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UniStar
NUCLEAR ENERGY

10 CFR 50.4
10 CFR 52.79

October 10, 2008

UN#08-051

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Calvert Cliff Nuclear Power Plant, Unit 3 –
RCOLA Schedule Issue – Core Borings

References:

1) Letter UN#08-003, George Vanderheyden (UniStar Nuclear Energy) to Document Control Desk (U.S. Nuclear Regulatory Commission), "UniStar Nuclear, NRC Docket No. 52-016, Submittal of Revision 2 to the Partial Combined License Application for the Calvert Cliffs Nuclear Power Plant, Unit 3 and Application for Withholding of Documents," dated March 14, 2008

2) John Rycyna (U.S. Nuclear Regulatory Commission) to George Vanderheyden (UniStar Nuclear Energy), "Acceptance Review for Combined License Application for Calvert Cliffs Nuclear Power Plant, Unit 3," dated June 3, 2008

The purpose of this letter is to provide the draft results of the additional core borings being conducted at the Calvert Cliffs Nuclear Power Plant (CCNPP), Unit 3 site as committed to in Reference 1 and as documented in the RCOLA Schedule Issue cited in the Reference 2. The draft information includes additional draft laboratory results and the related draft boring logs.

If there are any questions regarding this transmittal, please contact me or Mr. George Wrobel at (585) 771-3535.

D079
NRO

I declare under penalty or perjury that the foregoing is true and correct.

Executed on October 10, 2008

Greg Gibson

Enclosure: Calvert Cliffs Nuclear Power Plant, Unit 3 Draft Core Boring Results

cc: U.S. NRC Region I
U.S. NRC Resident Inspector, Calvert Cliffs Nuclear Power Plant, Units 1 and 2
NRC Environmental Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Design Certification Application (w/o enclosure)

Enclosure

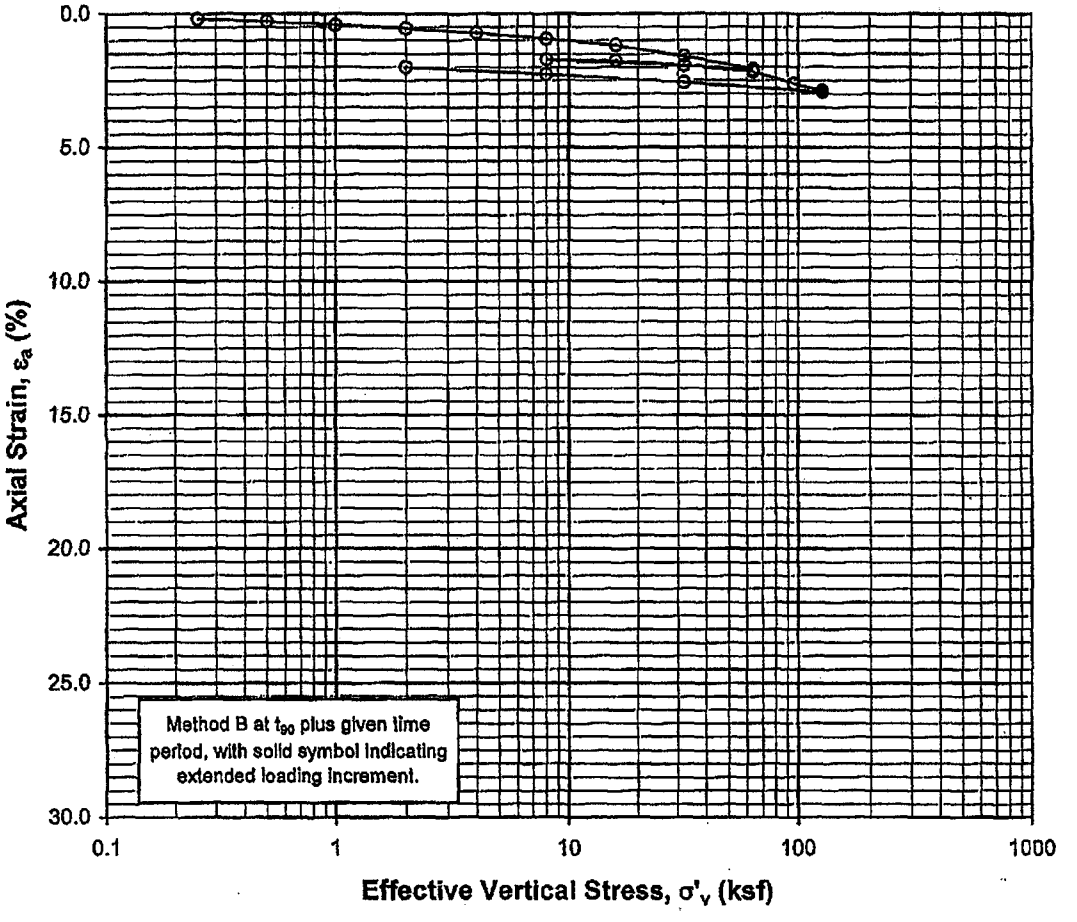
Calvert Cliffs Nuclear Power Plant, Unit 3 Draft Core Boring Results

Calvert Cliffs Nuclear Power Plant, Unit 3 Draft Core Boring Results

MACTEC ENGINEERING AND CONSULTING

FINAL LABORATORY TESTING RESULTS FOR SOIL SAMPLES INCLUDING TRIAXIAL CONSOLIDATION (CU AND UU) TESTS

DRAFT



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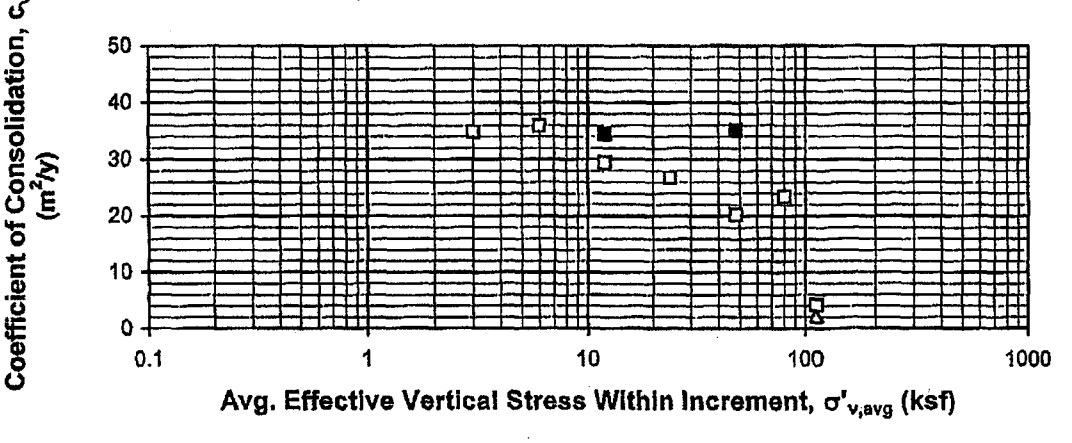
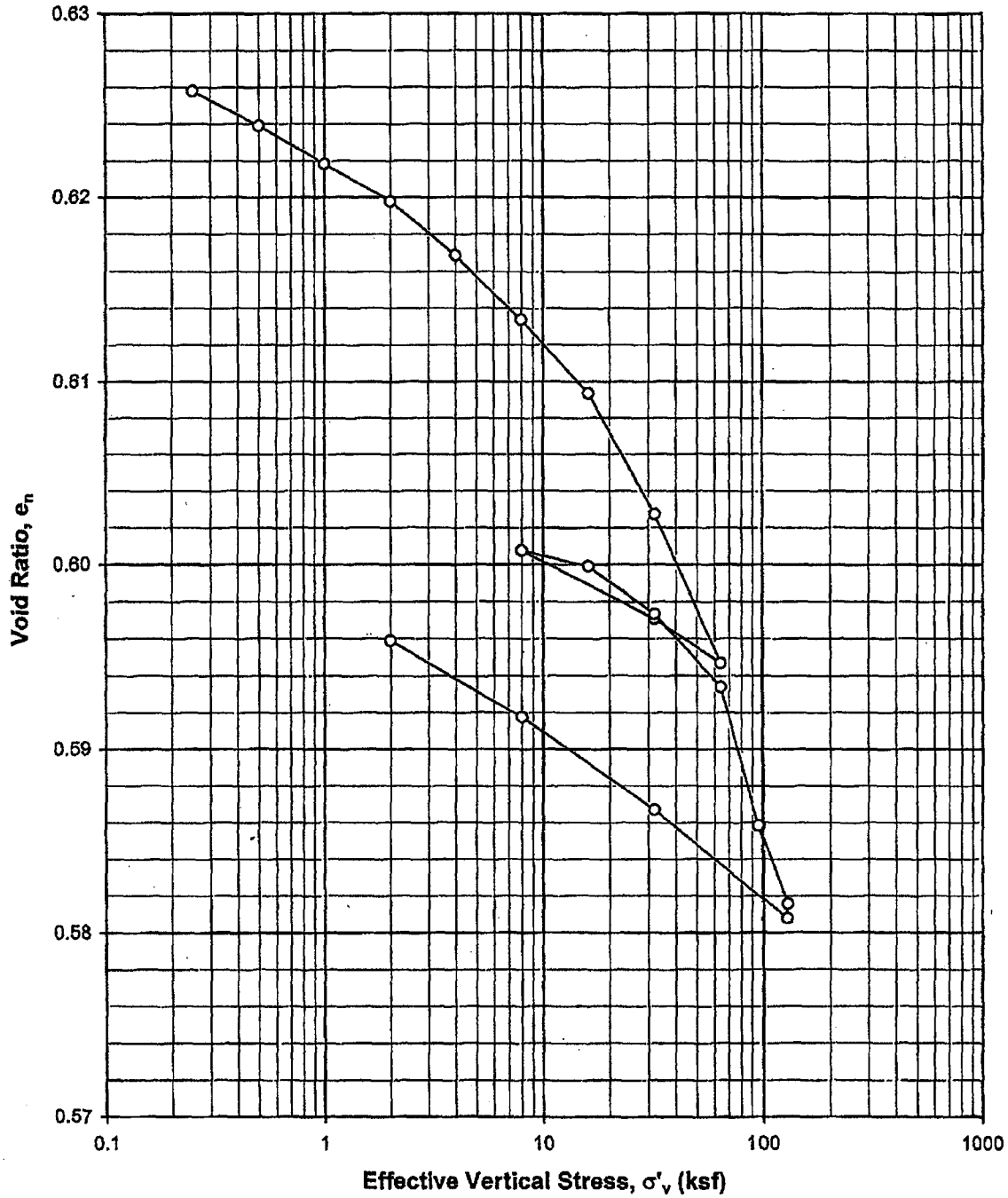


1-D CONSOLIDATION TEST: INC
Sample No. UD-2a - Depth 61.70 ft
Boring B-301A

PLATE

10-7-03

DCN: CALV-050



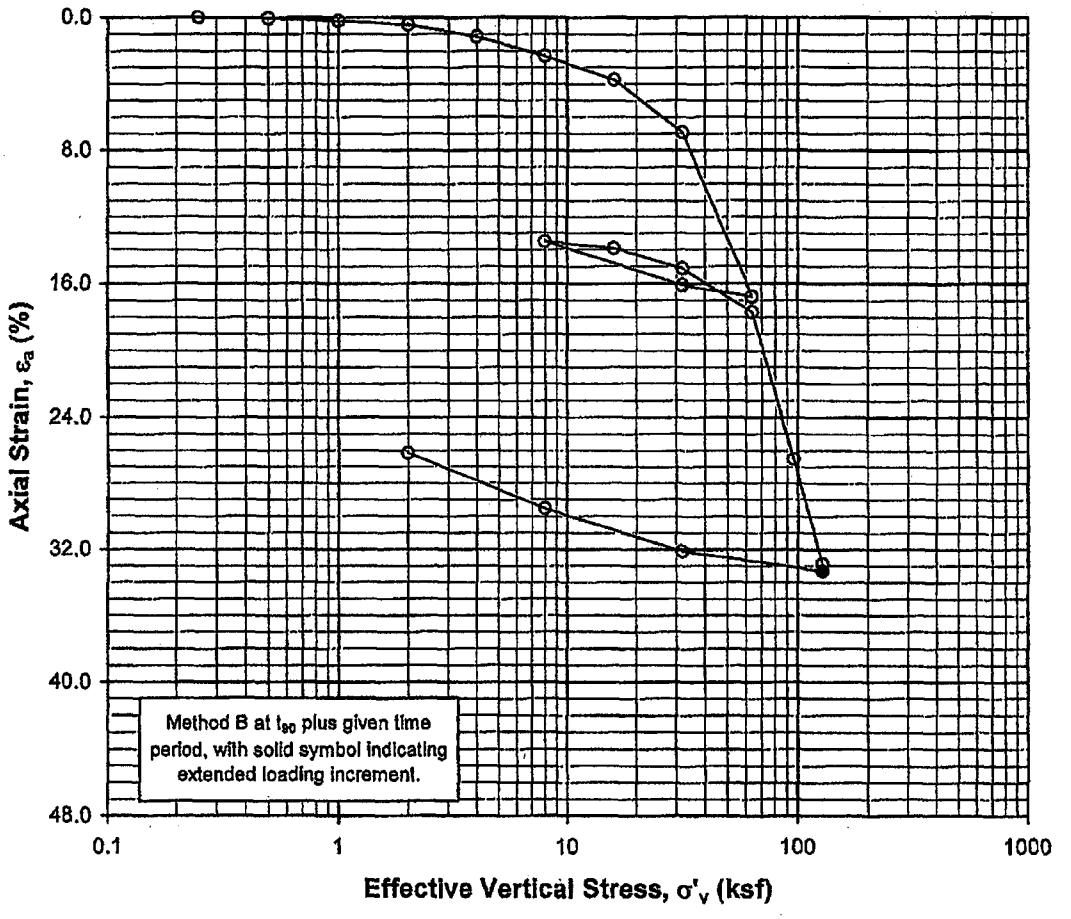
1-D CONSOLIDATION TEST: INC
Sample No. UD-2a - Depth 61.70 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

NA 10-7-08

DCN: CALV-050



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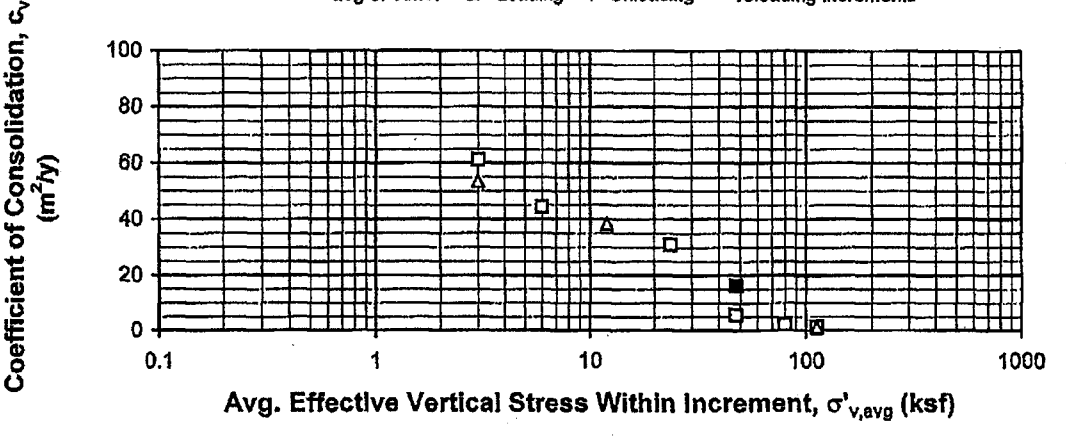

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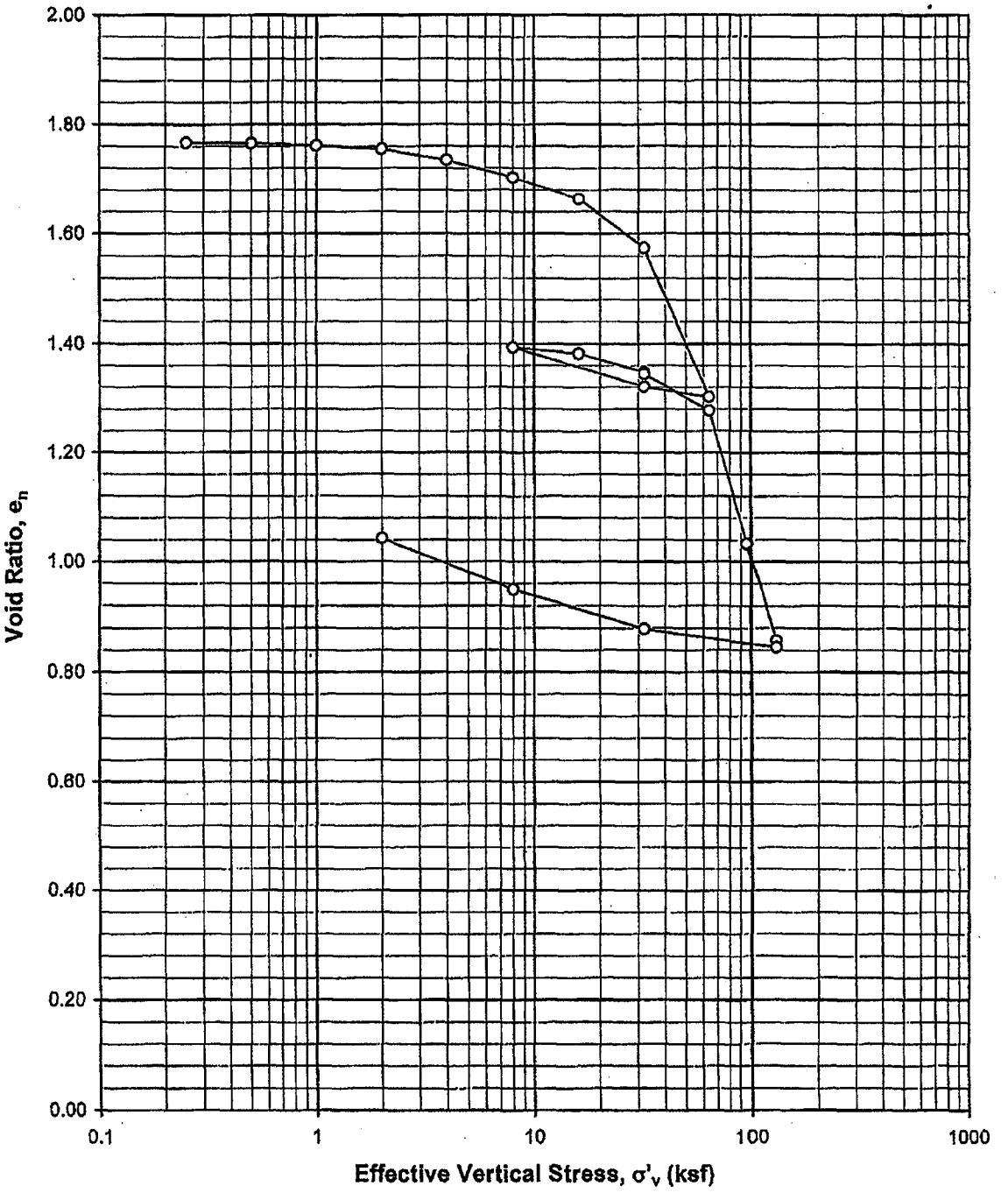
Sample No. UD-4a - Depth 200.00 ft
Boring B-301A

PLATE

AA 10-7-08

DCN: CALV-050



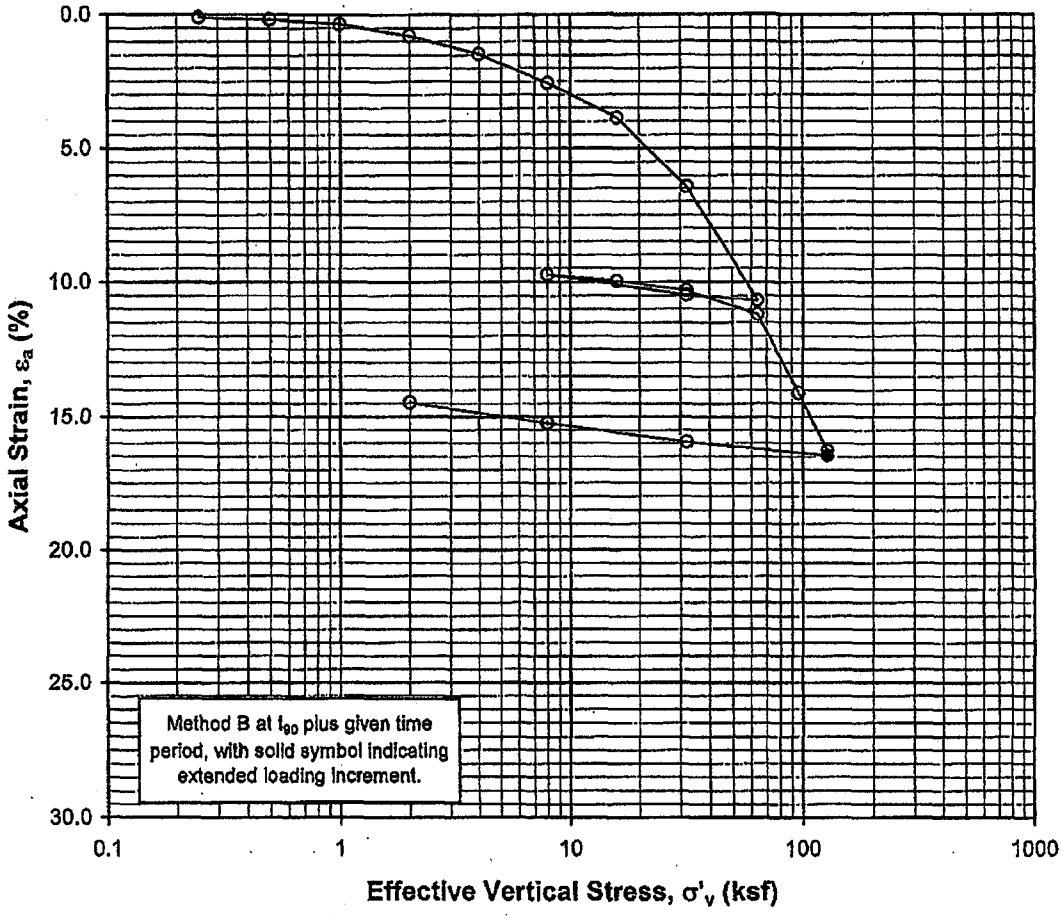
1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 200.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

AA 10-7-02

DCN: CALV-050



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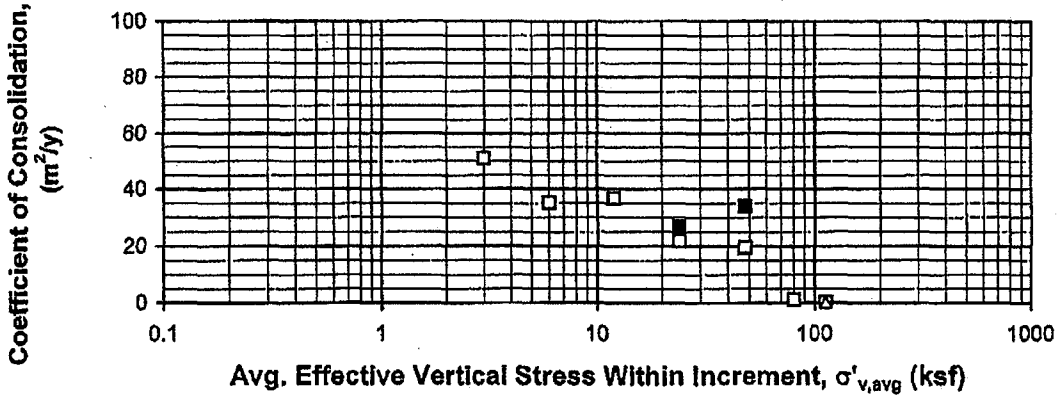

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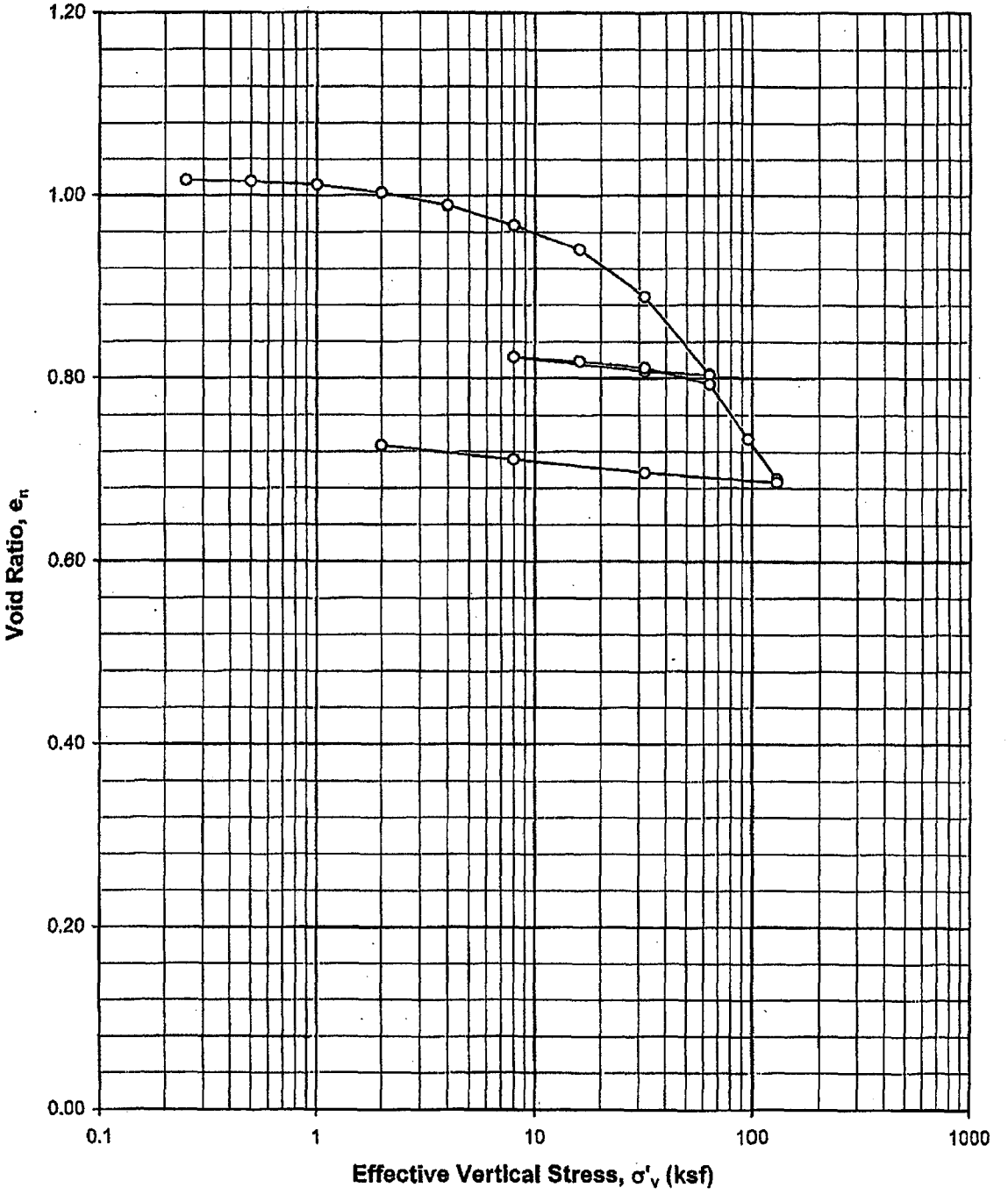
Sample No. UD-5a - Depth 220.00 ft
Boring B-301A

PLATE

NA 10-7-08



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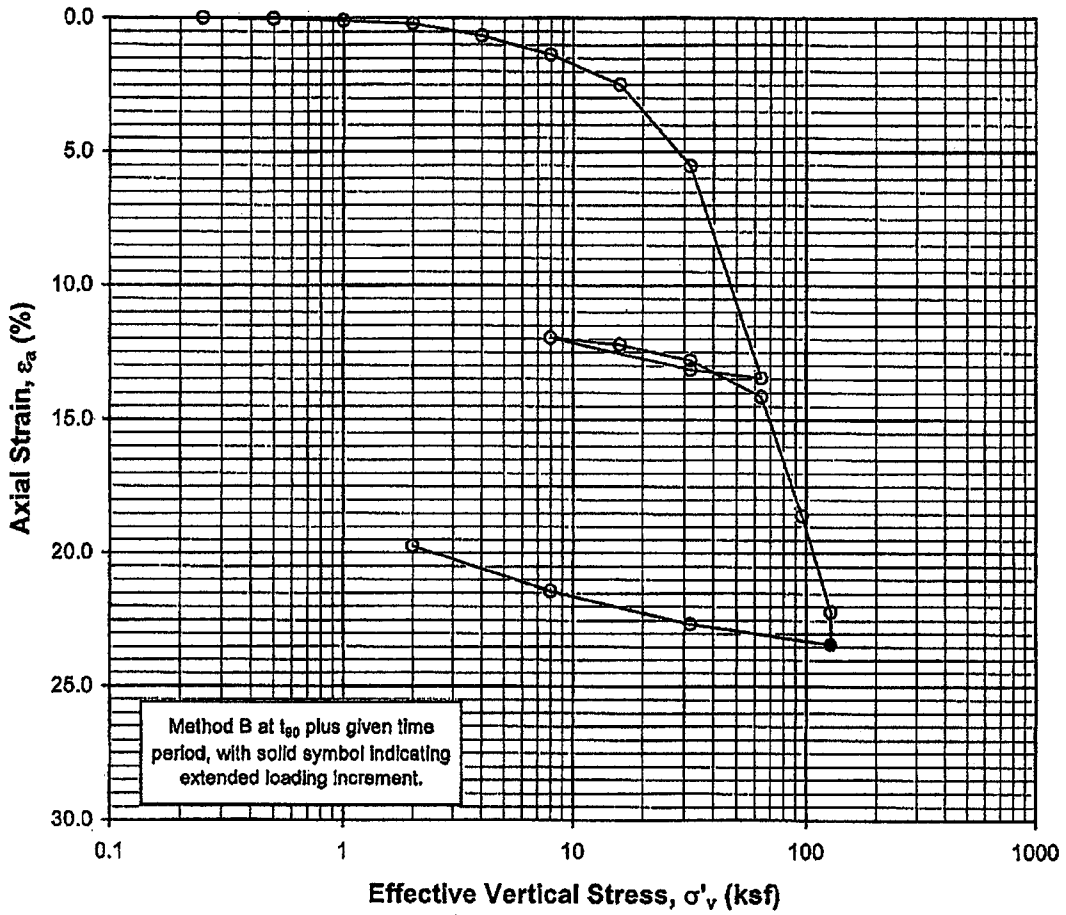
Sample No. UD-5a - Depth 220.00 ft
Boring B-301A



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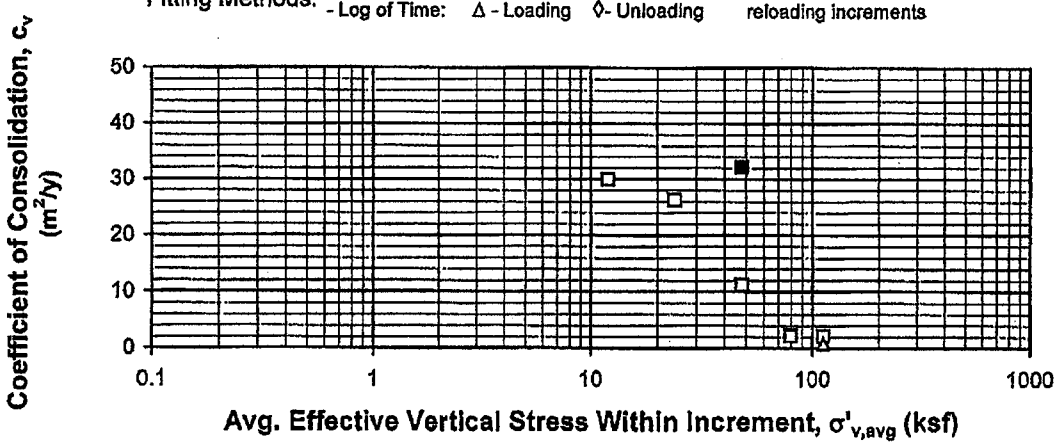

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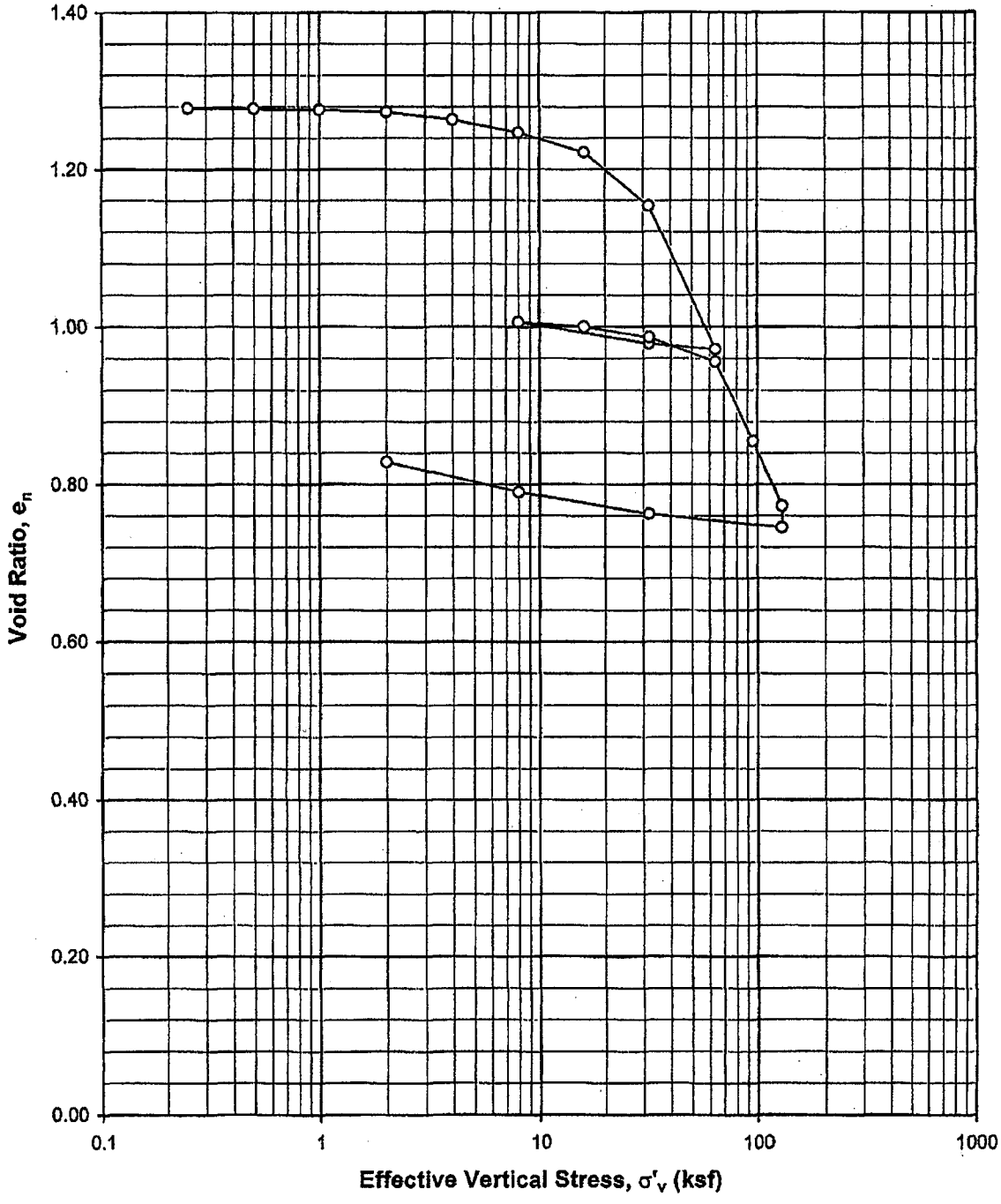
Sample No. UD-6a - Depth 240.00 ft
Boring B-301A

PLATE

DCN: CALV-050 M LO-7-08



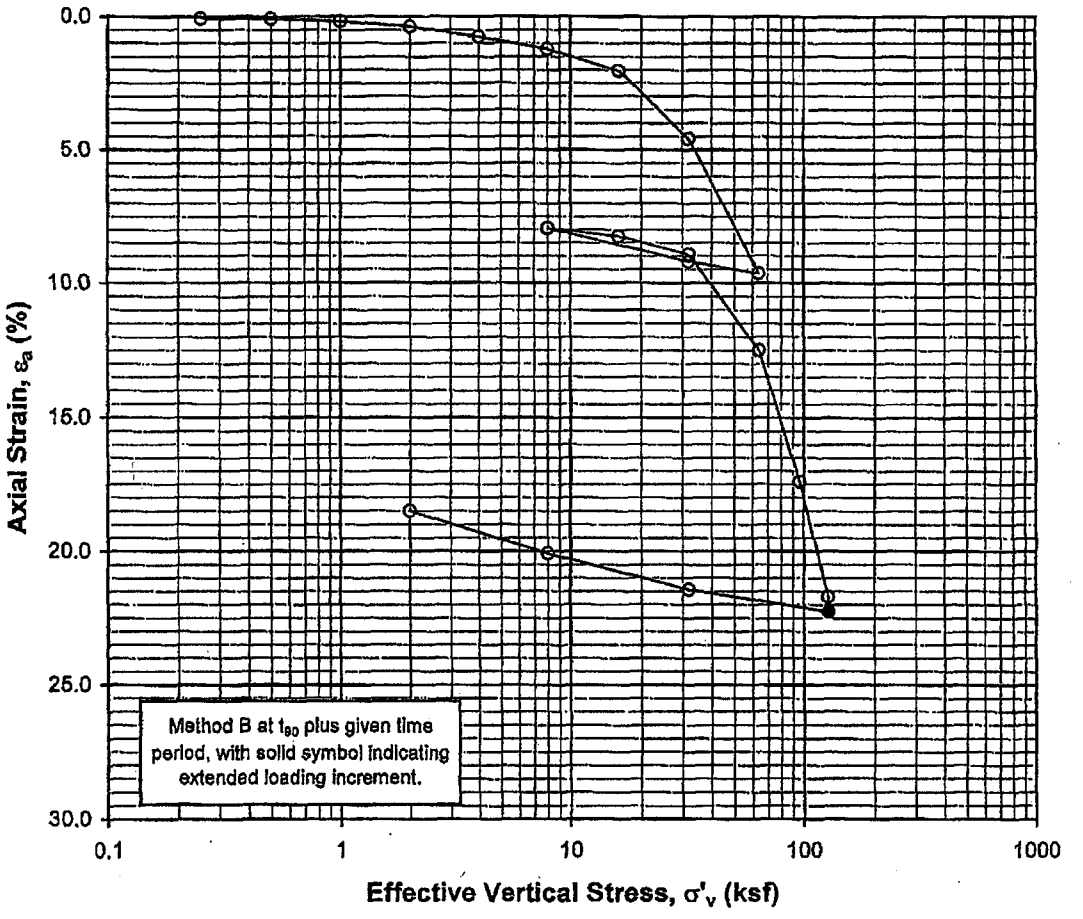
1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 240.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

10-7-08

DCN: CALV-050



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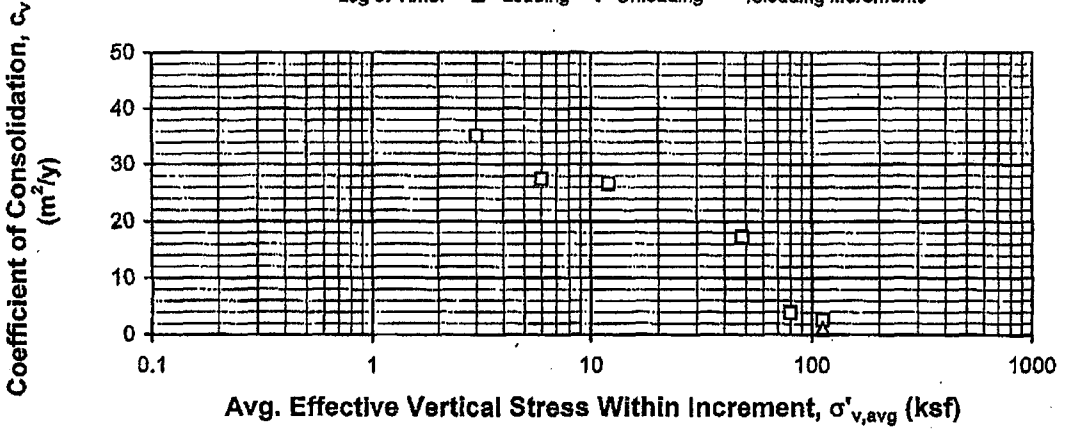
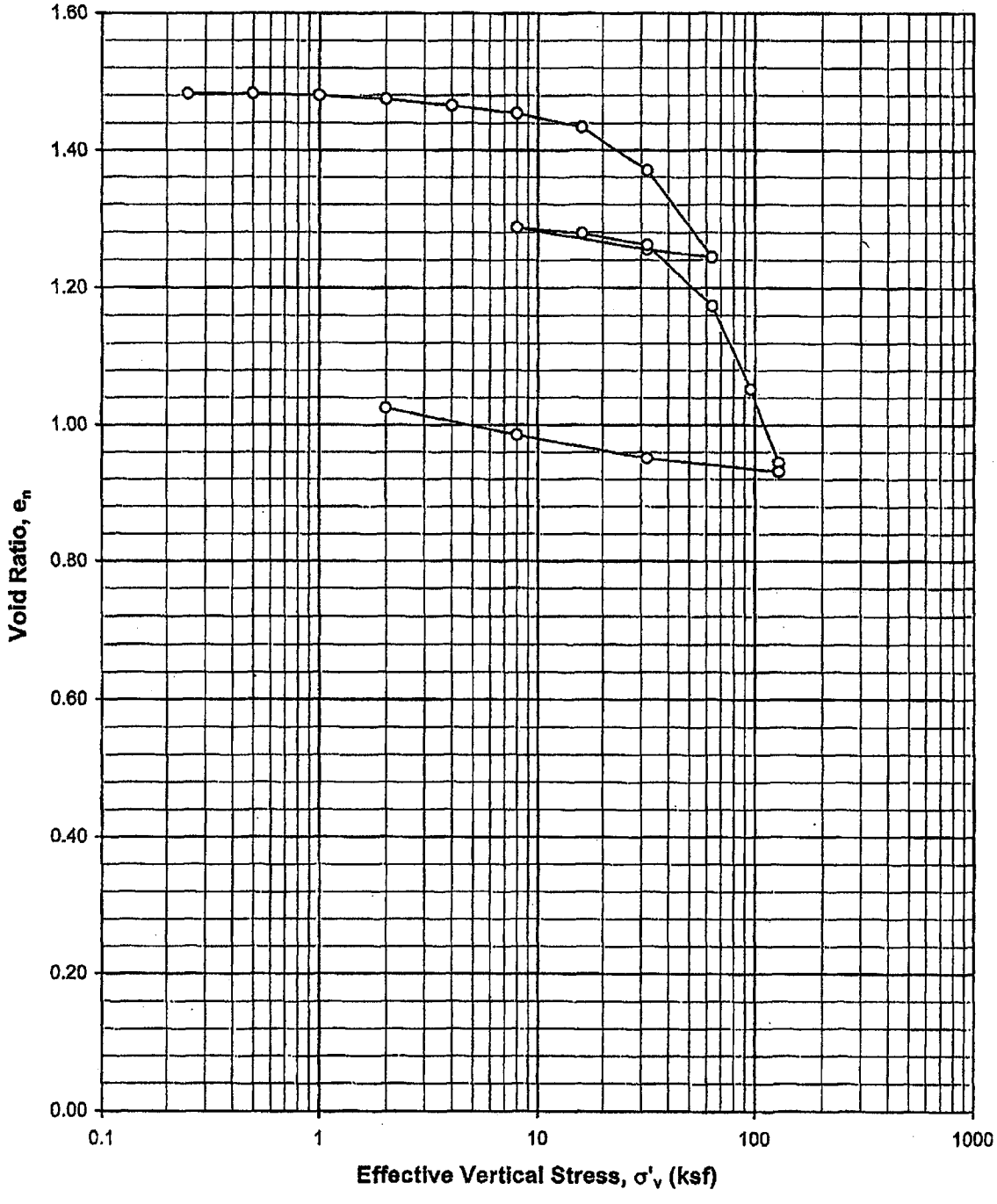


1-D CONSOLIDATION TEST: INC
Sample No. UD-7a - Depth 260.00 ft
Boring B-301A

PLATE

DCN: CALV-050 10-7-08



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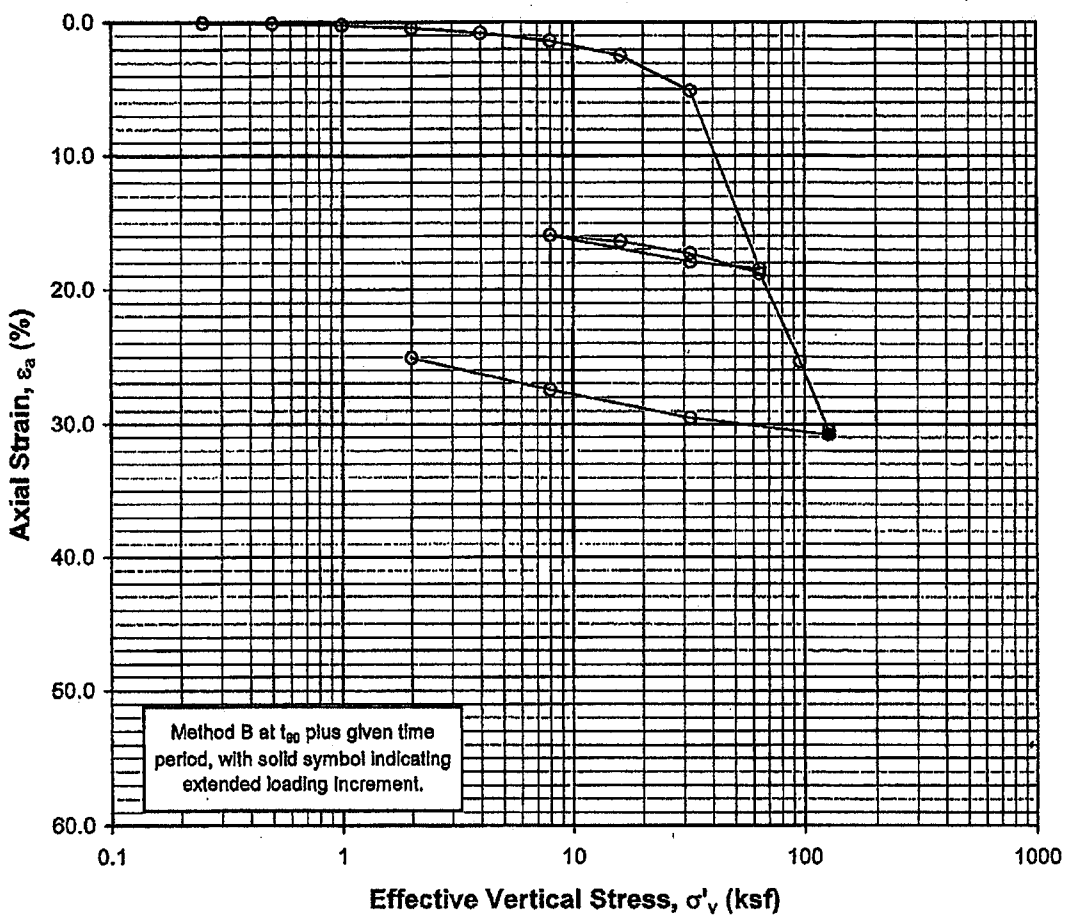
Sample No. UD-7a - Depth 260.00 ft
Boring B-301A



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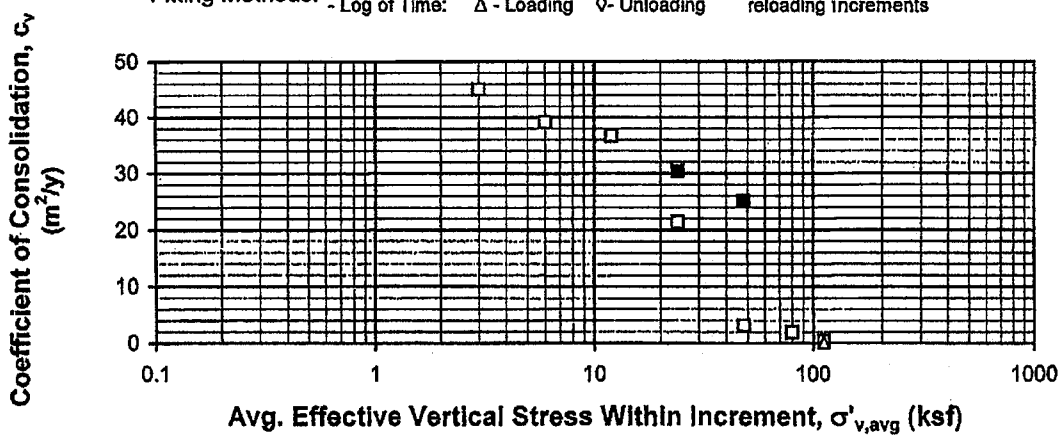

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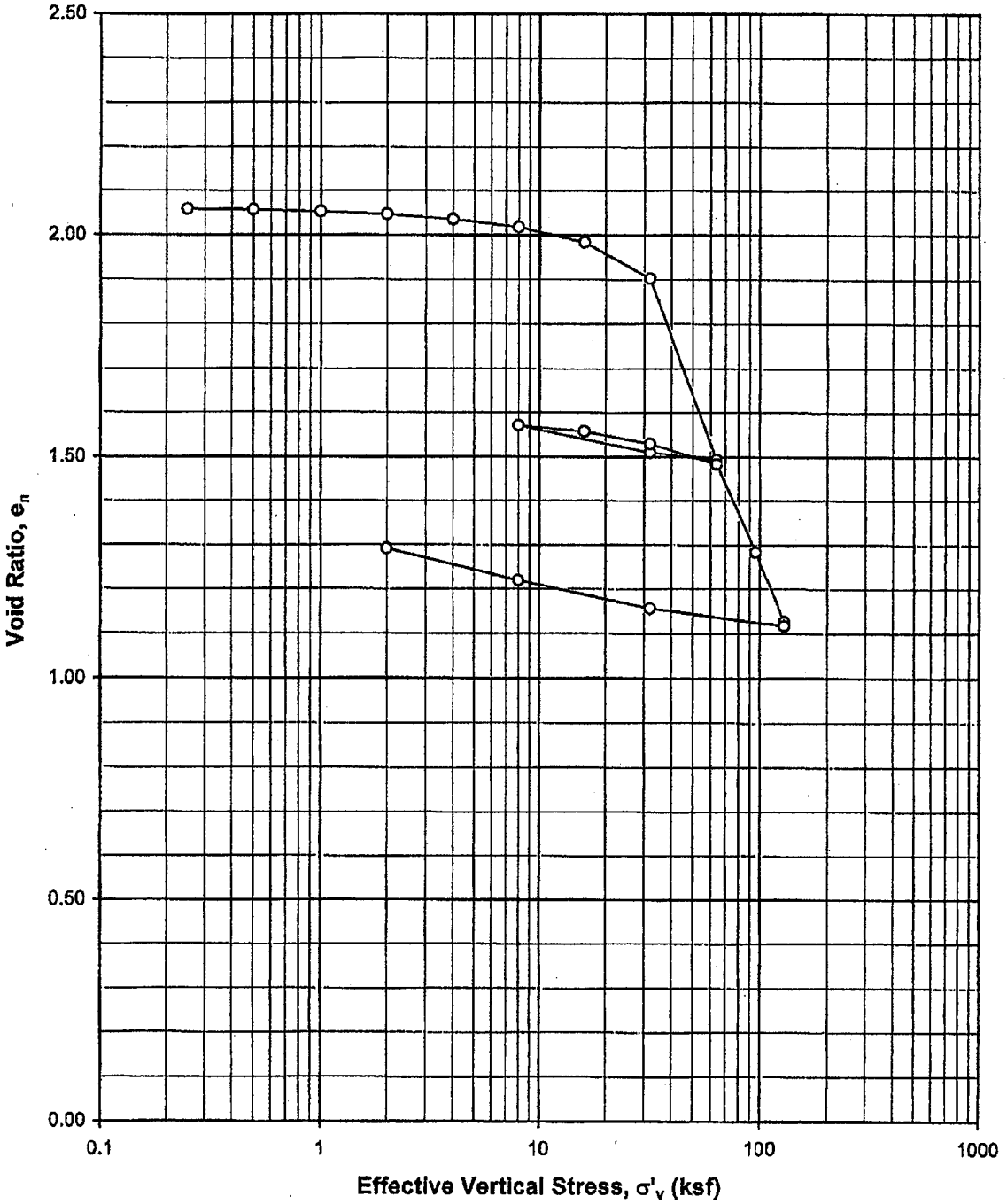
Sample No. UD-8a - Depth 270.00 ft
Boring B-301A

PLATE

DCN: CALV-050 10-7-08



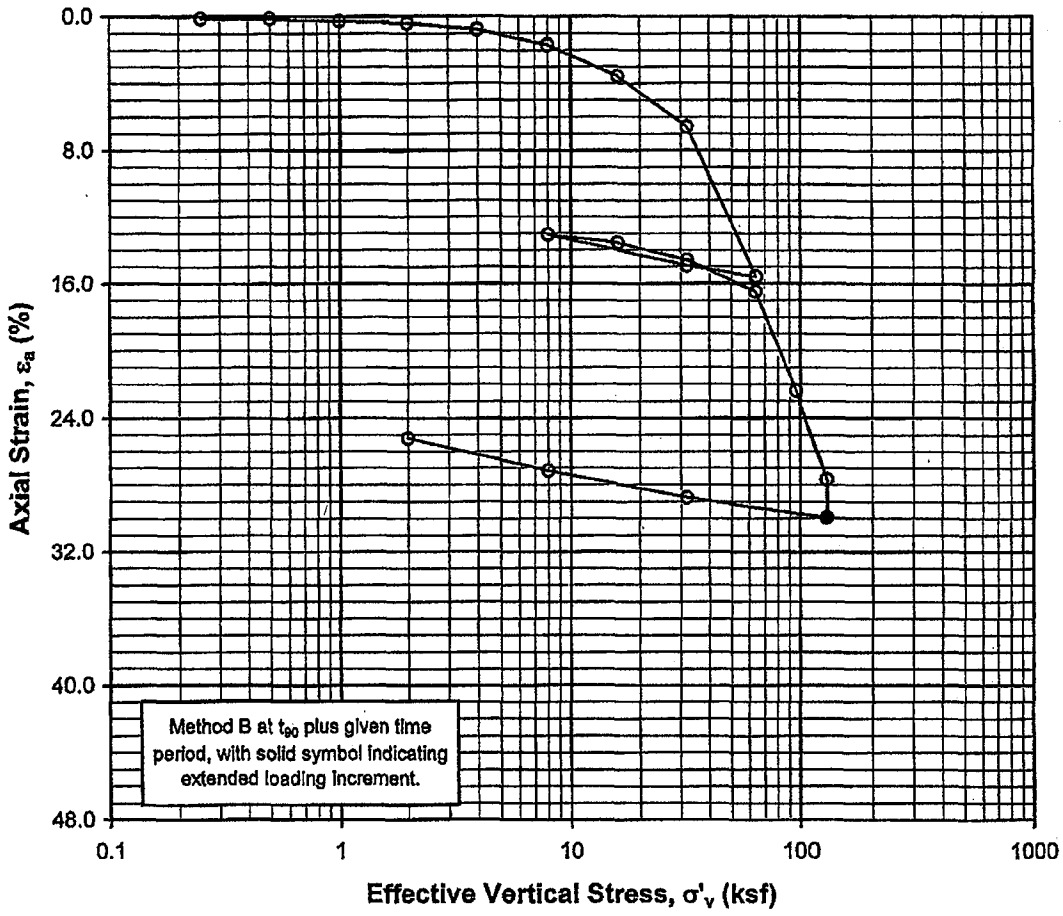
1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 270.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

MA 10-7-08

DCN: CALV-050



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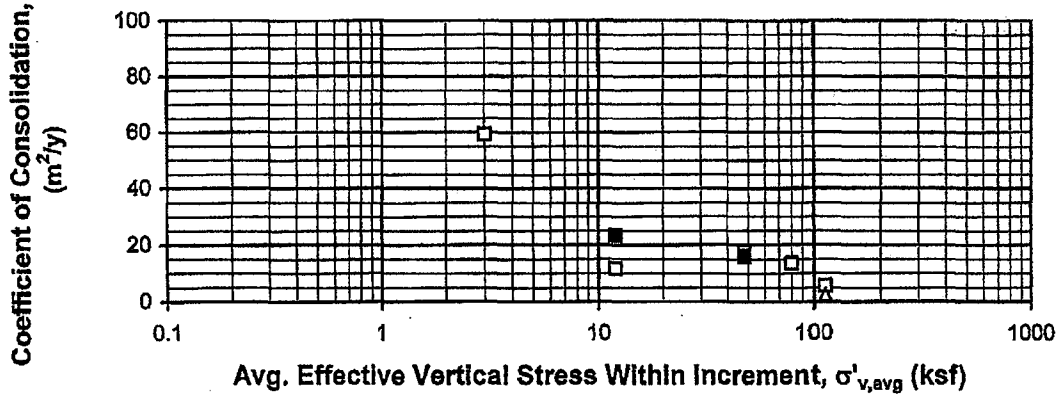

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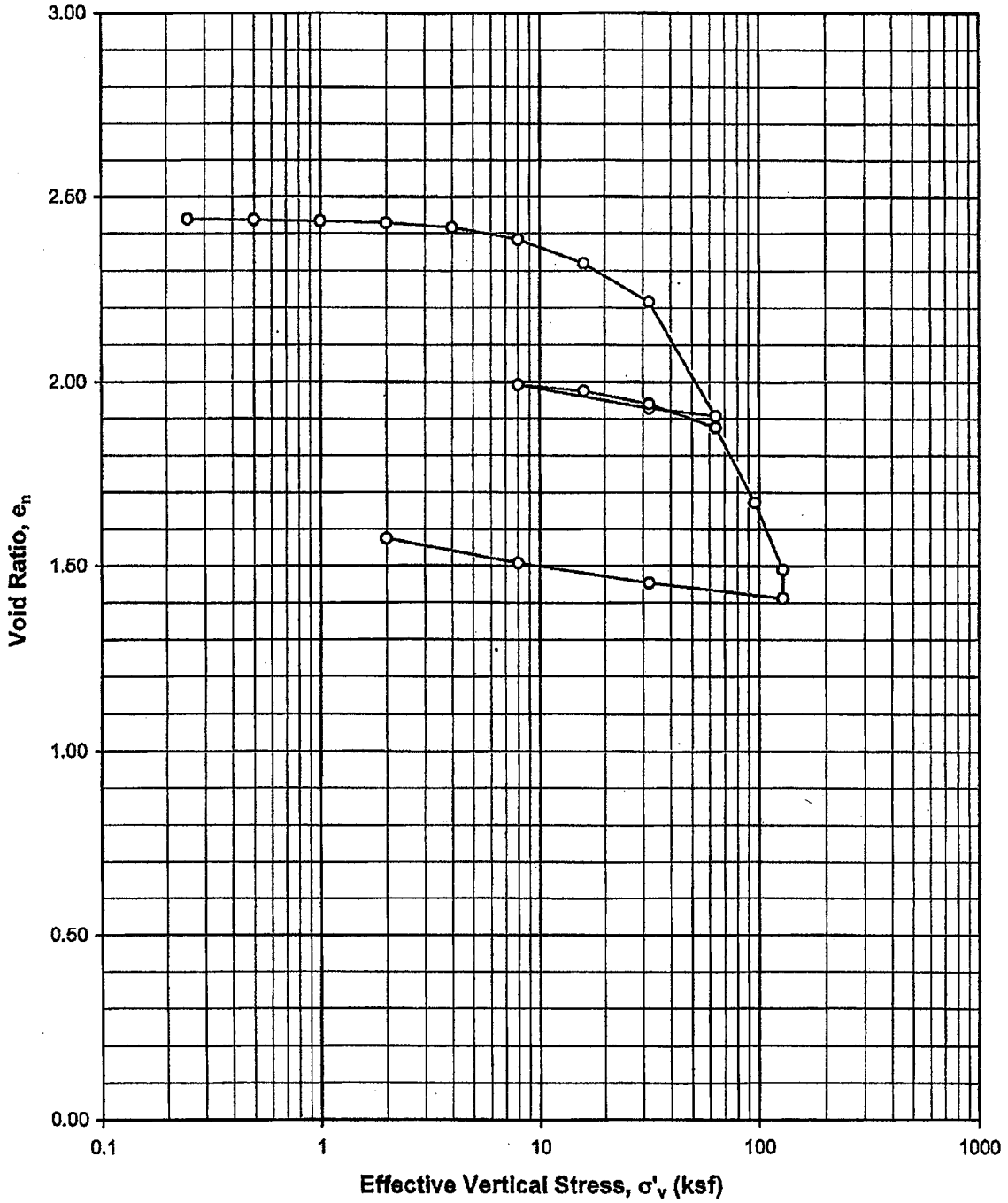
Sample No. UD-9a - Depth 280.00 ft
Boring B-301A

PLATE

AA 10-7-08

DCN: CALV-050



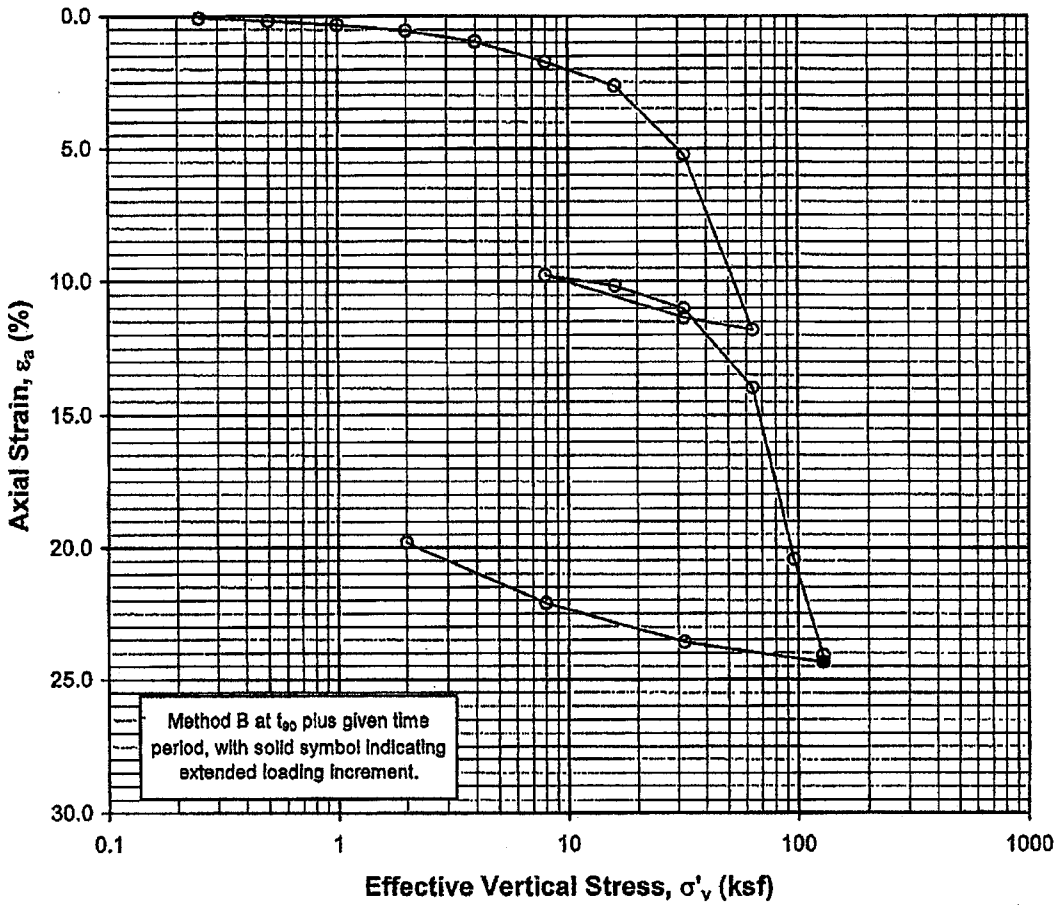
1-D CONSOLIDATION TEST: INC
Sample No. UD-9a - Depth 280.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

10-7-08

DCN: CALV-050



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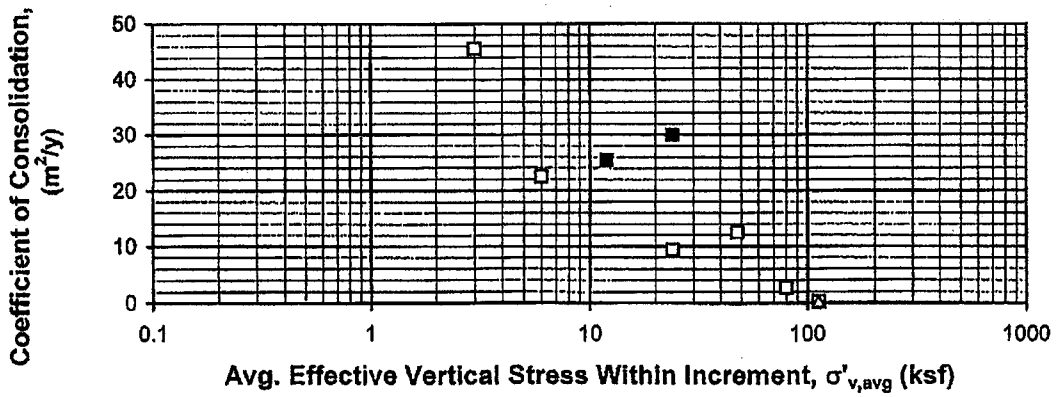

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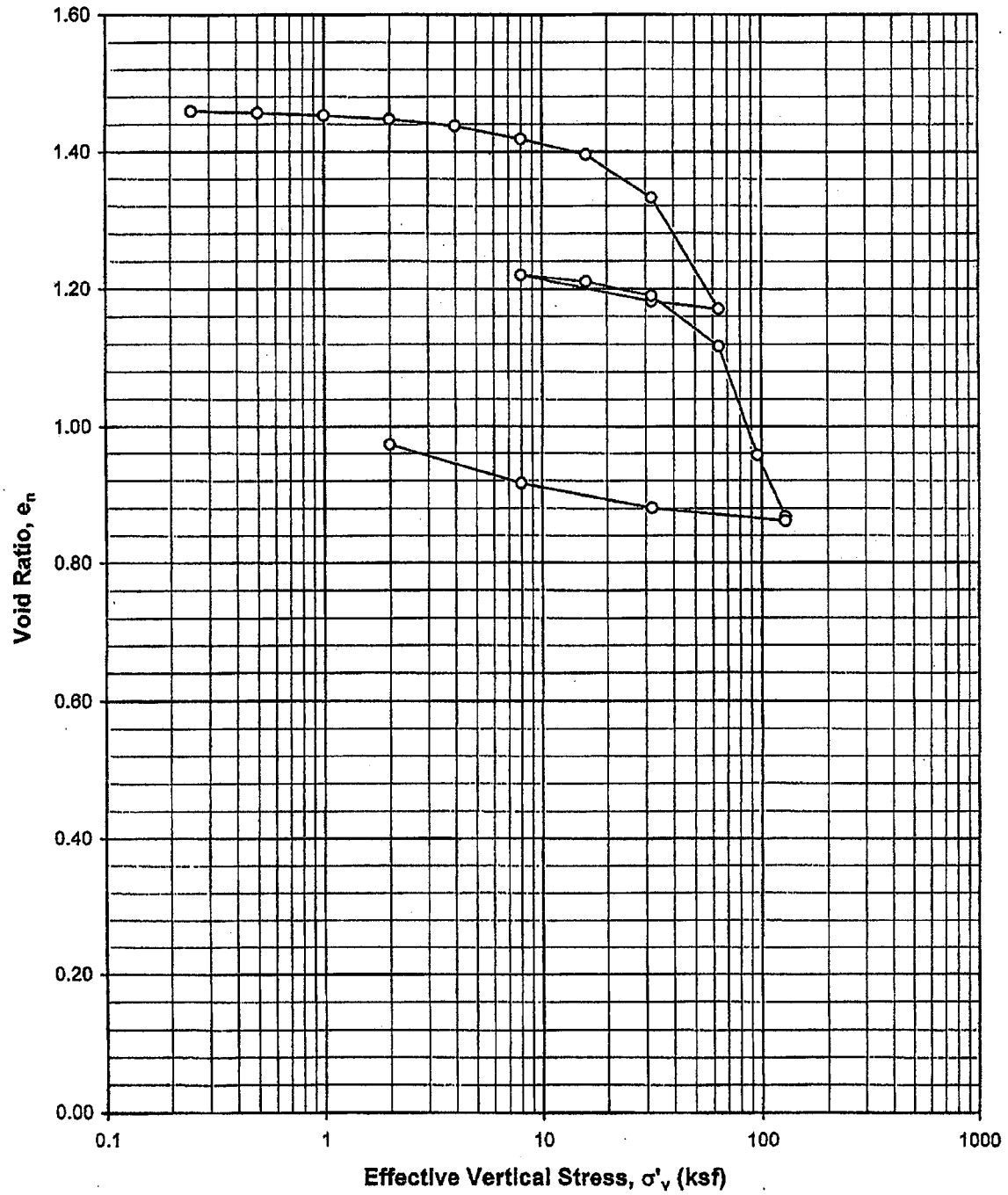
Boring B-301A

PLATE
MA 10-7-08



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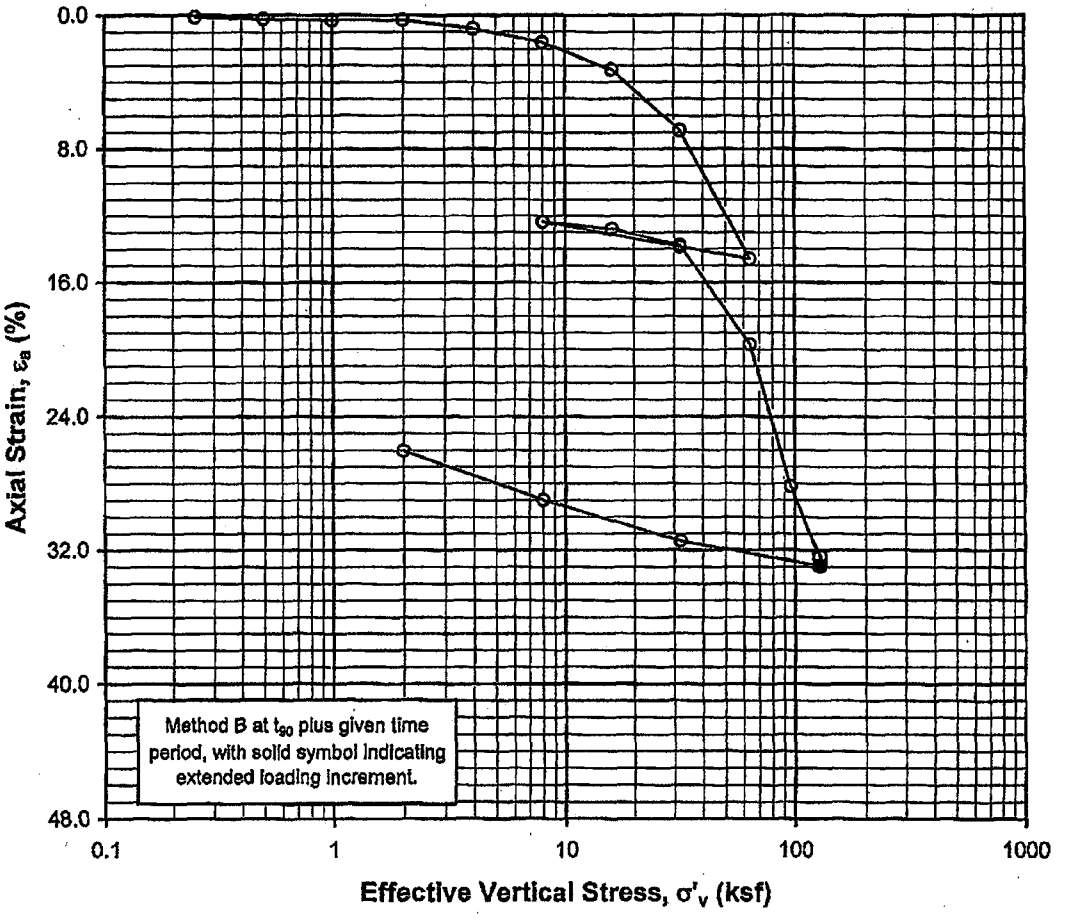

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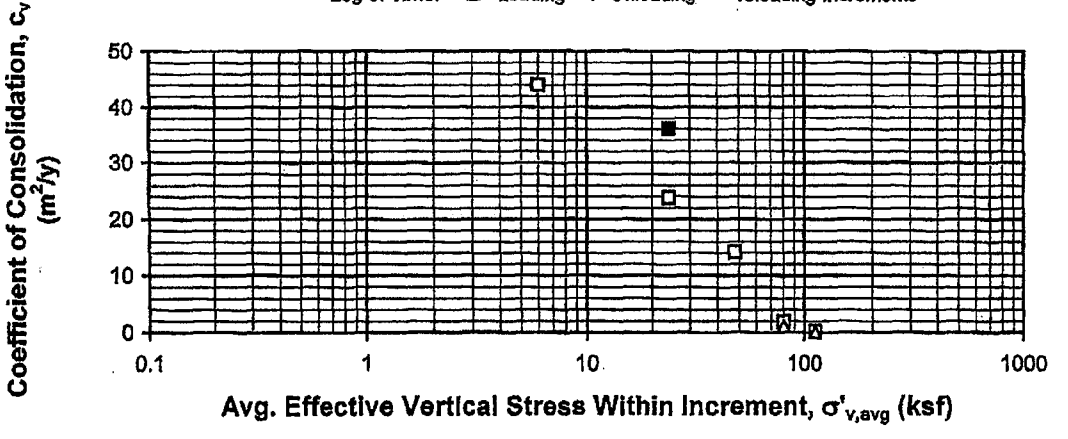

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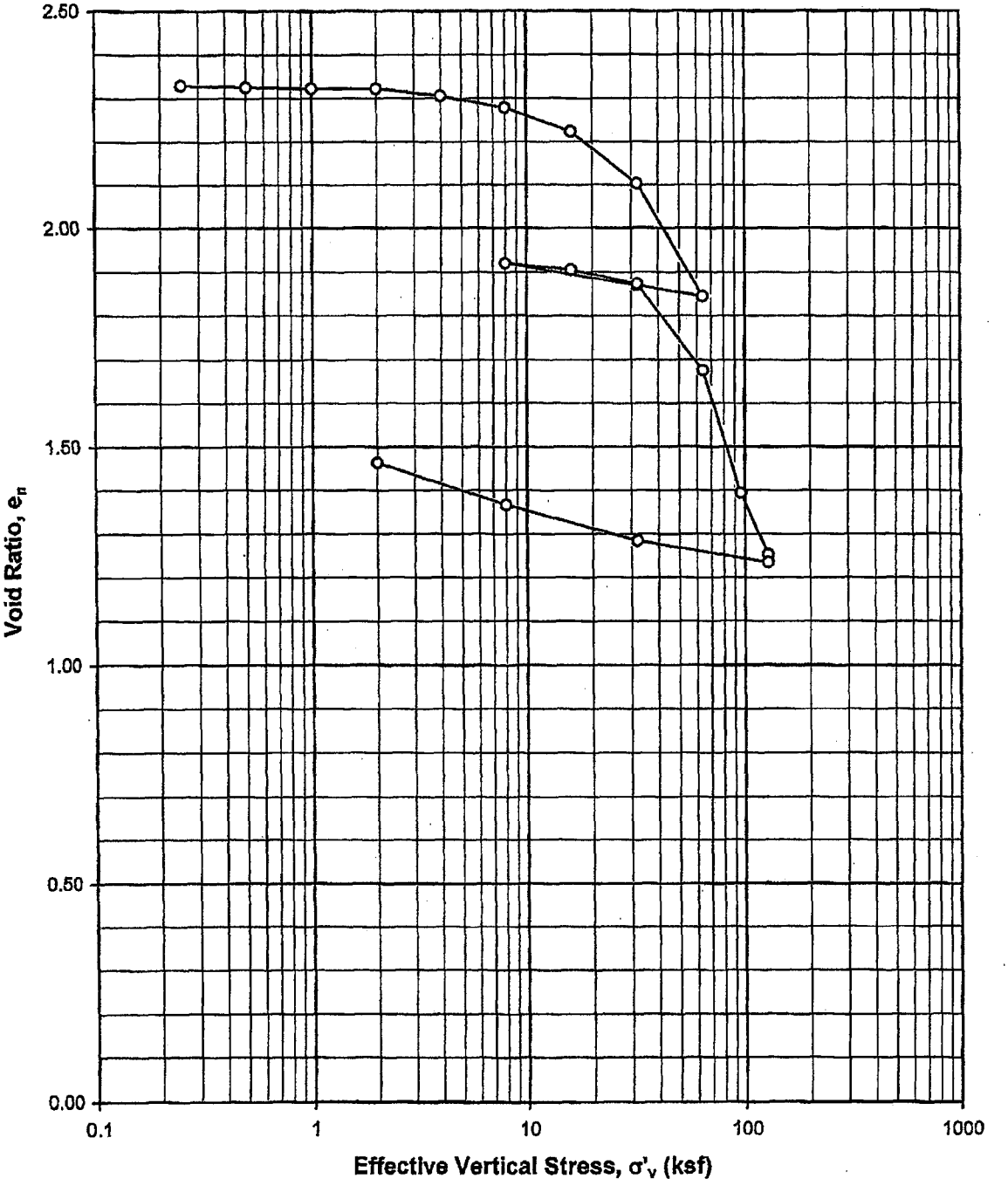
Sample No. UD-11a - Depth 300.00 ft
Boring B-301A

PLATE

DCN: CALV-050 10-7-02



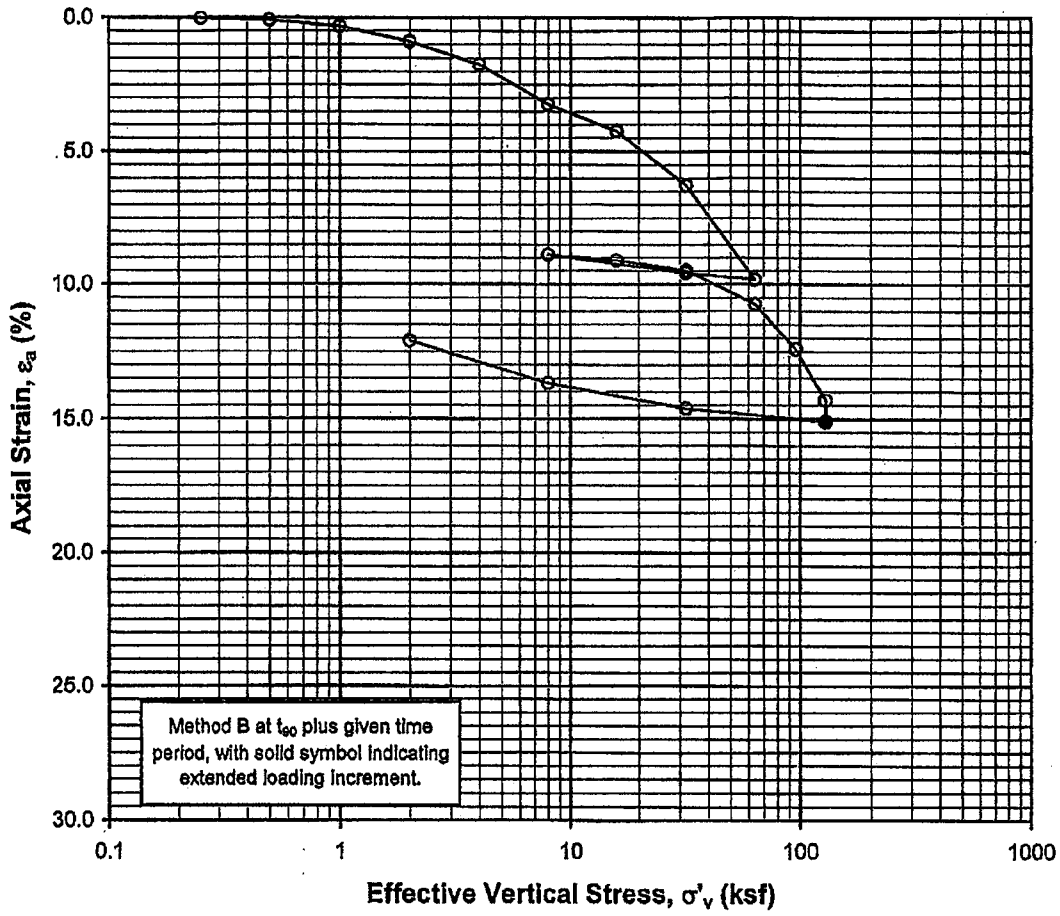
1-D CONSOLIDATION TEST: INC
Sample No. UD-11a - Depth 300.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

MA 10-7-08

DCN: CALV-050



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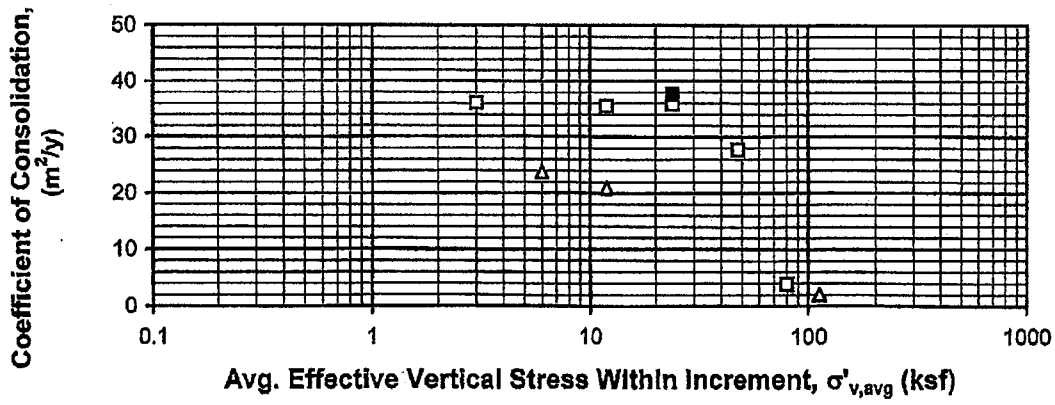

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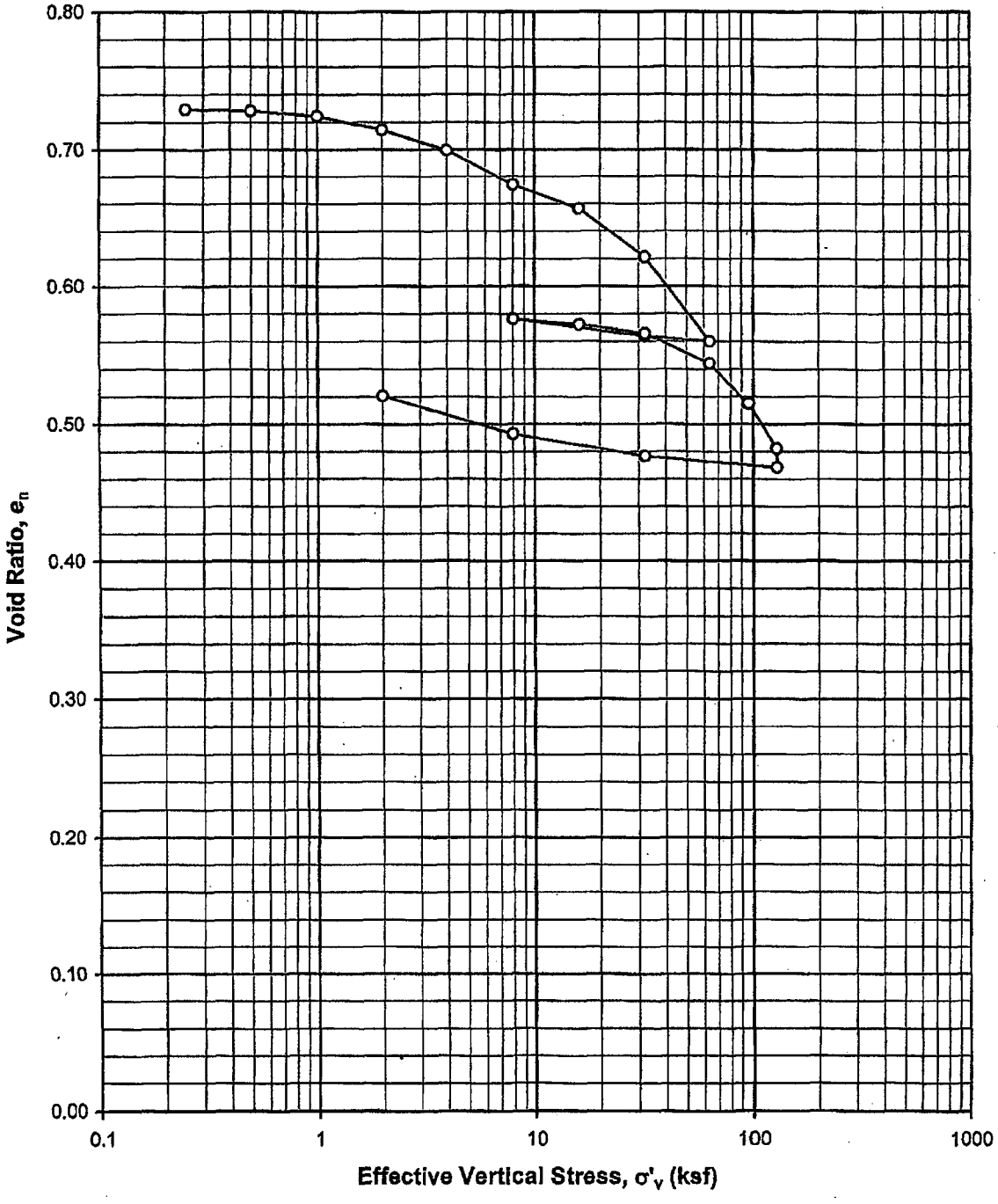
Sample No. UD-12a - Depth 310.00 ft
Boring B-301A

PLATE

AA 10-7-08

DCN: CALV-050



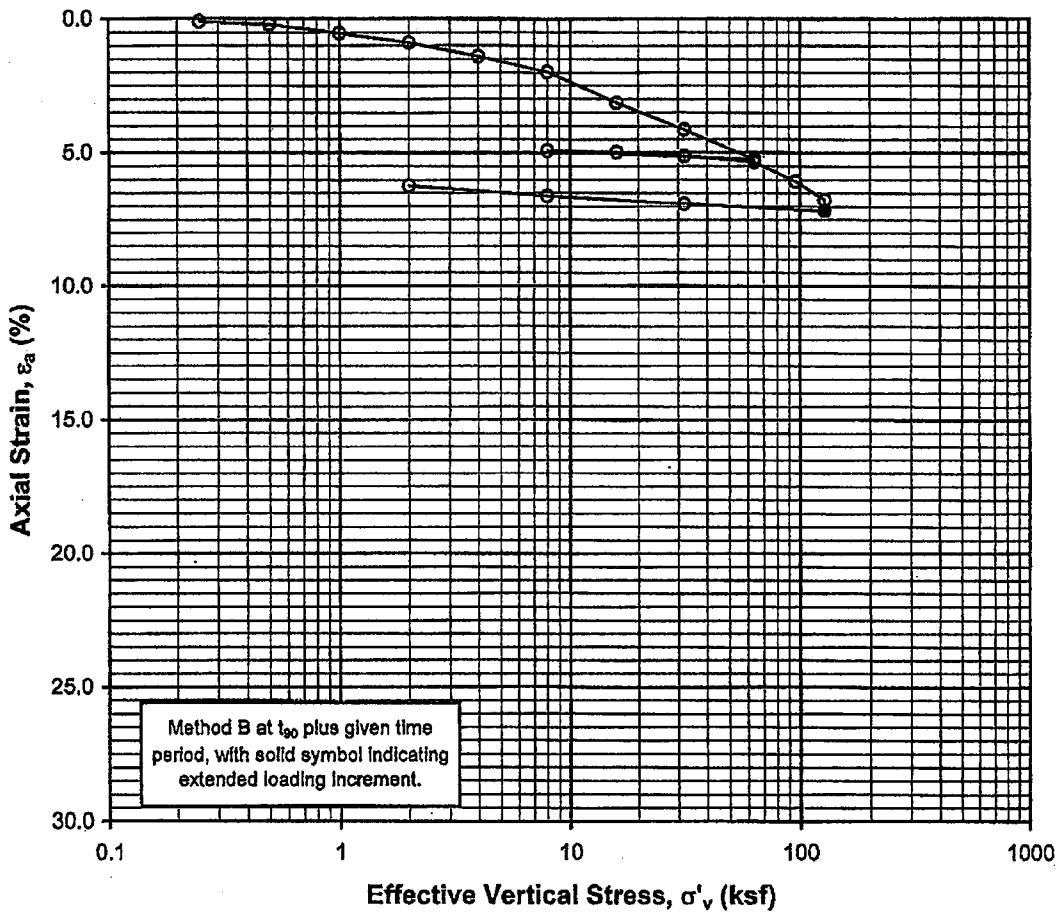
1-D CONSOLIDATION TEST: INC
Sample No. UD-12a - Depth 310.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

MA 10-7-08

DCN: CALV-050



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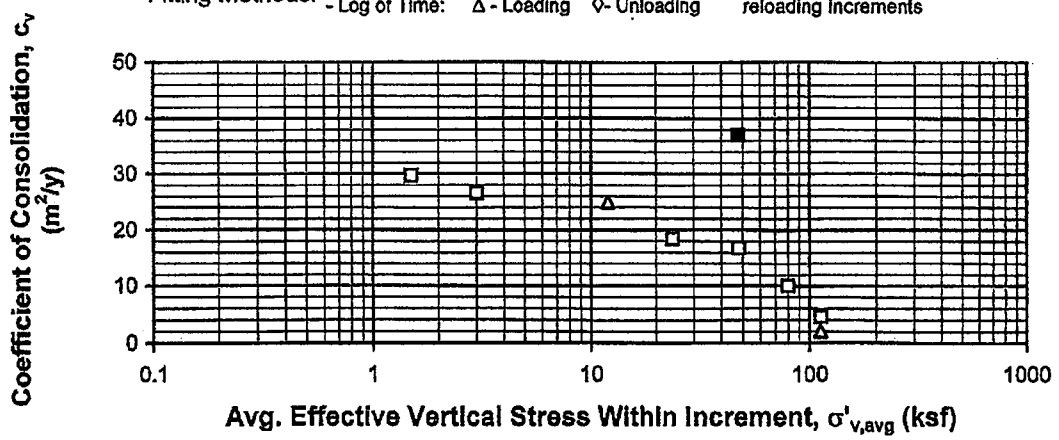

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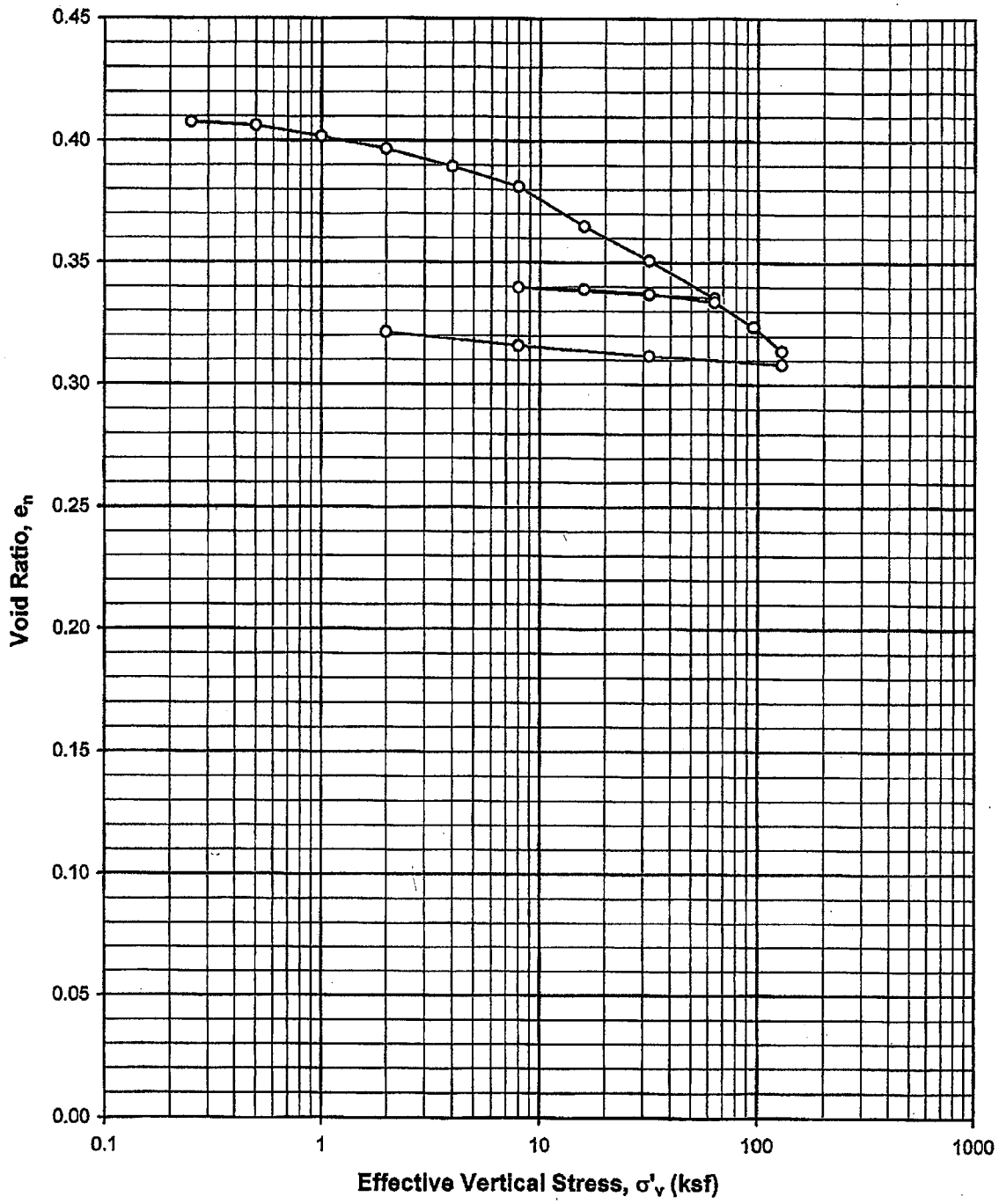
Sample No. UD-13a - Depth 320 ft
Boring B-301A

PLATE
M 10-7-08



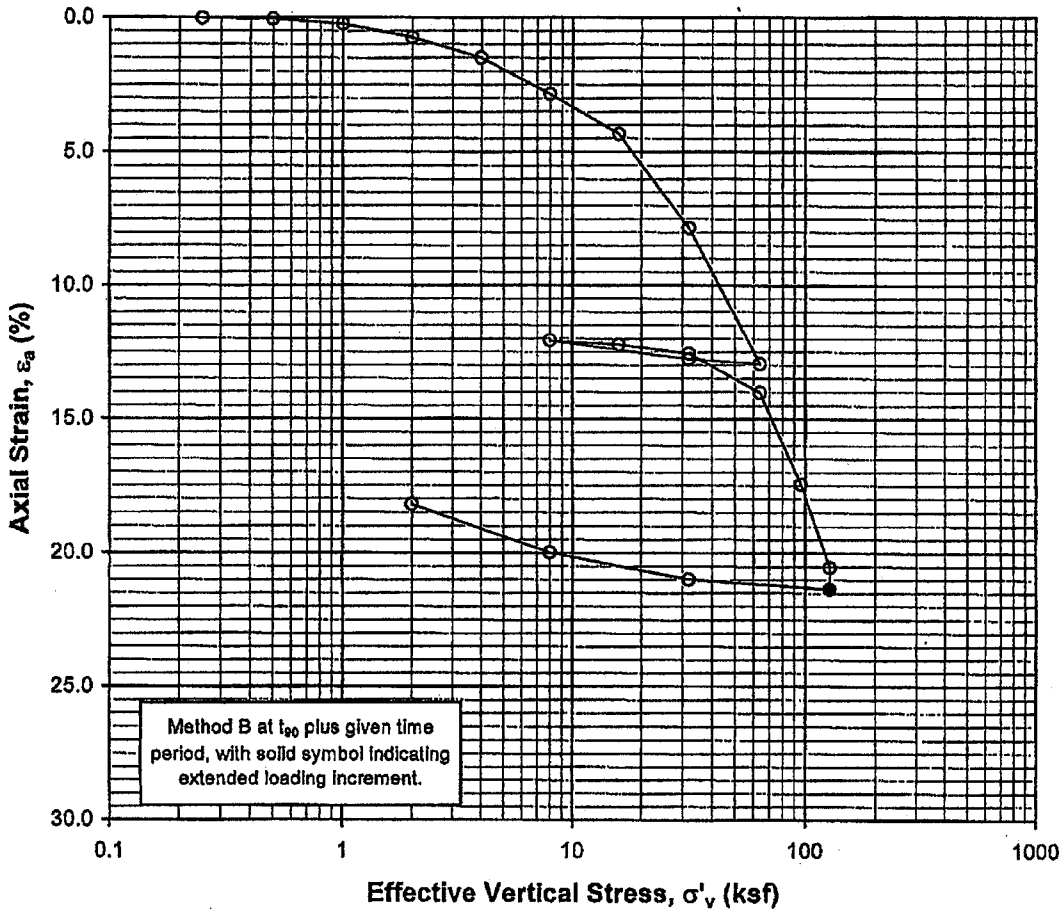
1-D CONSOLIDATION TEST: INC
Sample No. UD-13a - Depth 320 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

M 10-7-08

DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
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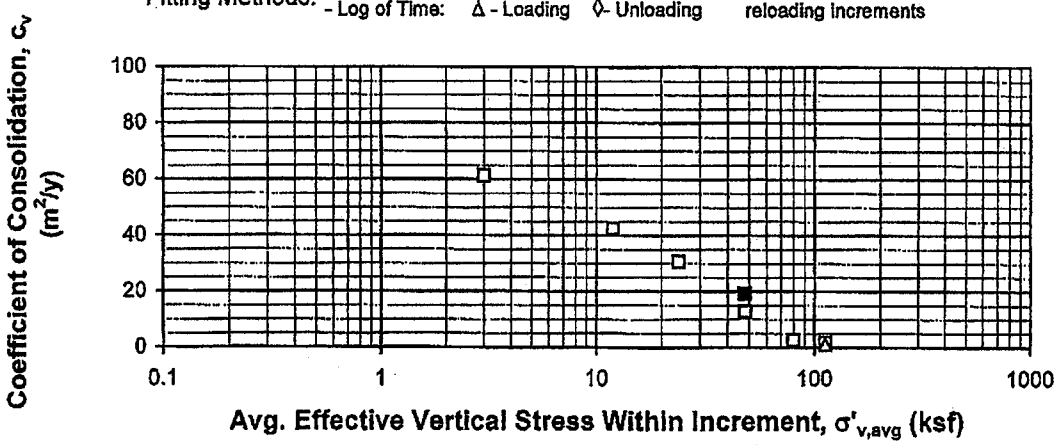

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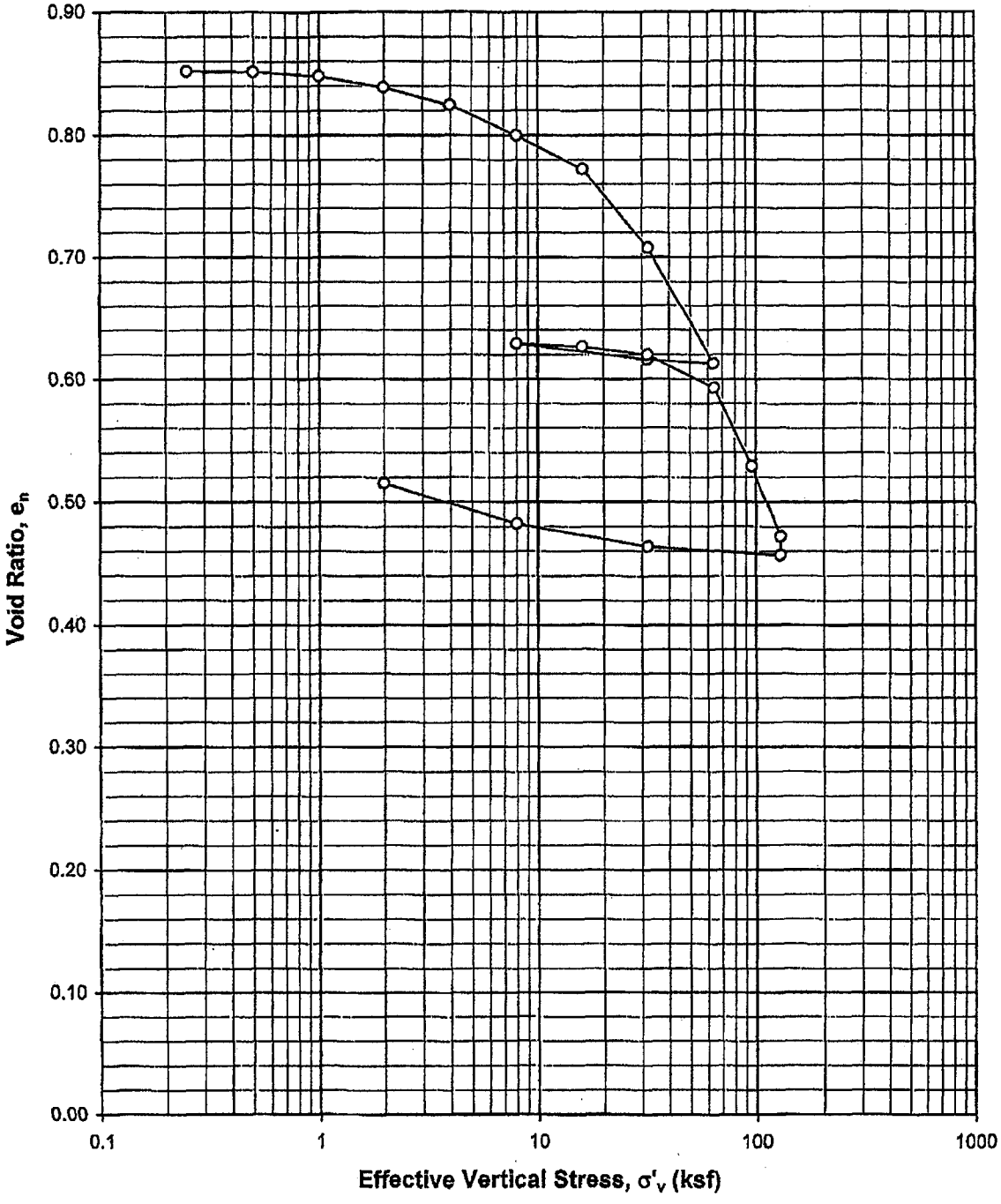
Sample No. UD-14a - Depth 330.00 ft
Boring B-301A

PLATE

MA 10-1-08



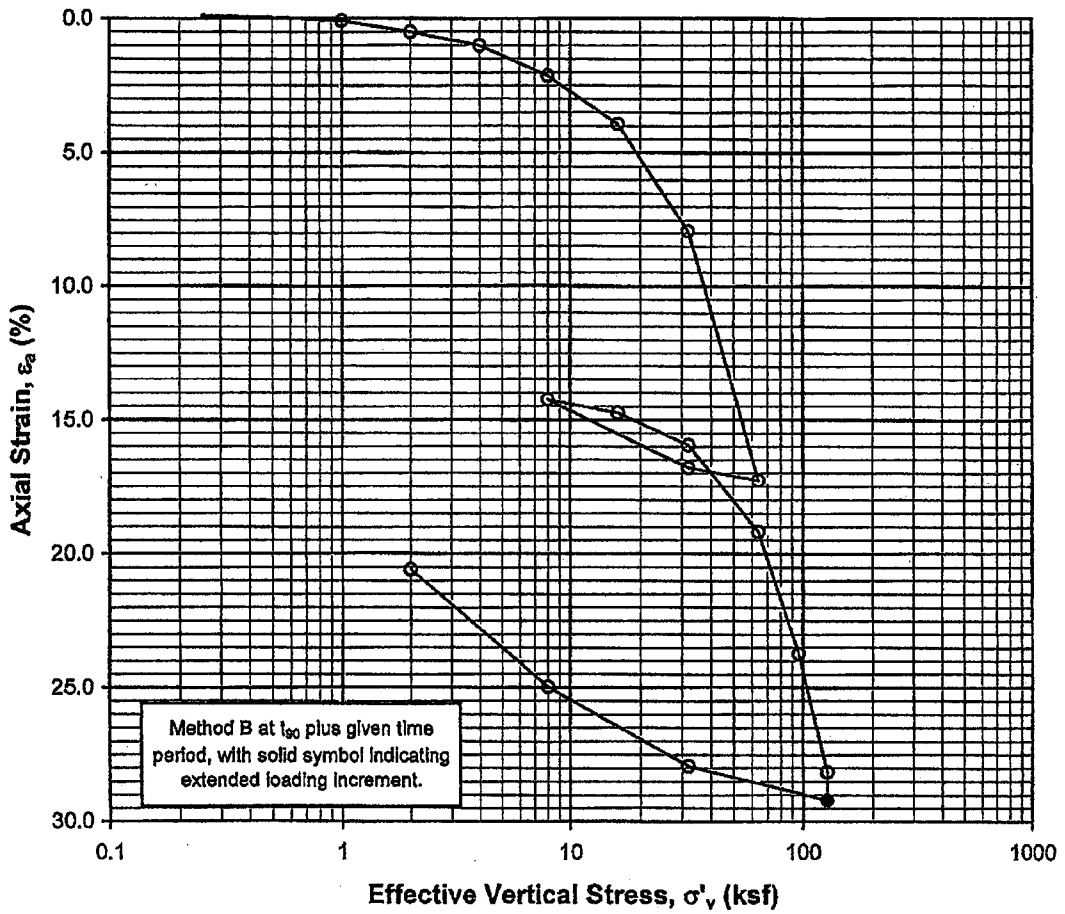
1-D CONSOLIDATION TEST: INC
Sample No. UD-14a - Depth 330.00 ft
Boring B-301A

Report No. 0411-08-1707

PLATE

NA 10-7-08

DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
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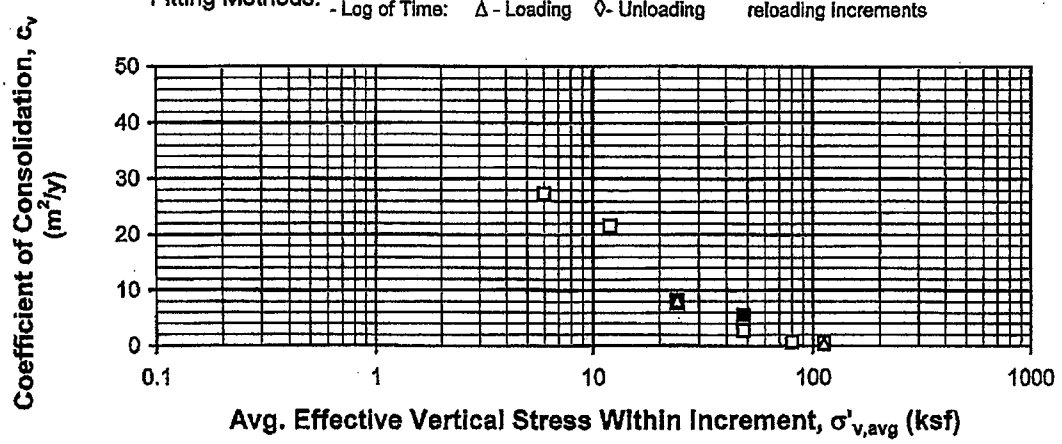
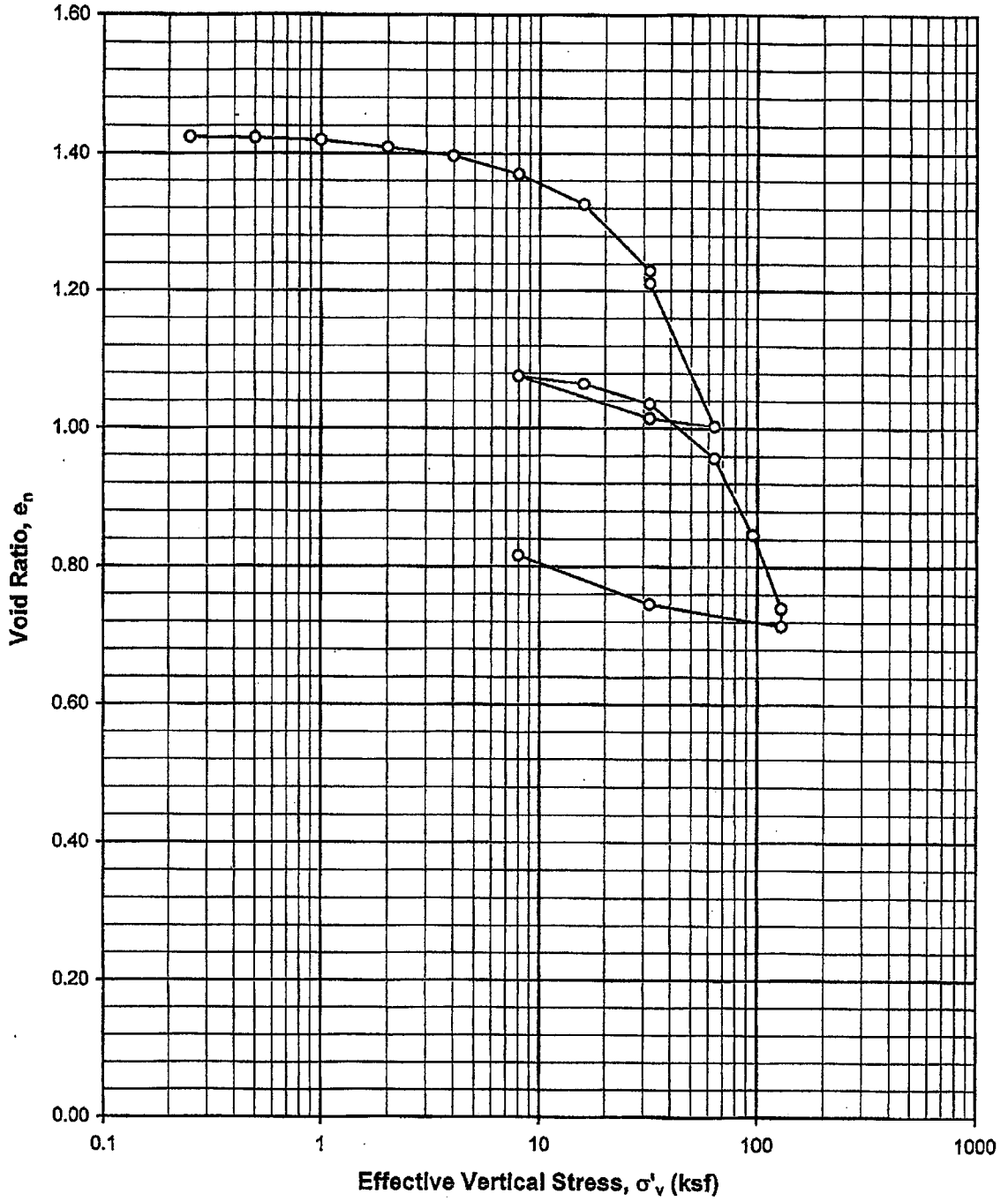


1-D CONSOLIDATION TEST: INC
Sample No. UD-15a - Depth 340.00 ft
Boring B-301A

PLATE

DCN: CALV-050 10-7-08



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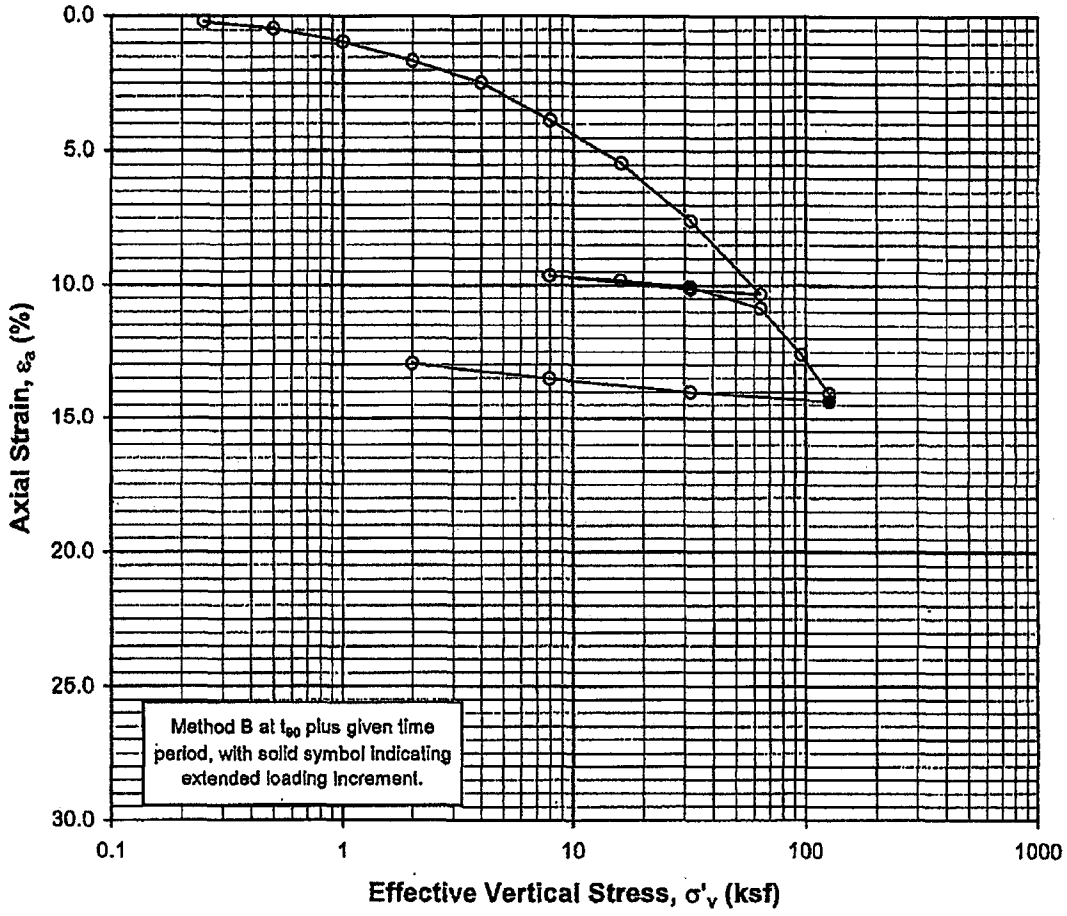
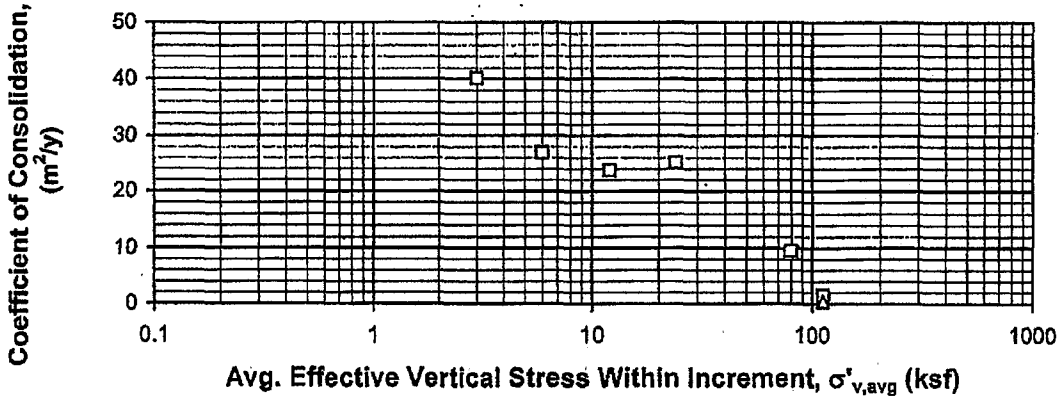
Sample No. UD-15a - Depth 340.00 ft
Boring B-301A



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



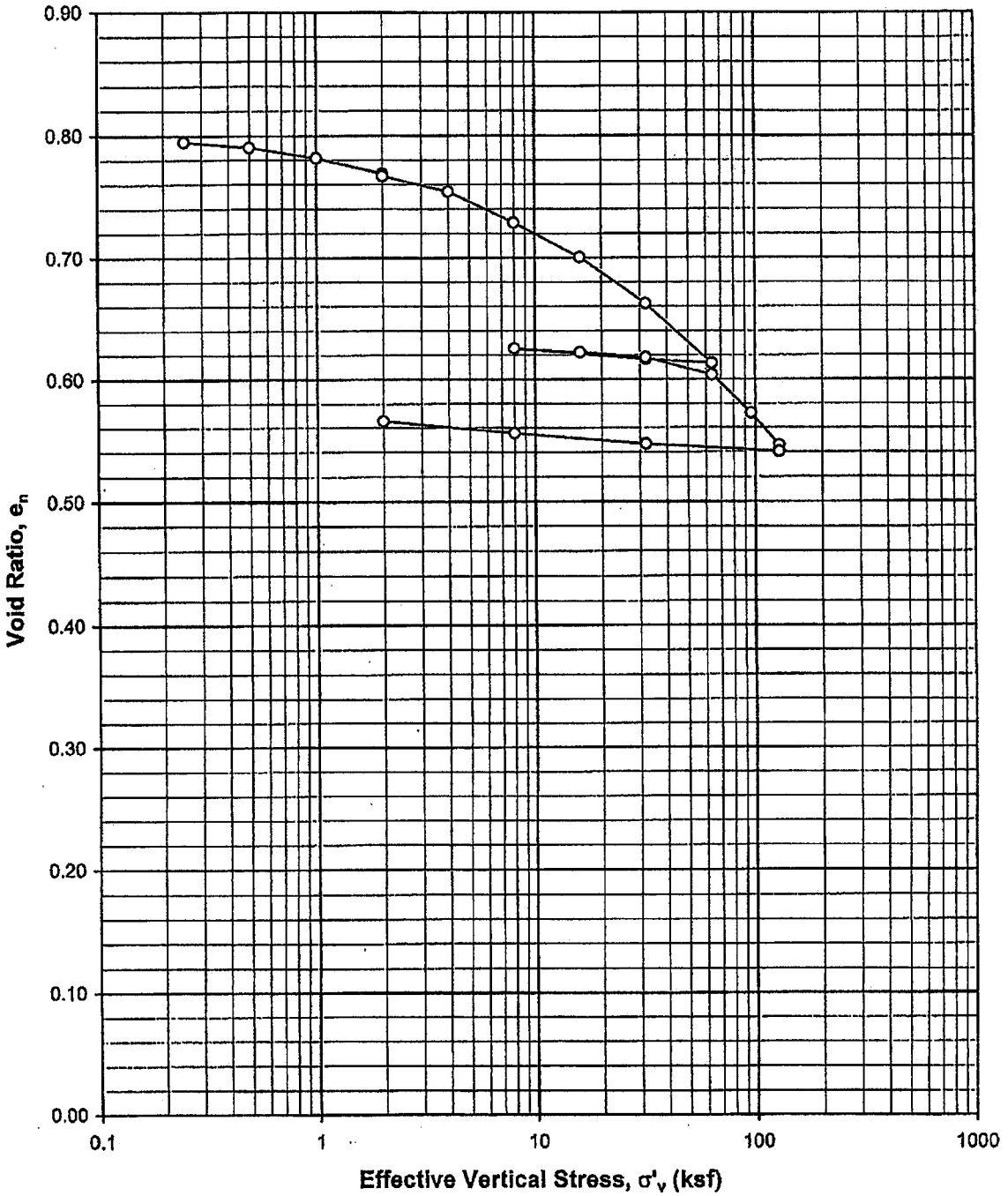
1-D CONSOLIDATION TEST: INC

Sample No. UD-1a - Depth 183.50 ft

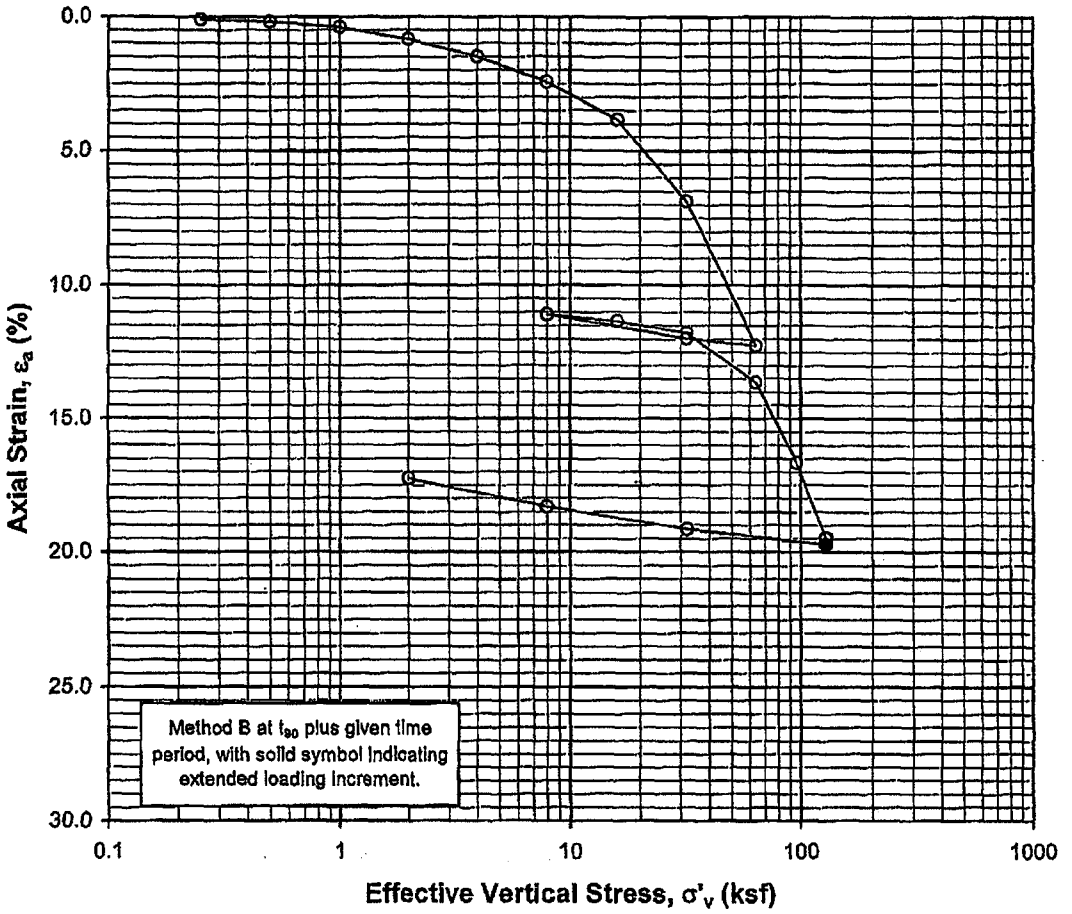
Boring B-344

PLATE

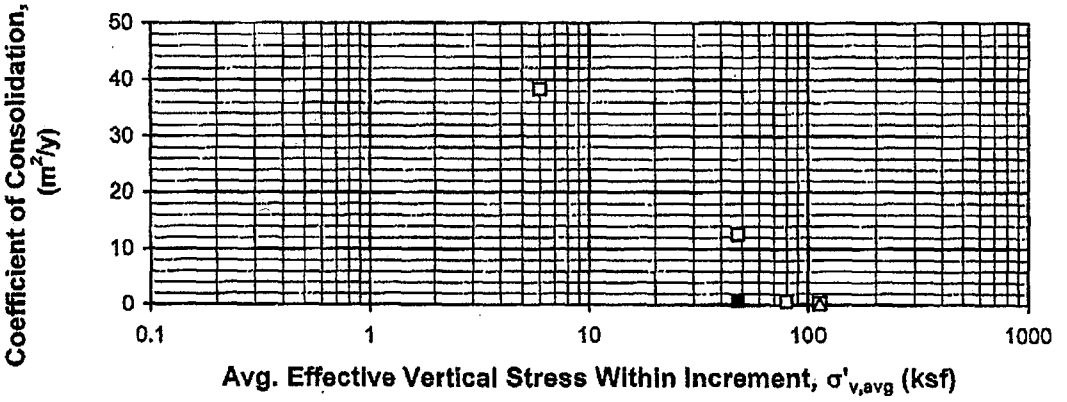
DCN: CALV-050 10-7-08



1-D CONSOLIDATION TEST: INC
Sample No. UD-1a - Depth 183.50 ft
Boring B-344



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments

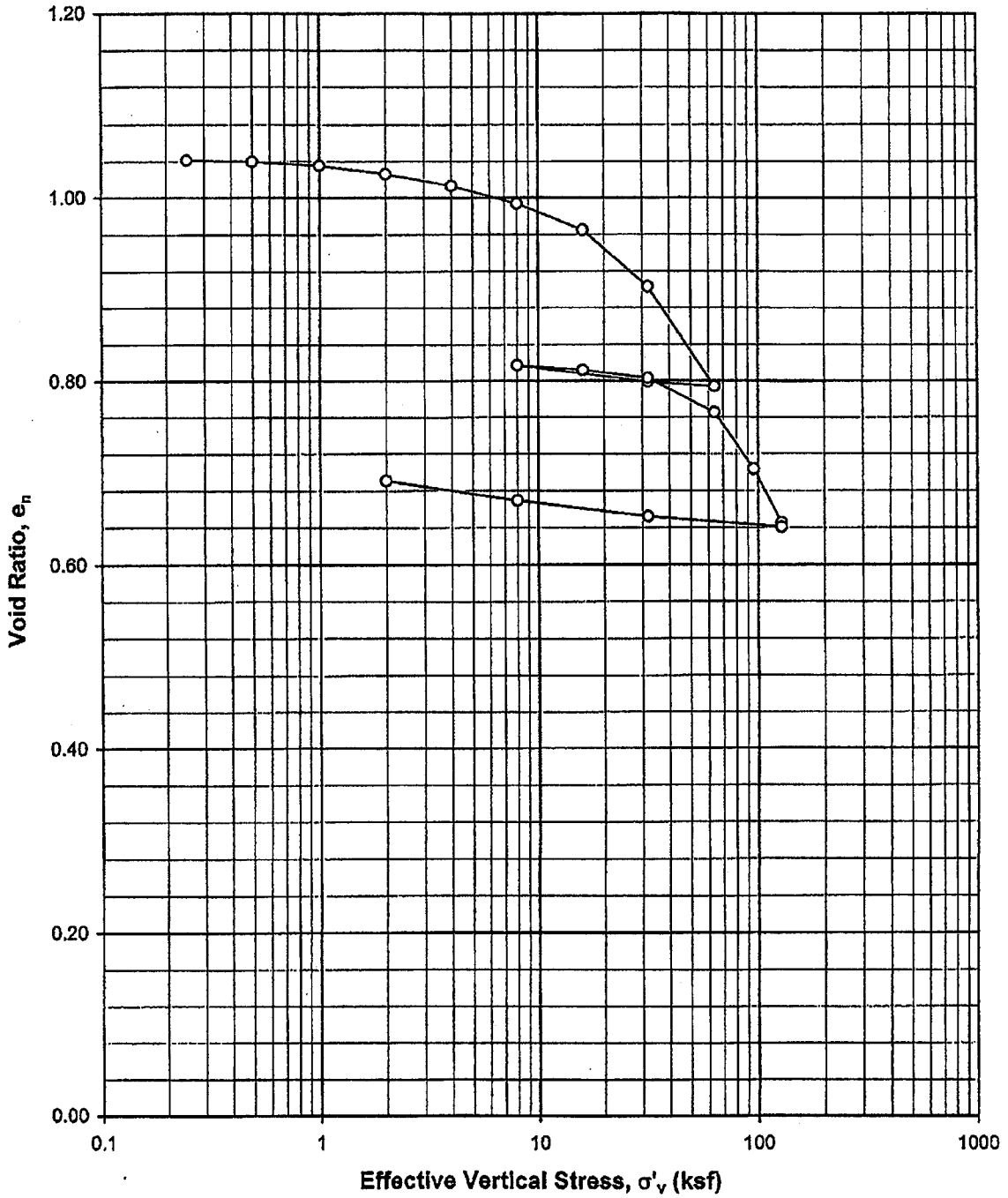


1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 206.00 ft
Boring B-344

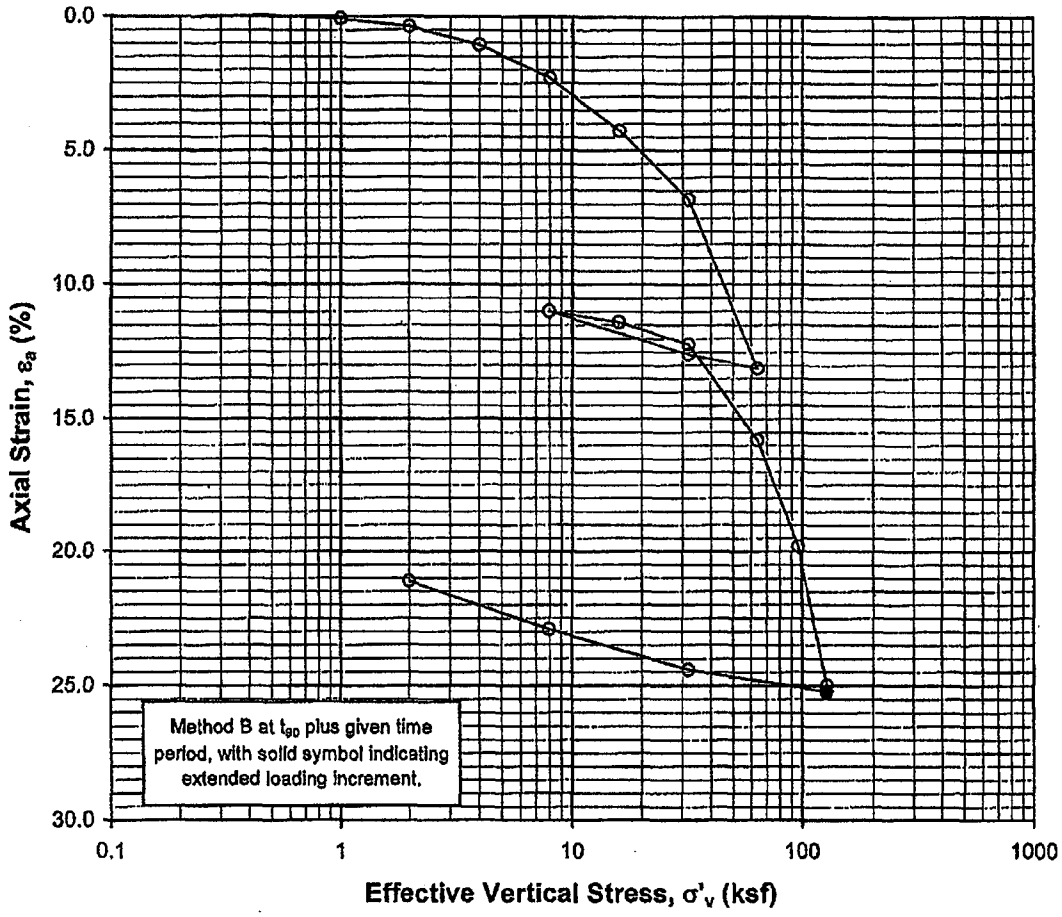
PLATE

AA 10-7-08

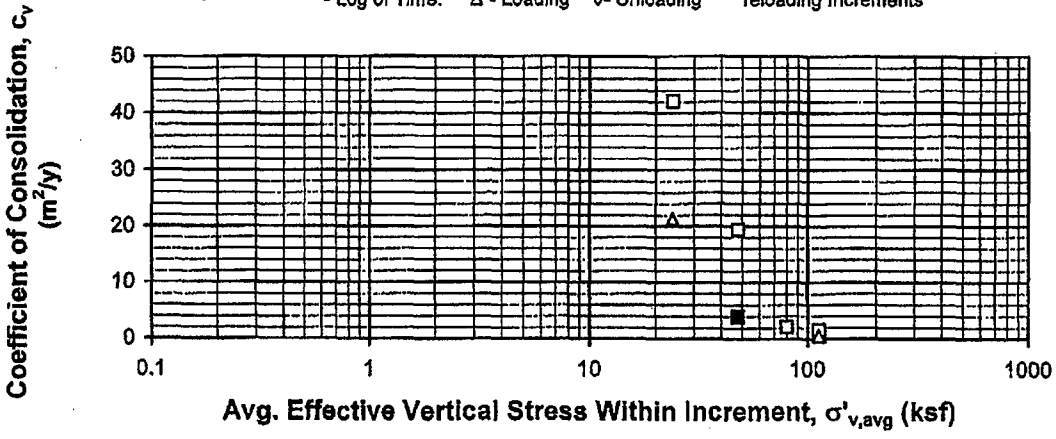
DCN: CALV-050



1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 206.00 ft
Boring B-344

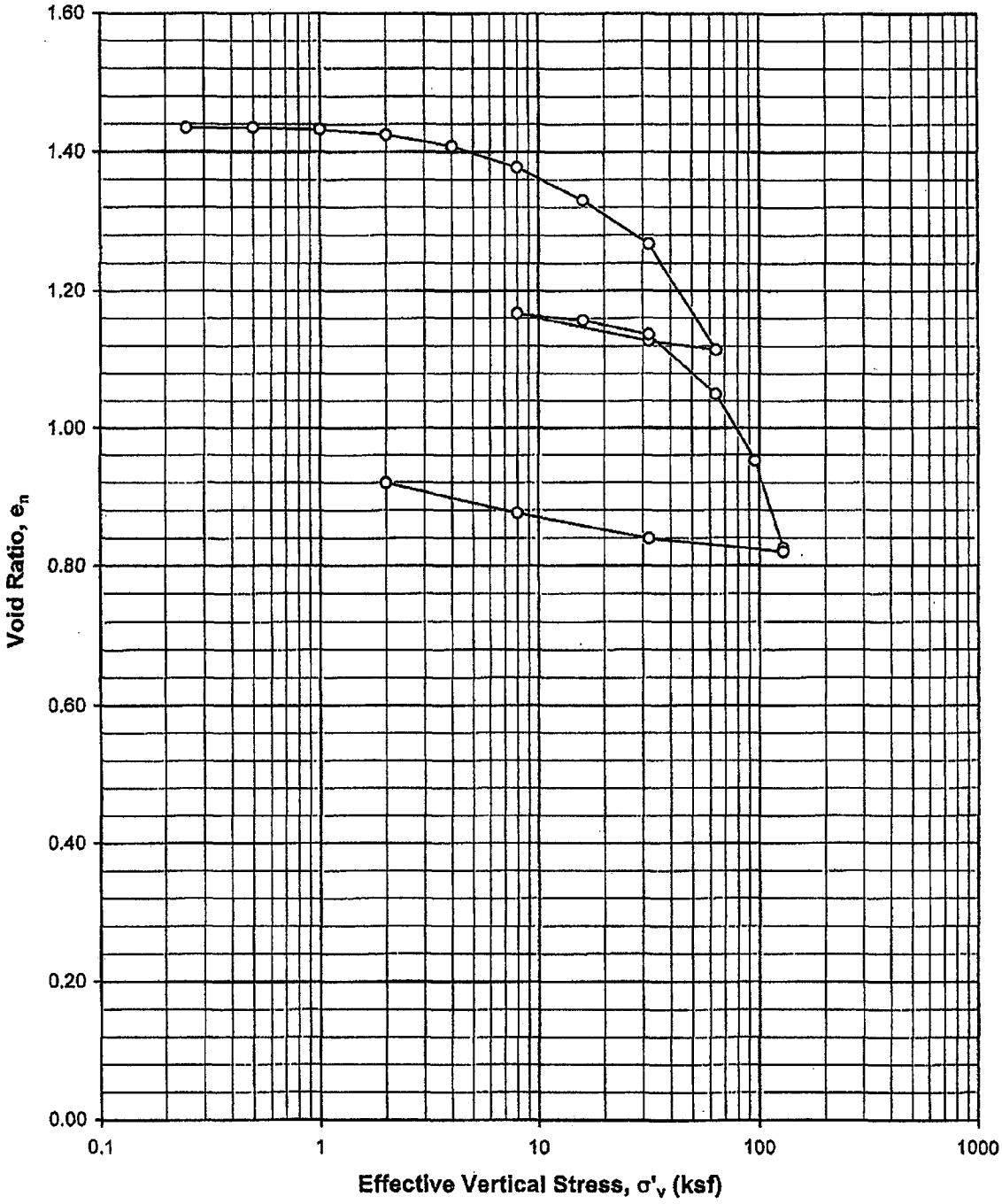


Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments

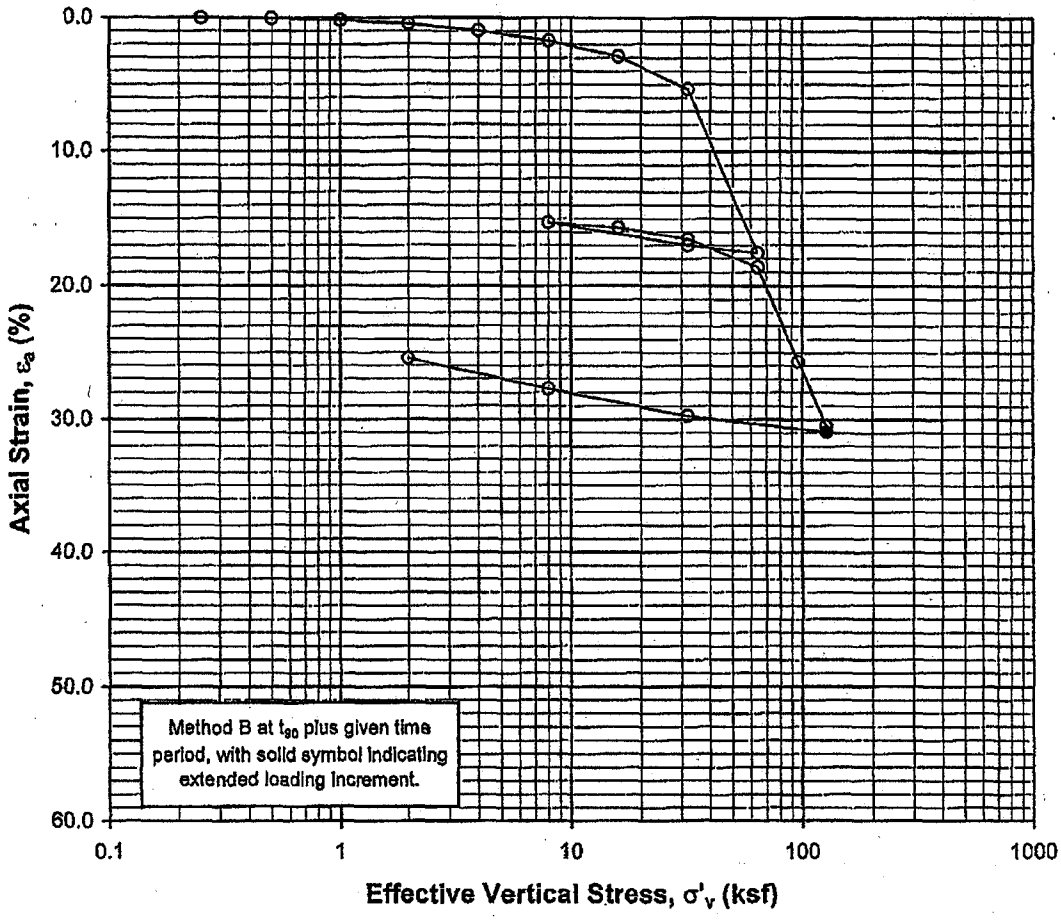


1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 223.50 ft
Boring B-344

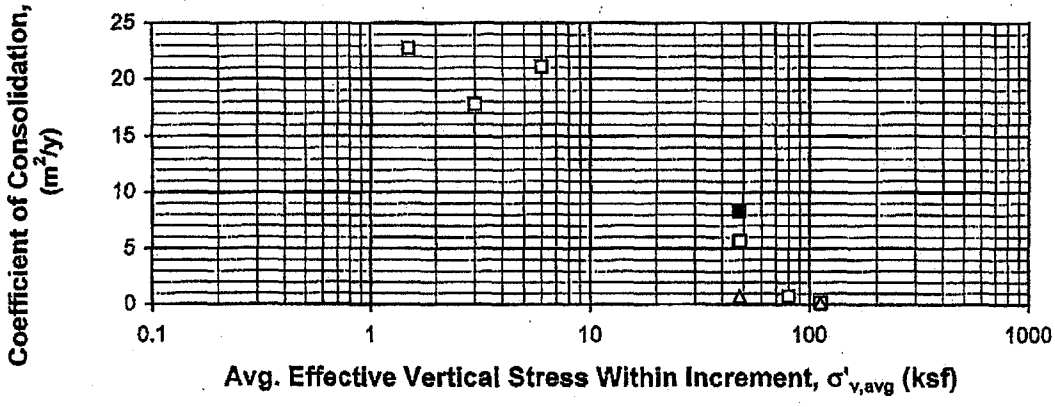
PLATE
MA 10-7-08



1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 223.50 ft
Boring B-344



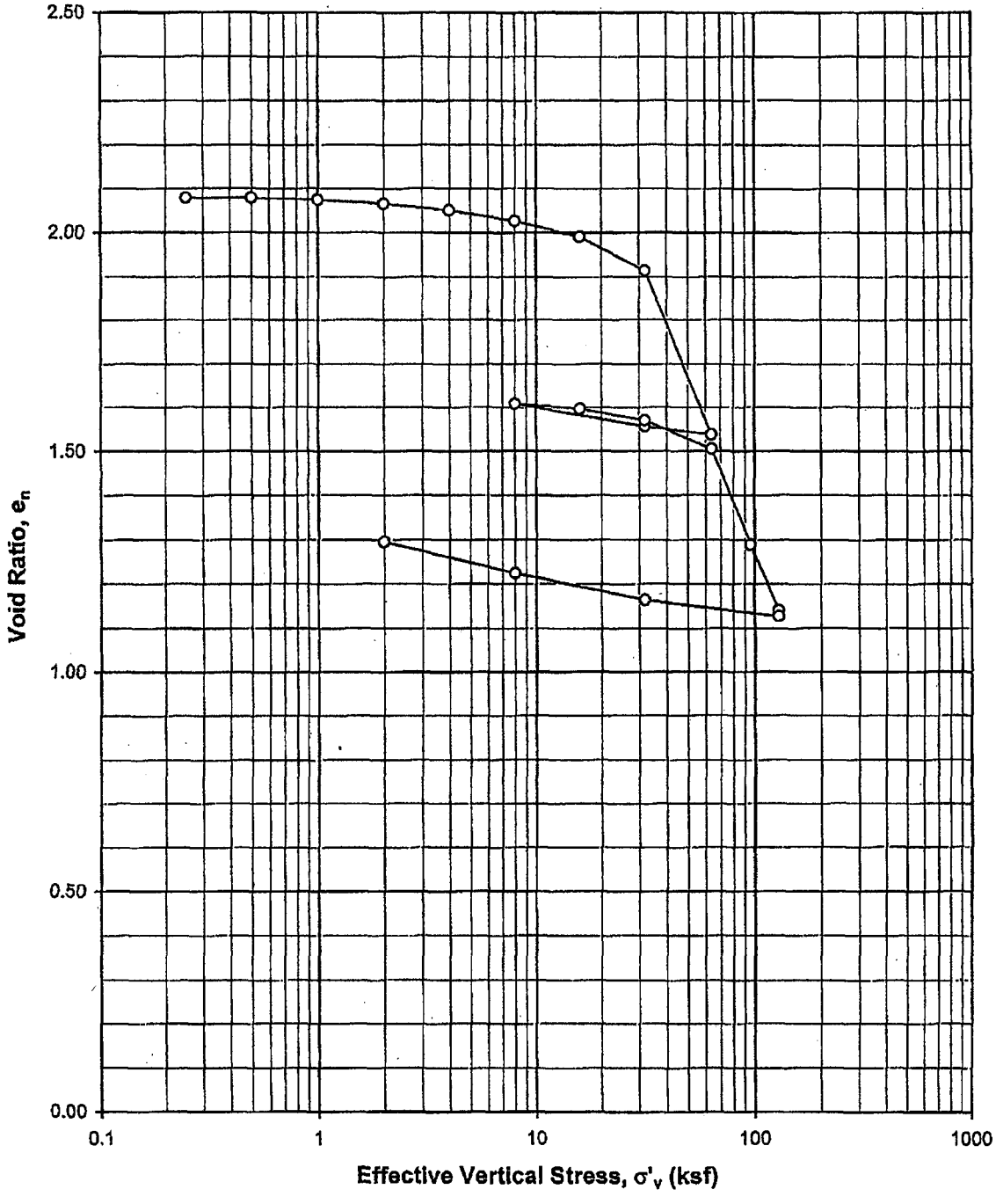
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading



1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 243.50 ft
Boring B-344

PLATE

DCN: CALV-050 10-7-08



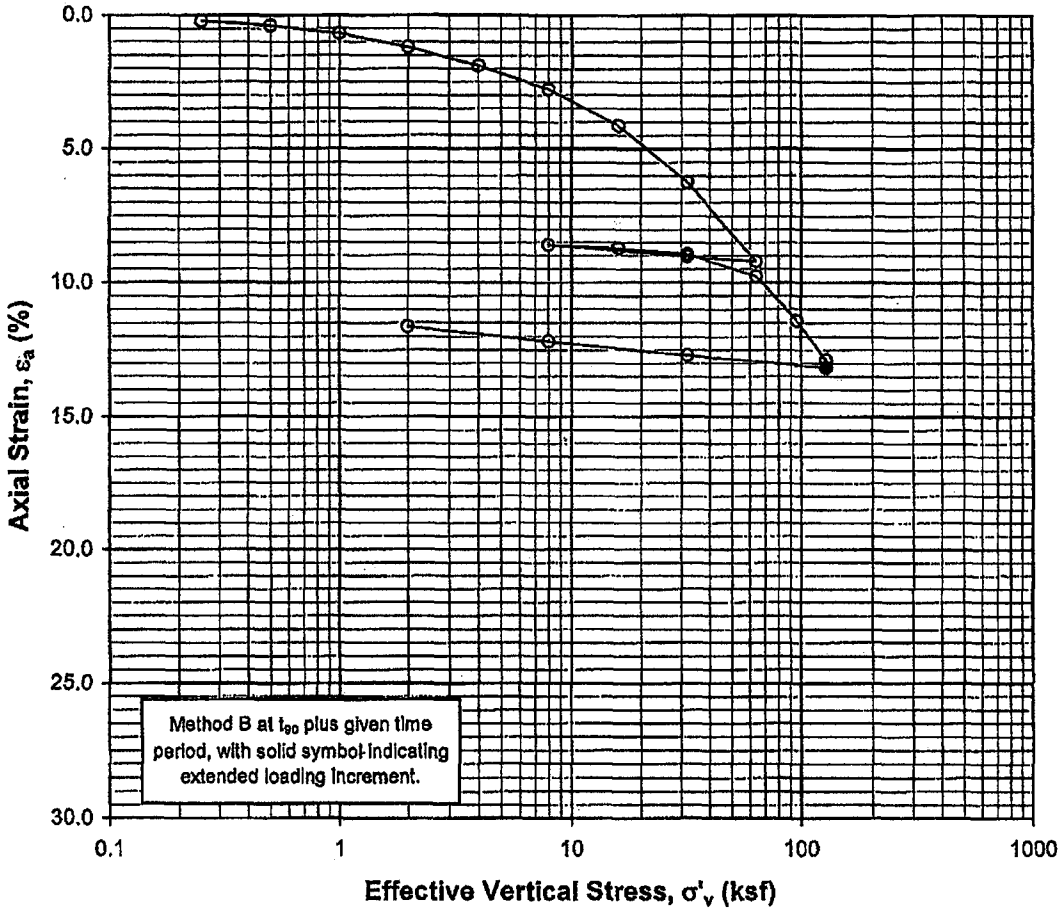
1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 243.50 ft
Boring B-344

Report No. 0411-08-1707

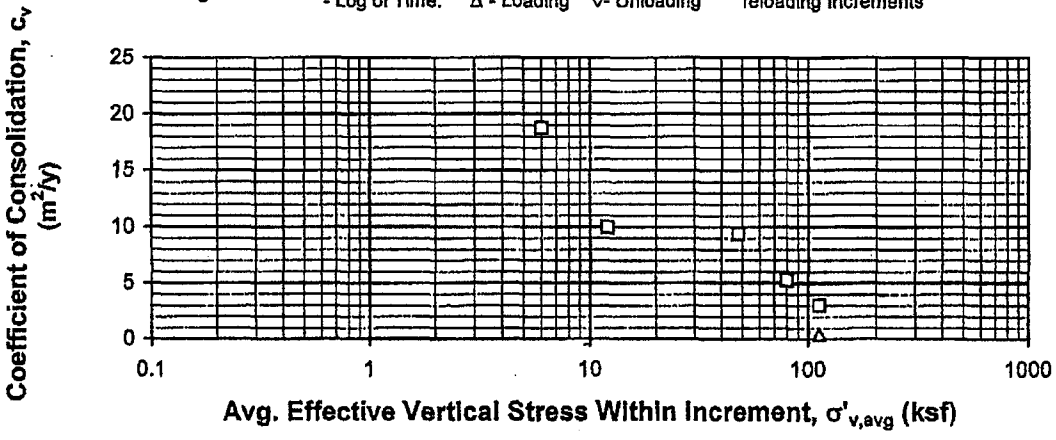
PLATE

A 107-0B

DCN: CALV-050



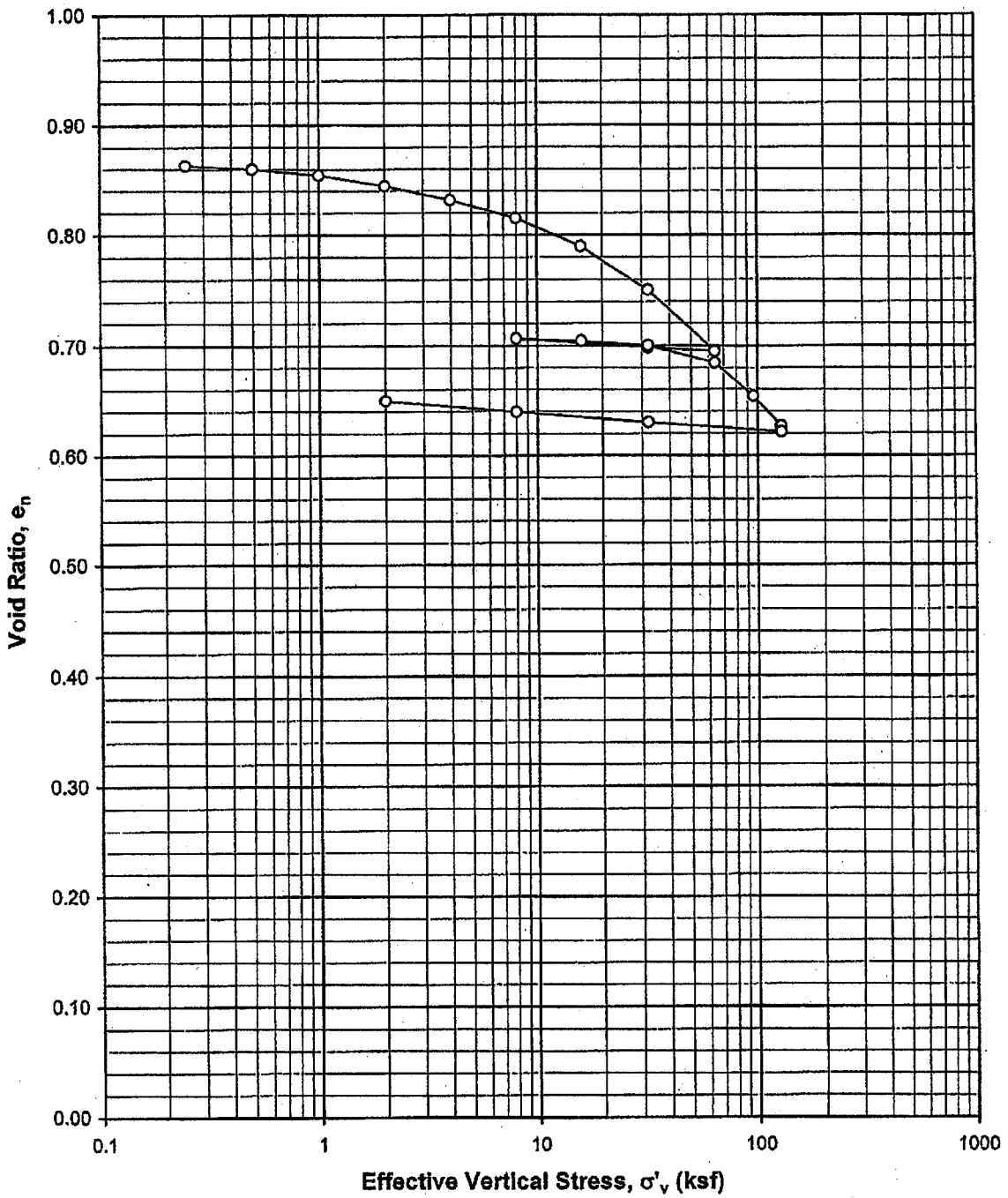
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating
- Log of Time: Δ - Loading ◊- Unloading reloading increments



1-D CONSOLIDATION TEST: INC
Sample No. UD-1a - Depth 33.50 ft
Boring B-771

PLATE

DCN: CALV-050 10-7-08



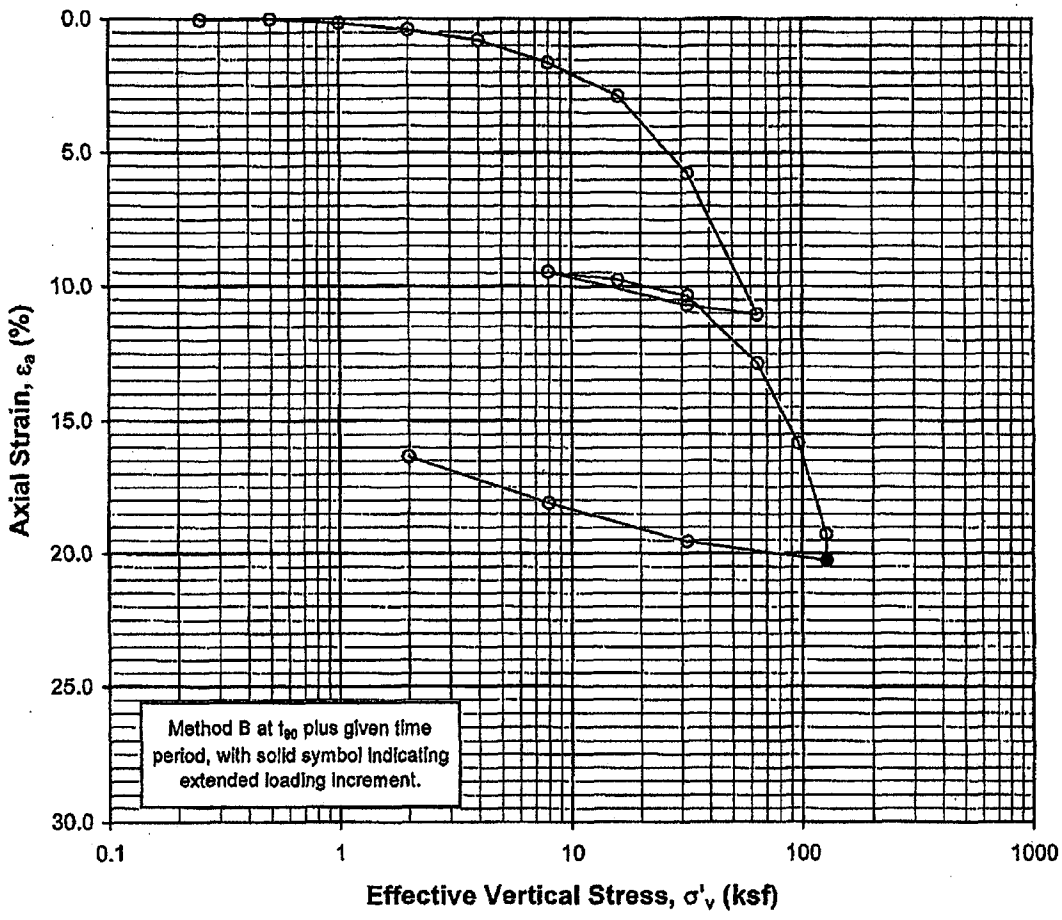
1-D CONSOLIDATION TEST: INC
Sample No. UD-1a - Depth 33.50 ft
Boring B-771

Report No. 0411-08-1707

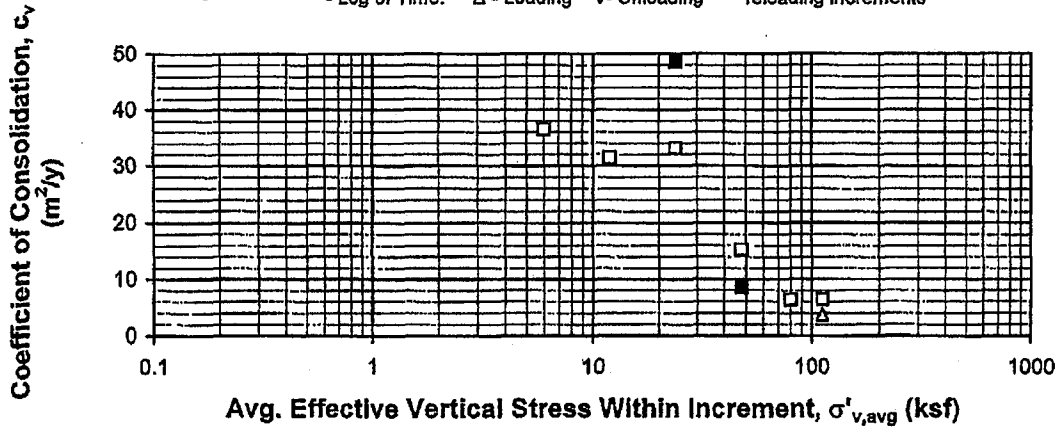
PLATE

AA 10-7-08

DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading O - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments

