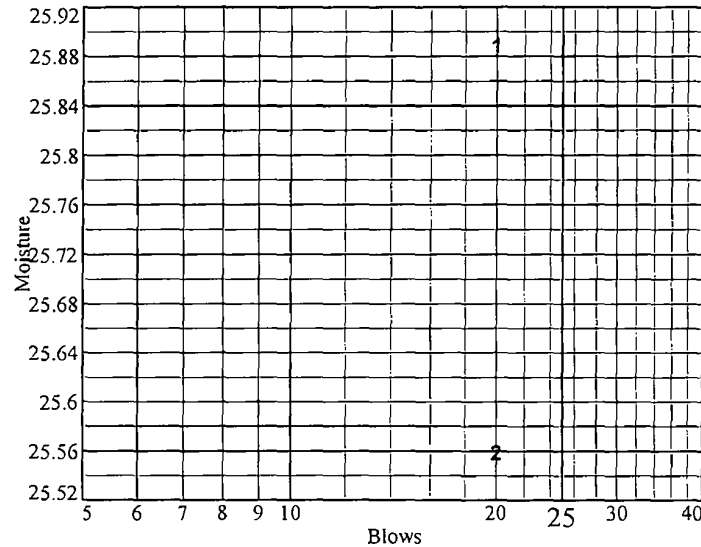
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.94	32.33				
Dry+Tare	28.59	28.90				
Tare	15.65	15.48				
# Blows	20	20				
Moisture	25.9	25.6				



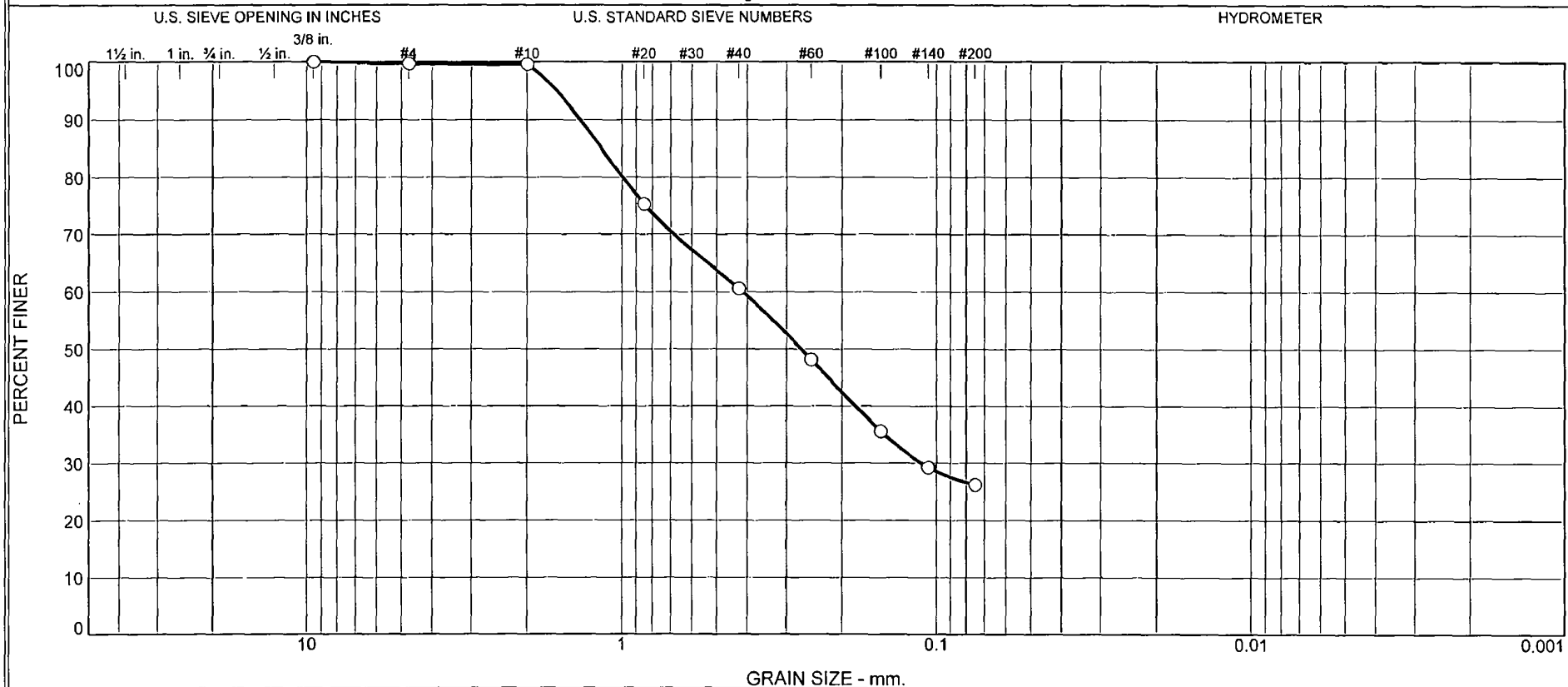
Liquid Limit= 25
 Plastic Limit= 22
 Plasticity Index= 3
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.85	23.62			
Dry+Tare	21.49	22.16			
Tare	15.52	15.48			
Moisture	22.8	21.9			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	39	35	26	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-19	207.6-209.1	4/8/08	SM	Gray Silty SAND	ND	29	24

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 207.6-209.1

Sample Number: 701-19

Material Description: Gray Silty SAND

Date: 4/8/08

Natural Moisture: ND

Liquid Limit: 29

Plastic Limit: 24

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
247.93	0.00	0.00	3/8"	0.00	100
			#4	0.82	100
			#10	1.07	100
100.23	0.00	0.00	#20	24.44	75
			#40	39.26	61
			#60	51.73	48
			#100	64.49	36
			#140	70.81	29
			#200	73.89	26

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	39	35	74			26

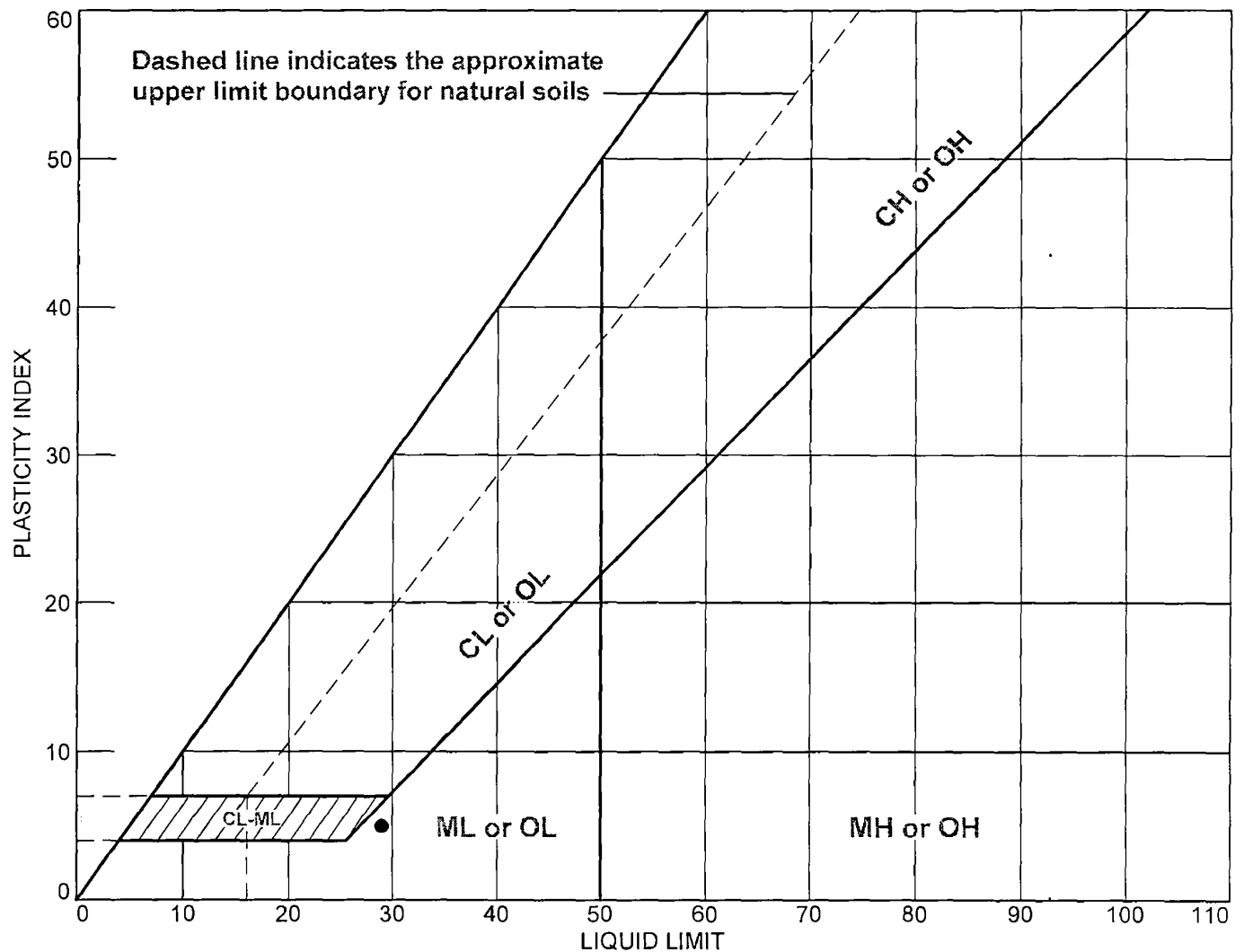
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1121	0.2687	0.4135	0.9958	1.1624	1.3580	1.6138

Fineness Modulus

1.60

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-19	207.6-209.1	ND	24	29	5	SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 207.6-209.1

Sample Number: 701-19

Material Description: Gray Silty SAND

USCS: SM

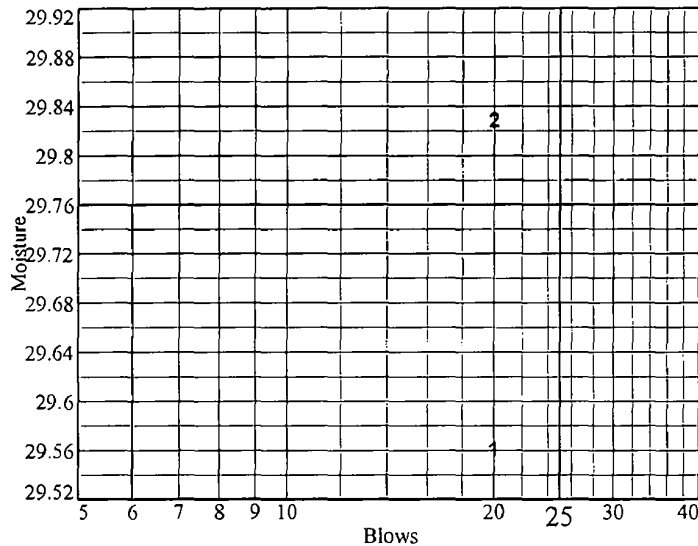
AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.36	36.00				
Dry+Tare	28.52	31.29				
Tare	15.53	15.50				
# Blows	20	20				
Moisture	29.6	29.8				

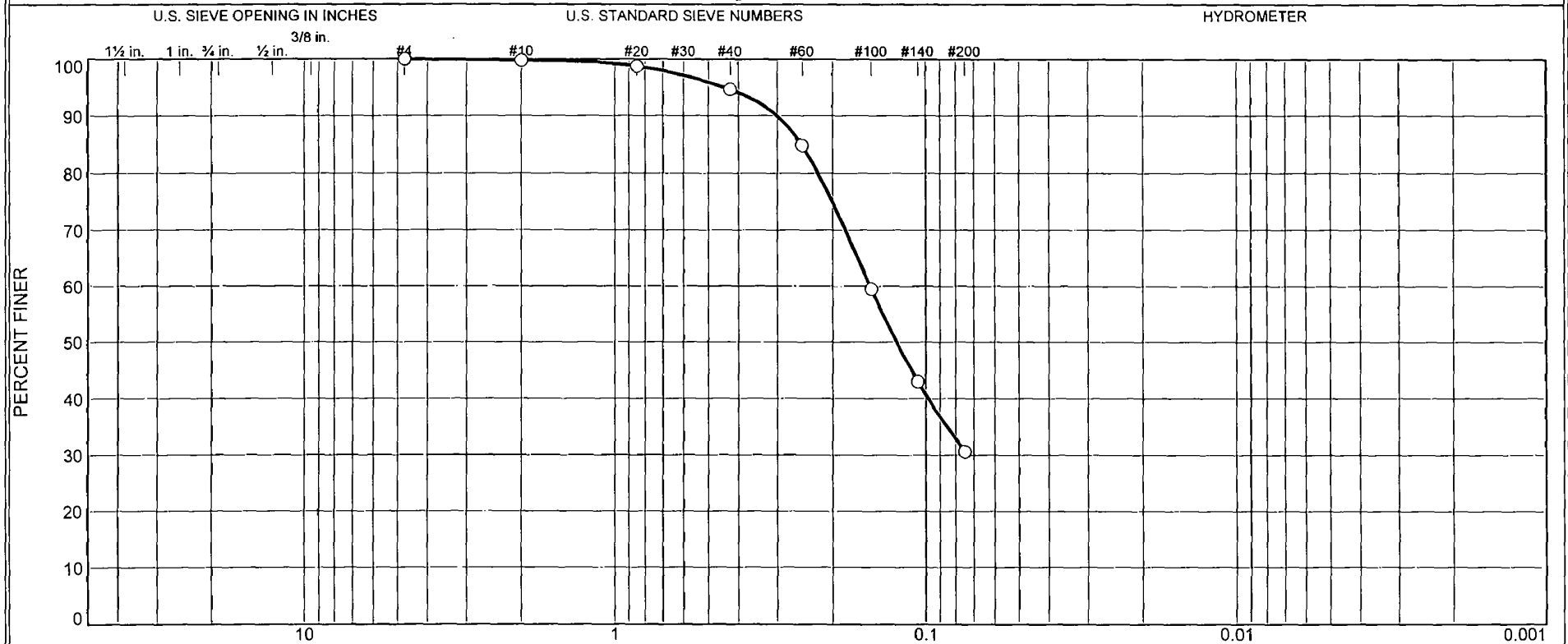


Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.13	24.14			
Dry+Tare	21.71	22.47			
Tare	15.65	15.53			
Moisture	23.4	24.1			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	5	64	31	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-20	217.5-219.0	4/8/08	SM	Olive Silty SAND	ND	25	22

Client Bechtel		MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL				
Project No. 6468071950	Figure N/A			

Tested By: CS

Checked By: LBJ

DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 217.5-219.0

Sample Number: 701-20

Material Description: Olive Silty SAND

Date: 4/8/08

Natural Moisture: ND

Liquid Limit: 25

Plastic Limit: 22

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
321.75	0.00	0.00	#4	0.00	100
			#10	0.74	100
102.28	0.00	0.00	#20	1.04	99
			#40	5.29	95
			#60	15.28	85
			#100	41.26	60
			#140	58.21	43
			#200	70.91	31

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	5	64	69			31

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1242	0.1513	0.2219	0.2510	0.3003	0.4450

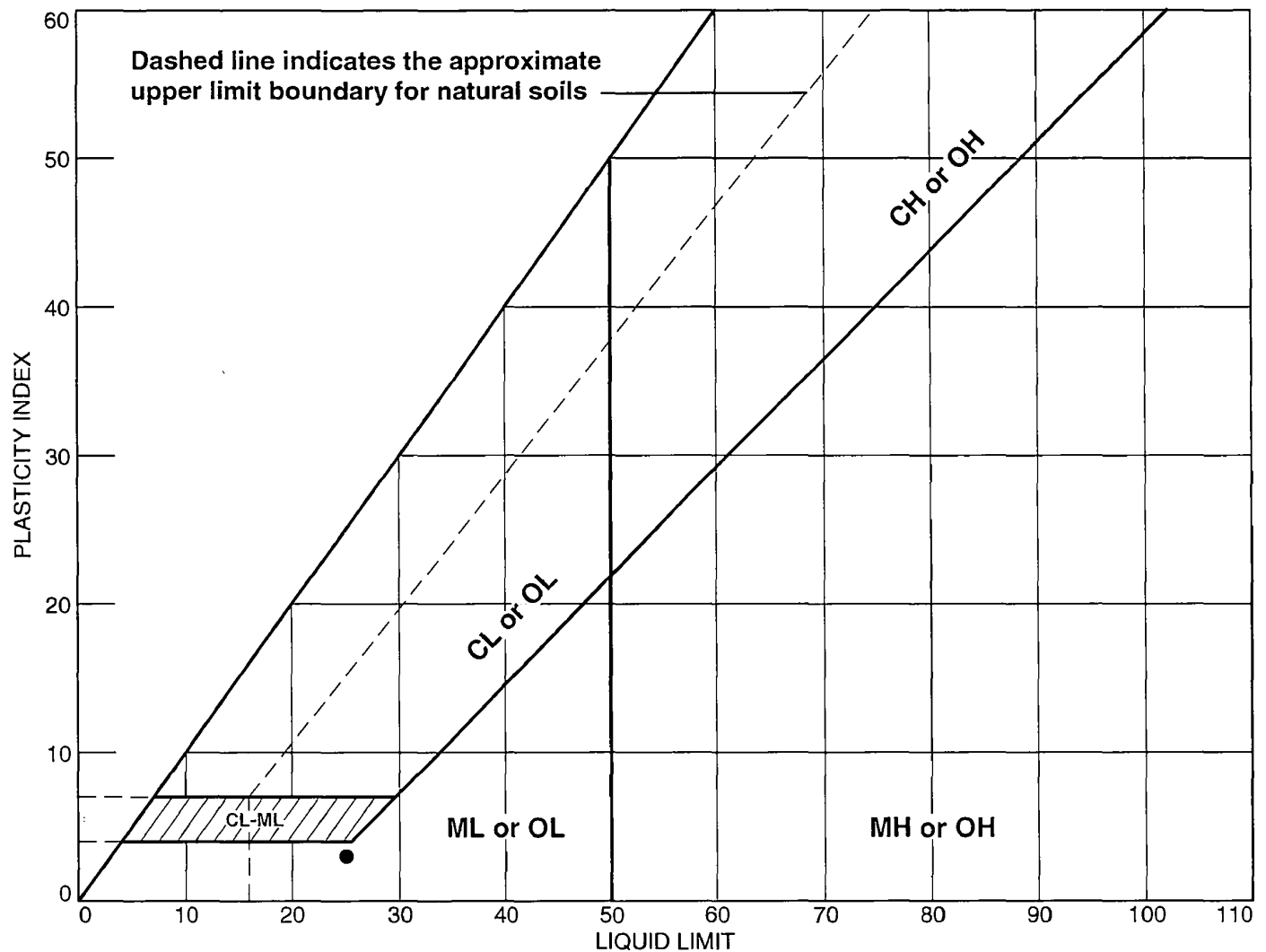
Fineness

Modulus

0.54

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-20	217.5-219.0	ND	22	25	3	SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

ZHU 7-25-08

LIQUID AND PLASTIC LIMIT TEST DATA

7/28/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 217.5-219.0

Sample Number: 701-20

Material Description: Olive Silty SAND

USCS: SM

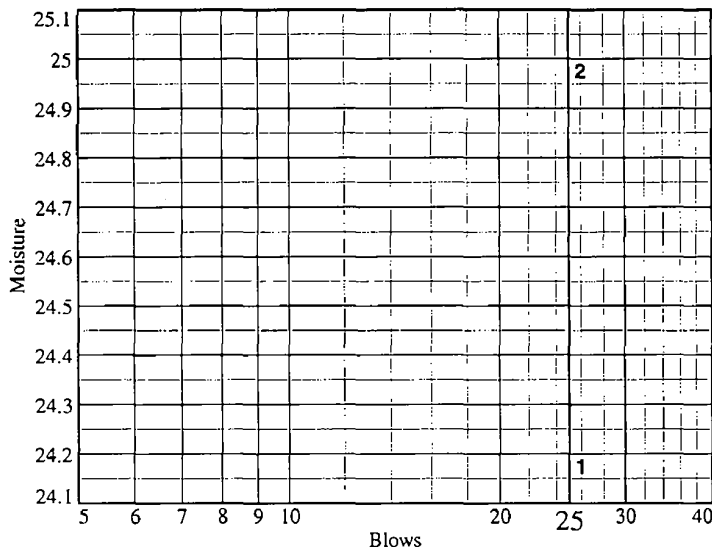
AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.30	29.36				
Dry+Tare	28.22	26.59				
Tare	15.48	15.50				
# Blows	26	26				
Moisture	24.2	25.0				



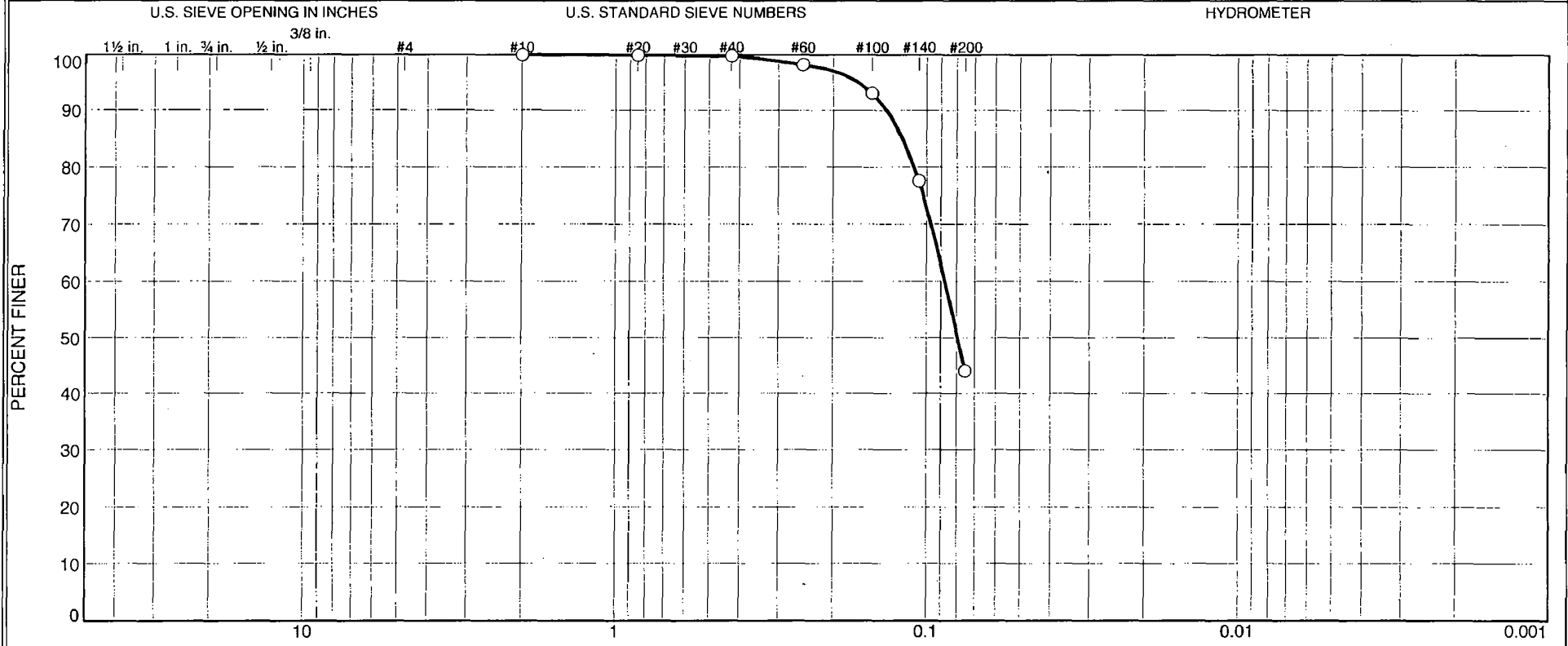
Liquid Limit= 25
 Plastic Limit= 22
 Plasticity Index= 3
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.77	26.41			
Dry+Tare	21.52	24.48			
Tare	15.75	15.51			
Moisture	21.7	21.5			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	56	44	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-22	237.5-239.0	4/9/08	SC-SM	Olive Gray Silty Clayey SAND	ND	21	17

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ ND = NOT DETERMINED
Project Turkey Point COL			
Project No. 6468071950	Figure	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 237.5-239.0

Sample Number: 701-22

Material Description: Olive Gray Silty Clayey SAND

Date: 4/9/08

Natural Moisture: ND

Liquid Limit: 21

Plastic Limit: 17

USCS Class.: SC-SM

Testing Remarks: ND = NOT DETERMINED

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
310.25	0.00	0.00	#10	0.00	100
99.74	0.00	0.00	#20	0.07	100
			#40	0.19	100
			#60	1.75	98
			#100	6.91	93
			#140	22.32	78
			#200	55.85	44

Fractional Components

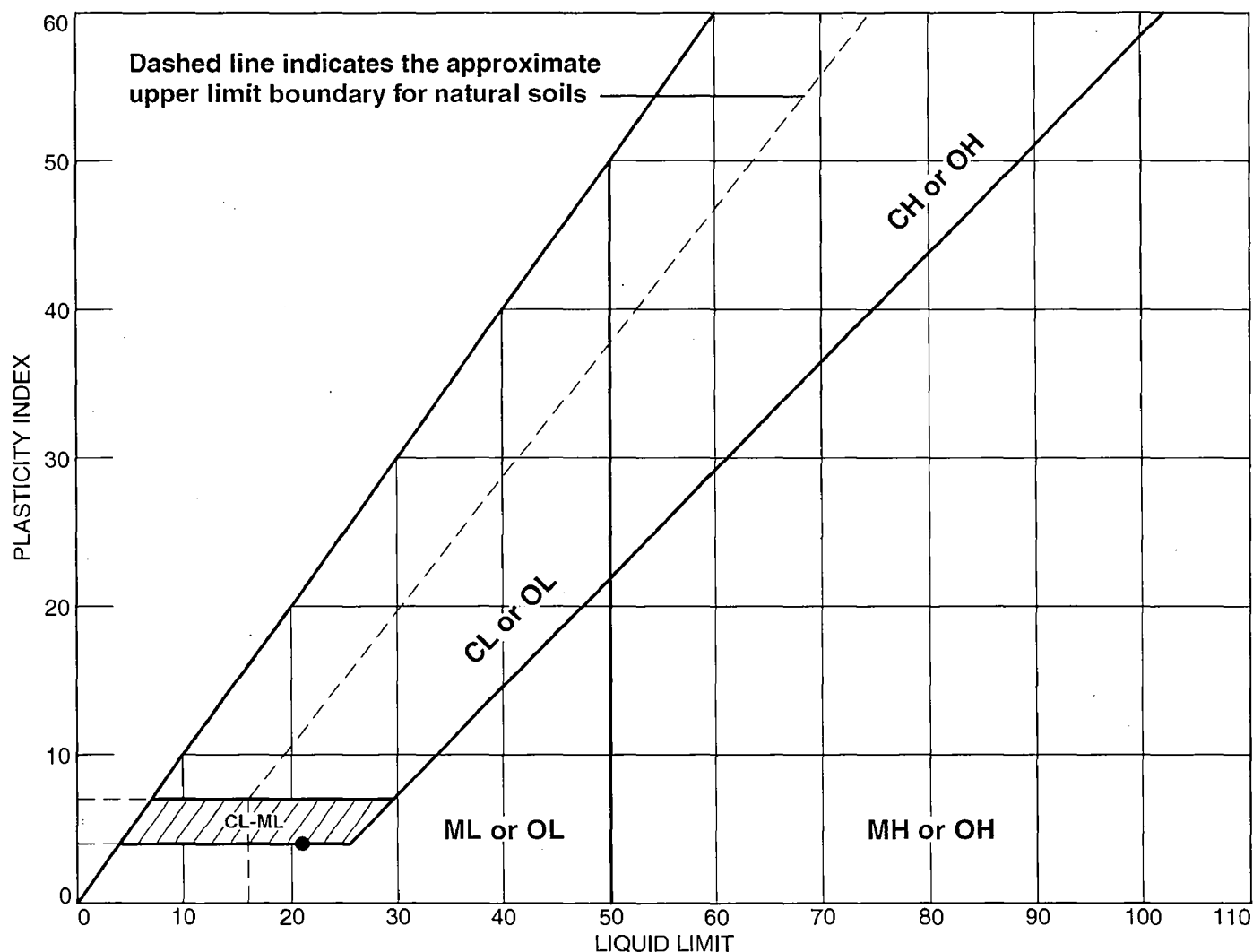
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	56	56			44

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0792	0.0871	0.1097	0.1195	0.1346	0.1653

Fineness Modulus
0.08

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-22	237.5-239.0	ND	17	21	4	SC-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

ZHU 7/22/08

Figure

Tested By: CS

Checked By: LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 237.5-239.0

Sample Number: 701-22

Material Description: Olive Gray Silty Clayey SAND

USCS: SC-SM

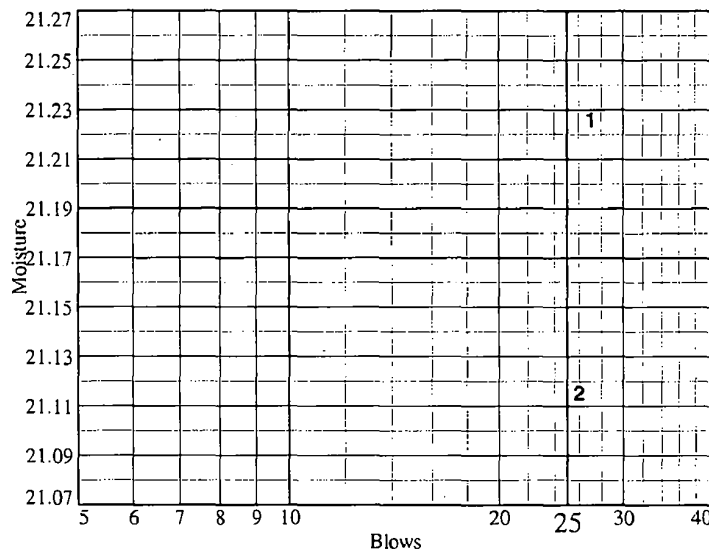
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.20	30.60				
Dry+Tare	28.43	27.95				
Tare	15.38	15.40				
# Blows	27	26				
Moisture	21.2	21.1				

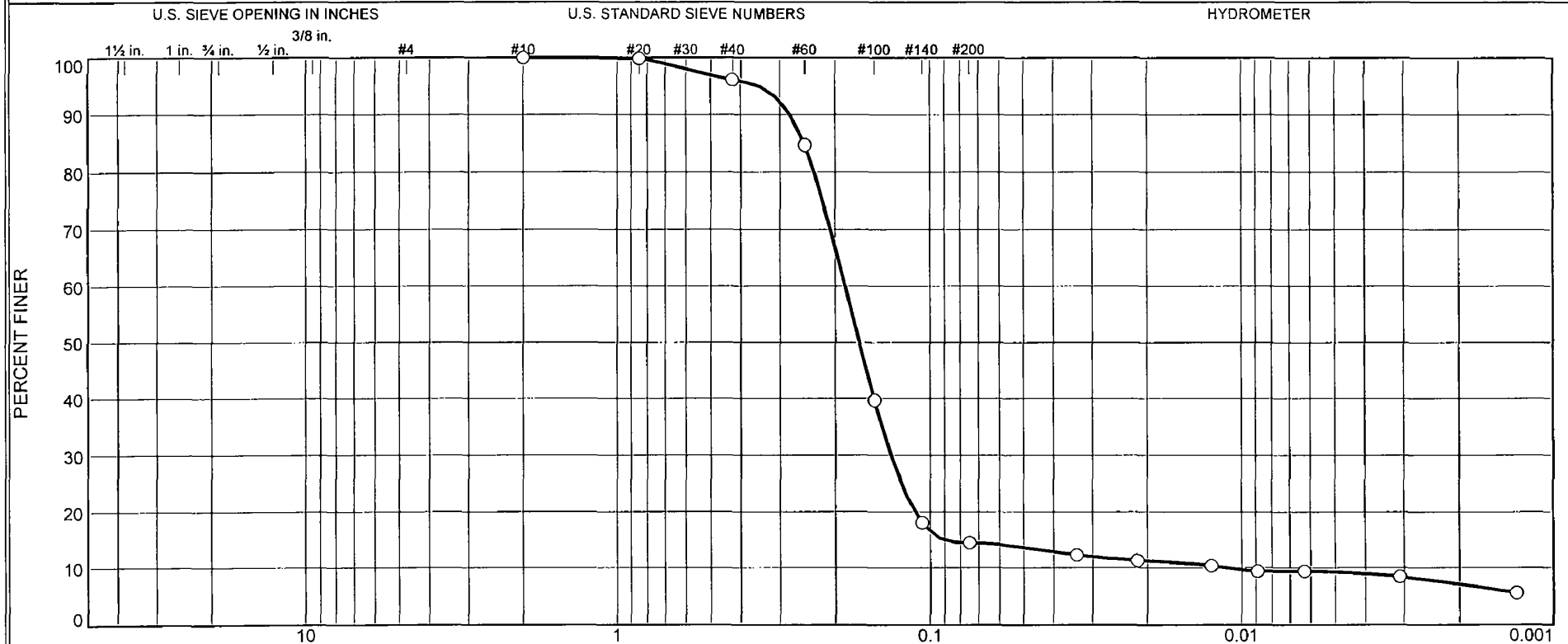


Liquid Limit= 21
 Plastic Limit= 17
 Plasticity Index= 4
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	21.85	24.08			
Dry+Tare	20.29	22.80			
Tare	11.19	15.53			
Moisture	17.1	17.6			

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.9	81.6	5.3	9.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-28	297.5-299.0	4/10/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 297.5-299.0

Sample Number: 701-28

Material Description: Olive Gray Silty SAND (Visual)

Date: 4/10/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
399.56	0.00	0.00	#10	0.00	100.0
104.12	0.00	0.00	#20	0.14	99.9
			#40	4.03	96.1
			#60	16.01	84.6
			#100	62.84	39.6
			#140	85.33	18.0
			#200	89.06	14.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =104.11

Hygroscopic moisture correction:

Moist weight and tare = 29.72

Dry weight and tare = 29.62

Tare weight = 15.52

Hygroscopic moisture =0.7%

Table of composite correction values:

Temp., deg. C: 11.6 29.4

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0338	12.3
5.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0215	11.3
15.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0125	10.3
30.00	21.6	15.0	9.8	0.0132	16.0	13.7	0.0089	9.4
60.00	21.6	15.0	9.8	0.0132	16.0	13.7	0.0063	9.4
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.7	11.0	5.8	0.0132	12.0	14.3	0.0013	5.6

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	3.9	81.6	85.5	5.3	9.2	14.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0112	0.0907	0.1117	0.1329	0.1678	0.1860	0.2334	0.2516	0.2792	0.3493

Fineness Modulus	C _u	C _c
0.70	16.58	8.46

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-701DH-28,(297.5-299.0)

(A) Mass of oven-dried soil, grams:	75.34
(B) Mass of pycnometer filled with water at test temperature (T), grams:	672.40
(C) Mass of pycnometer, water and soil, grams:	719.64
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.681
(F) <i>Correction factor:</i>	0.99970
(G x F) SPECIFIC GRAVITY @ 20°C:	2.680

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

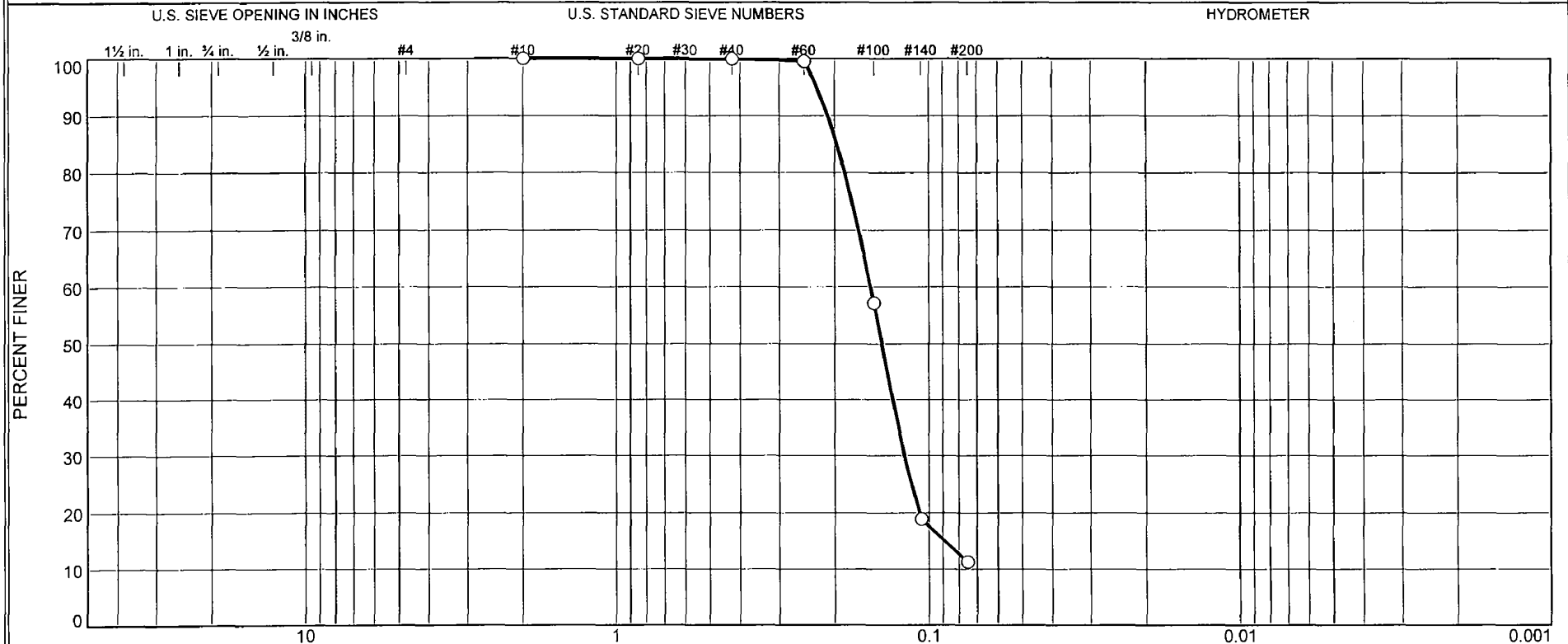
THERMOMETER : 5.1.01

PYCNO METER : P-8

TESTED BY: CS

REVIEWED BY: Brian Johnson

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	89	11	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-33	347.5-348.9	4/15/08	SP-SM	Gray Poorly Graded SAND with silt	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 347.5-348.9

Sample Number: 701-33

Material Description: Gray Poorly Graded SAND with silt

Date: 4/15/08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
371.63	0.00	0.00	#10	0.00	100
98.54	0.00	0.00	#20	0.04	100
			#40	0.09	100
			#60	0.49	100
			#100	42.19	57
			#140	79.90	19
			#200	87.40	11

Fractional Components

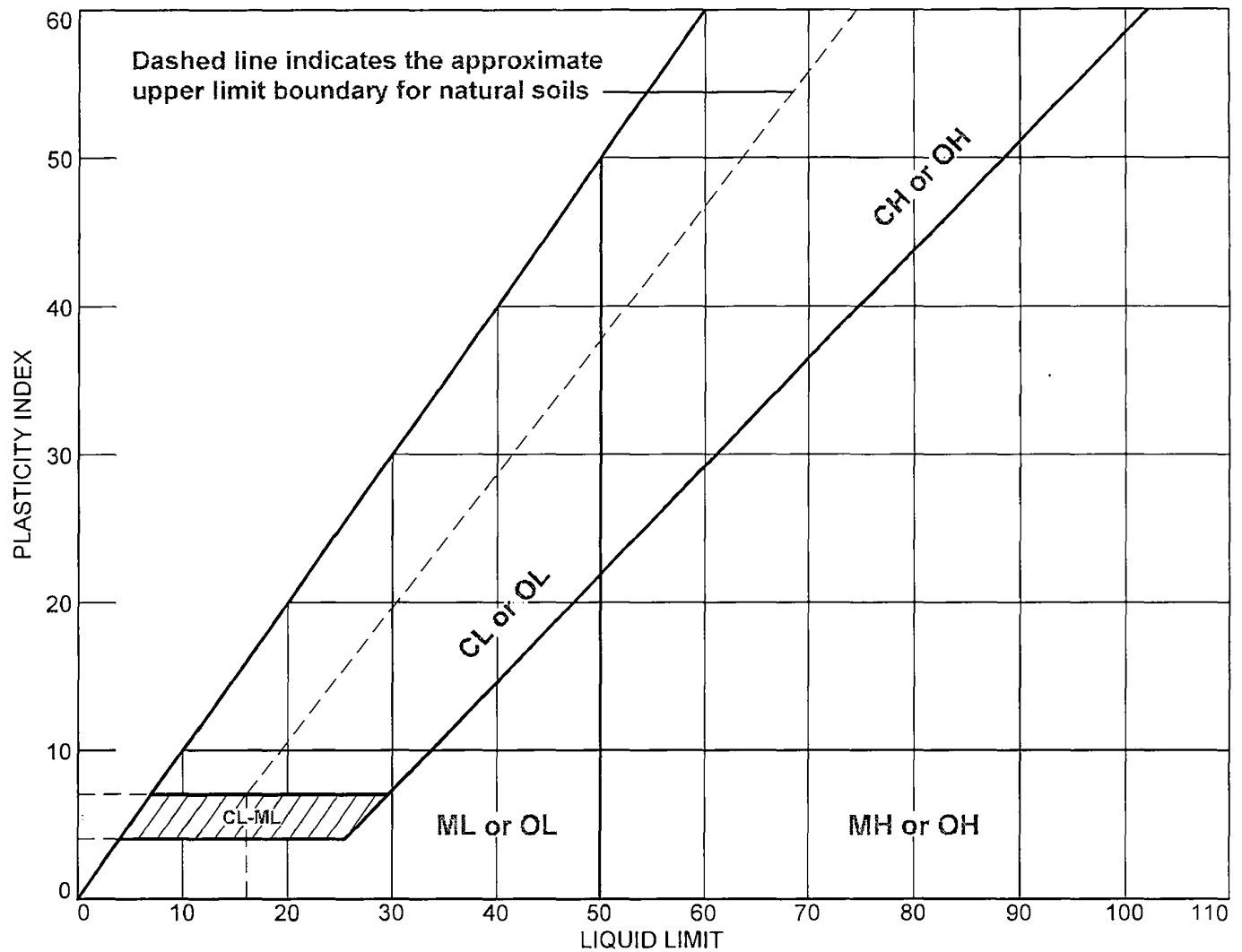
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	89	89			11

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0887	0.1076	0.1198	0.1415	0.1536	0.1855	0.1965	0.2096	0.2267

Fineness Modulus
0.43

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-701(DH)	701-33	347.5-348.9	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 347.5-348.9

Sample Number: 701-33

Material Description: Gray Poorly Graded SAND with silt

USCS: SP-SM

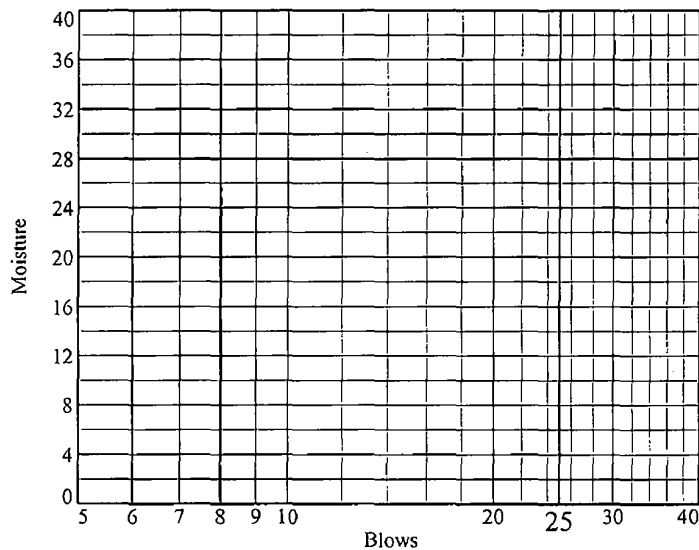
AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



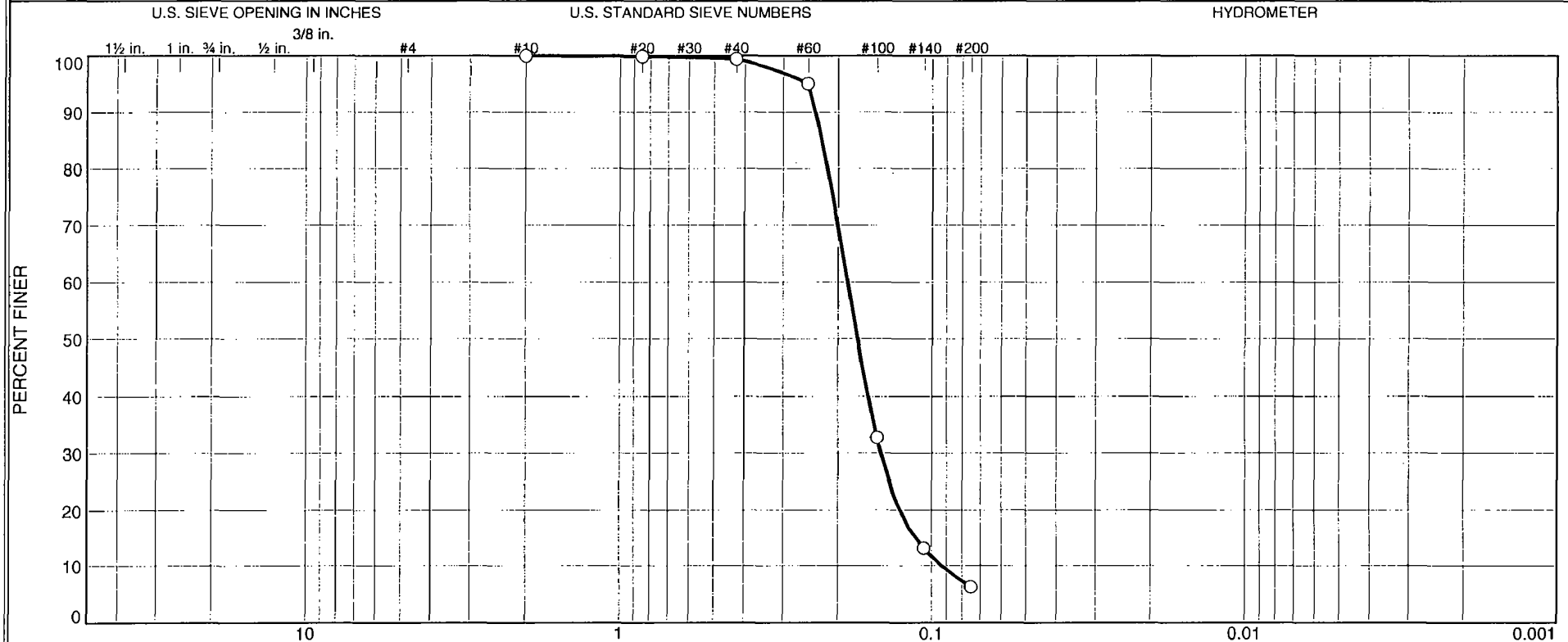
Liquid Limit= NV
 Plastic Limit= NP
 Plasticity Index= NP
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	93	6	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-38	397.5-398.8	4/17/08	SP-SM	Light Gray Poorly Graded SAND with silt	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 397.5-398.8

Sample Number: 701-38

Material Description: Light Gray Poorly Graded SAND with silt

Date: 4/17/08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
318.31	0.00	0.00	#10	0.00	100
101.11	0.00	0.00	#20	0.09	100
			#40	0.55	99
			#60	4.96	95
			#100	67.99	33
			#140	87.83	13
			#200	94.81	6

Fractional Components

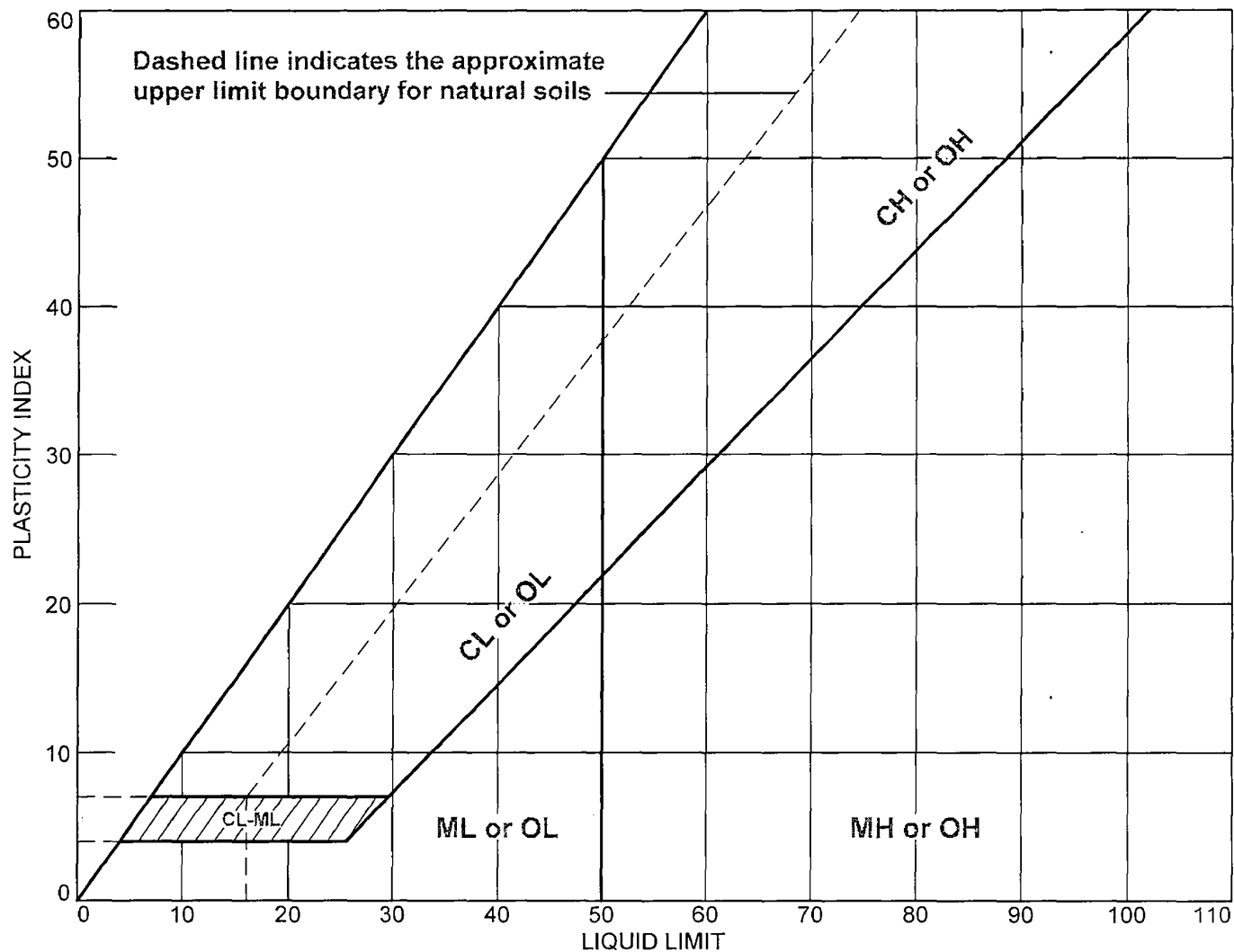
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	93	94			6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0931	0.1126	0.1265	0.1457	0.1732	0.1863	0.2161	0.2254	0.2361	0.2497

Fineness Modulus	C _u	C _c
0.71	2.00	1.22

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-38	397.5-398.8	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 397.5-398.8

Sample Number: 701-38

Material Description: Light Gray Poorly Graded SAND with silt

USCS: SP-SM

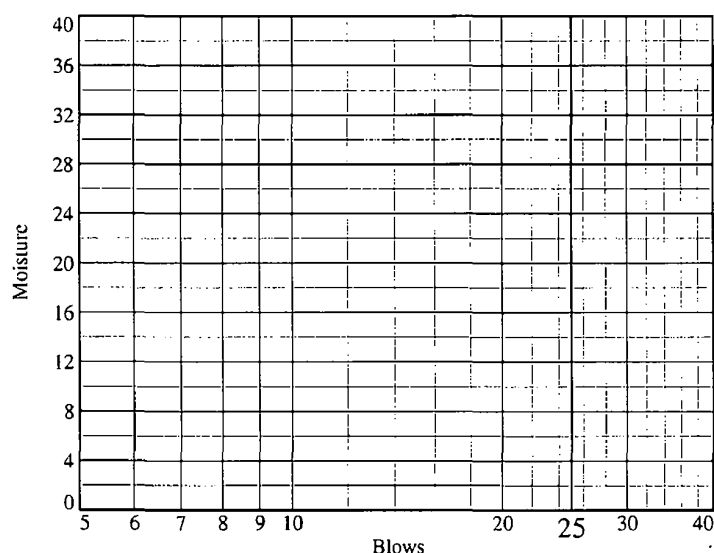
AASHTO: A-3

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



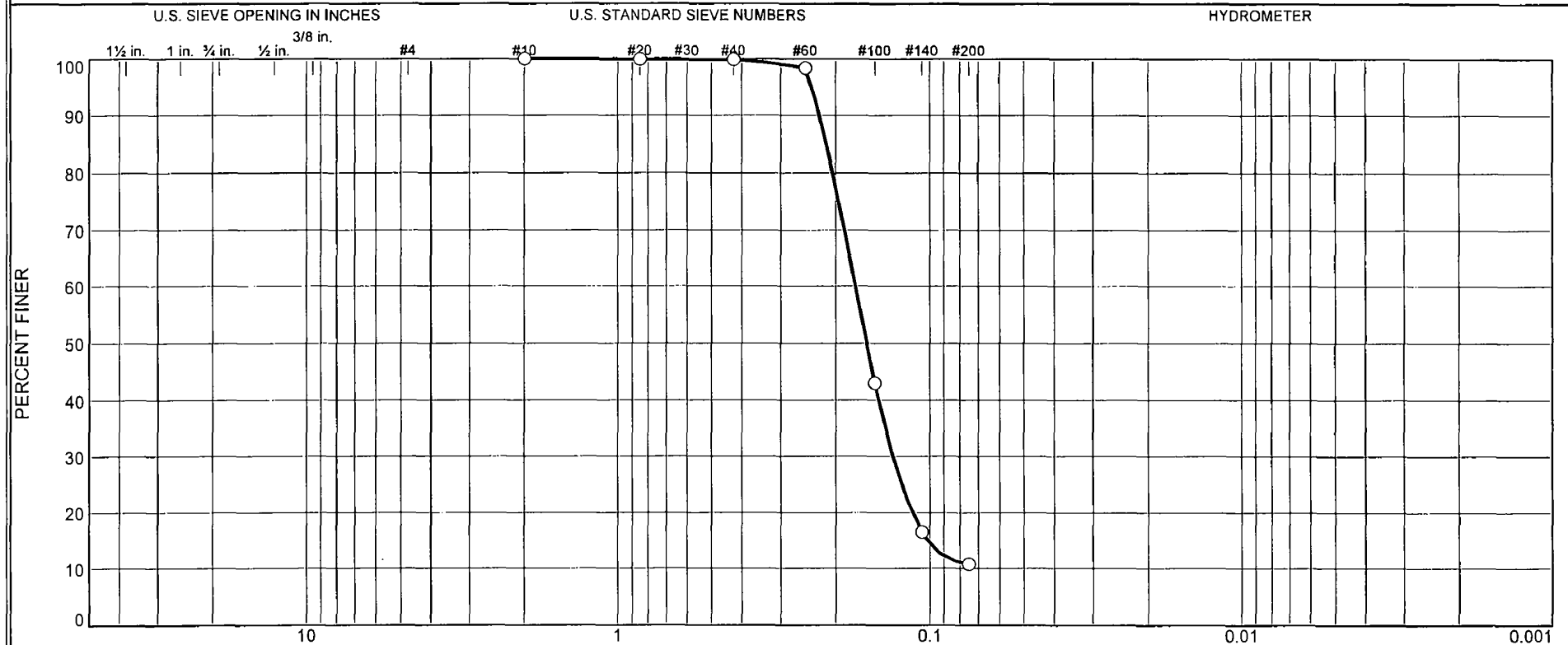
Liquid Limit= NV
 Plastic Limit= NP
 Plasticity Index= NP
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	89	11	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-39	407.5-409.0	4/17/08	SP-SM	Olive Poorly Graded SAND with Silt	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 407.5-409.0

Sample Number: 701-39

Material Description: Olive Poorly Graded SAND with Silt

Date: 4/17/08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
335.22	0.00	0.00	#10	0.00	100
105.09	0.00	0.00	#20	0.08	100
			#40	0.16	100
			#60	1.69	98
			#100	59.88	43
			#140	87.76	16
			#200	93.78	11

Fractional Components

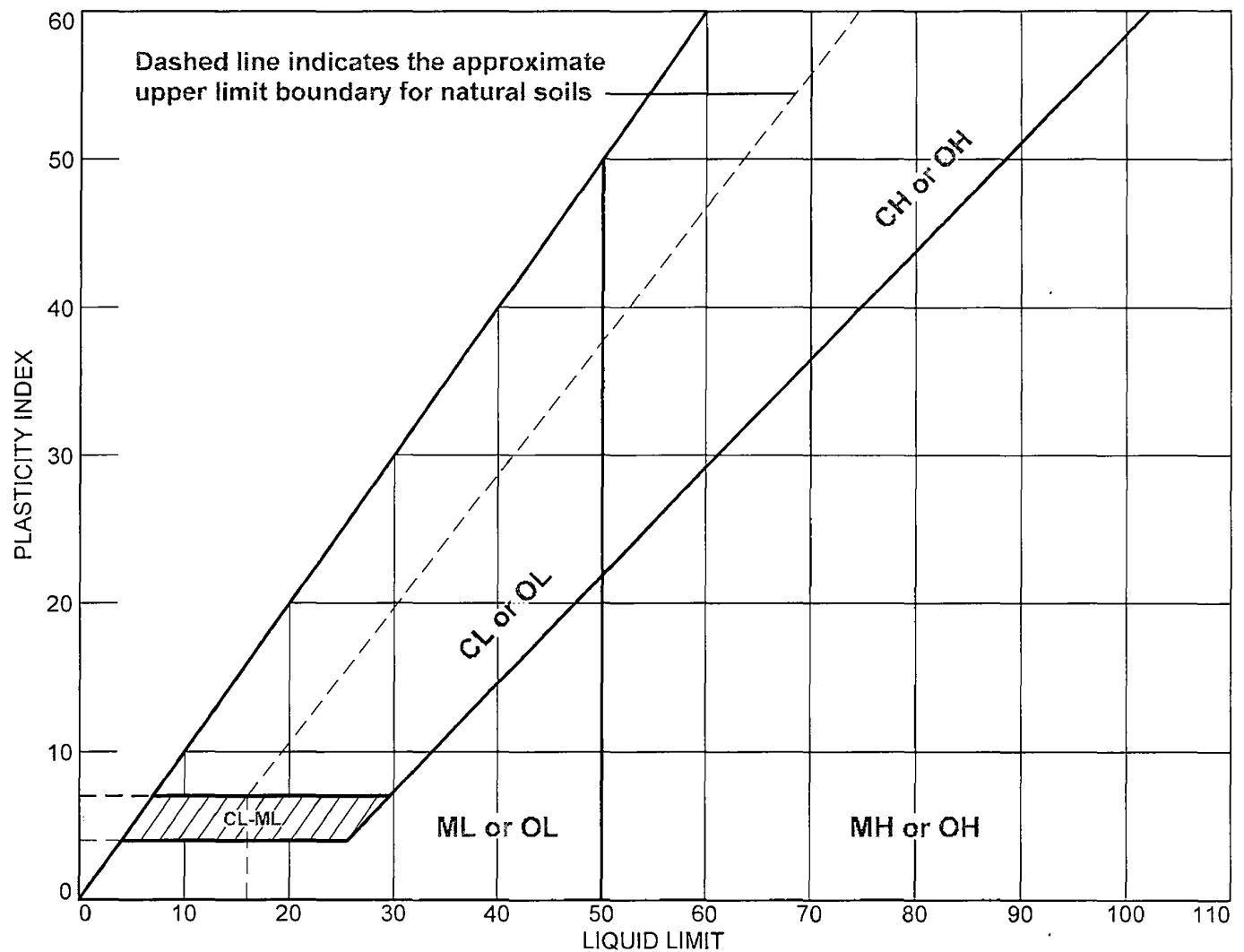
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	89	89			11

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1018	0.1139	0.1312	0.1595	0.1731	0.2042	0.2137	0.2247	0.2381

Fineness Modulus
0.58

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-39	407.5-409.0	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc.