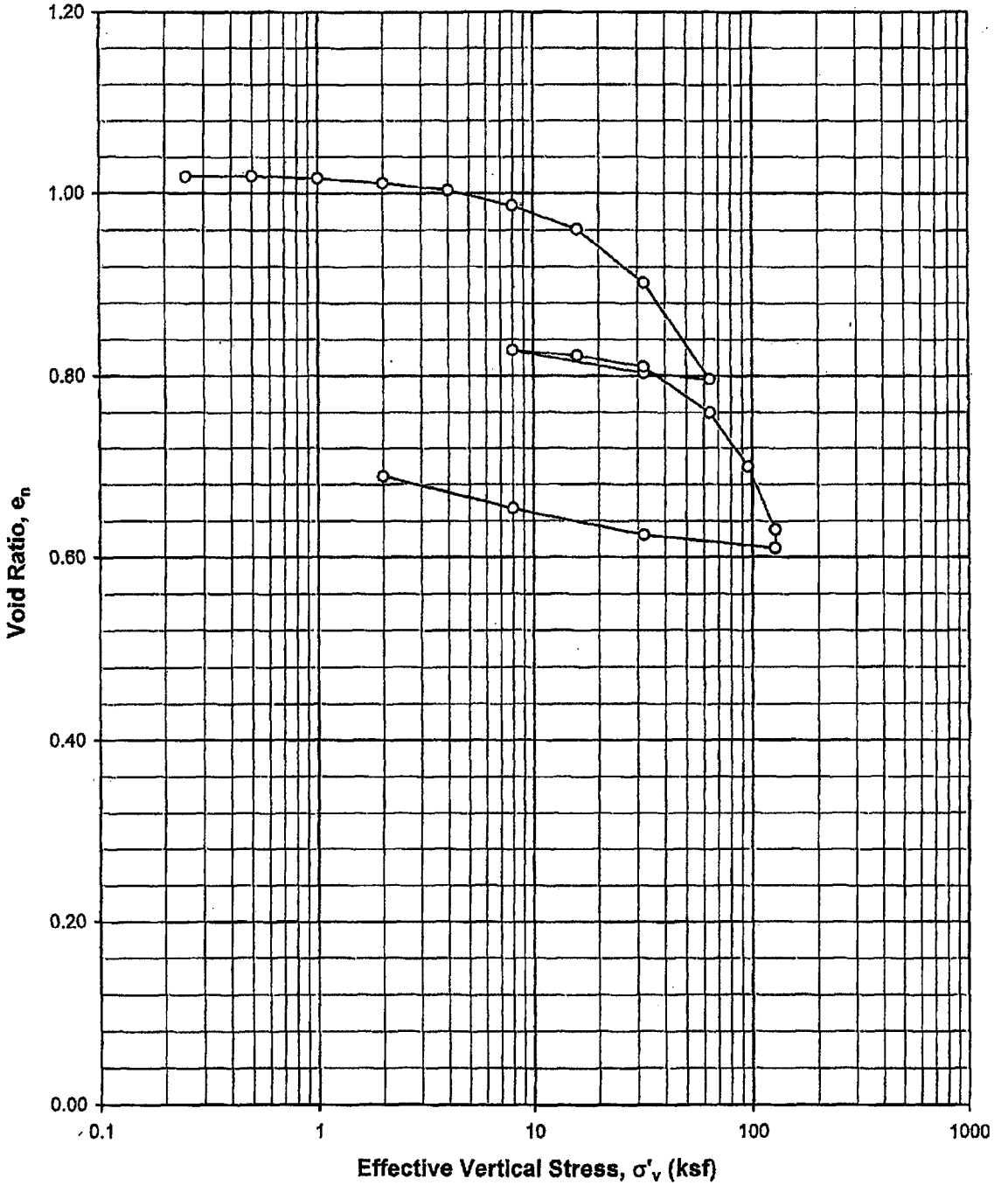


1-D CONSOLIDATION TEST: INC
Sample No. UD-2a - Depth 43.50 ft
Boring B-771

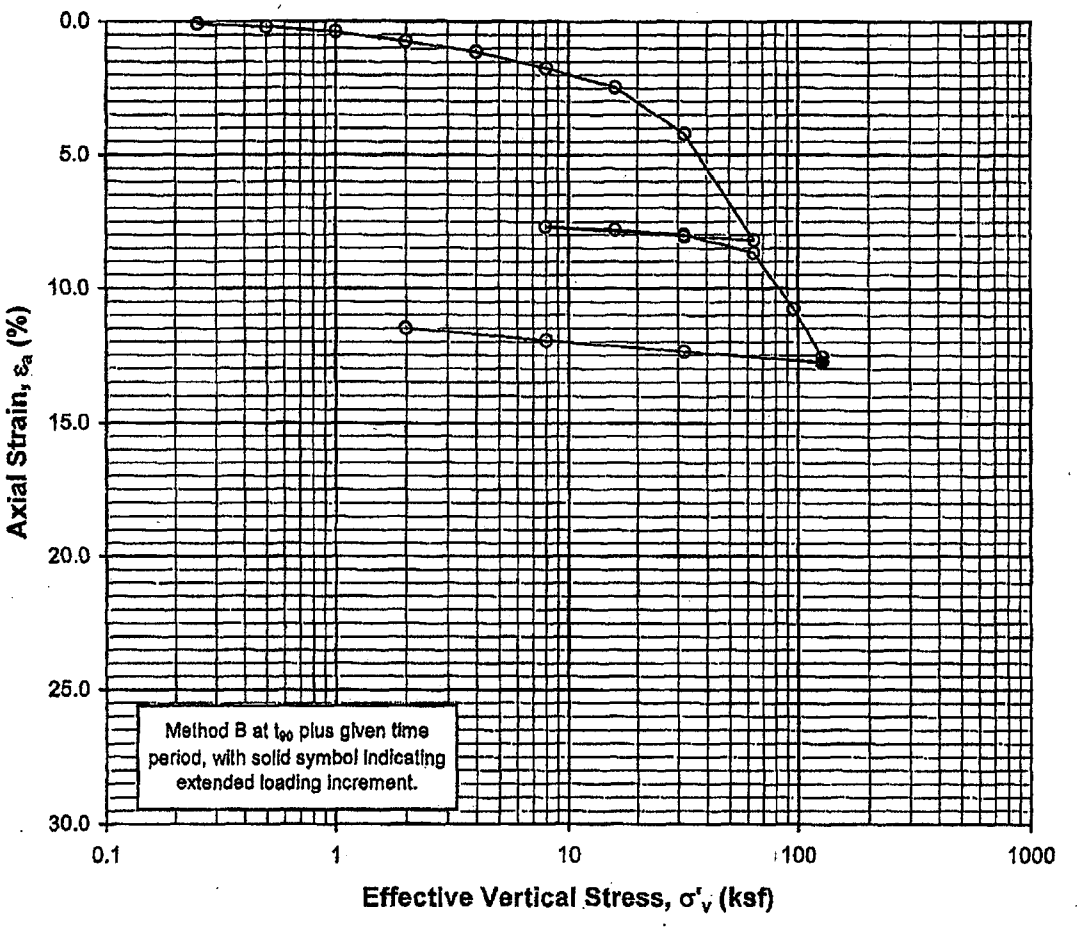
PLATE

10-7-08

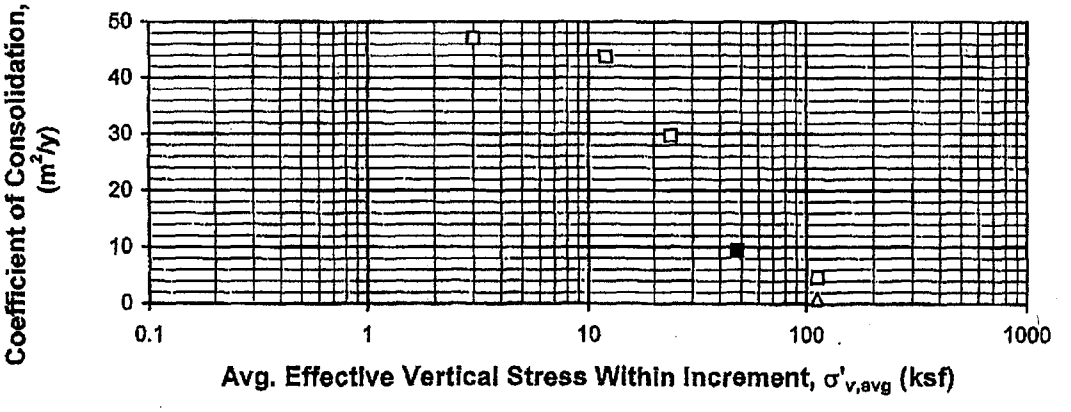
DCN: CALV-050



1-D CONSOLIDATION TEST: INC
Sample No. UD-2a - Depth 43.50 ft
Boring B-771



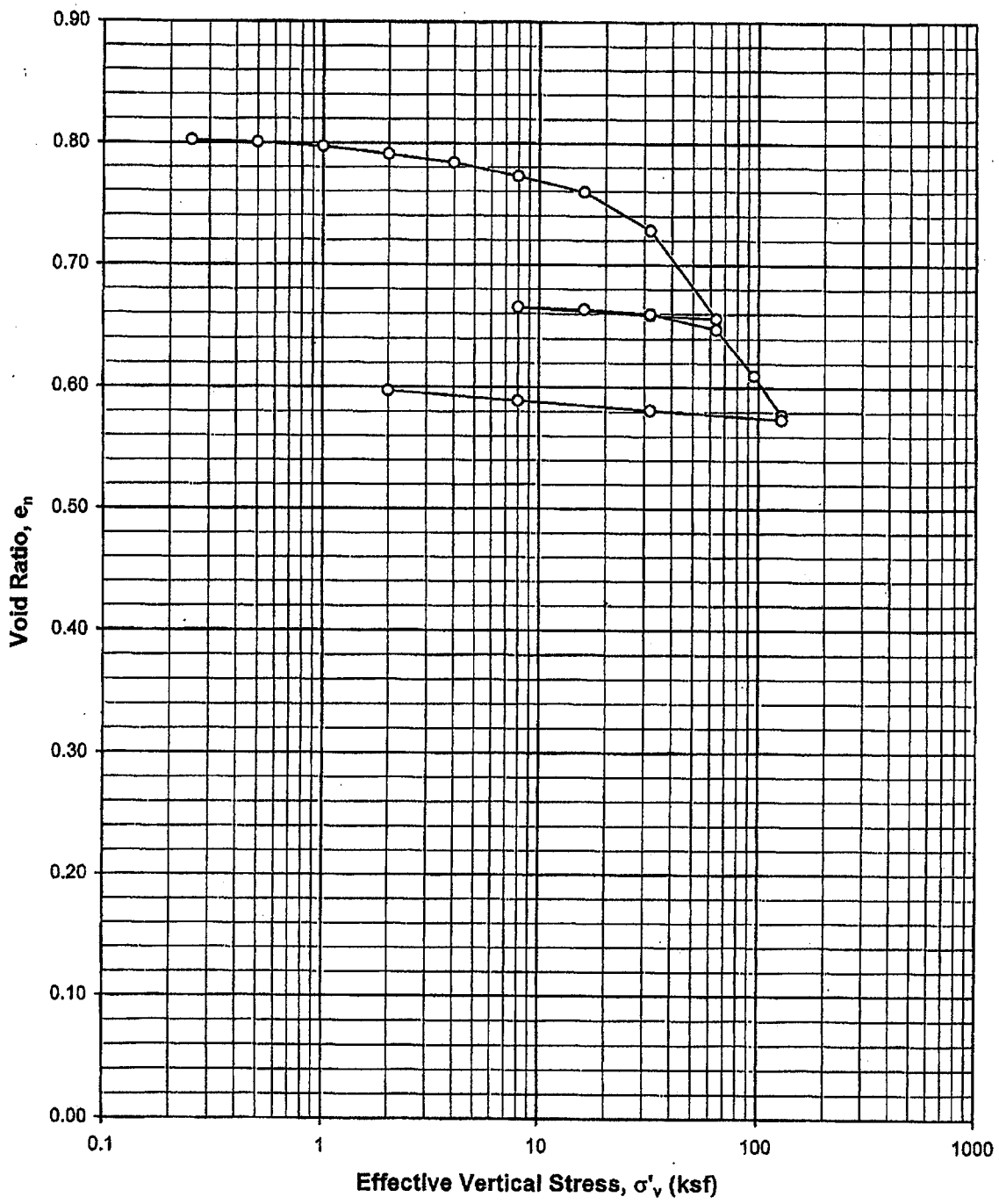
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



1-D CONSOLIDATION TEST: INC
Sample No. UD-3a - Depth 53.50 ft
Boring B-771

PLATE

DCN: CALV-050 10-7-08

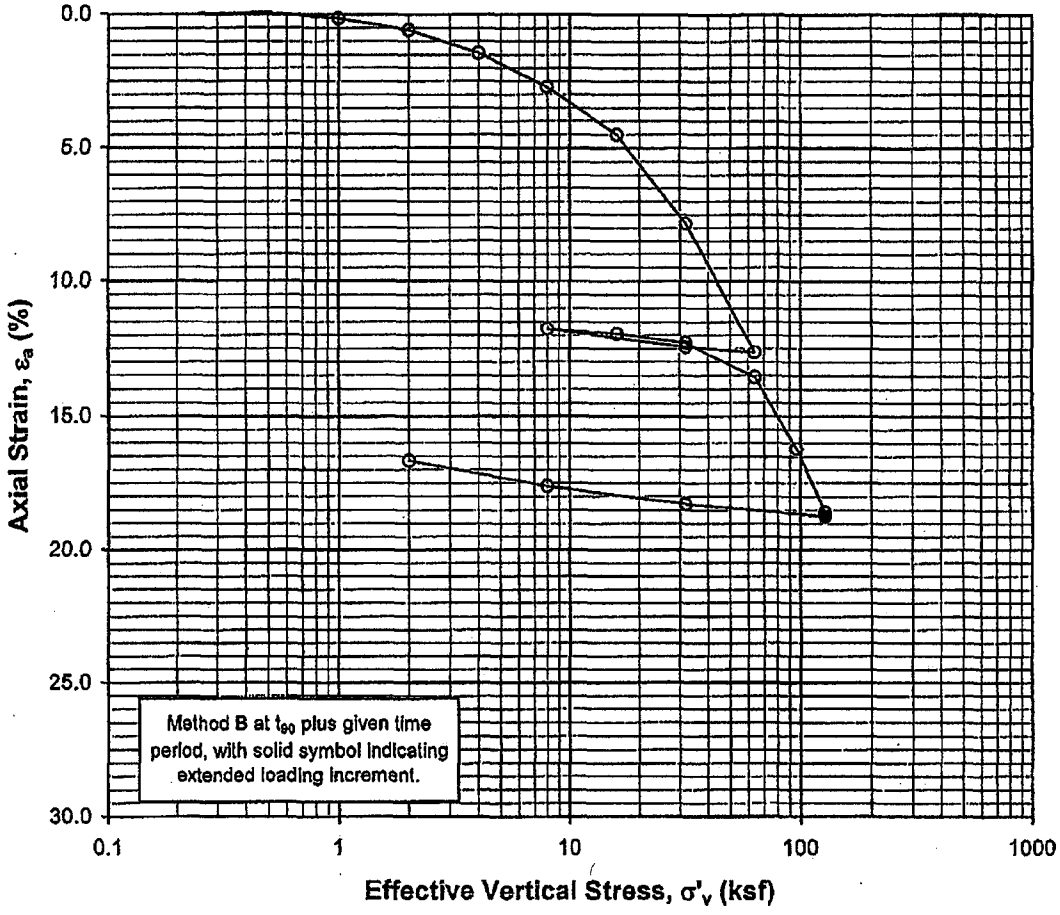


1-D CONSOLIDATION TEST: INC
Sample No. UD-3a - Depth 53.50 ft
Boring B-771

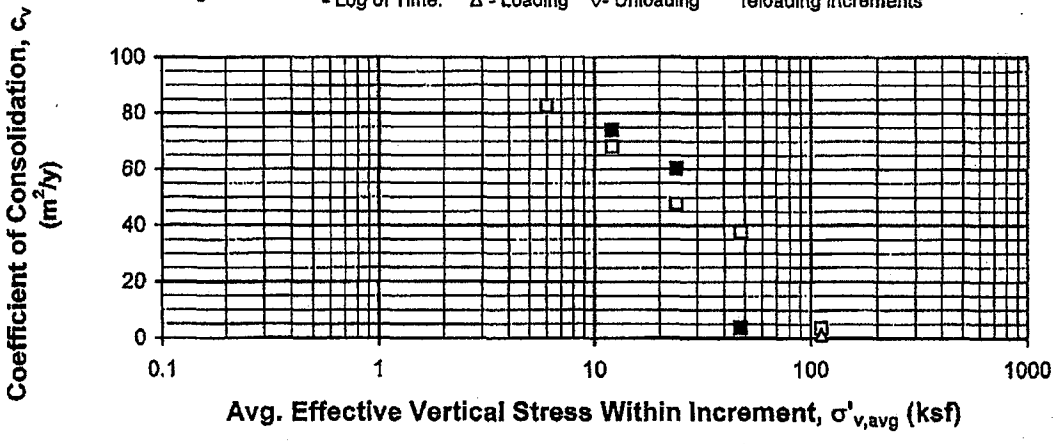
Report No. 0411-08-1707

PLATE

DCN: CALV-050 10-7-03



Fitting Methods: - Sqr. Rt. Time: □ - Loading O - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading

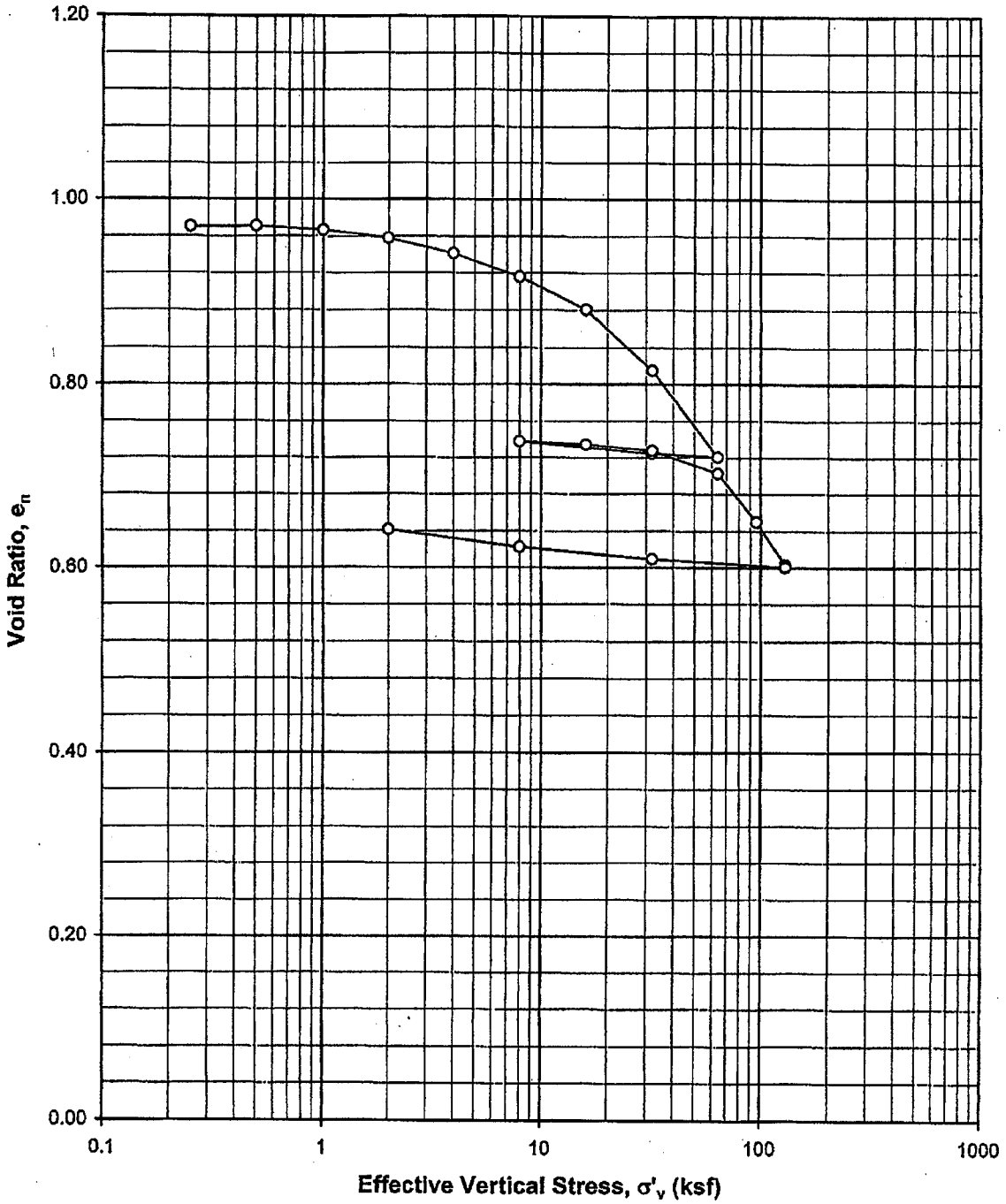


1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 63.50 ft
Boring B-771

PLATE

10-7-08

DCN: CALV-050



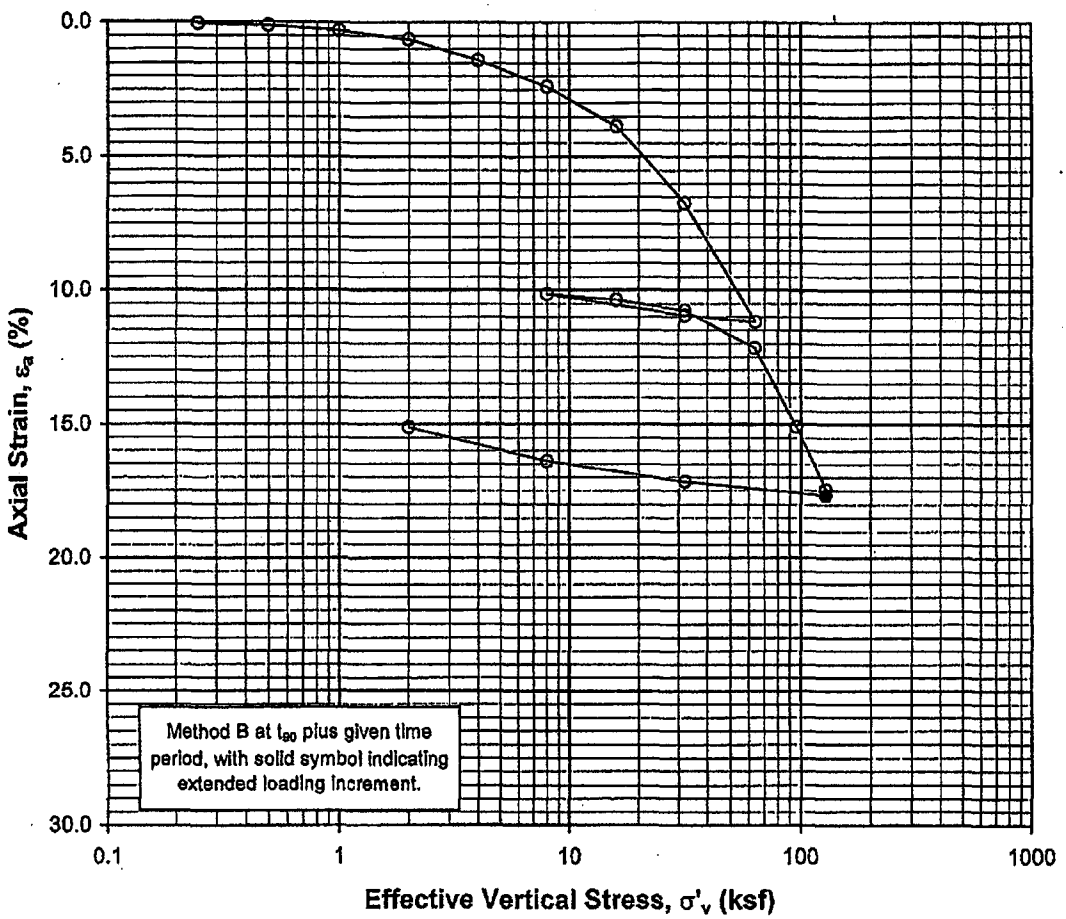
1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 63.50 ft
Boring B-771

Report No. 0411-08-1707

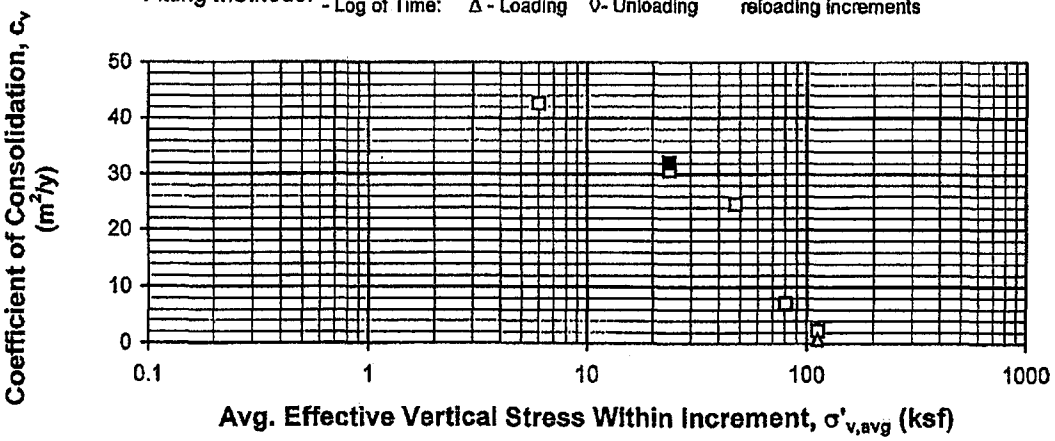
PLATE

10-7-08

DCN: CALV-050



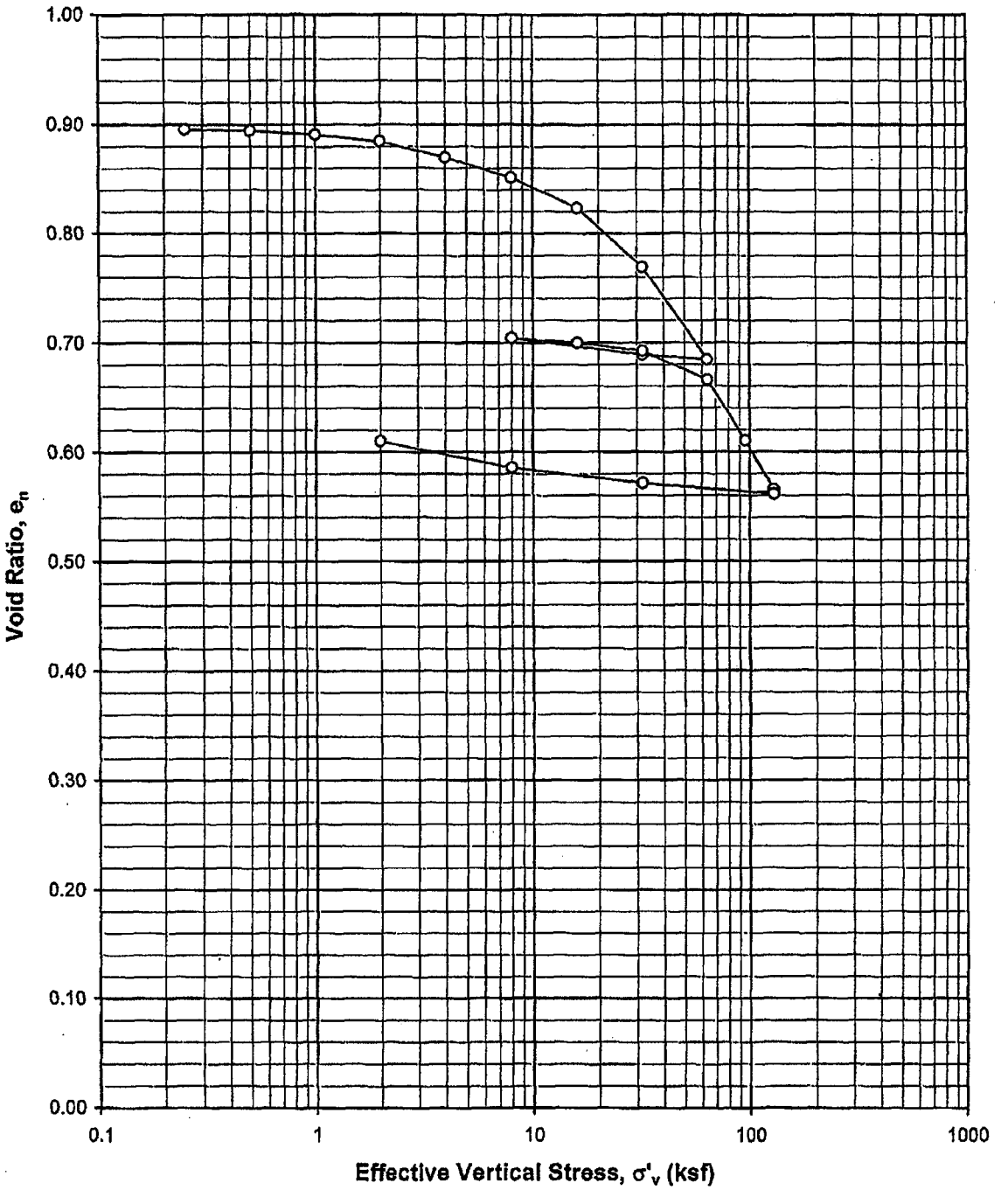
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



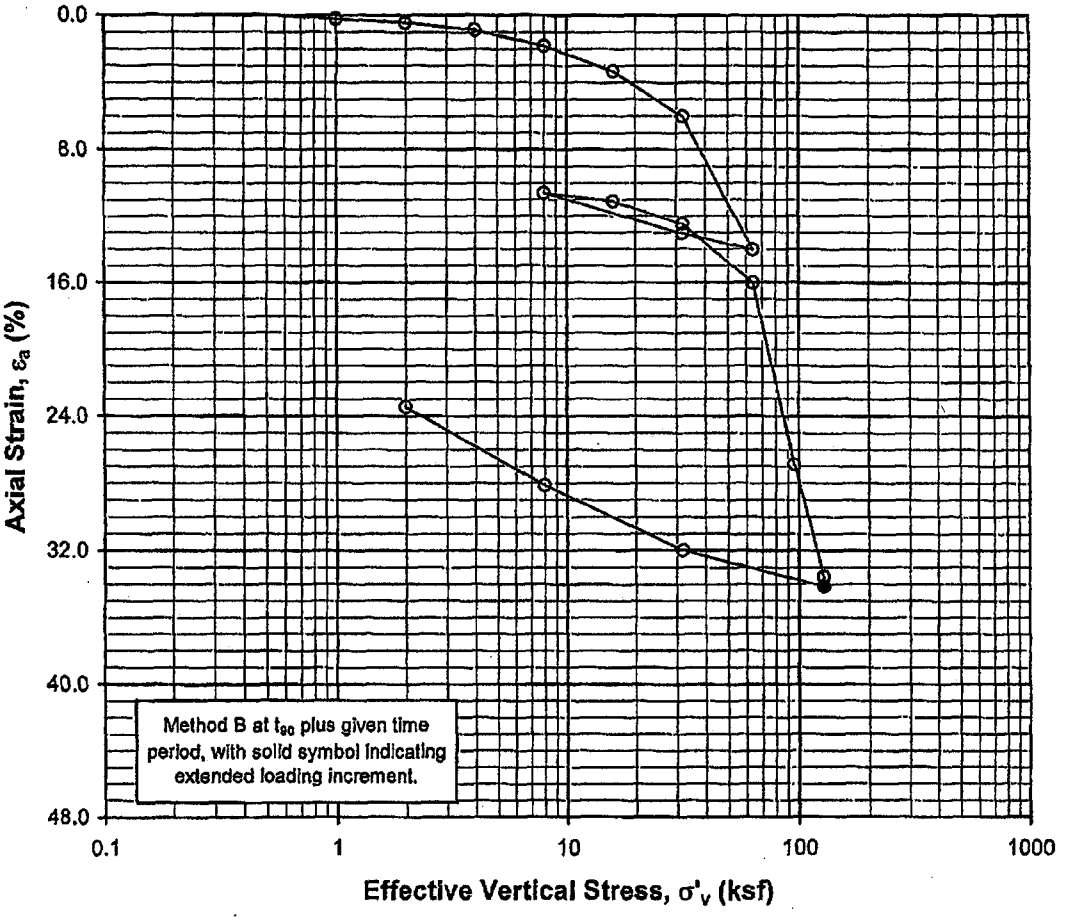
1-D CONSOLIDATION TEST: INC
Sample No. UD-5a - Depth 73.50 ft
Boring B-771

PLATE

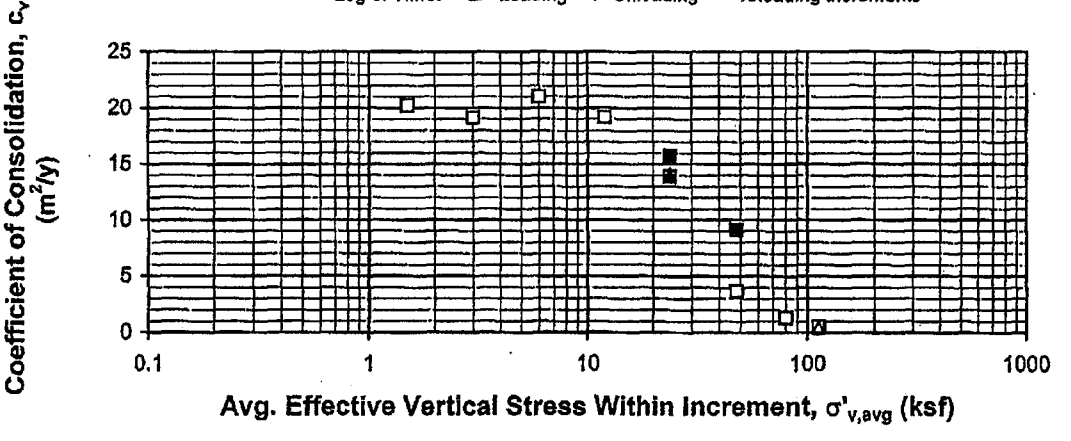
DCN: CALV-050 10-7-08



1-D CONSOLIDATION TEST: INC
Sample No. UD-5a - Depth 73.50 ft
Boring B-771



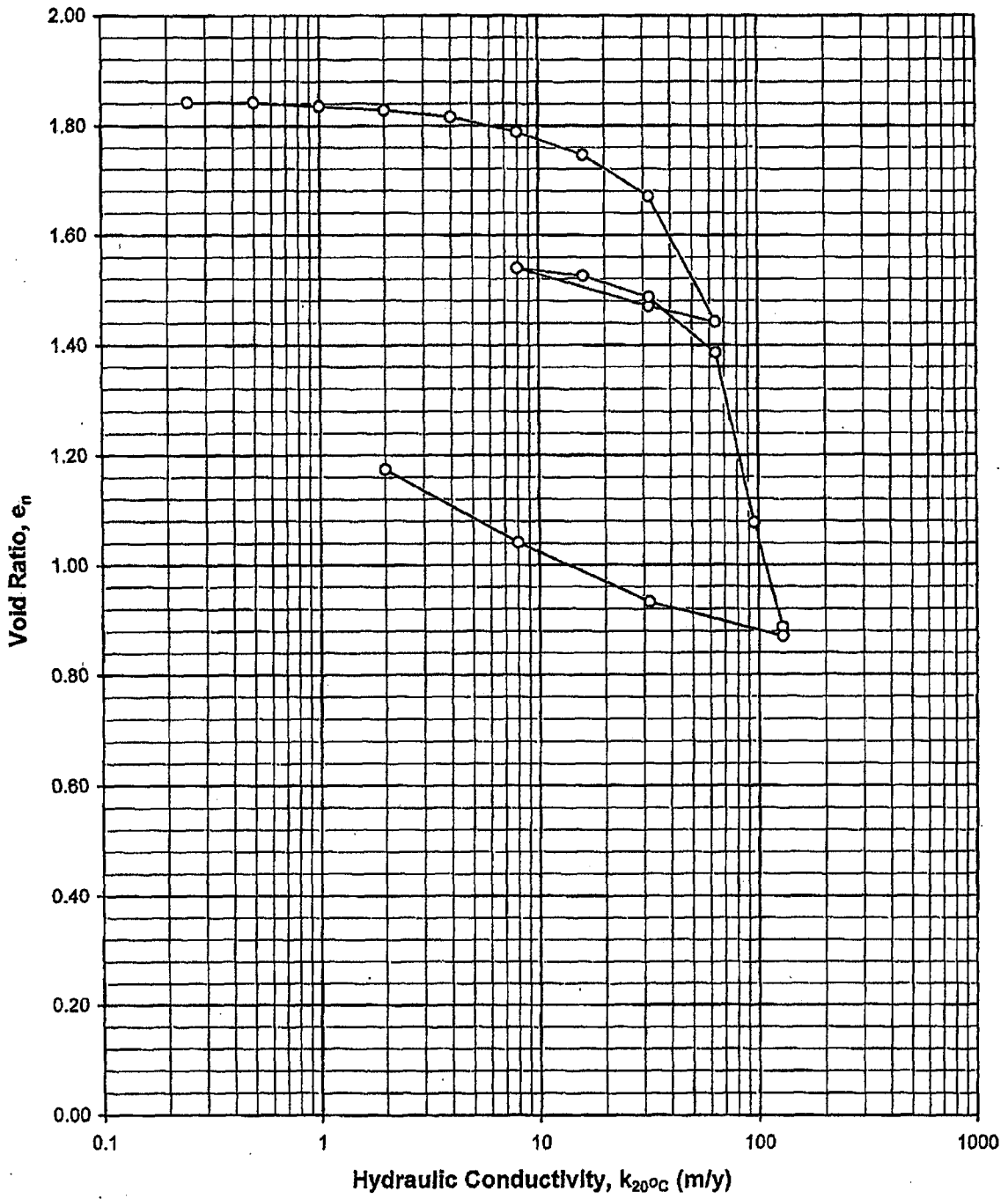
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊ - Unloading



1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 83.25 ft
Boring B-771

PLATE

DCN: CALV-050 10-7-08

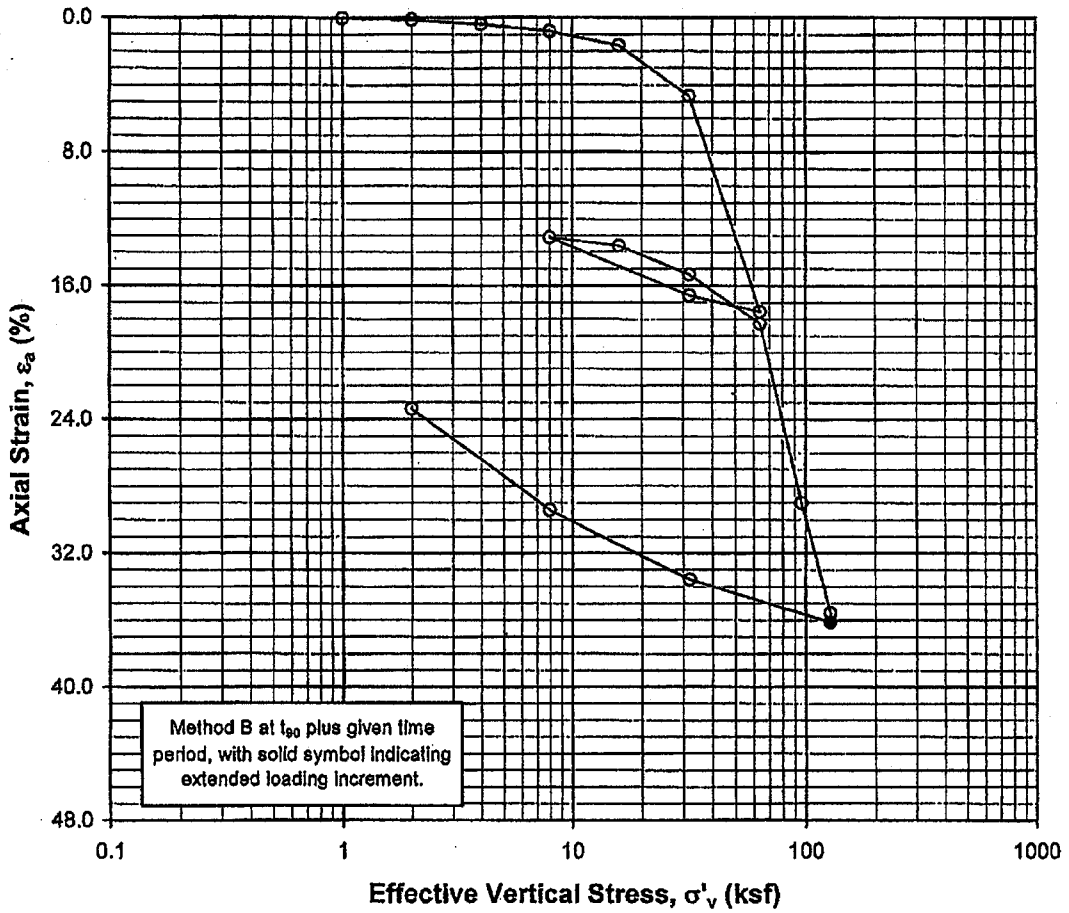


1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 83.25 ft
Boring B-771

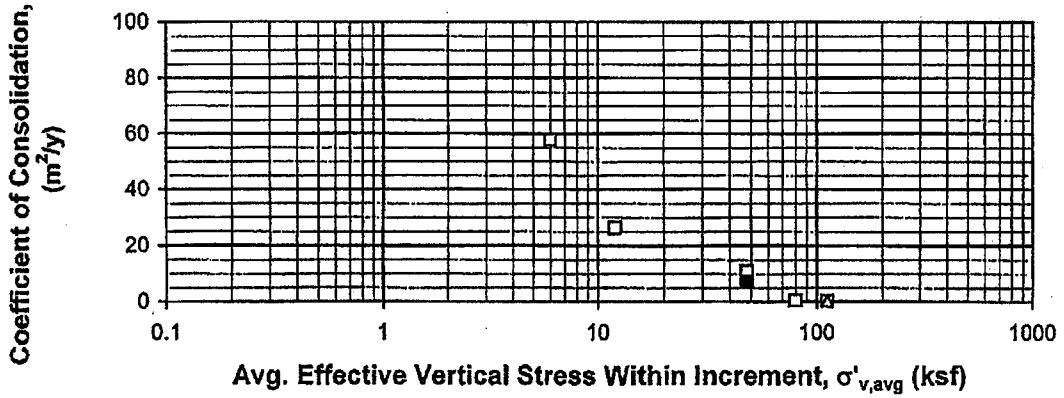
Reviewed By: _____

PLATE ?-?

10-7-03
DCN: CALV-050



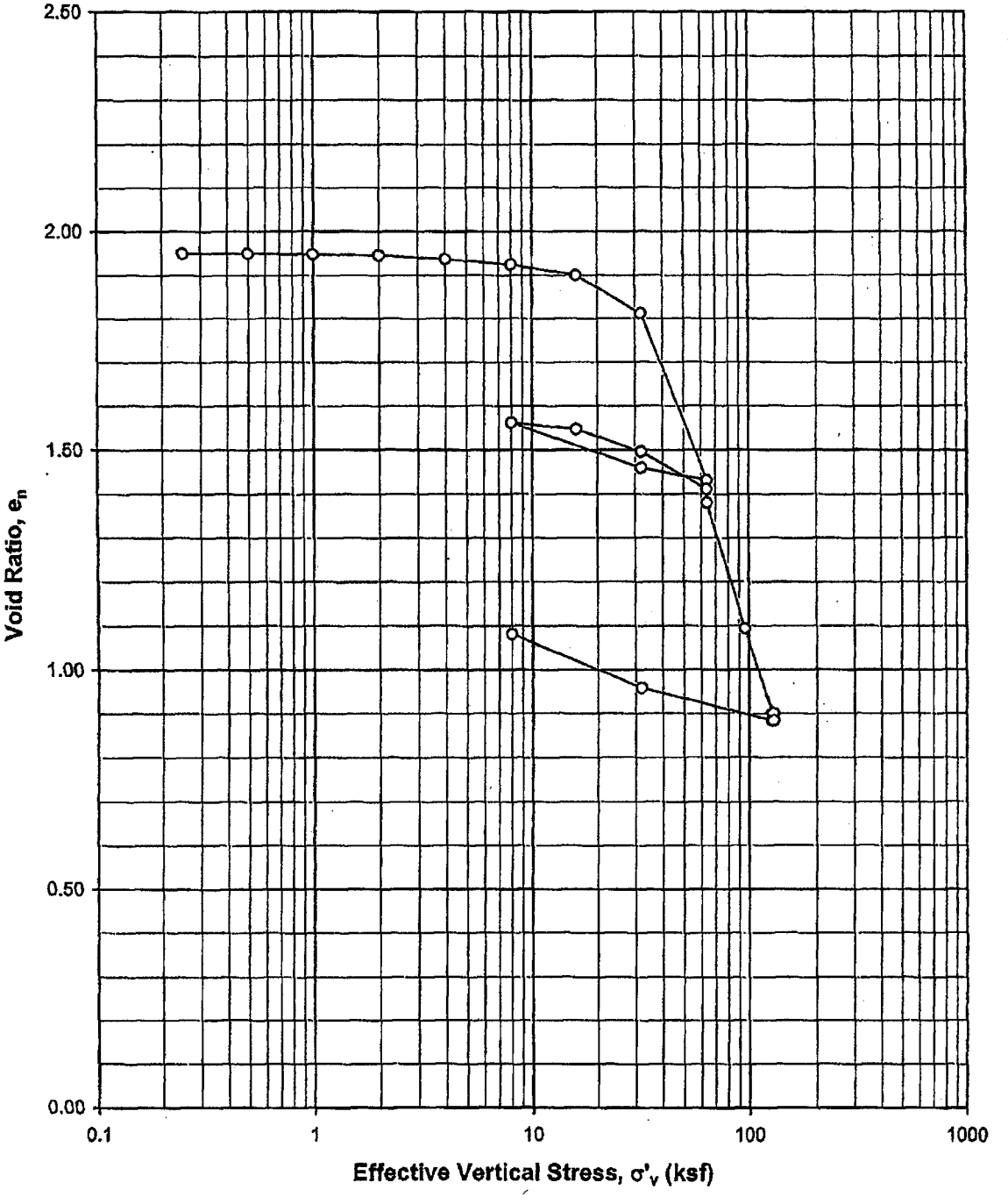
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊ - Unloading
with solid symbols indicating reloading increments



1-D CONSOLIDATION TEST: INC
Sample No. UD-7a - Depth 93.50 ft
Boring B-771

PLATE

DCN: CALV-050 10-7-03

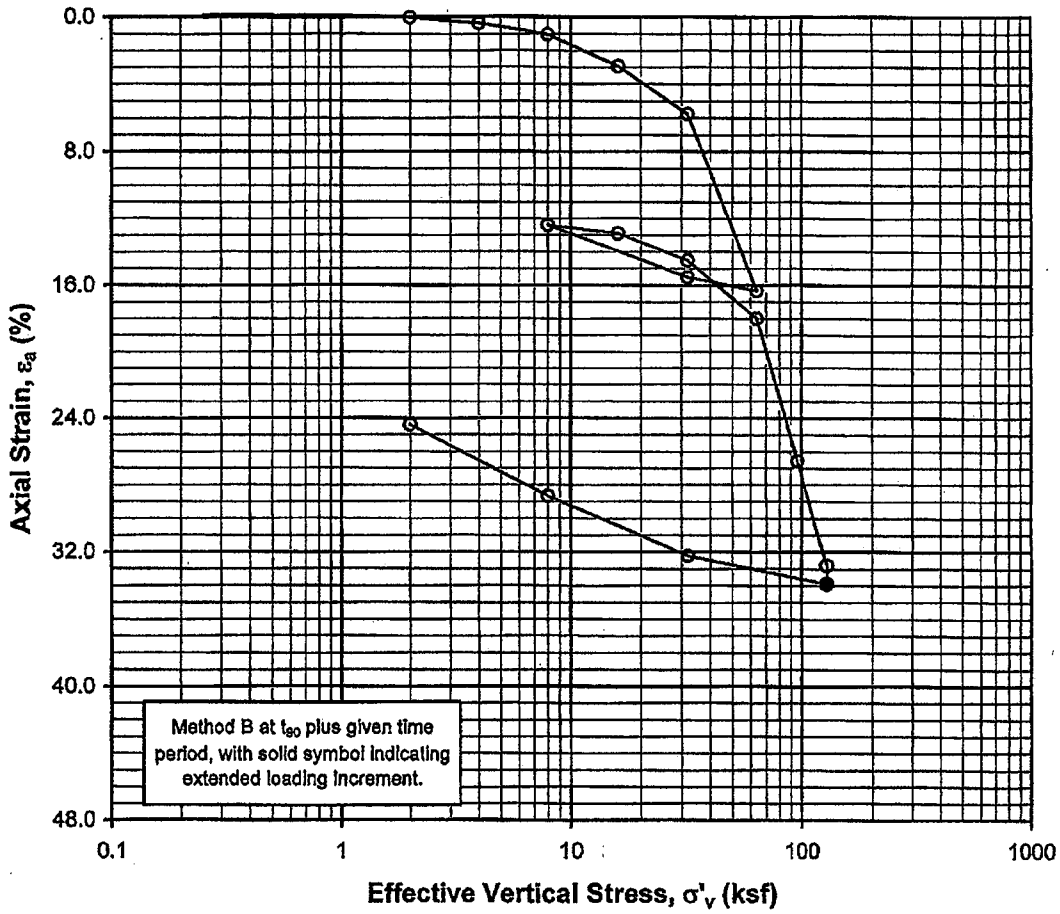


1-D CONSOLIDATION TEST: INC
Sample No. UD-7a - Depth 93.50 ft
Boring B-771

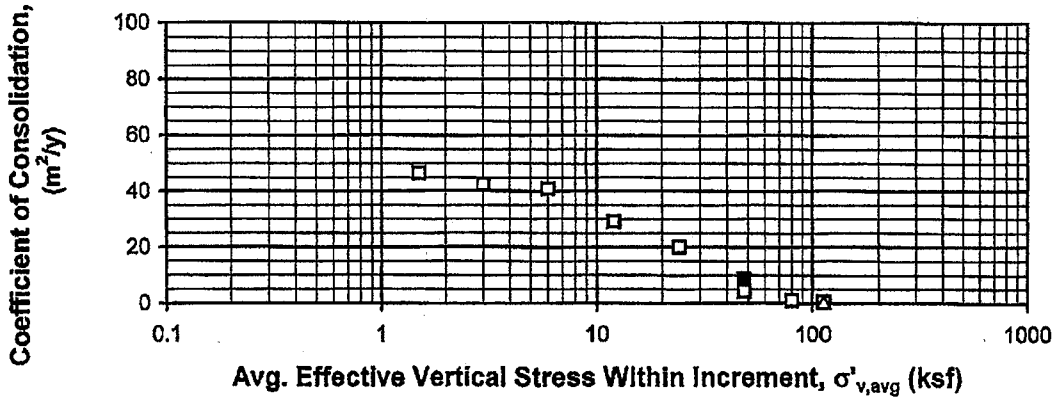
Report No. 0411-08-1707

PLATE

DCN: CALV-050 1A 10-7-03



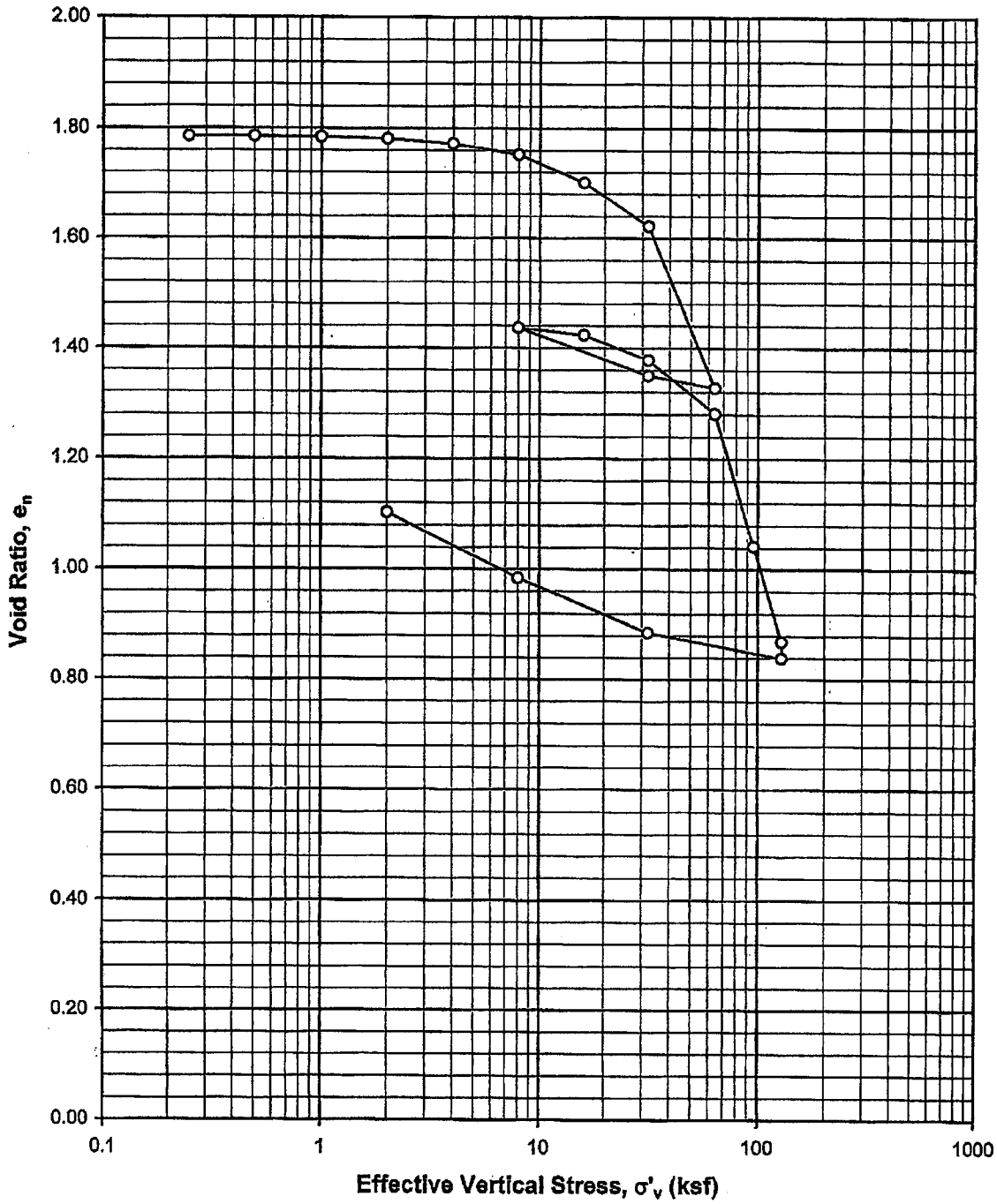
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 85.00 ft
Boring B-773A

PLATE

DCN: CALV-050 10-1-08



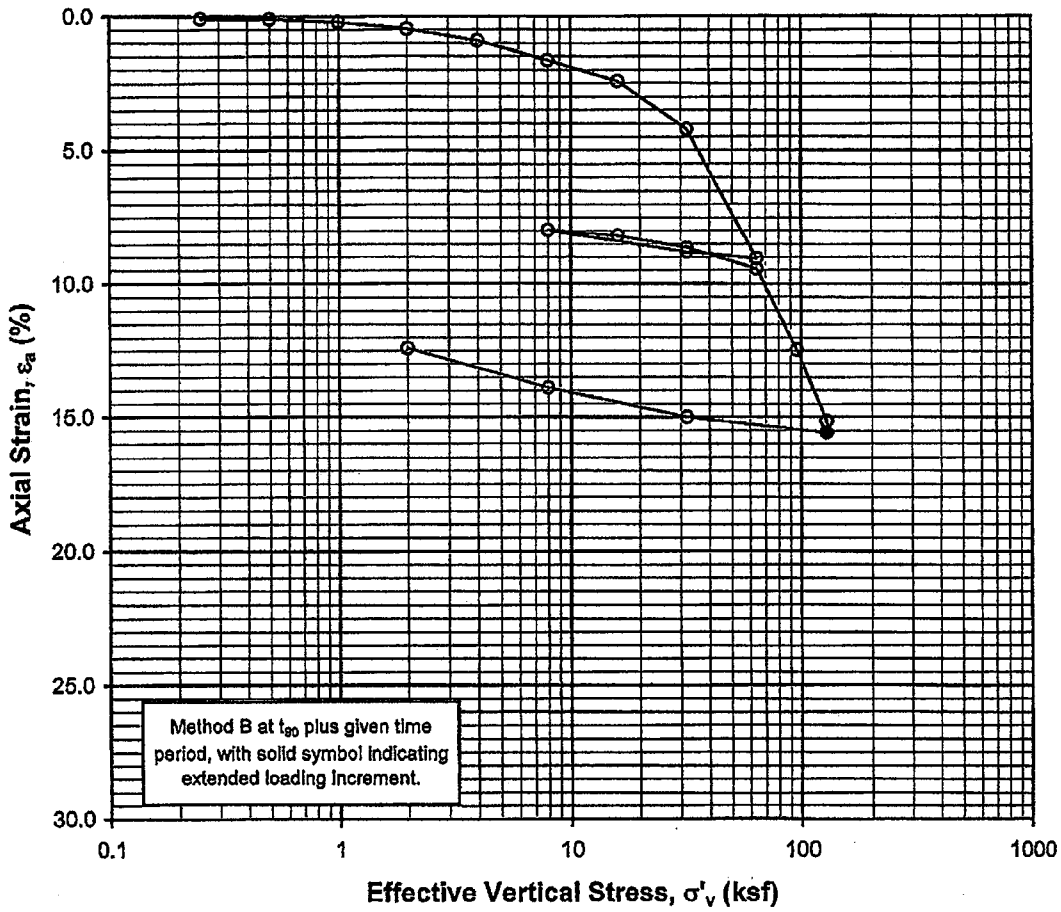
1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 85.00 ft
Boring B-773A

Report No. 0411-08-1707

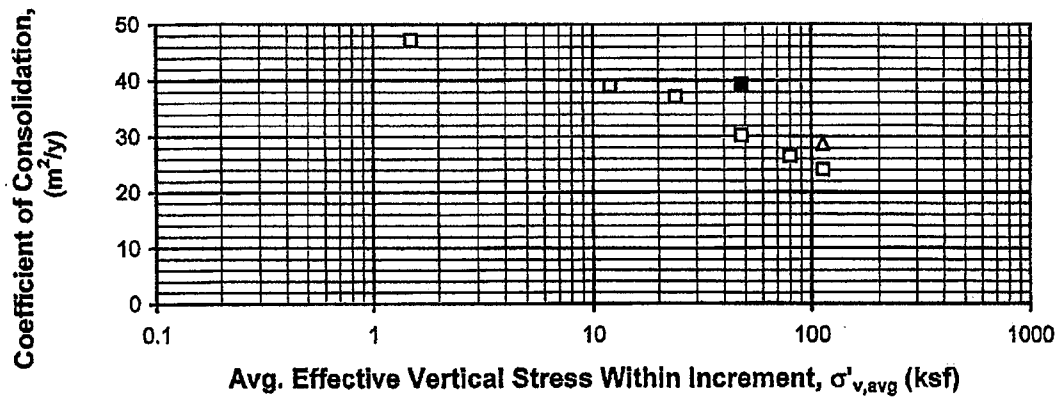
PLATE

AA 10-7-03

DCN: CALV-050



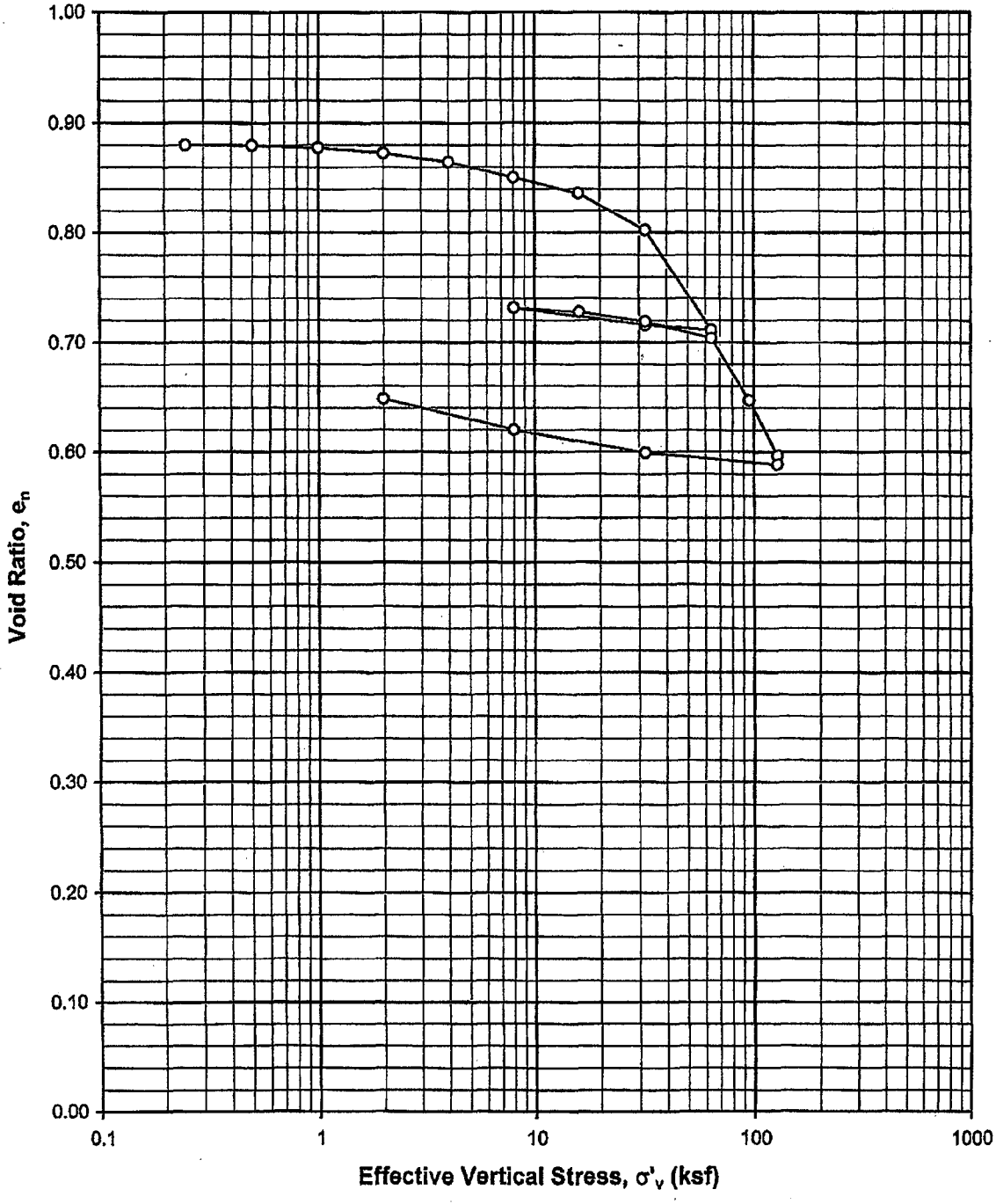
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



1-D CONSOLIDATION TEST: INC
Sample No. UD-11a - Depth 115.00 ft
Boring B-773A

PLATE

AA 10-7-08



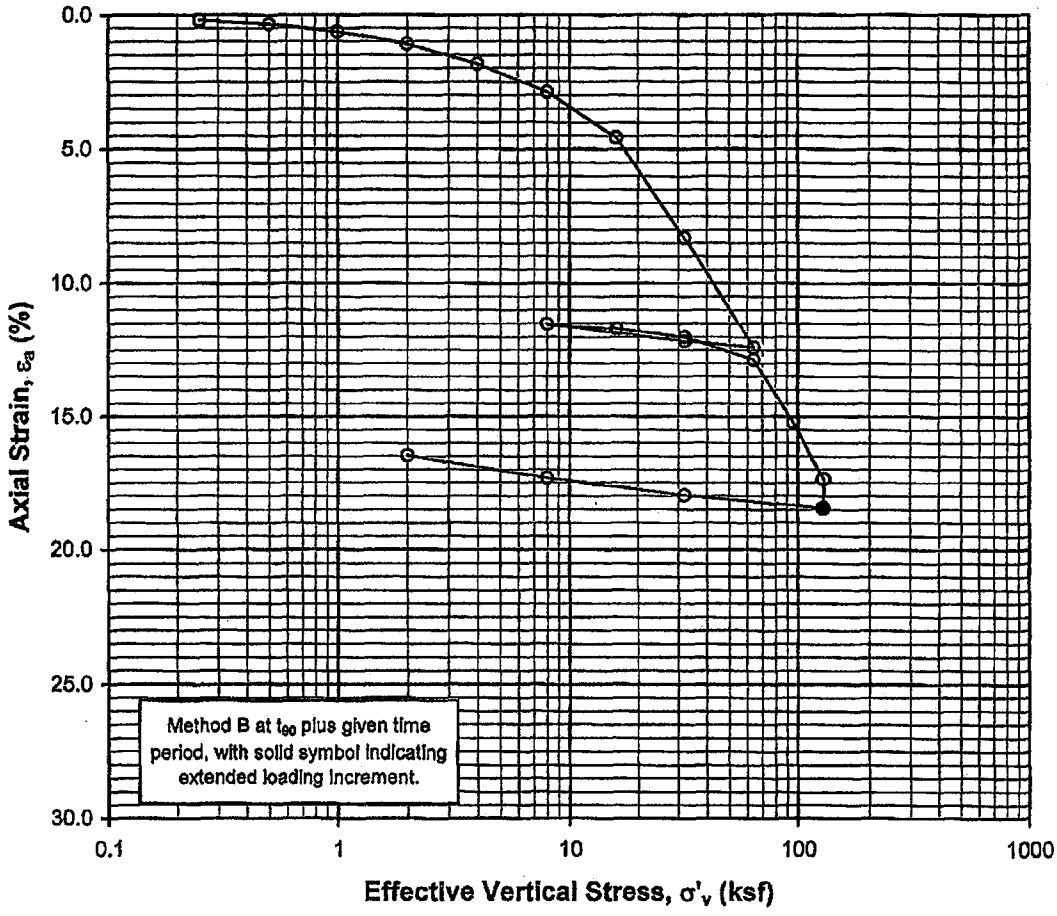
1-D CONSOLIDATION TEST: INC
Sample No. UD-11a - Depth 115.00 ft
Boring B-773A

Report No. 0411-08-1707

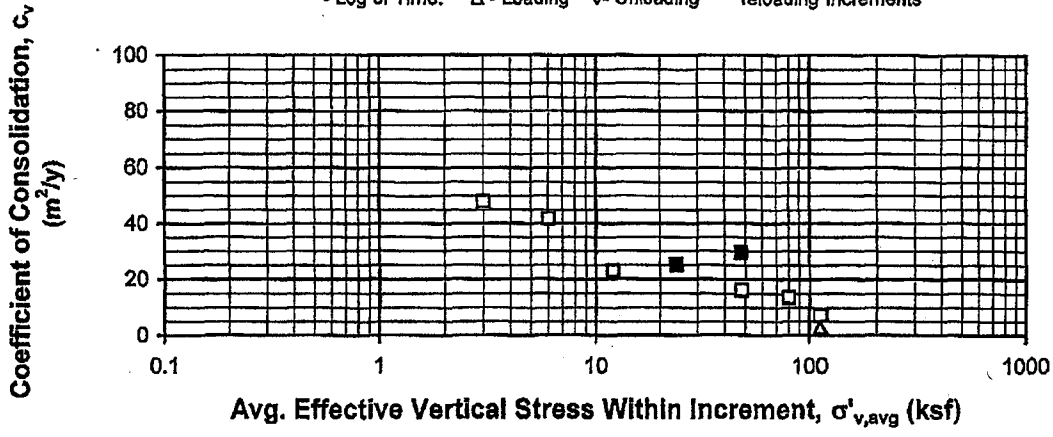
PLATE

NA 10-7-08

DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading



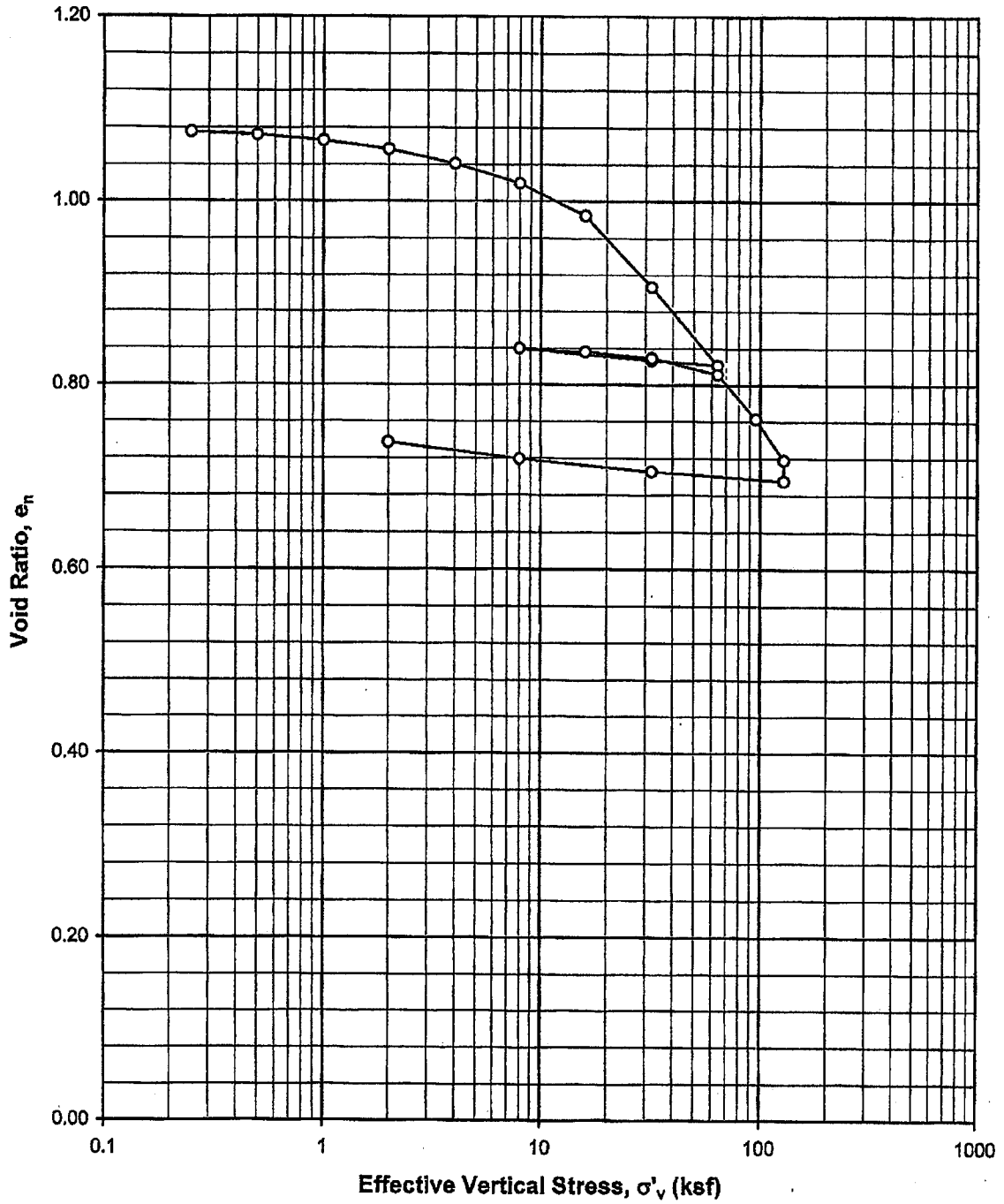
1-D CONSOLIDATION TEST: INC

Sample No. UD-12a - Depth 125.00 ft

Boring B-773A

PLATE

DCN: CALV-050 10-7-08



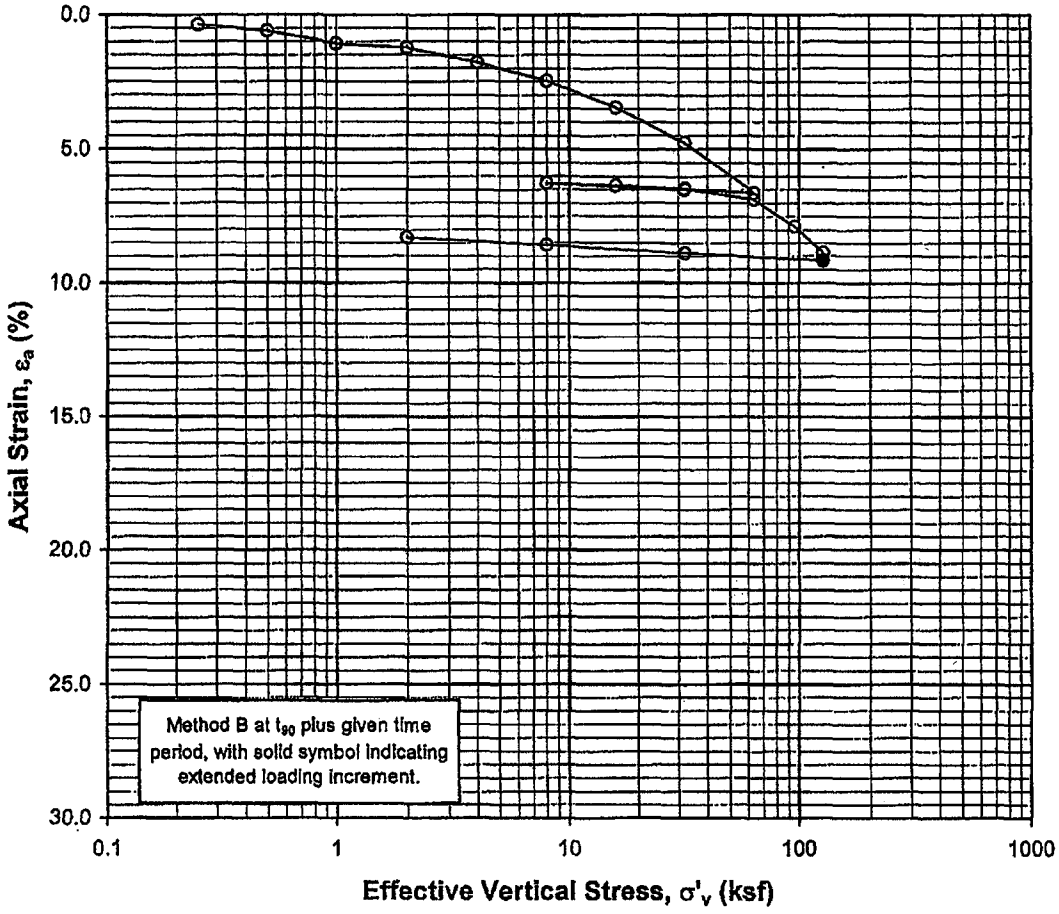
1-D CONSOLIDATION TEST: INC
Sample No. UD-12a - Depth 125.00 ft
Boring B-773A

Report No. 0411-08-1707

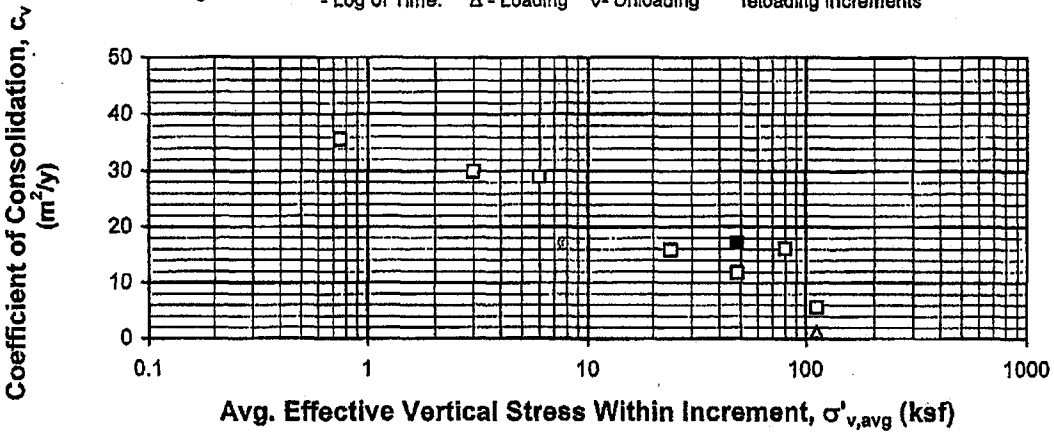
PLATE

MA 10-7-08

DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading

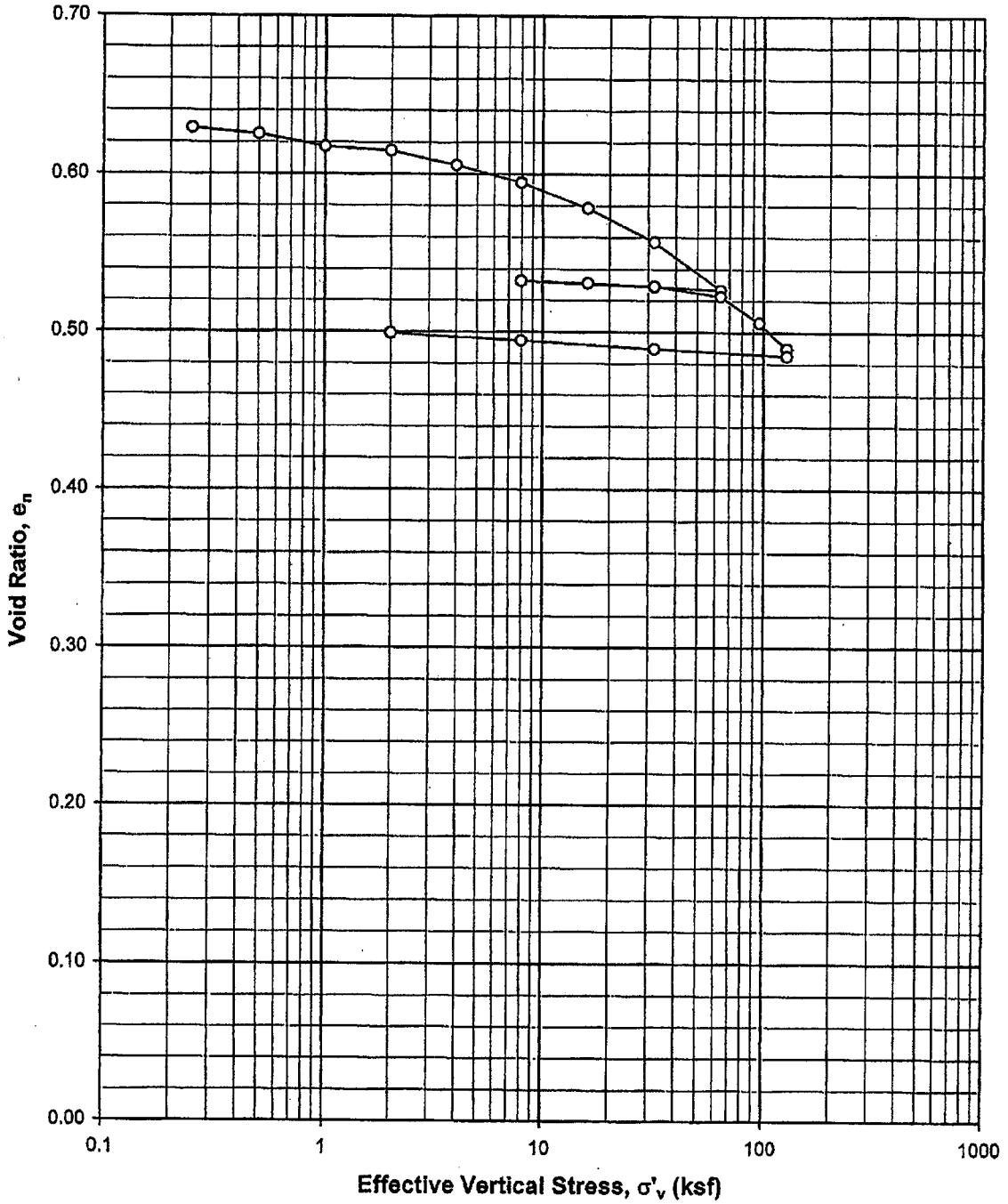


1-D CONSOLIDATION TEST: INC
Sample No. UD-2a - Depth 18.50 ft
Boring B-774

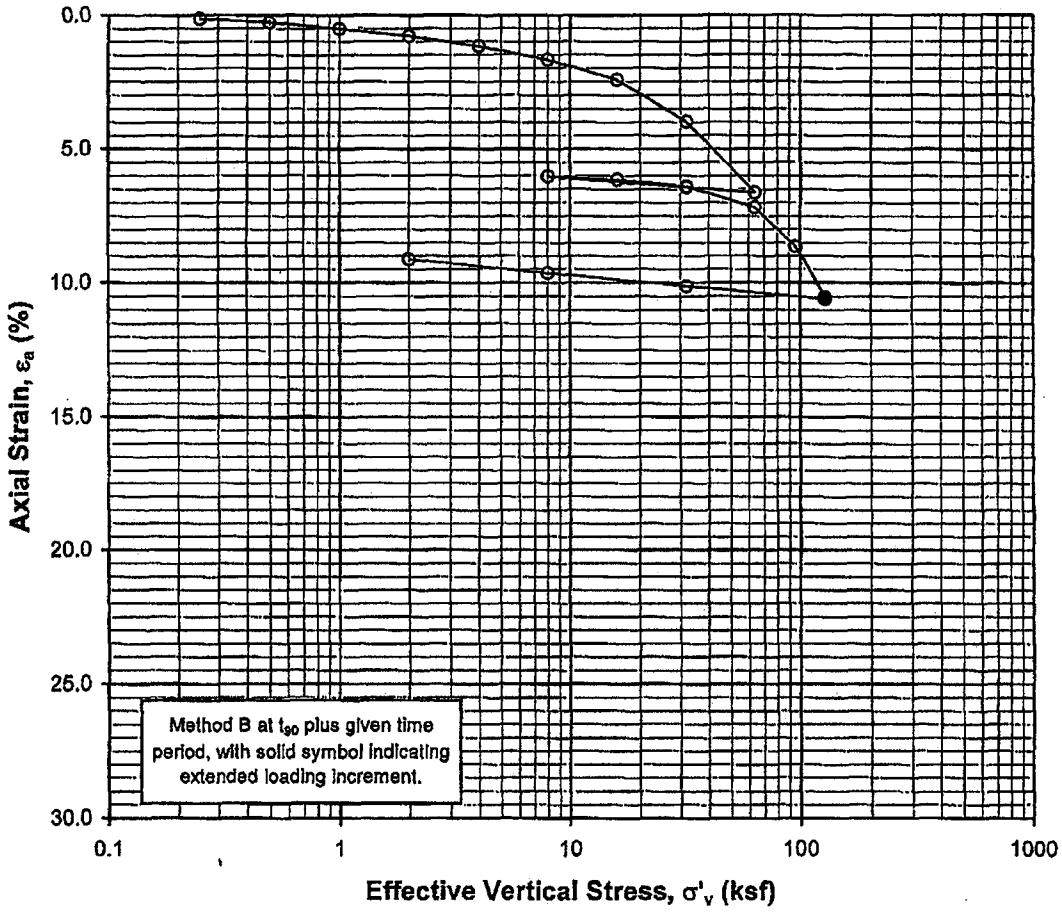
PLATE

10-7-08

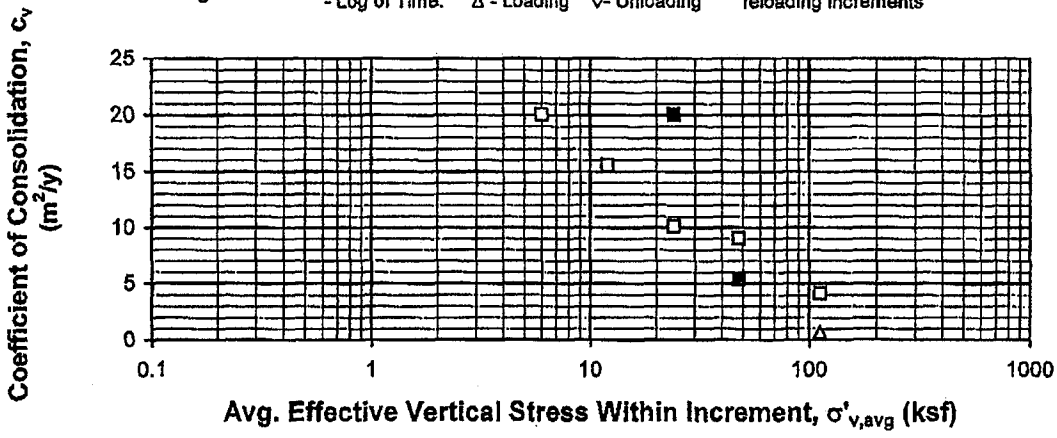
DCN: CALV-050



1-D CONSOLIDATION TEST: INC
Sample No. UD-2a - Depth 18.50 ft
Boring B-774



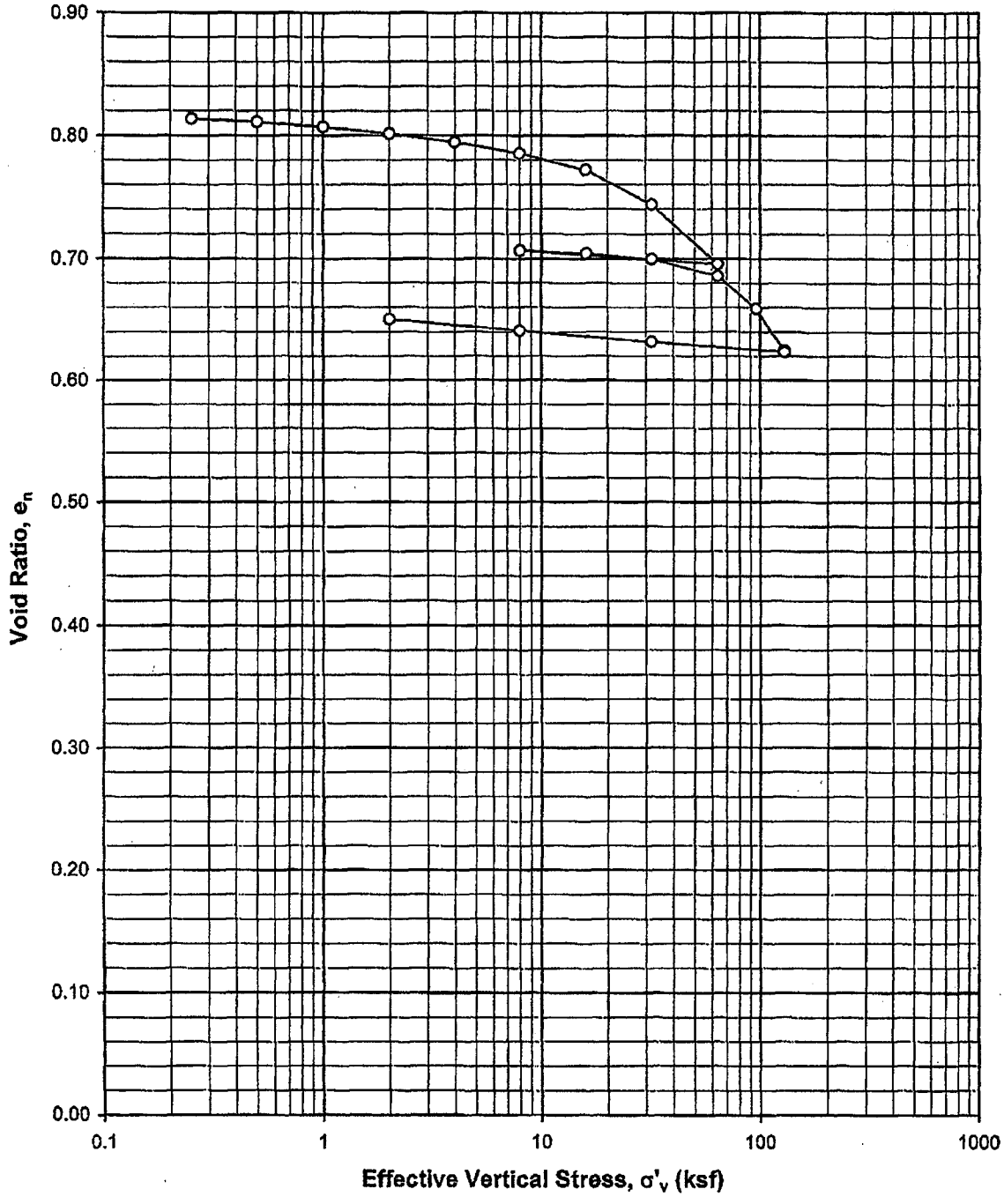
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading



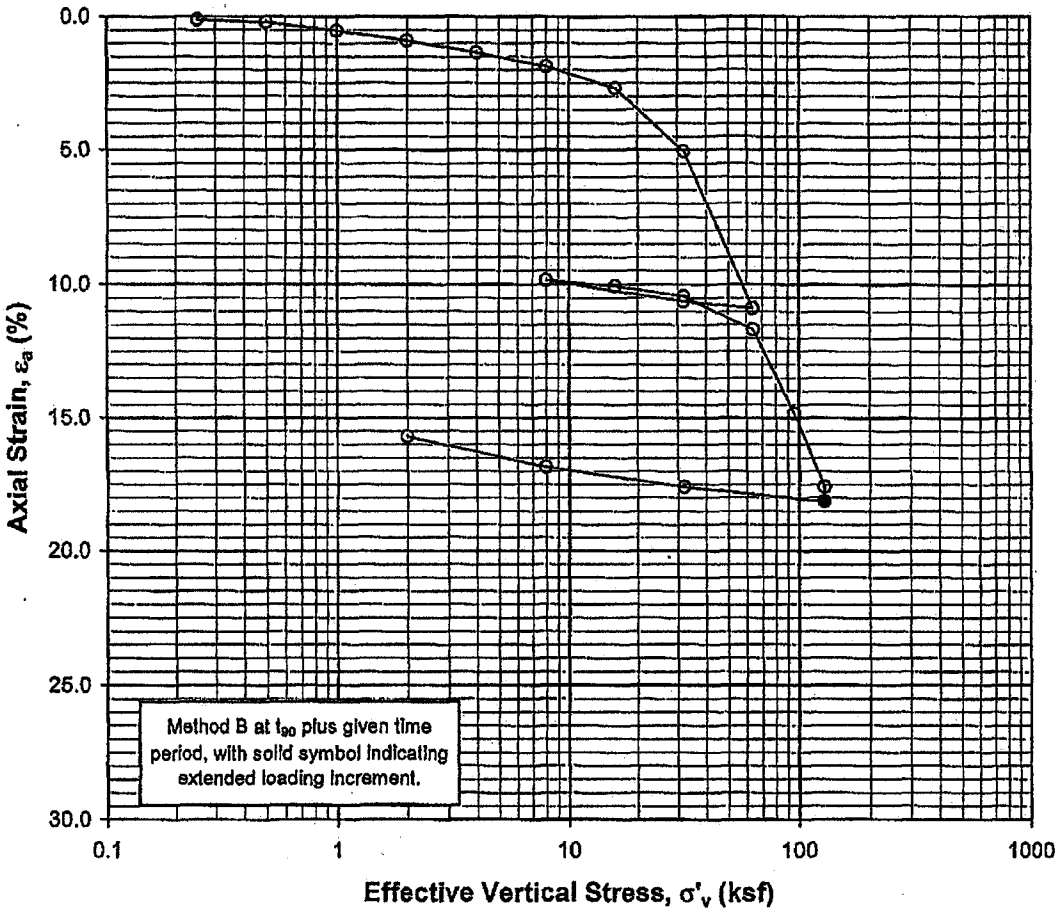
1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 33.50 ft
Boring B-774

PLATE

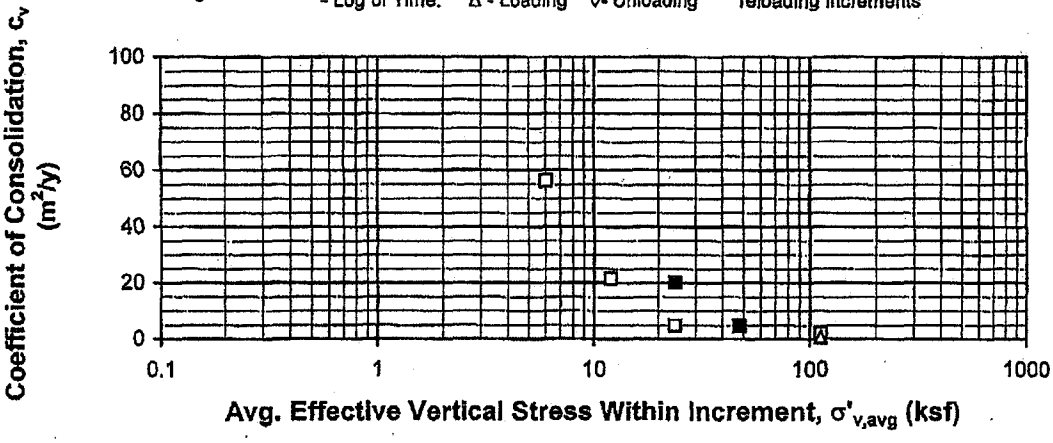
DCN: CALV-050 10-7-03



1-D CONSOLIDATION TEST: INC
Sample No. UD-4a - Depth 33.50 ft
Boring B-774



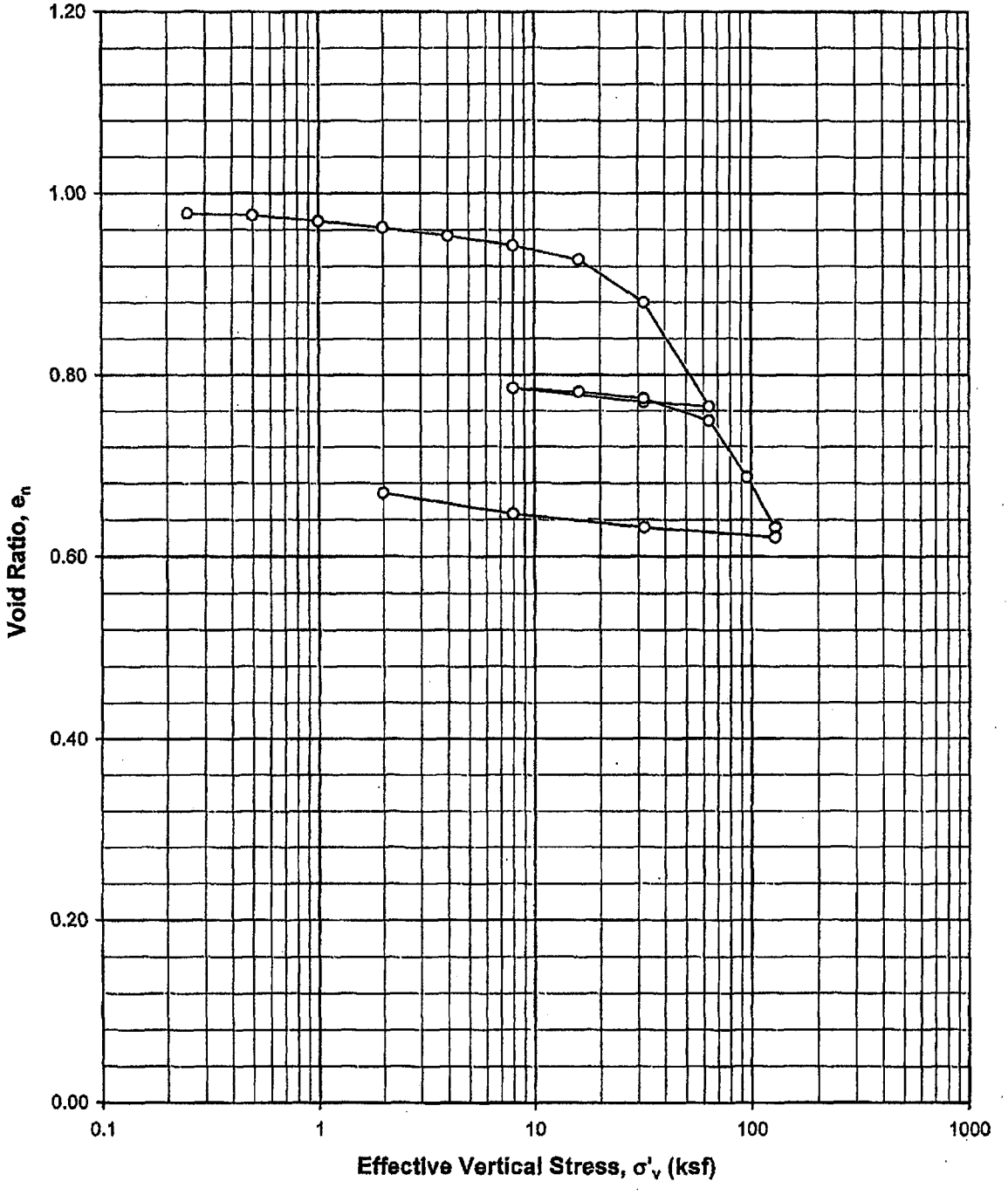
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading



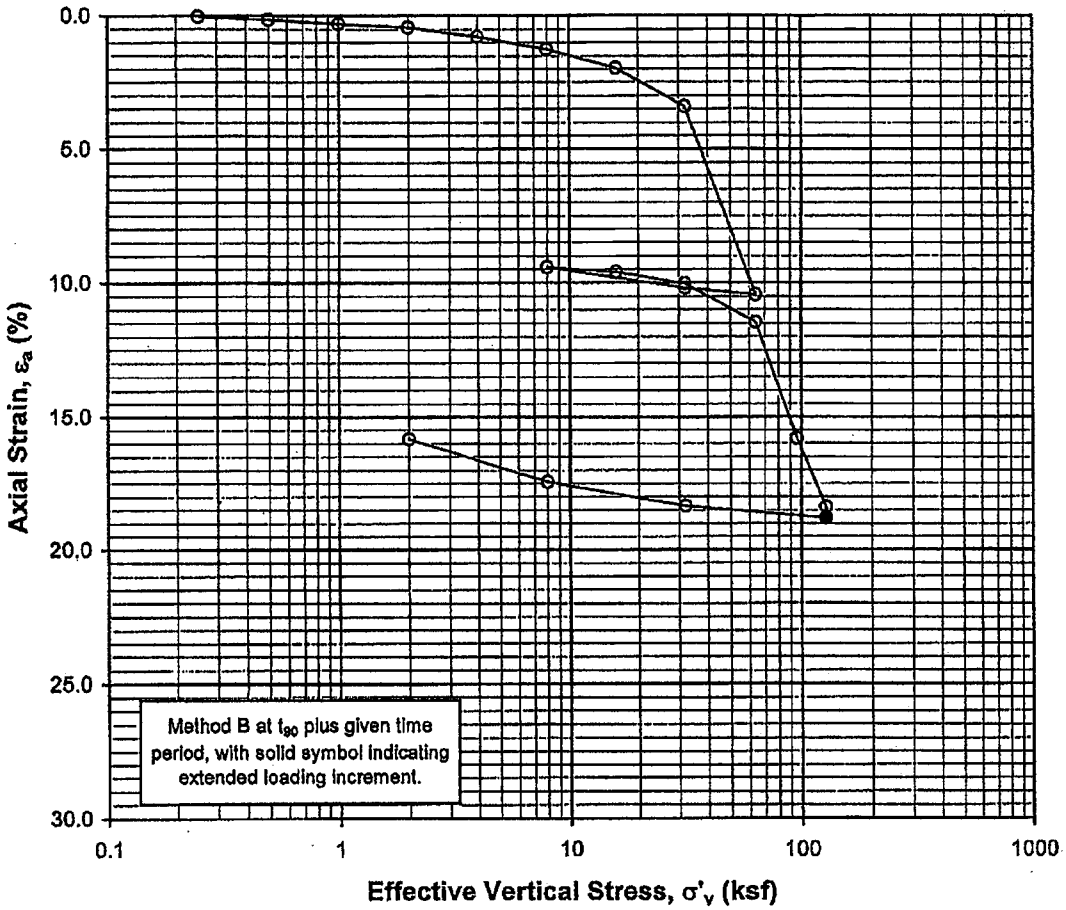
1-D CONSOLIDATION TEST: INC
Sample No. UD-5a - Depth 43.50 ft
Boring B-774

PLATE

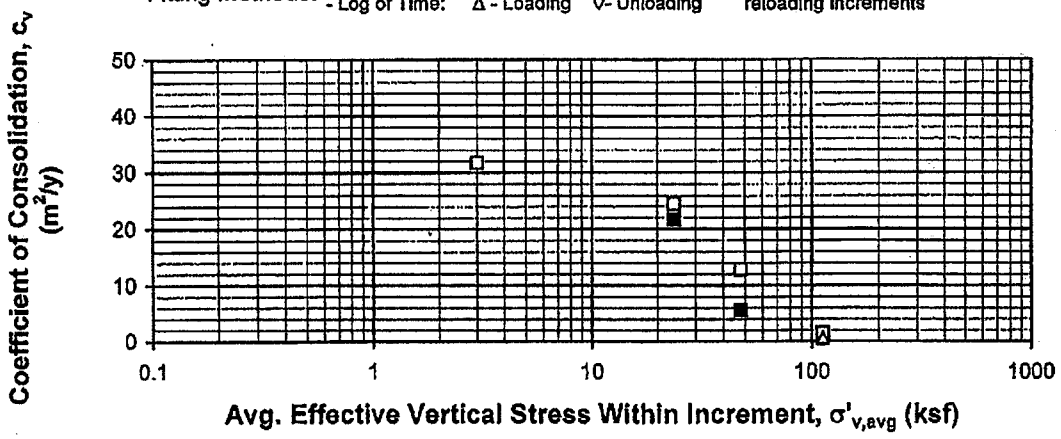
DCN: CALV-050 AF 10-7-08



1-D CONSOLIDATION TEST: INC
Sample No. UD-5a - Depth 43.50 ft
Boring B-774



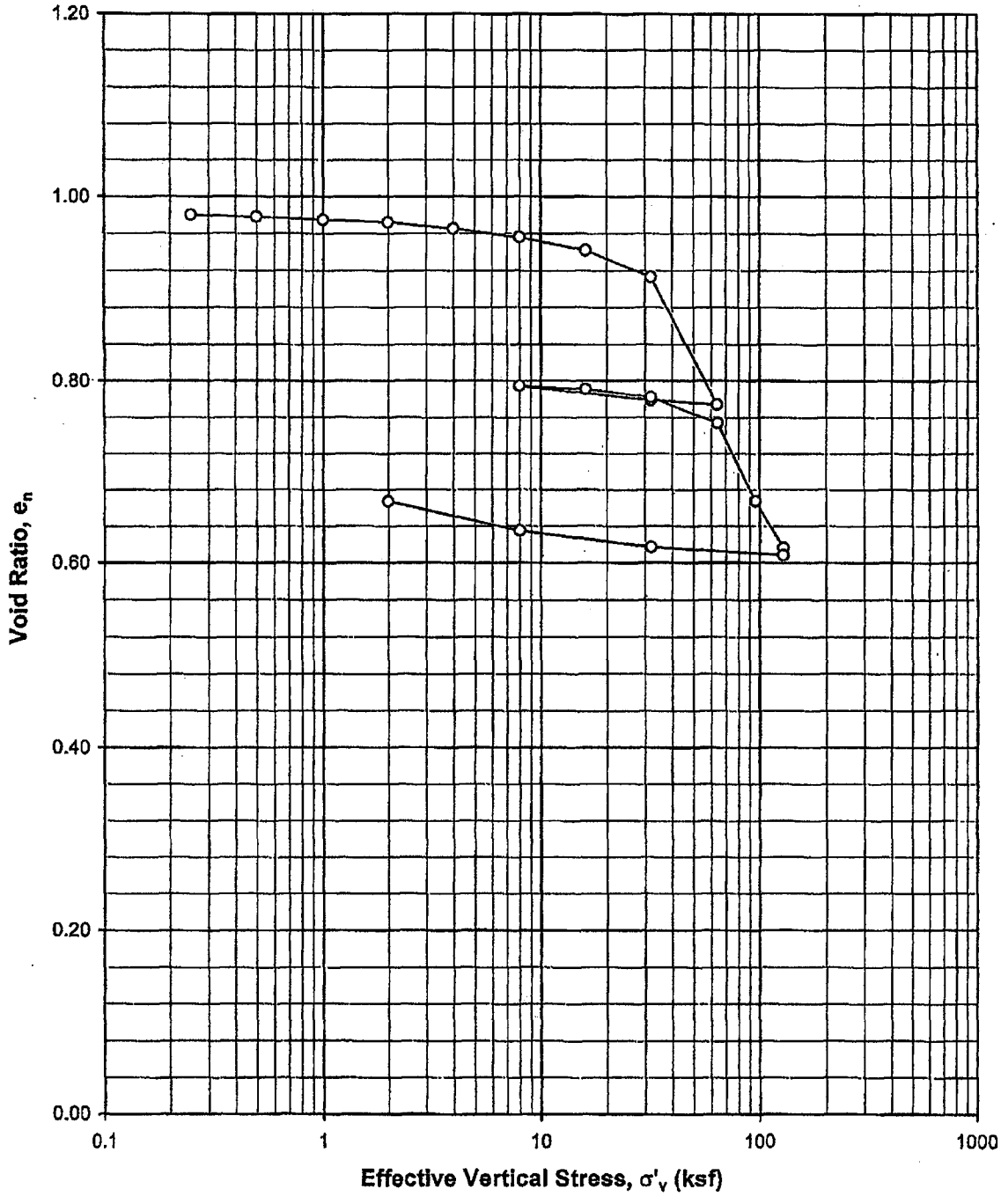
Fitting Methods: - Sqr. Rt. Time: □ - Loading O - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



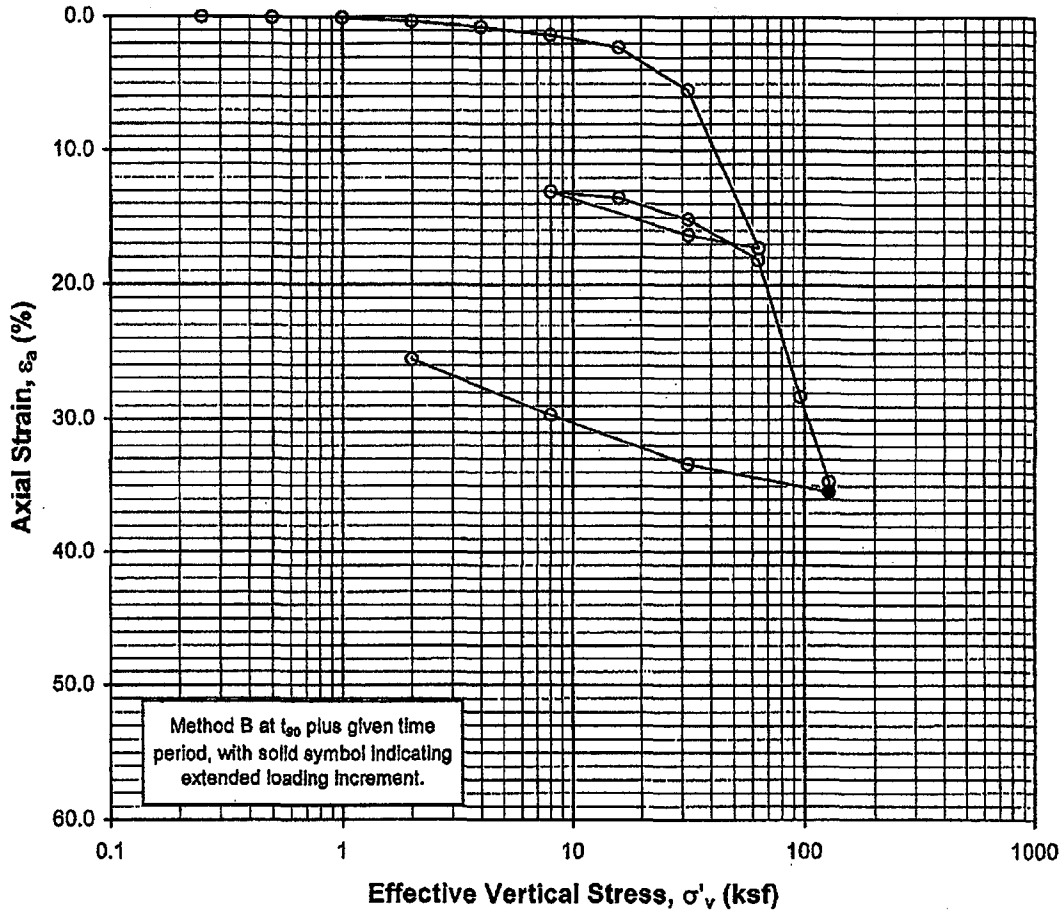
1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 53.50 ft
Boring B-774

PLATE

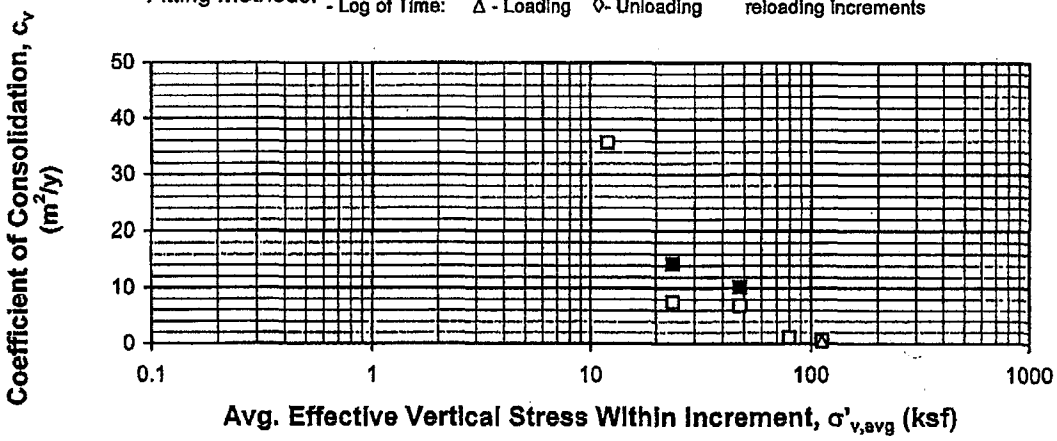
DCN: CALV-050 10-7-08



1-D CONSOLIDATION TEST: INC
Sample No. UD-6a - Depth 53.50 ft
Boring B-774



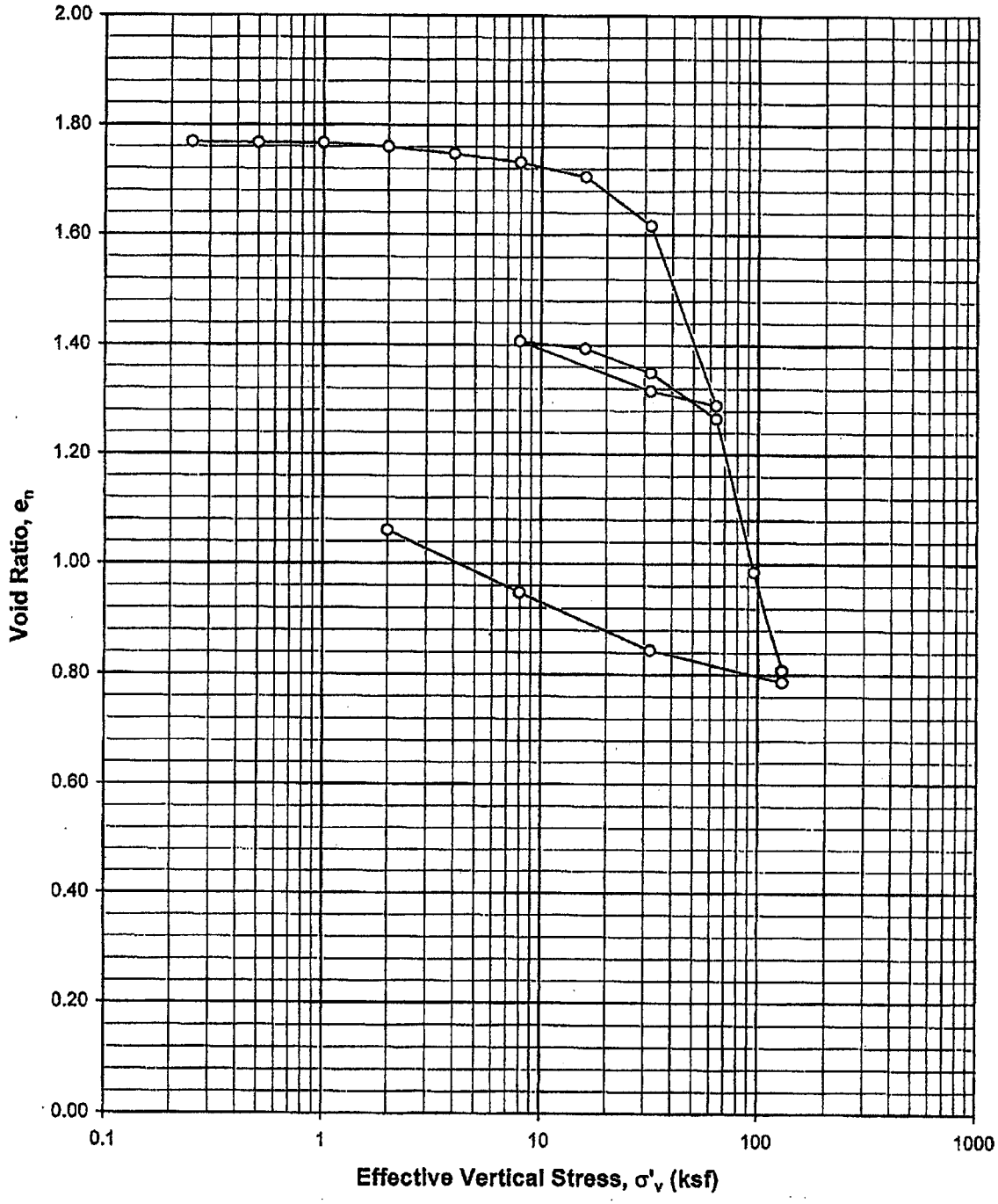
Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading



1-D CONSOLIDATION TEST: INC
Sample No. UD-7a - Depth 83.50 ft
Boring B-774

PLATE

DCN: CALV-050 10-1-03



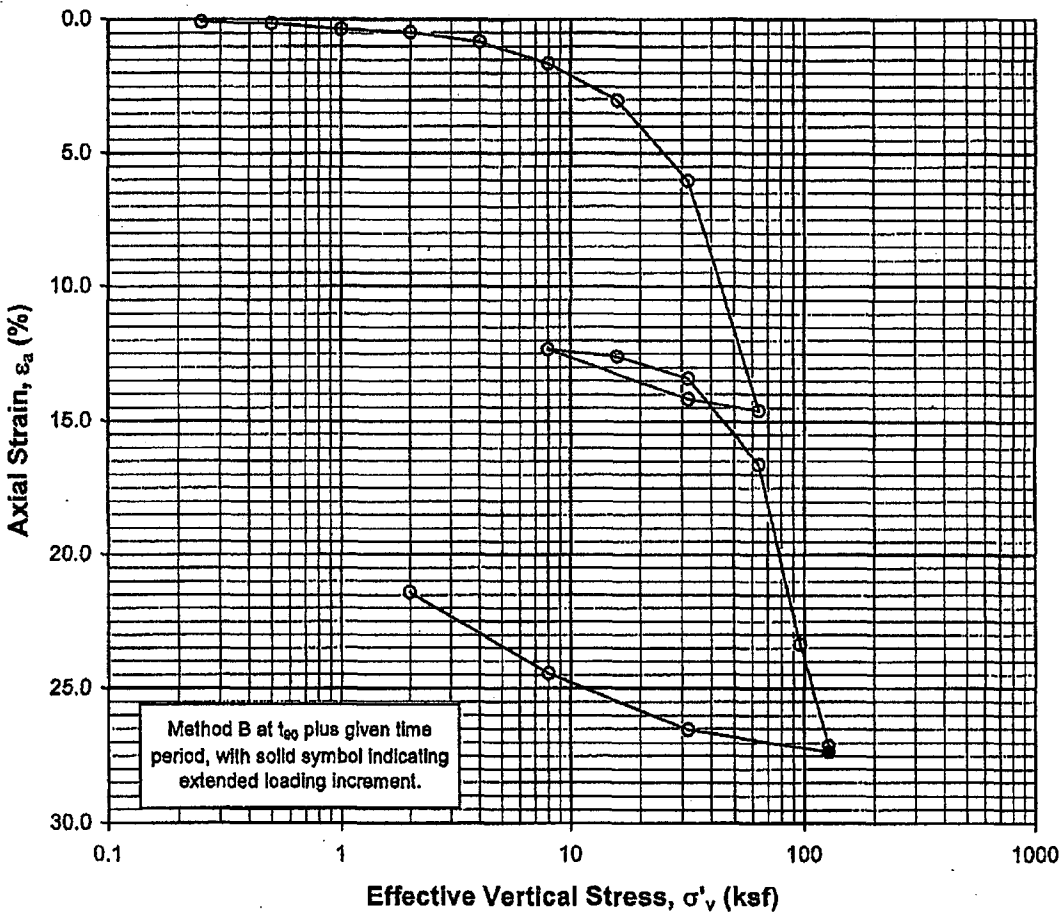
1-D CONSOLIDATION TEST: INC
Sample No. UD-7a - Depth 83.50 ft
Boring B-774

Report No. 0411-08-1707

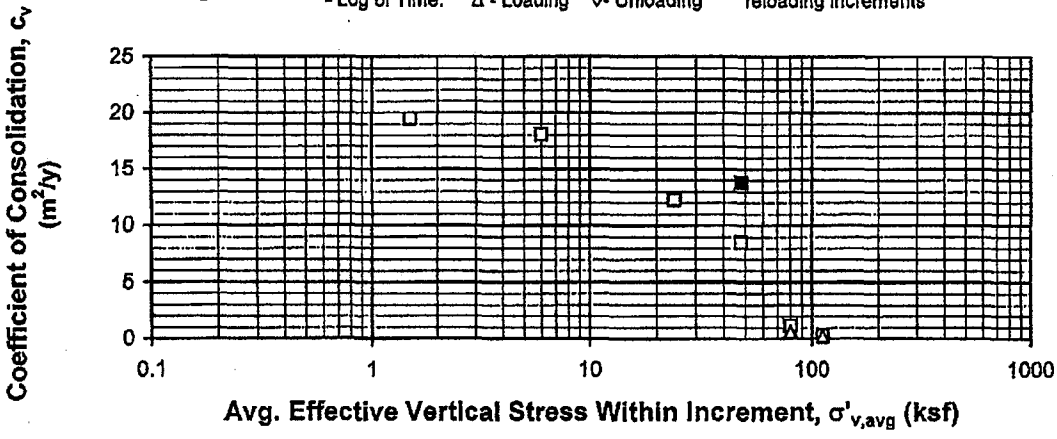
PLATE

10-7-03

DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating
- Log of Time: Δ - Loading ◊- Unloading reloading increments

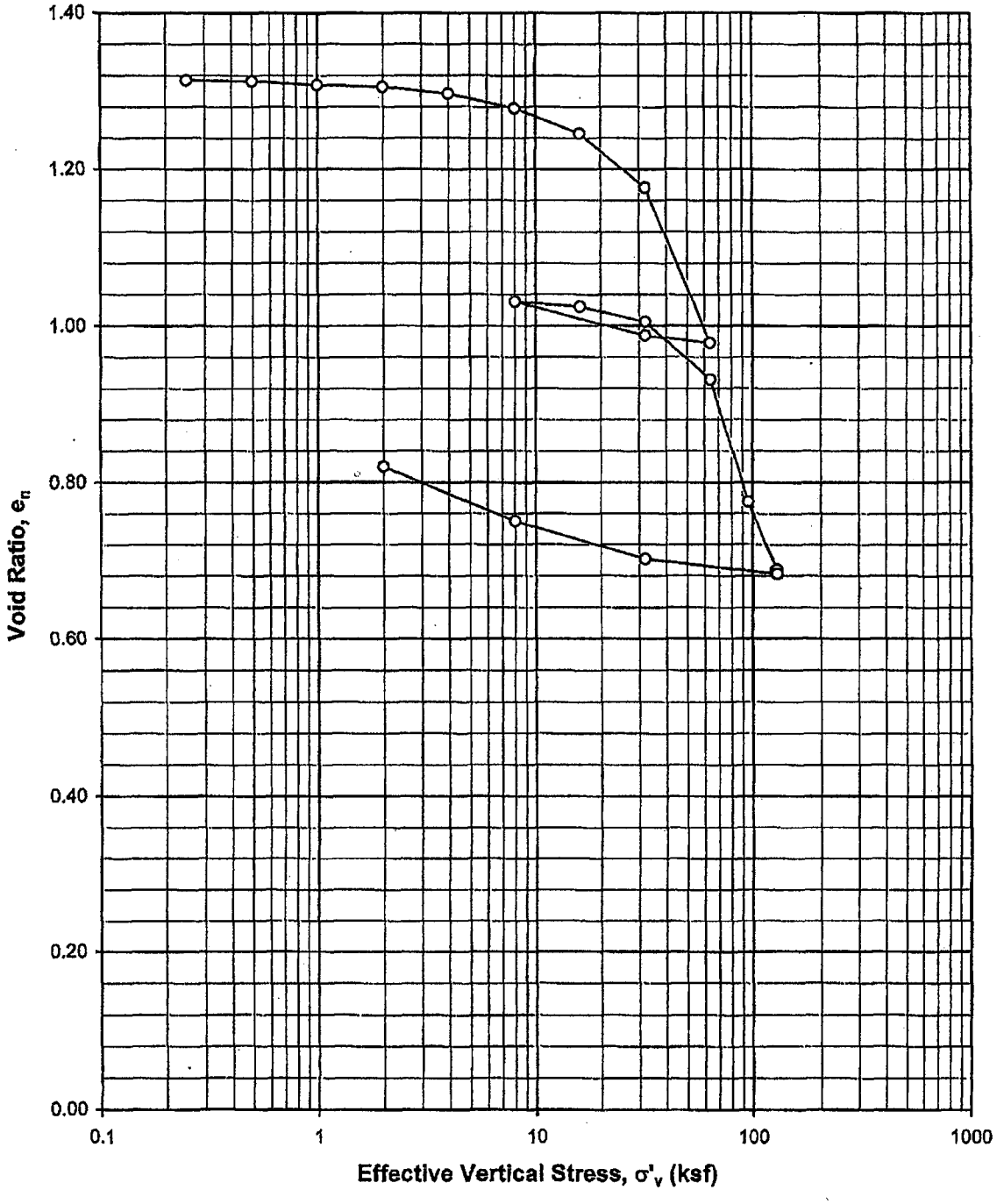


1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 103.50 ft
Boring B-774

PLATE

10-7-08

DCN: CALV-050

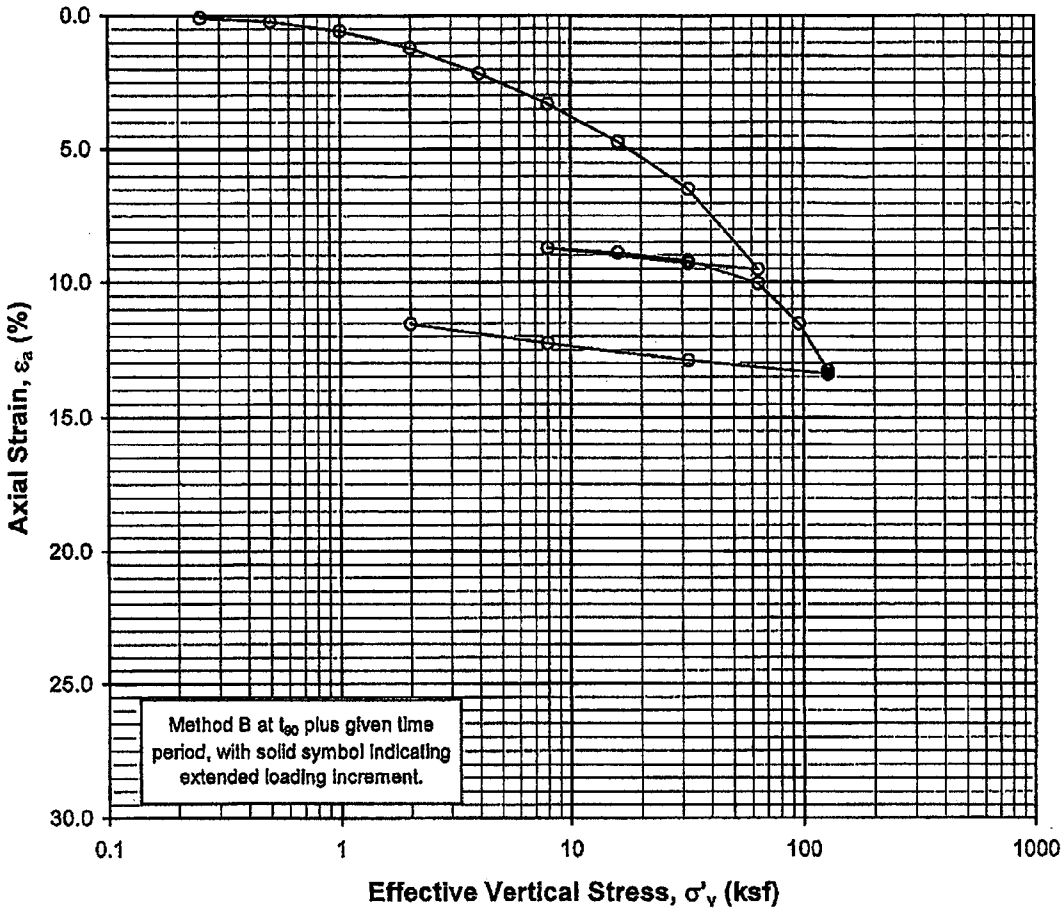


1-D CONSOLIDATION TEST: INC
Sample No. UD-8a - Depth 103.50 ft
Boring B-774

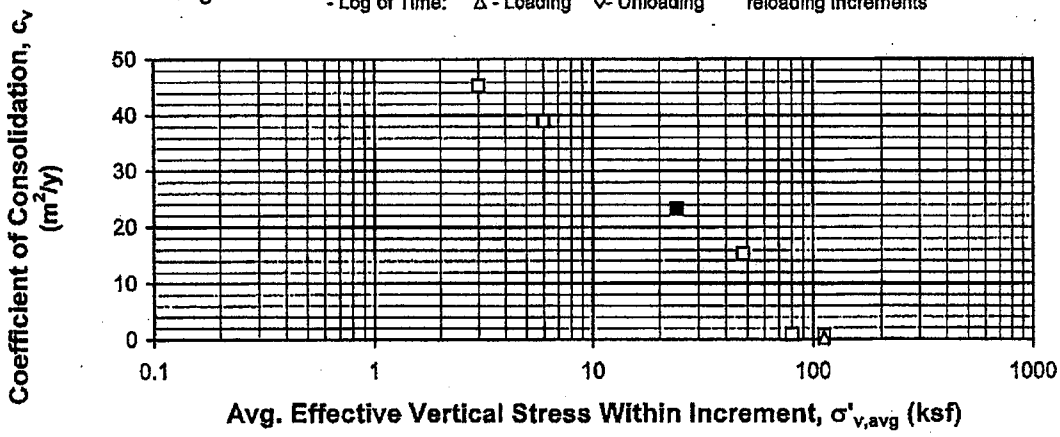
Report No. 0411-08-1707

PLATE
A 10-1-08

DCN: CALV-050



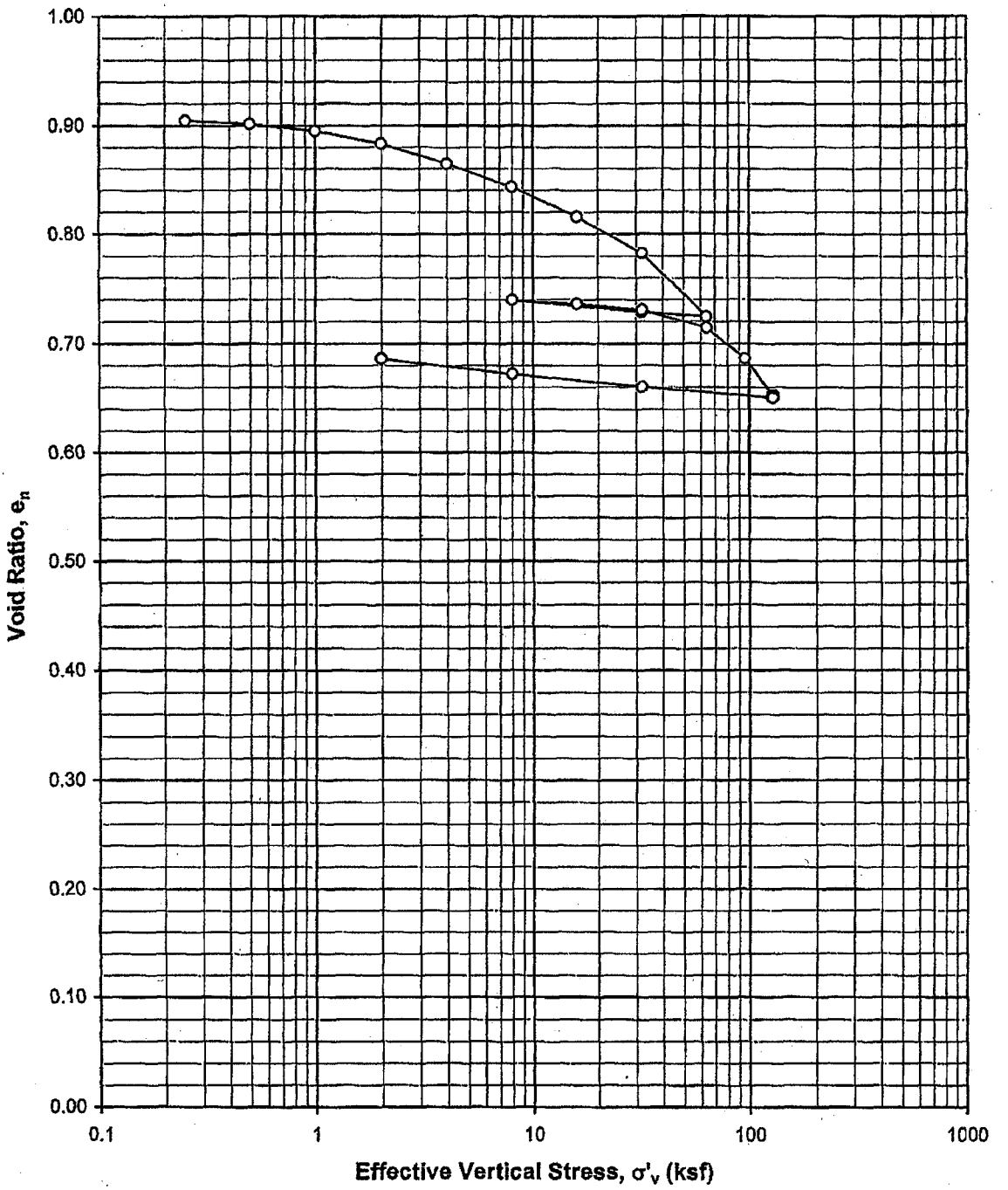
Fitting Methods: - Sqr. Rt. Time: □ - Loading O - Unloading
- Log of Time: Δ - Loading ◊- Unloading
with solid symbols indicating reloading increments



1-D CONSOLIDATION TEST: INC
Sample No. UD-10a - Depth 123.50 ft
Boring B-774

PLATE
A 10-7-03

DCN: CALV-050

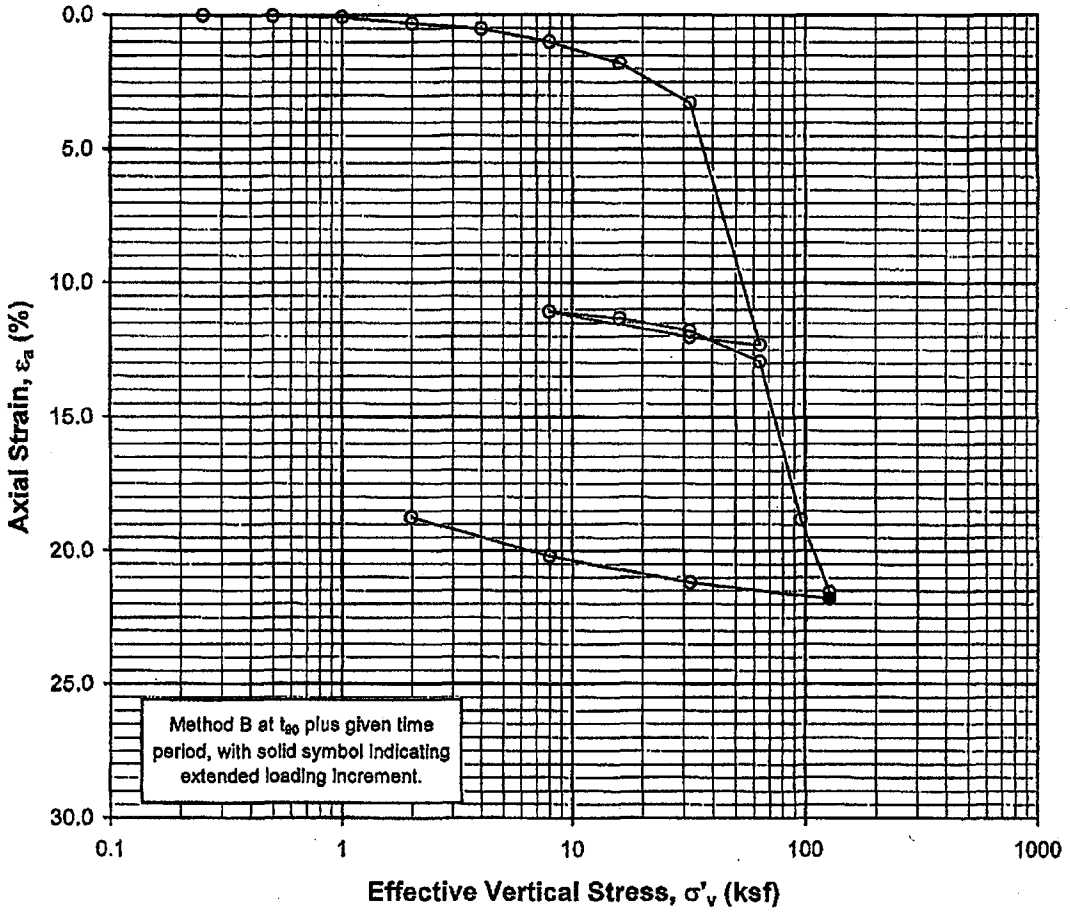


1-D CONSOLIDATION TEST: INC
Sample No. UD-10a - Depth 123.50 ft
Boring B-774

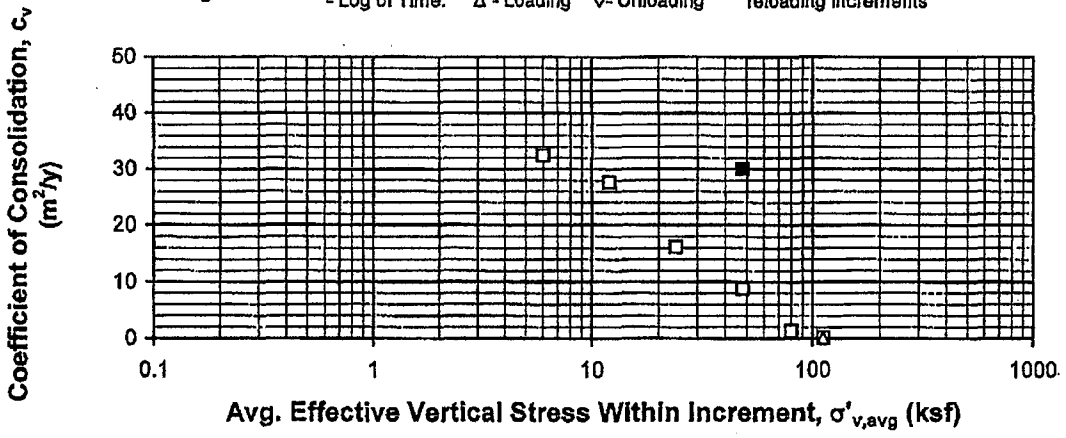
Report No. 0411-08-1707

PLATE

10-7-03
DCN: CALV-050



Fitting Methods: - Sqr. Rt. Time: □ - Loading ○ - Unloading with solid symbols indicating reloading increments
- Log of Time: Δ - Loading ◊- Unloading



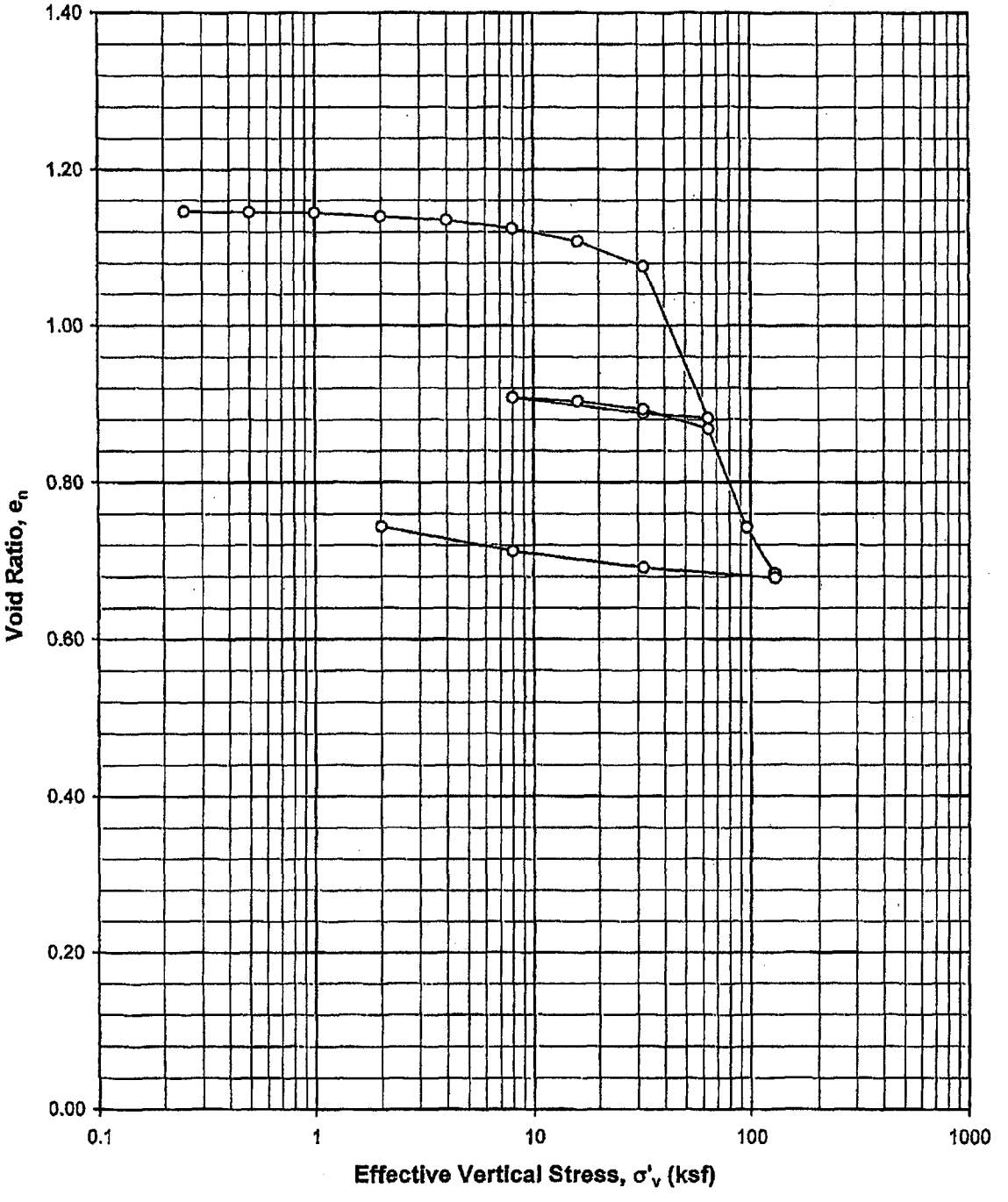
1-D CONSOLIDATION TEST: INC

Sample No. UD-12a - Depth 143.50 ft

Boring B-774

PLATE

DCN: CALV-050 10-7-08



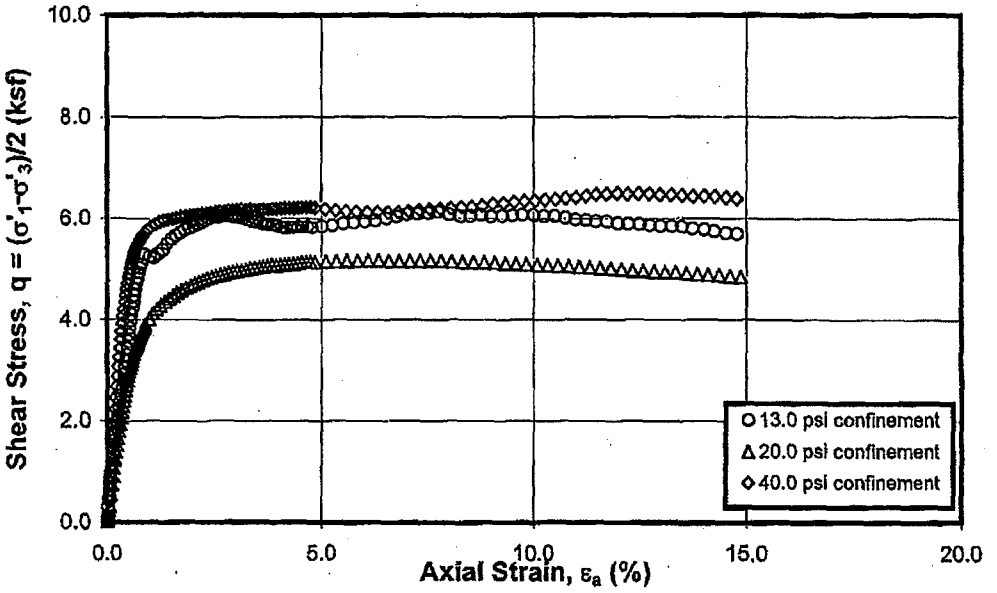
1-D CONSOLIDATION TEST: INC
Sample No. UD-12a - Depth 143.50 ft
Boring B-774

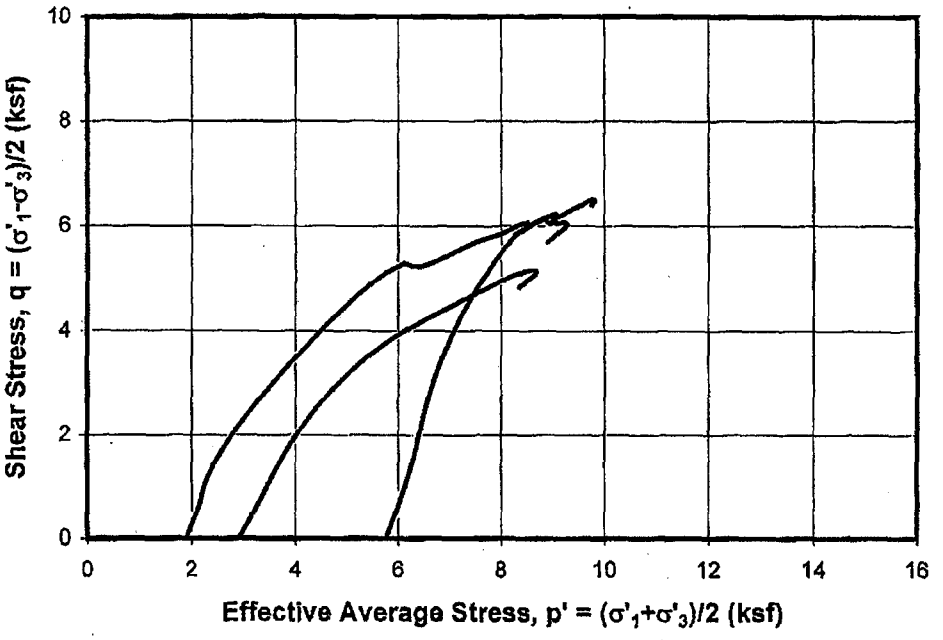
Report No. 0411-08-1707

PLATE

1A 10-7-03

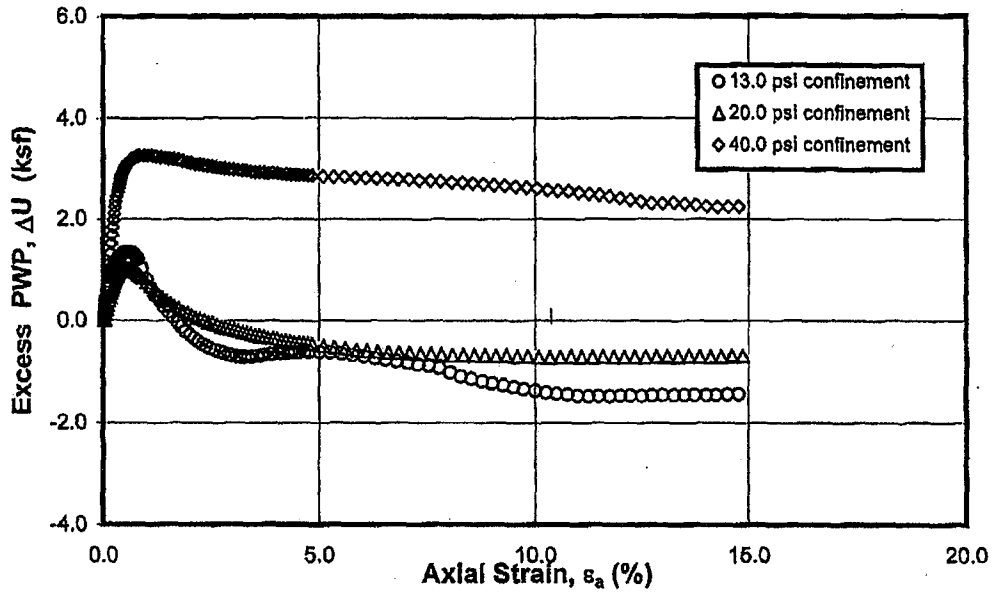
DCN: CALV-050

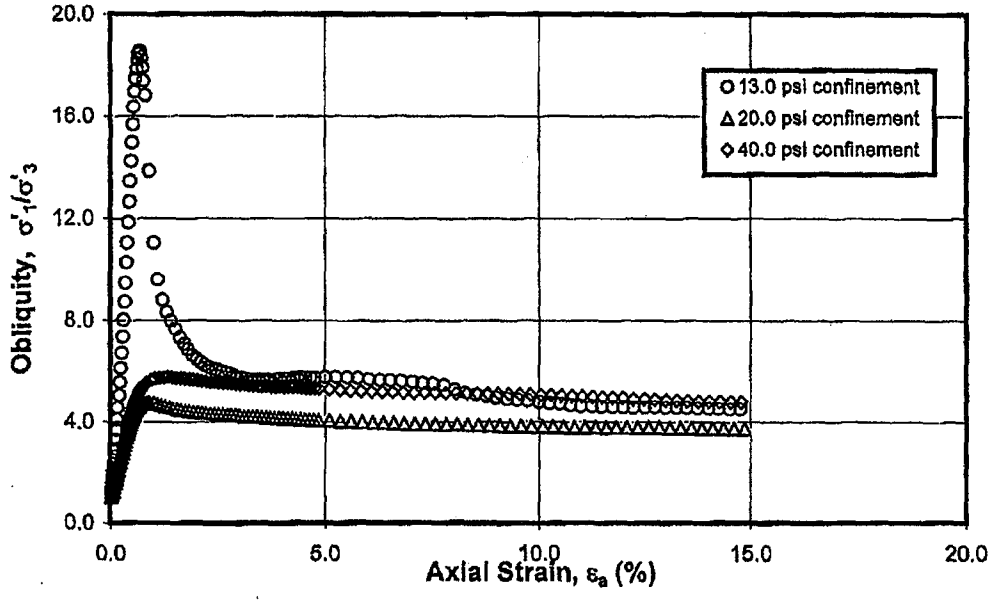




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3 - Depth: 53.30 ft
Boring B-771

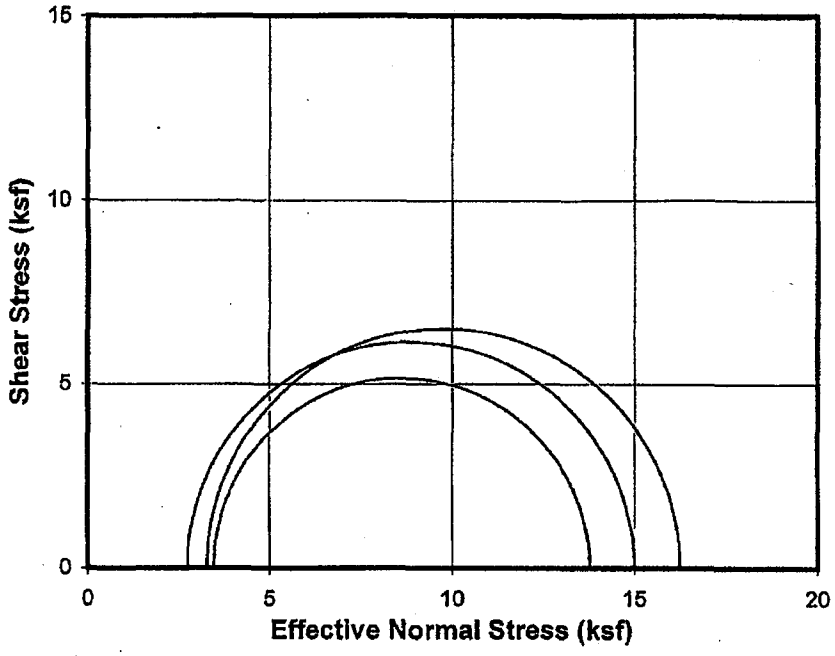
Reviewed By: KPB

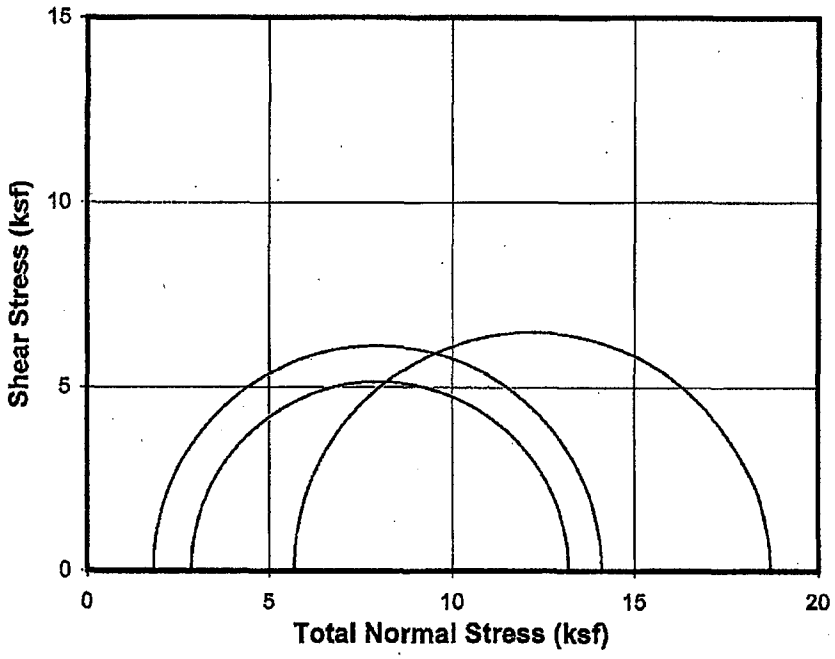




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3 - Depth: 53.30 ft
Boring B-771

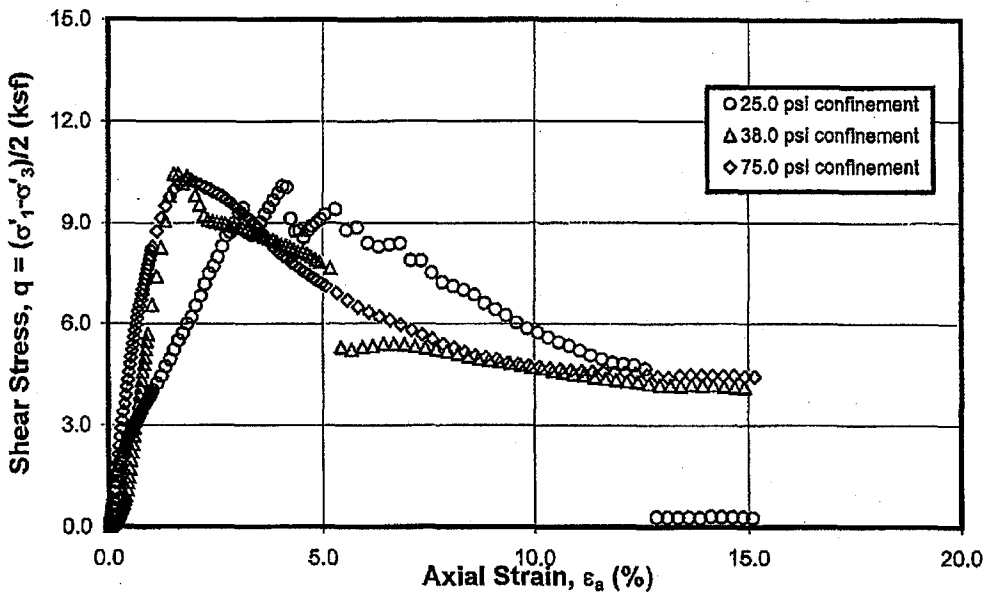
Reviewed By: [illegible]

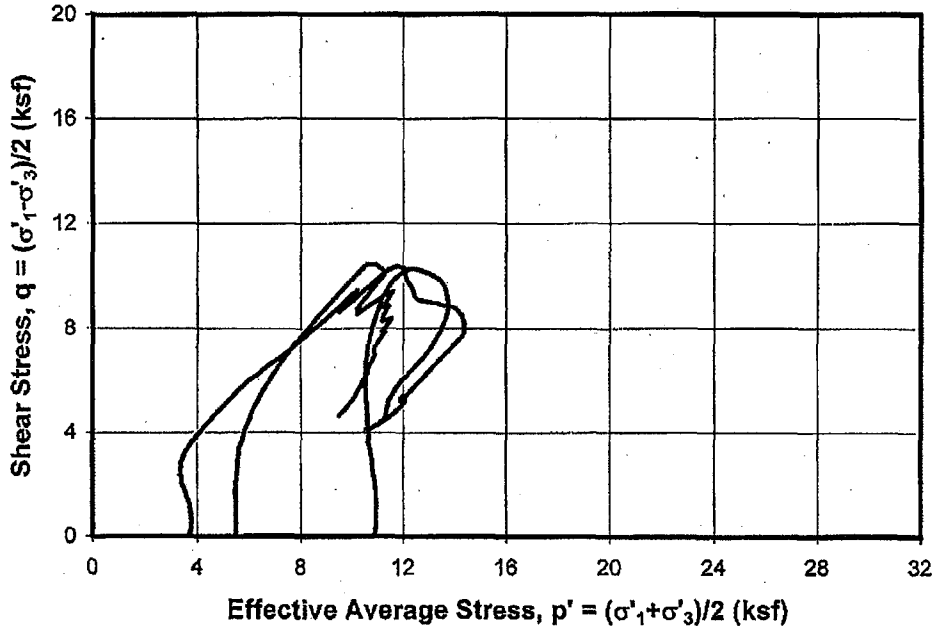




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-3 - Depth: 53.30 ft
Boring B-771

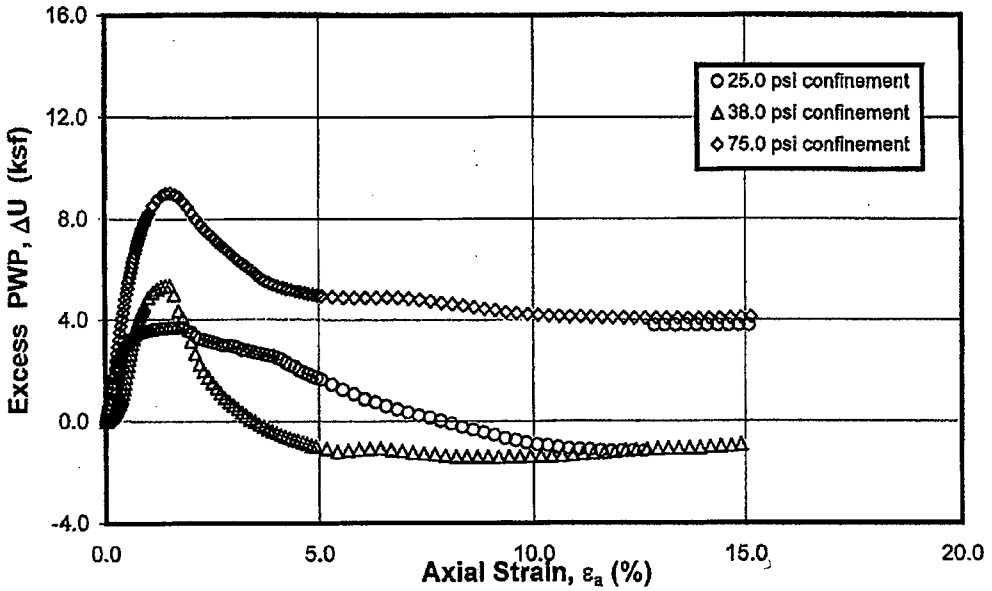
Reviewed By: 10/10

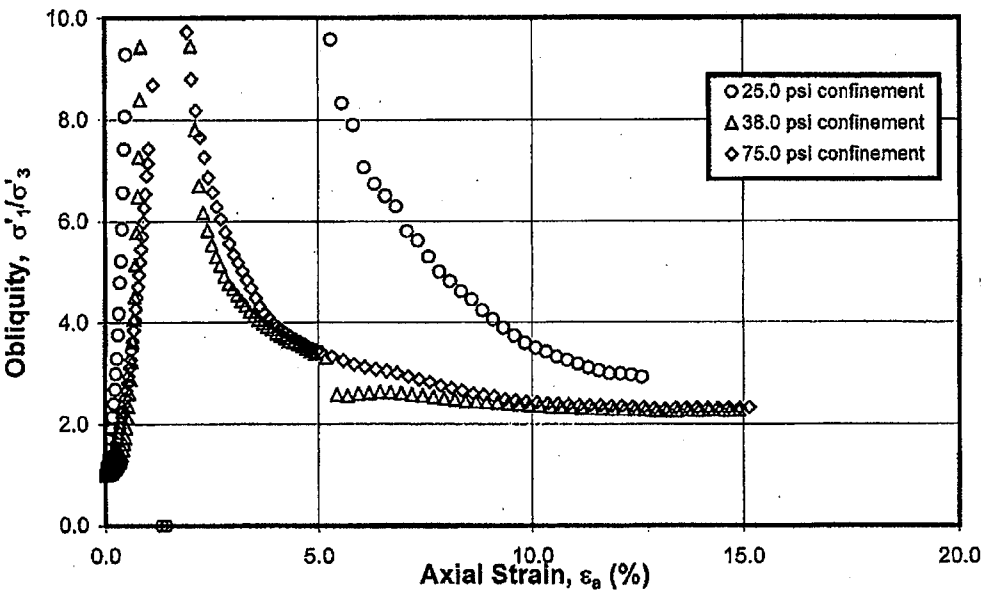




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8b - Depth: 84.65 ft
Boring B-773A

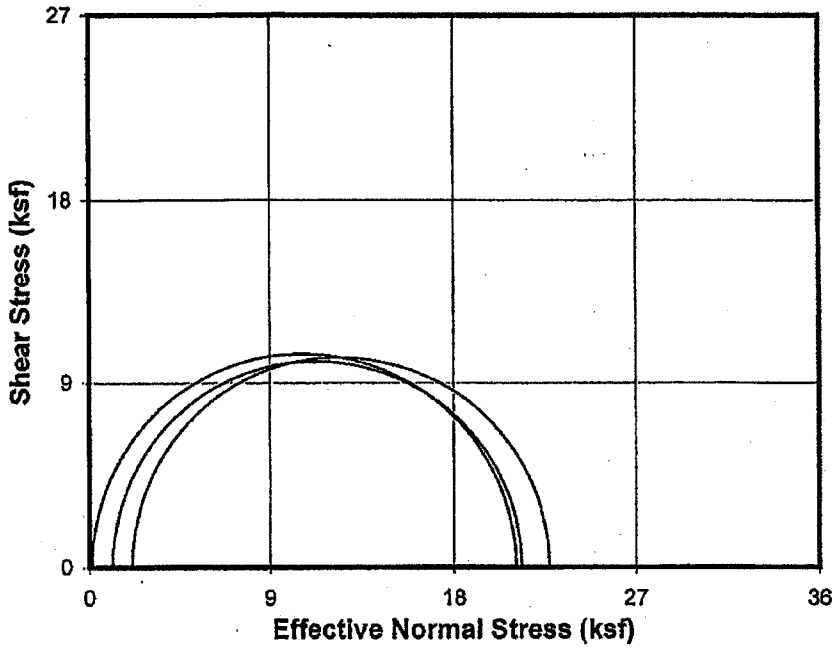
Reviewed By: YMM

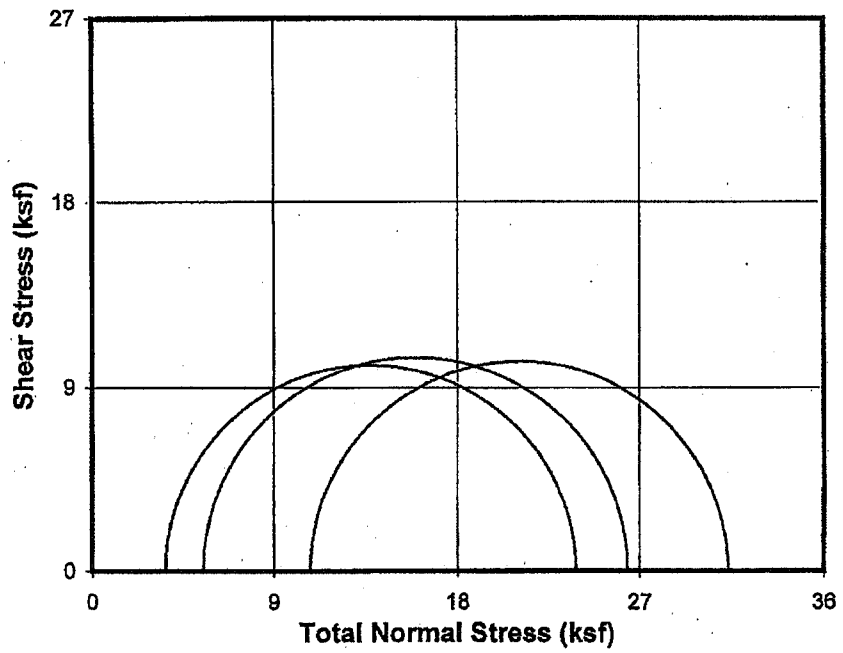




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8b - Depth: 84.65 ft
Boring B-773A

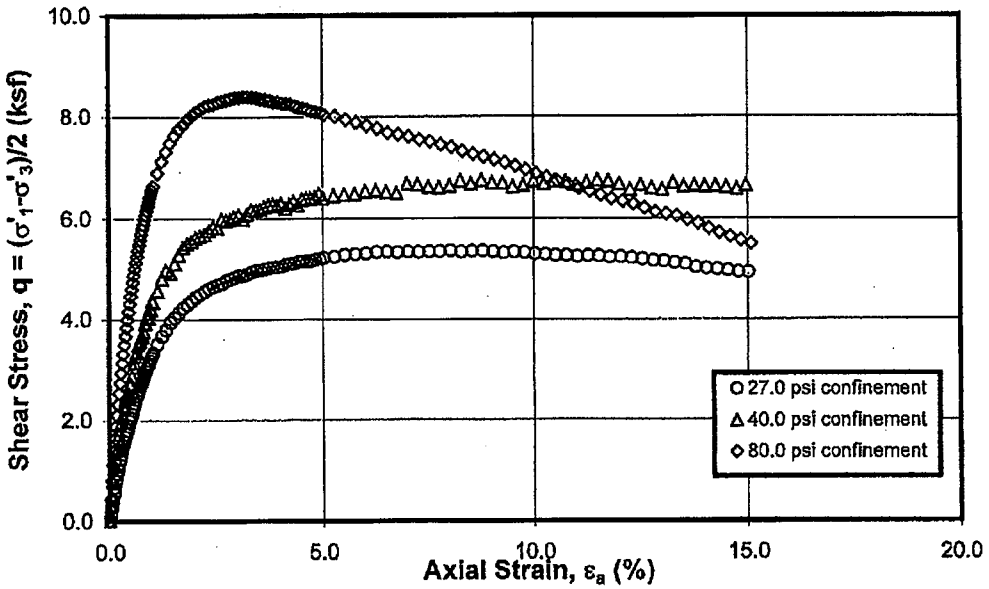
Reviewed By: YMM

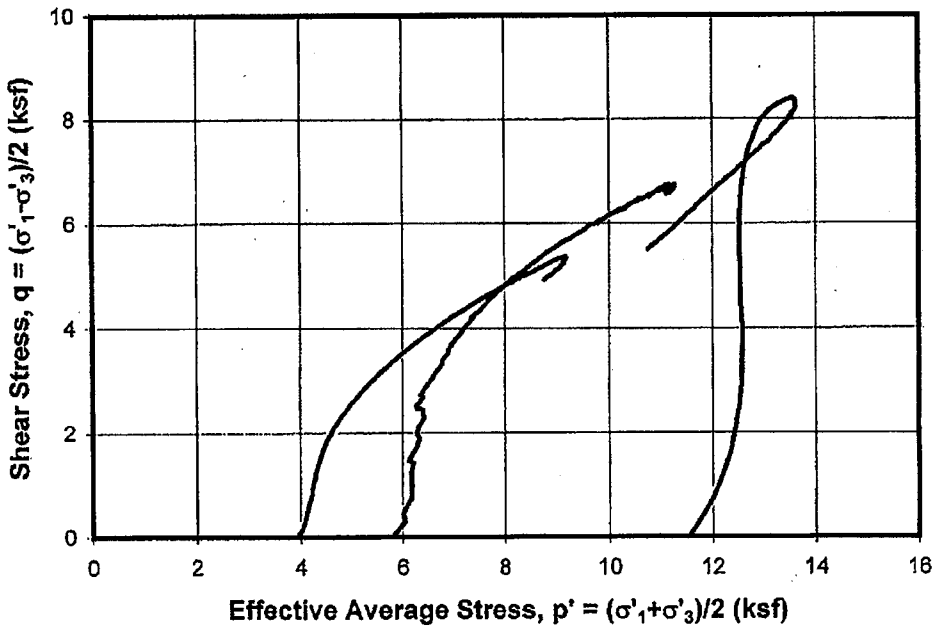




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-8b - Depth: 84.65 ft
Boring B-773A

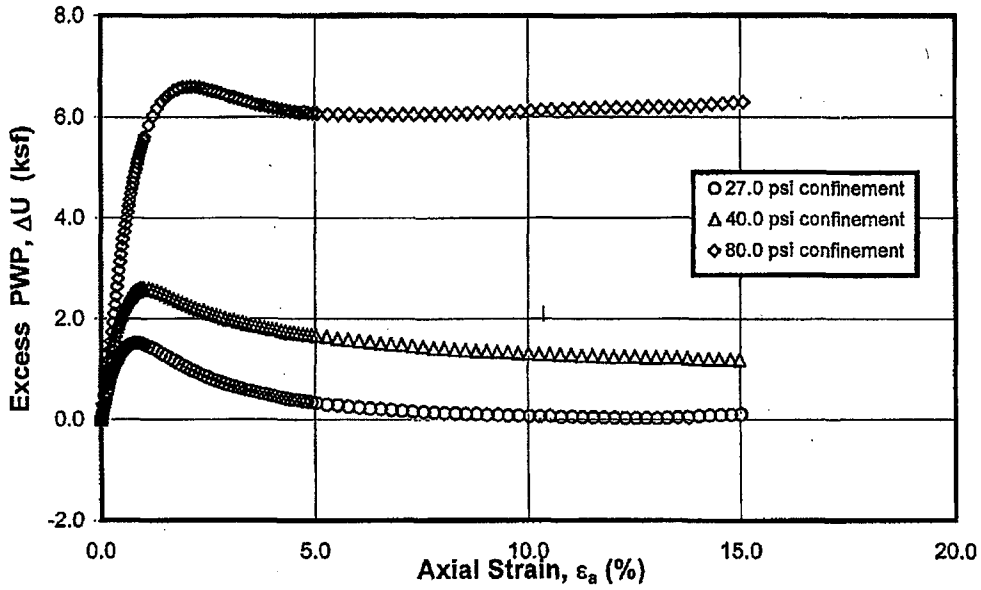
Reviewed By: MM

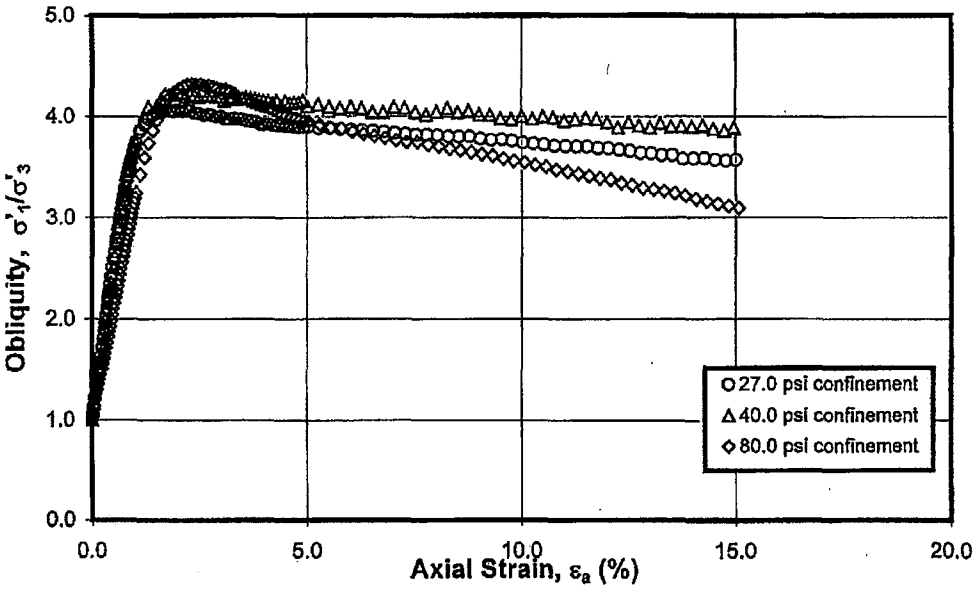




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-11b - Depth: 114.75 ft
Boring B-773A

Reviewed By: YMM

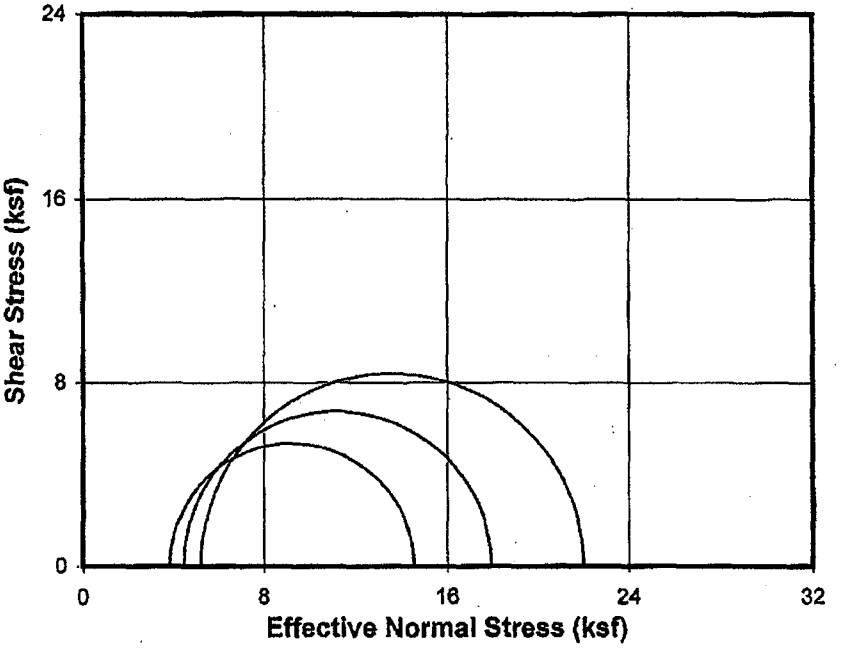


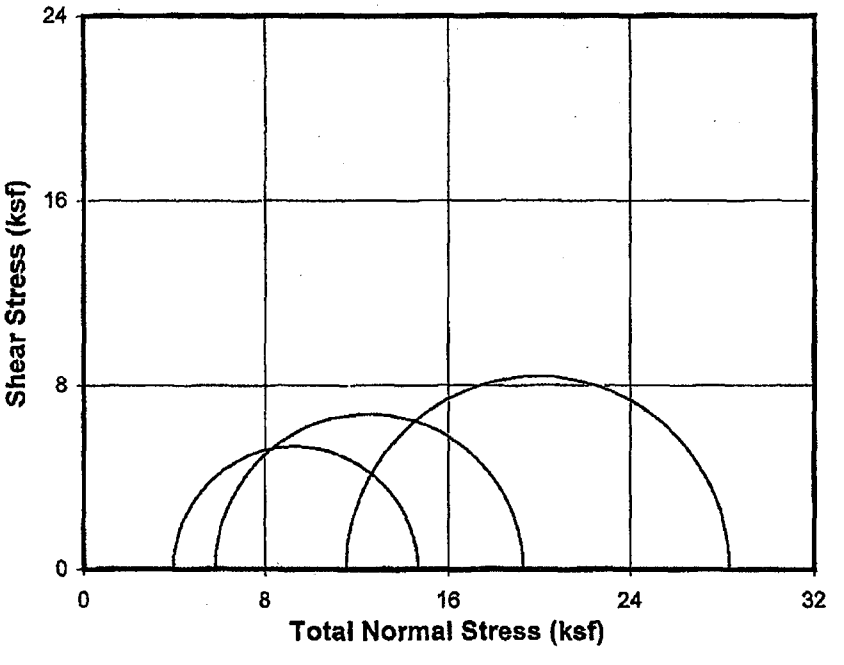


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-11b - Depth: 114.75 ft
Boring B-773A

Reviewed By: MMM

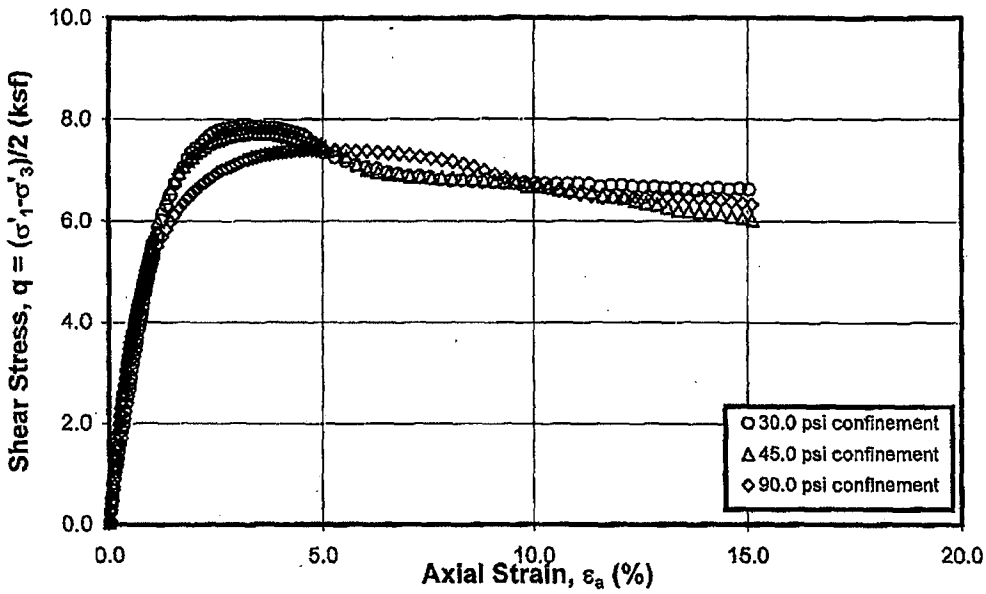
MA 10-7-08

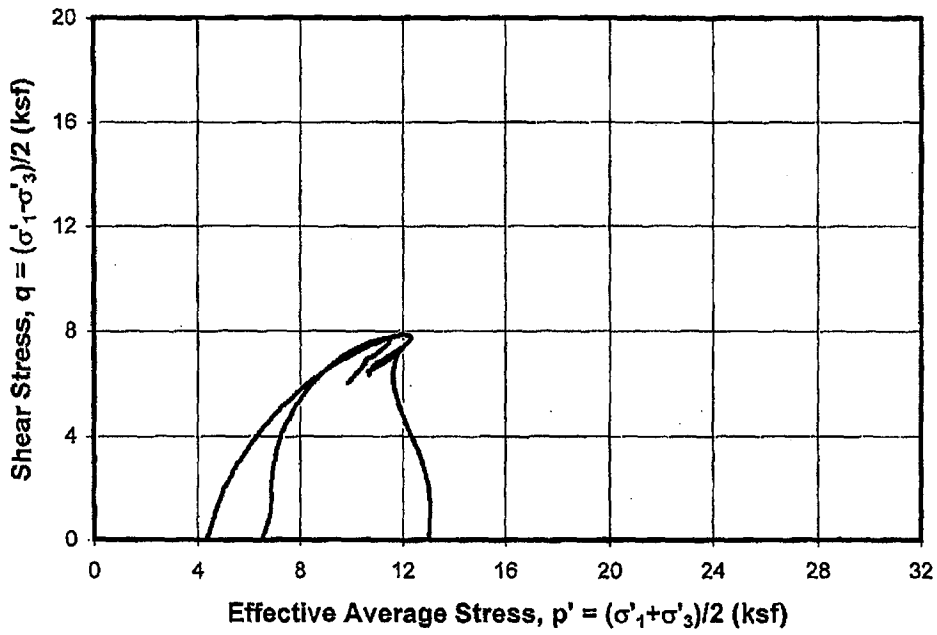




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-11b - Depth: 114.75 ft
Boring B-773A

Reviewed By: MMM

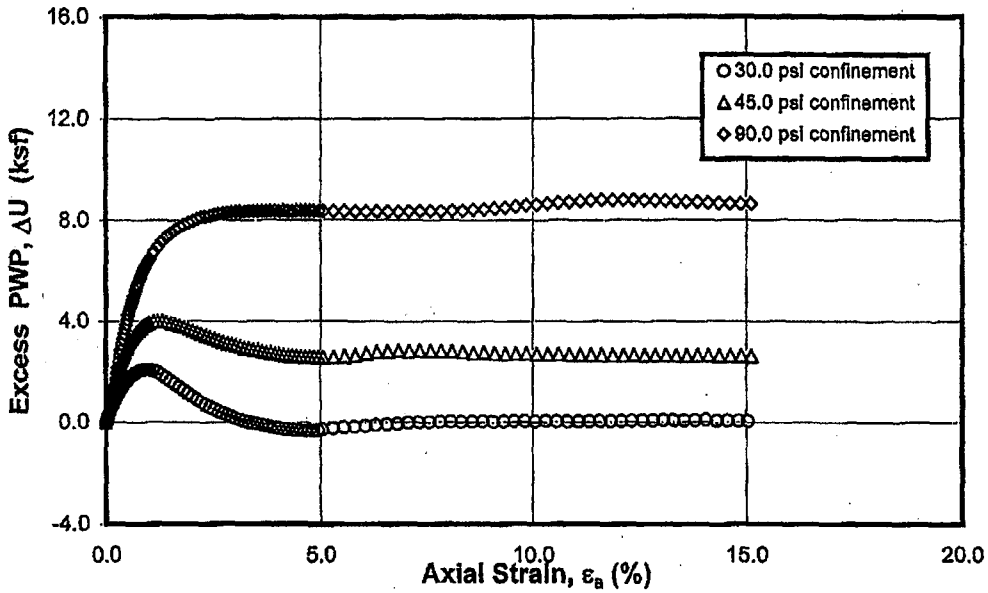


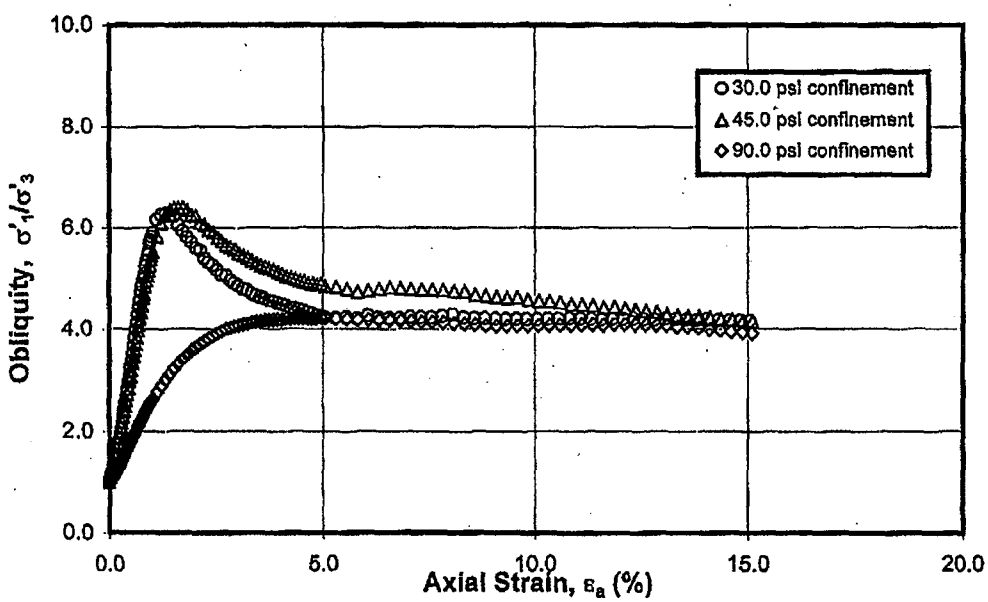


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-12 - Depth: 124.70 ft
Boring B-773A

Reviewed By: [illegible]

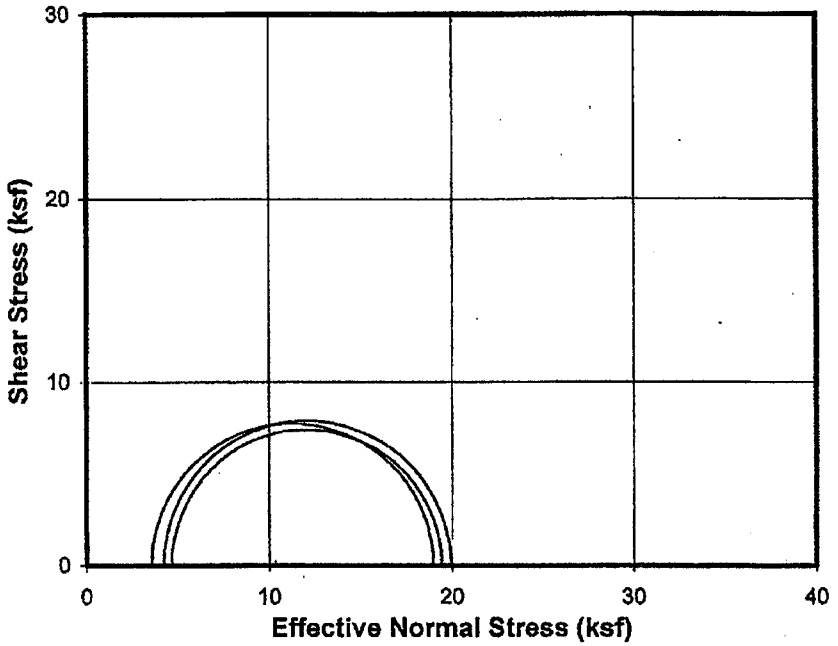
DCN: CALV-050 AA 10-1-03

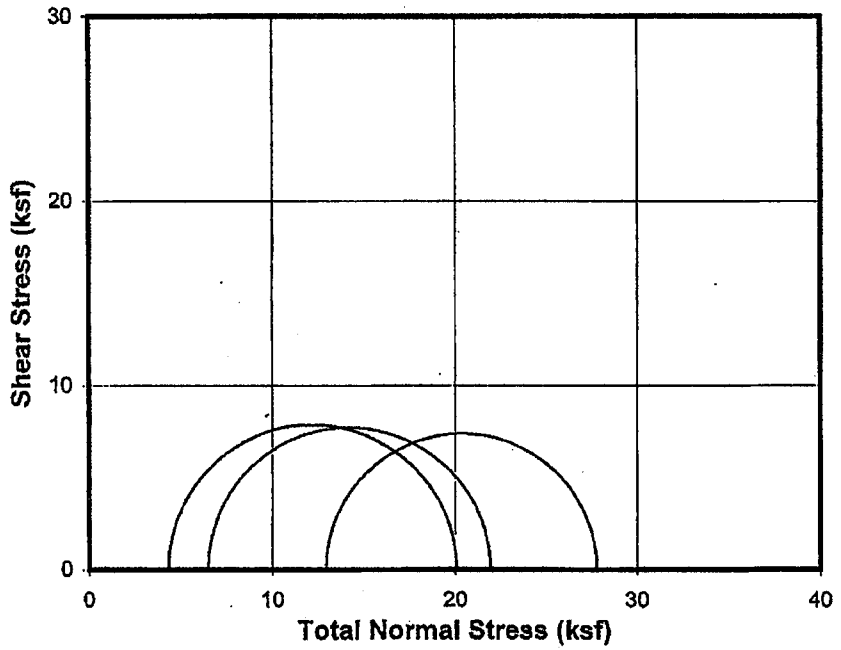




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-12 - Depth: 124.70 ft
Boring B-773A

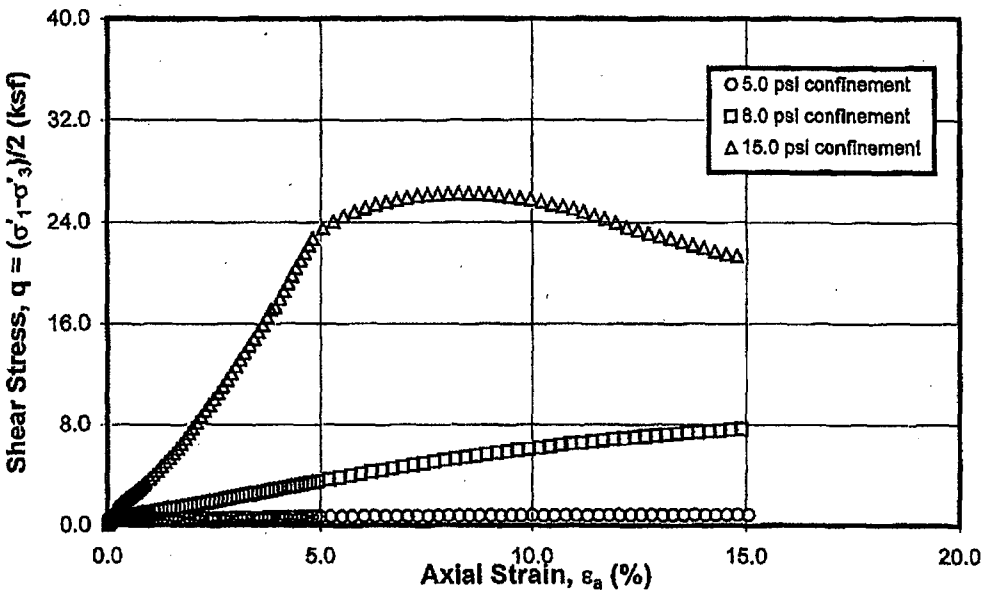
Reviewed By: NLYM

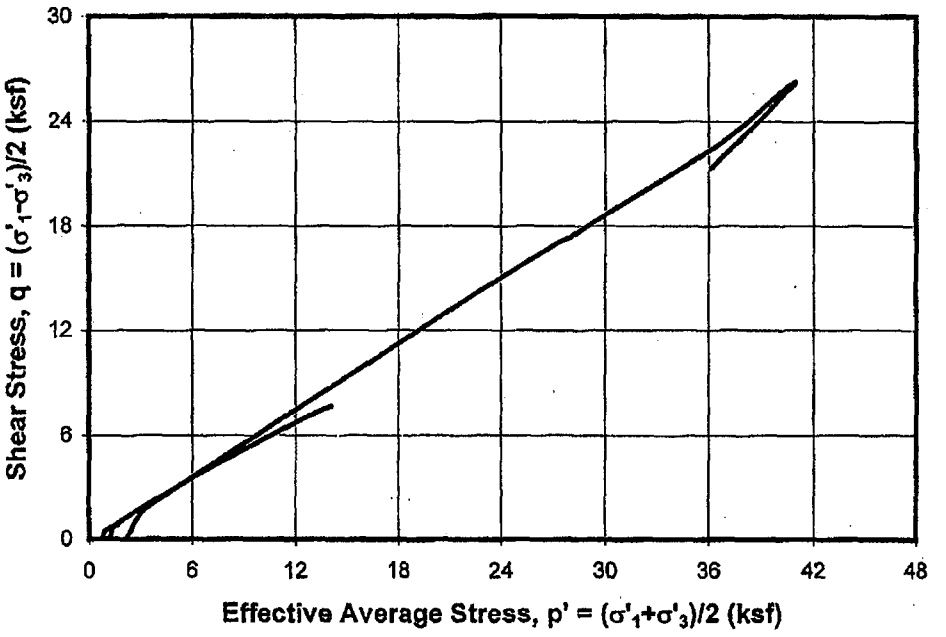




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-12 - Depth: 124.70 ft
Boring B-773A

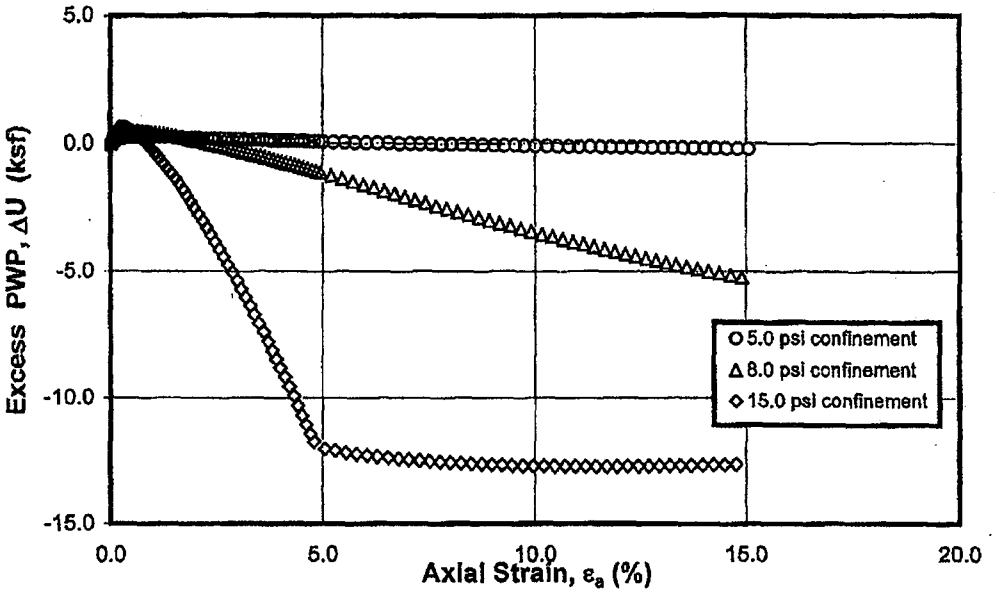
Reviewed By: MMM

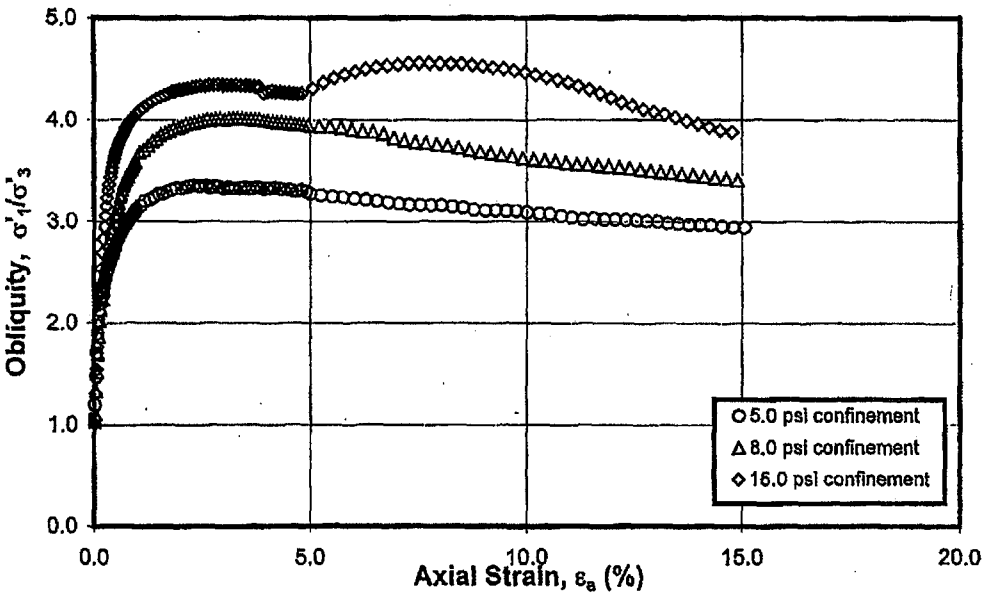




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-1a - Depth: 13.20 ft
Boring B-774

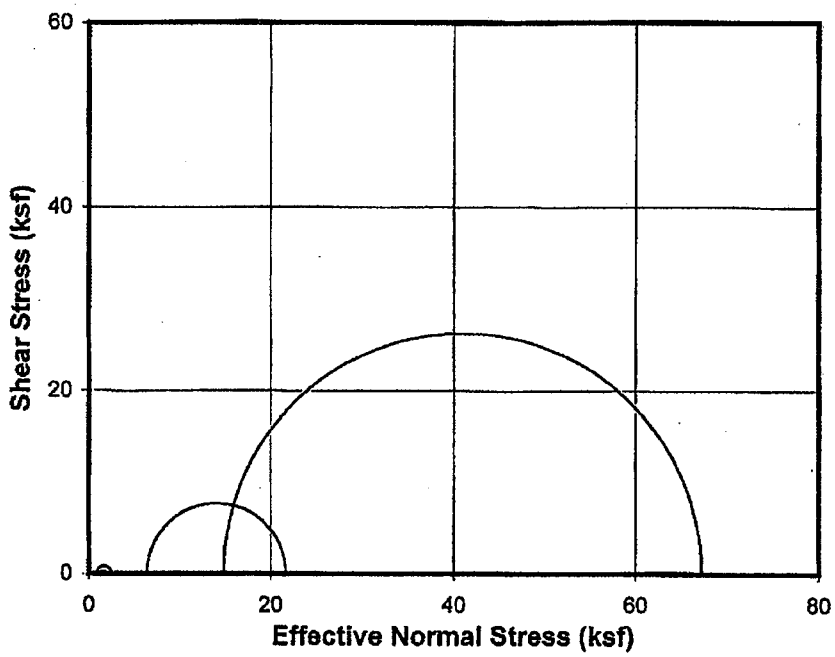
Reviewed By: NJD

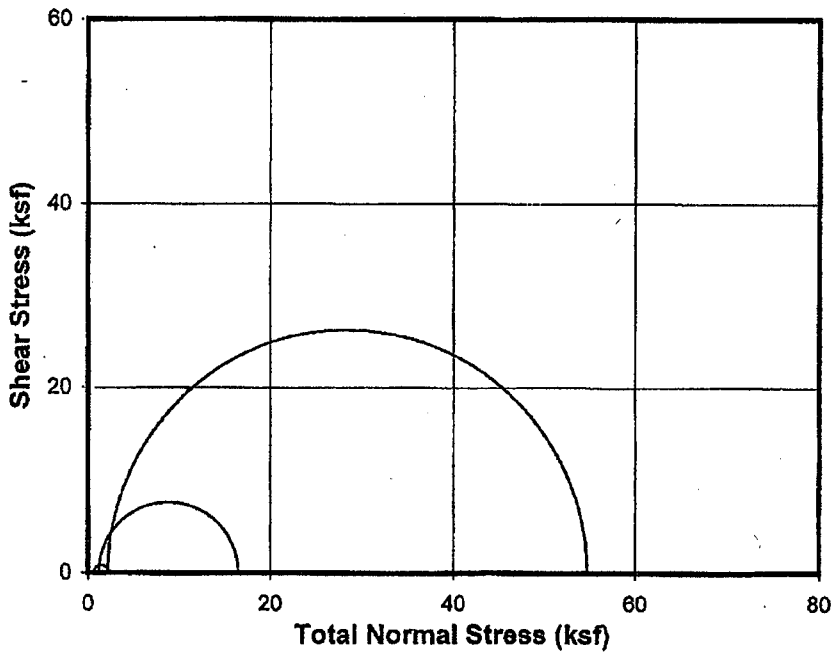




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-1a - Depth: 13.20 ft
Boring B-774

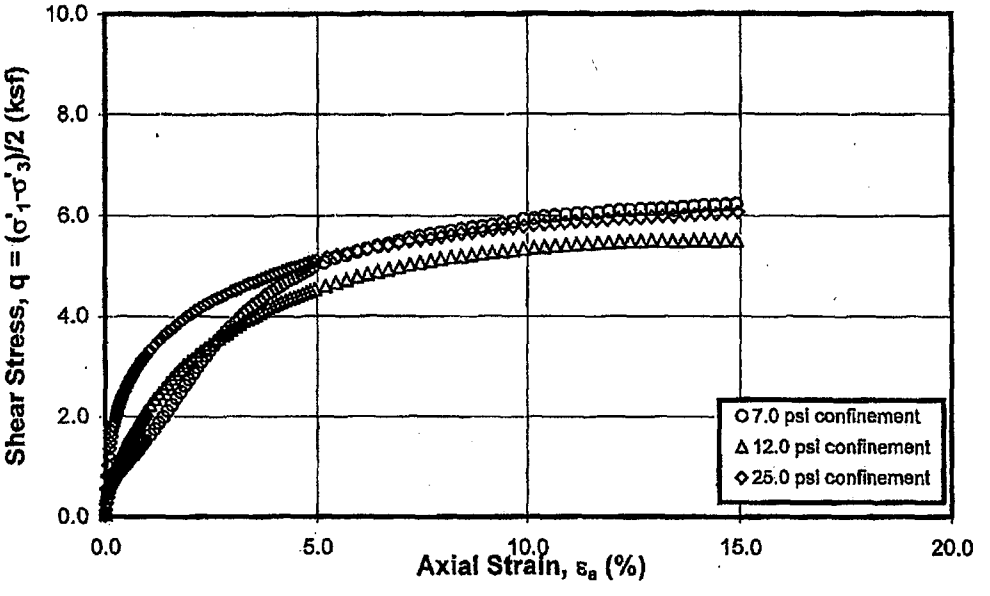
Reviewed By: WJP

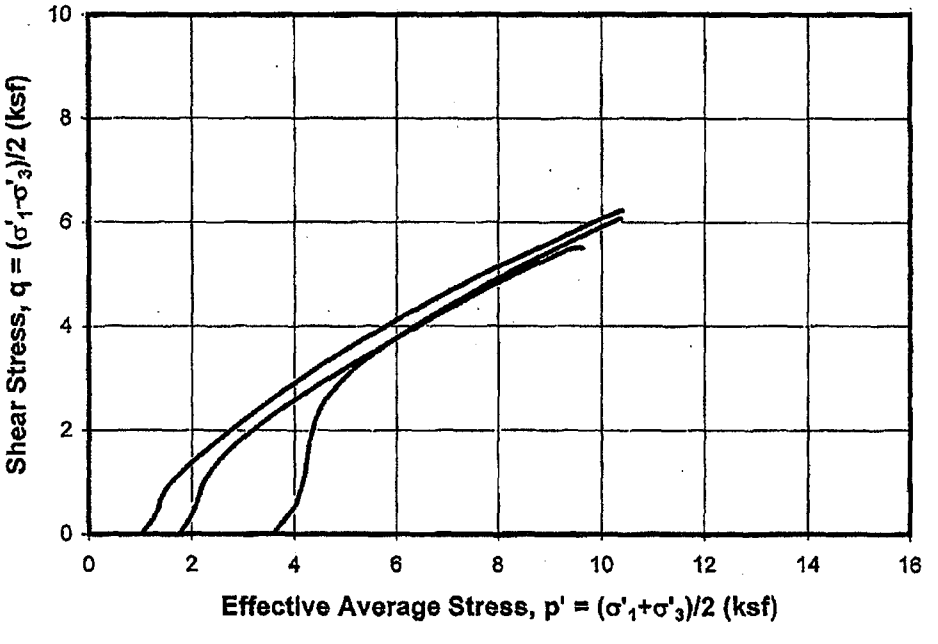




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-1a - Depth: 13.20 ft
Boring B-774

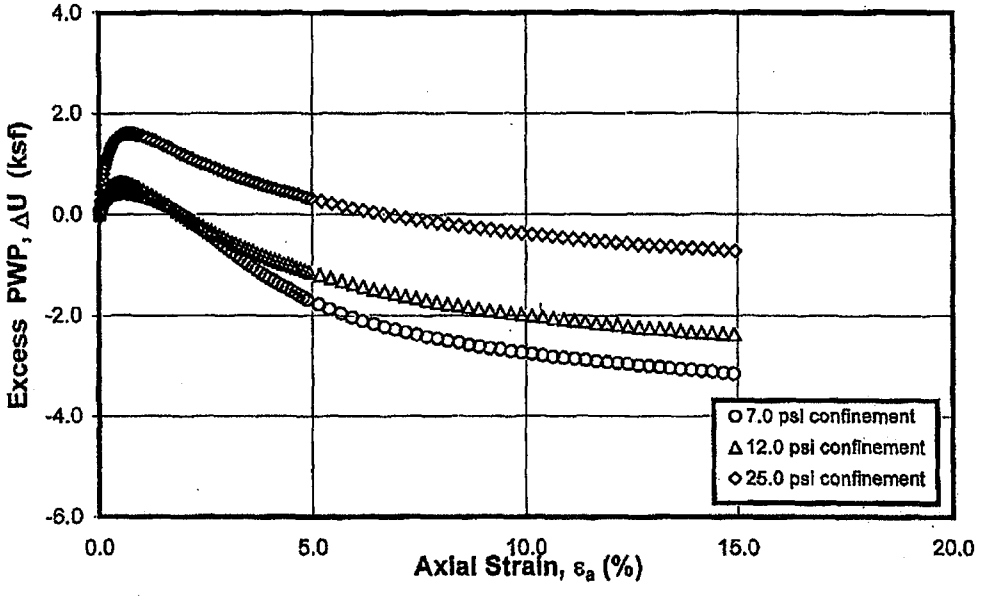
Reviewed By: WJP

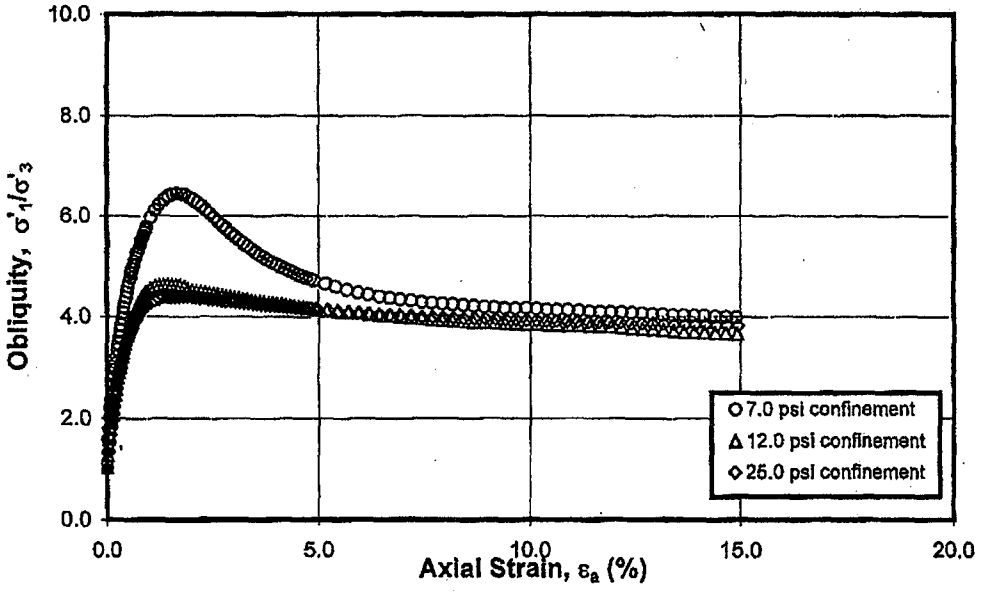




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3a - Depth: 23.20 ft
Boring B-774

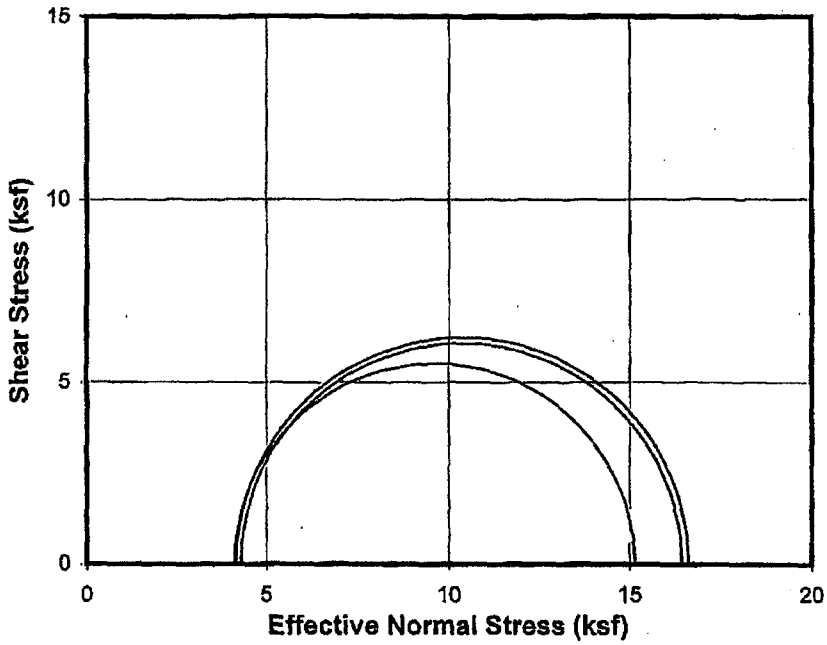
Reviewed By: 10/10

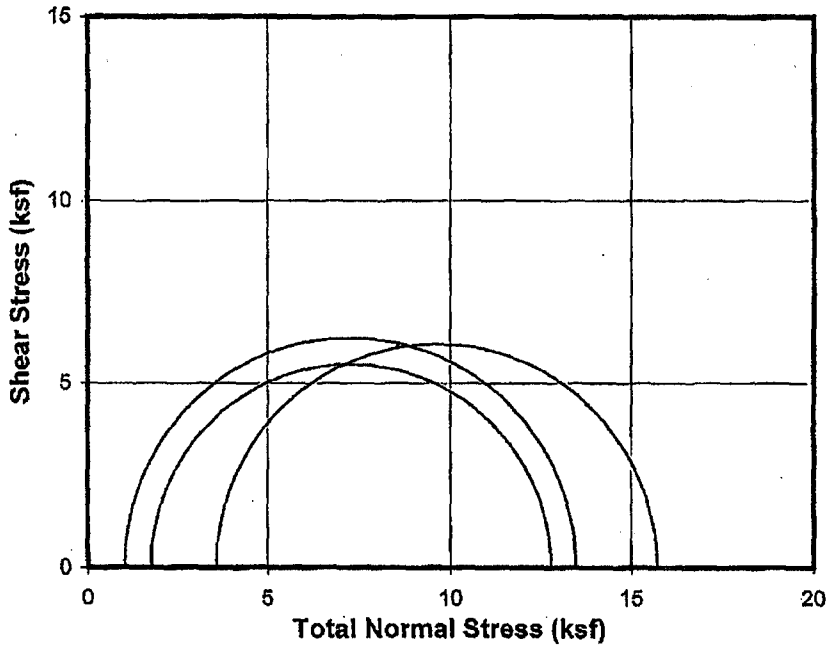




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3a - Depth: 23.20 ft
Boring B-774

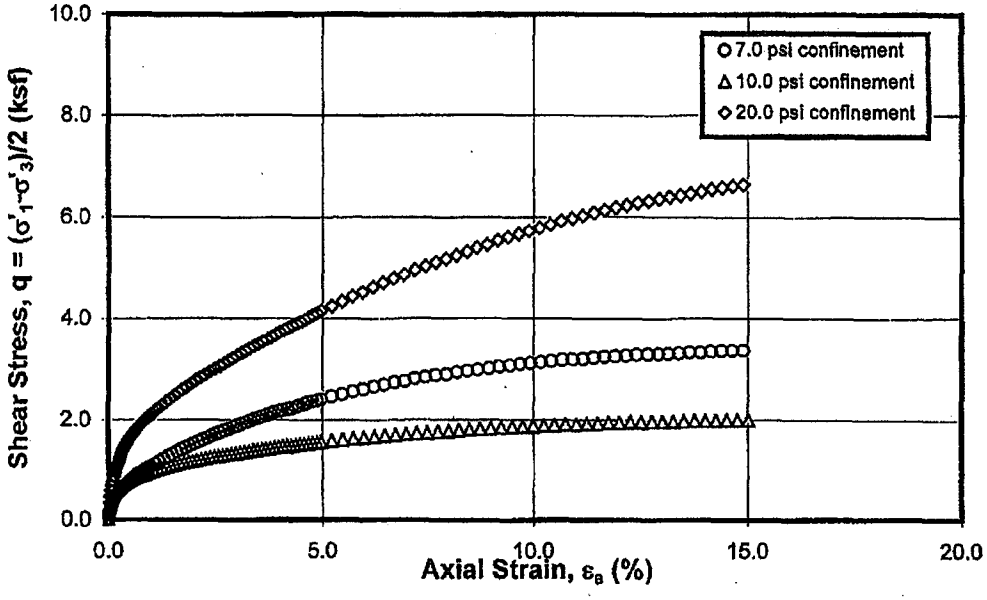
Reviewed By: 10/10

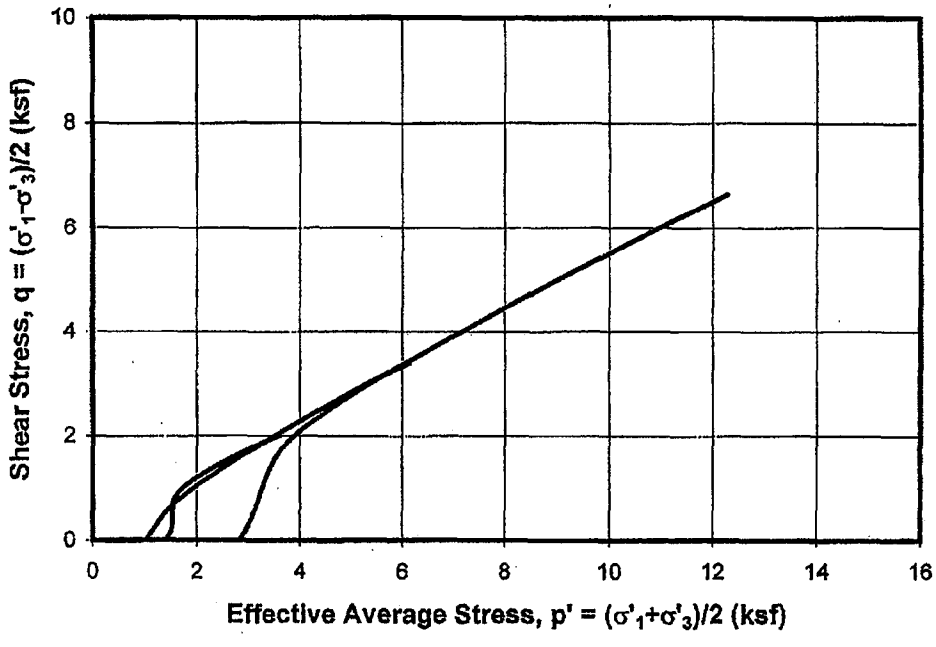




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-3a - Depth: 23.20 ft
Boring B-774

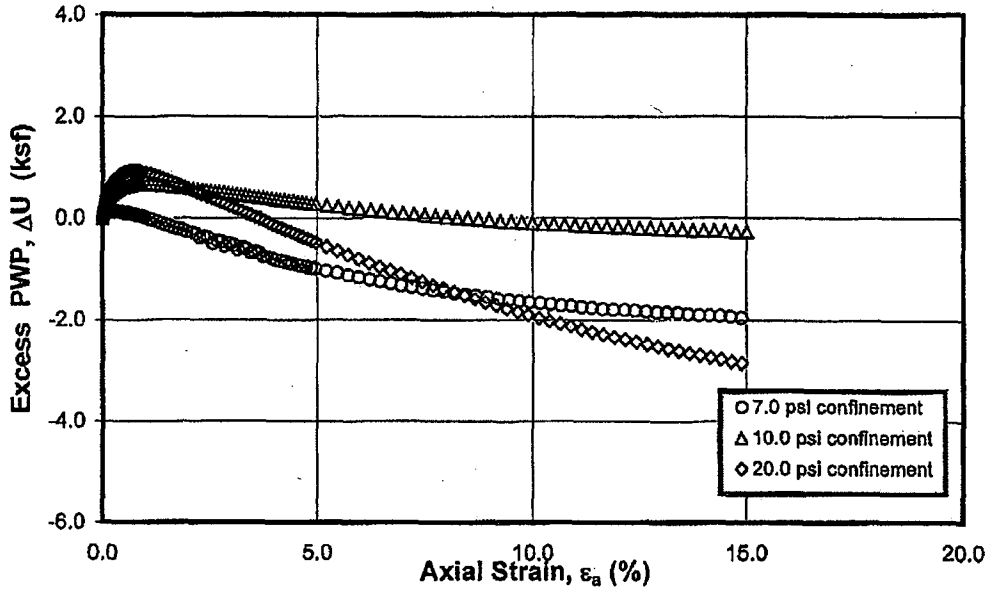
Reviewed By: DJHD

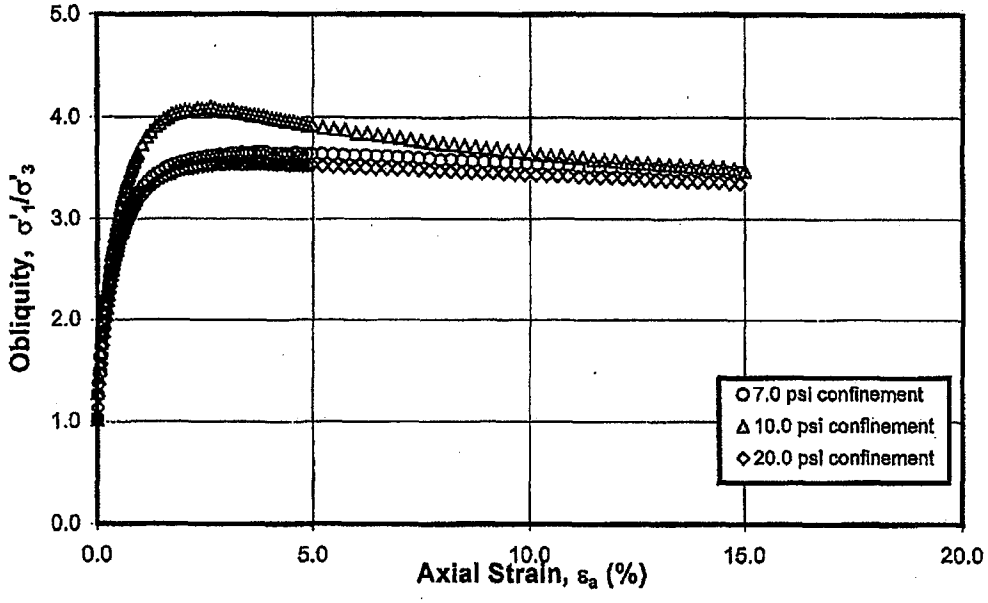




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-2 - Depth: 13.50 ft
Boring B-779

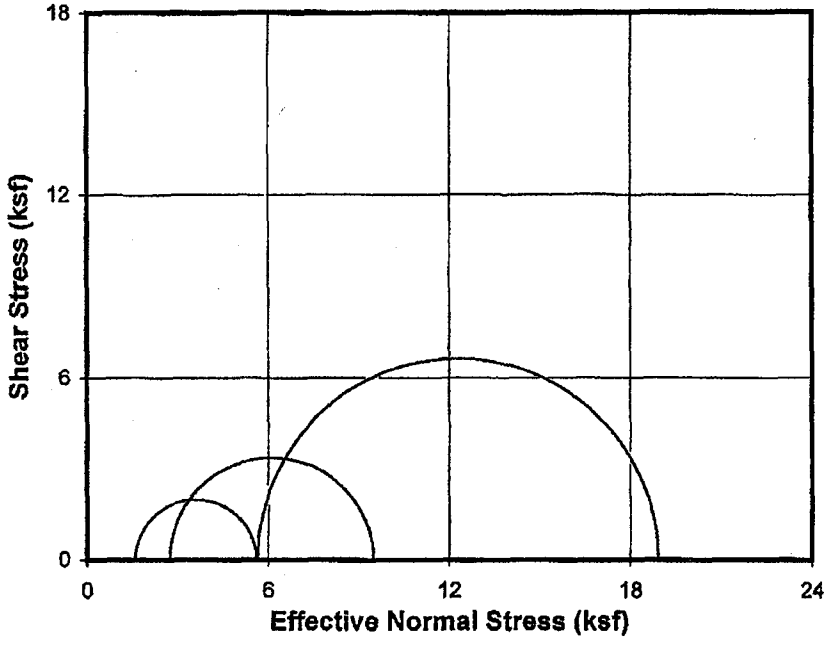
Reviewed By: WFD

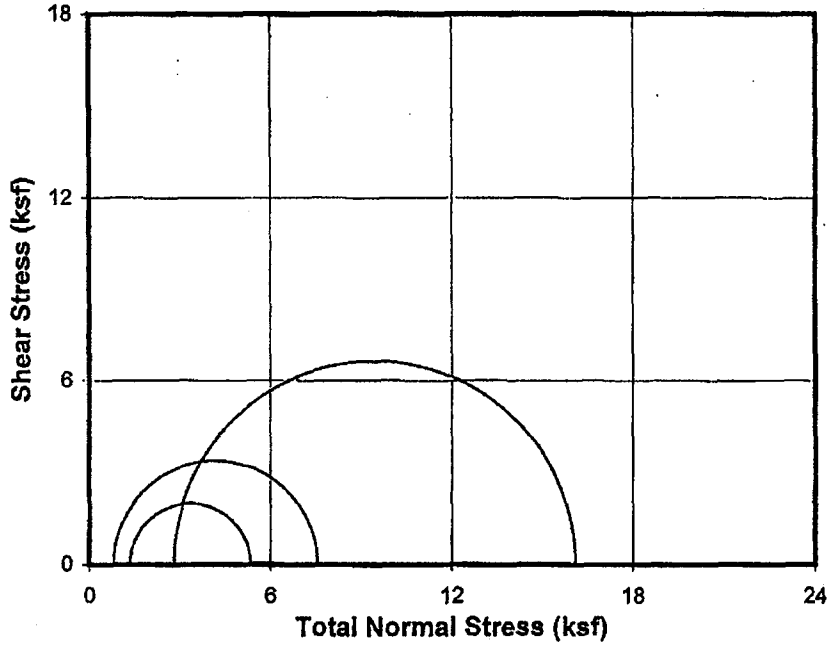




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-2 - Depth: 13.50 ft
Boring B-779

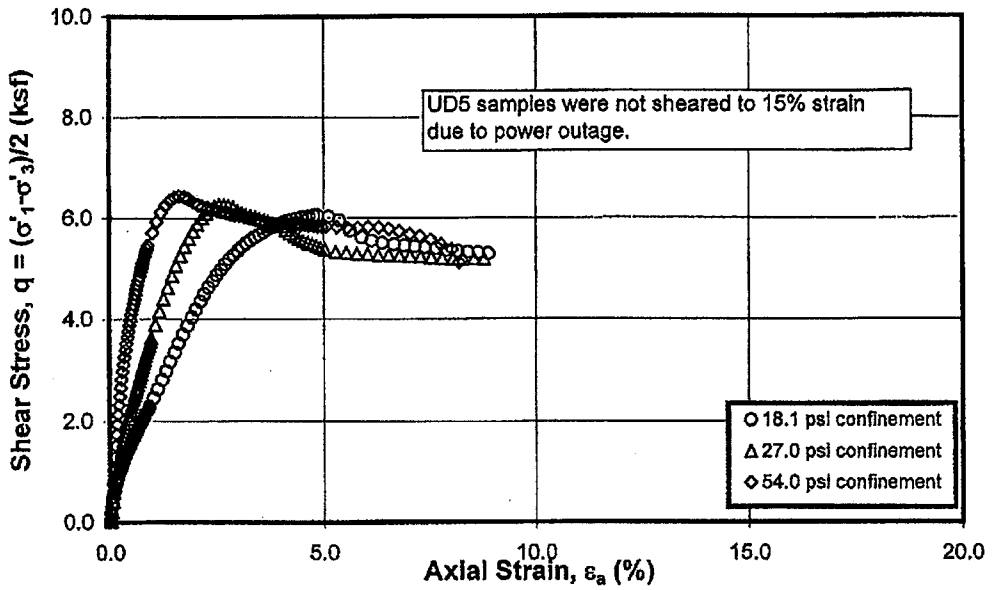
Reviewed By: WLR

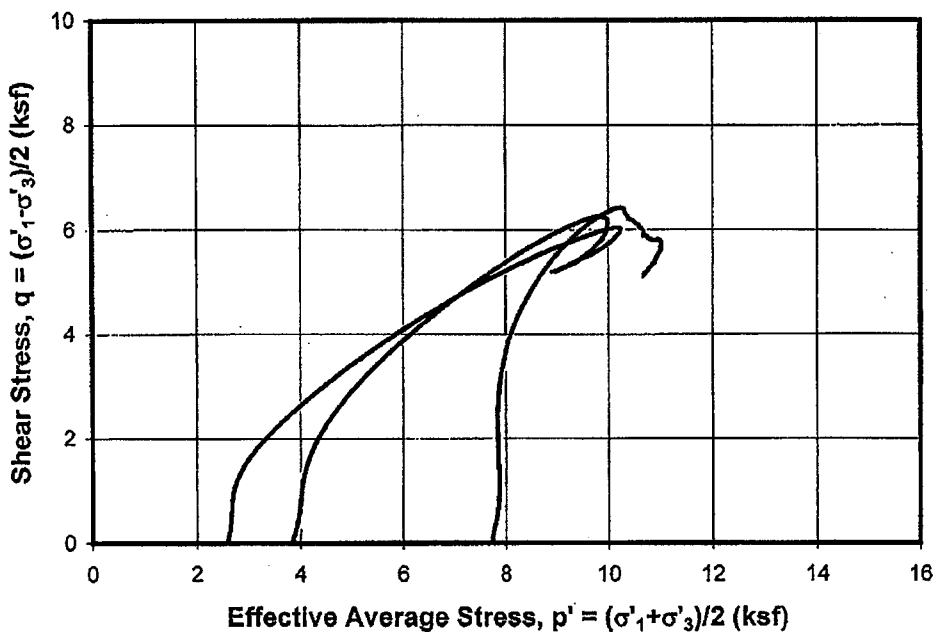




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-2 - Depth: 13.50 ft
Boring B-779

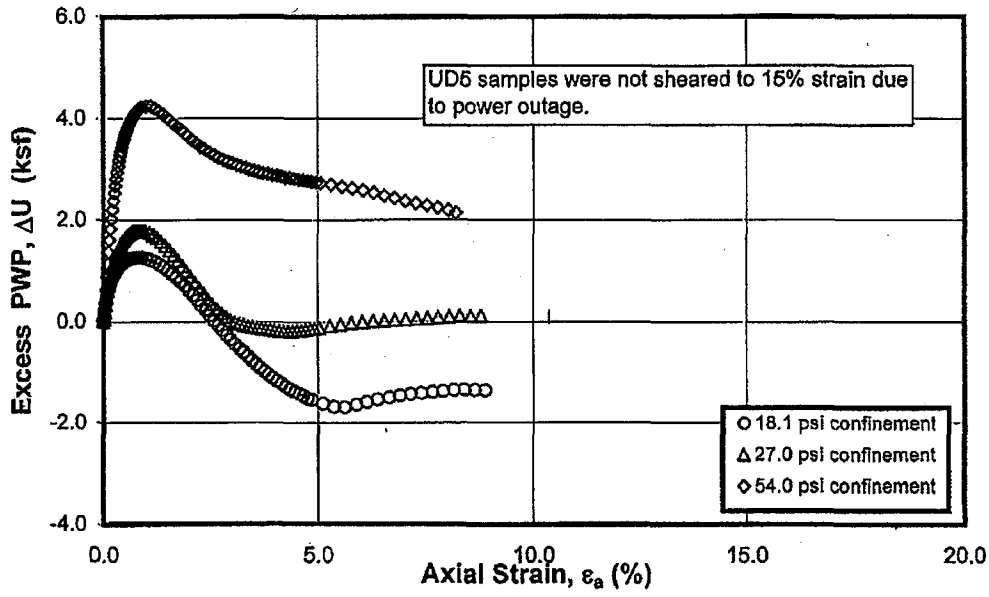
Reviewed By: WFKD

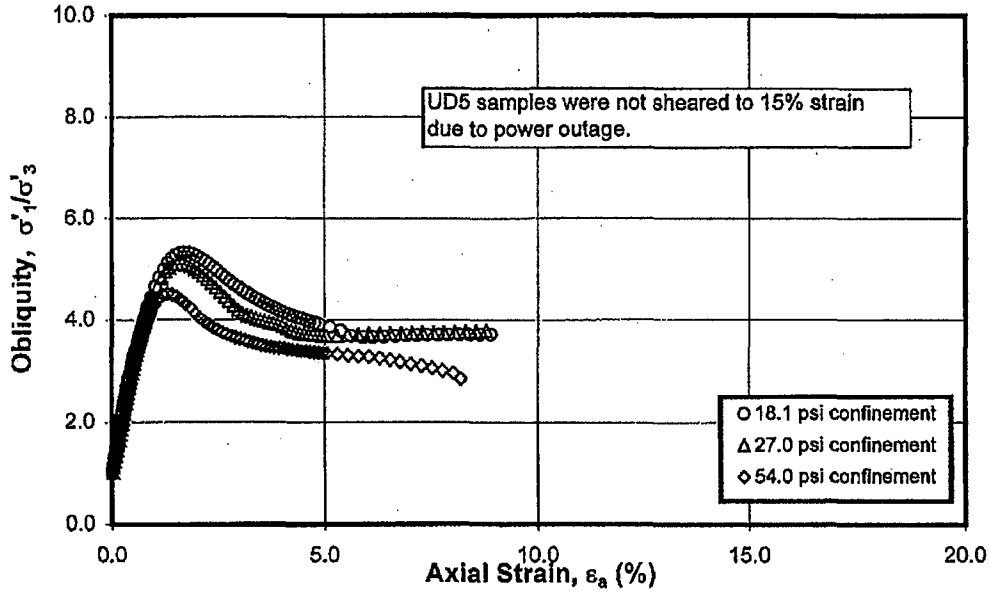




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-5 - Depth: 43.50 ft
Boring B-779

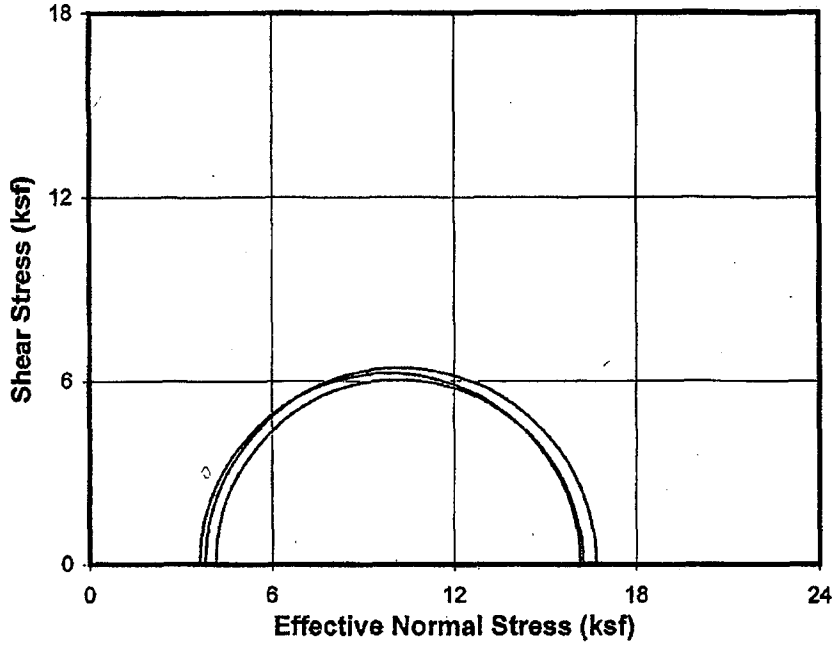
Reviewed By: [illegible]

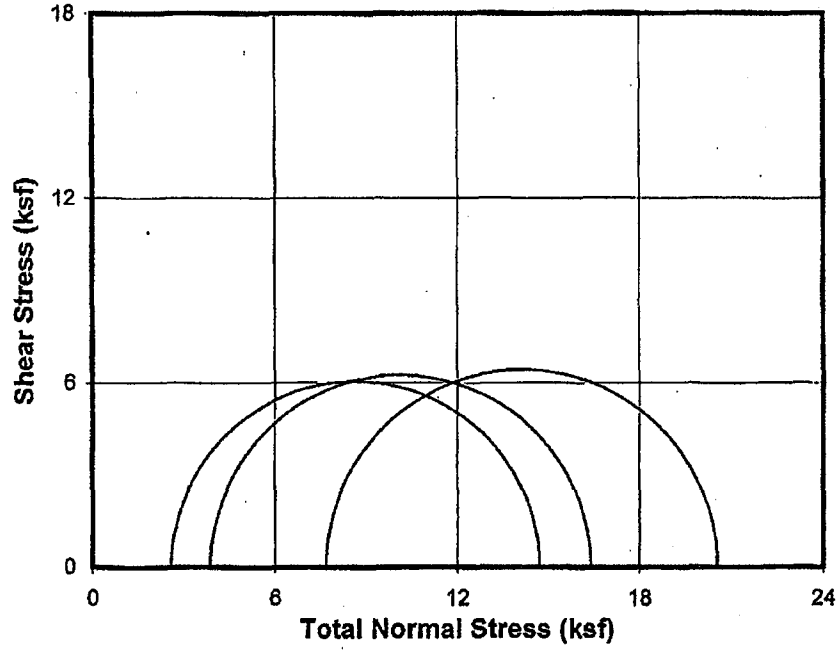




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-5 - Depth: 43.50 ft
Boring B-779

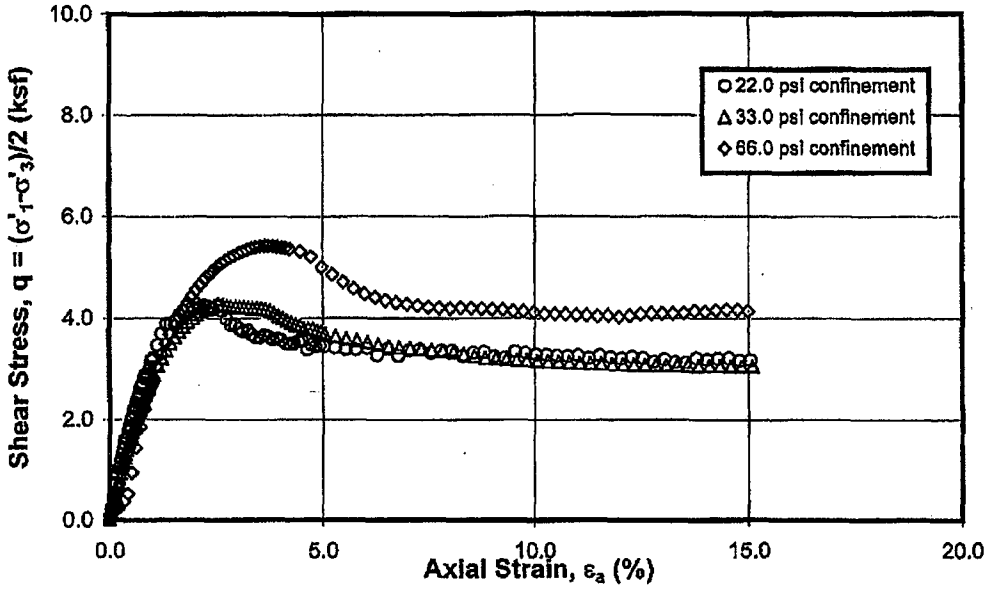
Reviewed By:

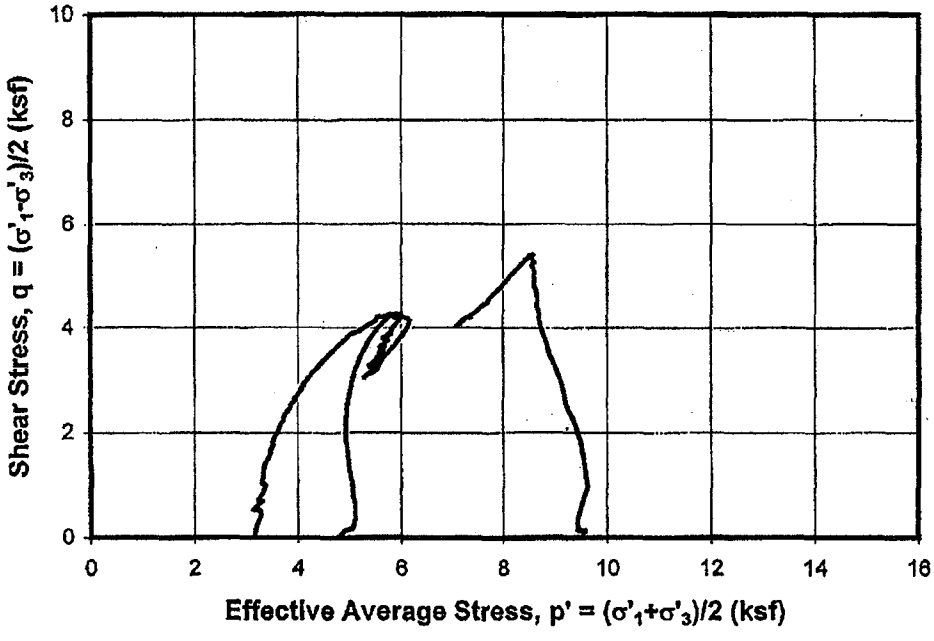




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-5 - Depth: 43.50 ft
Boring B-779

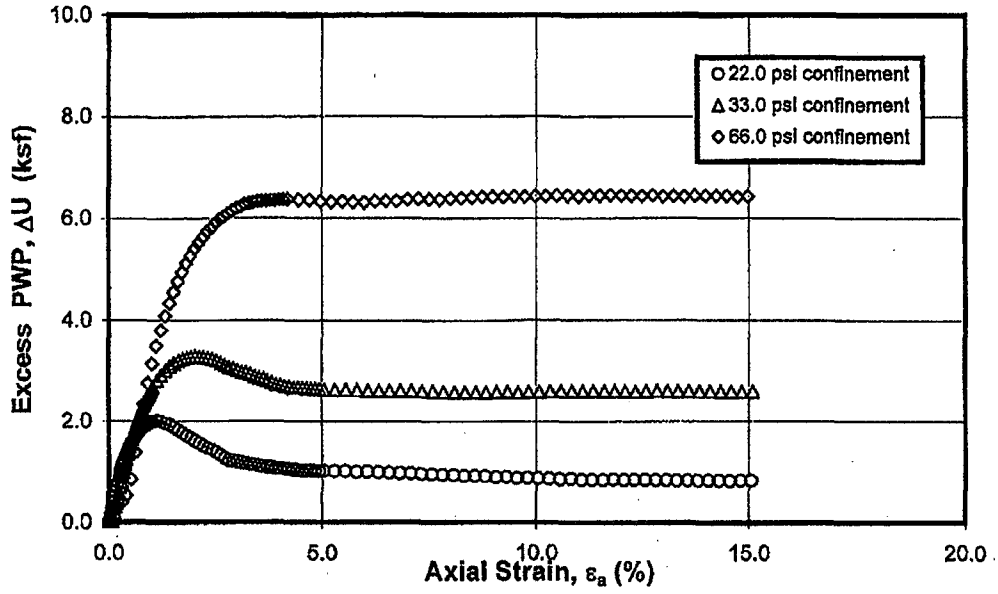
Reviewed By: MMM

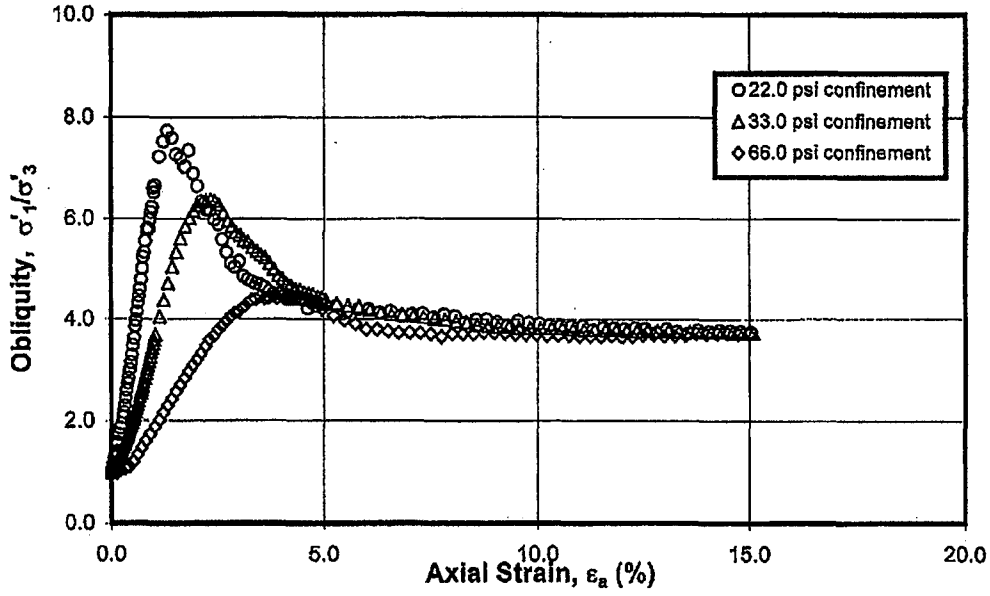




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8 - Depth: 61.38 ft
Boring B-779

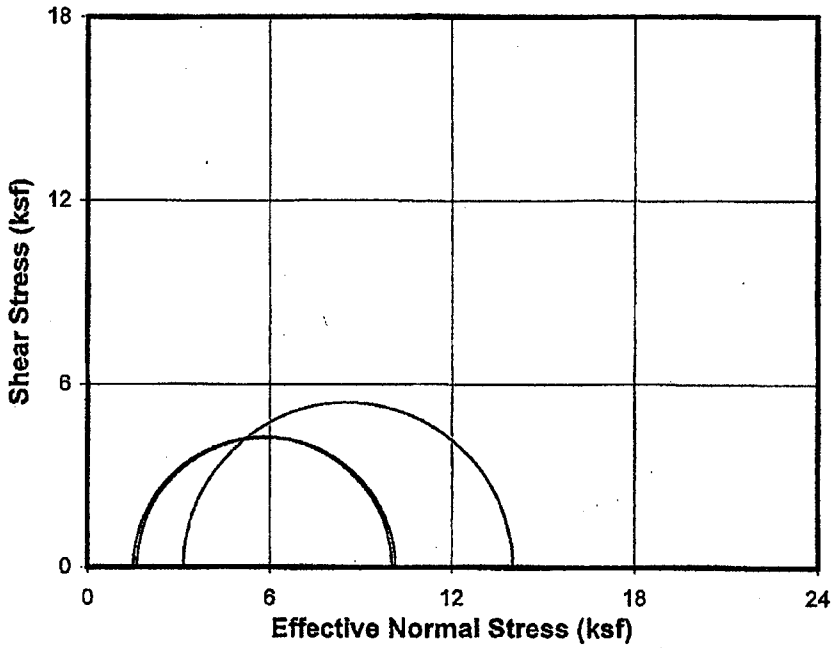
Reviewed By: [illegible]

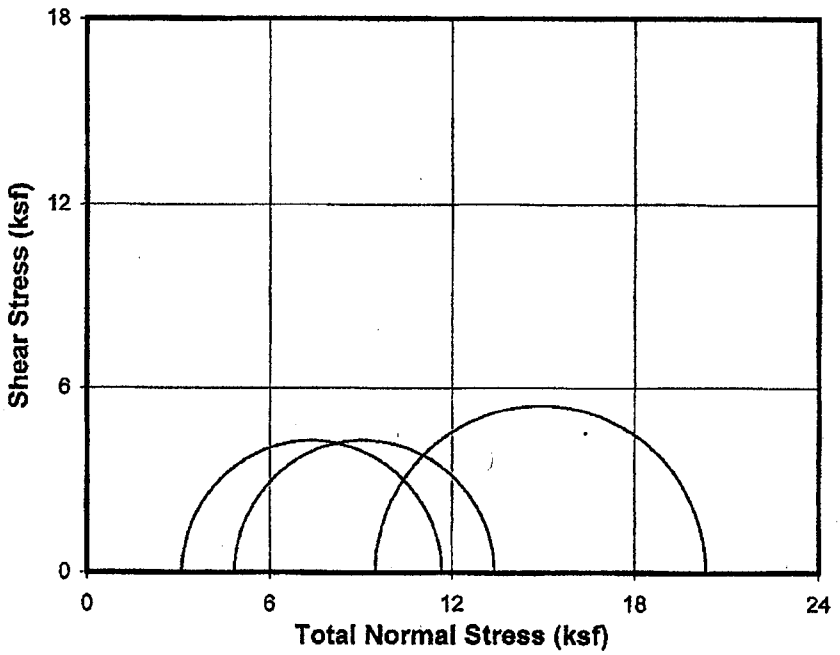




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8 - Depth: 61.38 ft
Boring B-779

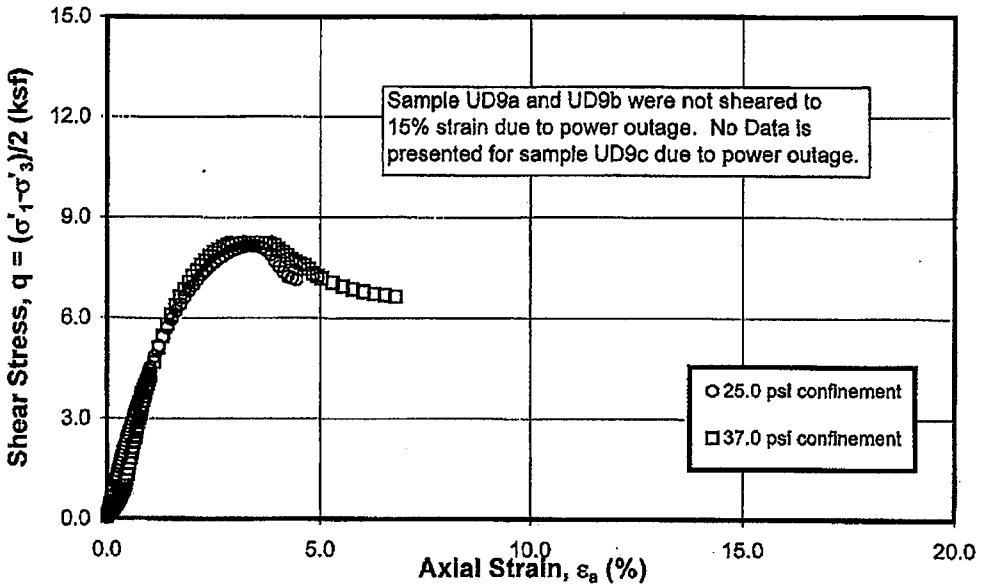
Reviewed By: [illegible]

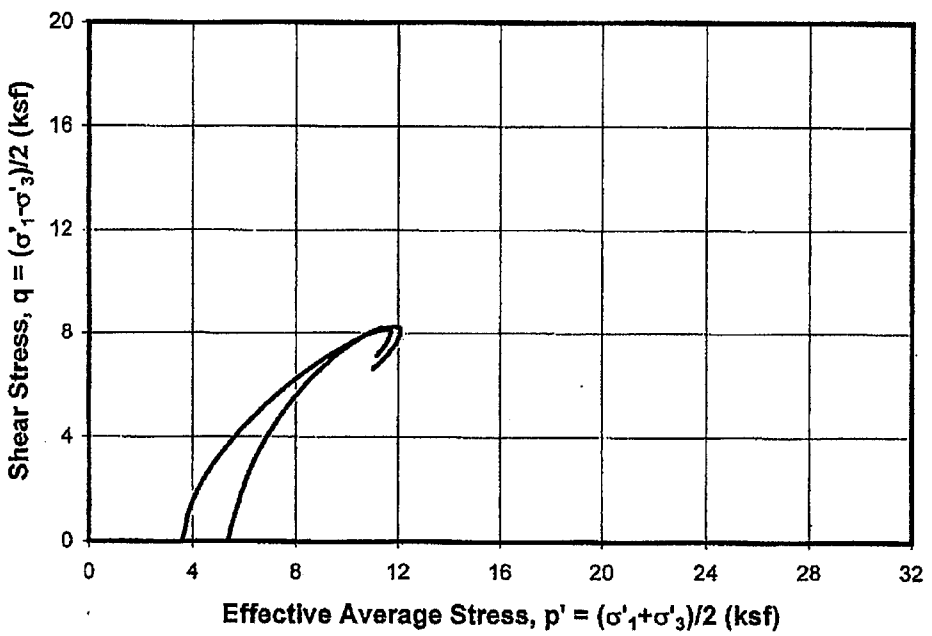




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-8 - Depth: 61.38 ft
Boring B-779

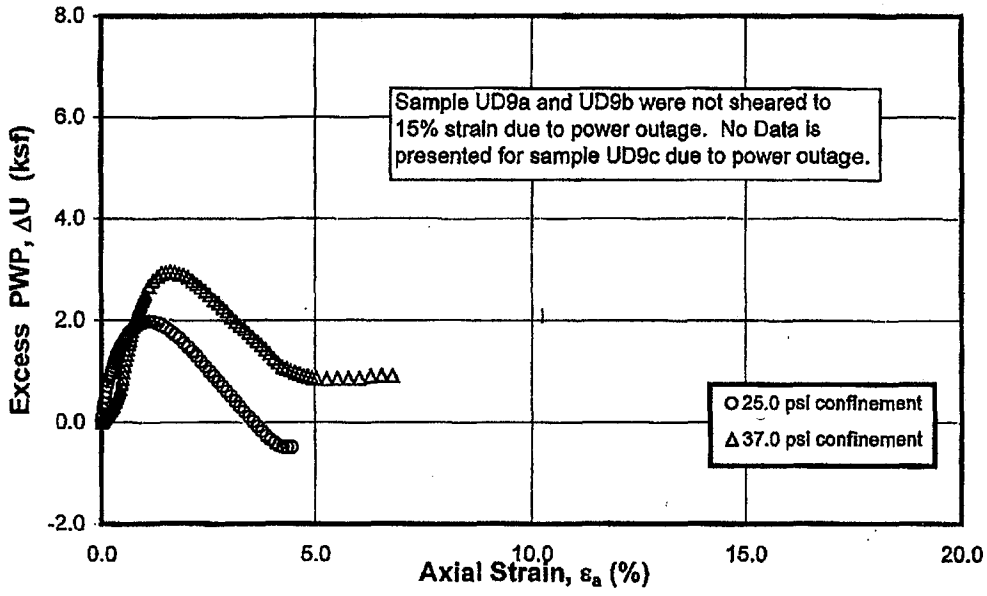
Reviewed By: [illegible]

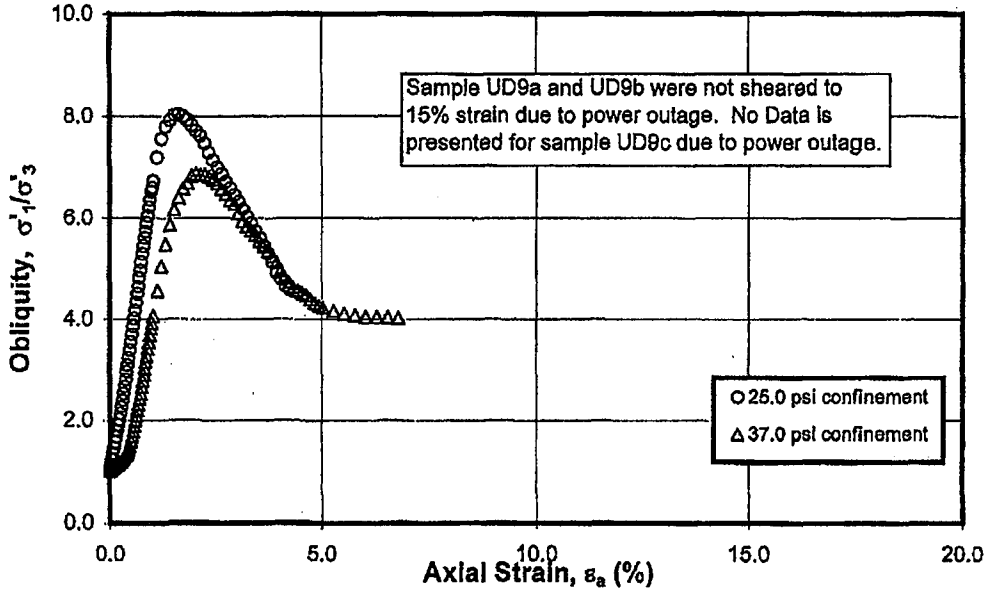




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD9 - Depth: 72.98 ft
Boring B-779

Reviewed By: [illegible]

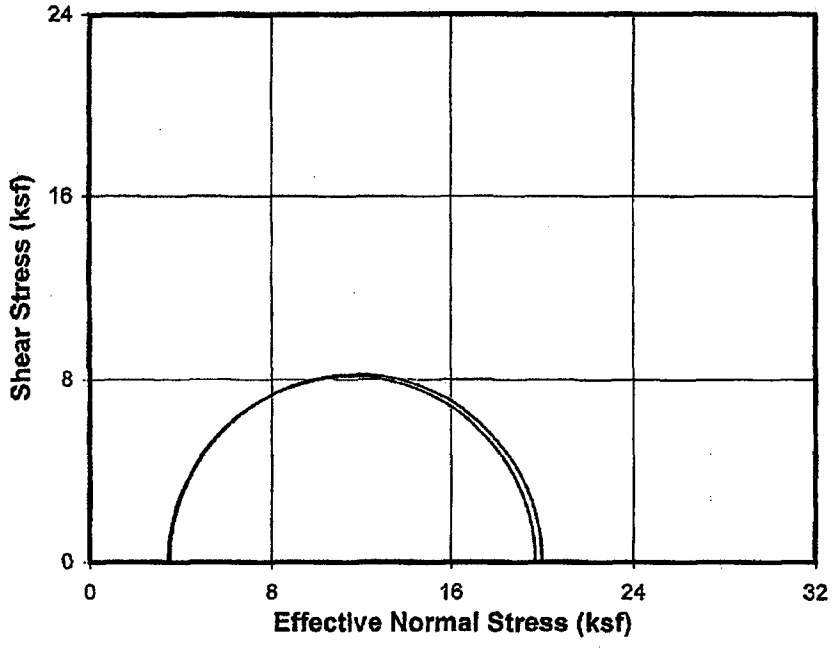


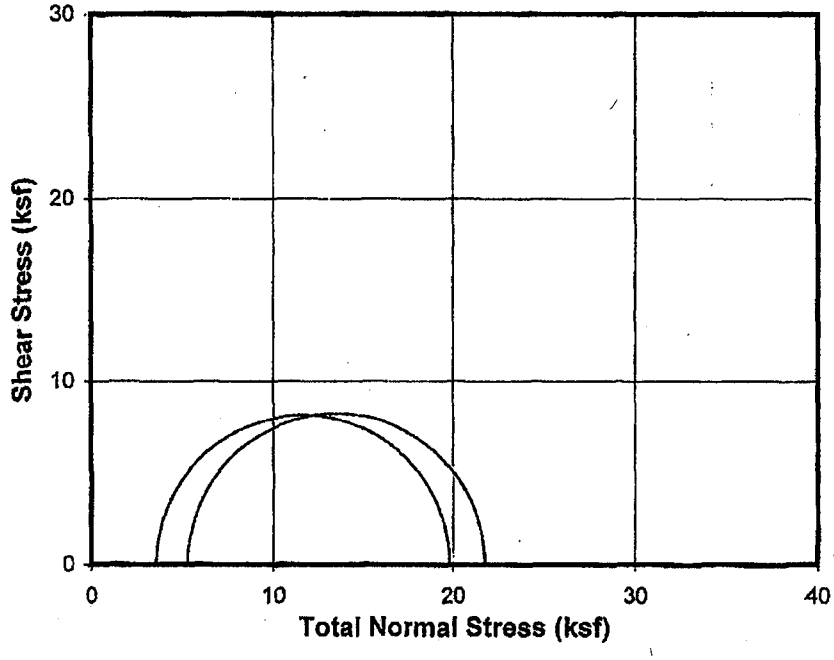


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD9 - Depth: 72.98 ft
Boring B-779

Reviewed By: [illegible]

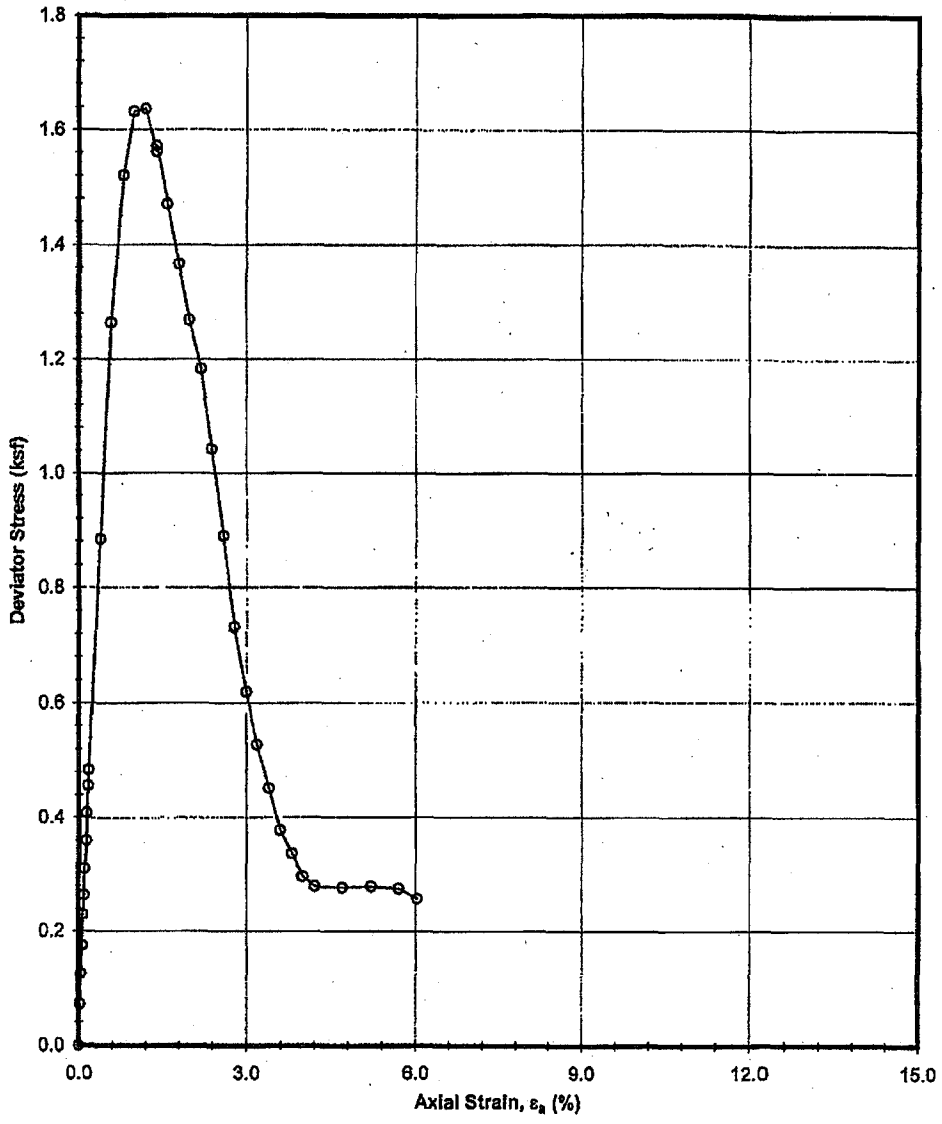
DCN: CALV-050 10-7-09





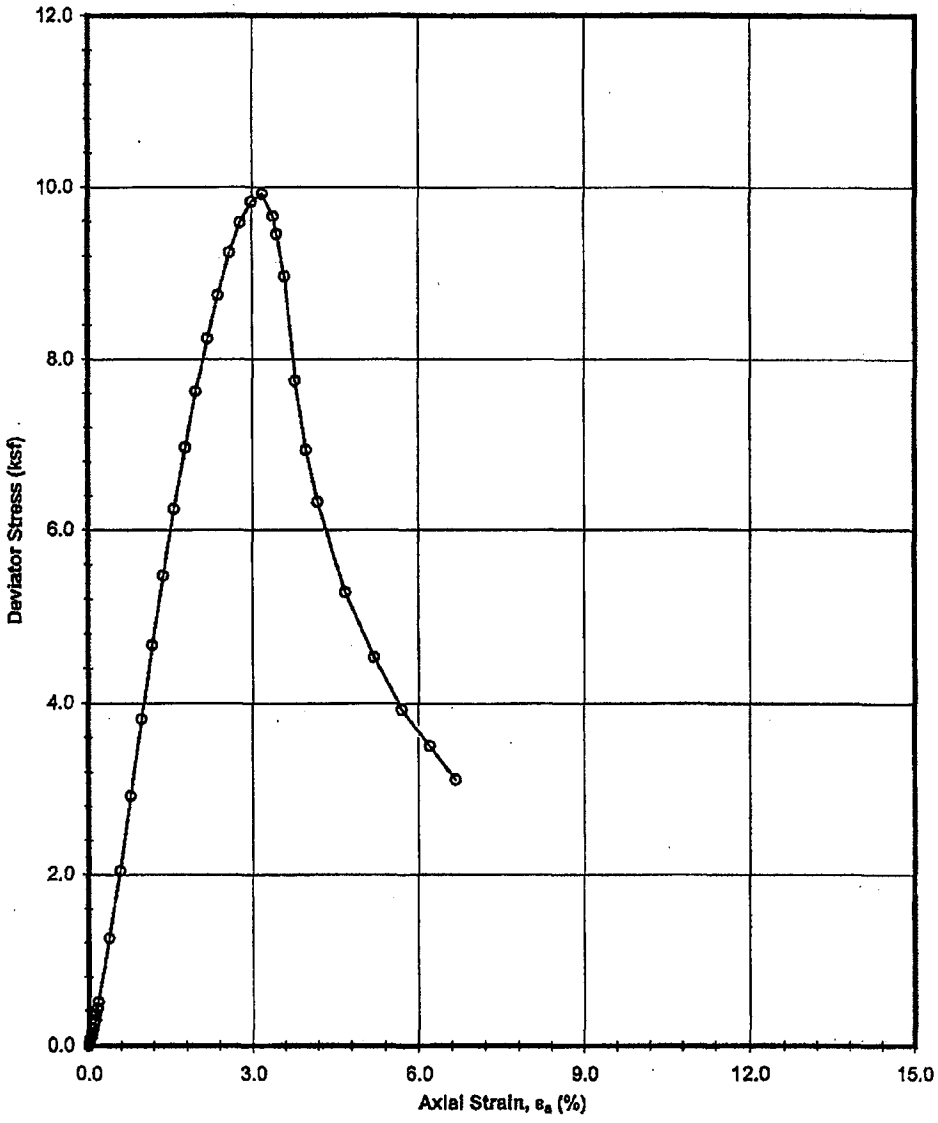
MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD9 - Depth: 72.98 ft
Boring B-779

Reviewed By: [illegible]



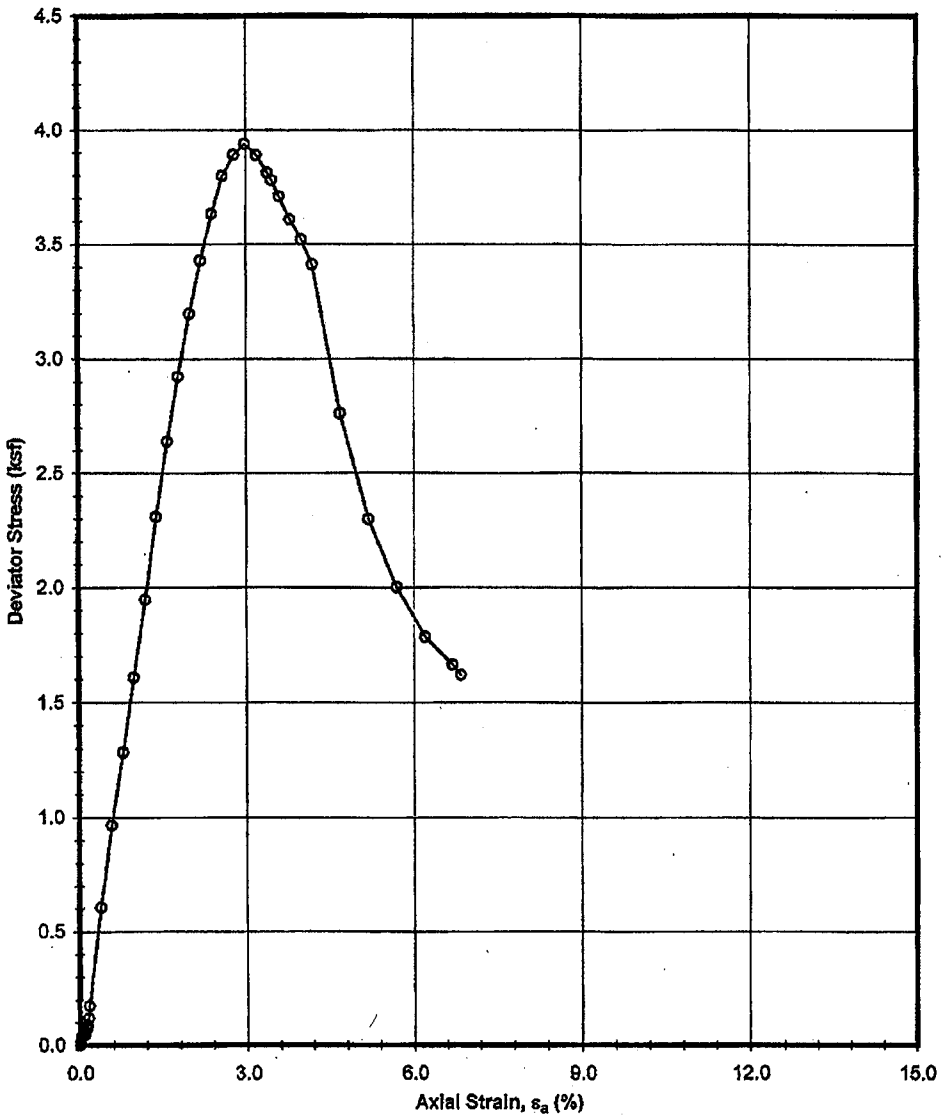
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-2b, Depth 61.05 ft, Confining Pressure = 21 psi



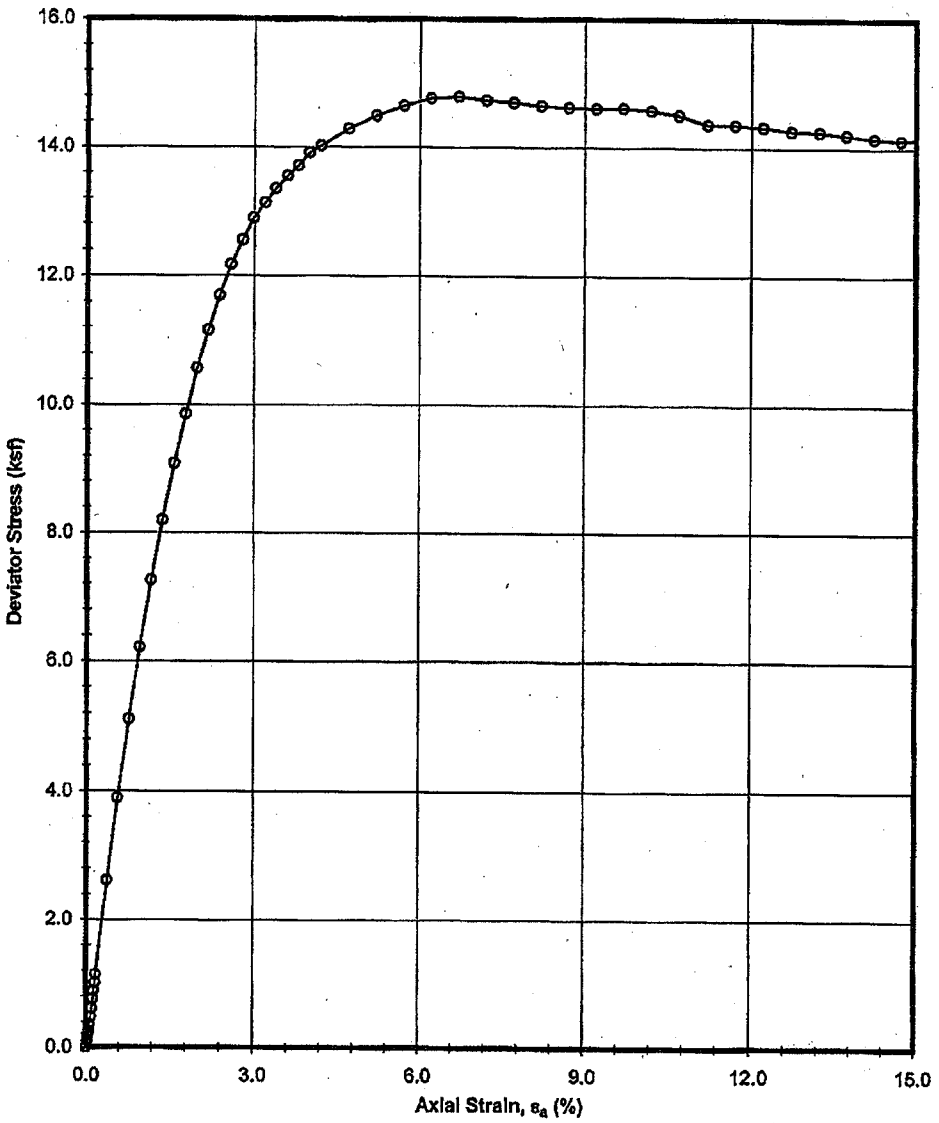
Unconsolidated-Undrained Triaxial Compression Test

oring B-301A, Sample UD-4b, Depth 199.30 ft, Confining Pressure = 54 psi



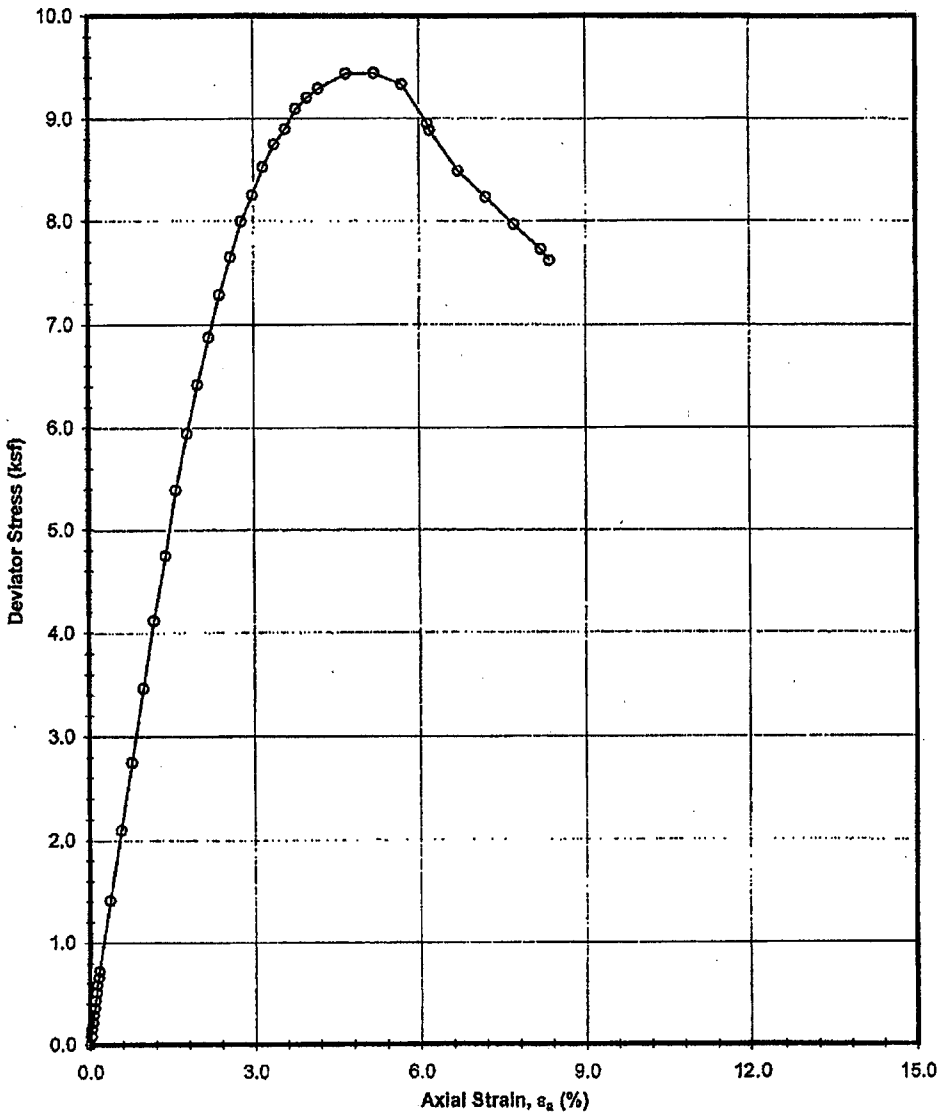
Unconsolidated-Undrained Triaxial Compression Test

oring B-301A, Sample UD-5b, Depth 219.25 ft, Confining Pressure = 58 psi



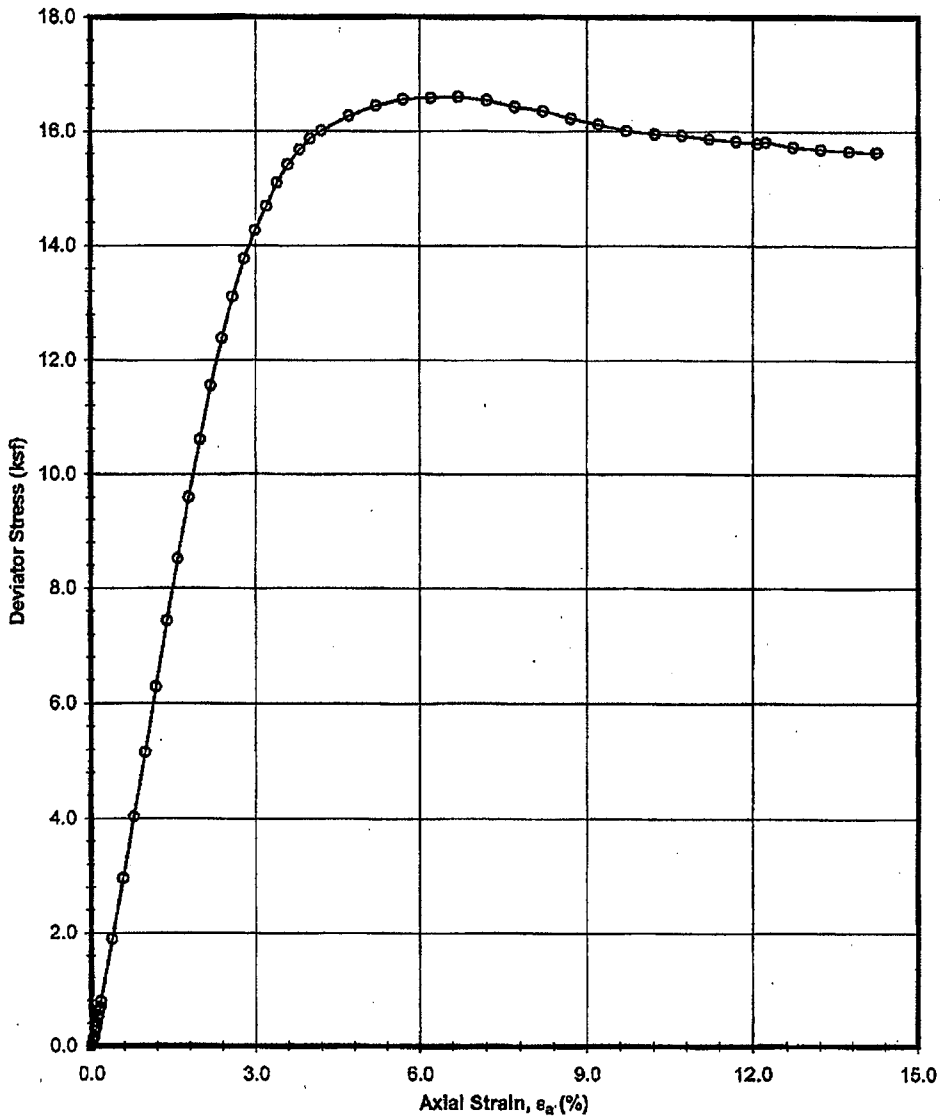
Unconsolidated-Undrained Triaxial Compression Test

ɔring B-301A, Sample UD_6b, Depth 239.25 ft, Confining Pressure = 63 psi



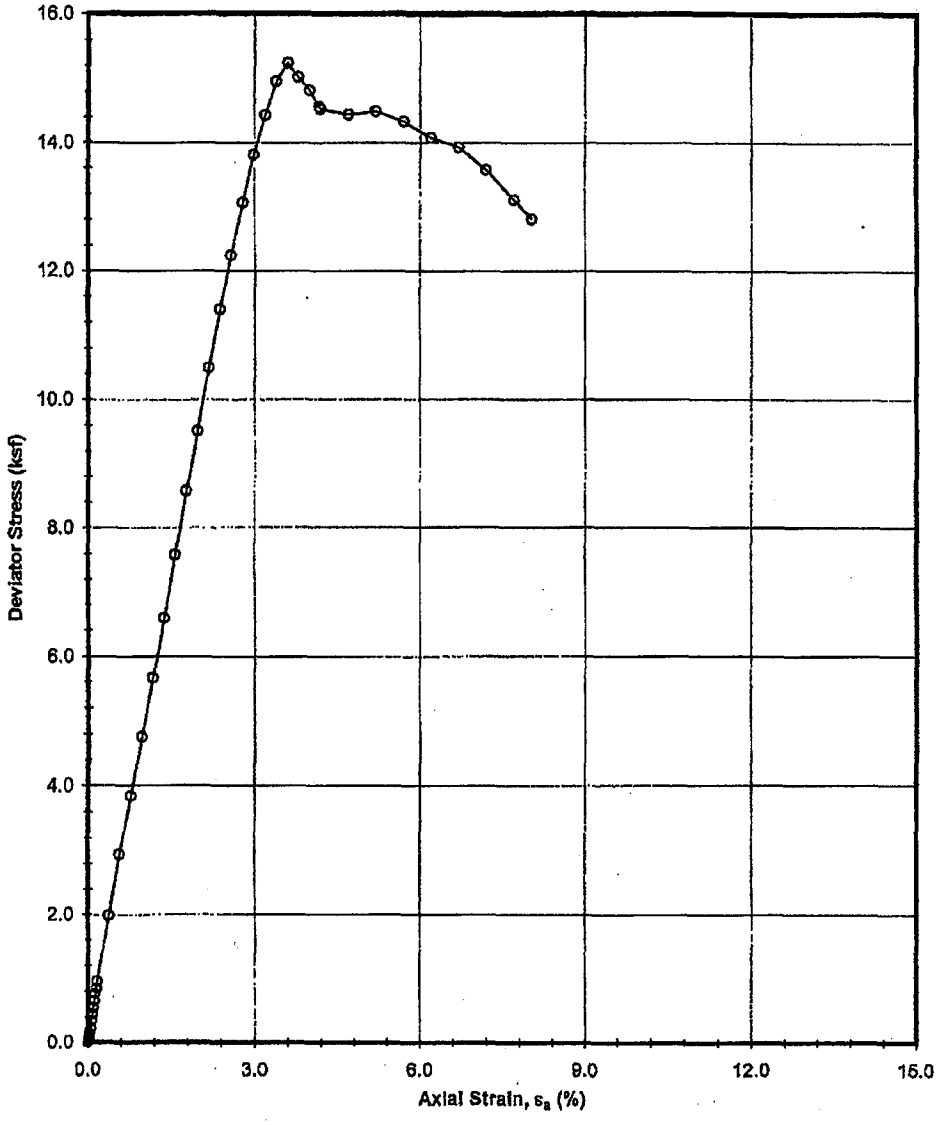
Unconsolidated-Undrained Triaxial Compression Test

oring B-301A, Sample UD-7b, Depth 259.25 ft, Confining Pressure = 67 psi



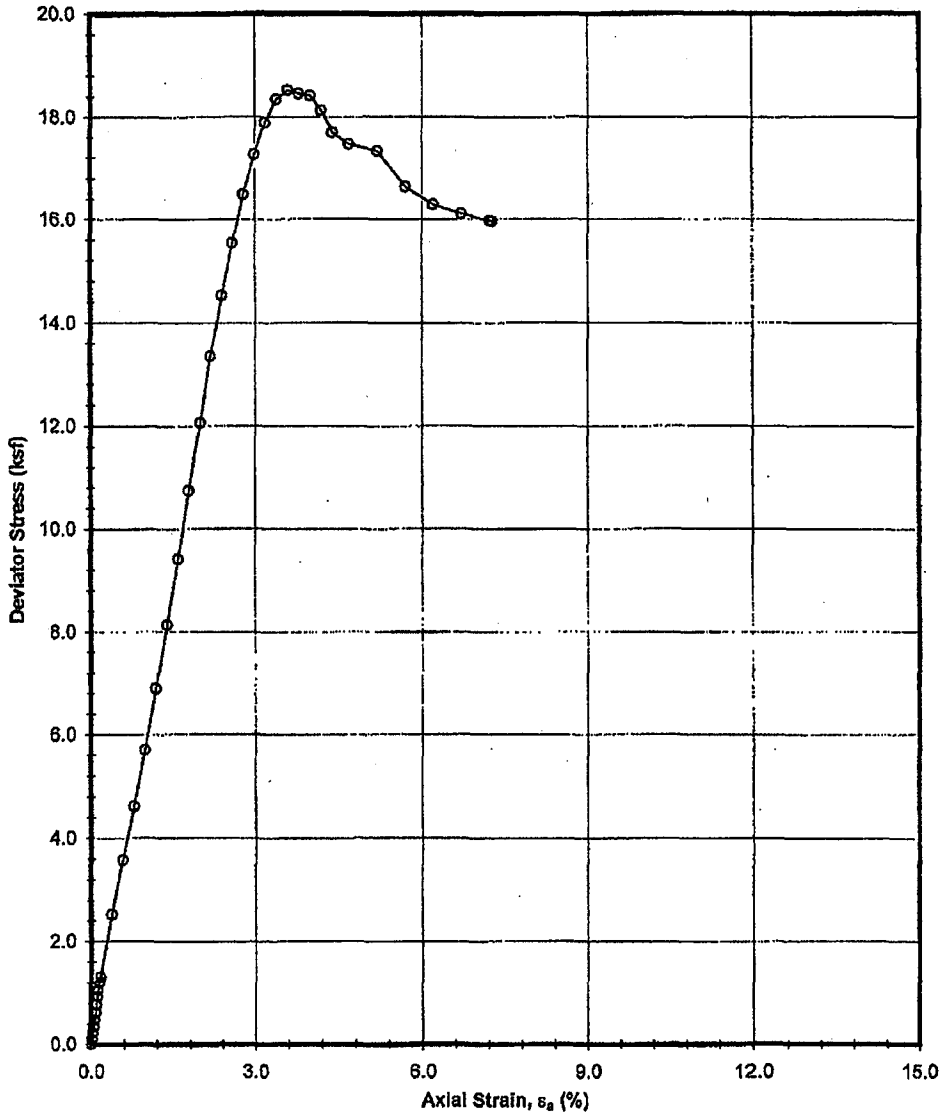
Unconsolidated-Undrained Triaxial Compression Test

oring B-301A, Sample UD-8b, Depth 269.25 ft, Confining Pressure = 70 psi



Unconsolidated-Undrained Triaxial Compression Test

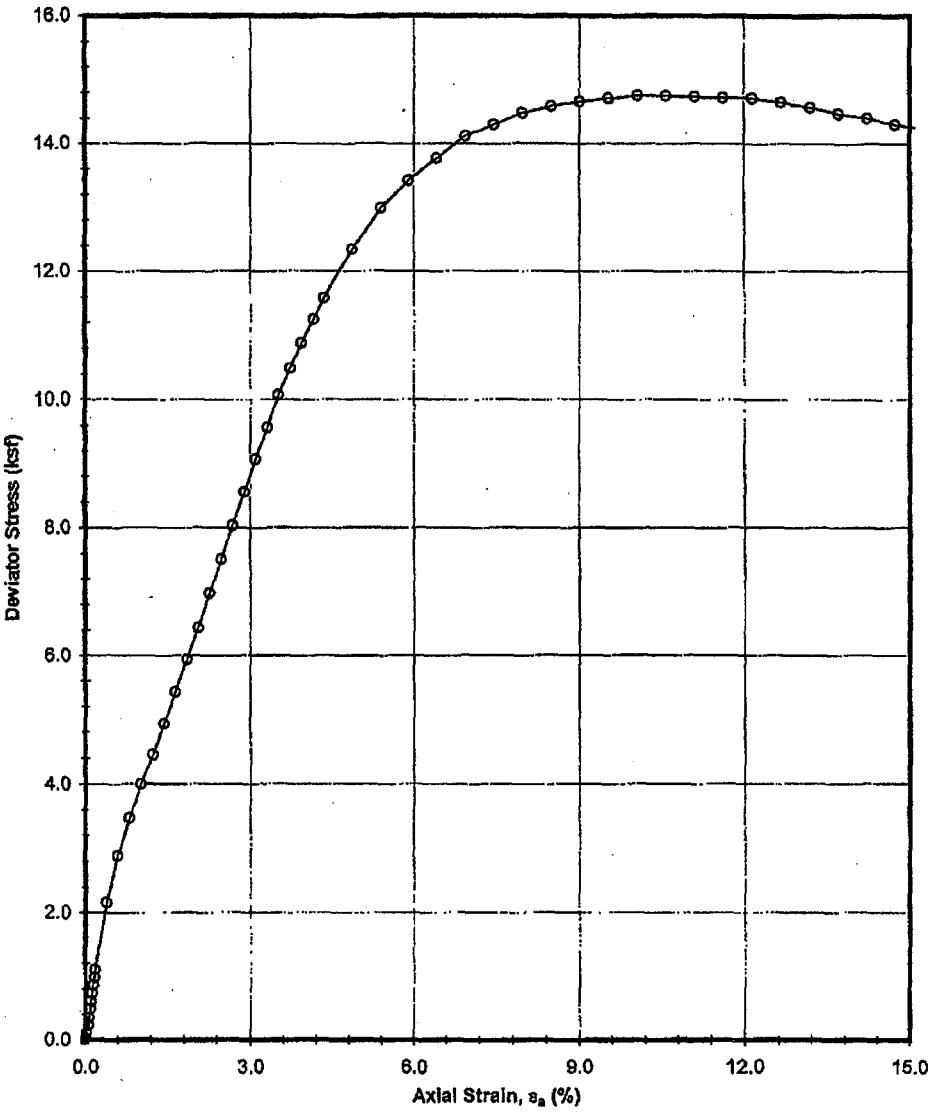
oring B-301A, Sample UD-9b, Depth 279.30 ft, Confining Pressure = 72 psi



Unconsolidated-Undrained Triaxial Compression Test

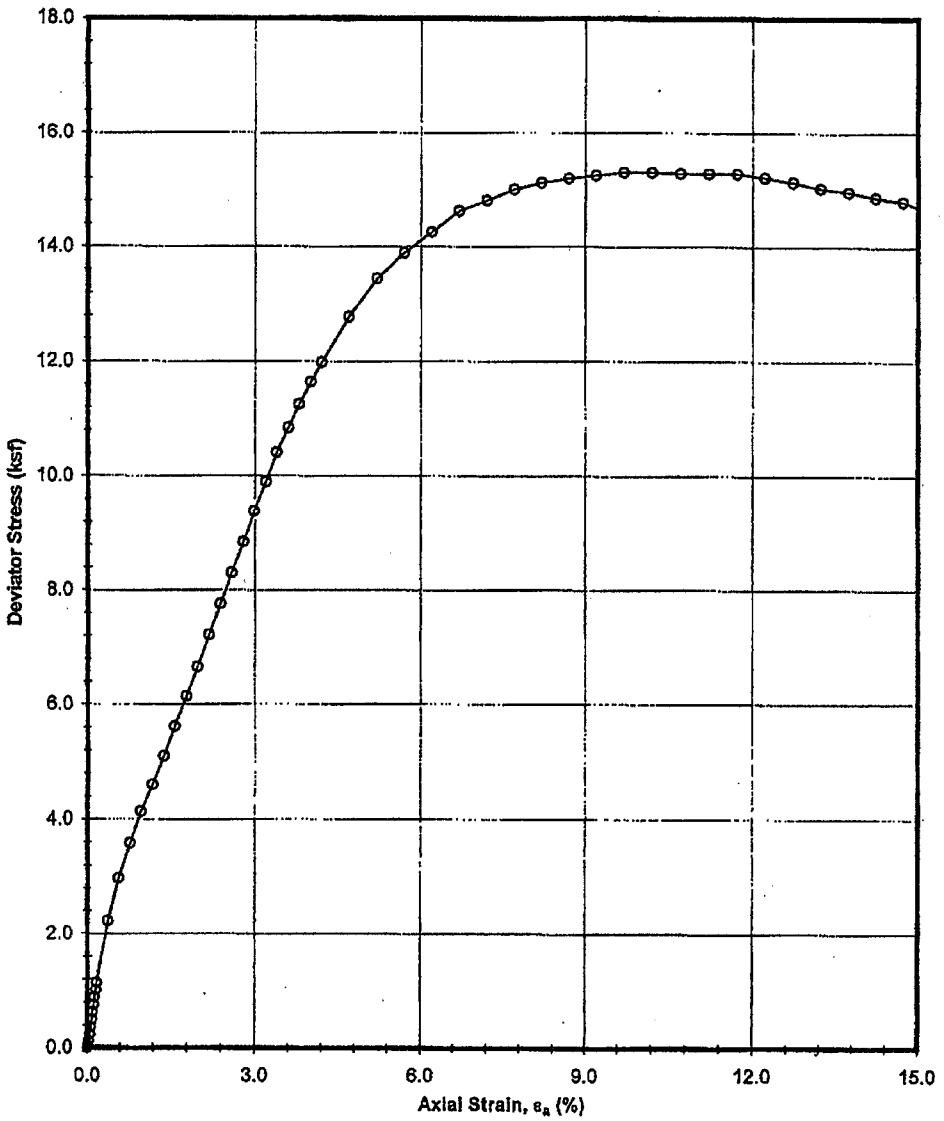
ɔring B-301A, Sample UD-10b, Depth 289.75 ft, Confining Pressure = 74 psi

 10-7-02



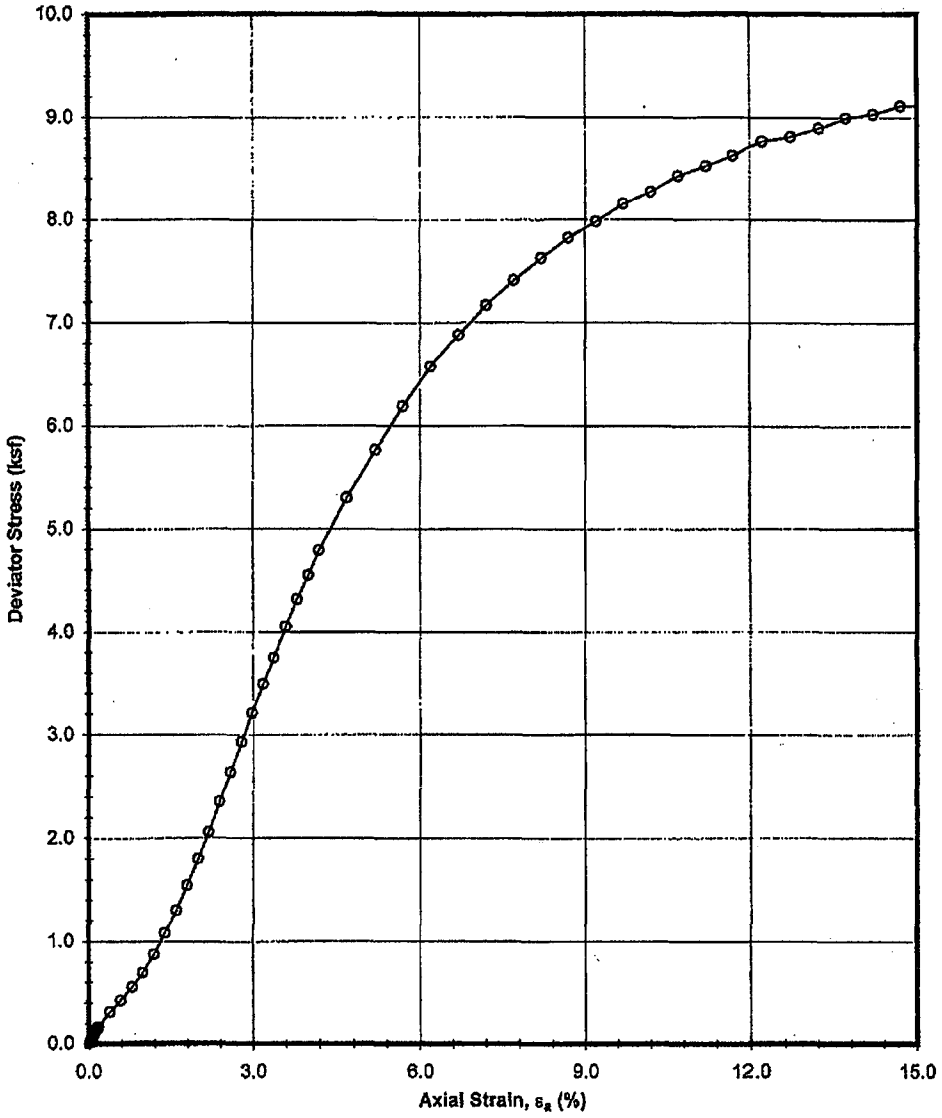
Unconsolidated-Undrained Triaxial Compression Test

›ring B-301A, Sample UD-11b, Depth 299.75 ft, Confining Pressure = 77 psi



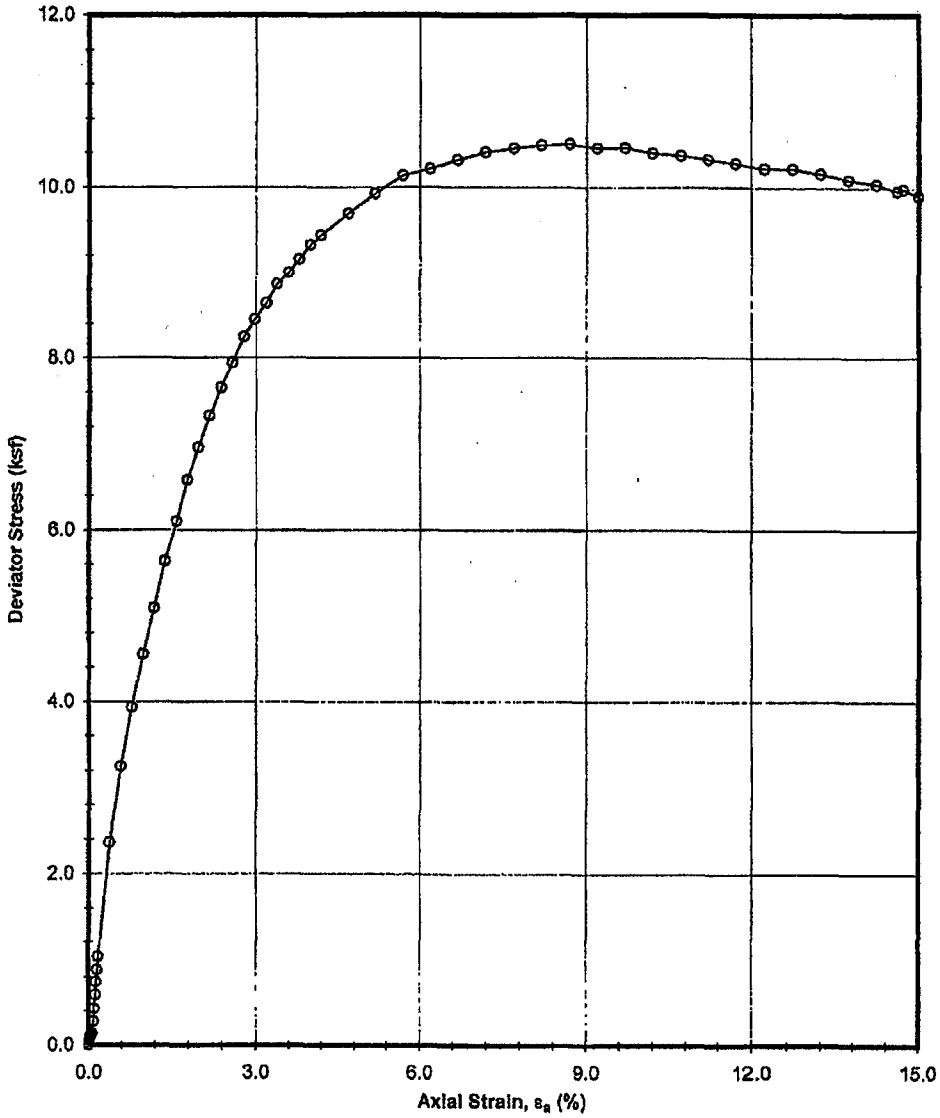
Unconsolidated-Undrained Triaxial Compression Test

›ring B-301A, Sample UD-12b, Depth 309.75 ft, Confining Pressure = 79 psi



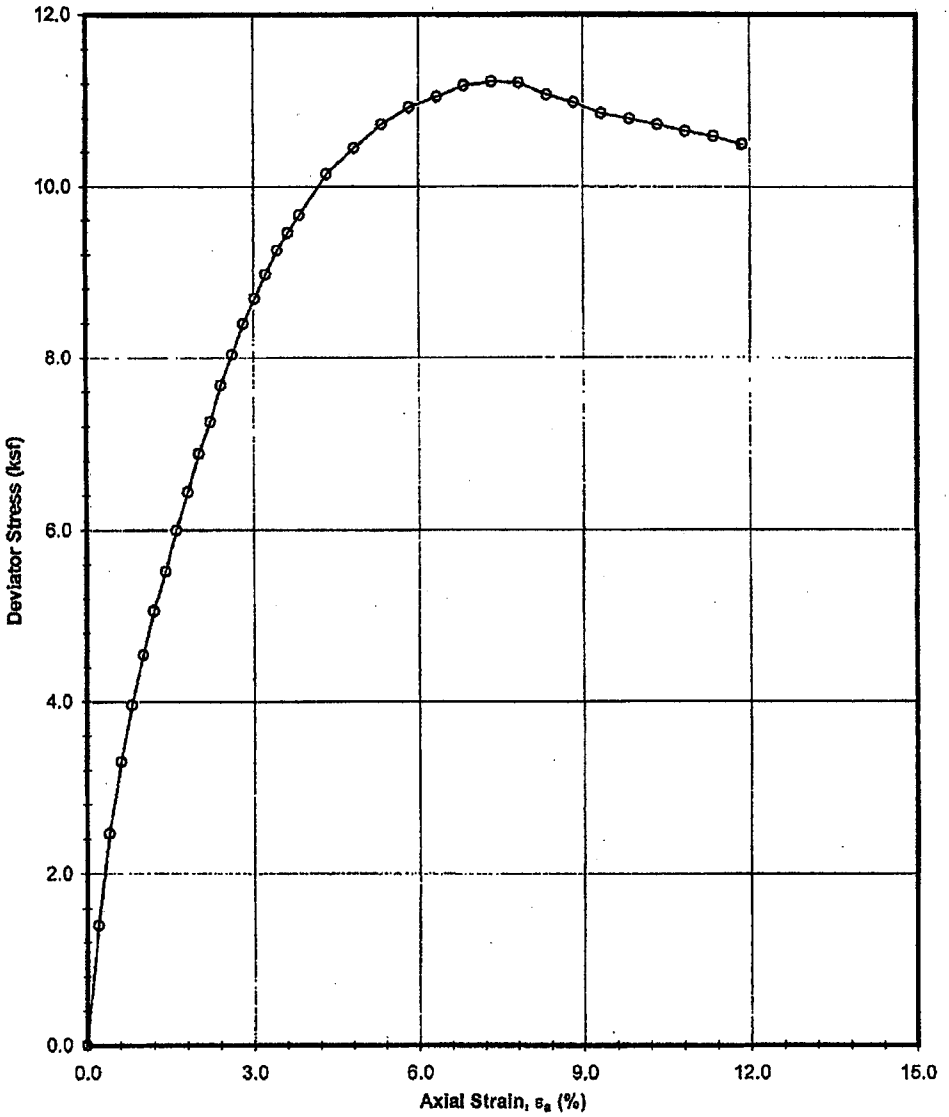
Unconsolidated-Undrained Triaxial Compression Test

›ring B-301A, Sample UD-13b, Depth 319.70 ft, Confining Pressure = 81 psi



Unconsolidated-Undrained Triaxial Compression Test

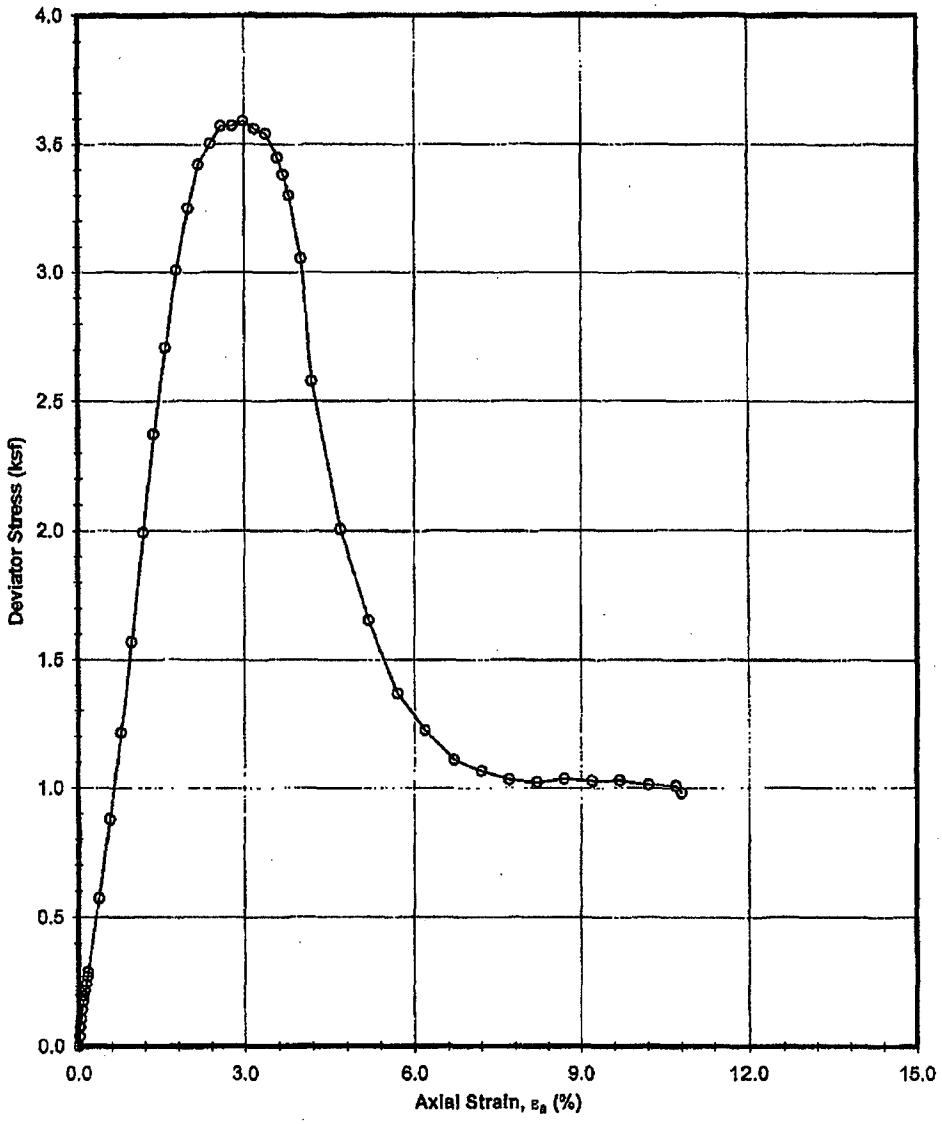
ıring B-301A, Sample UD_14b, Depth 329.75 ft, Confining Pressure = 84 psi



Unconsolidated-Undrained Triaxial Compression Test

ıring B-301A, Sample UD_15b, Depth 339.70 ft, Confining Pressure = 87 psi

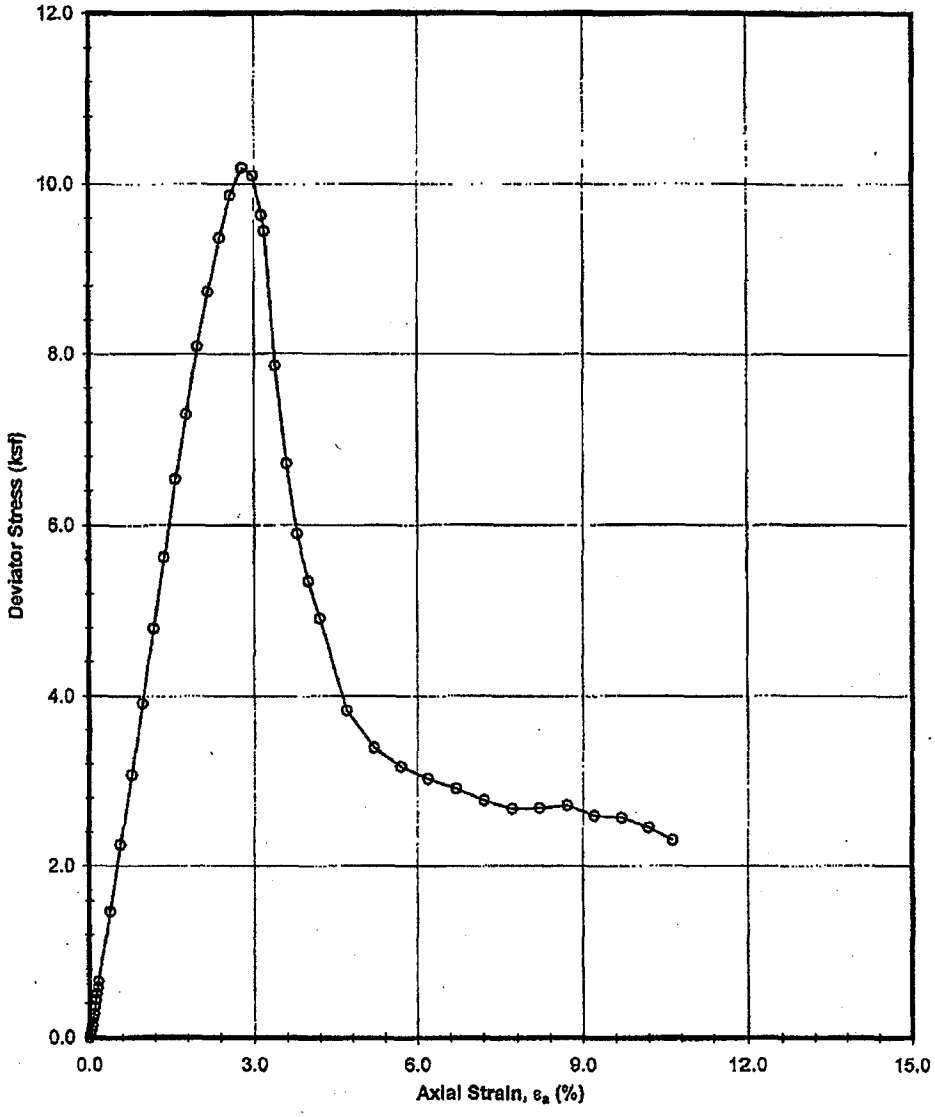
M 10-7-02



Unconsolidated-Undrained Triaxial Compression Test

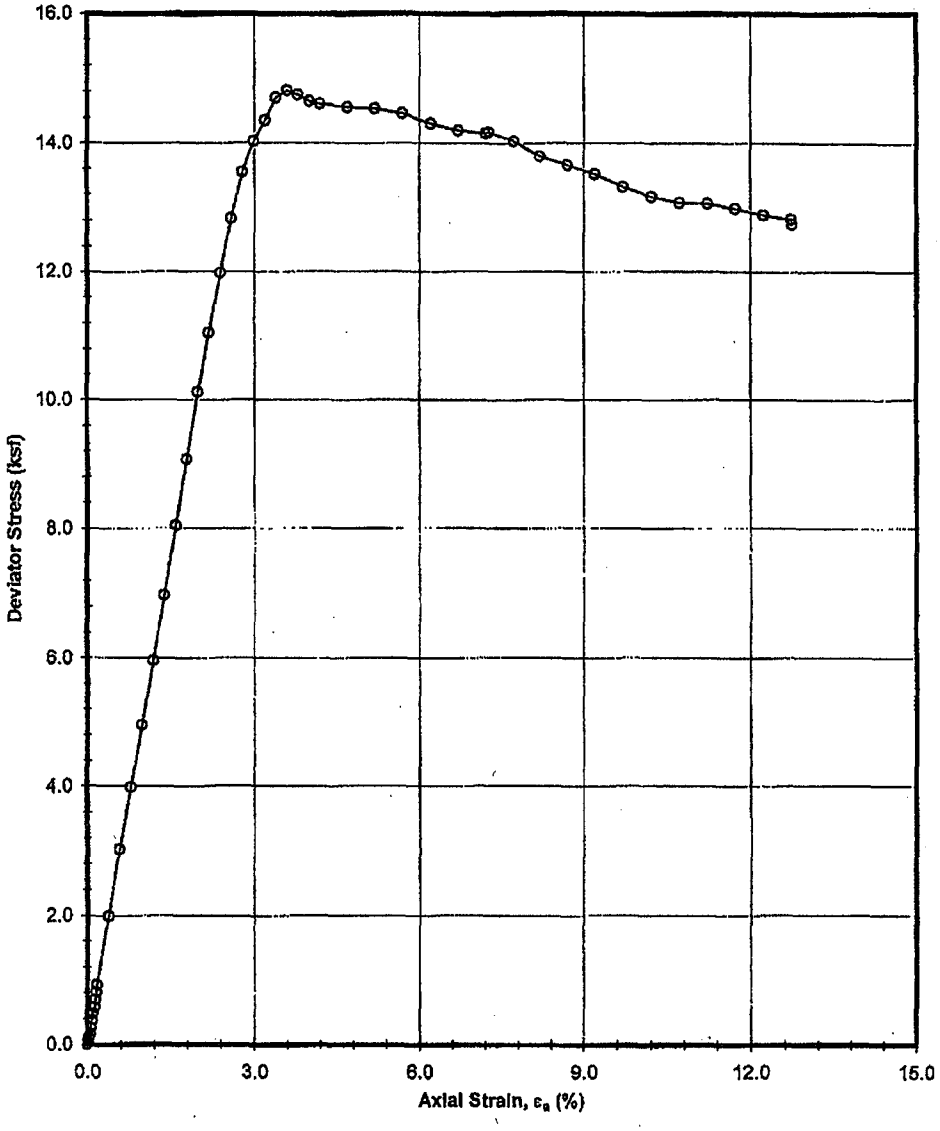
loring B-344, Sample UD_1b, Depth 183.30 ft, Confining Pressure = 45 psi

 AA 10-7-08



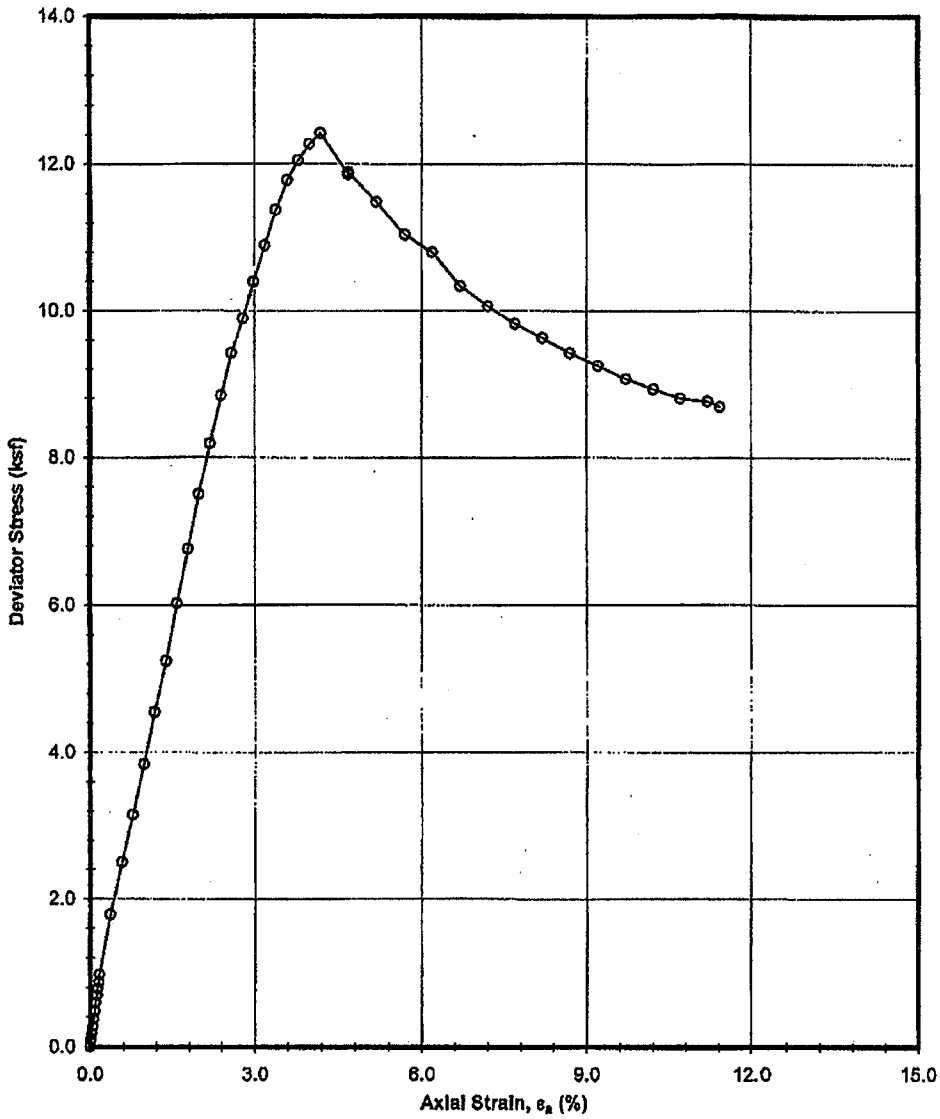
Unconsolidated-Undrained Triaxial Compression Test

loring B-344, Sample UD_4b, Depth 205.80 ft, Confining Pressure = 50 psi



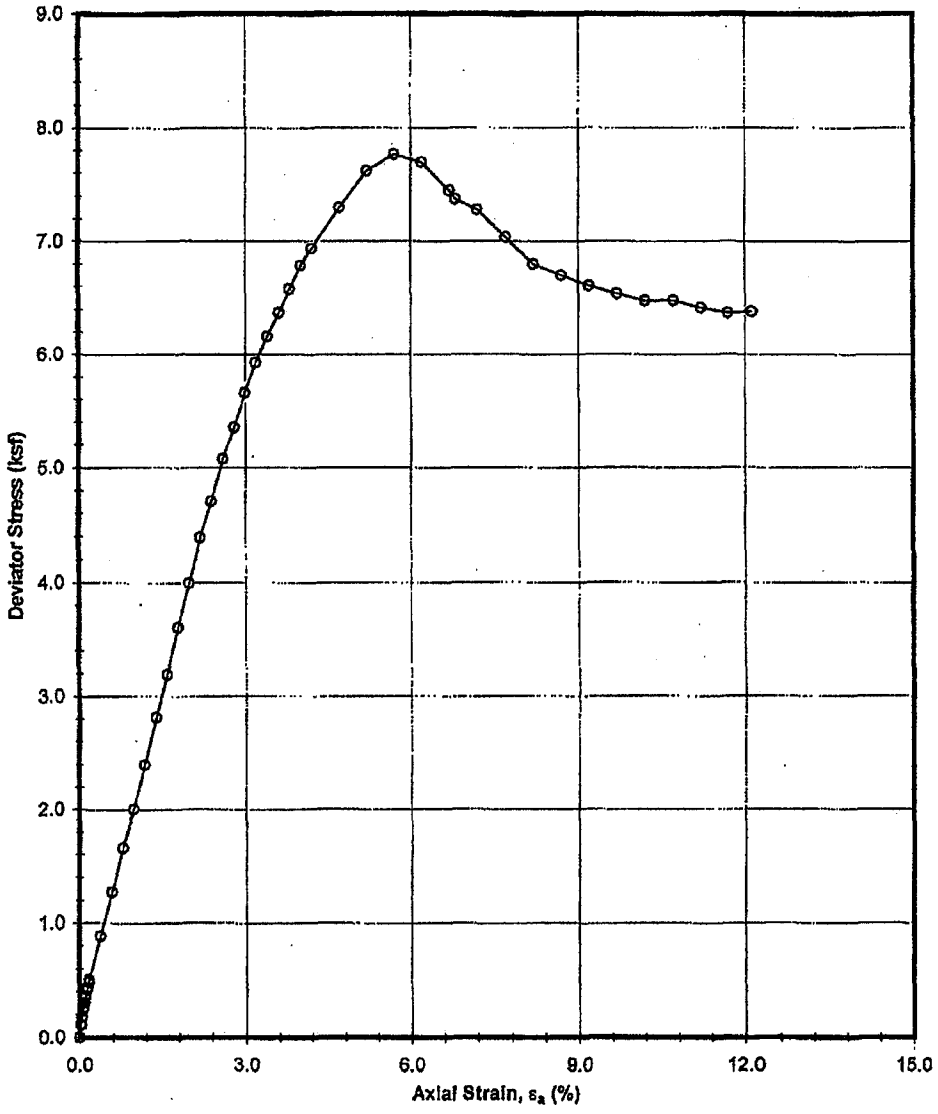
Unconsolidated-Undrained Triaxial Compression Test

loring B-344, Sample UD_6b, Depth 223.30 ft, Confining Pressure = 55 psi



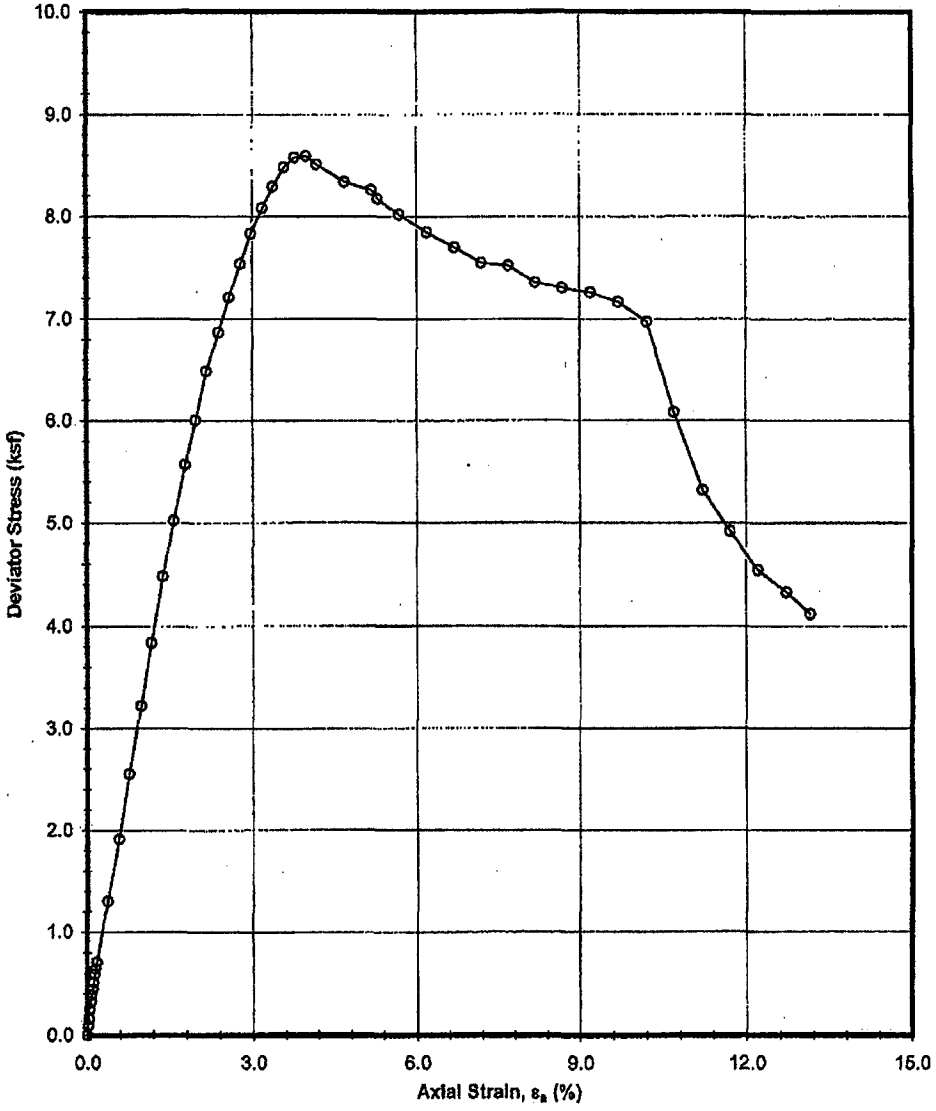
Unconsolidated-Undrained Triaxial Compression Test

loring B-344, Sample UD_8b, Depth 243.30 ft, Confining Pressure = 60 psi



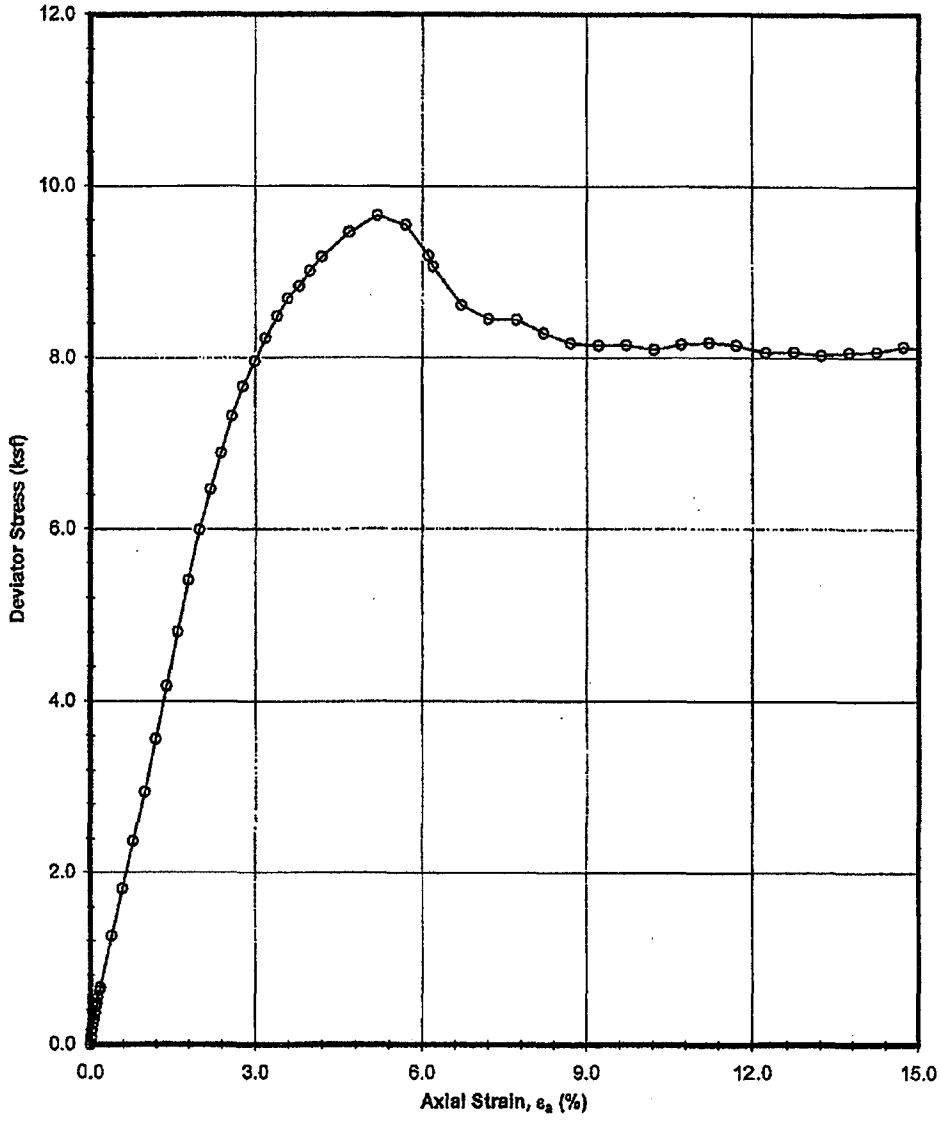
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_2e, Depth 43.30 ft, Confining Pressure = 11 psi