Client: Bechtel

Project: Turkey Point COL

Raleigh, North Carolina

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 407.5-409.0

Sample Number: 701-39

Material Description: Olive Poorly Graded SAND with Silt

USCS: SP-SM

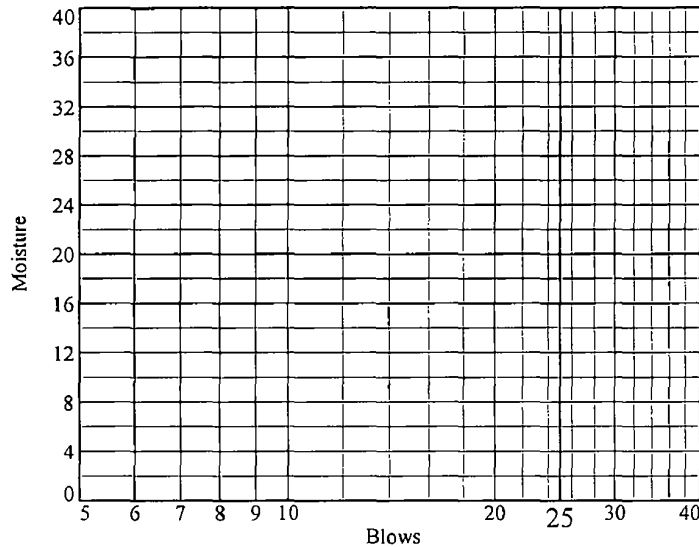
AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



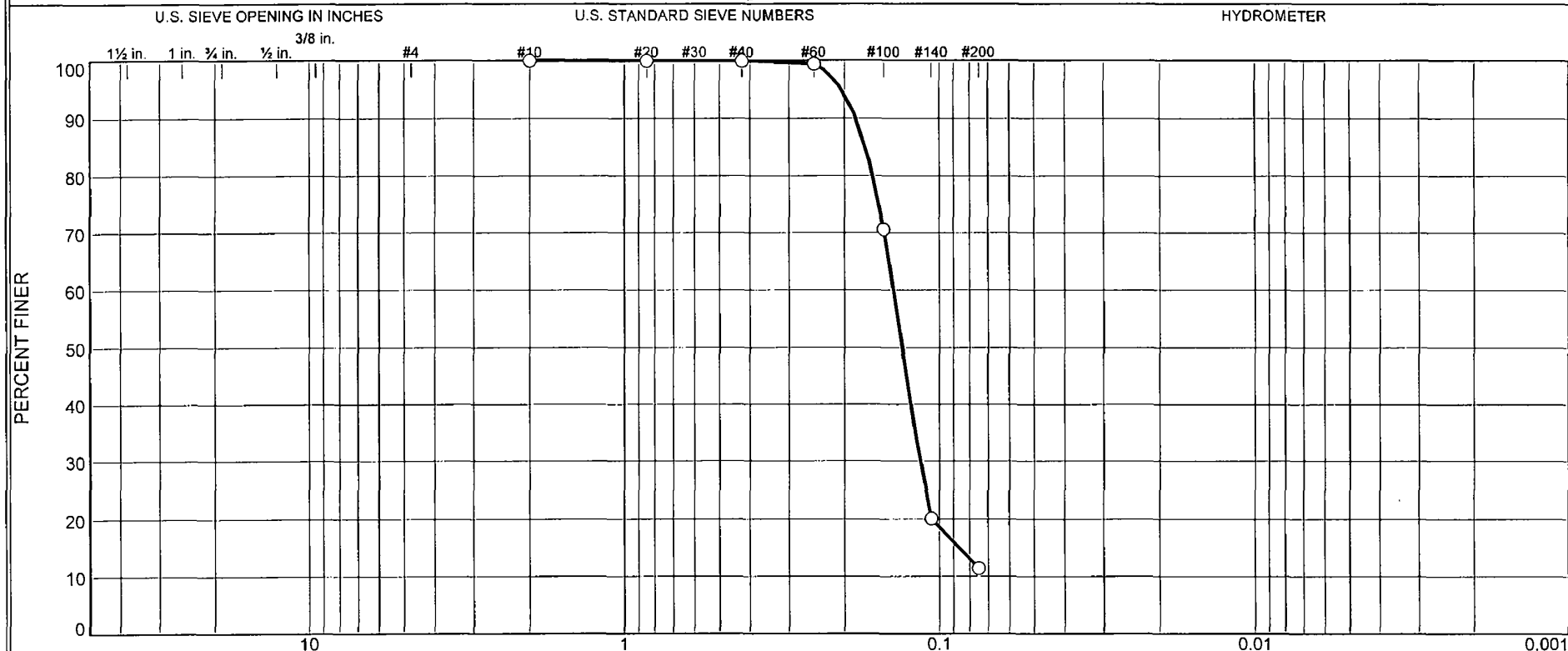
Liquid Limit= NV
 Plastic Limit= NP
 Plasticity Index= NP
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare					
Dry+Tare					
Tare					
Moisture					

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	89	11	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-701(DH)	701-41	427.5-428.9	4-18-08	SP-SM	Olive Poorly Graded SAND with Silt	ND	NV	NP

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 427.5-428.9

Sample Number: 701-41

Material Description: Olive Poorly Graded SAND with Silt

Date: 4-18-08

Natural Moisture: ND

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
316.41	0.00	0.00	#10	0.00	100
105.28	0.00	0.00	#20	0.05	100
			#40	0.08	100
			#60	0.63	99
			#100	30.95	71
			#140	84.07	20
			#200	93.25	11

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	89	89			11

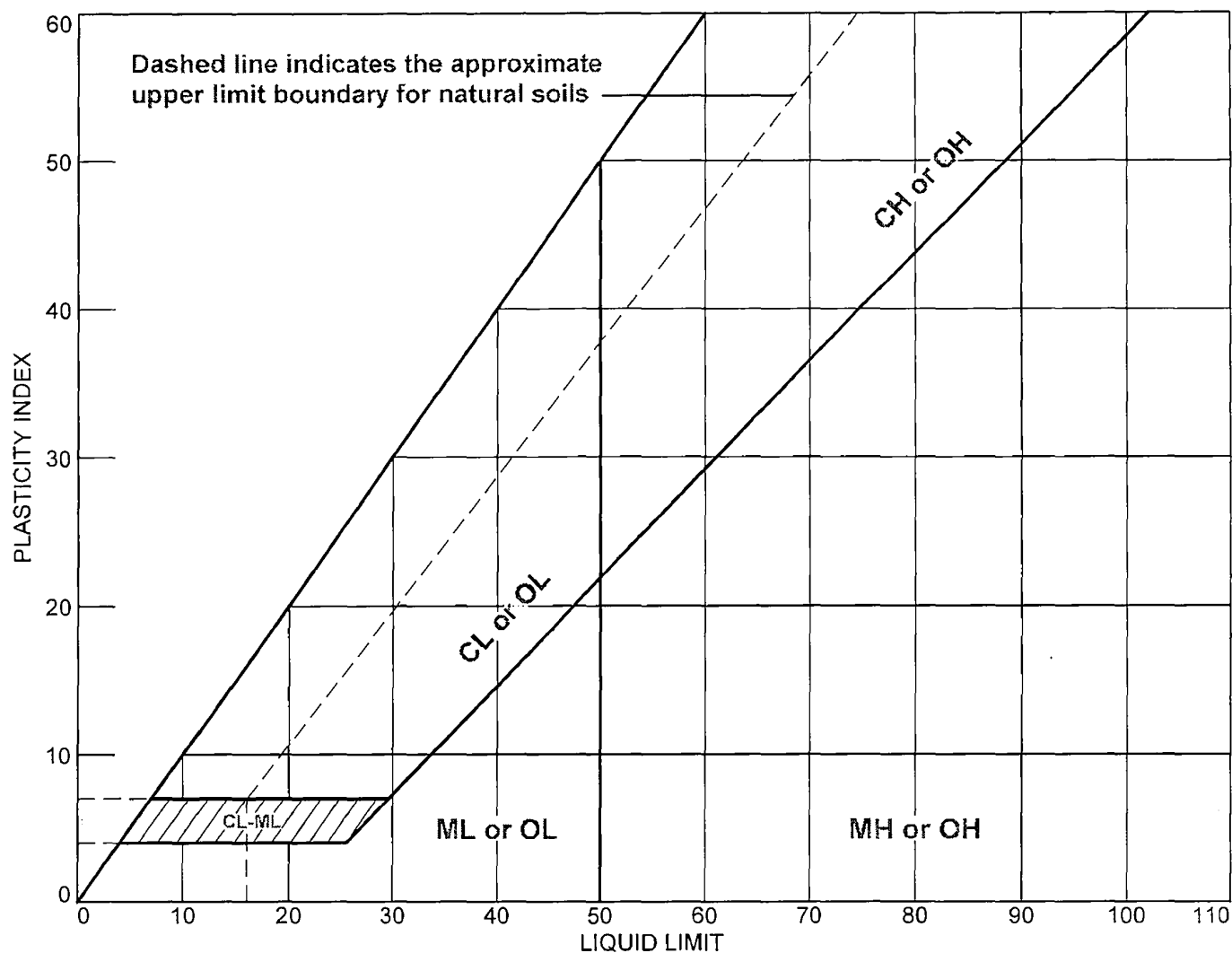
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0864	0.1054	0.1151	0.1310	0.1395	0.1626	0.1717	0.1840	0.2037

Fineness Modulus

0.30

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-701(DH)	701-41	427.5-428.9	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-701(DH)

Depth: 427.5-428.9

Sample Number: 701-41

Material Description: Olive Poorly Graded SAND with Silt

USCS: SP-SM

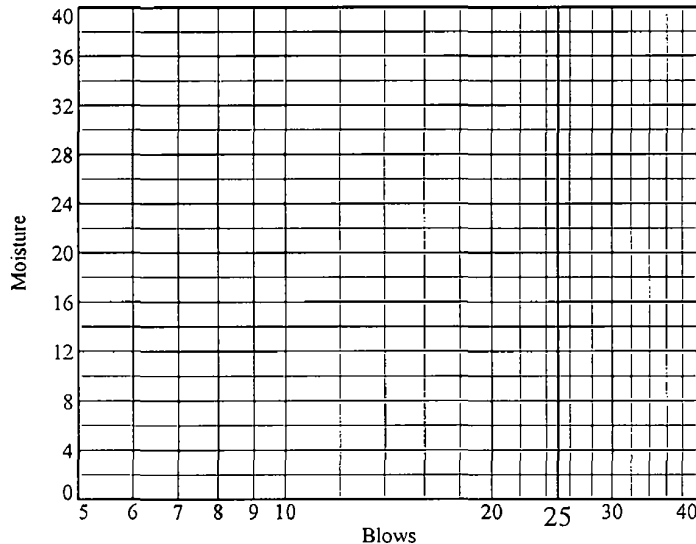
AASHTO: A-2-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



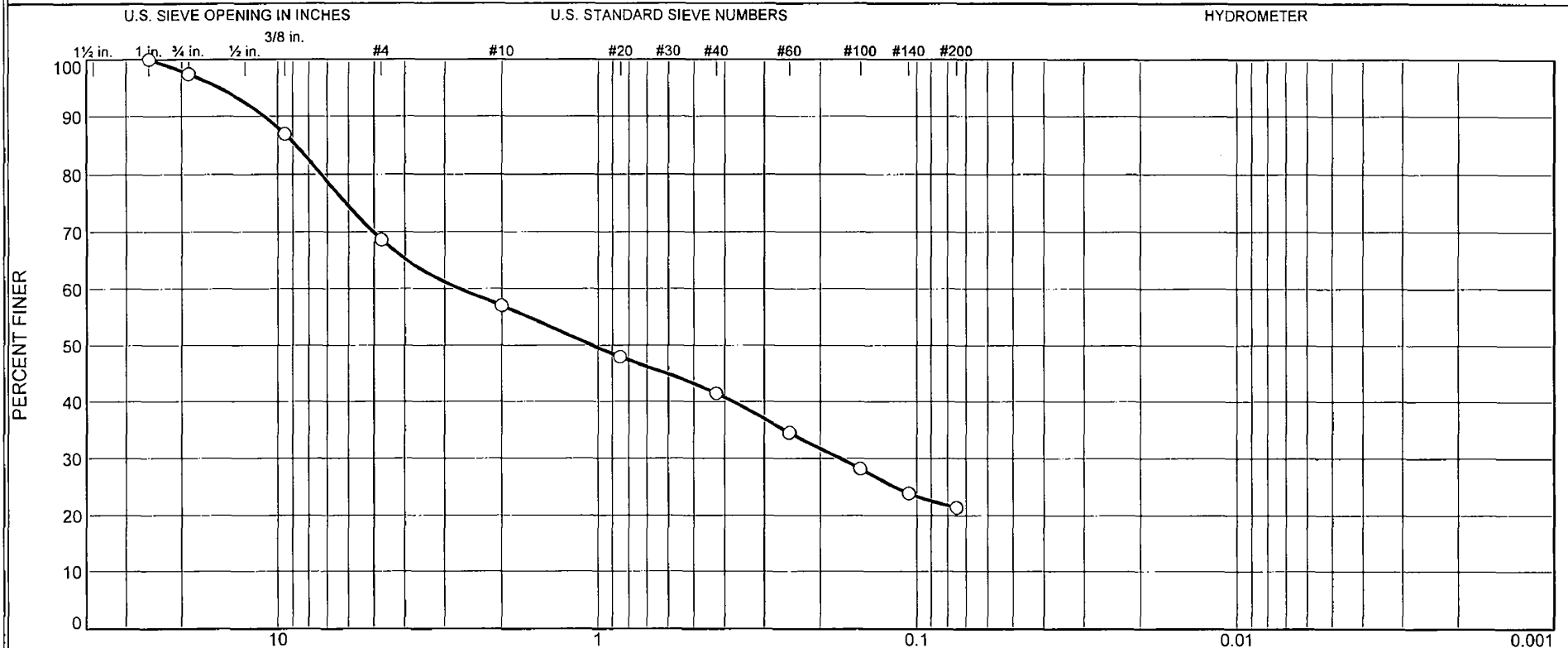
Liquid Limit= NV
 Plastic Limit= NP
 Plasticity Index= NP
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
3	28	12	16	20	21	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-702	702-3	5.1-6.6	2/26/08	SM	Pale Brown Silty sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 5.1-6.6

Sample Number: 702-3

Material Description: Pale Brown Silty sand (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
379.49	0.00	0.00	1	0.00	100
			3/4	9.66	97
			3/8"	49.78	87
			#4	119.19	69
			#10	163.07	57
99.88	0.00	0.00	#20	15.97	48
			#40	27.29	41
			#60	39.41	35
			#100	50.46	28
			#140	58.04	24
			#200	62.42	21

Fractional Components

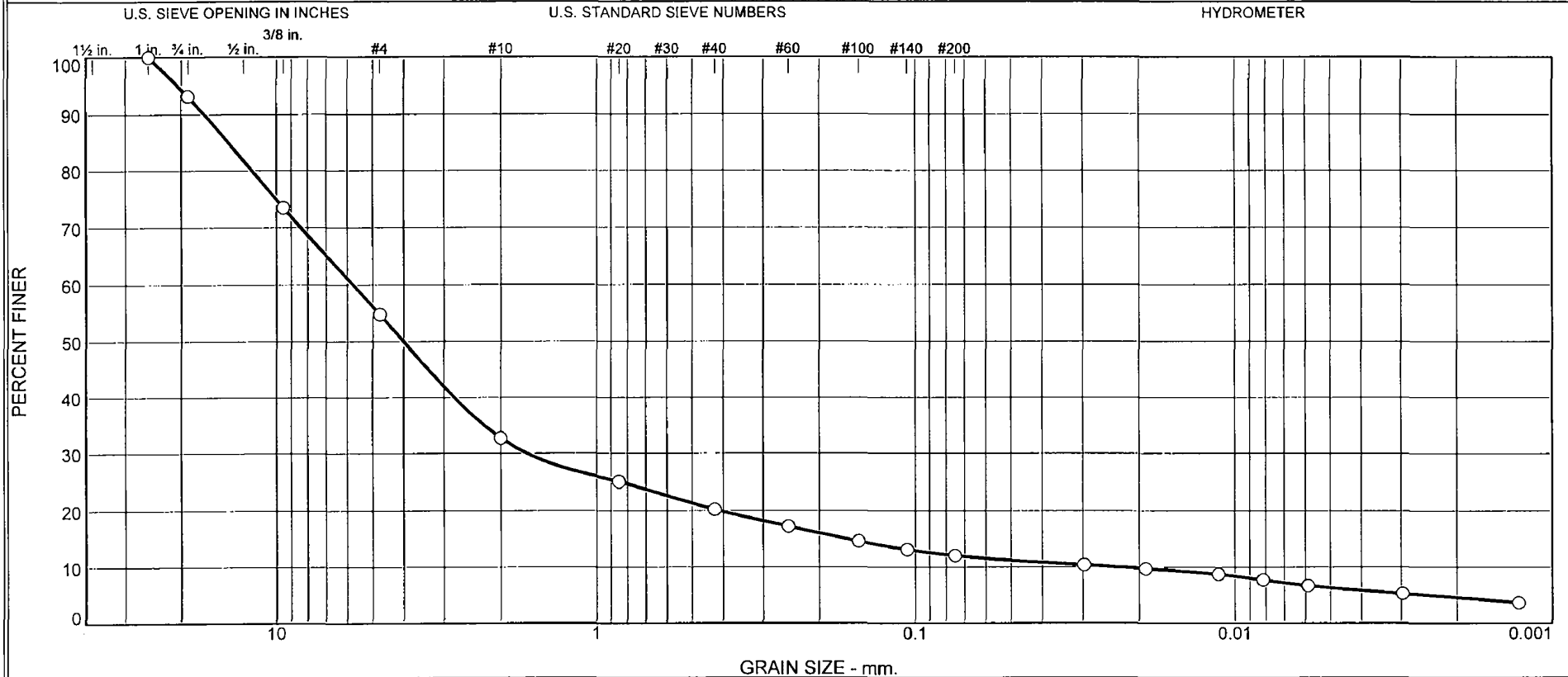
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	28	31	12	16	20	48			21

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1728	1.0461	2.6916	7.3156	8.8138	11.0421	15.2331

Fineness Modulus
3.27

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
6.8	38.4	22.1	12.5	8.1	5.8	6.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-702	702-7	14.7-16.2	2/26/08	GP-GM	Pale Brown Poorly graded Silty GRAVEL (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY ND = Not Determined Specific Gravity is assumed
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 14.7-16.2

Sample Number: 702-7

Material Description: Pale Brown Poorly graded Silty GRAVEL (Visual)

Date: 2/26/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

ND = Not Determined

Specific Gravity is assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
596.87	0.00	0.00	1	0.00	100.0
			3/4	40.87	93.2
			3/8"	158.22	73.5
			#4	269.90	54.8
			#10	401.50	32.7
96.23	0.00	0.00	#20	22.56	25.1
			#40	36.80	20.2
			#60	45.59	17.2
			#100	53.20	14.6
			#140	57.54	13.2
			#200	60.78	12.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 32.7

Weight of hydrometer sample = 96.23

Hygroscopic moisture correction:

Moist weight and tare = 29.02

Dry weight and tare = 28.98

Tare weight = 15.47

Hygroscopic moisture = 0.3%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.7

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	36.0	30.9	0.0131	37.0	10.2	0.0297	10.4
5.00	21.9	34.0	28.9	0.0131	35.0	10.6	0.0191	9.8
15.00	21.9	31.0	25.9	0.0131	32.0	11.0	0.0113	8.7
30.00	21.9	28.0	22.9	0.0131	29.0	11.5	0.0081	7.7
60.00	21.8	25.0	19.9	0.0131	26.0	12.0	0.0059	6.7
250.00	21.5	21.0	15.8	0.0132	22.0	12.7	0.0030	5.3
1440.00	21.4	16.0	10.8	0.0132	17.0	13.5	0.0013	3.6

MACTEC Engineering and Consulting, Inc.

Fractional Components

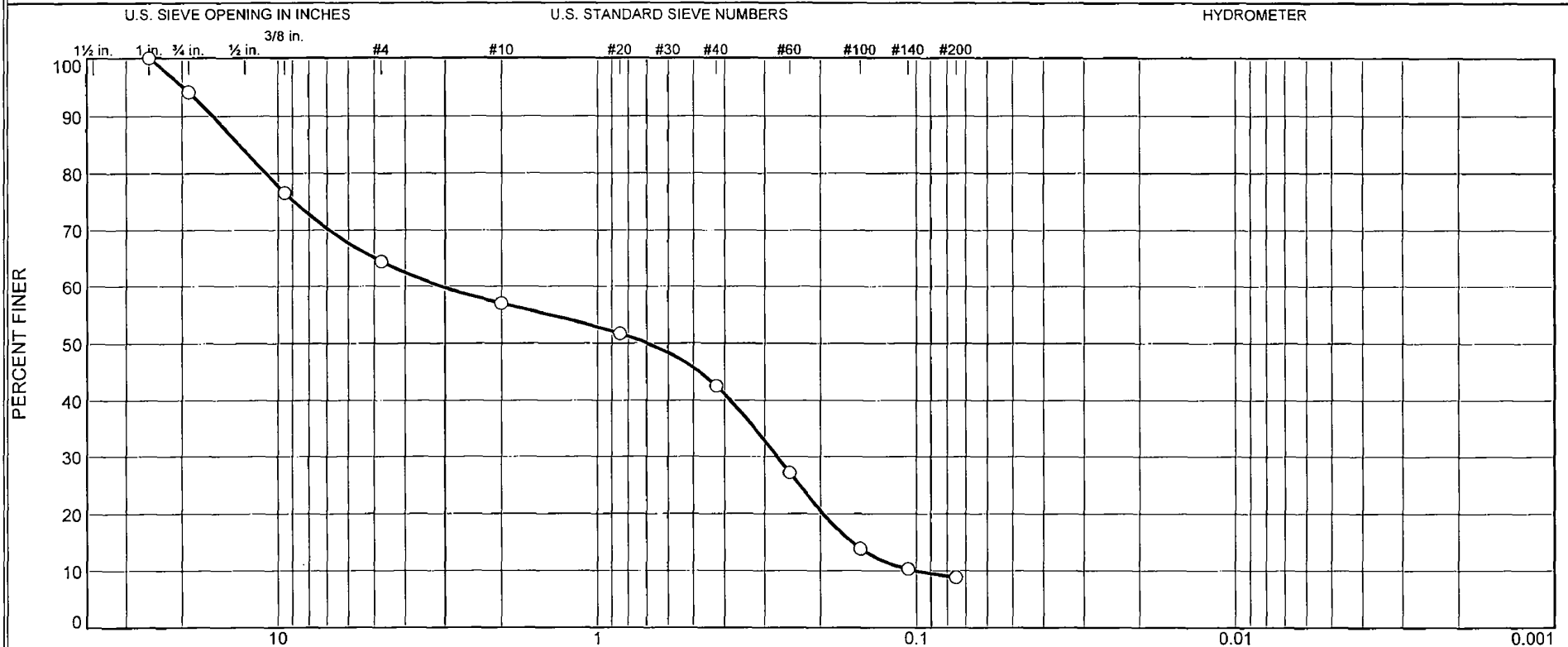
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.8	38.4	45.2	22.1	12.5	8.1	42.7	5.8	6.3	12.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0223	0.1618	0.4110	1.6577	4.0099	5.7596	11.9307	14.1582	16.9065	20.5185

Fineness Modulus	C _u	C _c
4.60	257.76	21.35

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
6	30	7	15	33	9	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-702	702-10	31.0-32.5	2/27/08	SP-SM	Light Gray Poorly graded Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 31.0-32.5

Sample Number: 702-10

Material Description: Light Gray Poorly graded Silty SAND (Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
455.59	0.00	0.00	1	0.00	100
			3/4	26.75	94
			3/8"	106.57	77
			#4	162.22	64
			#10	196.03	57
100.66	0.00	0.00	#20	9.39	52
			#40	25.57	42
			#60	52.72	27
			#100	76.10	14
			#140	82.50	10
			#200	84.98	9

Fractional Components

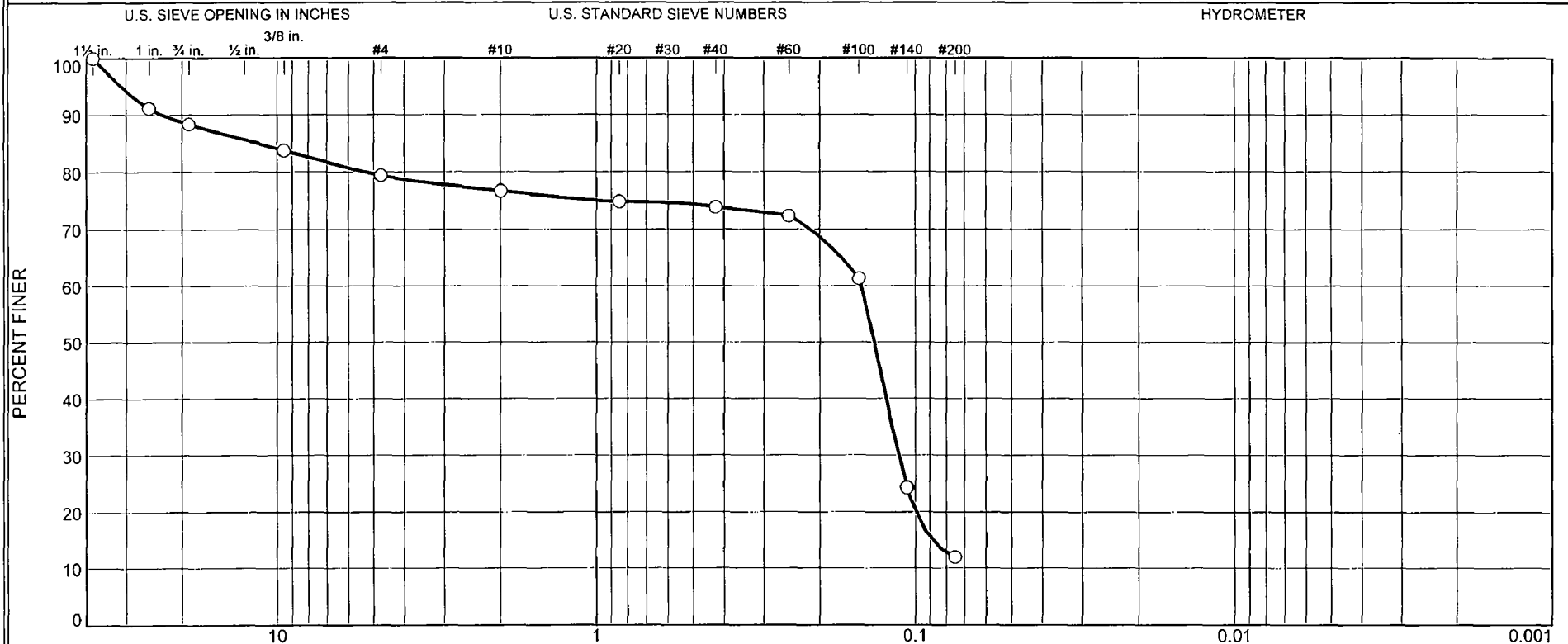
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	30	36	7	15	33	55			9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1007	0.1592	0.1965	0.2739	0.6968	3.0853	10.9384	13.2447	16.0446	19.8172

Fineness Modulus	C _u	C _c
3.58	30.63	0.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel			% Sand			% Fines	
Coarse	Fine		Coarse	Medium	Fine	Silt	Clay
12	9		2	3	62	12	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-702	702-12	119.2-120.7	3/4/08	SP-SM	Pale Brown Poorly graded SAND with Silt and Gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 119.2-120.7

Sample Number: 702-12

Material Description: Pale Brown Poorly graded SAND with Silt and Gravel (Visual)

Date: 3/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
459.21	0.00	0.00	1.5	0.00	100
			1	40.56	91
			3/4	53.69	88
			3/8"	74.64	84
			#4	94.48	79
			#10	106.90	77
101.69	0.00	0.00	#20	2.51	75
			#40	3.81	74
			#60	5.80	72
			#100	20.39	61
			#140	69.45	24
			#200	85.85	12

Fractional Components

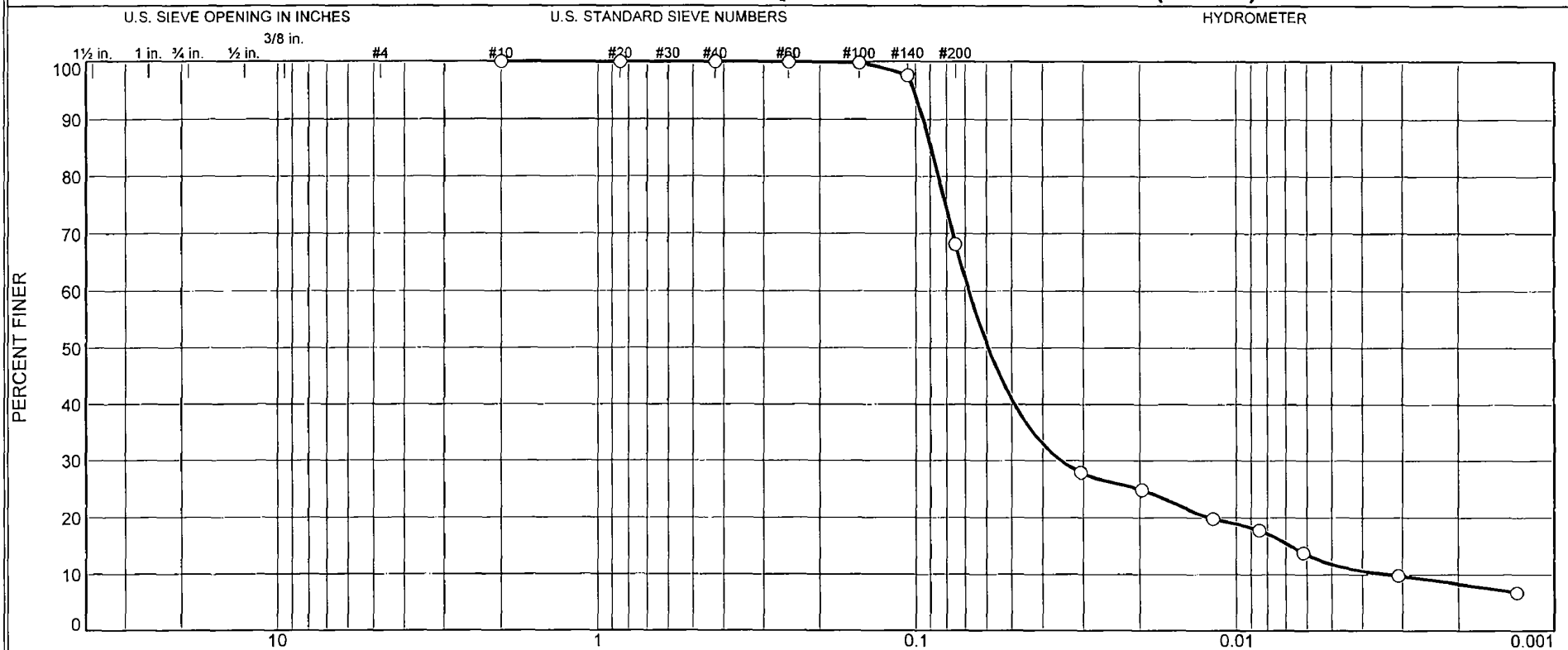
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	12	9	21	2	3	62	67			12

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0888	0.0997	0.1126	0.1342	0.1477	5.3046	11.5651	23.2001	31.0201

Fineness Modulus
1.87

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	31.7	56.4	11.8

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-702	702-21	176.2-177.7	3/5/08	ML	Greenish Gray SILT with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY ND = Not Determined Specific Gravity is assumed
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 176.2-177.7

Sample Number: 702-21

Material Description: Greenish Gray SILT with sand (Visual)

Date: 3/5/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

ND = Not Determined

Specific Gravity is assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
283.17	0.00	0.00	#10	0.00	100.0
99.30	0.00	0.00	#20	0.03	100.0
			#40	0.05	99.9
			#60	0.07	99.9
			#100	0.21	99.8
			#140	2.41	97.6
			#200	31.61	68.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =100.0

Weight of hydrometer sample =99.30

Hygroscopic moisture correction:

Moist weight and tare = 25.93

Dry weight and tare = 25.86

Tare weight = 11.07

Hygroscopic moisture =0.5%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	33.0	27.8	0.0132	34.0	10.7	0.0305	27.8
5.00	21.6	30.0	24.8	0.0132	31.0	11.2	0.0197	24.8
15.00	21.5	25.0	19.8	0.0132	26.0	12.0	0.0118	19.8
30.00	21.5	23.0	17.8	0.0132	24.0	12.4	0.0085	17.8
60.00	21.4	19.0	13.8	0.0132	20.0	13.0	0.0062	13.8
250.00	21.4	15.0	9.8	0.0132	16.0	13.7	0.0031	9.8
1440.00	21.4	12.0	6.8	0.0132	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

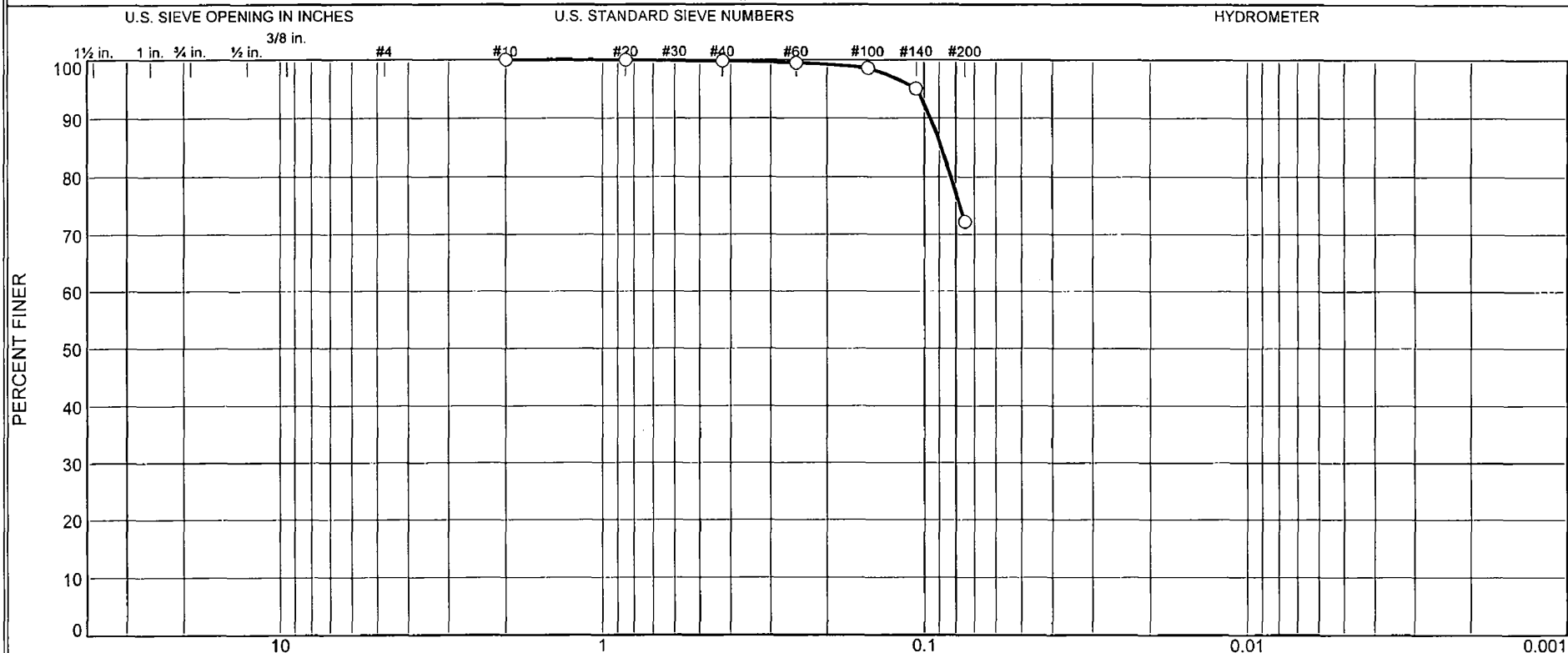
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	31.7	31.8	56.4	11.8	68.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0033	0.0068	0.0121	0.0353	0.0592	0.0682	0.0848	0.0894	0.0946	0.1013

Fineness Modulus	C _u	C _c
0.00	20.49	5.48

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	28	72	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-702	702-23	196.2-197.7	3/6/08	ML	Greenish Gray SILT with sand	ND	22	20

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 196.2-197.7

Sample Number: 702-23

Material Description: Greenish Gray SILT with sand

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: 22

Plastic Limit: 20

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
330.84	0.00	0.00	#10	0.00	100
97.40	0.00	0.00	#20	0.03	100
			#40	0.22	100
			#60	0.52	99
			#100	1.38	99
			#140	4.84	95
			#200	27.06	72

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	28	28			72

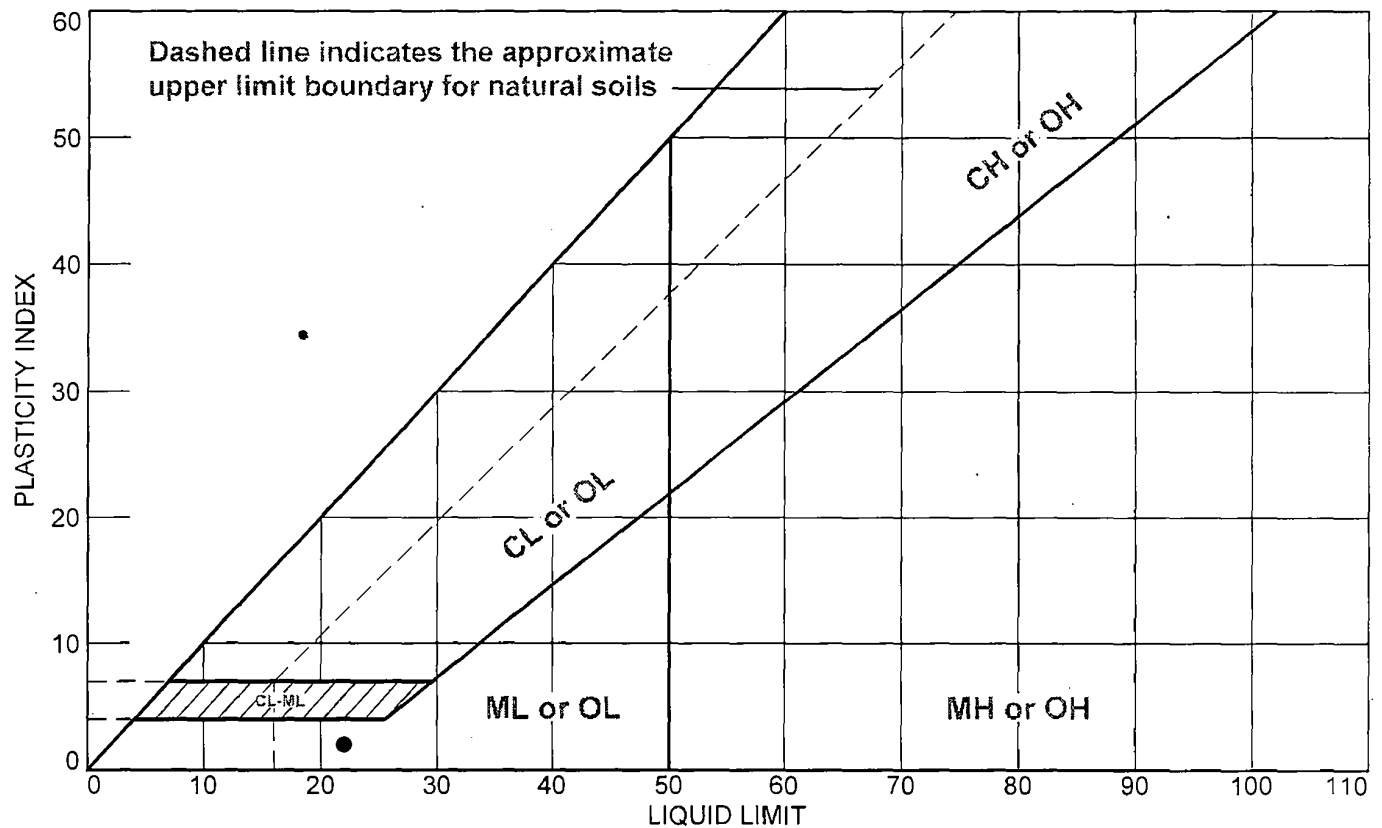
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0828	0.0886	0.0956	0.1059

Fineness Modulus

0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-702	702-23	196.2-197.7	ND	20	22	2	ML

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

ZHU 7/23/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-702

Depth: 196.2-197.7

Sample Number: 702-23

Material Description: Greenish Gray SILT with sand

USCS: ML

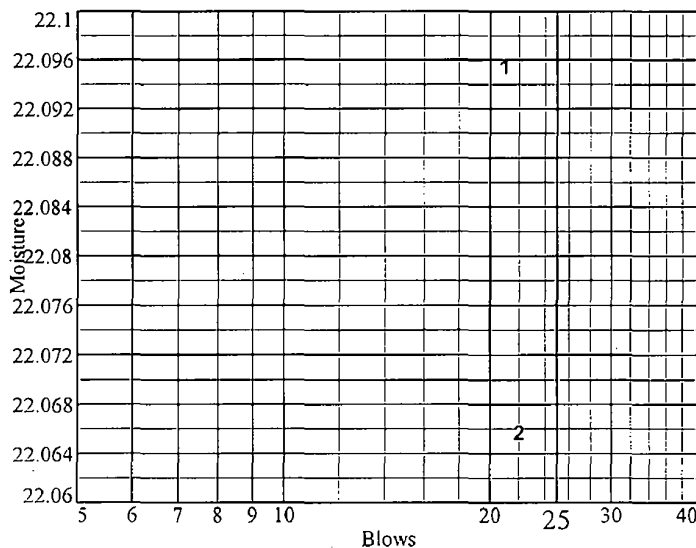
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.63	33.69				
Dry+Tare	29.53	30.40				
Tare	15.50	15.49				
# Blows	21	22				
Moisture	22.1	22.1				



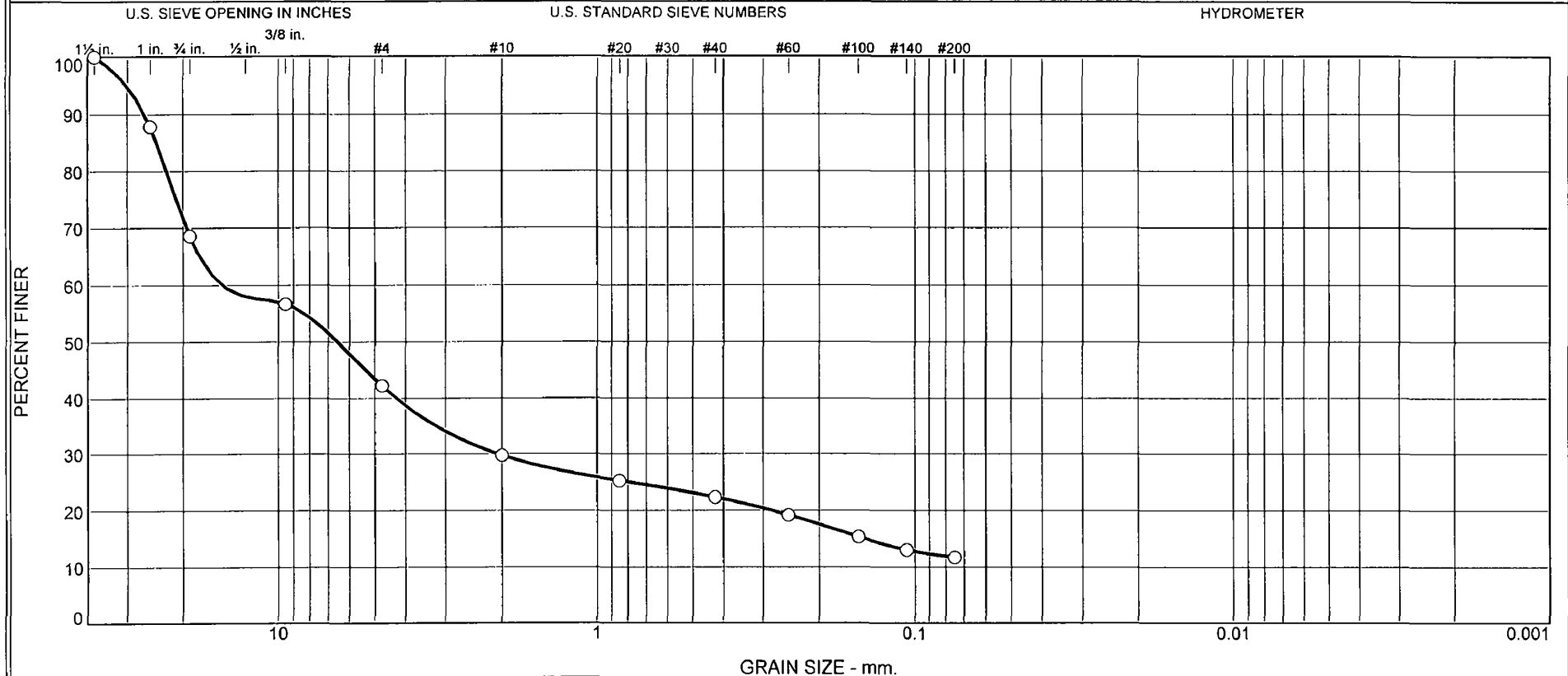
Liquid Limit= 22
 Plastic Limit= 20
 Plasticity Index= 2
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.56	23.69			
Dry+Tare	21.39	22.36			
Tare	15.50	15.49			
Moisture	19.9	19.4			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
31	27	12	8	10	12	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-3	5.2-6.7	2/22/08	GP-GM	White Poorly Graded GRAVEL with sand and silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 5.2-6.7

Sample Number: 703-3

Material Description: White Poorly Graded GRAVEL with sand and silt (Visual)

Date: 2/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
490.76	0.00	0.00	1.5	0.00	100
			1	59.86	88
			3/4	154.12	69
			3/8"	212.60	57
			#4	283.64	42
			#10	344.99	30
101.54	0.00	0.00	#20	15.45	25
			#40	25.18	22
			#60	36.00	19
			#100	49.12	15
			#140	57.01	13
			#200	61.53	12

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	31	27	58	12	8	10	30			12

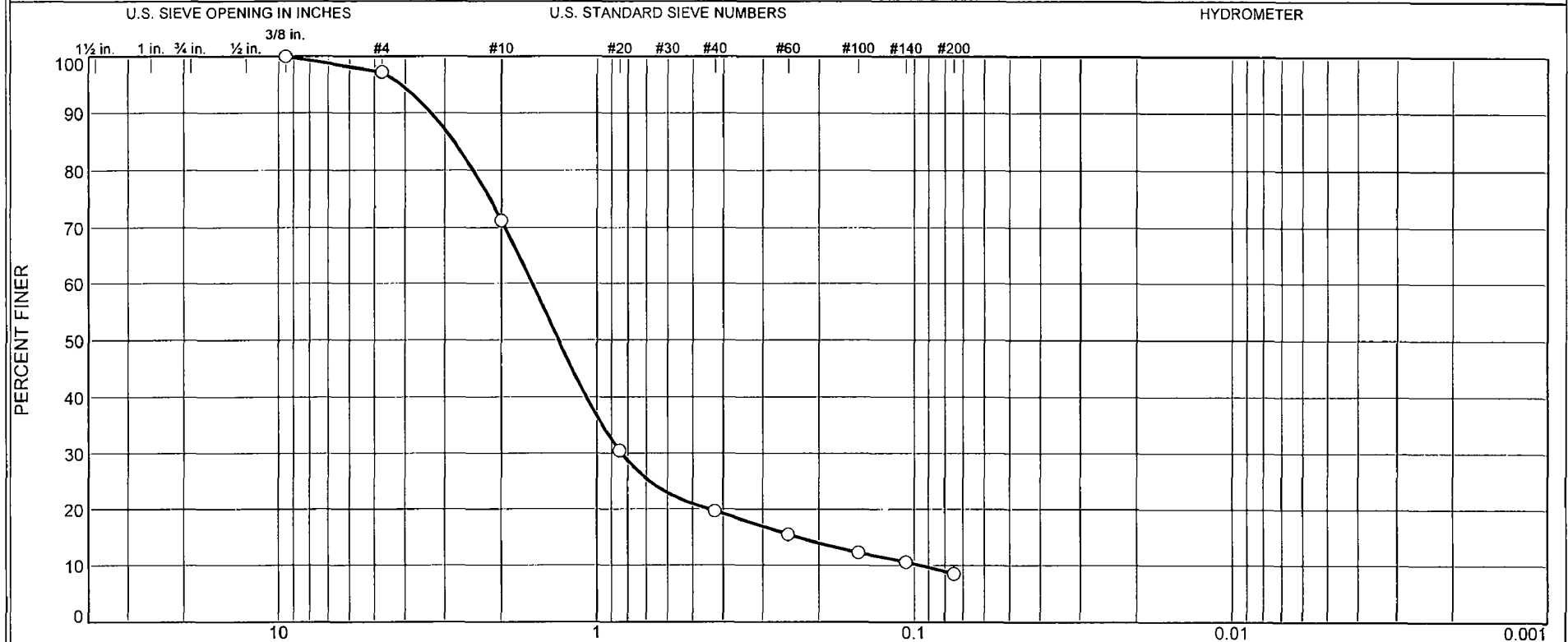
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1435	0.2826	2.0725	6.5368	15.0368	22.5629	24.2660	26.4700	30.0697

Fineness Modulus

5.15

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	3	26	51	11	9	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-6	12.3-13.8	2/22/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 89% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 12.3-13.8

Sample Number: 703-6

Material Description: White Poorly Graded SAND with silt (Visual)

Date: 2/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 89% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
212.82	0.00	0.00	3/8"	0.00	100
			#4	5.95	97
			#10	61.18	71
100.28	0.00	0.00	#20	57.40	30
			#40	72.60	20
			#60	78.50	15
			#100	83.05	12
			#140	85.42	11
			#200	88.31	9

Fractional Components

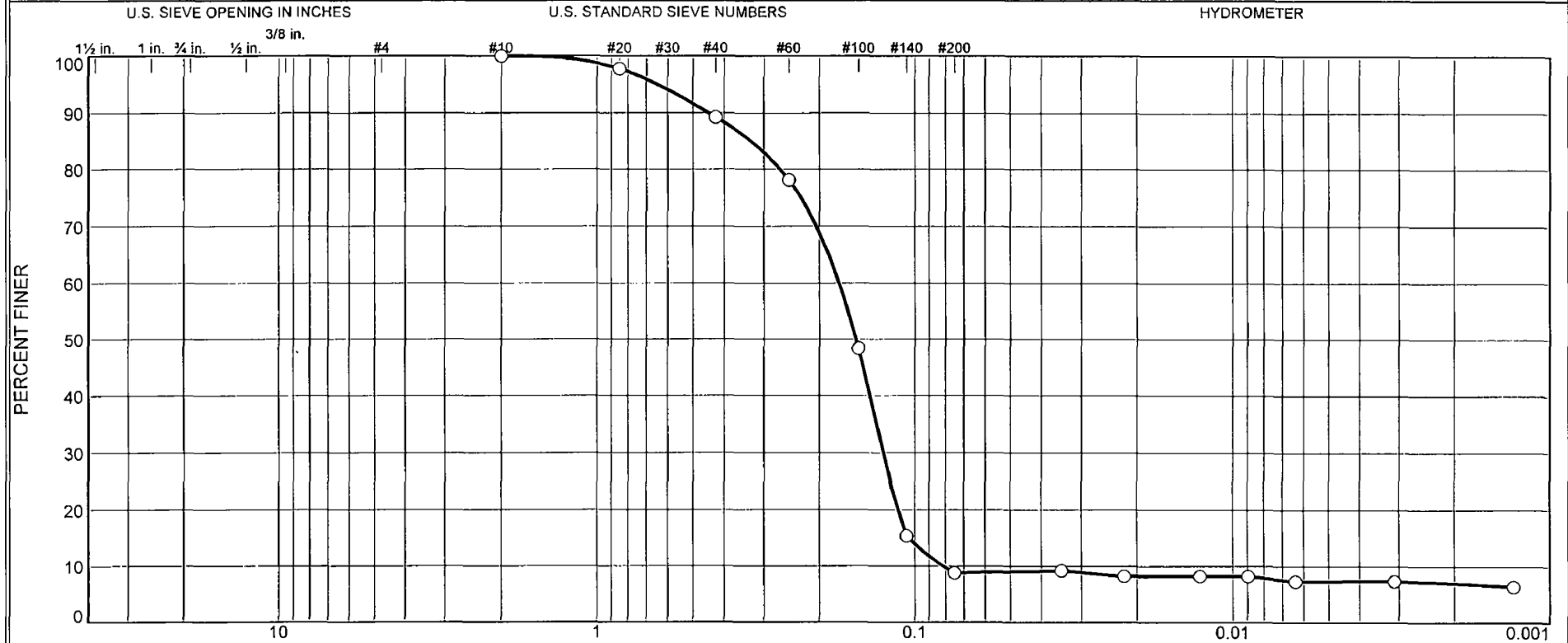
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	3	3	26	51	11	88			9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0958	0.2343	0.4437	0.8376	1.3219	1.5988	2.4516	2.8141	3.3184	4.1315

Fineness Modulus	C _u	C _c
3.28	16.69	4.58

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	10.8	80.4	1.5	7.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-9	118.6-120.1	3/9/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 12% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 118.6-120.1

Sample Number: 703-9

Material Description: White Poorly Graded SAND with silt (Visual)

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 12% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
280.38	0.00	0.00	#10	0.00	100.0
100.92	0.00	0.00	#20	2.26	97.8
			#40	10.85	89.2
			#60	22.11	78.1
			#100	52.17	48.3
			#140	85.41	15.4
			#200	92.03	8.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 100.92

Hygroscopic moisture correction:

Moist weight and tare = 29.30

Dry weight and tare = 29.26

Tare weight = 15.55

Hygroscopic moisture = 0.3%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	15.0	9.4	0.0132	16.0	13.7	0.0345	9.2
5.00	21.5	14.0	8.4	0.0132	15.0	13.8	0.0220	8.3
15.00	21.5	14.0	8.4	0.0132	15.0	13.8	0.0127	8.3
30.00	21.5	14.0	8.4	0.0132	15.0	13.8	0.0090	8.3
60.00	21.7	13.0	7.4	0.0132	14.0	14.0	0.0064	7.3
250.00	21.9	13.0	7.5	0.0131	14.0	14.0	0.0031	7.4
1440.00	21.9	12.0	6.5	0.0131	13.0	14.2	0.0013	6.4

MACTEC Engineering and Consulting, Inc.

Fractional Components

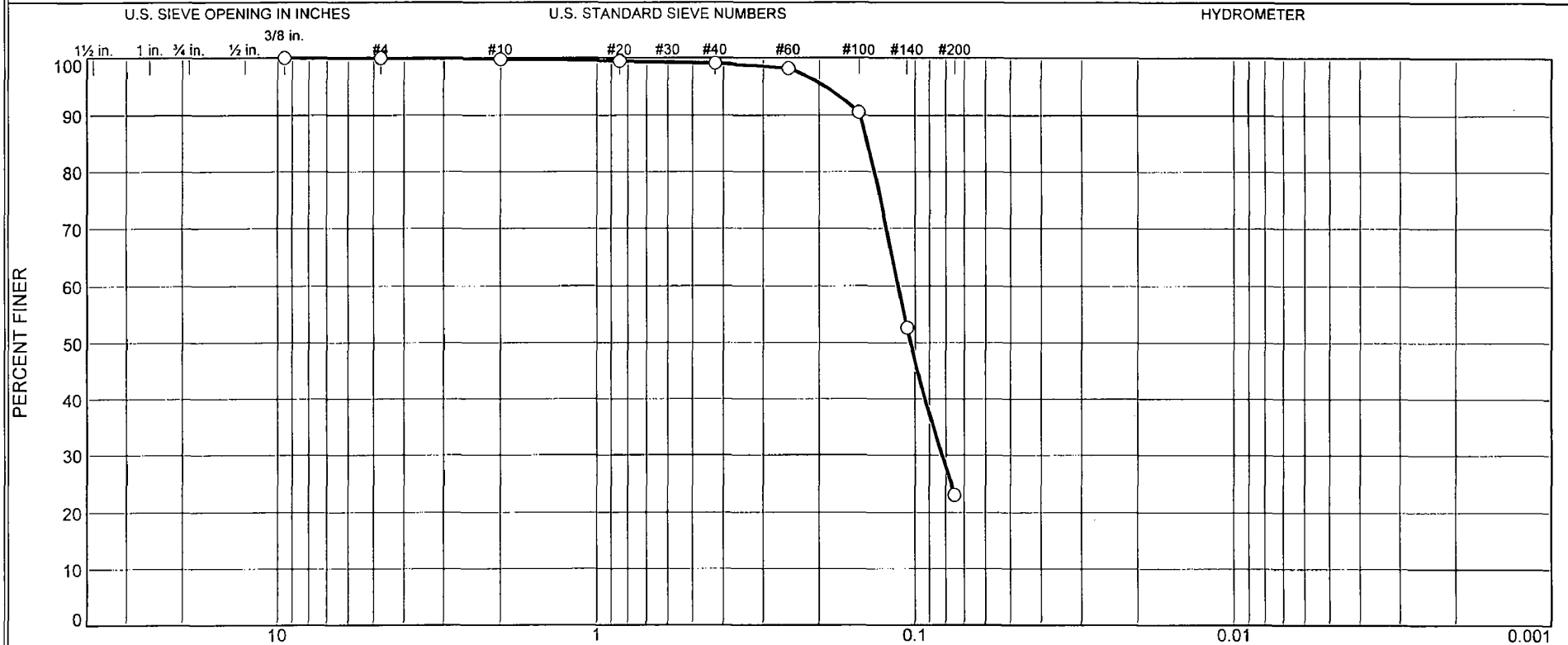
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	10.8	80.4	91.2	1.5	7.3	8.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0815	0.1044	0.1129	0.1256	0.1527	0.1727	0.2663	0.3293	0.4468	0.6445

Fineness Modulus	C _u	C _c
0.75	2.12	1.12

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	76	23	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-10	123.8-125.3	3/9/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY Specific Gravity = 2.662 (ASTM D 854-06) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 123.8-125.3

Sample Number: 703-10

Material Description: Light Olive Gray Silty SAND (Visual)

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

Specific Gravity = 2.662 (ASTM D 854-06)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
266.08	0.00	0.00	3/8"	0.00	100
			#4	0.17	100
			#10	0.57	100
100.11	0.00	0.00	#20	0.35	99
			#40	0.73	99
			#60	1.62	98
			#100	9.29	91
			#140	47.29	53
			#200	76.99	23

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	76	77			23

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0823	0.1034	0.1131	0.1341	0.1408	0.1490	0.1913

Fineness Modulus
0.12

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 4/6/08

SAMPLE IDENTIFICATION: B-703-10

(A) Mass of oven-dried soil, grams:	75.03
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.74
(C) Mass of pycnometer, water and soil, grams:	702.59
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.663
(F)	Correction factor: 0.99970
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.662

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) - Visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

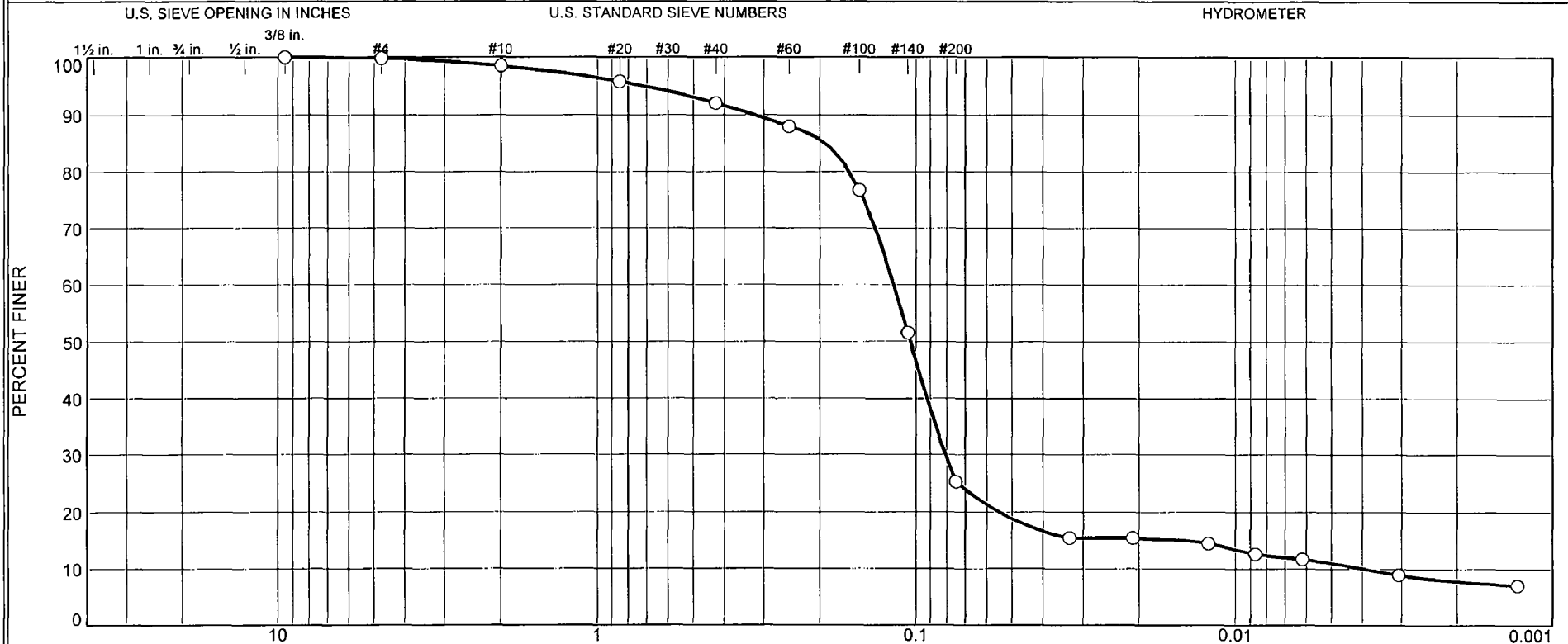
PYCNO METER : P-3

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.2	1.3	6.5	66.8	14.2	11.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-12	133.5-135.0	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 133.5-135.0

Sample Number: 703-12

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
259.82	0.00	0.00	3/8"	0.00	100.0
			#4	0.42	99.8
			#10	3.86	98.5
104.13	0.00	0.00	#20	2.88	95.8
			#40	6.85	92.0
			#60	11.13	88.0
			#100	23.00	76.8
			#140	49.56	51.6
			#200	77.49	25.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 98.5

Weight of hydrometer sample = 104.13

Hygroscopic moisture correction:

Moist weight and tare = 29.60

Dry weight and tare = 29.53

Tare weight = 15.41

Hygroscopic moisture = 0.5%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	22.0	16.4	0.0132	23.0	12.5	0.0330	15.4
5.00	21.5	22.0	16.4	0.0132	23.0	12.5	0.0209	15.4
15.00	21.5	21.0	15.4	0.0132	22.0	12.7	0.0121	14.5
30.00	21.7	19.0	13.4	0.0132	20.0	13.0	0.0087	12.6
60.00	21.7	18.0	12.4	0.0132	19.0	13.2	0.0062	11.7
250.00	22.1	15.0	9.5	0.0131	16.0	13.7	0.0031	9.0
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.1

MACTEC Engineering and Consulting, Inc.

Fractional Components

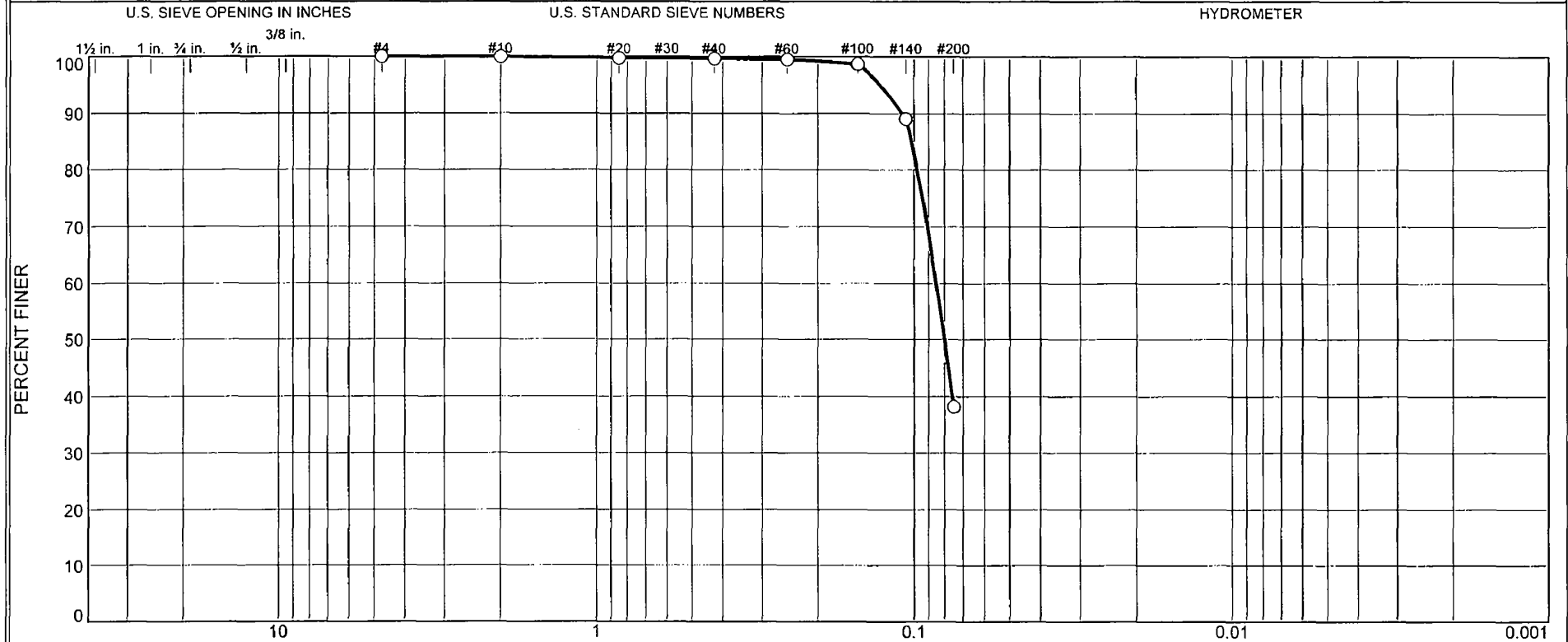
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	1.3	6.5	66.8	74.6	14.2	11.0	25.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0039	0.0144	0.0549	0.0809	0.1040	0.1173	0.1611	0.1921	0.3236	0.7119

Fineness Modulus	C _u	C _c
0.44	29.74	14.16

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	62	38	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-14	143.5-145.0	2/25/08	SC-SM	Greenish Gray Silty, Clayey SAND	ND	24	19

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 143.5-145.0

Sample Number: 703-14

Material Description: Greenish Gray Silty, Clayey SAND

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: 24

Plastic Limit: 19

USCS Class.: SC-SM

Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
324.39	0.00	0.00	#4	0.00	100
			#10	0.12	100
99.73	0.00	0.00	#20	0.19	100
			#40	0.28	100
			#60	0.42	100
			#100	1.26	99
			#140	10.90	89
			#200	61.59	38

Fractional Components

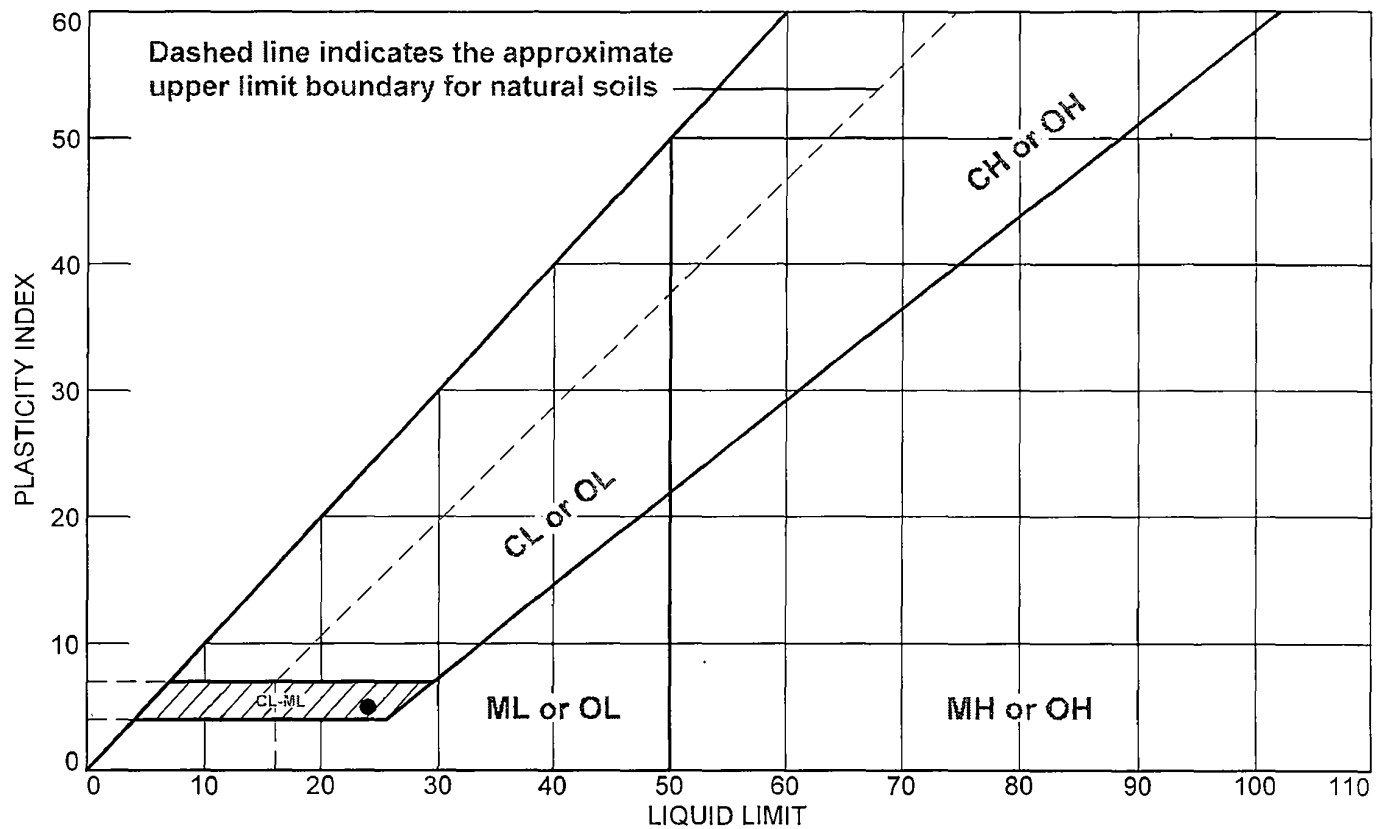
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	62	62			38

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0802	0.0851	0.0974	0.1017	0.1087	0.1271

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-703	703-14	143.5-145.0	ND	19	24	5	SC-SM

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Turkey Point COL

Project No.: 6468071950

Figure

Tested By: CS

Checked By: LBJ

DSC 7-2-08

LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 143.5-145.0

Sample Number: 703-14

Material Description: Greenish Gray Silty, Clayey SAND

USCS: SC-SM

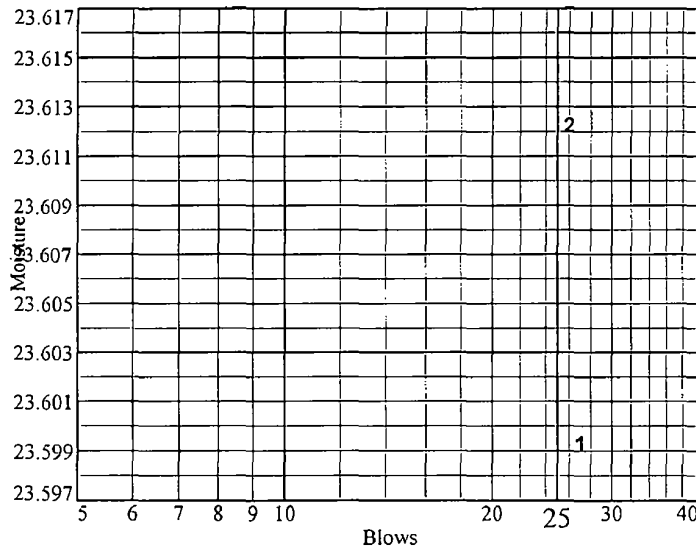
AASHTO: A-4(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.06	30.17				
Dry+Tare	27.28	27.32				
Tare	15.50	15.25				
# Blows	27	26				
Moisture	23.6	23.6				



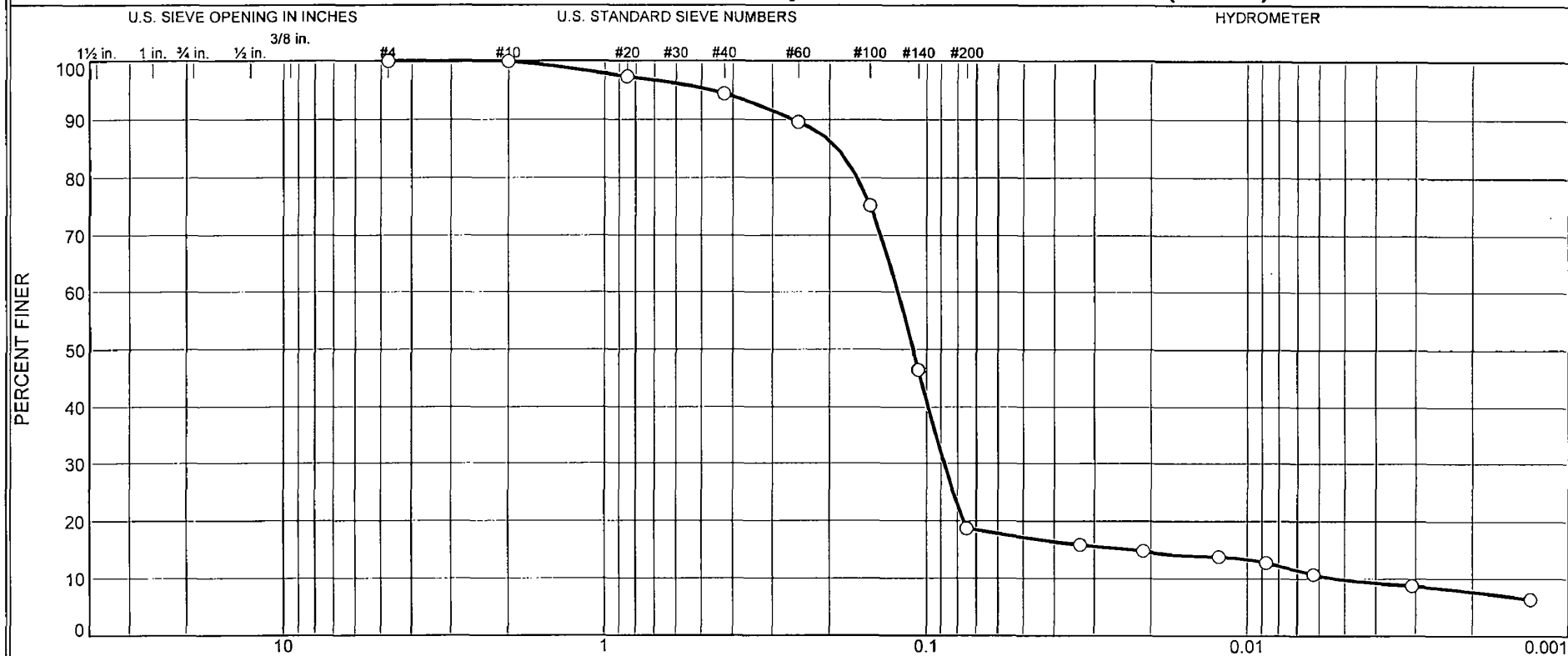
Liquid Limit= 24
 Plastic Limit= 19
 Plasticity Index= 5
 Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.08	23.86			
Dry+Tare	21.88	22.56			
Tare	15.44	15.62			
Moisture	18.6	18.7			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	5.4	75.8	8.9	9.8

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-703	703-15	148.5-150.0	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed Calcite Equivalent = 20% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-703

Depth: 148.5-150.0

Sample Number: 703-15

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

Calcite Equivalent = 20% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
223.31	0.00	0.00	#4	0.00	100.0
			#10	0.12	99.9
98.42	0.00	0.00	#20	2.56	97.3
			#40	5.39	94.5
			#60	10.23	89.6
			#100	24.36	75.2
			#140	52.69	46.4
			#200	79.96	18.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =99.9

Weight of hydrometer sample =98.42

Hygroscopic moisture correction:

Moist weight and tare = 29.68

Dry weight and tare = 29.32

Tare weight = 15.48

Hygroscopic moisture =2.6%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	21.0	15.4	0.0132	22.0	12.7	0.0332	15.9
5.00	21.6	20.0	14.4	0.0132	21.0	12.9	0.0211	14.9
15.00	21.6	19.0	13.4	0.0132	20.0	13.0	0.0123	13.8
30.00	21.6	18.0	12.4	0.0132	19.0	13.2	0.0087	12.8
60.00	21.7	16.0	10.4	0.0132	17.0	13.5	0.0062	10.8
250.00	22.1	14.0	8.5	0.0131	15.0	13.8	0.0031	8.8
1440.00	20.9	12.0	6.3	0.0133	13.0	14.2	0.0013	6.4

MACTEC Engineering and Consulting, Inc.

Fractional Components

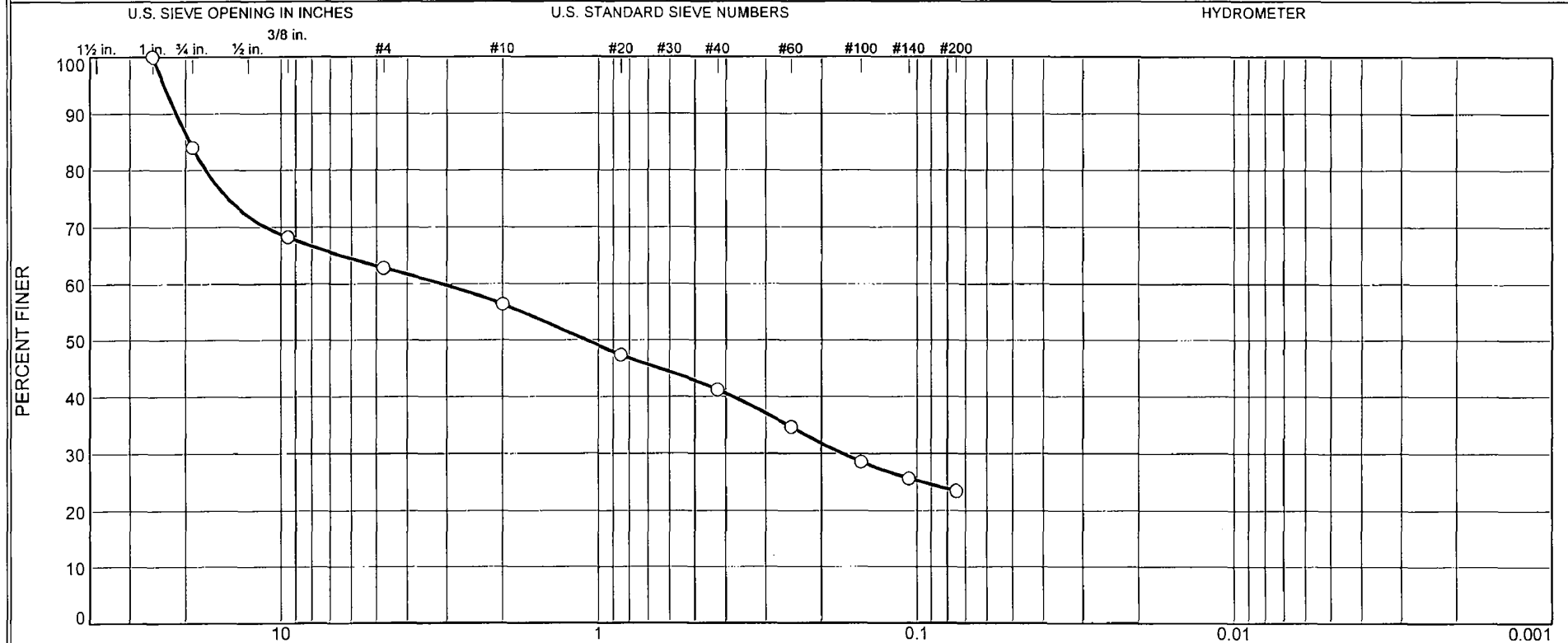
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	5.4	75.8	81.3	8.9	9.8	18.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0053	0.0226	0.0767	0.0882	0.1101	0.1229	0.1642	0.1893	0.2603	0.4625

Fineness Modulus	C _u	C _c
0.39	23.30	12.00

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
16	21	7	15	18	23	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-4	7.4-8.9	3/9/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 7.4-8.9

Sample Number: 704-4

Material Description: White Silty SAND with gravel (Visual)

Date: 3/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
291.47	0.00	0.00	1	0.00	100
			3/4	46.60	84
			3/8"	92.52	68
			#4	108.32	63
			#10	126.92	56
100.14	0.00	0.00	#20	16.17	47
			#40	27.05	41
			#60	38.66	35
			#100	49.52	29
			#140	54.72	26
			#200	58.57	23

Fractional Components

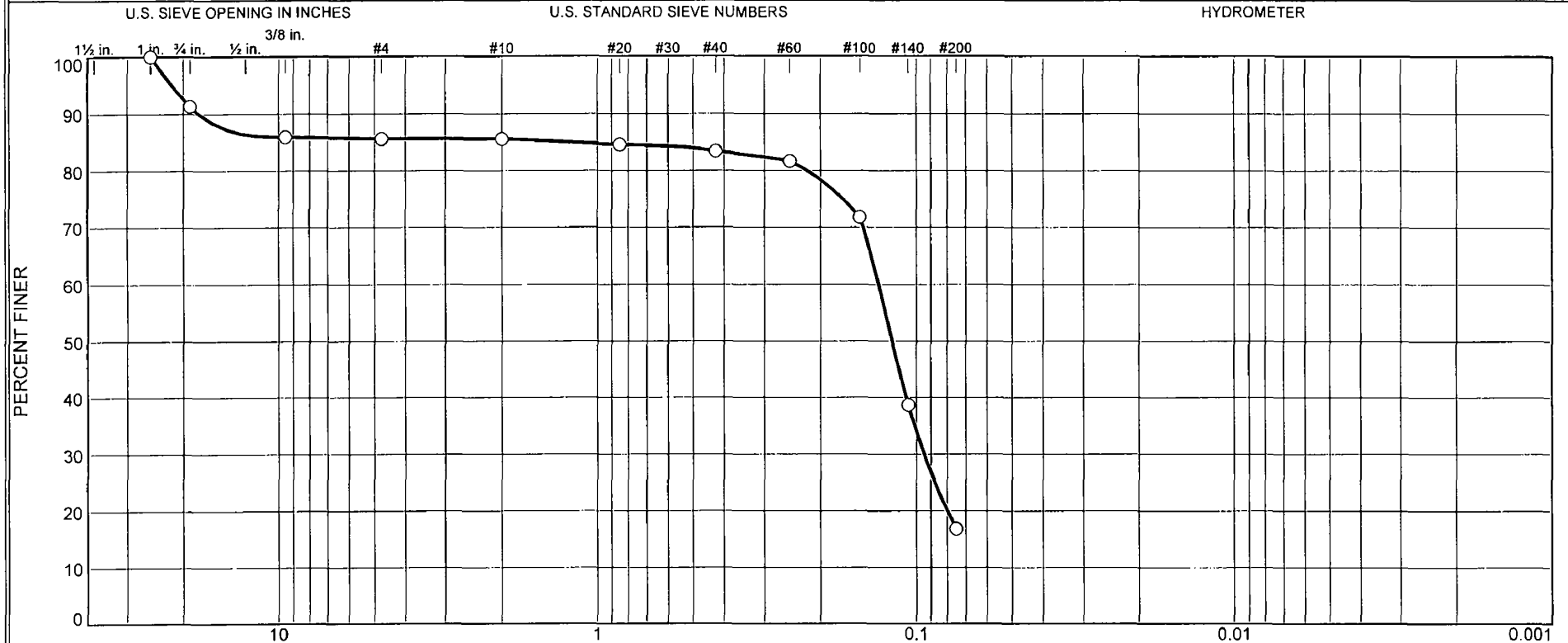
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	16	21	37	7	15	18	40			23

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1719	1.1002	3.0994	17.3022	19.4530	21.4161	23.3649

Fineness Modulus
3.66

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
9	5	0	3	66	17	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-10	28.5-30.0	2/25/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 28.5-30.0

Sample Number: 704-10

Material Description: White Silty SAND (Visual)

Date: 2/25/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
322.24	0.00	0.00	1	0.00	100
			3/4	27.77	91
			3/8"	45.37	86
			#4	46.35	86
			#10	46.54	86
102.76	0.00	0.00	#20	1.16	85
			#40	2.52	83
			#60	4.56	82
			#100	16.55	72
			#140	56.38	39
			#200	82.50	17

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	9	5	14	0	3	66	69			17

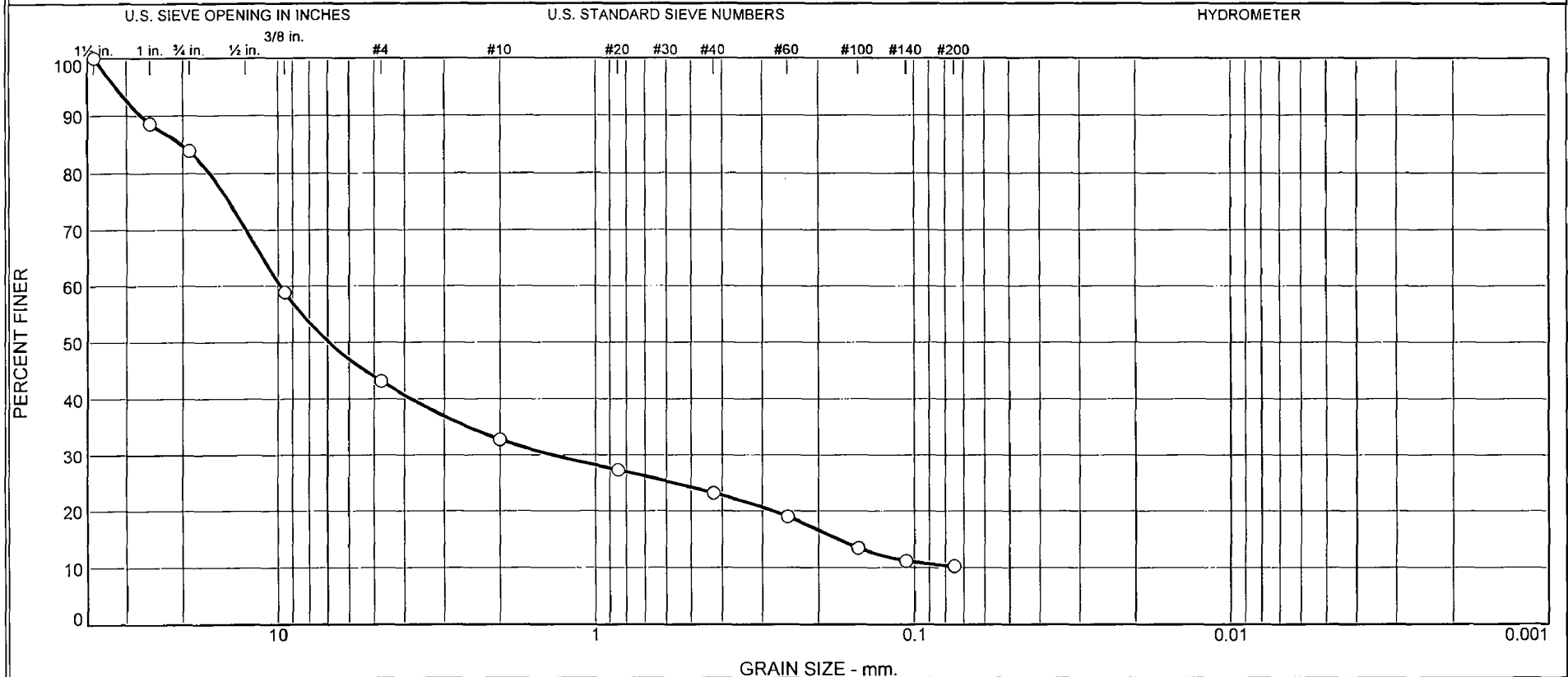
D10	D15	D20	D30	D50	D60	D80	D85	D90	D95
		0.0798	0.0948	0.1191	0.1312	0.2196	1.2157	17.8530	21.7543

Fineness Modulus

1.28

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
16	41	10	10	13	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-15	123.0-124.5	2/27/08	GW-GM	White Well Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined Calcite Equivalent = 12% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 123.0-124.5

Sample Number: 704-15

Material Description: White Well Graded GRAVEL with silt and sand (Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GW-GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Calcite Equivalent = 12% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =253.96

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.96	0.00	0.00	1.5	0.00	100
			1	28.98	89
			3/4	40.69	84
			3/8"	104.38	59
			#4	144.41	43
			#10	170.71	33
			#20	184.60	27
			#40	195.10	23
			#60	205.79	19
			#100	219.71	13
			#140	225.53	11
			#200	227.86	10

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	16	41	57	10	10	13	33			10

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1744	0.2786	1.3654	6.9467	9.8227	16.4476	20.0982	27.1817	32.6269

Fineness Modulus

4.91

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	7	0	2	65	26	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-16	128.0-129.5	2/27/08	SM	Pale Yellow Silty SAND(Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 128.0-129.5

Sample Number: 704-16

Material Description: Pale Yellow Silty SAND(Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
281.32	0.00	0.00	3/4	0.00	100
			3/8"	13.57	95
			#4	18.78	93
			#10	19.01	93
103.81	0.00	0.00	#20	1.44	92
			#40	2.33	91
			#60	2.88	91
			#100	6.22	88
			#140	32.71	64
			#200	75.10	26

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	7	7	0	2	65	67			26

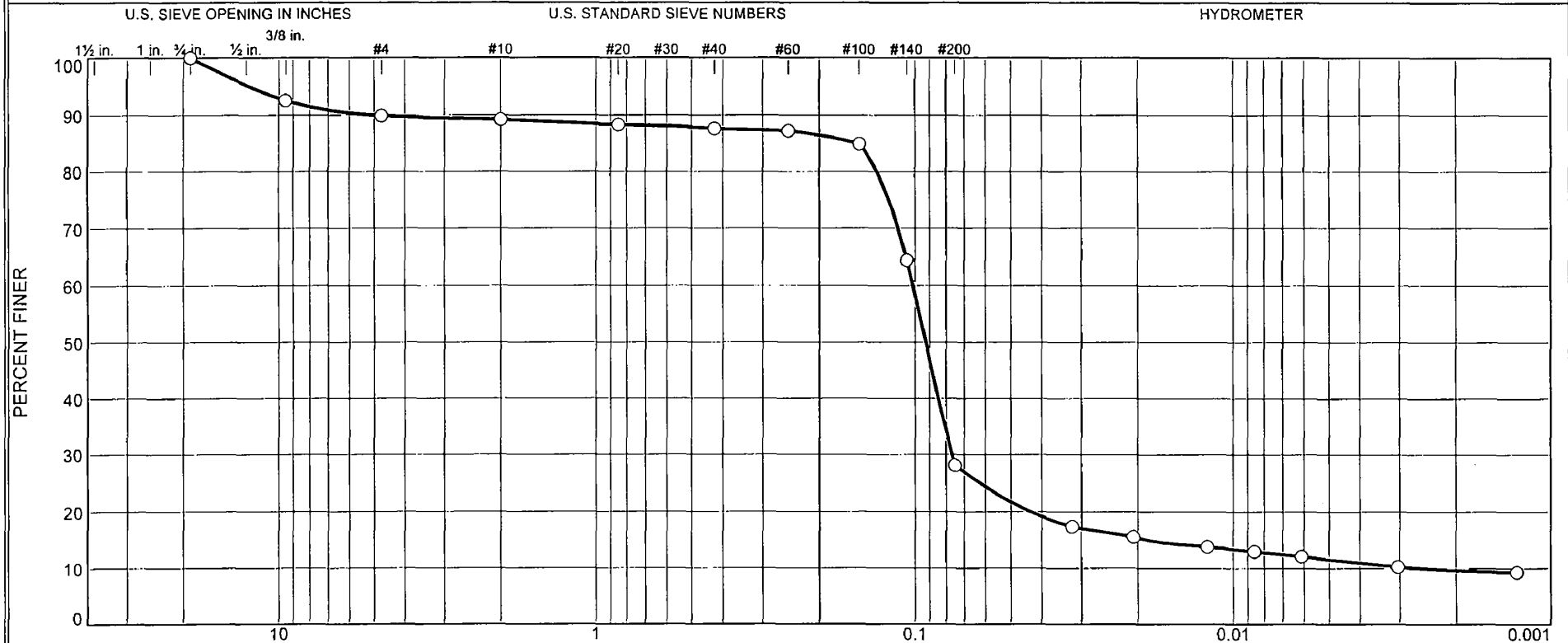
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0777	0.0926	0.1019	0.1294	0.1411	0.2138	9.1898

Fineness Modulus

0.56

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.1	0.7	1.6	59.5	16.5	11.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-17	133.0-134.5	2/27/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 133.0-134.5

Sample Number: 704-17

Material Description: Pale Yellow Silty SAND (Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
208.81	0.00	0.00	3/4	0.00	100.0
			3/8"	15.52	92.6
			#4	21.09	89.9
			#10	22.53	89.2
102.78	0.00	0.00	#20	1.05	88.3
			#40	1.84	87.6
			#60	2.28	87.2
			#100	4.88	85.0
			#140	28.53	64.4
			#200	70.44	28.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 89.2

Weight of hydrometer sample = 102.78

Hygroscopic moisture correction:

Moist weight and tare = 27.79

Dry weight and tare = 27.62

Tare weight = 11.13

Hygroscopic moisture = 1.0%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	25.0	20.0	0.0131	26.0	12.0	0.0321	17.3
5.00	22.1	23.0	18.0	0.0131	24.0	12.4	0.0206	15.6
15.00	22.1	21.0	16.0	0.0131	22.0	12.7	0.0120	13.8
30.00	22.1	20.0	15.0	0.0131	21.0	12.9	0.0086	13.0
60.00	22.1	19.0	14.0	0.0131	20.0	13.0	0.0061	12.1
250.00	21.8	17.0	11.9	0.0131	18.0	13.3	0.0030	10.3
1440.00	21.2	16.0	10.7	0.0132	17.0	13.5	0.0013	9.3

MACTEC Engineering and Consulting, Inc.

Fractional Components

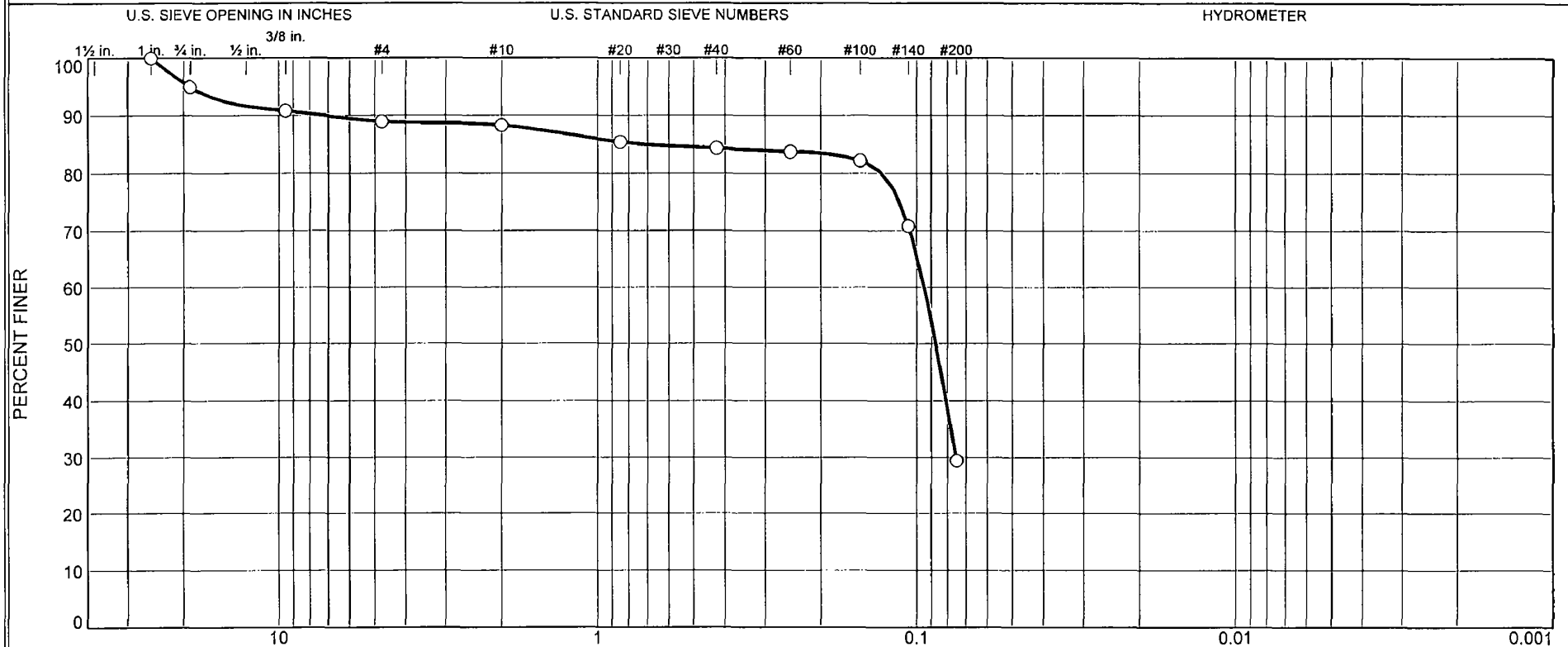
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	10.1	10.1	0.7	1.6	59.5	61.8	16.5	11.6	28.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0026	0.0186	0.0434	0.0767	0.0925	0.1014	0.1318	0.1506	5.0619	12.4410

Fineness Modulus	C _u	C _c
0.79	39.55	22.62

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	6	1	4	55	29	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-18	138.0-139.5	2/27/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 138.0-139.5

Sample Number: 704-18

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.80	0.00	0.00	1	0.00	100
			3/4	12.88	95
			3/8"	23.45	91
			#4	28.12	89
			#10	29.77	88
103.93	0.00	0.00	#20	3.41	85
			#40	4.62	84
			#60	5.32	84
			#100	7.11	82
			#140	20.52	71
			#200	69.25	29

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	6	11	1	4	55	60			29

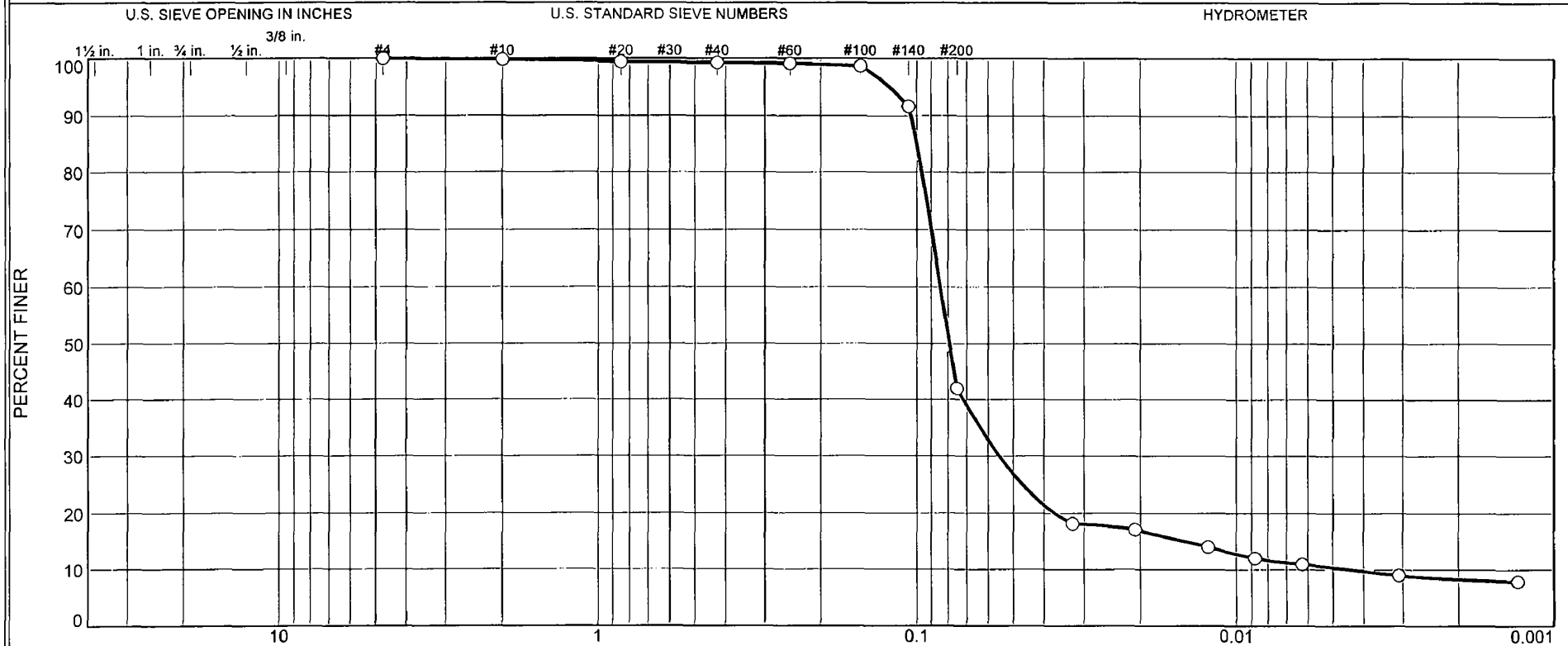
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0753	0.0871	0.0947	0.1283	0.7217	7.3156	19.1507

Fineness Modulus

0.99

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	57.3	31.6	10.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-704(DH)	704-21	150.0-151.5	2/27/08	SM	Greenish Gray Silty SAND(Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 18% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-704(DH)

Depth: 150.0-151.5

Sample Number: 704-21

Material Description: Greenish Gray Silty SAND(Visual)

Date: 2/27/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 18% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
246.47	0.00	0.00	#4	0.00	100.0
			#10	0.50	99.8
98.77	0.00	0.00	#20	0.37	99.4
			#40	0.53	99.3
			#60	0.65	99.1
			#100	1.15	98.6
			#140	8.09	91.6
			#200	57.21	42.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.8

Weight of hydrometer sample = 98.77

Hygroscopic moisture correction:

Moist weight and tare = 27.30

Dry weight and tare = 27.15

Tare weight = 15.43

Hygroscopic moisture = 1.3%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.0	23.0	17.9	0.0131	24.0	12.4	0.0326	18.2
5.00	22.0	22.0	16.9	0.0131	23.0	12.5	0.0208	17.1
15.00	21.9	19.0	13.9	0.0131	20.0	13.0	0.0122	14.1
30.00	21.9	17.0	11.9	0.0131	18.0	13.3	0.0088	12.1
60.00	21.8	16.0	10.9	0.0131	17.0	13.5	0.0062	11.0
250.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0031	9.0
1440.00	21.5	13.0	7.8	0.0132	14.0	14.0	0.0013	7.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

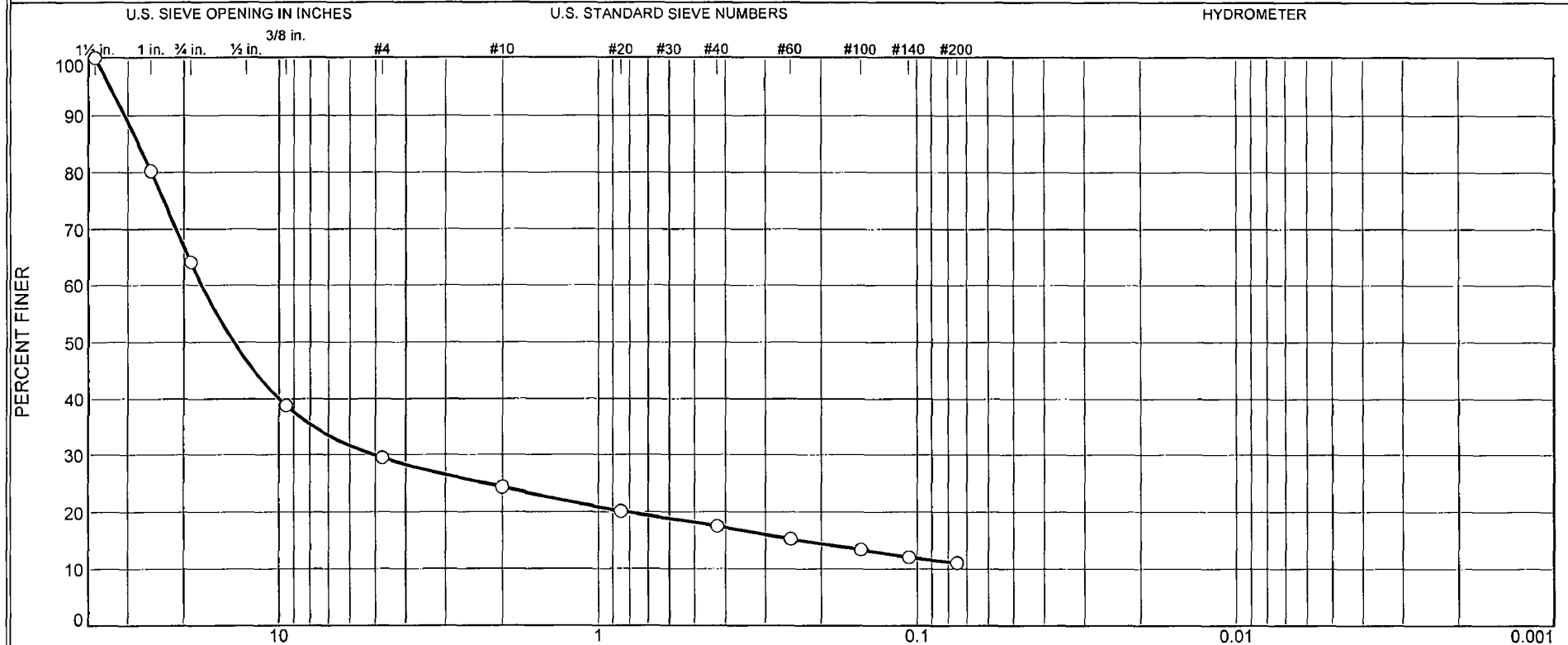
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.5	57.3	58.0	31.6	10.4	42.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0044	0.0143	0.0371	0.0554	0.0793	0.0845	0.0961	0.0998	0.1042	0.1214