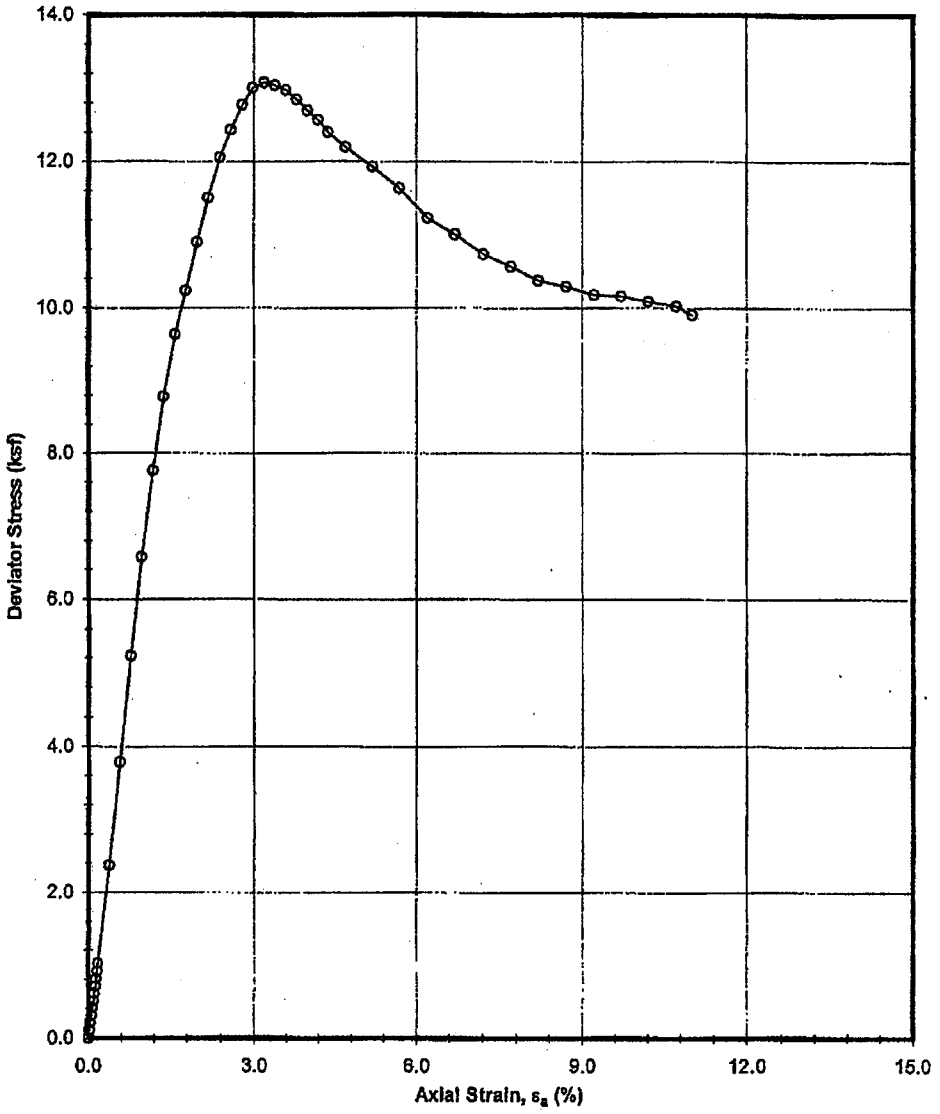
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_4b, Depth 63.05 ft, Confining Pressure = 15 psi



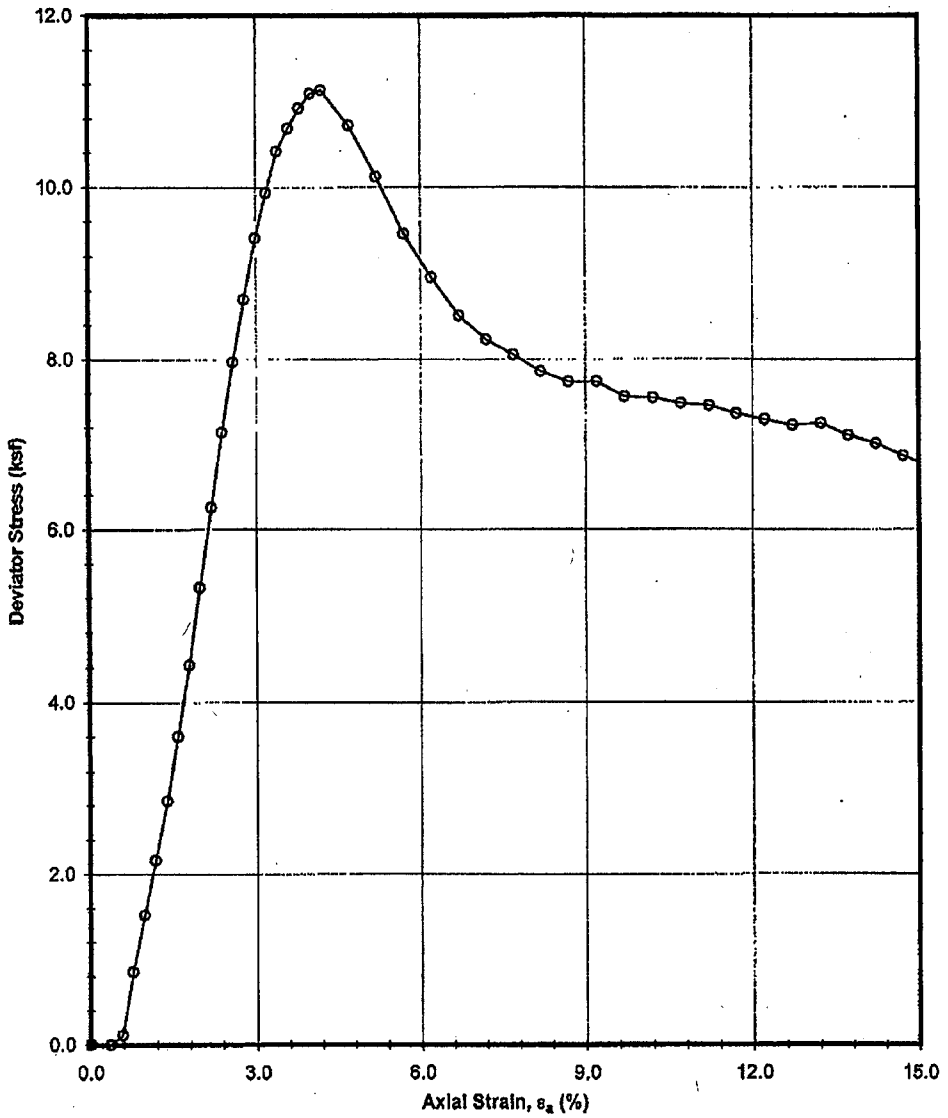
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_5b, Depth 73.30 ft, Confining Pressure = 17 psi



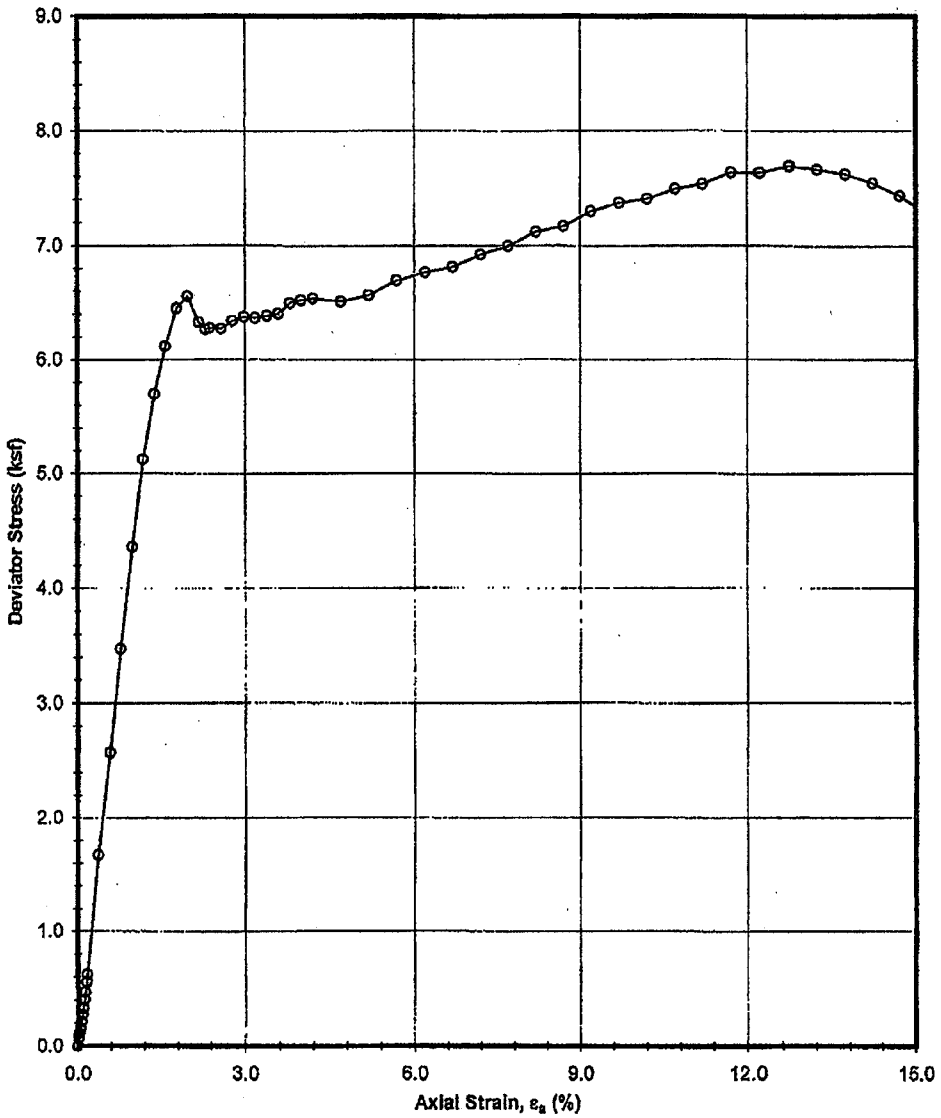
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_6b, Depth 81.5 ft, Confining Pressure = 20 psi



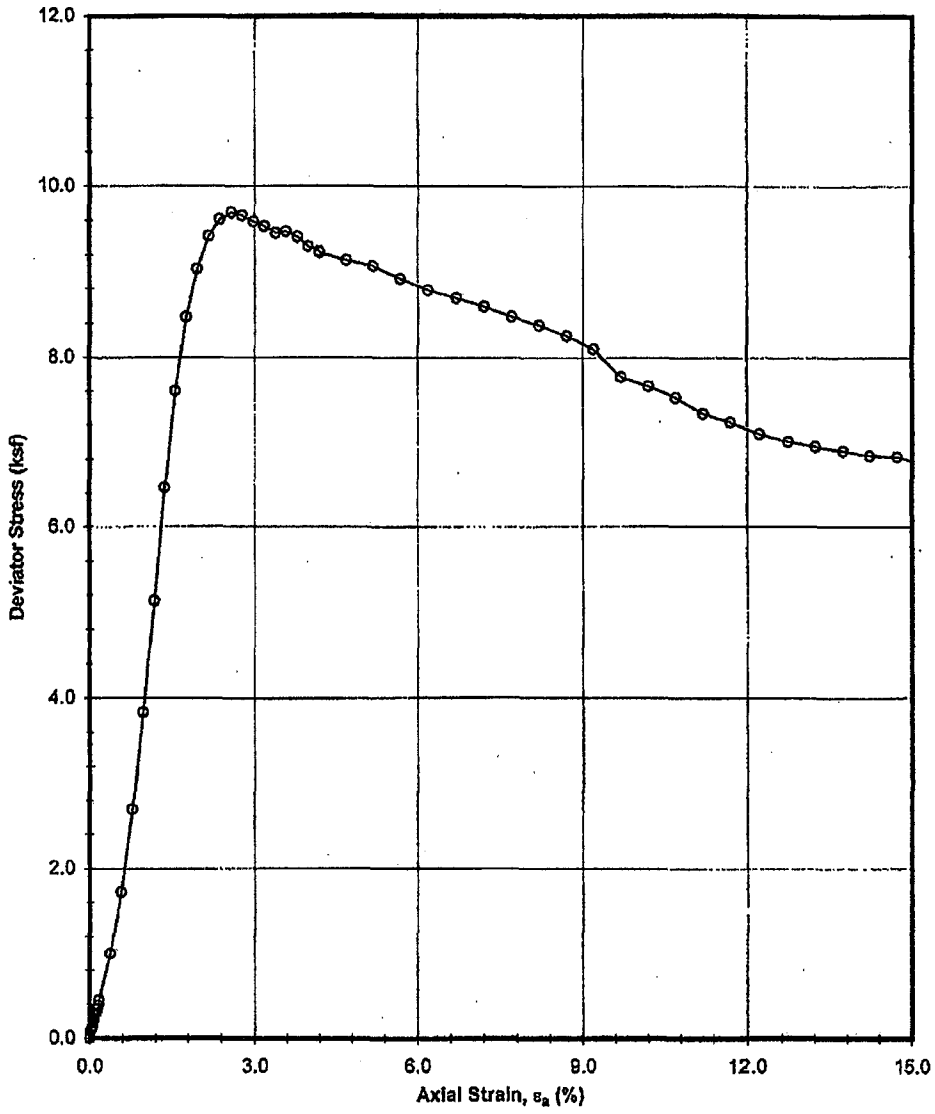
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_7b, Depth 91.5 ft, Confining Pressure = 22 psi



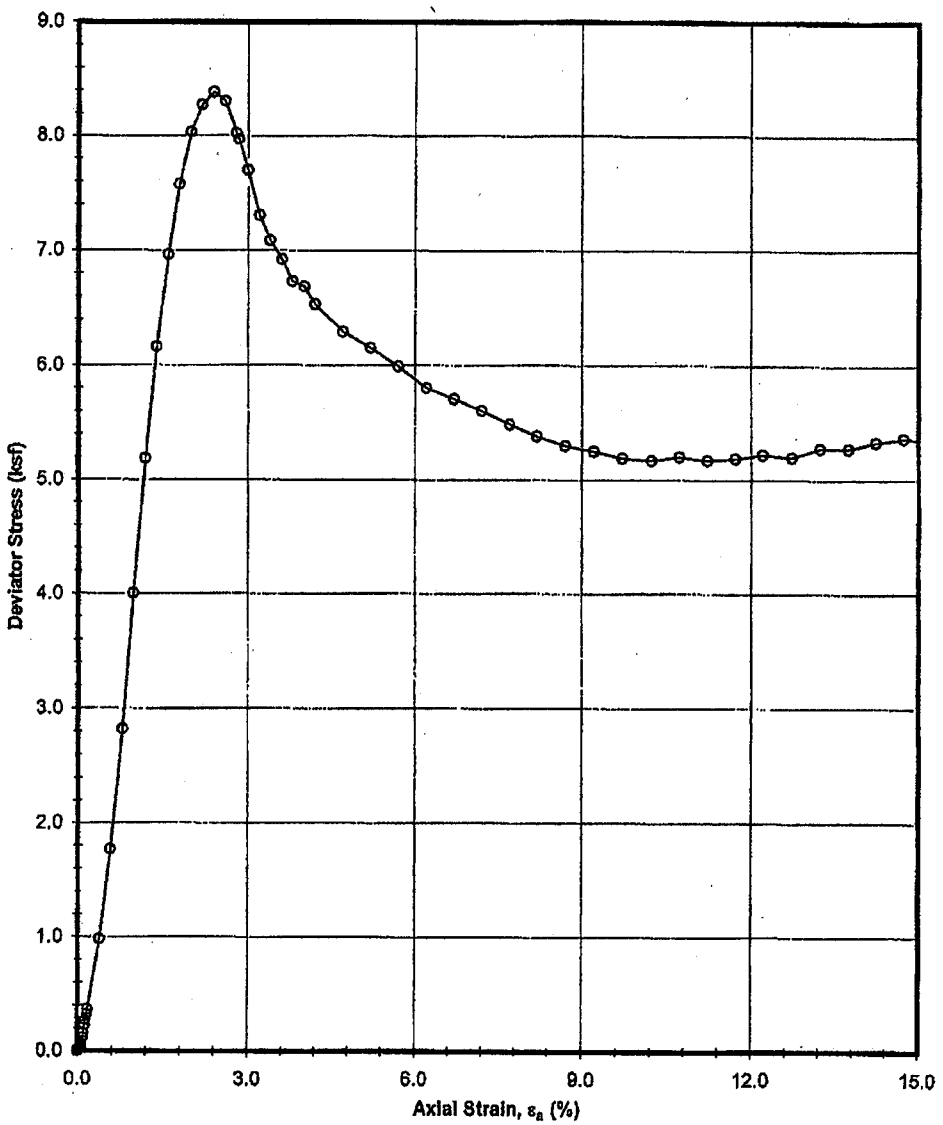
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_4e, Depth 32.65 ft, Confining Pressure = 8 psi



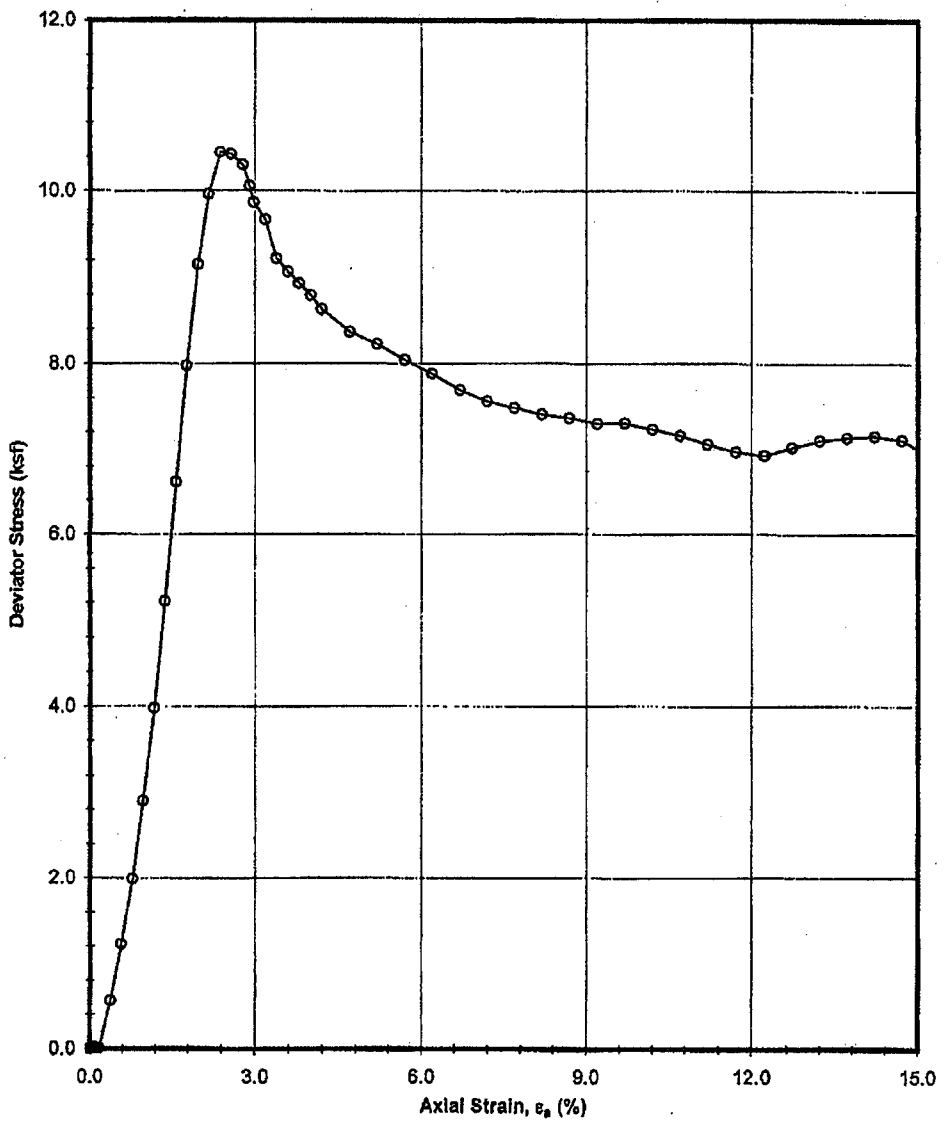
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_5e, Depth 43.25 ft, Confining Pressure = 10 psi



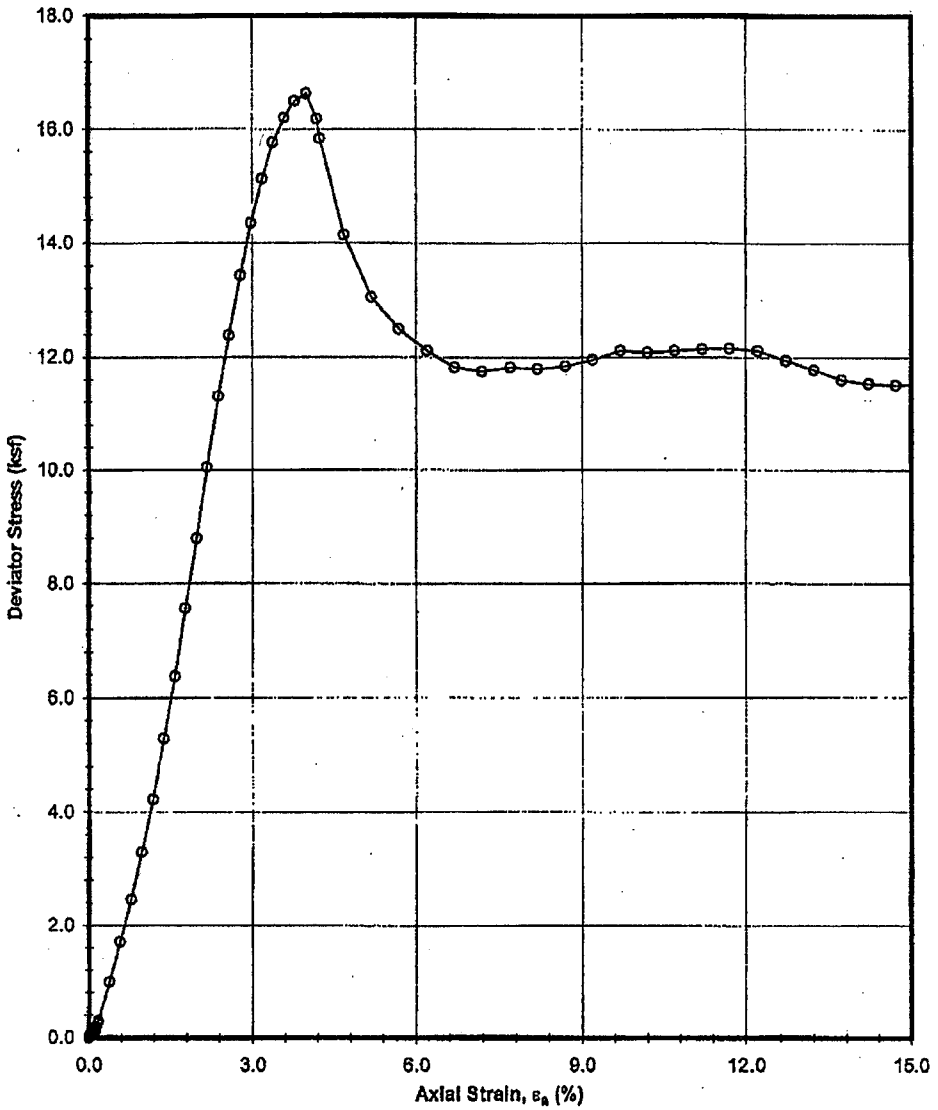
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_6e, Depth 53.20 ft, Confining Pressure = 13 psi



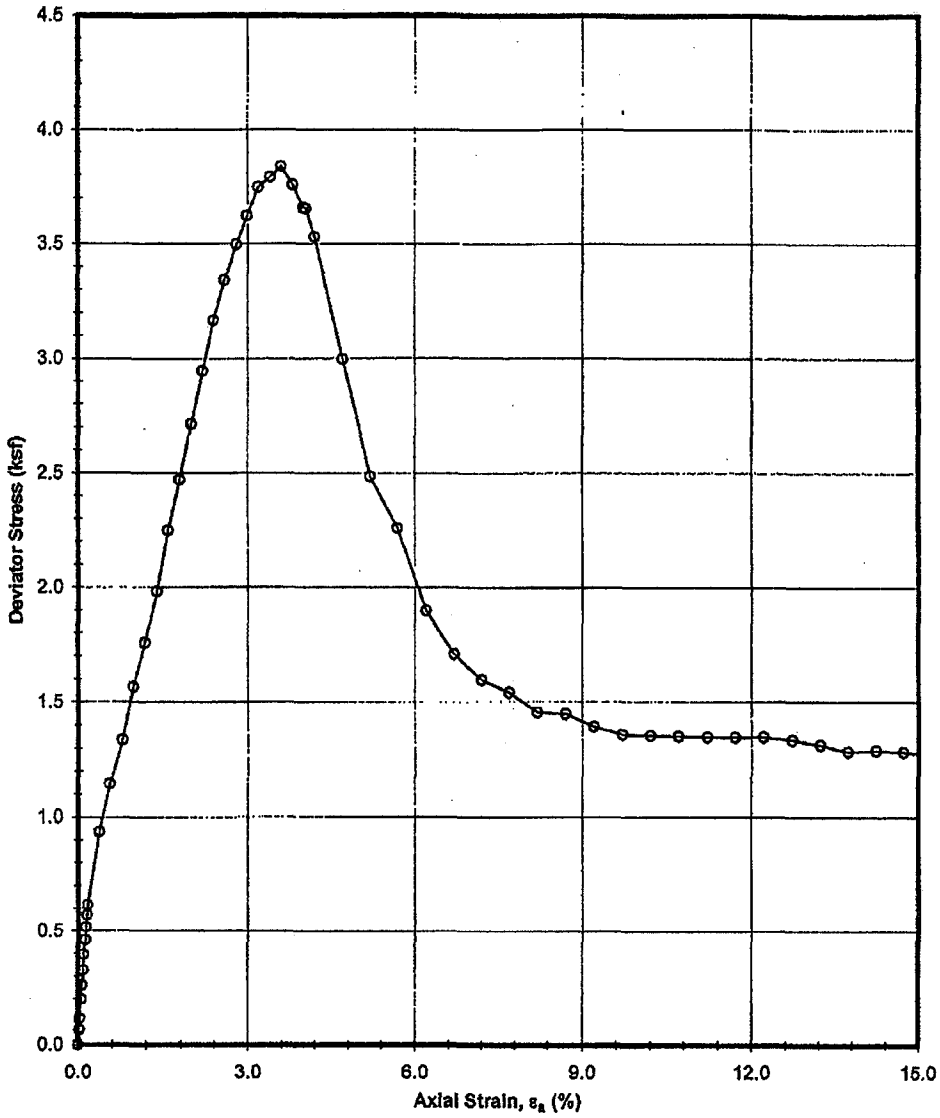
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_7e, Depth 83.20 ft, Confining Pressure = 20 psi



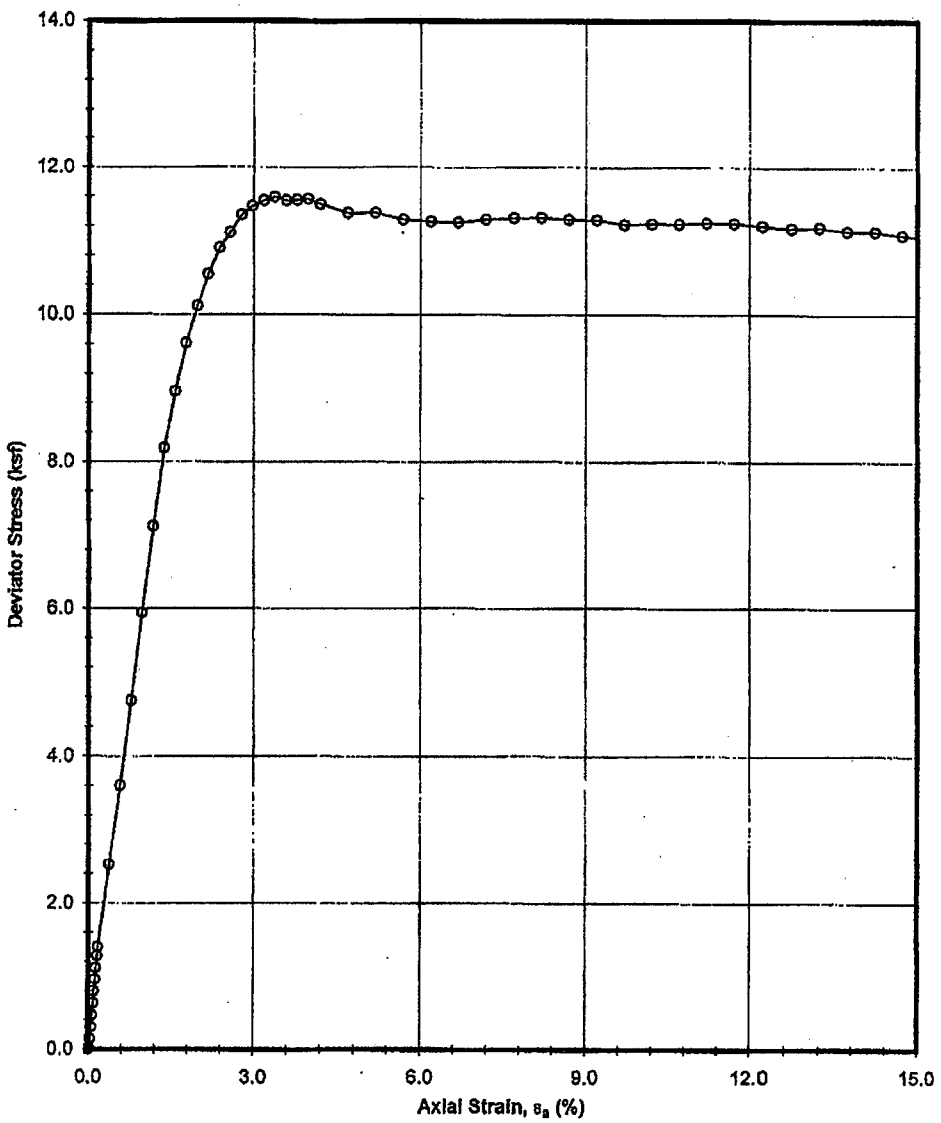
Unconsolidated-Undrained Triaxial Compression Test

loring B-774, Sample UD_8e, Depth 102.70 ft, Confining Pressure = 25 psi



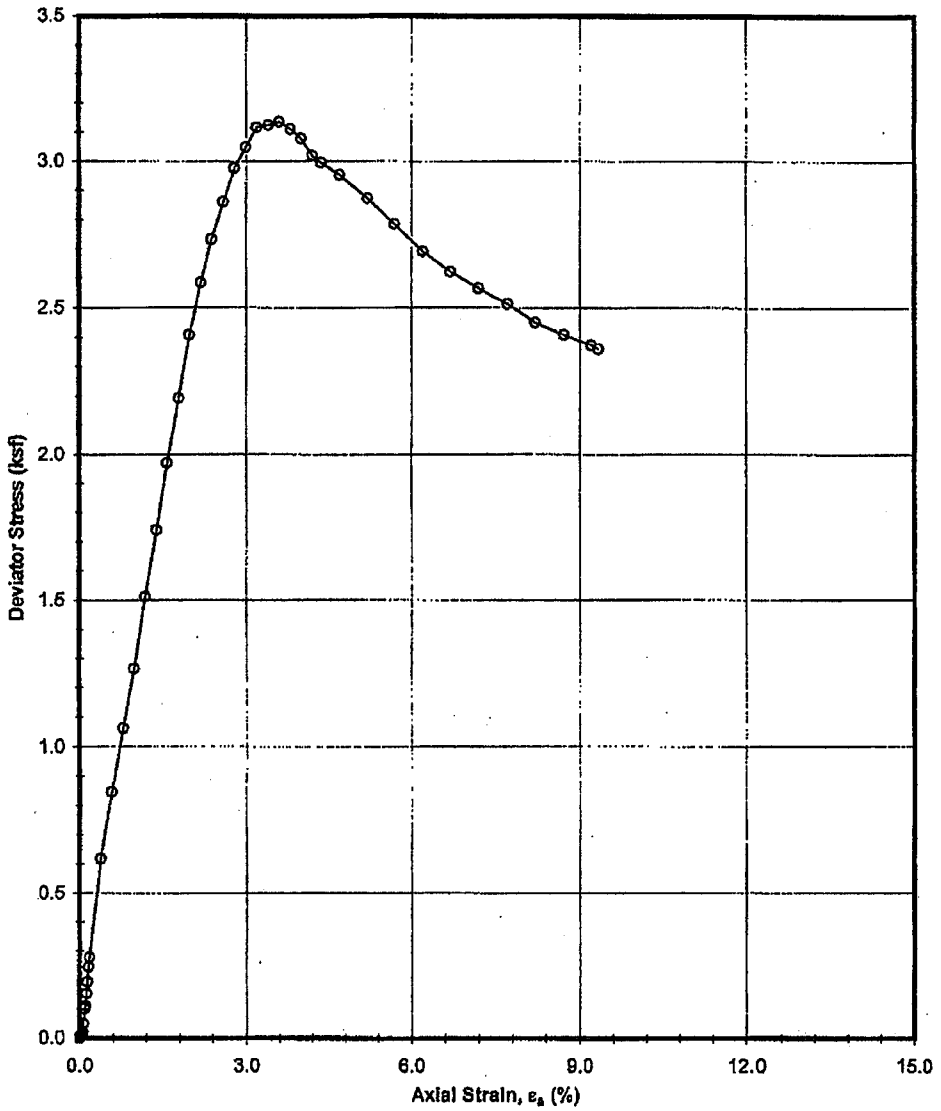
Unconsolidated-Undrained Triaxial Compression Test

oring B-774, Sample UD_10e, Depth 123.20 ft, Confining Pressure = 28 psi



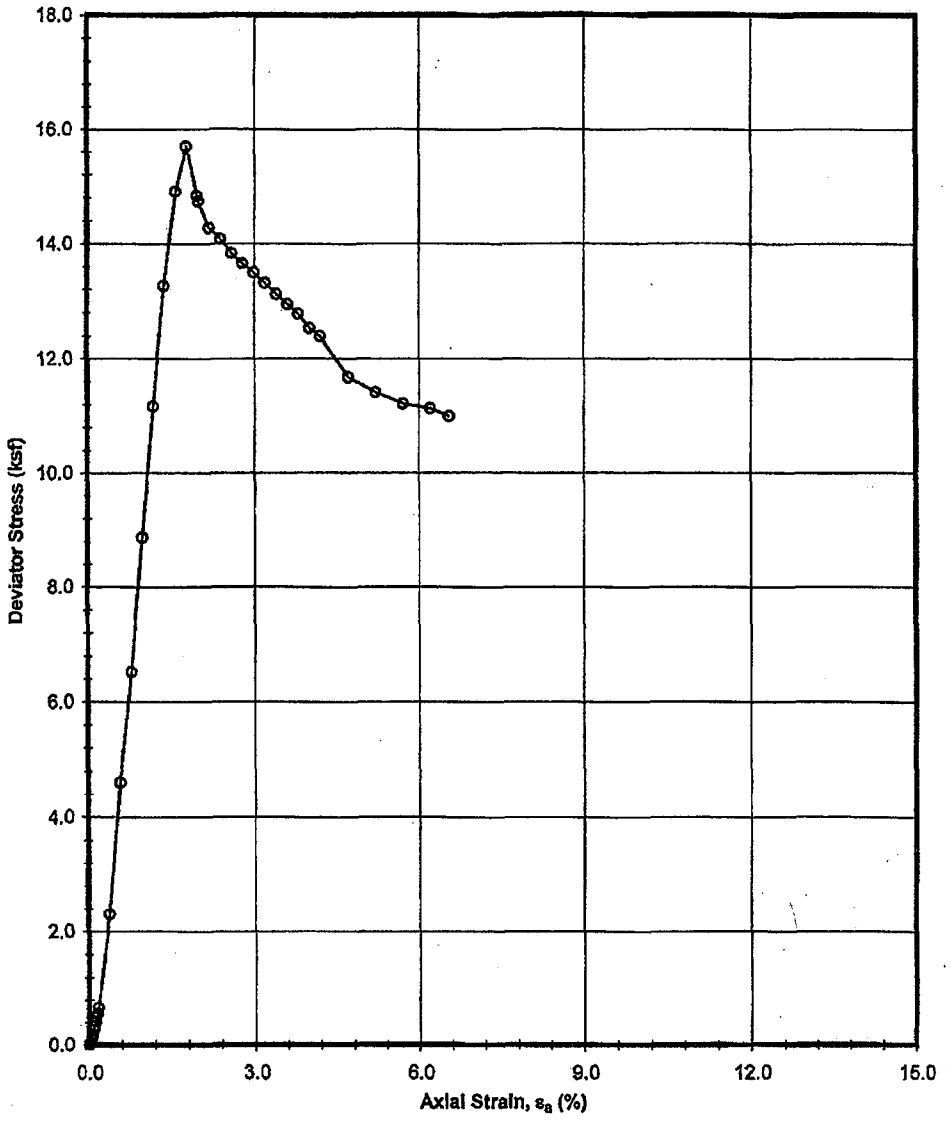
Unconsolidated-Undrained Triaxial Compression Test

oring B-774, Sample UD_12e, Depth 143.20 ft, Confining Pressure = 33 psi



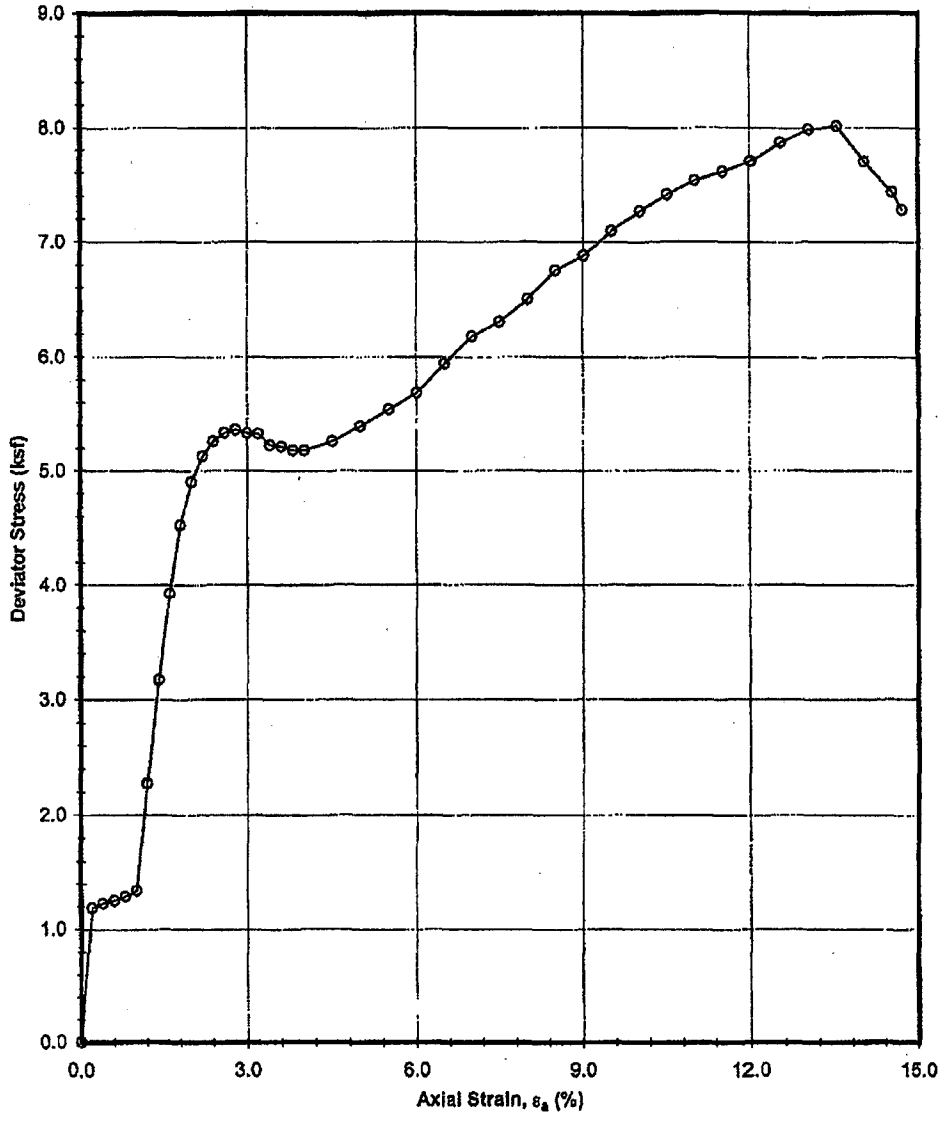
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD-7d, Depth 41.3 ft, Confining Pressure = 22 psi



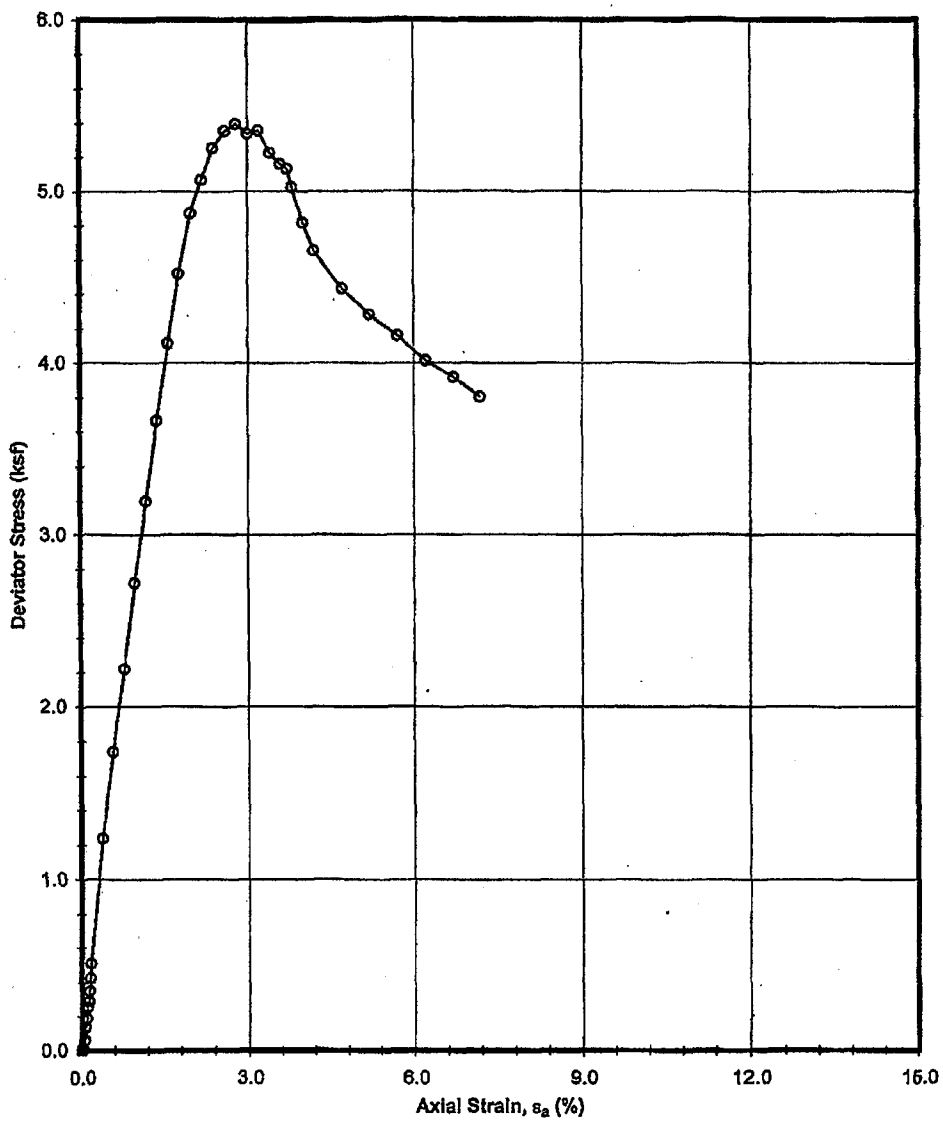
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD_8d, Depth 54.35 ft, Confining Pressure = 24 psi



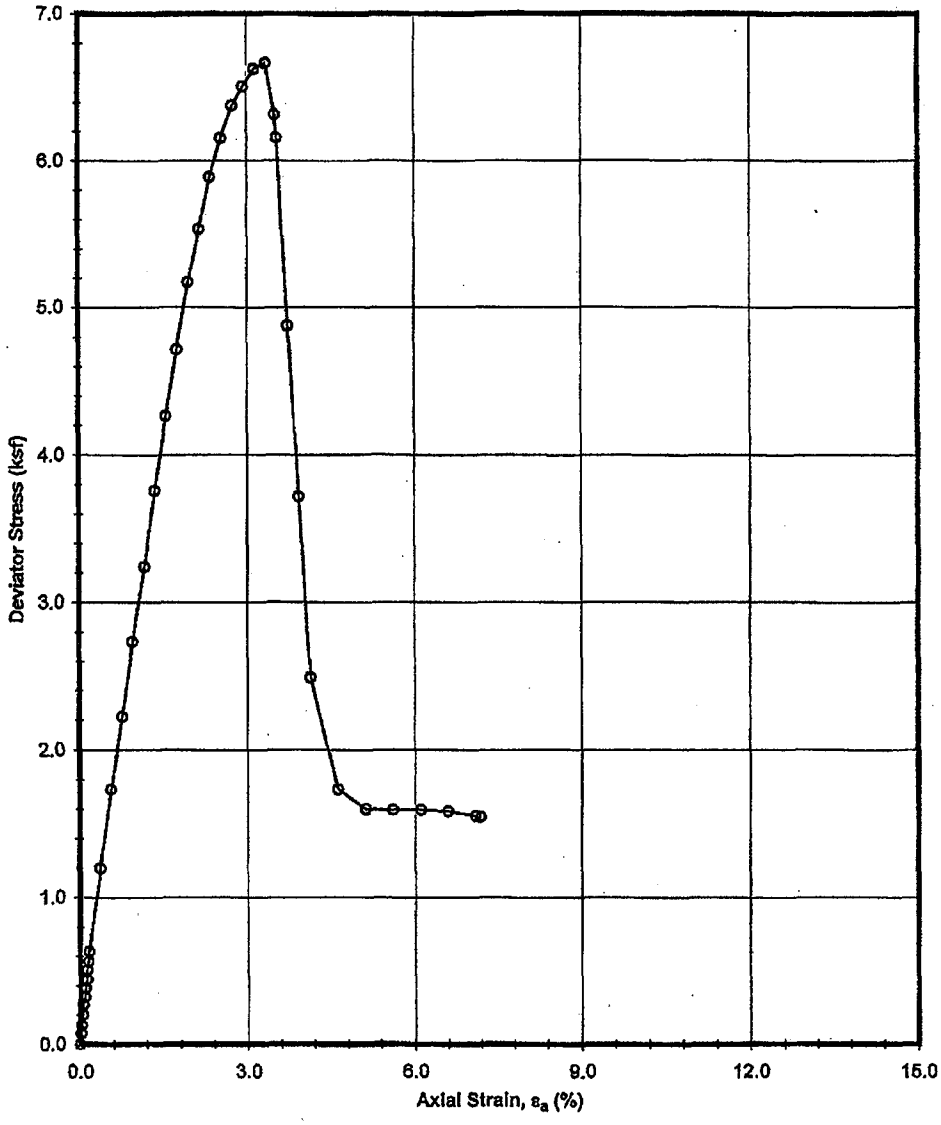
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD_9d, Depth 64.35 ft, Confining Pressure = 26 psi



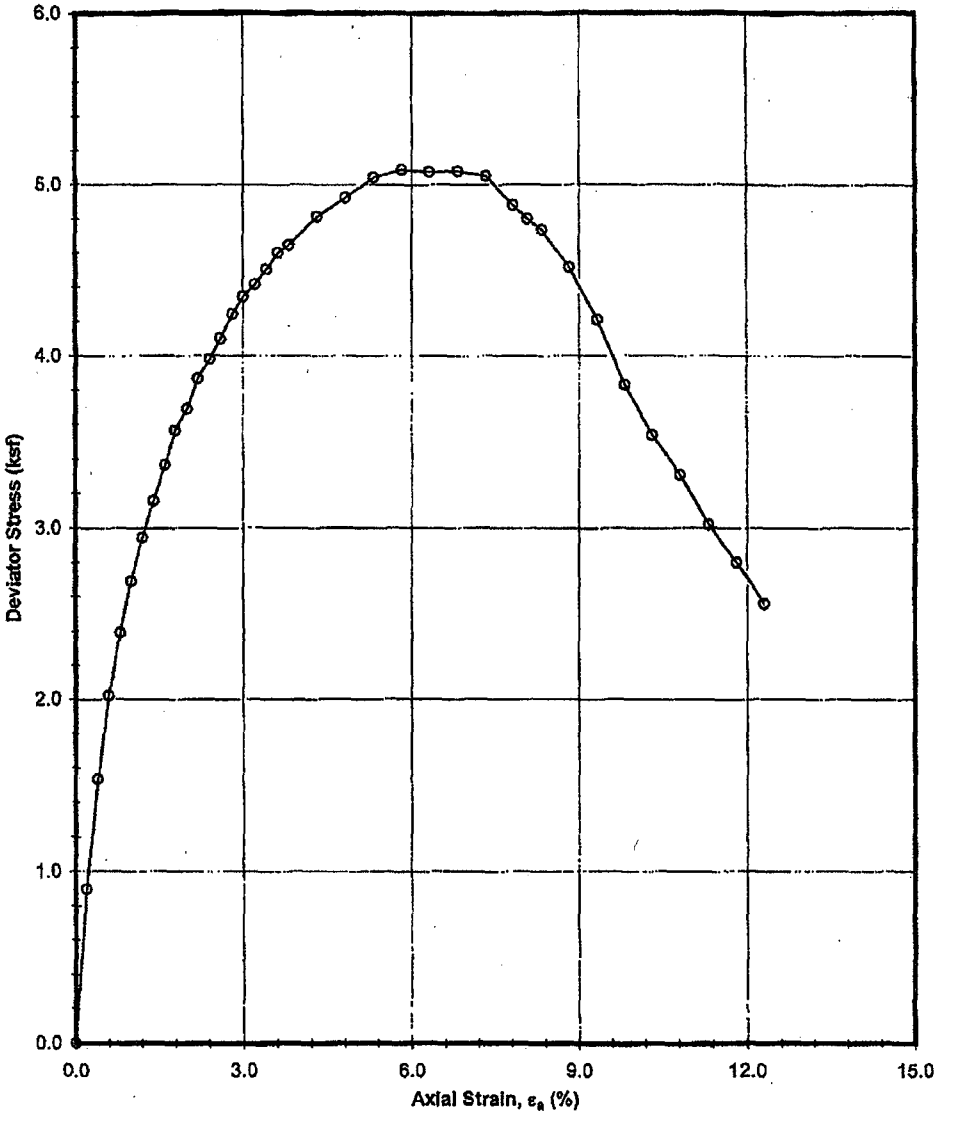
Unconsolidated-Undrained Triaxial Compression Test

loring B-778, Sample UD_10d, Depth 71.35 ft, Confining Pressure = 30 psi



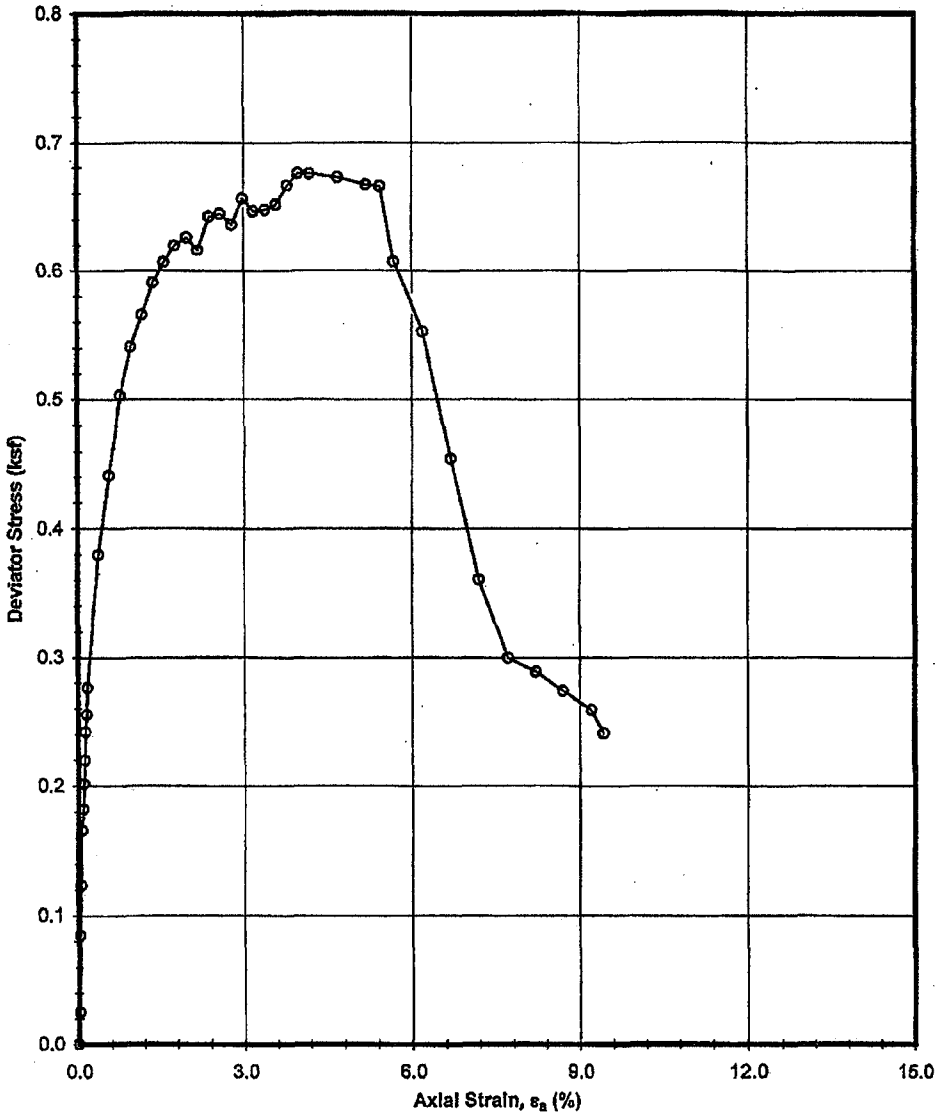
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD-11d, Depth 81.30 ft, Confining Pressure = 35 psi



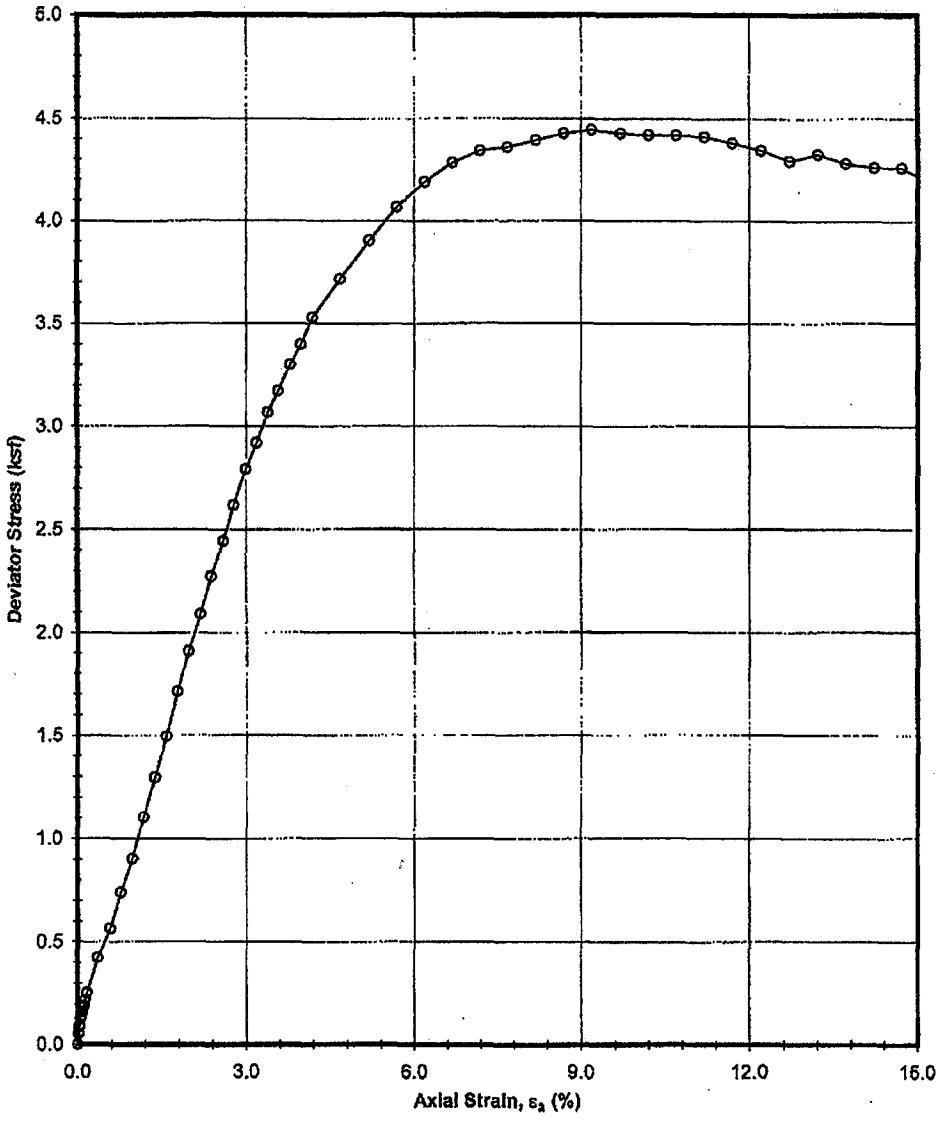
Unconsolidated-Undrained Triaxial Compression Test

oring B-778, Sample UD_14d, Depth 103.40 ft, Confining Pressure = 37 psi



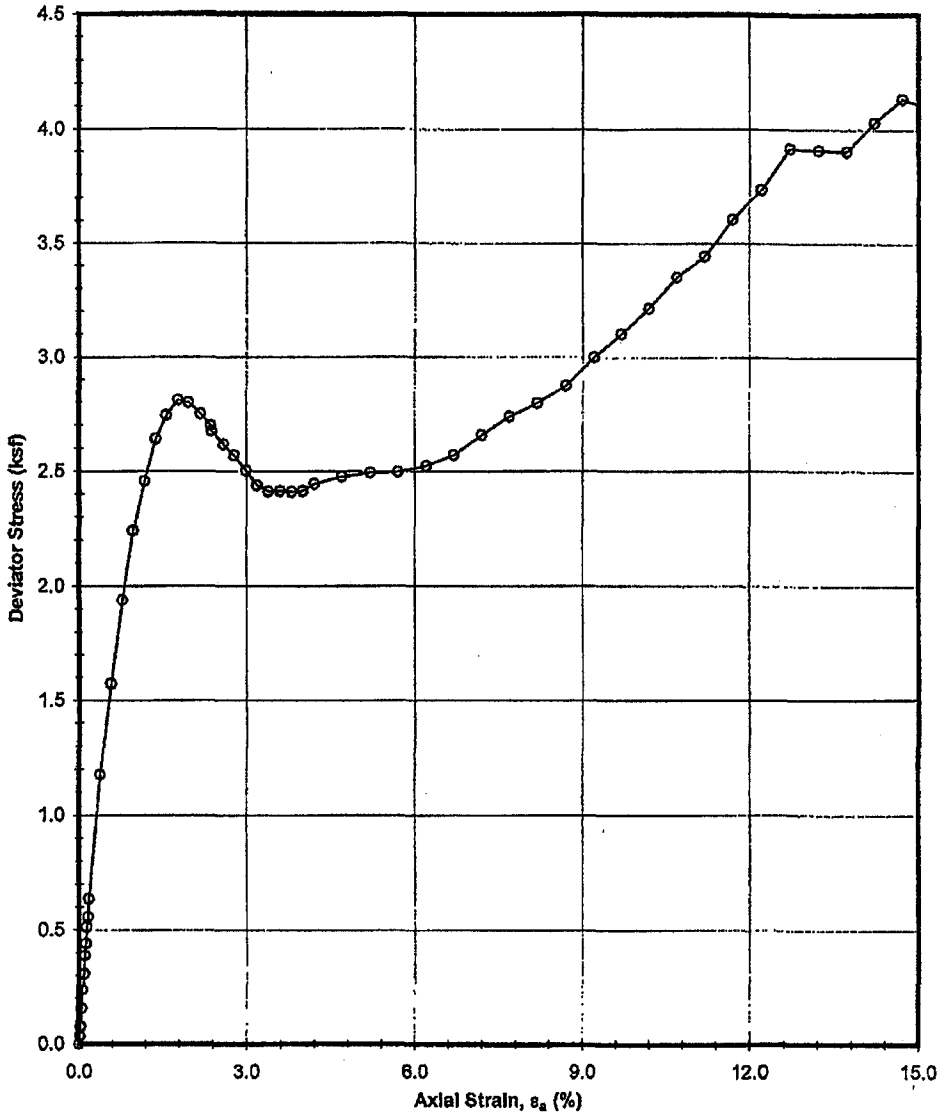
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_3d, Depth 23.40 ft, Confining Pressure = 12 psi



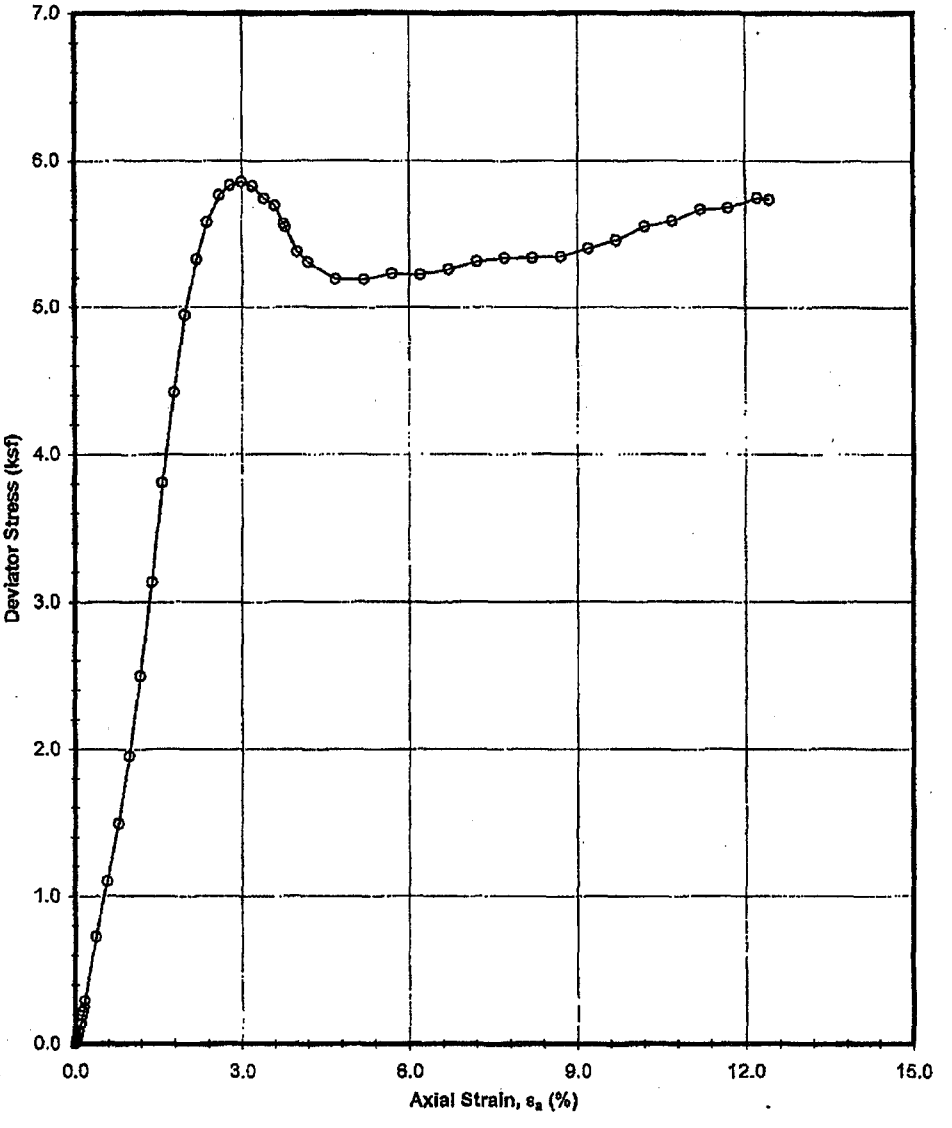
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_4d, Depth 33.45 ft, Confining Pressure = 15 psi



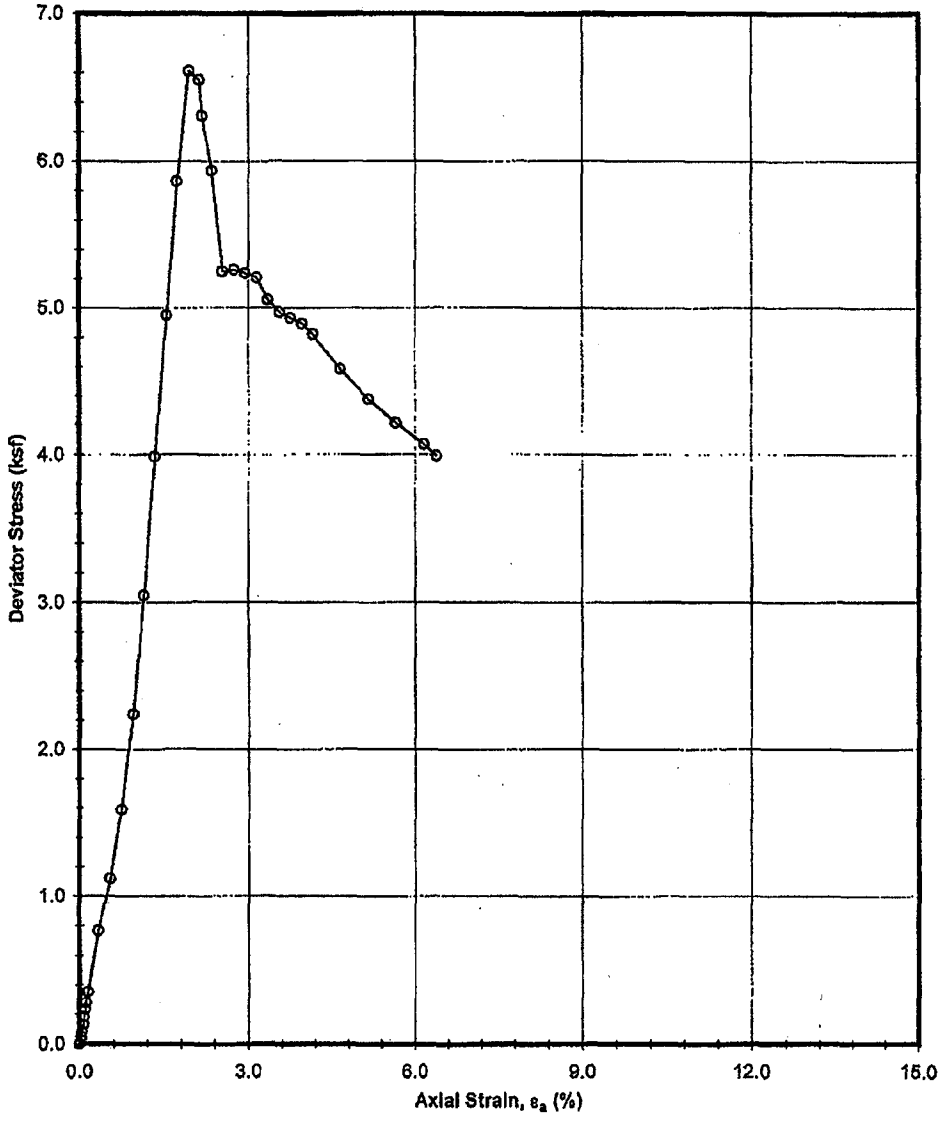
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_5d, Depth 42.30 ft, Confining Pressure = 18 psi



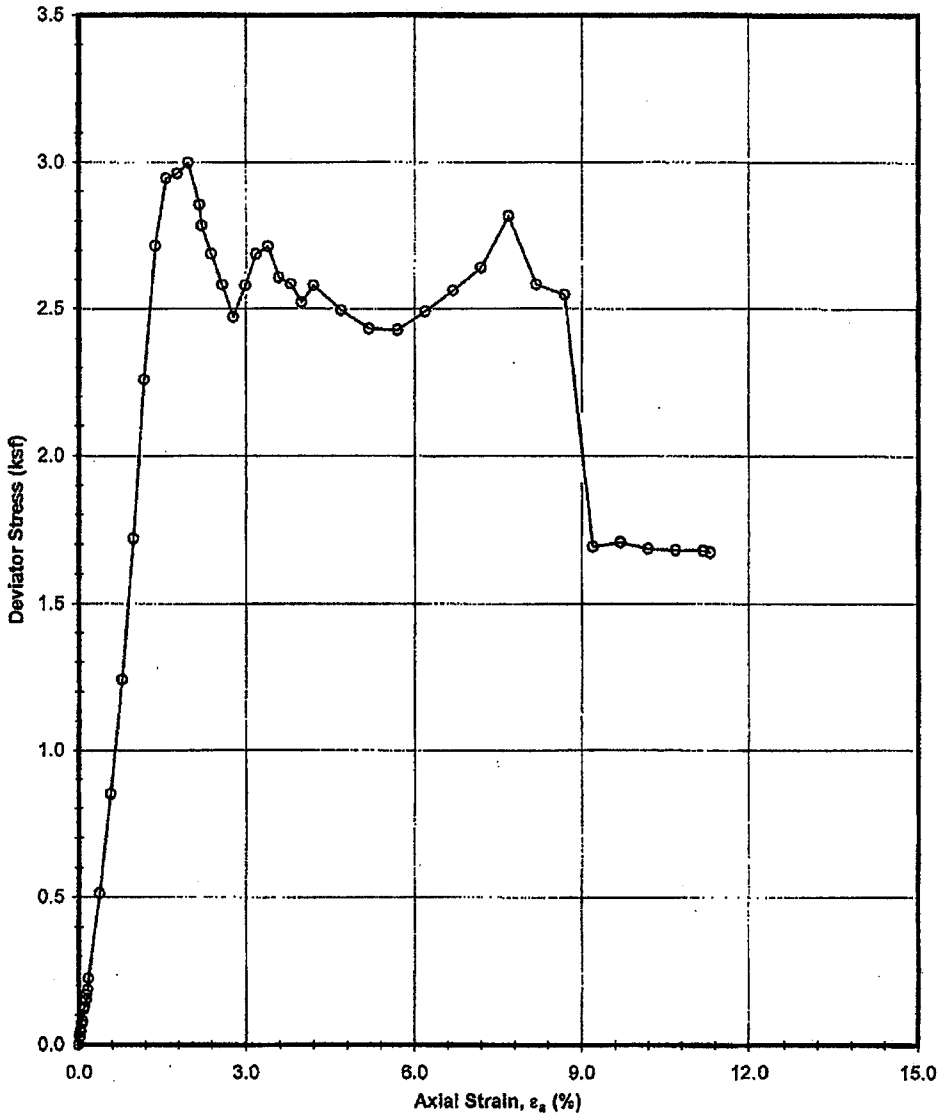
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_7d, Depth 52.40 ft, Confining Pressure = 20 psi



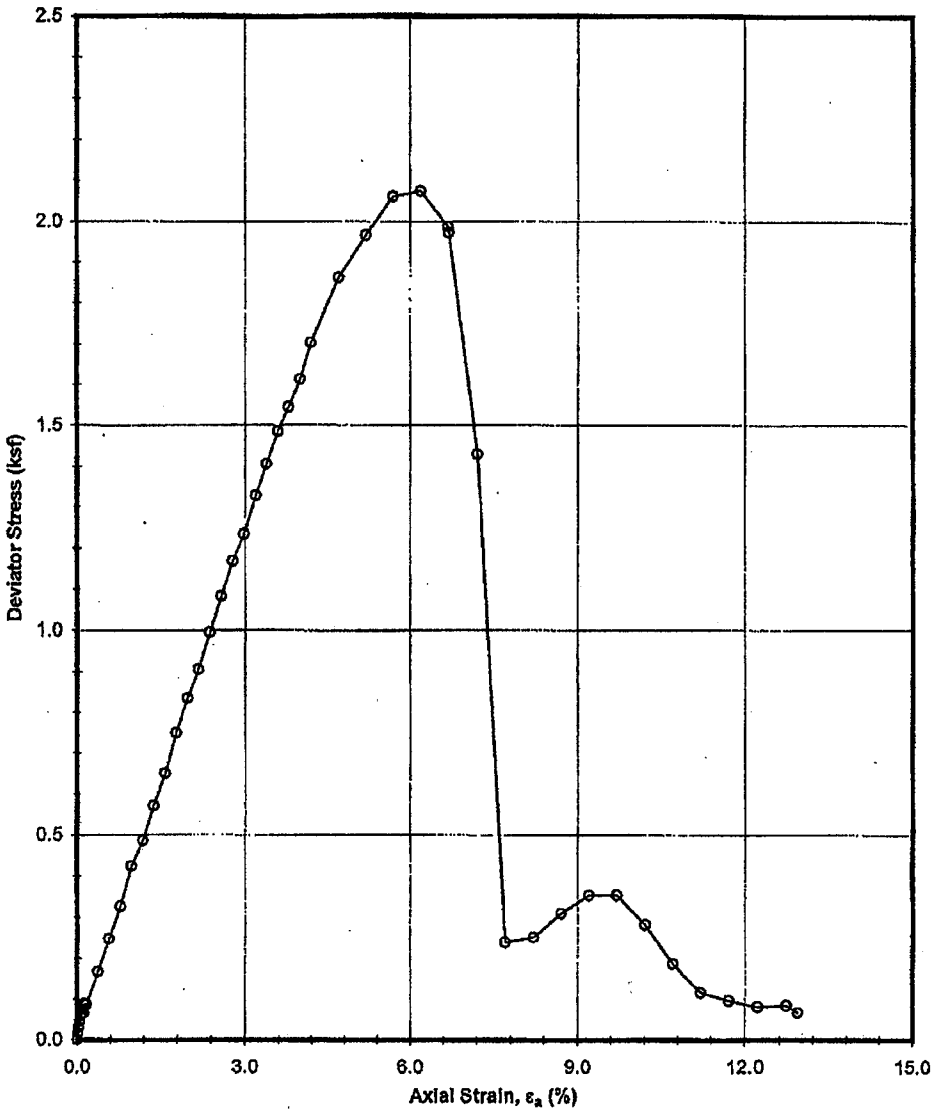
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-8d, Depth 60.18 ft, Confining Pressure = 22 psi



Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-9d, Depth 70.18 ft, Confining Pressure = 25 psi



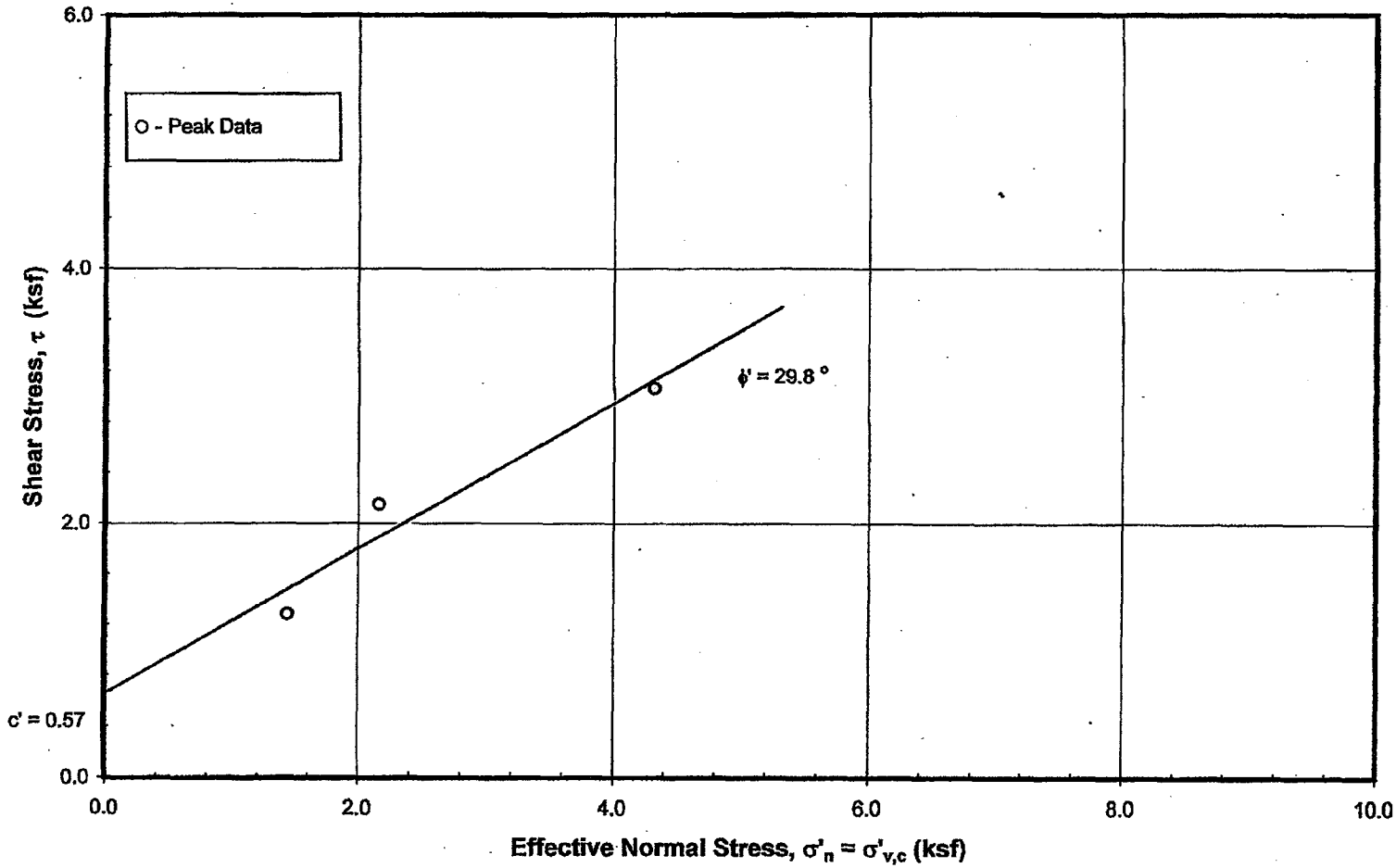
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-11d, Depth 98.40 ft, Confining Pressure = 32 psi

Prepared By: HP
Reviewed By: WP

B-771_UD-1d.xls, c-phi plot 9/10/2008

Revision Date: 12/01/07



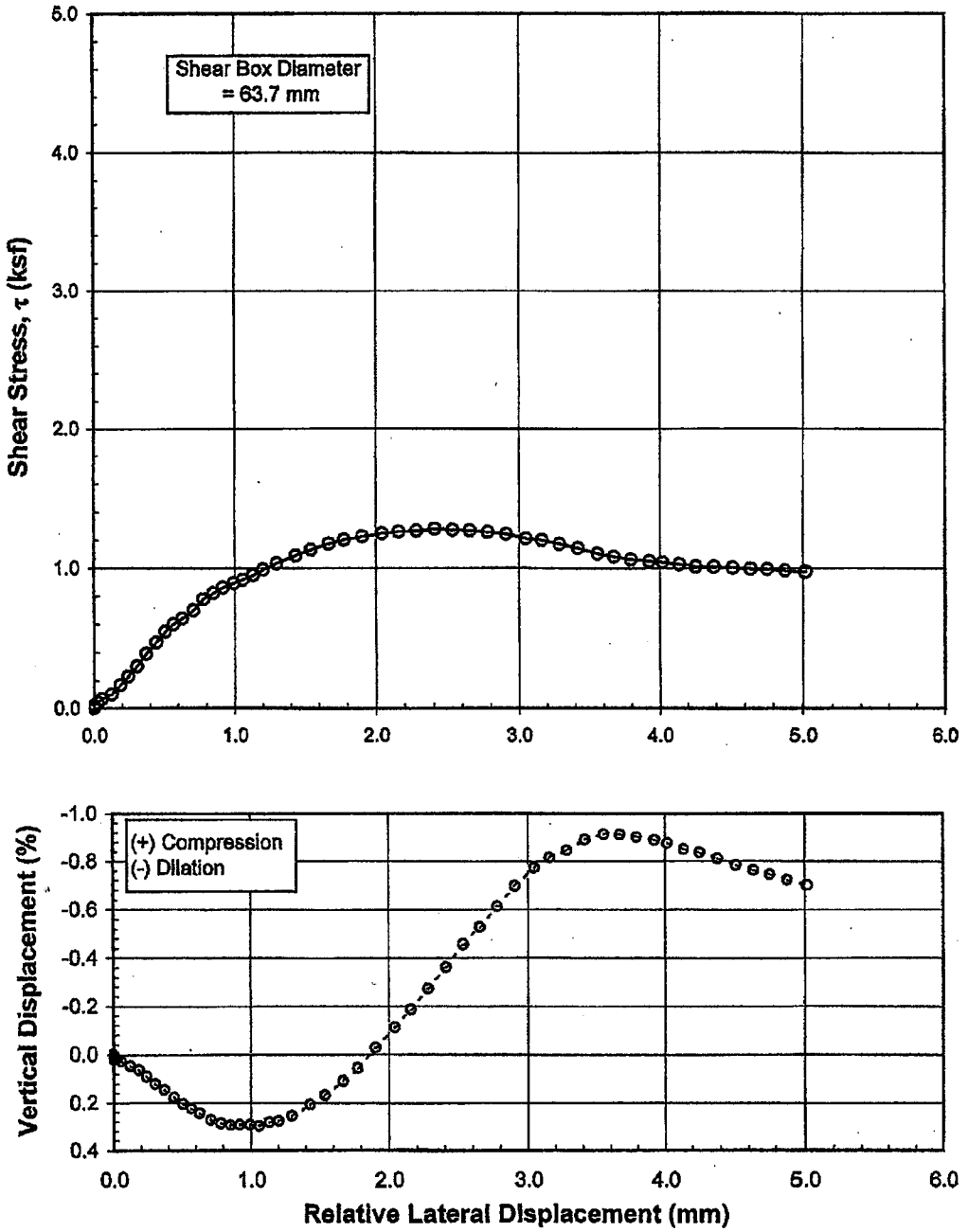
DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-771 - Sample: UD-1 - Depth: 32.9 ft

Report No. 0411-08-1707

PLATE ?-?

DCN: CALV-050

WA 10-7-08



DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.44 ksf

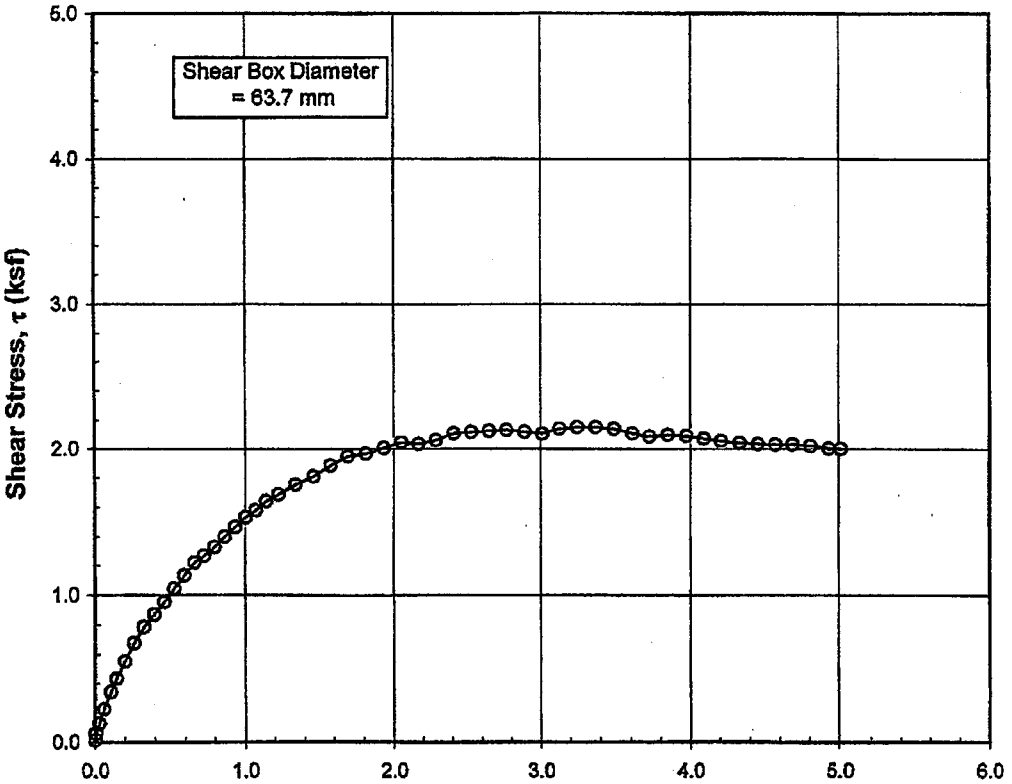
Boring: B-771 - Sample: UD-1b - Depth: 32.90 ft

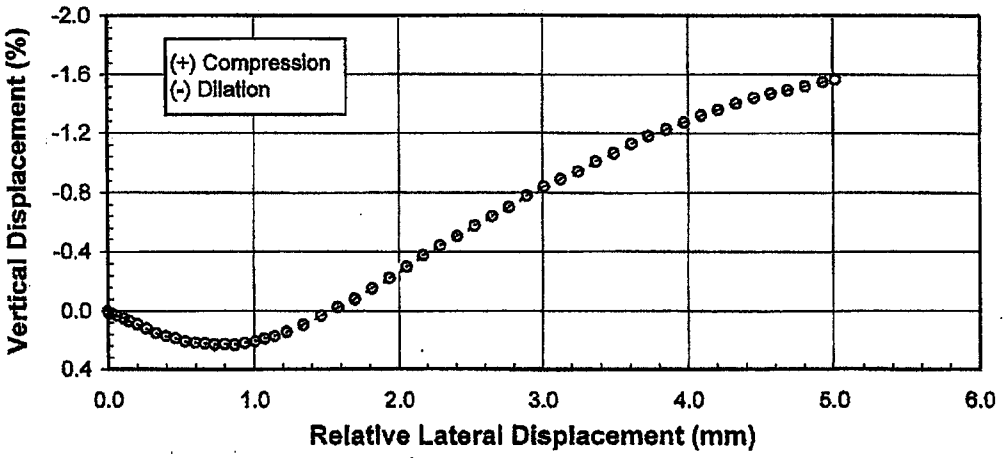
Reviewed By: HP

PLATE ?

10-1-02

DCN: CALV-050





DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

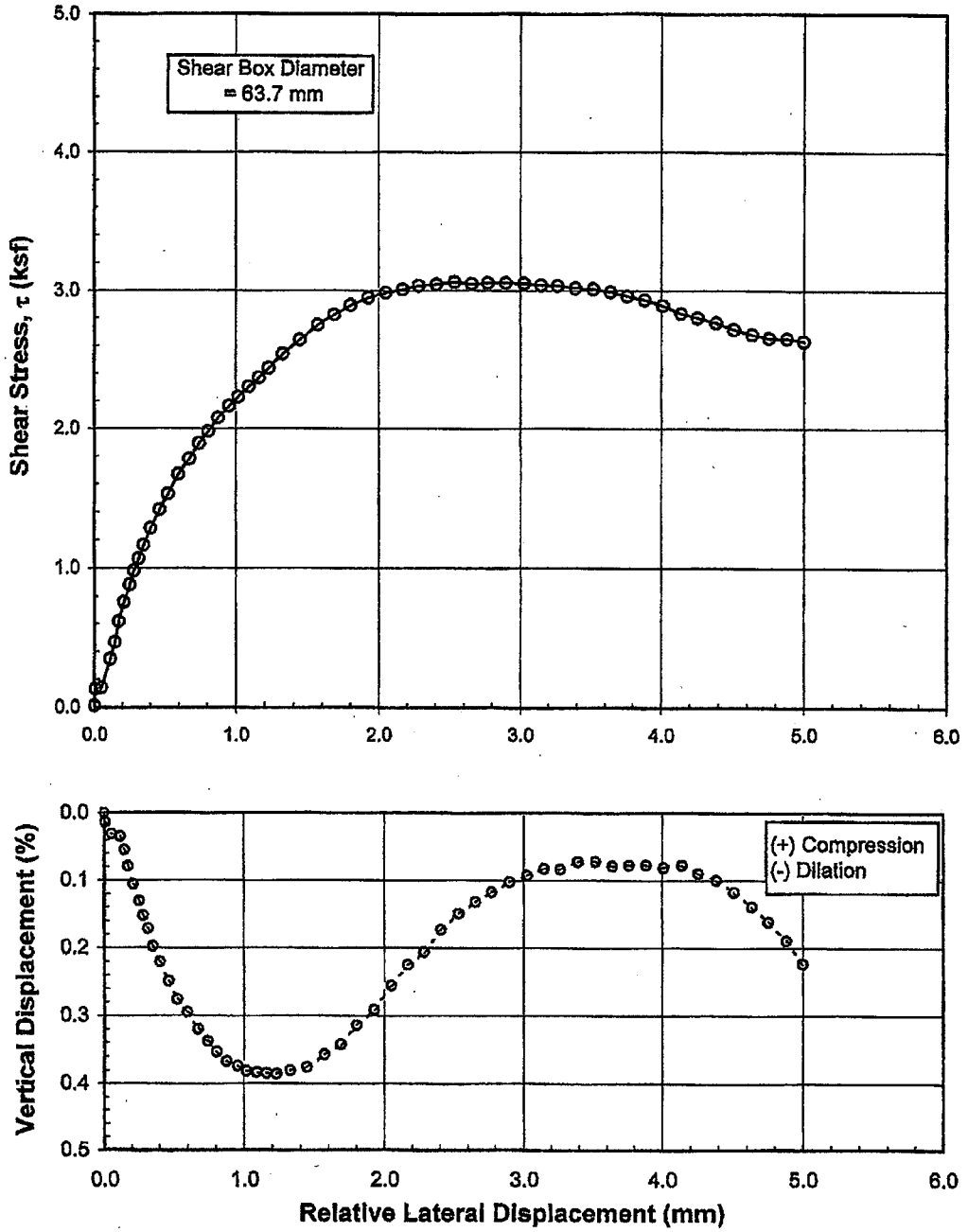
Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf

Boring: B-771 - Sample: UD-1c - Depth: 32.6 ft

Reviewed By: HP

PLATE ?

NA 10-7-08



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

Boring: B-771 - Sample: UD-1d - Depth: 32.9 ft

Reviewed By: HP

PLATE ?

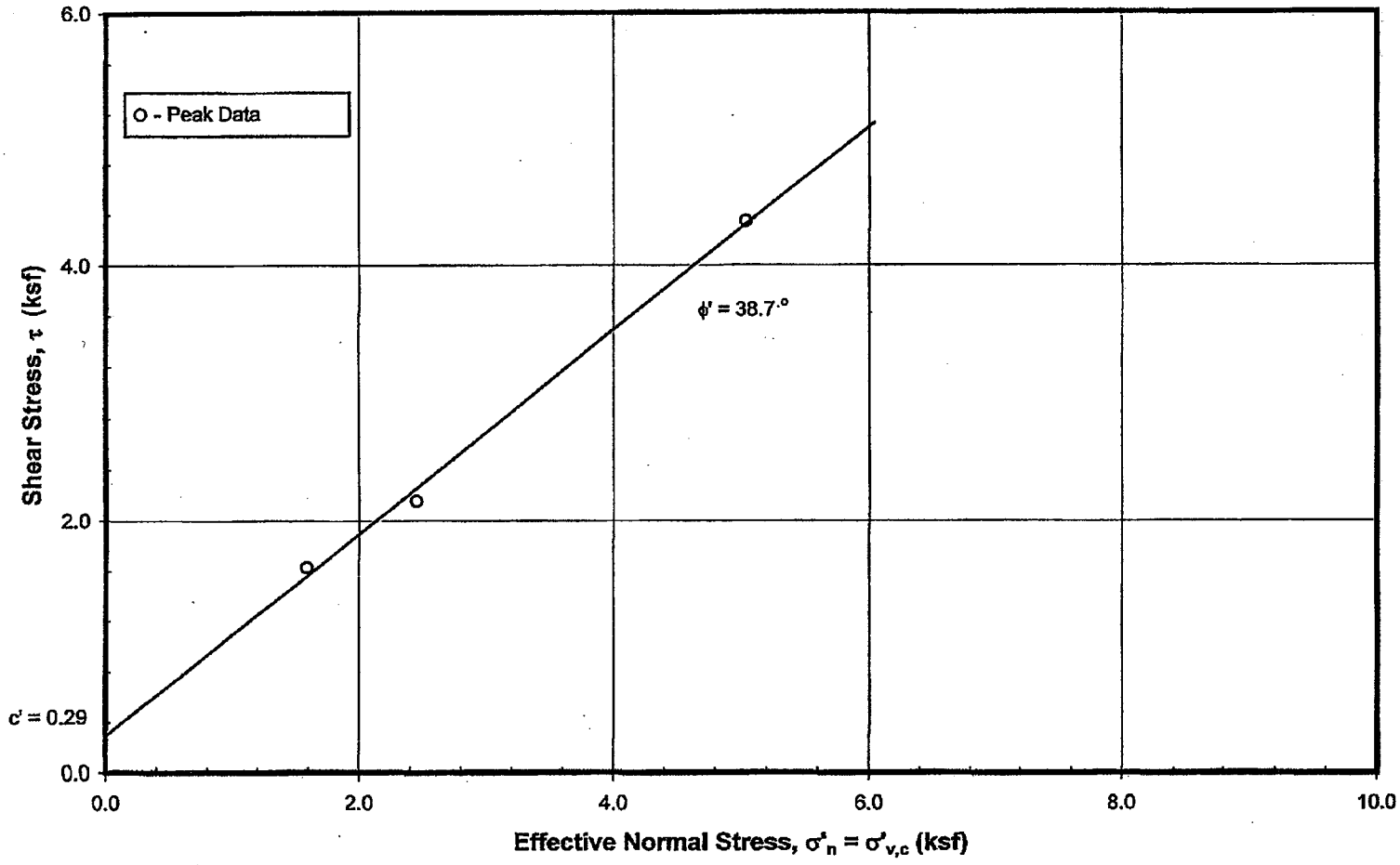
MA 10-7-08

DCN: CALV-050

Prepared By: HP
Reviewed By: HP

B-771_UD-2d.xls, c-phi plot 9/11/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-771 - Sample: UD-2d - Depth: 42.55 ft

Report No. 0411-08-1707

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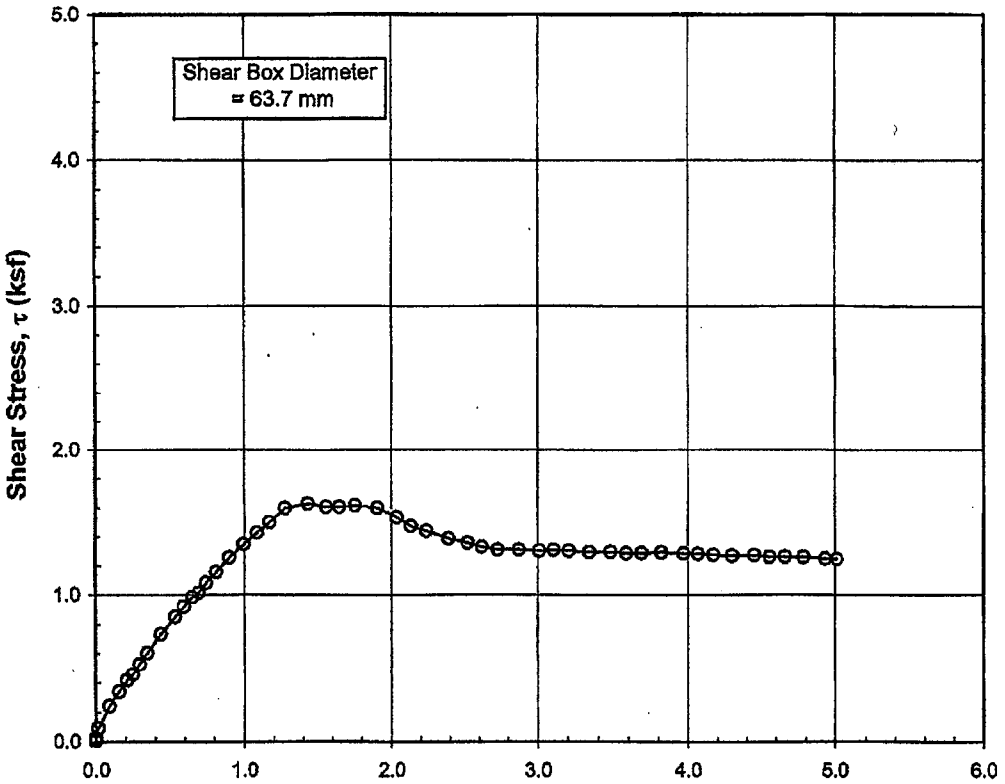
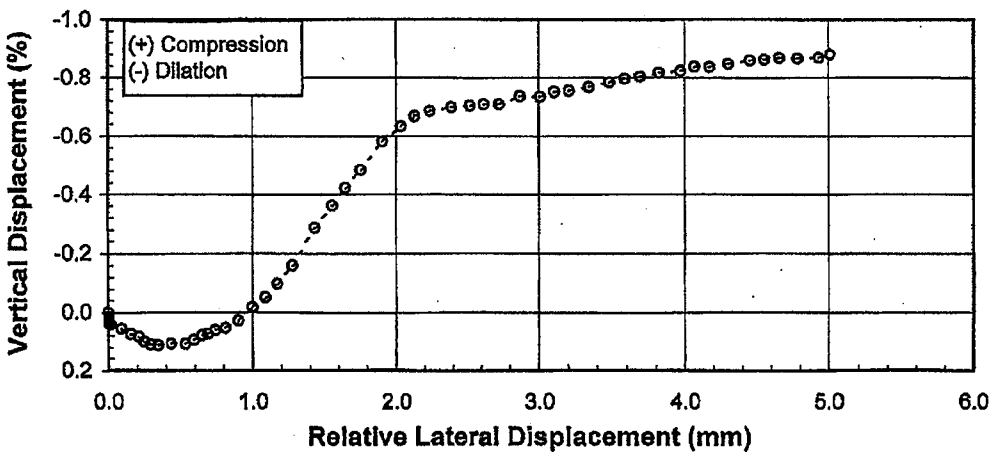
DCN: CALV-050

PLATE ?-?

NA 10-7-08





DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.58 ksf

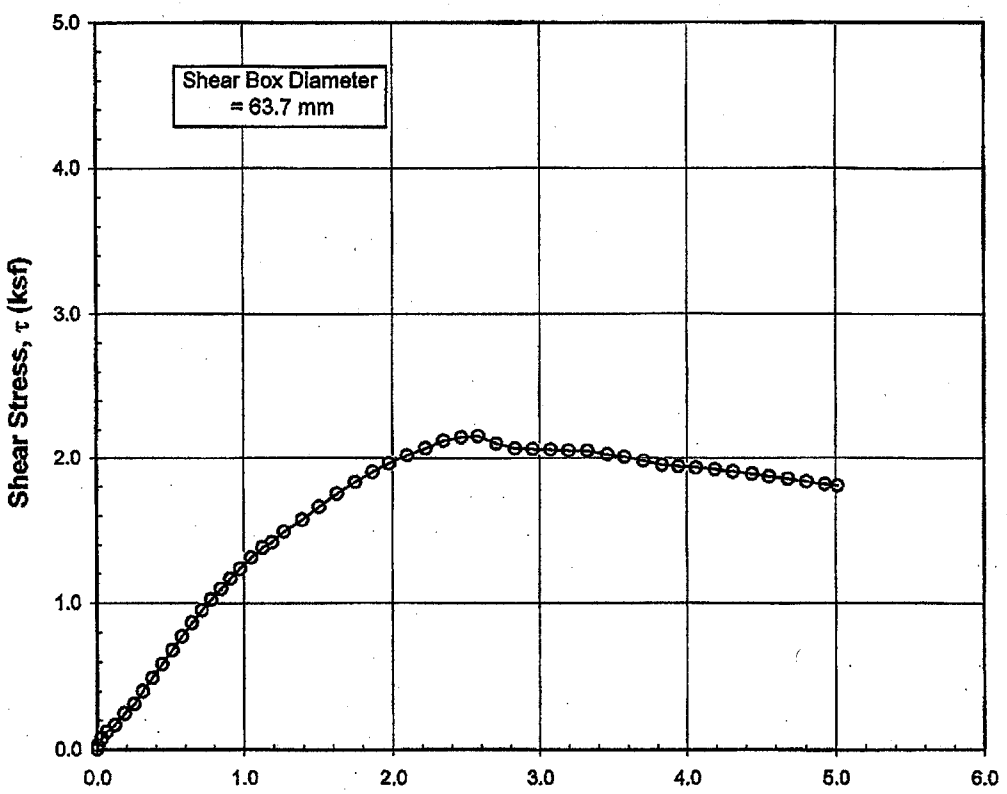
Boring: B-771 - Sample: UD-2b - Depth: 42.55 ft

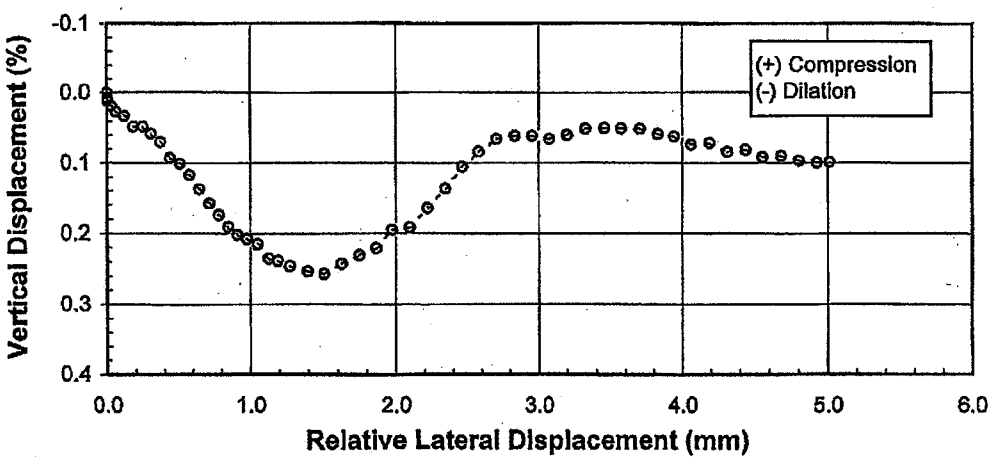
Reviewed By: HP

PLATE ?

NA 10-7-02

DCN: CALV-050





DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

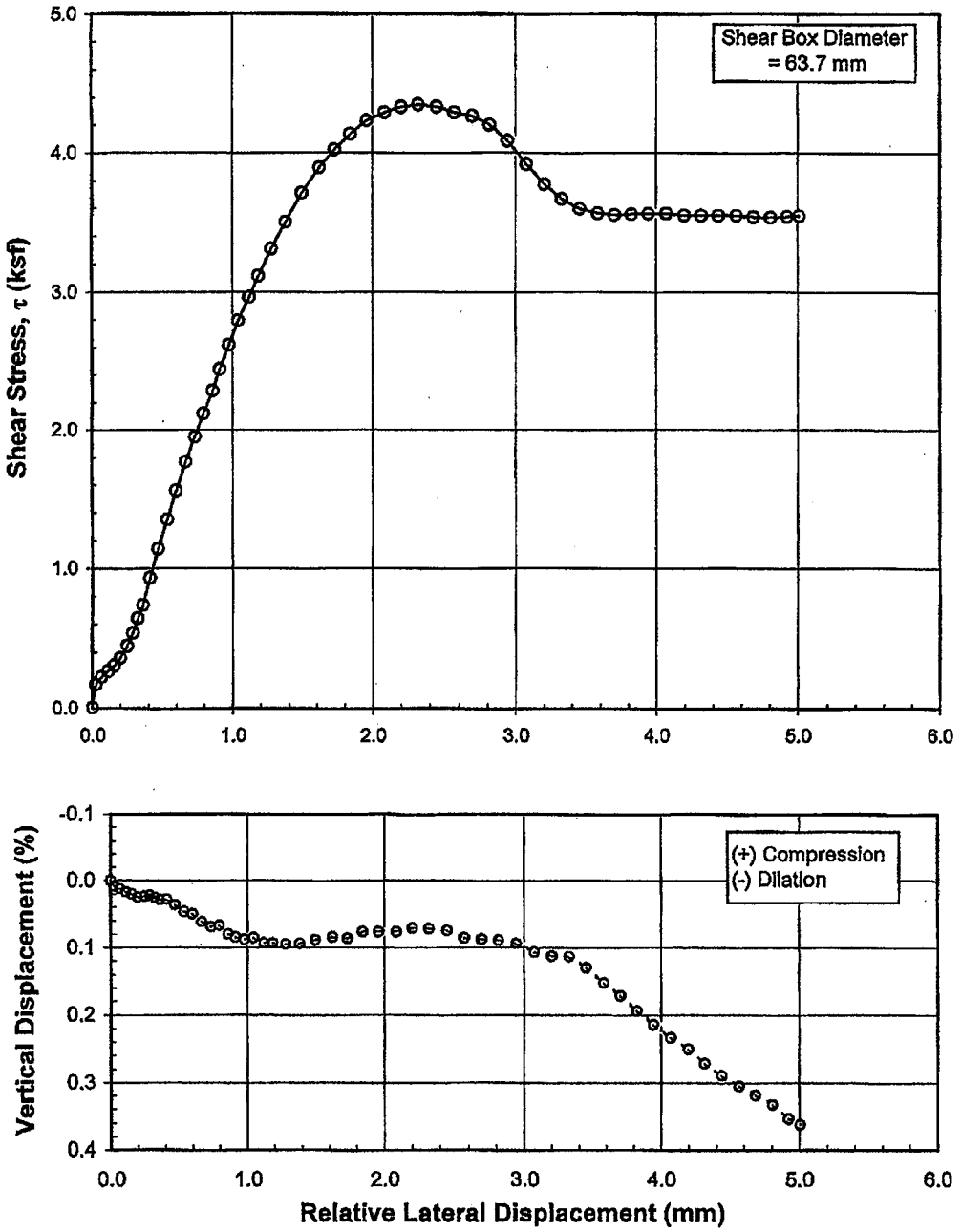
Soil - Soil Interface $\sigma'_{v,c}$ = 2.45 ksf

Boring: B-771 - Sample: UD-2c - Depth: 42.65 ft

Reviewed By: HP

PLATE ?

AA 10-7-08



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.04 ksf

Boring: B-771 - Sample: UD-2d - Depth: 42.55 ft

Reviewed By: HP

PLATE ?

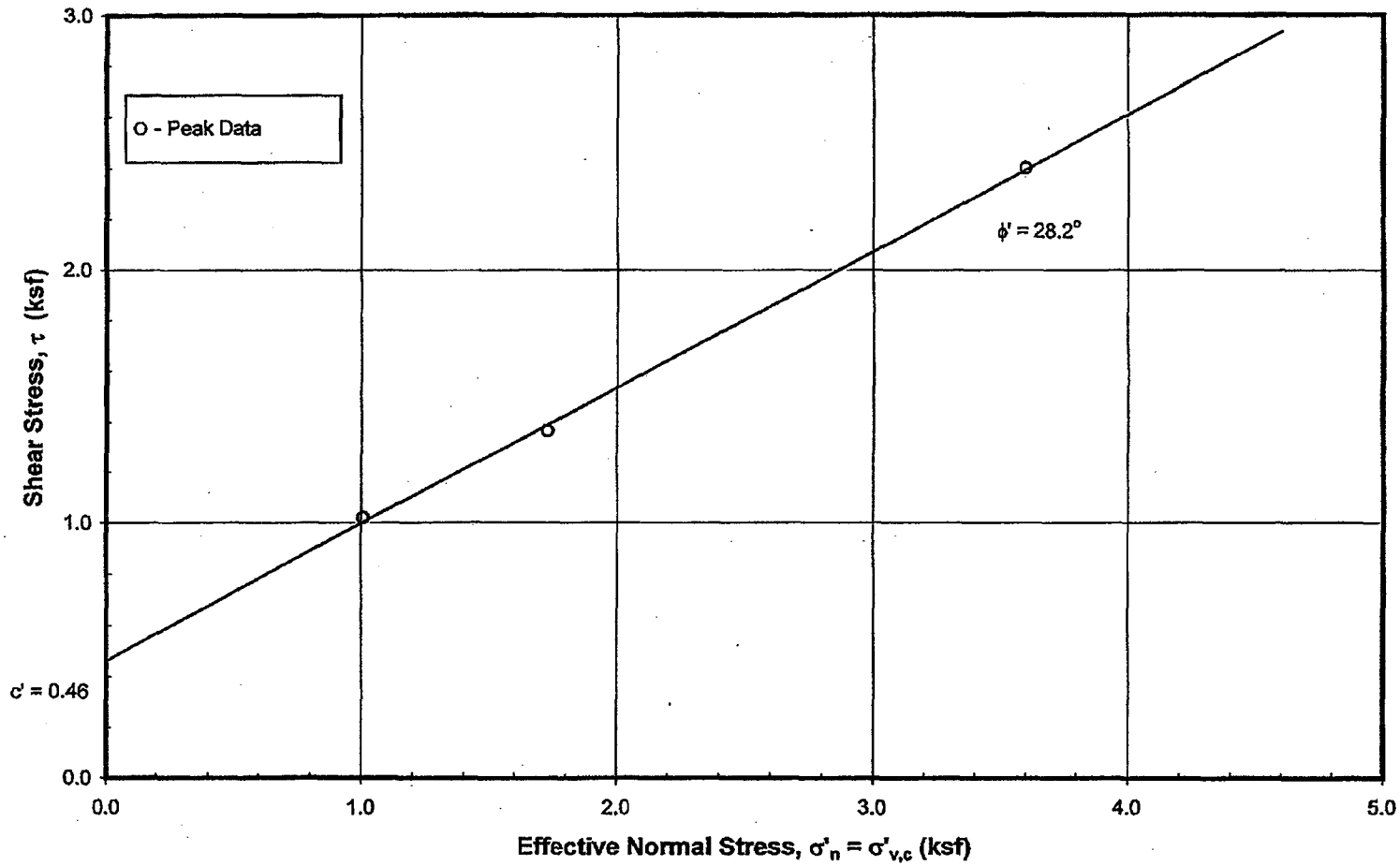
MA 10-7-08

DCN: CALV-050

Prepared By: HP
Reviewed By: HP

B-773A_UD-2c.xls, c-phi plot 10/2/2008

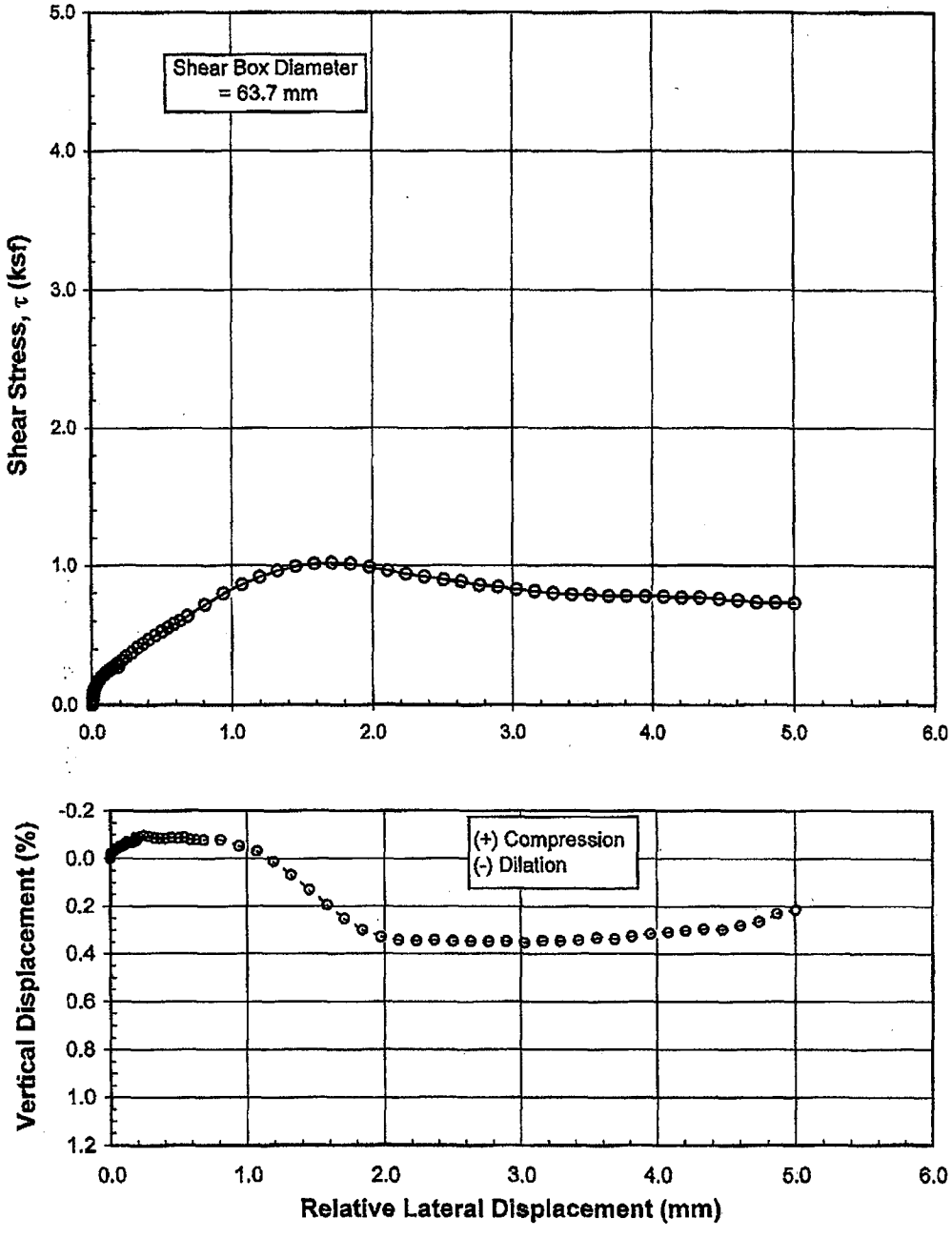
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-773A - Sample: UD-2c - Depth: 24.90 ft

Report No. 0411-08-1707

NA 10-7-08

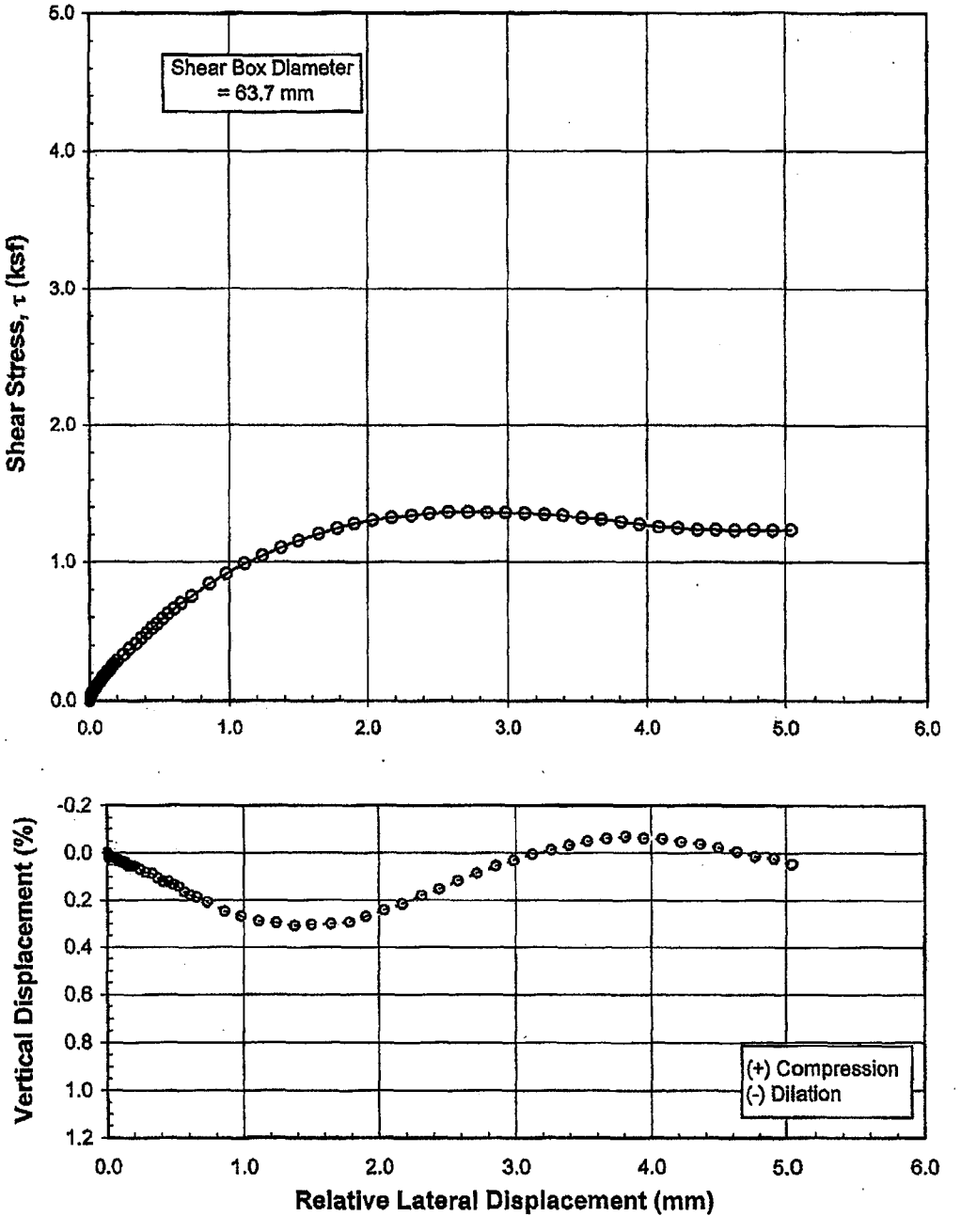


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.01 ksf

Boring: B-773A - Sample: UD-2a - Depth: 24.70 ft

Reviewed By: HL

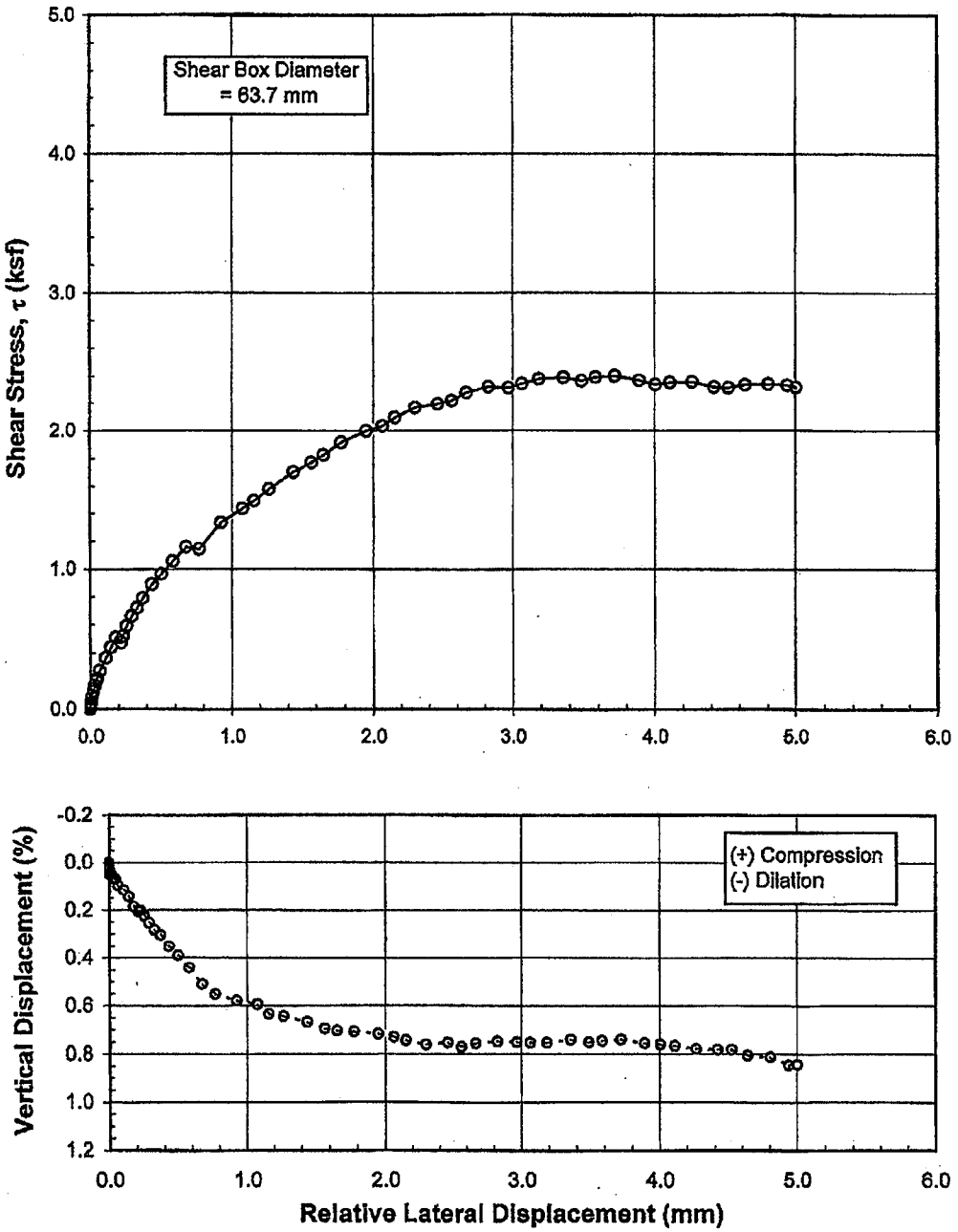


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.73 ksf

Boring: B-773A - Sample: UD-2b - Depth: 24.80 ft

Reviewed By: HP

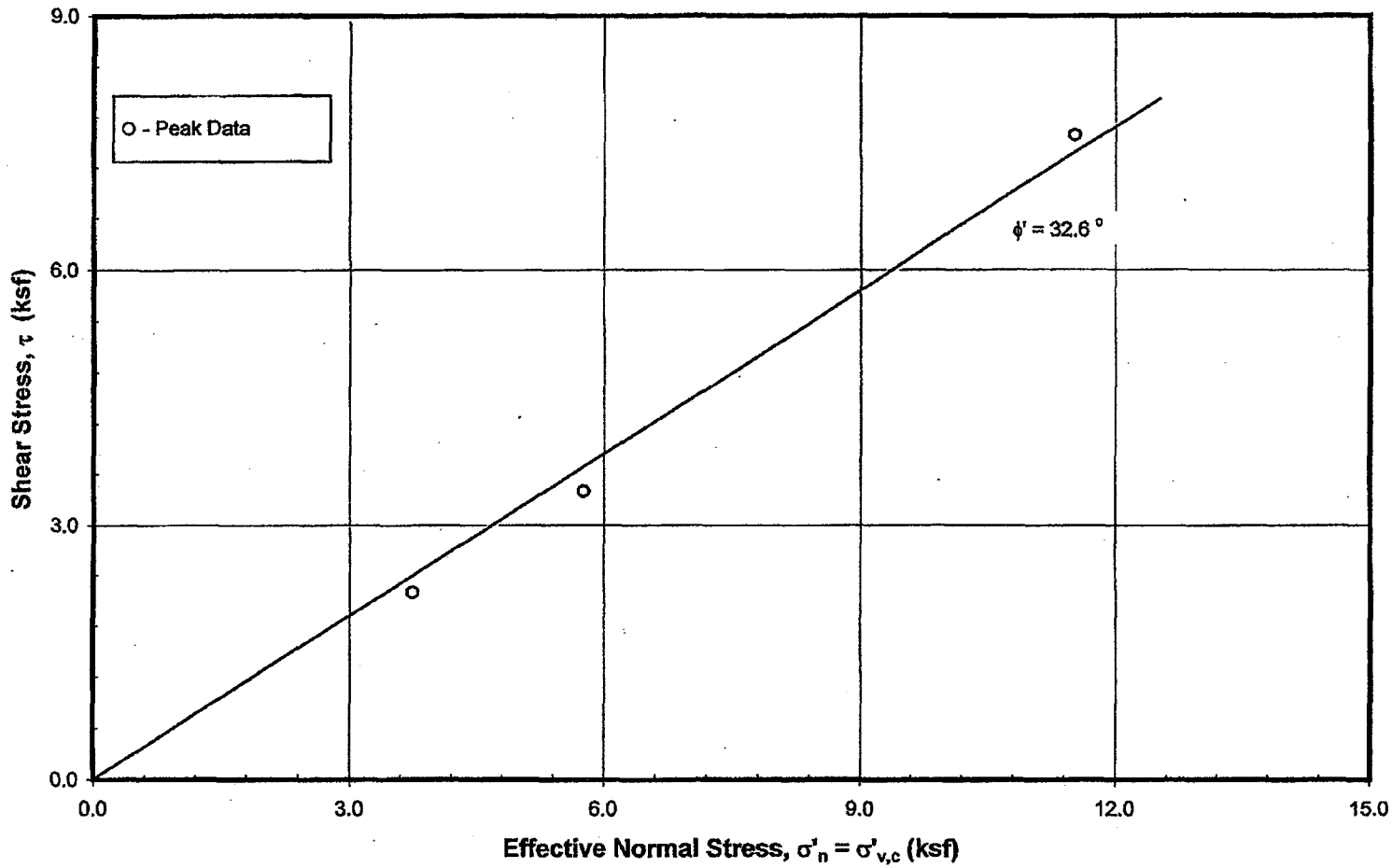


DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.60 ksf

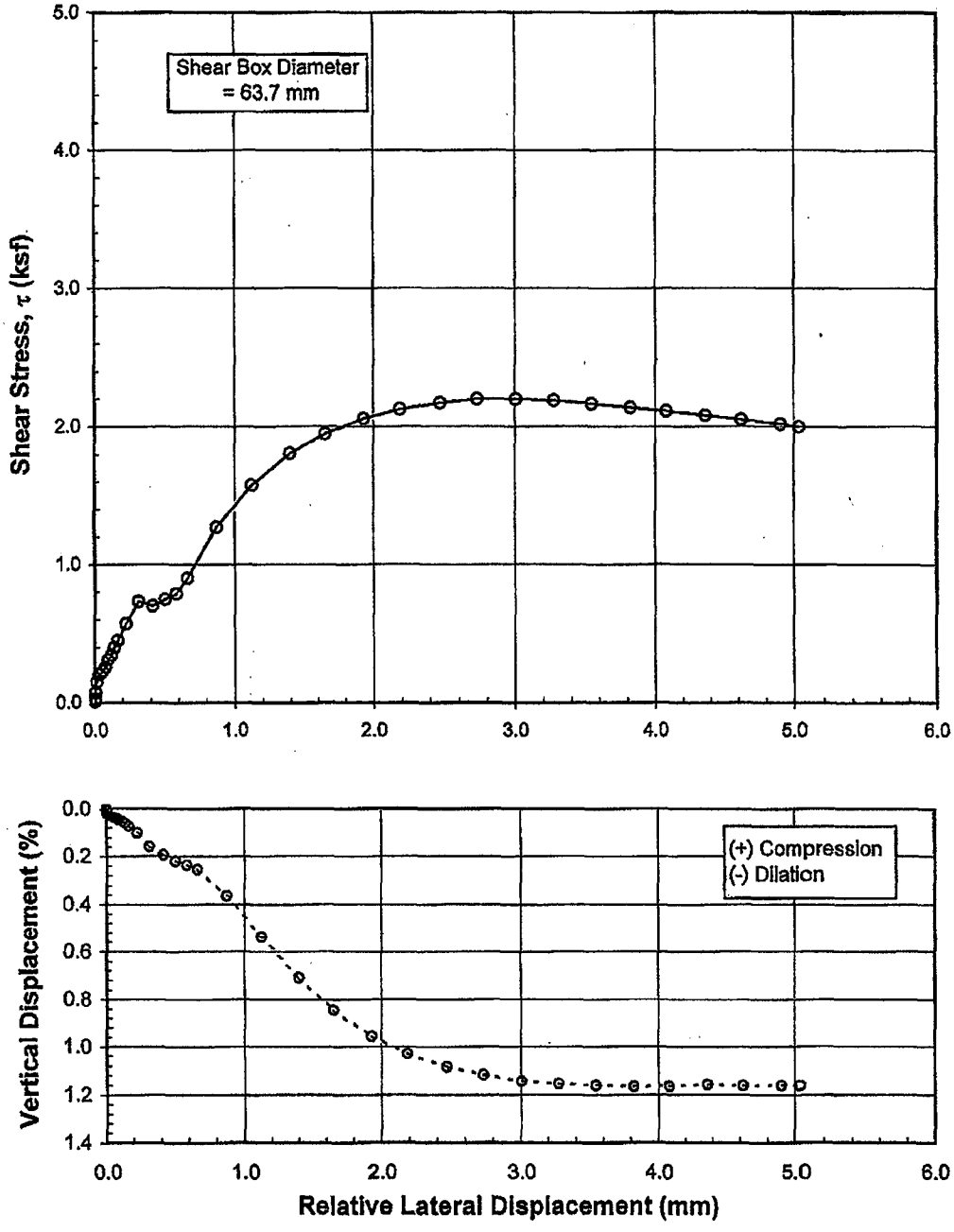
Boring: B-773A - Sample: UD-2c - Depth: 24.90 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-773A - Sample: UD-9c - Depth: 94.90 ft

AA 10-2-08

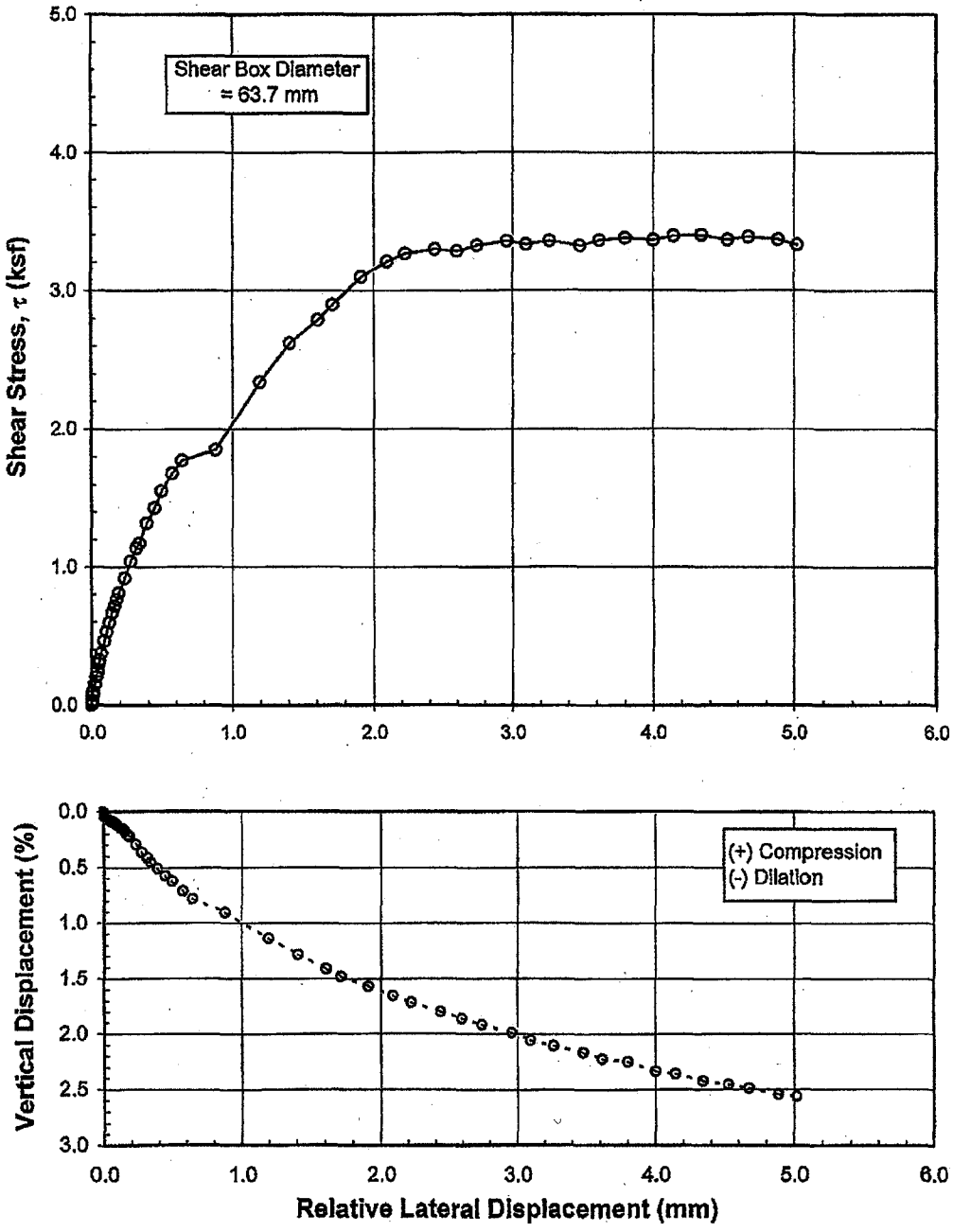


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.74 ksf
Boring: B-773A - Sample: UD-9a - Depth: 94.70 ft

Reviewed By: HP

DCN: CALV-050

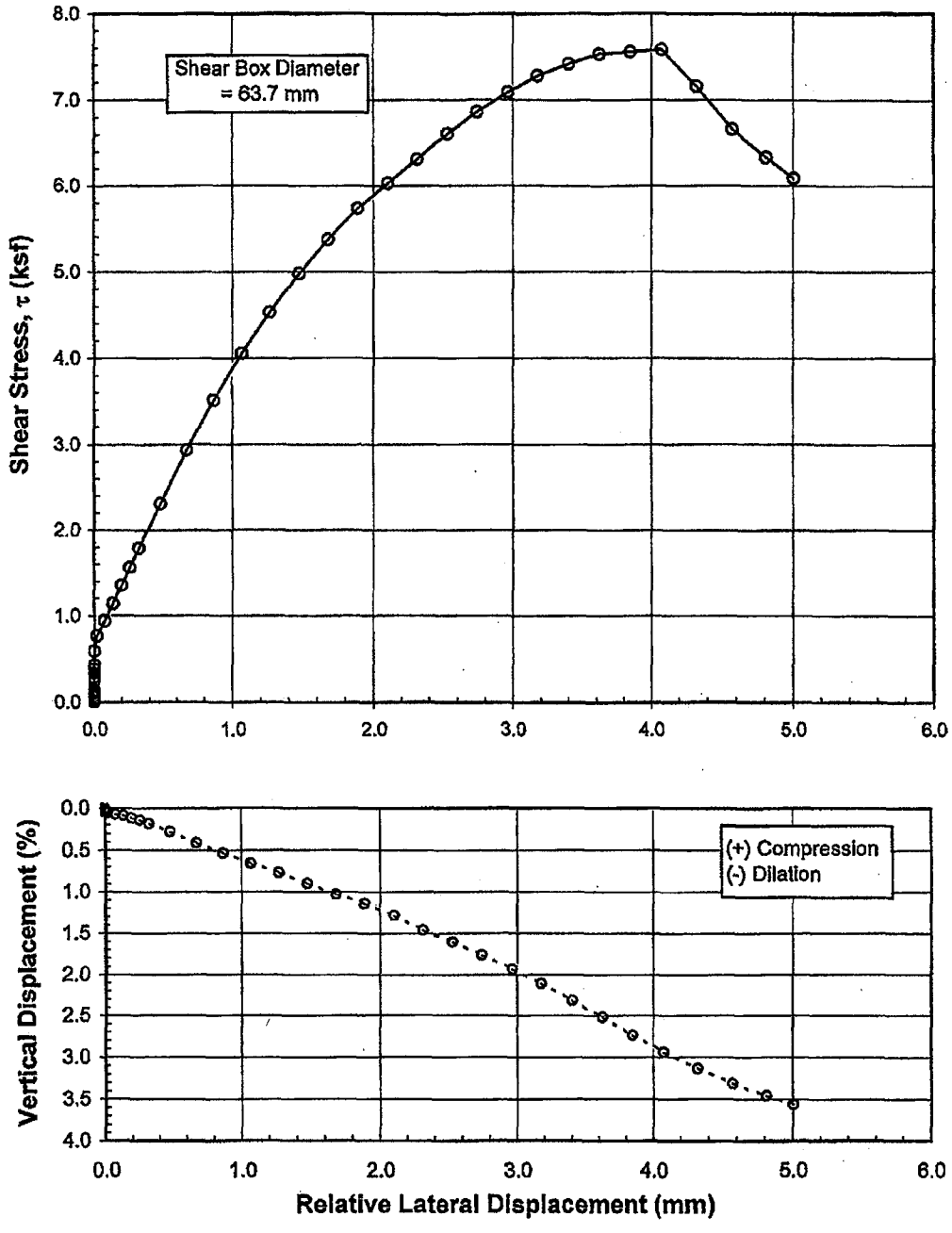


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.76 ksf

Boring: B-773A - Sample: UD-9b - Depth: 94.80 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 11.52 ksf

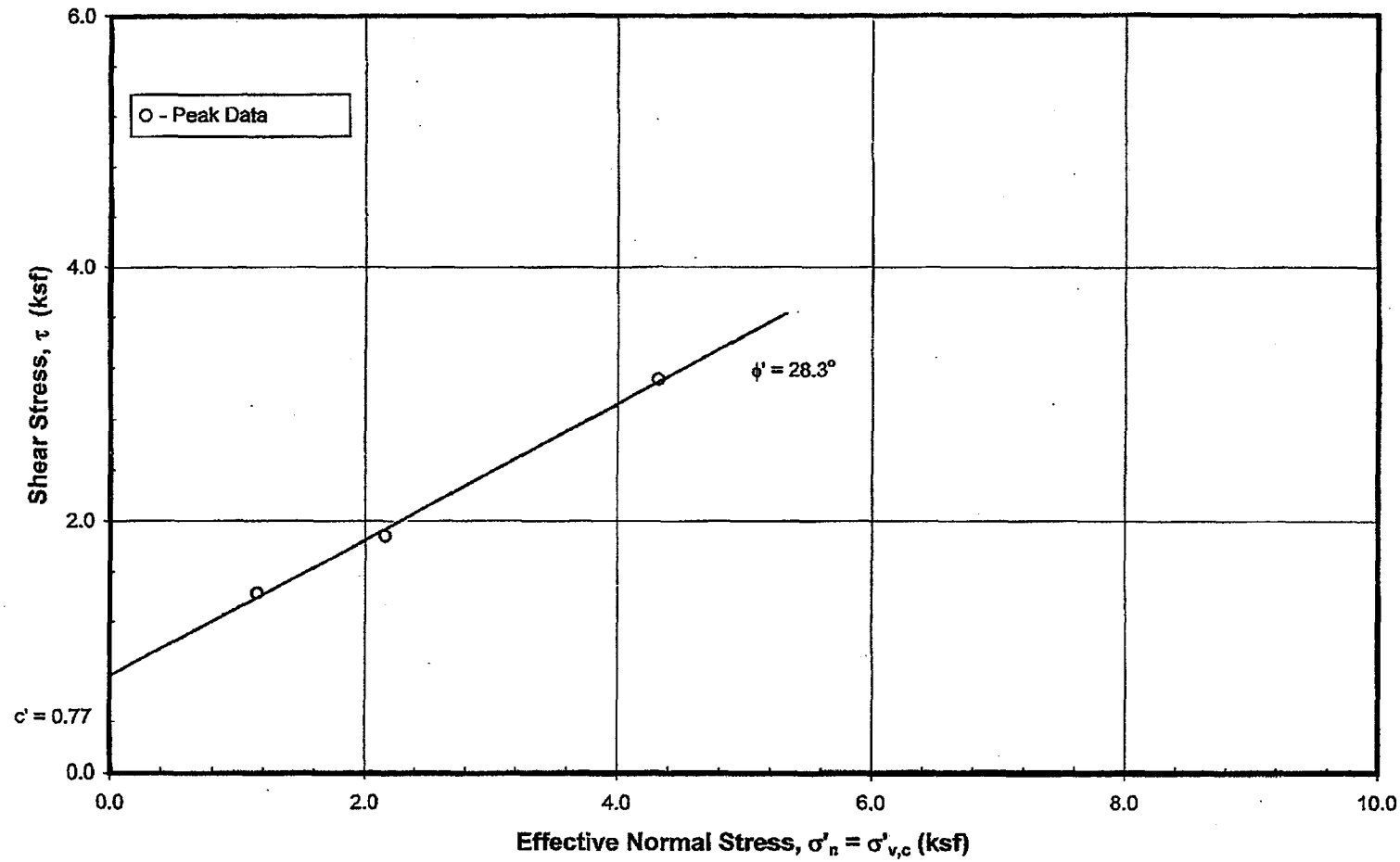
Boring: B-773A - Sample: UD-9c - Depth: 94.90 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

B-774_UD-4d.xls, c-phi plot 9/11/2008

Revision Date: 12/01/07



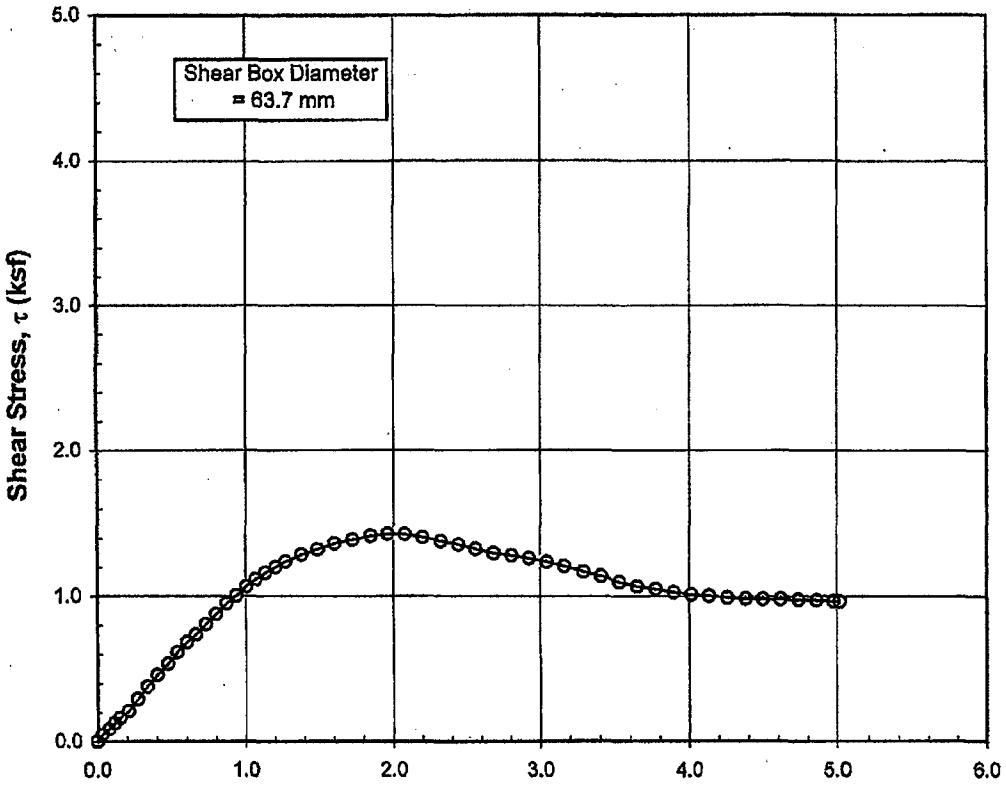
DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-4d - Depth: 32.75 ft

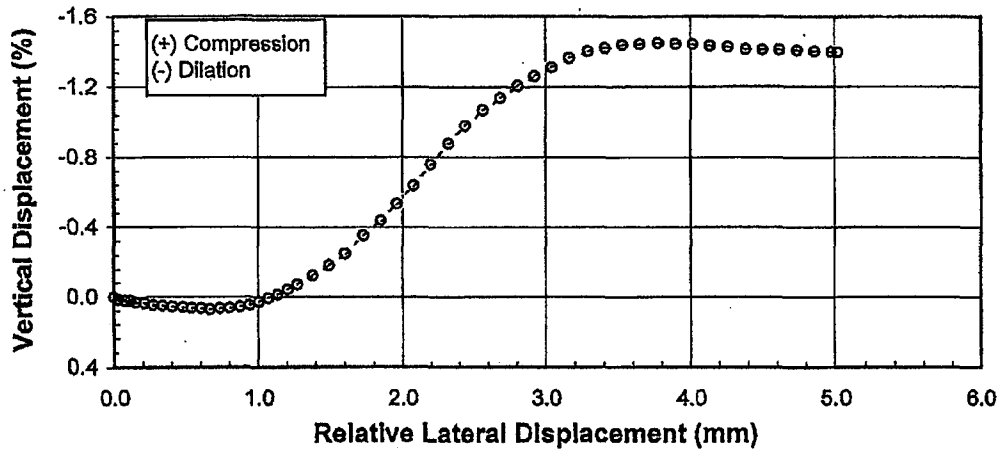
Report No. 0411-08-1707

HA 10-7-08

DCN: CALV-050

PLATE ?-?





DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

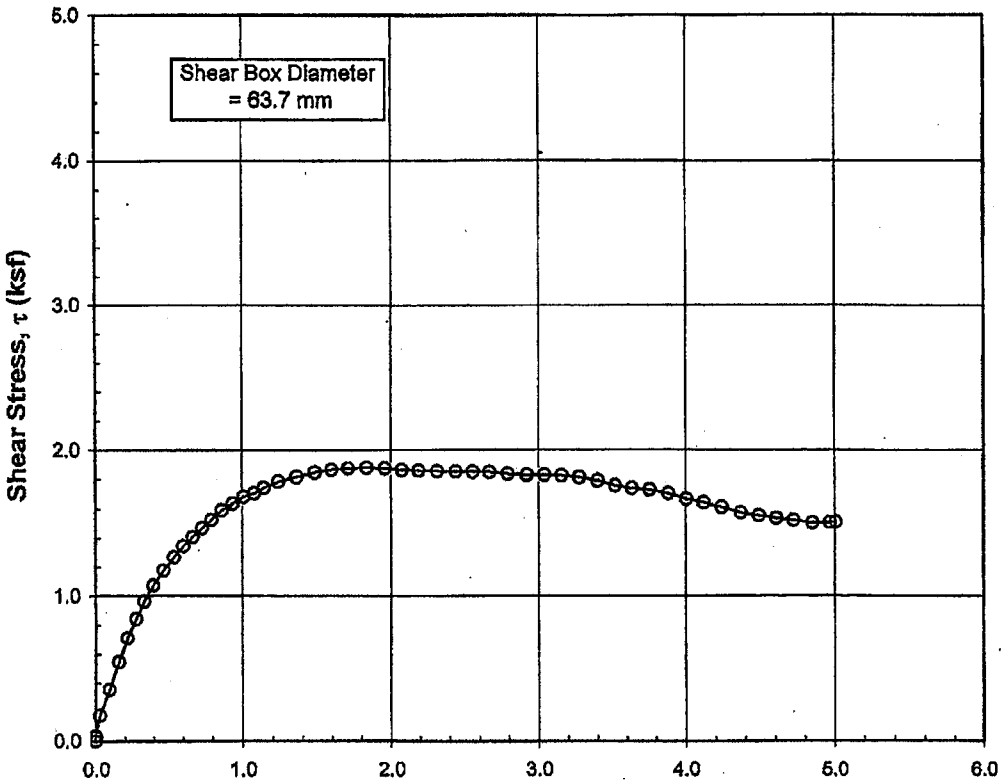
Soil - Soil Interface $\sigma'_{v,c}$ = 1.15 ksf

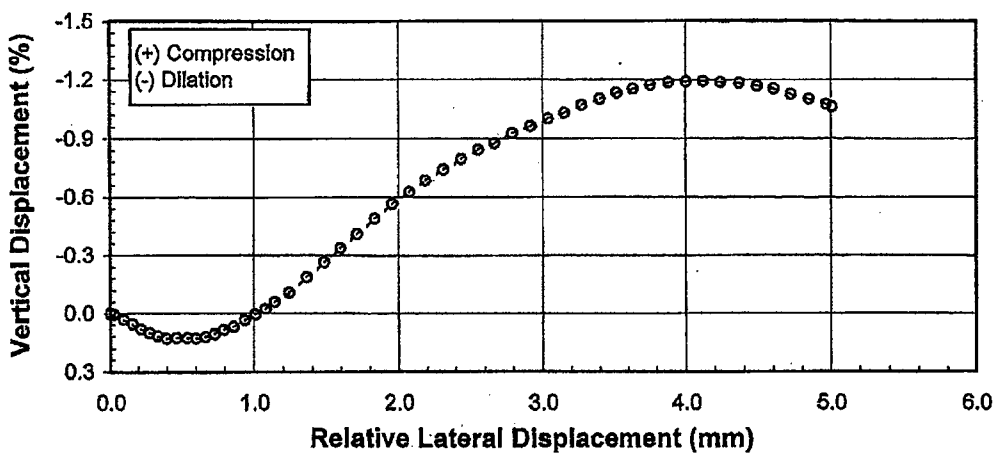
Boring: B-774 - Sample: UD-4b - Depth: 32.8 ft

Reviewed By: HP

PLATE ?

NA 10-7-08





DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf

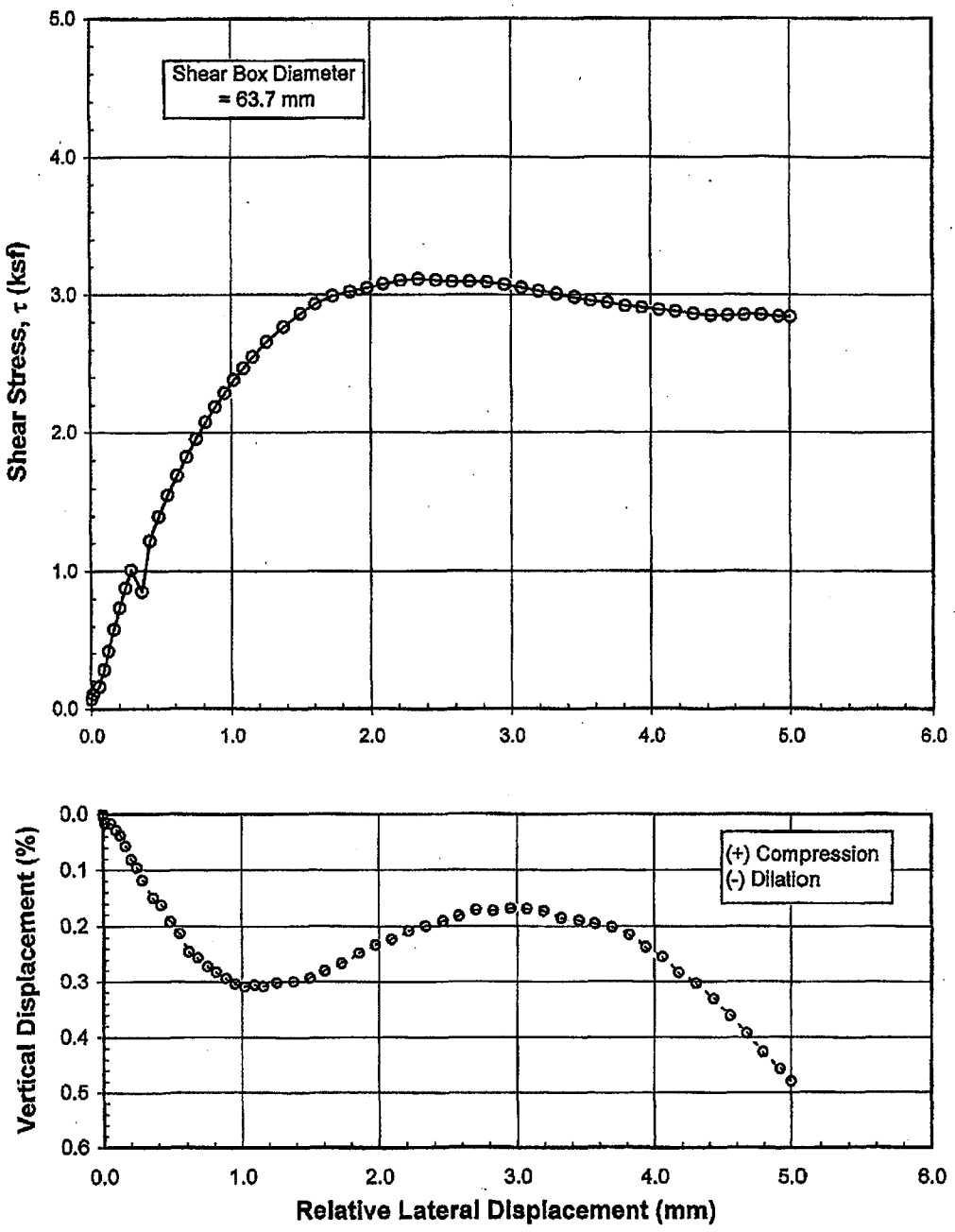
Boring: B-774 - Sample: UD-4c - Depth: 32.85 ft

Reviewed By: HP

PLATE ?

MA 10-7-08

DCN: CALV-050



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

Boring: B-774 - Sample: UD-4d - Depth: 32.75 ft

Reviewed By: HP

PLATE ?

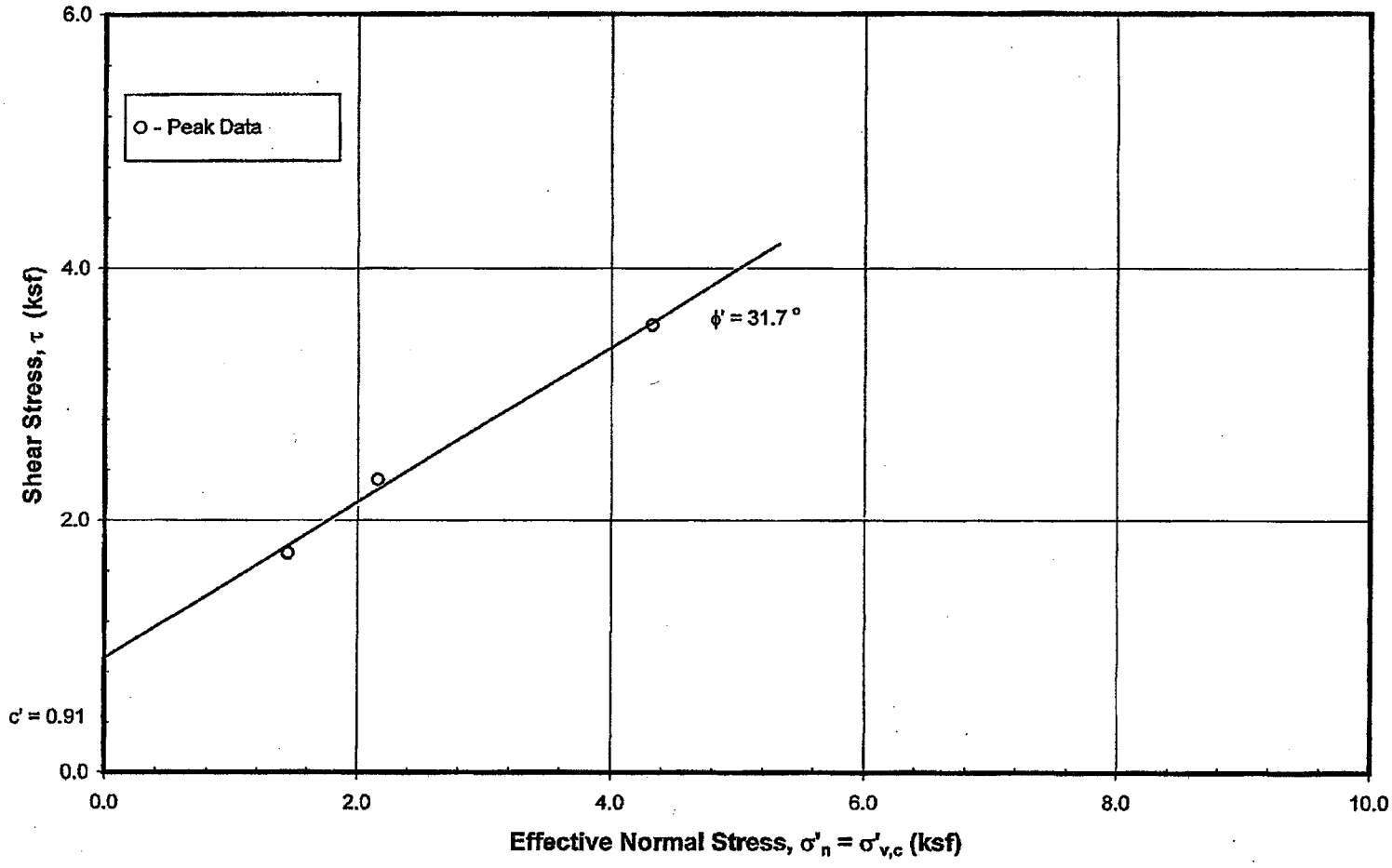
AS 10-7-08

DCN: CALV-050

Prepared By: HP
Reviewed By: HP

B-774_UD-5d.xls, c-phi plot 9/18/2008

Revision Date: 12/01/07

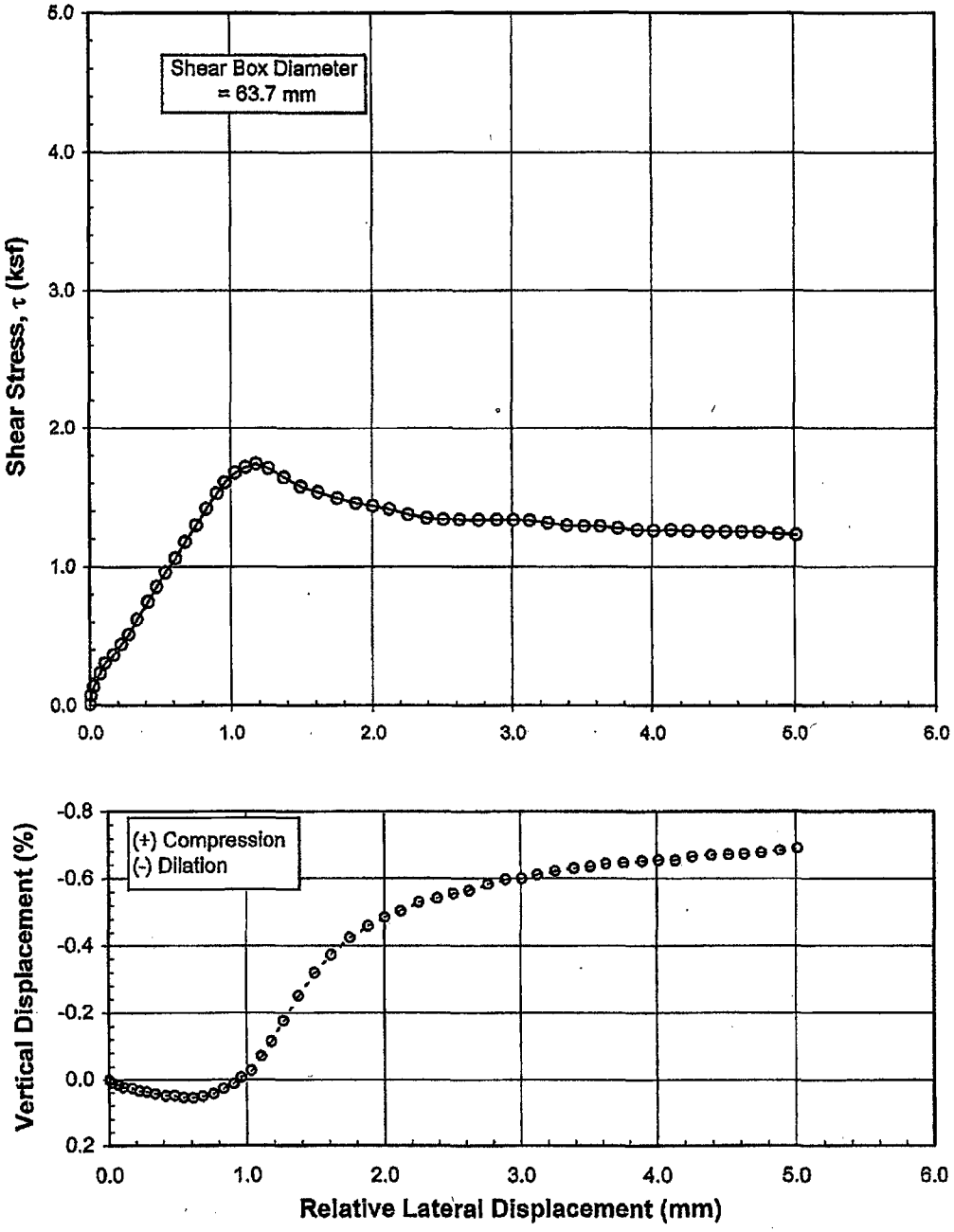


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-5 - Depth: 42.45 ft

Report No. 0411-08-1707

PLATE ?-?

DCN: CALV-050 10-1-08



DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

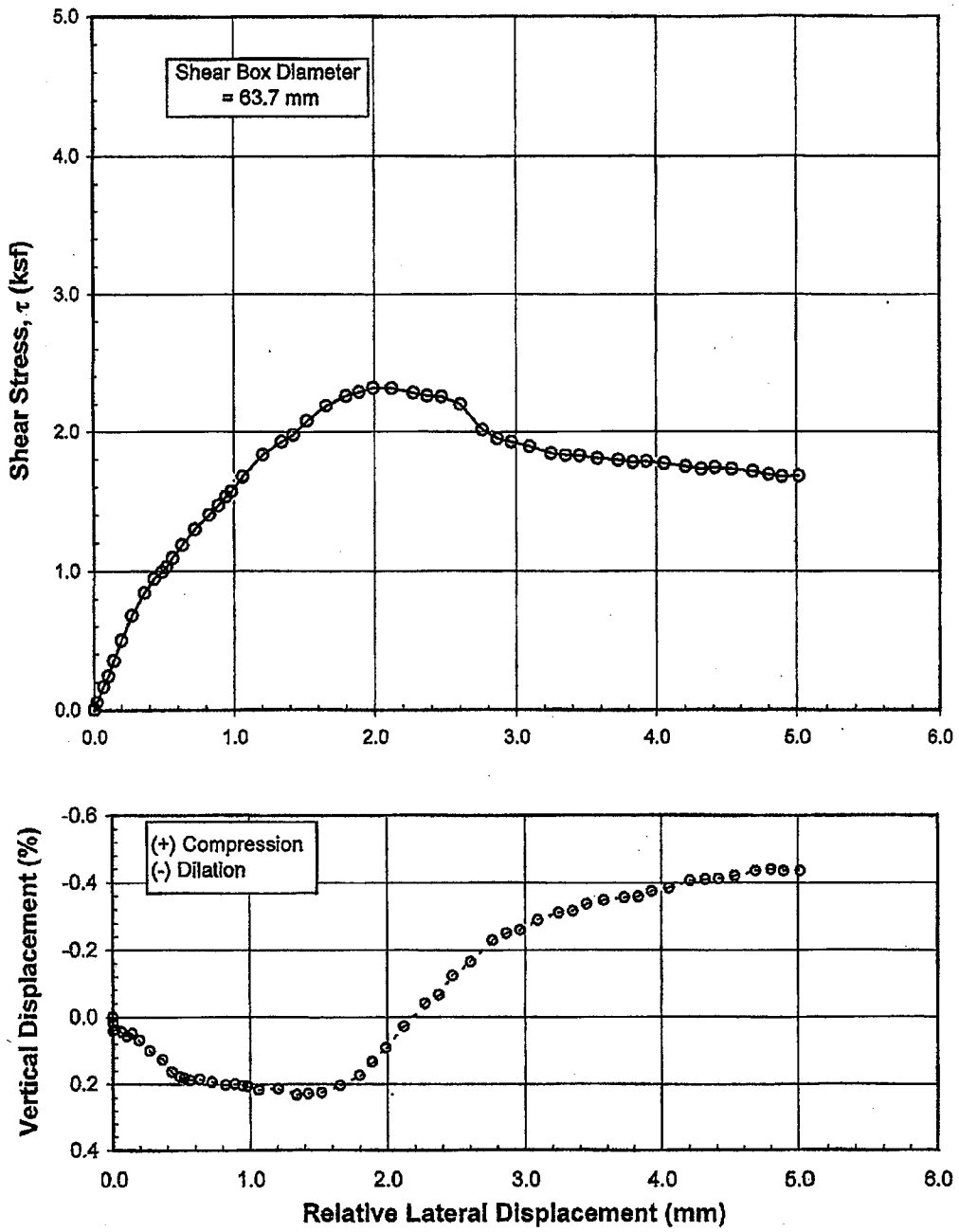
Soil - Soil Interface $\sigma'_{v,c}$ = 1.44 ksf
Boring: B-774- Sample: UD-5b - Depth: 42.55 ft

Reviewed By: HO

PLATE ?

10-7-03

DCN: CALV-050



DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

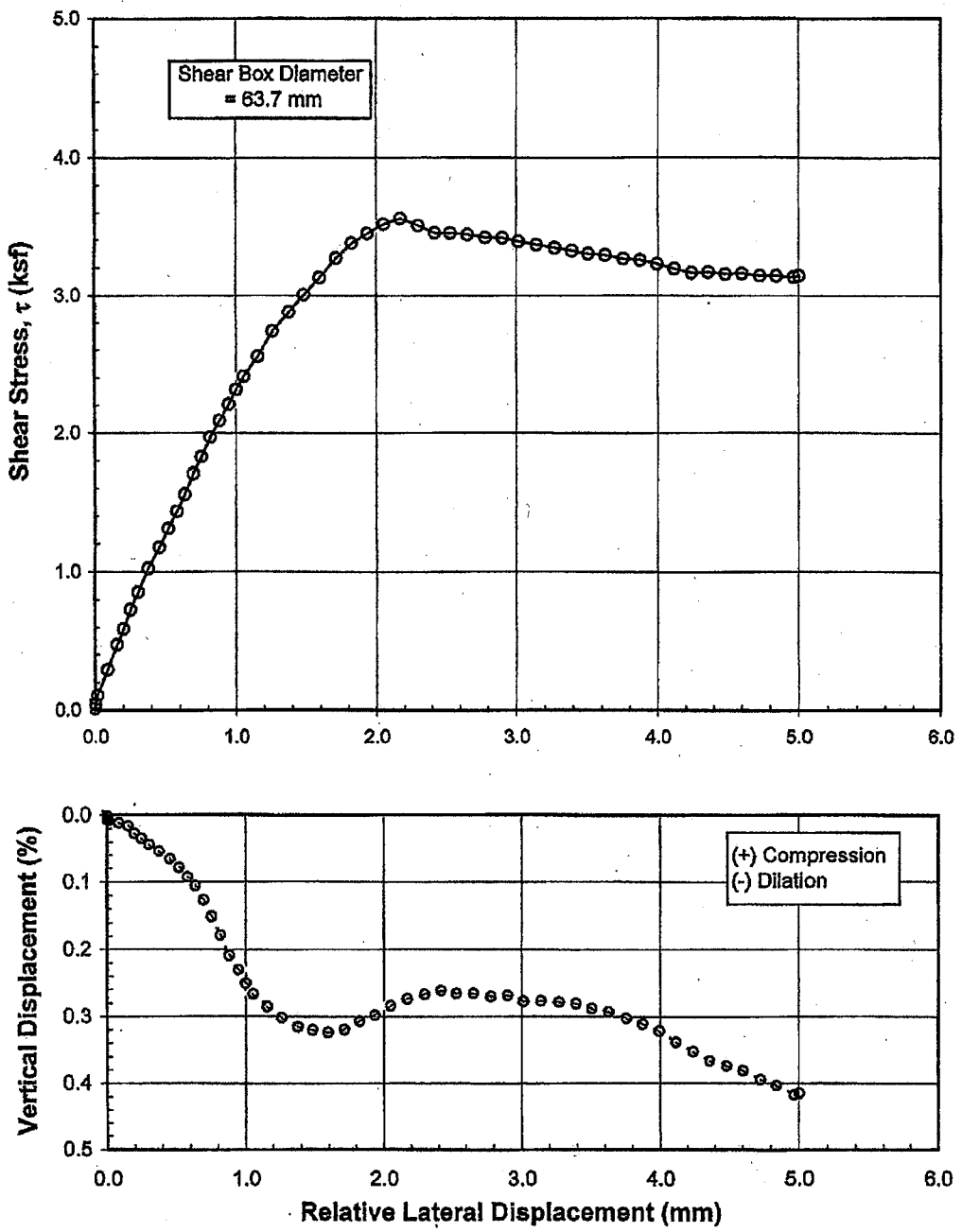
Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf

Boring: B-774 - Sample: UD-5c - Depth: 42.65 ft

Reviewed By: HP

PLATE ?

AP 10-7-08



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

Boring: B-774 - Sample: UD-5d - Depth: 42.45 ft

Reviewed By: HP

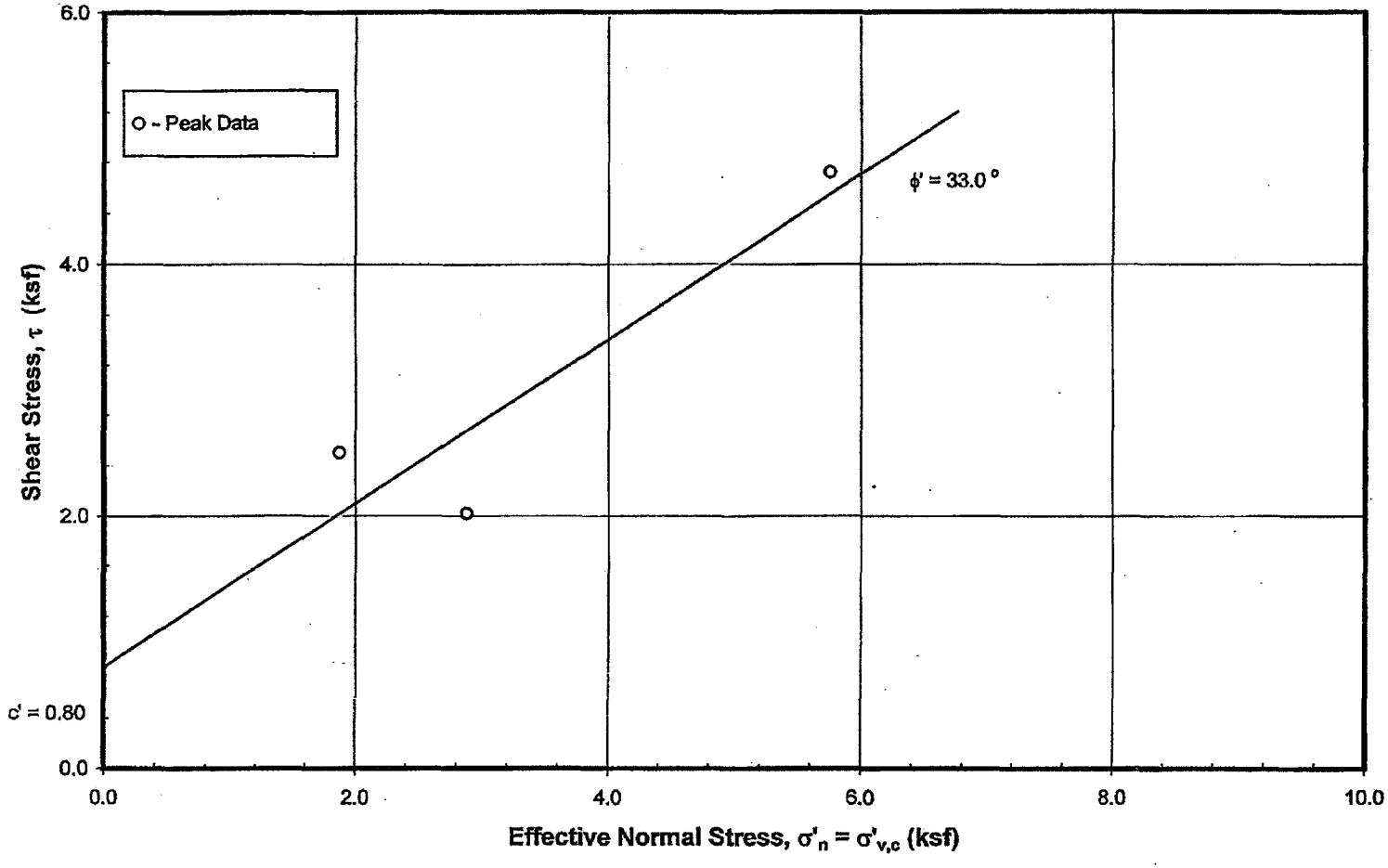
PLATE ?

AA 10-7-02

Prepared By: HP
Reviewed By: HP

B-774_UD-6d.xls, c-phi plot 9/18/2008

Revision Date: 12/01/07



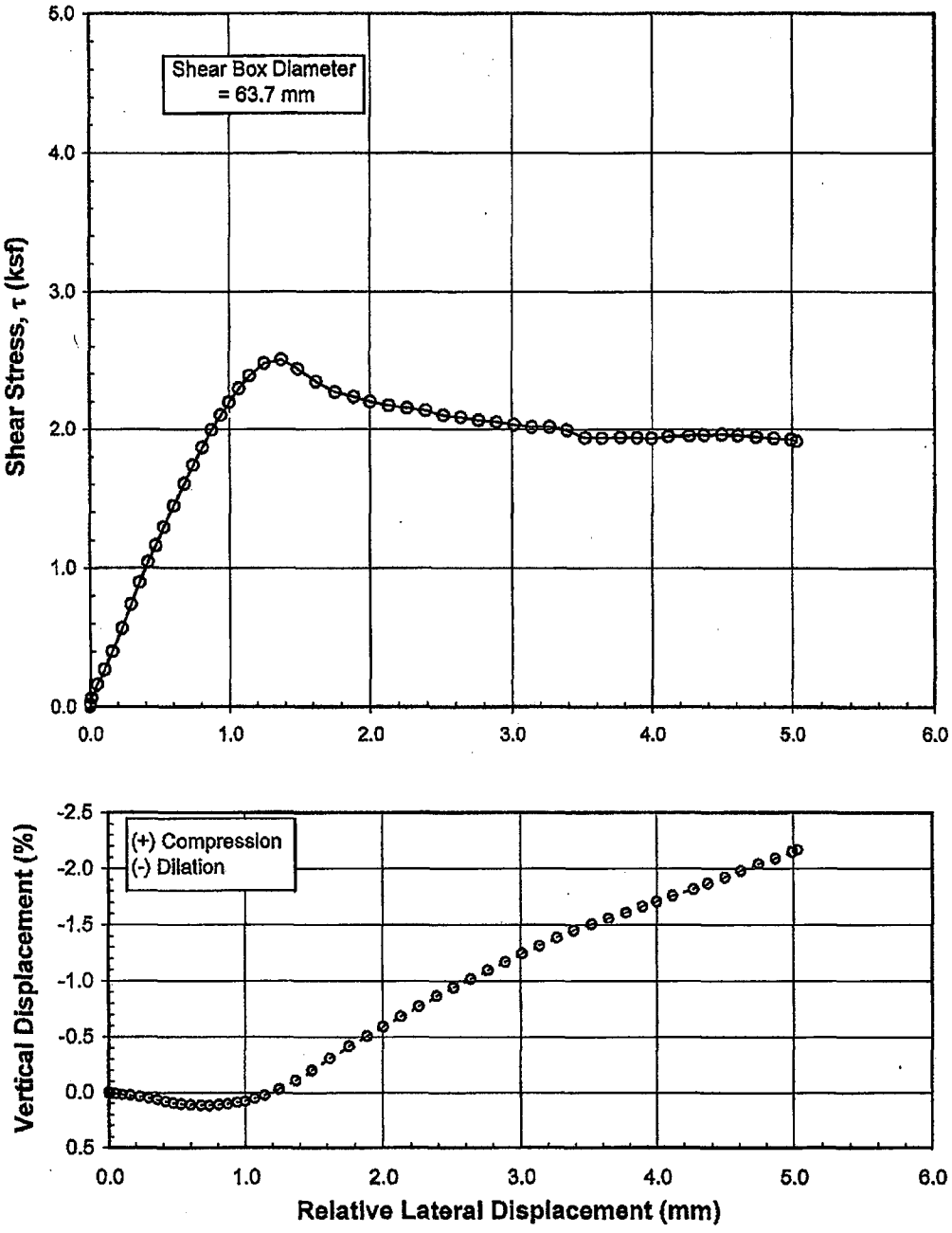
DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-6 - Depth: 52.70 ft

Report No. 0411-08-1707

DCN: CALV-050

PLATE ?-?

AA 10-7-08



DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

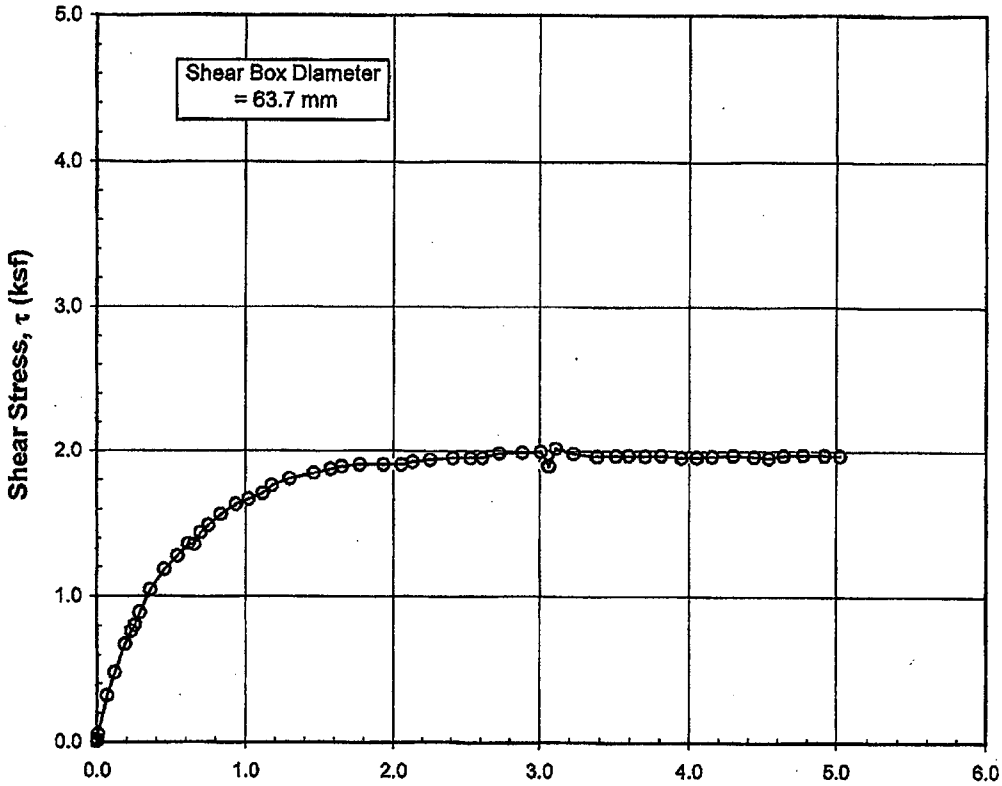
Soil - Soil Interface $\sigma'_{v,c}$ = 1.87 ksf

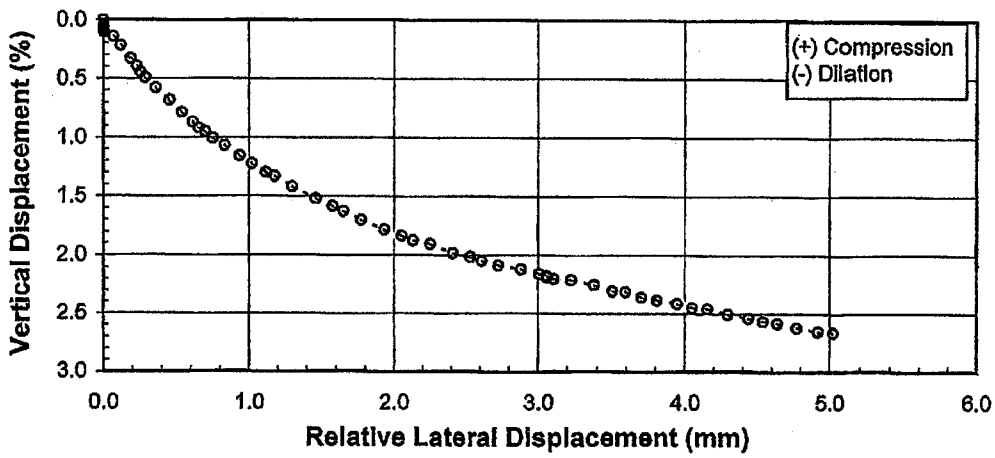
Boring: B-774 - Sample: UD-6b - Depth: 52.5 ft

Reviewed By: HW

PLATE ?

NA 10-7-02





DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.88 ksf

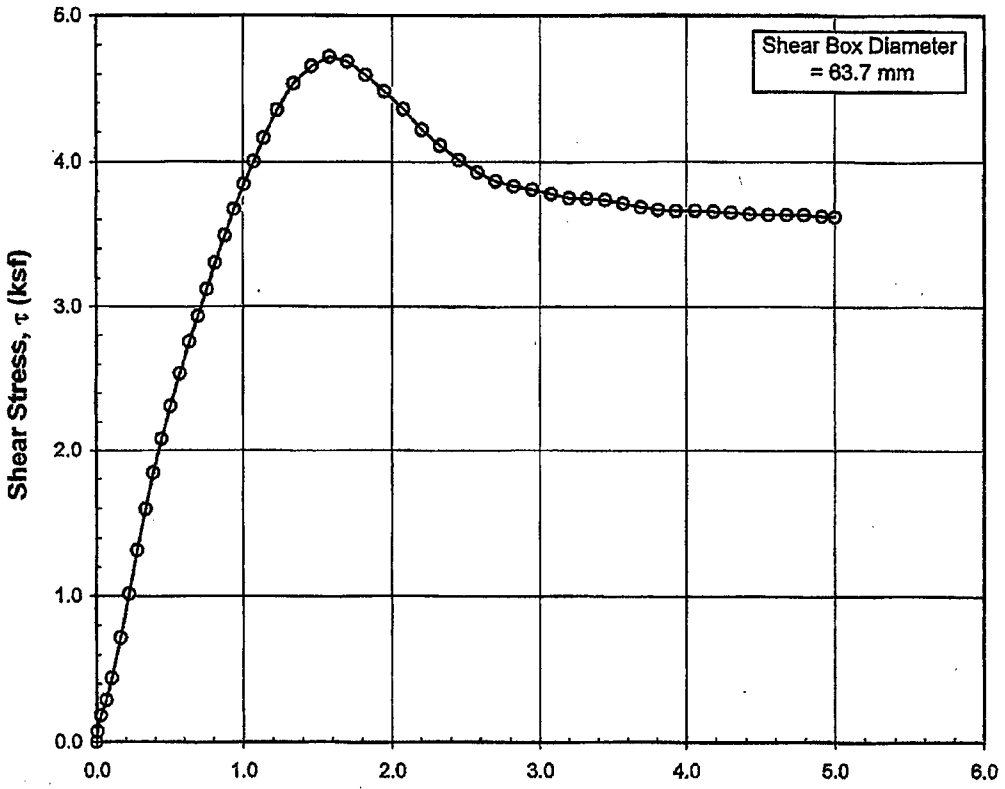
Boring: B-774 - Sample: UD-6c - Depth: 52.6 ft

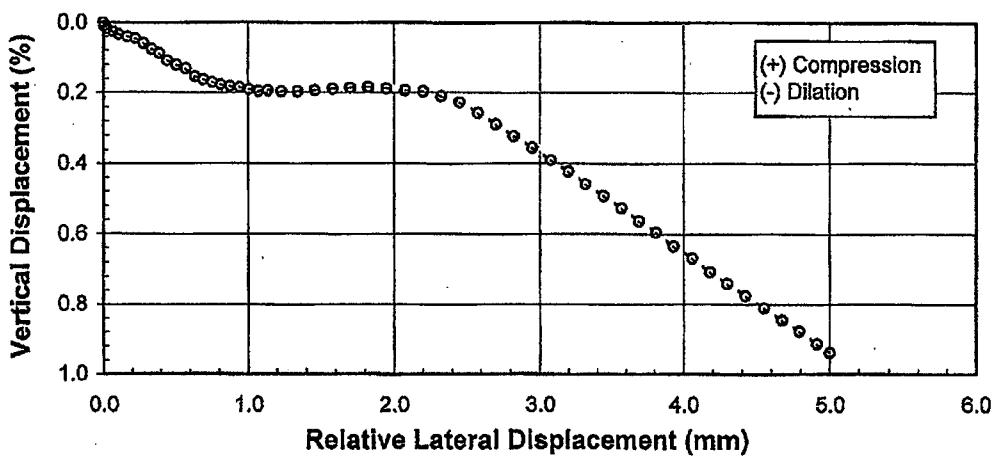
Reviewed By: HP

PLATE ?

AA 10-7-08

DCN: CALV-050





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.76 ksf

Boring: B-774 - Sample: UD-6d - Depth: 52.70 ft

Reviewed By: HP

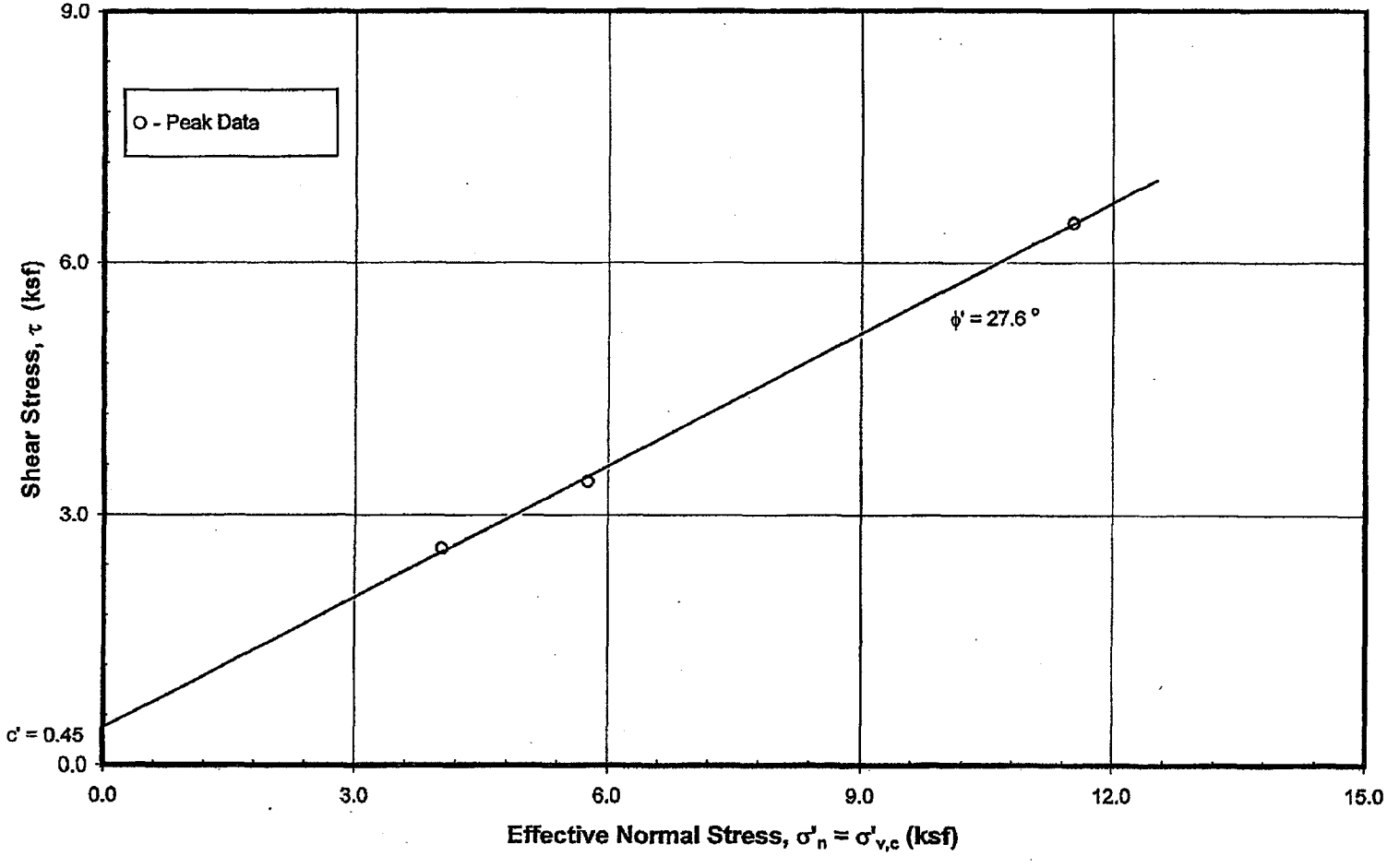
PLATE ?

NA 10-7-02

Prepared By: HP
Reviewed By: HP

B-774_UD-10d.xls, c-phi plot 9/18/2008

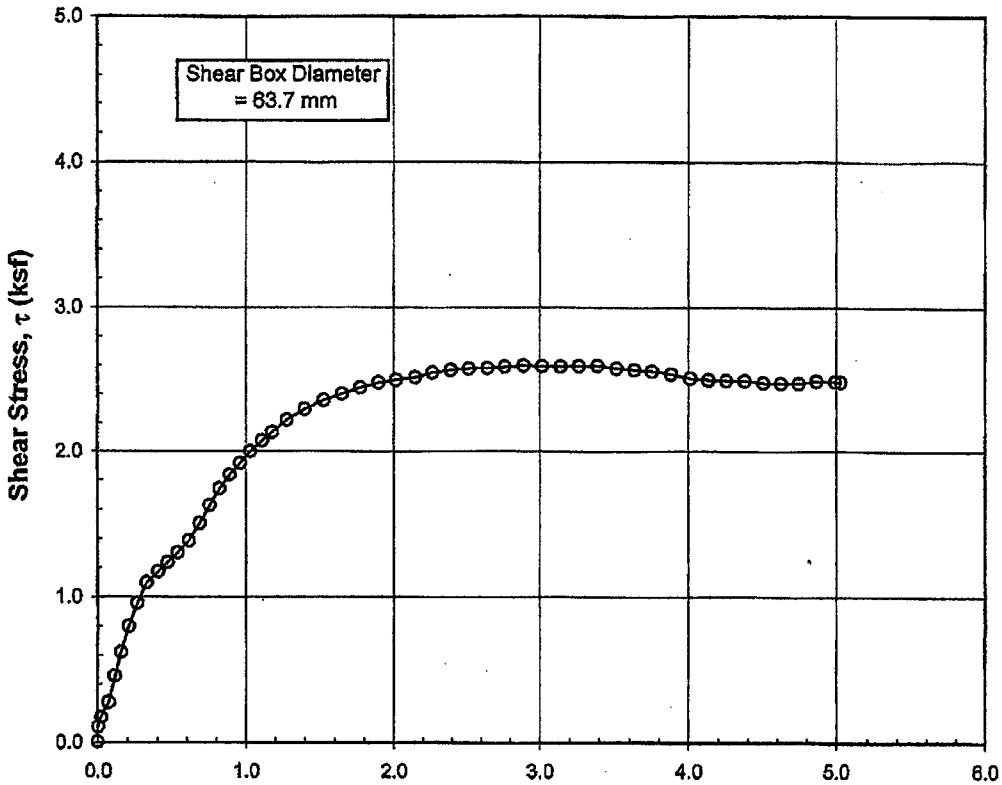
Revision Date: 12/01/07

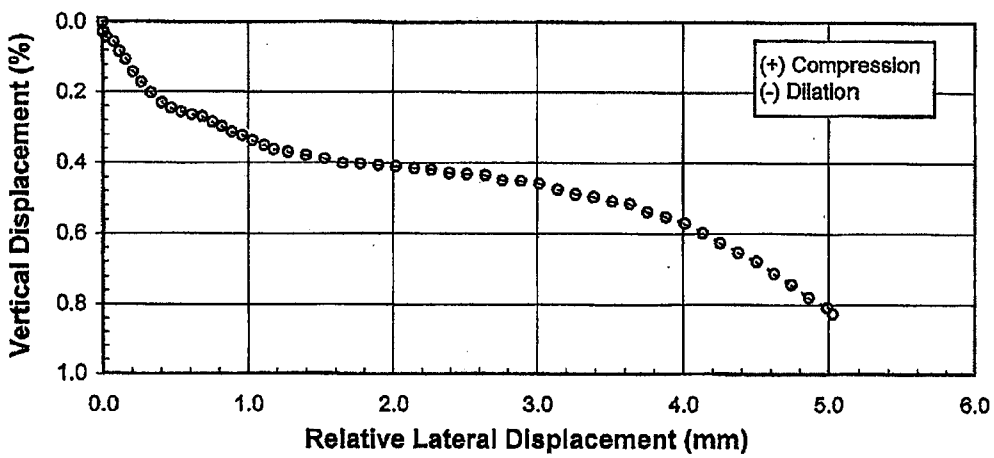


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-10 - Depth: 122.4 ft

Report No. 0411-08-1707

PLATE ?-?
MA 10-7-08
DCN: CALV-050





DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

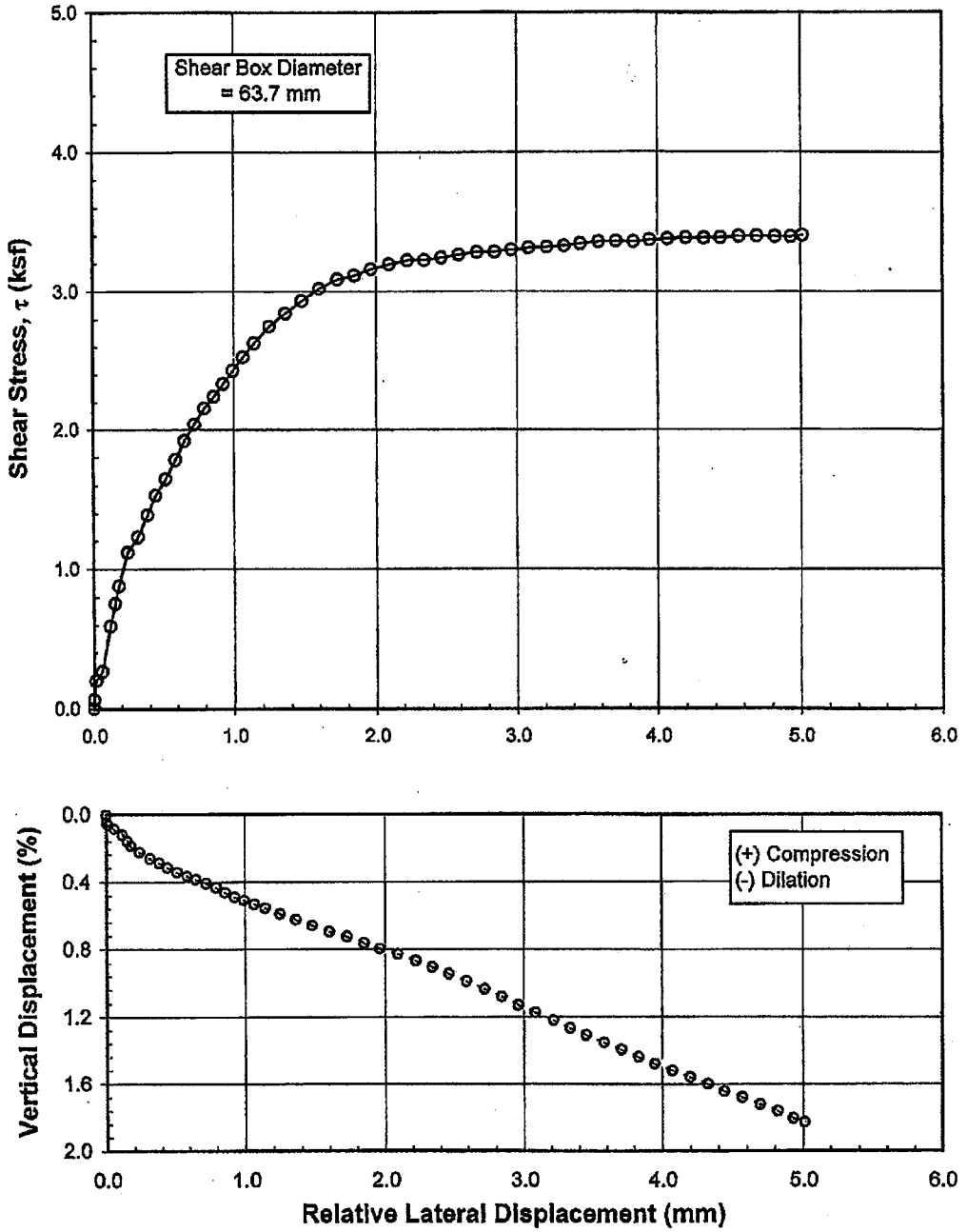
Soil - Soil Interface $\sigma'_{v,c}$ = 4.03 ksf

Boring: B-774 - Sample: UD-10b - Depth: 122.5 ft

Reviewed By: HP

PLATE ?

NA 10-7-08



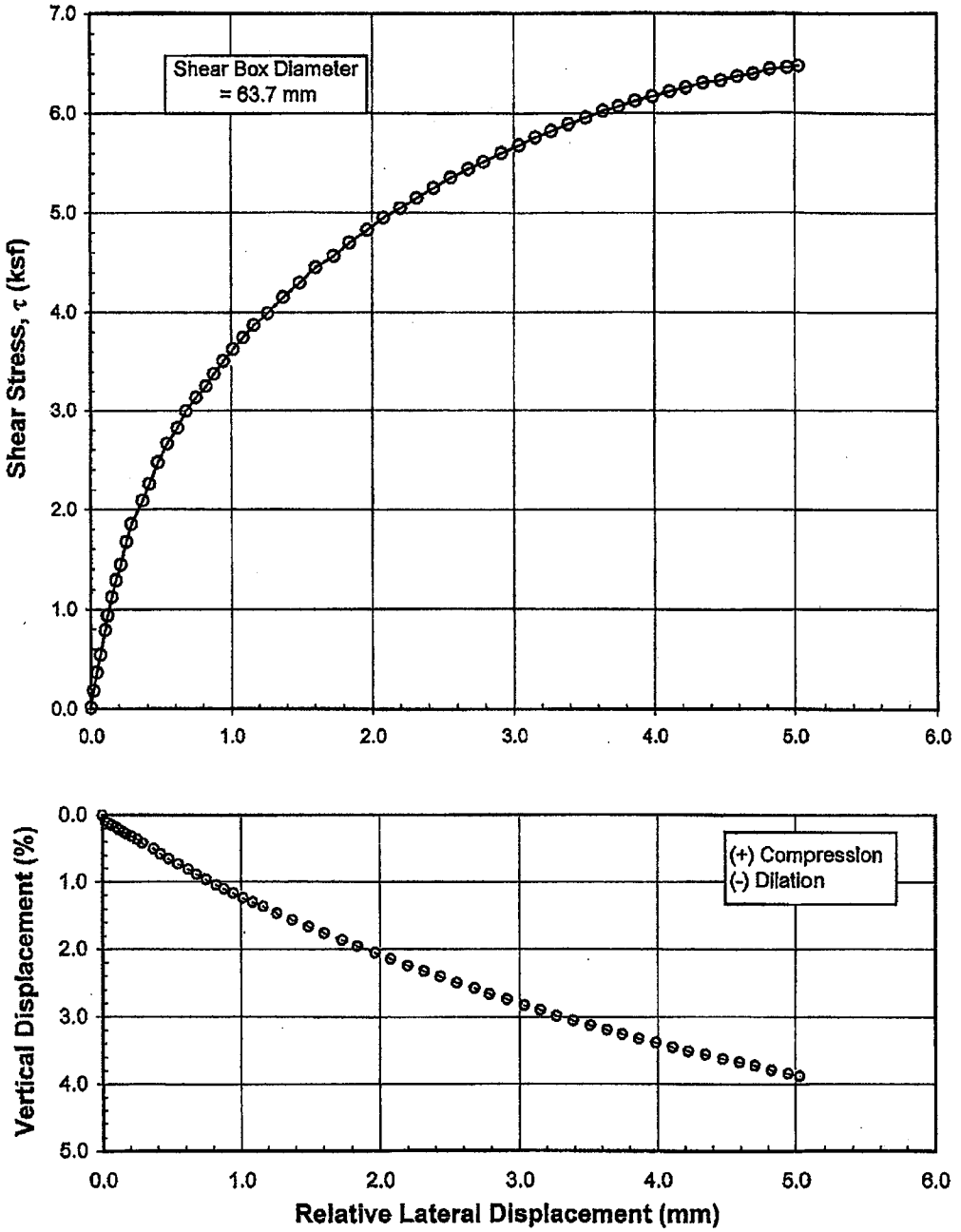
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.76 ksf
Boring: B-774 - Sample: UD-10c - Depth: 122.6 ft

Reviewed By: HP

PLATE ?

MA 10-7-08



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 11.52 ksf

Boring: B-774 - Sample: UD-10d - Depth: 122.4 ft

Reviewed By: HP

PLATE ?

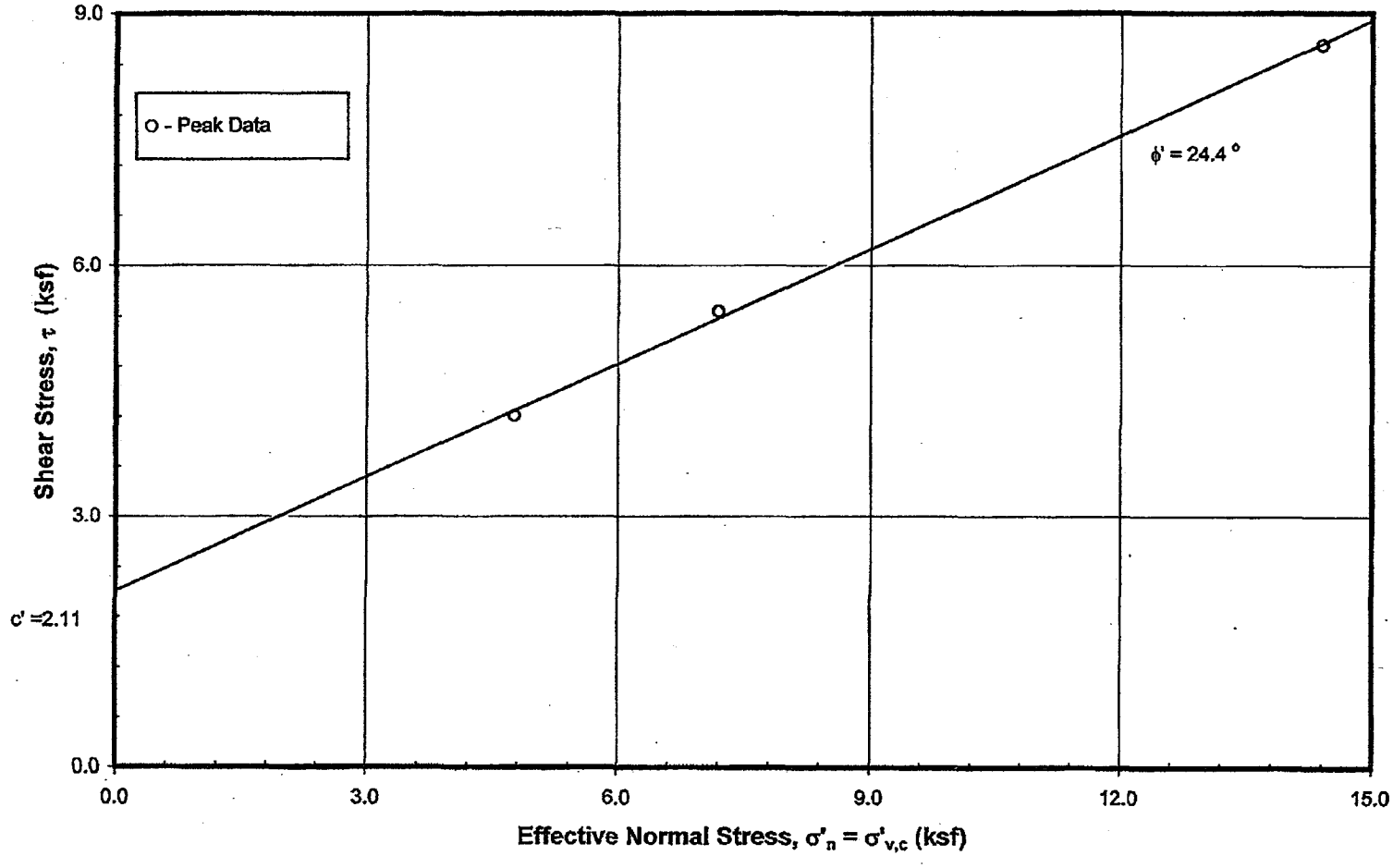
NA 10-7-08

DCN: CALV-050

Prepared By: HP
Reviewed By: HP

B-774_UD-12d.xls, c-phi plot 9/19/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-12 - Depth: 142.7 ft

Report No. 0411-08-1707

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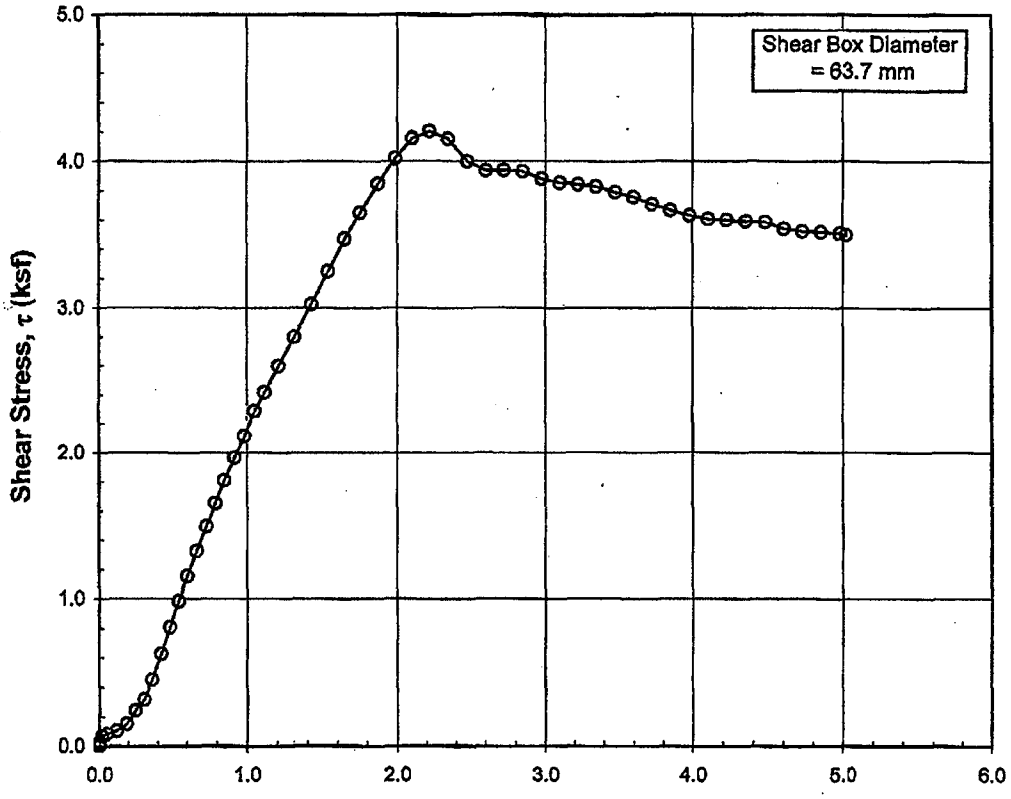
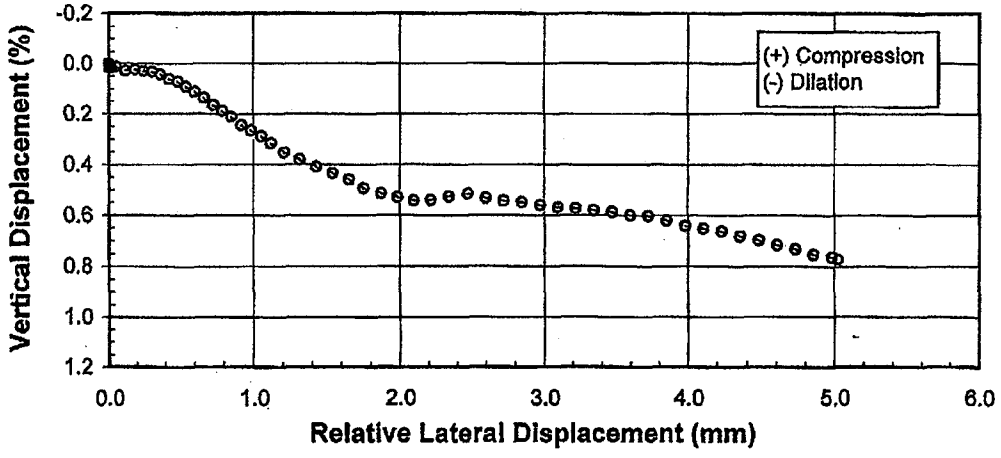
DCN: CALV-050

PLATE ?-?

NA 10-7-08





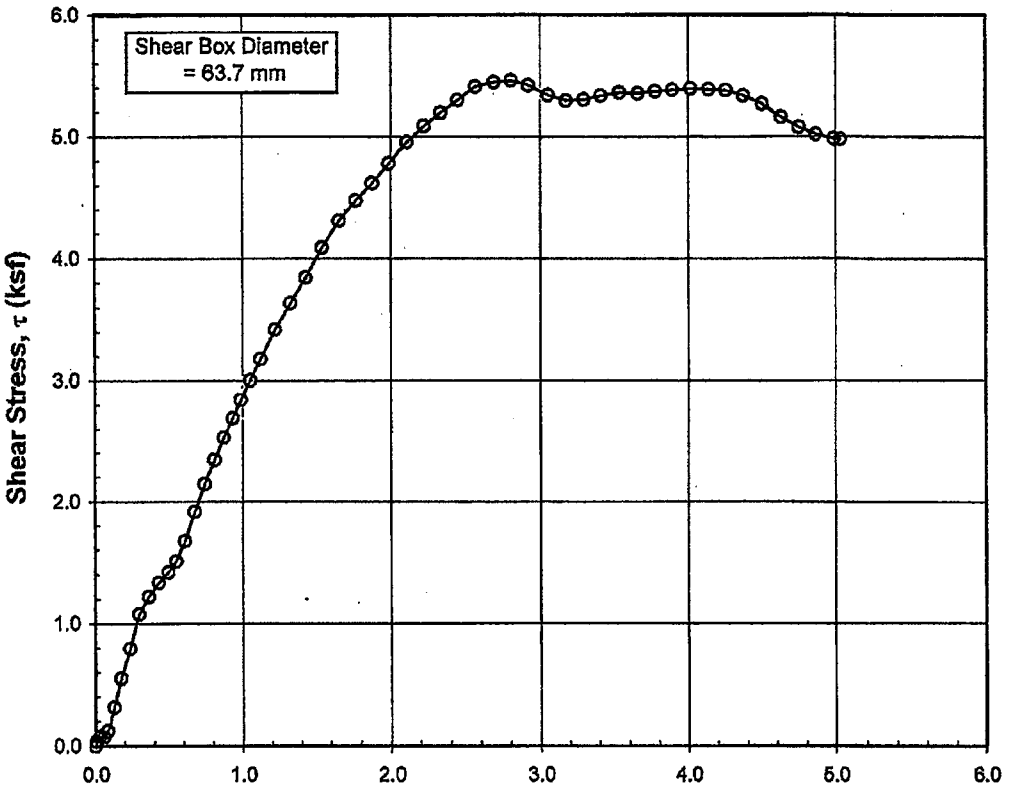
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

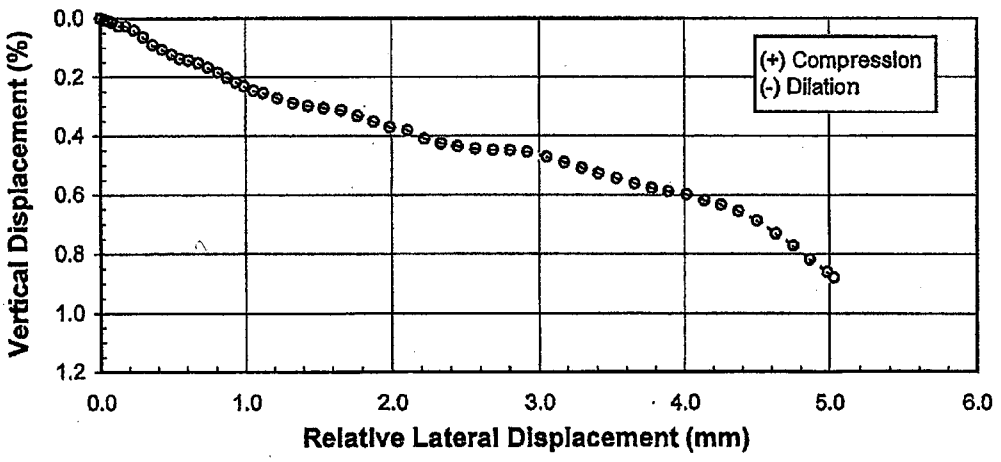
Soil - Soil Interface $\sigma'_{v,c}$ = 4.75 ksf
Boring: B-774 - Sample: UD-12b - Depth: 142.5 ft

Reviewed By: HP

PLATE ?
MA 10-7-08

DCN: CALV-050





DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 7.20 ksf

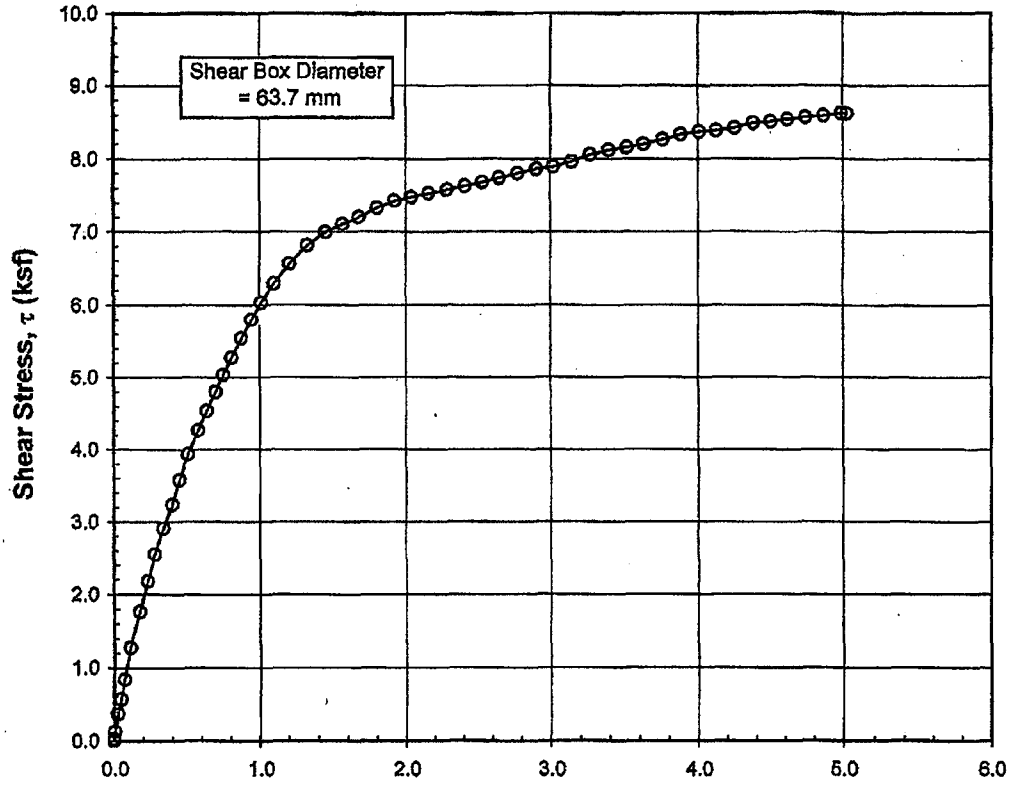
Boring: B-774 - Sample: UD-12c - Depth: 142.6 ft

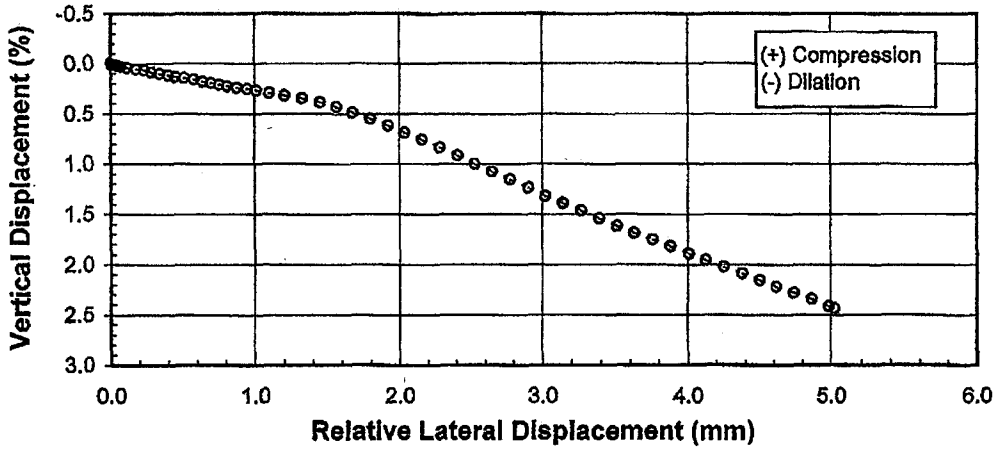
Reviewed By: HP

PLATE ?

NA 10-7-08

DCN: CALV-050





DRAINED DIRECT SHEAR TEST: 3rd Test In Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 14.40 ksf
Boring: B-774 - Sample: UD-12d - Depth: 142.7 ft

Reviewed By: HP KCA

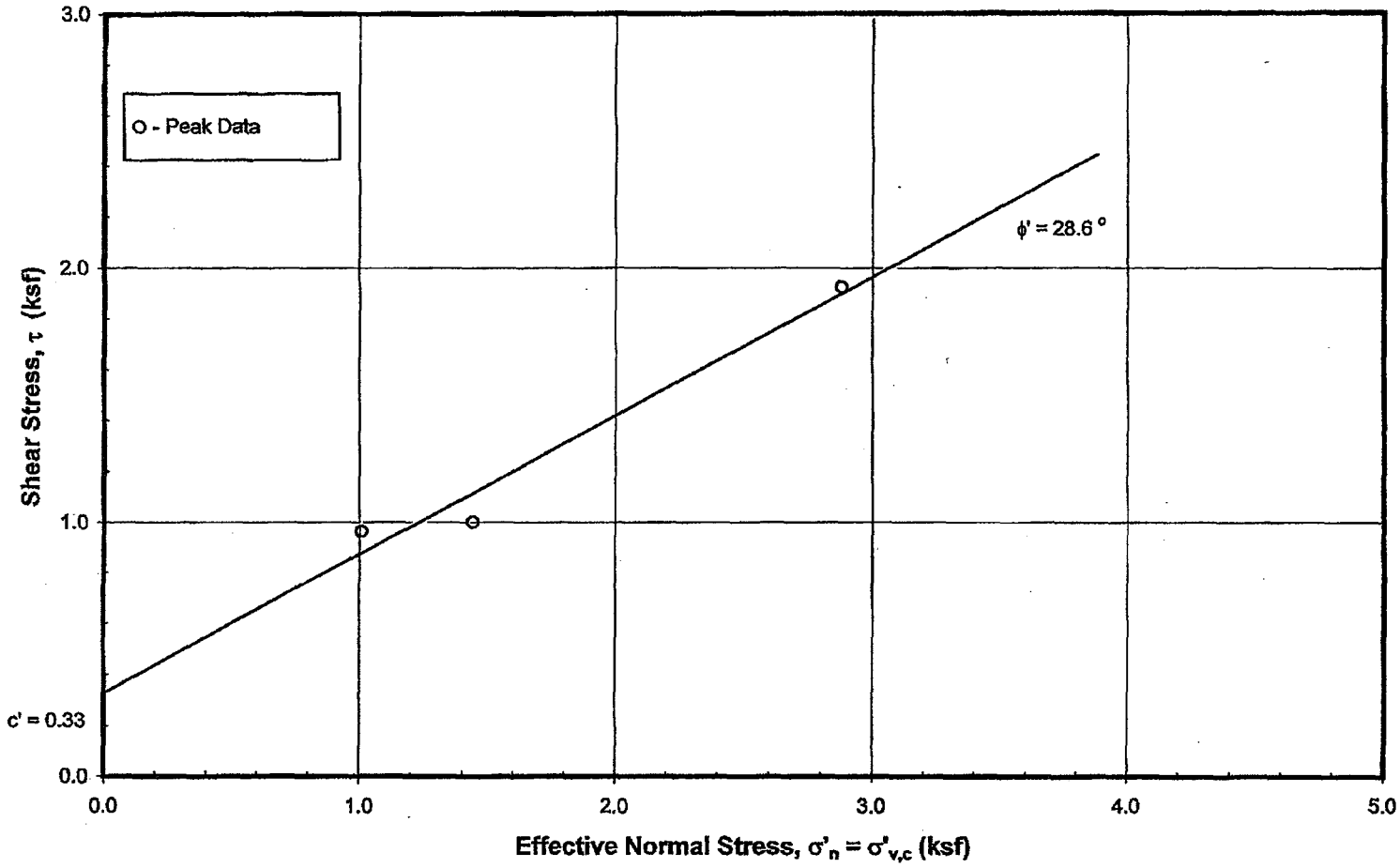
PLATE 7
AA 10-7-02

DCN: CALV-050

Prepared By: HP
Reviewed By: BP

B-778_UD-2c.xls, c-phi plot 10/2/2008

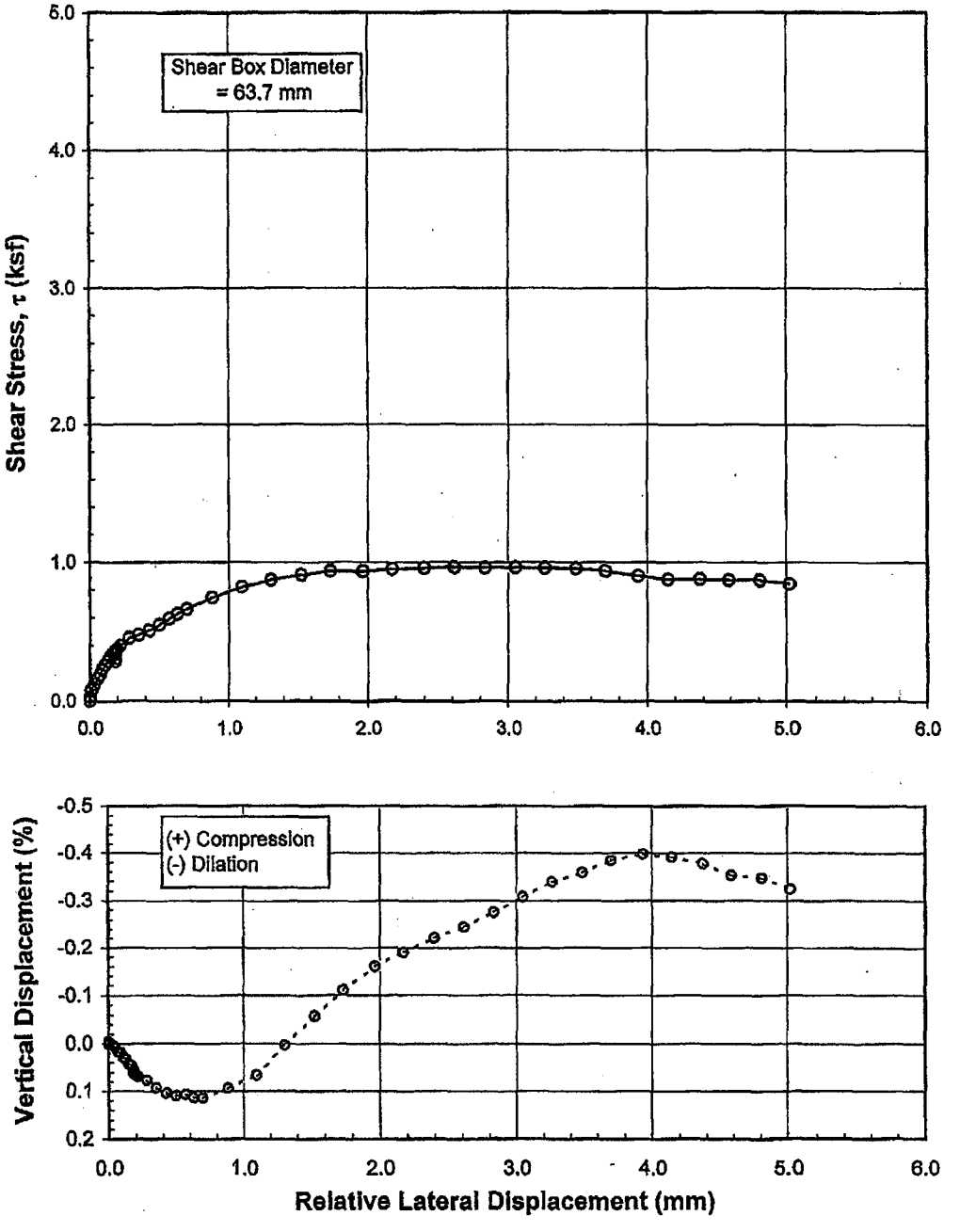
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-2c - Depth: 13.5 ft

Report No. 0411-08-1707

AA 10-7-08



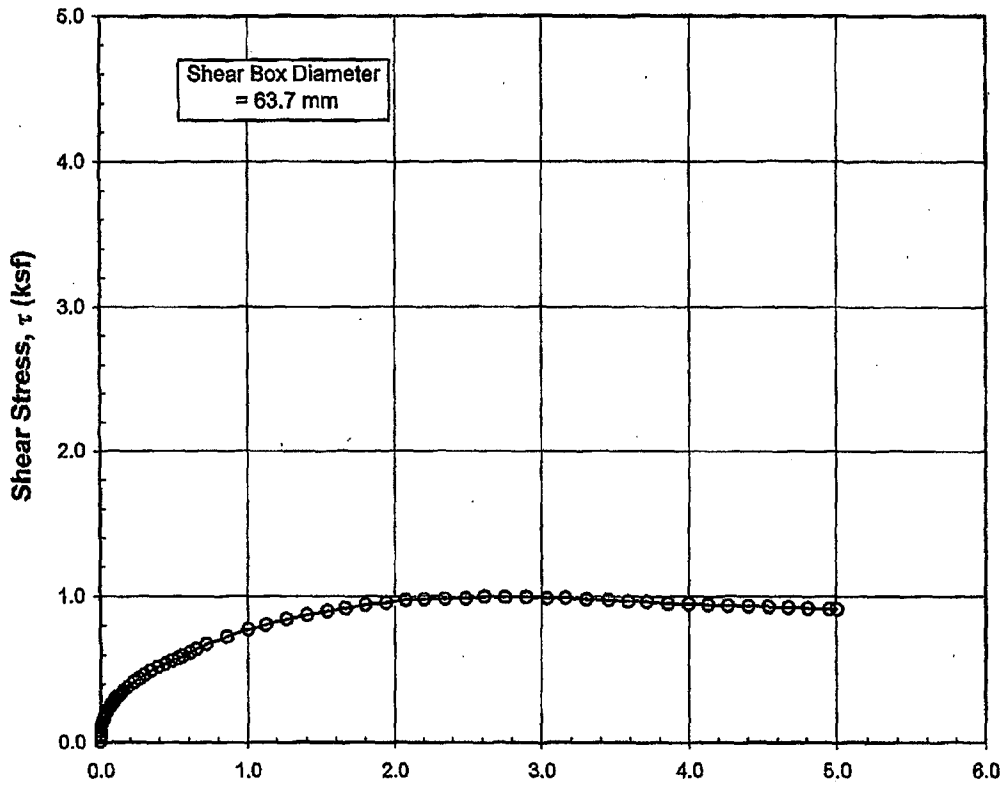
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

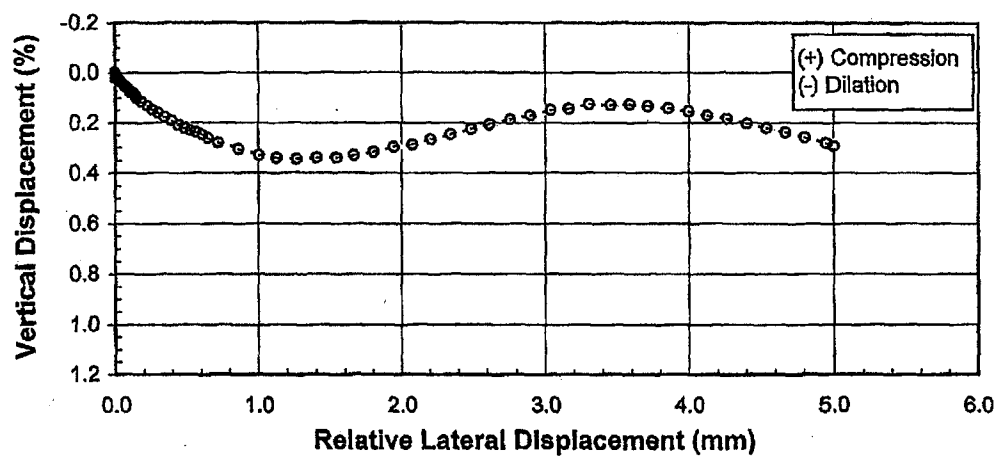
Soil - Soil Interface $\sigma'_{v,c}$ = 1.01 ksf

Boring: B-778 - Sample: UD-2a - Depth: 13.30 ft

Reviewed By: HP

NA 10-7-03

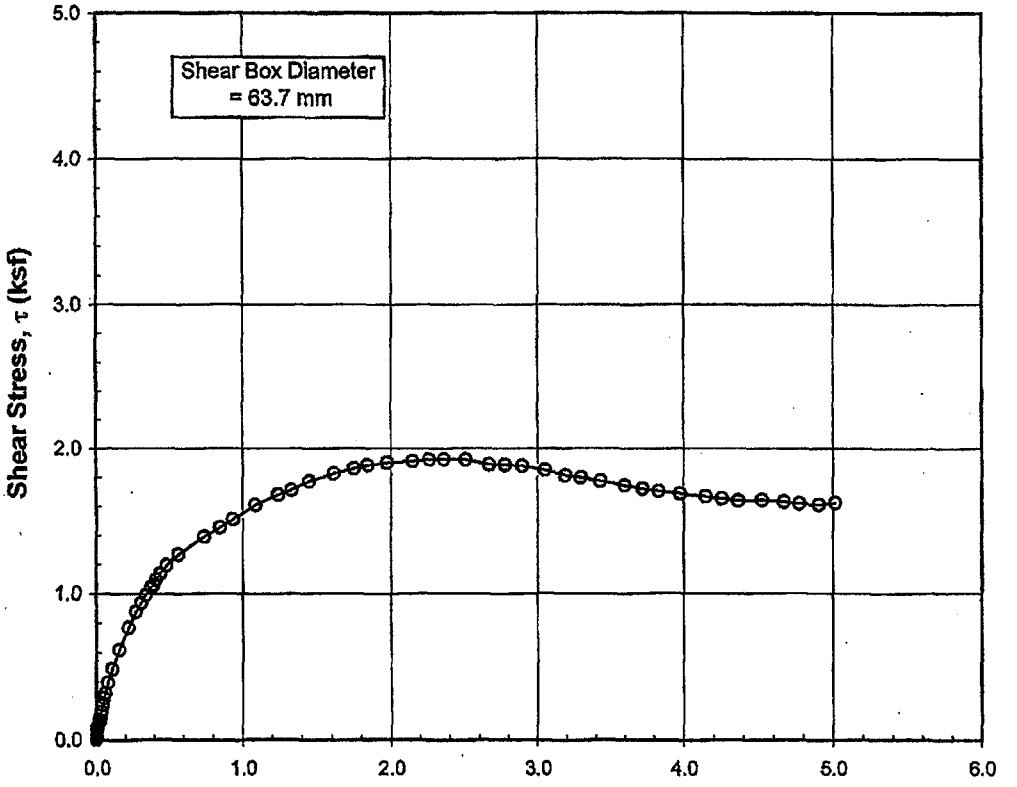


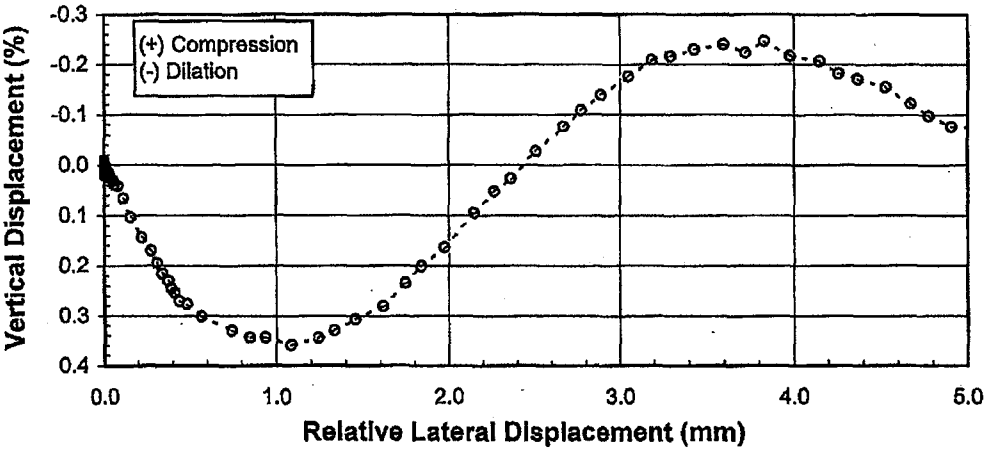


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.44 ksf
Boring: B-778 - Sample: UD-2b - Depth: 13.4 ft

Reviewed By: HP



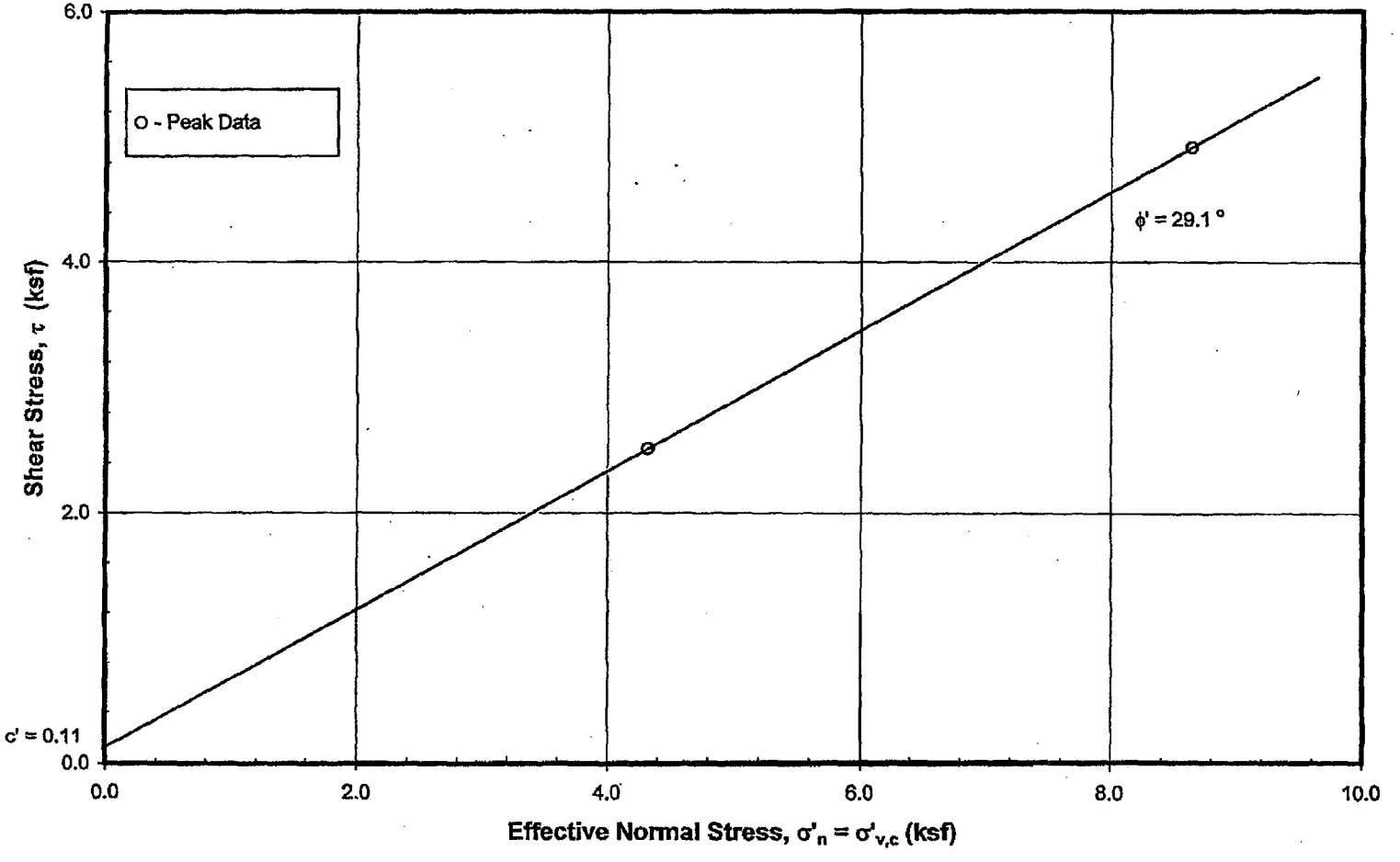


DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.88 ksf

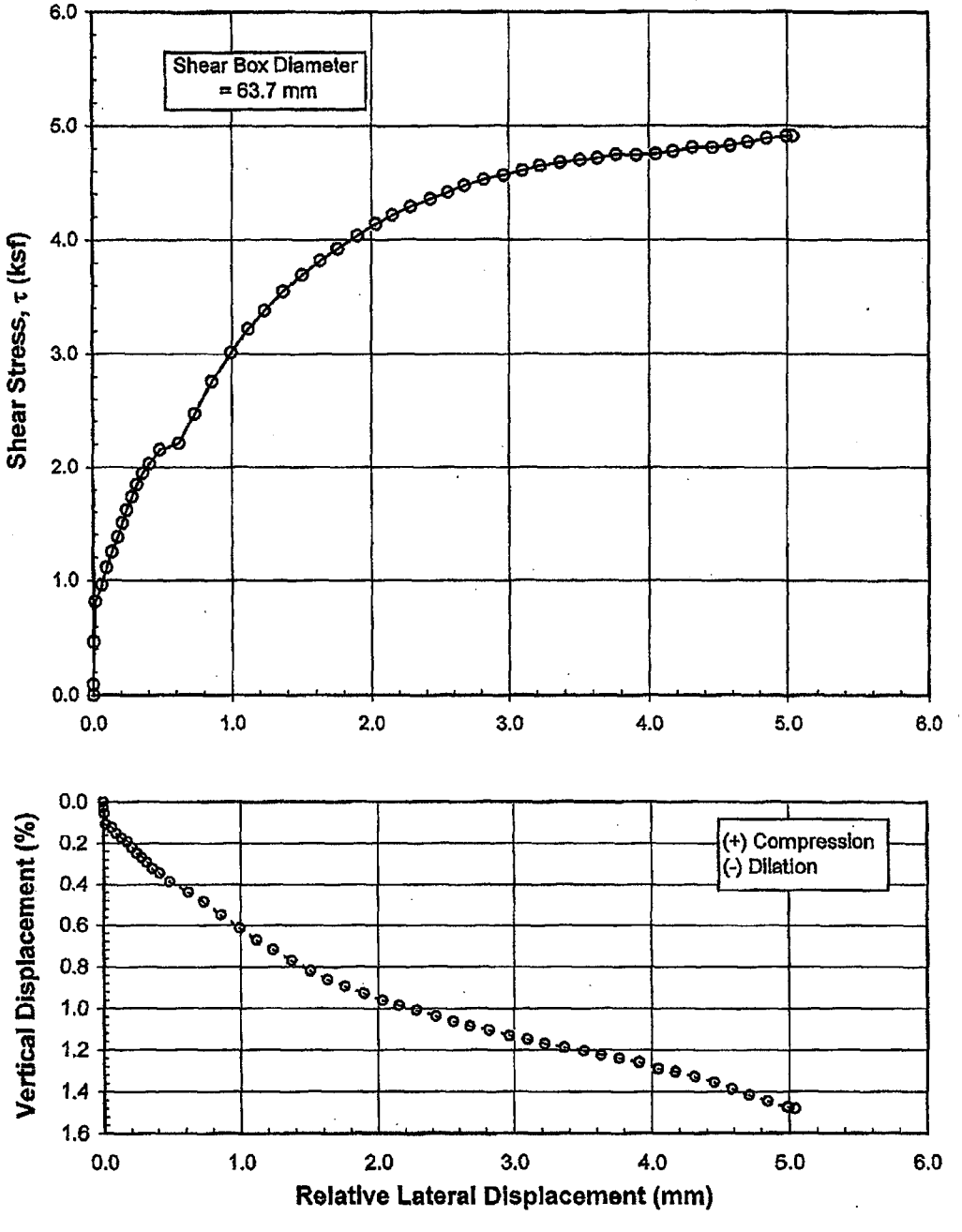
Boring: B-778 - Sample: UD-2c - Depth: 13.5 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-6b - Depth: 33.3 ft

AA 10-7-08

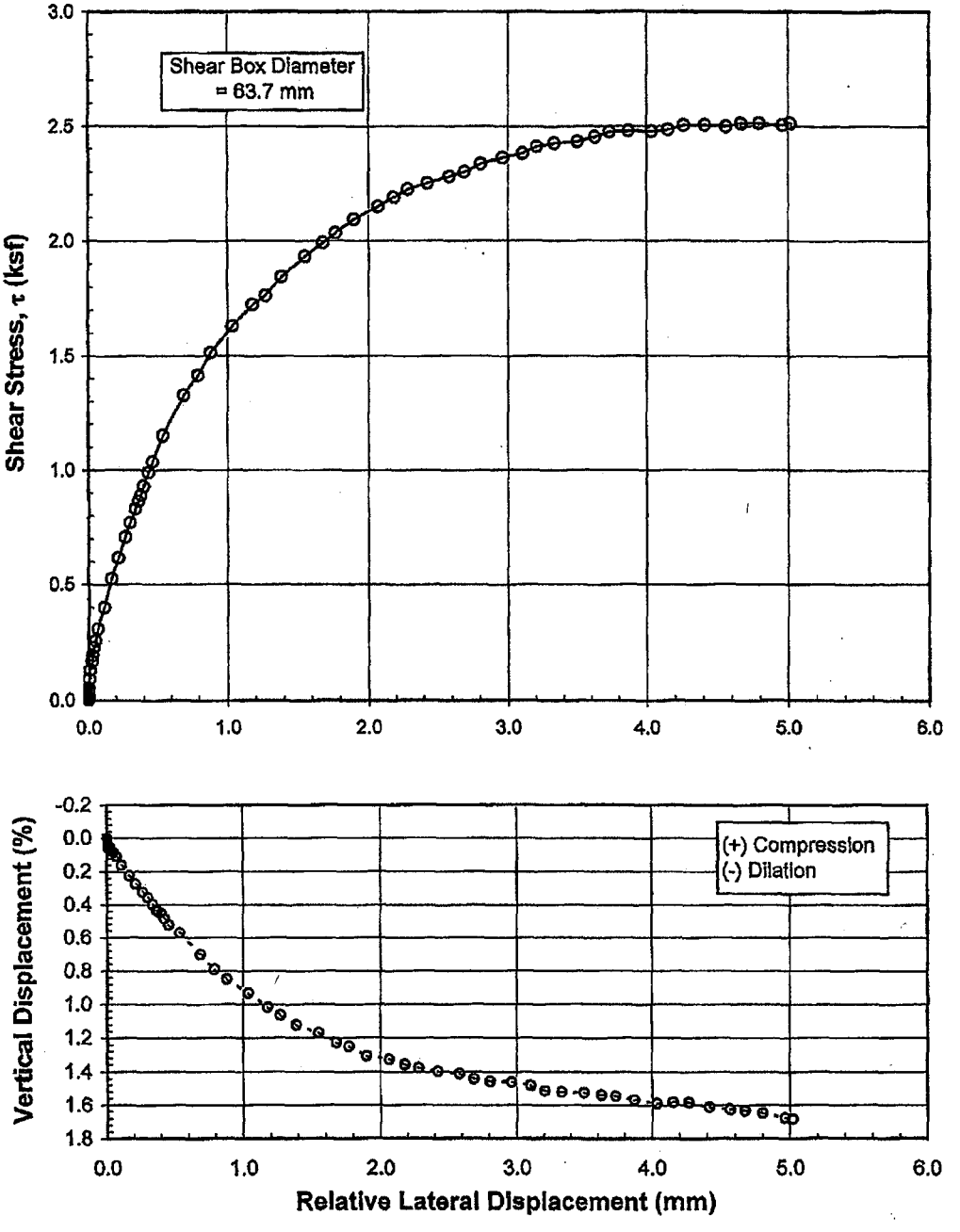


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 8.64 ksf

Boring: B-778 - Sample: UD-6a - Depth: 33.2 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

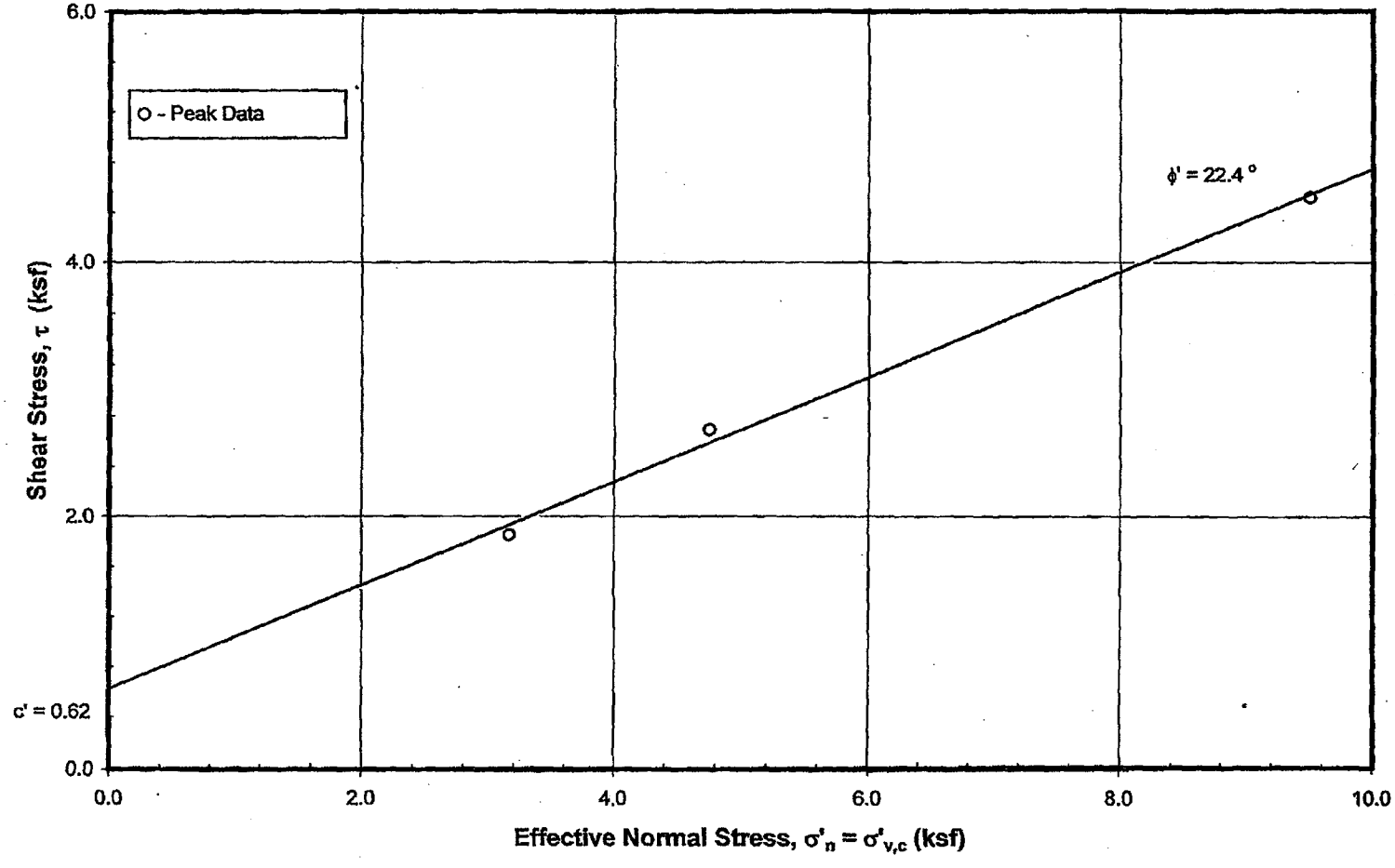
Boring: B-778 - Sample: UD-6b - Depth: 33.3 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

B-778_UD-7c.xls, c-phi plot 9/30/2008

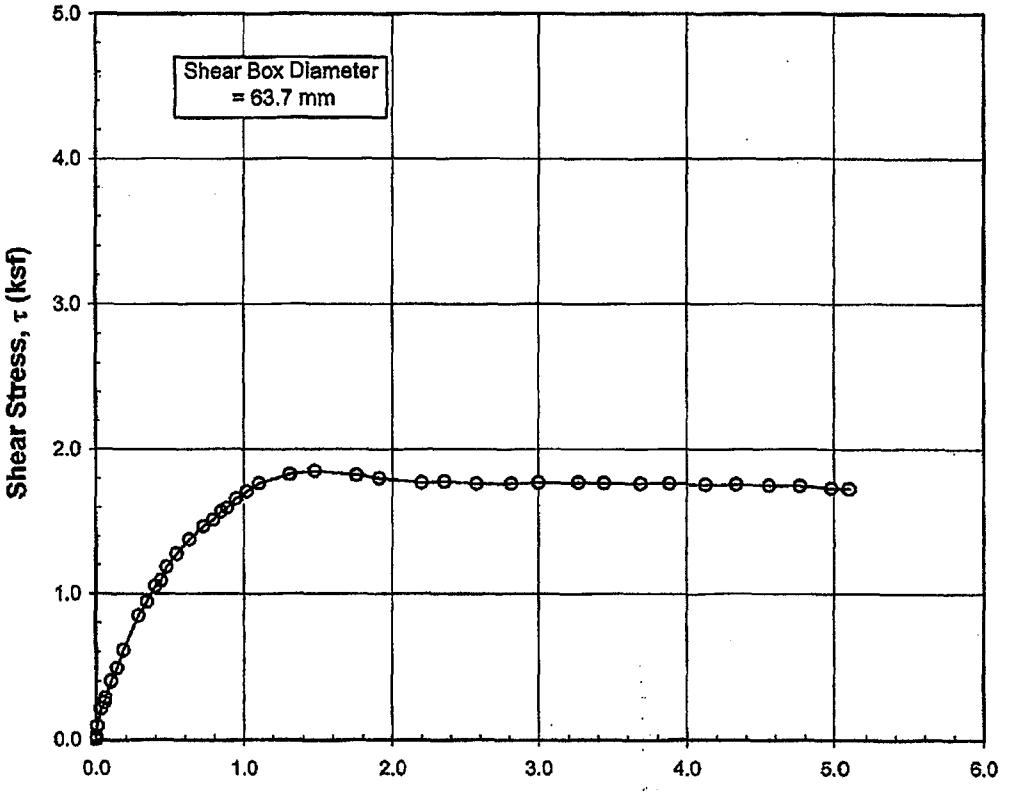
Revision Date: 12/01/07

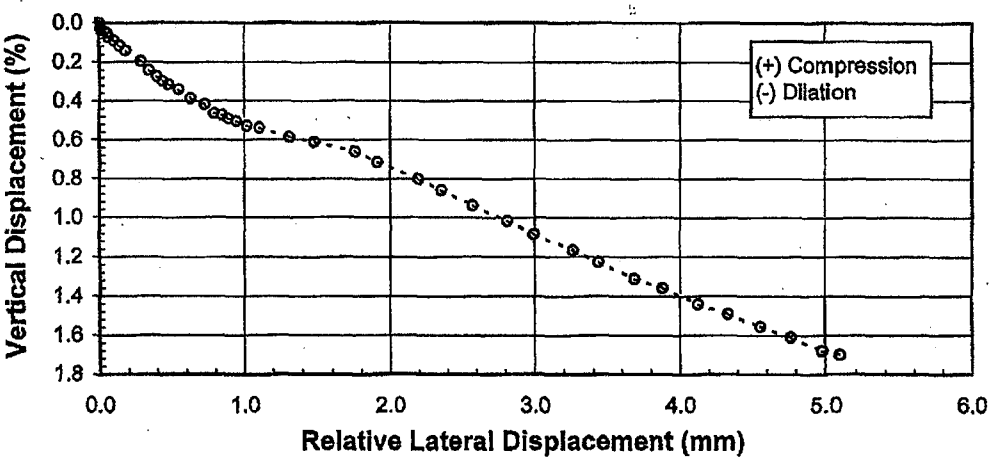


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-7c - Depth: 43.3 ft

Report No. 0411-08-1707

AA 10-7-08





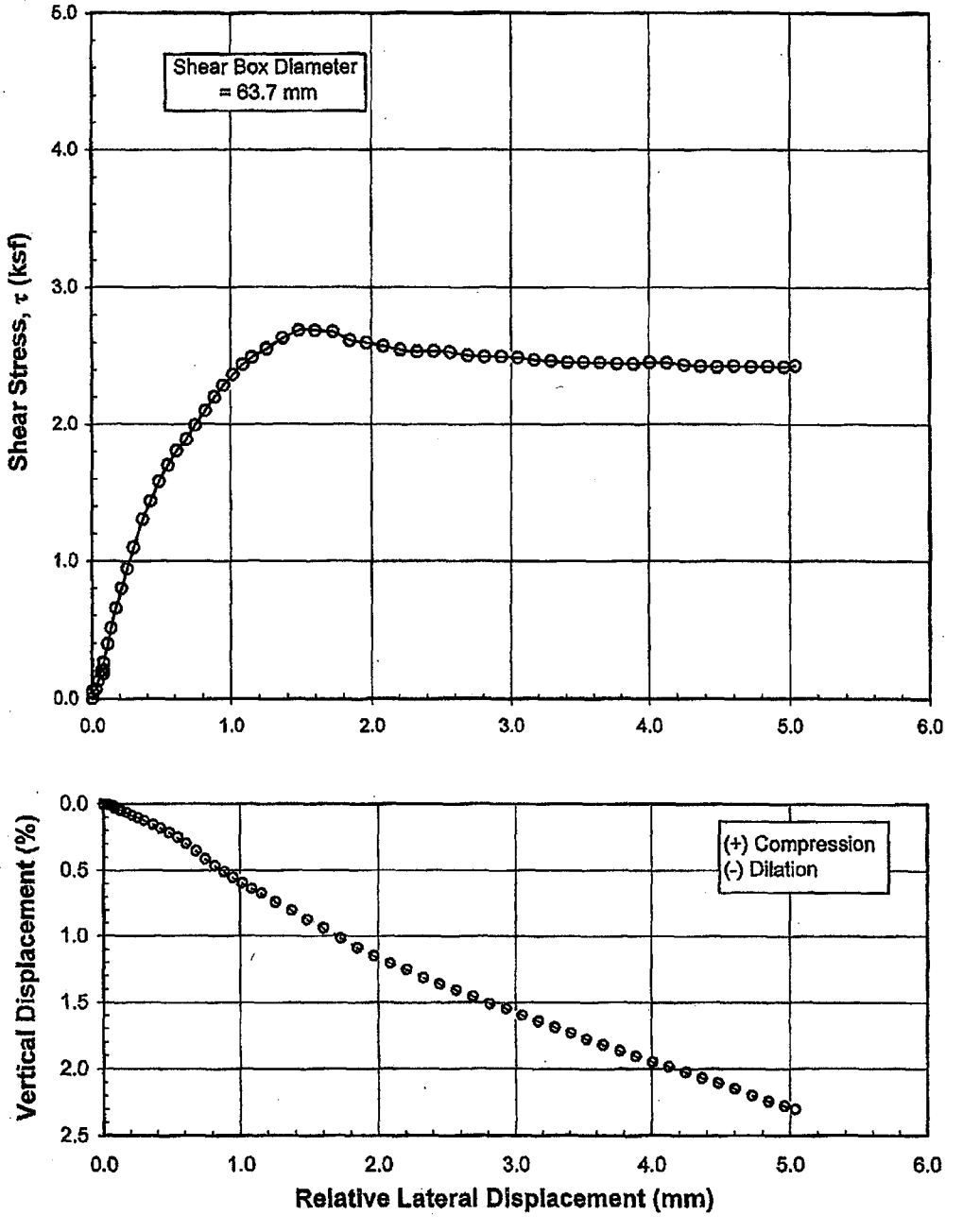
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.17 ksf

Boring: B-778 - Sample: UD-7d - Depth: 43.45 ft

Reviewed By: HP

DCN: CALV-050 10-7-02

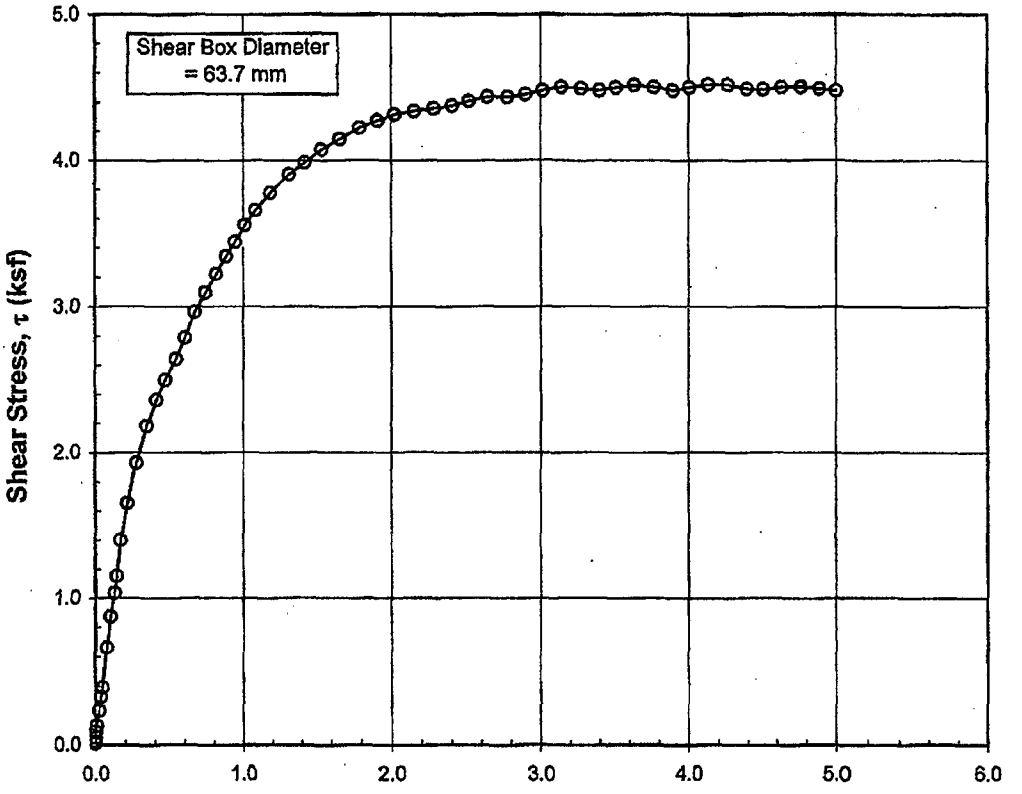


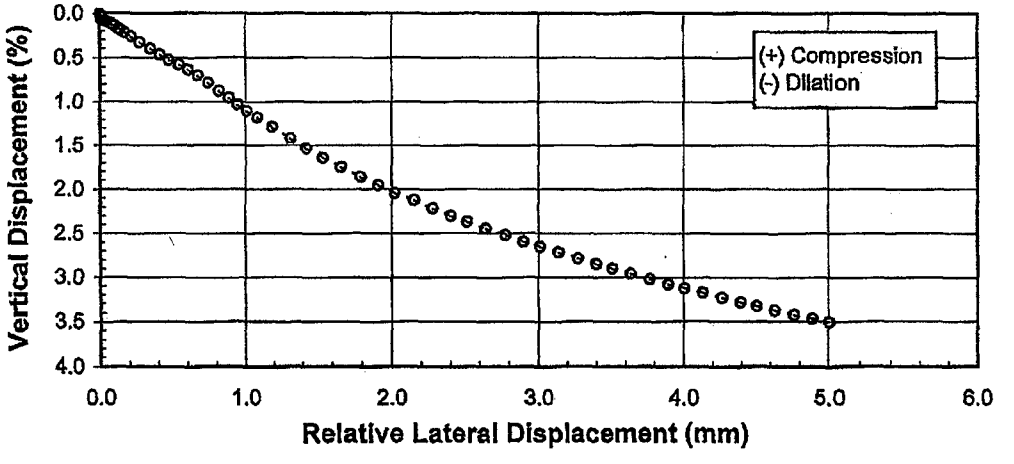
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.75 ksf

Boring: B-778 - Sample: UD-7b - Depth: 43.2 ft

Reviewed By: HD





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 9.50 ksf

Boring: B-778 - Sample: UD-7c - Depth: 43.3 ft

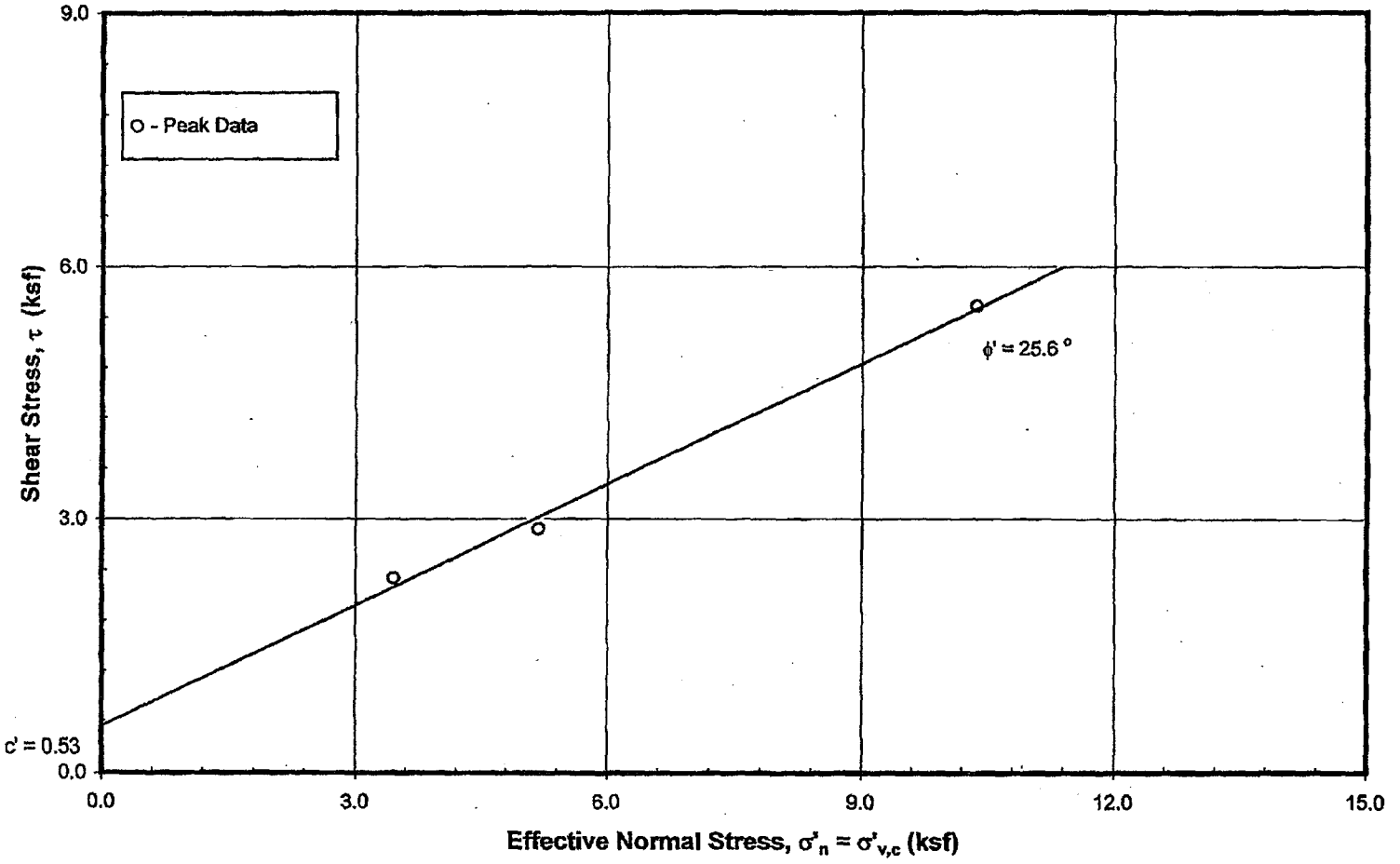
Reviewed By: KP

DCN: CALV-050 10-7-08

Prepared By: HP
Reviewed By: HP

B-778_UD-8f.xls, c-phi plot 9/30/2008

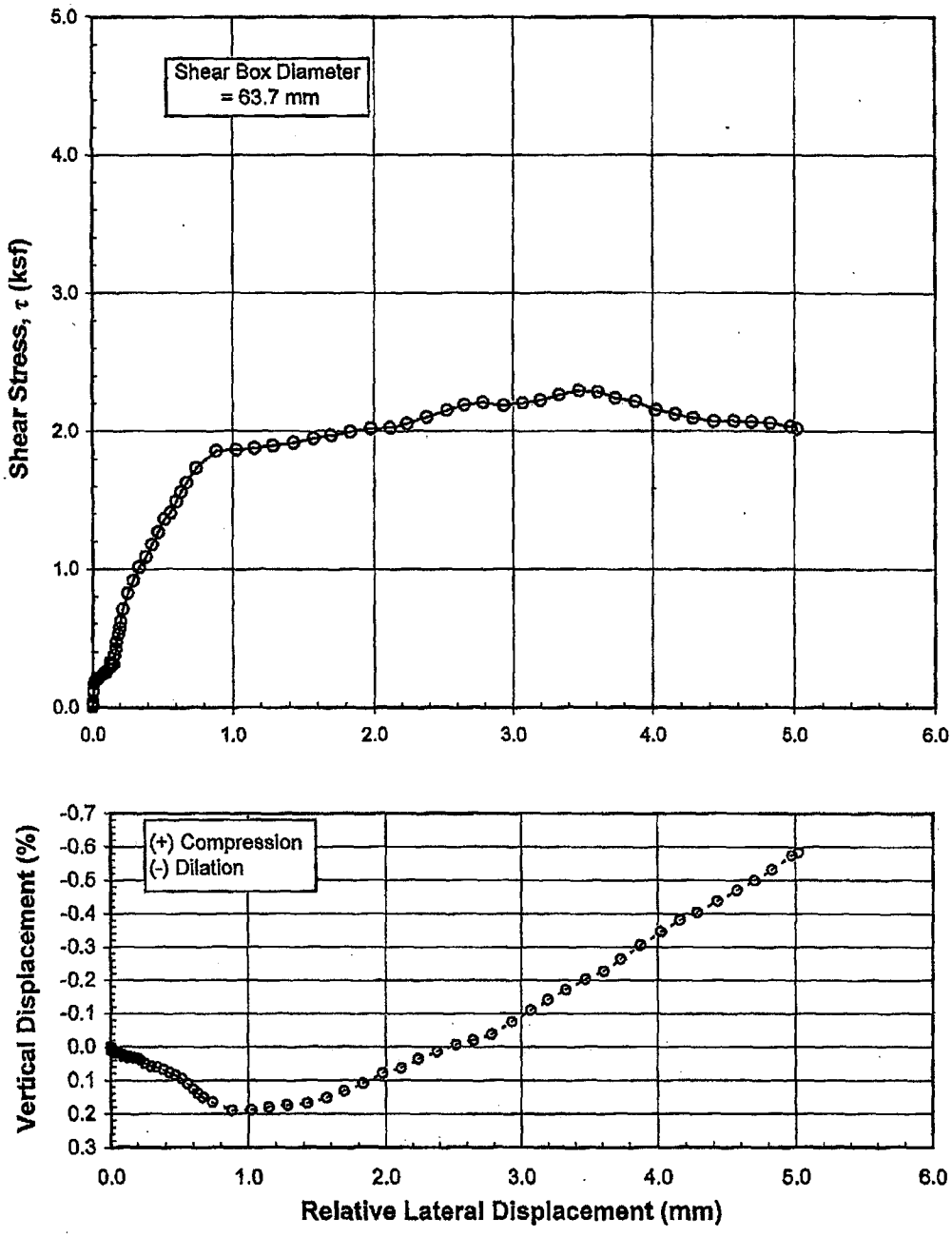
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-8f - Depth: 52.85 ft

Report No. 0411-08-1707

MA 10-7-08

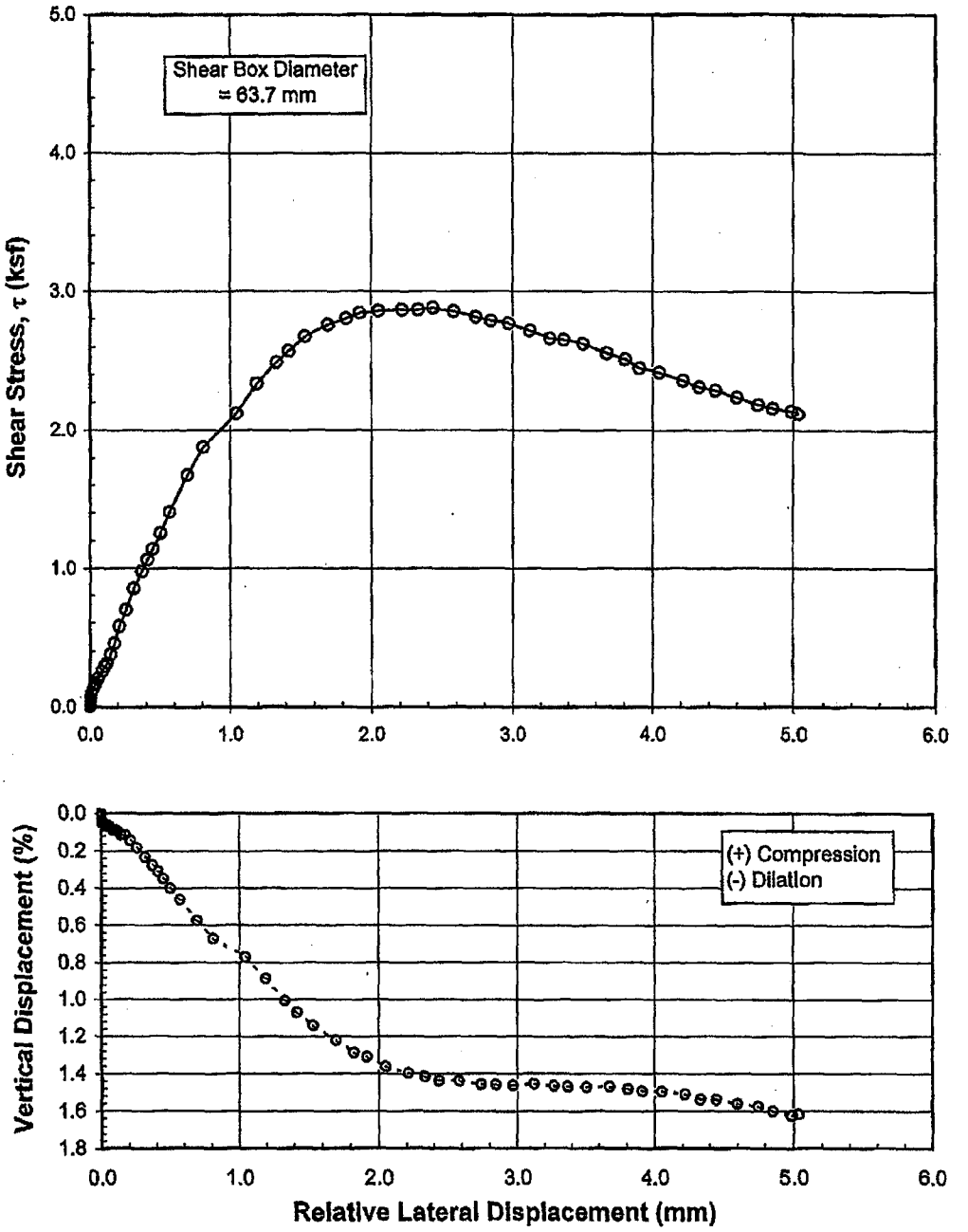


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.46 ksf

Boring: B-778 - Sample: UD-8d - Depth: 52.65 ft

Reviewed By: HP

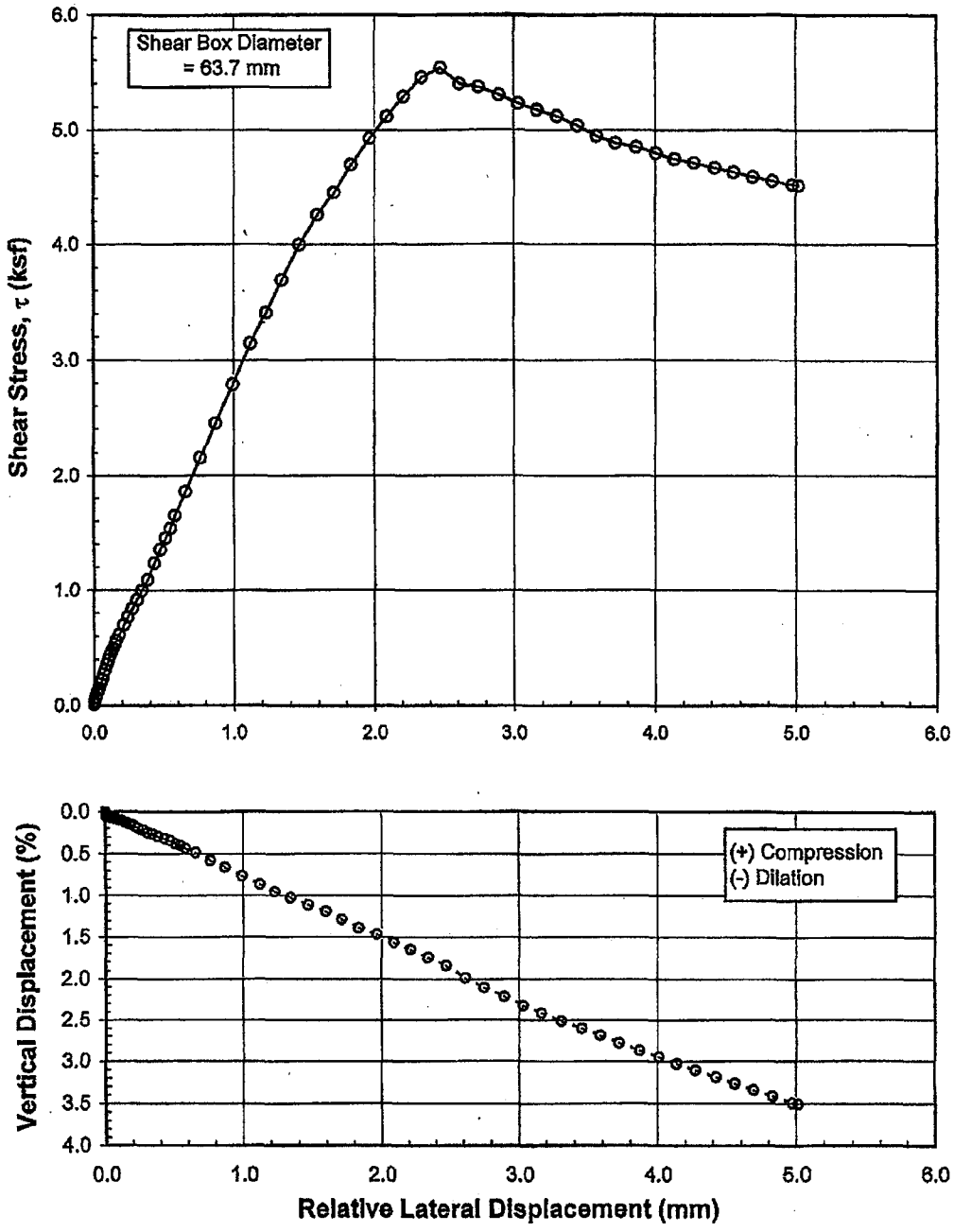


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.18 ksf

Boring: B-778 - Sample: UD-8e - Depth: 52.75 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 10.37 ksf

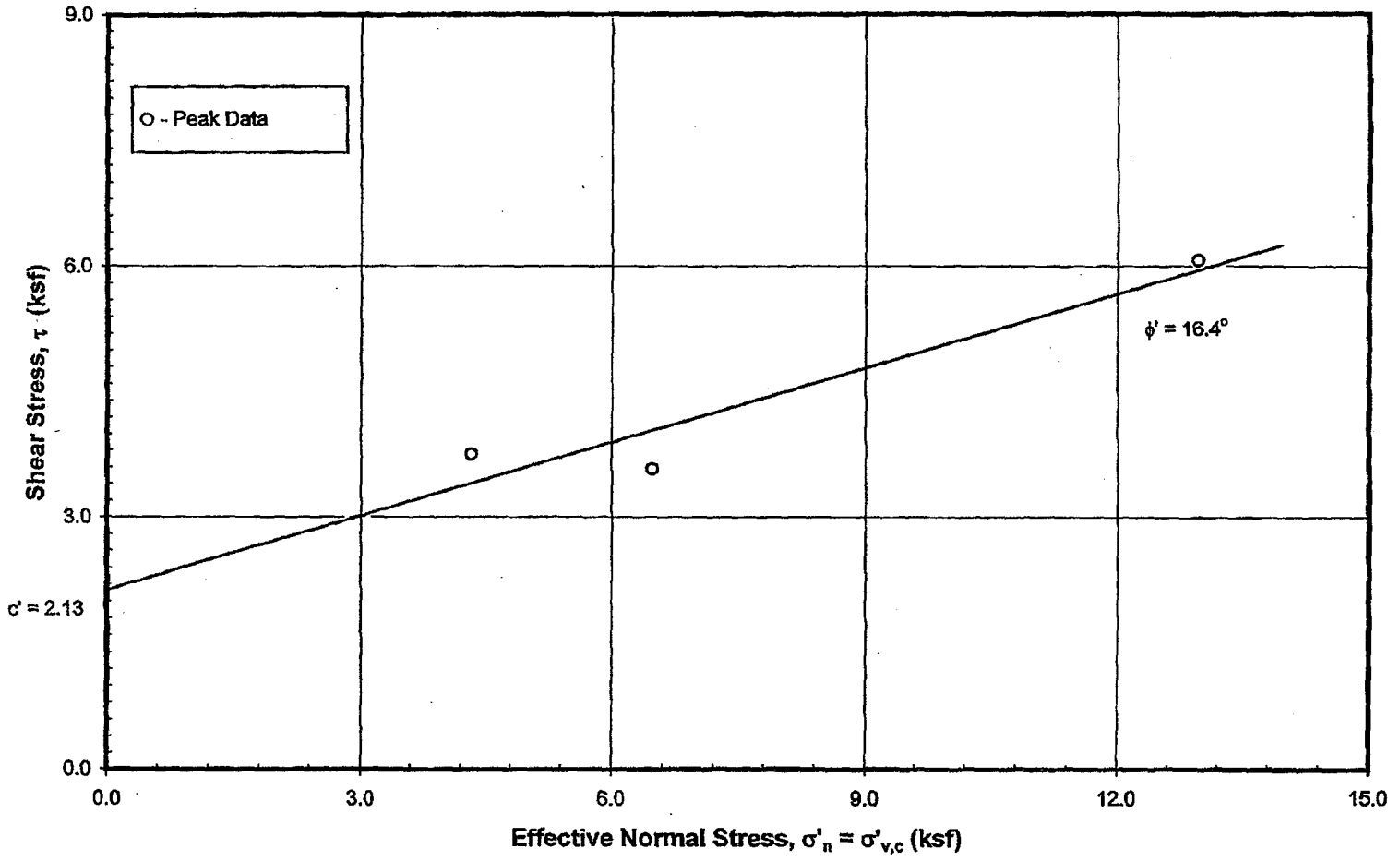
Boring: B-778 - Sample: UD-8f - Depth: 52.85 ft

Reviewed By: MP

Prepared By: HP
Reviewed By: HP

B-778_UD-10c.xls, c-phi plot 10/1/2008

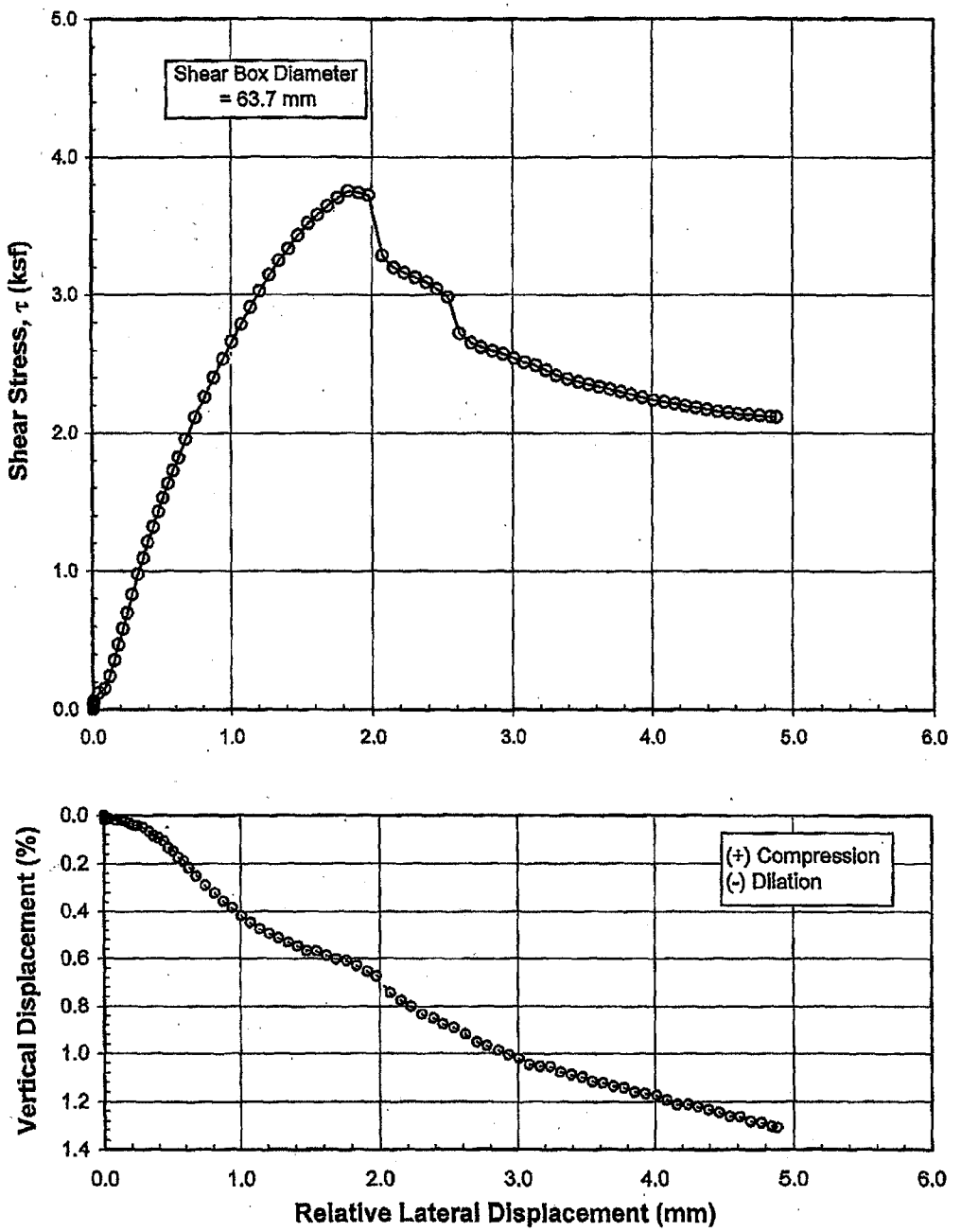
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-10c - Depth: 72.7 ft

Report No. 0411-08-1707

AA 10-7-08



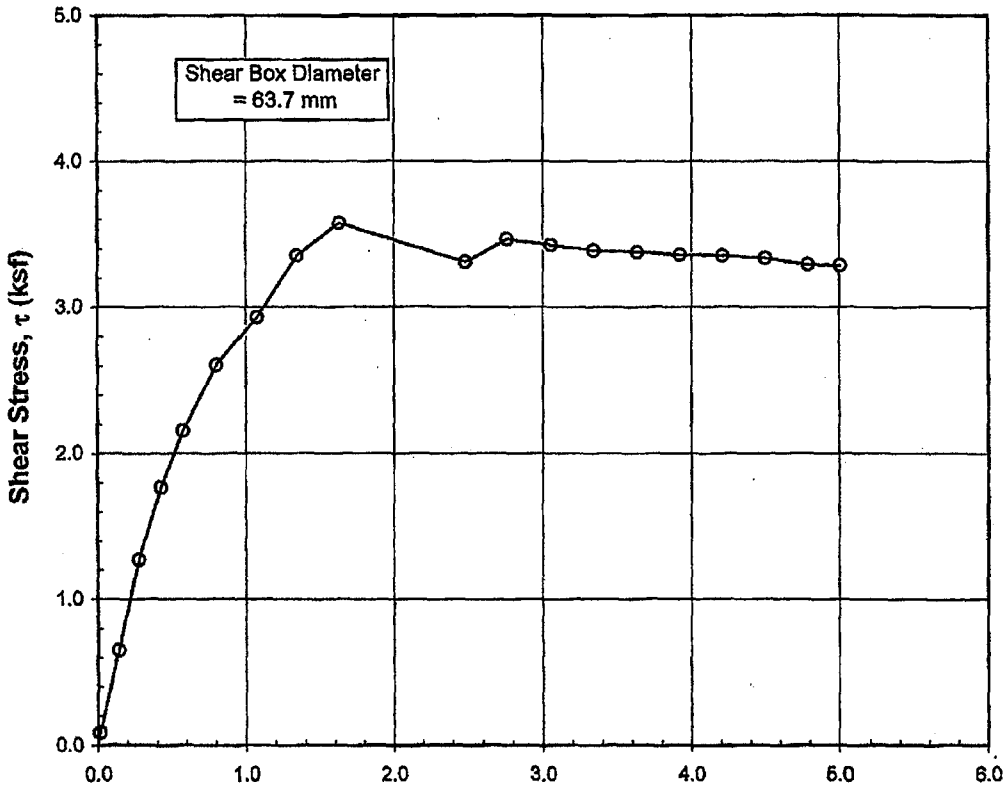
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

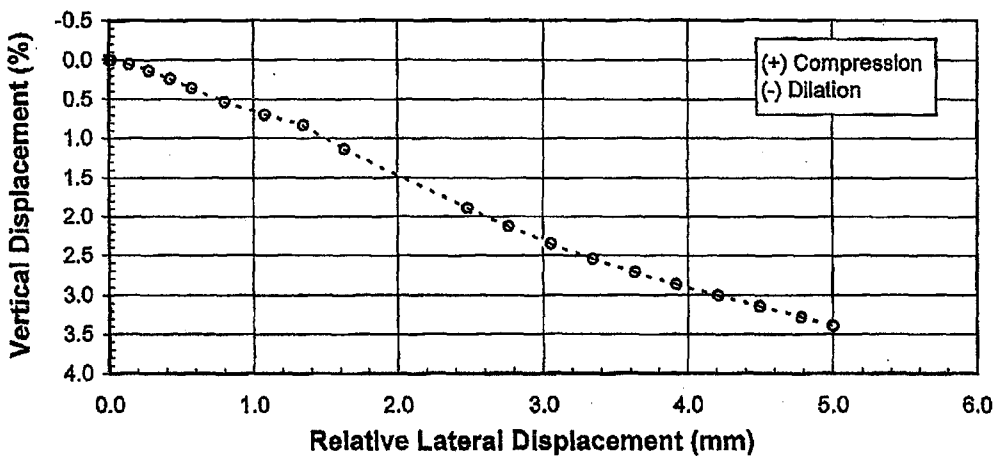
Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

Boring: B-788 - Sample: UD-10a - Depth: 72.5. ft

Reviewed By: HP

DCN: CALV-05 10-7-08

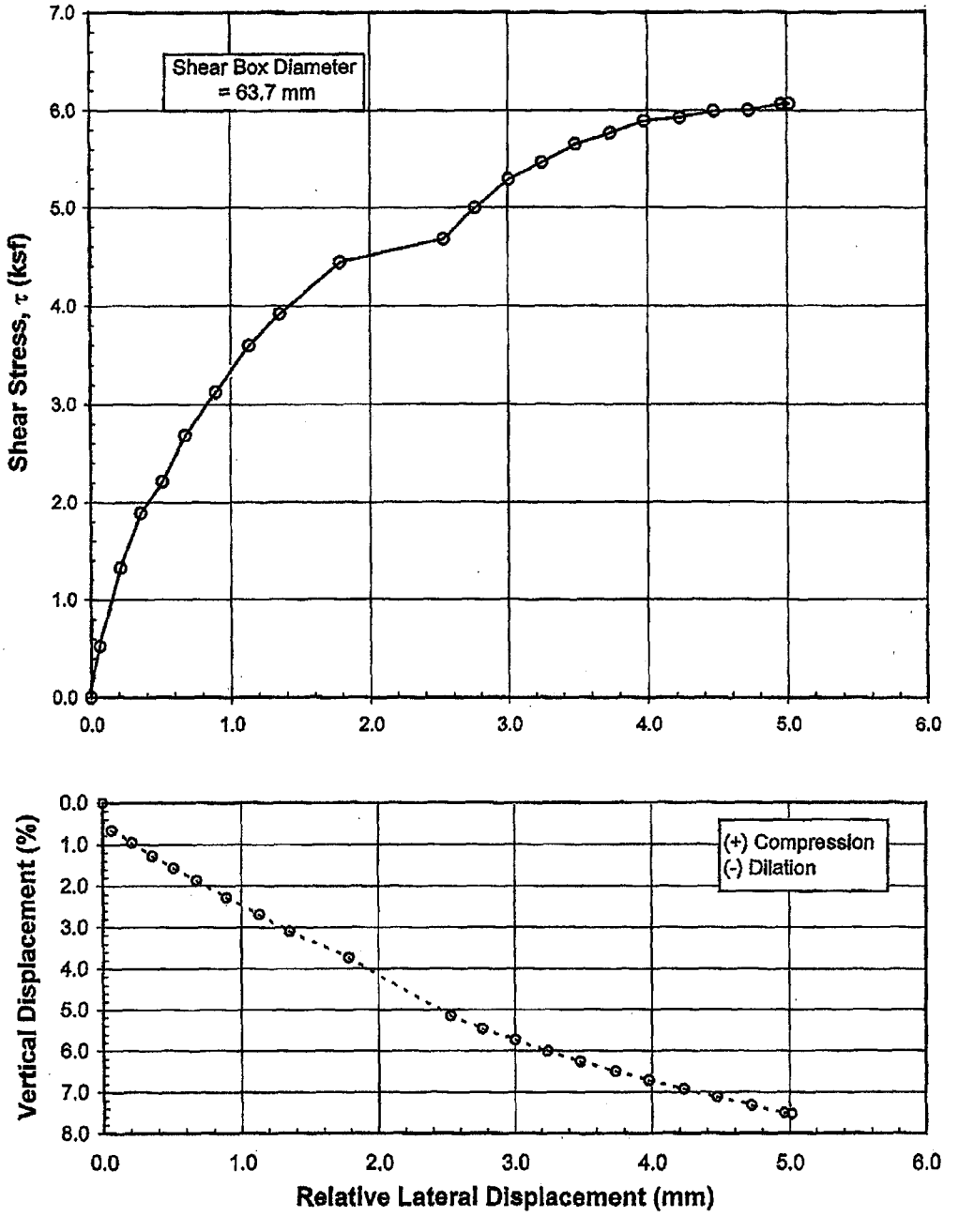




DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.48 ksf
Boring: B-778 - Sample: UD-10b - Depth: 72.6 ft

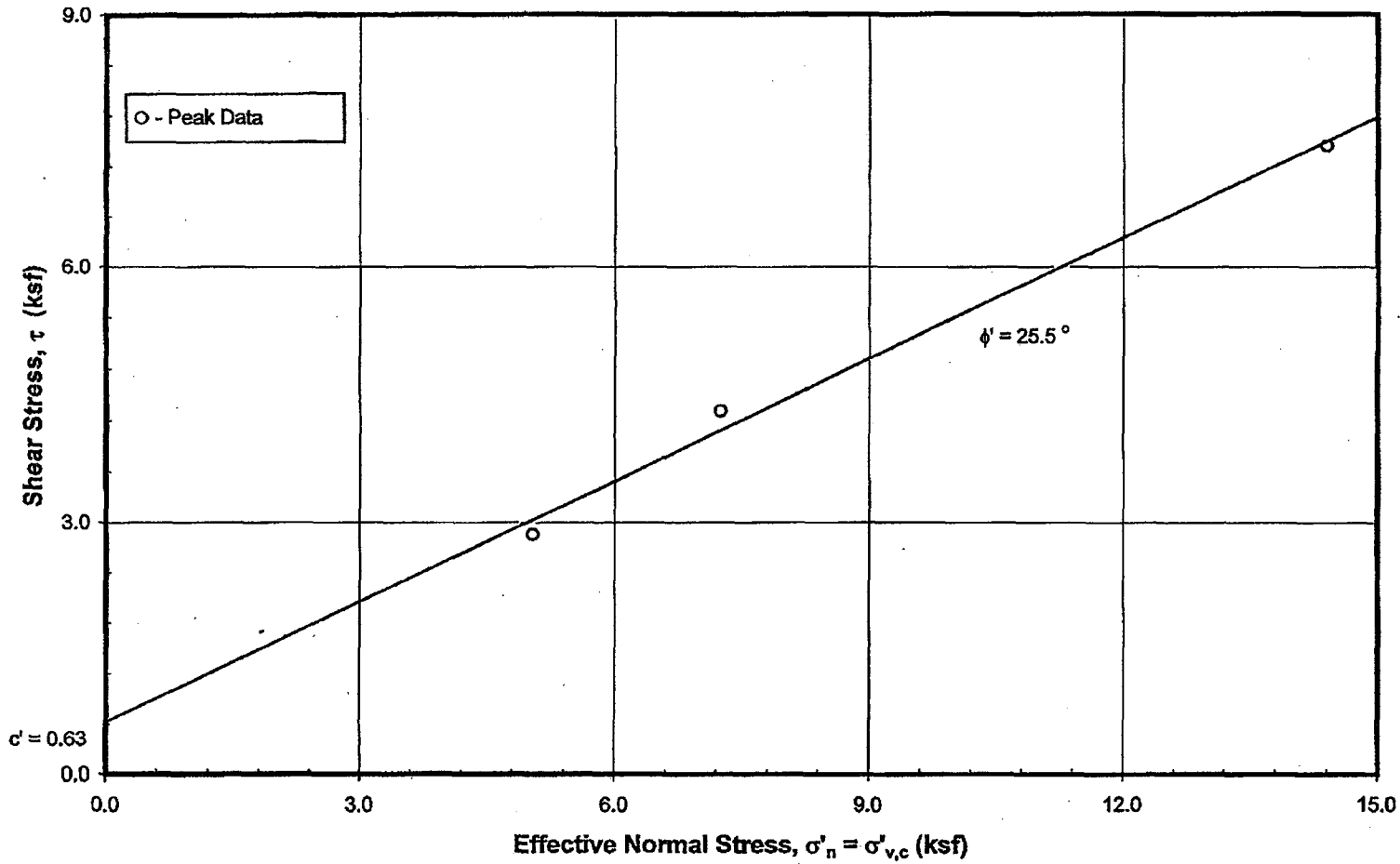
Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

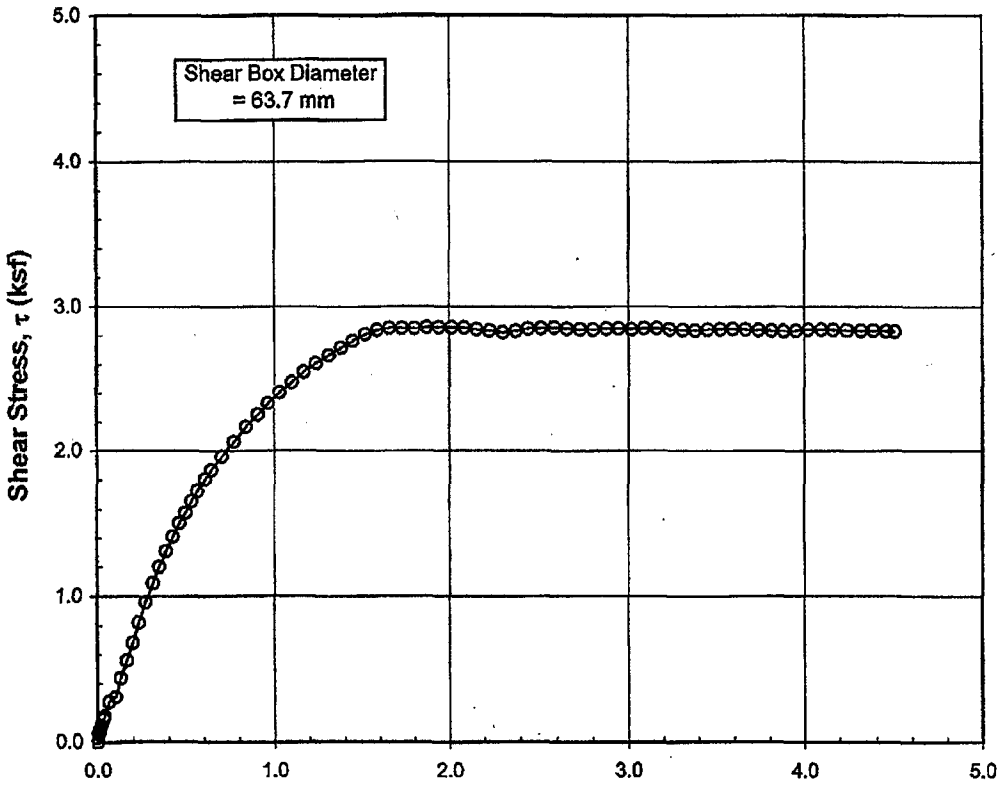
Soil - Soil Interface $\sigma'_{v,c}$ = 12.96 ksf
Boring: B-778 - Sample: UD-10c - Depth: 72.7 ft

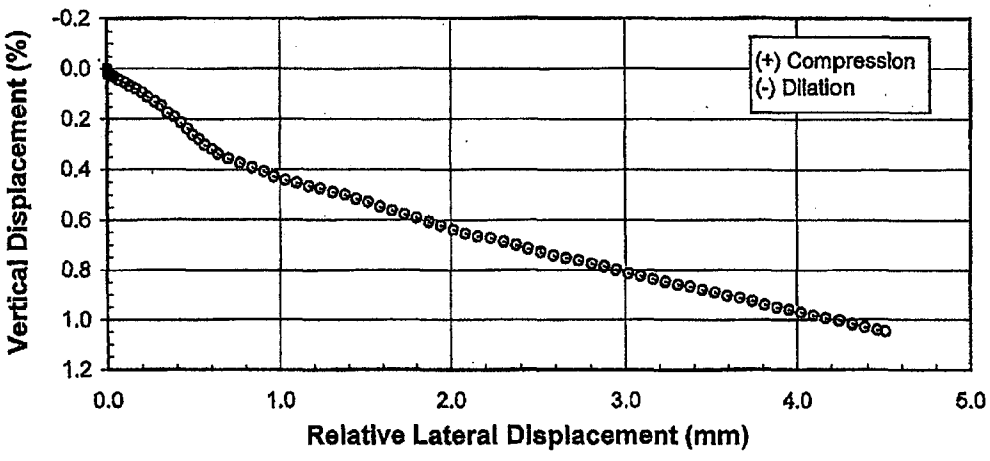
Reviewed By: HP



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-11c - Depth: 83.8 ft

NA 10-7-08



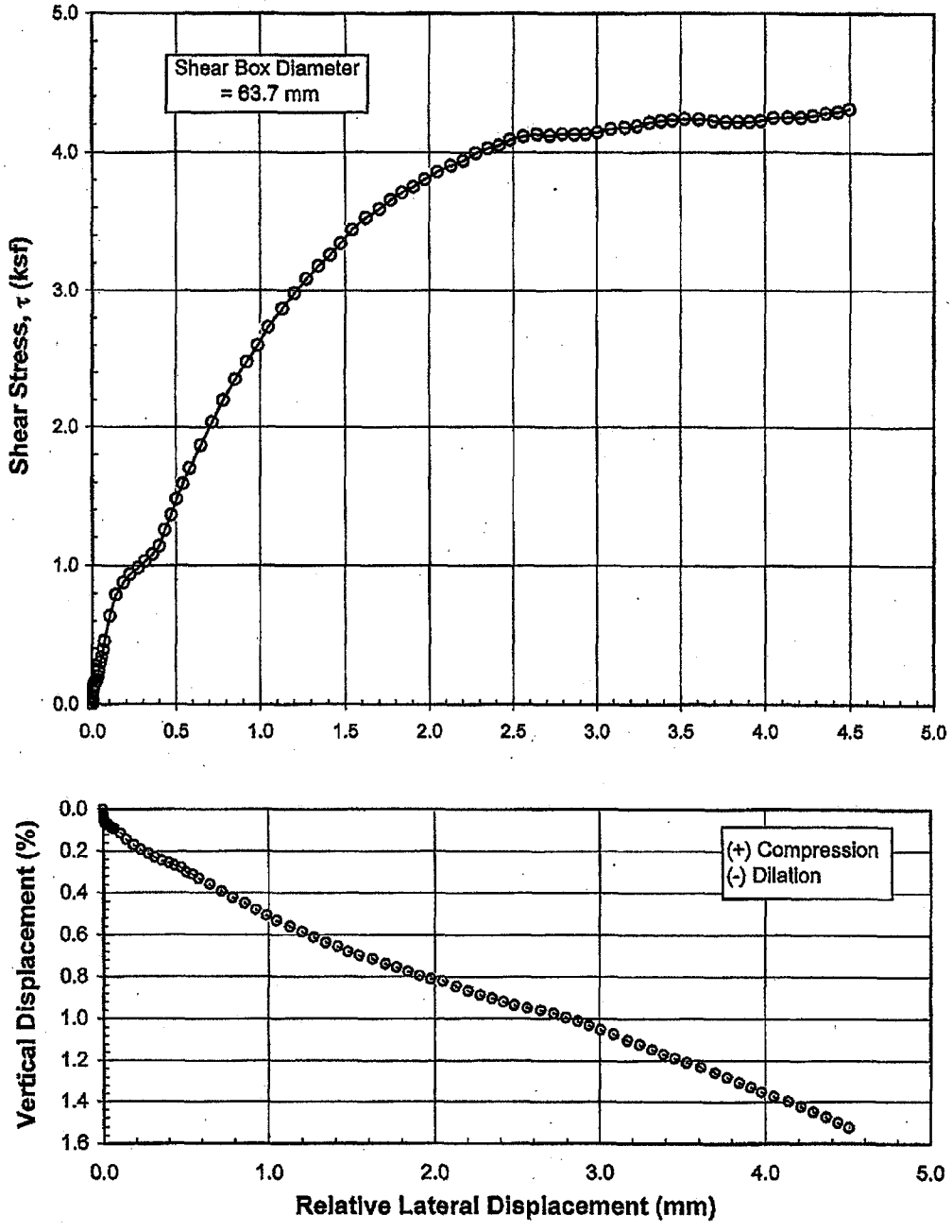


DRAINED DIRECT SHEAR TEST: 1st Test In Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.04 ksf

Boring: B-778 - Sample: UD-11a - Depth: 83.6 ft

Reviewed By: HP

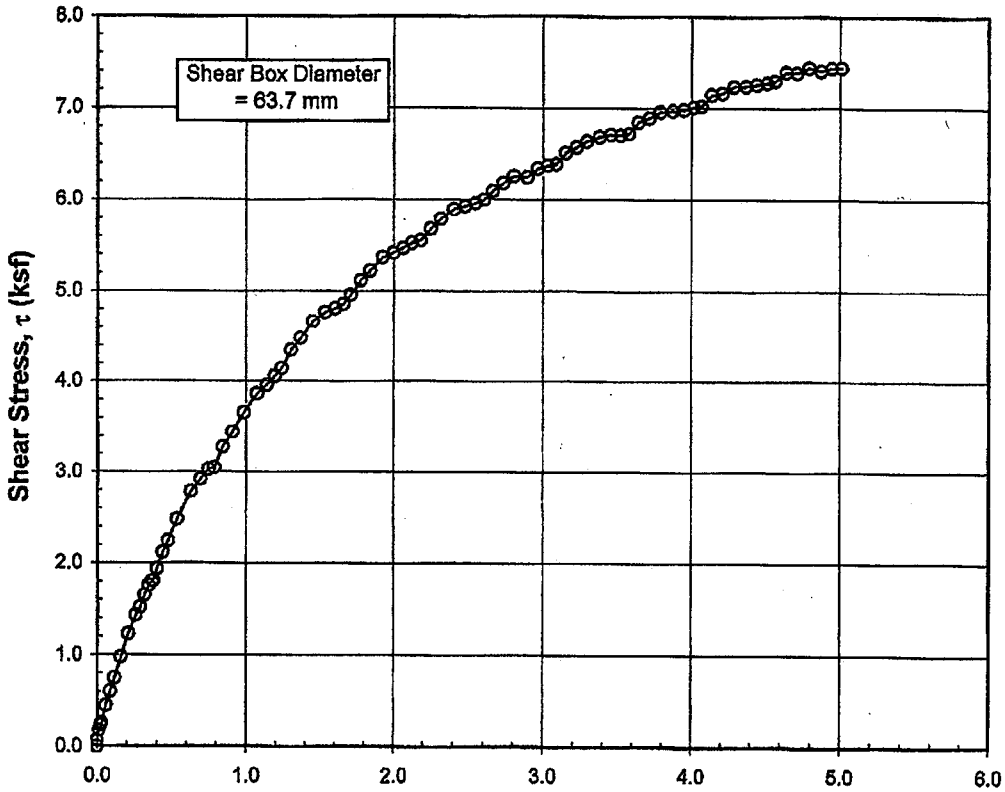


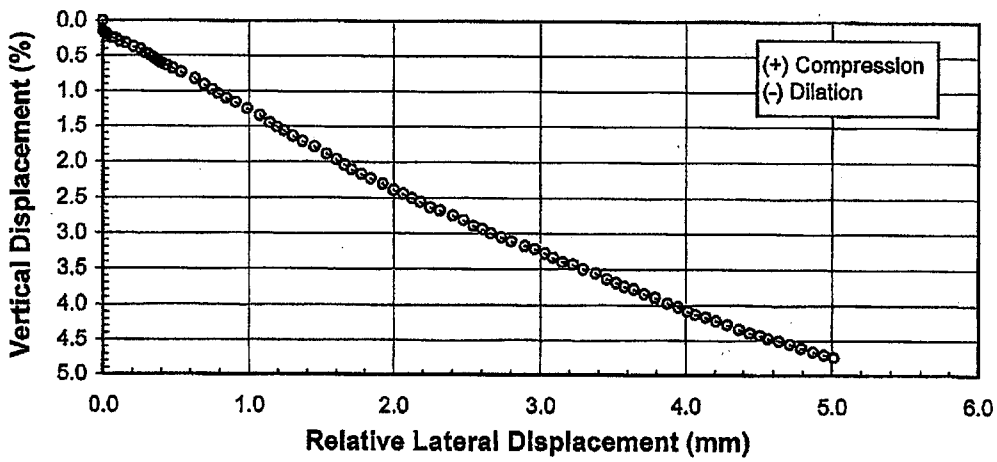
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 7.25 ksf

Boring: B-778 - Sample: UD-11b - Depth: 83.7 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 14.40 ksf

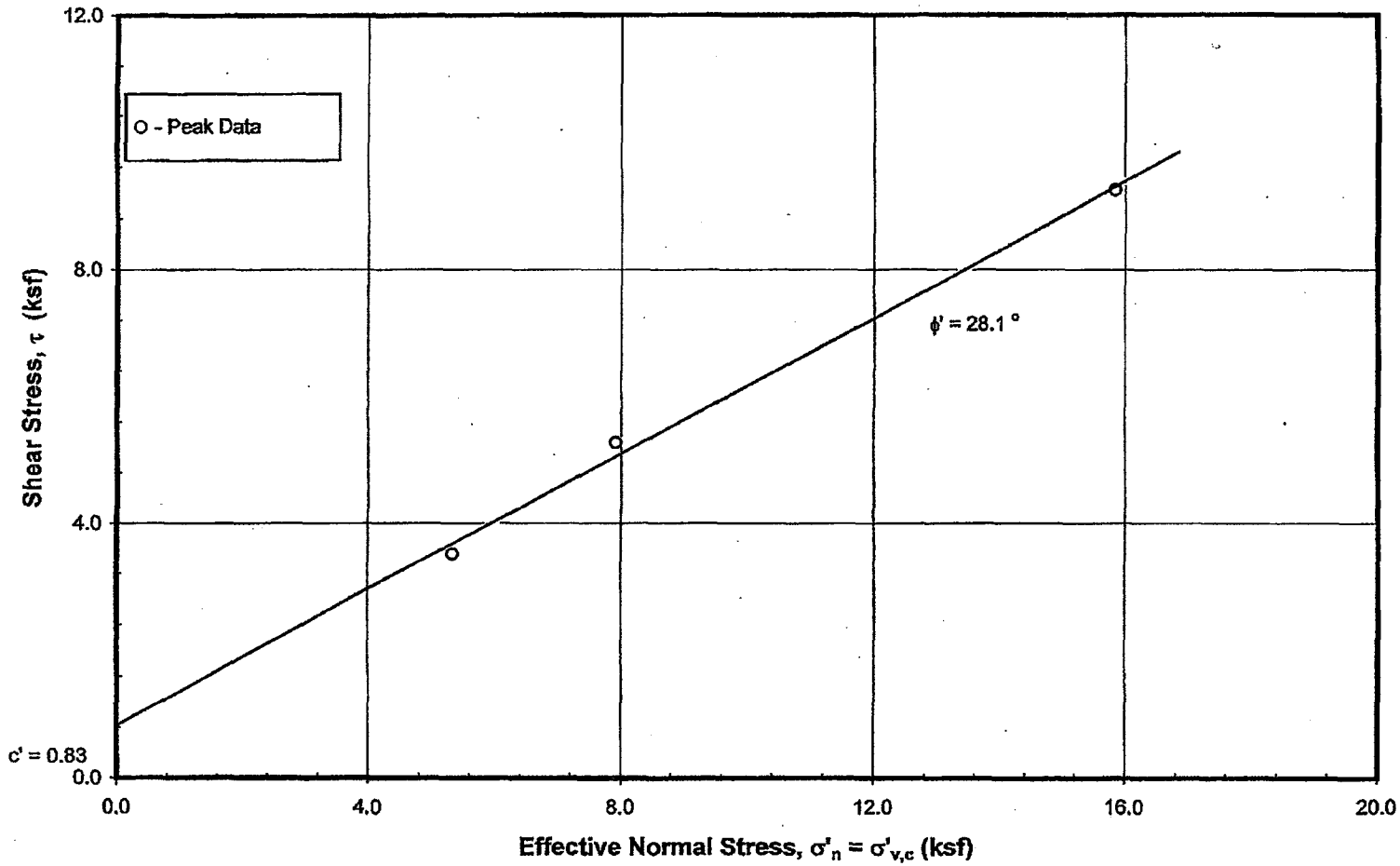
Boring: B-778 - Sample: UD-11c - Depth: 83.8 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

B-778_UD-14c.xls, c-phi plot 10/1/2008

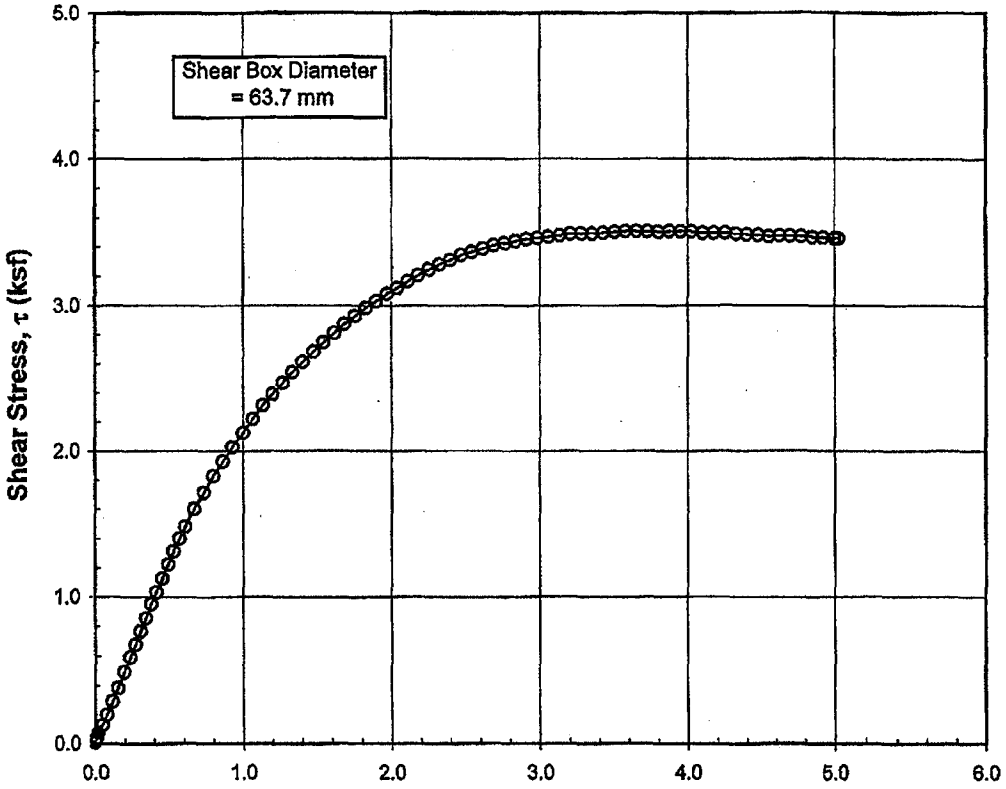
Revision Date: 12/01/07

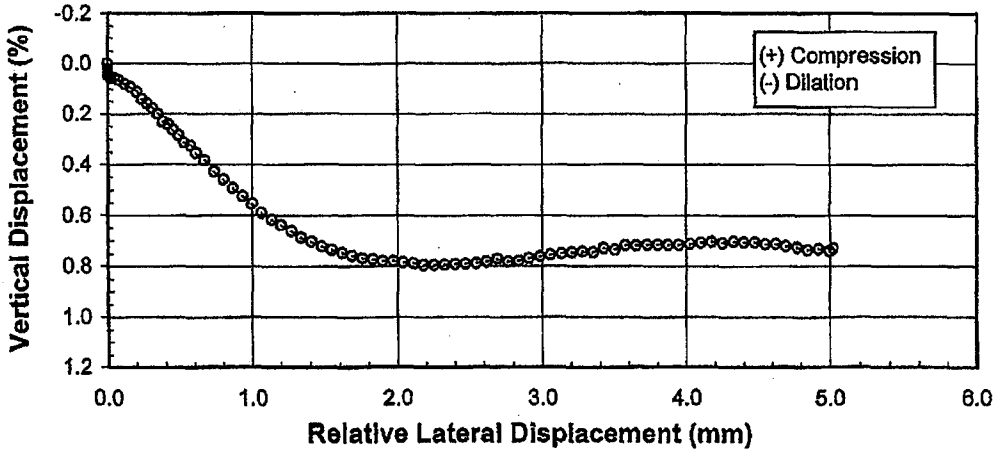


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-14c - Depth: 102.9 ft

Report No. 0411-08-1707

M 10-7-08



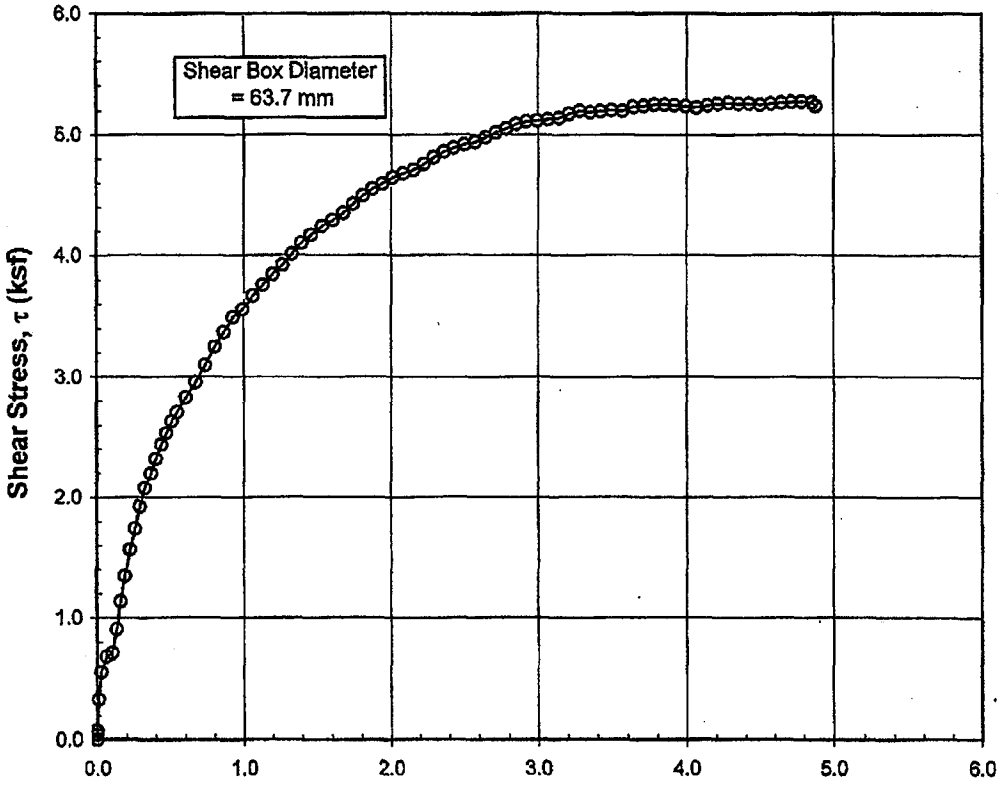


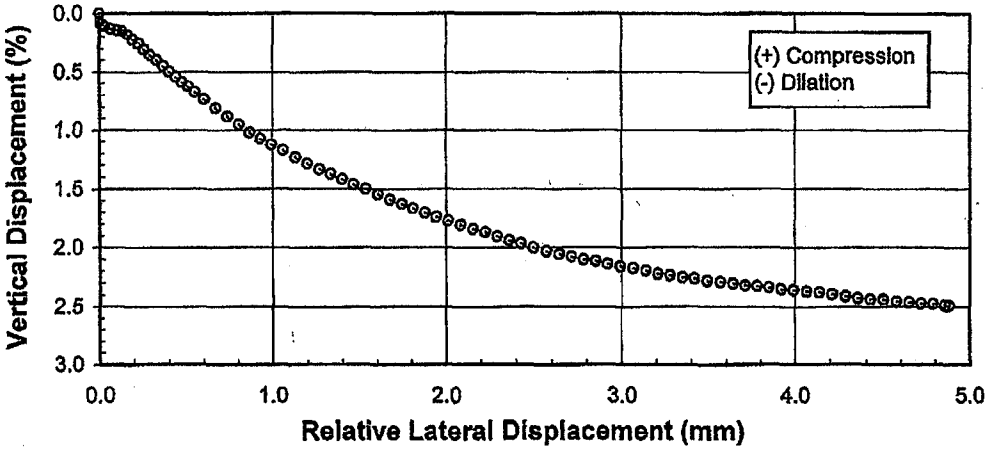
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.33 ksf