Fineness Modulus	C _u	C _c
0.03	19.26	8.26

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
36	35	5	6	7	11	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-4	7.5-9.0	2/22/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined Calcite Equivalent = 92% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 7.5-9.0

Sample Number: 705-4

Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)

Date: 2/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Calcite Equivalent = 92% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =242.96

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
242.96	0.00	0.00	1.5	0.00	100
			1	47.99	80
			3/4	87.26	64
			3/8"	148.64	39
			#4	171.41	29
			#10	183.98	24
			#20	194.00	20
			#40	200.41	18
			#60	205.88	15
			#100	210.41	13
			#140	213.63	12
			#200	216.07	11

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	36	35	71	5	6	7	18			11

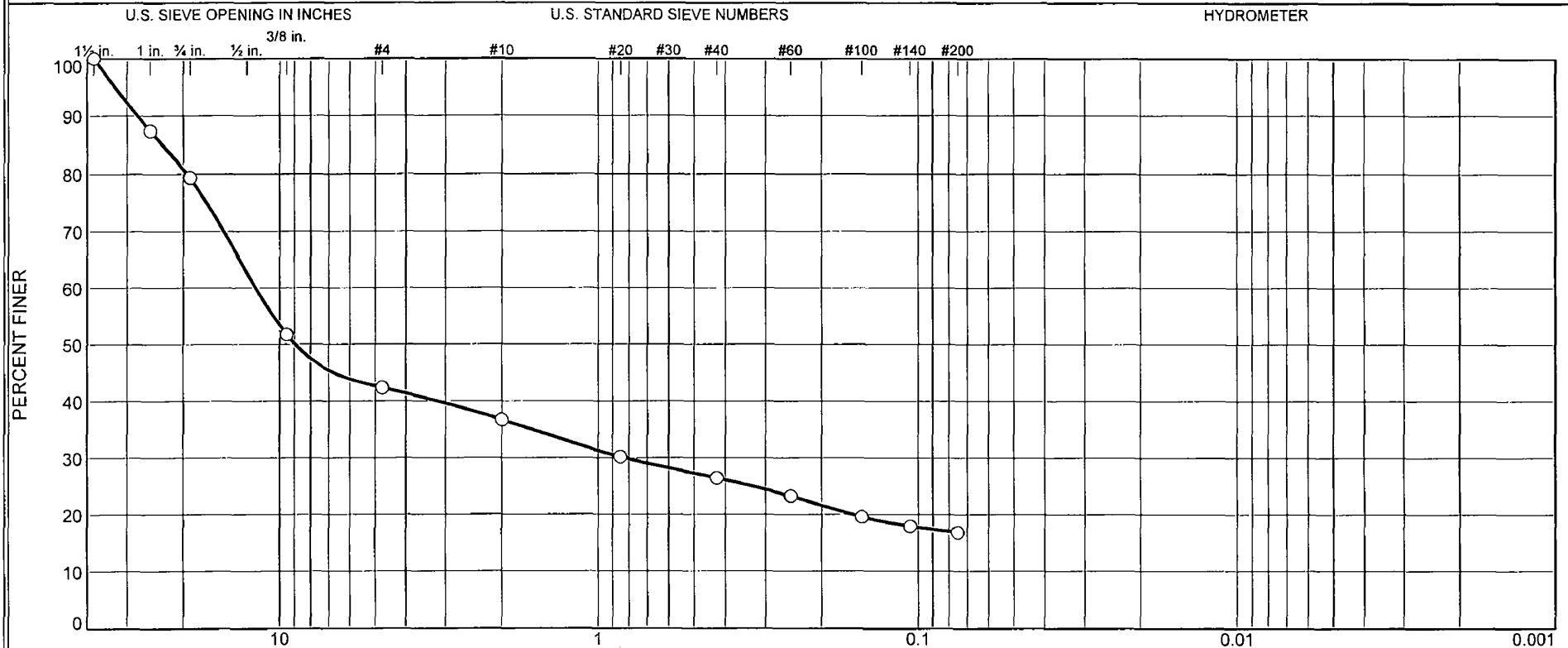
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.2336	0.8190	5.0813	13.9260	17.5803	25.2852	27.7923	30.7405	34.1739

Fineness
Modulus

5.73

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
21	37	5	11	9	17	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-8	18.5-20.0	2/22/08	GM	White Silty GRAVEL with sand(Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 18.5-20.0

Sample Number: 705-8

Material Description: White Silty GRAVEL with sand(Visual)

Date: 2/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
395.62	0.00	0.00	1.5	0.00	100
			1	49.97	87
			3/4	81.72	79
			3/8"	191.05	52
			#4	228.22	42
			#10	250.46	37
100.75	0.00	0.00	#20	17.87	30
			#40	28.06	26
			#60	36.95	23
			#100	47.12	20
			#140	51.69	18
			#200	54.72	17

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	37	58	5	11	9	25			17

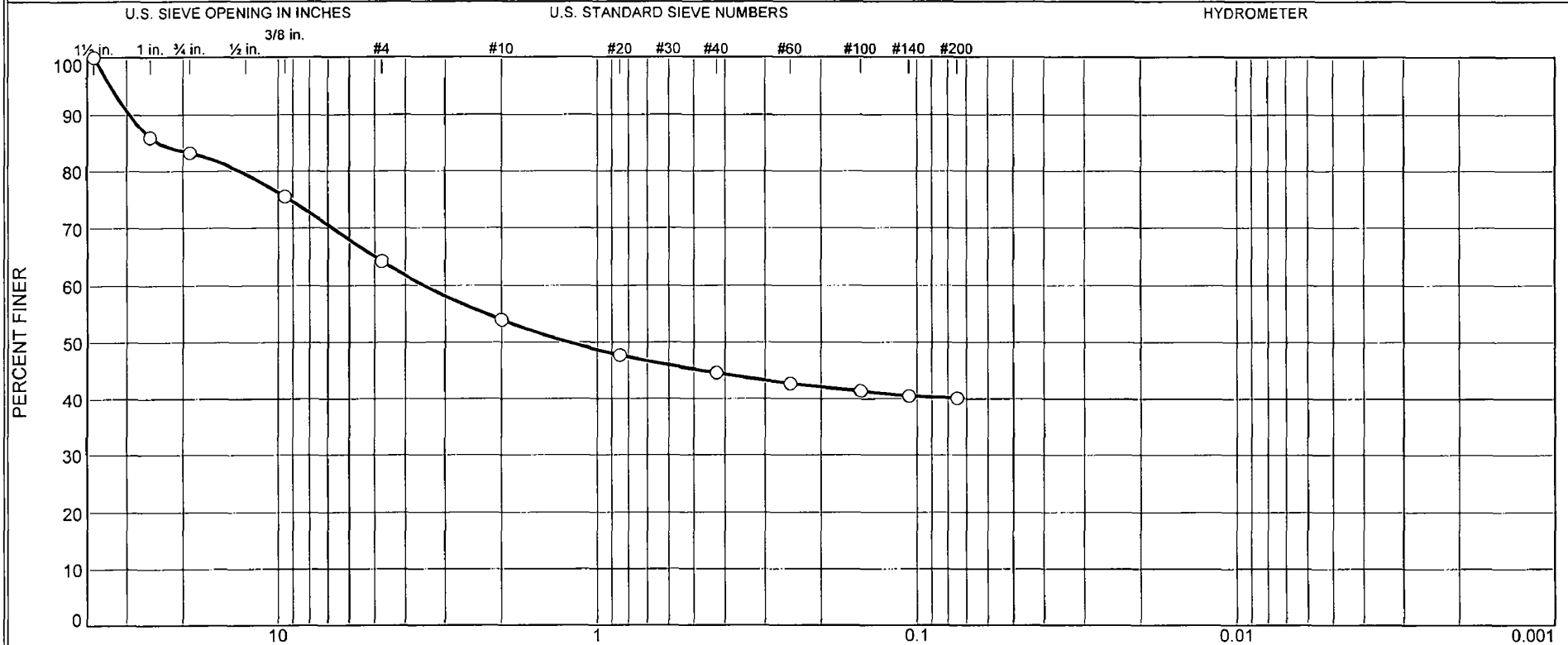
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1613	0.8256	8.9664	11.9134	19.4407	23.2323	27.8508	32.7092

Fineness Modulus

4.84

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
17	19	10	9	5	40	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-11	33.5-35.0	2/22/08	GM	White Silty GRAVEL with sand(Visual)	ND	ND	ND

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS ONLY(OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950 Figure N/A			

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 33.5-35.0

Sample Number: 705-11

Material Description: White Silty GRAVEL with sand(Visual)

Date: 2/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY(OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =292.50

Tare Wt. =0.00

Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
292.50	0.00	0.00	1.5	0.00	100
			1	41.03	86
			3/4	48.94	83
			3/8"	71.61	76
			#4	104.57	64
			#10	134.68	54
			#20	152.89	48
			#40	162.10	45
			#60	167.59	43
			#100	171.52	41
			#140	173.99	41
			#200	175.20	40

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	19	36	10	9	5	24			40

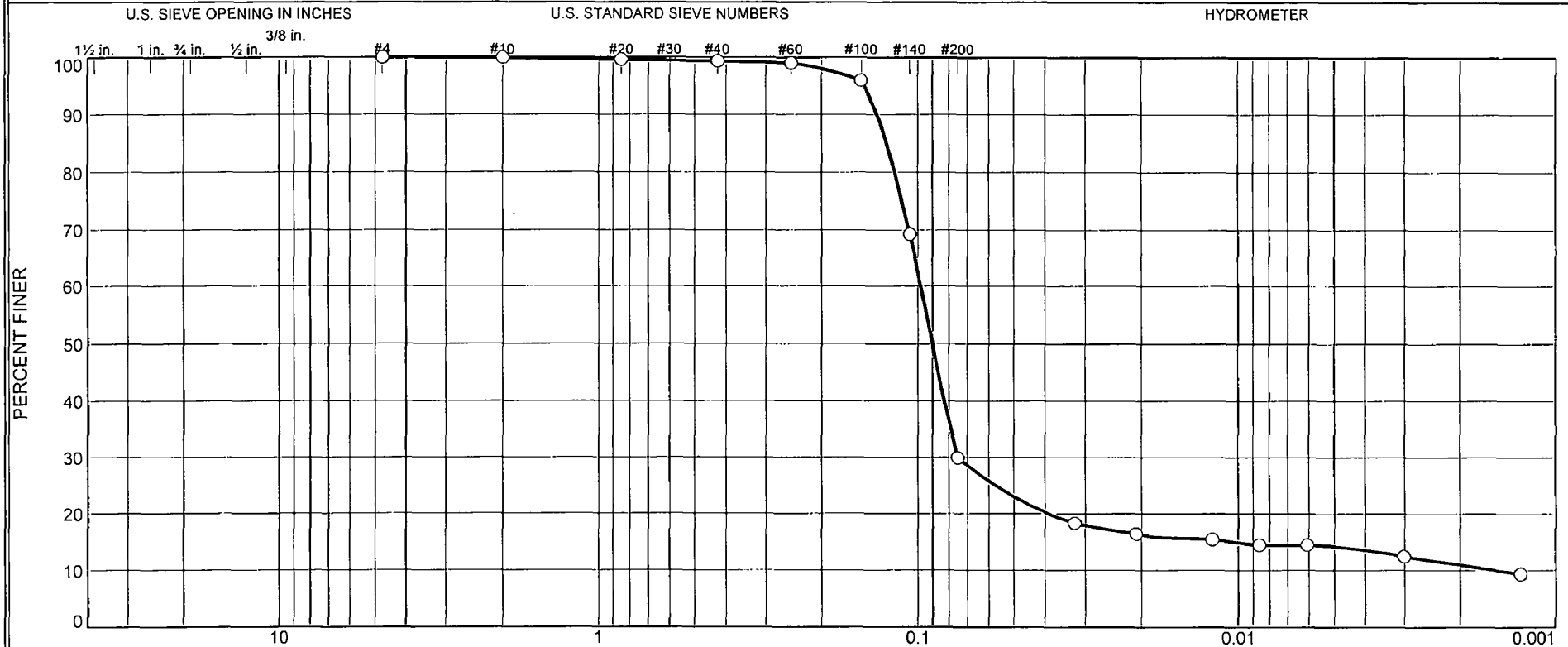
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				1.2246	3.4957	13.2239	23.9204	29.5235	33.7813

Fineness Modulus

3.41

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	69.3	15.8	14.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-14	128.5-130.0	2/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel
 Project Turkey Point COL
 Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
 Specific Gravity is assumed
 ND = Not Determined
 Calcite Equivalent = 20% (ASTM D 4373-02)

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 128.5-130.0

Sample Number: 705-14

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 20% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
277.41	0.00	0.00	#4	0.00	100.0
			#10	0.09	100.0
102.71	0.00	0.00	#20	0.36	99.6
			#40	0.65	99.3
			#60	0.98	99.0
			#100	4.11	96.0
			#140	31.55	69.3
			#200	71.93	30.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 102.71

Hygroscopic moisture correction:

Moist weight and tare = 28.04

Dry weight and tare = 27.98

Tare weight = 15.89

Hygroscopic moisture = 0.5%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	24.0	18.9	0.0131	25.0	12.2	0.0324	18.3
5.00	22.0	22.0	16.9	0.0131	23.0	12.5	0.0208	16.4
15.00	22.0	21.0	15.9	0.0131	22.0	12.7	0.0121	15.4
30.00	21.9	20.0	14.9	0.0131	21.0	12.9	0.0086	14.4
60.00	21.9	20.0	14.9	0.0131	21.0	12.9	0.0061	14.4
250.00	21.8	18.0	12.9	0.0131	19.0	13.2	0.0030	12.5
1440.00	21.1	15.0	9.7	0.0133	16.0	13.7	0.0013	9.4

MACTEC Engineering and Consulting, Inc.

Fractional Components

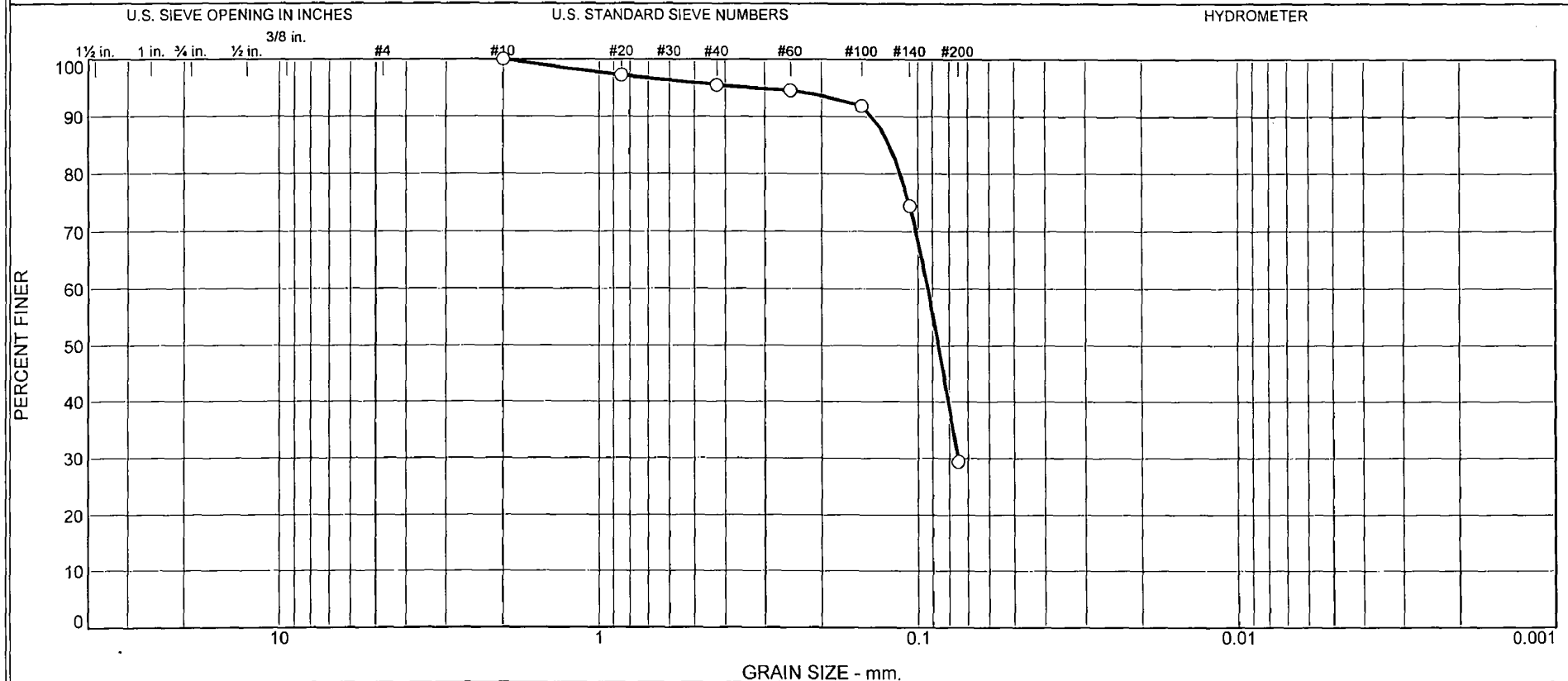
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	69.3	70.0	15.8	14.2	30.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0015	0.0105	0.0392	0.0750	0.0902	0.0979	0.1179	0.1250	0.1340	0.1467

Fineness Modulus	C _u	C _c
0.06	63.37	37.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 138.5-140.0

Sample Number: 705-16

Material Description: Greenish Gray Silty SAND(Visual)

Date: 2/22/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

Specific Gravity = 2.666 (ASTM D854-06)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
316.12	0.00	0.00	#10	0.00	100
99.58	0.00	0.00	#20	2.75	97
			#40	4.46	96
			#60	5.38	95
			#100	8.06	92
			#140	25.46	74
			#200	70.29	29

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	4	67	71			29

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0753	0.0864	0.0931	0.1134	0.1228	0.1389	0.3228

Fineness Modulus
0.19

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 4/17/08

SAMPLE IDENTIFICATION: B-705-16, (138.5-140.0)

(A) Mass of oven-dried soil, grams:	74.49
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.53
(C) Mass of pycnometer, water and soil, grams:	703.09
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.3
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.667
(F)	Correction factor: 0.99972
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.666

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM)- Visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

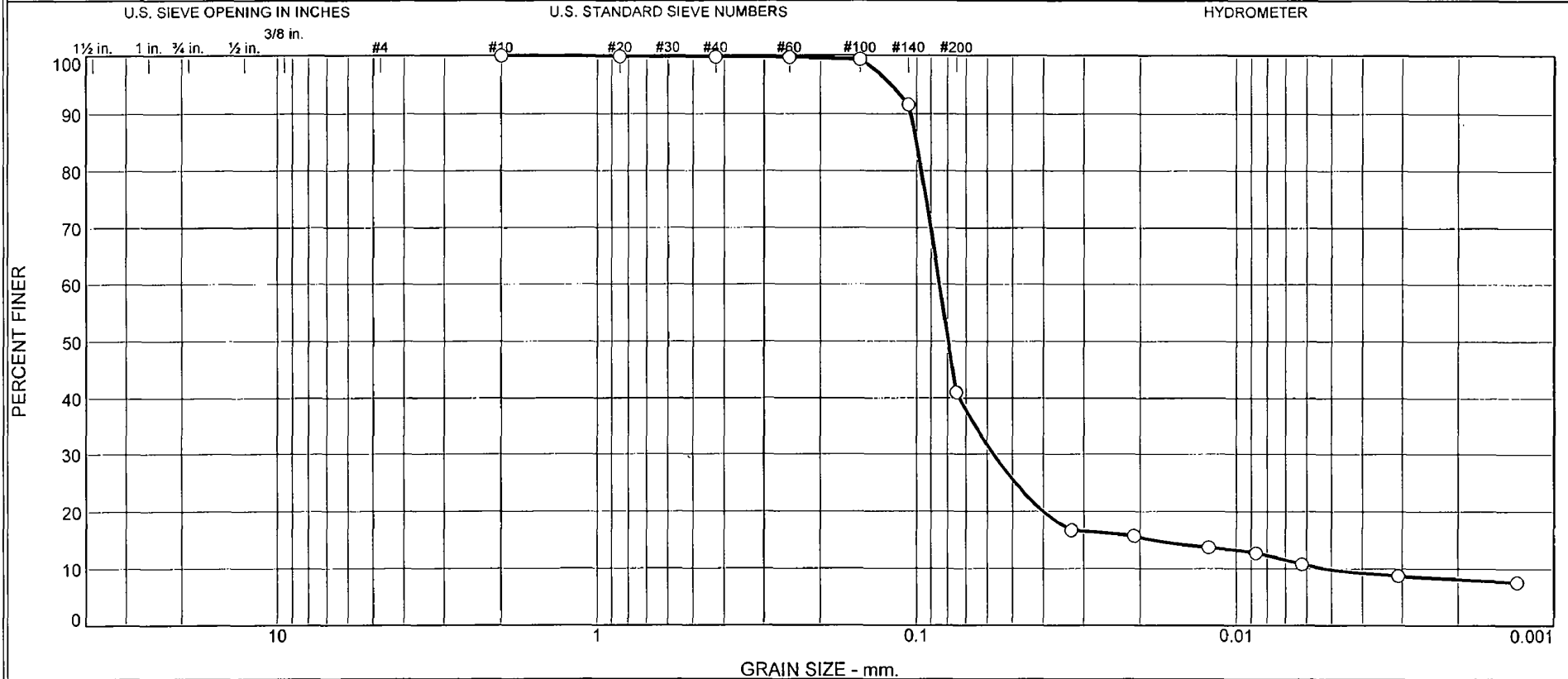
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	58.8	31.2	9.8

[illegible]

Client	Bechtel
Project	Turkey Point COL

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Project No. 6468071950

Figure N/A

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 148.5-150.0

Sample Number: 705-18

Material Description: Greenish Gray Silty SAND (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
478.45	0.00	0.00	#10	0.00	100.0
101.54	0.00	0.00	#20	0.14	99.9
			#40	0.22	99.8
			#60	0.29	99.7
			#100	0.64	99.4
			#140	8.56	91.6
			#200	59.89	41.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 101.54

Hygroscopic moisture correction:

Moist weight and tare = 28.91

Dry weight and tare = 28.78

Tare weight = 15.76

Hygroscopic moisture = 1.0%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	22.0	17.0	0.0131	23.0	12.5	0.0327	16.7
5.00	22.2	21.0	16.0	0.0131	22.0	12.7	0.0208	15.7
15.00	22.2	19.0	14.0	0.0131	20.0	13.0	0.0122	13.8
30.00	22.2	18.0	13.0	0.0131	19.0	13.2	0.0087	12.8
60.00	22.2	16.0	11.0	0.0131	17.0	13.5	0.0062	10.8
250.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0031	8.8
1440.00	21.2	13.0	7.7	0.0132	14.0	14.0	0.0013	7.6

MACTEC Engineering and Consulting, Inc.

Fractional Components

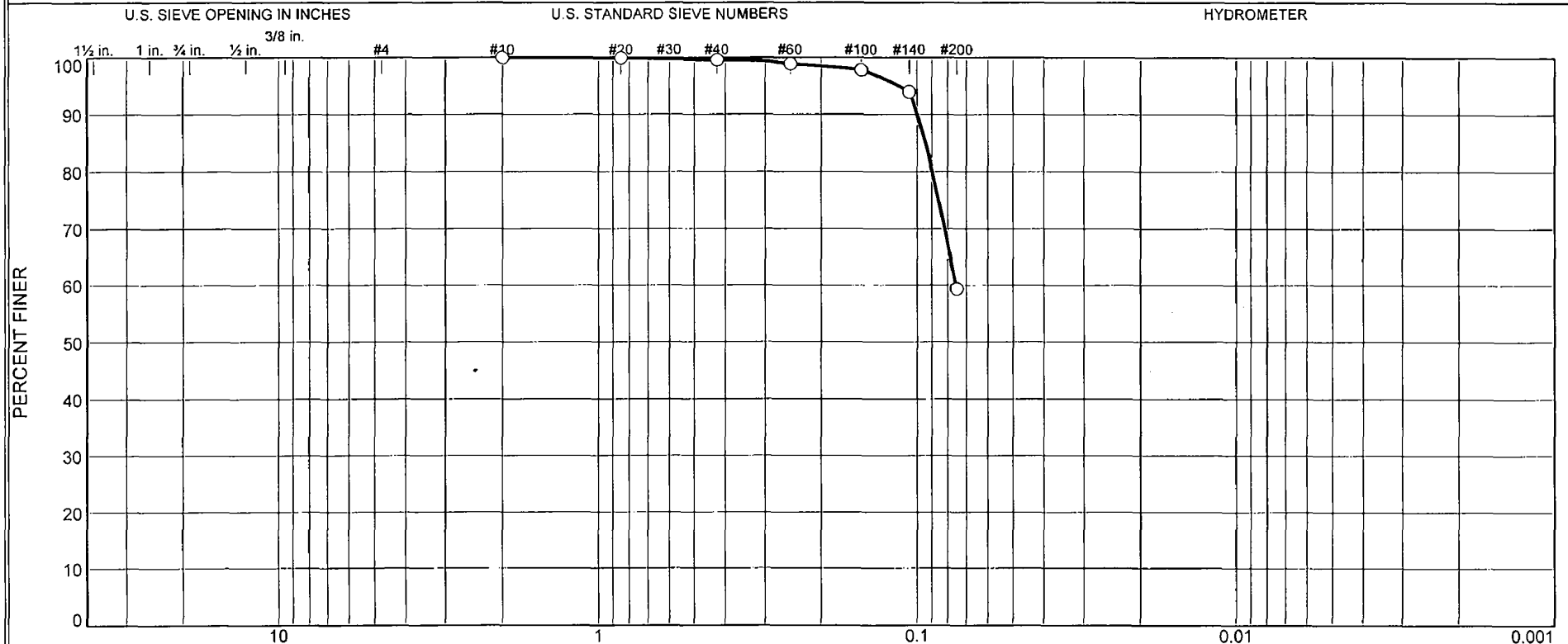
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	58.8	59.0	31.2	9.8	41.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0052	0.0181	0.0402	0.0574	0.0797	0.0849	0.0964	0.1000	0.1043	0.1197

Fineness Modulus	C _u	C _c
0.01	16.26	7.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	41	59	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-23	173.5-175.0	2/24/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 173.5-175.0

Sample Number: 705-23

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 94.61

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
94.61	0.00	0.00	#10	0.00	100
			#20	0.05	100
			#40	0.40	100
			#60	1.04	99
			#100	2.06	98
			#140	5.74	94
			#200	38.42	59

Fractional Components

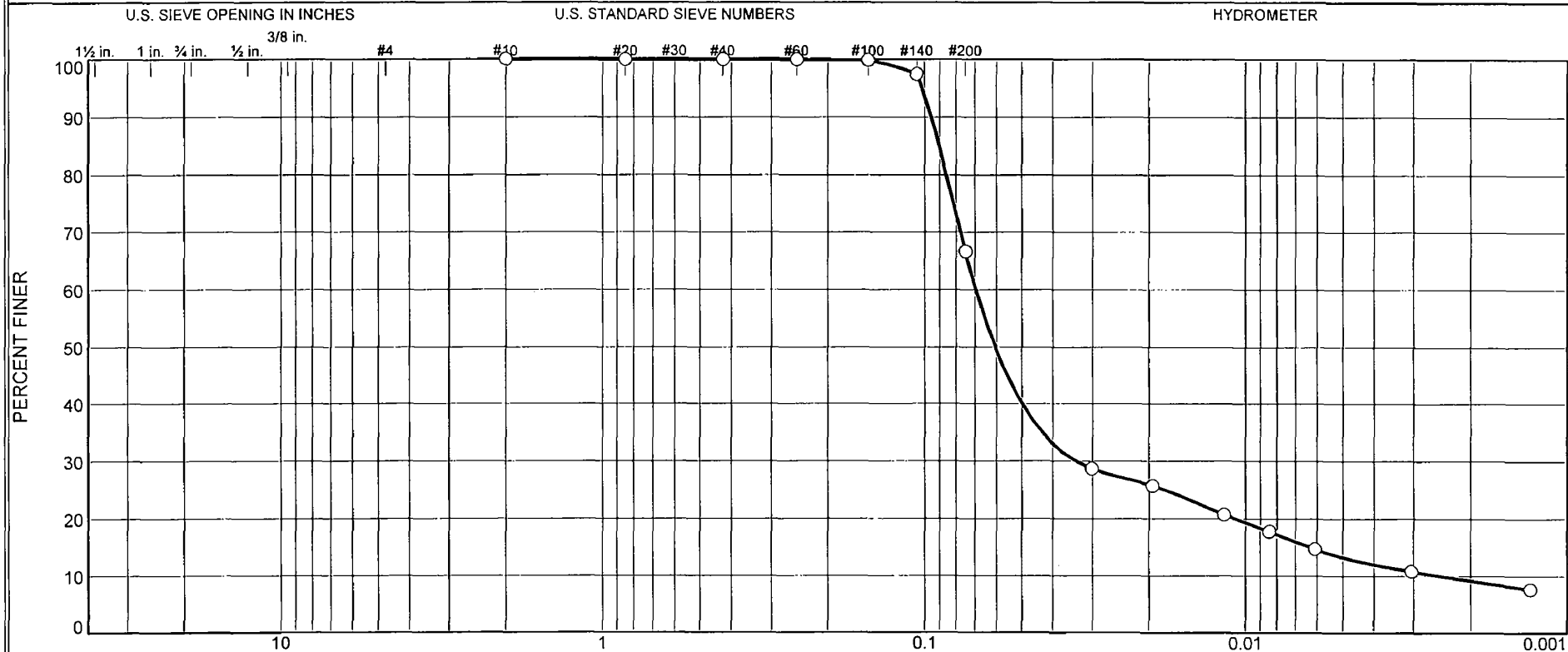
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	41	41			59

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0754	0.0895	0.0941	0.0998	0.1143

Fineness Modulus
0.03

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



GRAIN SIZE - mm.

% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	33.4	53.3	13.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-24	178.5-180	2/24/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel
 Project Turkey Point COL
 Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.
 Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
 Specific Gravity is assumed
 ND = Not Determined
 Calcite Equivalent = 24% (ASTM D 4373-02)

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 178.5-180

Sample Number: 705-24

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 24% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
232.19	0.00	0.00	#10	0.00	100.0
100.38	0.00	0.00	#20	0.02	100.0
			#40	0.05	100.0
			#60	0.06	99.9
			#100	0.18	99.8
			#140	2.59	97.4
			#200	33.49	66.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 100.38

Hygroscopic moisture correction:

Moist weight and tare = 27.90

Dry weight and tare = 27.80

Tare weight = 15.64

Hygroscopic moisture = 0.8%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	34.0	28.9	0.0131	35.0	10.6	0.0302	28.7
5.00	21.9	31.0	25.9	0.0131	32.0	11.0	0.0195	25.7
15.00	21.8	26.0	20.9	0.0131	27.0	11.9	0.0117	20.7
30.00	21.9	23.0	17.9	0.0131	24.0	12.4	0.0084	17.8
60.00	21.7	20.0	14.9	0.0132	21.0	12.9	0.0061	14.8
250.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0031	10.8
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

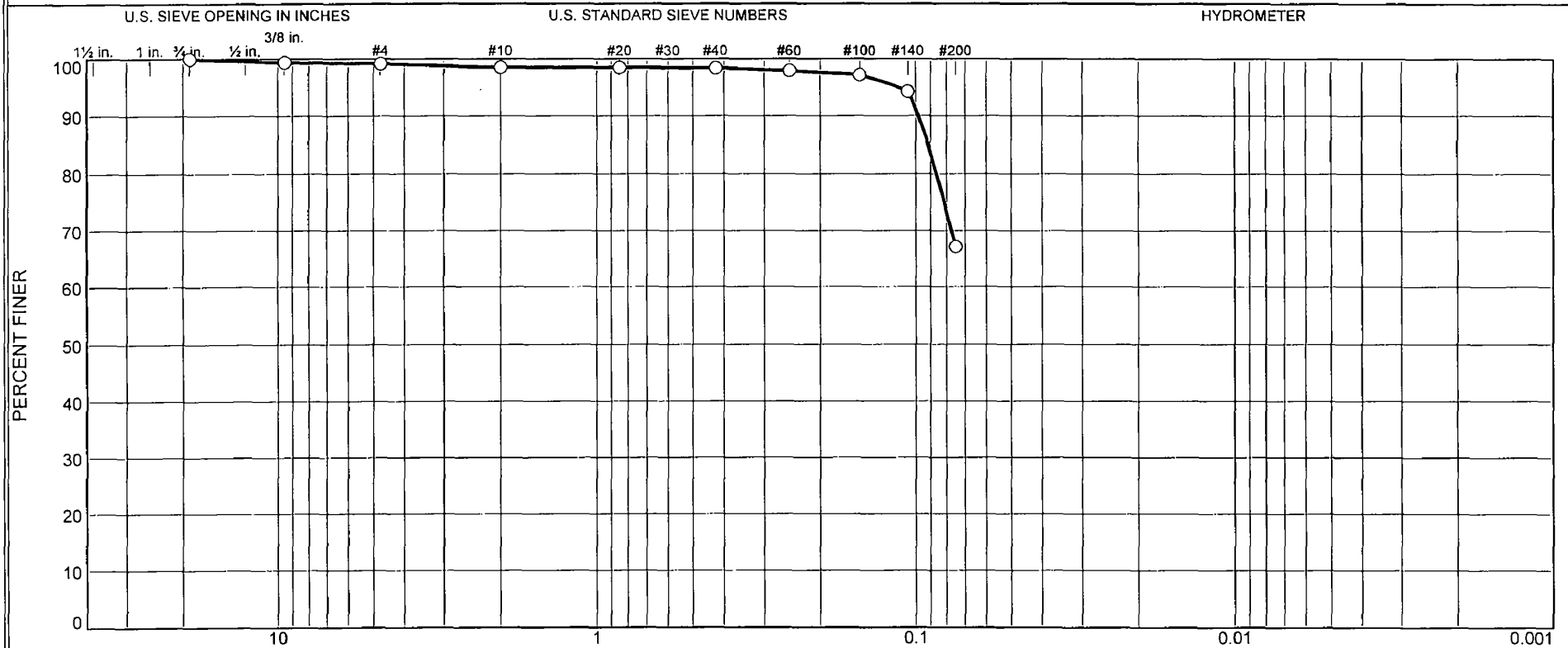
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	33.4	33.4	53.3	13.3	66.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0025	0.0063	0.0108	0.0338	0.0606	0.0696	0.0857	0.0902	0.0953	0.1017

Fineness Modulus	C _u	C _c
0.00	28.21	6.67

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	1	0	31	67	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-705	705-27	193.5-195.0	2/24/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

DSC 7-2-08

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-705

Depth: 193.5-195.0

Sample Number: 705-27

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 2/24/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
445.79	0.00	0.00	3/4	0.00	100
			3/8"	2.77	99
			#4	3.79	99
			#10	6.69	98
102.07	0.00	0.00	#20	0.02	98
			#40	0.14	98
			#60	0.63	98
			#100	1.40	97
			#140	4.44	94
			#200	32.49	67

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	0	31	32			67

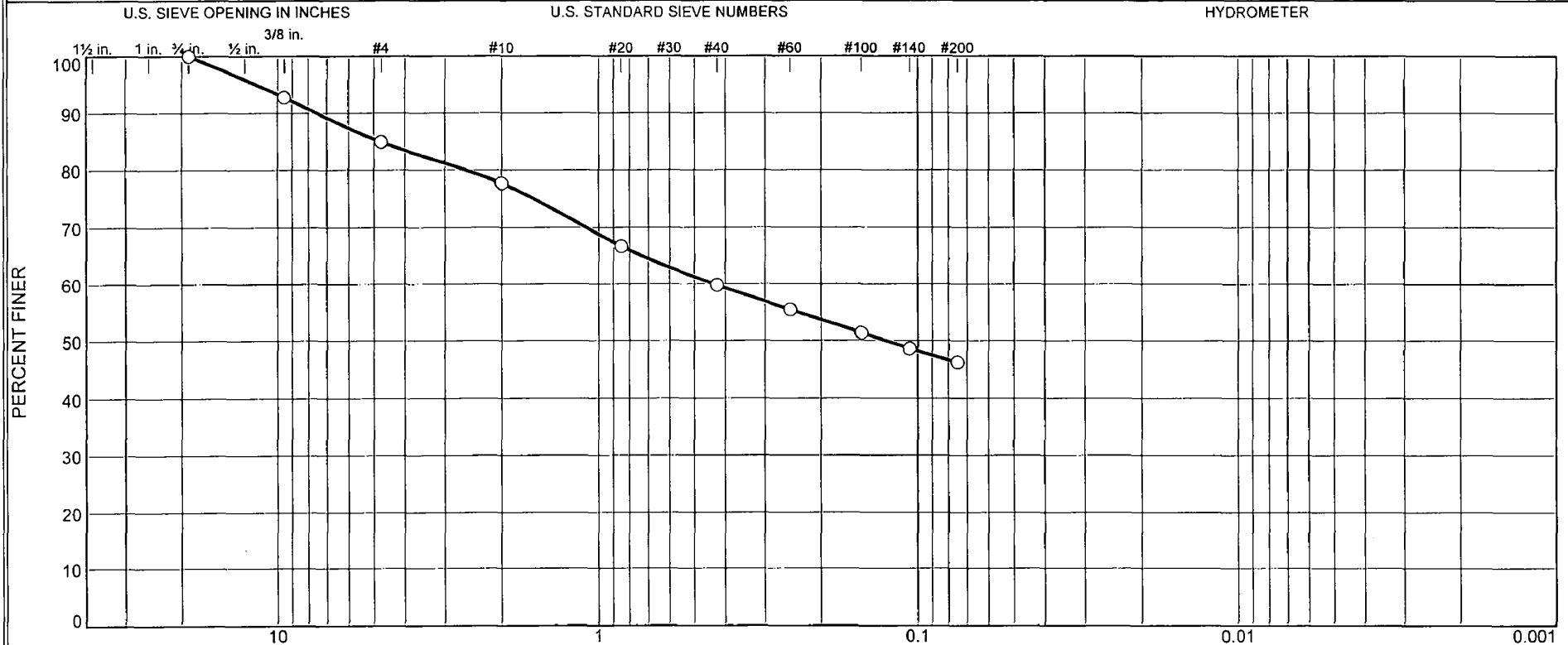
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0861	0.0914	0.0980	0.1141

Fineness
Modulus

0.11

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	15	7	18	14	46	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-2	3.1-4.6	2/9/08	SM	Pale Yellow Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc. Raleigh, North Carolina	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 86% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 3.1-4.6

Sample Number: 706-2

Material Description: Pale Yellow Silty SAND with gravel (Visual)

Date: 2/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 86% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
304.39	0.00	0.00	3/4	0.00	100
			3/8"	22.00	93
			#4	46.00	85
			#10	67.99	78
102.07	0.00	0.00	#20	14.42	67
			#40	23.43	60
			#60	29.20	55
			#100	34.56	51
			#140	38.17	49
			#200	41.30	46

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	15	15	7	18	14	39			46

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1266	0.4332	2.5791	4.8062	7.5314	11.6504

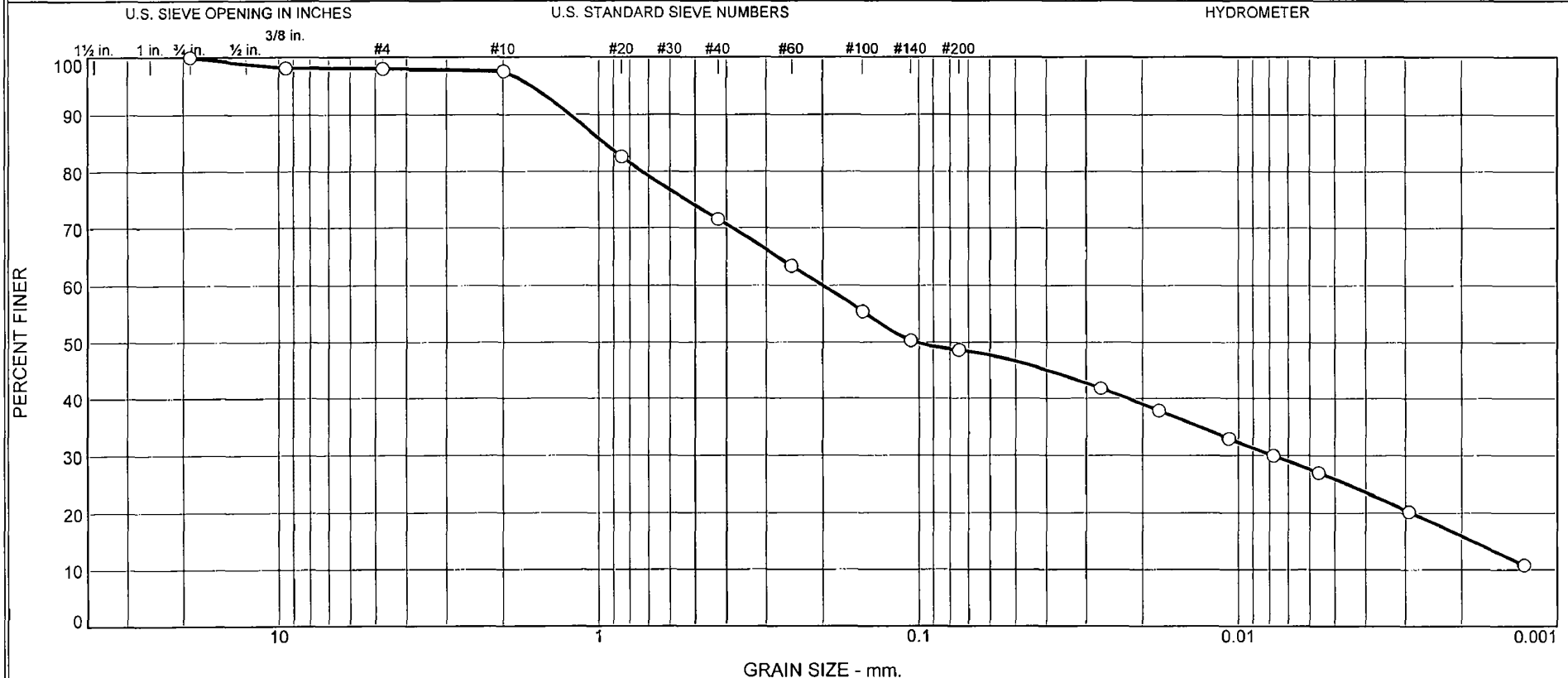
Fineness

Modulus

2.01

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.0	0.5	25.9	23.0	22.7	25.9

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-4	8-9.5	2/9/08	SC	Pale Yellow Clayey SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 8-9.5

Sample Number: 706-4

Material Description: Pale Yellow Clayey SAND (Visual)

Date: 2/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SC

Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
347.11	0.00	0.00	3/4	0.00	100.0
			3/8"	6.39	98.2
			#4	6.89	98.0
			#10	8.57	97.5
97.85	0.00	0.00	#20	14.97	82.6
			#40	26.03	71.6
			#60	34.26	63.4
			#100	42.25	55.4
			#140	47.42	50.3
			#200	49.07	48.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 97.5

Weight of hydrometer sample = 97.85

Hygroscopic moisture correction:

Moist weight and tare = 28.07

Dry weight and tare = 28.03

Tare weight = 15.52

Hygroscopic moisture = 0.3%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.9	48.0	42.3	0.0133	49.0	8.3	0.0270	41.8
5.00	20.9	44.0	38.3	0.0133	45.0	8.9	0.0178	37.8
15.00	20.9	39.0	33.3	0.0133	40.0	9.7	0.0107	32.9
30.00	20.9	36.0	30.3	0.0133	37.0	10.2	0.0078	29.9
60.00	21.0	33.0	27.3	0.0133	34.0	10.7	0.0056	27.0
240.00	21.7	26.0	20.4	0.0132	27.0	11.9	0.0029	20.2
1440.00	21.6	16.5	10.9	0.0132	17.5	13.4	0.0013	10.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.0	2.0	0.5	25.9	23.0	49.4	22.7	25.9	48.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0018	0.0029	0.0078	0.1029	0.2002	0.7336	0.9621	1.2349	1.6344

Fineness Modulus
1.19

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-706-7, B-706-5

(A) Mass of oven-dried soil, grams:	106.63
(B) Mass of pycnometer filled with water at test temperature (T), grams:	672.35
(C) Mass of pycnometer, water and soil, grams:	739.89
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.8
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.728
(F) <i>Correction factor:</i>	0.99961
(G x F) SPECIFIC GRAVITY @ 20°C:	2.727

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

Samples Combined for Testing

REMARKS: Estimated % Passing # 4 : 100

Poorly Graded Silty SAND (Visual Description by Lab Technician)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

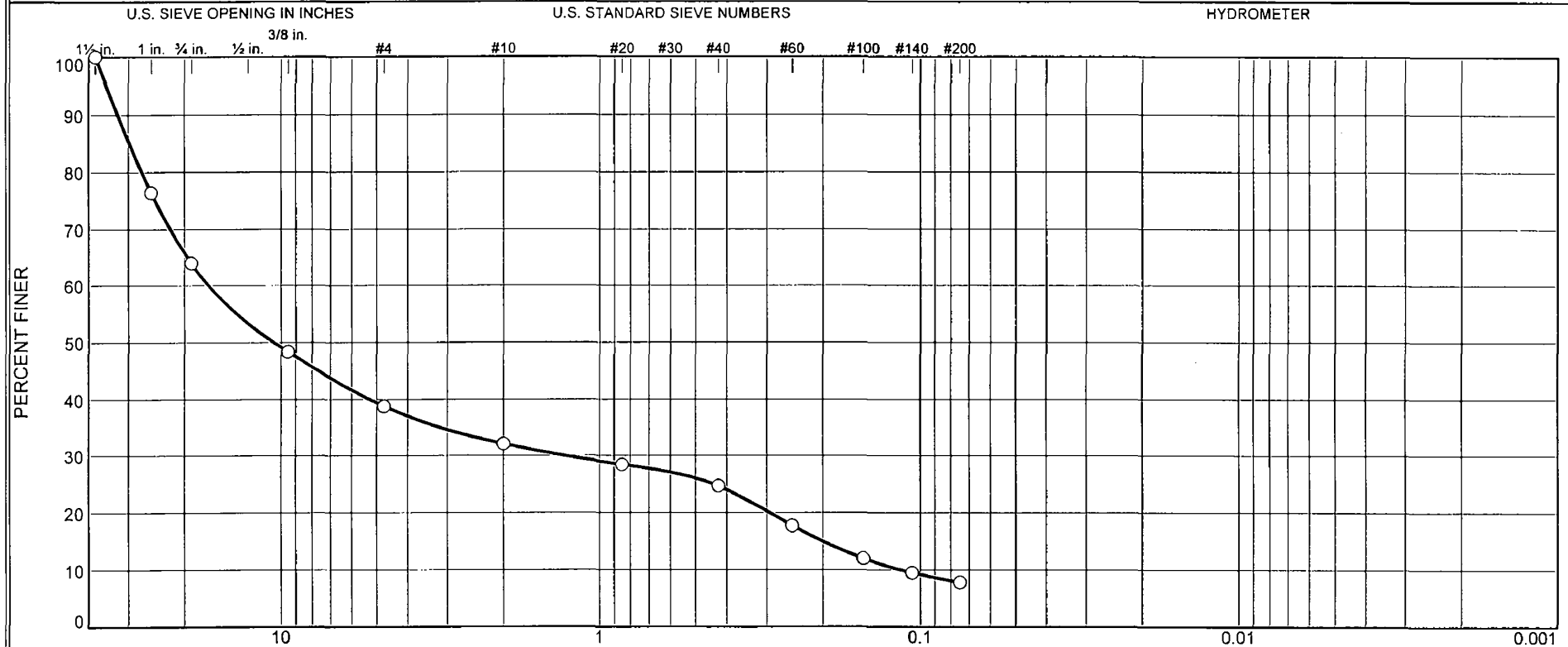
PYCNOMETER : P-8

TESTED BY: CS

REVIEWED BY: Brian Johnson

ZHU 8/19/08

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
36	25	7	7	17	8	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-6	12.9-14.4	2/9/08	GP-GM	Pale Yellow Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined Calcite Equivalent = 92% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 12.9-14.4

Sample Number: 706-6

Material Description: Pale Yellow Poorly Graded GRAVEL with silt and sand (Visual)

Date: 2/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Calcite Equivalent = 92% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 238.67

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
238.67	0.00	0.00	1.5	0.00	100
			1.00	56.30	76
			3/4	86.00	64
			3/8"	123.21	48
			#4	146.12	39
			#10	162.04	32
			#20	170.96	28
			#40	180.00	25
			#60	196.36	18
			#100	210.00	12
			#140	216.00	9
			#200	220.00	8

Fractional Components

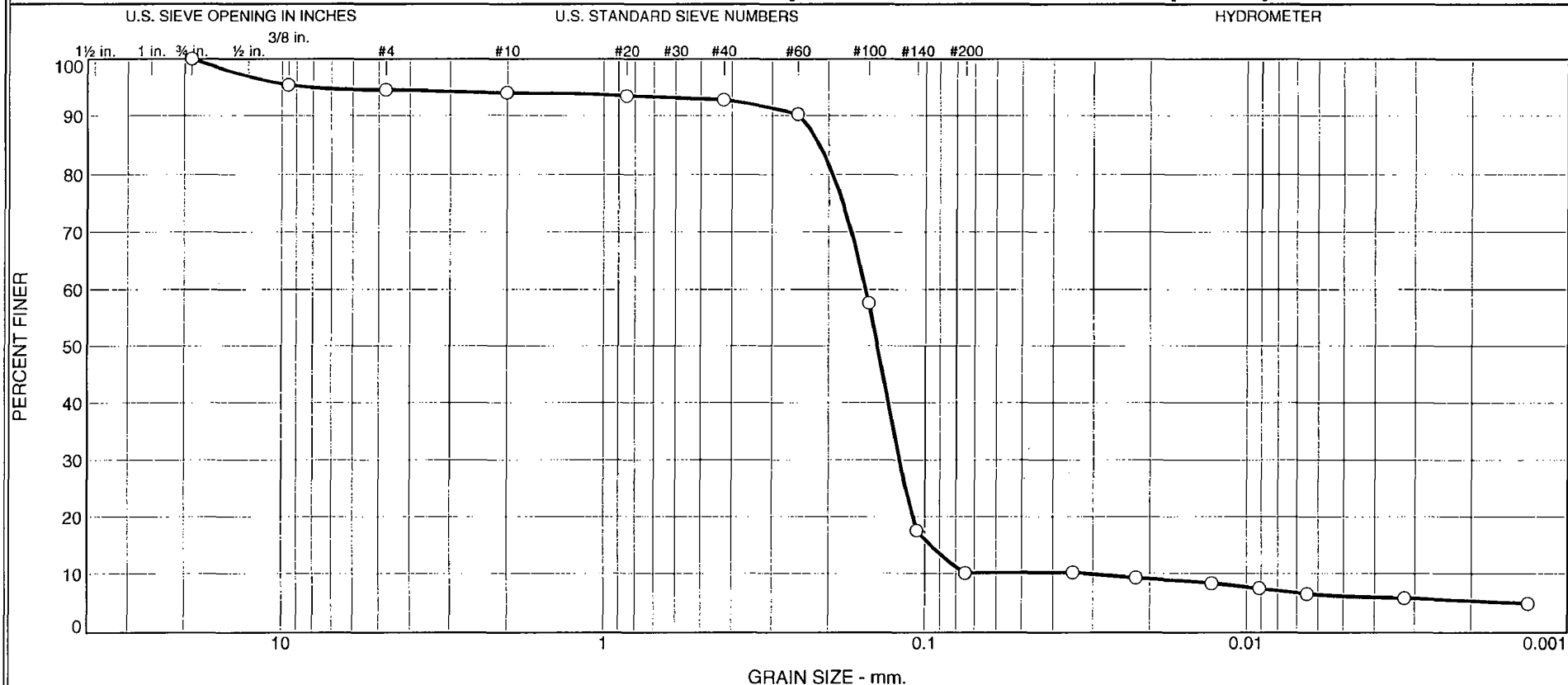
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	36	25	61	7	7	17	31			8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1151	0.2009	0.2949	1.2938	10.5531	16.8463	27.1902	29.7246	32.3556	35.1310

Fineness Modulus	C _u	C _c
5.27	146.36	0.86

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.5	0.5	1.2	82.7	3.9	6.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-9	115.8-117.3	3/19/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity = 2.656 (ASTM D854-06) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 115.8-117.3

Sample Number: 706-9

Material Description: White Poorly Graded SAND with silt (Visual)

Date: 3/19/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity = 2.656 (ASTM D854-06)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
409.07	0.00	0.00	3/4	0.00	100.0
			3/8"	18.73	95.4
			#4	22.35	94.5
			#10	24.47	94.0
104.27	0.00	0.00	#20	0.61	93.5
			#40	1.35	92.8
			#60	4.14	90.3
			#100	40.32	57.7
			#140	84.78	17.6
			#200	93.06	10.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 94.0

Weight of hydrometer sample = 104.27

Hygroscopic moisture correction:

Moist weight and tare = 29.55

Dry weight and tare = 29.51

Tare weight = 15.40

Hygroscopic moisture = 0.3%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.656

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	17.0	11.3	0.0134	18.0	13.3	0.0347	10.2
5.00	21.1	16.0	10.3	0.0134	17.0	13.5	0.0221	9.3
15.00	21.1	15.0	9.3	0.0134	16.0	13.7	0.0128	8.4
30.00	21.1	14.0	8.3	0.0134	15.0	13.8	0.0091	7.5
60.00	21.1	13.0	7.3	0.0134	14.0	14.0	0.0065	6.6
240.00	21.9	12.0	6.5	0.0133	13.0	14.2	0.0032	5.9
1440.00	21.7	11.0	5.4	0.0133	12.0	14.3	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.5	5.5	0.5	1.2	82.7	84.4	3.9	6.2	10.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0311	0.0962	0.1092	0.1202	0.1408	0.1532	0.1943	0.2137	0.2471	8.3078

Fineness Modulus	C _u	C _c
0.80	4.93	3.03

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 3/28/08

SAMPLE IDENTIFICATION: B-706-9

(A) Mass of oven-dried soil, grams:	74.16
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.79
(C) Mass of pycnometer, water and soil, grams:	702.03
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	20.9
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.656
(F)	Correction factor: 0.99981
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.656

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: % Passing # 4 : 94.5%

Poorly Graded SAND with silt (SP-SM) - visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

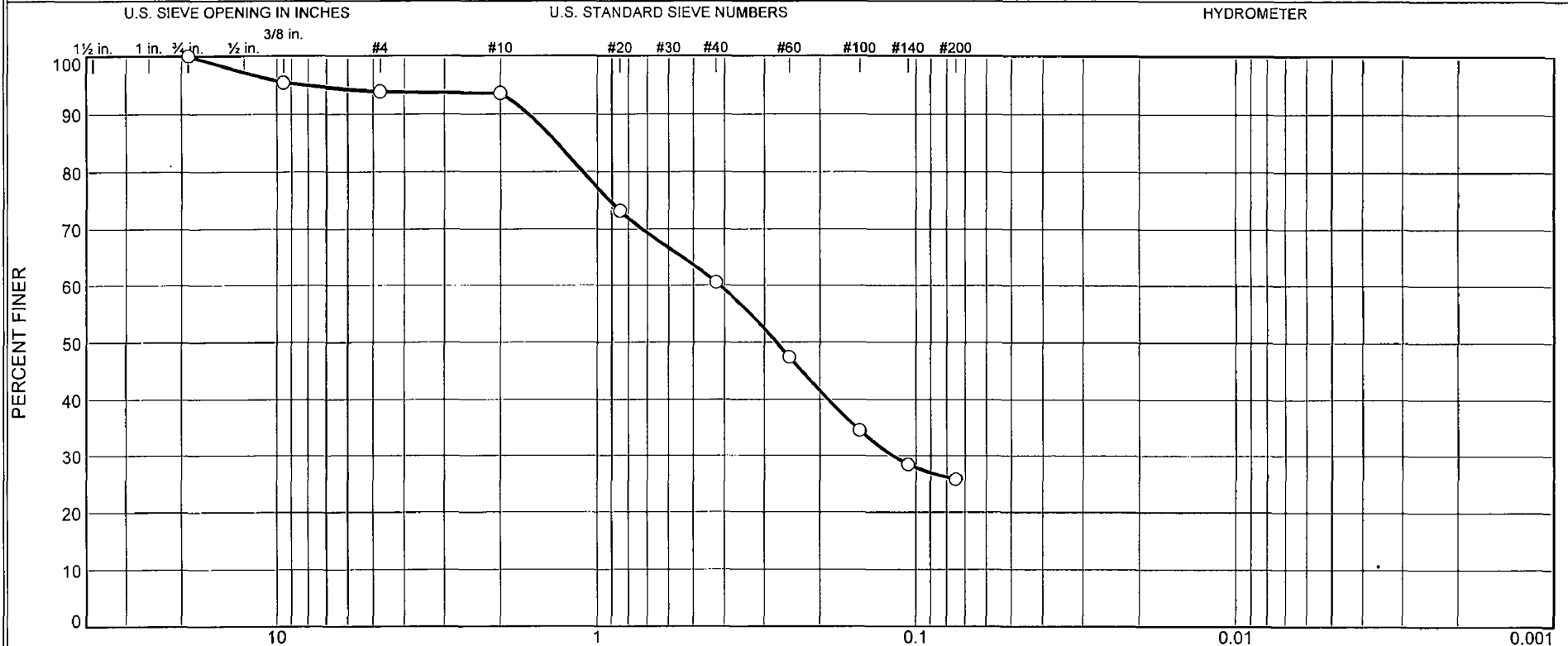
PYCNOMETER : P-3

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	6	0	33	35	26	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-11	125.9-127.4	2/12/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 21% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 125.9-127.4

Sample Number: 706-11

Material Description: Pale Yellow Silty SAND (Visual)

Date: 2/12/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 21% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
370.20	0.00	0.00	3/4	0.00	100
			3/8"	17.04	95
			#4	22.81	94
			#10	23.86	94
99.59	0.00	0.00	#20	21.66	73
			#40	35.10	61
			#60	49.09	47
			#100	62.84	35
			#140	69.31	28
			#200	72.12	26

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	0	33	35	68			26

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1185	0.2750	0.4132	1.1099	1.3343	1.6370	8.3164

Fineness Modulus

1.82

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.8	0.4	6.0	42.8	34.0	15.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-13	135.4-136.9	2/13/08	SM	Light Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 135.4-136.9

Sample Number: 706-13

Material Description: Light Gray Silty SAND (Visual)

Date: 2/13/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
360.27	0.00	0.00	3/4	0.00	100.0
			3/8"	4.71	98.7
			#4	6.40	98.2
			#10	8.03	97.8
101.79	0.00	0.00	#20	3.43	94.5
			#40	6.23	91.8
			#60	8.64	89.5
			#100	14.76	83.6
			#140	36.97	62.3
			#200	50.81	49.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =97.8

Weight of hydrometer sample =101.79

Hygroscopic moisture correction:

Moist weight and tare = 28.29

Dry weight and tare = 28.25

Tare weight = 15.64

Hygroscopic moisture =0.3%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.8	33.5	27.7	0.0133	34.5	10.6	0.0307	26.4
5.00	20.8	31.0	25.2	0.0133	32.0	11.0	0.0198	24.0
15.00	20.8	28.0	22.2	0.0133	29.0	11.5	0.0117	21.2
30.00	20.8	26.0	20.2	0.0133	27.0	11.9	0.0084	19.3
60.00	21.0	23.0	17.3	0.0133	24.0	12.4	0.0060	16.5
240.00	21.8	18.0	12.5	0.0131	19.0	13.2	0.0031	11.9
1440.00	21.7	13.0	7.4	0.0132	14.0	14.0	0.0013	7.1

MACTEC Engineering and Consulting, Inc.