Boring: B-778 - Sample: UD-14a - Depth: 102.7 ft

Reviewed By: HP

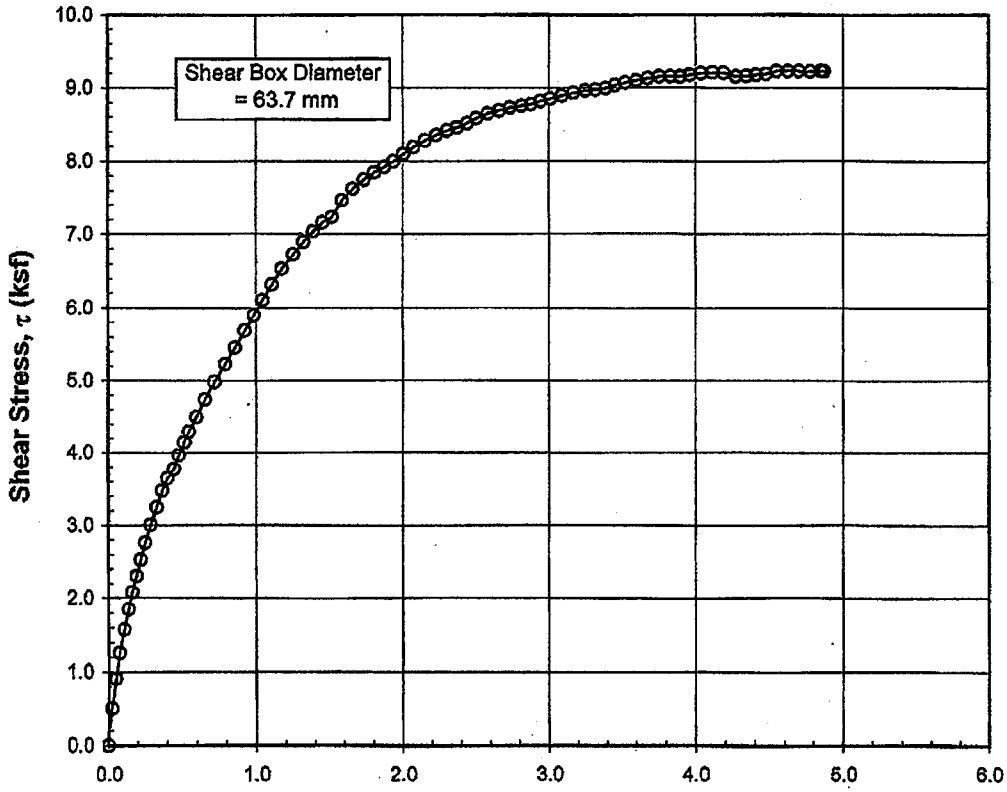


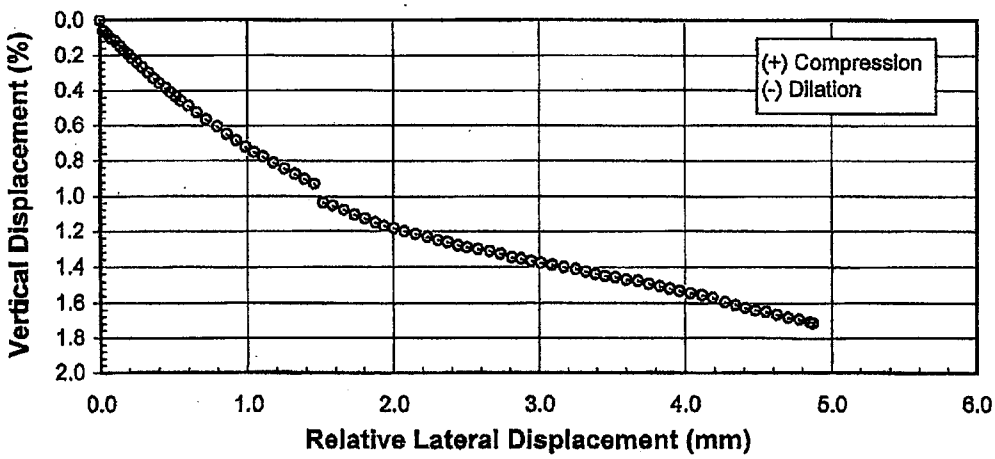


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 7.92 ksf
Boring: B-778 - Sample: UD-14b - Depth: 102.8 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 15.84 ksf

Boring: B-778 - Sample: UD-14c - Depth: 102.9 ft

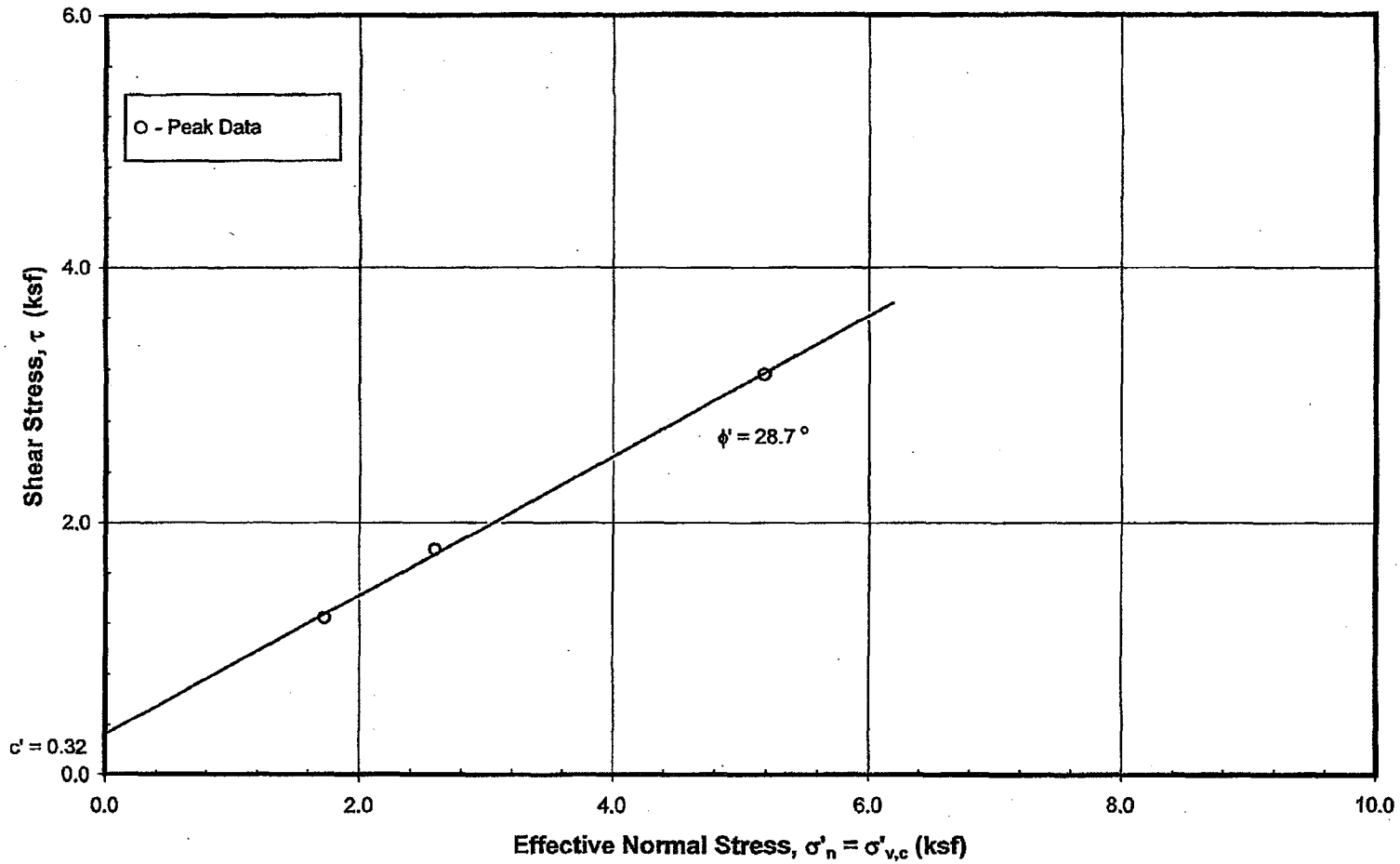
Reviewed By: ___

DCN: CALV-0~~00~~ 10-7-08

Prepared By: HP
Reviewed By: HP

B-779_UD-3c.xls, c-phi plot 10/1/2008

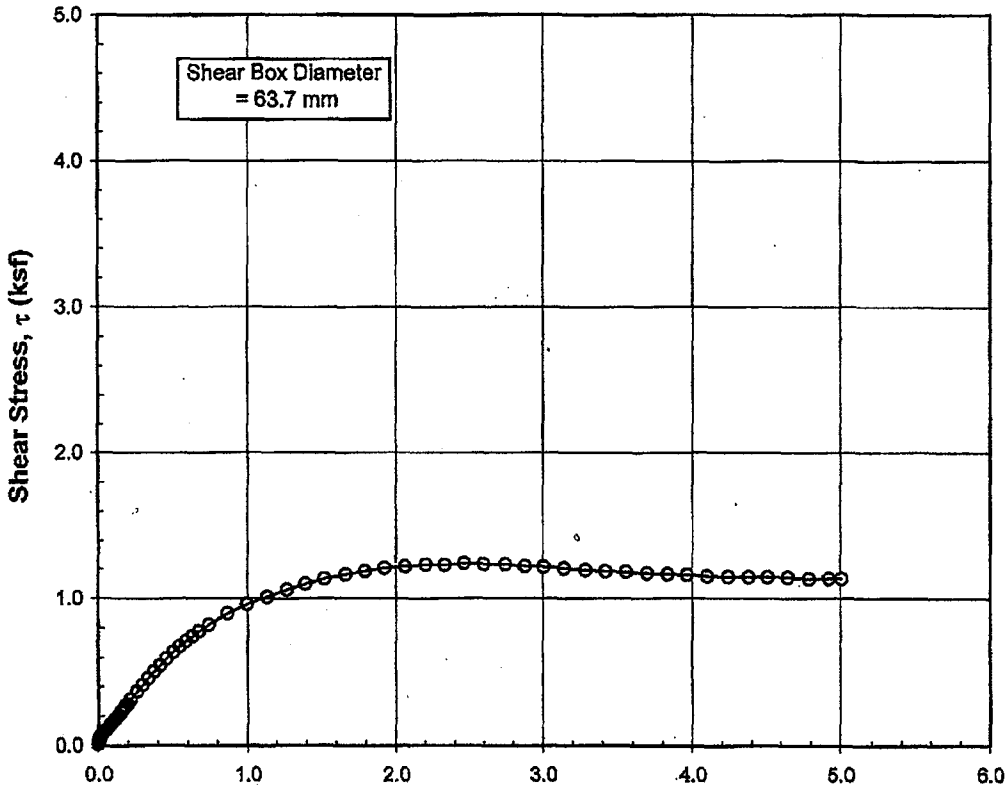
Revision Date: 12/01/07

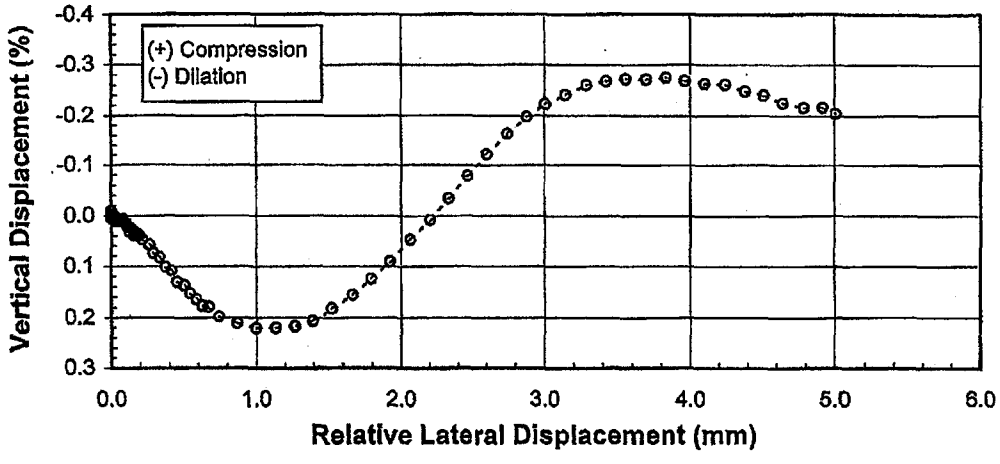


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-3c - Depth: 22.9 ft

Report No. 0411-08-1707

AA 10-7-08



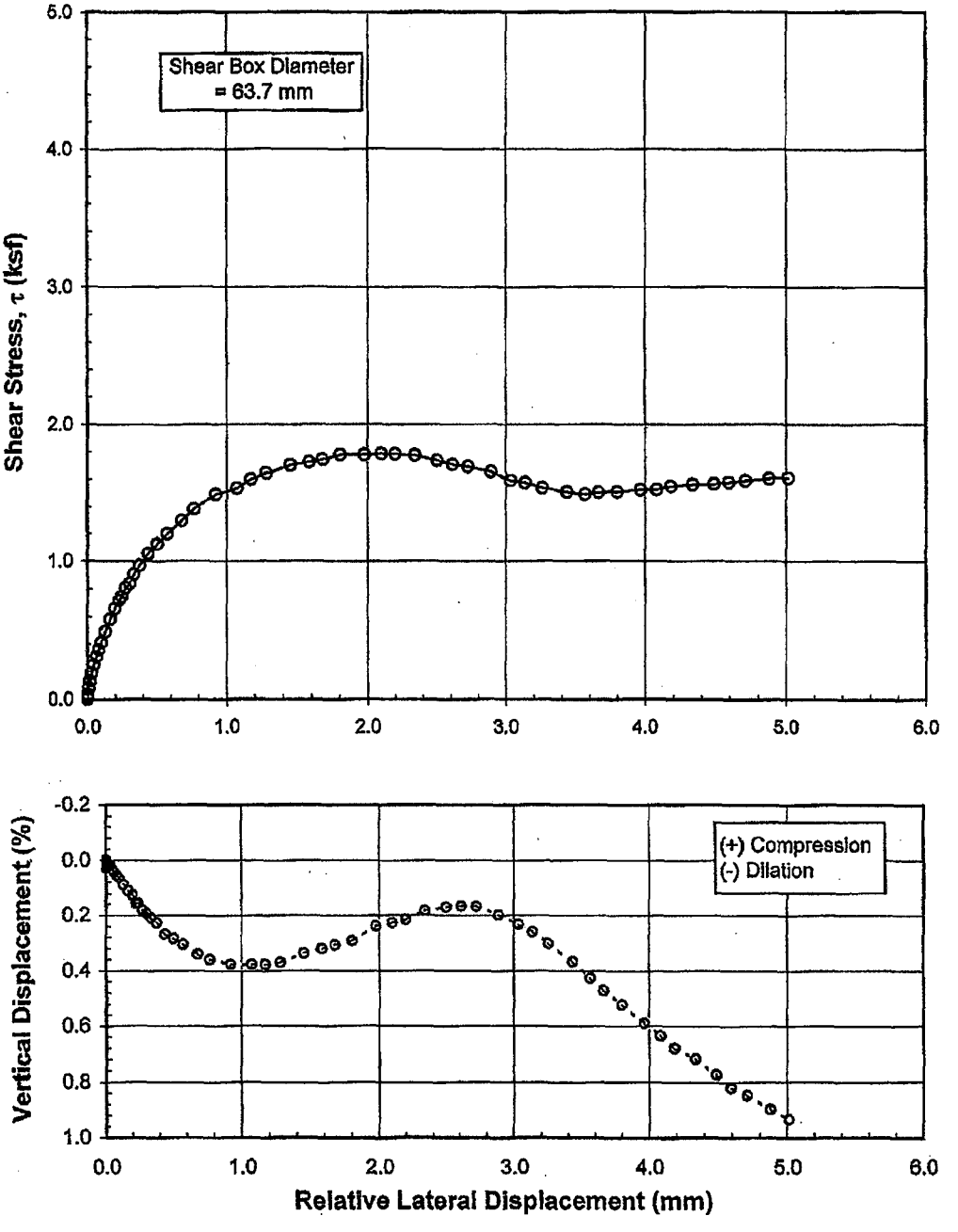


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.73 ksf

Boring: B-779 - Sample: UD-3a - Depth: 22.7 ft

Reviewed By: HP

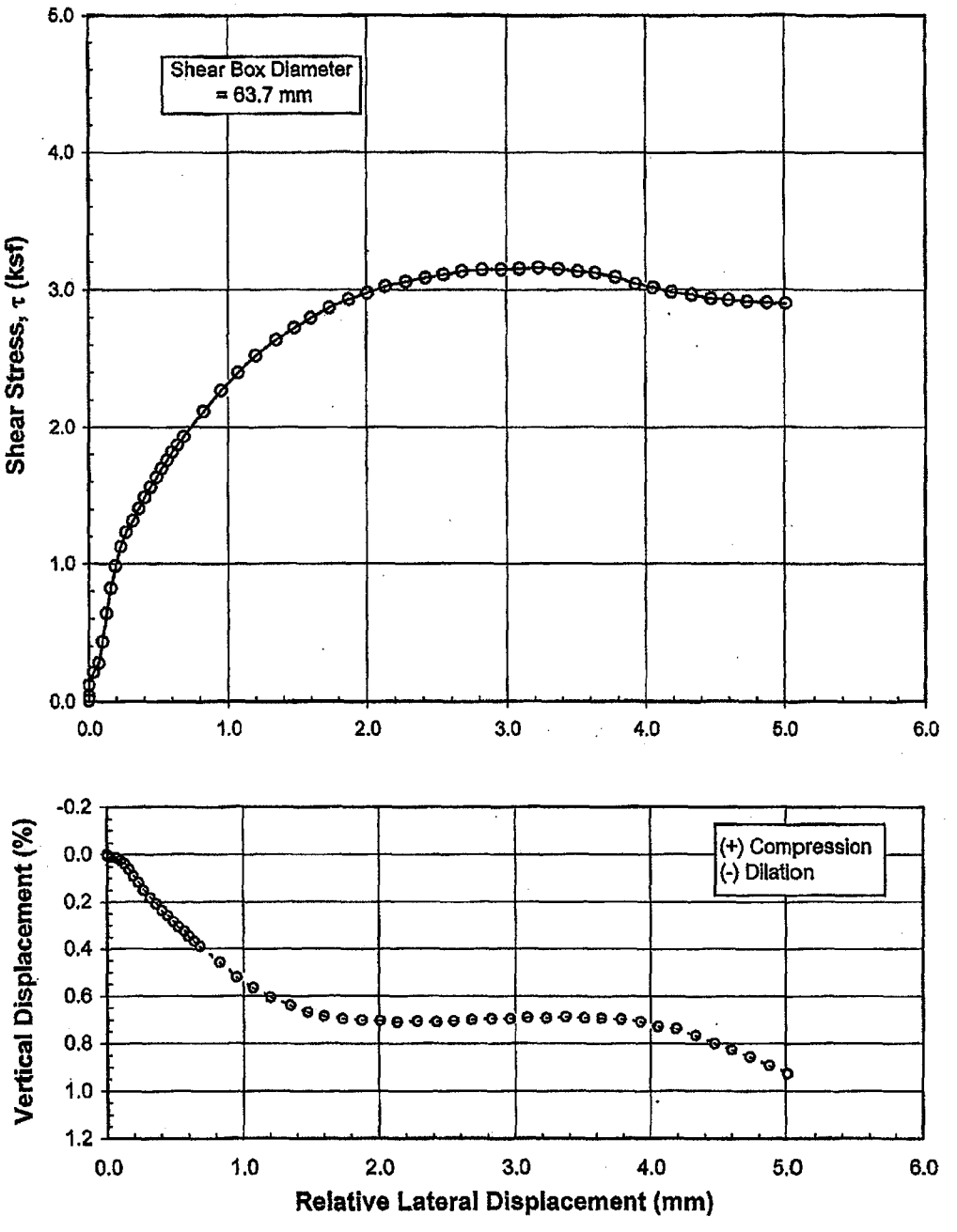


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.59 ksf

Boring: B-779 - Sample: UD-3b - Depth: 22.8 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test In Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.18 ksf

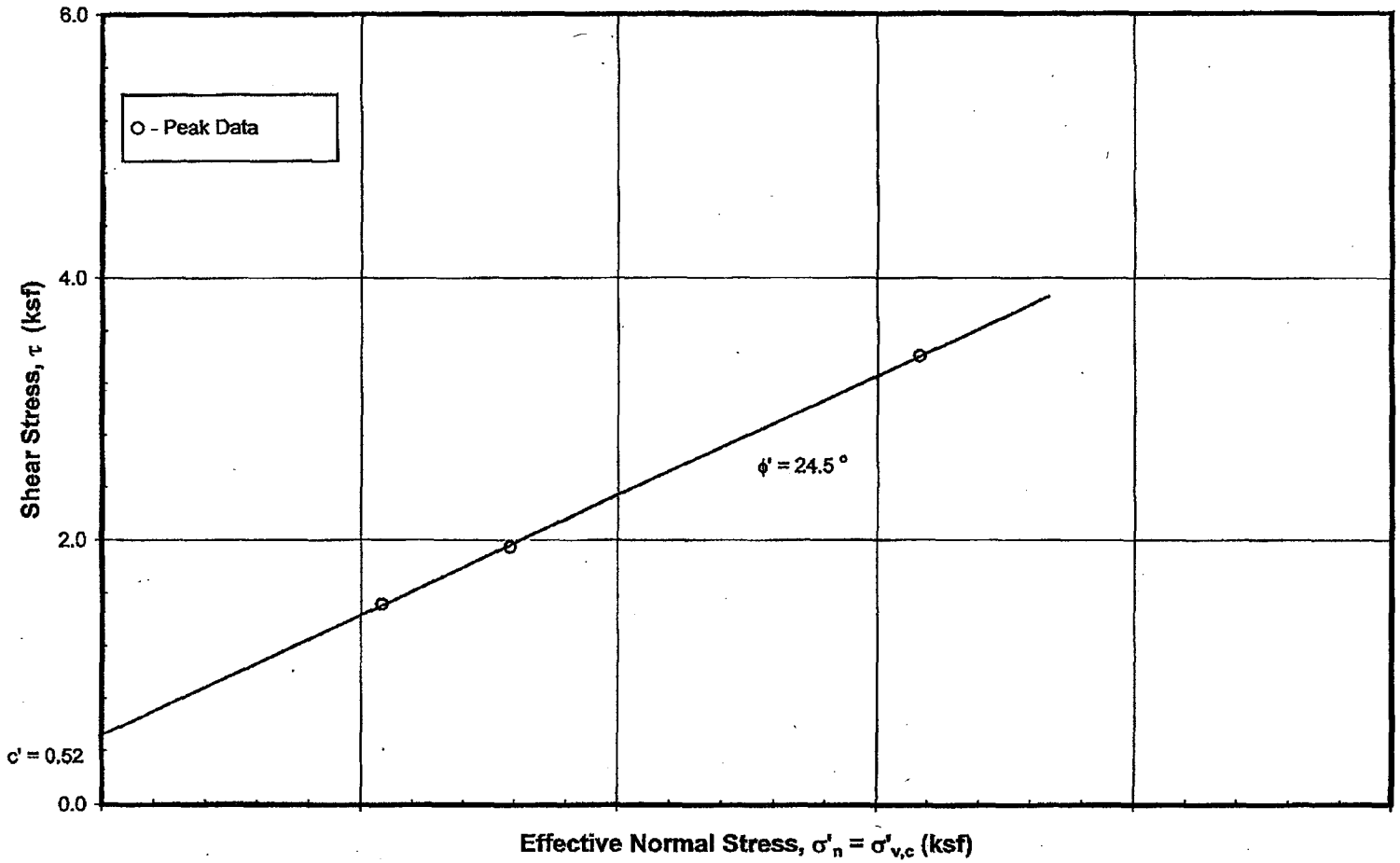
Boring: B-779 - Sample: UD-3c - Depth: 22.9 ft

Reviewed By: MP

Prepared By: HP
Reviewed By: HP

B-779_UD-4c.xls, c-phi plot 10/1/2008

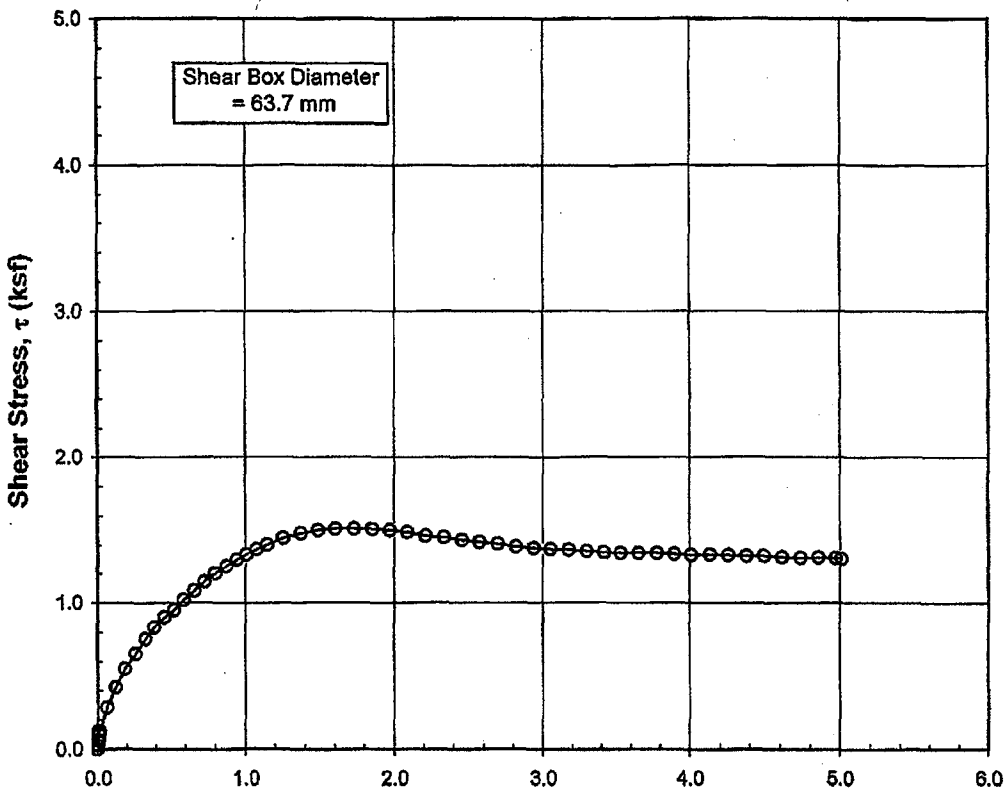
Revision Date: 12/01/07

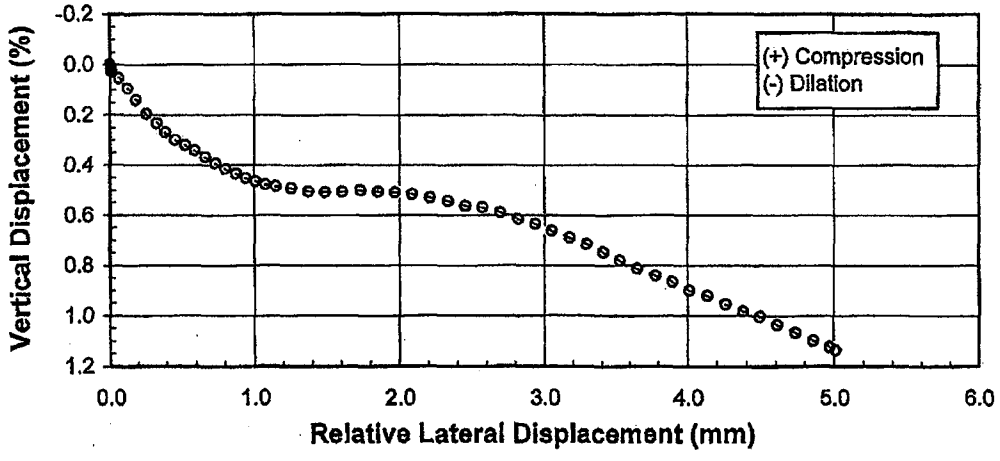


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-4c - Depth: 31.35 ft

Report No. 0411-08-1707

AA 10-7-08



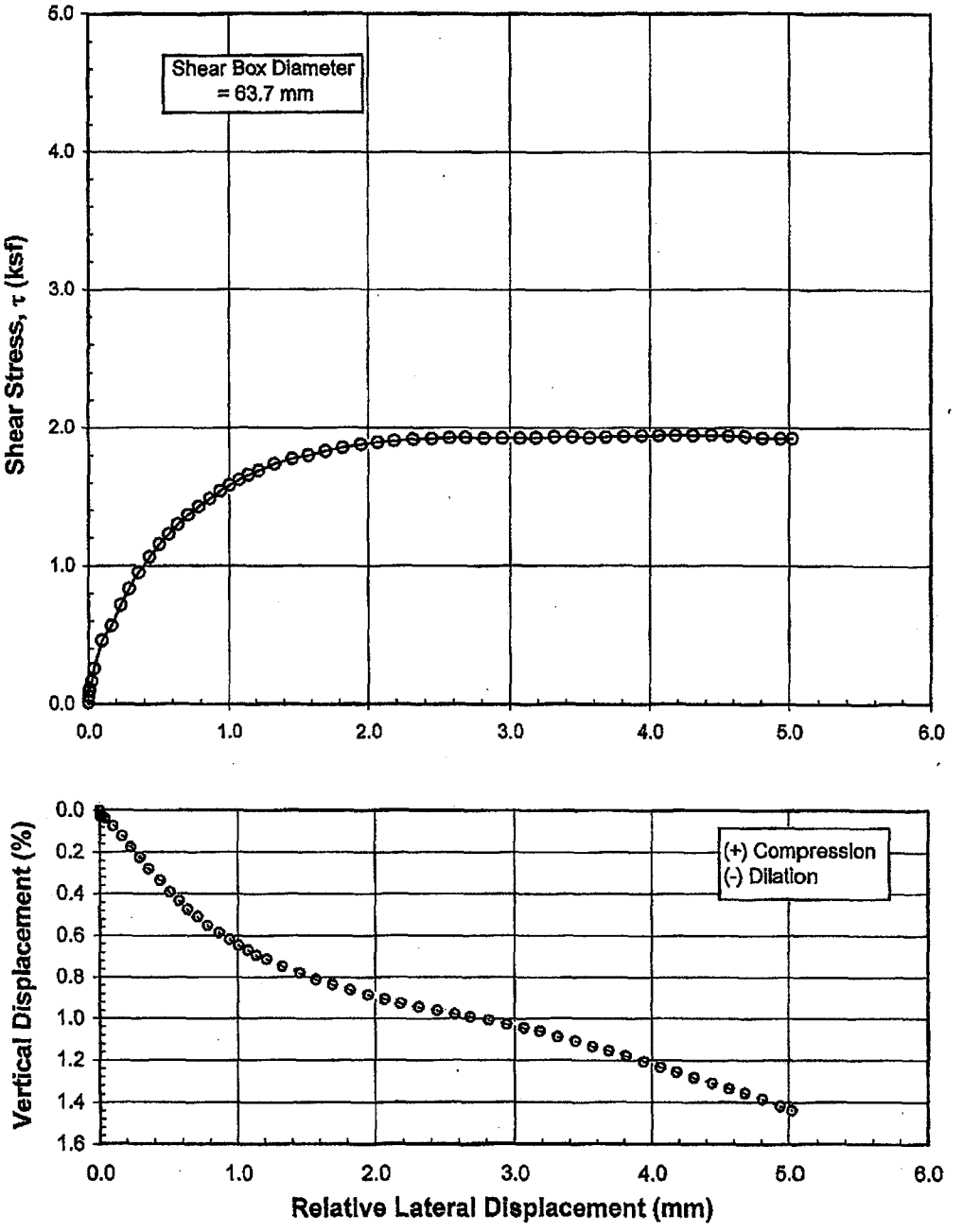


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf

Boring: B-779 - Sample: UD-4a - Depth: 31.15 ft

Reviewed By: HP



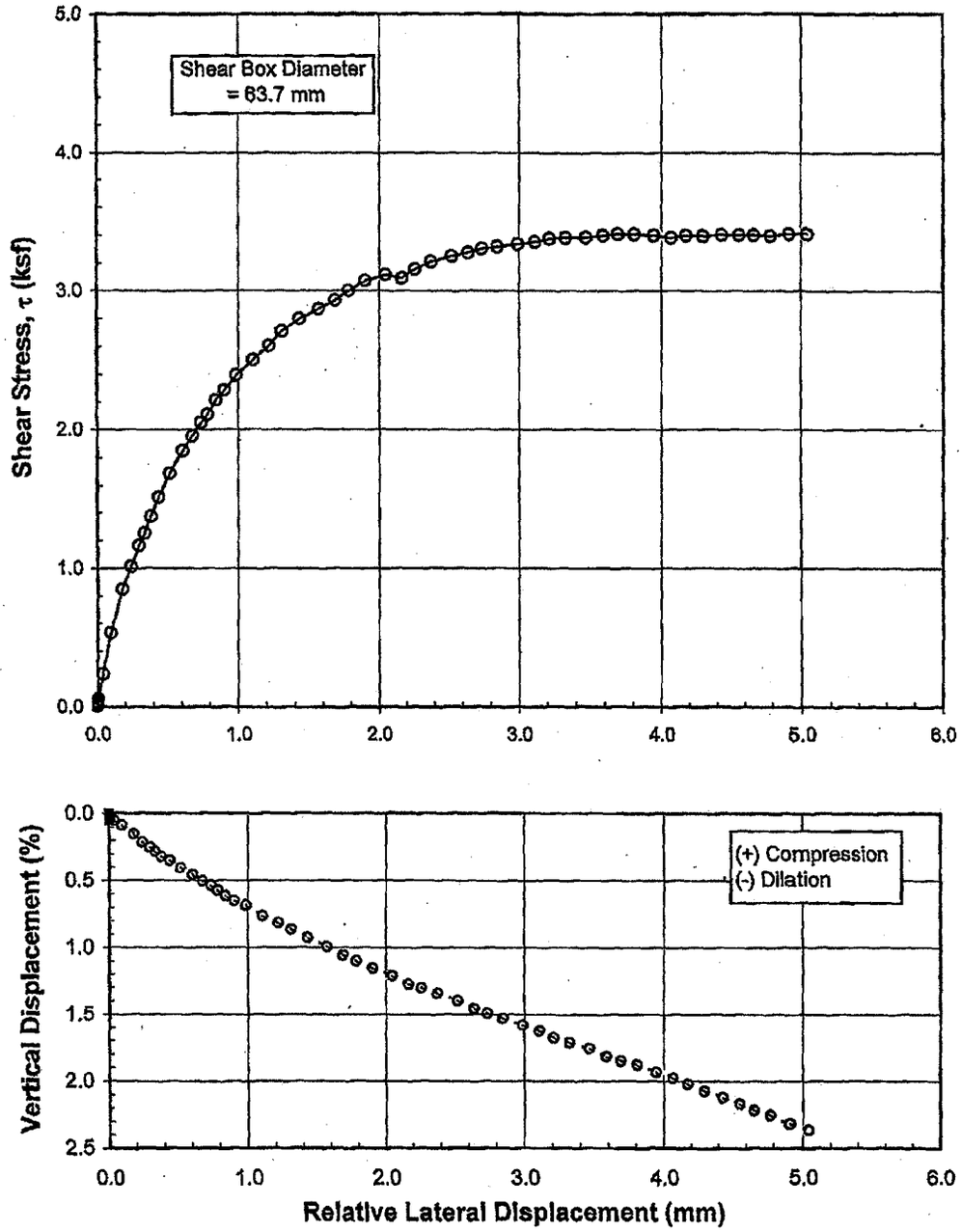
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.17 ksf

Boring: B-779 - Sample: UD-4b - Depth: 31.25 ft

Reviewed By: HD

DCN: CALV-050 MA 10-7-02



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.34 ksf

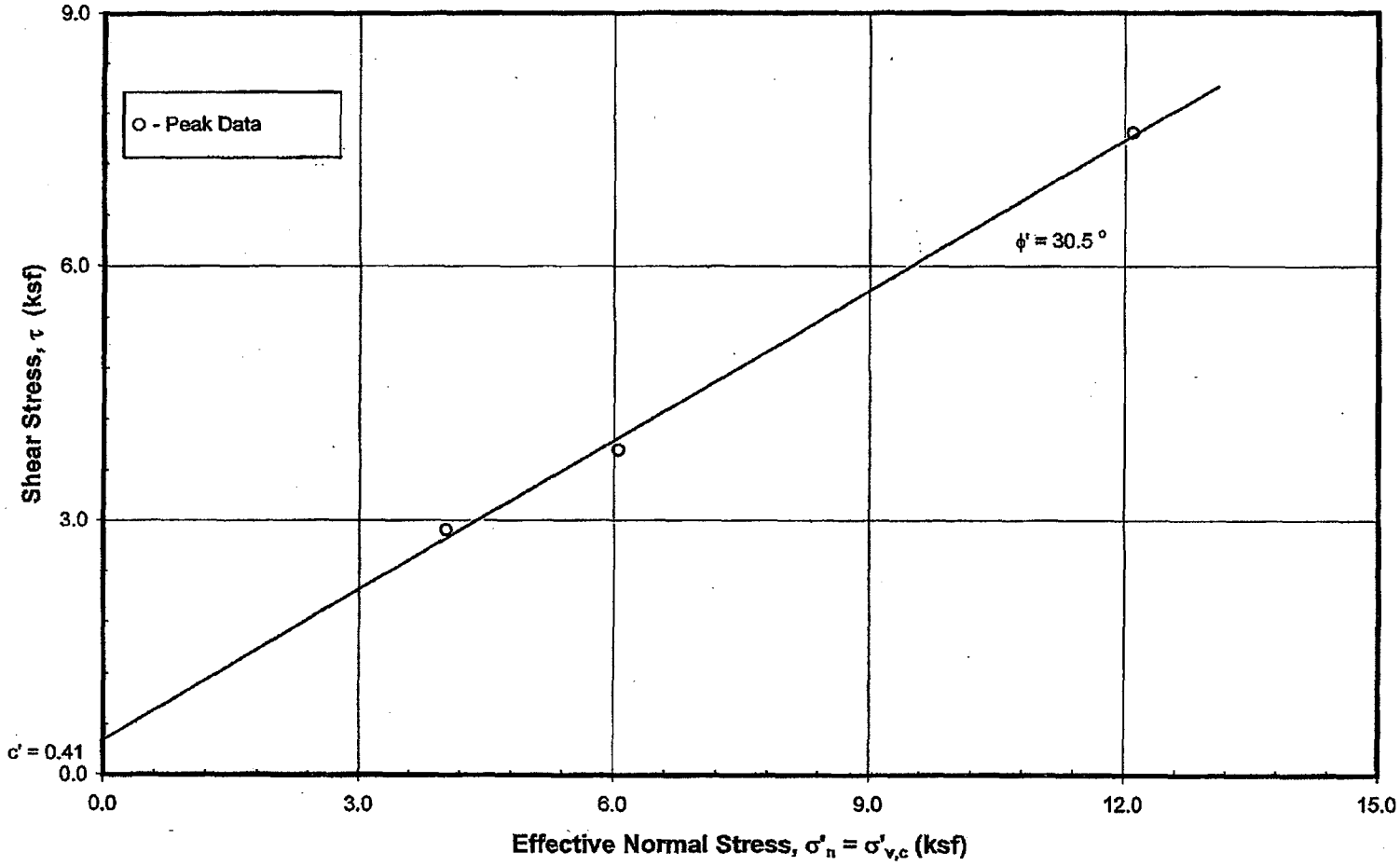
Boring: B-779 - Sample: UD-4c - Depth: 31.35 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

B-779_UD-10c.xls, c-phi plot 10/2/2008

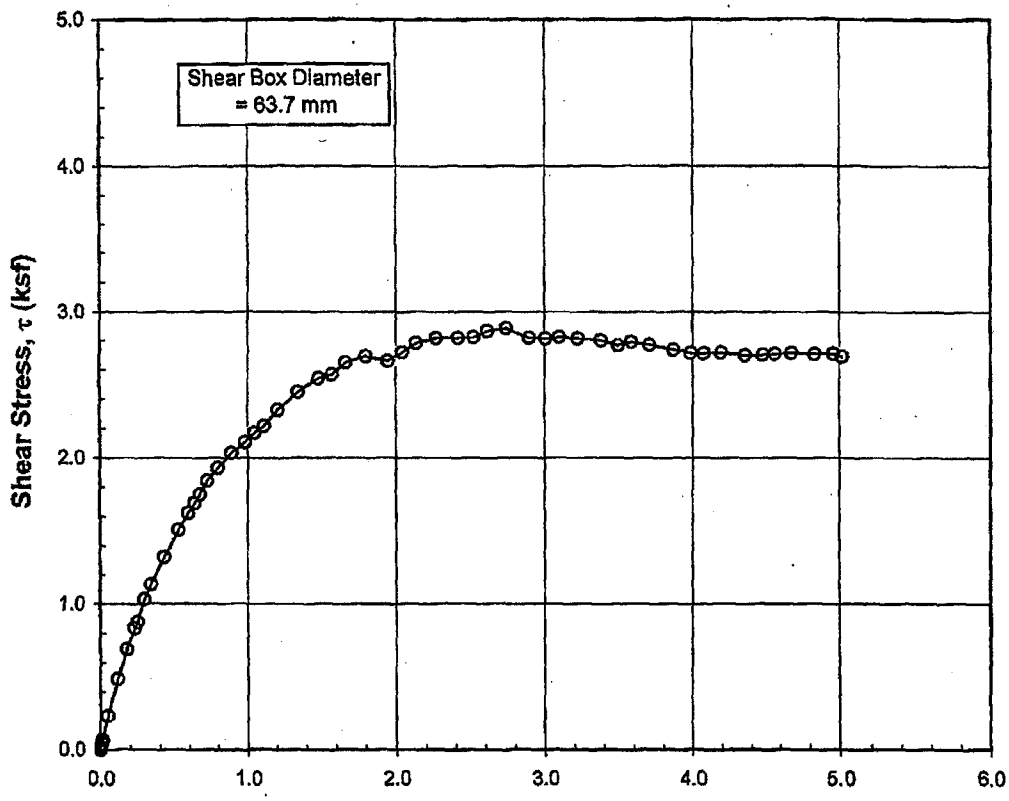
Revision Date: 12/01/07

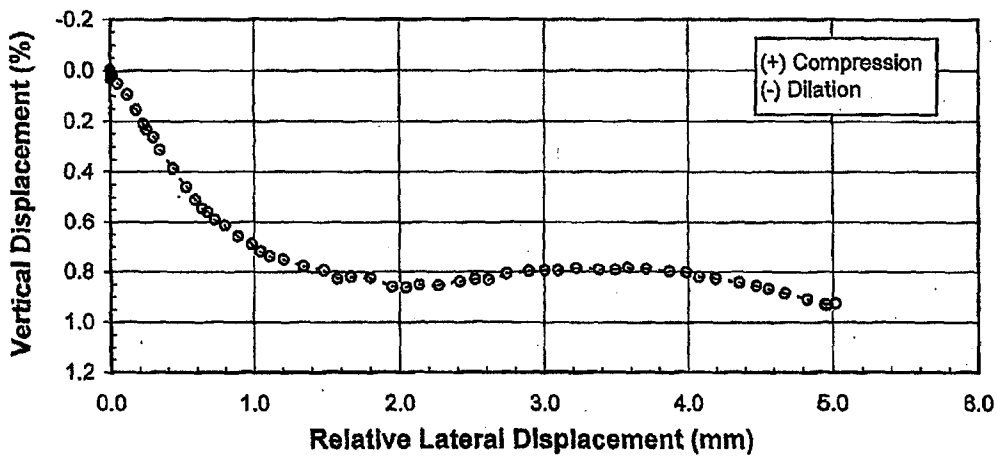


DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-10c - Depth: 83.4 ft

Report No. 0411-08-1707

M 10-7-08





DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

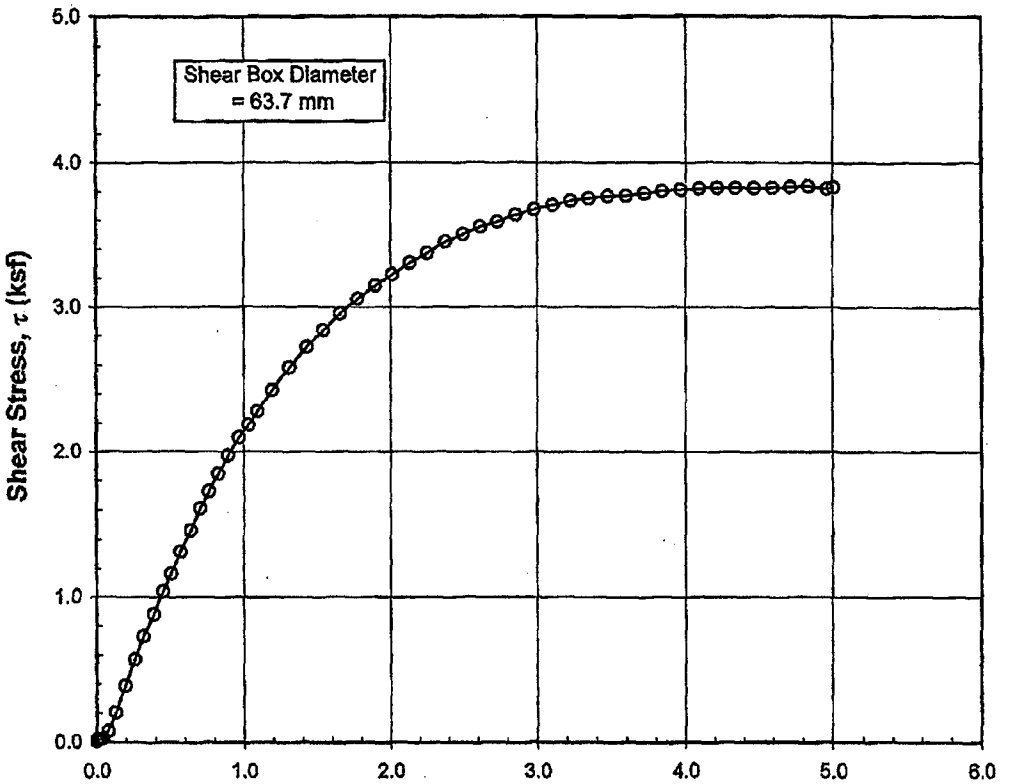
Soil - Soil Interface $\sigma'_{v,c}$ = 4.03 ksf

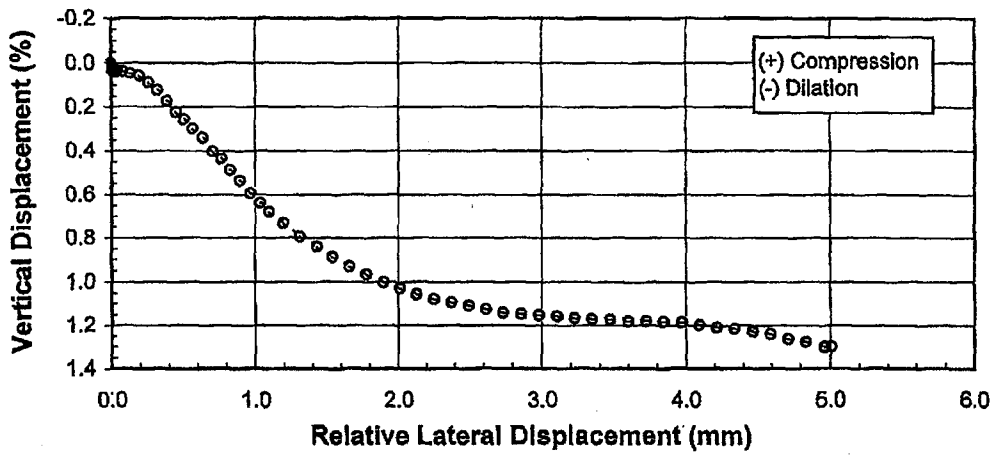
Boring: B-779 - Sample: UD-10a - Depth: 83.2 ft

Reviewed By: HP

M 10-7-08

DCN: CALV-050





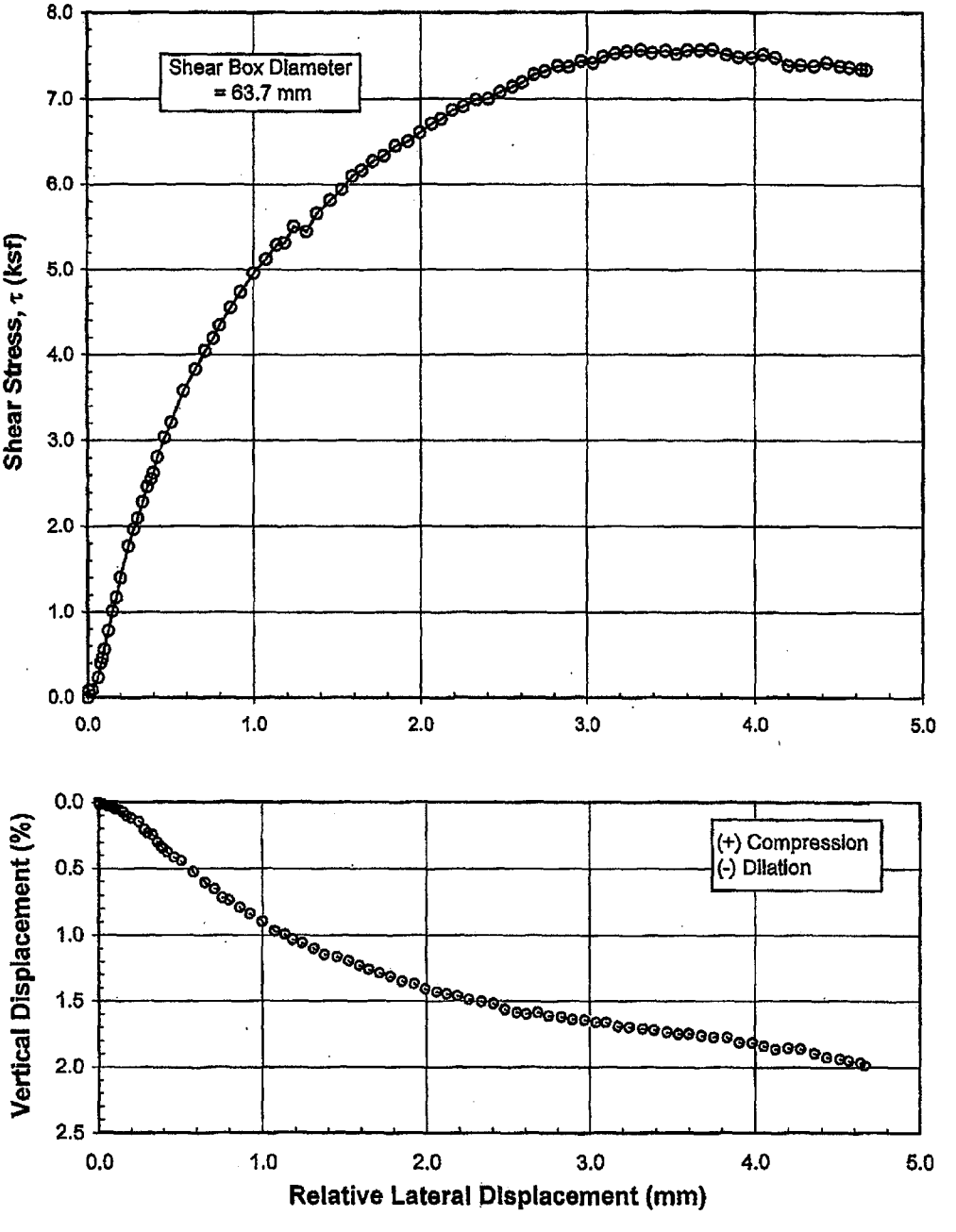
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.05 ksf

Boring: B-779 - Sample: UD-10b - Depth: 83.3 ft

Reviewed By: _____

DCN: CALV-050 10-7-08



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 12.10 ksf

Boring: B-779 - Sample: UD-10c - Depth: 83.4 ft

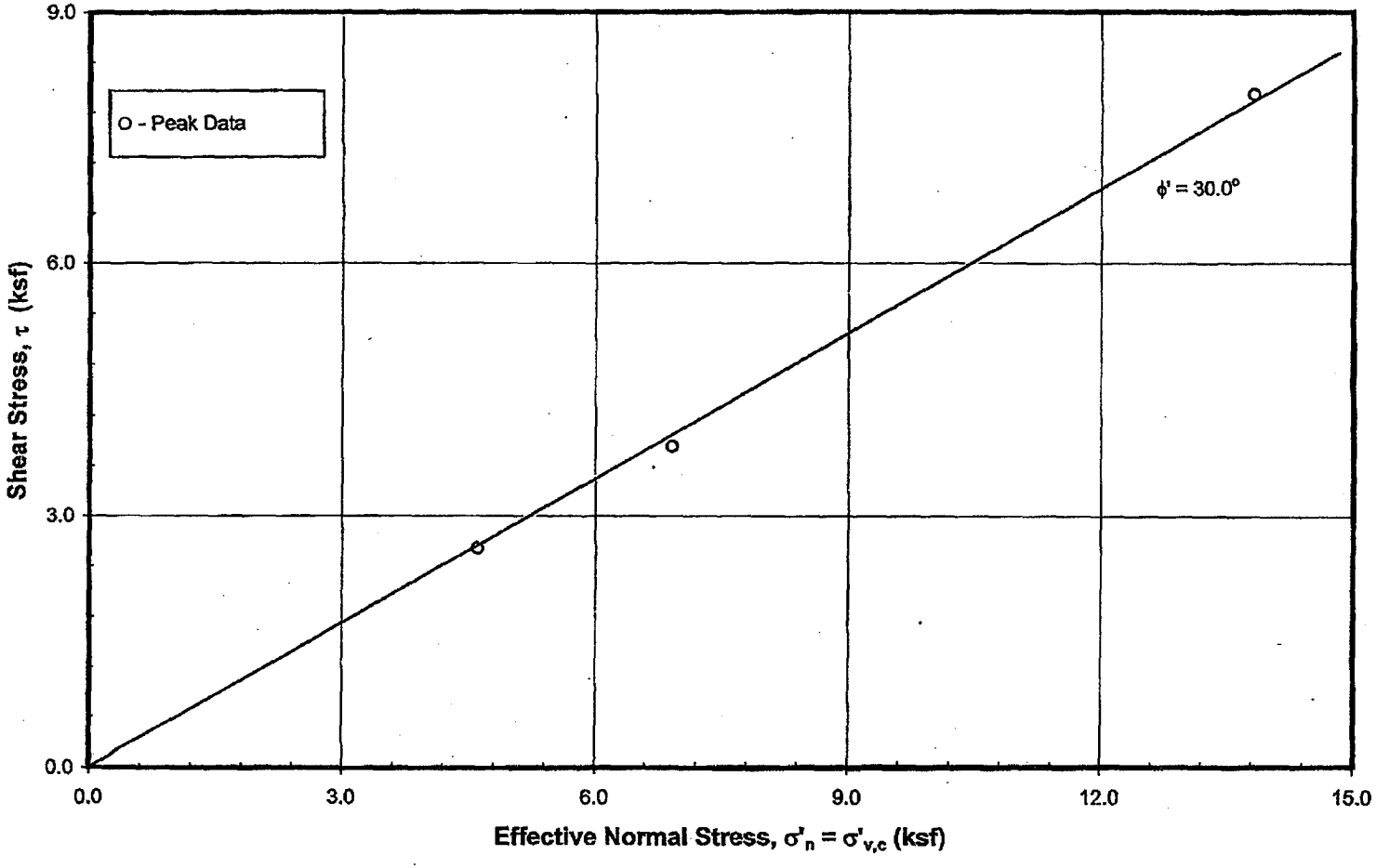
Reviewed By: NP

DCN: CALV-050 NA 10-7-03

Prepared By: MP
Reviewed By: MP

B-779_UD-11c.xls, c-phi plot 10/1/2008

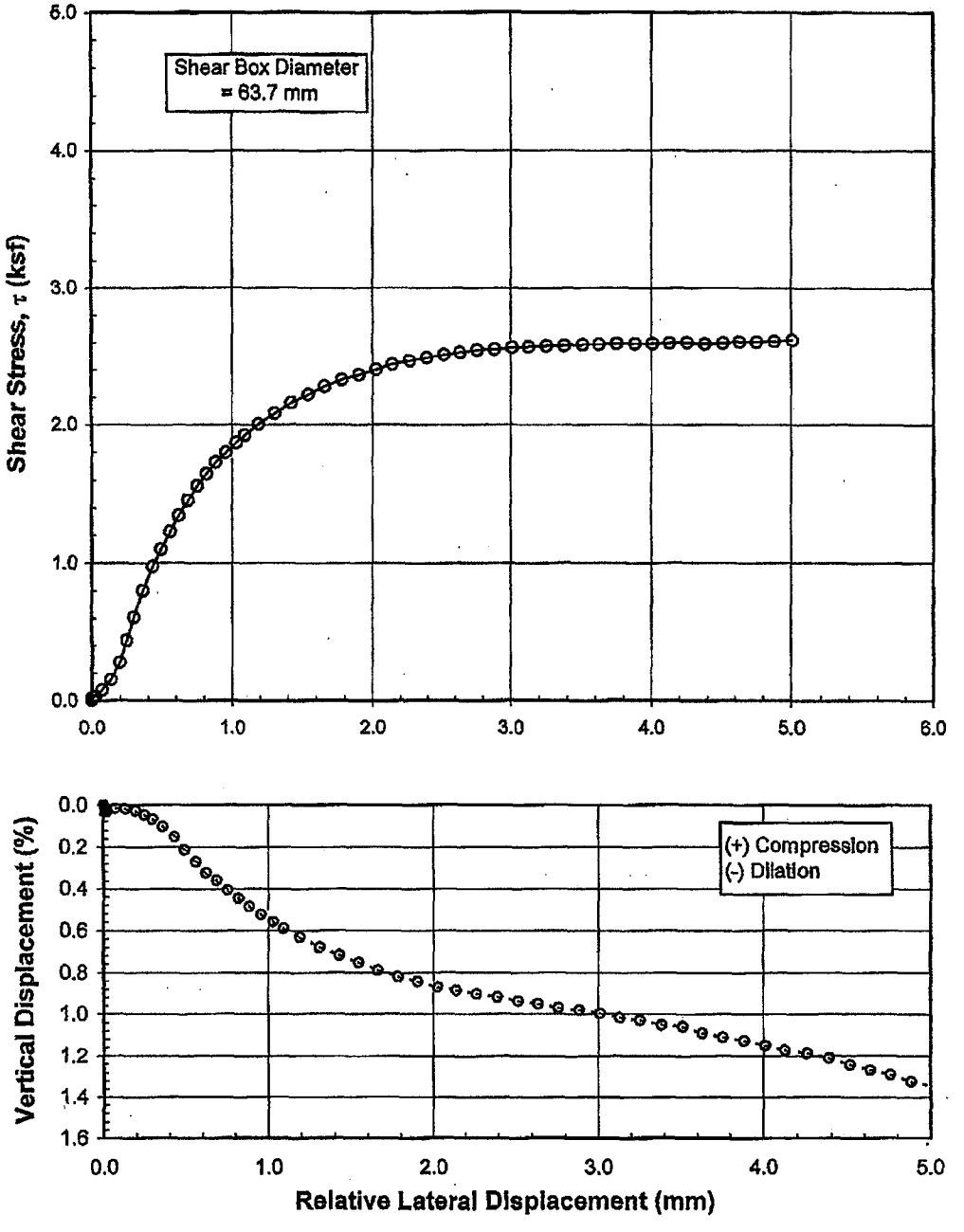
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-11c - Depth: 97.9 ft

Report No. 0411-08-1707

MA 10-7-08

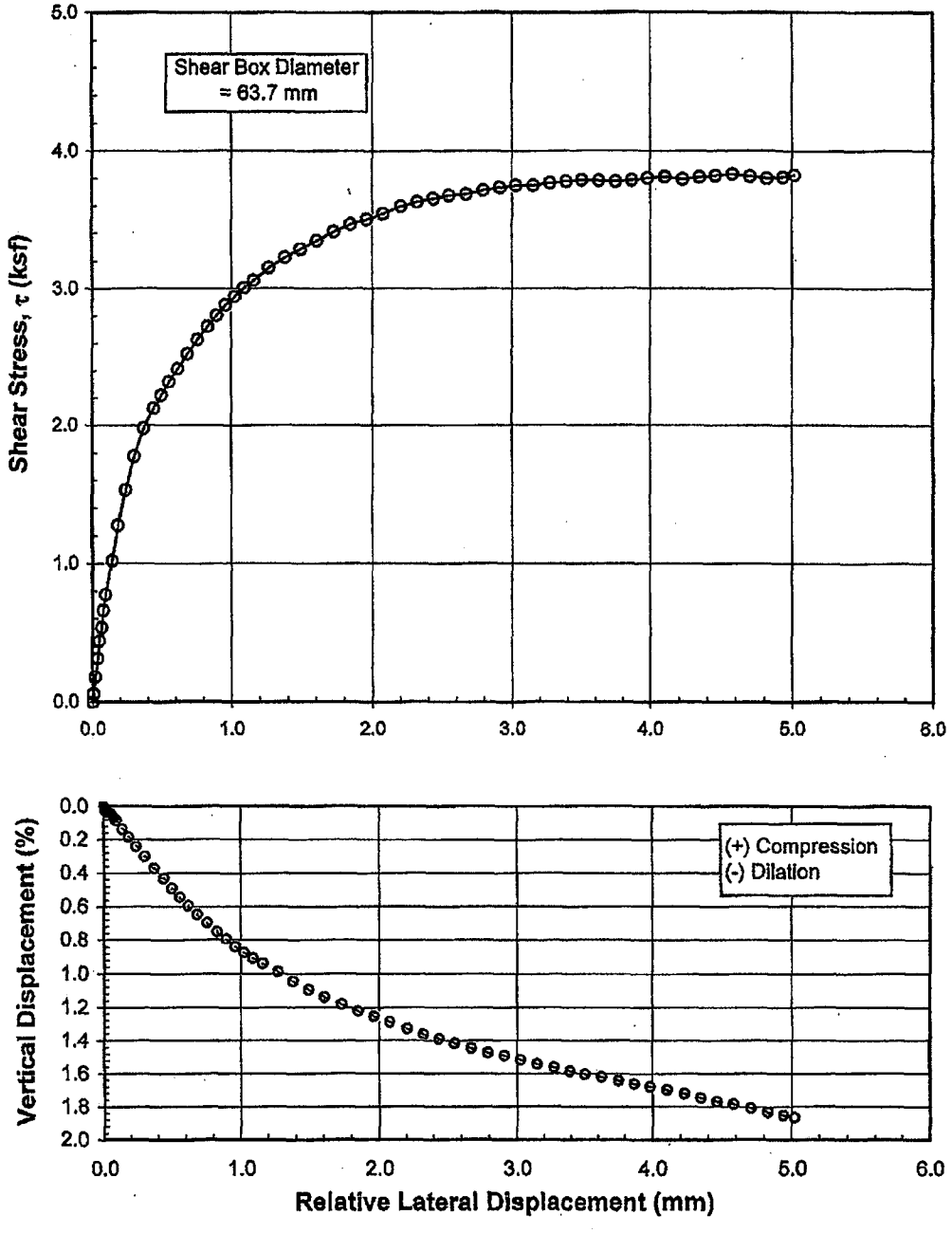


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.61 ksf

Boring: B-779 - Sample: UD-11a - Depth: 97.7 ft

Reviewed By: HP

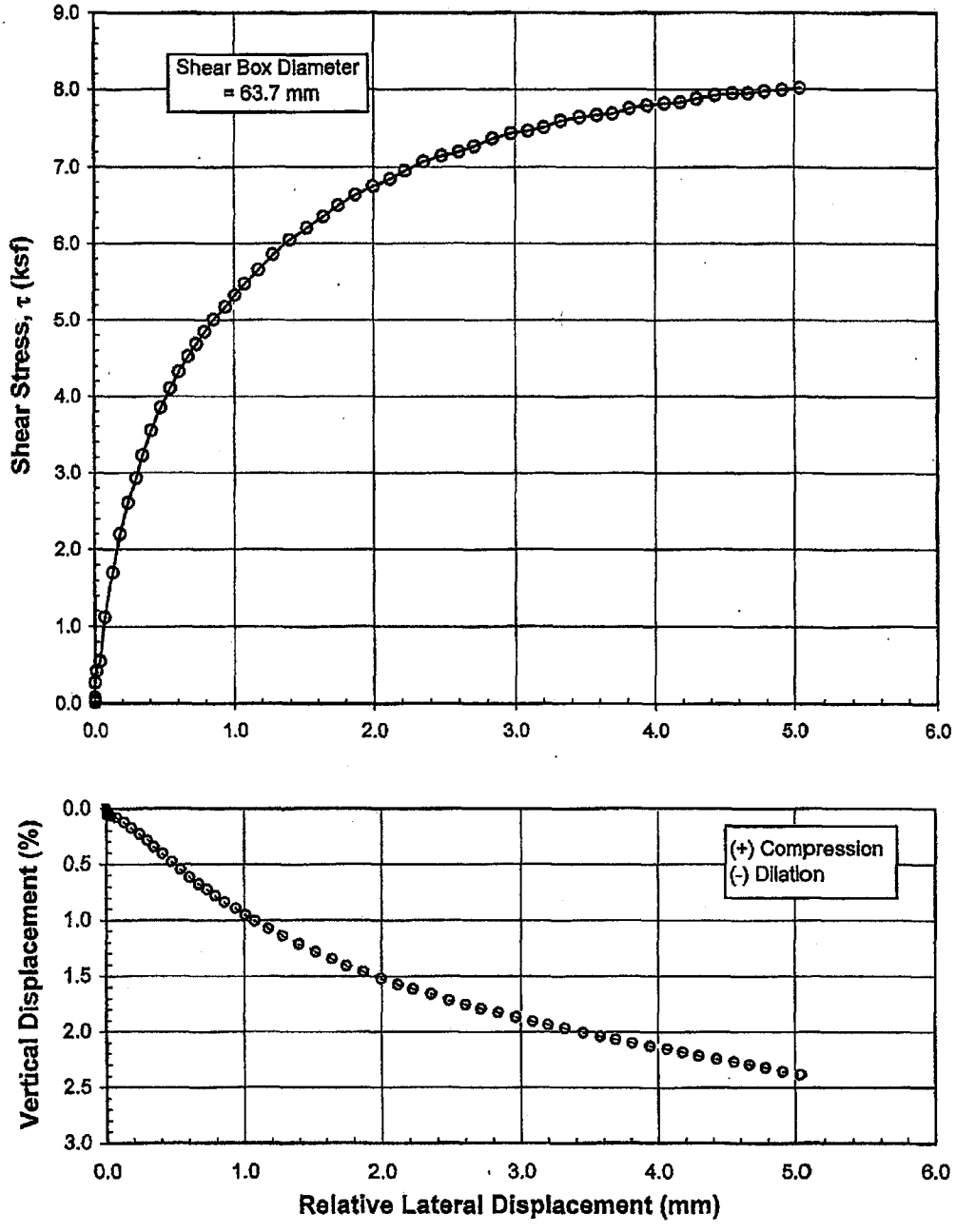


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.91 ksf

Boring: B-779 - Sample: UD11b - Depth: 97.8 ft

Reviewed By: HP



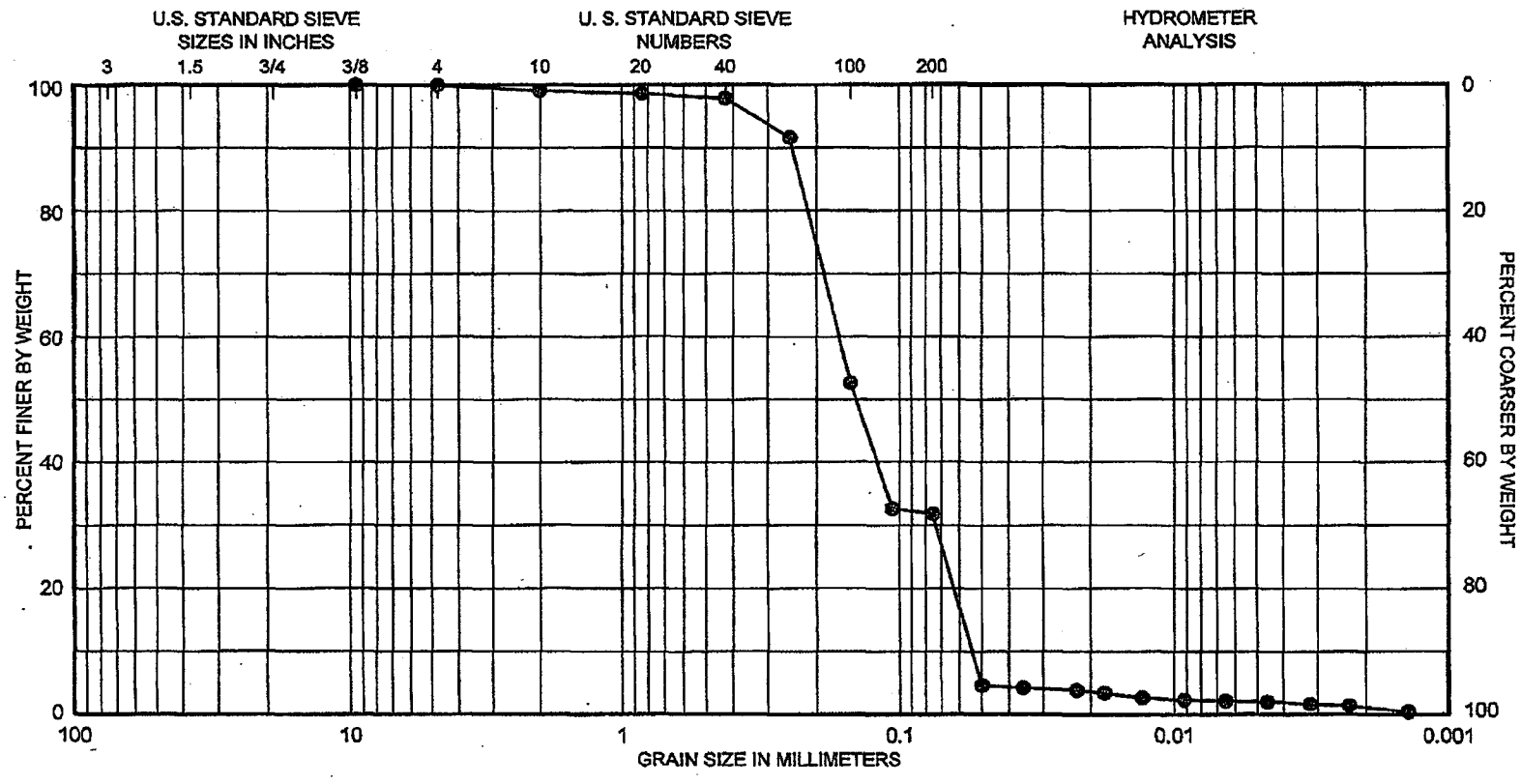
DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 13.82 ksf

Boring: B-779 - Sample: UD-11c - Depth: 97.9 ft

Reviewed By: HP

DCN: 04LV9057-03



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-2	61.05	0.60	3.05	0.1434	0.24	Silty Sand, dark gray, with shell fragments

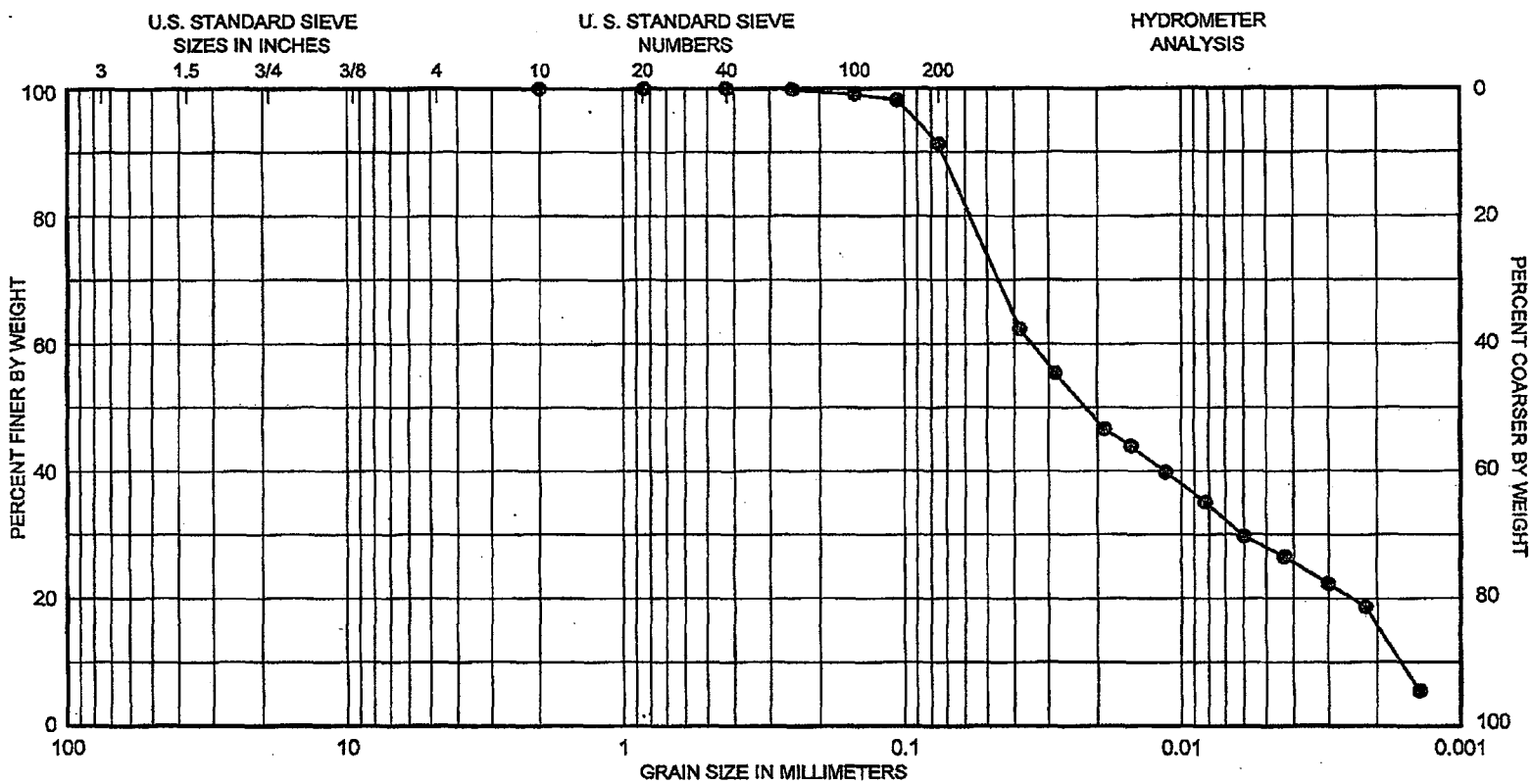
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



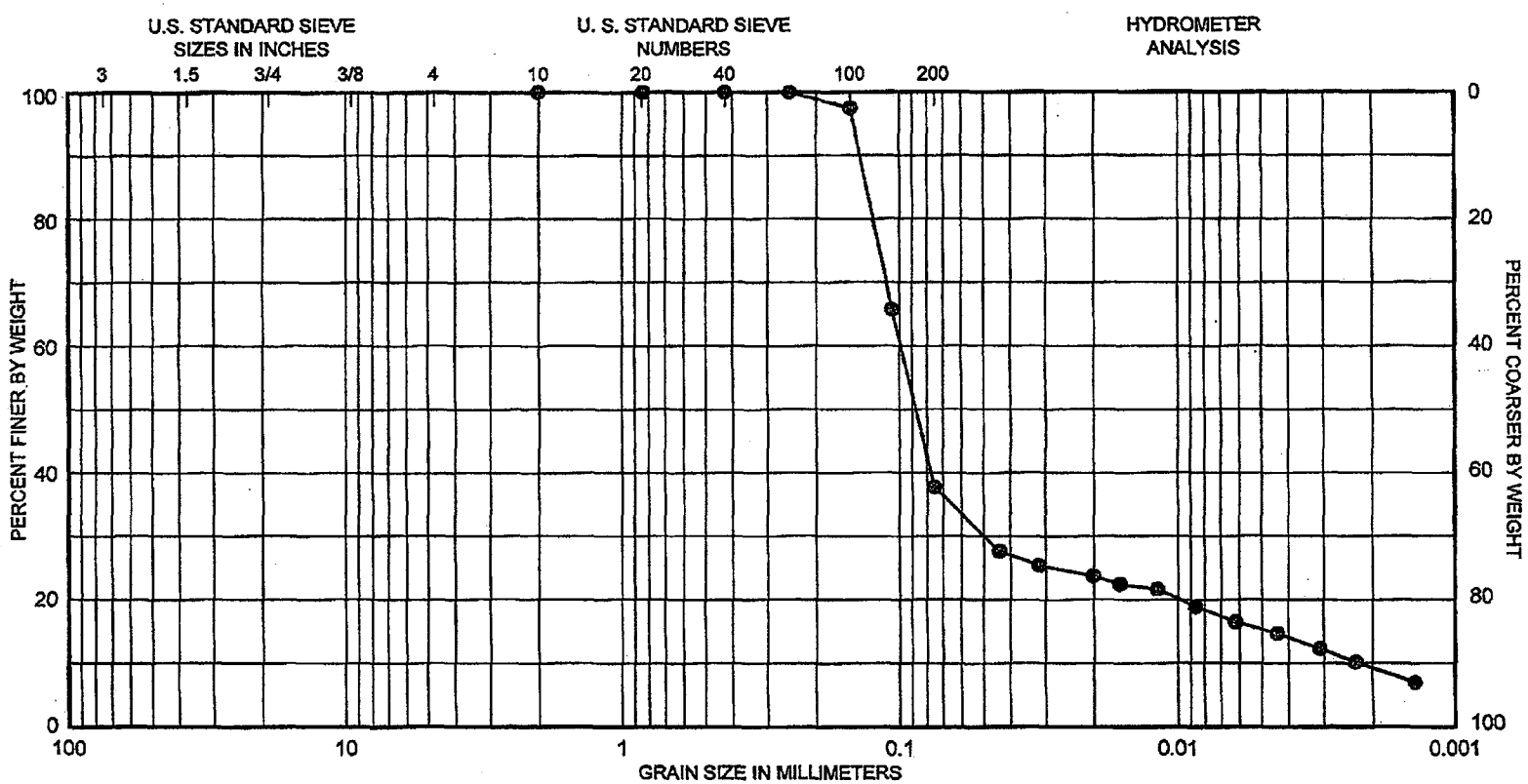
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-4	199.3	0.66	21.13	0.0221	0.07	Fat Clay, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



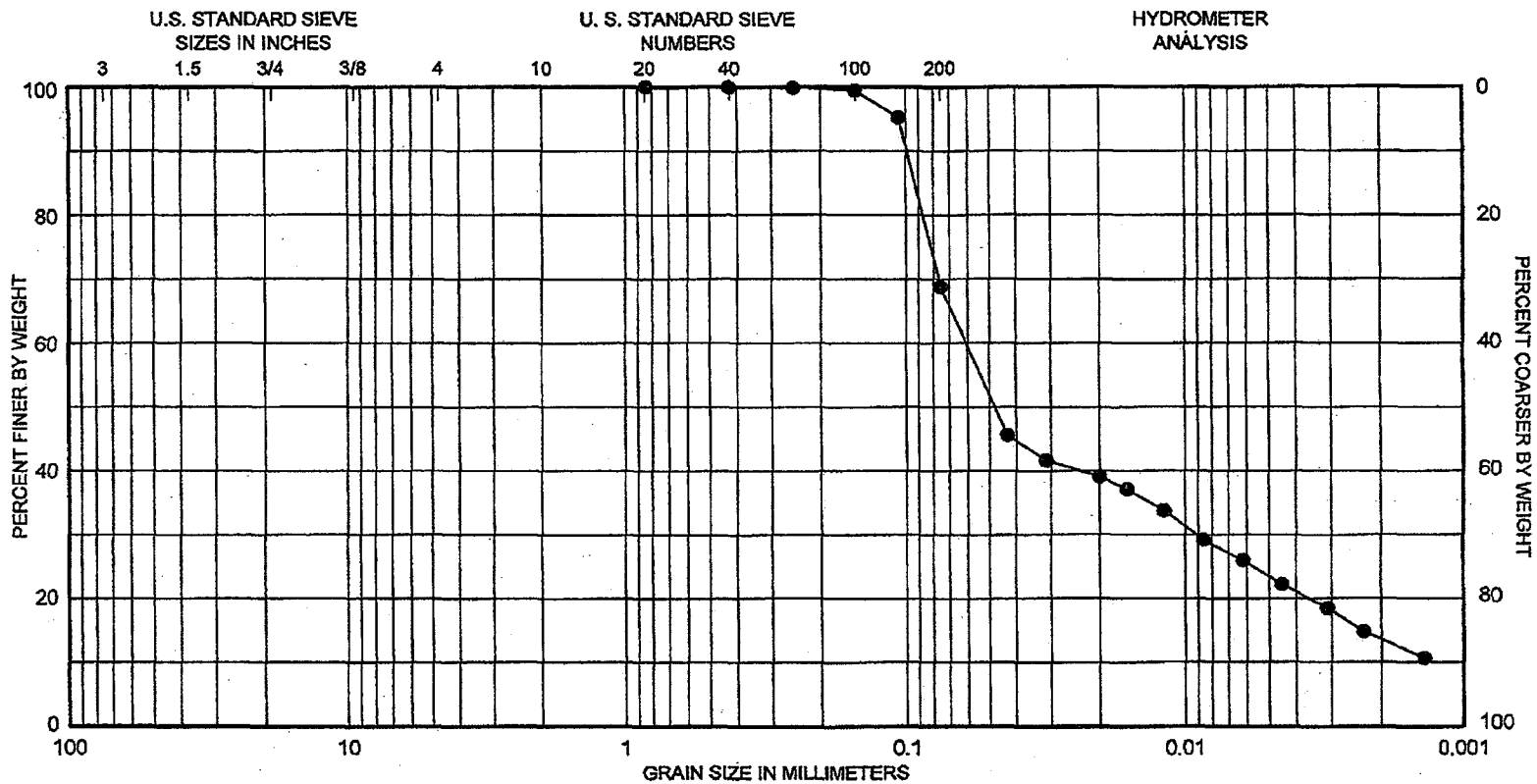
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-5	219.25	11.24	44.30	0.0873	0.14	Clayey Sand, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-301A-UD-6	239.25	NA	NA	0.0478	0.1	Sandy Fat Clay, greenish gray

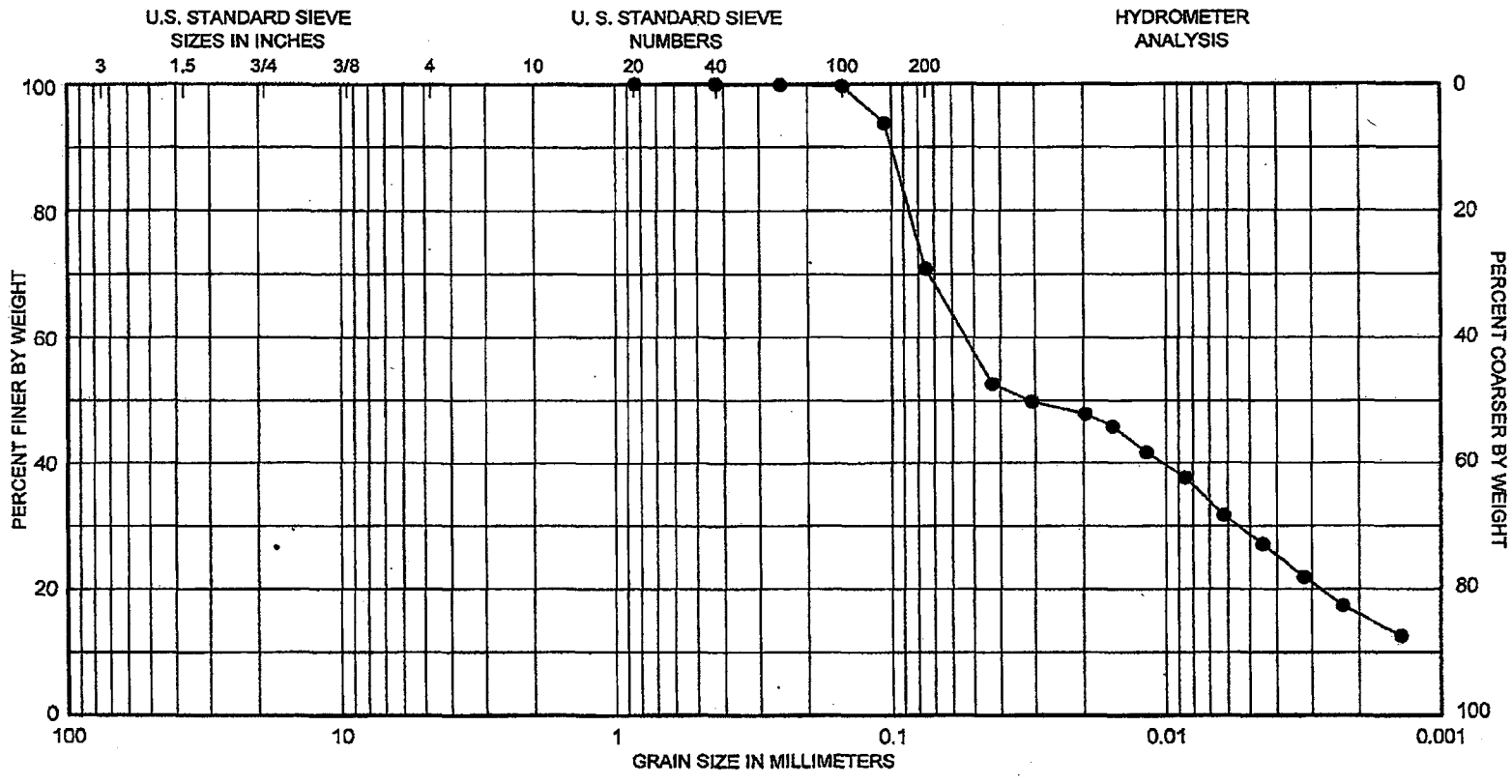
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-03



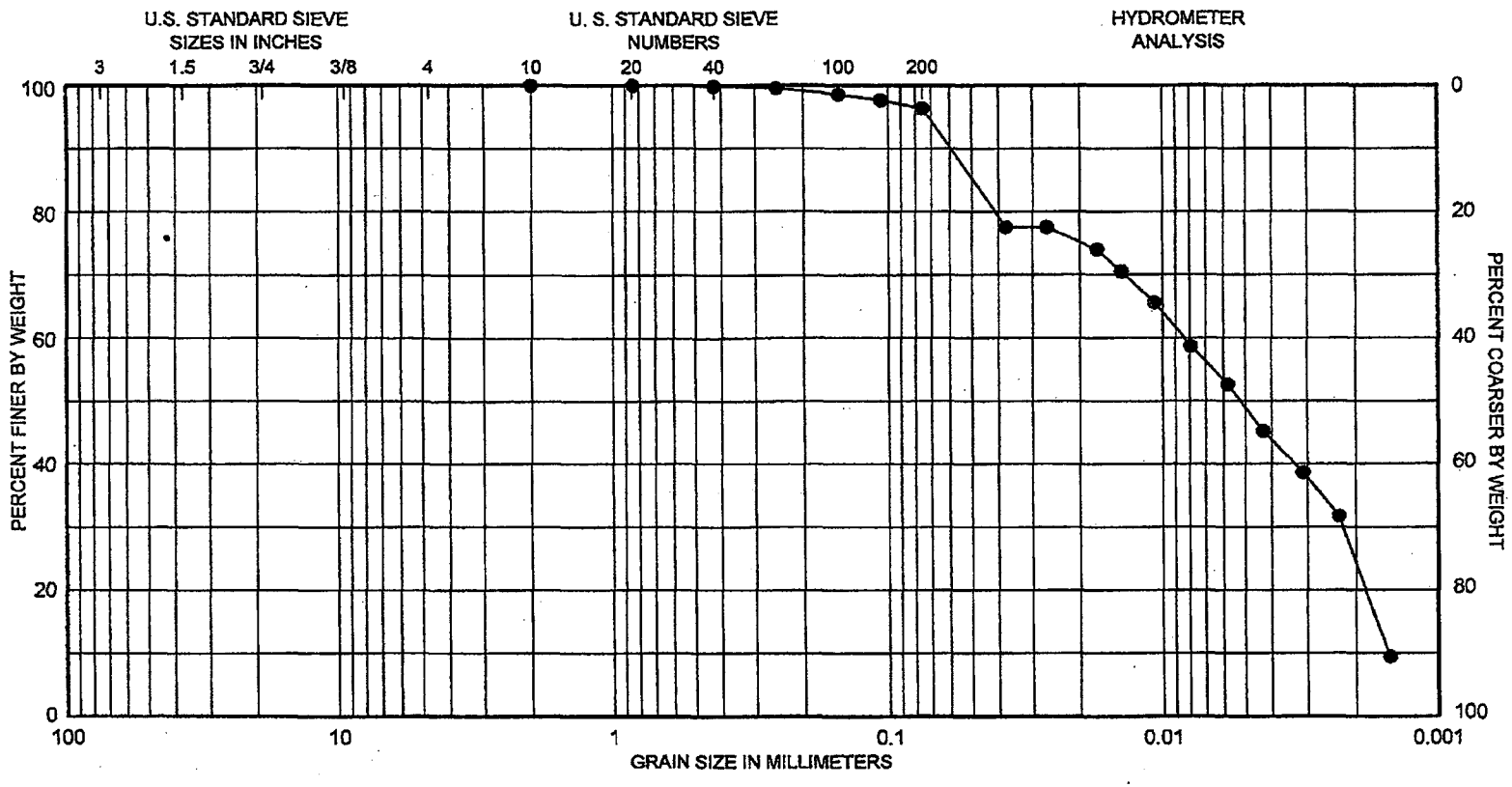
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-7	259.25	NA	NA	0.0315	0.1	Fat Clay with Sand, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-8	269.25	0.39	5.51	0.0052	0.06	Fat Clay, greenish gray

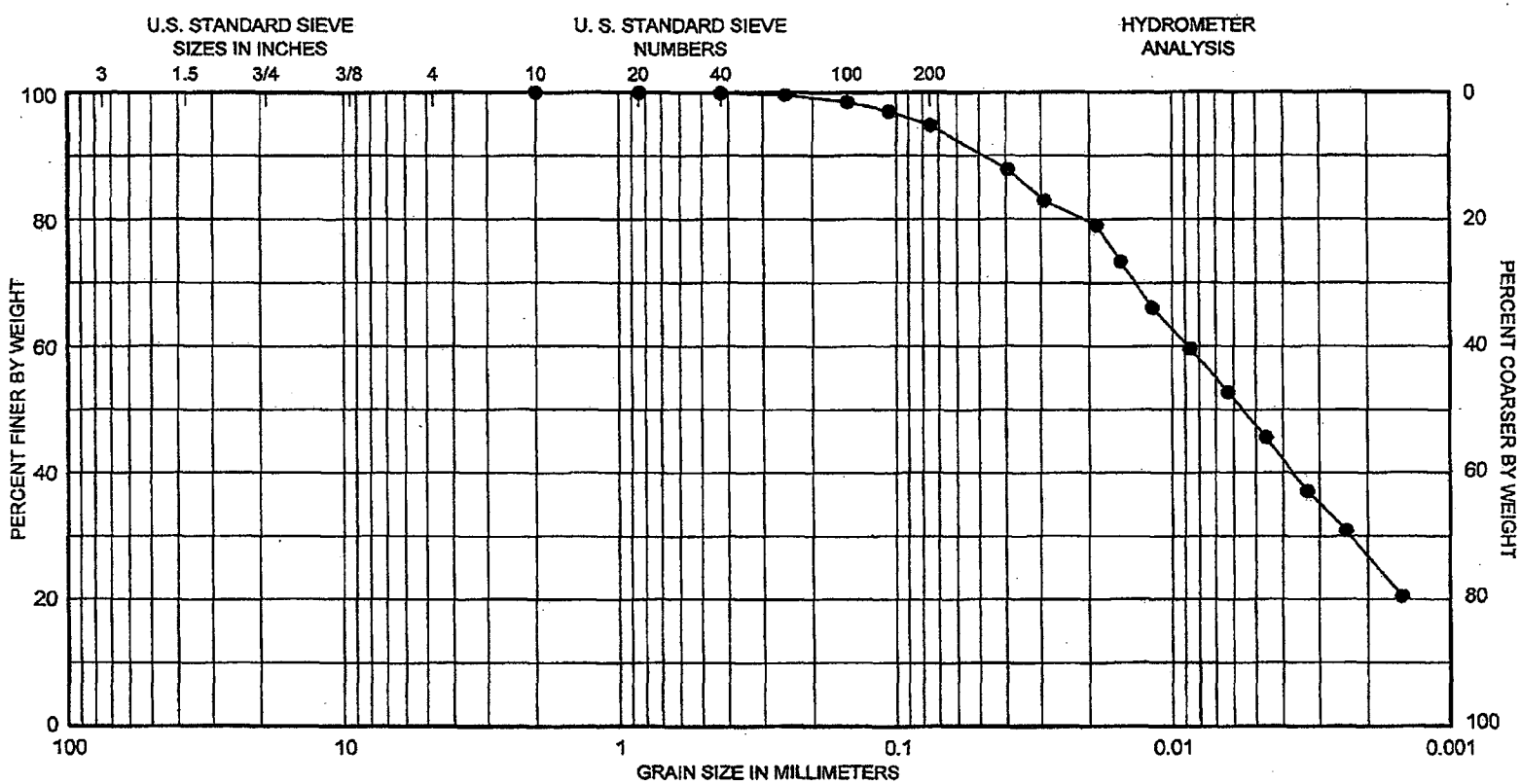
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

AO 10-2-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-9	279.3	NA	NA	0.0056	0.05	Fat Clay, olive gray, with silty sand pockets

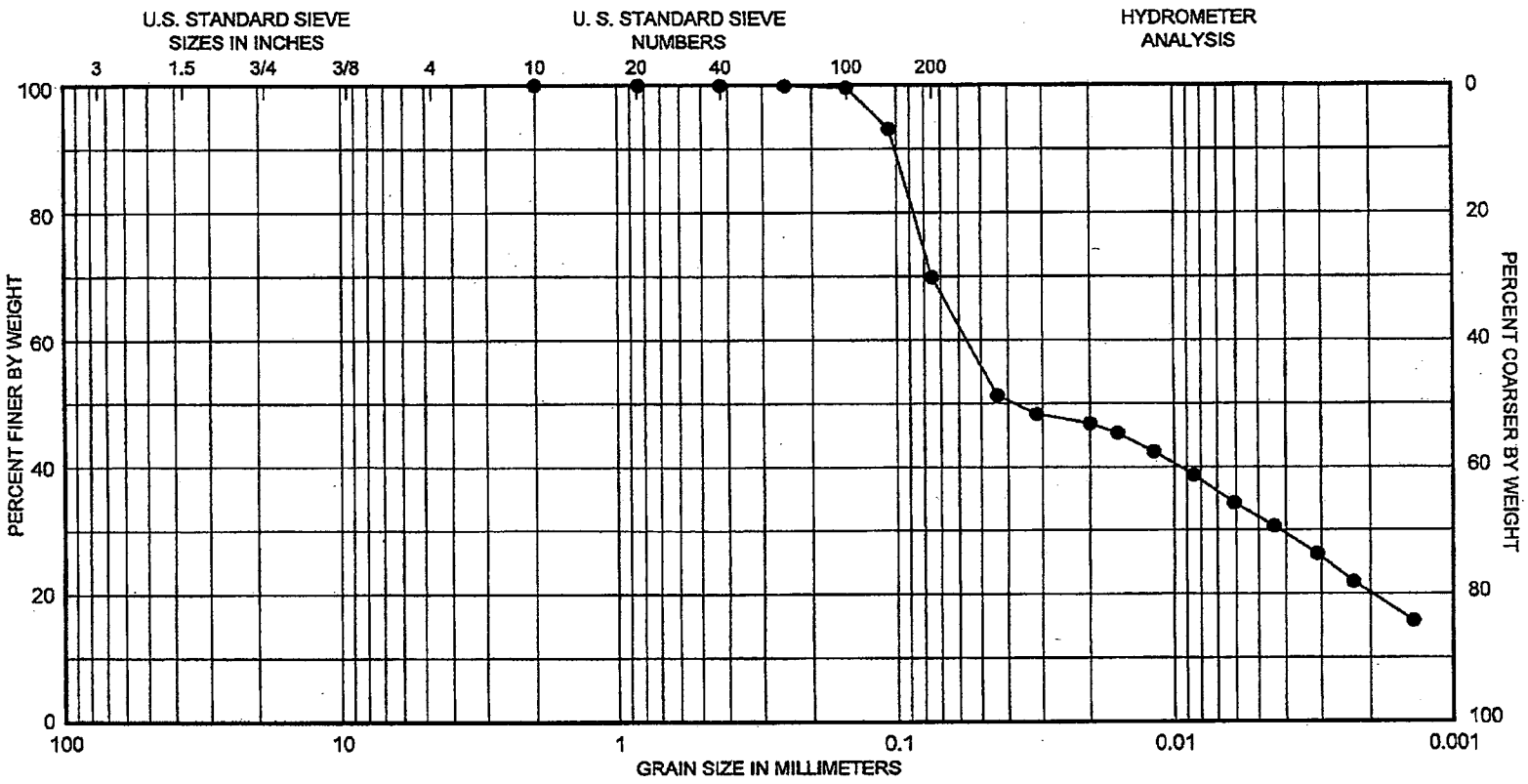
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-10	289.75	NA	NA	0.0381	0.1	Sandy Fat Clay, greenish gray

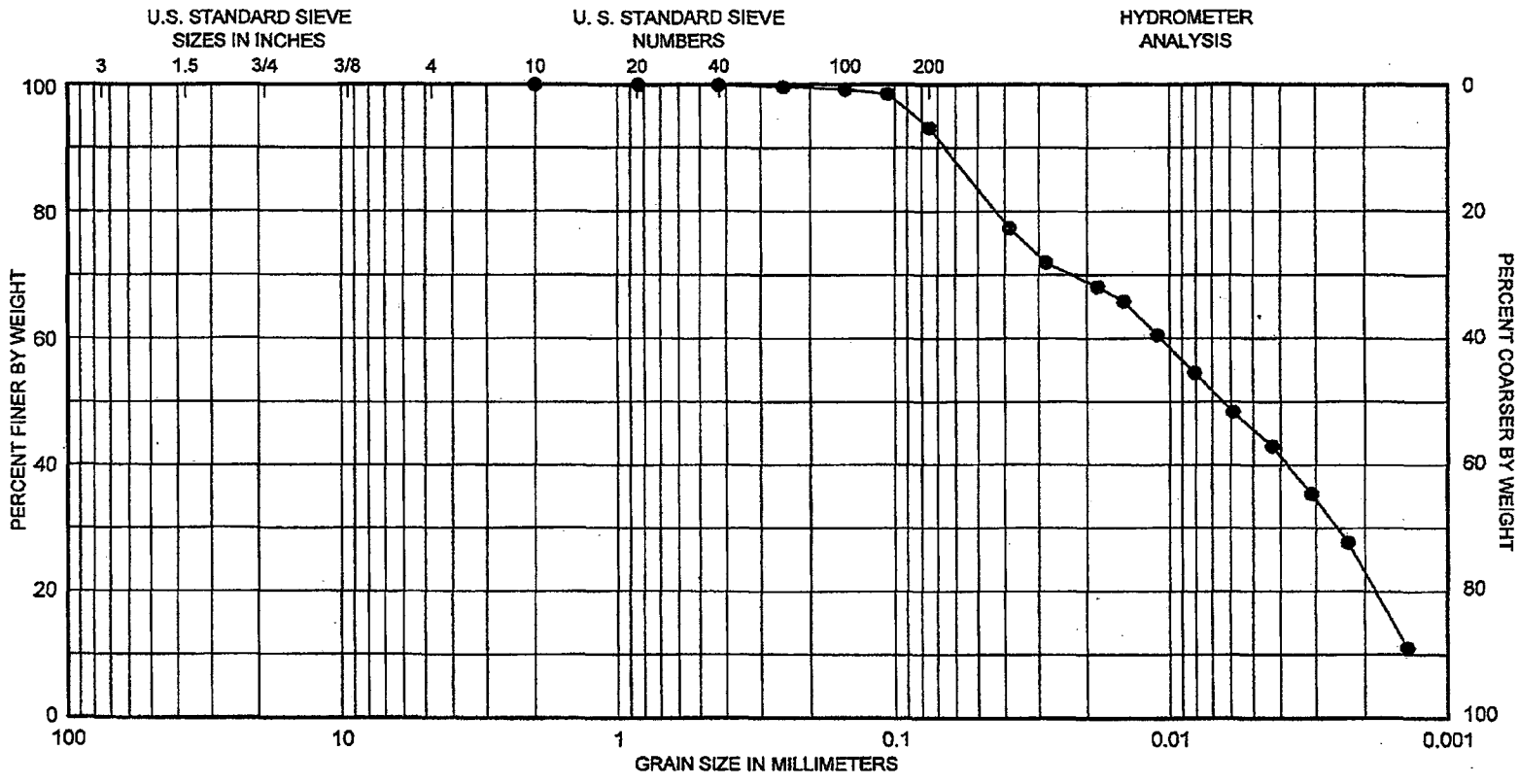
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-11	299.75	NA	NA	0.0064	0.07	Fat Clay, greenish gray, with silty sand pockets

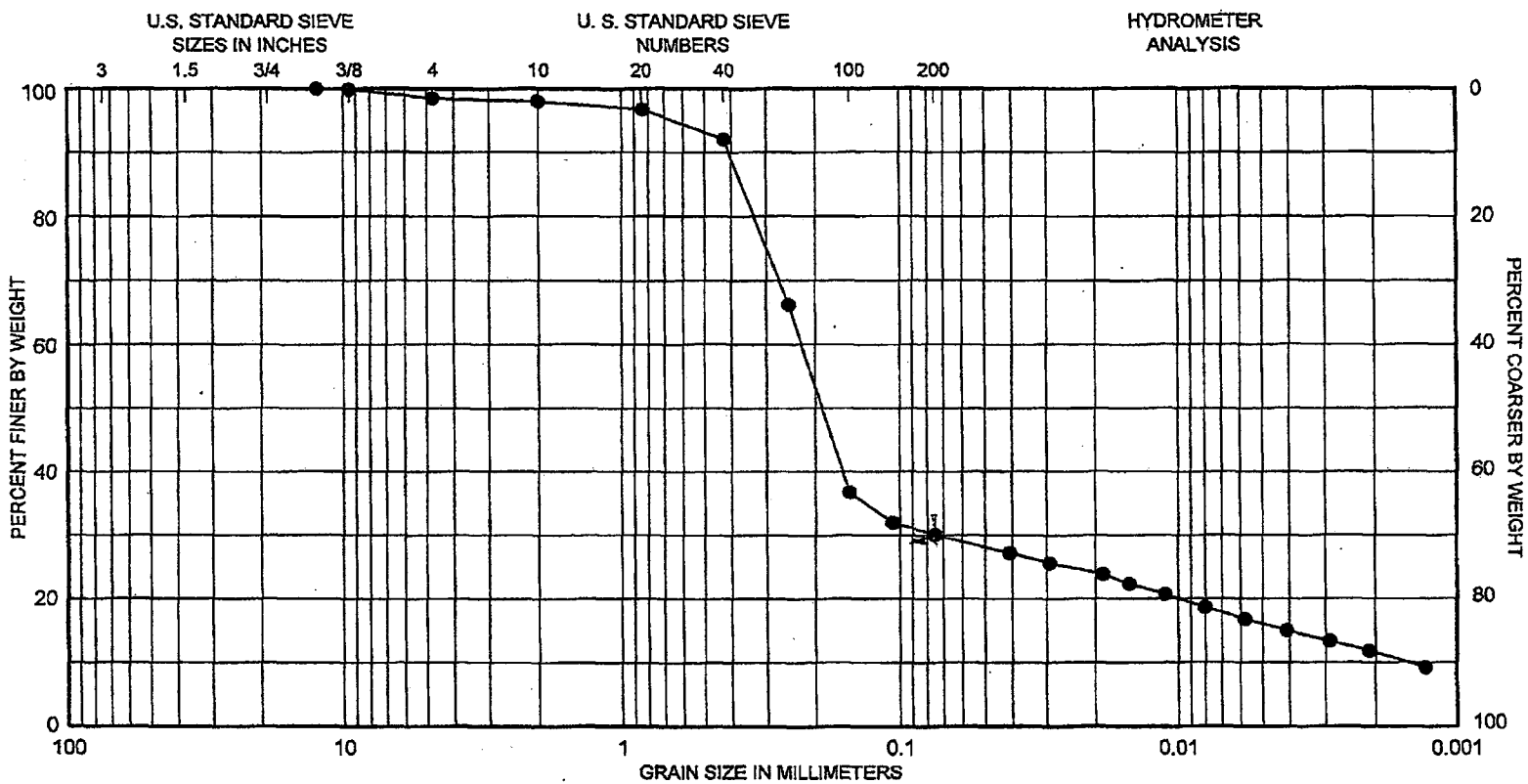
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

AM 10-1-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-12	309.75	16.43	149.12	0.1889	0.41	Clayey Sand, dark gray, with shell fragments

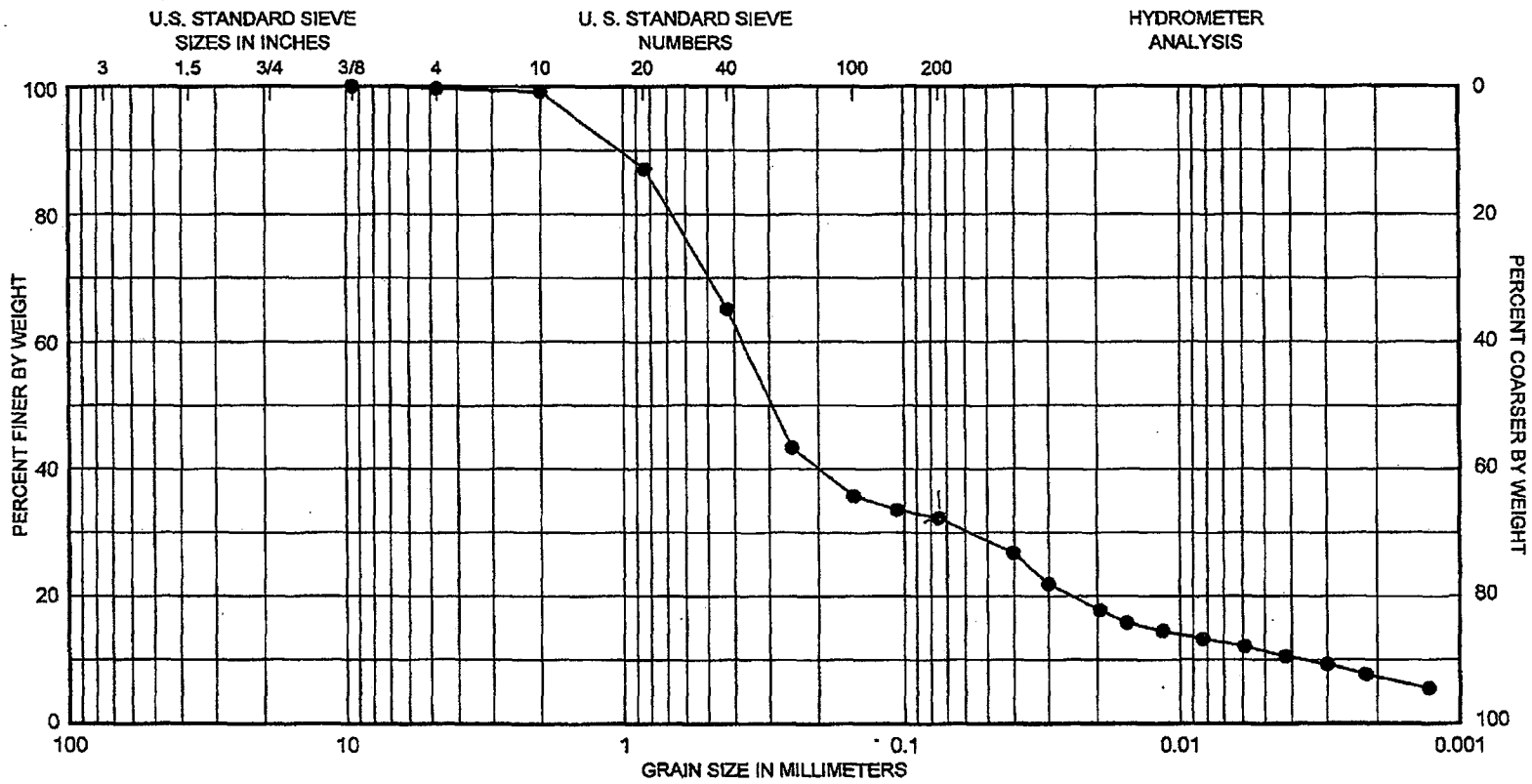
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

10-2-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-13	319.7	2.46	102.77	0.2938	1.04	Clayey Sand, dark gray, with shell fragments

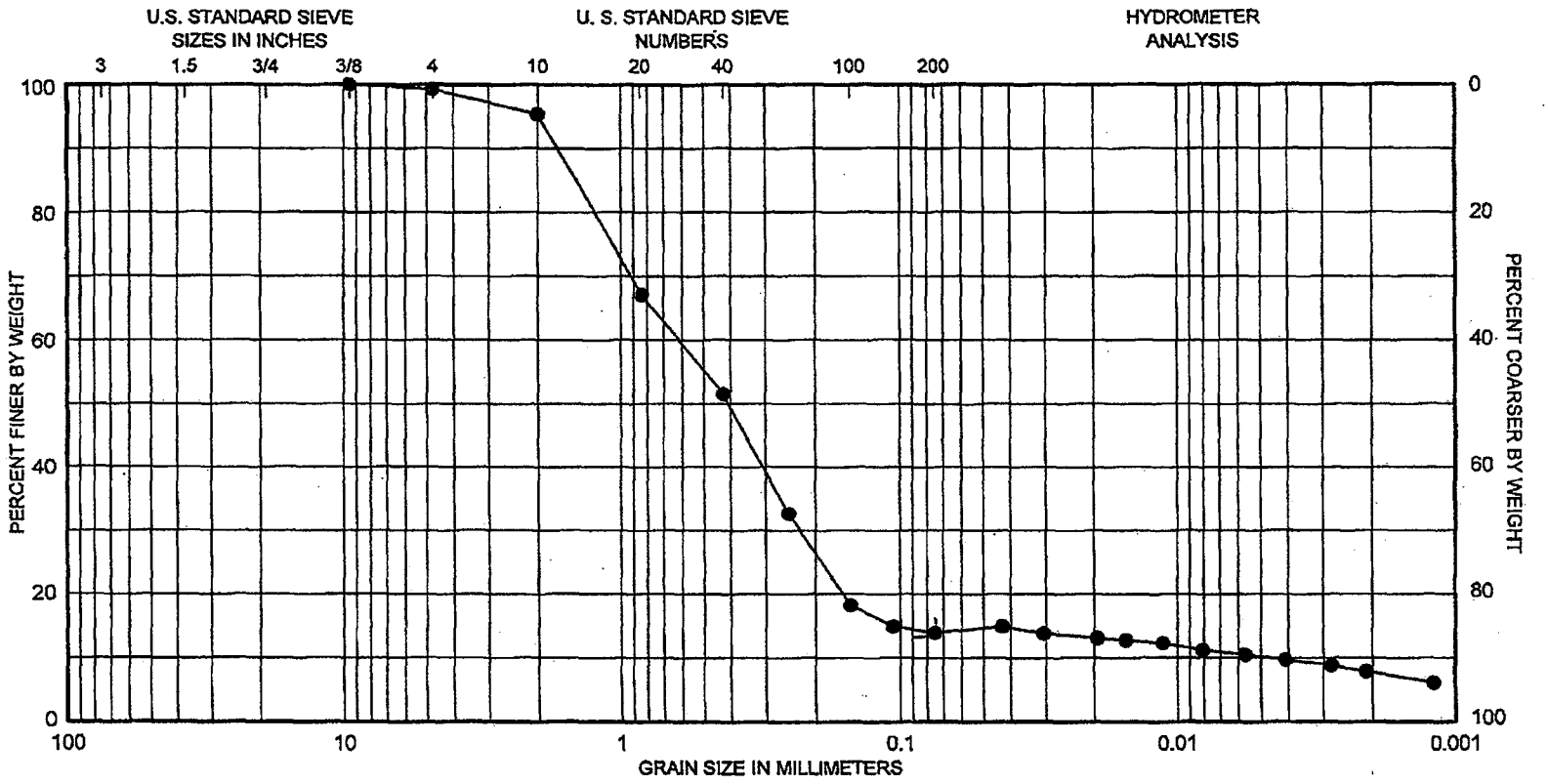
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



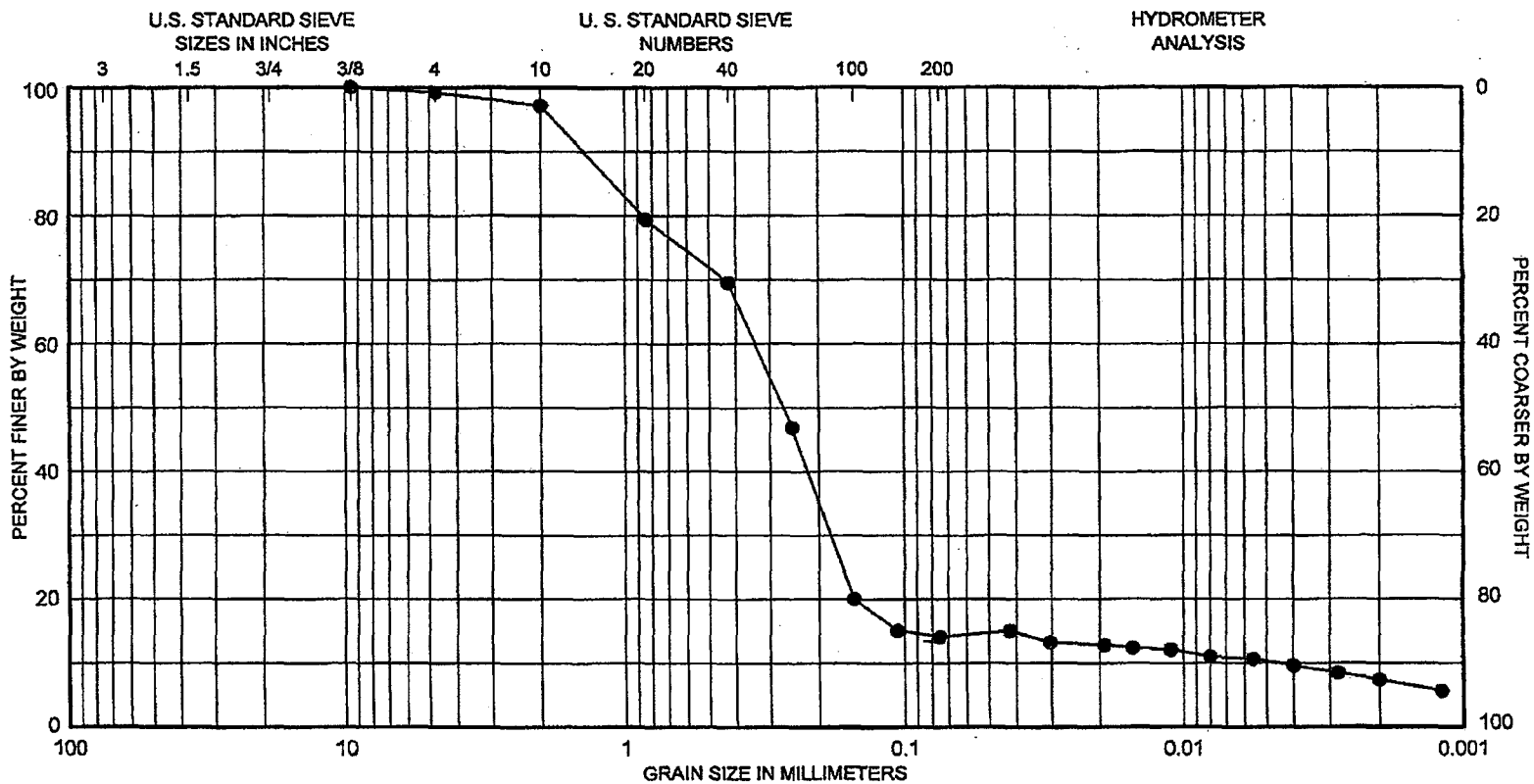
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-14	329.75	18.13	132.92	0.407	1.7	Clayey Sand, dark gray, with shell fragments, gypsum and organic

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-301A-UD-15	339.7	21.14	74.32	0.2691	1.41	Clayey Sand, dark gray and greenish gray

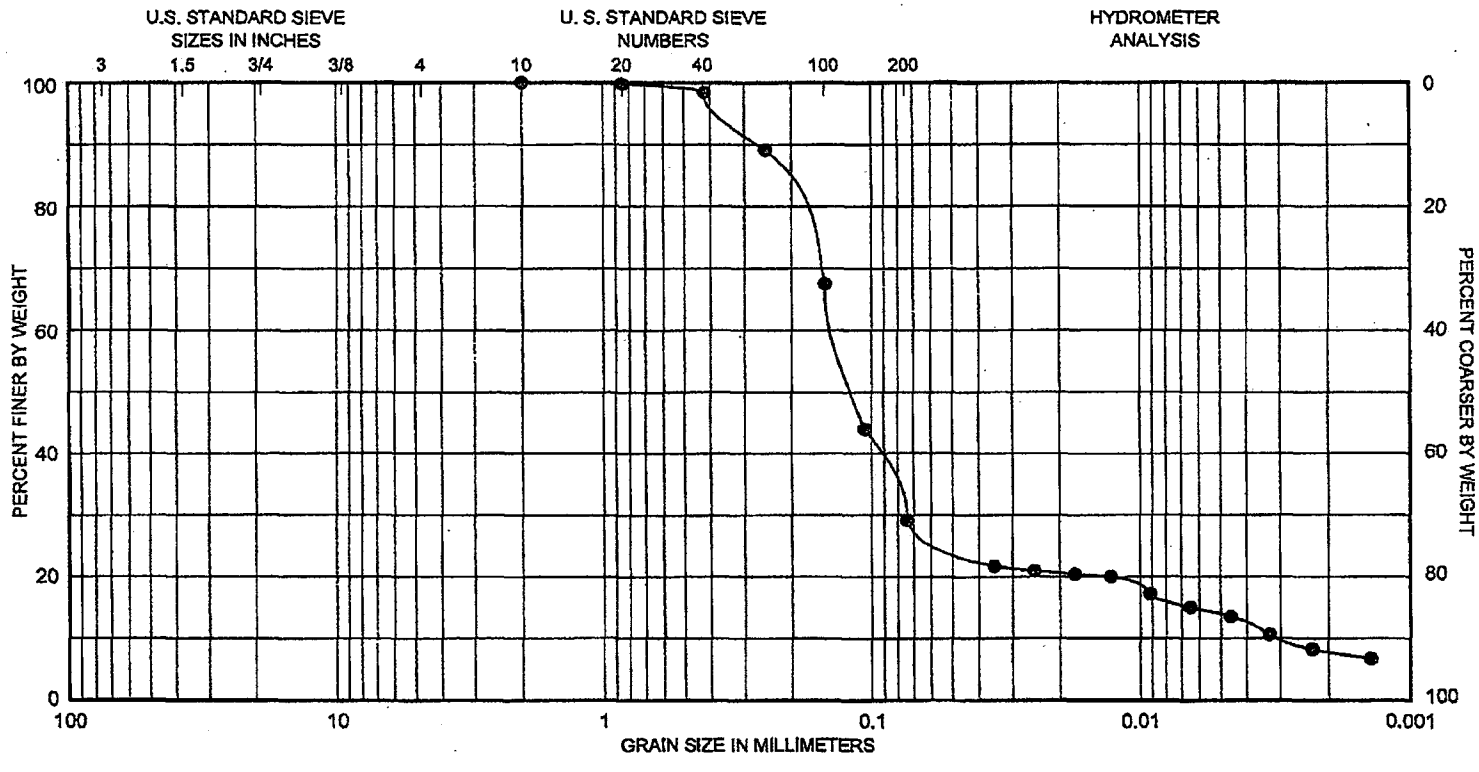
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

NA 10-7-03



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-344-UD-1	183.3	14.11	44.55	0.1159	0.26	Sandy Clay, dark gray, with shell fragments

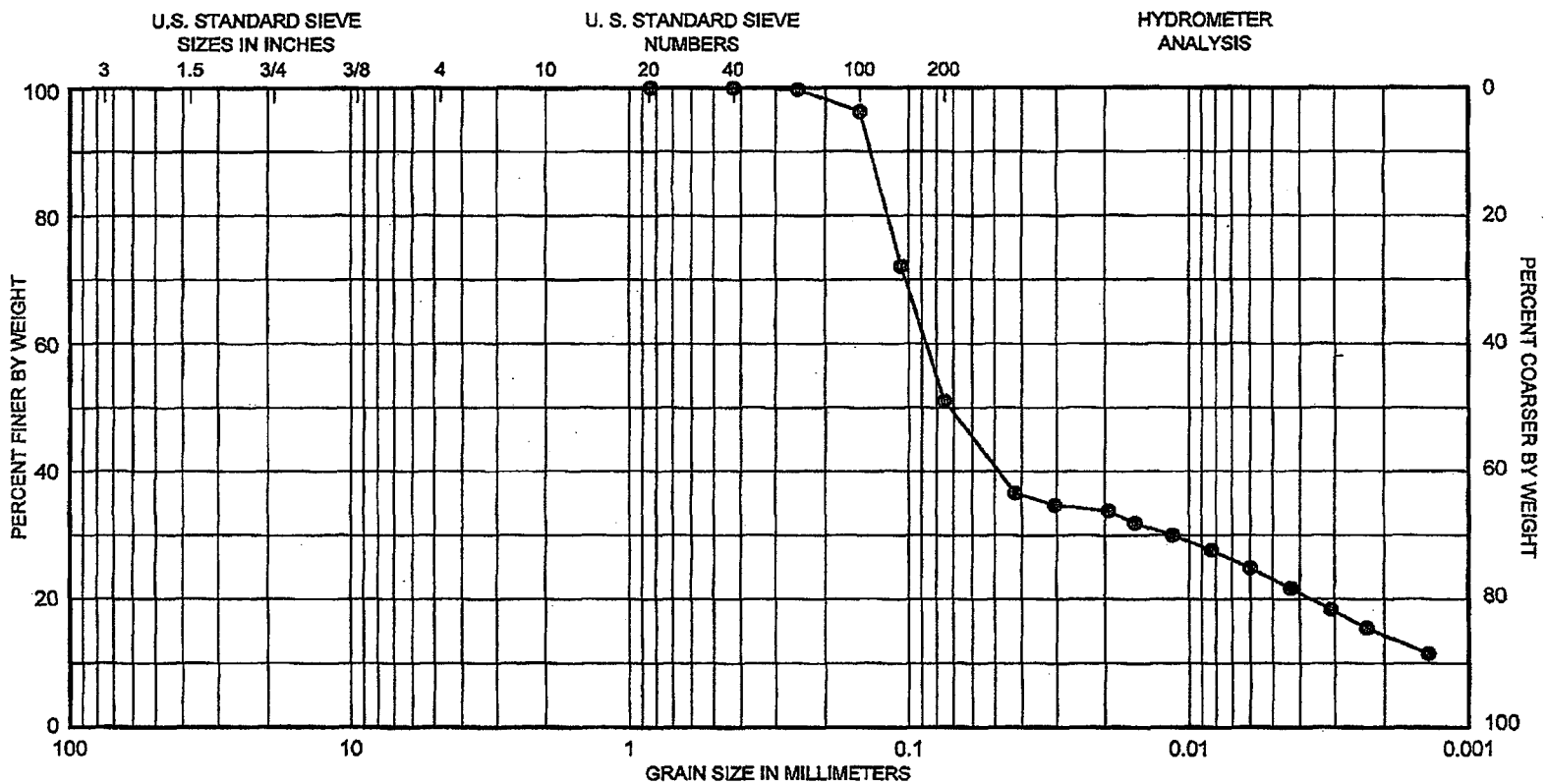
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

AA 10-7-02



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-344-UD-4	205.8	NA	NA	0.072	0.14	Sandy Fat Clay, greenish gray

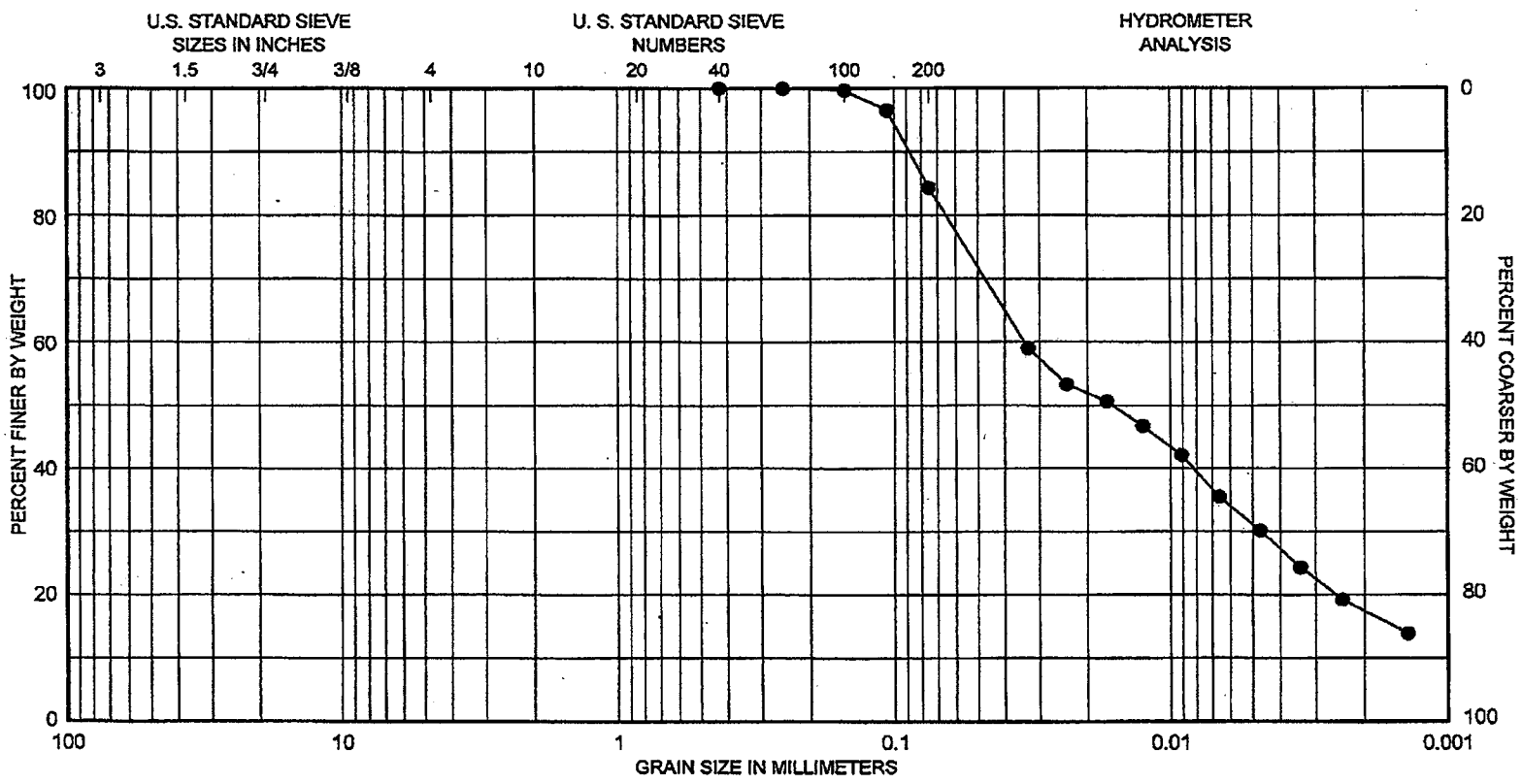
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

AA 10-7-08



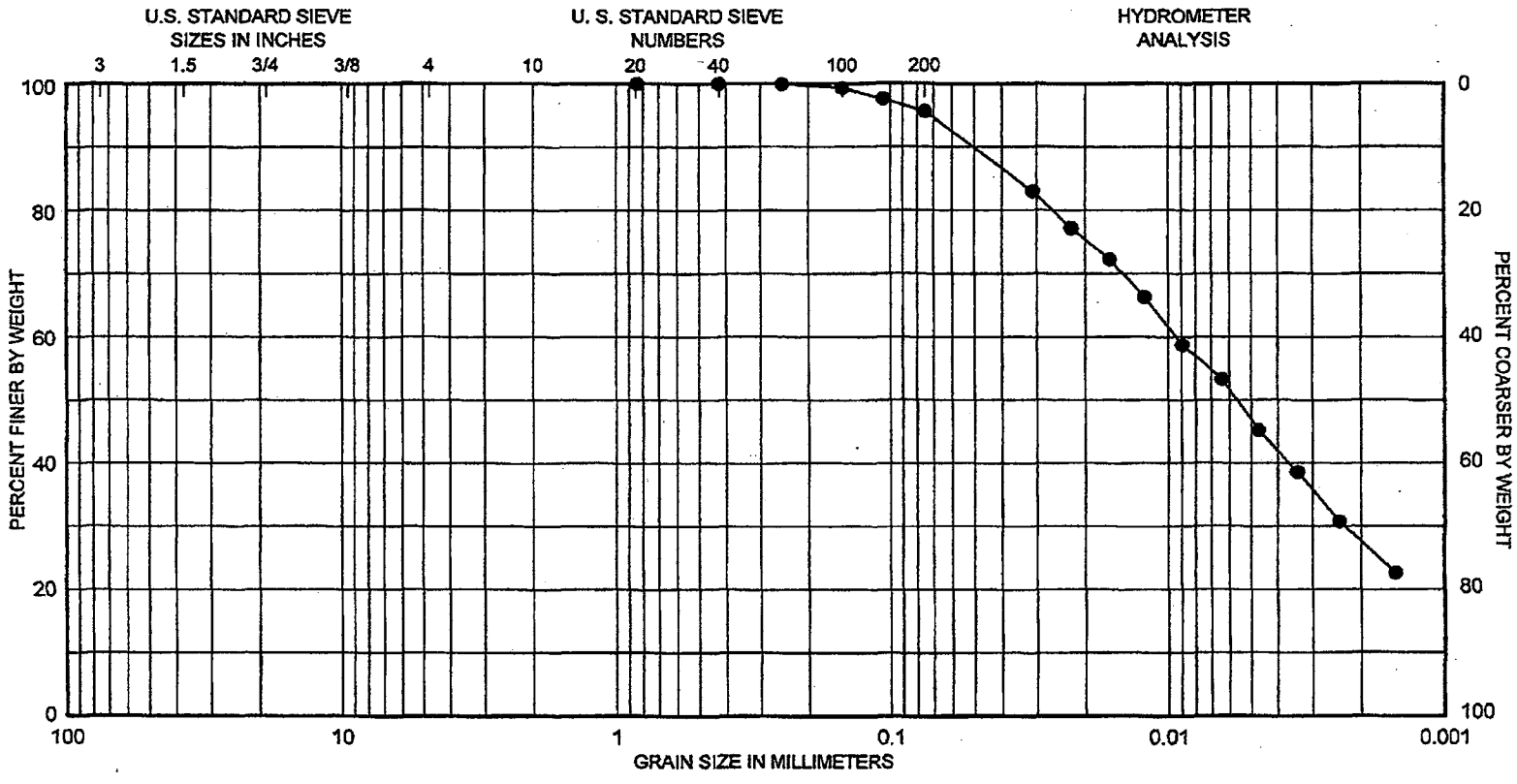
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-344-UD-6	223.3	NA	NA	0.0162	0.09	Elastic Silt with Sand, greenish gray, with silty sand pockets

GRAIN SIZE CURVE

PLATE 1

MA 10-2-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-344-UD-8	243.3	NA	NA	0.0056	0.05	Fat Clay, greenish gray

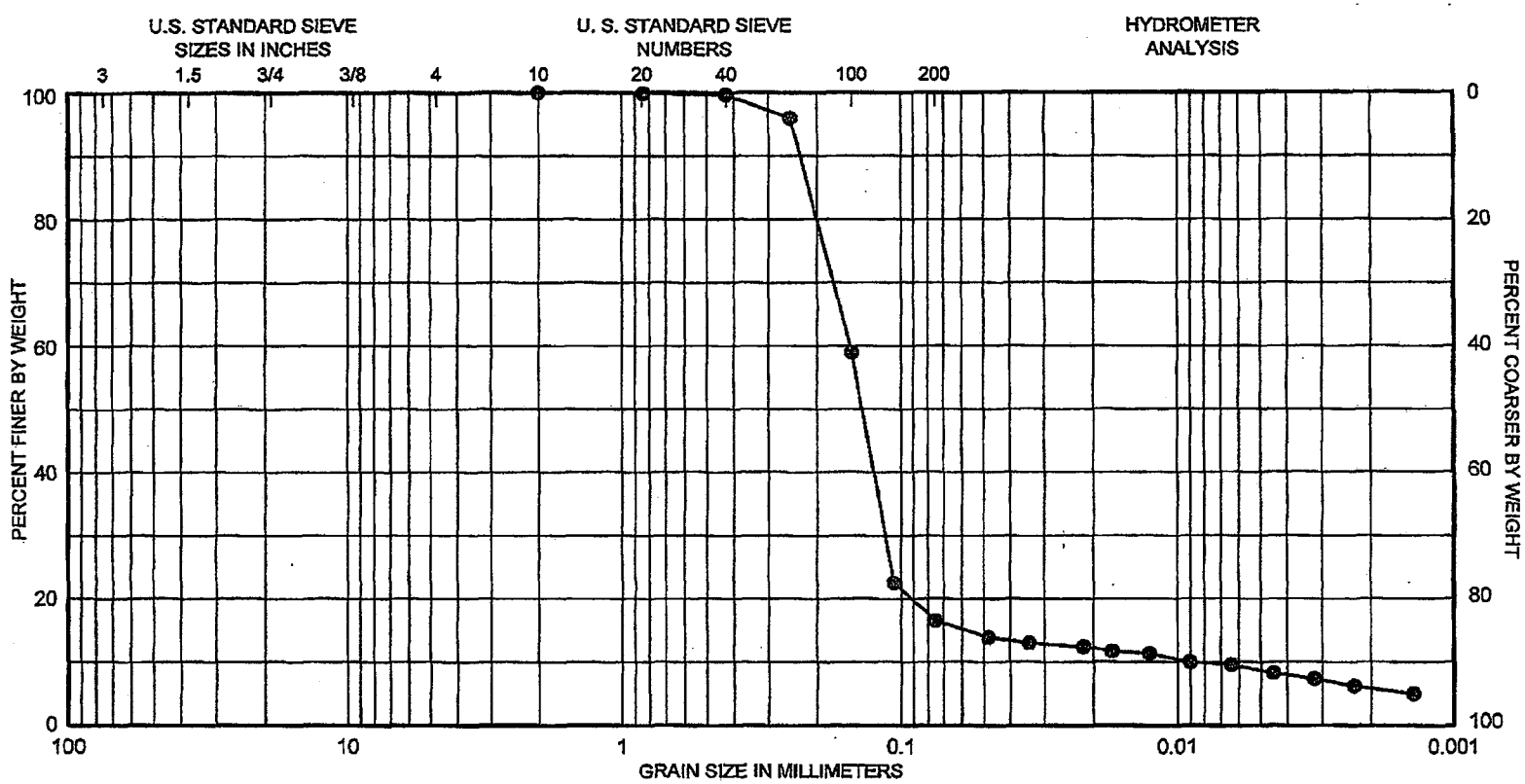
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-771-UD-1	33.15	9.46	16.90	0.1377	0.23	Clayey Sand, tan and gray, with shell fragments

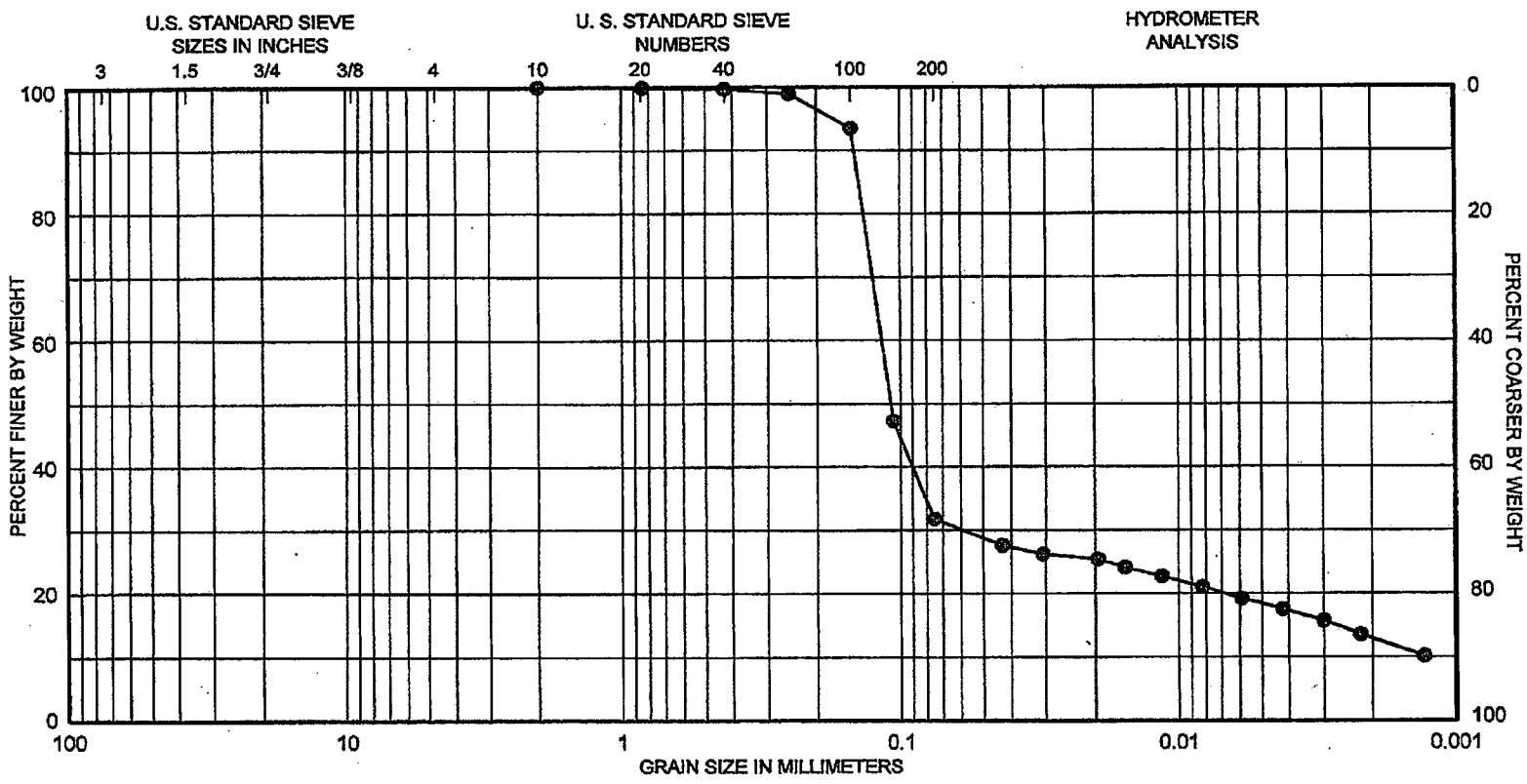
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-03



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-771-UD-2	43.3	NA	NA	0.1082	0.15	Clayey Sand, greenish gray, with shell fragments

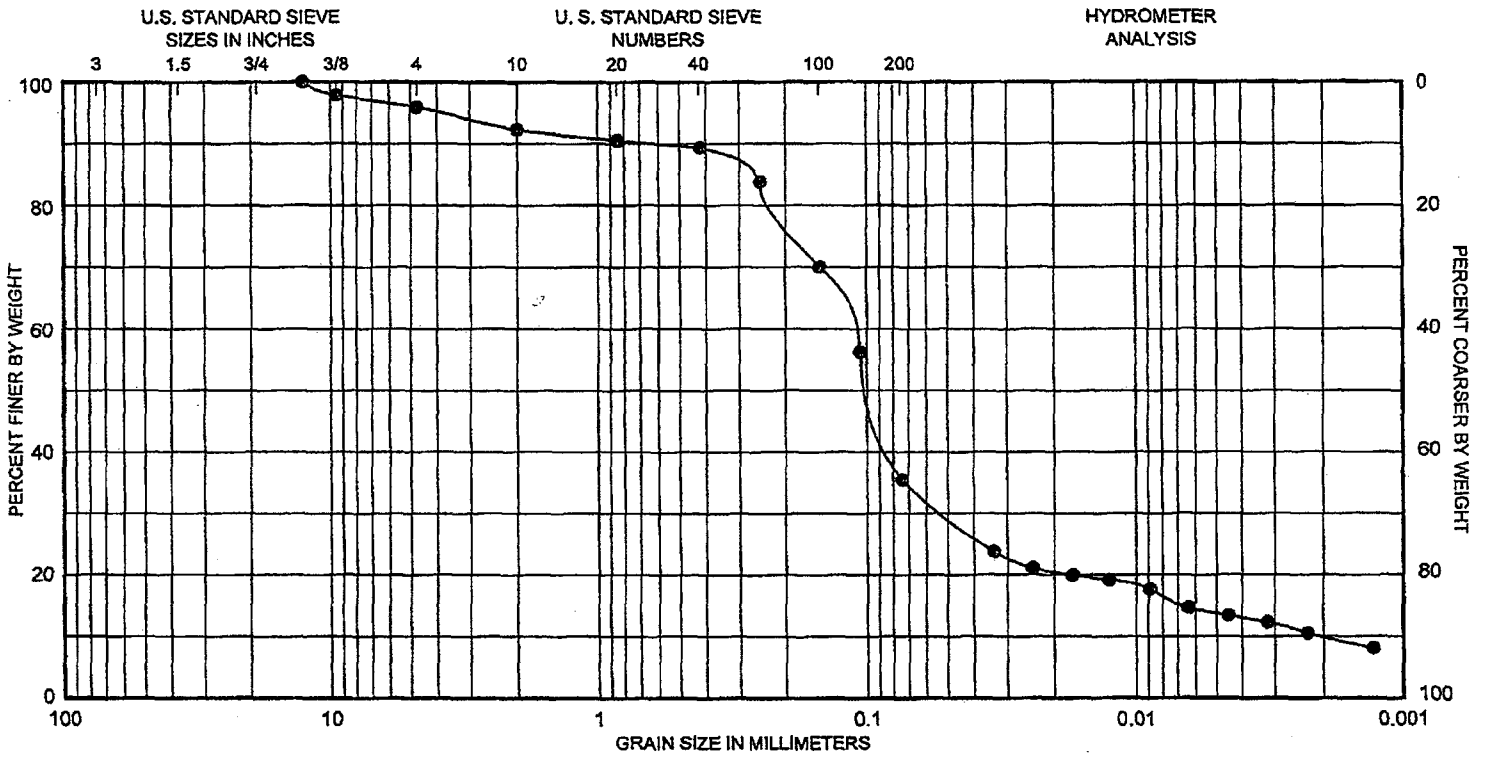
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-771-UD-3	52.9	11.05	57.11	0.0952	0.64	Sandy Clay, greenish gray, with shell fragments

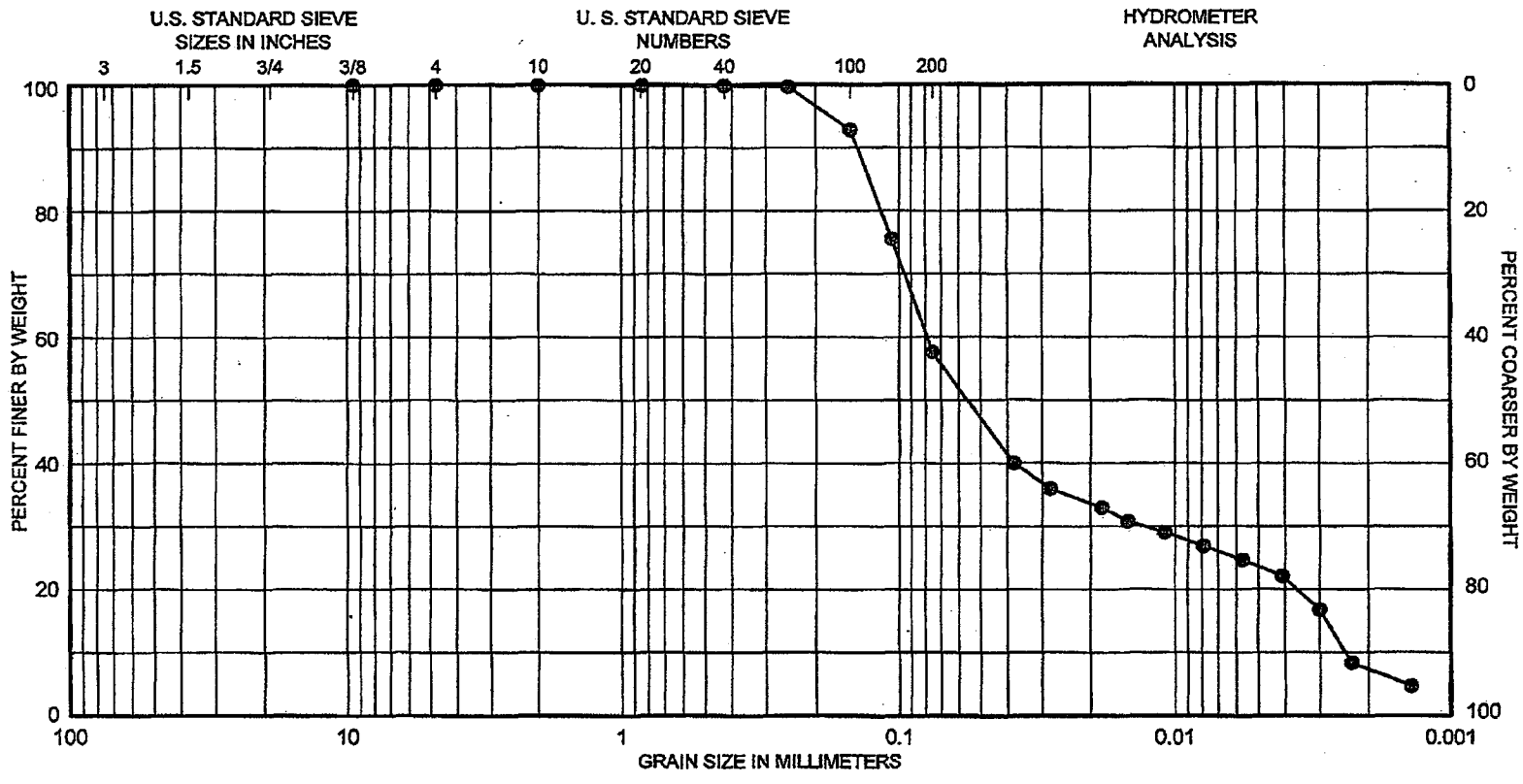
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_u	C_c	D_{50}	D_{60}	CLASSIFICATION
●	B-771-UD-4	63.3	0.86	32.45	0.0558	0.14	Sandy Fat Clay, greenish gray, with shell fragments

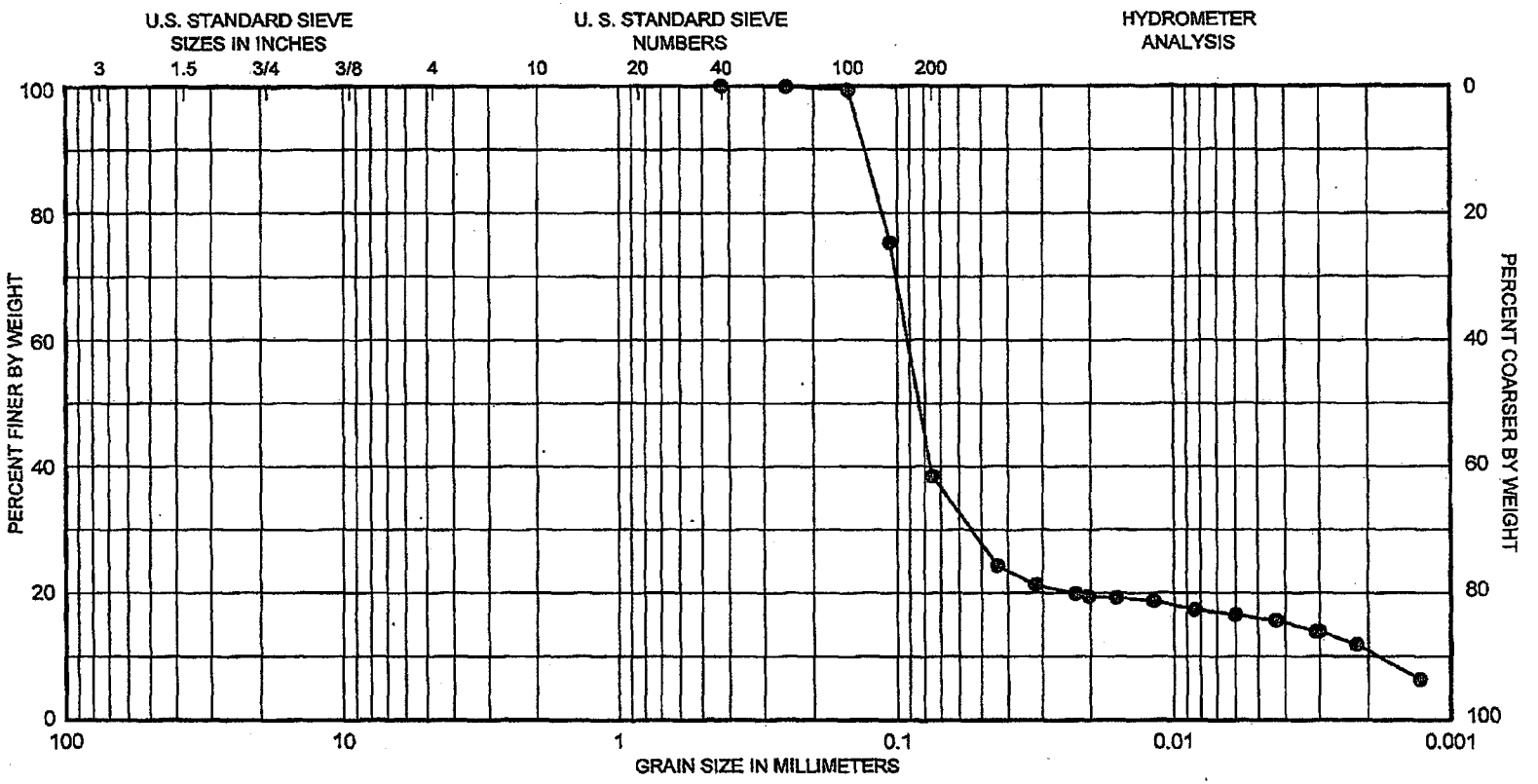
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

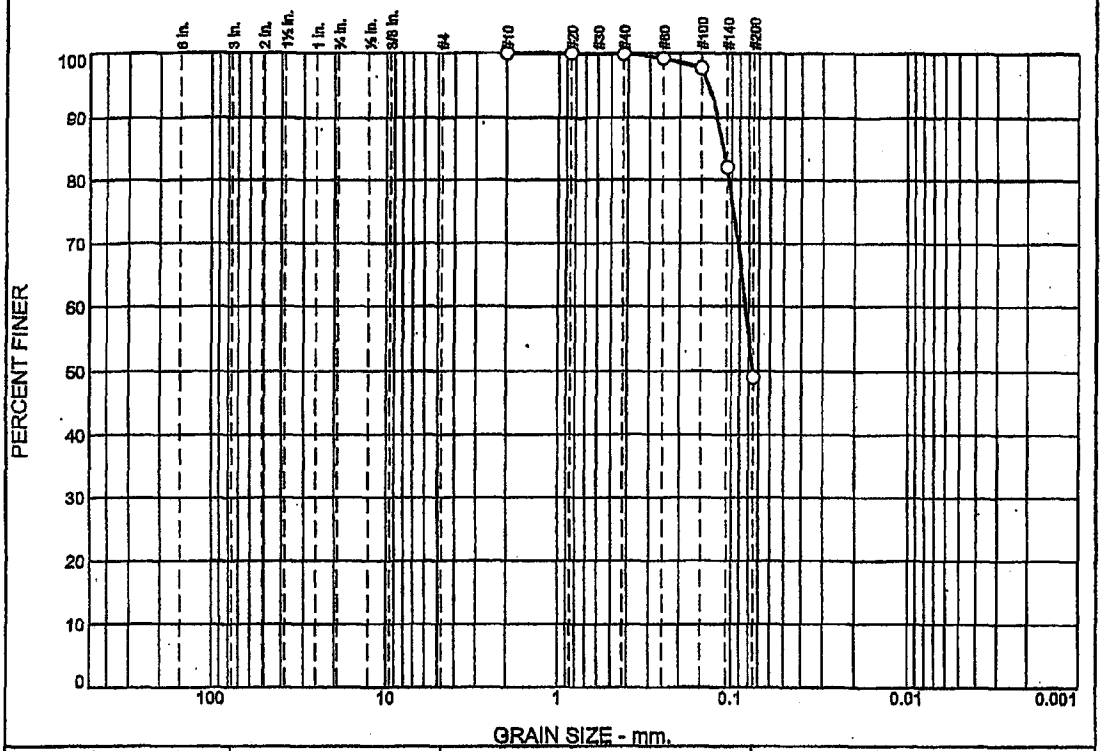
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-771-UD-5	73.3	17.47	50.02	0.0835	0.13	Clayey Sand, dark gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	50.8	49.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.1		
#100	97.6		
#140	82.0		
#200	49.0		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 26 LL= 64 PI= 38

Coefficients

D_{85}= 0.1107 D_{60}= 0.0832 D_{50}= 0.0757
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-7-6(14)

Remarks

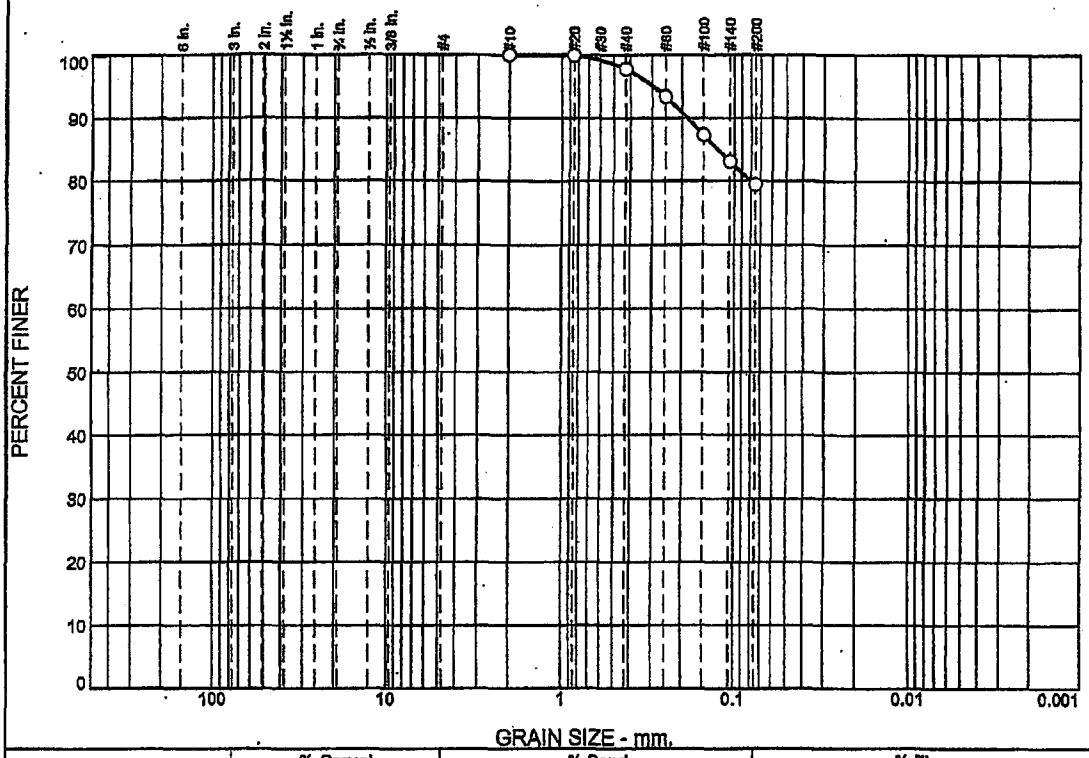
ASTM D6913-04
ASTM D4318-05

Sample Number: S-18 **Depth:** 73.5'-75.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** A 9-17-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.3	18.3	79.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	97.7		
#60	93.3		
#100	87.3		
#140	83.1		
#200	79.4		