Fractional Components

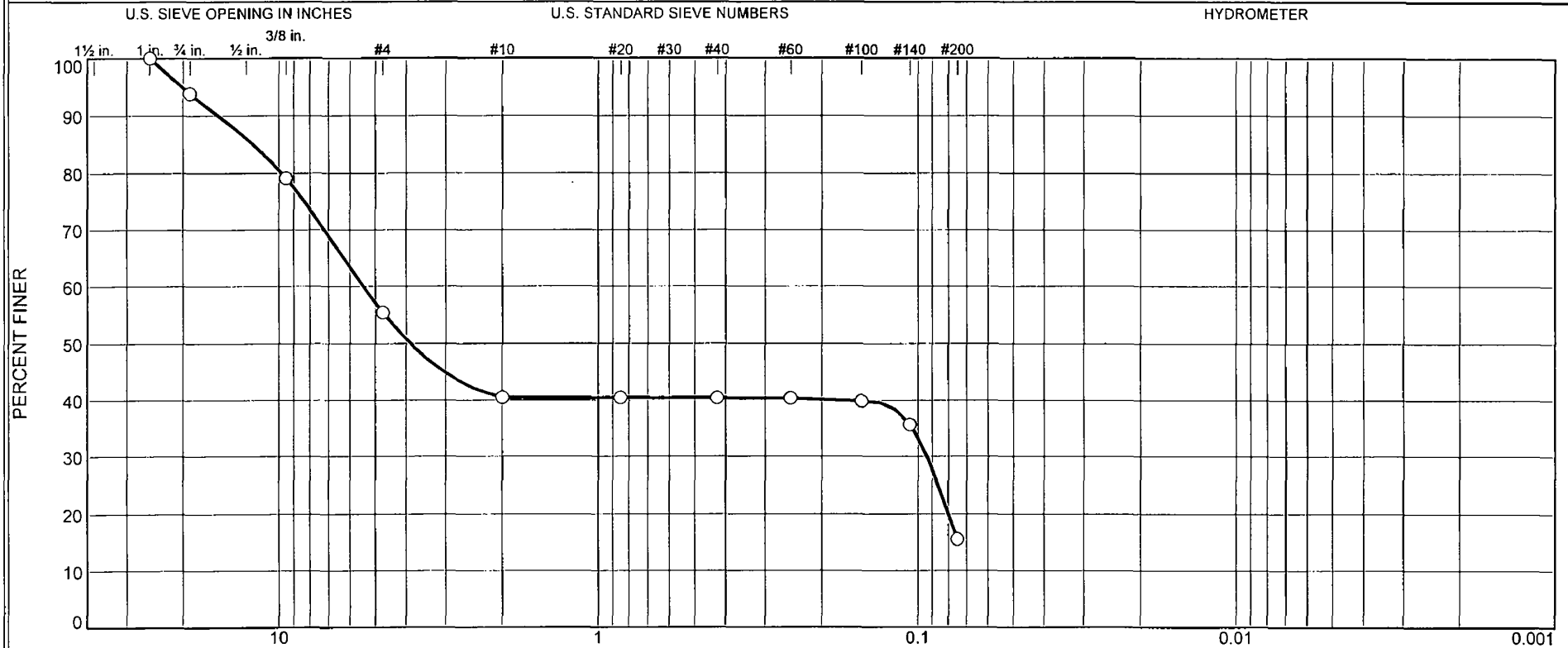
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.8	1.8	0.4	6.0	42.8	49.2	34.0	15.0	49.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0022	0.0050	0.0094	0.0381	0.0776	0.1016	0.1400	0.1655	0.2682	0.9709

Fineness Modulus	C _u	C _c
0.42	45.91	6.47

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
6	39	15	0	24	16	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-706	706-15	145.4-146.9	2/13/08	GM	Light Olive Gray Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 17% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-706

Depth: 145.4-146.9

Sample Number: 706-15

Material Description: Light Olive Gray Silty GRAVEL with sand (Visual)

Date: 2/13/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 17% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
319.39	0.00	0.00	1	0.00	100
			3/4	19.65	94
			3/8"	66.60	79
			#4	142.24	55
			#10	190.08	40
98.87	0.00	0.00	#20	0.13	40
			#40	0.22	40
			#60	0.36	40
			#100	1.61	40
			#140	11.82	36
			#200	60.82	16

Fractional Components

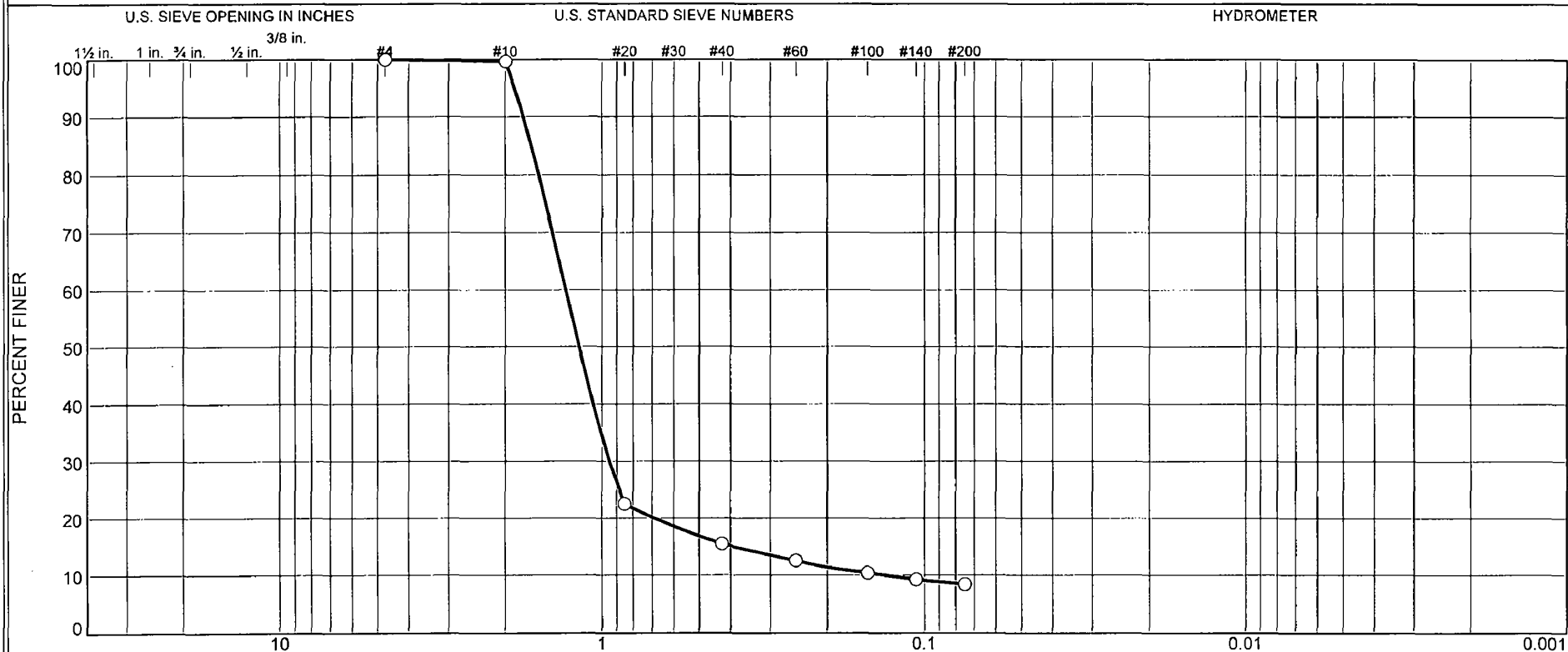
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	39	45	15	0	24	39			16

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0800	0.0937	3.8870	5.4565	9.8175	12.0637	15.5624	20.1590

Fineness Modulus
3.69

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	85	7	8	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-707	707-6	12.5-14.0	2/19/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 92% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-707

Depth: 12.5-14.0

Sample Number: 707-6

Material Description: White Poorly Graded SAND with silt (Visual)

Date: 2/19/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 92% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
213.96	0.00	0.00	#4	0.00	100
			#10	0.73	100
51.74	0.00	0.00	#20	40.05	23
			#40	43.71	15
			#60	45.23	13
			#100	46.34	10
			#140	46.93	9
			#200	47.37	8

Fractional Components

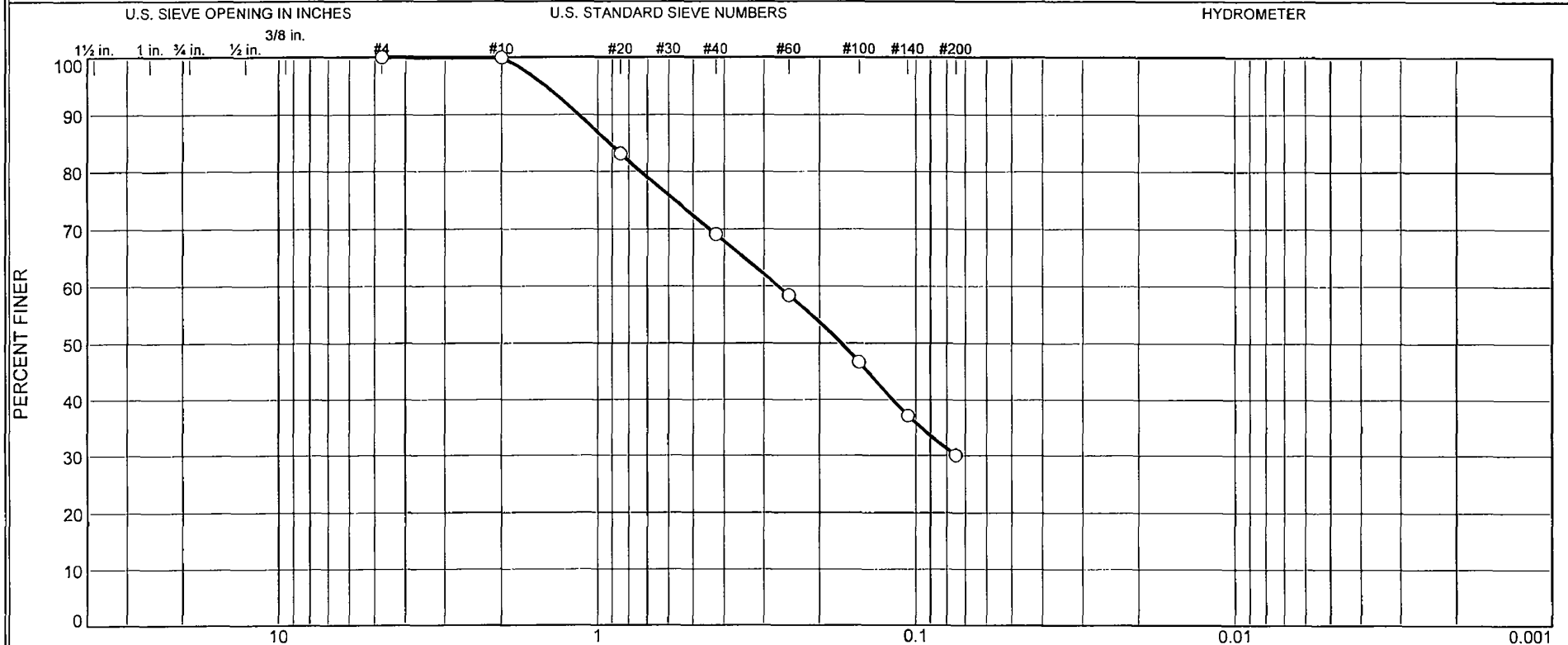
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	85	7	92			8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1328	0.3937	0.6893	0.9498	1.1797	1.2981	1.5750	1.6598	1.7558	1.8687

Fineness Modulus	C _u	C _c
3.08	9.78	5.23

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	31	39	30	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-707	707-10	108.8-110.3	1/19/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-707

Depth: 108.8-110.3

Sample Number: 707-10

Material Description: White Silty SAND (Visual)

Date: 1/19/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
379.98	0.00	0.00	#4	0.00	100
			#10	0.40	100
99.71	0.00	0.00	#20	16.68	83
			#40	30.75	69
			#60	41.36	58
			#100	53.11	47
			#140	62.63	37
			#200	69.66	30

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	31	39	70			30

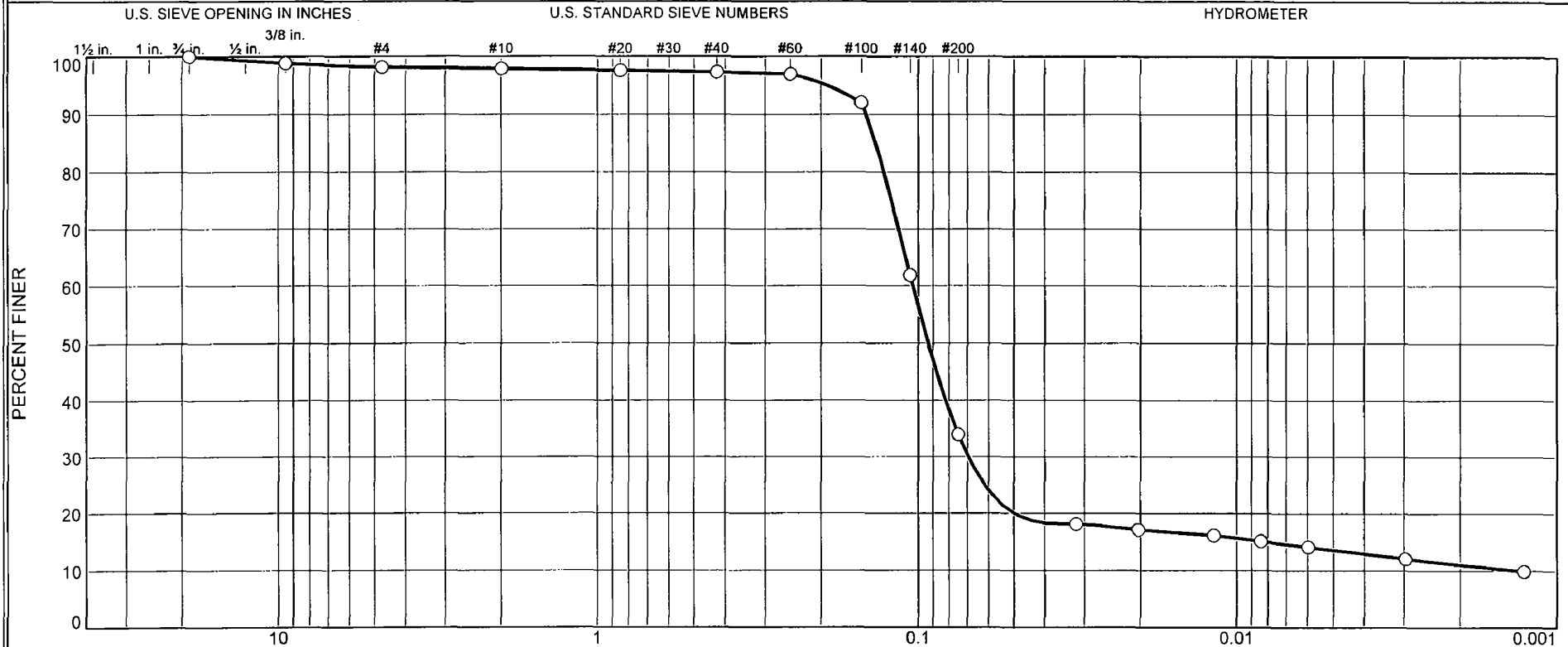
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1706	0.2695	0.7336	0.9215	1.1475	1.4539

Fineness Modulus

1.25

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.9	0.2	0.6	63.3	20.4	13.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-707	707-14	125.3-126.8	2/20/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined Calcite Equivalent = 20% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-707

Depth: 125.3-126.8

Sample Number: 707-14

Material Description: Light Brownish Gray Silty SAND (Visual)

Date: 2/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 20% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
378.77	0.00	0.00	3/4	0.00	100.0
			3/8"	4.42	98.8
			#4	7.05	98.1
			#10	8.09	97.9
99.55	0.00	0.00	#20	0.33	97.5
			#40	0.61	97.3
			#60	0.96	96.9
			#100	5.99	92.0
			#140	36.64	61.8
			#200	65.00	34.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 97.9

Weight of hydrometer sample = 99.55

Hygroscopic moisture correction:

Moist weight and tare = 27.93

Dry weight and tare = 27.85

Tare weight = 15.66

Hygroscopic moisture = 0.7%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.9	23.0	18.5	0.0128	24.0	12.4	0.0319	18.1
5.00	23.9	22.0	17.5	0.0128	23.0	12.5	0.0203	17.1
15.00	23.9	21.0	16.5	0.0128	22.0	12.7	0.0118	16.1
30.00	23.9	20.0	15.5	0.0128	21.0	12.9	0.0084	15.1
60.00	23.9	19.0	14.5	0.0128	20.0	13.0	0.0060	14.2
250.00	23.6	17.0	12.4	0.0129	18.0	13.3	0.0030	12.1
1440.00	22.6	15.0	10.1	0.0130	16.0	13.7	0.0013	9.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

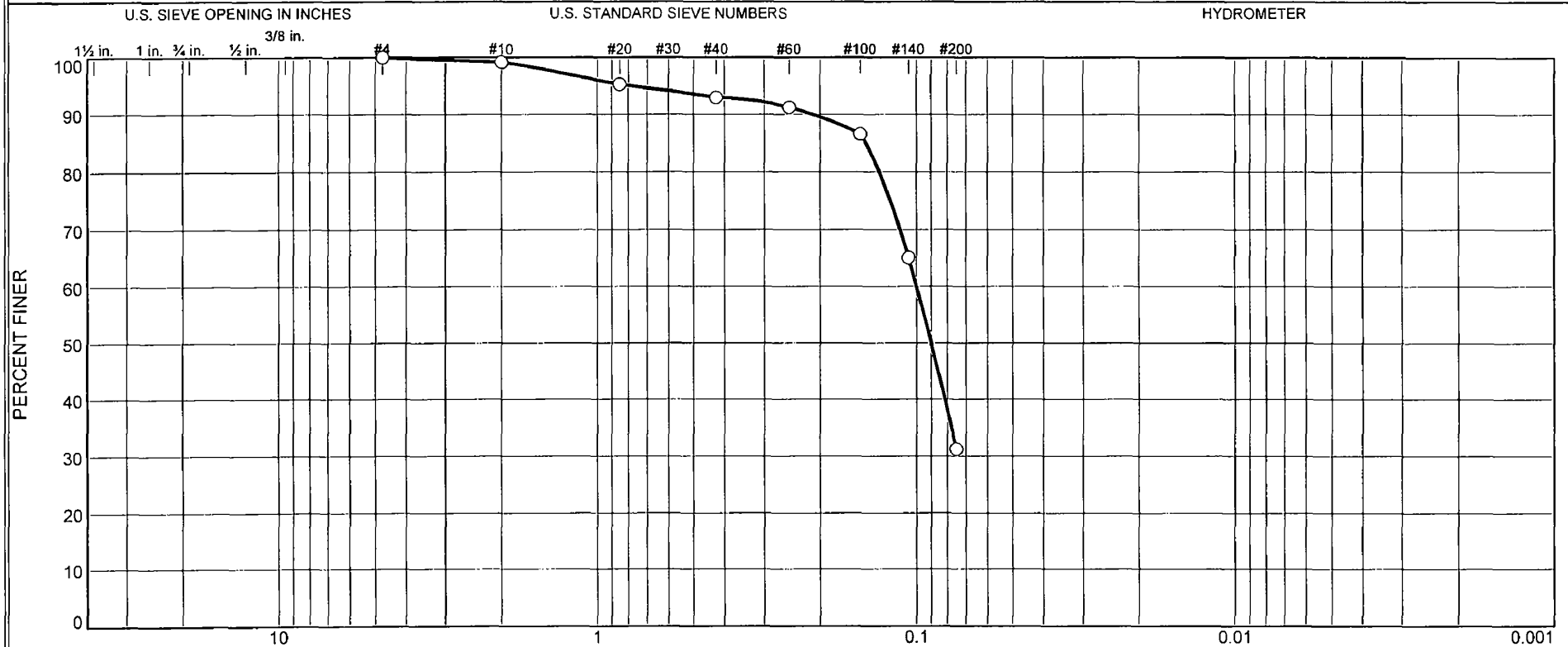
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.9	1.9	0.2	0.6	63.3	64.1	20.4	13.6	34.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0013	0.0080	0.0499	0.0697	0.0932	0.1040	0.1280	0.1356	0.1452	0.1934

Fineness Modulus	C _u	C _c
0.21	78.36	35.23

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	6	62	31	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-707	707-16	135.5-137	2/21/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-707

Depth: 135.5-137

Sample Number: 707-16

Material Description: Light Brownish Gray Silty SAND (Visual)

Date: 2/21/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
442.75	0.00	0.00	#4	0.00	100
			#10	3.70	99
99.79	0.00	0.00	#20	3.87	95
			#40	6.25	93
			#60	7.98	91
			#100	12.74	87
			#140	34.27	65
			#200	68.34	31

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	6	62	69			31

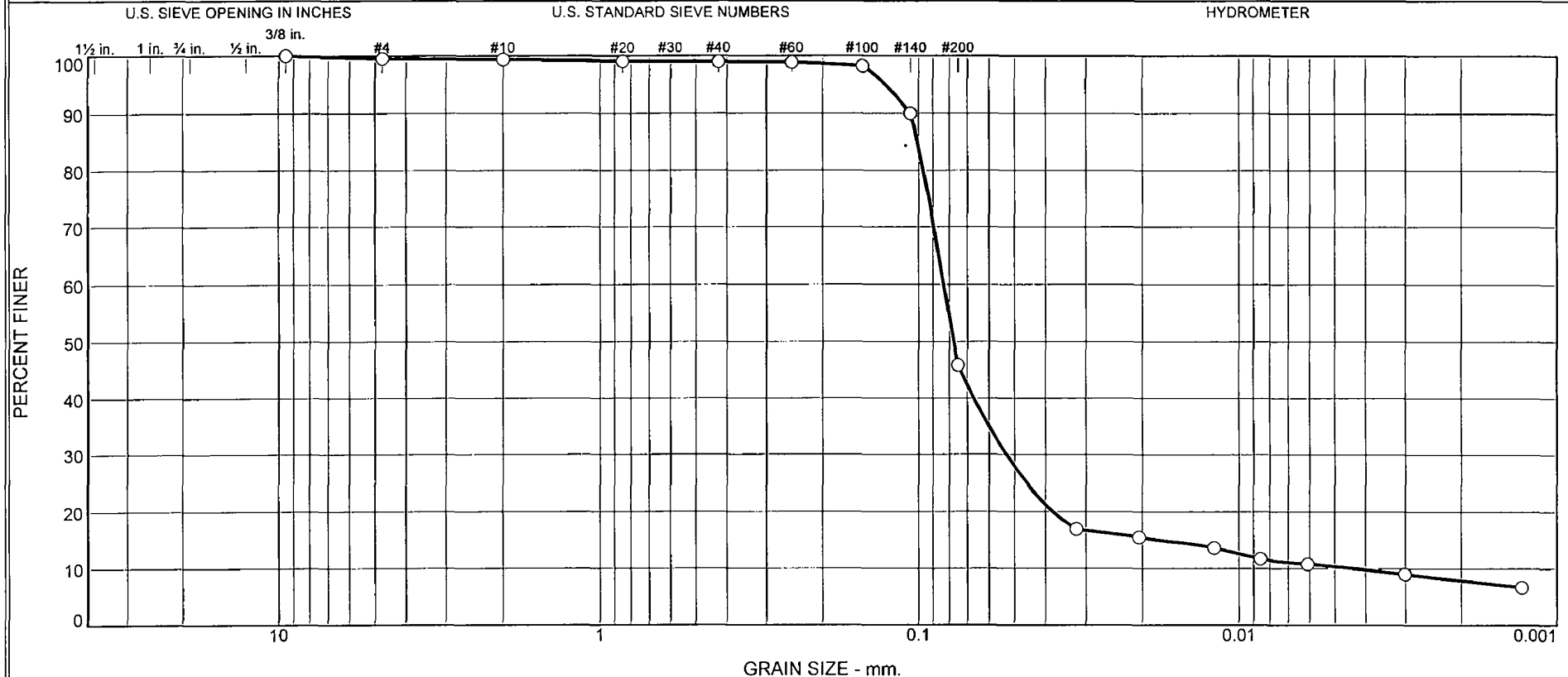
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0900	0.1000	0.1305	0.1443	0.2110	0.7804

Fineness Modulus

0.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.5	0.1	0.5	53.0	35.5	10.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-707	707-18	145.5-147.0	2/21/08	SM	Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel
Project Turkey Point COL

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 18% (ASTM D 4373-02)

Project No. 6468071950

Figure N/A

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-707

Depth: 145.5-147.0

Sample Number: 707-18

Material Description: Gray Silty SAND (Visual)

Date: 2/21/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 18% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
307.92	0.00	0.00	3/8"	0.00	100.0
			#4	1.53	99.5
			#10	2.00	99.4
104.36	0.00	0.00	#20	0.36	99.0
			#40	0.43	98.9
			#60	0.54	98.8
			#100	1.20	98.2
			#140	9.82	90.0
			#200	56.19	45.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =99.4

Weight of hydrometer sample =104.36

Hygroscopic moisture correction:

Moist weight and tare = 29.42

Dry weight and tare = 29.37

Tare weight = 15.62

Hygroscopic moisture =0.4%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.8	22.5	17.9	0.0128	23.5	12.4	0.0320	16.9
5.00	23.8	21.0	16.4	0.0128	22.0	12.7	0.0204	15.5
15.00	23.8	19.0	14.4	0.0128	20.0	13.0	0.0120	13.6
30.00	23.8	17.0	12.4	0.0128	18.0	13.3	0.0086	11.7
60.00	23.9	16.0	11.5	0.0128	17.0	13.5	0.0061	10.8
250.00	24.2	14.0	9.5	0.0128	15.0	13.8	0.0030	9.0
1440.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0013	6.7

MACTEC Engineering and Consulting, Inc.

Fractional Components

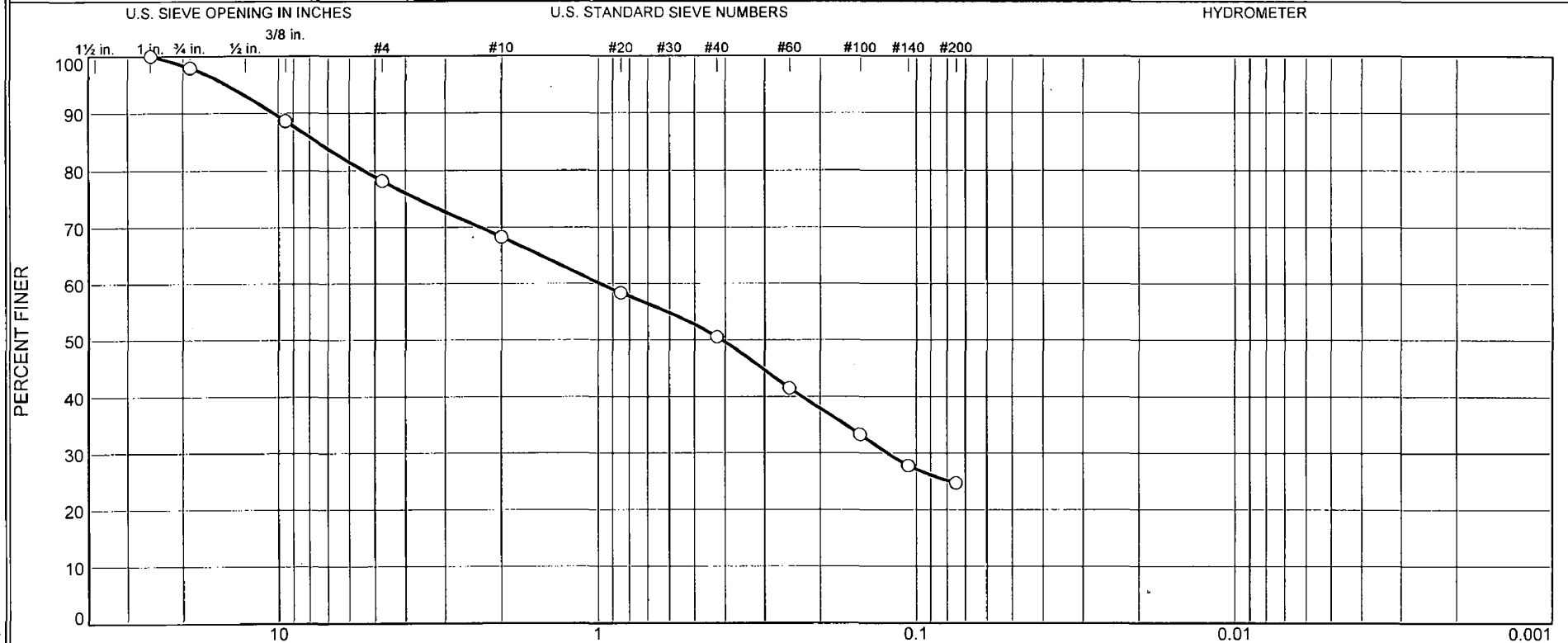
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.1	0.5	53.0	53.6	35.5	10.4	45.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0043	0.0177	0.0380	0.0531	0.0775	0.0834	0.0964	0.1007	0.1060	0.1267

Fineness Modulus	C _u	C _c
0.06	19.46	7.90

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
2	20	10	17	26	25	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-708(DH)	708-3	5.0-6.5	3/7/08	SM	Very Pale Brown Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071930	Figure N/A	Raleigh, North Carolina	

ZHU 7/23/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-708(DH)

Depth: 5.0-6.5

Sample Number: 708-3

Material Description: Very Pale Brown Silty SAND (Visual)

Date: 3/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
441.00	0.00	0.00	1	0.00	100
			3/4	9.16	98
			3/8"	50.16	89
			#4	96.21	78
			#10	139.92	68
102.00	0.00	0.00	#20	14.74	58
			#40	26.52	51
			#60	39.99	42
			#100	52.22	33
			#140	60.48	28
			#200	65.13	25

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	20	22	10	17	26	53			25

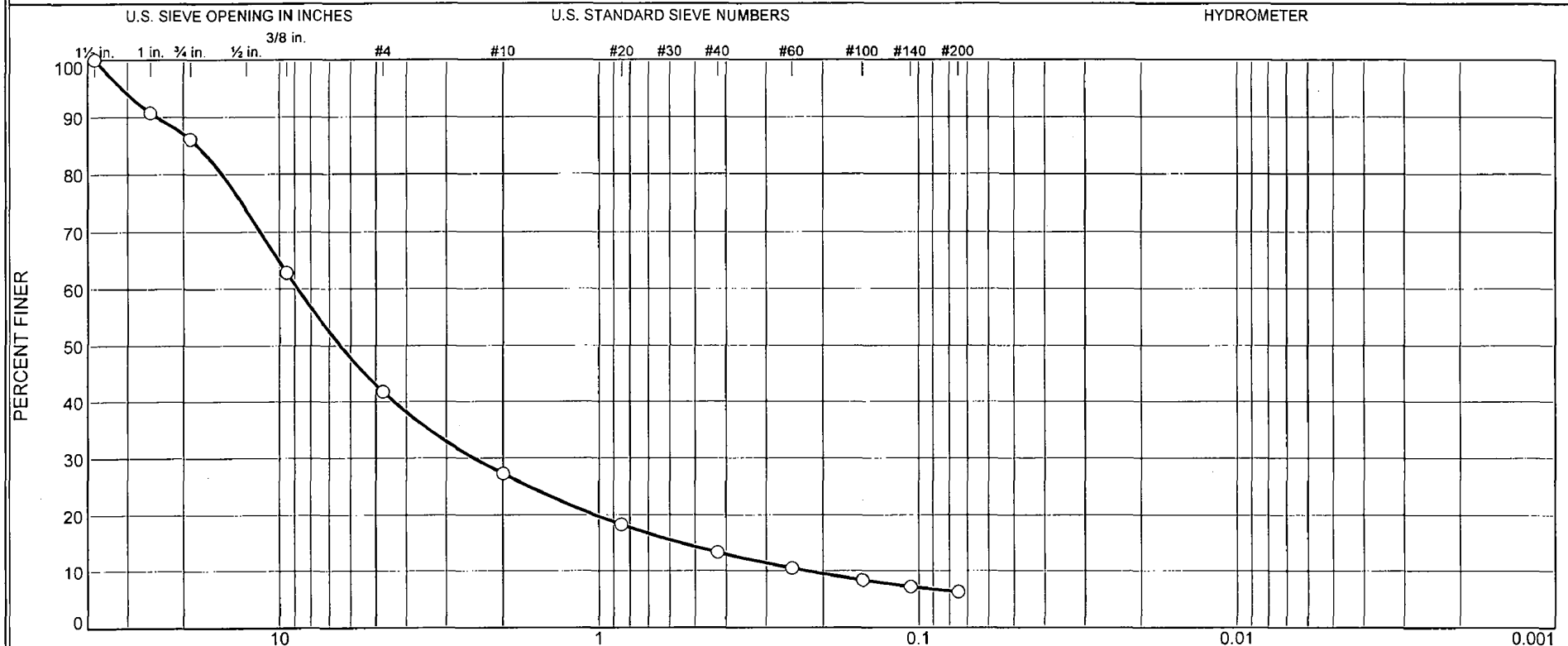
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1232	0.4105	0.9839	5.4210	7.5637	10.3973	14.6604

Fineness Modulus

2.70

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
14	44	15	14	7	6	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-708(DH)	708-6	13.0-14.5	3/7/08	GP-GM	Light Gray Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950 Figure			

ZHU 7/23/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-708(DH)

Depth: 13.0-14.5

Sample Number: 708-6

Material Description: Light Gray Poorly Graded GRAVEL with silt and sand (Visual)

Date: 3/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
413.99	0.00	0.00	1.5	0.00	100
			1	38.41	91
			3/4	57.44	86
			3/8"	153.71	63
			#4	241.10	42
			#10	301.20	27
94.74	0.00	0.00	#20	31.25	18
			#40	48.47	13
			#60	58.30	10
			#100	65.78	8
			#140	69.78	7
			#200	72.98	6

Fractional Components

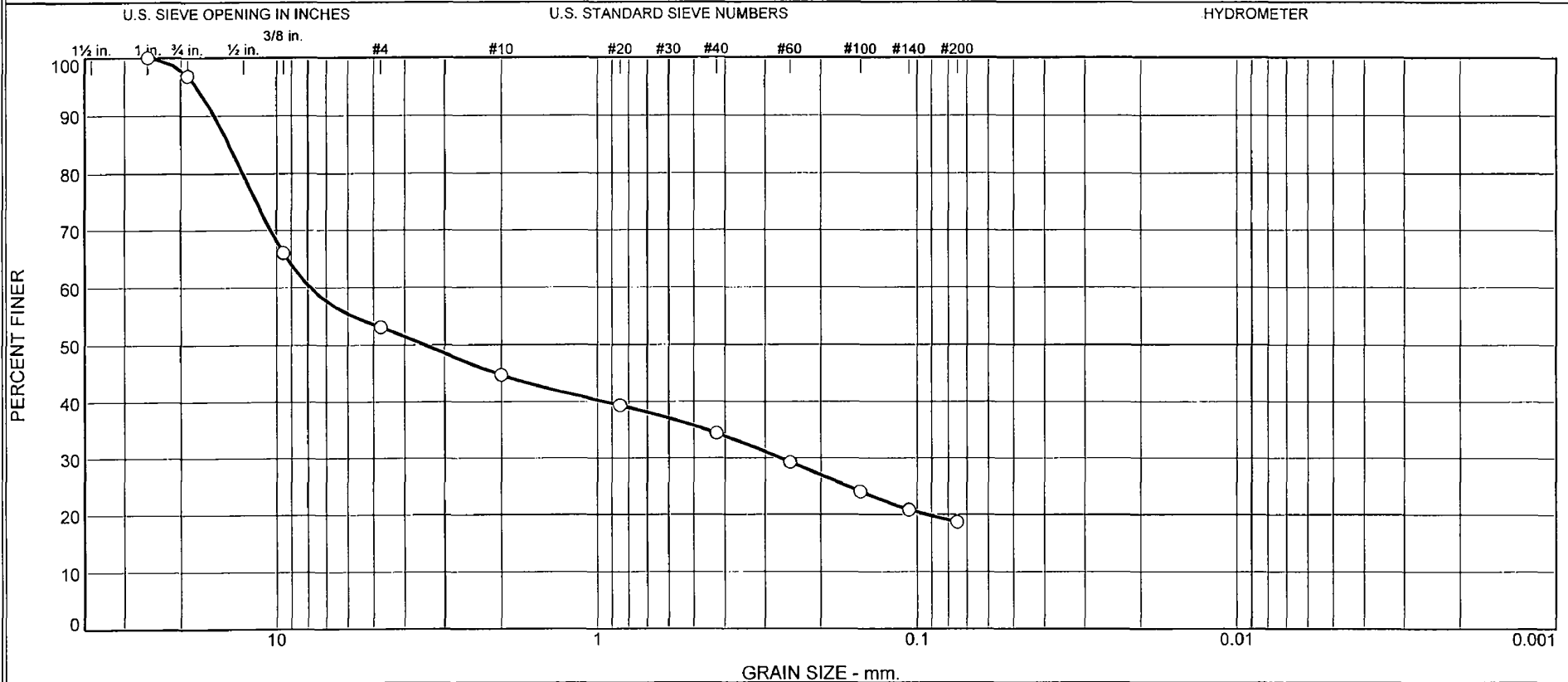
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	44	58	15	14	7	36			6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.2254	0.5543	1.0321	2.4683	6.4770	8.8001	15.1601	18.0972	24.2877	31.2246

Fineness Modulus	C _u	C _c
5.23	39.04	3.07

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
3	44	8	11	15	19	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-711	711-3	5.0-6.5	3/4/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 95% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-711

Depth: 5.0-6.5

Sample Number: 711-3

Material Description: White Silty GRAVEL with sand (Visual)

Date: 3/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 95% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
392.20	0.00	0.00	1.0	0.00	100
			3/4	12.62	97
			3/8"	133.20	66
			#4	183.87	53
			#10	216.83	45
97.54	0.00	0.00	#20	11.77	39
			#40	22.52	34
			#60	33.66	29
			#100	45.08	24
			#140	52.06	21
			#200	56.79	19

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	44	47	8	11	15	34			19

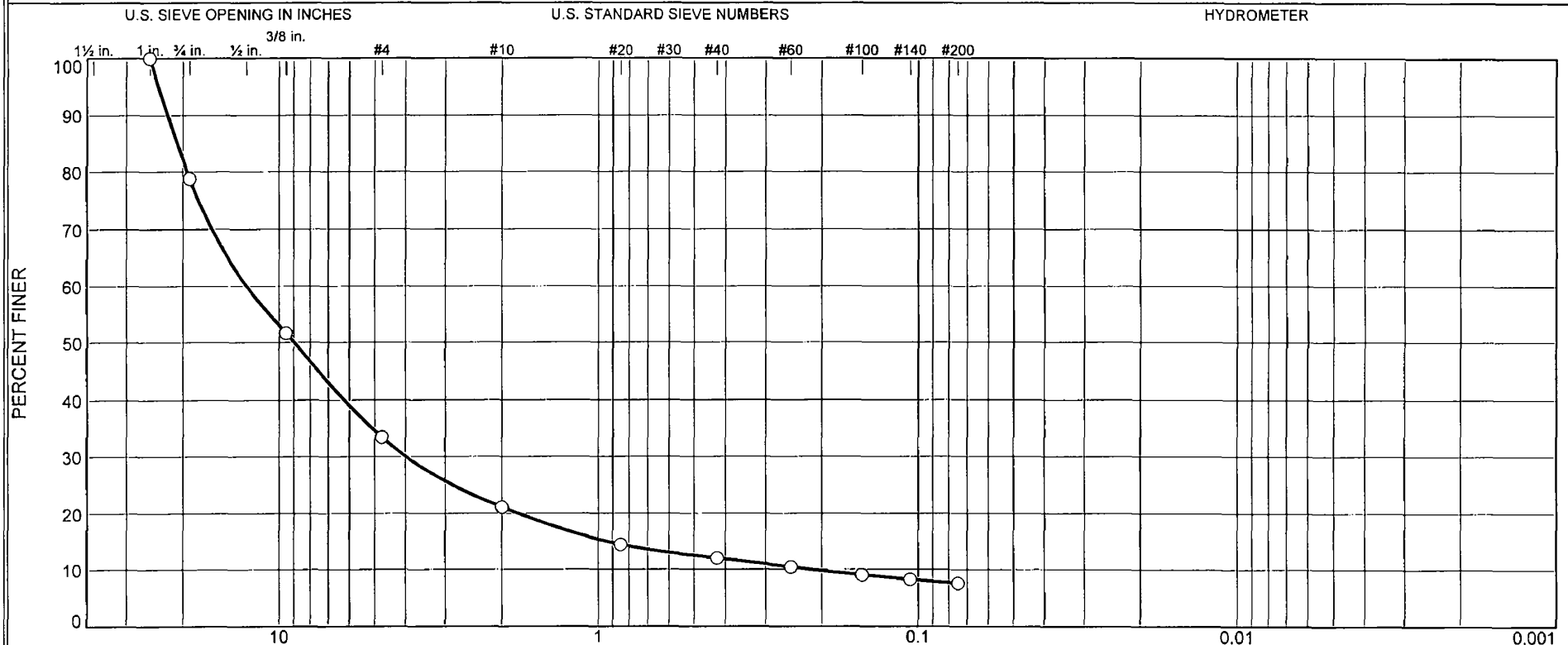
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0940	0.2682	3.4676	7.8375	12.7781	14.1009	15.6855	17.8752

Fineness Modulus

4.04

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
21	46	12	9	4	8	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-711	711-5	9.9-11.4	3/4/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-711

Depth: 9.9-11.4

Sample Number: 711-5

Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)

Date: 3/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.77	0.00	0.00	1	0.00	100
			3/4	50.78	79
			3/8"	115.94	52
			#4	159.69	33
			#10	189.13	21
			#20	205.11	14
			#40	210.90	12
			#60	214.74	10
			#100	218.04	9
			#140	219.98	8
			#200	221.64	8

Fractional Components

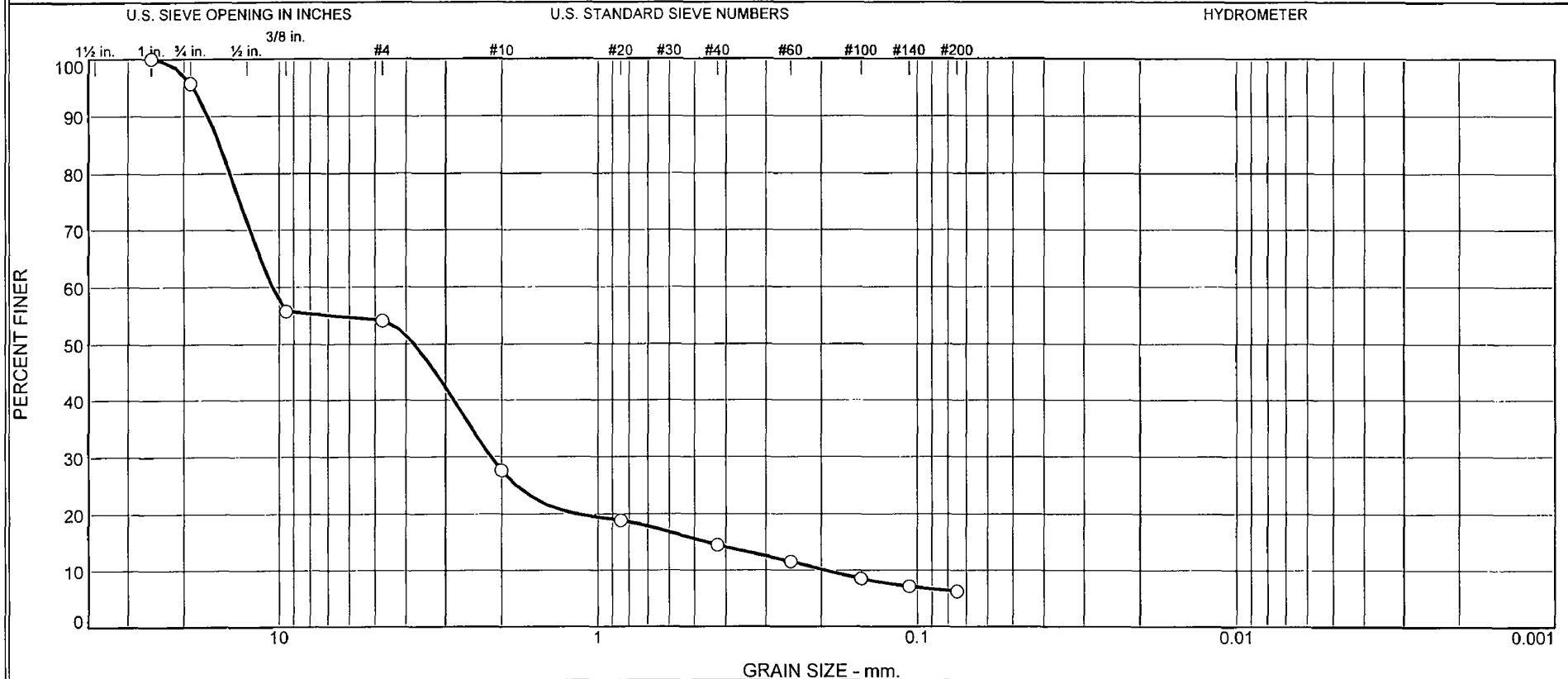
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	46	67	12	9	4	25			8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.2144	0.9387	1.7809	3.9888	8.9813	12.6534	19.4022	20.8695	22.3332	23.8324

Fineness Modulus	C _u	C _c
5.64	59.02	5.87

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
4	42	26	13	9	6	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-711	711-9	24.0-25.5	3/4/08	SW-SM	White Well Graded SAND with silt and gravel(Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-711

Depth: 24.0-25.5

Sample Number: 711-9

Material Description: White Well Graded SAND with silt and gravel(Visual)

Date: 3/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SW-SM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
222.59	0.00	0.00	1	0.00	100
			3/4	9.52	96
			3/8"	98.39	56
			#4	102.02	54
			#10	161.03	28
			#20	180.73	19
			#40	190.31	15
			#60	196.87	12
			#100	203.65	9
			#140	206.61	7
			#200	208.62	6

Fractional Components

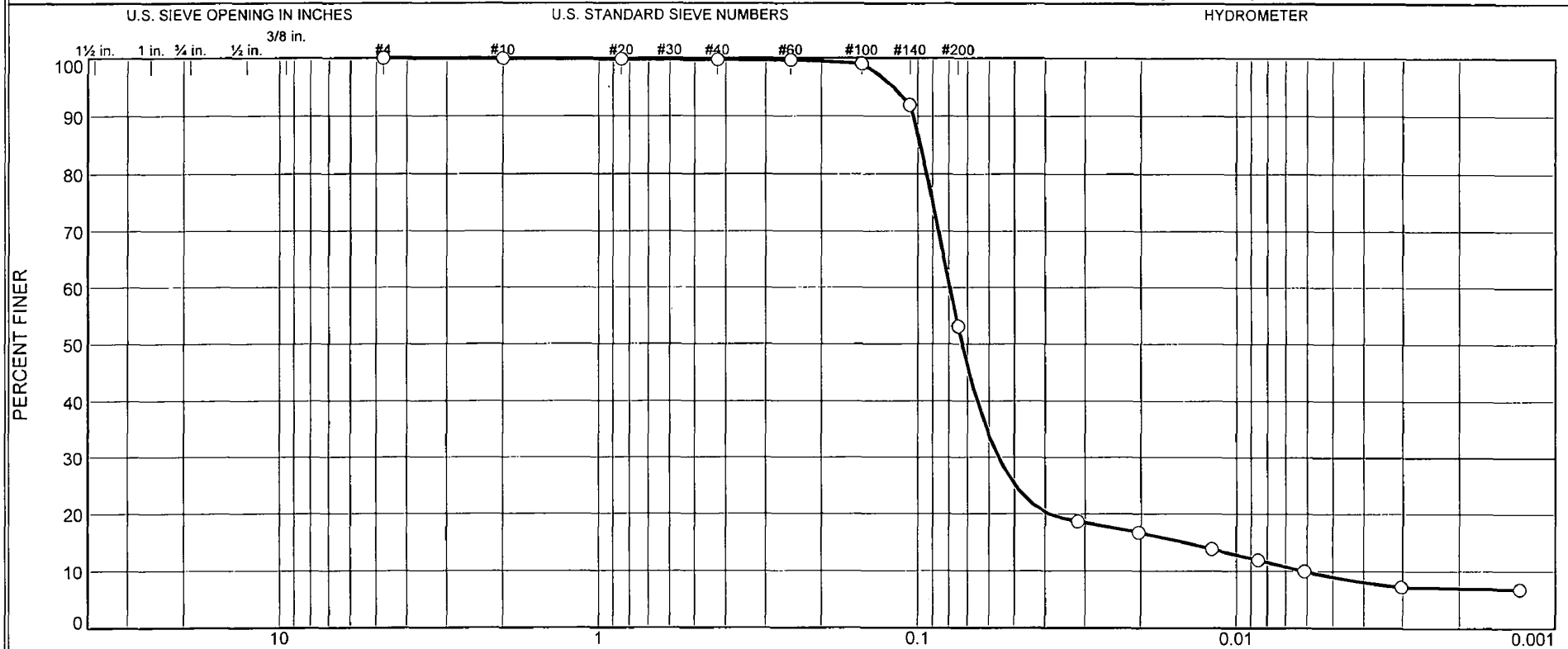
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	42	46	26	13	9	48			6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1944	0.4593	1.1680	2.1602	3.7758	10.4898	14.3142	15.4388	16.7893	18.6724

Fineness Modulus	C _u	C _c
5.03	53.95	2.29

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



GRAIN SIZE - mm.

% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	46.6	44.1	9.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-711	711-11	120.5-122.0	3/6/08	ML	White Sandy SILT (Visual)	ND	ND	ND

Client Bechtel
 Project Turkey Point COL
 Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.
 Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
 Specific Gravity is assumed
 ND = Not Determined
 Calcite Equivalent = 11% (ASTM D 4373-02)

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-711

Depth: 120.5-122.0

Sample Number: 711-11

Material Description: White Sandy SILT (Visual)

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Calcite Equivalent = 11% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
335.96	0.00	0.00	#4	0.00	100.0
			#10	0.26	99.9
103.63	0.00	0.00	#20	0.13	99.8
			#40	0.21	99.7
			#60	0.28	99.7
			#100	0.92	99.0
			#140	8.31	91.9
			#200	48.60	53.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =99.9

Weight of hydrometer sample =103.63

Hygroscopic moisture correction:

Moist weight and tare = 28.18

Dry weight and tare = 28.10

Tare weight = 15.45

Hygroscopic moisture =0.6%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.8	24.0	19.4	0.0128	25.0	12.2	0.0317	18.6
5.00	23.8	22.0	17.4	0.0128	23.0	12.5	0.0203	16.7
15.00	23.9	19.0	14.5	0.0128	20.0	13.0	0.0119	13.9
30.00	23.9	17.0	12.5	0.0128	18.0	13.3	0.0085	12.0
60.00	23.9	15.0	10.5	0.0128	16.0	13.7	0.0061	10.0
250.00	24.4	12.0	7.6	0.0127	13.0	14.2	0.0030	7.3
1440.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

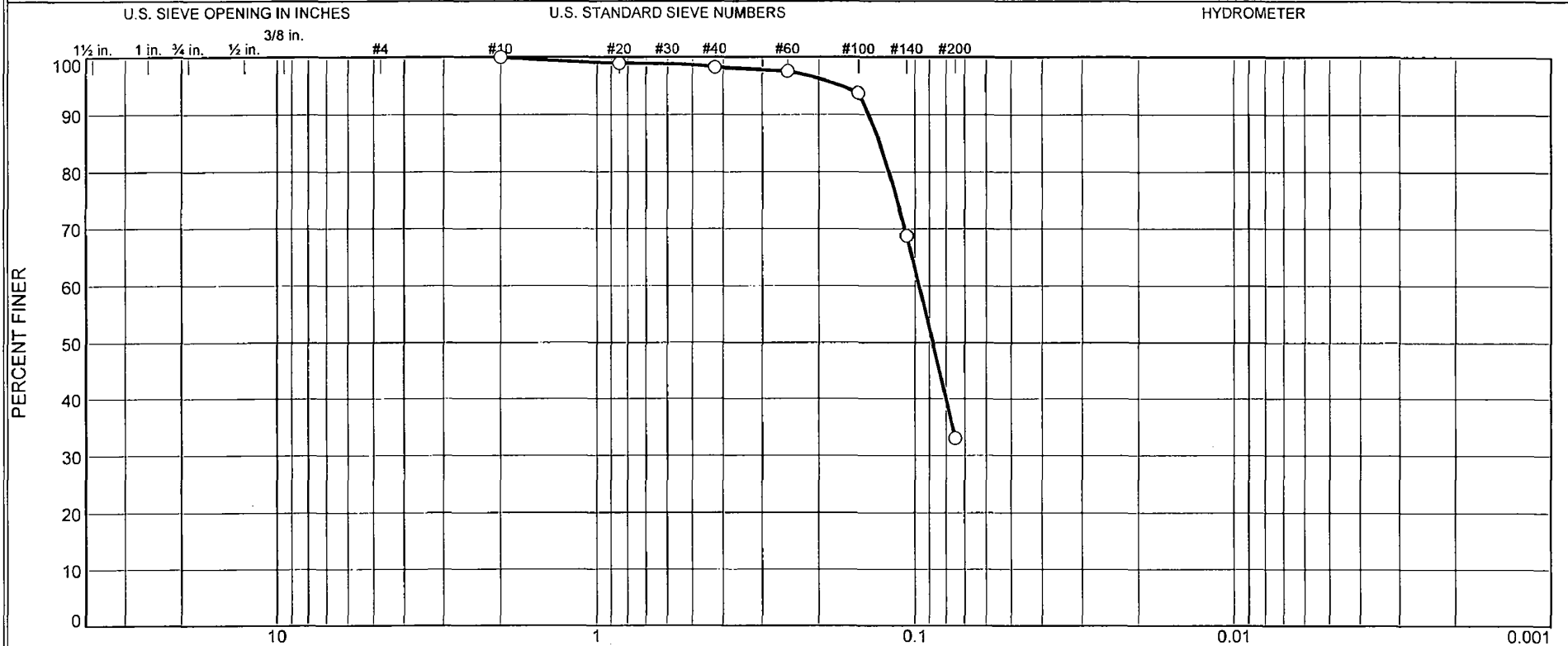
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	46.6	46.9	44.1	9.0	53.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0061	0.0146	0.0391	0.0560	0.0729	0.0796	0.0937	0.0981	0.1034	0.1196

Fineness Modulus	C _u	C _c
0.02	13.10	6.48

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	65	33	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-711	711-12	130.2-131.7	3/6/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-711

Depth: 130.2-131.7

Sample Number: 711-12

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBj

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
275.99	0.00	0.00	#10	0.00	100
97.89	0.00	0.00	#20	1.03	99
			#40	1.73	98
			#60	2.40	98
			#100	6.09	94
			#140	30.61	69
			#200	65.55	33

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	2	65	67			33

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0879	0.0969	0.1205	0.1287	0.1391	0.1703

Fineness

Modulus

0.10

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
4.2	8.3	1.1	2.0	66.0	8.5	9.9

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-711	711-14	150.2-151.7	3/6/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-711

Depth: 150.2-151.7

Sample Number: 711-14

Material Description: Greenish Gray Silty SAND (Visual)

Date: 3/6/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
313.83	0.00	0.00	1	0.00	100.0
			3/4	13.29	95.8
			3/8"	32.92	89.5
			#4	39.21	87.5
			#10	42.78	86.4
100.79	0.00	0.00	#20	1.45	85.1
			#40	2.31	84.4
			#60	4.40	82.6
			#100	17.48	71.4
			#140	62.49	32.8
			#200	79.26	18.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =86.4

Weight of hydrometer sample =100.79

Hygroscopic moisture correction:

Moist weight and tare = 28.00

Dry weight and tare = 27.97

Tare weight = 15.59

Hygroscopic moisture =0.2%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.5	22.0	17.4	0.0129	23.0	12.5	0.0322	14.7
5.00	23.5	21.0	16.4	0.0129	22.0	12.7	0.0205	13.9
15.00	23.5	19.0	14.4	0.0129	20.0	13.0	0.0120	12.2
30.00	23.6	18.0	13.4	0.0129	19.0	13.2	0.0085	11.4
60.00	23.7	17.0	12.4	0.0129	18.0	13.3	0.0061	10.5
250.00	23.3	14.0	9.3	0.0129	15.0	13.8	0.0030	7.9
1440.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0013	6.0

MACTEC Engineering and Consulting, Inc.

Fractional Components

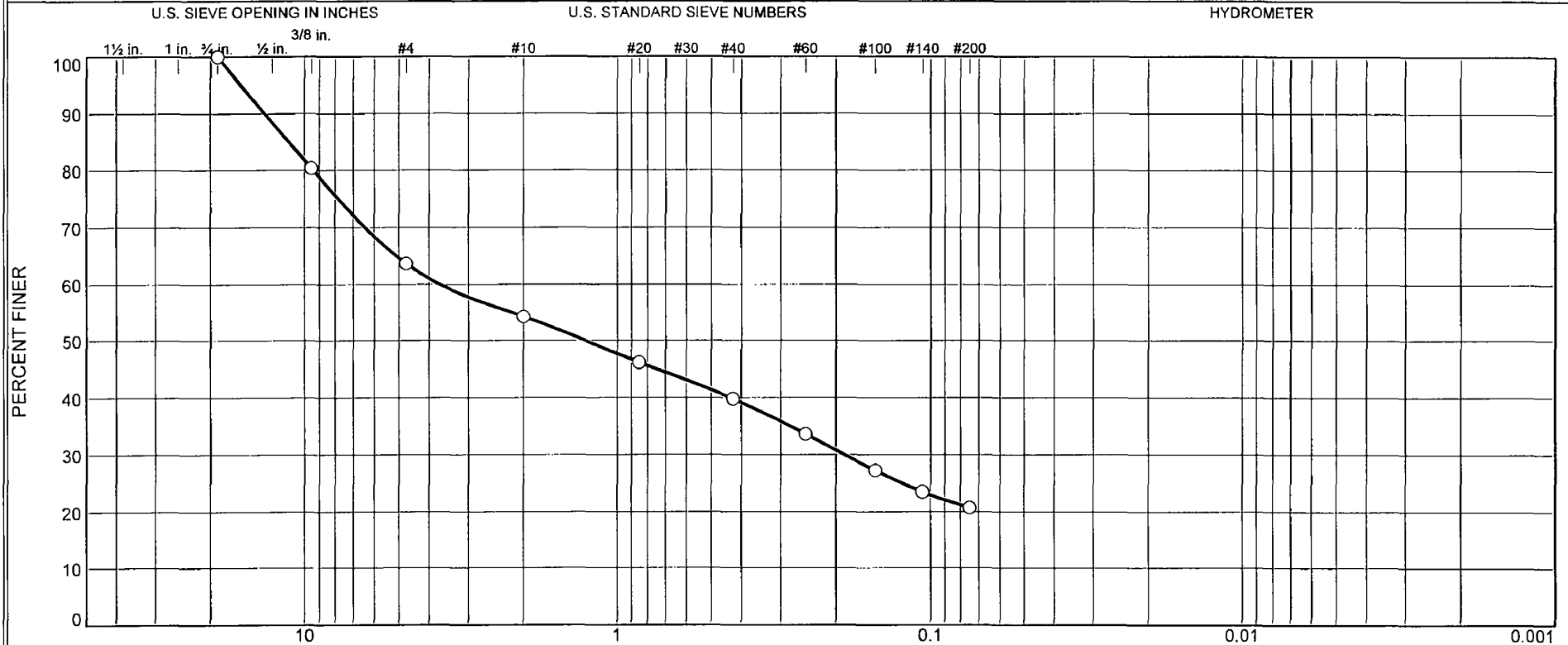
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	4.2	8.3	12.5	1.1	2.0	66.0	69.1	8.5	9.9	18.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0052	0.0462	0.0820	0.1024	0.1238	0.1345	0.2120	0.7661	10.3888	17.9573

Fineness Modulus	C _u	C _c
1.16	25.98	15.07

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	36	10	14	19	21	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-715	715-3	5.0-6.5	4/8/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 5.0-6.5

Sample Number: 715-3

Material Description: White Silty SAND with gravel (Visual)

Date: 4/8/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
332.64	0.00	0.00	3/4	0.00	100
			3/8"	65.28	80
			#4	120.81	64
			#10	152.13	54
99.81	0.00	0.00	#20	14.96	46
			#40	26.61	40
			#60	38.02	34
			#100	49.75	27
			#140	56.63	23
			#200	61.63	21

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	36	36	10	14	19	43			21

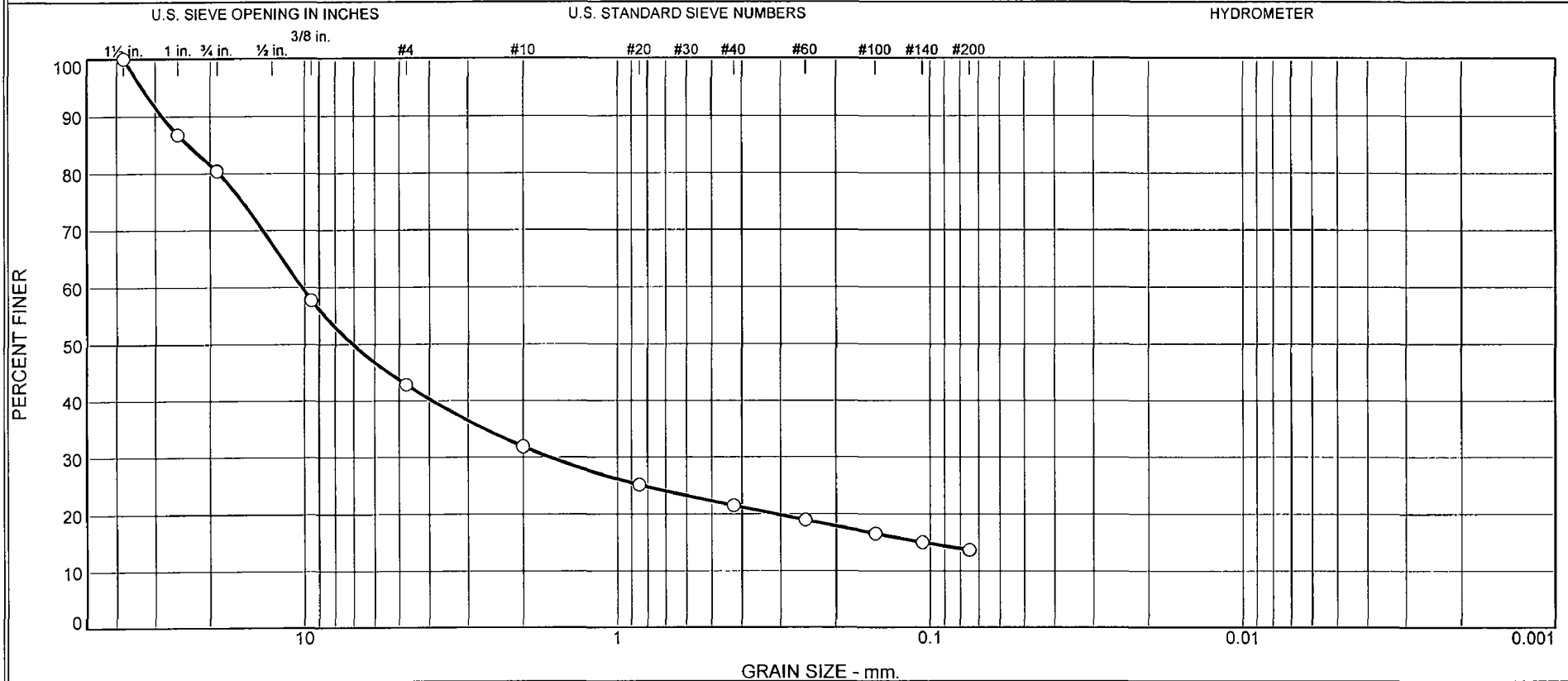
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1881	1.2696	3.7029	9.3966	11.2440	13.4218	15.9963

Fineness
Modulus

3.45

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
20	37	11	10	8	14	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-715	715-5	10.0-11.5	4/8/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD) ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 10.0-11.5

Sample Number: 715-5

Material Description: White Silty GRAVEL with sand (Visual)

Date: 4/8/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 344.17

Tare Wt. = 0.00

Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
344.17	0.00	0.00	1.5	0.00	100
			1	45.62	87
			3/4	67.23	80
			3/8"	145.23	58
			#4	196.61	43
			#10	234.70	32
			#20	257.60	25
			#40	270.10	22
			#60	278.90	19
			#100	287.10	17
			#140	292.30	15
			#200	297.00	14

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	20	37	57	11	10	8	29			14

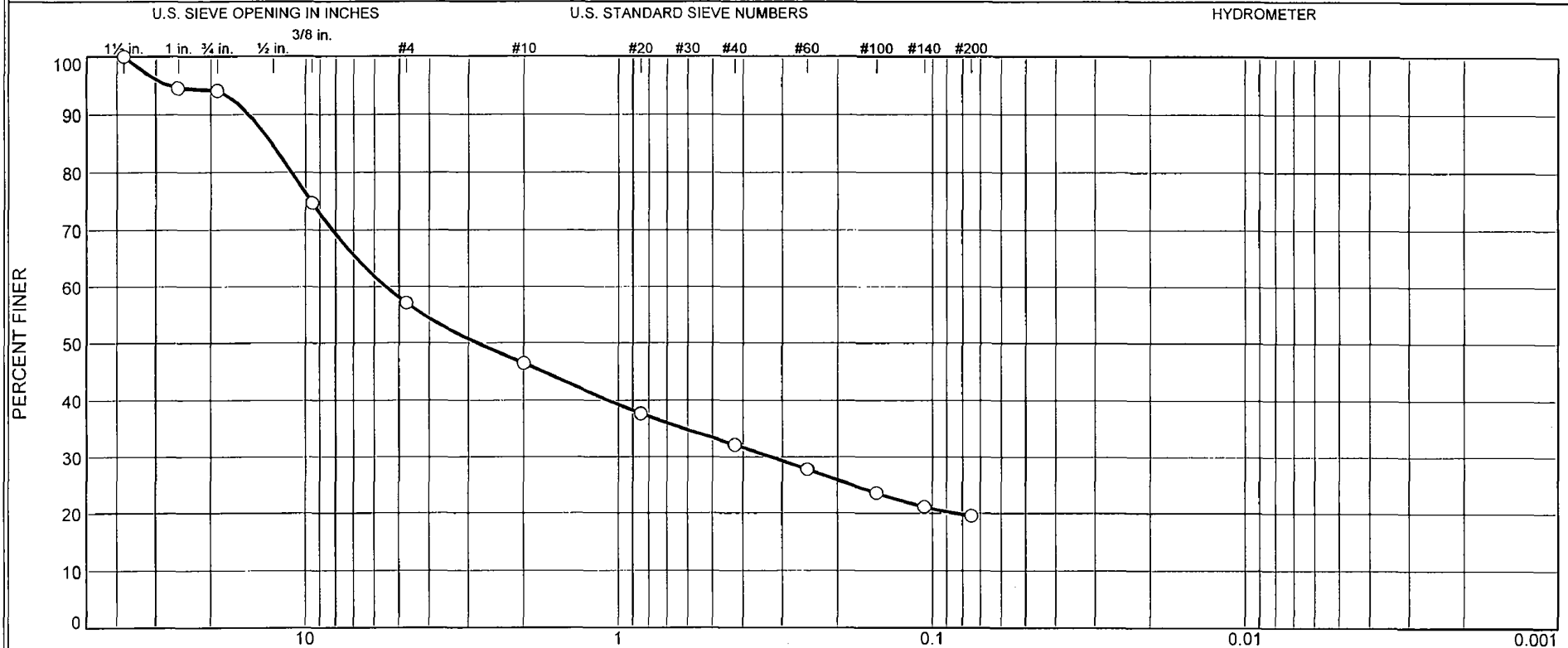
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1042	0.3103	1.6513	7.0405	10.2066	18.6949	23.5416	28.5452	33.1818

Fineness Modulus

4.98

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
6	37	11	14	12	20	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-715	715-8	21.7-23.2	4/8/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 21.7-23.2

Sample Number: 715-8

Material Description: White Silty GRAVEL with sand (Visual)

Date: 4/8/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
444.79	0.00	0.00	1.5	0.00	100
			1	24.41	95
			3/4	26.48	94
			3/8"	112.24	75
			#4	190.68	57
			#10	238.00	46
101.09	0.00	0.00	#20	19.19	38
			#40	31.19	32
			#60	40.62	28
			#100	49.86	24
			#140	55.21	21
			#200	58.68	20

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	37	43	11	14	12	37			20

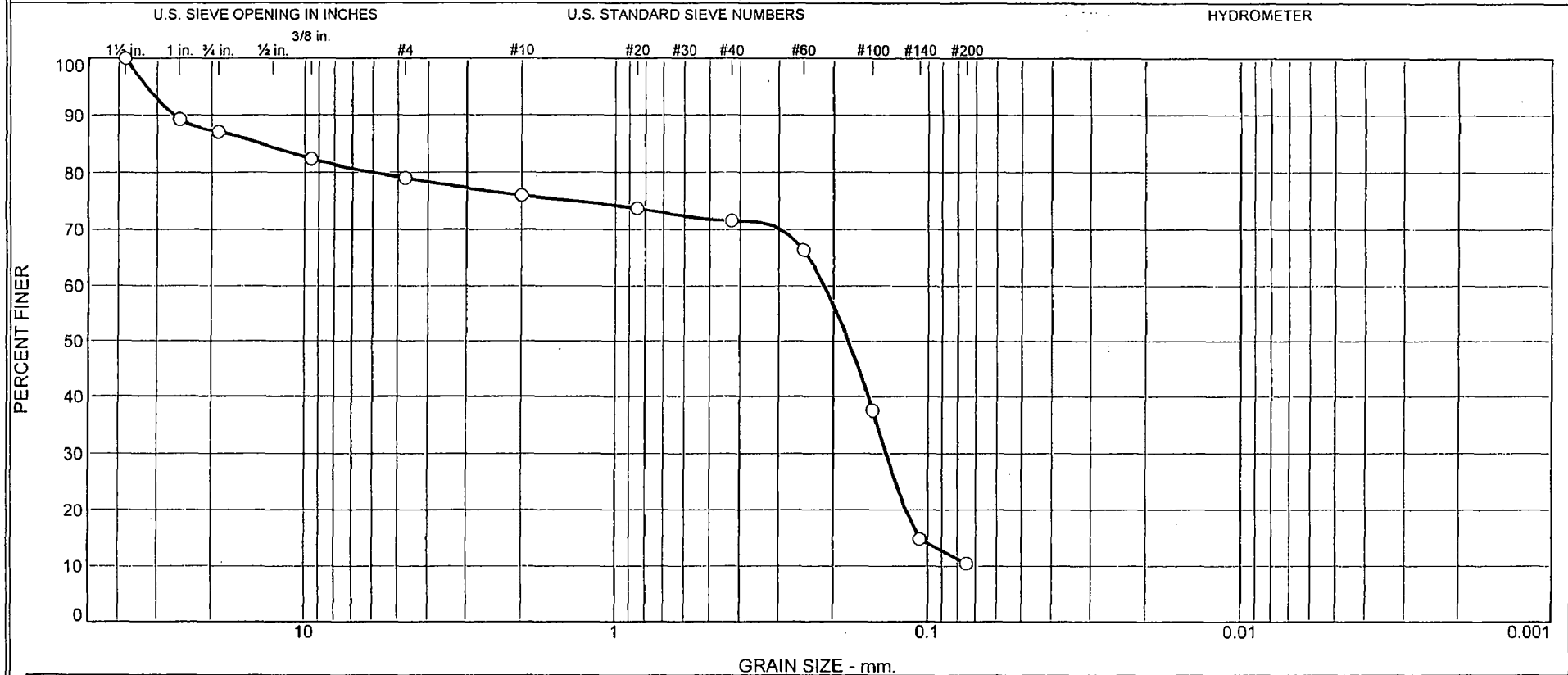
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0846	0.3250	2.8154	5.5132	11.0742	12.8019	15.1328	27.4238

Fineness Modulus

3.97

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
13	8	3	5	61	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-715	715-10	118.4-119.9	4/9/08	SP-SM	Light Gray Poorly Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC, Inc. Raleigh, North Carolina	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure		

GRAIN SIZE DISTRIBUTION TEST DATA

5/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 118.4-119.9

Sample Number: 715-10

Material Description: Light Gray Poorly Graded SAND with silt and gravel (Visual)

Date: 4/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
434.69	0.00	0.00	1.5	0.00	100
			1	46.75	89
			3/4	56.25	87
			3/8"	76.56	82
			#4	91.10	79
			#10	104.37	76
99.79	0.00	0.00	#20	3.04	74
			#40	5.94	71
			#60	12.62	66
			#100	50.38	38
			#140	80.36	15
			#200	86.11	10

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	13	8	21	3	5	61	69			10

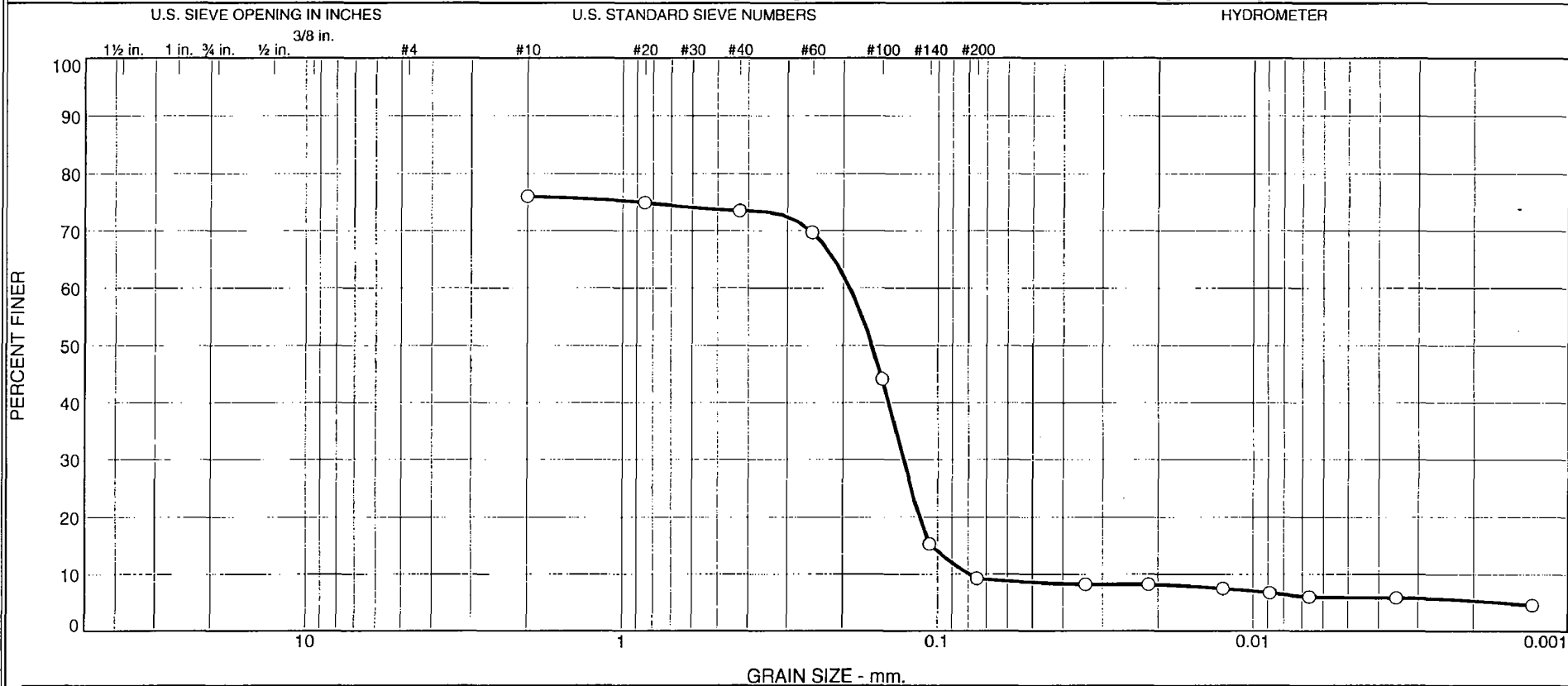
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1065	0.1173	0.1356	0.1791	0.2134	6.0171	13.7000	26.5586	32.4833

Fineness
Modulus

2.20

MACTEC, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



O	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
				2.5	64.2	3.4	5.9

[illegible]

Client	Bechtel
Project	Turkey Point COL

Project No. 6468071950

Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

<p>○ SIEVE ANALYSIS AND HYDROMETER ONLY ND = Not Determined Specific Gravity is assumed Test conducted on material passing #10 sieve which was 76% of total sample from previous sieve test.</p>

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 118.4-119.9

Sample Number: 715-10

Material Description: Light Gray Poorly Graded SAND with silt and gravel

Date: 4/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

ND = Not Determined

Specific Gravity is assumed

Test conducted on material passing #10 sieve which was 76% of total sample from previous sieve test.

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
200.42	0.00	0.00	#10	48.10	76.0
100.41	0.00	0.00	#20	1.45	74.9
			#40	3.35	73.5
			#60	8.29	69.7
			#100	42.00	44.2
			#140	80.15	15.3
			#200	88.16	9.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 76.0

Weight of hydrometer sample = 100.71

Hygroscopic moisture correction:

Moist weight and tare = 28.08

Dry weight and tare = 28.04

Tare weight = 15.55

Hygroscopic moisture = 0.3%

Table of composite correction values:

Temp., deg. C: 11.6 29.4

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	R _m	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0339	8.3
5.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0215	8.3
15.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0125	7.5
30.00	22.4	14.0	9.0	0.0131	15.0	13.8	0.0089	6.8
54.00	22.4	13.0	8.0	0.0131	14.0	14.0	0.0066	6.0
196.00	21.7	13.0	7.8	0.0132	14.0	14.0	0.0035	5.9
1440.00	22.5	11.0	6.1	0.0130	12.0	14.3	0.0013	4.5

MACTEC Engineering and Consulting, Inc.

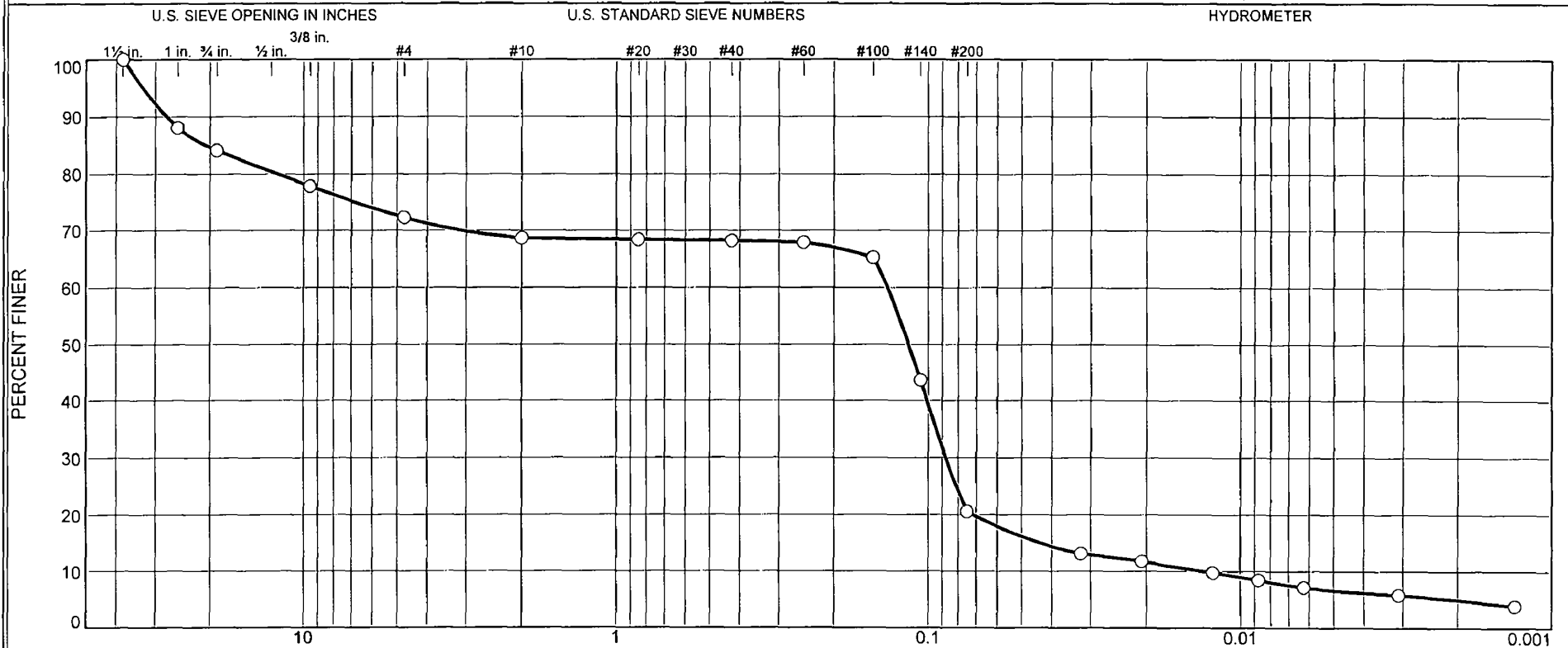
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
					2.5	64.2		3.4	5.9	9.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0792	0.1044	0.1139	0.1282	0.1615	0.1900				

Fineness Modulus	C _u	C _c
1.34	2.40	1.09

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
15.8	11.9	3.7	0.4	47.6	14.0	6.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-715	715-11	128.1-129.6	4/10/08	SM	Greenish Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel
 Project Turkey Point COL
 Project No. 6468071950
 Figure N/A

MACTEC Engineering and Consulting, Inc.
 Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
 Specific Gravity is assumed
 ND = Not Determined

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 128.1-129.6

Sample Number: 715-11

Material Description: Greenish Gray Silty SAND with gravel (Visual)

Date: 4/10/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
339.45	0.00	0.00	1.5	0.00	100.0
			1	40.47	88.1
			3/4	53.53	84.2
			3/8"	75.10	77.9
			#4	94.16	72.3
			#10	106.51	68.6
102.89	0.00	0.00	#20	0.40	68.4
			#40	0.67	68.2
			#60	1.12	67.9
			#100	5.00	65.3
			#140	37.40	43.7
			#200	72.05	20.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 68.6

Weight of hydrometer sample = 102.89

Hygroscopic moisture correction:

Moist weight and tare = 23.74

Dry weight and tare = 23.69

Tare weight = 11.23

Hygroscopic moisture = 0.4%

Table of composite correction values:

Temp., deg. C: 11.6 29.4

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	25.0	19.8	0.0132	26.0	12.0	0.0323	13.1
5.00	21.7	23.0	17.8	0.0132	24.0	12.4	0.0207	11.8
15.00	21.5	20.0	14.8	0.0132	21.0	12.9	0.0122	9.8
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	8.5
60.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0063	7.2
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	5.8
1440.00	21.6	11.0	5.8	0.0132	12.0	14.3	0.0013	3.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

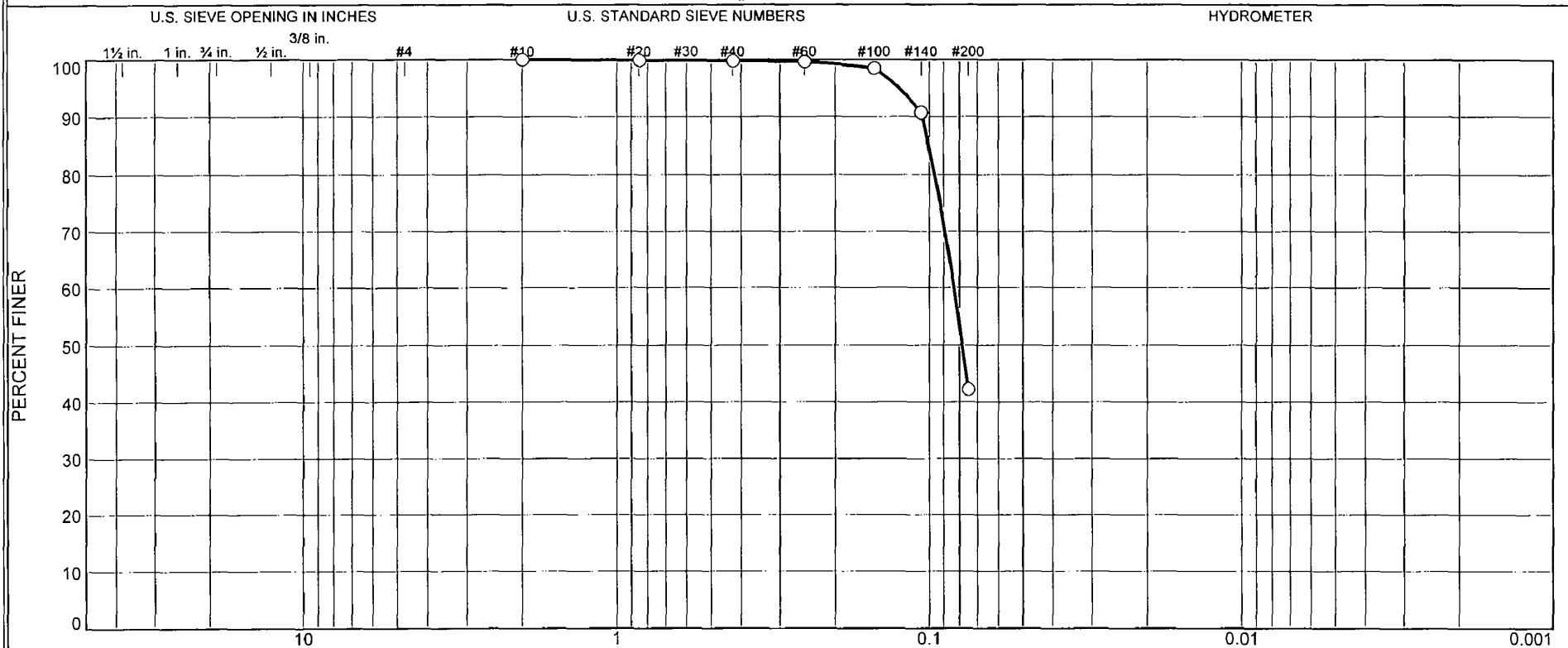
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	15.8	11.9	27.7	3.7	0.4	47.6	51.7	14.0	6.6	20.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0130	0.0435	0.0717	0.0879	0.1154	0.1343	12.1029	20.5525	27.6341	32.8059

Fineness Modulus	C _u	C _c
2.27	10.36	4.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	58	42	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-715	715-13	148.6-150.1	4/10/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-715

Depth: 148.6-150.1

Sample Number: 715-13

Material Description: Greenish Gray Silty SAND (Visual)

Date: 4/10/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
347.21	0.00	0.00	#10	0.00	100
102.01	0.00	0.00	#20	0.12	100
			#40	0.22	100
			#60	0.39	100
			#100	1.57	98
			#140	9.48	91
			#200	58.96	42

Fractional Components

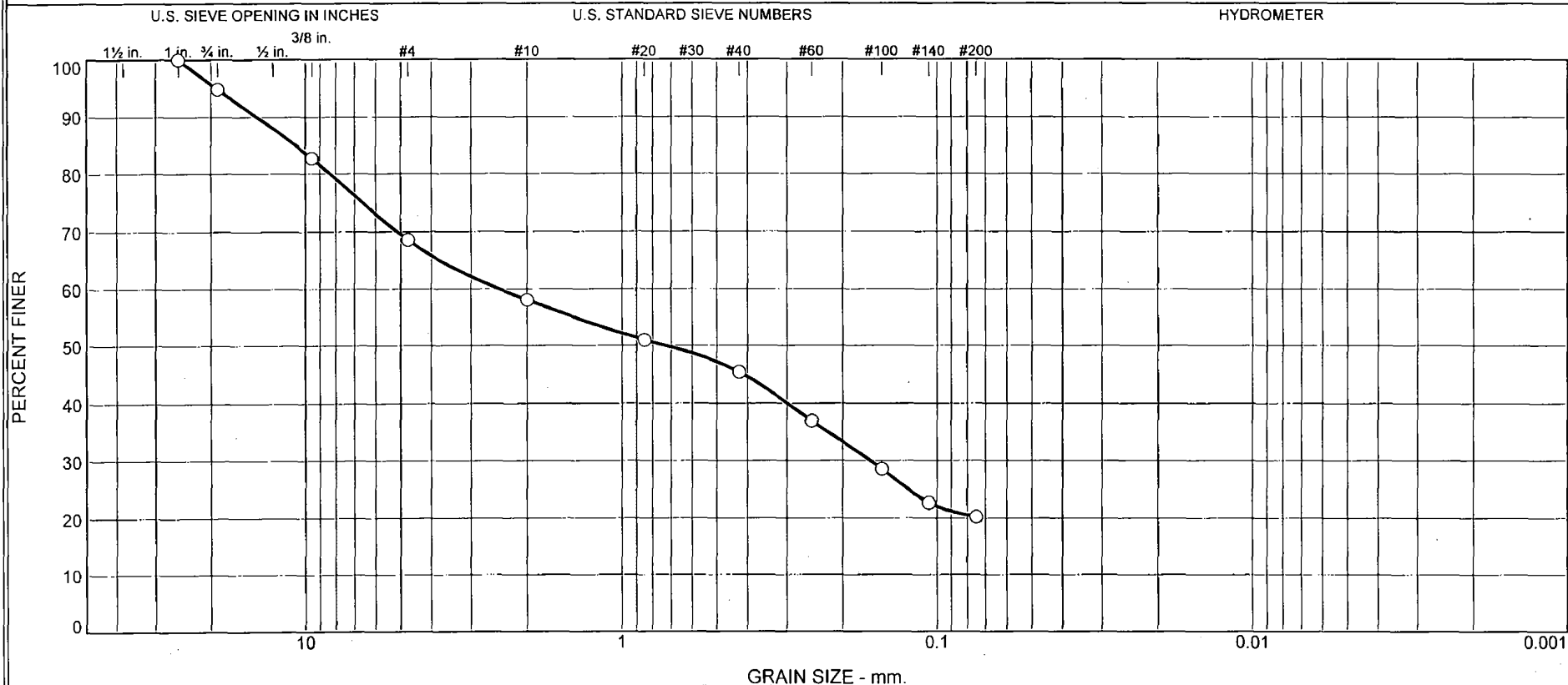
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0785	0.0834	0.0957	0.0998	0.1051	0.1245

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	26	11	13	25	20	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-720 (DH)	720-3	5.0-7.5	5/4/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure	Raleigh, North Carolina	

ZHU 7/23/08

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 5.0-7.5

Sample Number: 720-3

Material Description: White Silty SAND with gravel (Visual)

Date: 5/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
351.28	0.00	0.00	1	0.00	100
			3/4	18.01	95
			3/8"	60.73	83
			#4	110.39	69
			#10	147.25	58
98.77	0.00	0.00	#20	12.13	51
			#40	21.57	45
			#60	35.94	37
			#100	50.28	29
			#140	60.23	23
			#200	64.38	20

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	26	31	11	13	25	49			20

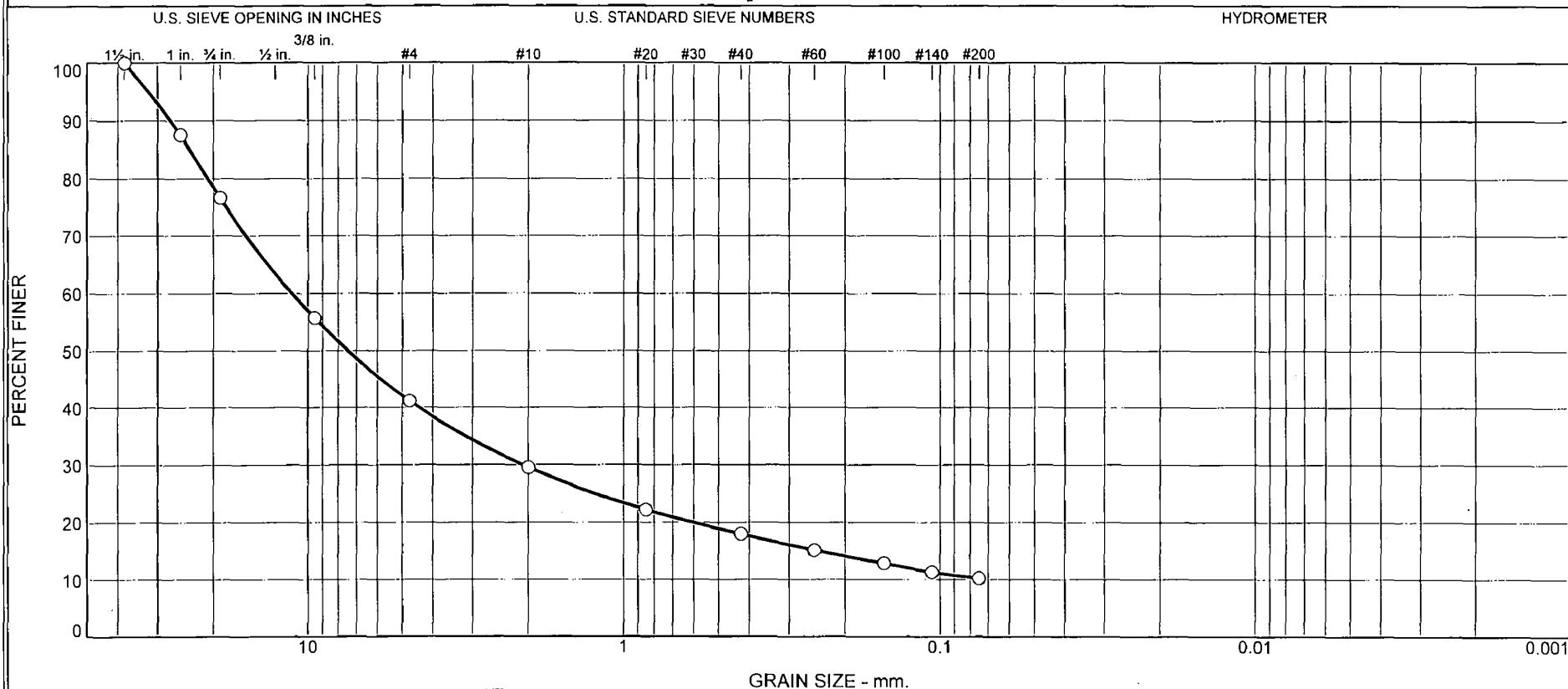
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1632	0.7332	2.4465	8.3366	10.7413	14.2912	19.1898

Fineness Modulus

3.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
23	36	11	12	8	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-720 (DH)	720-6	13.5-15.0	5/4/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure	Raleigh, North Carolina	

ZHU 7/23/08

Tested By: CS

Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 13.5-15.0

Sample Number: 720-6

Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)

Date: 5/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
390.43	0.00	0.00	1.5	0.00	100
			1	48.59	88
			3/4	91.16	77
			3/8"	172.77	56
			#4	229.75	41
			#10	275.00	30
97.01	0.00	0.00	#20	24.17	22
			#40	38.04	18
			#60	47.28	15
			#100	54.85	13
			#140	59.92	11
			#200	63.43	10

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	23	36	59	11	12	8	31			10

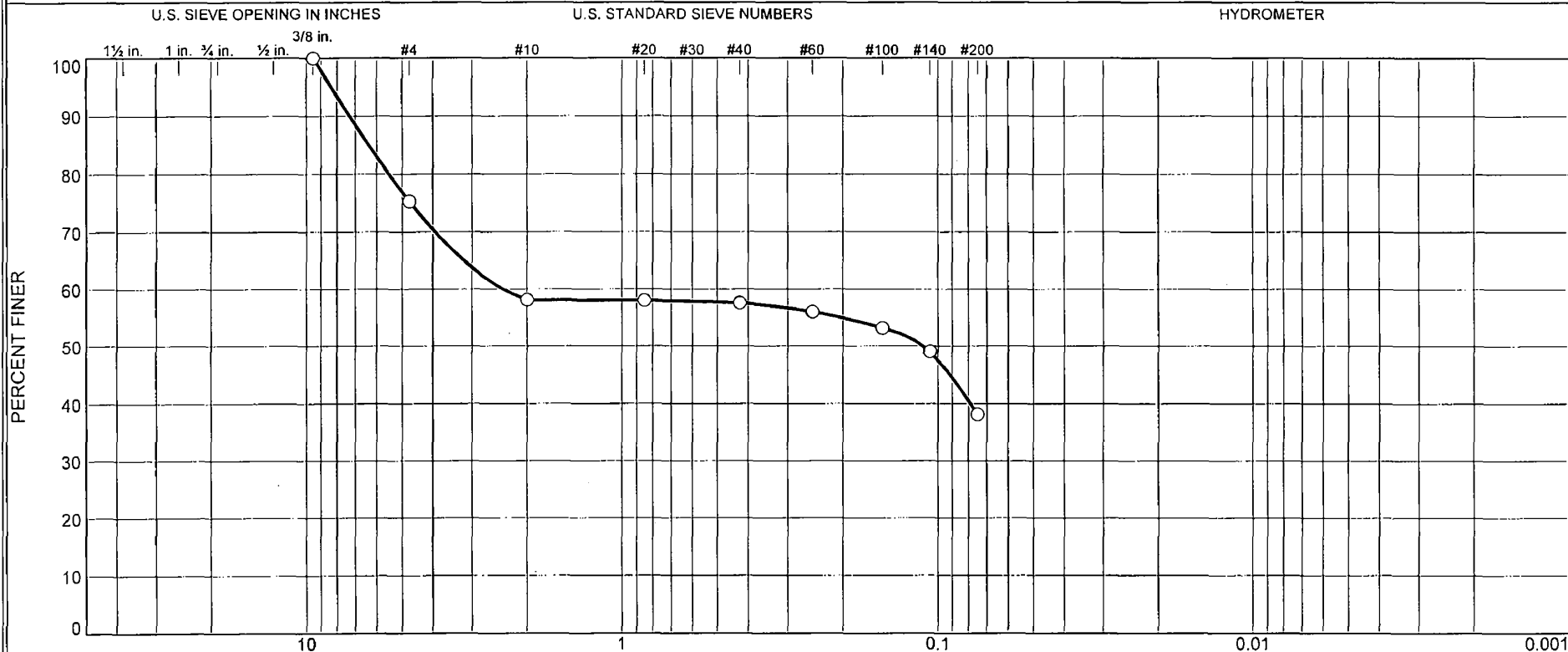
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.2420	0.6041	2.0841	7.4513	11.2361	20.8019	23.6925	27.2714	32.0059

Fineness
Modulus

5.22

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	25	17	0	20	38	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-720 (DH)	720-8	23.5-25.0	5/4/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel	MACTEC Engineering and Consulting, Inc.	Raleigh, North Carolina	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950 Figure N/A			

ZHU 7/23/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 23.5-25.0

Sample Number: 720-8

Material Description: White Silty SAND with gravel (Visual)

Date: 5/4/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
245.20	0.00	0.00	3/8"	0.00	100
			#4	60.51	75
			#10	102.66	58
95.55	0.00	0.00	#20	0.17	58
			#40	0.84	58
			#60	3.49	56
			#100	8.12	53
			#140	14.99	49
			#200	32.91	38

Fractional Components

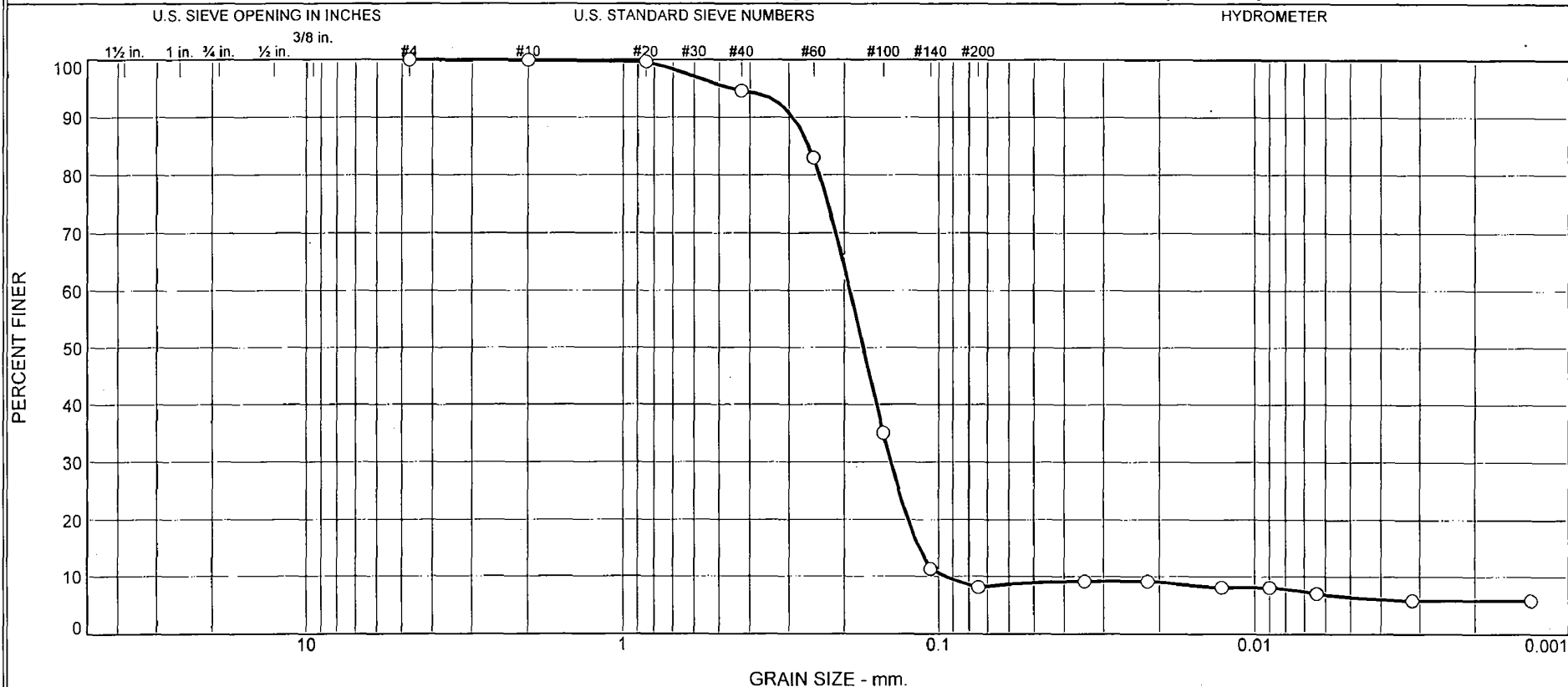
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	25	25	17	0	20	37			38

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1114	2.3896	5.4982	6.3576	7.2994	8.3463

Fineness
Modulus

2.39

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 118.4-119.9

Sample Number: 720-10

Material Description: Light Gray Poorly Graded SAND with silt (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
359.26	0.00	0.00	#4	0.00	100.0
			#10	0.20	99.9
97.18	0.00	0.00	#20	0.26	99.7
			#40	5.13	94.7
			#60	16.53	82.9
			#100	63.06	35.1
			#140	86.23	11.3
			#200	89.36	8.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =99.9

Weight of hydrometer sample =97.17

Hygroscopic moisture correction:

Moist weight and tare = 28.63

Dry weight and tare = 28.51

Tare weight = 15.51

Hygroscopic moisture =0.9%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0345	9.1
5.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0218	9.1
15.00	21.7	13.0	7.9	0.0132	14.0	14.0	0.0127	8.1
30.00	21.7	13.0	7.9	0.0132	14.0	14.0	0.0090	8.1
60.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0064	7.0
250.00	21.1	11.0	5.7	0.0133	12.0	14.3	0.0032	5.8
1440.00	21.1	11.0	5.7	0.0133	12.0	14.3	0.0013	5.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

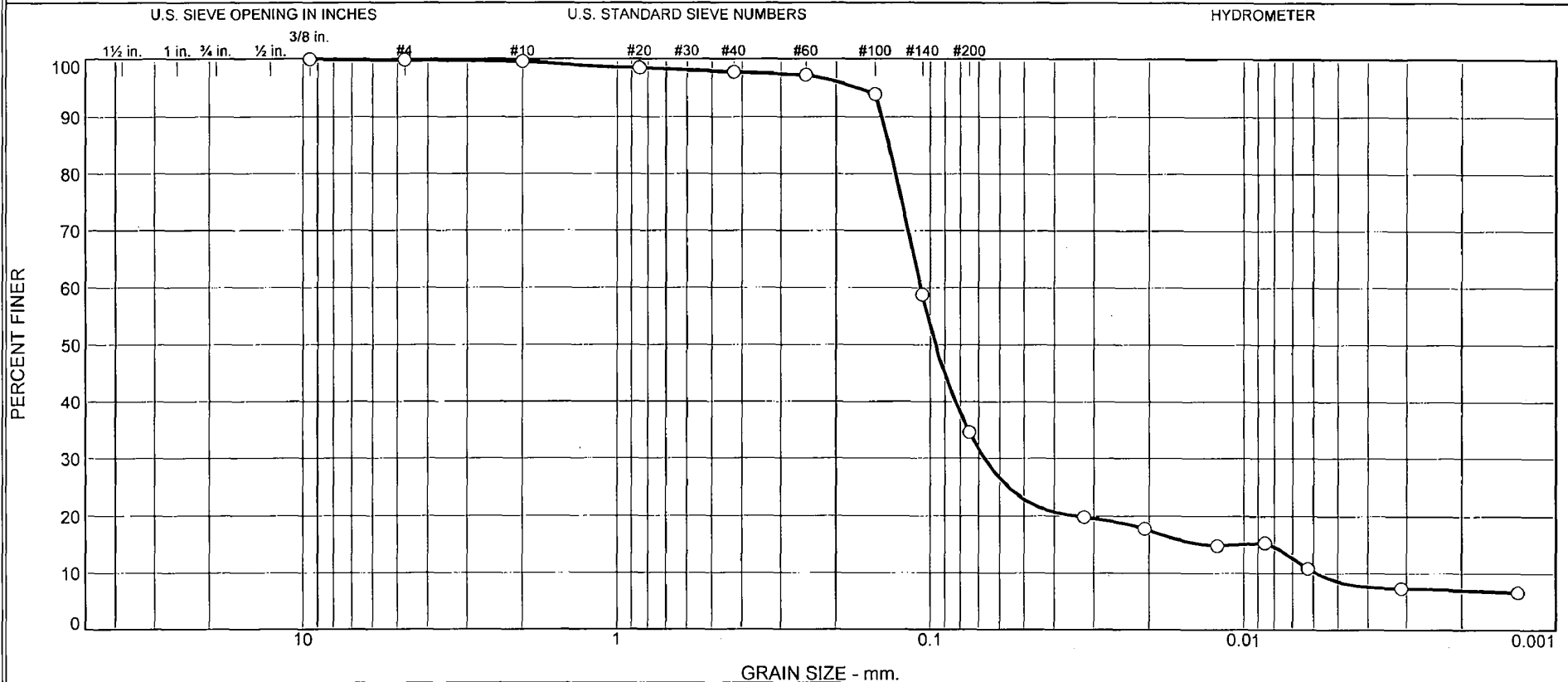
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	5.2	86.7	92.0	1.6	6.4	8.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0951	0.1152	0.1250	0.1419	0.1739	0.1916	0.2393	0.2590	0.2913	0.4527

Fineness Modulus	C _u	C _c
0.77	2.02	1.11

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 138.4-139.9

Sample Number: 720-12

Material Description: Greenish Gray Silty SAND (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
283.17	0.00	0.00	3/8"	0.00	100.0
			#4	0.39	99.9
			#10	1.08	99.6
99.35	0.00	0.00	#20	1.12	98.5
			#40	1.84	97.8
			#60	2.36	97.3
			#100	5.70	93.9
			#140	40.71	58.8
			#200	64.91	34.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =99.6

Weight of hydrometer sample =99.21

Hygroscopic moisture correction:

Moist weight and tare = 28.64

Dry weight and tare = 28.60

Tare weight = 15.29

Hygroscopic moisture =0.3%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	25.0	19.9	0.0131	26.0	12.0	0.0322	19.8
5.00	21.8	23.0	17.9	0.0131	24.0	12.4	0.0207	17.8
15.00	21.8	20.0	14.9	0.0131	21.0	12.9	0.0122	14.8
30.00	21.8	20.5	15.4	0.0131	21.5	12.8	0.0086	15.3
60.00	21.8	16.0	10.9	0.0131	17.0	13.5	0.0062	10.8
250.00	21.8	12.5	7.4	0.0131	13.5	14.1	0.0031	7.4
1440.00	20.9	12.0	6.6	0.0133	13.0	14.2	0.0013	6.6

MACTEC Engineering and Consulting, Inc.