* (no specification provided)

Material Description

Elastic Silt with Sand

Atterberg Limits

PL= 74 LL= 122 PI= 48

Coefficients

D_{85}= 0.1249 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(51)

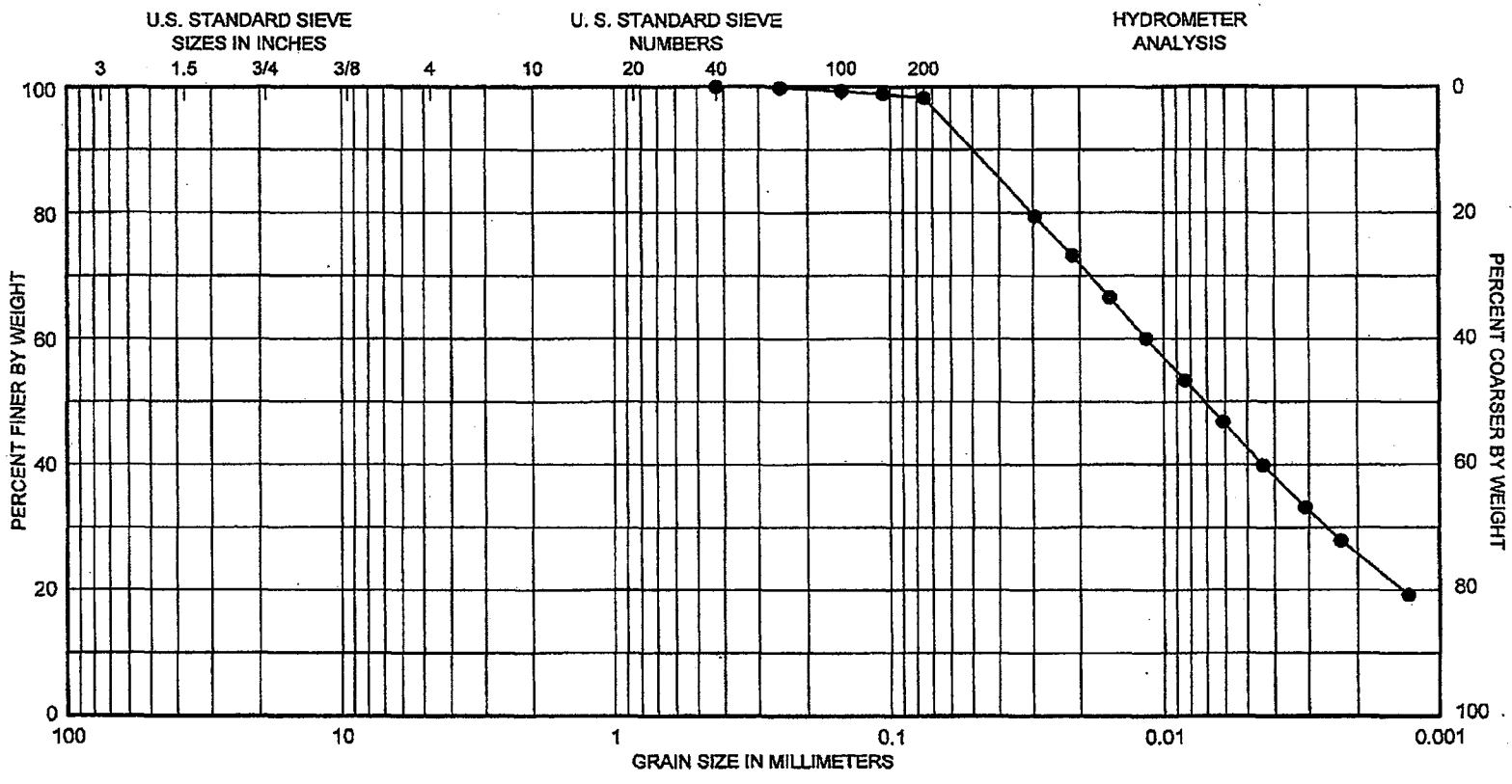
Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-19 **Depth:** 78.5'-80.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-17-02

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-771-UD-6	81.5	NA	NA	0.0071	0.05	Fat Clay, greenish gray

GRAIN SIZE CURVE

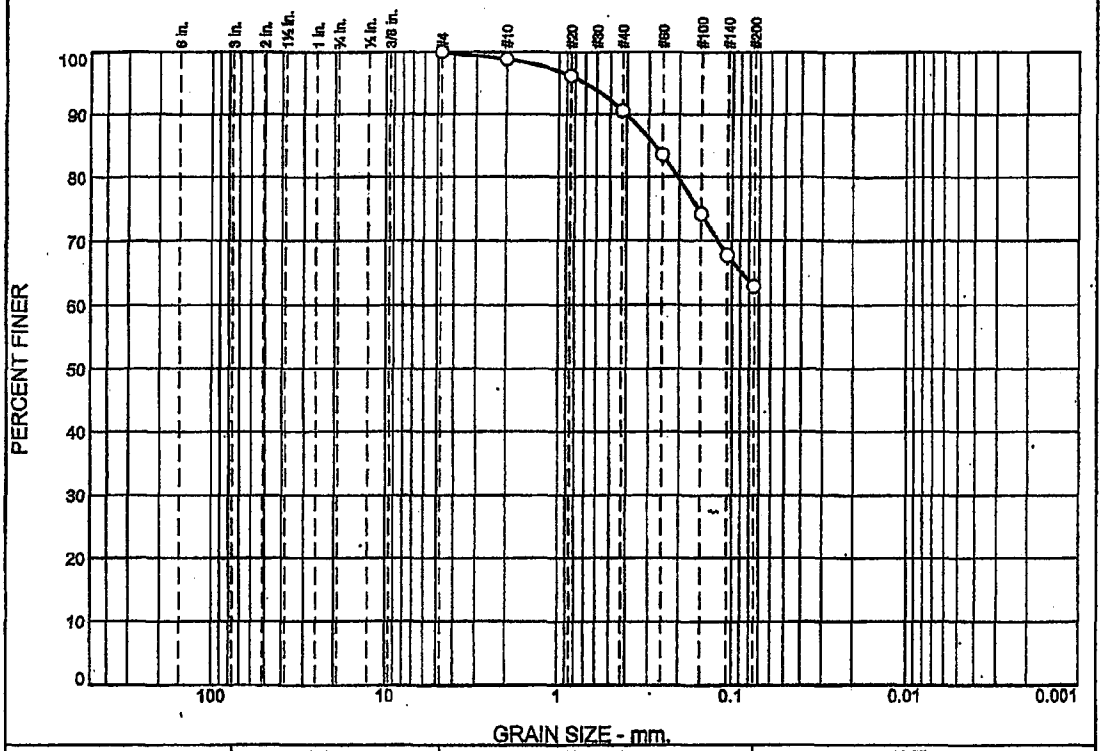
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-03

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.2	8.2	27.7	62.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.8		
#20	96.1		
#40	90.6		
#60	83.6		
#100	74.1		
#140	67.8		
#200	62.9		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 65 LL= 119 PI= 54

Coefficients

D_{85}= 0.2738 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(38)

Remarks

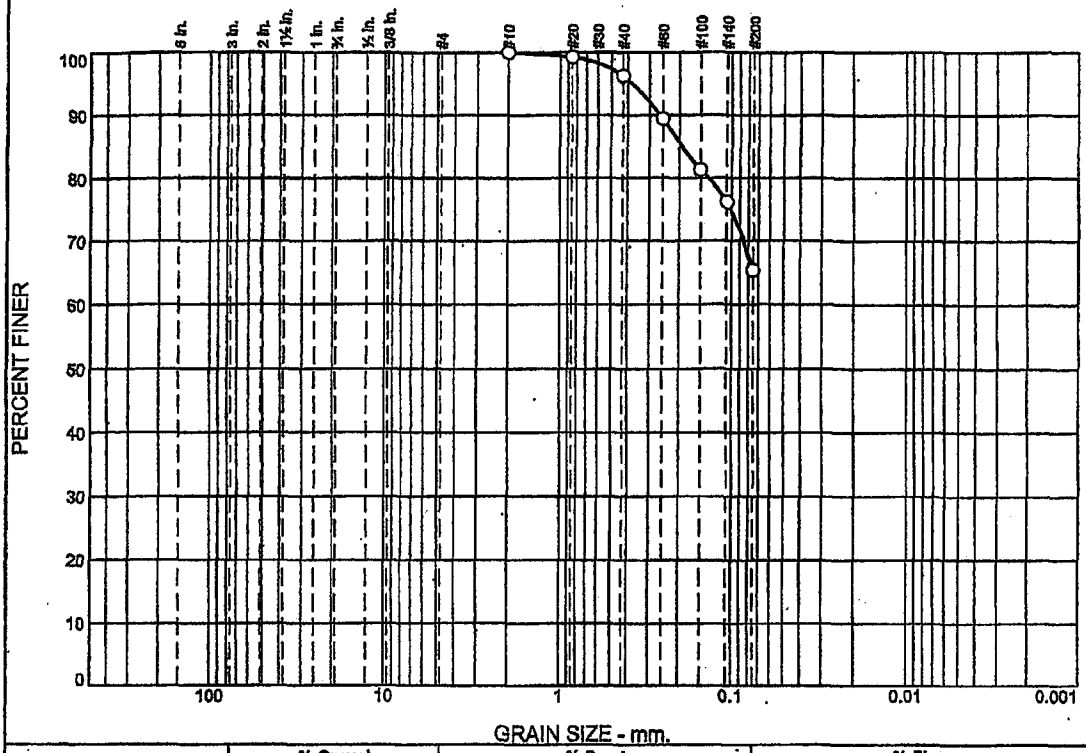
ASTM D6913-04
ASTM D4318-05

Sample Number: S-20 **Depth:** 83.5'-85.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	Client: Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	Project No: 6234-08-4783 Figure JM 9-17-08

Tested By: DK Checked By: JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.7	30.9	65.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	96.3		
#60	89.4		
#100	81.3		
#140	76.2		
#200	65.4		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 54 LL= 96 PI= 42

Coefficients

D_{85}= 0.1926 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(30)

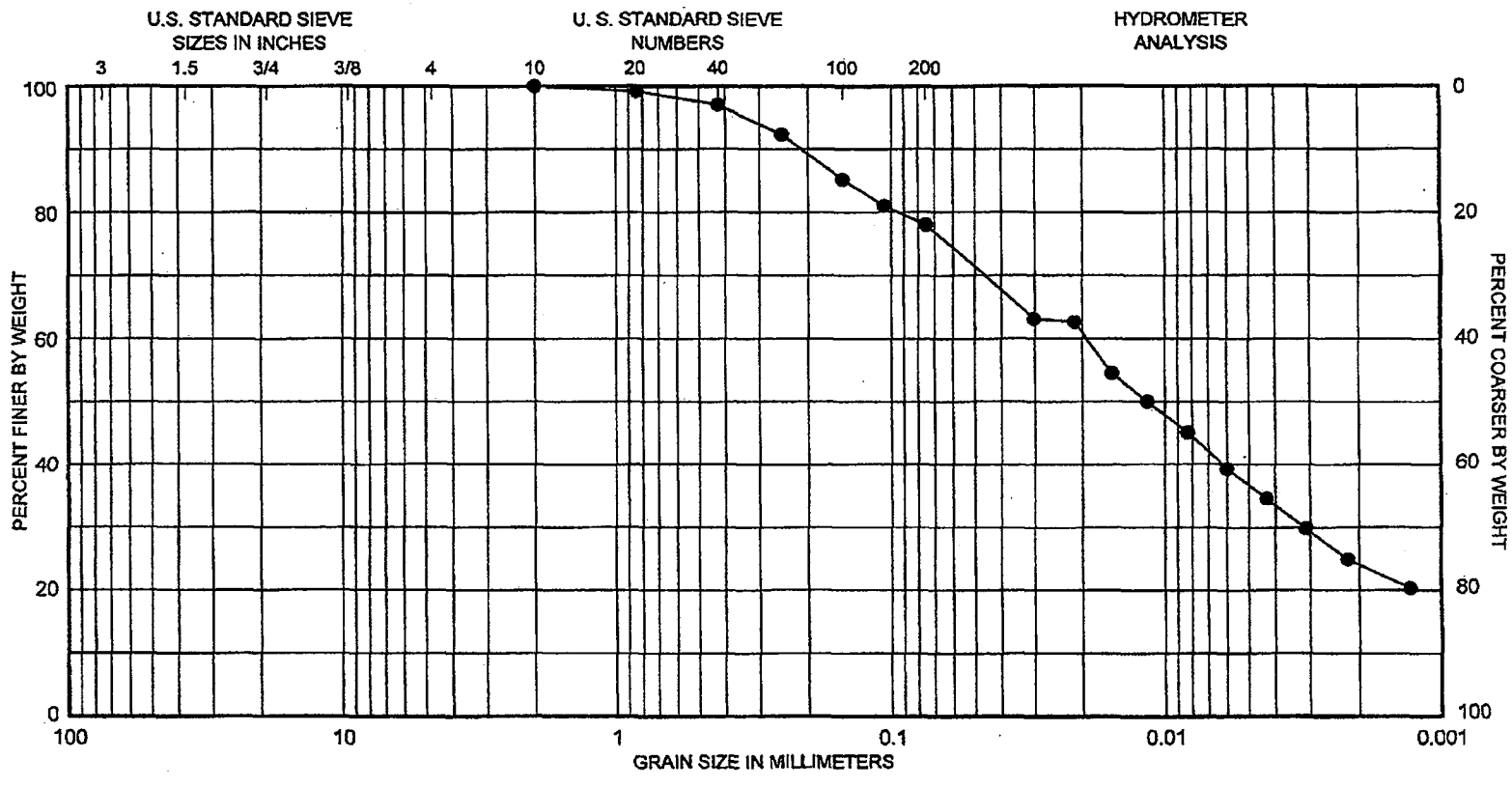
Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-21 **Depth:** 88.5'-90.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-17-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

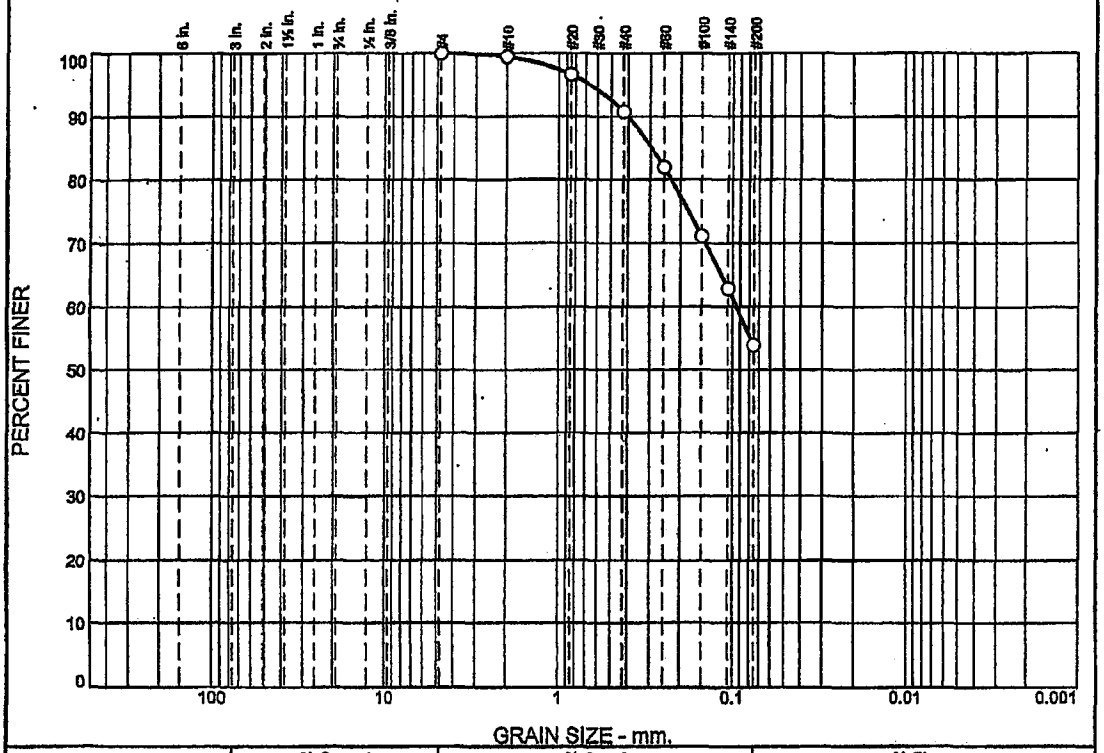
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-771-UD-7	93.3			0.0116	0.21	Clay, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	8.7	36.9	53.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#20	96.7		
#40	90.8		
#60	82.0		
#100	71.1		
#140	62.8		
#200	53.9		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 71 LL= 110 PI= 39

Coefficients

D_{85}= 0.2938 D_{60}= 0.0948 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

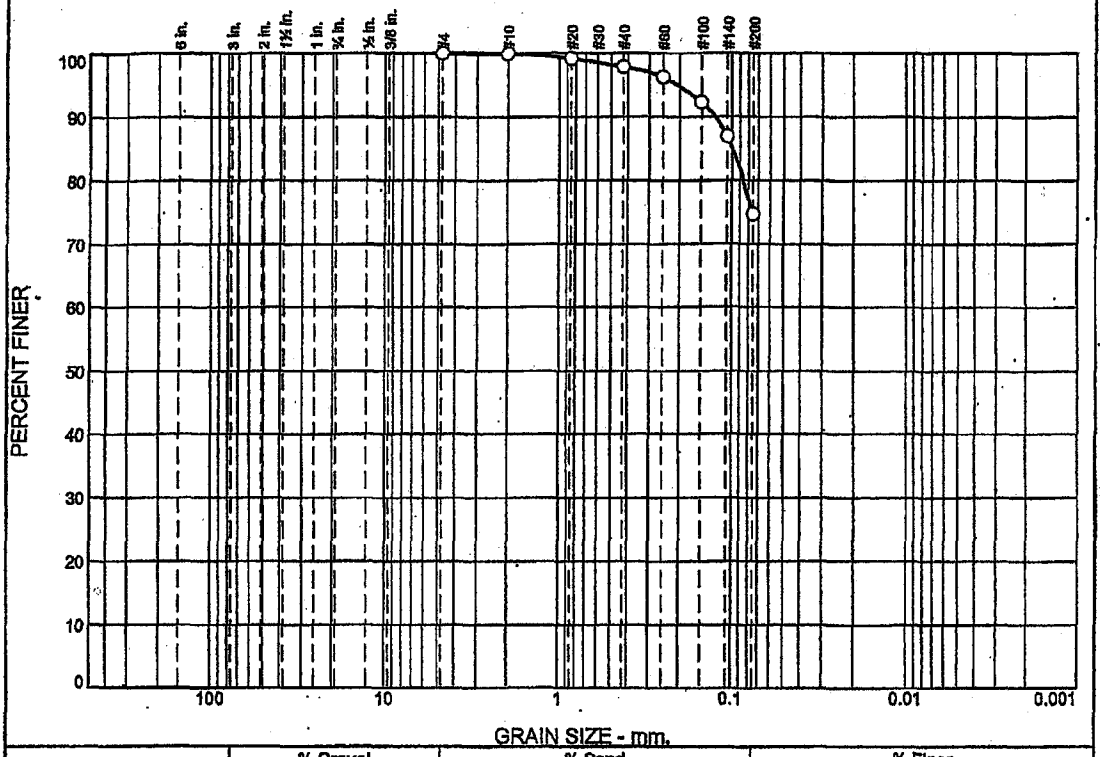
ASTM D6913-04
ASTM D4318-05

Sample Number: S-22 **Depth:** 93.5'-95.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-17-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.1	23.1	74.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.1		
#40	97.8		
#60	96.2		
#100	92.2		
#140	86.9		
#200	74.7		

* (no specification provided)

Material Description

Elastic Silt with Sand

Atterberg Limits

PL= 52 LL= 92 PI= 40

Coefficients

D_{85}= 0.0990 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(36)

Remarks

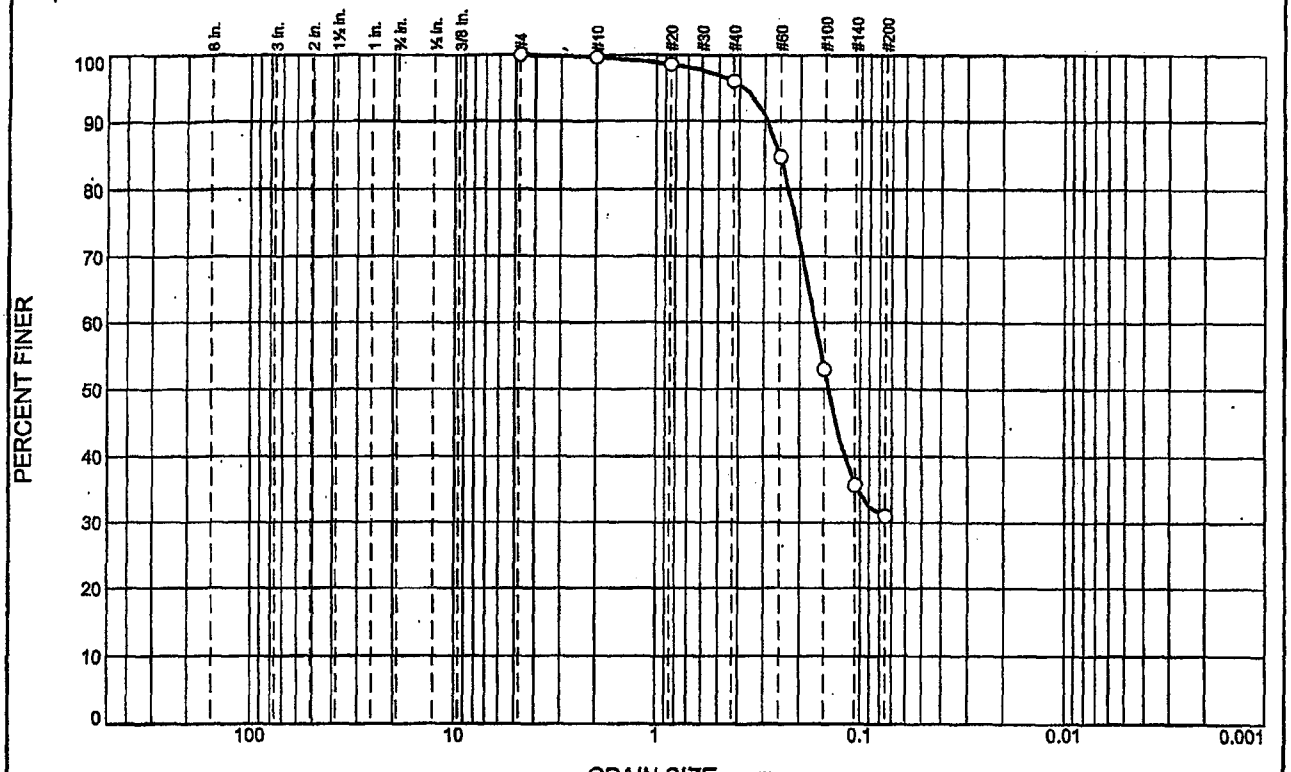
ASTM D6913-04
ASTM D4318-05

Sample Number: S-23 **Depth:** 98.5'-100.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA 9-17-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.7	65.0	31.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	98.6		
#40	96.0		
#60	84.8		
#100	52.9		
#140	35.7		
#200	31.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2513 D_{60}= 0.1669 D_{50}= 0.1431
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-2 **Depth:** 2.5'-4.0'
Location: B-773

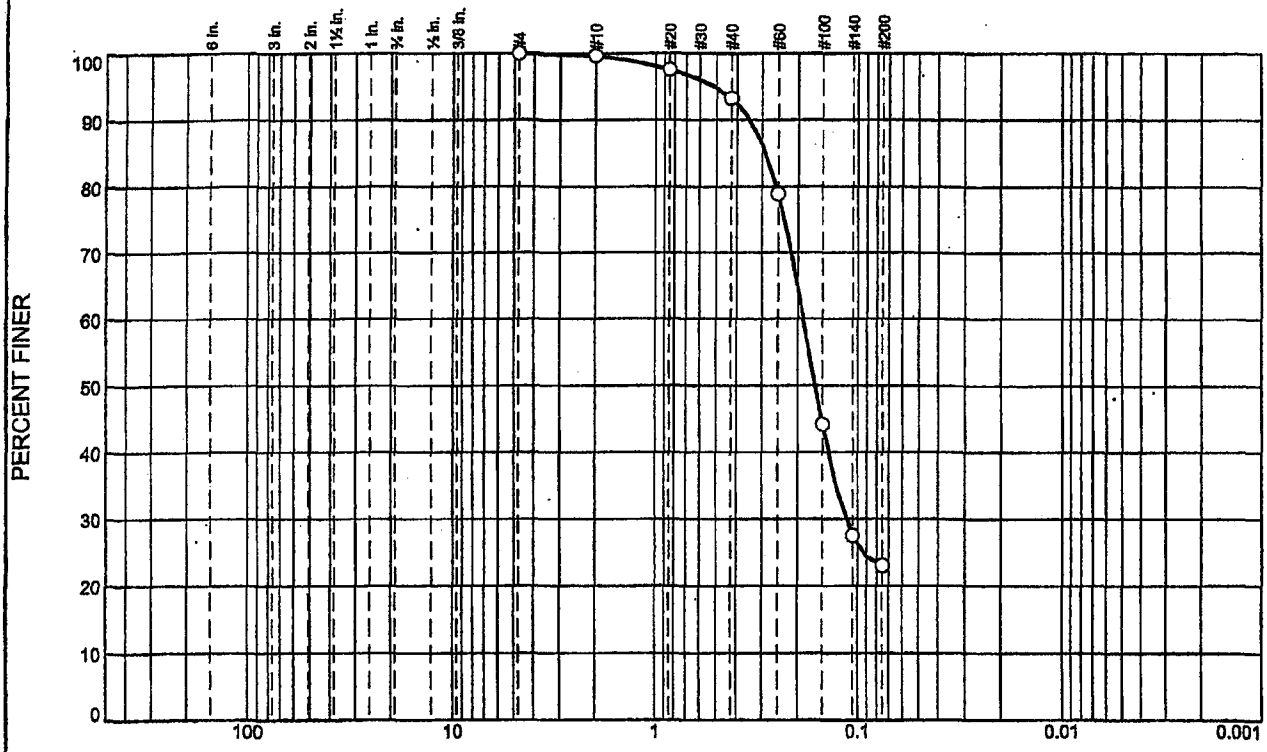
Date: 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA

DCN: CALV-039
DCN: CALV-050

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	6.5	70.2	23.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	97.6		
#40	93.2		
#60	78.9		
#100	44.2		
#140	27.5		
#200	23.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2871 D_{60}= 0.1874 D_{50}= 0.1634
D_{30}= 0.1145 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

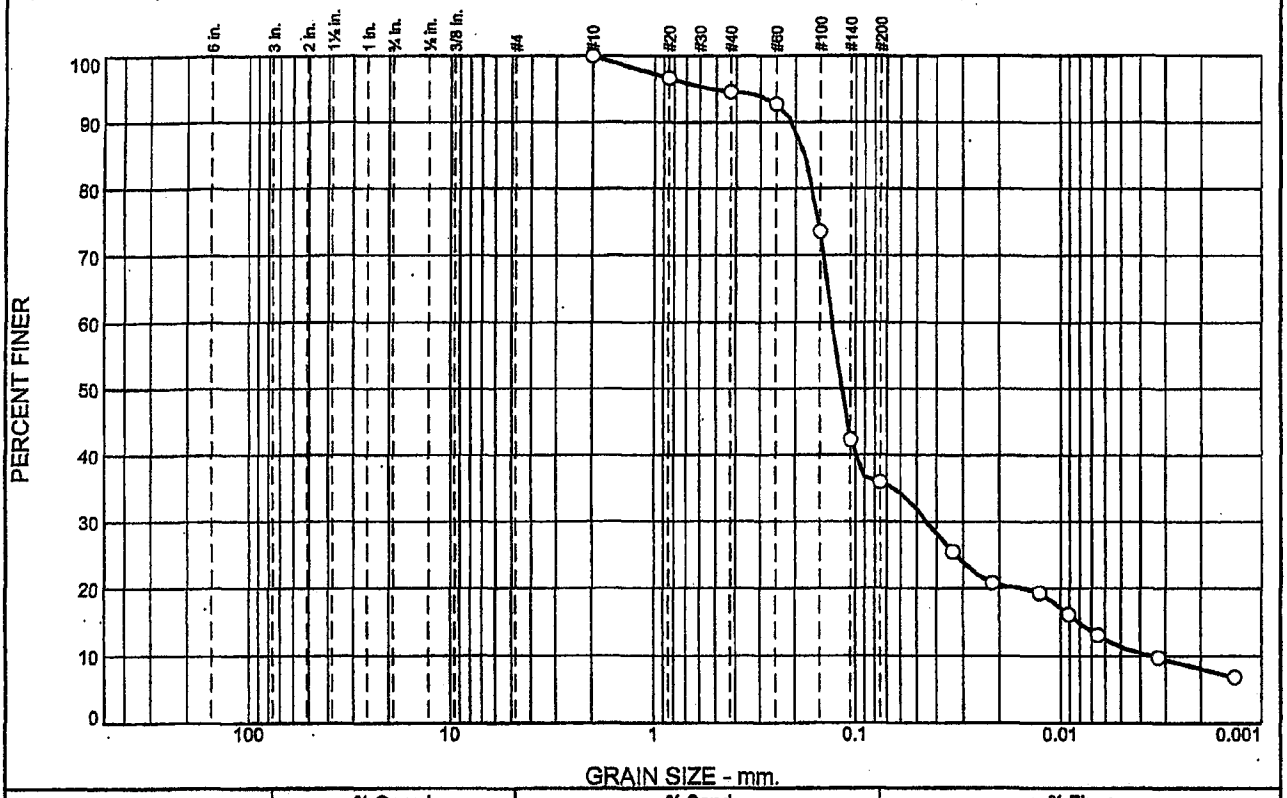
ASTM D6913-04
ASTM D4318-05

Sample Number: S-4 **Depth:** 7.5'-9.0'
Location: B-773 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.4	58.7	24.5	11.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	96.7		
#40	94.6		
#60	92.7		
#100	73.6		
#140	42.3		
#200	35.9		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.1799 D_{60}= 0.1300 D_{50}= 0.1172
D_{30}= 0.0444 D_{15}= 0.0081 D_{10}= 0.0035
C_u= 36.76 C_c= 4.28

Classification

USCS= SM AASHTO= A-4(0)

Remarks

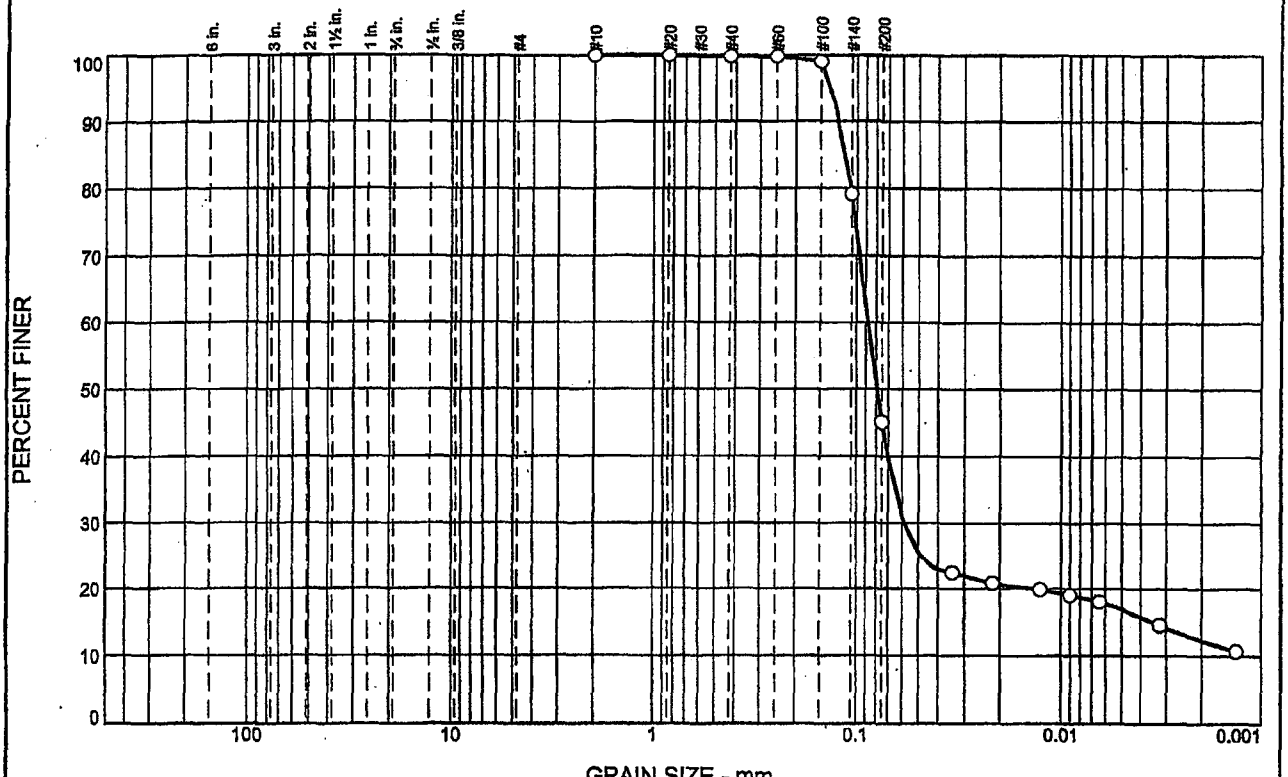
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-8 **Depth:** 20.0'-21.5'
Location: B-773 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** ~~10~~ 9-L6-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	54.9	28.0	17.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.8		
#100	99.0		
#140	79.2		
#200	45.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= 31 LL= 58 PI= 27

Coefficients

D_{85}= 0.1138 D_{60}= 0.0876 D_{50}= 0.0793
D_{30}= 0.0585 D_{15}= 0.0035 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-7-5(8)

Remarks

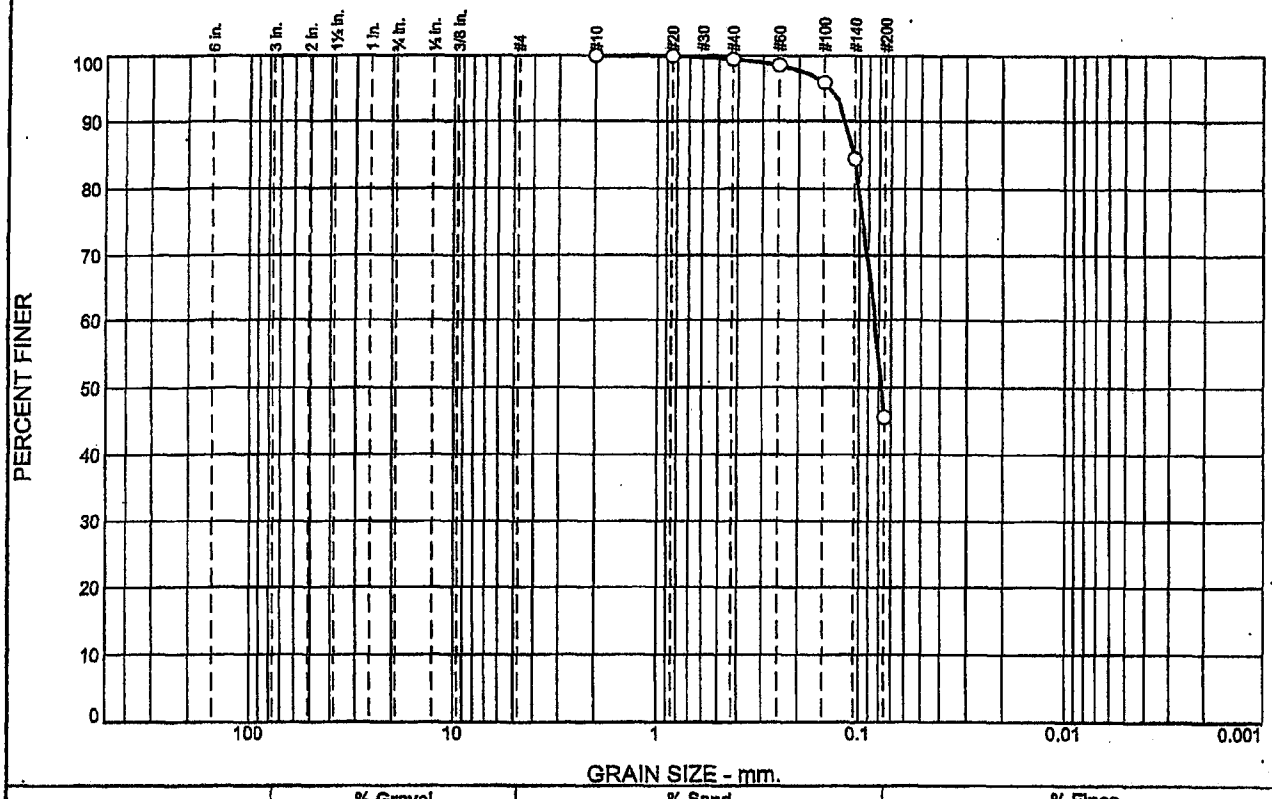
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-18 **Depth:** 70.0'-71.5'
Location: B-773 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** M4 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	53.8	45.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	98.5		
#100	95.8		
#140	84.5		
#200	45.6		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 32 LL= 73 PI= 41

Coefficients

D_{85}= 0.1067 D_{60}= 0.0838 D_{50}= 0.0776
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-7-5(14)

Remarks

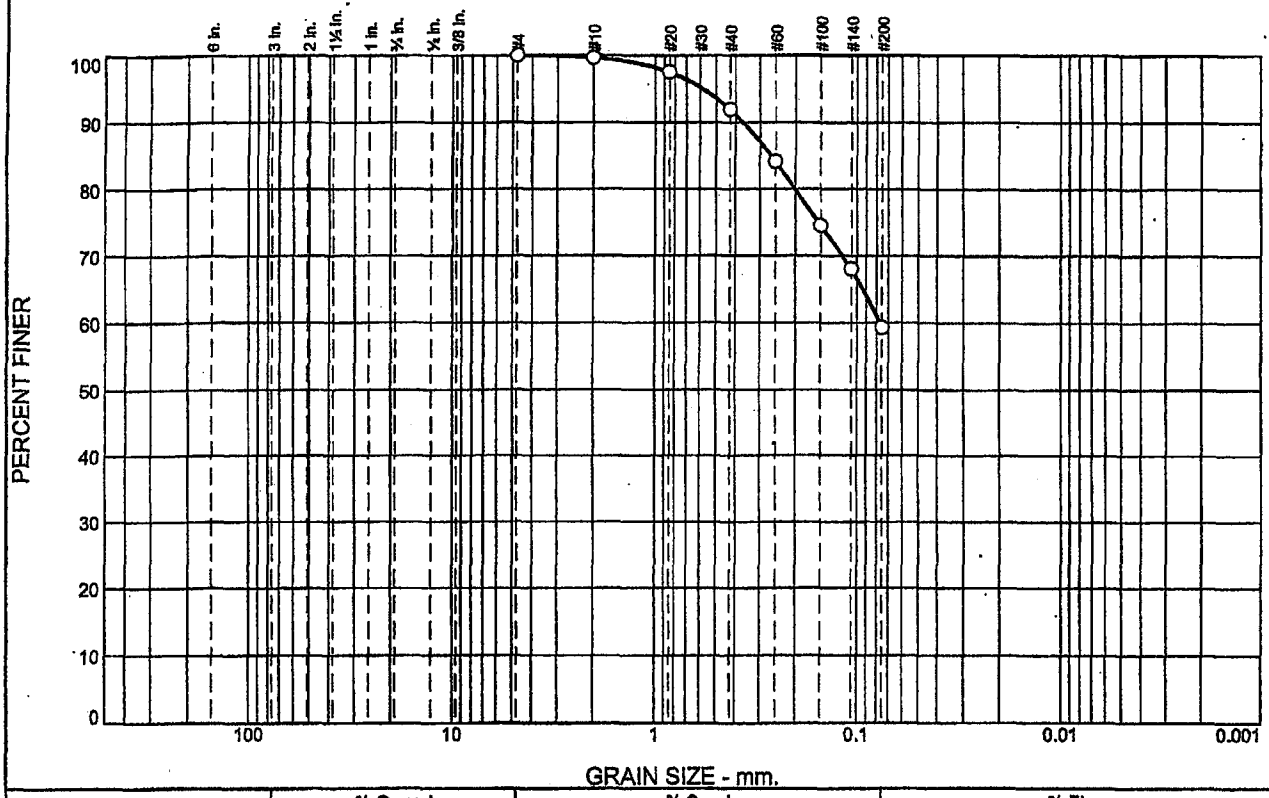
ASTM D6913-04
ASTM D4318-05

Sample Number: S-23 **Depth:** 95.0'-96.5'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** M4 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	7.8	32.6	59.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	97.5		
#40	91.9		
#60	84.1		
#100	74.5		
#140	68.0		
#200	59.3		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 58 LL= 97 PI= 39

Coefficients

D_{85}= 0.2635 D_{60}= 0.0769 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(24)

Remarks

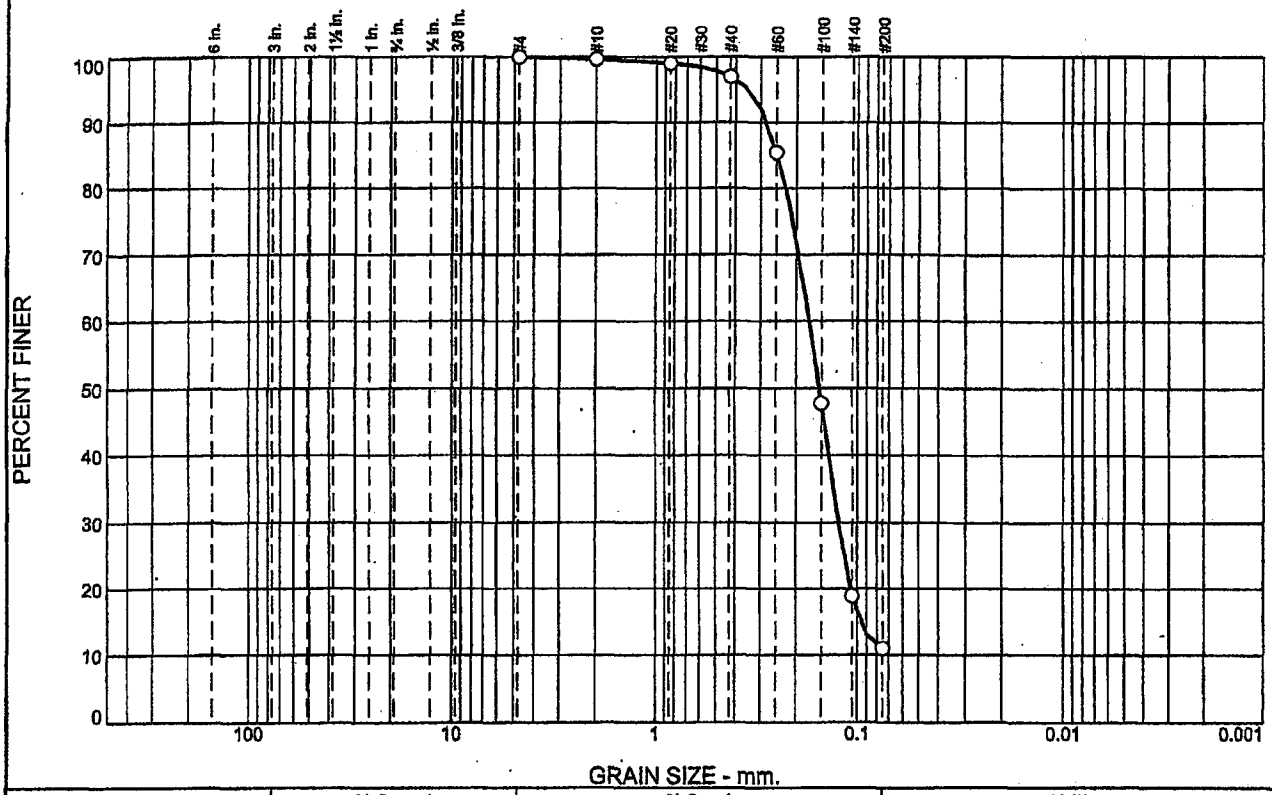
ASTM D6913-04
ASTM D4318-05

Sample Number: S-24 **Depth:** 100.0'-101.5'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.7	86.0	11.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	99.0		
#40	97.0		
#60	85.5		
#100	47.8		
#140	18.9		
#200	11.0		

* (no specification provided)

Material Description

Poorly Graded Sand with Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2474 D_{60}= 0.1719 D_{50}= 0.1537
D_{30}= 0.1238 D_{15}= 0.0968 D_{10}=
C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-2-4(0)

Remarks

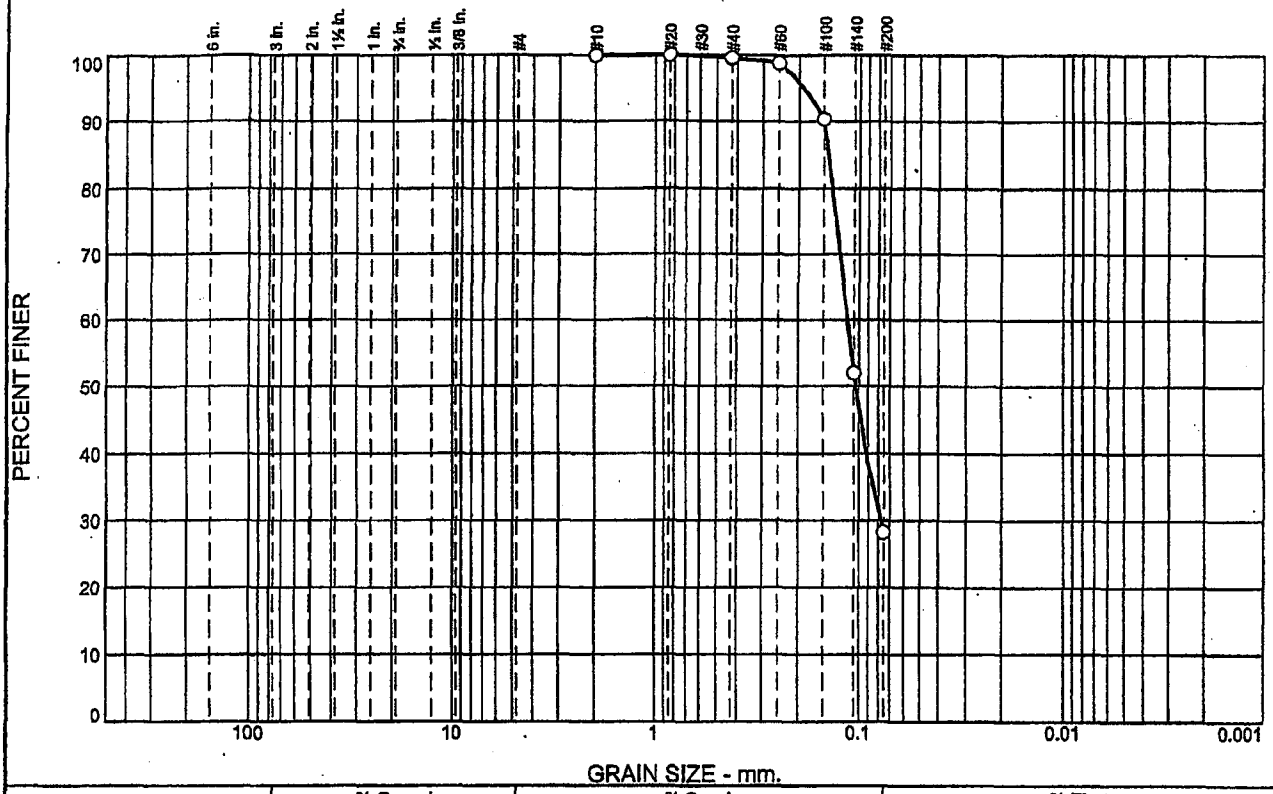
ASTM D6913-04
ASTM D4318-05

Sample Number: S-27 **Depth:** 115.0'-116.5'
Location: B-773 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA 9-18-09

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	71.4	28.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	98.9		
#100	90.3		
#140	52.0		
#200	28.2		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= 34 LL= 49 PI= 15

Coefficients

D_{85}= 0.1415 D_{60}= 0.1140 D_{50}= 0.1039
D_{30}= 0.0776 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-7(1)

Remarks

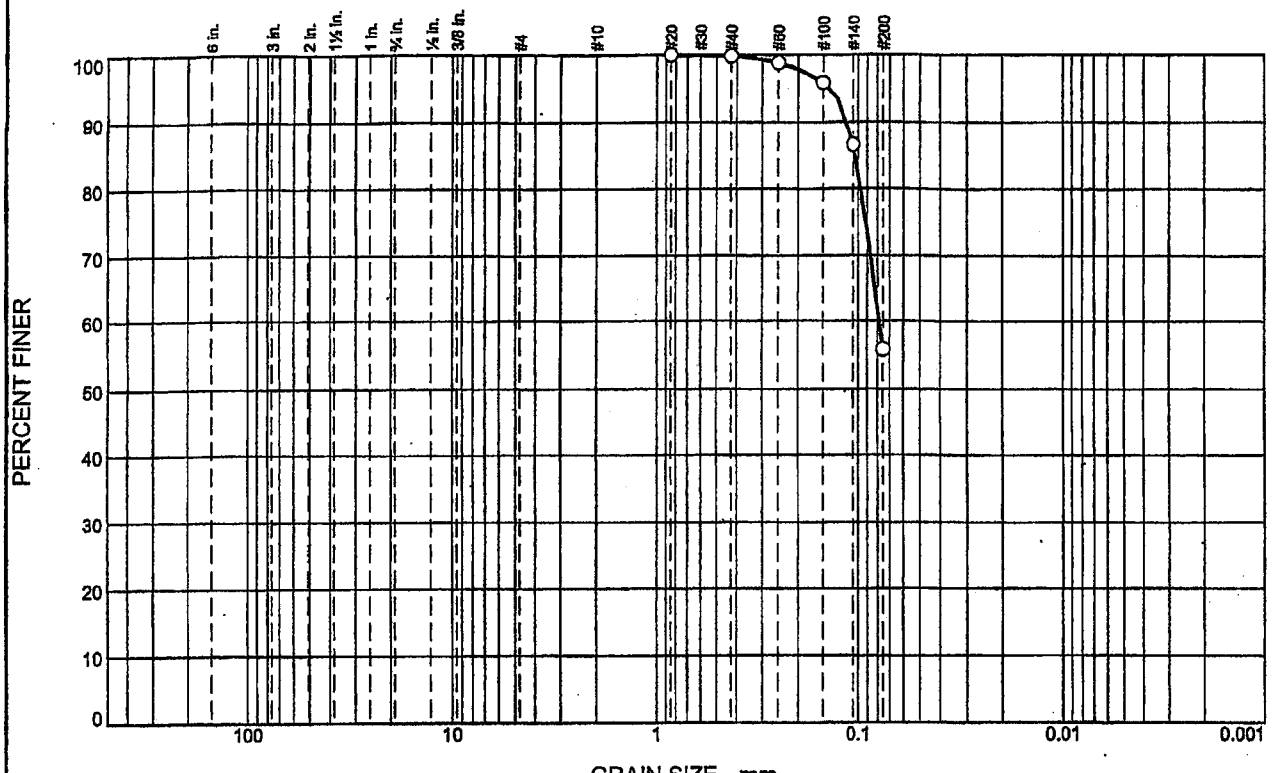
ASTM D6913-04
ASTM D4318-05

Sample Number: S-28 **Depth:** 120.0'-121.5'
Location: B-773 **Date:** 9-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-15-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	44.1	55.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.8		
#60	98.8		
#100	95.8		
#140	86.6		
#200	55.7		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 55 LL= 97 PI= 42

Coefficients

D_{85}= 0.1032 D_{60}= 0.0781 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(23)

Remarks

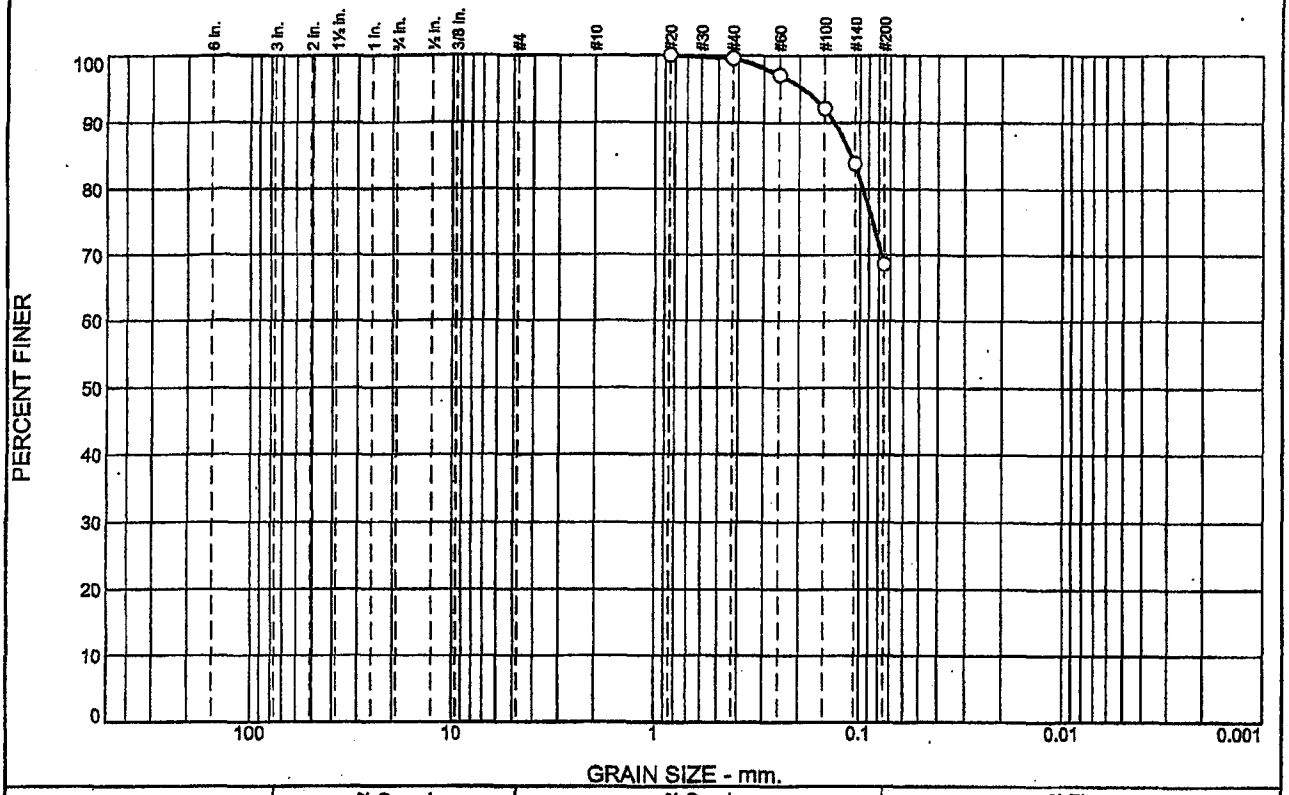
ASTM D6913-04
ASTM D4318-05

Sample Number: S-33 **Depth:** 145.0'-146.5'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	31.0	68.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.6		
#60	97.2		
#100	92.2		
#140	83.9		
#200	68.6		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 63 LL= 112 PI= 49

Coefficients

D_{85}= 0.1096 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(40)

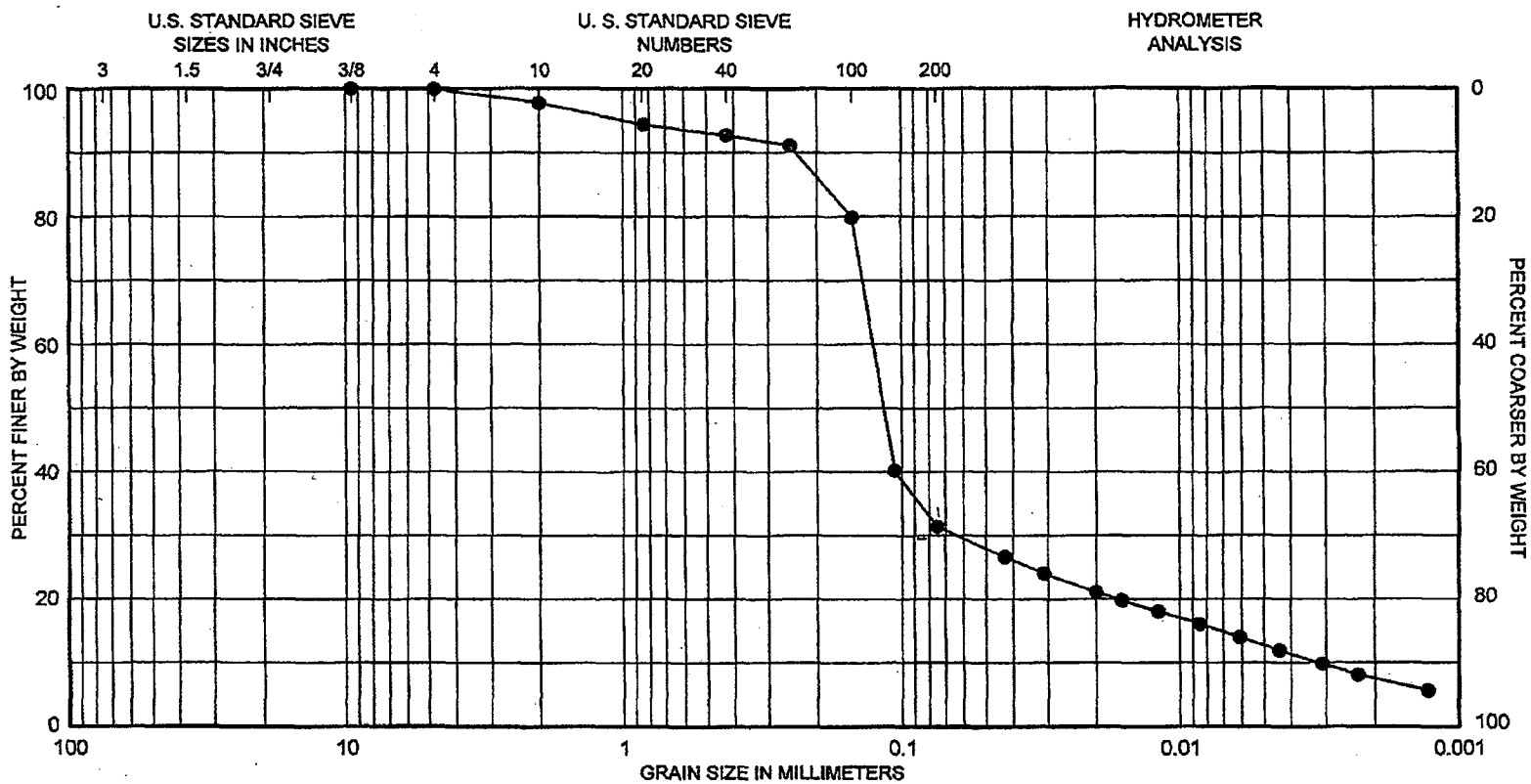
Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-34 **Depth:** 148.5'-150.0'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** M4 9-18-02

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-773A-UD-2	24.15	10.08	39.35	0.1155	0.24	Clayey Sand, greenish gray, with shell fragments

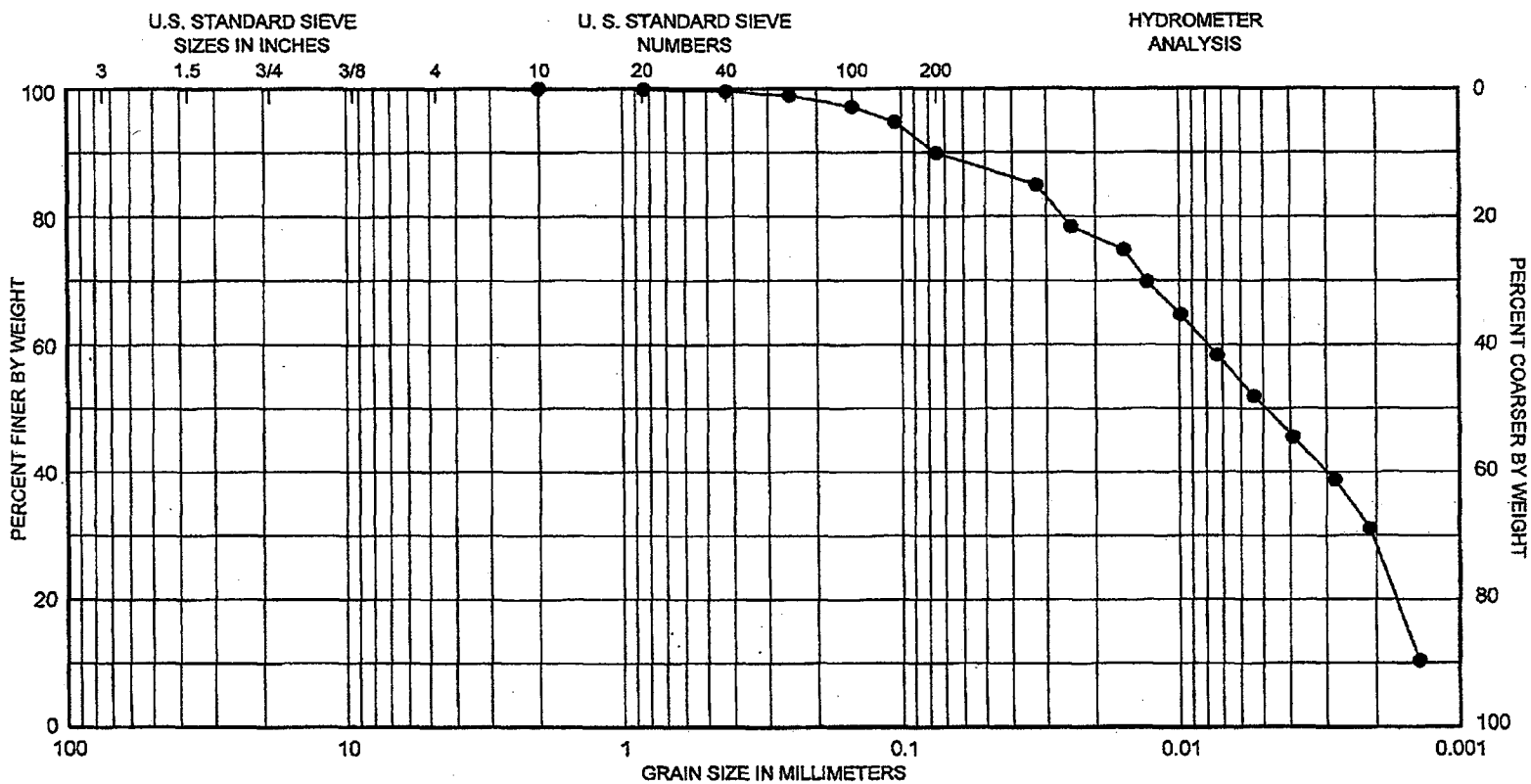
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_g	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-773A-UD-8	84.65	NA	NA	0.0049	0.08	Fat Clay, greenish gray, with shell fragments

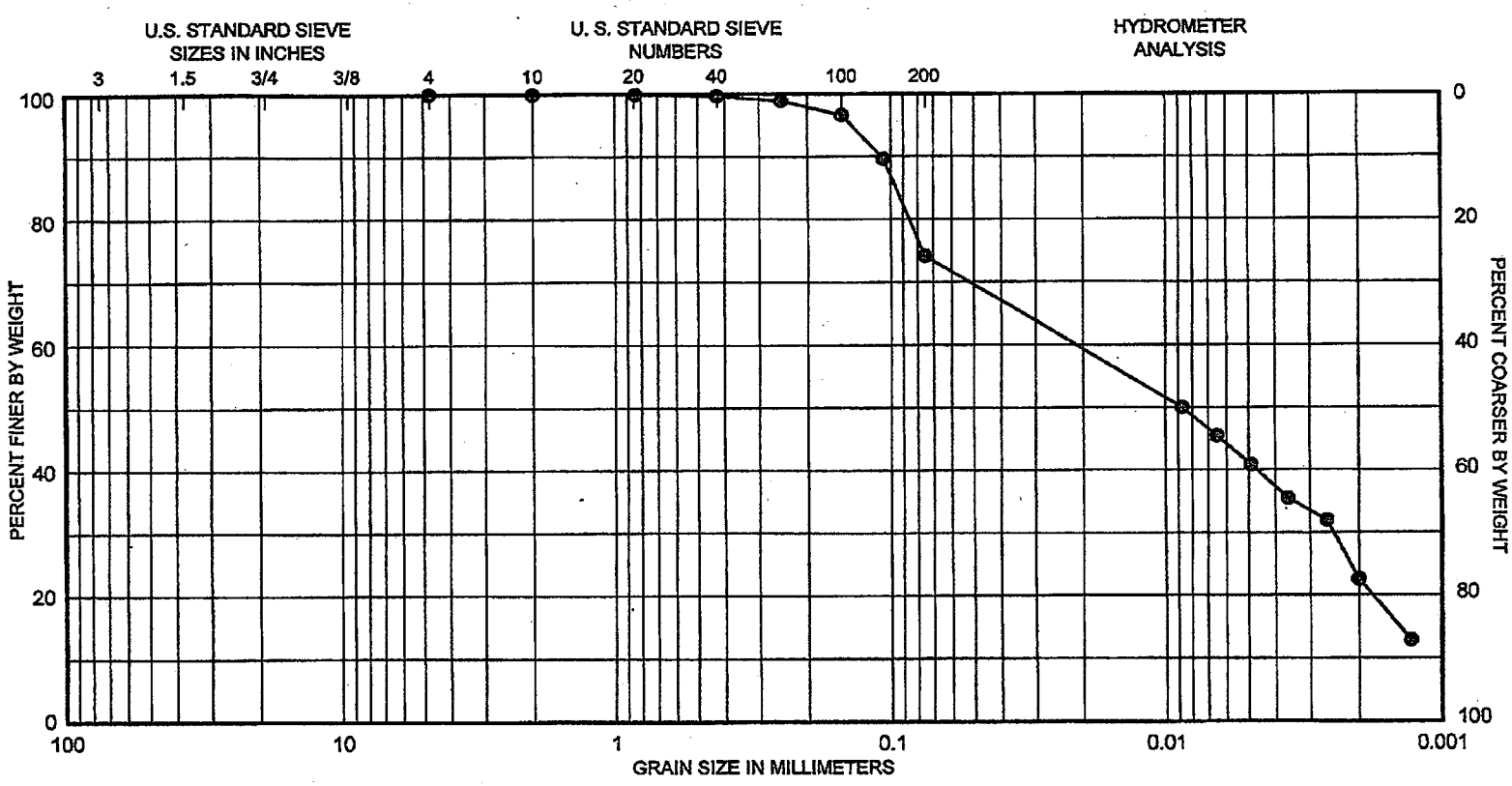
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-773A-UD-9	92.85	NA	NA	0.0087	0.11	Fat Clay, greenish gray, with sand

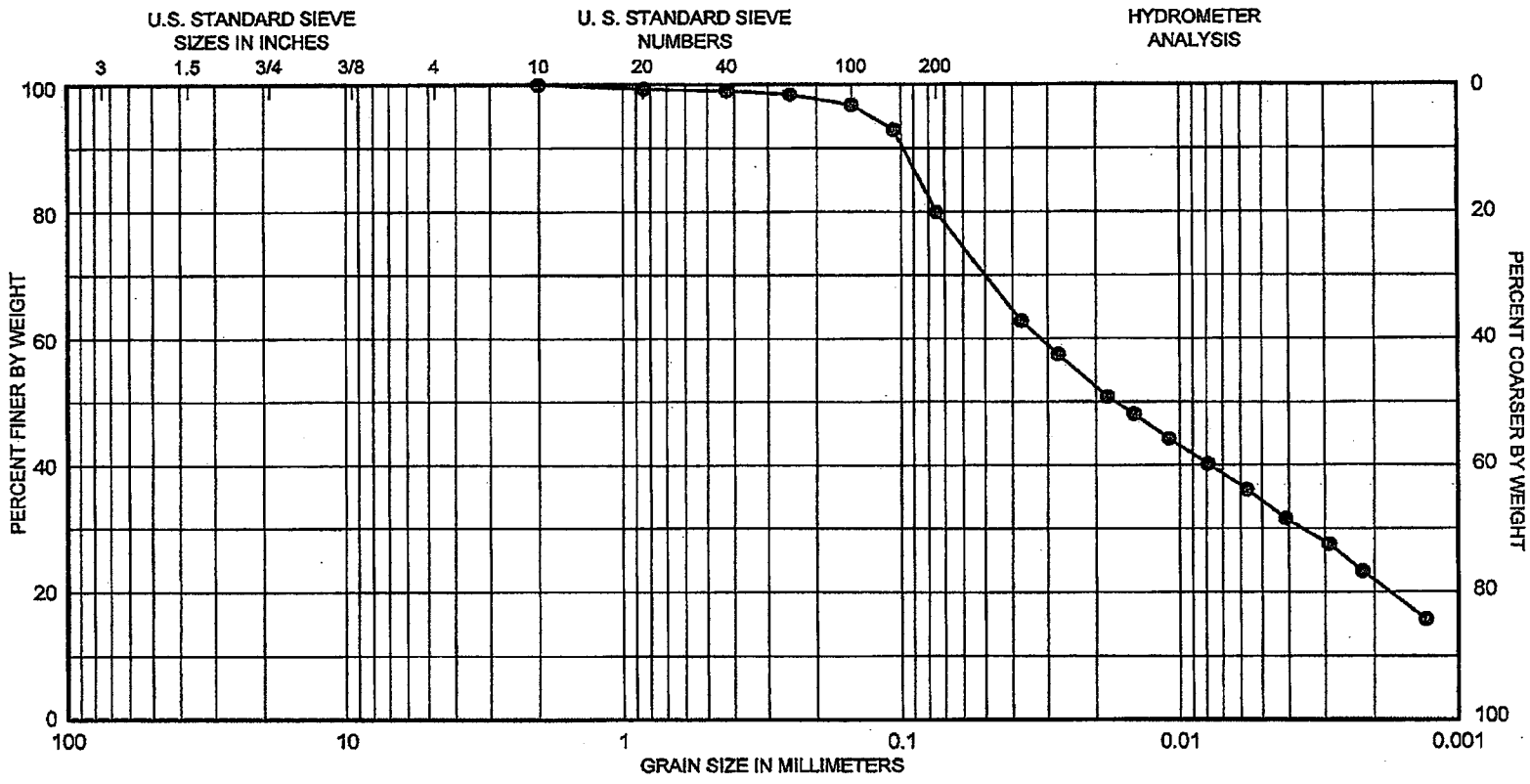
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

NO 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-773A-UD-10	103.6			0.017	0.1	Fat Clay, greenish gray, with sand

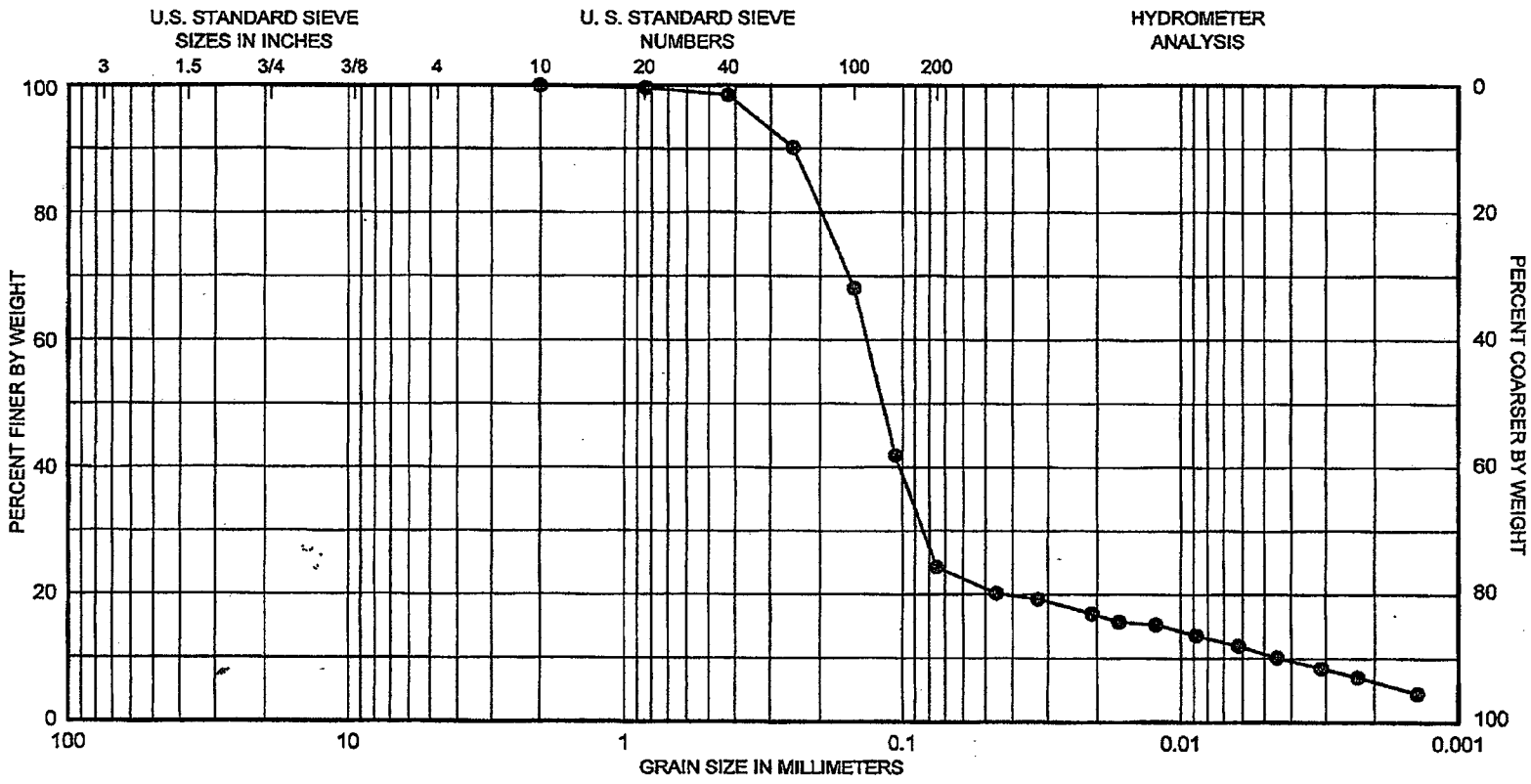
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

NA 10-7-08



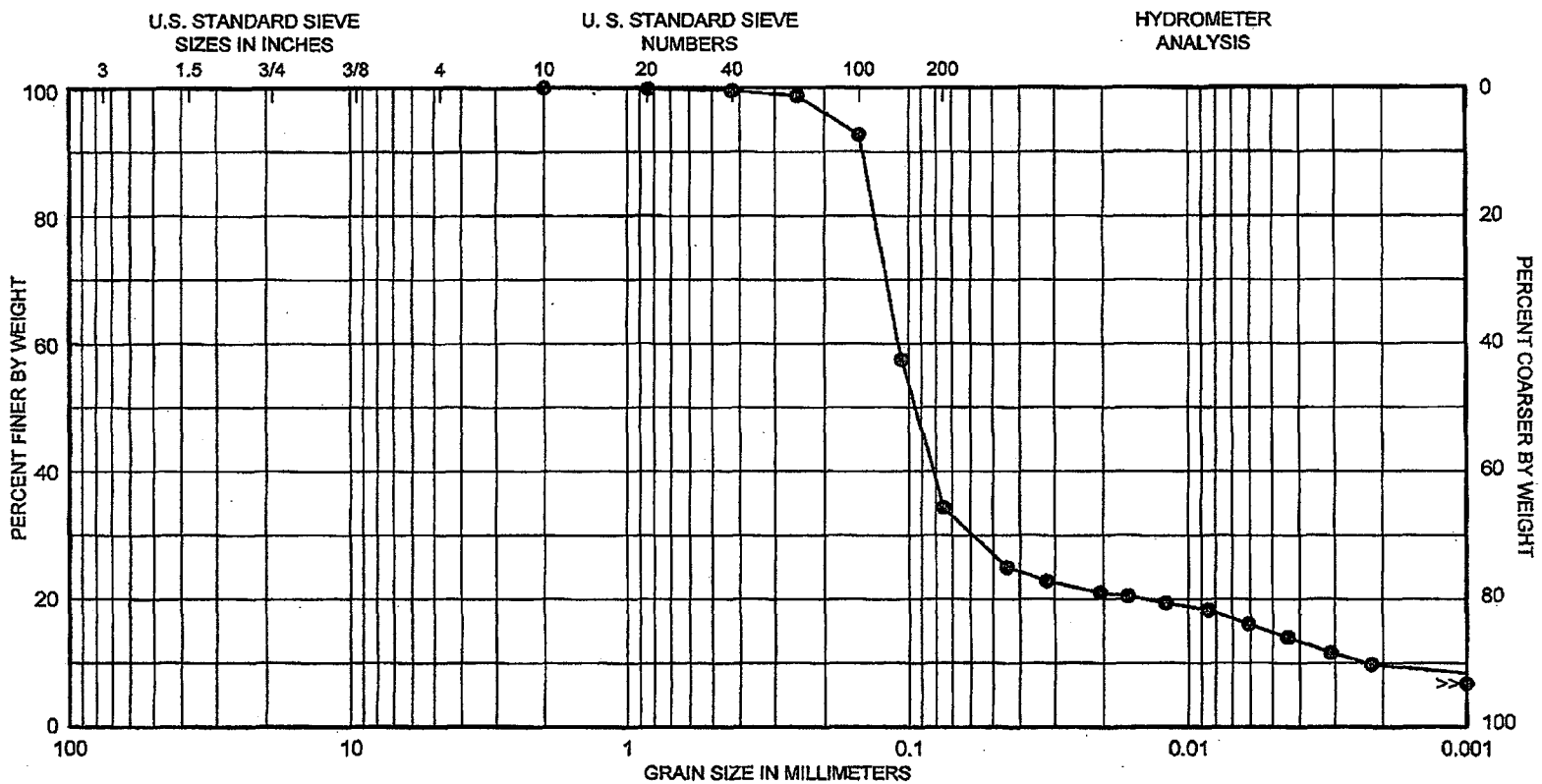
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-773A-UD-11	114.75	12.13	31.29	0.1181	0.25	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-2-98



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-773A-UD-12	124.7	13.91	47.55	0.0948	0.15	Clayey Sand, greenish gray

GRAIN SIZE CURVE

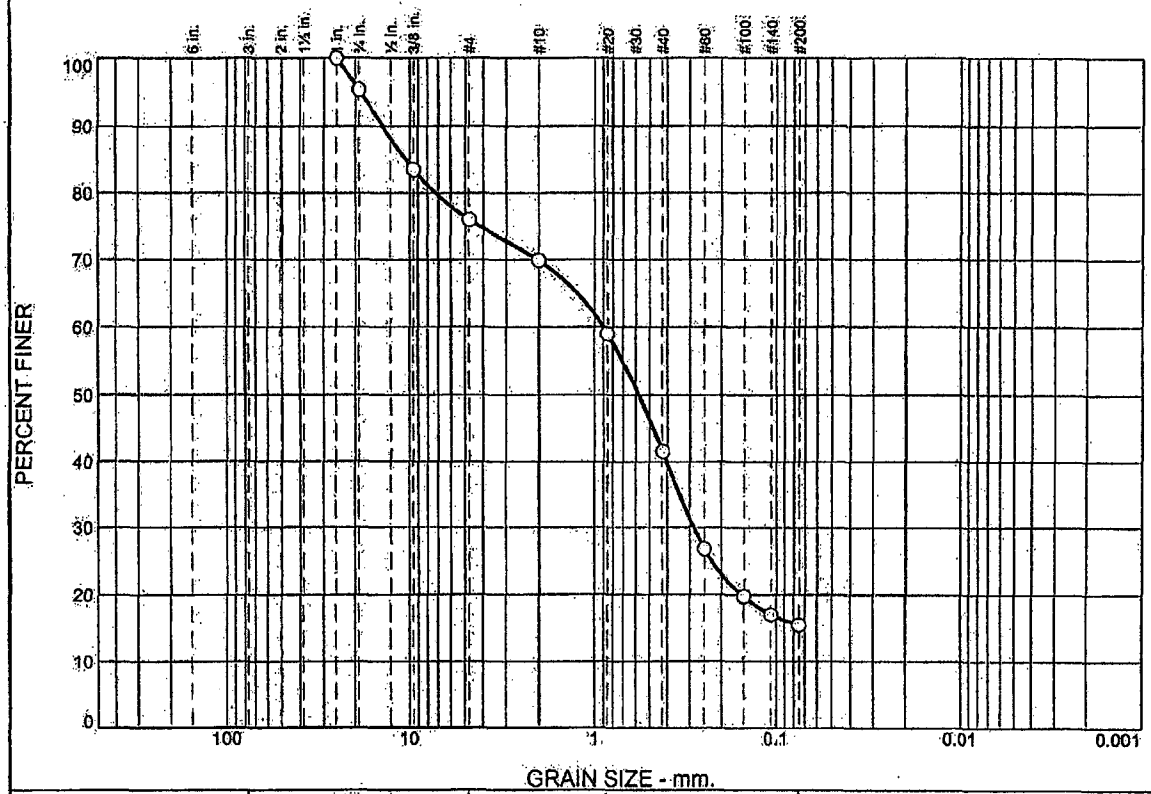
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

NA 10-7-02

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.7	19.3	6.2	28.3	26.1	15.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	95.3		
3/8in.	83.4		
#4	76.0		
#10	69.8		
#20	58.9		
#40	41.5		
#60	26.8		
#100	19.7		
#140	17.0		
#200	15.4		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 10.5918 D_{60}= 0.8990 D_{50}= 0.5752
D_{30}= 0.2864 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

ASTM D6913-04

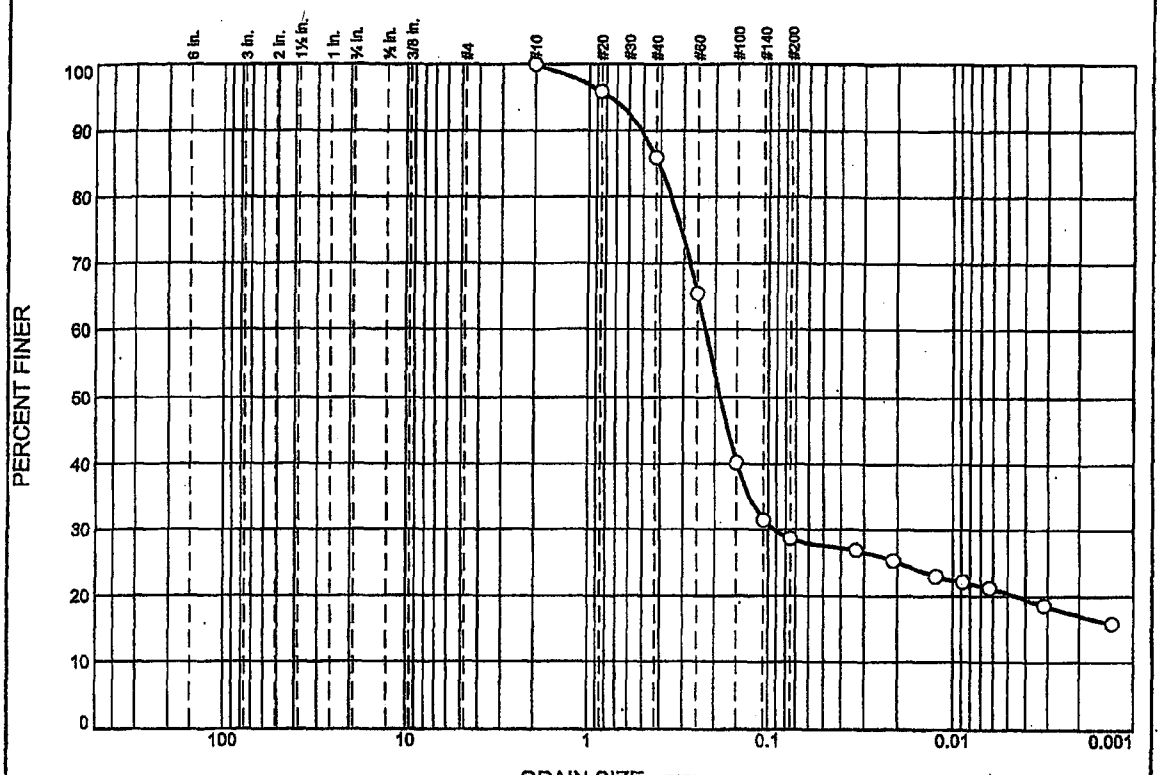
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-774 **Date:** 9-15-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

DCN: CALV-039
DCN: CALV-050

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.1	57.3	8.1	20.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	95.9		
#40	85.9		
#60	65.4		
#100	40.1		
#140	31.5		
#200	28.6		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 14 LL= 24 PI= 10

Coefficients

D_{85}= 0.4107 D_{60}= 0.2253 D_{50}= 0.1864
D_{30}= 0.0932 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

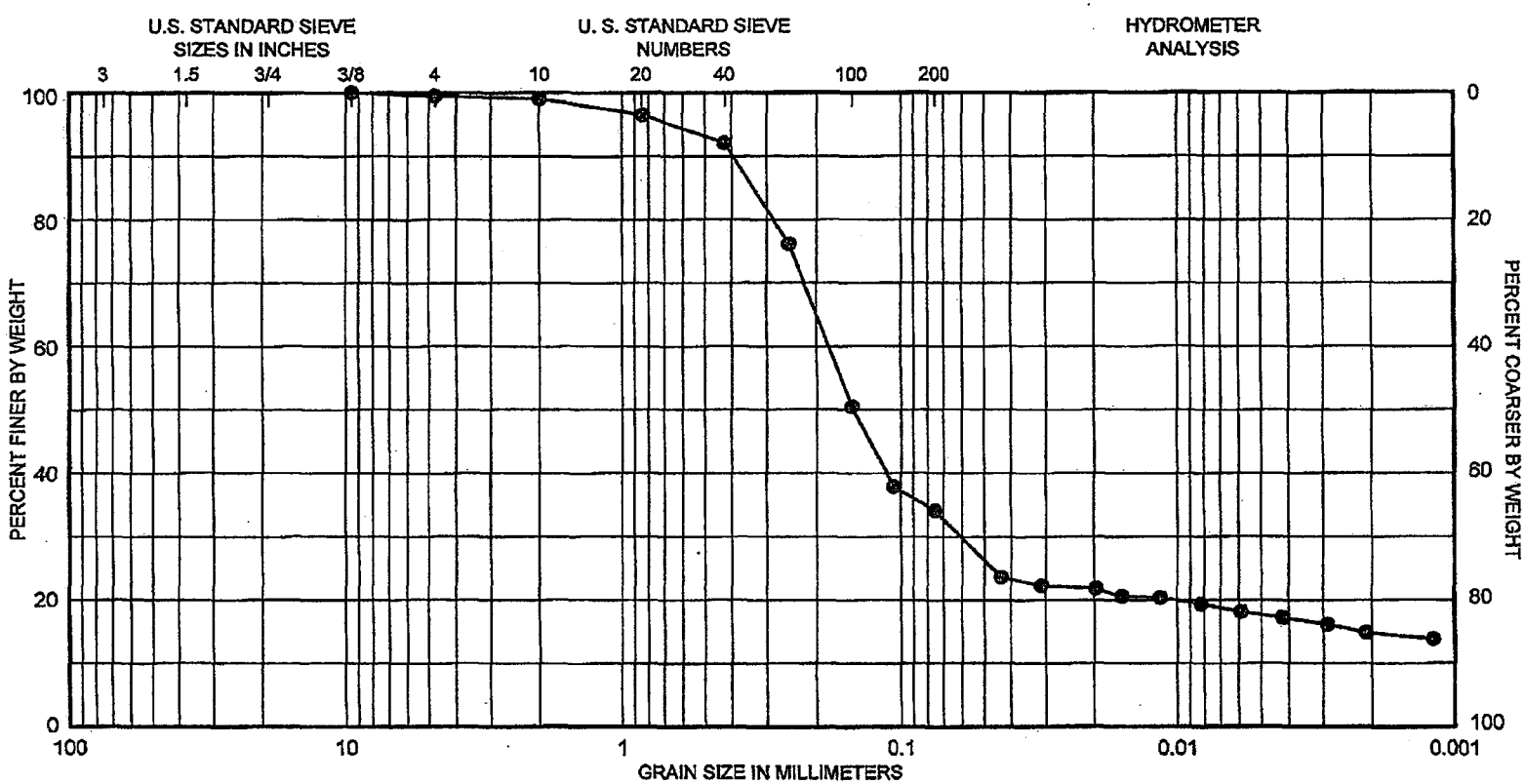
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-5 **Depth:** 10.0'-11.5'
Location: B-774 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

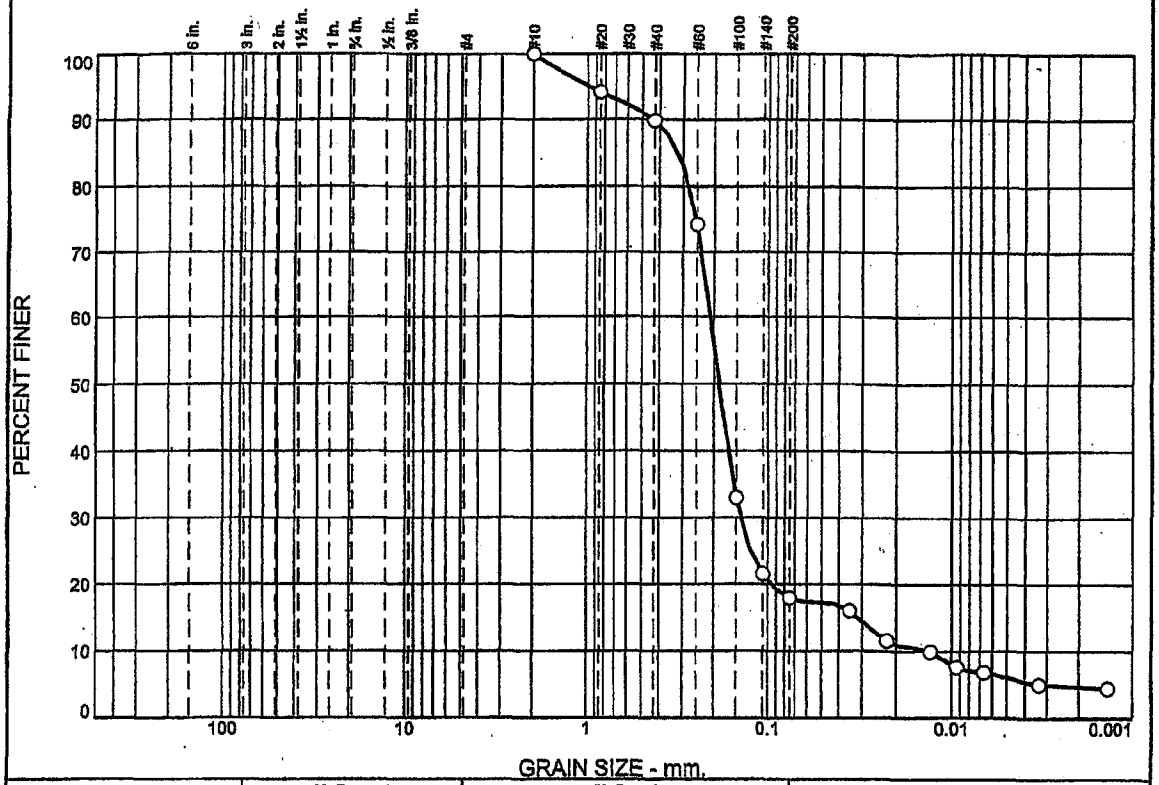
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-1	13.2	NA	NA	0.1482	0.4	Clayey Sand, tan and gray, with carbonate nodules

GRAIN SIZE CURVE

PLATE 1

MA 10-7-03

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.2	71.9	11.8	6.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	94.1		
#40	89.8		
#60	74.2		
#100	33.1		
#140	21.5		
#200	17.9		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.3175 D_{60}= 0.2088 D_{50}= 0.1866
D_{30}= 0.1418 D_{15}= 0.0312 D_{10}= 0.0133
C_u= 15.69 C_c= 7.24

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

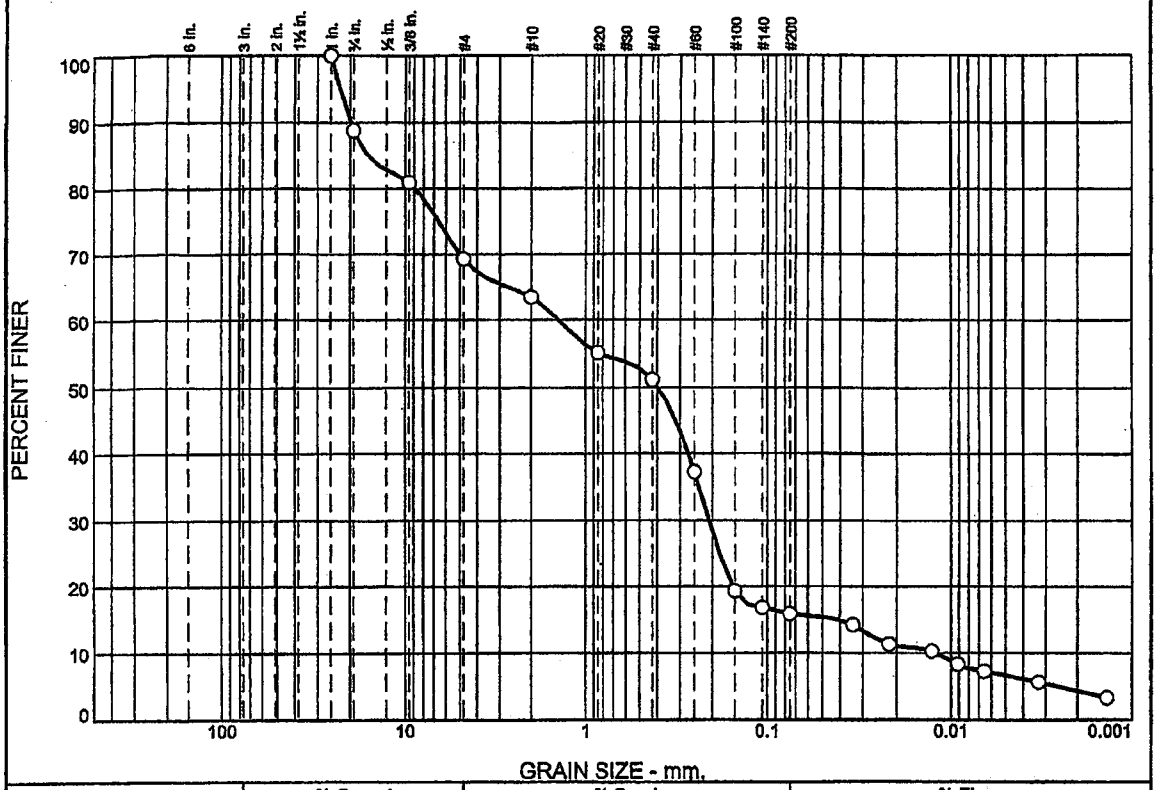
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-6 **Depth:** 13.1'-14.6'
Location: B-774 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** AA 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.2	19.5	5.8	12.3	35.3	9.2	6.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.0	100.0		
0.75	88.8		
0.375	81.0		
#4	69.3		
#10	63.5		
#20	55.1		
#40	51.2		
#60	37.3		
#100	19.3		
#140	16.8		
#200	15.9		

* (no specification provided)

Material Description

Silty Sand with Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 15.9230 D_{60}= 1.4090 D_{50}= 0.3946
D_{30}= 0.2082 D_{15}= 0.0409 D_{10}= 0.0120
C_u= 117.29 C_c= 2.56

Classification

USCS= SM AASHTO= A-2-4(0)

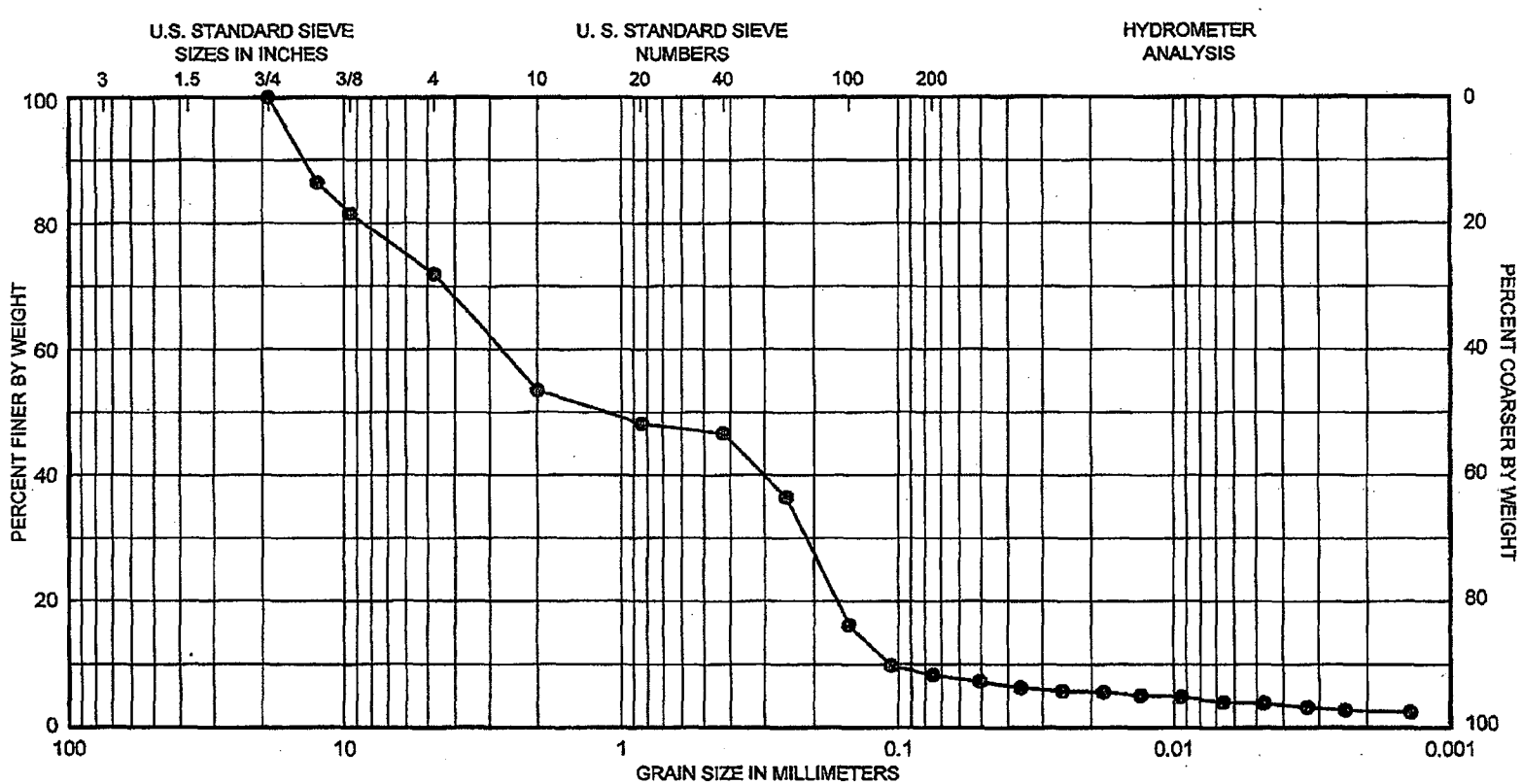
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-7 **Depth:** 15.0'-16.5'
Location: B-774 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-2	18.25	0.15	25.33	1.1343	13.96	Silt, light gray, with shell fragments

GRAIN SIZE CURVE

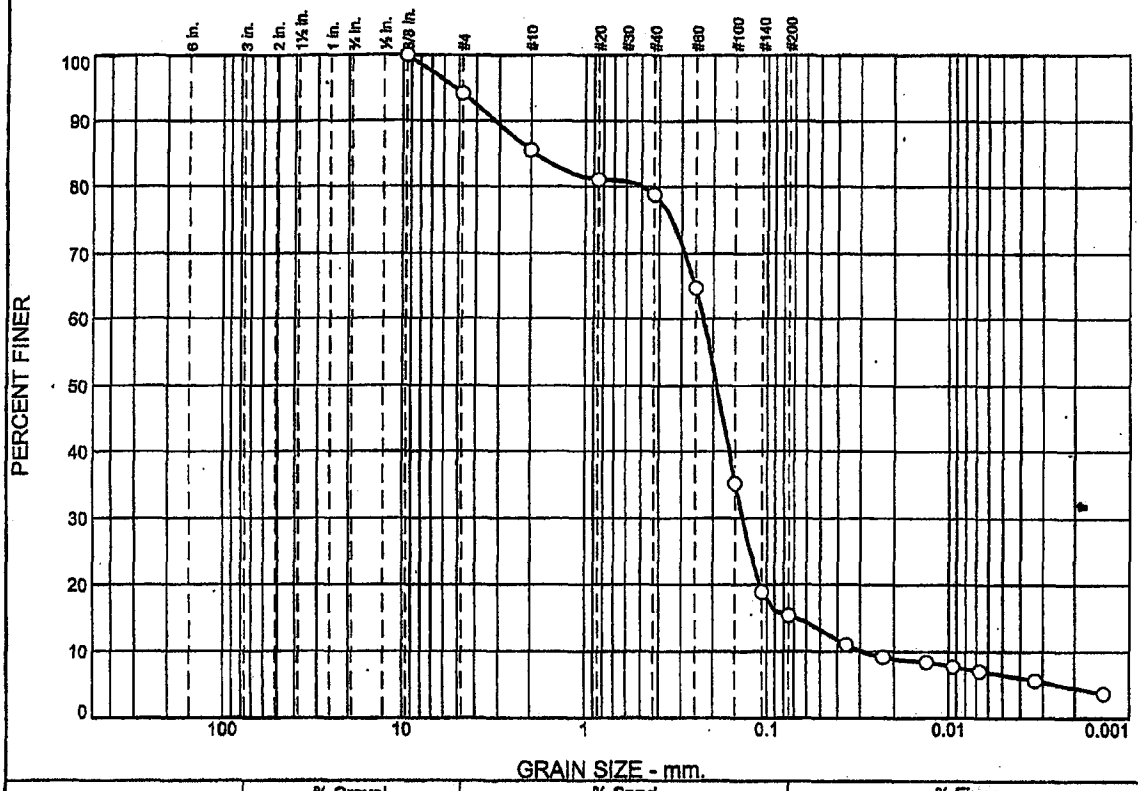
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

AT 10-7-03

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.9	8.6	6.7	63.4	8.9	6.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	94.1		
#10	85.5		
#20	81.1		
#40	78.8		
#60	64.8		
#100	35.3		
#140	18.9		
#200	15.4		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.8785 D_{60}= 0.2268 D_{50}= 0.1906
D_{30}= 0.1370 D_{15}= 0.0668 D_{10}= 0.0293
C_u= 7.75 C_c= 2.83

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

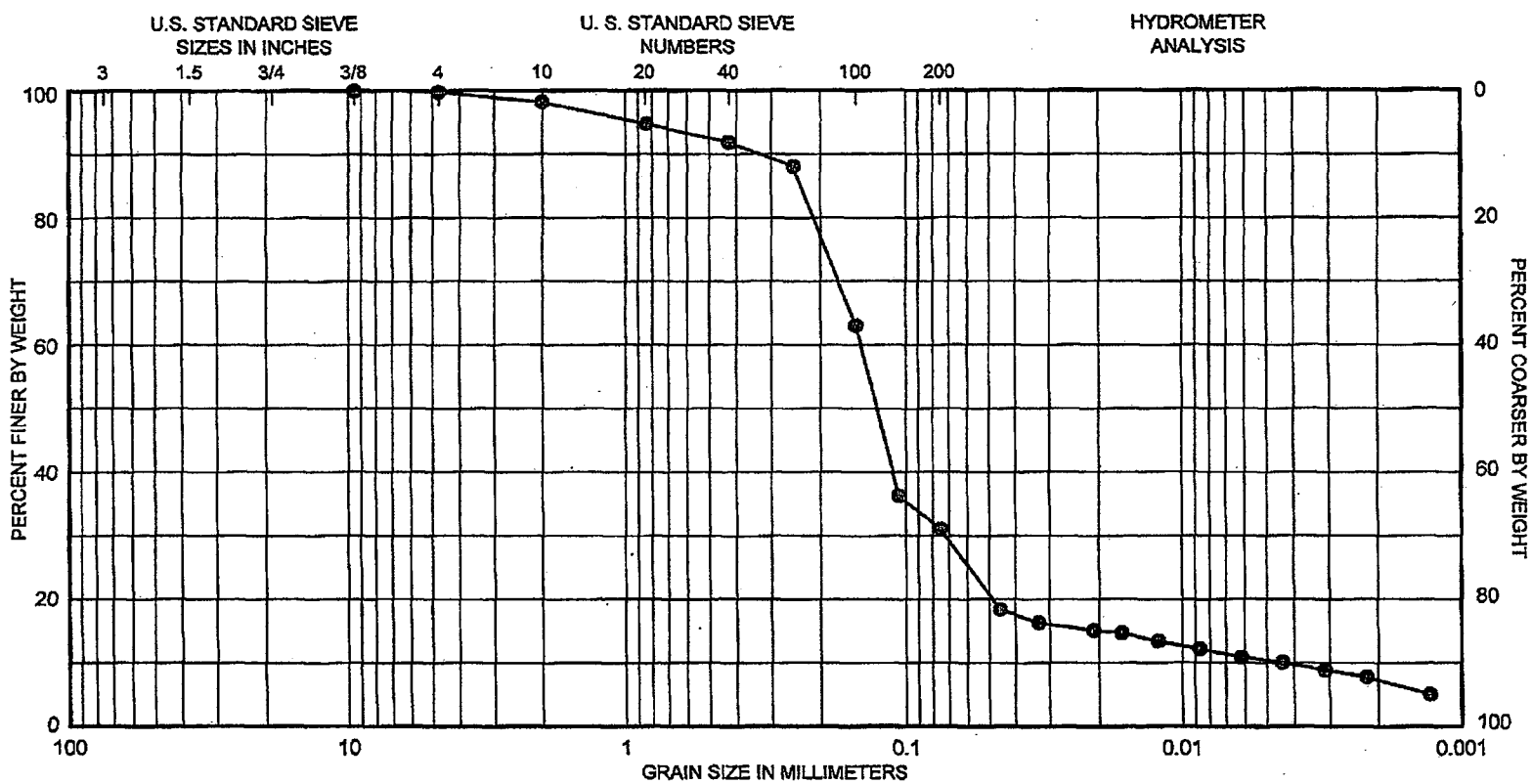
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-8 **Depth:** 18.5'-20.0'
Location: B-774

Date: 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

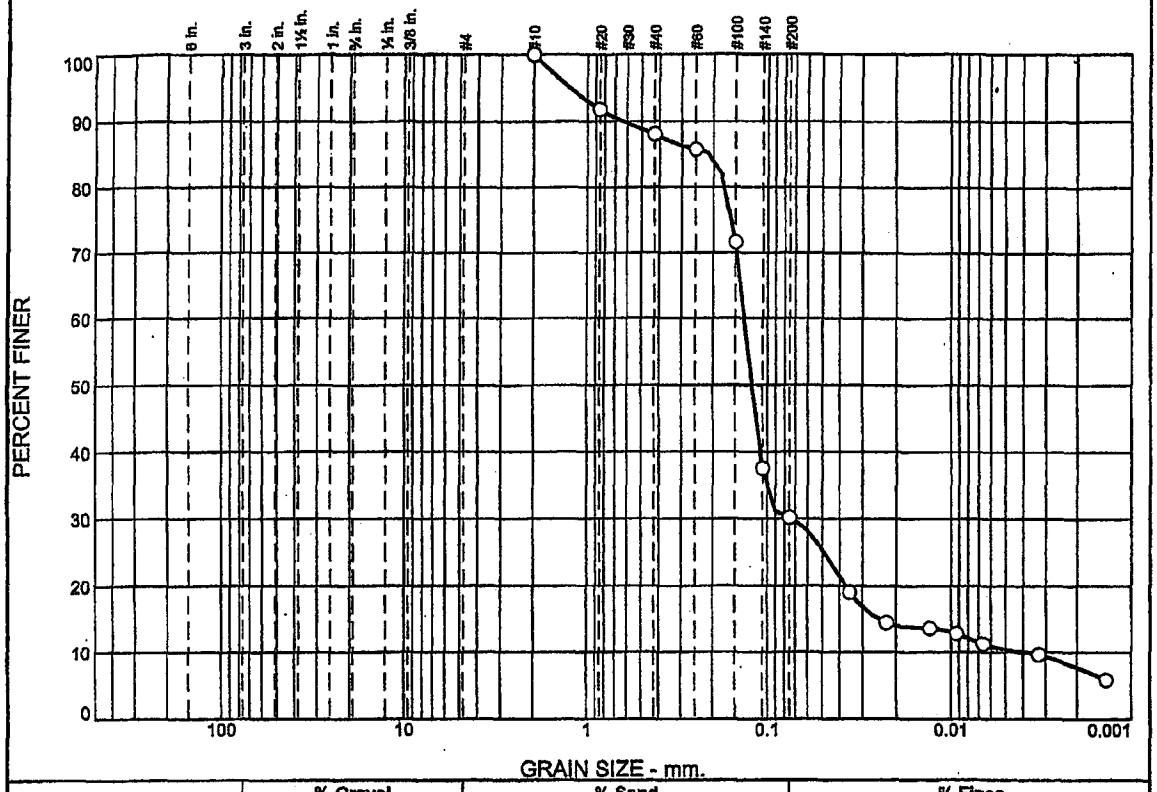
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-3	23.5	8.38	33.75	0.1266	0.33	Clayey Sand, gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-7-03

Particle Size Distribution Report



%+3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.9	58.0	19.7	10.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	91.8		
#40	88.1		
#60	85.8		
#100	71.6		
#140	37.5		
#200	30.1		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2078 D_{60}= 0.1334 D_{50}= 0.1217
D_{30}= 0.0729 D_{15}= 0.0246 D_{10}= 0.0039
C_u= 34.03 C_c= 10.16

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

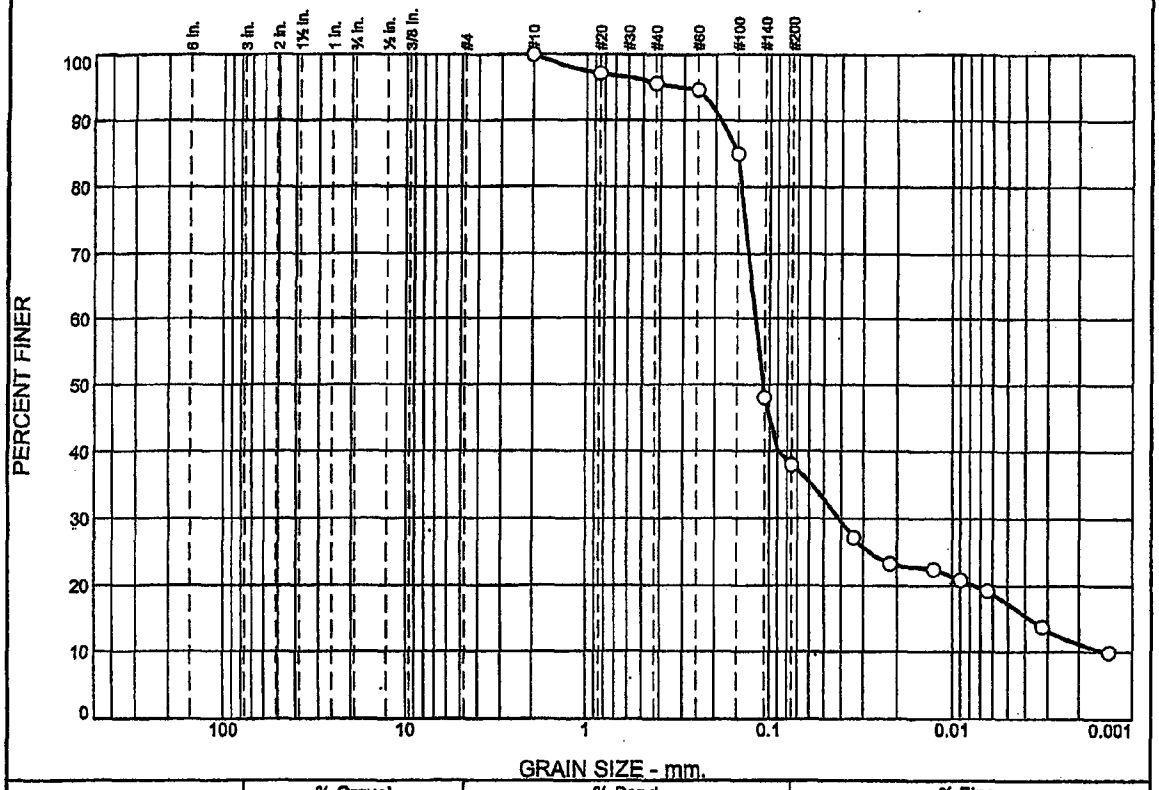
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-10 **Depth:** 23.5'-25.0'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.4	57.7	20.5	17.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.1		
#40	95.6		
#60	94.6		
#100	84.9		
#140	48.0		
#200	37.9		

* (no specification provided)

Material Description

Silty, Clayey Sand

Atterberg Limits

PL= 23 LL= 30 PI= 7

Coefficients

D_{85}= 0.1503 D_{60}= 0.1196 D_{50}= 0.1085
D_{30}= 0.0413 D_{15}= 0.0038 D_{10}= 0.0014
C_u= 84.38 C_c= 10.09

Classification

USCS= SC-SM AASHTO= A-4(0)

Remarks

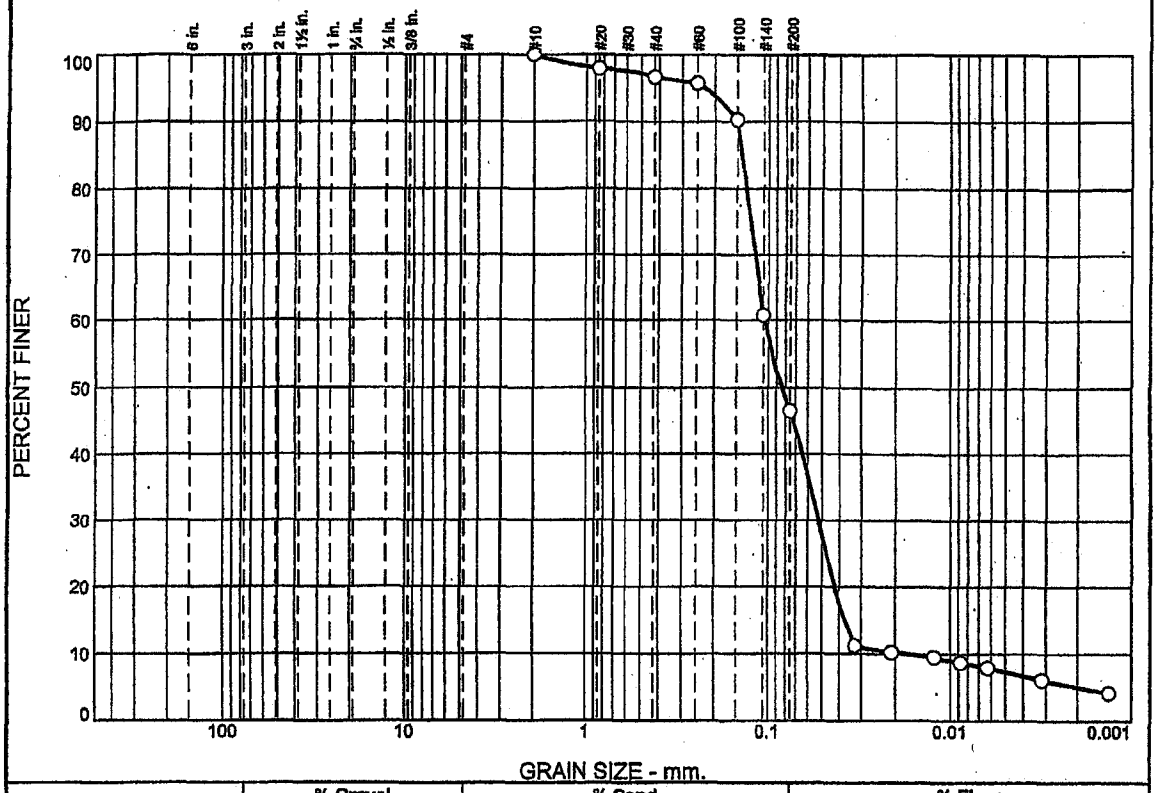
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-11 **Depth:** 25.0'-26.5'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-18-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.4	50.1	39.2	7.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.9		
#40	96.6		
#60	95.7		
#100	90.3		
#140	60.7		
#200	46.5		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.1396 D_{60}= 0.1049 D_{50}= 0.0837
D_{30}= 0.0522 D_{15}= 0.0374 D_{10}= 0.0172
C_u= 6.11 C_c= 1.52

Classification

USCS= SC AASHTO= A-6(5)

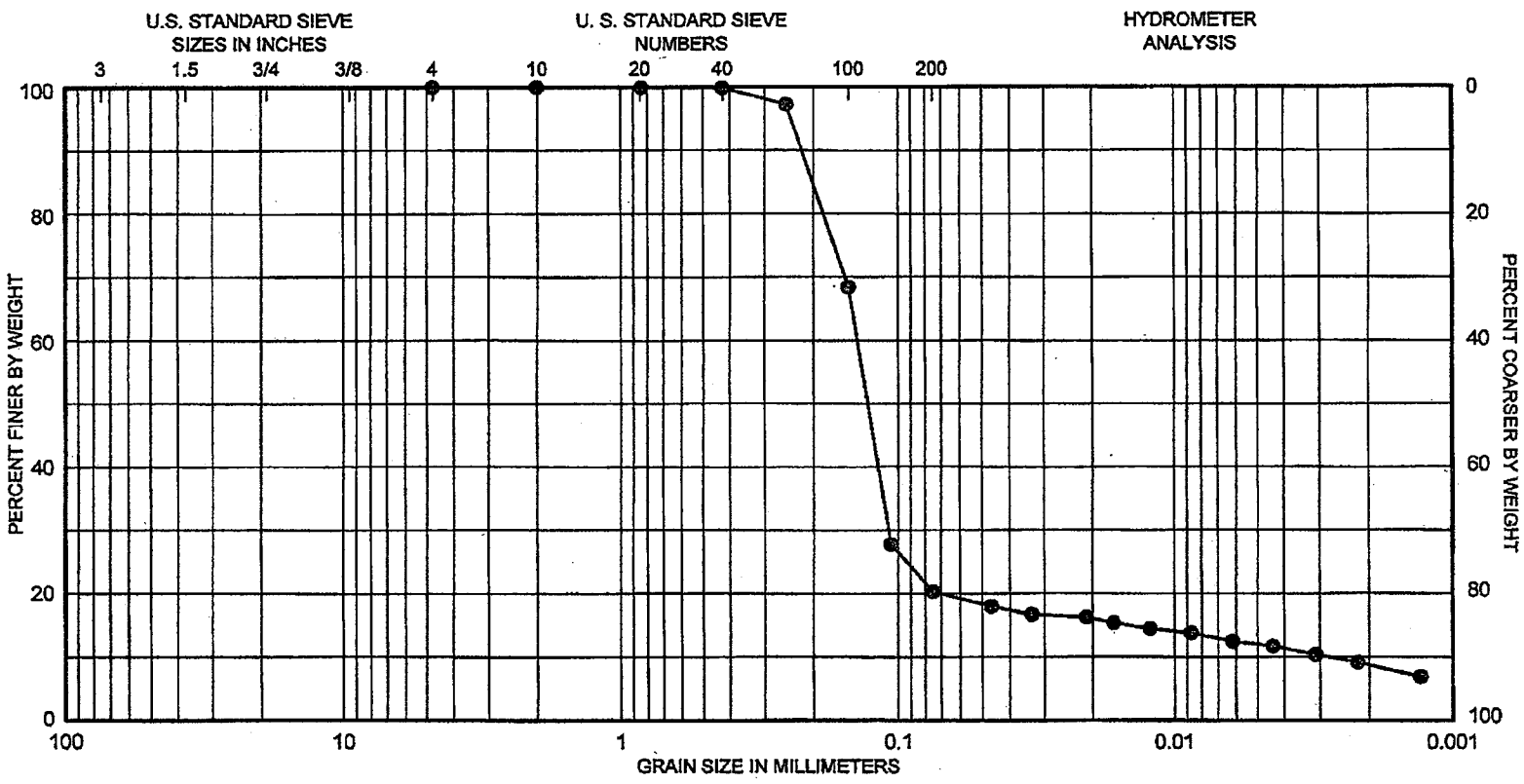
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-12 **Depth:** 27.5'-29.0'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-18-02

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

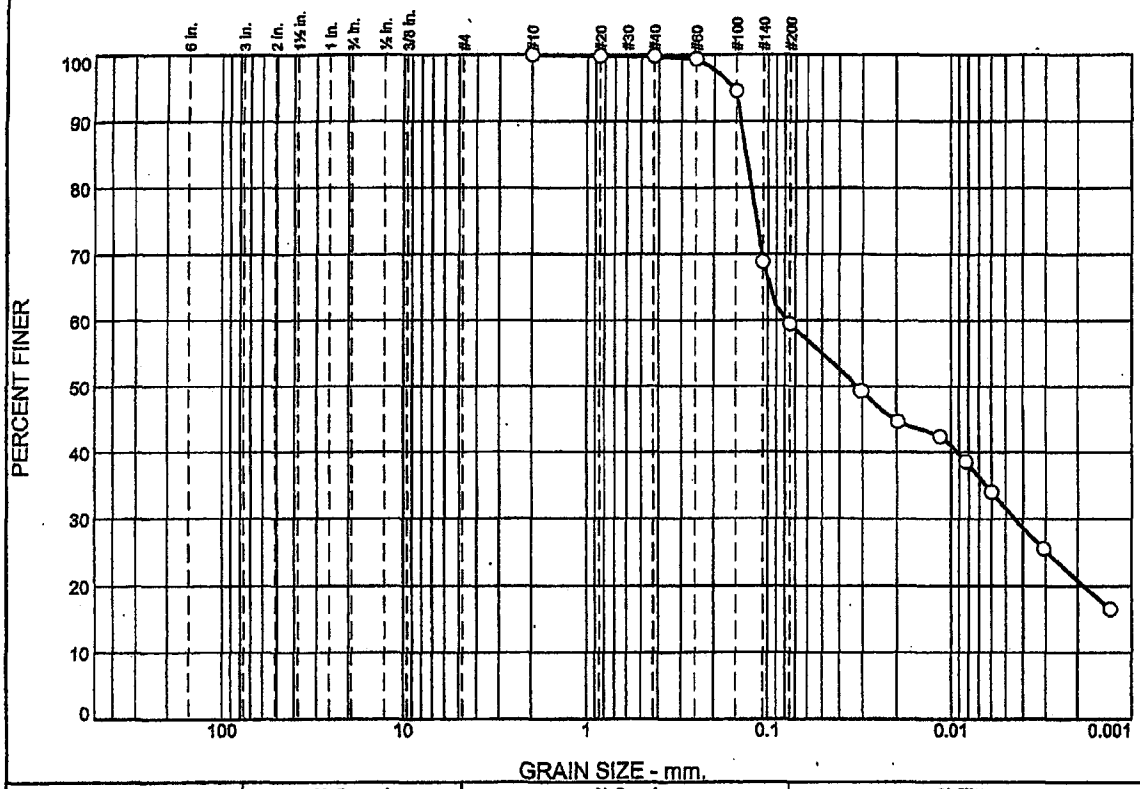
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-4	32.65	30.24	50.49	0.1282	0.22	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	40.4	27.9	31.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.8		
#60	99.4		
#100	94.5		
#140	68.9		
#200	59.4		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 51 LL= 82 PI= 31

Coefficients

D_{85}= 0.1310 D_{60}= 0.0789 D_{50}= 0.0321
D_{30}= 0.0044 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(19)

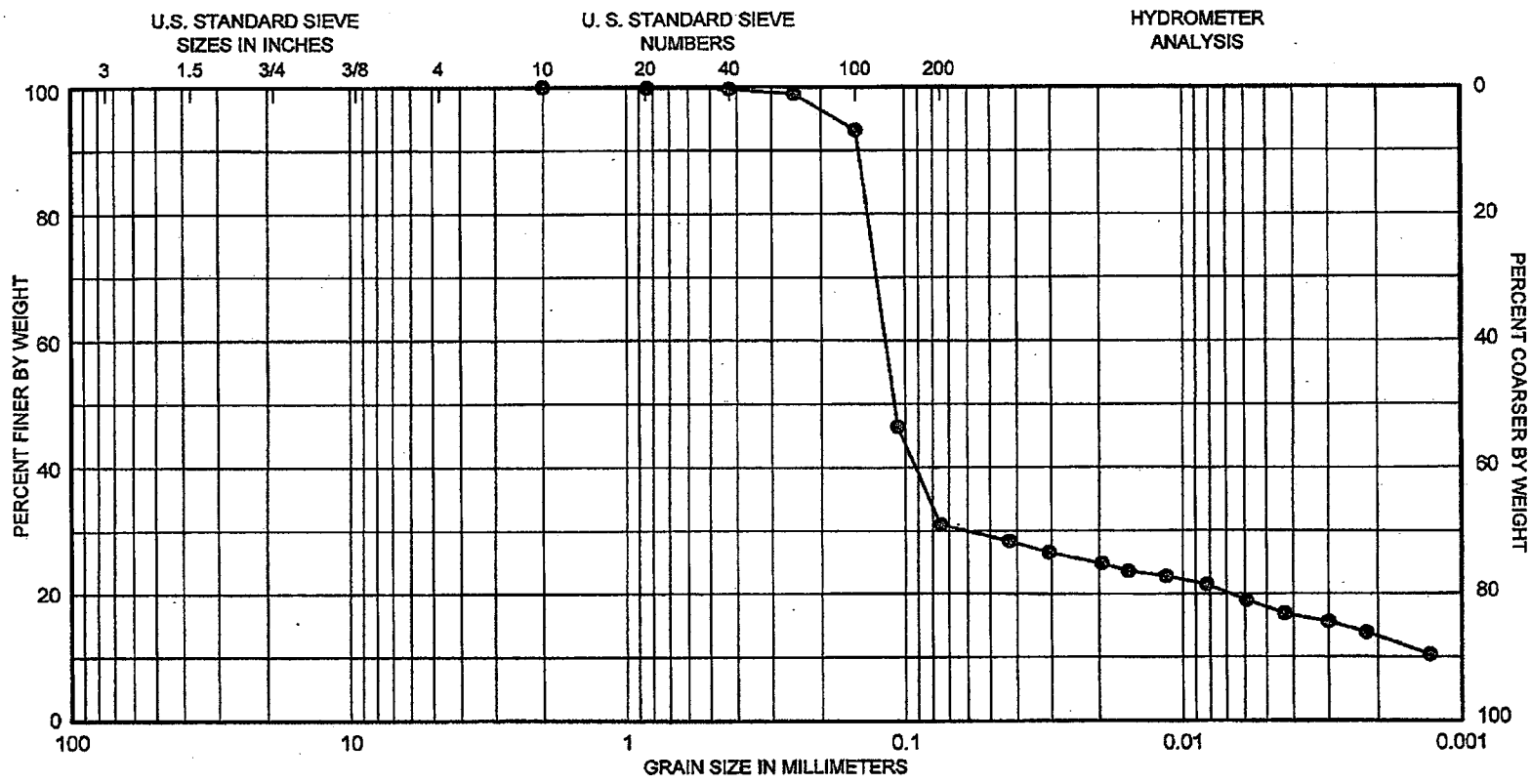
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-16 **Depth:** 37.5'-39.0'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** M4 9-18-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

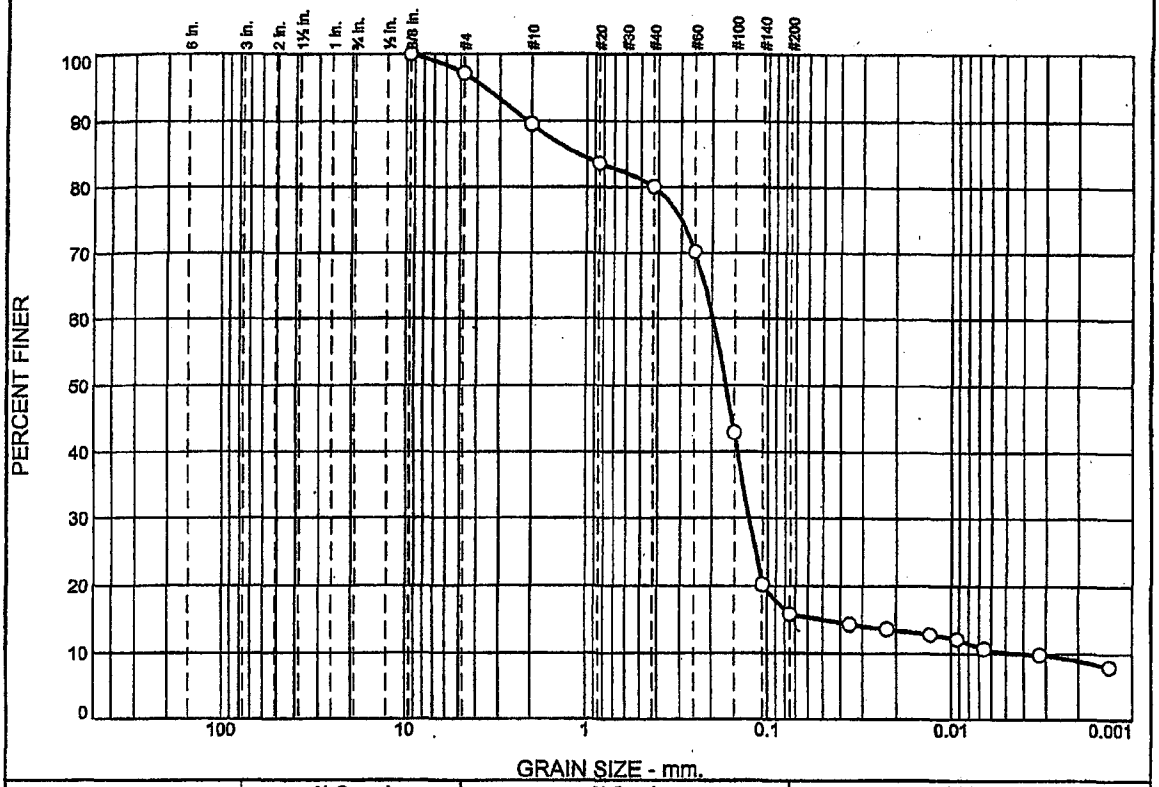
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-5	43.25	NA	NA	0.1088	0.15	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	7.6	9.5	64.2	5.7	10.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	97.1		
#10	89.5		
#20	83.6		
#40	80.0		
#60	70.2		
#100	42.8		
#140	20.2		
#200	15.8		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.1033 D_{60}= 0.1976 D_{50}= 0.1666
D_{30}= 0.1259 D_{15}= 0.0510 D_{10}= 0.0047
C_u= 42.24 C_c= 17.13

Classification

USCS= SM AASHTO= A-2-4(0)

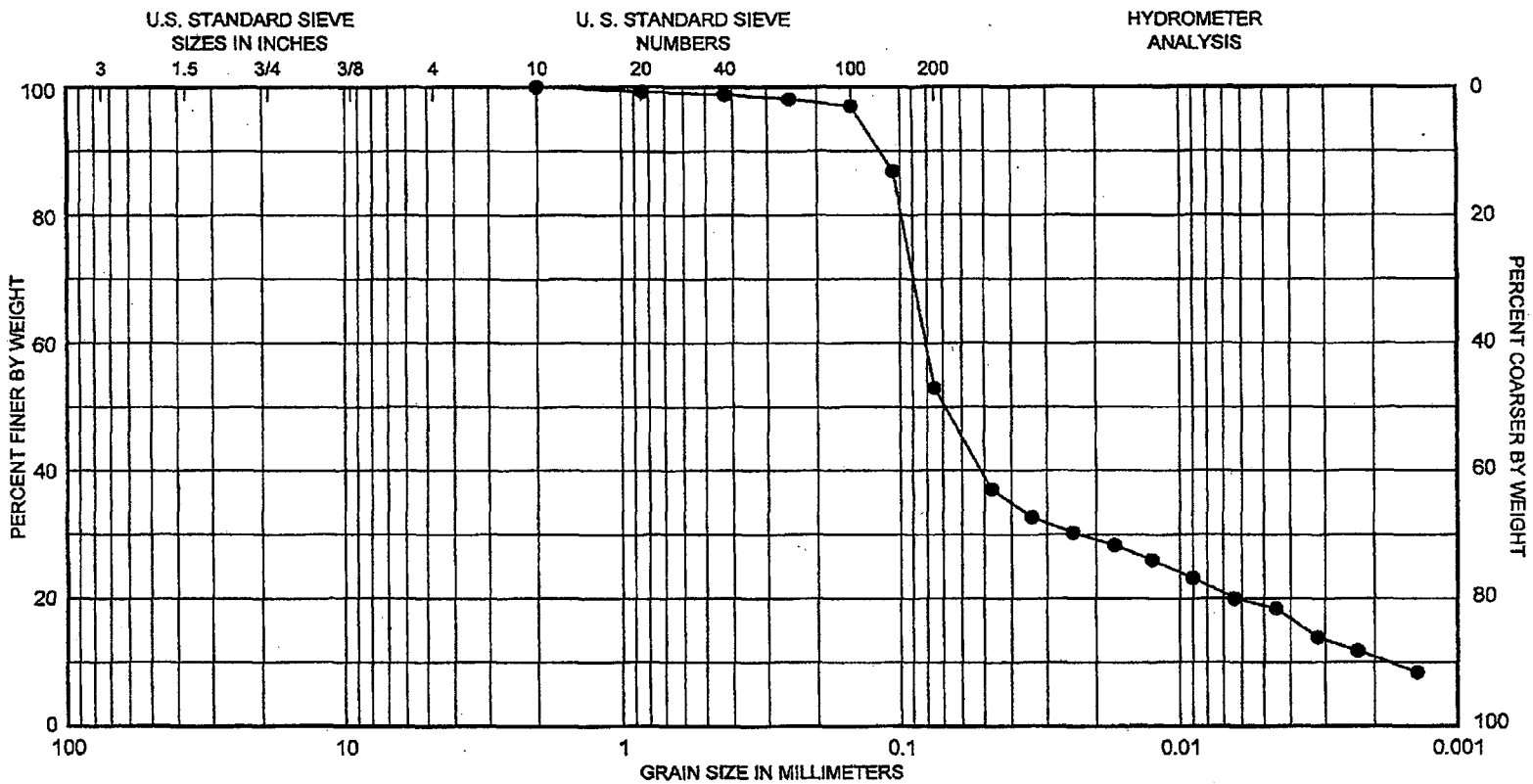
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-21 **Depth:** 50.0'-51.5'
Location: B-774 **Date:** 8-21-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-18-09

Tested By: DK **Checked By:** JA



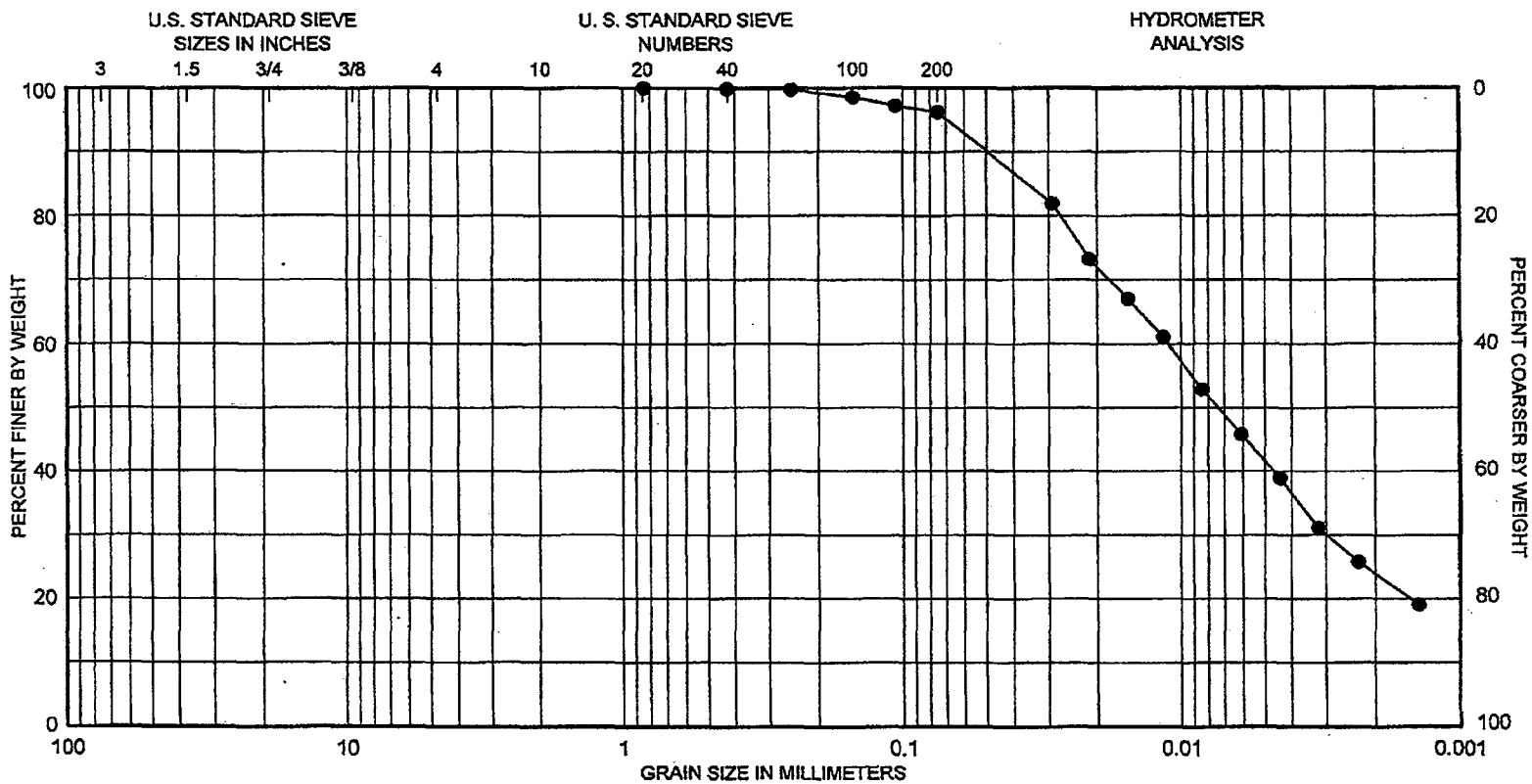
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-6	53.2	3.71	45.58	0.0688	0.12	Clay, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



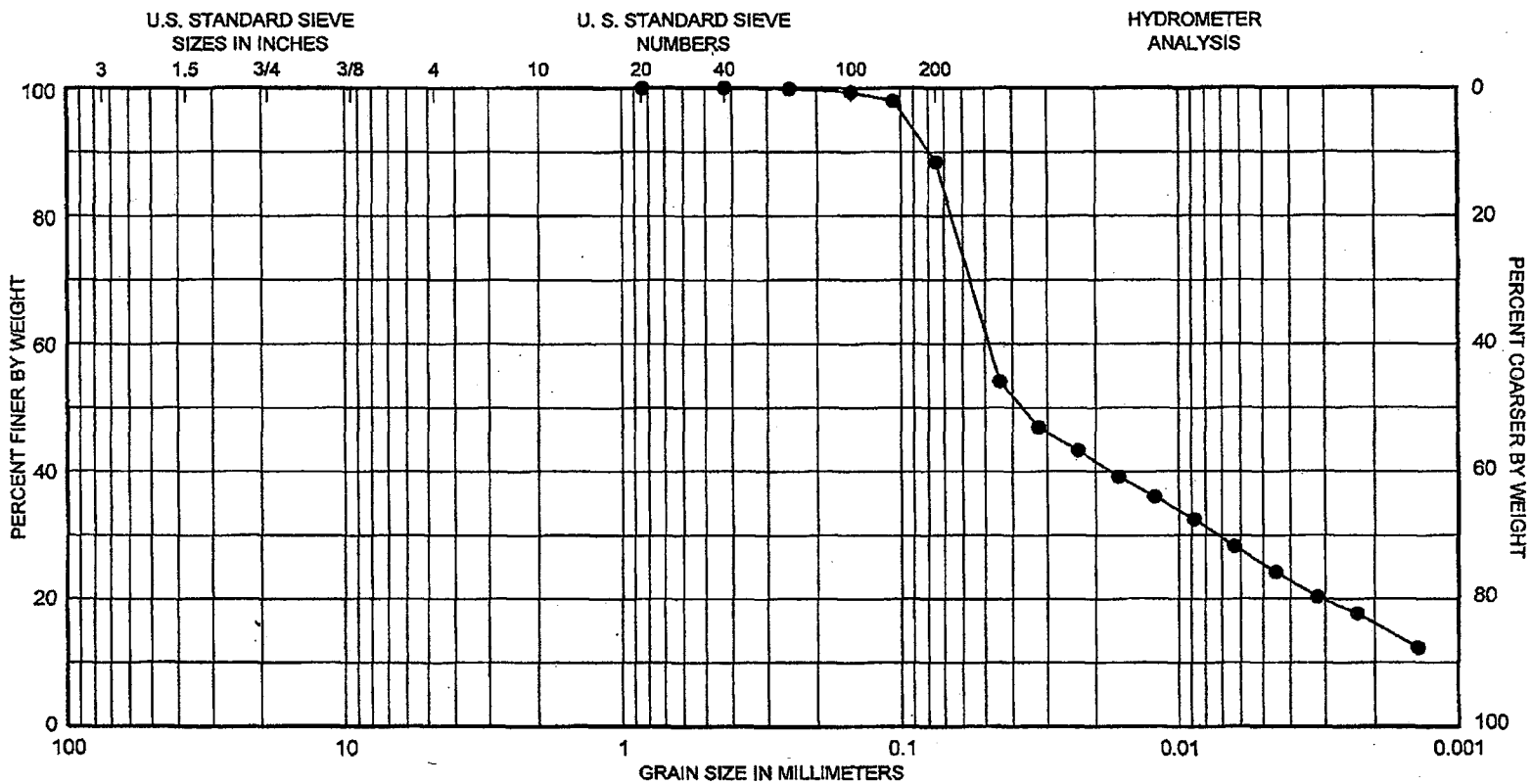
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-7	83.2			0.0074	0.05	Clay, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



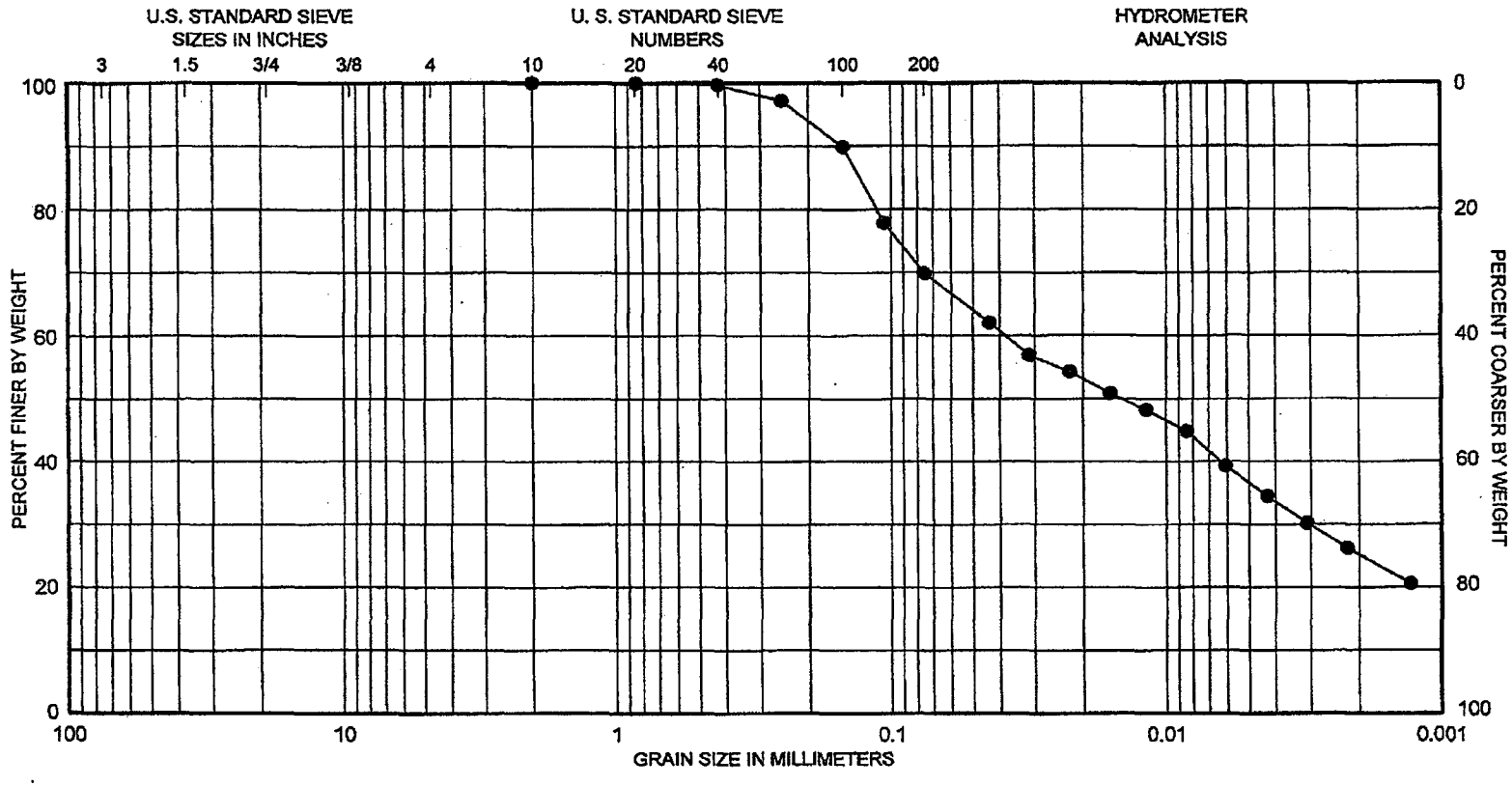
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-8	102.7	NA	NA	0.0369	0.08	Fat Clay, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



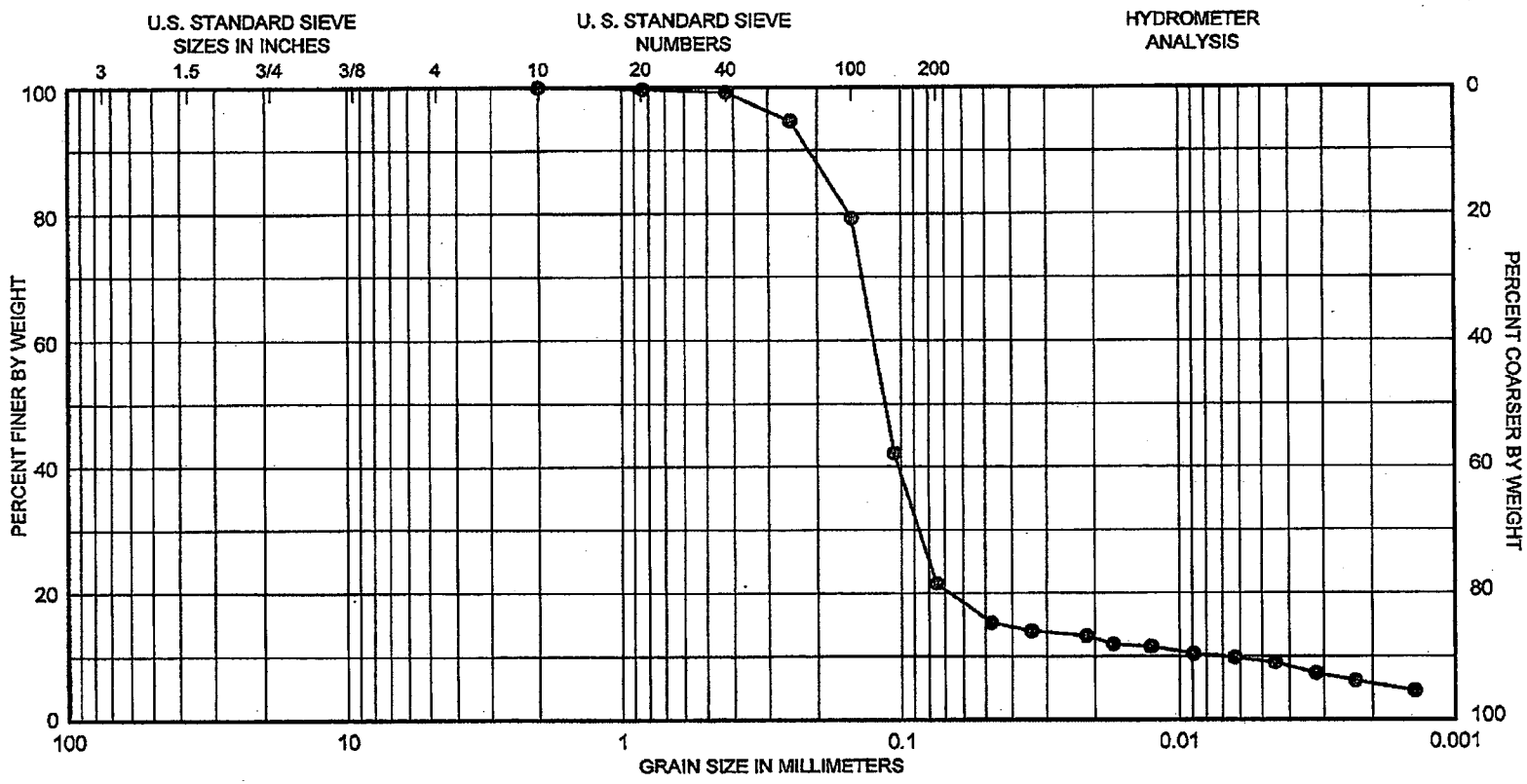
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-9	113.5	NA	NA	0.0146	0.15	Fat Clay, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-03



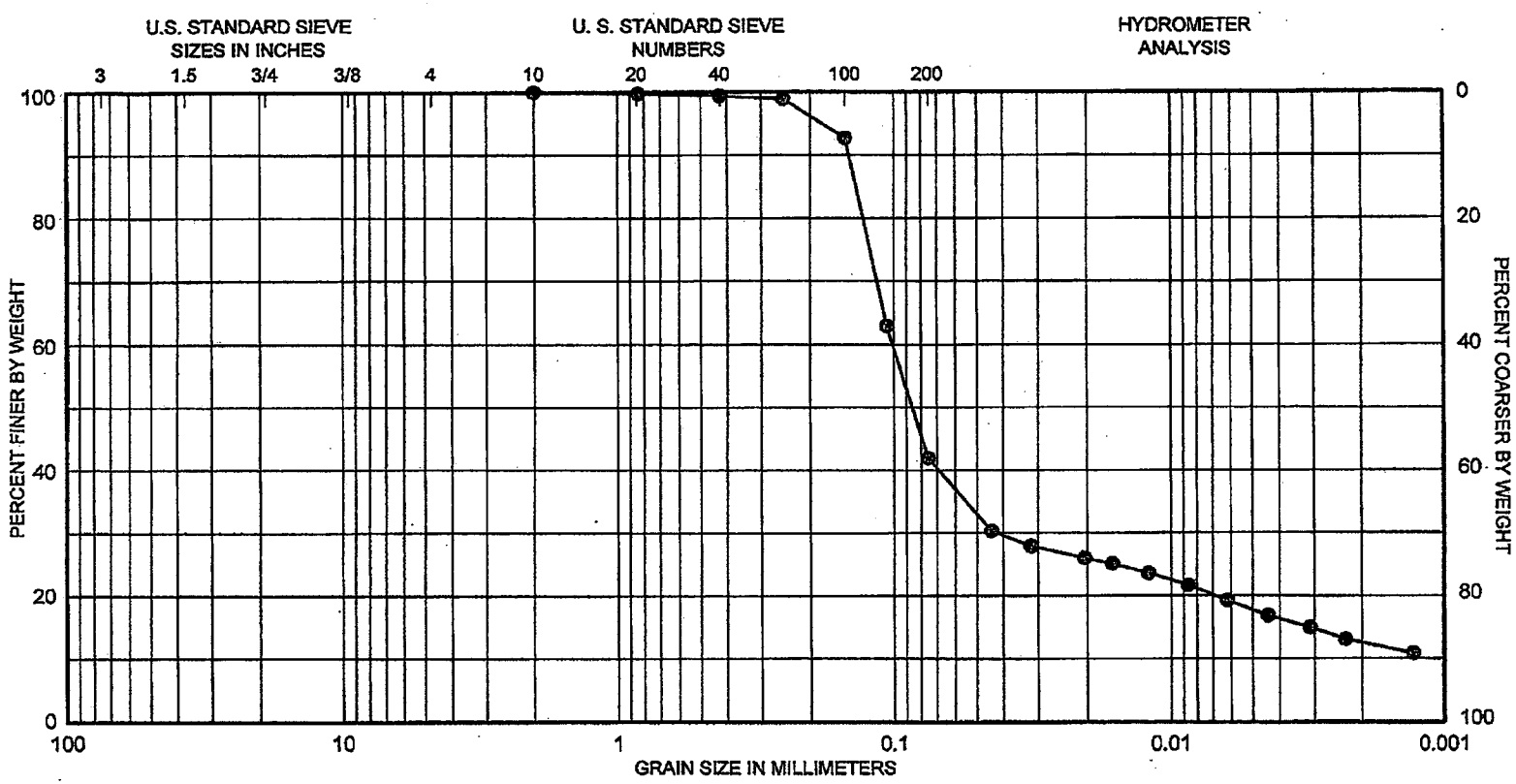
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-10	123.2	8.44	17.72	0.1141	0.21	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-1-03



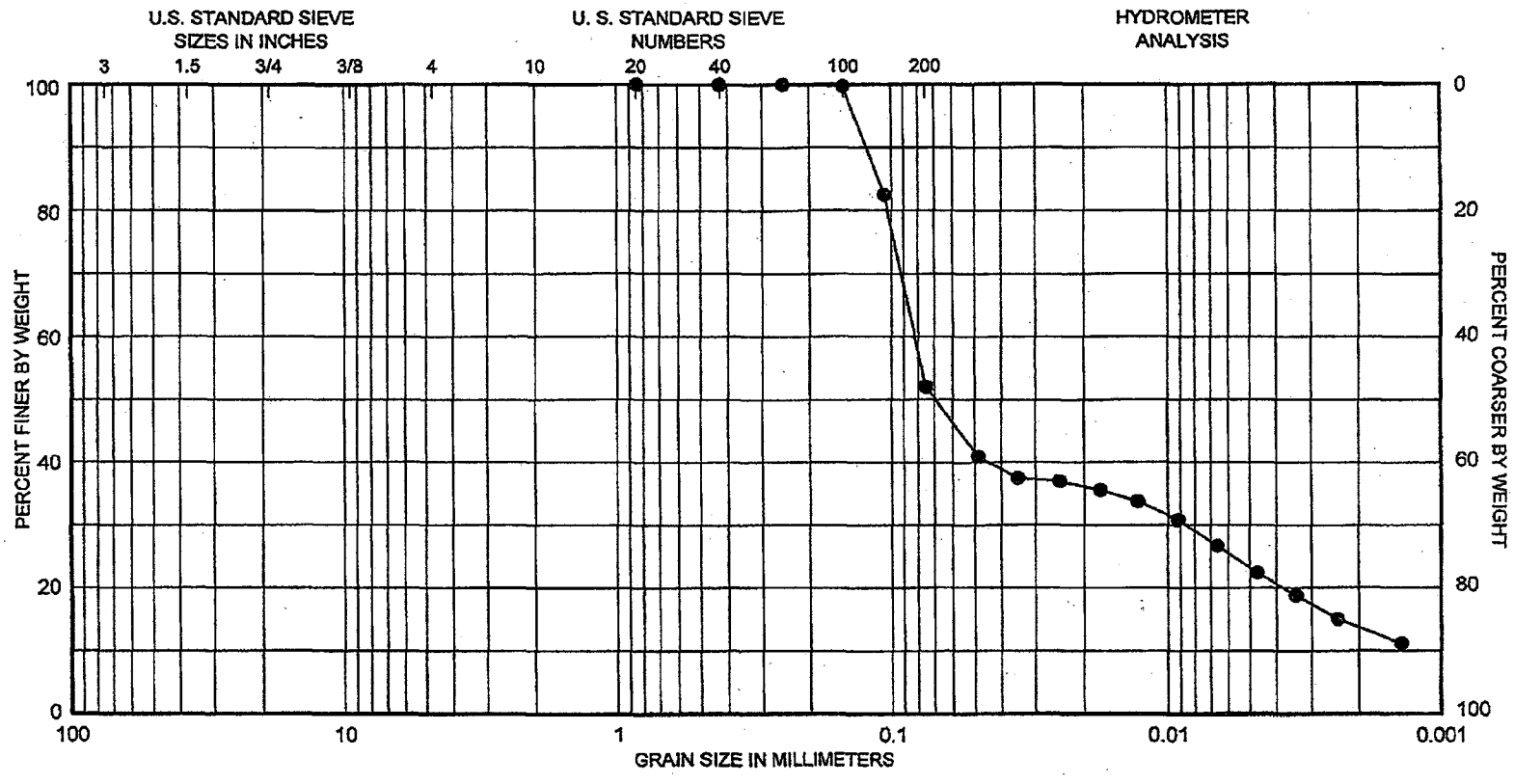
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-11	133.5	NA	NA	0.0856	0.15	Clayey Sand, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

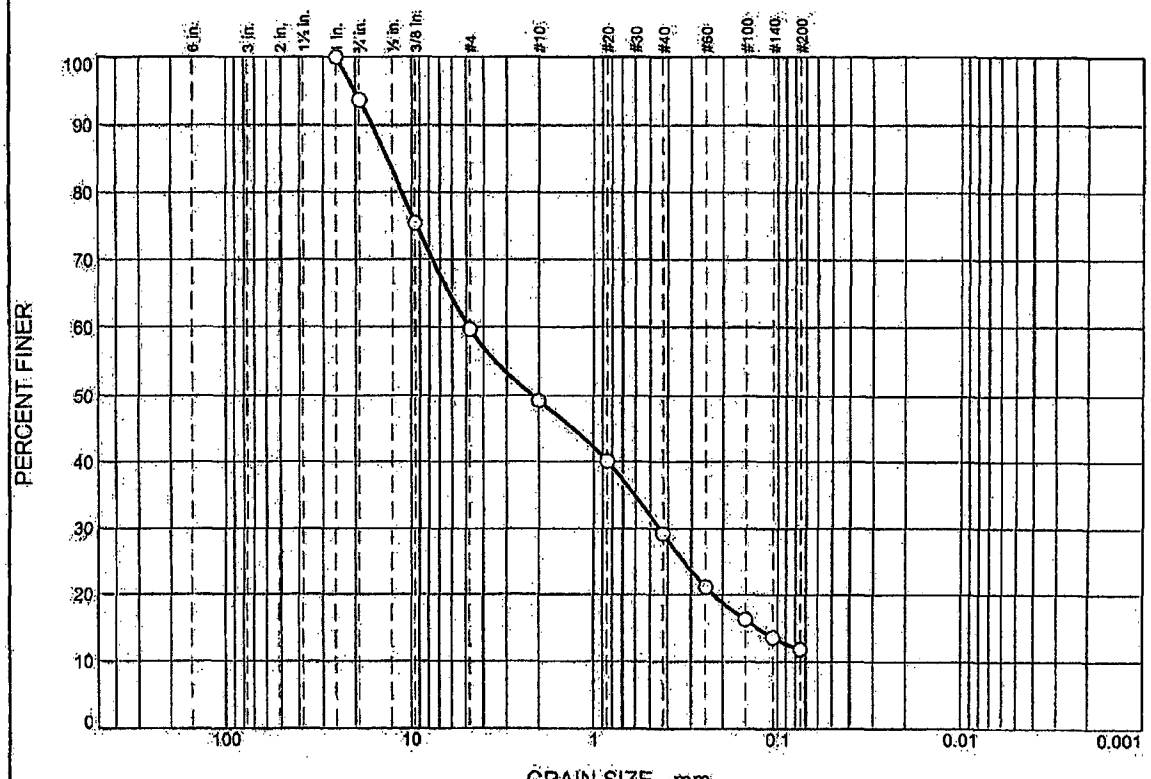
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-774-UD-12	143.2	NA	NA	0.0693	0.12	Clay, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.3	34.0	10.4	20.1	17.4	11.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	93.7		
3/8in.	75.4		
#4	59.7		
#10	49.3		
#20	40.1		
#40	29.2		
#60	21.1		
#100	16.1		
#140	13.5		
#200	11.8		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 13.5469 D_{60}= 4.8323 D_{50}= 2.1565
D_{30}= 0.4464 D_{15}= 0.1306 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

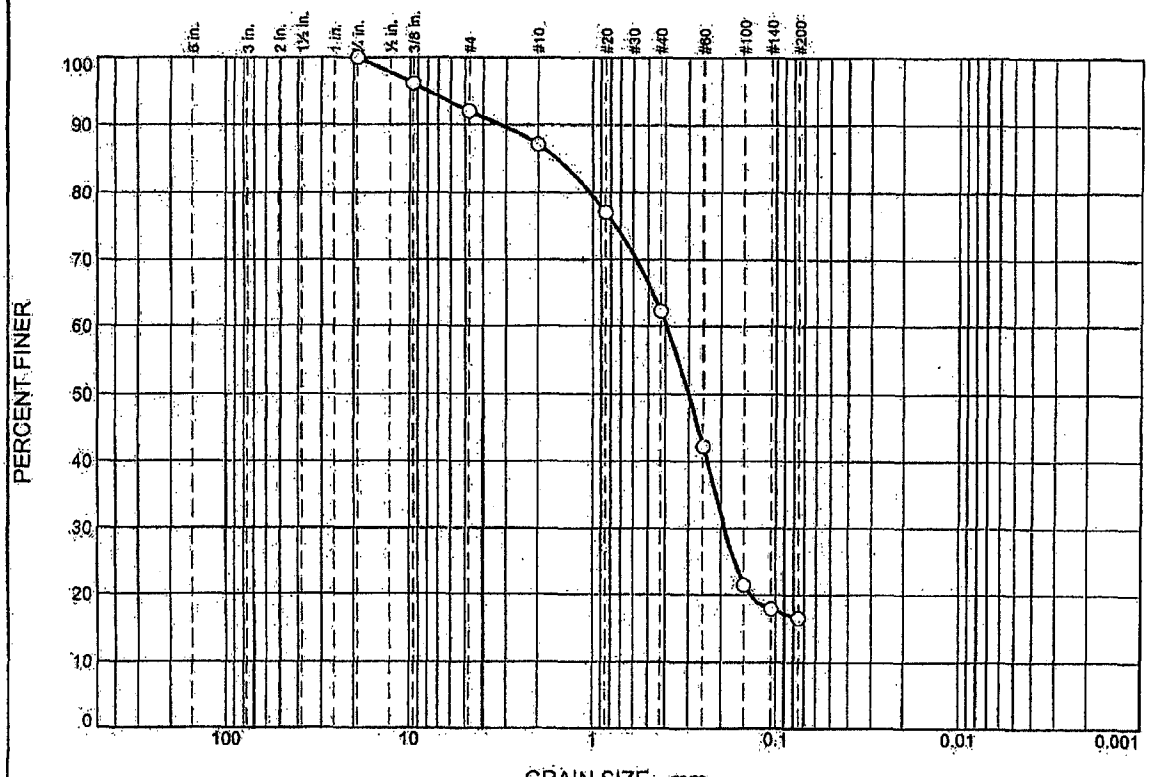
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	Client: Bechtel Power Corporation Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	Project No: 6234-08-4783 Figure MA 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.1	4.7	25.0	45.7	16.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	96.1		
#4	91.9		
#10	87.2		
#20	77.1		
#40	62.2		
#60	42.2		
#100	21.4		
#140	17.8		
#200	16.5		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.5708 D_{60}= 0.3952 D_{50}= 0.2998
D_{30}= 0.1918 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

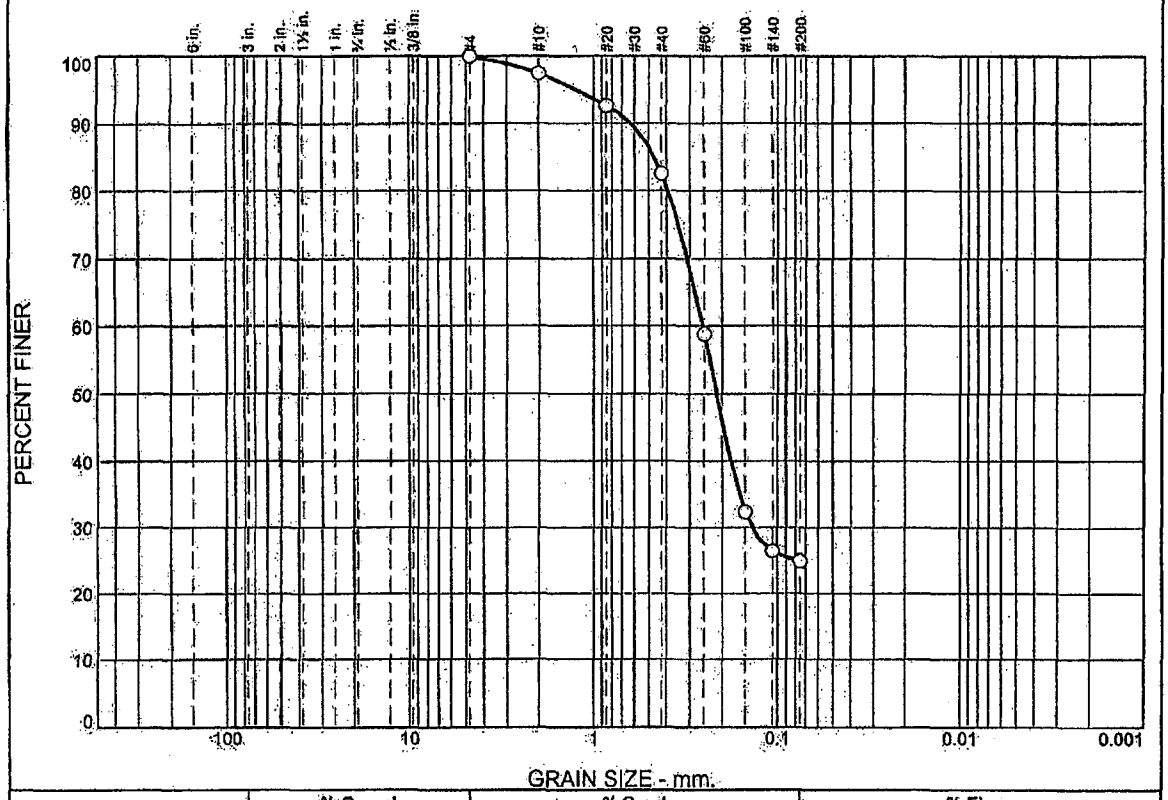
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0'-6.5'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.6	14.8	57.7	24.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.4		
#20	92.5		
#40	82.6		
#60	58.8		
#100	32.4		
#140	26.4		
#200	24.9		

* (no specification provided)

Material Description

Sand with some Silt and Clay.