Fractional Components

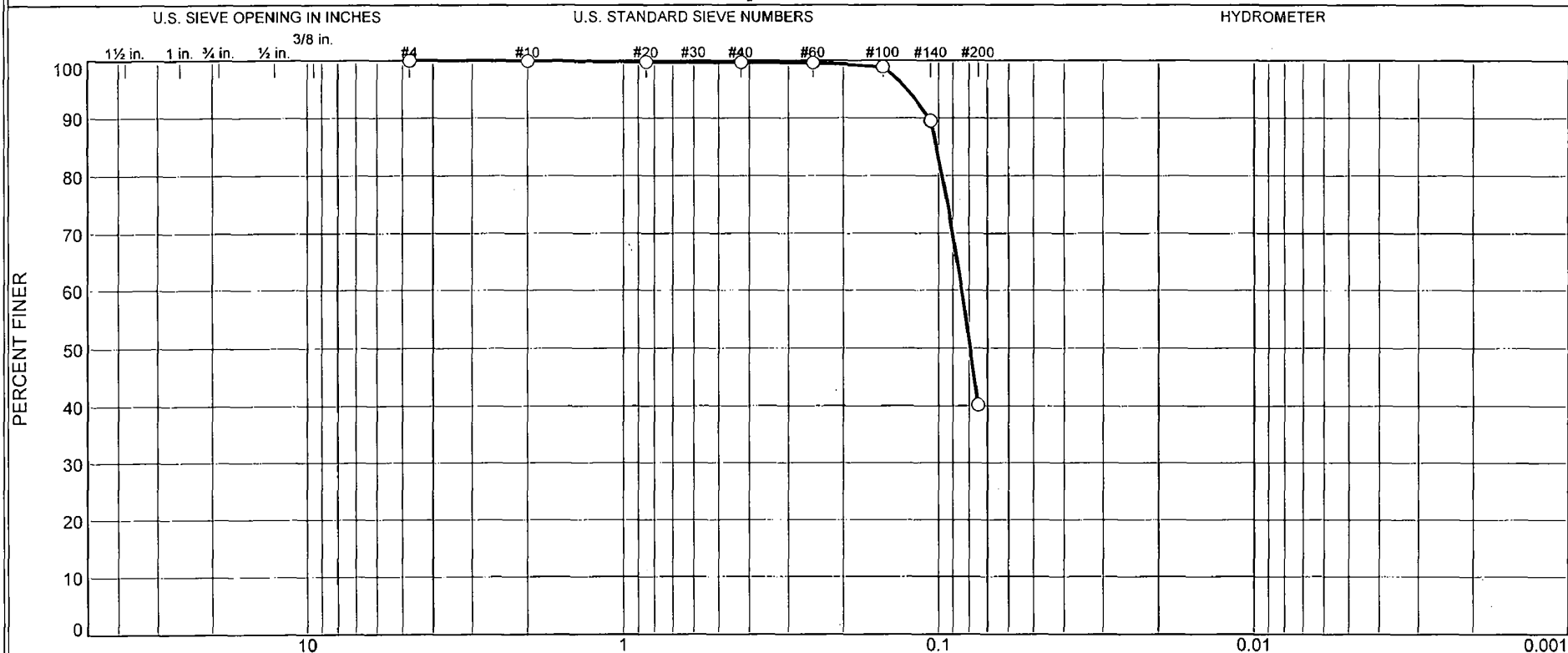
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	0.3	1.8	63.3	65.4	26.0	8.5	34.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0059	0.0082	0.0339	0.0671	0.0962	0.1073	0.1287	0.1350	0.1425	0.1704

Fineness Modulus	C _u	C _c
0.12	18.32	7.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	60	40	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-720 (DH)	720-13	148.4-149.9	4/7/08	SM	Greenish Gray Silty SAND (Visual)	ND	NV	

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

ZHU 7/23/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 148.4-149.9

Sample Number: 720-13

Material Description: Greenish Gray Silty SAND (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: NV

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
367.28	0.00	0.00	#4	0.00	100
			#10	0.09	100
95.48	0.00	0.00	#20	0.18	100
			#40	0.26	100
			#60	0.34	100
			#100	1.04	99
			#140	10.03	89
			#200	57.11	40

Fractional Components

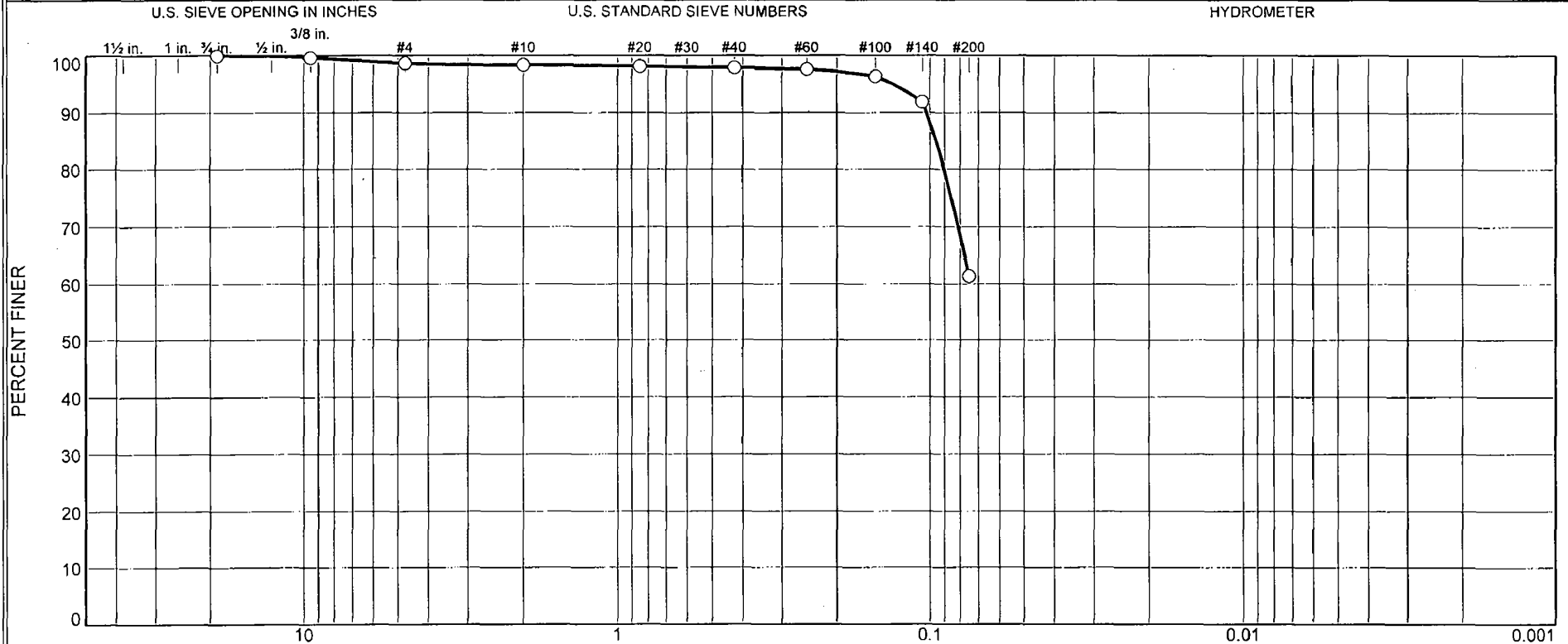
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	60	60			40

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0794	0.0844	0.0969	0.1012	0.1075	0.1257

Fineness Modulus

0.02

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	1	0	37	61	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-720 (DH)	720-14	158.4-159.9	4/7/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

Raleigh, North Carolina

ZHU 7/23/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-720 (DH)

Depth: 158.4-159.9

Sample Number: 720-14

Material Description: Greenish Gray Sandy SILT (Visual)

Date: 4/7/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: ML

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
325.84	0.00	0.00	3/4	0.00	100
			3/8"	1.17	100
			#4	4.36	99
			#10	5.30	98
97.32	0.00	0.00	#20	0.25	98
			#40	0.48	98
			#60	0.74	98
			#100	1.97	96
			#140	6.42	92
			#200	36.62	61

Fractional Components

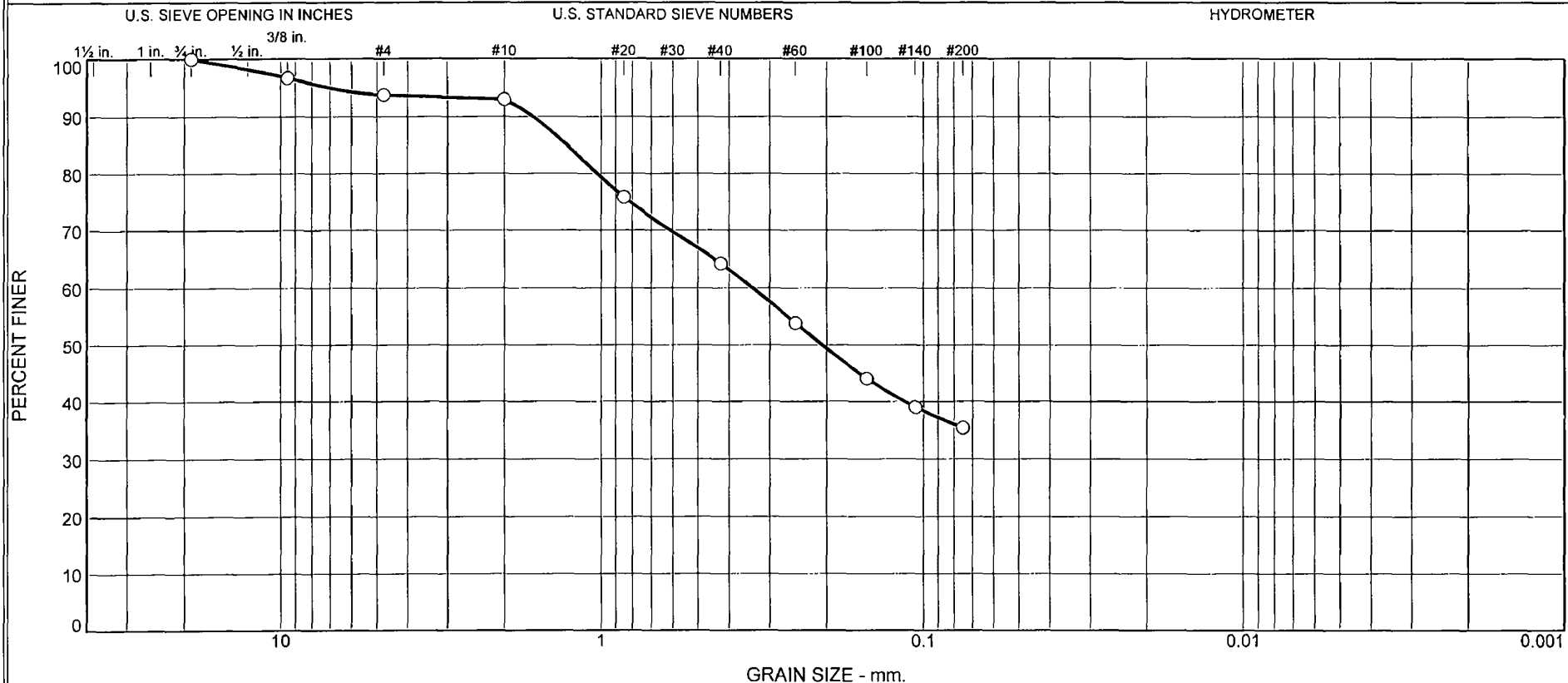
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	0	37	38			61

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0900	0.0954	0.1024	0.1312

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	6	1	29	29	35	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-730	730-3	3.9-5.4	2/9/08	SM	Black Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 91% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-730

Depth: 3.9-5.4

Sample Number: 730-3

Material Description: Black Silty SAND (Visual)

Date: 2/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 91% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
321.83	0.00	0.00	3/4	0.00	100
			3/8"	10.44	97
			#4	20.05	94
			#10	22.66	93
103.72	0.00	0.00	#20	19.08	76
			#40	32.05	64
			#60	43.60	54
			#100	54.56	44
			#140	60.23	39
			#200	64.26	35

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	1	29	29	59			35

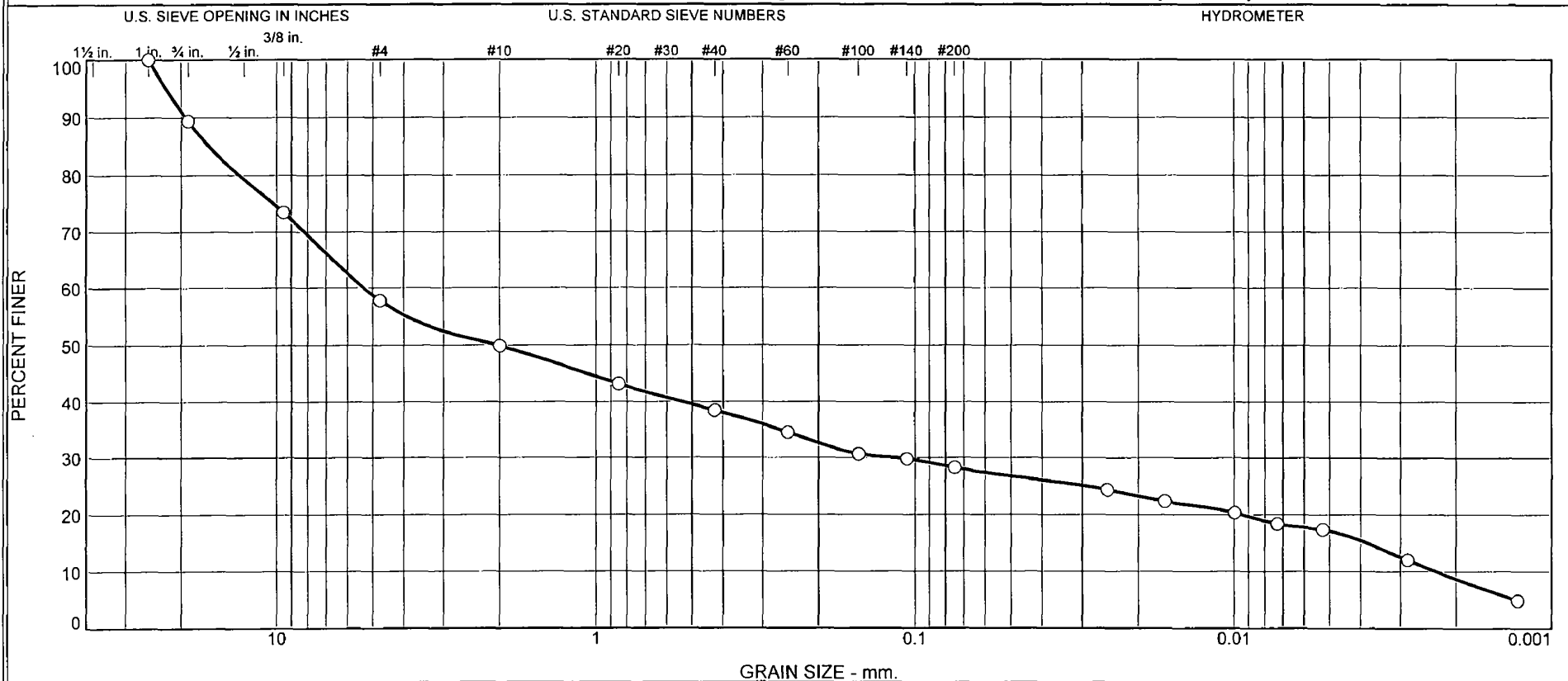
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.2064	0.3383	1.0287	1.2792	1.6314	6.9961

Fineness Modulus

1.62

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
10.6	31.6	7.9	11.4	10.3	11.0	17.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-730	730-5	8.6-10.1	2/9/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS AND HYDROMETER ONLY Specific Gravity is assumed ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-730

Depth: 8.6-10.1

Sample Number: 730-5

Material Description: White Silty GRAVEL with sand (Visual)

Date: 2/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
424.24	0.00	0.00	1	0.00	100.0
			3/4	45.09	89.4
			3/8"	112.52	73.5
			#4	179.06	57.8
			#10	212.75	49.9
100.27	0.00	0.00	#20	13.49	43.1
			#40	22.91	38.5
			#60	30.78	34.5
			#100	38.57	30.7
			#140	40.35	29.8
			#200	43.46	28.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample =49.9

Weight of hydrometer sample =100.27

Hygroscopic moisture correction:

Moist weight and tare = 23.18

Dry weight and tare = 23.16

Tare weight = 11.05

Hygroscopic moisture =0.2%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only =1.0

Specific gravity of solids =2.700

Hydrometer type =152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	55.0	49.3	0.0132	56.0	7.1	0.0250	24.3
5.00	21.1	51.0	45.3	0.0133	52.0	7.8	0.0165	22.3
15.00	21.1	47.0	41.3	0.0133	48.0	8.4	0.0099	20.3
30.00	21.1	43.0	37.3	0.0133	44.0	9.1	0.0073	18.4
60.00	21.1	41.0	35.3	0.0133	42.0	9.4	0.0053	17.4
240.00	21.8	30.0	24.5	0.0131	31.0	11.2	0.0028	12.0
1440.00	21.6	15.5	9.9	0.0132	16.5	13.6	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

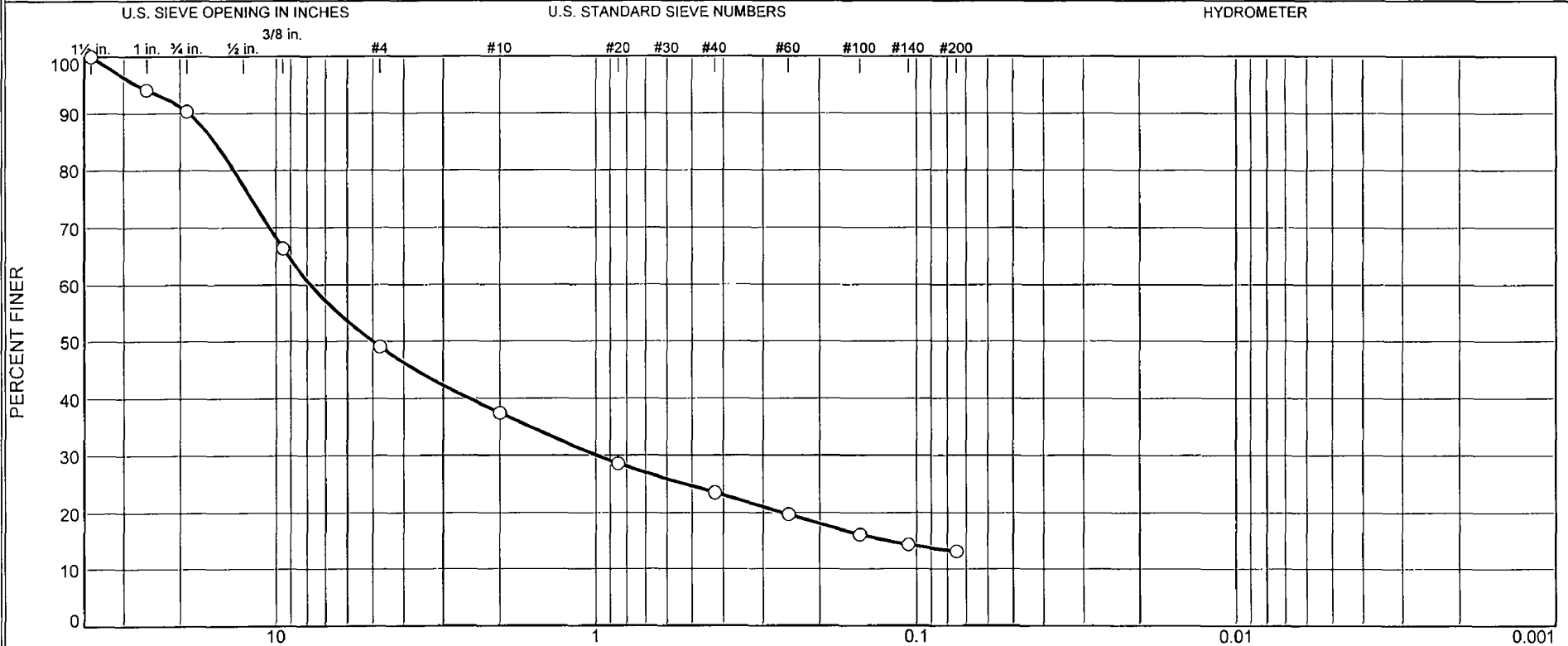
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	10.6	31.6	42.2	7.9	11.4	10.3	29.6	11.0	17.2	28.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0023	0.0038	0.0094	0.1152	2.0466	5.3322	13.1386	16.3649	19.4203	22.3330

Fineness Modulus	C _u	C _c
3.75	2313.73	1.08

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
10	41	12	14	10	13	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-730	730-8	19.6-21.1	2/10/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Calcite Equivalent = 89% (ASTM D 4373-02)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-730

Depth: 19.6-21.1

Sample Number: 730-8

Material Description: Pale Yellow Silty GRAVEL with sand (Visual)

Date: 2/10/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Calcite Equivalent = 89% (ASTM D 4373-02)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
447.80	0.00	0.00	1.5	0.00	100
			1	26.07	94
			3/4	42.89	90
			3/8"	150.50	66
			#4	228.20	49
			#10	279.94	37
99.94	0.00	0.00	#20	23.74	29
			#40	37.32	23
			#60	47.42	20
			#100	56.92	16
			#140	61.64	14
			#200	64.93	13

Fractional Components

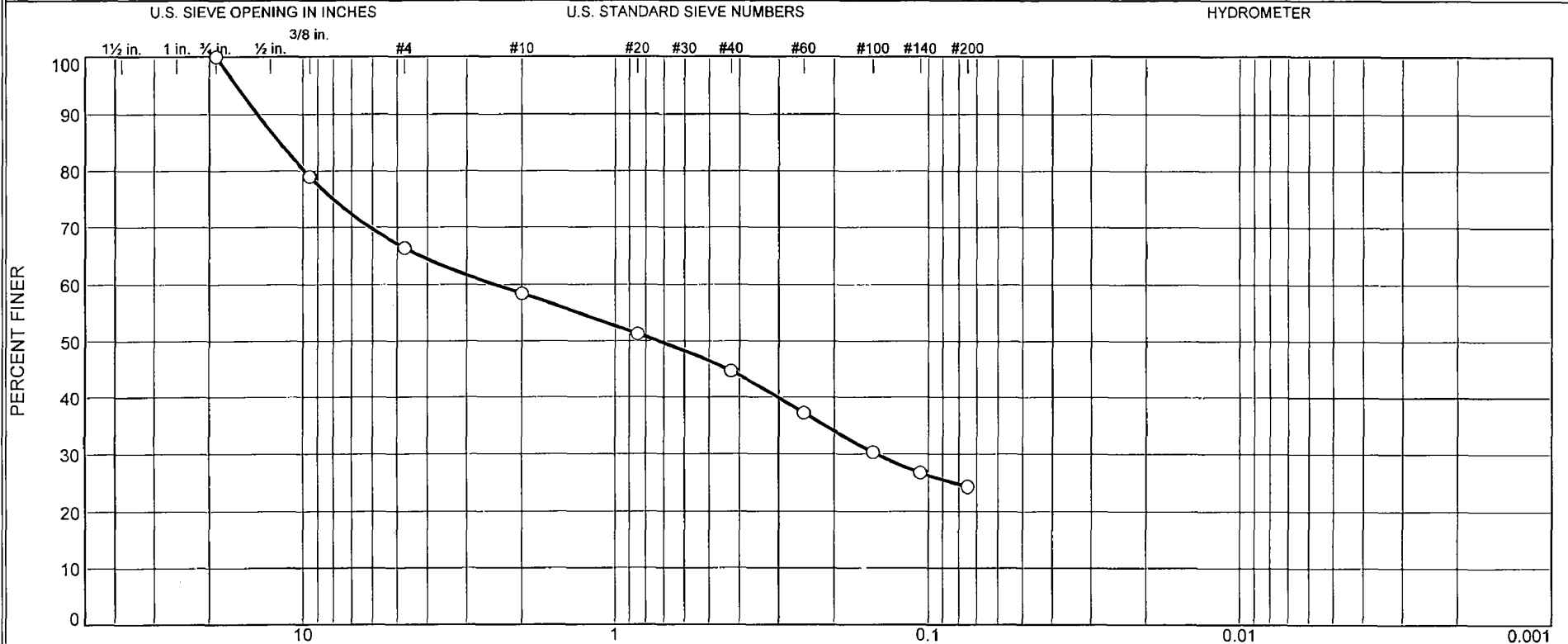
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	41	51	12	14	10	36			13

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1219	0.2605	0.9937	5.0146	7.7905	13.5596	15.5913	18.6664	27.1993

Fineness Modulus
4.60

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	34	8	13	21	24	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-737	737-3	5.0-6.5	4/3/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-737

Depth: 5.0-6.5

Sample Number: 737-3

Material Description: White Silty SAND with gravel (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
464.85	0.00	0.00	3/4	0.00	100
			3/8"	97.76	79
			#4	156.38	66
			#10	193.33	58
102.83	0.00	0.00	#20	12.51	51
			#40	24.17	45
			#60	37.37	37
			#100	49.52	30
			#140	55.85	27
			#200	60.06	24

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	34	34	8	13	21	42			24

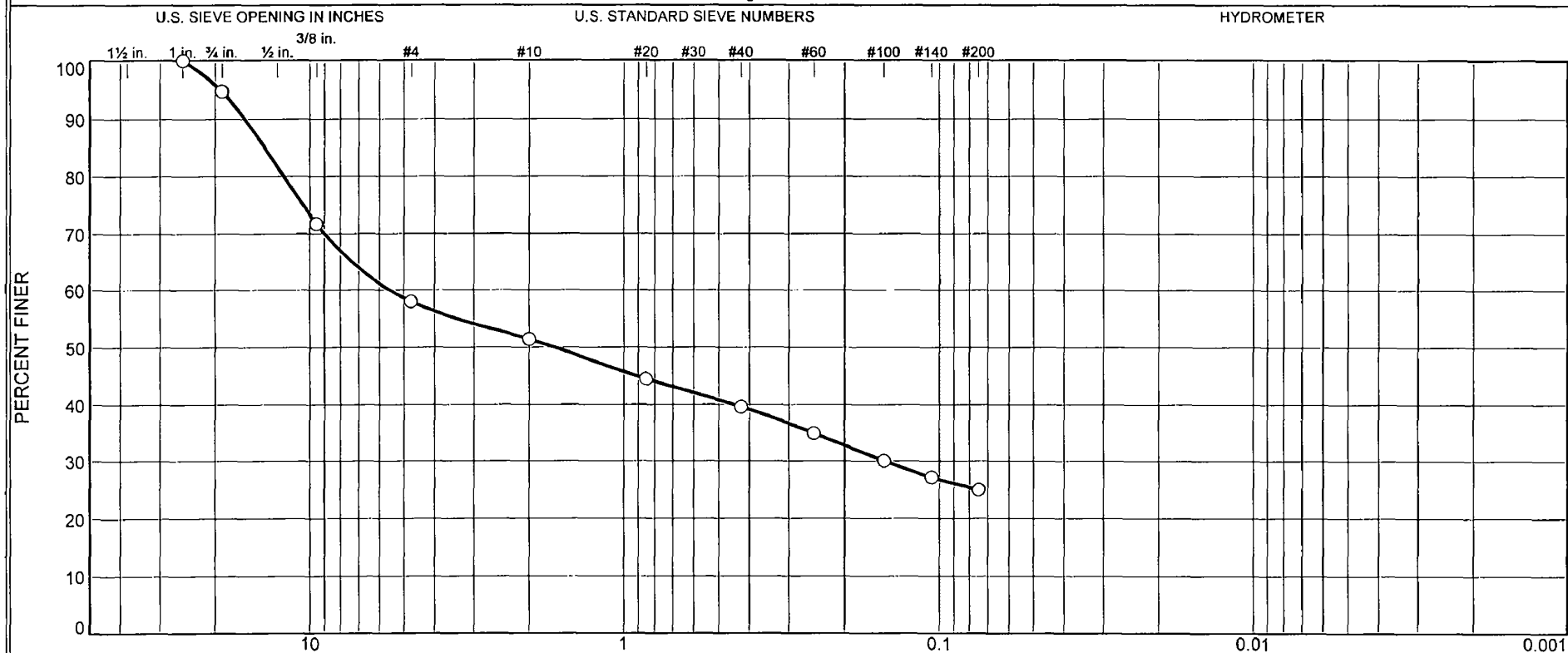
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1465	0.7271	2.4498	9.9189	11.8829	14.0042	16.3640

Fineness Modulus

3.22

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	37	7	11	15	25	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-737	737-5	10.0-11.5	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-737

Depth: 10.0-11.5

Sample Number: 737-5

Material Description: White Silty GRAVEL with sand (Visual)

Date: 4/3/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
278.97	0.00	0.00	1	0.00	100
			3/4	14.67	95
			3/8"	78.89	72
			#4	117.20	58
			#10	135.63	51
95.47	0.00	0.00	#20	12.87	44
			#40	21.94	40
			#60	30.56	35
			#100	39.62	30
			#140	45.06	27
			#200	49.18	25

Fractional Components

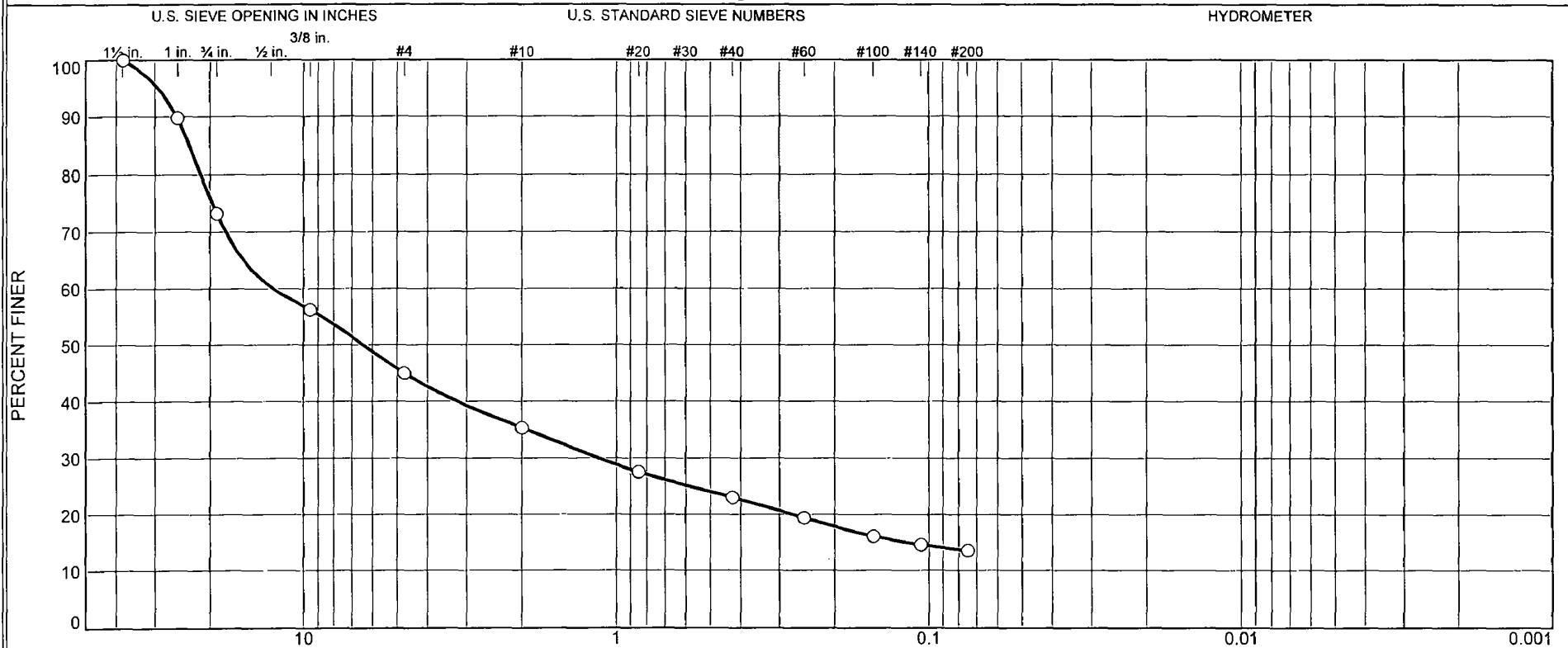
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	37	42	7	11	15	33			25

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1491	1.6655	5.5594	12.1248	13.9183	16.1158	19.2591

Fineness Modulus
3.67

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
27	28	10	12	9	14	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-737	737-8	18.6-20.1	5/9/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	<input type="radio"/> SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-737

Depth: 18.6-20.1

Sample Number: 737-8

Material Description: White Silty GRAVEL with sand (Visual)

Date: 5/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
549.92	0.00	0.00	1.5	0.00	100
			1	56.44	90
			3/4	147.33	73
			3/8"	240.50	56
			#4	302.80	45
			#10	355.70	35
98.23	0.00	0.00	#20	21.64	28
			#40	34.16	23
			#60	44.29	19
			#100	53.49	16
			#140	57.61	15
			#200	60.58	14

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	27	28	55	10	12	9	31			14

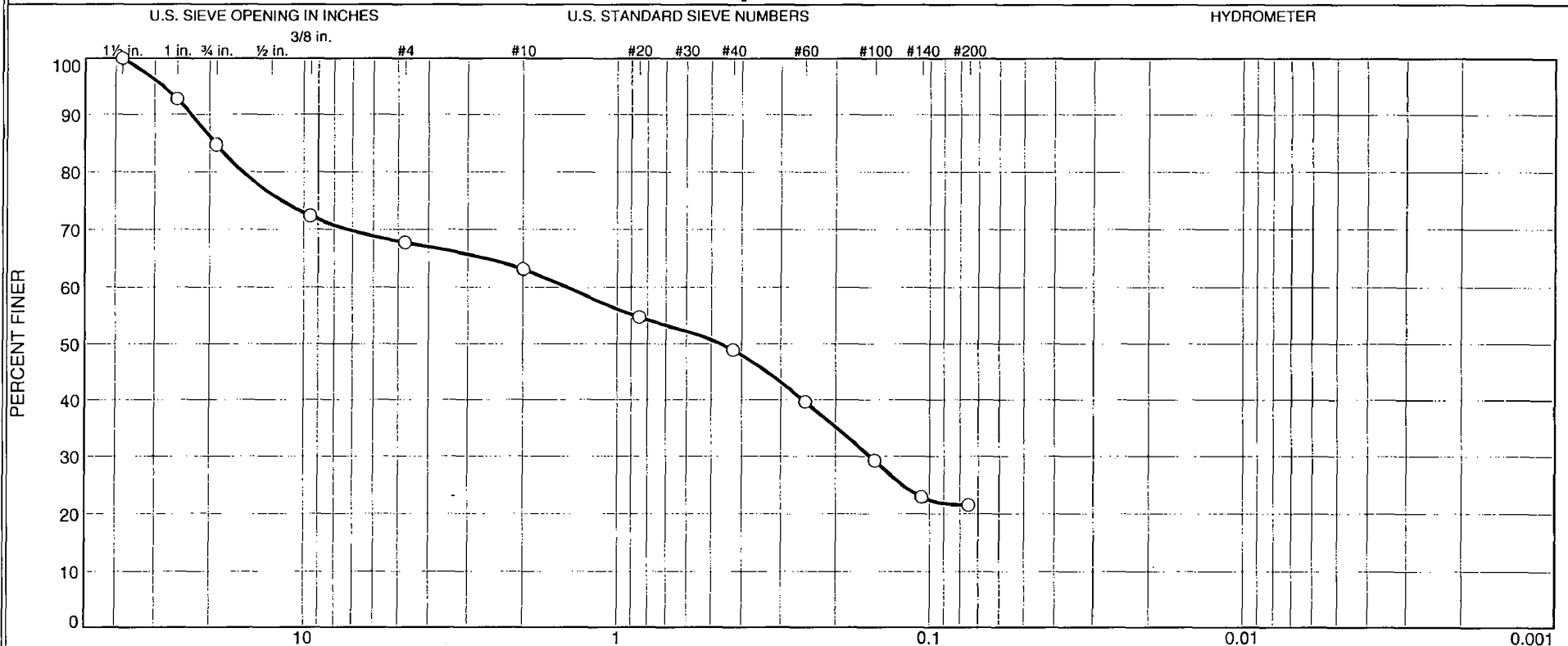
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1180	0.2723	1.1412	6.4466	12.5128	21.4110	23.2596	25.5416	29.2301

Fineness Modulus

4.96

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel			% Sand			% Fines	
Coarse	Fine		Coarse	Medium	Fine	Silt	Clay
15	17		5	14	27	22	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-737	737-14B	112.7-113.3	5/9/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		
		Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-737

Depth: 112.7-113.3

Sample Number: 737-14B

Material Description: Light Gray Silty SAND with gravel (Visual)

Date: 5/9/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
301.78	0.00	0.00	1.5	0.00	100
			1	21.75	93
			3/4	46.13	85
			3/8"	83.54	72
			#4	97.27	68
			#10	111.23	63
99.29	0.00	0.00	#20	13.23	55
			#40	22.36	49
			#60	36.89	40
			#100	53.28	29
			#140	63.23	23
			#200	65.39	22

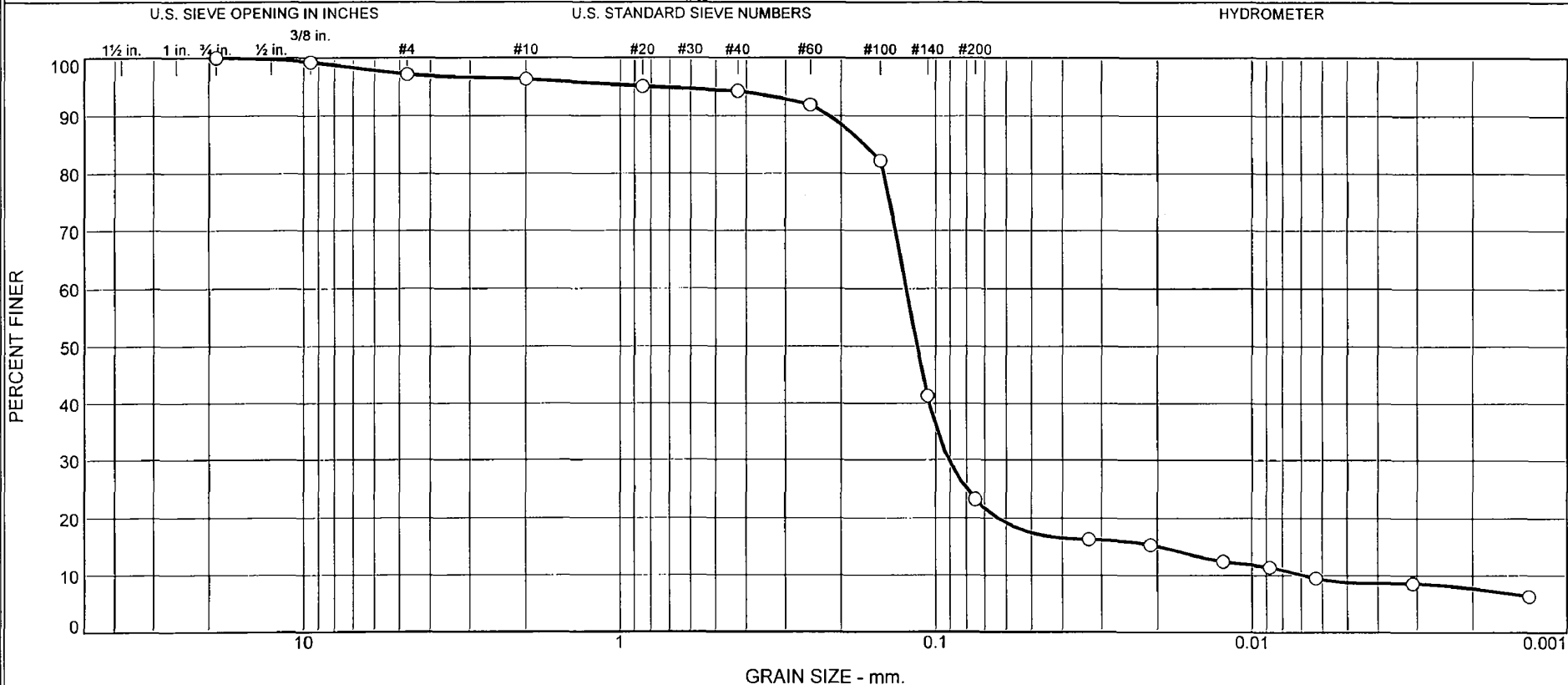
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	15	17	32	5	14	27	46			22

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1553	0.4657	1.4439	15.6922	19.2489	22.8935	28.0299

Fineness Modulus
3.28

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.8	0.8	2.1	71.1	14.4	8.8

[illegible]

Project Turkey Point COL

Figure N/A

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-737

Depth: 121.8-123.3

Sample Number: 737-15

Material Description: Pale Brown Silty SAND (Visual)

Date: 4/5/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY

Specific Gravity is assumed

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
261.01	0.00	0.00	3/4	0.00	100.0
			3/8"	1.89	99.3
			#4	7.29	97.2
			#10	9.46	96.4
99.27	0.00	0.00	#20	1.28	95.1
			#40	2.13	94.3
			#60	4.56	91.9
			#100	14.56	82.2
			#140	56.69	41.3
			#200	75.36	23.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 96.4

Weight of hydrometer sample = 99.27

Hygroscopic moisture correction:

Moist weight and tare = 28.59

Dry weight and tare = 28.48

Tare weight = 15.67

Hygroscopic moisture = 0.9%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	22.0	16.8	0.0132	23.0	12.5	0.0330	16.3
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	15.3
15.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0124	12.4
30.00	21.7	17.0	11.9	0.0132	18.0	13.3	0.0088	11.5
60.00	21.7	15.0	9.9	0.0132	16.0	13.7	0.0063	9.5
250.00	21.8	14.0	8.9	0.0131	15.0	13.8	0.0031	8.6
1440.00	20.7	12.0	6.6	0.0133	13.0	14.2	0.0013	6.4

MACTEC Engineering and Consulting, Inc.

Fractional Components

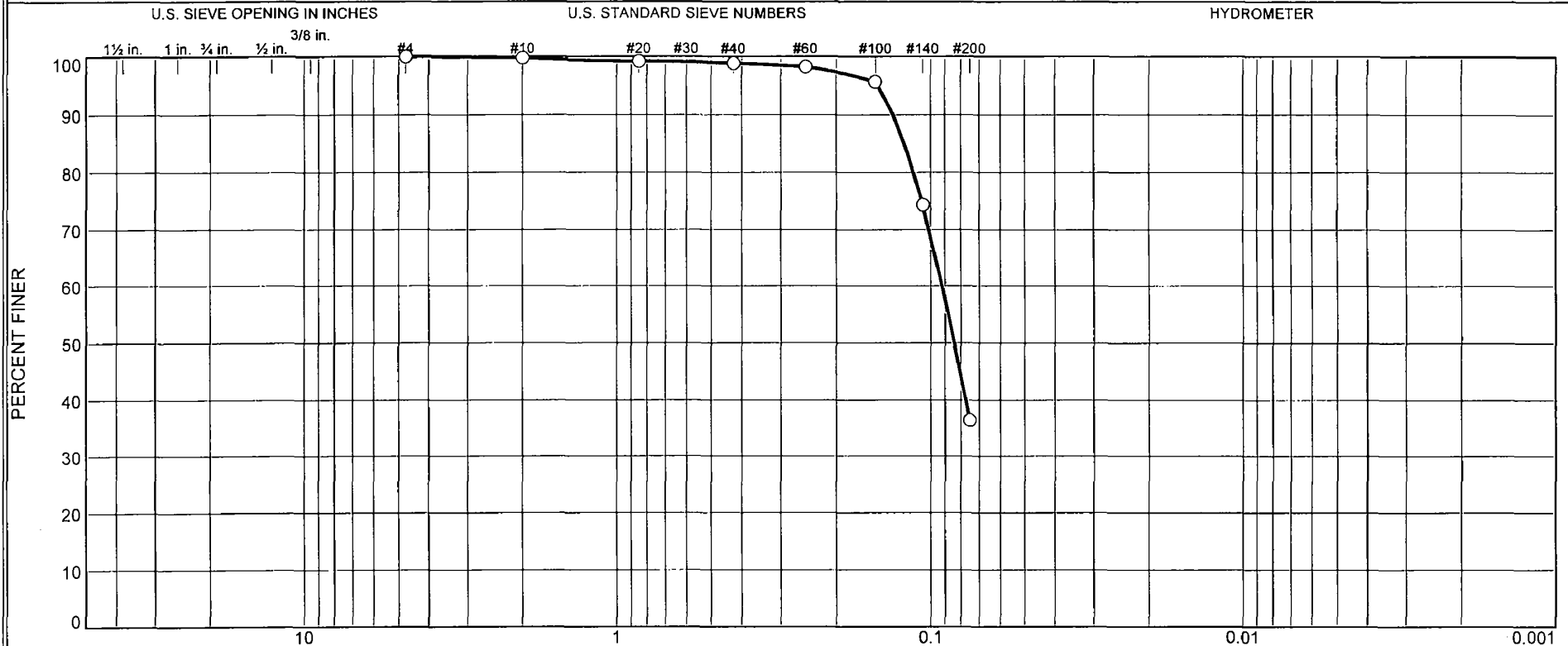
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.8	2.8	0.8	2.1	71.1	74.0	14.4	8.8	23.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0068	0.0196	0.0636	0.0910	0.1145	0.1239	0.1464	0.1678	0.2172	0.7668

Fineness Modulus	C _u	C _c
0.42	18.18	9.79

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	63	36	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-737	737-17	141.8-143.3	4/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Boring B-737

Depth: 141.8-143.3

Sample Number: 737-17

Material Description: Greenish Gray Silty SAND (Visual)

Date: 4/5/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
329.12	0.00	0.00	#4	0.00	100
			#10	0.75	100
102.52	0.00	0.00	#20	0.62	99
			#40	0.95	99
			#60	1.60	98
			#100	4.26	96
			#140	26.11	74
			#200	65.08	36

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	63	64			36

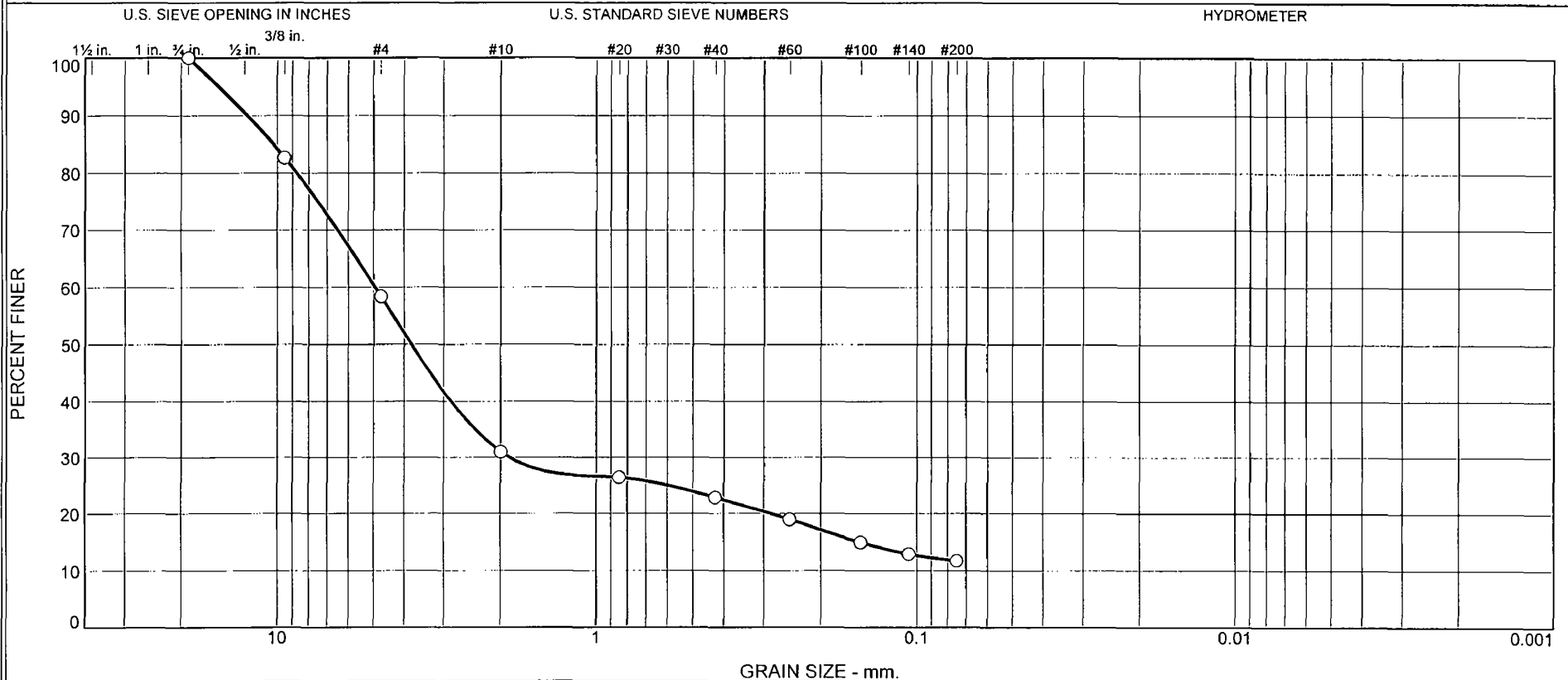
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0841	0.0919	0.1133	0.1212	0.1316	0.1472

Fineness Modulus
0.08

MACTEC Engineering and Consulting, Inc.

Soil Laboratory Test- Test Pits

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	42	27	8	11	12	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Test Pit TP-601	601-1	3.2-5.0	5/1/08	SP-SM	Pale Brown Poorly graded SAND with Silt and Gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Test performed on material as obtained from the field.
Project Turkey Point COL			
Project No. 6468071950	Figure NA	Raleigh, North Carolina	

ZHU 7/22/08

Tested By: CS

Volume 3, Rev 2 - 10/6/2008

Checked By: LBJ

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DCN# TUR512

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Test Pit TP-601

Depth: 3.2-5.0

Sample Number: 601-1

Material Description: Pale Brown Poorly graded SAND with Silt and Gravel (Visual)

Date: 5/1/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Test performed on material as obtained from the field.

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
375.84	0.00	0.00	3/4	0.00	100
			3/8"	64.99	83
			#4	156.27	58
			#10	259.30	31
102.33	0.00	0.00	#20	15.20	26
			#40	27.02	23
			#60	39.75	19
			#100	52.87	15
			#140	59.59	13
			#200	63.62	12

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	42	42	27	8	11	46			12

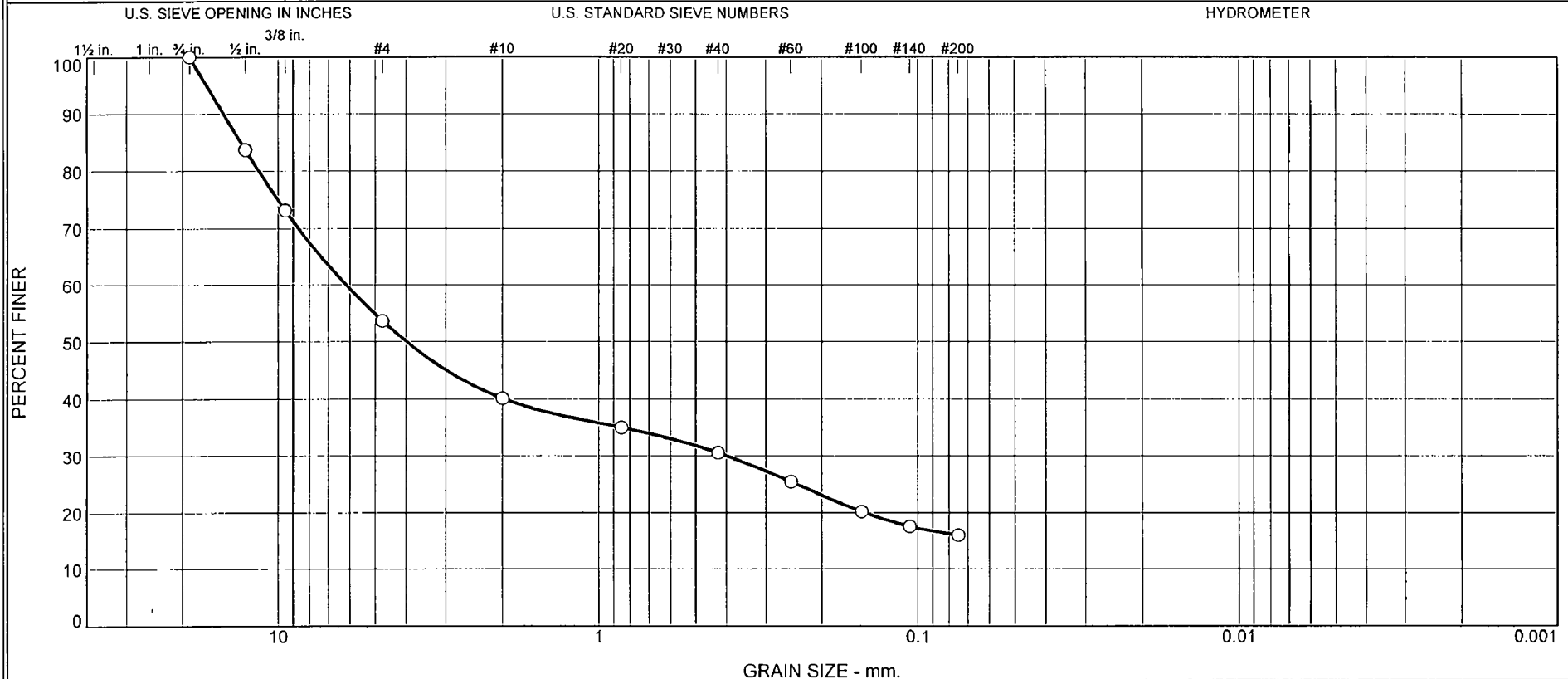
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1503	0.2863	1.8796	3.8024	4.9518	8.7189	10.3097	12.4378	15.2972

Fineness Modulus

4.37

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	46	14	9	15	16	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Test Pit TP-601	601-1-BC	NA	5/15/08	SP-SM	Processed Material- Before Compaction	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Test performed on material as prepared according to ASTM D 1557-07 before compaction(BC)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A		

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Test Pit TP-601

Depth: NA

Sample Number: 601-1-BC

Material Description: Processed Material- Before Compaction

Date: 5/15/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: Test performed on material as prepared according to ASTM D 1557-07 before compaction(BC)

Tested by: AWH

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
6308.30	0.00	0.00	3/4	0.00	100
			1/2	1028.80	84
			3/8	1692.50	73
			#4	2925.50	54
			#10	3780.40	40
434.30	0.00	0.00	#20	55.50	35
			#40	103.60	31
			#60	159.10	25
			#100	215.50	20
			#140	244.60	18
			#200	261.00	16

Fractional Components

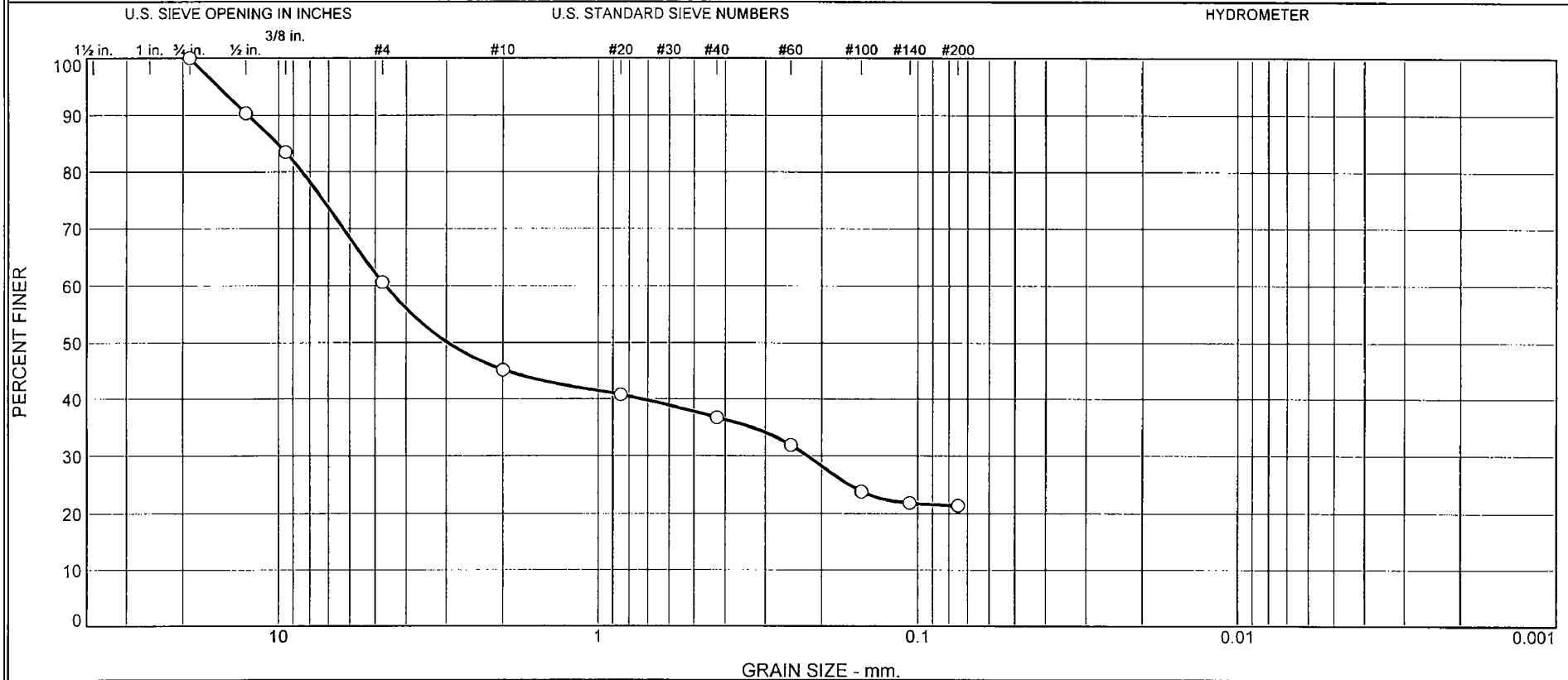
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	46	46	14	9	15	38			16

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1469	0.4002	3.9926	6.1701	11.5240	13.1357	14.9032	16.8608

Fineness Modulus

4.14

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	39	16	8	16	21	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Test Pit TP-601	601-1-AC	NA	5/20/08	SP-SM	Processed Material-After Compaction	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Test performed on material used for ASTM D-1557-07 after compaction(AC)
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Test Pit TP-601

Depth: NA

Sample Number: 601-1-AC

Material Description: Processed Material-After Compaction

Date: 5/20/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM.

Testing Remarks: Test performed on material used for ASTM D-1557-07 after compaction(AC)

Tested by: AWH

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
12647.90	0.00	0.00	3/4	0.00	100
			1/2	1219.10	90
			3/8	2079.20	84
			#4	4978.90	61
			#10	6933.90	45
523.70	0.00	0.00	#20	51.78	41
			#40	98.57	37
			#60	153.78	32
			#100	247.80	24
			#140	270.60	22
			#200	275.70	21

Fractional Components

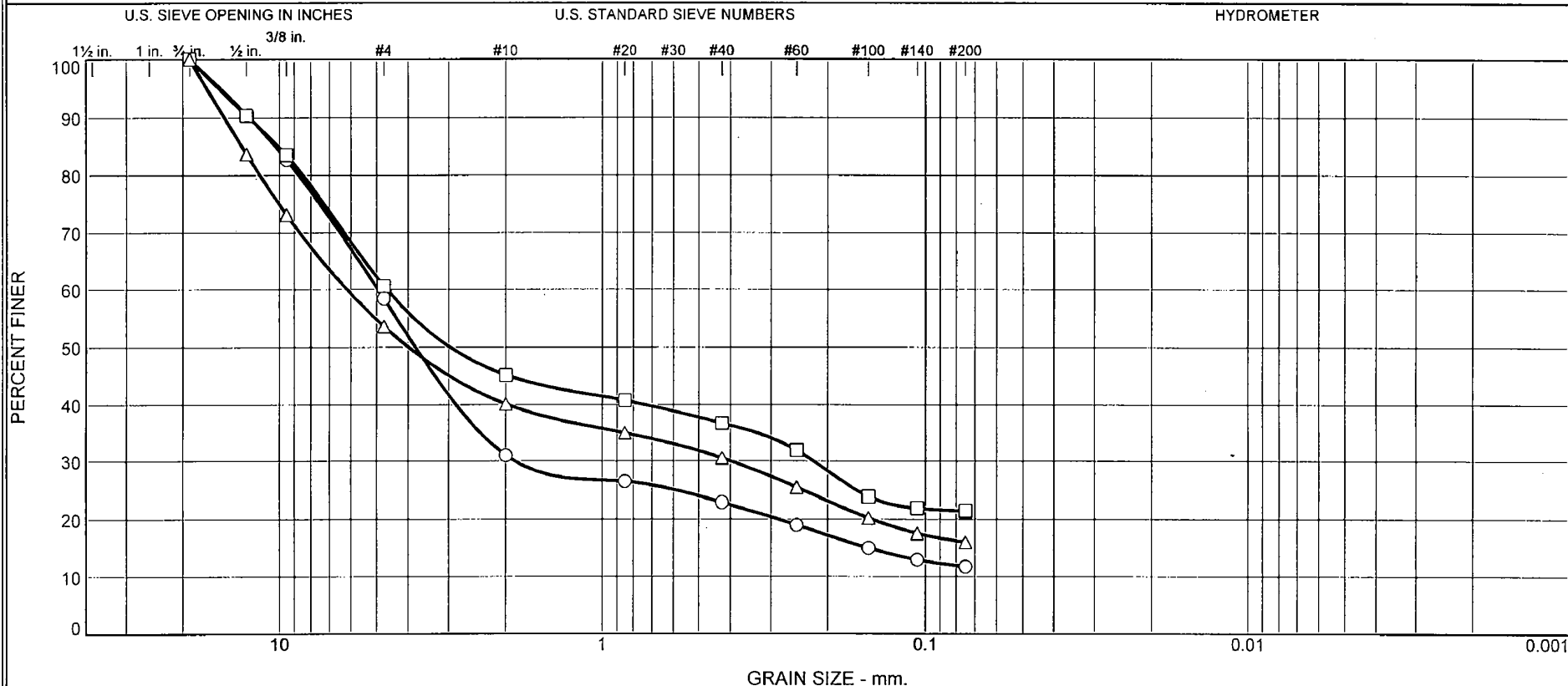
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	39	39	16	8	16	40			21

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.2216	2.9710	4.6489	8.4410	10.0639	12.4973	15.4988

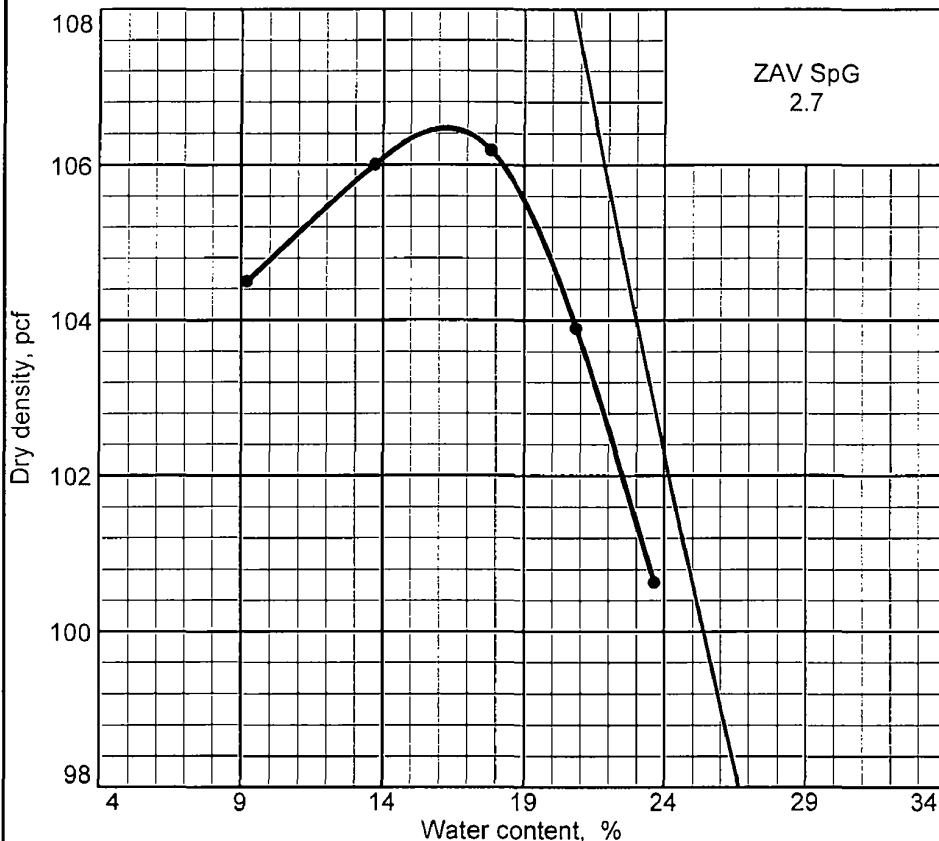
Fineness Modulus

3.70

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



COMPACTION TEST REPORT



Curve No.
TP-601

Test Specification:

ASTM D 1557-07 Method C Modified

Preparation Method DRY
 Hammer Wt. 10.0
 Hammer Drop 18 mechanical
 Number of Layers 5
 Blows per Layer 56
 Mold Size .07501 cu.ft.

Test Performed on Material
 Passing 3/4 in. Sieve

NM ND LL ND PI ND
 Sp.G. (ASTM D 854) ND

%>3/4 in. 0.0 %<No.200 12

USCS SP-SM AASHTO ND

Date Sampled 5/1/08

Date Tested 5/16/08

Tested By AWH

TESTING DATA

	1	2	3	4	5	6
WM + WS	9830.1	9985.7	10001.0	9962.5	9611.3	
WM	5729.3	5729.3	5729.3	5729.3	5729.3	
WW + T #1	574.00	588.60	615.80	615.00	522.20	
WD + T #1	505.60	500.60	510.70	498.70	478.80	
TARE #1	6.80	6.90	6.70	7.00	6.80	
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	13.7	17.8	20.9	23.7	9.2	
DRY DENSITY	106.0	106.2	103.9	100.6	104.5	

TEST RESULTS

Maximum dry density = 106.5 pcf

Optimum moisture = 16.3 %

Project No. 6468071950 Client: Bechtel

Project: Turkey Point COL

● Source: Test Pit TP-601 Sample No.: 601-1 Elev./Depth: 3.2-5.0

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

Material Description

Pale Brown Poorly graded SAND with Silt and Gravel (Visual)

Remarks:

Checked by: LBJ

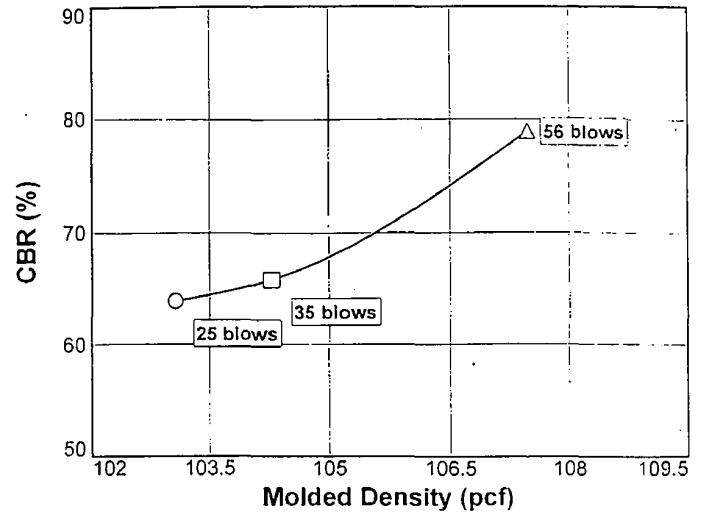
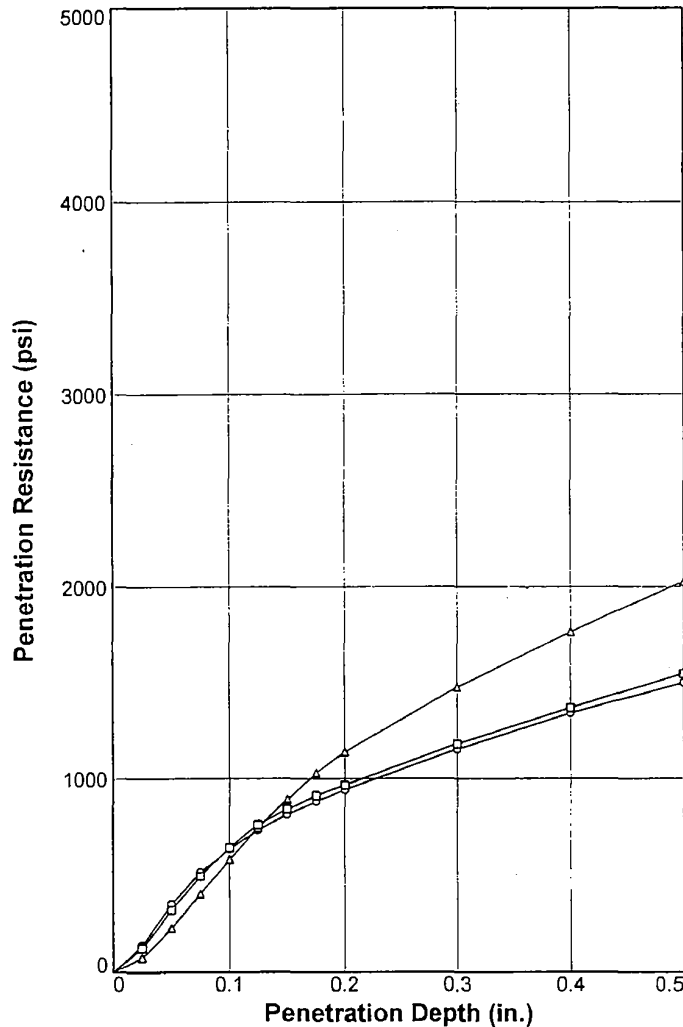
Title: LAB MANAGER

Figure N/A

ZHU 7/22/08

BEARING RATIO TEST REPORT

ASTM D 1883 -07



Points for 0.2" Penetrations are Plotted

	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	103.0	96.7	15.9	103.0	96.8	19.6	66.5	63.9	0.008	10.0	0
2 △	107.5	100.9	16.9	107.5	100.9	17.4	67.3	78.9	0.014	10.0	0
3 □	104.5	98.1	16.5	104.5	97.9	18.2	69.1	65.8	0.010	10.0	0
Material Description							USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Pale Brown Poorly graded SAND with Silt and Gravel (Visual)							SP-SM	106.5	16.3	ND	ND

Project No: 6468071950

Project: Turkey Point COL

Source of Sample: Test Pit TP-601 Depth: 3.2-5.0

Sample Number: 601-1

Date: 5/1/08

Test Description/Remarks:

ASTM D 1883-07

Sample was prepared in accordance with ASTM D- 1557-07

BEARING RATIO TEST REPORT

MACTEC Engineering and Consulting, Inc.

Figure 4/4

ZHU 7/22/08

BEARING RATIO TESTING RESULTS (ASTM D 1883-99)

Date: 5/1/08
Project No.: 6468071950
Project: Turkey Point COL
Location: Test Pit TP-601
Depth: 3.2-5.0 **Sample Number:** 601-1
Material Description: Pale Brown Poorly graded SAND with Silt and Gravel (Visual)
USCS Classification: SP-SM
Liquid Limit: ND **Plasticity Index:** ND

Test Description: ASTM D 1883-07
Maximum Dry Density: 106.5 **Optimum Moisture Content:** 16.3
Testing Remarks: Sample was prepared in accordance with ASTM D- 1557-07

Sample 1 (25 Blows, Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 281.9 Wt. Soil+Tare, gms. 244.2 Wt. Tare, gms. 6.9 Moisture, % 15.9

Unit Weight

Wt. Mold+Soil, gms. 12318 Wt. Mold, gms. 8251 Ht. Soil, in. 4.588 Density, pcf 103.0

Swell Data

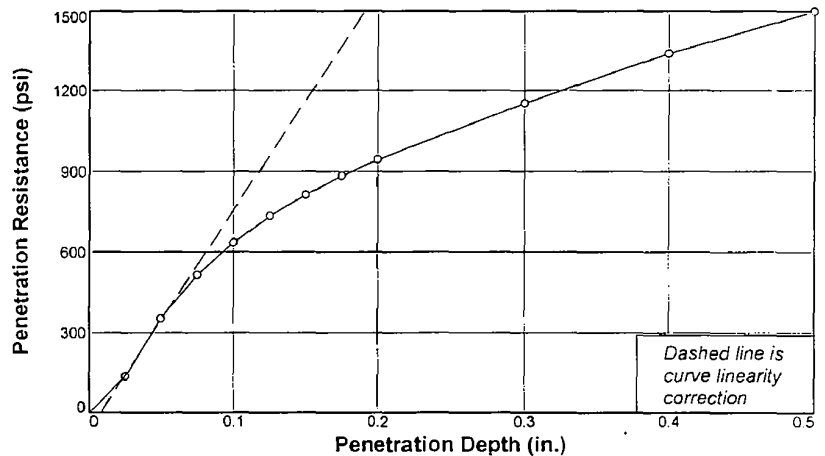
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	10	0.0
96	10	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	455.1	380.7	6.8	19.9
Middle	485.4	407.3	6.8	19.5
Bottom	485.4	407.3	6.8	19.5

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	140	138.9	
0.05	355	352.3	
0.075	520	516.1	
0.1	640	635.2	66.5
0.125	740	734.4	
0.15	820	813.8	
0.175	890	883.3	
0.2	950	942.8	63.9
0.3	1160	1151.3	61.3
0.4	1350	1339.8	58.8
0.5	1510	1498.6	57.6



Sample 2**(56 Blows, Surcharge: 10.0 lbs.)****Water Content**

Wt. Wet Soil+Tare, gms. 332

Wt. Soil+Tare, gms. 284.9

Wt. Tare, gms. 6.9

Moisture, % 16.9

Unit Weight

Wt. Mold+Soil, gms. 12492

Wt. Mold, gms. 8217

Ht. Soil, in. 4.583

Density, pcf 107.5

Swell Data

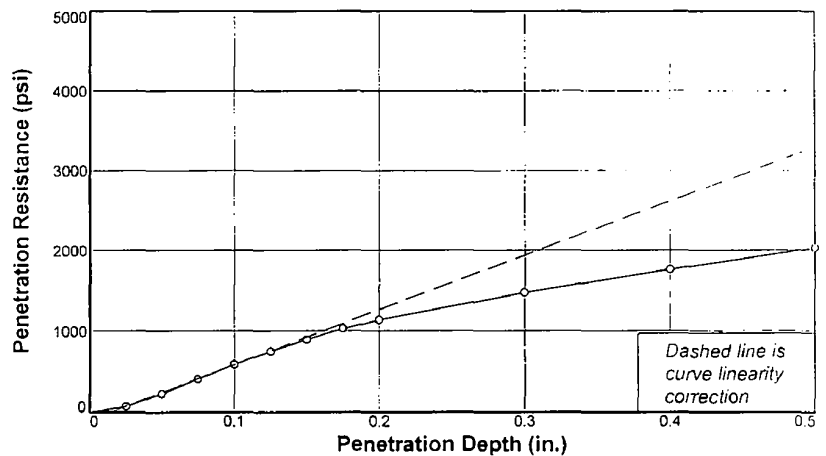
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	-0.006	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	415.2	353.0	6.7	18.0
Middle	494.2	422.8	6.8	17.2
Bottom	494.2	422.8	6.8	17.2

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	75	74.2	
0.05	230	227.4	
0.075	410	405.4	
0.1	590	583.5	67.3
0.125	755	746.6	
0.15	905	895.0	
0.175	1040	1028.5	
0.2	1150	1137.2	78.9
0.3	1490	1473.5	79.7
0.4	1785	1765.2	78.3
0.5	2050	2027.2	78.0

**Sample 3****(35 Blows, Surcharge: 10.0 lbs.)****Water Content**

Wt. Wet Soil+Tare, gms. 317.7

Wt. Soil+Tare, gms. 273.8

Wt. Tare, gms. 7.1

Moisture, % 16.5

Unit Weight

Wt. Mold+Soil, gms. 12338.0

Wt. Mold, gms. 8206.0

Ht. Soil, in. 4.584

Density, pcf 104.5

Swell Data

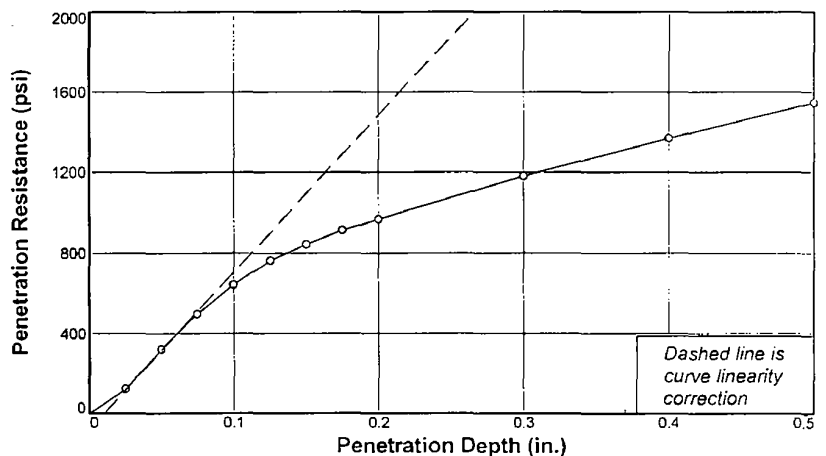
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	-0.003	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	409.7	344.0	6.9	19.5
Middle	471.1	401.7	6.8	17.6
Bottom	471.1	401.7	6.8	17.6

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	125	123.9	
0.05	325	322.2	
0.075	500	495.8	
0.1	650	644.5	69.1
0.125	770	763.5	
0.15	850	842.8	
0.175	920	912.2	
0.2	975	966.7	65.8
0.3	1190	1179.9	63.1
0.4	1380	1368.3	60.2
0.5	1560	1546.7	59.5





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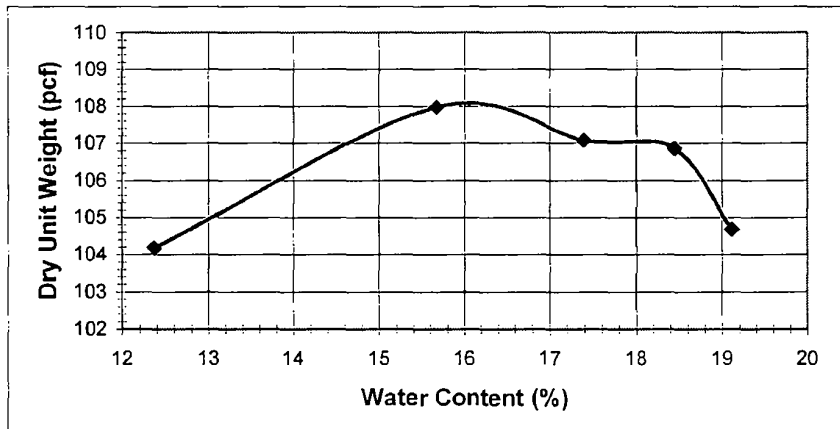
Limerock Bearing Ratio (FM 5-515)

Sample: TP-601
Number of Layers: 5
Blows / layer: 56
Volume of Mold, ft³: 0.075200

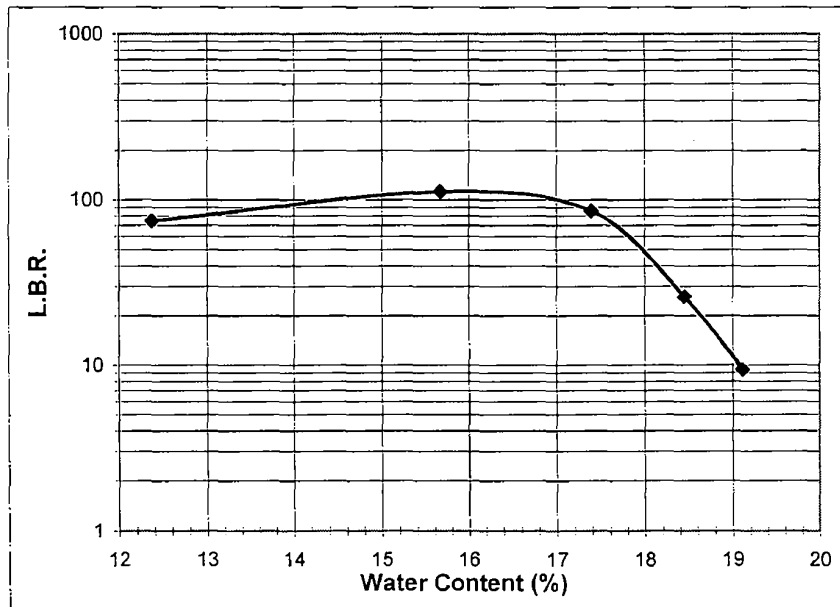
Project Name: Turkey Point COL
Project No: 6468-07-1950
Date: 6/7/2008

$w_{opt} (\%) = 16.3$
 $\gamma_{max} (pcf) = 108.0$

Sample No.	1	2	3	4	5
Weight of Dish, g	6.9	14.6	14.5	13.7	17.1
Weight of sample + Dish, g	560.1	689.3	589.6	618.5	687
Weight of Dry sample + Dish, g	499.2	597.9	504.4	524.3	579.5
w%	12.4	15.7	17.4	18.4	19.1
Weight of Mold + Soil, g	12229.7	11247.3	12535.7	12540.9	12498.7
Weight of Mold, g	8236.3	6986.9	8248.1	8223.1	8245.8
Wet unit weight, pcf	117.1	124.9	125.7	126.6	124.7
Dry unit weight, pcf	104.2	108.0	107.1	106.9	104.7
Corrected Stress Corresponding to 0.1 inch penetration, psi	596.4	896.80	683.60	208.70	75.20
L.B.R at 0.1 inch penetration (stress/800x100)	74.6	112.1	85.5	26.1	9.4



L.B.R. = 112
Modified Proctor = 108 PCF
Optimum Moisture = 16%



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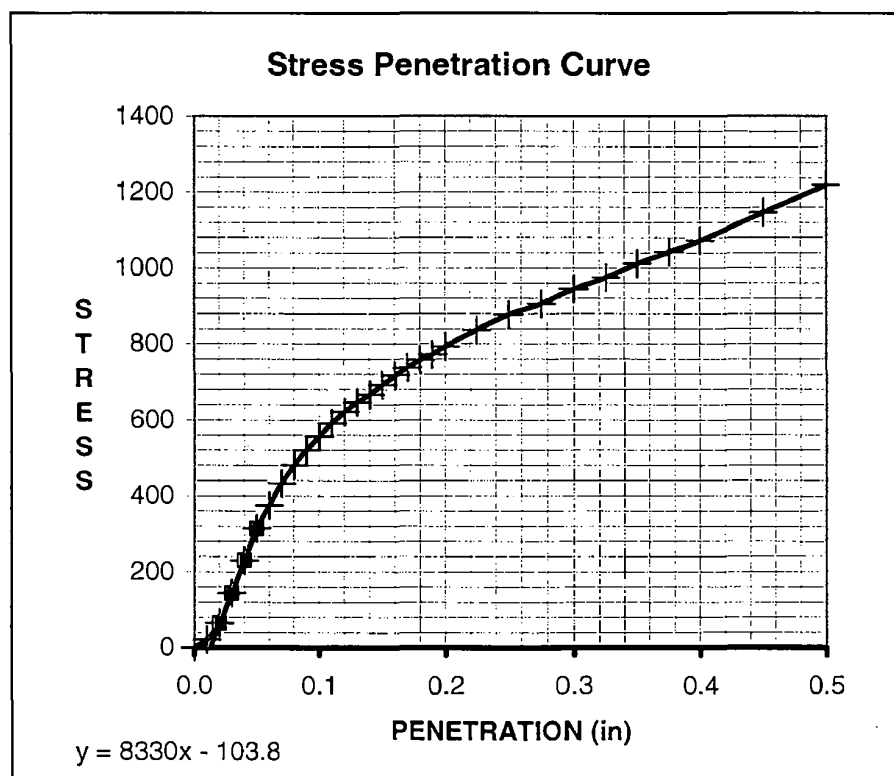
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (1-Mold 2.1.52)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	21
0.020	65
0.030	143
0.040	229
0.050	314
0.060	374
0.070	432
0.080	480
0.090	520
0.100	556
0.110	591
0.120	621
0.130	646
0.140	667
0.150	692
0.160	717
0.170	737
0.180	757
0.190	773
0.200	793
0.225	837
0.250	877
0.275	906
0.300	944
0.325	975
0.350	1011
0.375	1042
0.400	1072
0.450	1146
0.500	1219

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	117.1
DRY UNIT WEIGHT (pcf):	104.2
INITIAL MOISTURE (%):	12.4
PERCENT MDD:	96.5



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	555.6	596.4
LBR (%)	69.4	74.6

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

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RALEIGH, NORTH CAROLINA

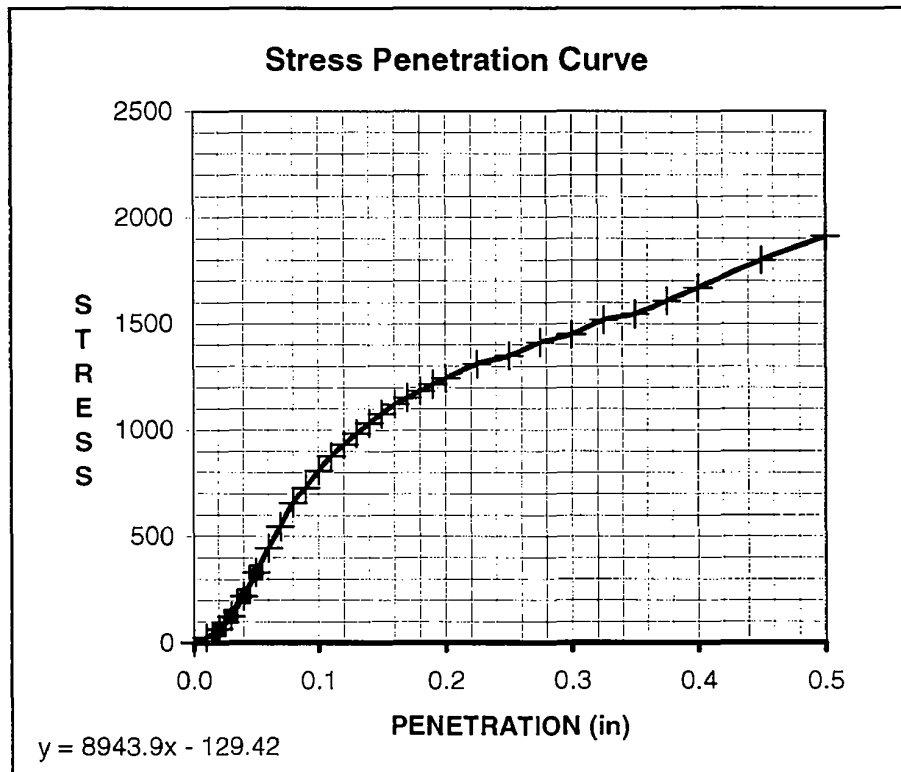
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (2-Mold 2.1.45)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	24
0.020	63
0.030	124
0.040	219
0.050	329
0.060	445
0.070	545
0.080	656
0.090	727
0.100	808
0.110	877
0.120	931
0.130	983
0.140	1032
0.150	1076
0.160	1121
0.170	1150
0.180	1184
0.190	1214
0.200	1242
0.225	1310
0.250	1348
0.275	1411
0.300	1449
0.325	1517
0.350	1545
0.375	1606
0.400	1669
0.450	1798
0.500	1911

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	124.9
DRY UNIT WEIGHT (pcf):	108.0
INITIAL MOISTURE (%):	15.7
PERCENT MDD:	100.0



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	807.9	896.8
LBR (%)	101.0	112.1

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

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RALEIGH, NORTH CAROLINA

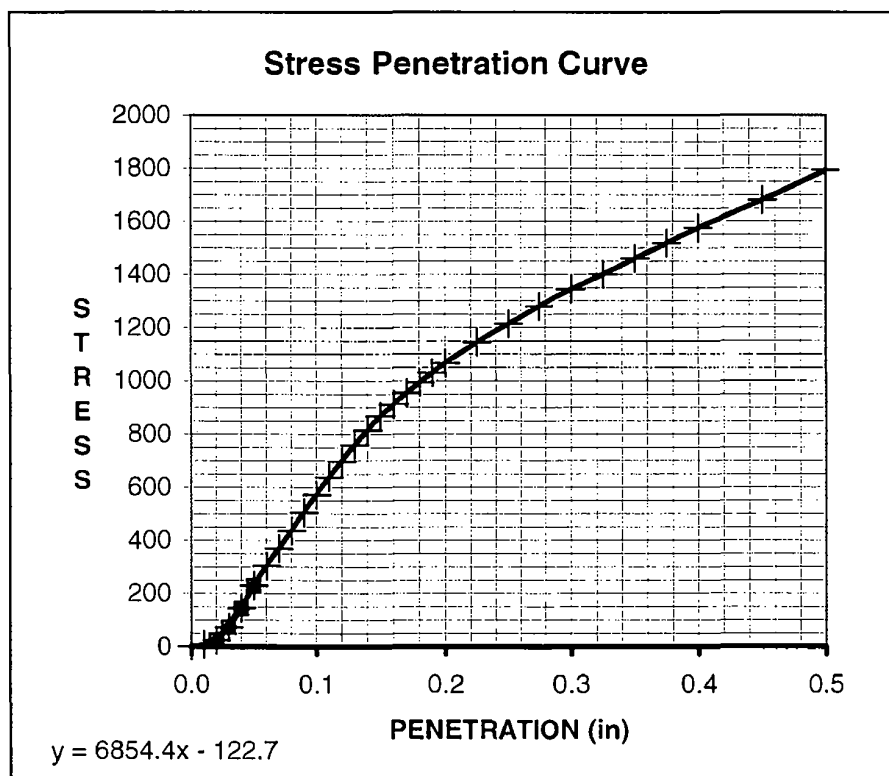
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (3-Mold 2.1.48)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	9
0.020	24
0.030	73
0.040	143
0.050	229
0.060	304
0.070	369
0.080	434
0.090	505
0.100	571
0.110	636
0.120	697
0.130	757
0.140	813
0.150	867
0.160	911
0.170	954
0.180	993
0.190	1028
0.200	1065
0.225	1143
0.250	1214
0.275	1280
0.300	1343
0.325	1400
0.350	1459
0.375	1517
0.400	1575
0.450	1679
0.500	1793

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	125.7
DRY UNIT WEIGHT (pcf):	107.1
INITIAL MOISTURE (%):	17.4
PERCENT MDD:	99.2



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	570.7	683.6
LBR (%)	71.3	85.5

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY: 



MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

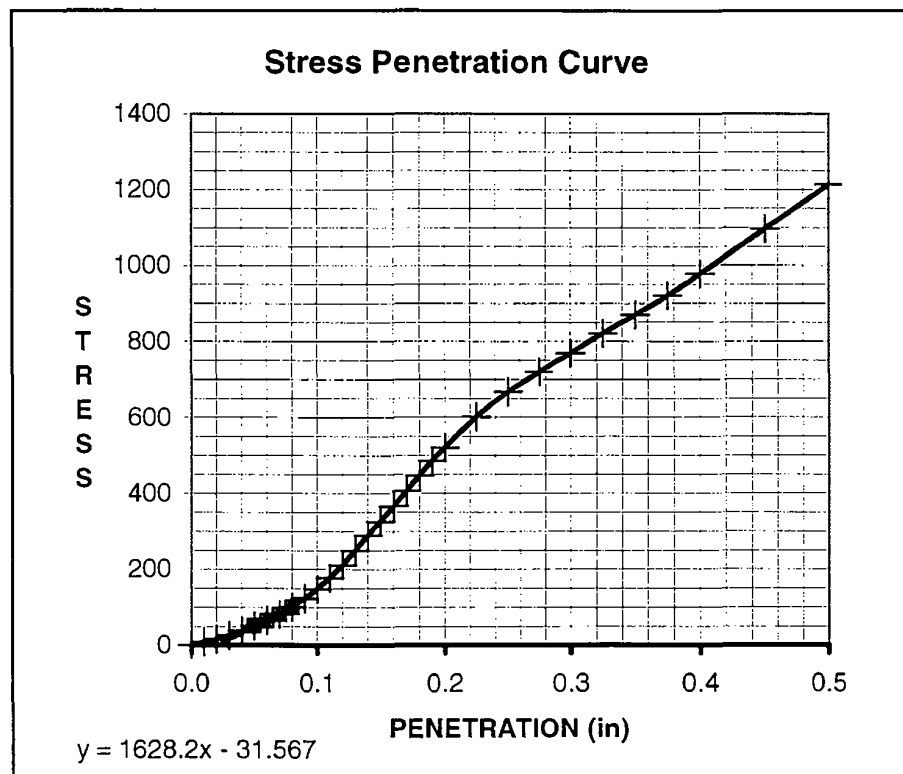
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (4-Mold 2.1.52, @ 7.5%)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0.0
0.010	8.5
0.020	15.7
0.030	25.1
0.040	37.6
0.050	51.2
0.060	64.8
0.070	80.9
0.080	100.2
0.090	122.9
0.100	147.3
0.110	176.9
0.120	210.7
0.130	249.3
0.140	289.0
0.150	326.1
0.160	365.6
0.170	406.2
0.180	446.6
0.190	485.0
0.200	520.2
0.225	601.1
0.250	666.6
0.275	719.1
0.300	767.6
0.325	821.0
0.350	869.5
0.375	920.7
0.400	977.2
0.450	1096.0
0.500	1212.7

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	126.6
DRY UNIT WEIGHT (pcf):	106.9
INITIAL MOISTURE (%):	18.4
PERCENT MDD:	99.0



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	147.3	208.7
LBR (%)	18.4	26.1

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs

SUBMITTED BY: 



MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

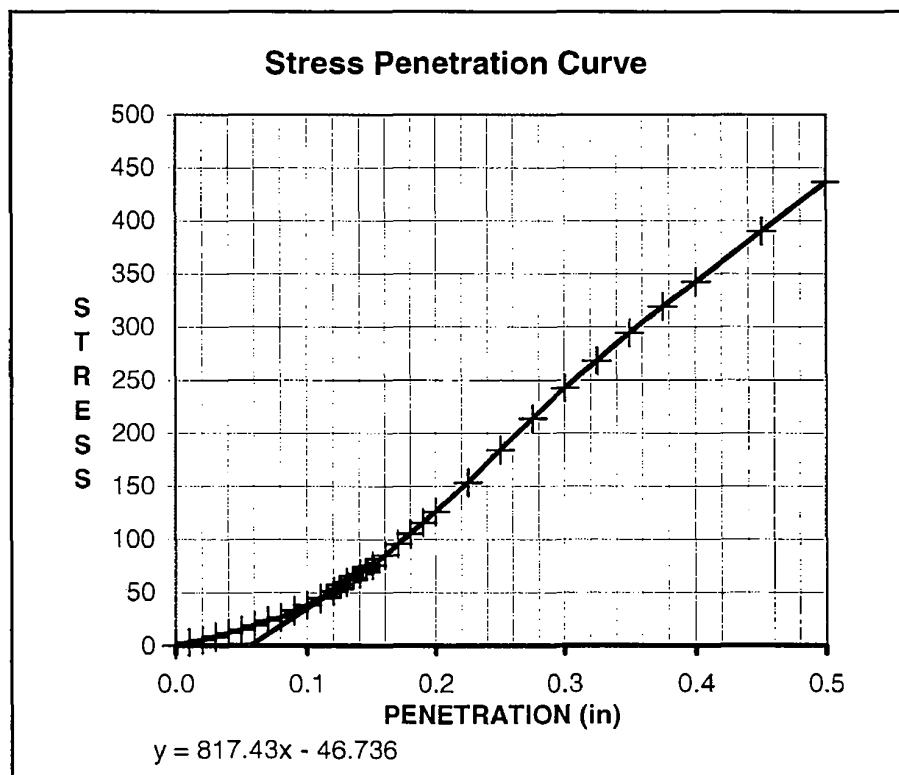
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (5-Mold 2.1.53, @ 8.5% added water)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0.0
0.010	3.2
0.020	5.3
0.030	8.5
0.040	11.7
0.050	14.9
0.060	19.2
0.070	23.4
0.080	26.6
0.090	33.0
0.100	38.3
0.110	44.7
0.120	51.2
0.130	59.6
0.140	68.0
0.150	75.7
0.160	85.0
0.170	95.4
0.180	105.3
0.190	115.6
0.200	126.0
0.225	153.4
0.250	184.1
0.275	213.7
0.300	242.2
0.325	267.9
0.350	294.3
0.375	319.0
0.400	342.3
0.450	389.9
0.500	436.5

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	124.7
DRY UNIT WEIGHT (pcf):	104.7
INITIAL MOISTURE (%):	19.1
PERCENT MDD:	96.9



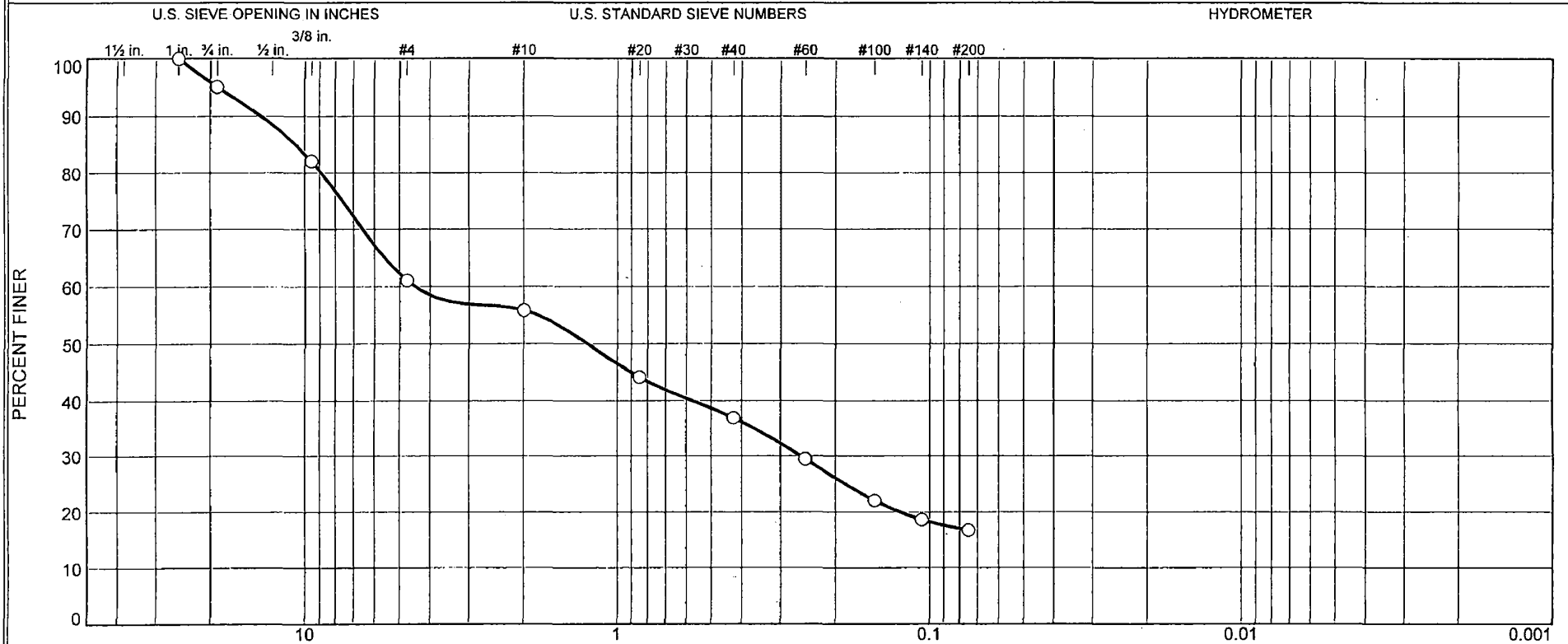
At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	38.3	75.2
LBR (%)	4.8	9.4

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs

SUBMITTED BY: 

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
5	34	5	19	20	17	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Test Pit TP-701	701-1	3.0-4.5	5/1/08	SM	Pale Brown Silty SAND with Gravel (Visual)	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ SIEVE ANALYSIS ONLY ND = Not Determined Test performed on material as obtained from the field.
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Test Pit TP-701

Depth: 3.0-4.5

Sample Number: 701-1

Material Description: Pale Brown Silty SAND with Gravel (Visual)

Date: 5/1/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Test performed on material as obtained from the field.

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
393.55	0.00	0.00	1	0.00	100
			3/4	19.39	95
			3/8"	70.38	82
			#4	153.17	61
			#10	173.92	56
102.54	0.00	0.00	#20	21.36	44
			#40	34.72	37
			#60	48.40	29
			#100	61.92	22
			#140	68.30	19
			#200	71.81	17

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	34	39	5	19	20	44			17

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1241	0.2589	1.2458	4.4768	8.8567	10.6753	13.7971	18.9636

Fineness
Modulus

3.61

MACTEC Engineering and Consulting, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: TP-701,(3.0-4.5)

(A) Mass of oven-dried soil, grams:	103.87
(B) Mass of pycnometer filled with water at test temperature (T), grams:	675.74
(C) Mass of pycnometer, water and soil, grams:	741.63
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.7
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.735
(F) <i>Correction factor:</i>	0.99963
(G x F) SPECIFIC GRAVITY @ 20°C:	2.734

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Poorly Graded Silty SAND (SP-SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

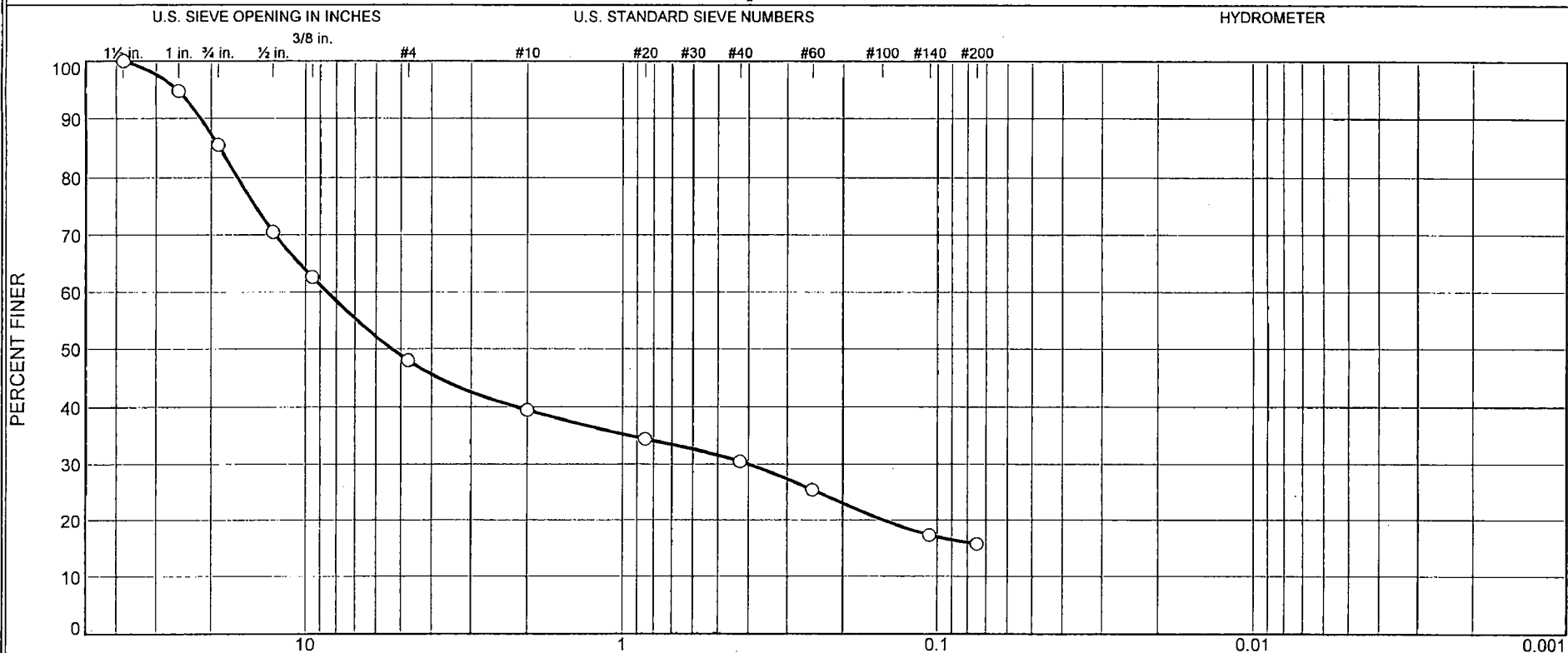
THERMOMETER : 5.1.01

PYCNO METER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
14	38	9	9	14	16	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Test Pit TP-701	701-1-BC	NA	5/28/08	SM	Processed Material Before Compaction	ND	ND	ND

Client Bechtel		MACTEC Engineering and Consulting, Inc.	○ Grainsize test performed on material as prepared according to ASTM D 1557-07 before compaction.
Project Turkey Point COL			
Project No. 6468071950	Figure N/A	Raleigh, North Carolina	

ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel

Project: Turkey Point COL

Project Number: 6468071950

Location: Test Pit TP-701

Depth: NA

Sample Number: 701-1-BC

Material Description: Processed Material Before Compaction

Date: 5/28/08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: Grainsize test performed on material as prepared according to ASTM D 1557-07 before compaction.

Tested by: AWH

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
10470.00	0.00	0.00	1.5	0.00	100
			1"	552.00	95
			3/4"	1518.00	86
			1/2"	3090.00	70
			3/8"	3914.00	63
			#4	5446.00	48
767.30	0.00	0.00	#10	135.90	39
			#20	217.70	34
			#40	280.70	30
			#60	361.00	25
			#140	490.20	17
			#200	515.40	16

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	38	52	9	9	14	32			16

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1488	0.4023	5.3517	8.5519	16.5085	18.7986	21.5918	25.7001

Fineness
Modulus

4.47

MACTEC Engineering and Consulting, Inc.