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4642 D_{60}= 0.2554 D_{50}= 0.2149
D_{30}= 0.1378 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

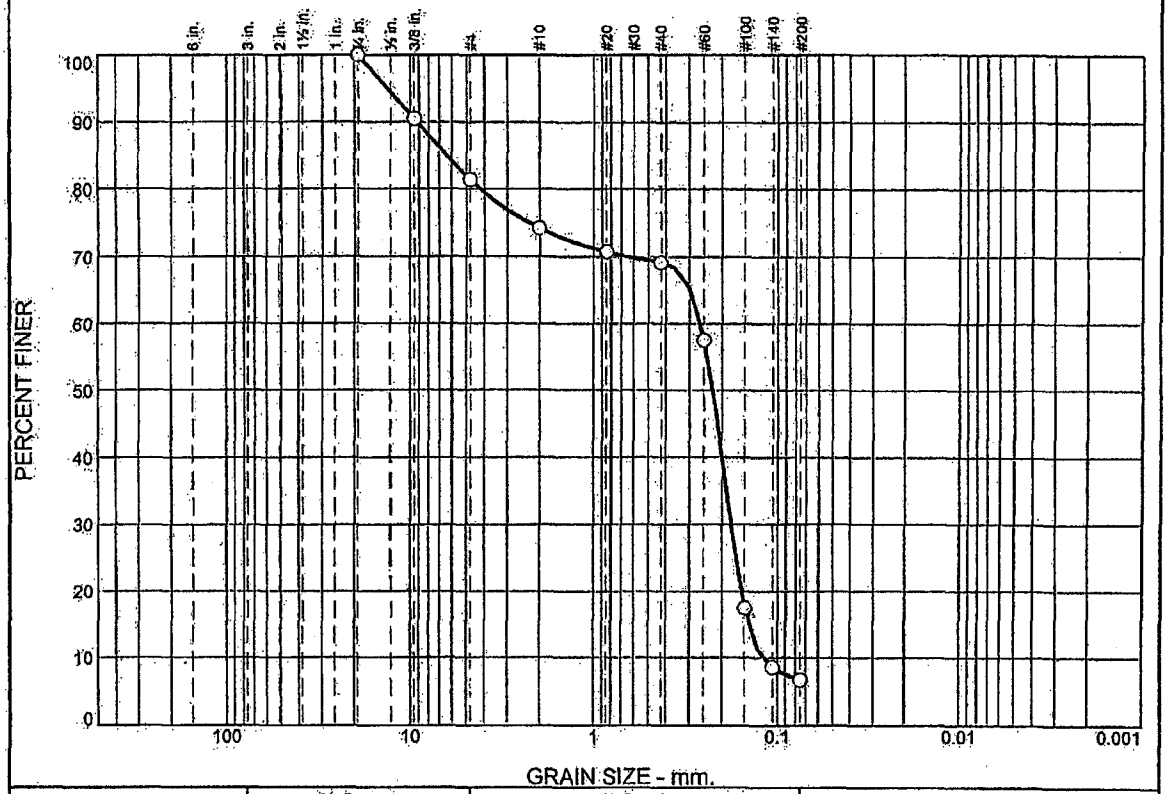
ASTM D6913-04

Sample Number: S-4 **Depth:** 7.5'-9.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	18.7	7.0	5.2	62.4	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	90.5		
#4	81.3		
#10	74.3		
#20	70.8		
#40	69.1		
#60	57.6		
#100	17.5		
#140	8.5		
#200	6.7		

* (no specification provided)

Material Description

Sand with Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 6.3900 D_{60}= 0.2610 D_{50}= 0.2249
D_{30}= 0.1784 D_{15}= 0.1428 D_{10}= 0.1201
C_u= 2.17 C_c= 1.02

Classification

USCS= NR AASHTO= NR

Remarks

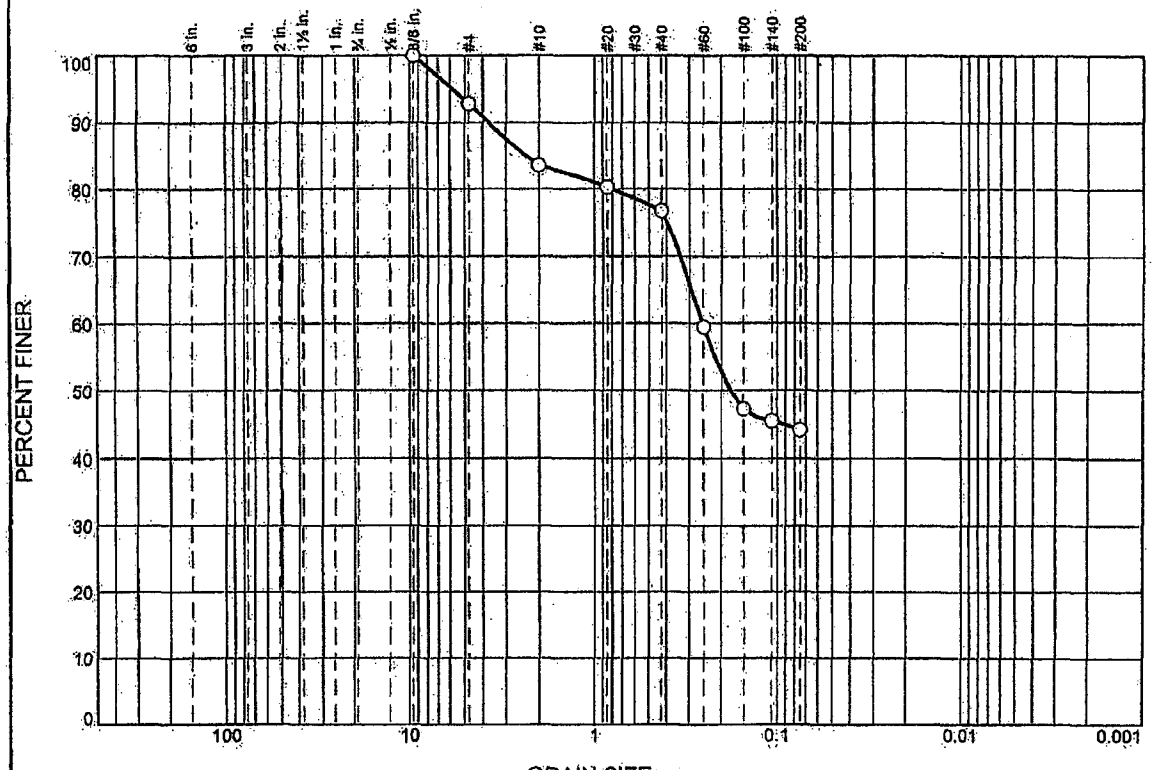
ASTM D6913-04

Sample Number: S-6 **Depth:** 12.5'-14.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.2	9.3	6.7	32.6	44.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	92.8		
#10	83.5		
#20	80.3		
#40	76.8		
#60	59.5		
#100	47.3		
#140	45.5		
#200	44.2		

* (no specification provided)

Material Description

Silty Clayey Sand with Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.3477 D_{60}= 0.2536 D_{50}= 0.1779
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

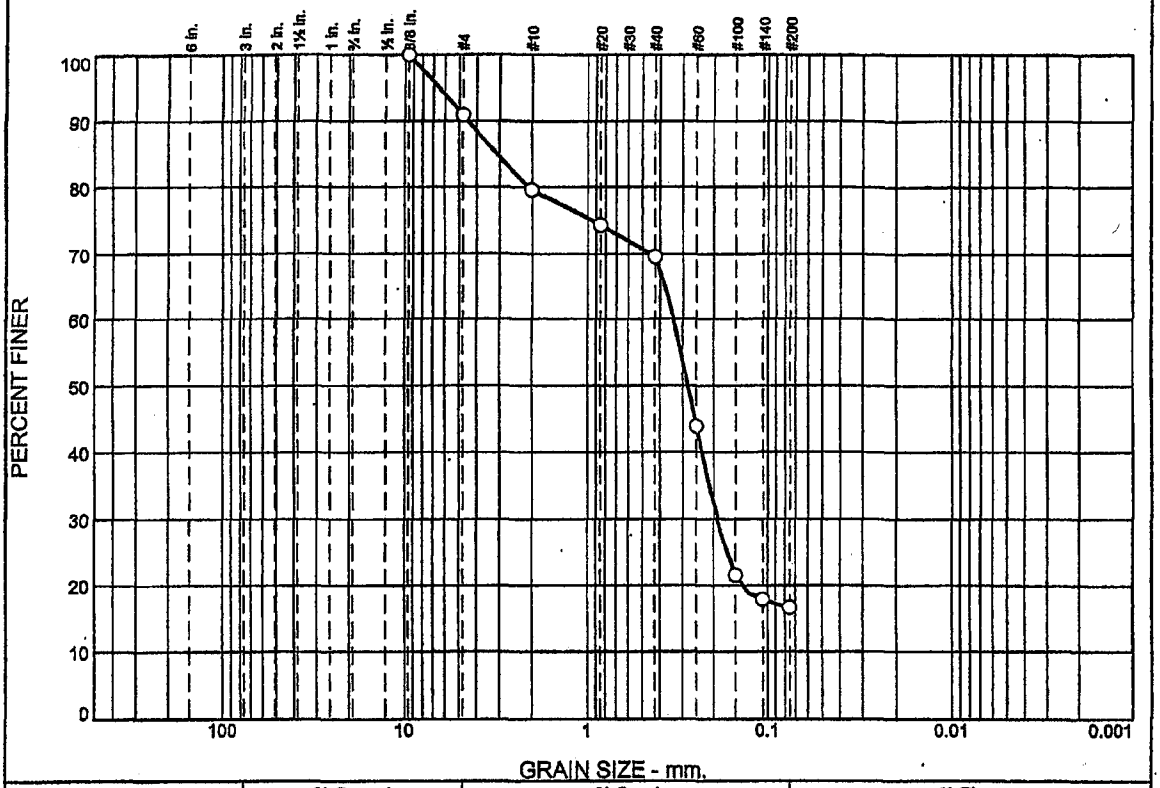
ASTM D6913-04

Sample Number: S-7 **Depth:** 15.0'-16.5'
Location: B-775 **Date:** 8-22-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MM 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.1	11.4	9.9	52.9	16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	90.9		
#10	79.5		
#20	74.3		
#40	69.6		
#60	43.9		
#100	21.6		
#140	17.9		
#200	16.7		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 17 LL= 27 PI= 10

Coefficients

D_{85}= 3.0904 D_{60}= 0.3364 D_{50}= 0.2790
D_{30}= 0.1909 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

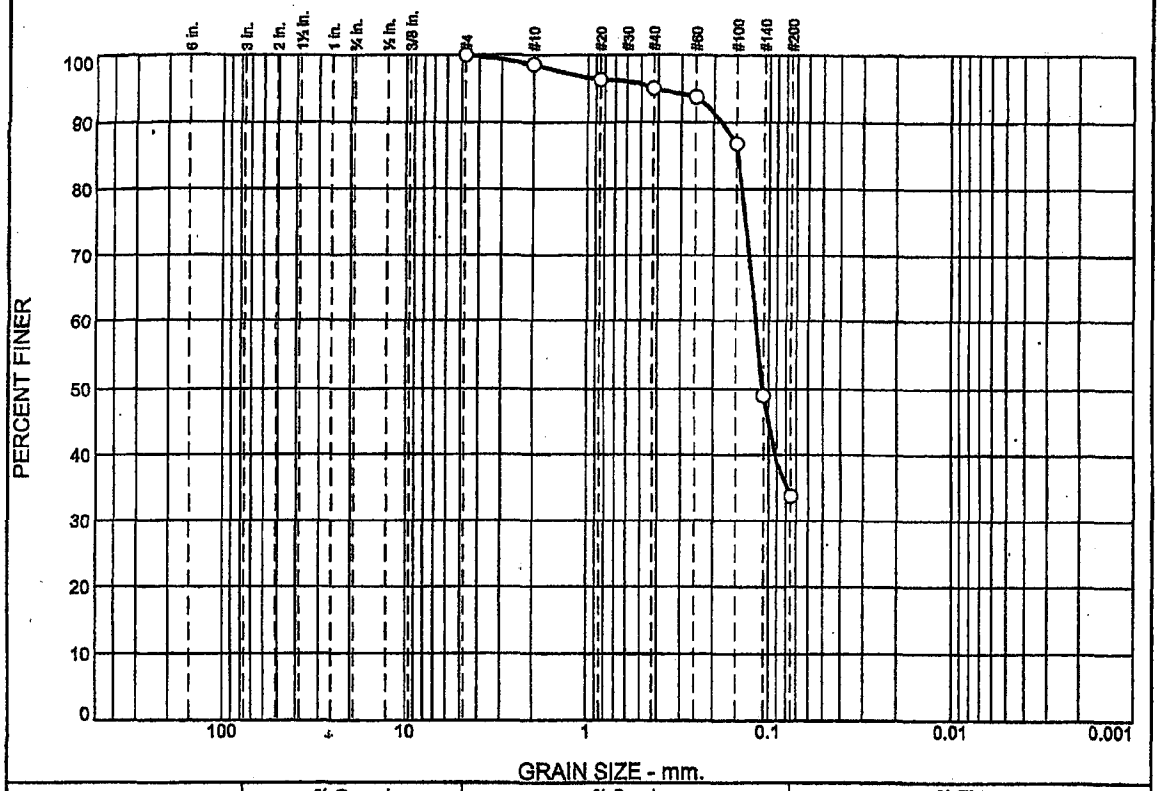
ASTM D6913-04
ASTM D4318-05

Sample Number: S-8 **Depth:** 17.5'-19.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-16-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.4	3.6	61.2	33.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.6		
#20	96.4		
#40	95.0		
#60	93.8		
#100	86.9		
#140	49.0		
#200	33.8		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 23 LL= 34 PI= 11

Coefficients

D_{85}= 0.1467 D_{60}= 0.1177 D_{50}= 0.1072
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-6(0)

Remarks

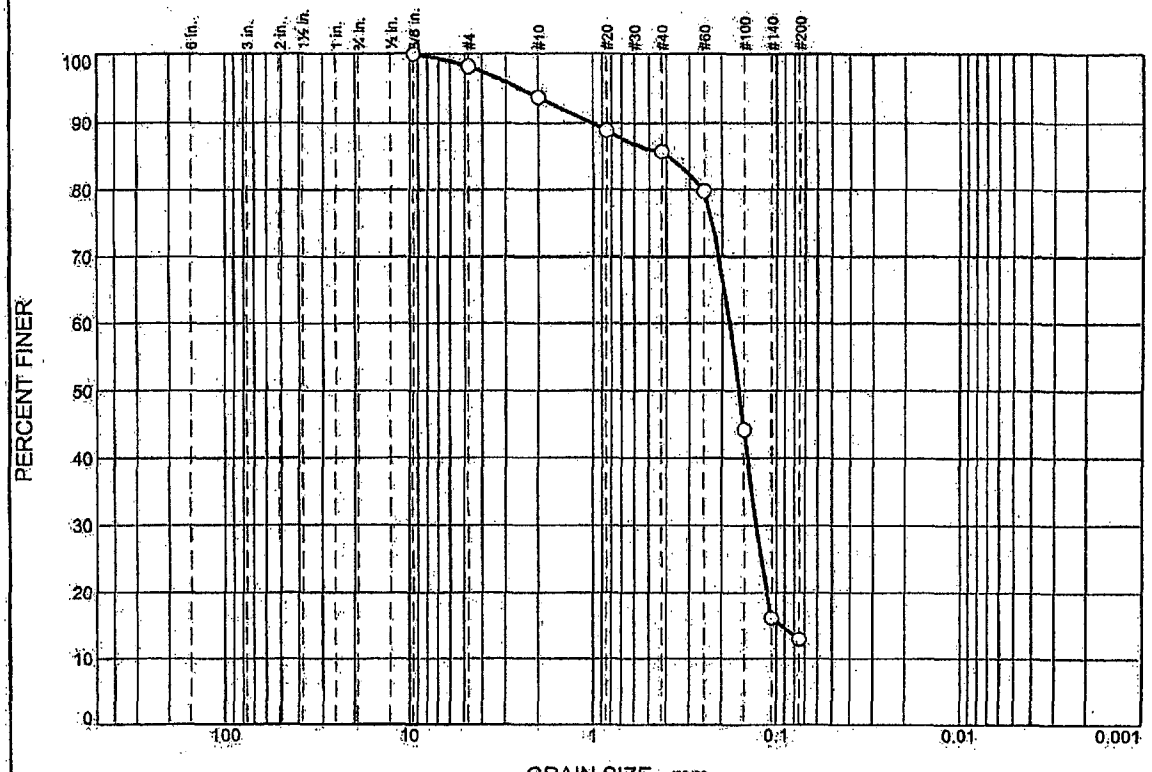
ASTM D6913-04
ASTM D4318-05

Sample Number: S-12 **Depth:** 27.5'-29.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-02-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	4.4	8.1	72.8	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.2		
#10	93.8		
#20	88.9		
#40	85.7		
#60	79.8		
#100	44.2		
#140	16.1		
#200	12.9		

* (no specification provided)

Material Description

Sand with Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3909 D_{60}= 0.1800 D_{50}= 0.1599
D_{30}= 0.1288 D_{15}= 0.0941 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

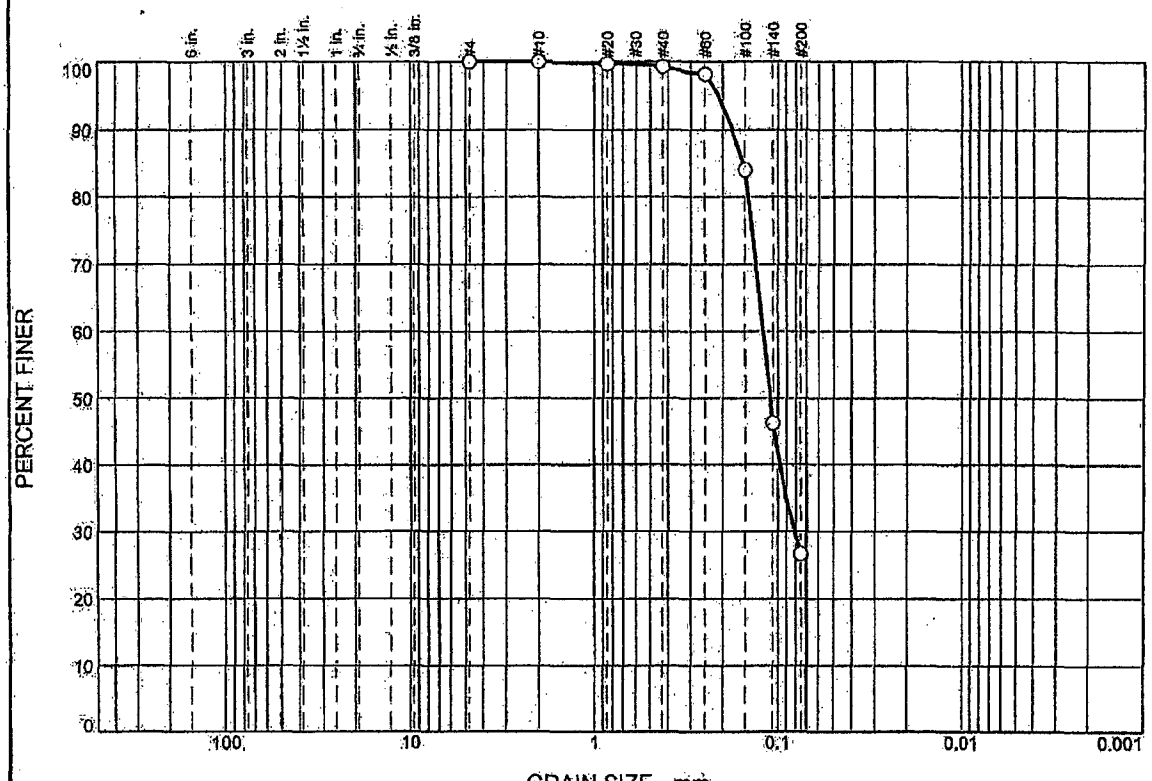
ASTM D6913-04

Sample Number: S-14 **Depth:** 32.5'-34.0'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.7	72.6	26.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.2		
#60	98.1		
#100	84.0		
#140	46.3		
#200	26.6		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1537 D_{60}= 0.1204 D_{50}= 0.1101
D_{30}= 0.0817 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

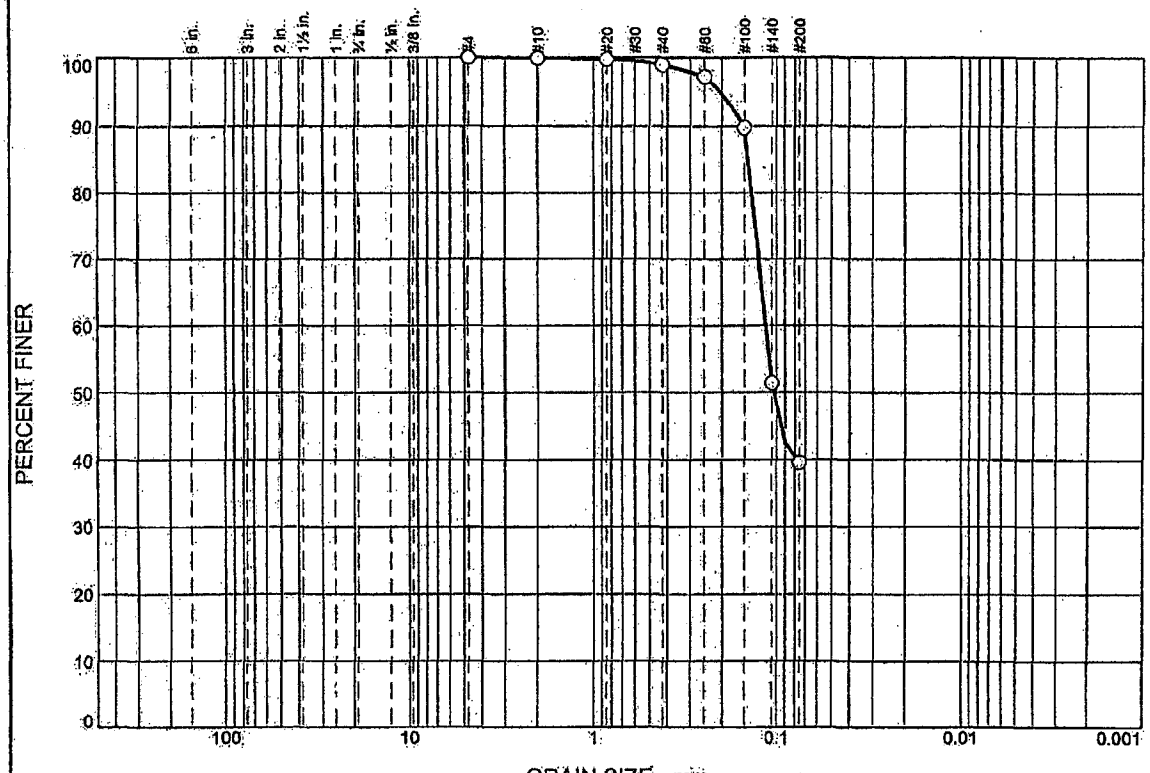
ASTM D6913-04

Sample Number: S-16 **Depth:** 37.5'-39.0'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** ~~NA~~ 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	59.3	39.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.9		
#60	97.1		
#100	89.7		
#140	51.4		
#200	39.6		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1426 D_{60}= 0.1154 D_{50}= 0.1042
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

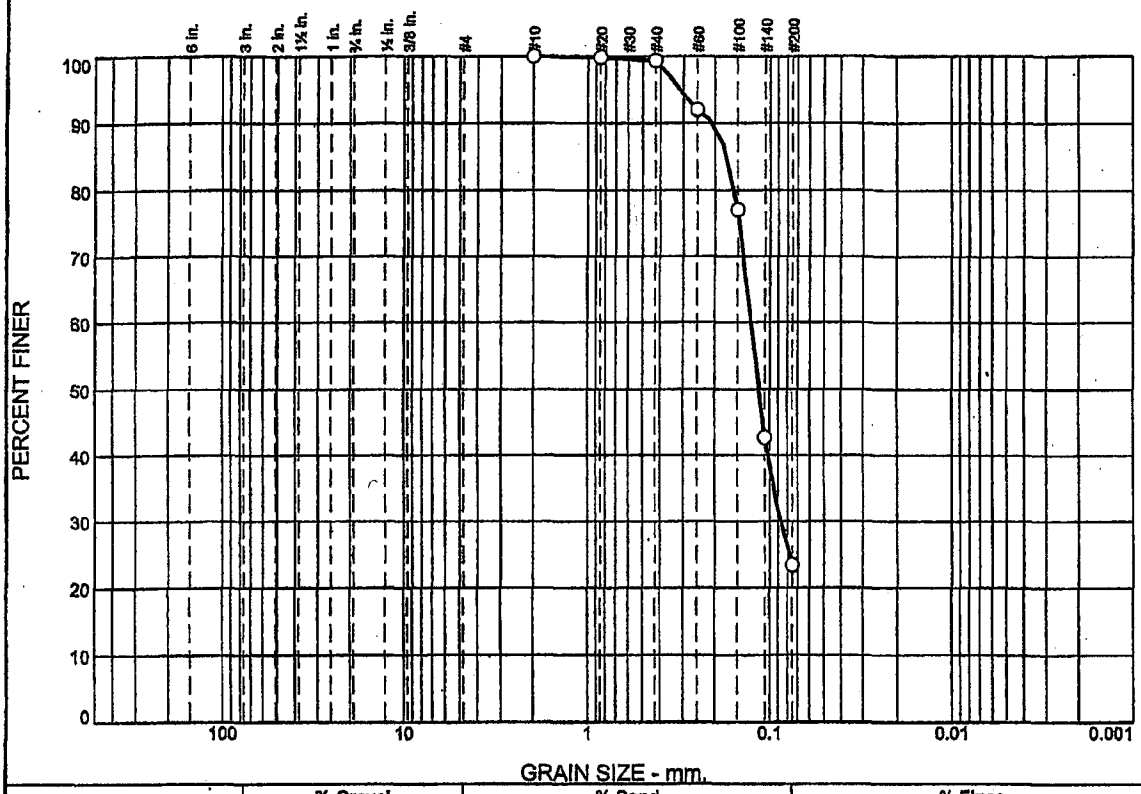
ASTM D6913-04

Sample Number: S-18 **Depth:** 42.5'-44.0'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	76.0	23.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	92.0		
#100	77.1		
#140	42.6		
#200	23.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 25 LL= 42 PI= 17

Coefficients

D_{85}= 0.1711 D_{60}= 0.1259 D_{50}= 0.1146
D_{30}= 0.0874 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-7(1)

Remarks

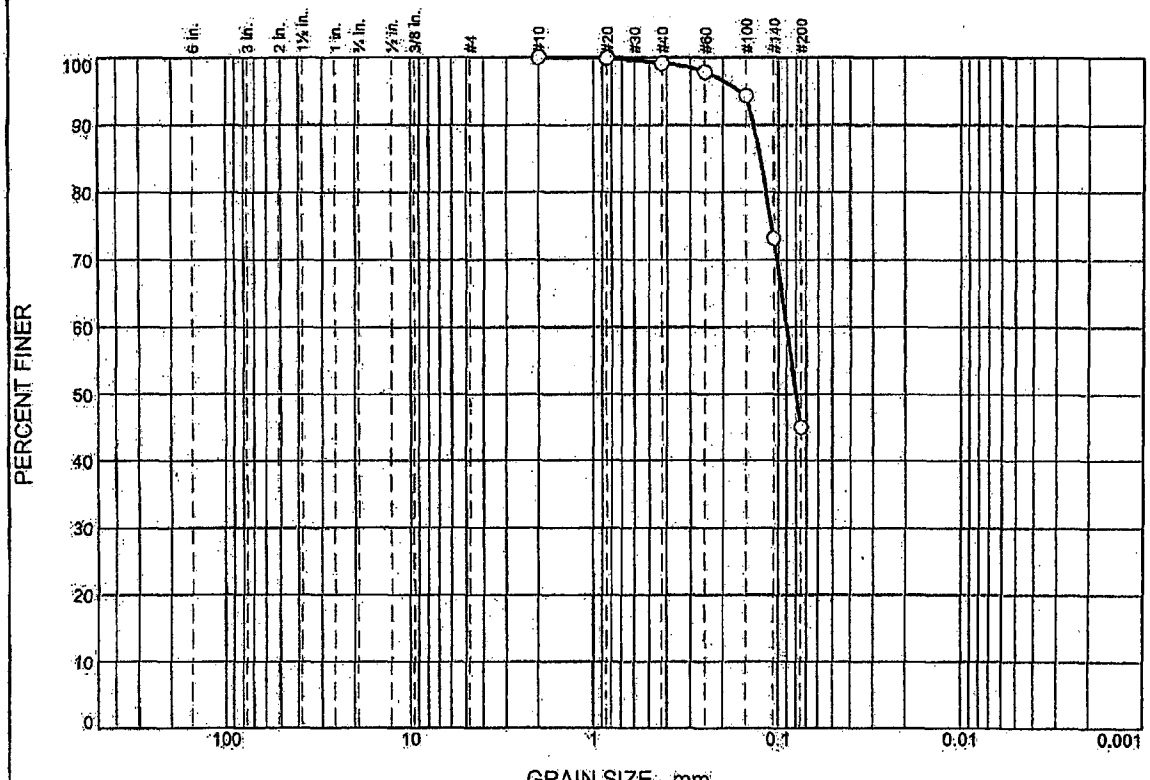
ASTM D6913-04
ASTM D4318-05

Sample Number: S-21 **Depth:** 50.0'-51.5'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-12.08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	54.1	45.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.1		
#60	97.9		
#100	94.4		
#140	73.2		
#200	45.0		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1250 D_{60}= 0.0898 D_{50}= 0.0796
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

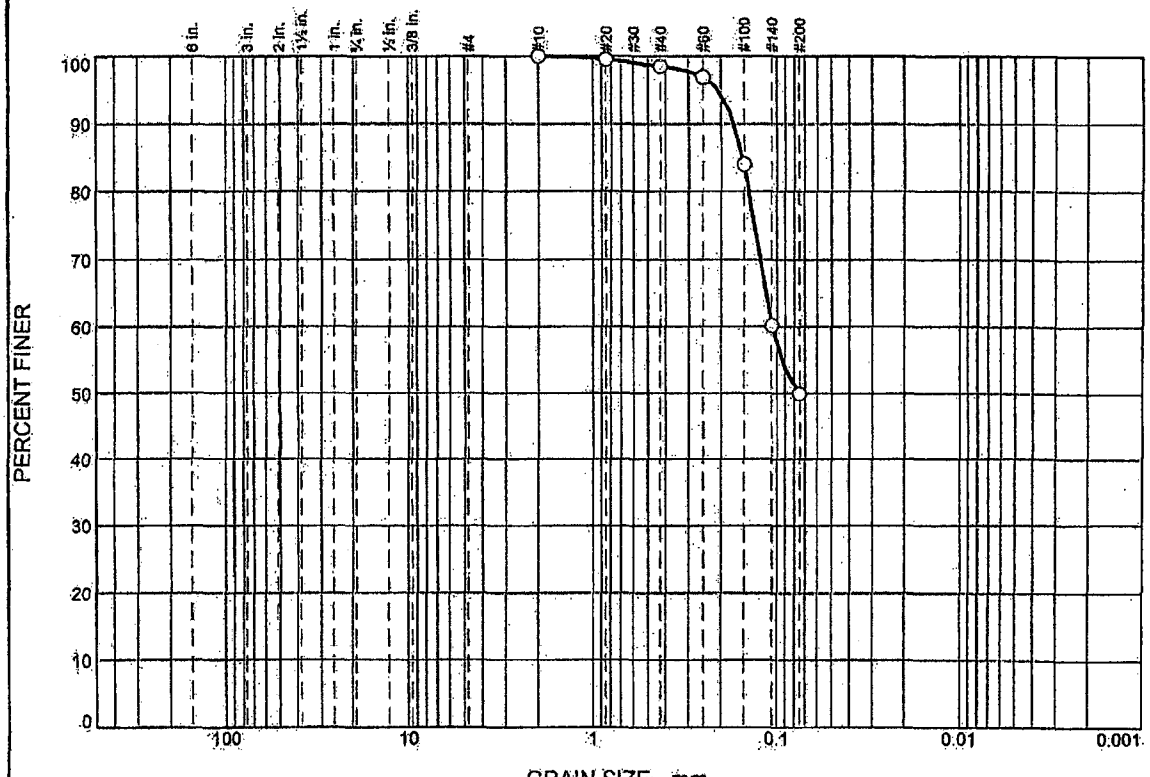
ASTM D6913-04

Sample Number: S-31 **Depth:** 75.0'-76.5'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** M 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.5	48.6	49.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.5		
#40	98.5		
#60	96.9		
#100	84.0		
#140	60.2		
#200	49.9		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1527 D_{60}= 0.1055 D_{50}= 0.0752
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

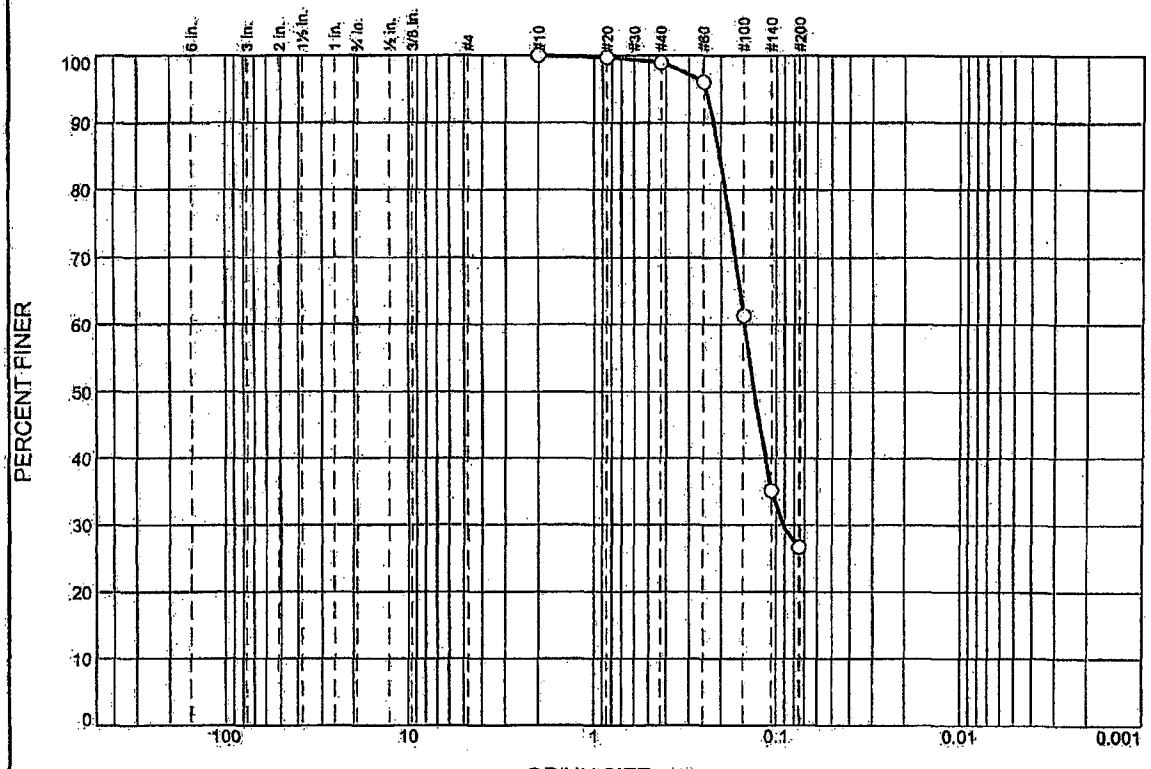
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA 9-30.03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	72.3	26.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	98.9		
#60	96.0		
#100	61.3		
#140	35.2		
#200	26.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2024 D_{60}= 0.1477 D_{50}= 0.1314
D_{30}= 0.0921 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

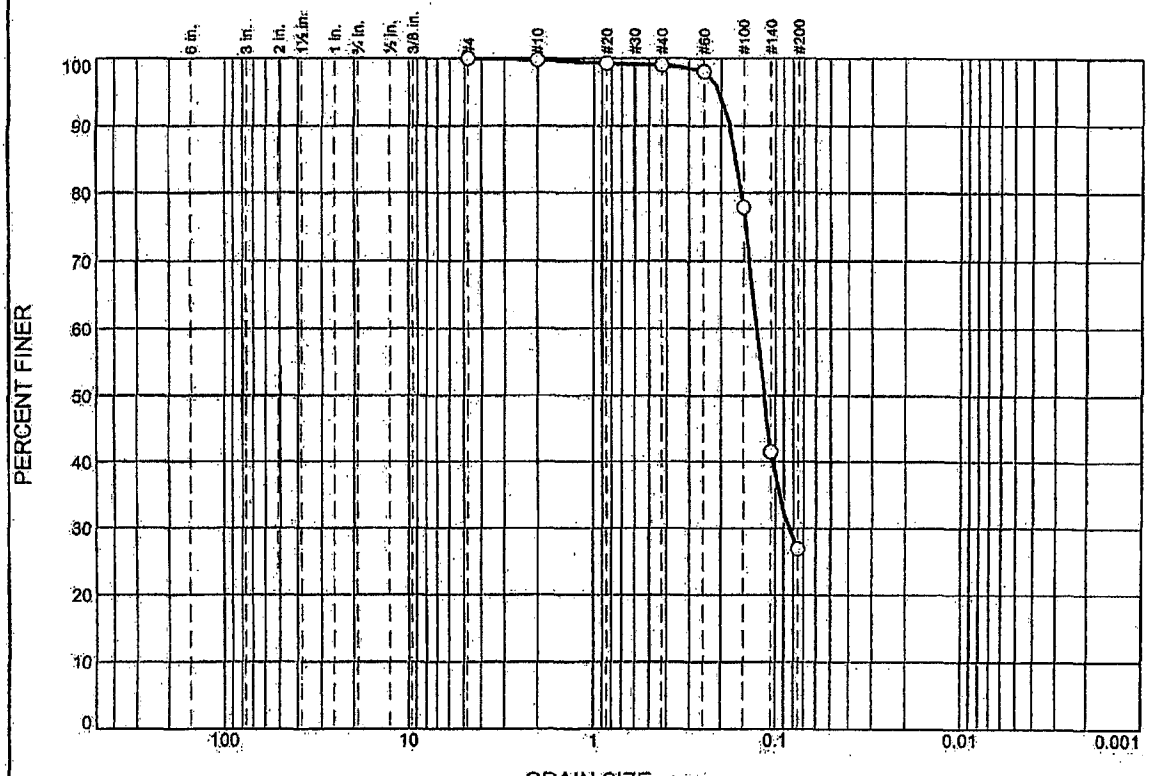
ASTM D6913-04

Sample Number: S-4 **Depth:** 8.5-10.0
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA- 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.8	72.1	26.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	99.2		
#40	99.0		
#60	98.1		
#100	77.9		
#140	41.5		
#200	26.9		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1641 D_{60}= 0.1269 D_{50}= 0.1159
D_{30}= 0.0849 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

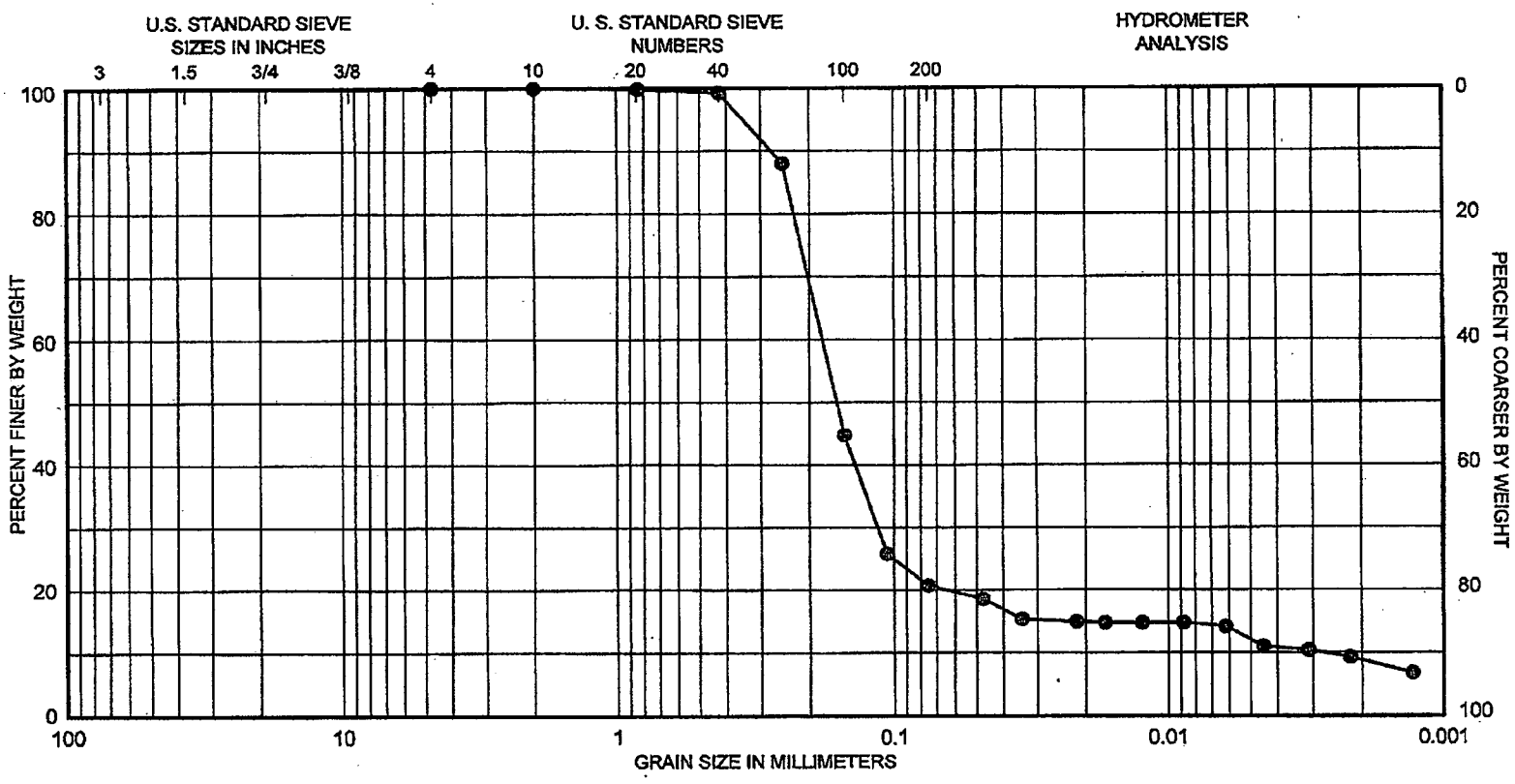
Remarks

ASTM D6913-04

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	Client: Bechtel Power Corporation Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	Project No: 6234-08-4783 Figure MA- 9-30-03

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

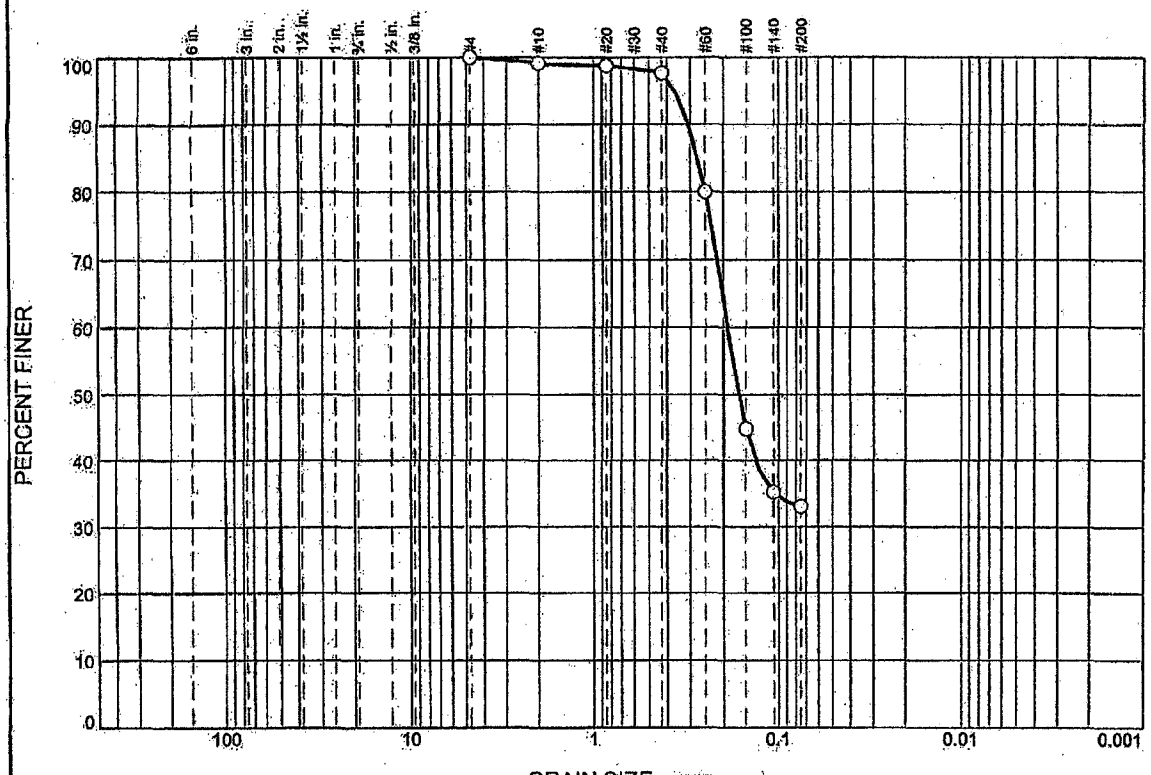
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-2	12.05	26.64	65.66	0.1596	0.28	Clayey Sand, tan and light gray, with silty sand pockets

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.9	1.5	64.6	33.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.1		
#20	98.7		
#40	97.6		
#60	80.0		
#100	44.8		
#140	35.2		
#200	33.0		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2738 D_{60}= 0.1893 D_{50}= 0.1642
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

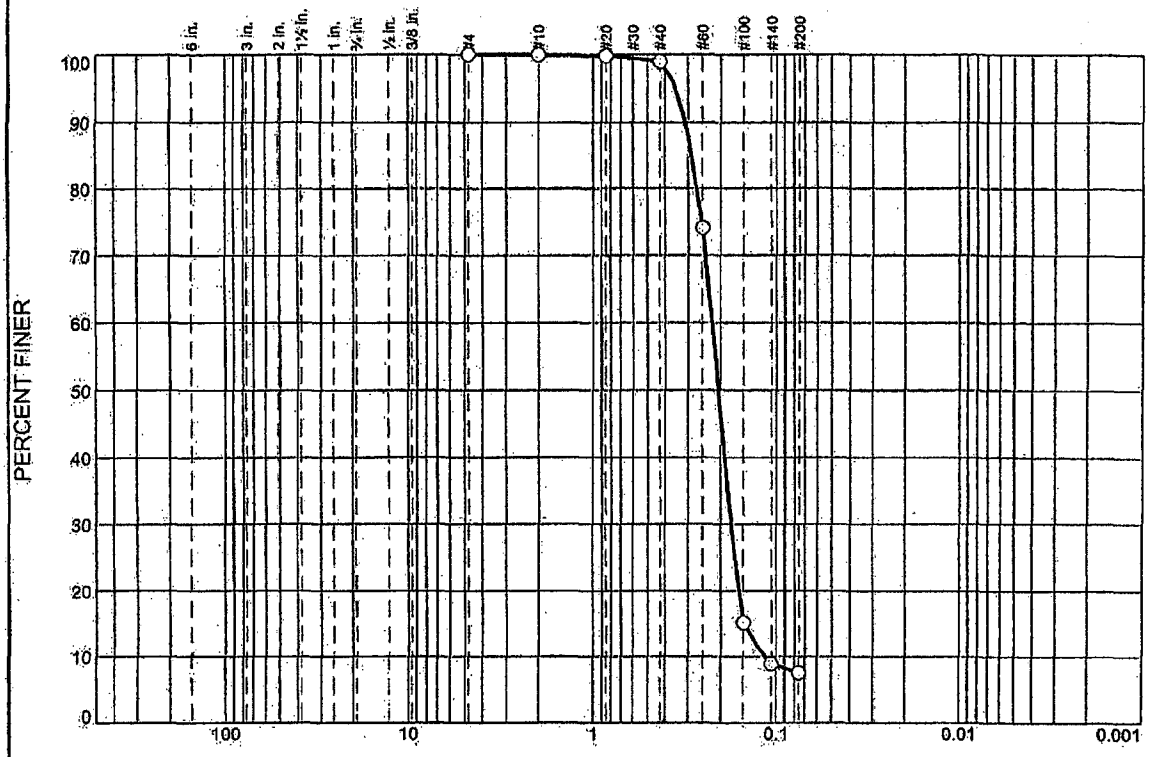
ASTM D6913-04

Sample Number: S-6 **Depth:** 13.5-15.0
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** NA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	91.5	7.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.0		
#60	74.0		
#100	15.1		
#140	8.9		
#200	7.5		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2841 D_{60}= 0.2218 D_{50}= 0.2055
D_{30}= 0.1757 D_{15}= 0.1495 D_{10}= 0.1158
C_u= 1.91 C_c= 1.20

Classification

USCS= NR AASHTO= NR

Remarks

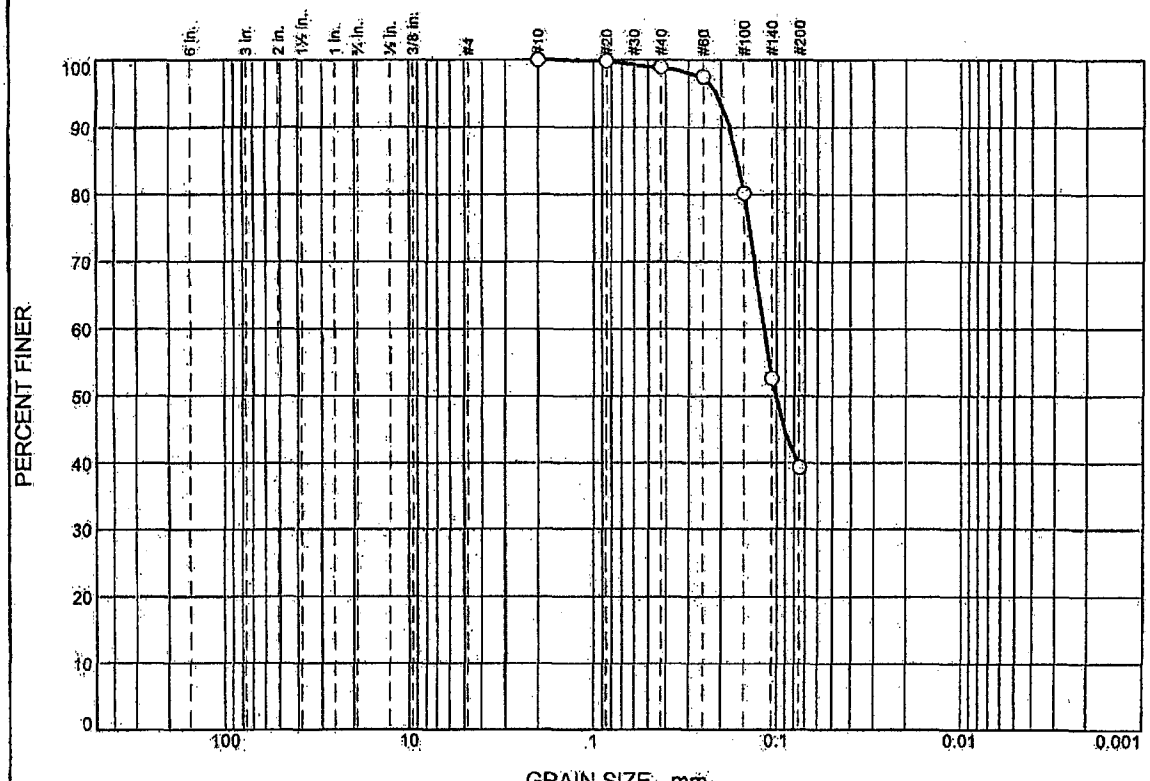
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	59.6	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	98.9		
#60	97.5		
#100	80.2		
#140	52.6		
#200	39.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1619 D_{60}= 0.1172 D_{50}= 0.1015
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

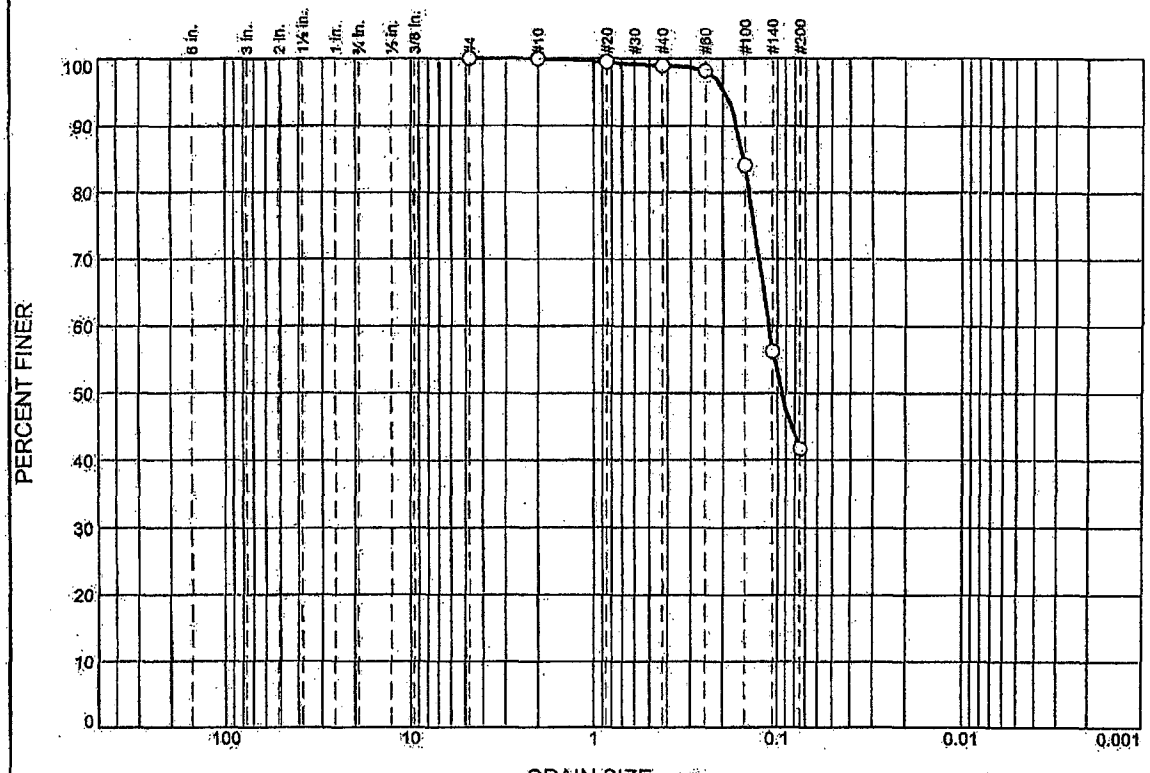
ASTM D6913-04.

Sample Number: S-8 **Depth:** 25.5-27.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA-9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	57.2	41.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.4		
#40	98.5		
#60	98.1		
#100	84.1		
#140	56.2		
#200	41.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1522 D_{60}= 0.1117 D_{50}= 0.0950
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

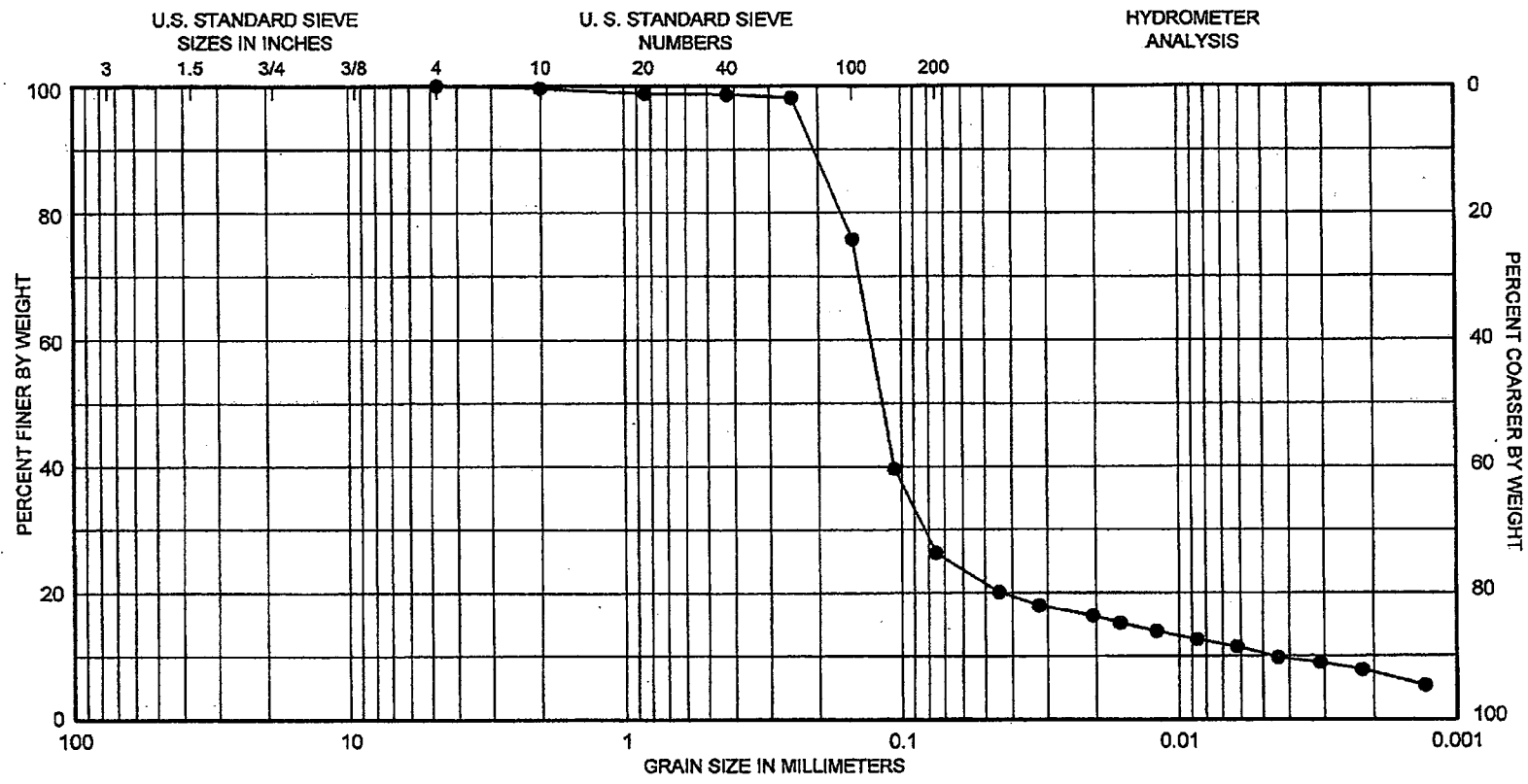
Remarks

ASTM D6913-04

Sample Number: S-9 **Depth:** 28.5-30.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure #** 9-30-03

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_z	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-6	33.15	11.31	27.58	0.1171	0.21	Silty Sand, tan

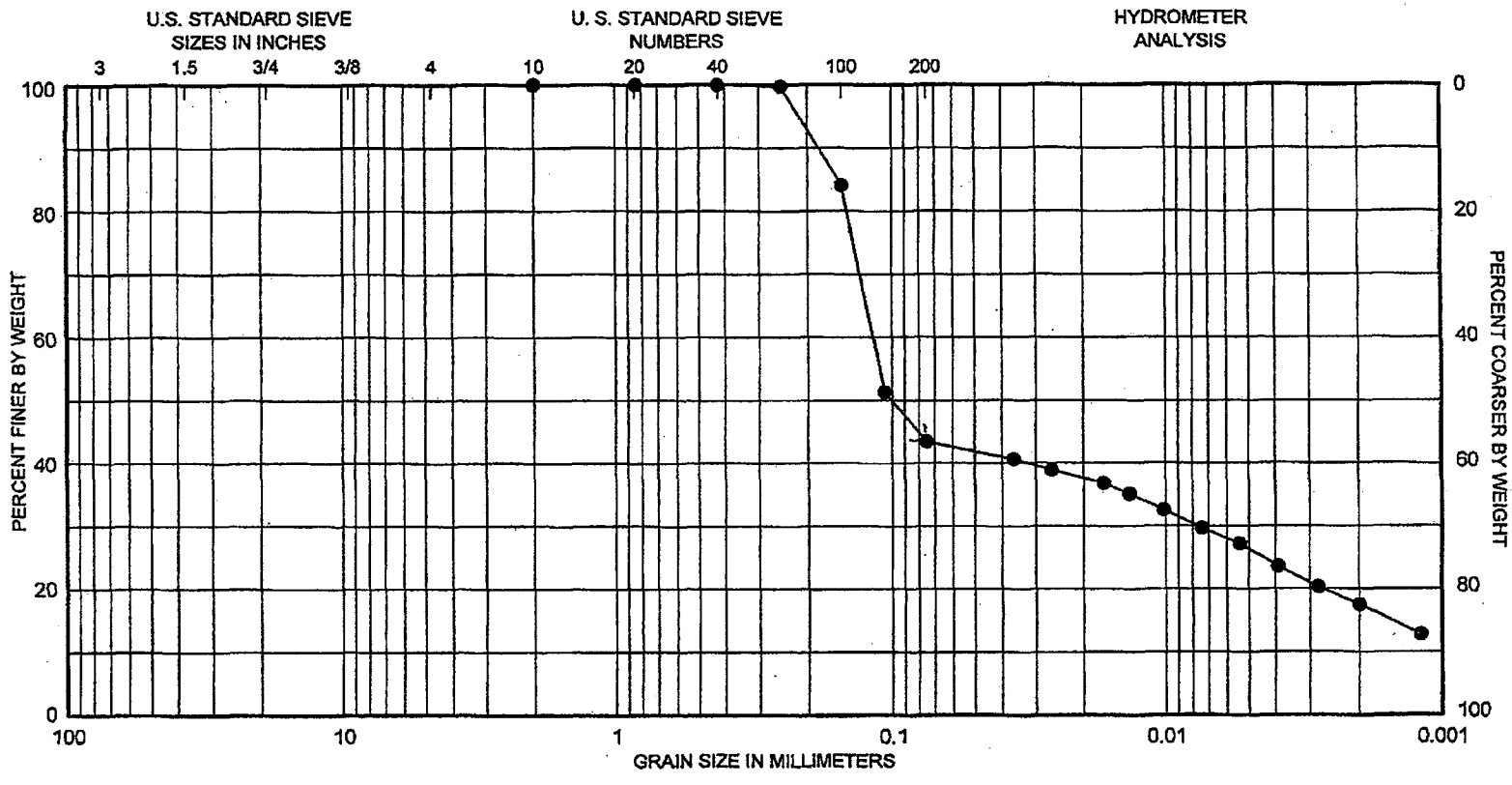
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

AM 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

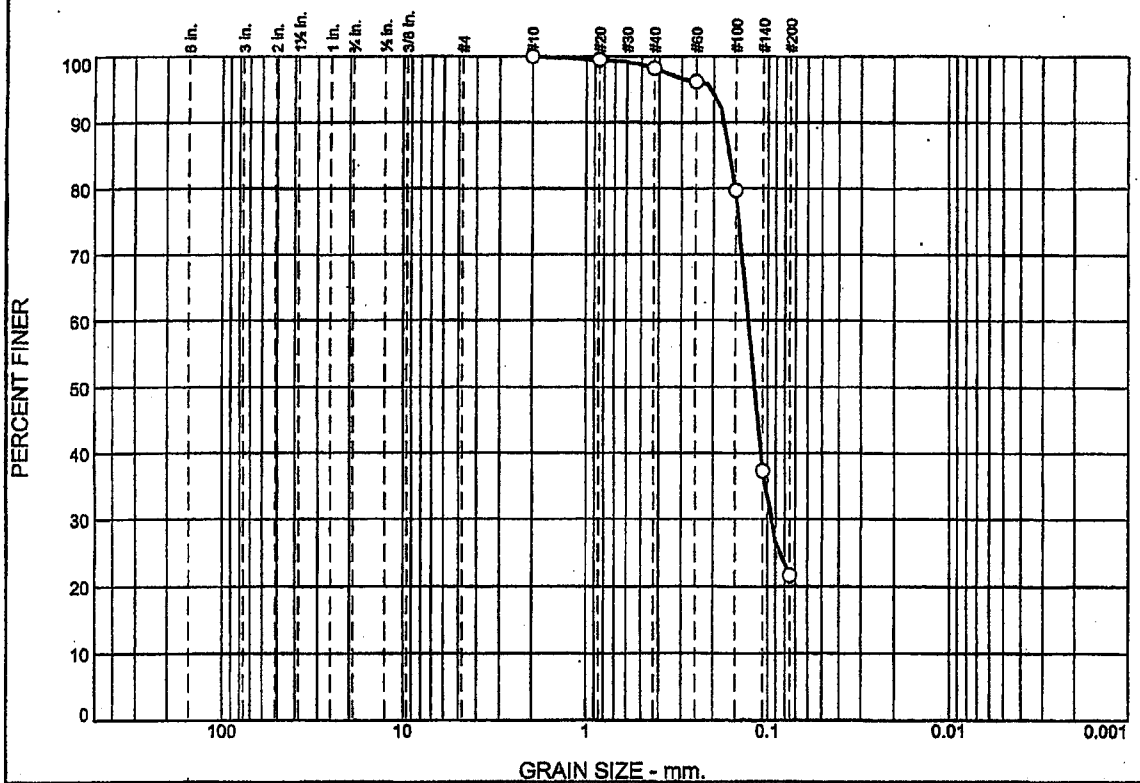
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-7	41.3	NA	NA	0.1002	0.18	Clayey Sand, dark gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.8	76.6	21.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.5		
#40	98.2		
#60	96.2		
#100	79.7		
#140	37.3		
#200	21.6		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.1592 D_{60}= 0.1277 D_{50}= 0.1184
D_{30}= 0.0964 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

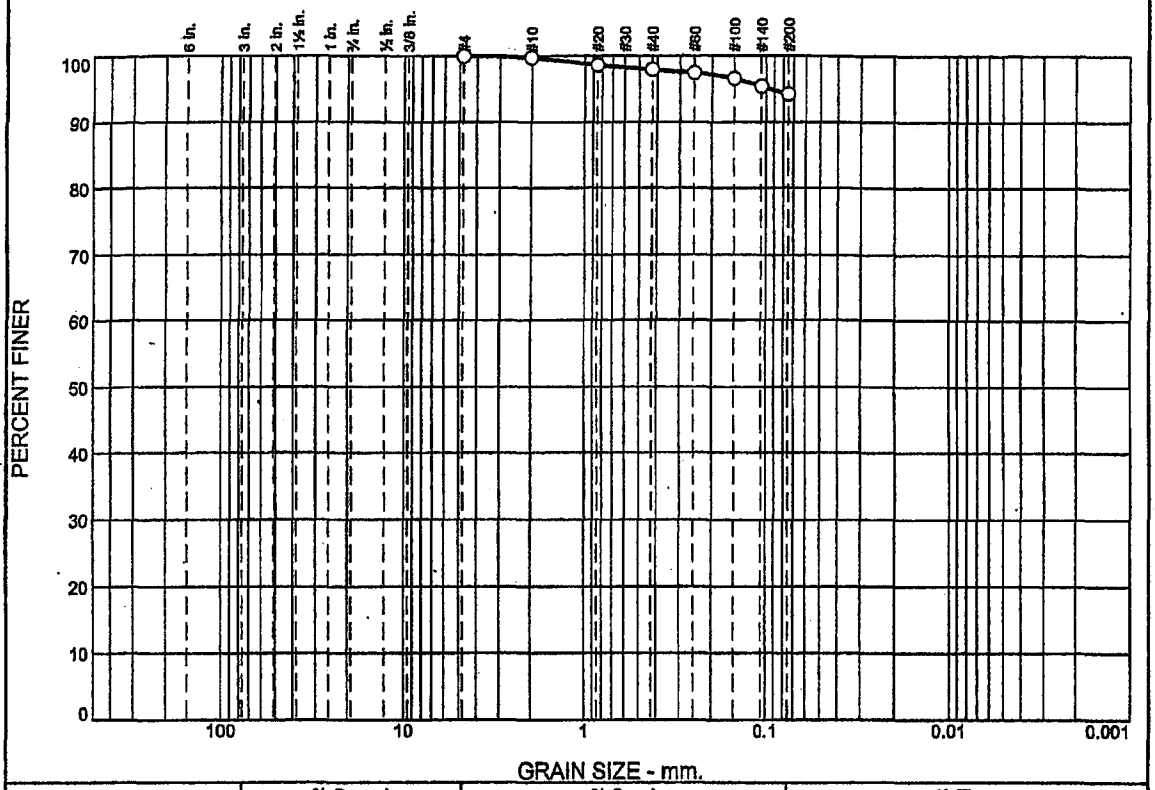
ASTM D6913-04
ASTM D4318-05

Sample Number: S-12 **Depth:** 43.5-45.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.8	3.7	94.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	98.6		
#40	97.9		
#60	97.4		
#100	96.6		
#140	95.4		
#200	94.2		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 30 LL= 63 PI= 33

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(37)

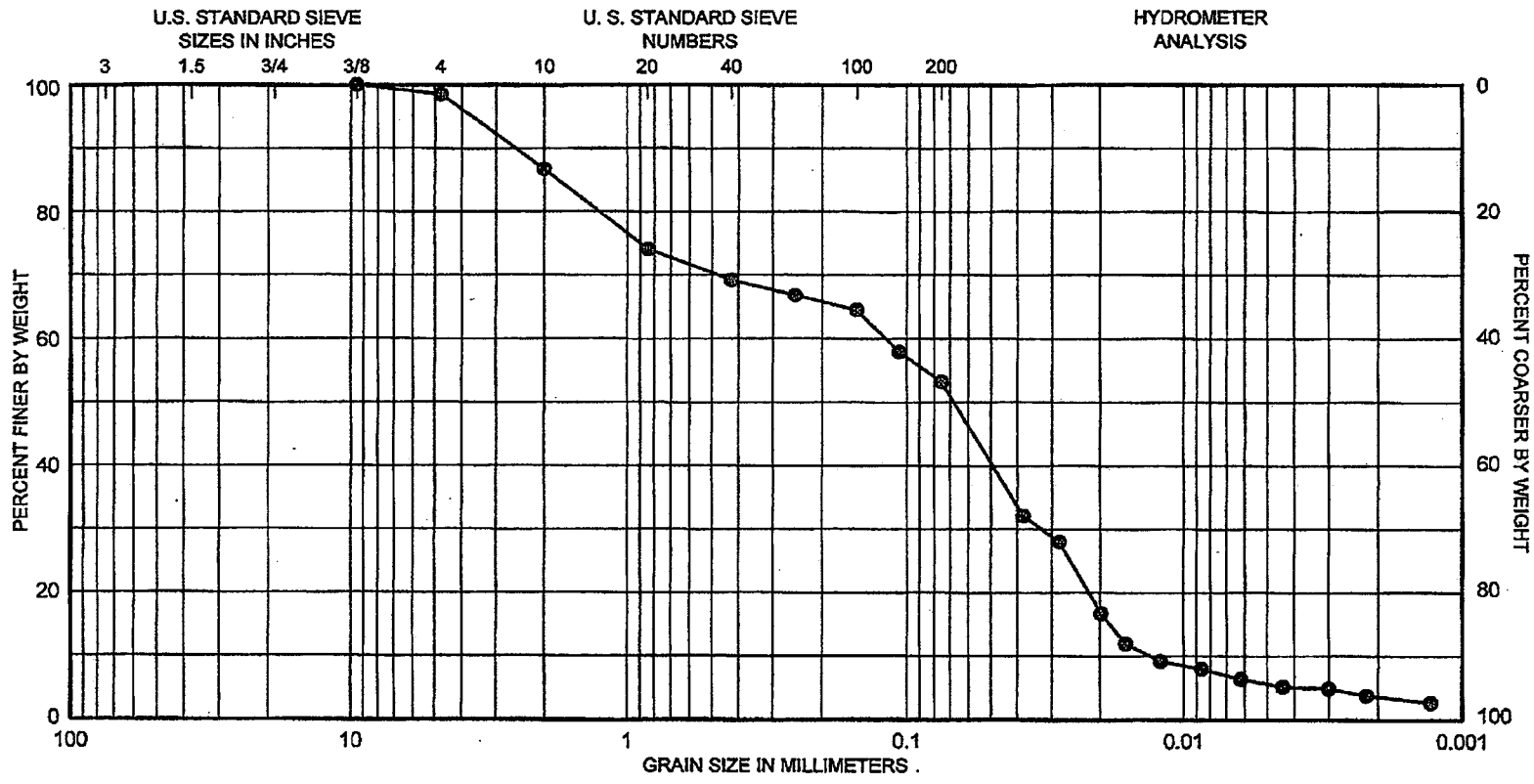
Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-13 **Depth:** 48.5-50.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

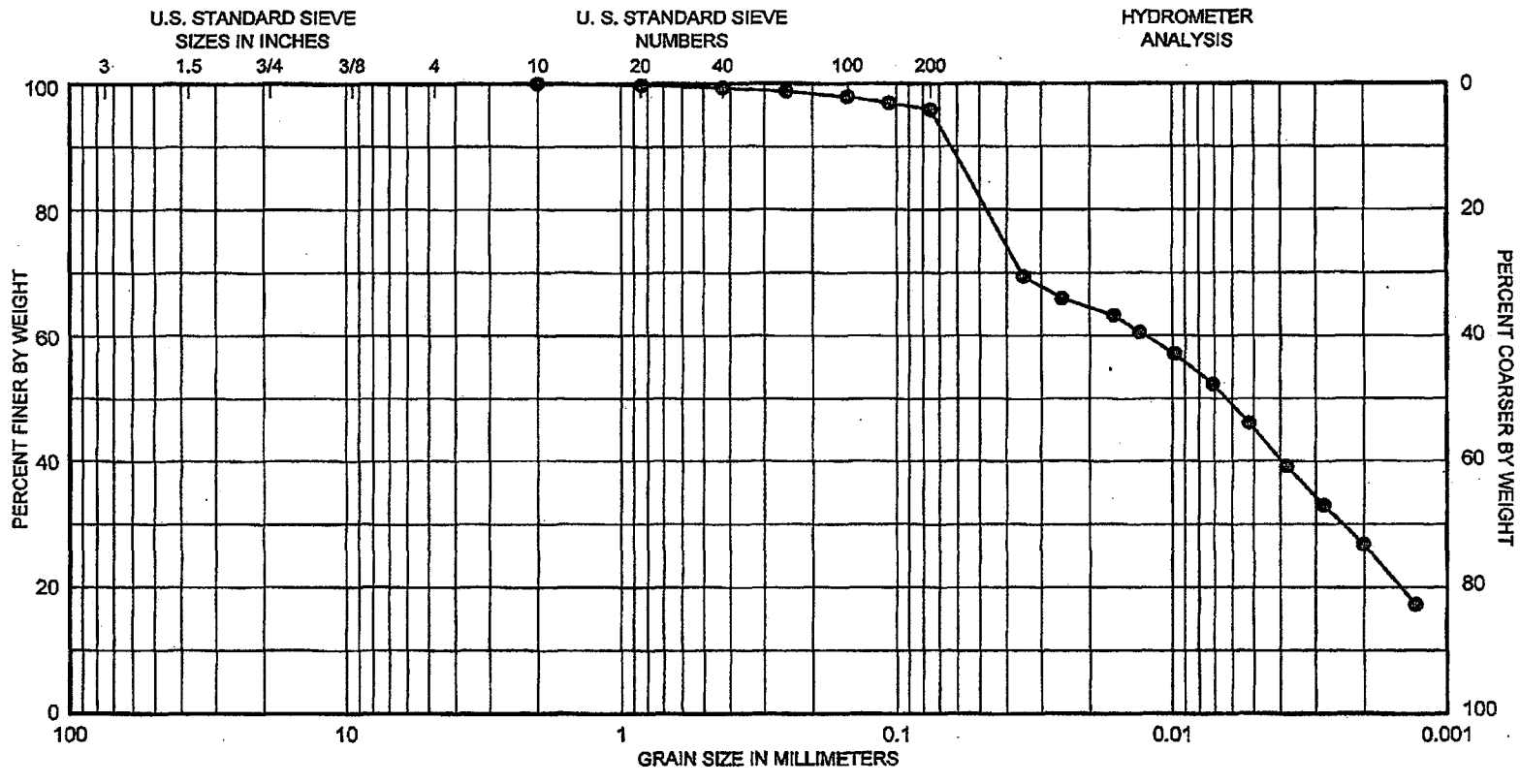


GRAVEL			SAND				SILT or CLAY
Coarse	Fine		Coarse	Medium	Fine		
SYMBOL	BORING	DEPTH, FT	C_z	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-8	54.35	0.68	8.99	0.0677	2.54	Sandy Silt, greenish gray and brown, with siltstone

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

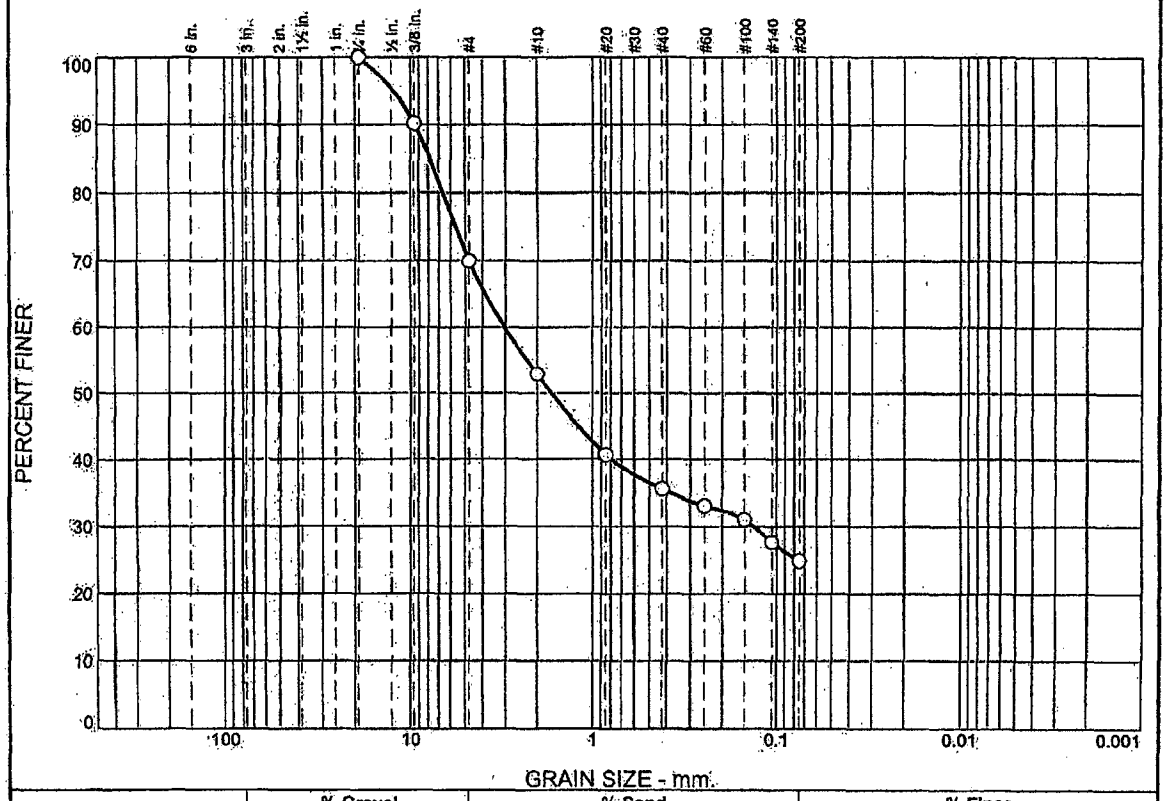
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-778-UD-9	64.35	NA	NA	0.0063	0.06	Fat Clay, greenish gray, with silty sand pockets

GRAIN SIZE CURVE

PLATE 1

MK 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	30.0	17.0	17.4	10.8	24.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	90.1		
#4	70.0		
#10	53.0		
#20	40.7		
#40	35.6		
#60	33.1		
#100	31.0		
#140	27.6		
#200	24.8		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 7.8341 D_{60}= 3.0414 D_{50}= 1.6634
D_{30}= 0.1338 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

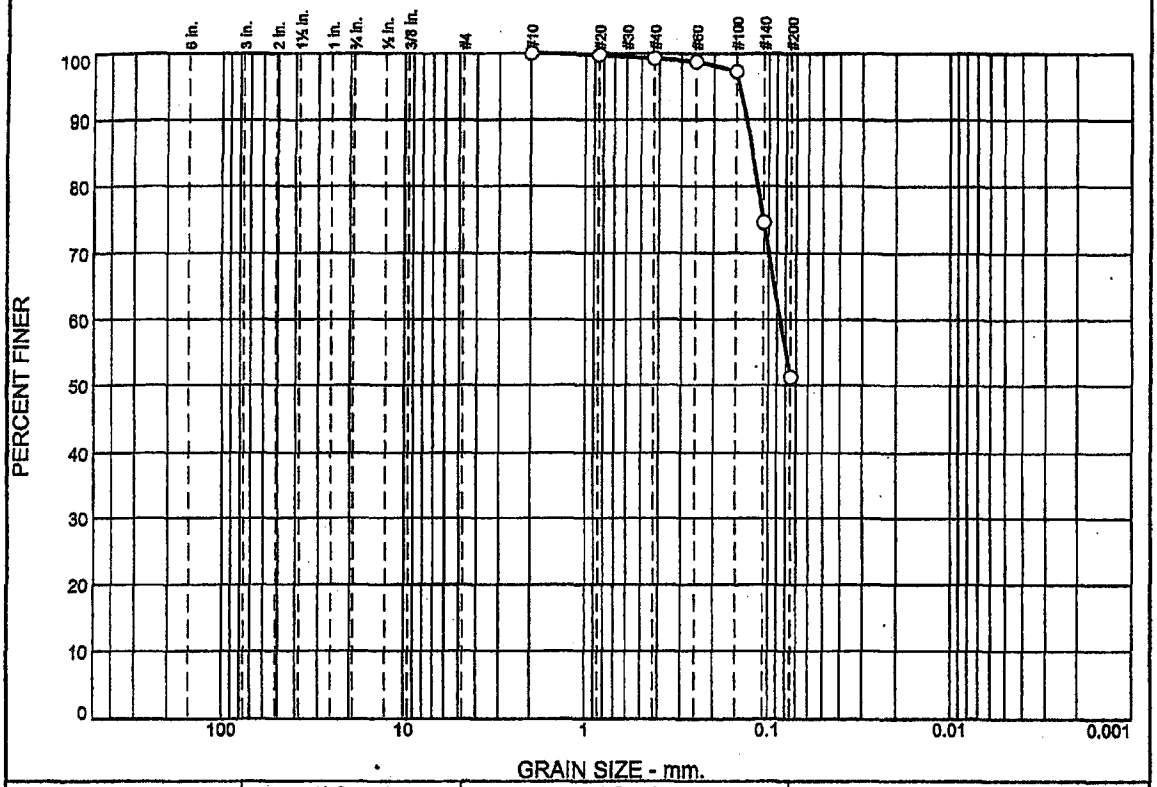
ASTM D6913-04

Sample Number: S-16 **Depth:** 63.5-63.9
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	48.1	51.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.3		
#60	98.8		
#100	97.2		
#140	74.6		
#200	51.2		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 22 LL= 54 PI= 32

Coefficients

D_{85}= 0.1219 D_{60}= 0.0858 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(12)

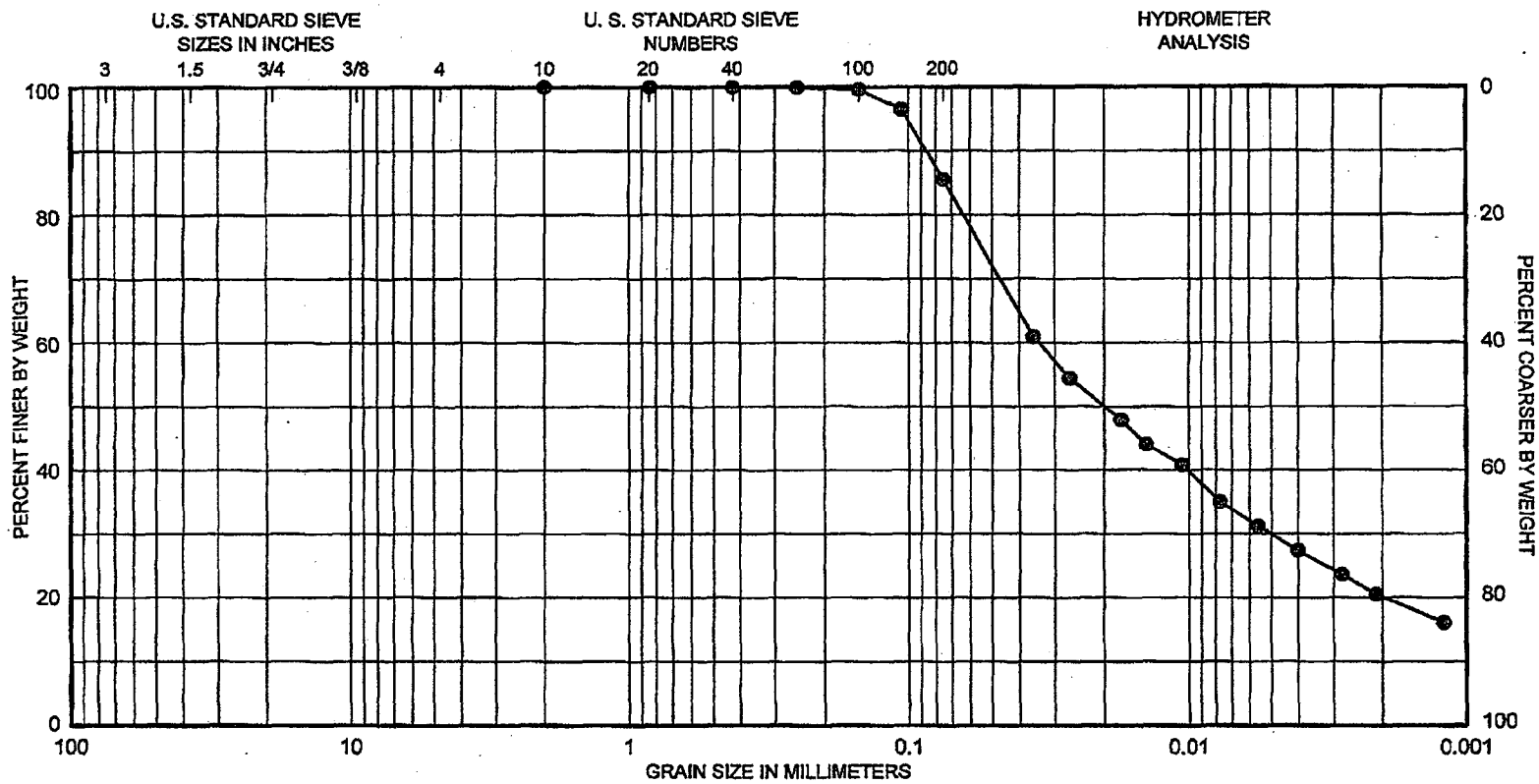
Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-17 **Depth:** 68.5-70.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-10	71.35	NA	NA	0.02	0.09	Fat Clay, greenish gray and dark gray, with silty sand pockets

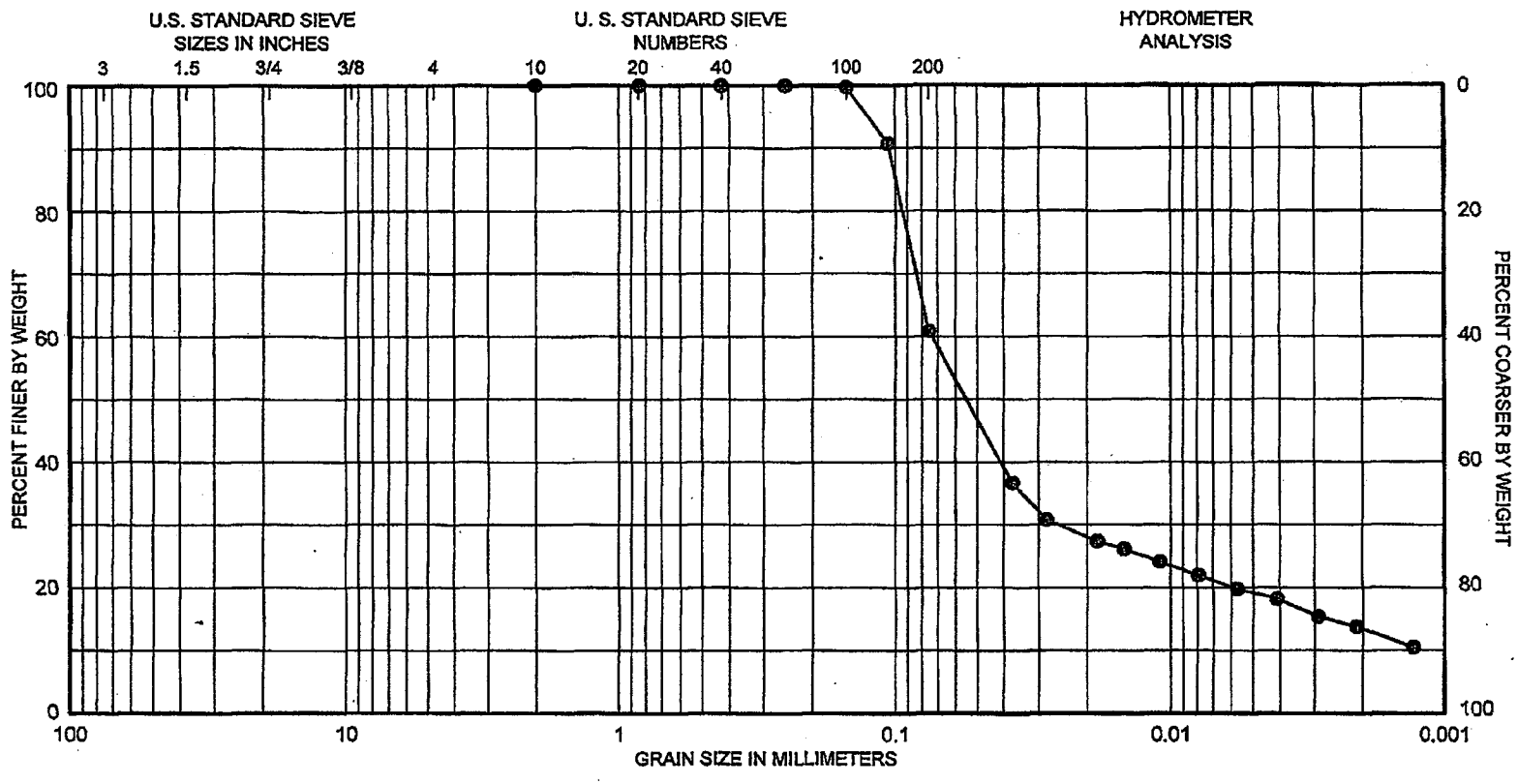
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-03



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_u	C_c	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-11	81.3	NA	NA	0.0548	0.11	Sandy Lean Clay, greenish gray

GRAIN SIZE CURVE

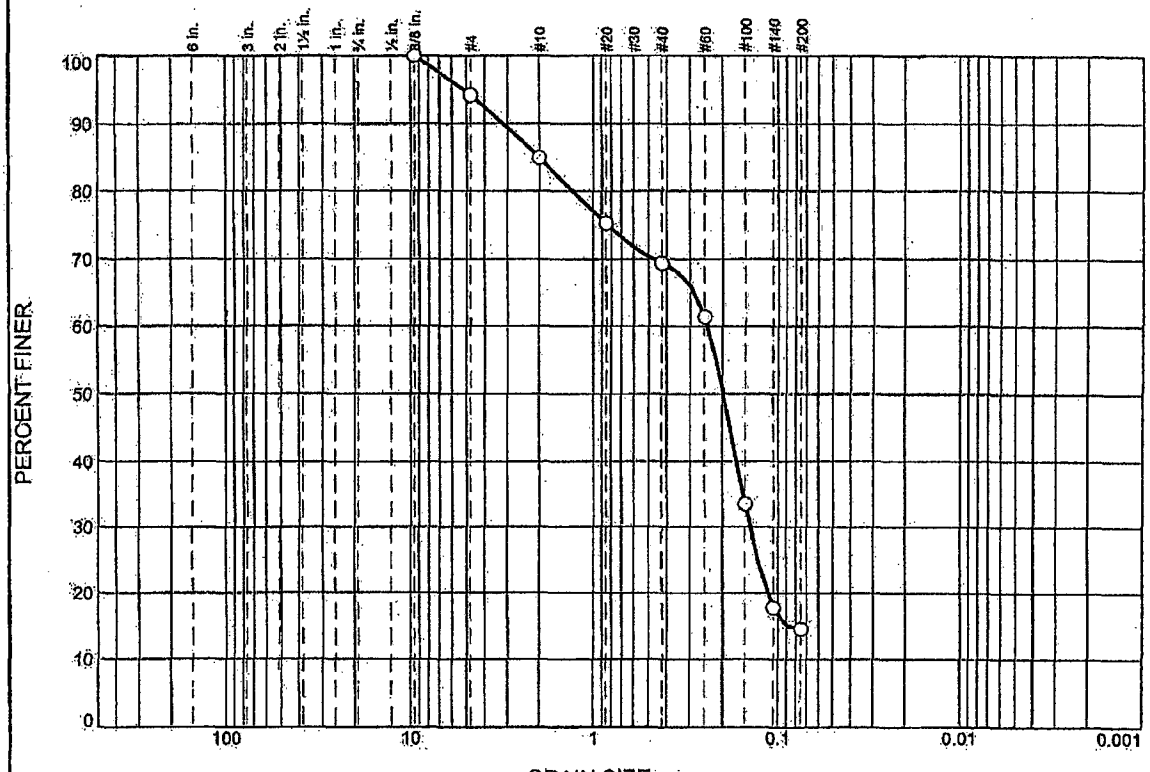
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-2-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	9.0	15.7	54.8	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	94.0		
#10	85.0		
#20	75.2		
#40	69.3		
#60	61.4		
#100	33.5		
#140	17.7		
#200	14.5		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.0059 D_{60}= 0.2413 D_{50}= 0.1975
D_{30}= 0.1410 D_{15}= 0.0893 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

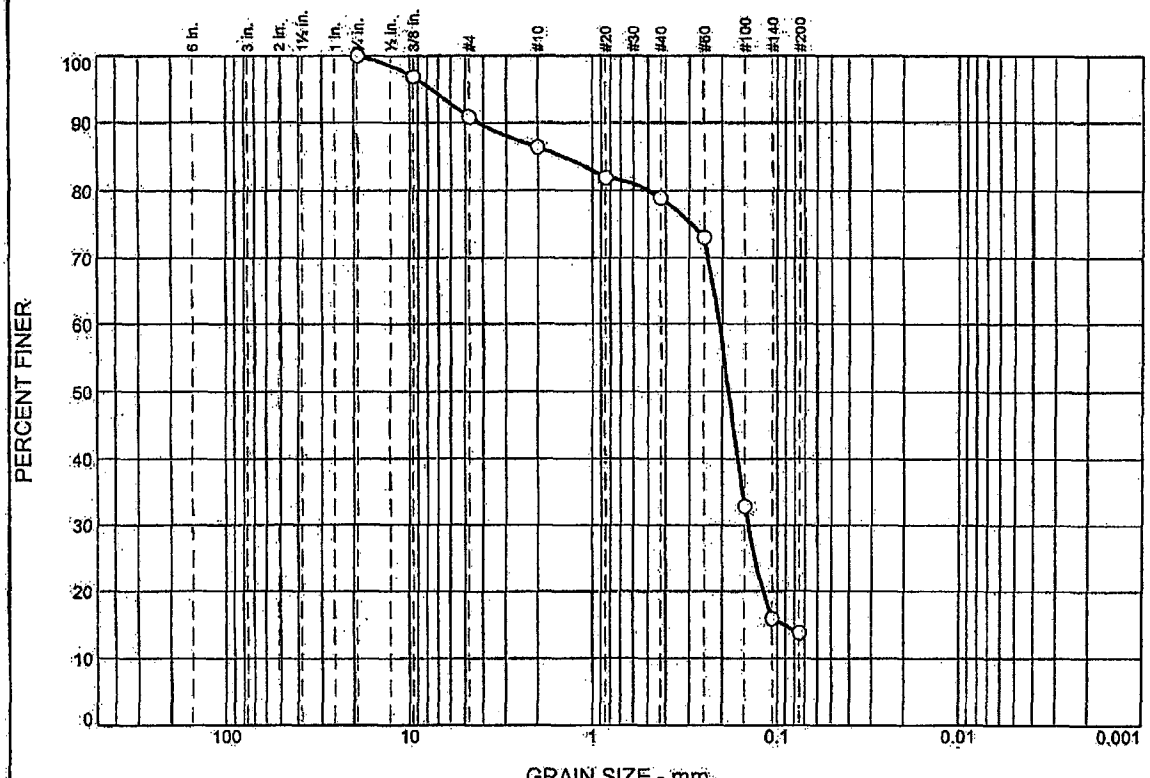
ASTM D6913-04

Sample Number: S-21 **Depth:** 88.5-90.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	Client: Bechtel Power Corporation Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	Project No: 6234-08-4783 Figure MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.2	4.4	7.5	65.1	13.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	96.8		
#4	90.8		
#10	86.4		
#20	81.9		
#40	78.9		
#60	73.0		
#100	32.9		
#140	15.9		
#200	13.8		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.4432 D_{60}= 0.2066 D_{50}= 0.1840
D_{30}= 0.1441 D_{15}= 0.0912 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

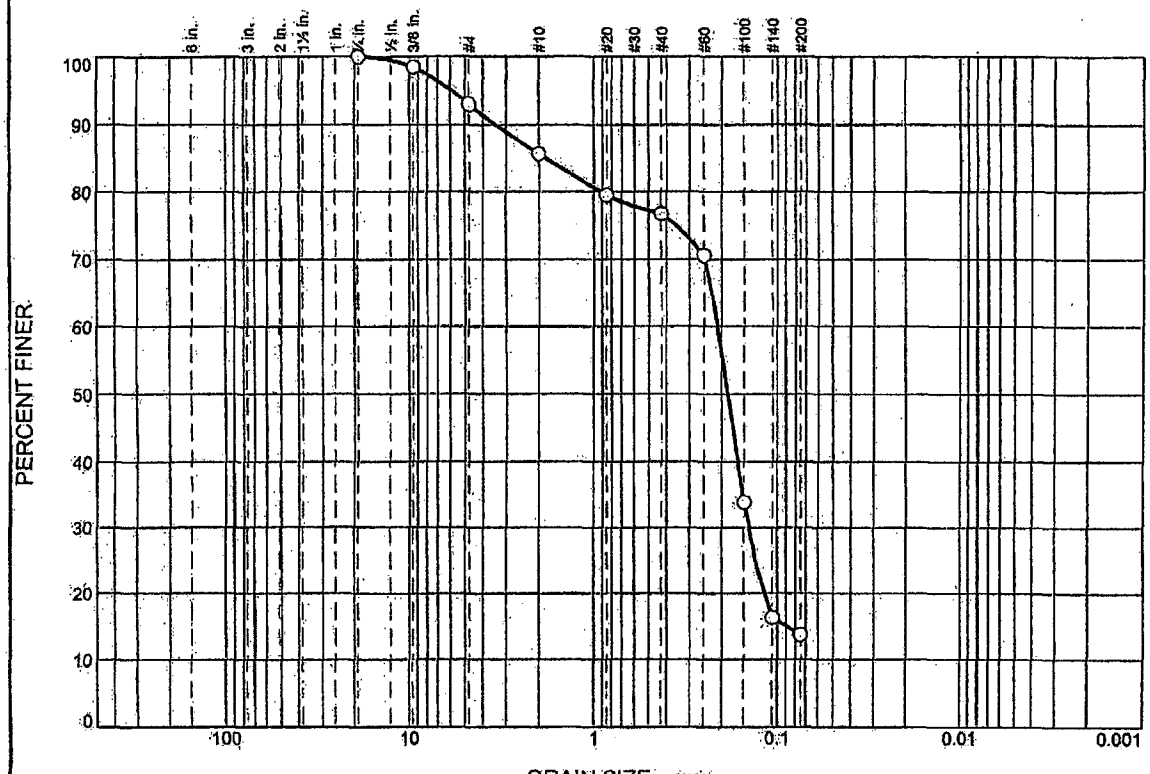
ASTM D6913-04

Sample Number: S-22 **Depth:** 95.5-97.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MIL 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.1	7.3	8.8	63.1	13.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	98.4		
#4	92.9		
#10	85.6		
#20	79.5		
#40	76.8		
#60	70.6		
#100	33.8		
#140	16.3		
#200	13.7		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.8374 D_{60}= 0.2098 D_{50}= 0.1844
D_{30}= 0.1419 D_{15}= 0.0892 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

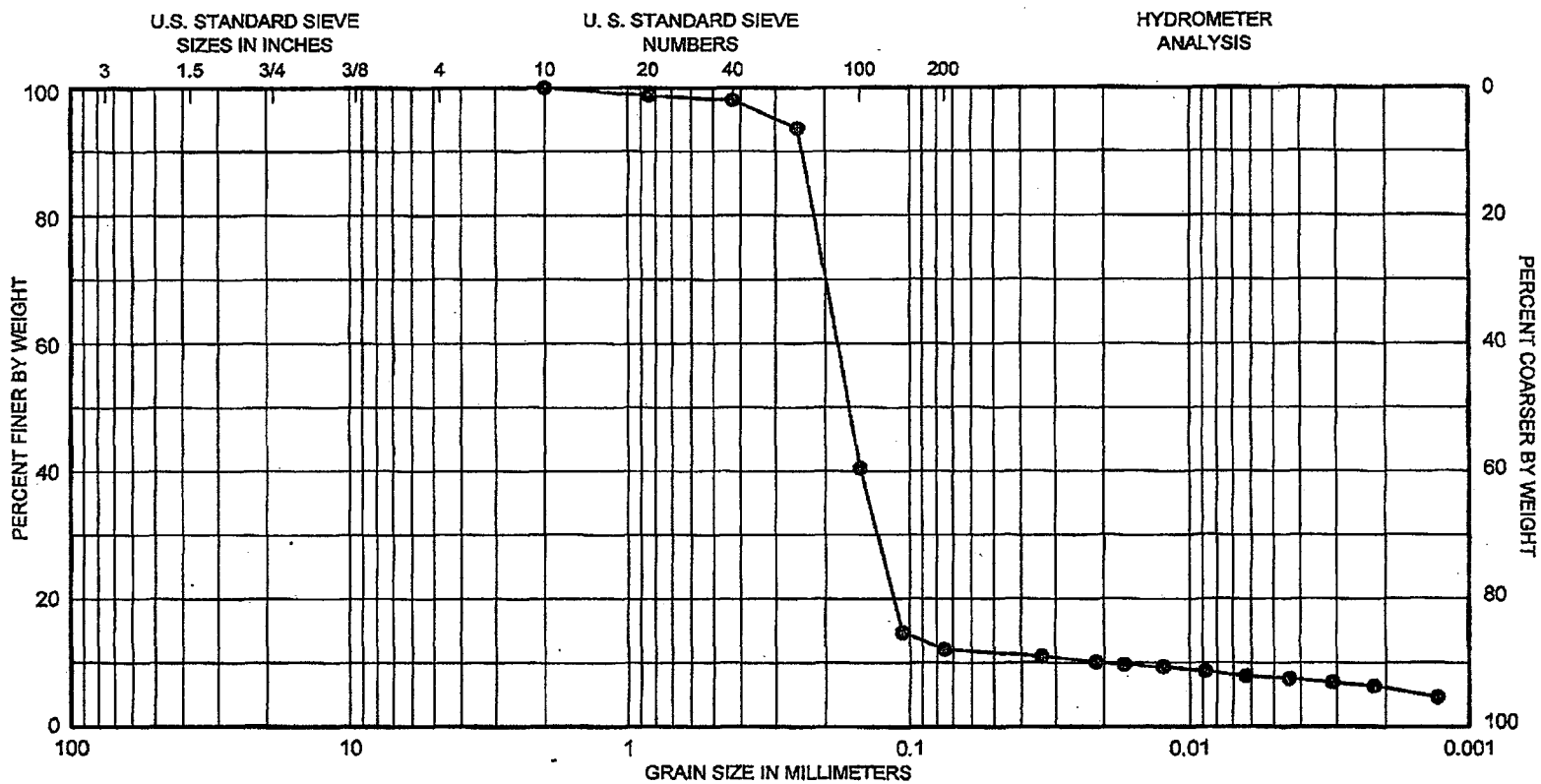
Remarks

ASTM D6913-04

Sample Number: S-23 **Depth:** 98.5-99.8
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA 9-30-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-778-UD-14	103.4	4.64	8.96	0.1644	0.24	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

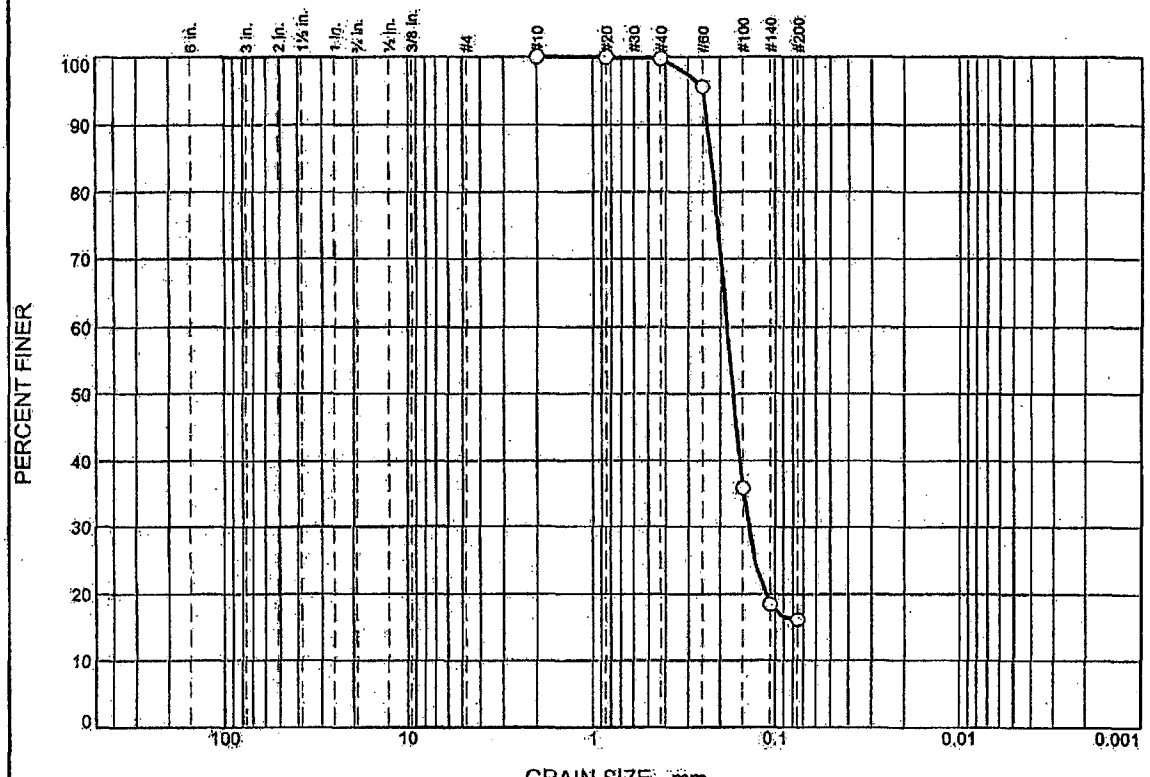
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 12-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	83.6	16.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	95.6		
#100	35.9		
#140	18.4		
#200	16.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2236 D_{60}= 0.1837 D_{50}= 0.1701
D_{30}= 0.1399 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

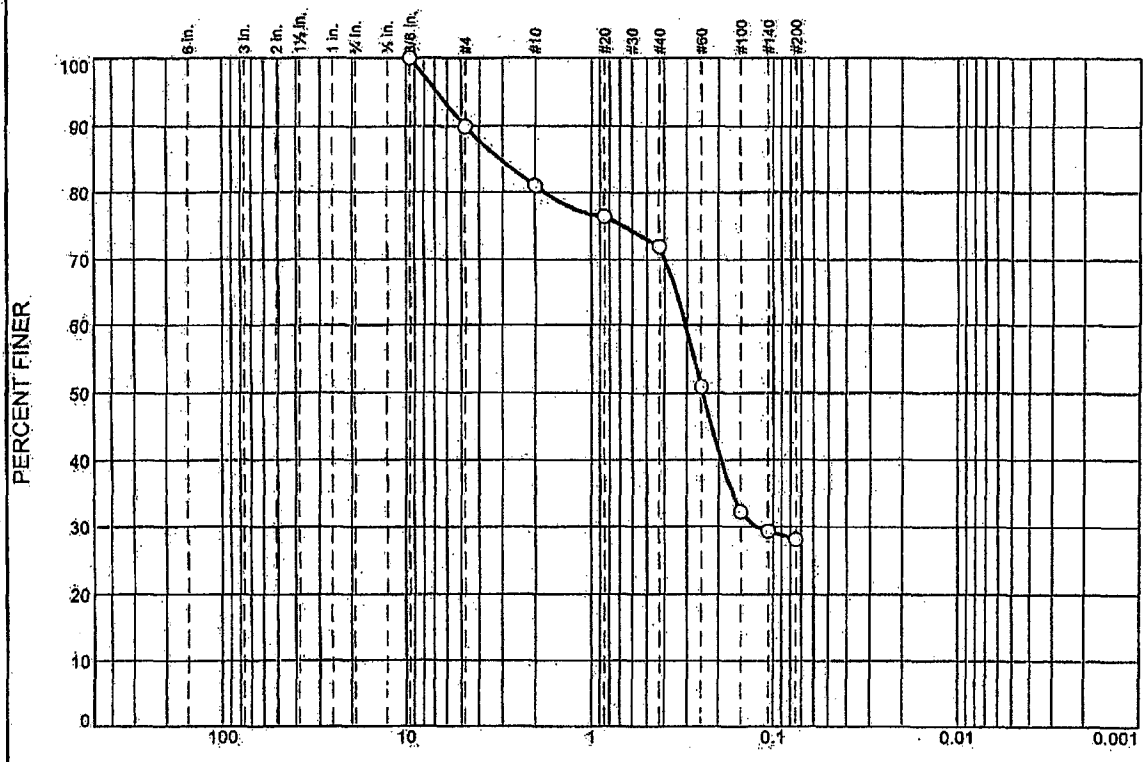
ASTM D6913-04

Sample Number: S-25 **Depth:** 108.5-110.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA 7-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.1	8.9	9.0	43.9	28.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	89.9		
#10	81.0		
#20	76.4		
#40	72.0		
#60	50.9		
#100	32.3		
#140	29.3		
#200	28.1		

* (no specification provided)

Material Description

Sand with Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 3.0804 D_{60}= 0.3052 D_{50}= 0.2451
D_{30}= 0.1238 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

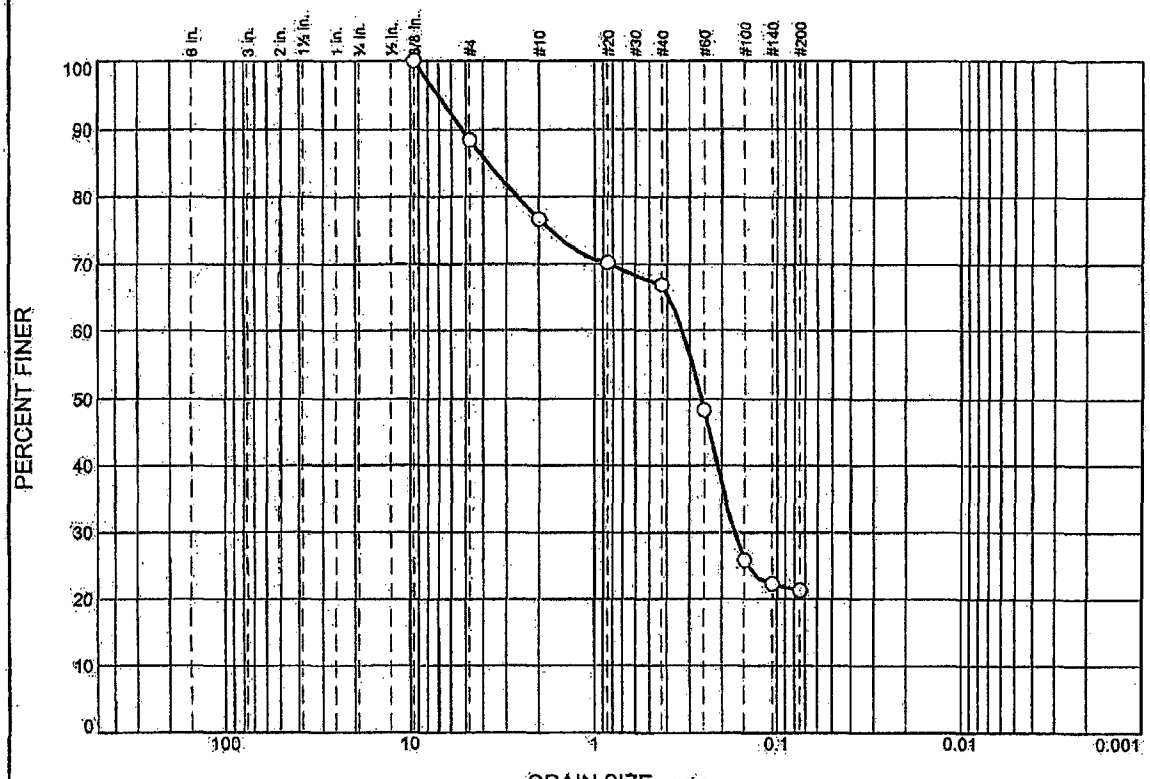
ASTM D6913-04

Sample Number: S-27 **Depth:** 118.5-119.0
Location: B-778 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.5	11.8	9.8	45.6	21.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	88.5		
#10	76.7		
#20	70.2		
#40	66.9		
#60	48.3		
#100	25.8		
#140	22.3		
#200	21.3		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 3.7697 D_{60}= 0.3300 D_{50}= 0.2589
D_{30}= 0.1706 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

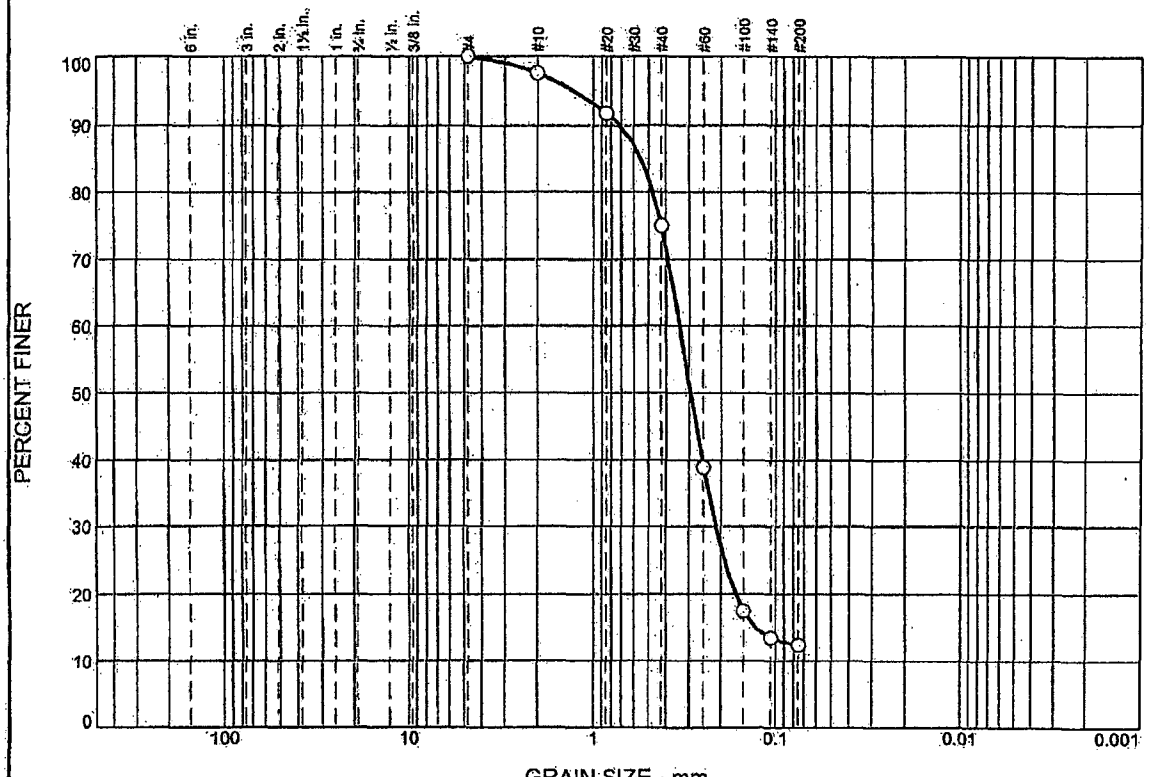
ASTM D6913-04

Sample Number: S-28 **Depth:** 120.0-121.5
Location: B-778 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.5	22.5	62.6	12.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.5		
#20	91.7		
#40	75.0		
#60	38.9		
#100	17.5		
#140	13.4		
#200	12.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.5461 D_{60}= 0.3368 D_{50}= 0.2937
D_{30}= 0.2138 D_{15}= 0.1289 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

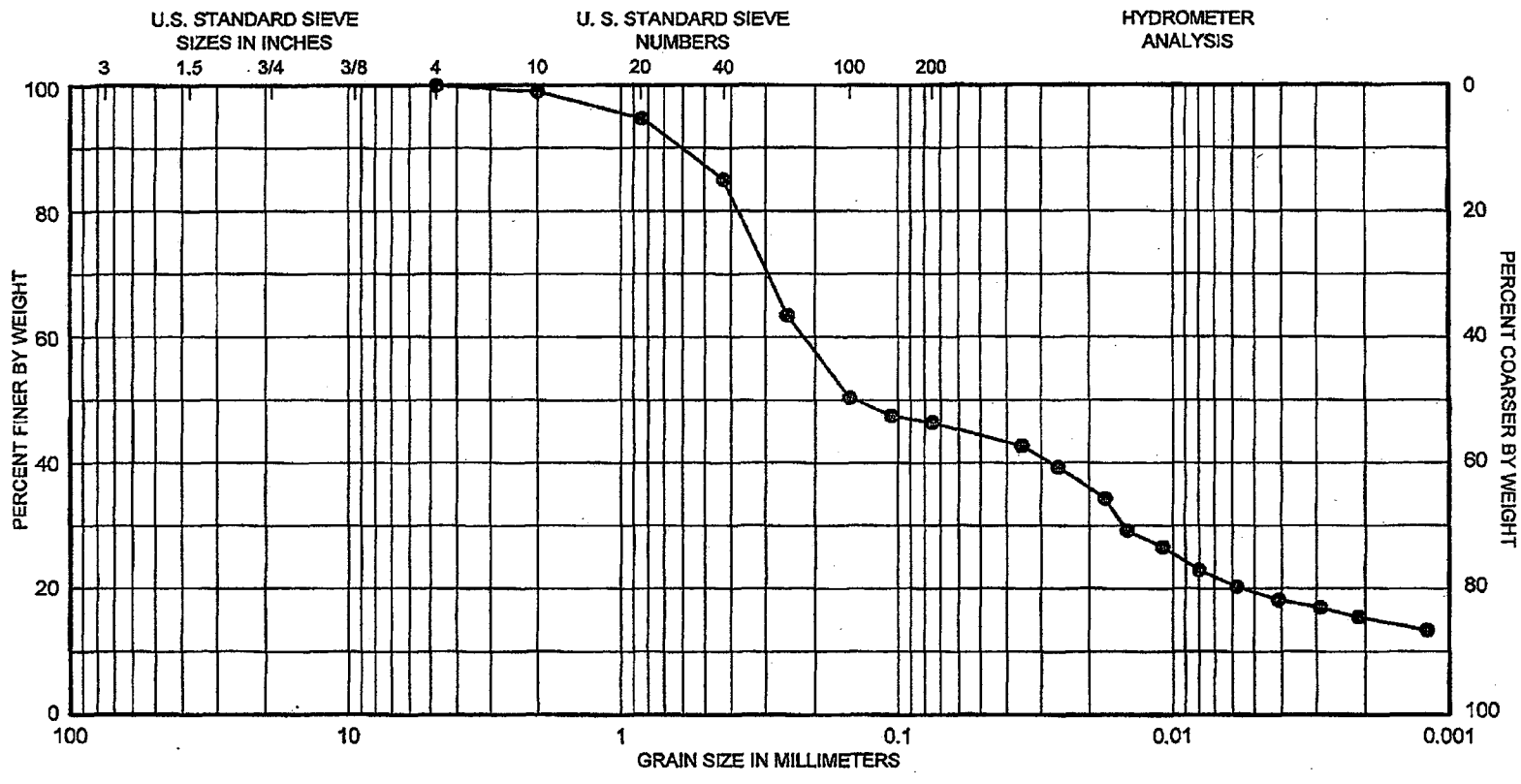
Remarks

ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-03

Tested By: DK **Checked By:** JA



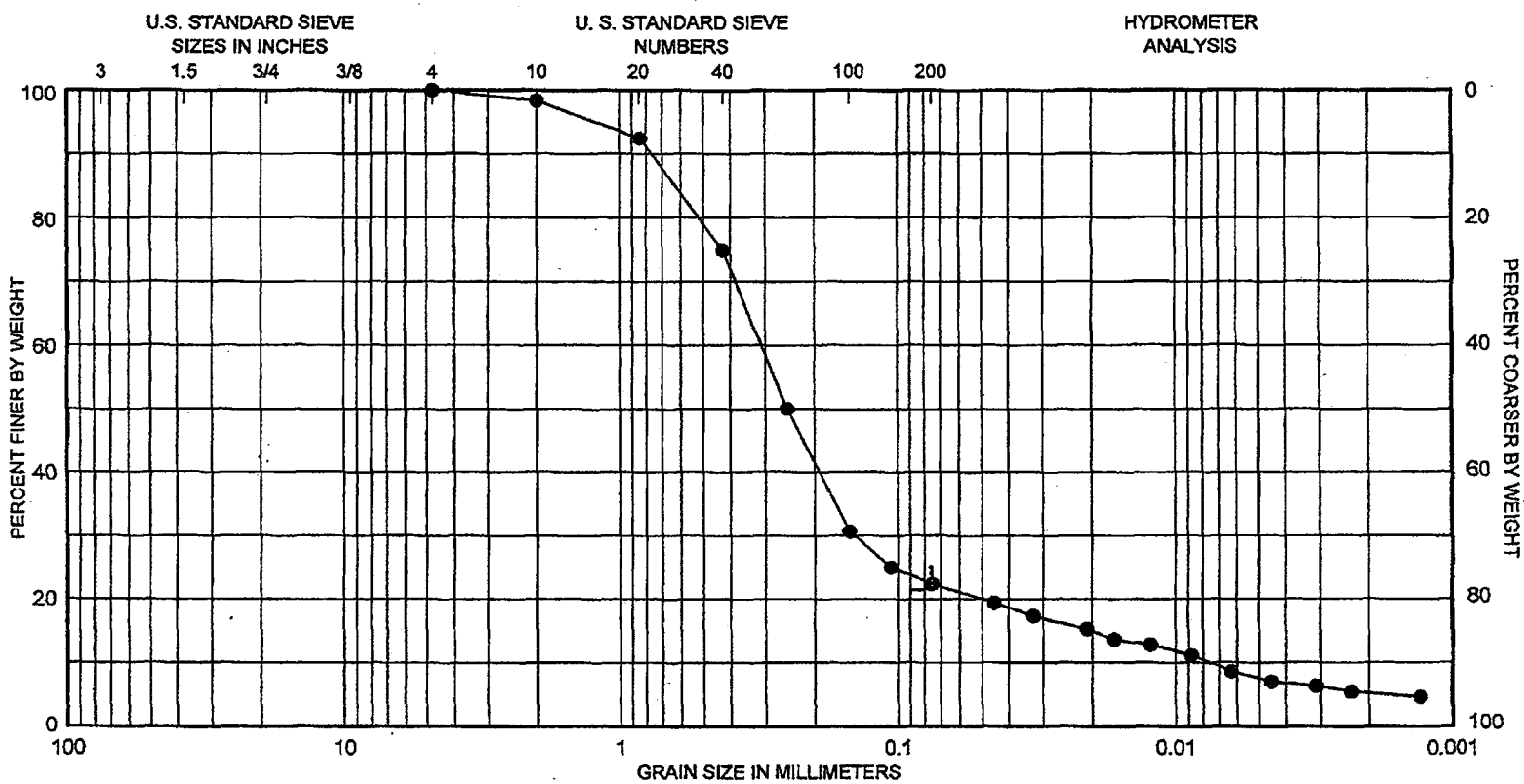
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_z	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-1	7.05	NA	NA	0.144	0.61	Silty Sand, tan, with roots

GRAIN SIZE CURVE

PLATE 1

10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-2	12.05	8.83	40.76	0.25	0.76	Silty Sand, tan and dark gray, with gravel and roots

GRAIN SIZE CURVE

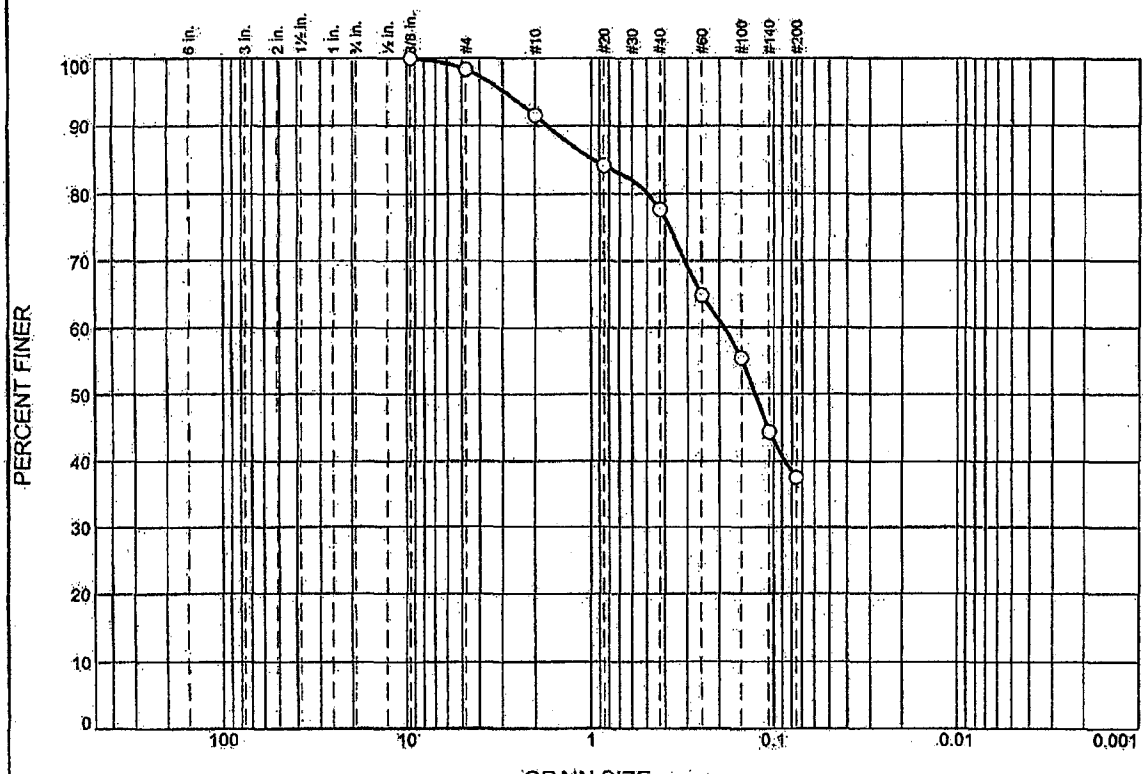
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	6.9	13.7	40.2	37.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.3		
#10	91.4		
#20	84.1		
#40	77.7		
#60	64.8		
#100	55.4		
#140	44.4		
#200	37.5		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.9817 D_{60}= 0.1872 D_{50}= 0.1265
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

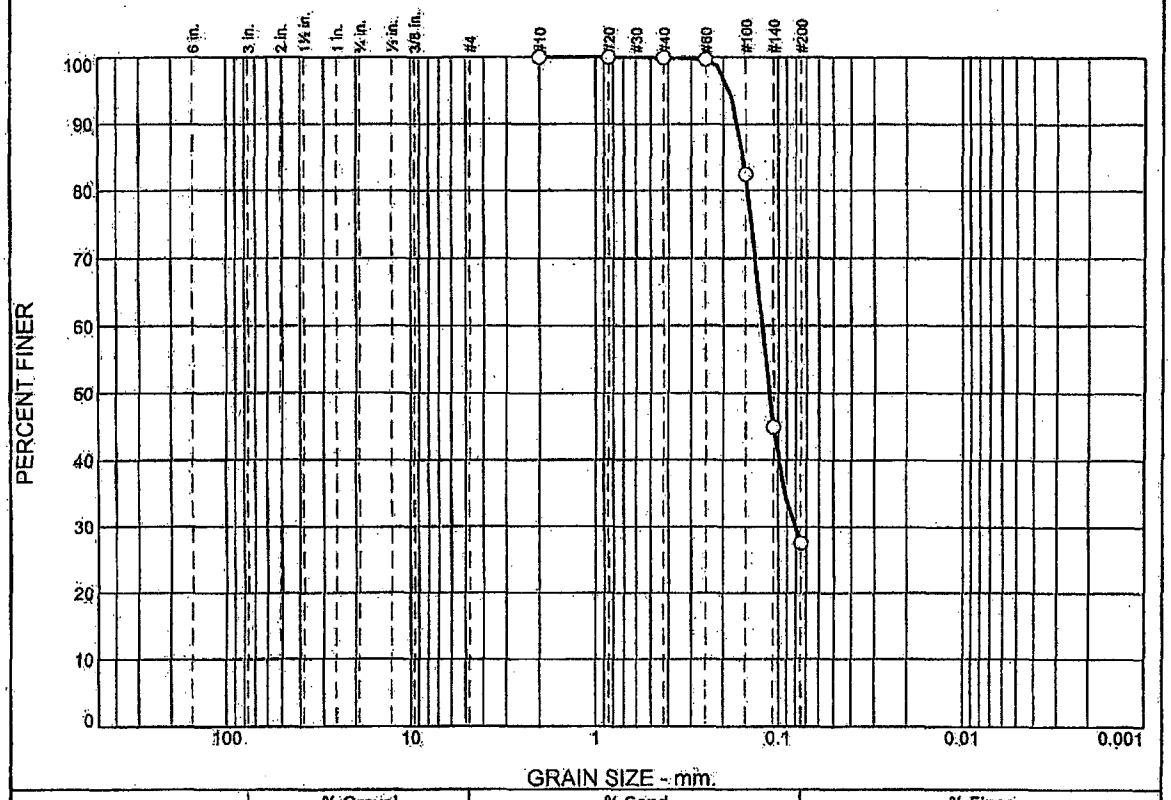
ASTM D6913-04

Sample Number: S-6 **Depth:** 13.5-15.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	72.4	27.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.9		
#60	99.7		
#100	82.4		
#140	44.8		
#200	27.5		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1547 D_{60}= 0.1223 D_{50}= 0.1118
D_{30}= 0.0811 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

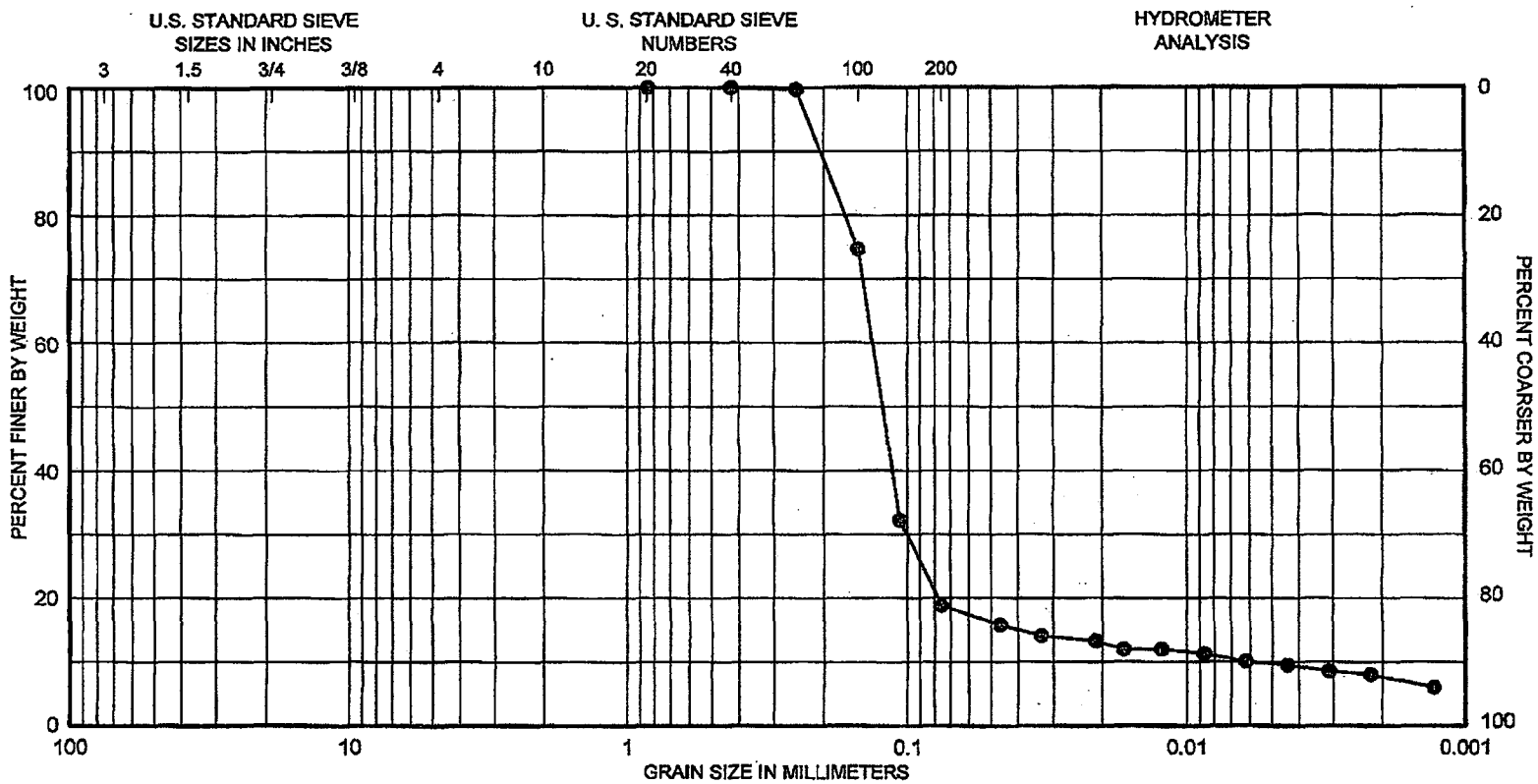
Remarks

ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-31-03

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-3	23.4	12.86	22.72	0.1226	0.21	Silty Sand, tan

GRAIN SIZE CURVE

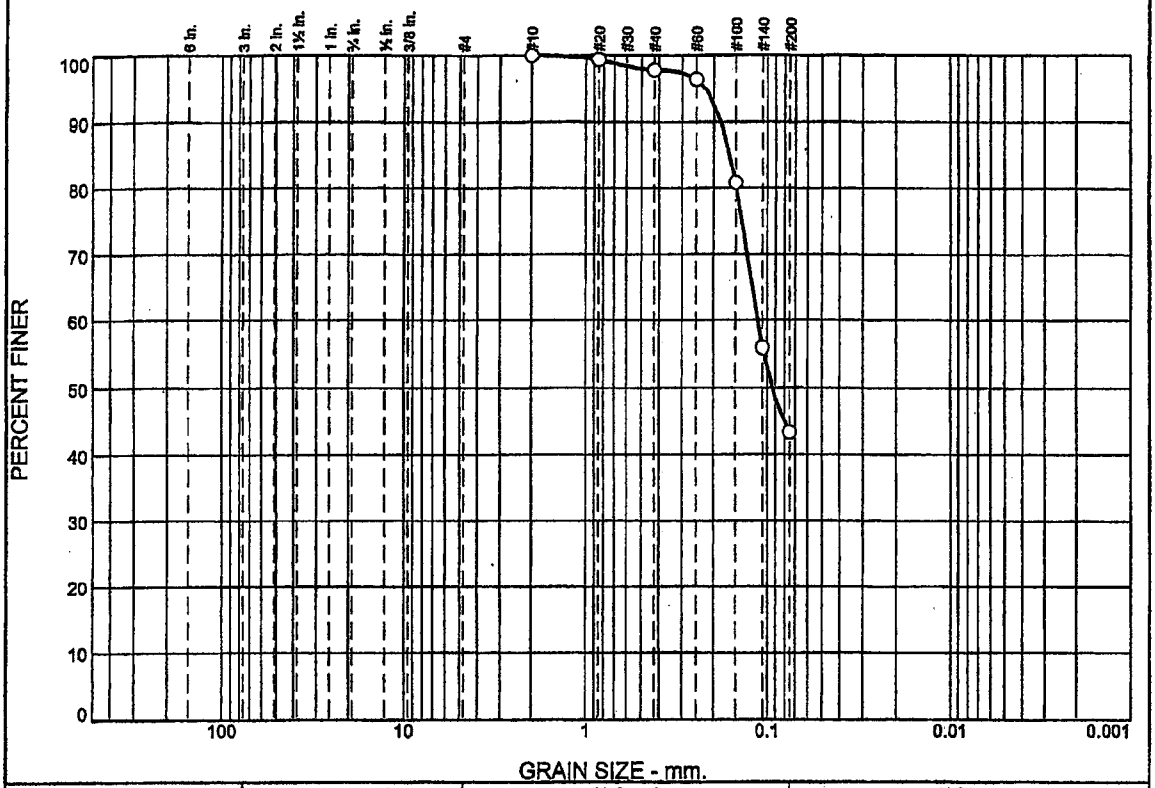
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MK 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.2	54.4	43.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	97.8		
#60	96.4		
#100	80.9		
#140	55.8		
#200	43.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 18 LL= 32 PI= 14

Coefficients

D_{85}= 0.1612 D_{60}= 0.1131 D_{50}= 0.0940
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-6(2)

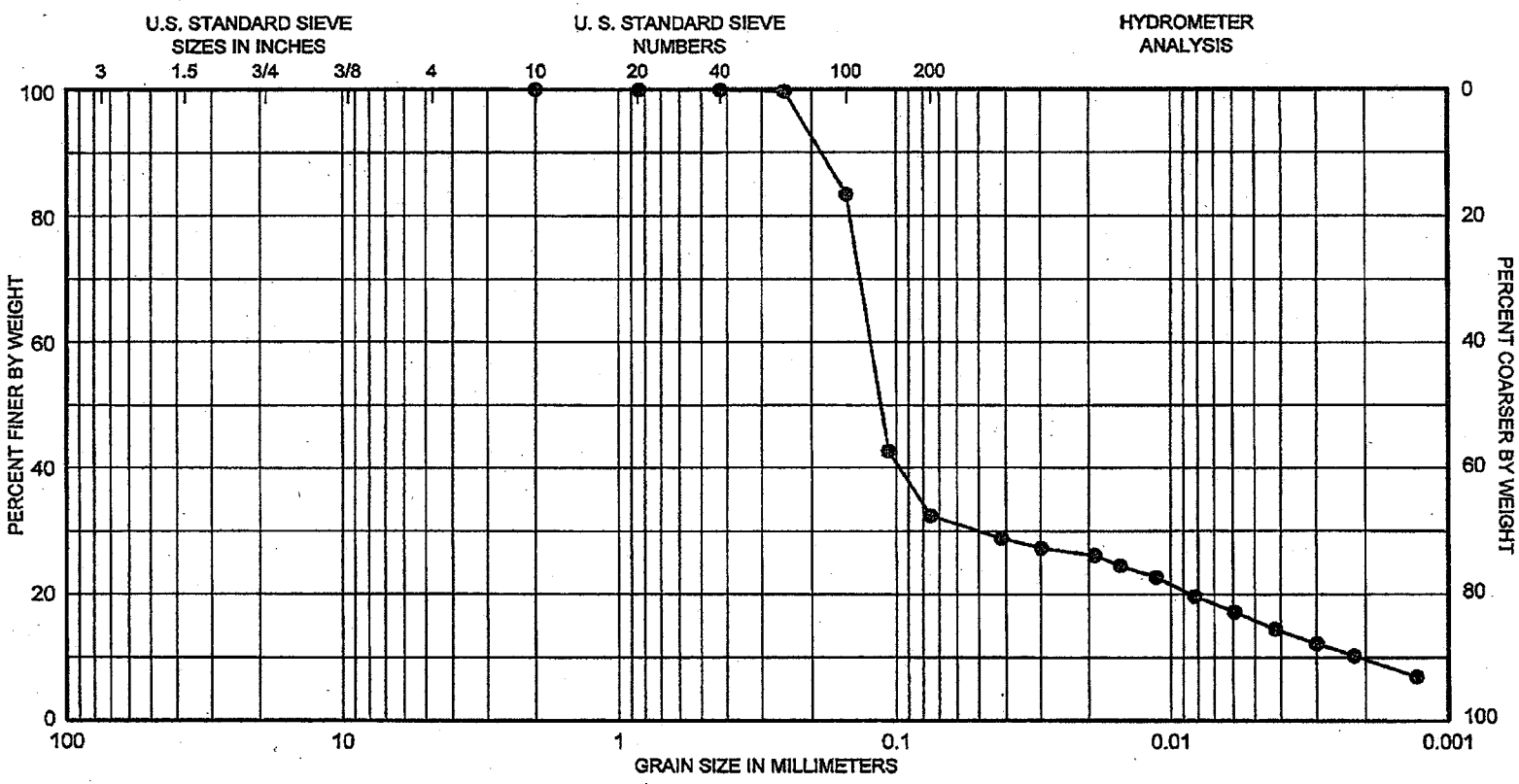
Remarks

ASTM D6913-04
ASTM D4318-05

Sample Number: S-8 **Depth:** 23.5-25.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-17-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-4	33.45	9.67	58.61	0.1129	0.18	Clayey Sand, greenish gray, with shell fragments

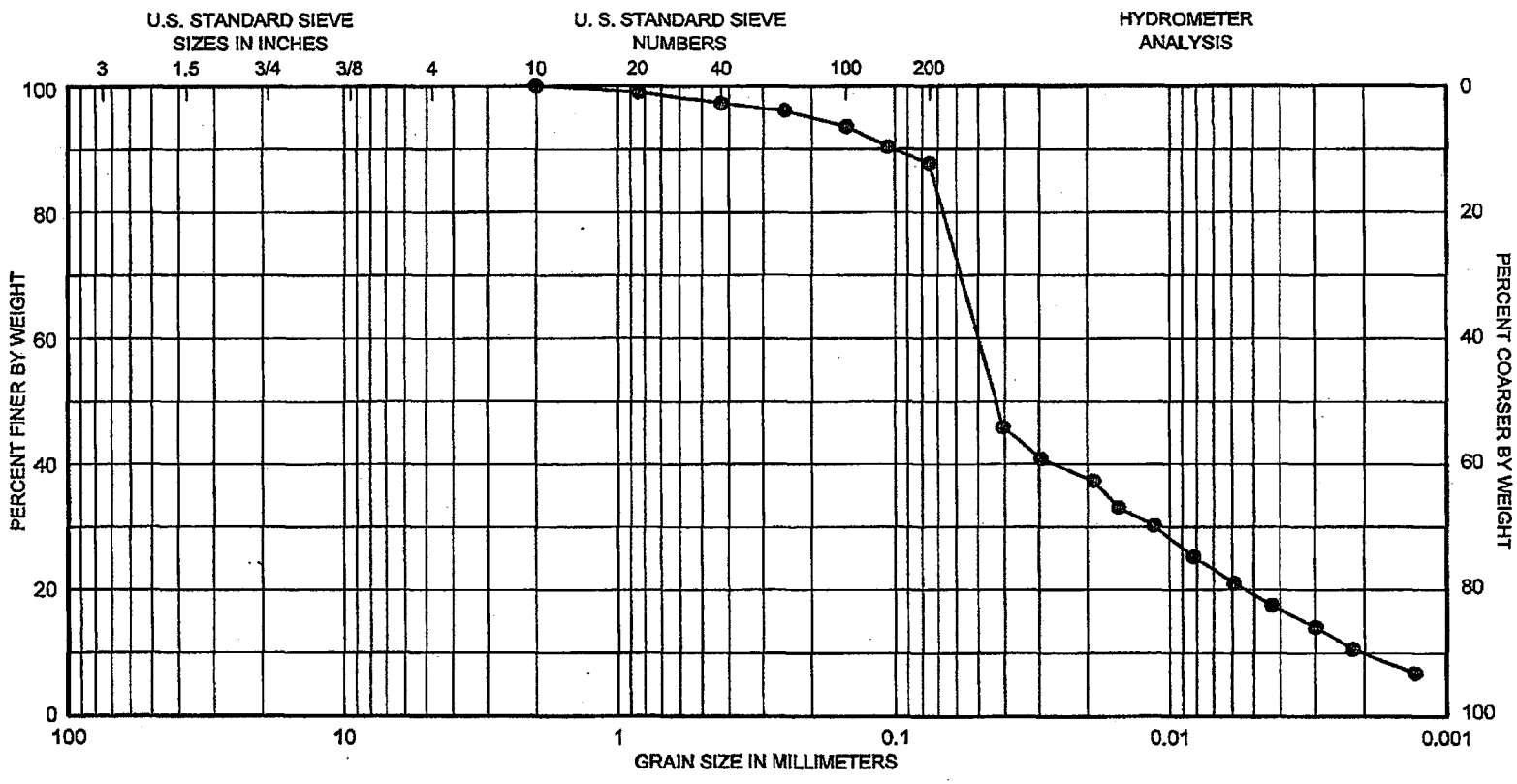
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MX 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-779-UD-5	42.3	1.24	24.66	0.0431	0.1	Fat Clay, greenish gray, with silty sand pockets and seams

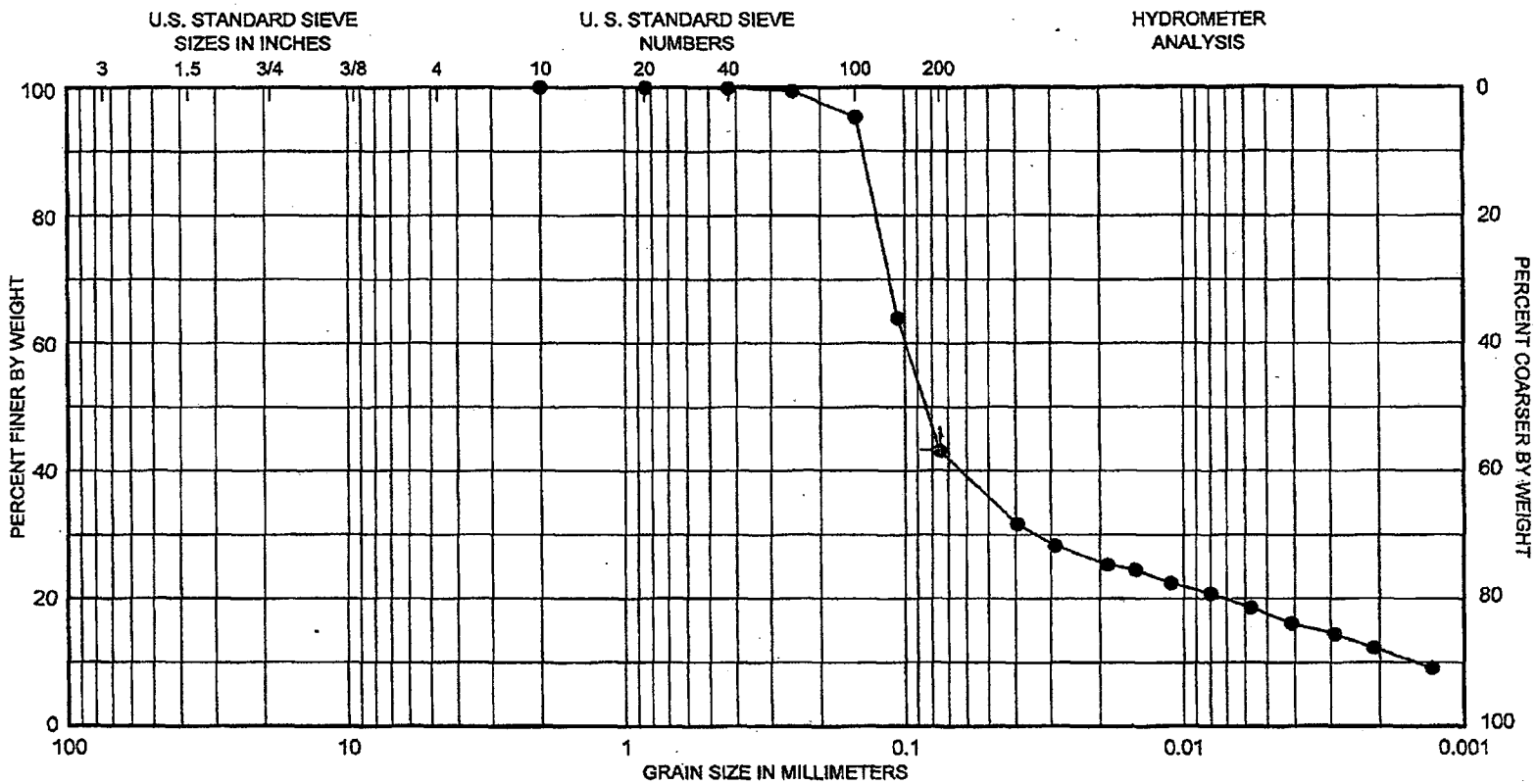
GRAIN SIZE CURVE

PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

JM 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

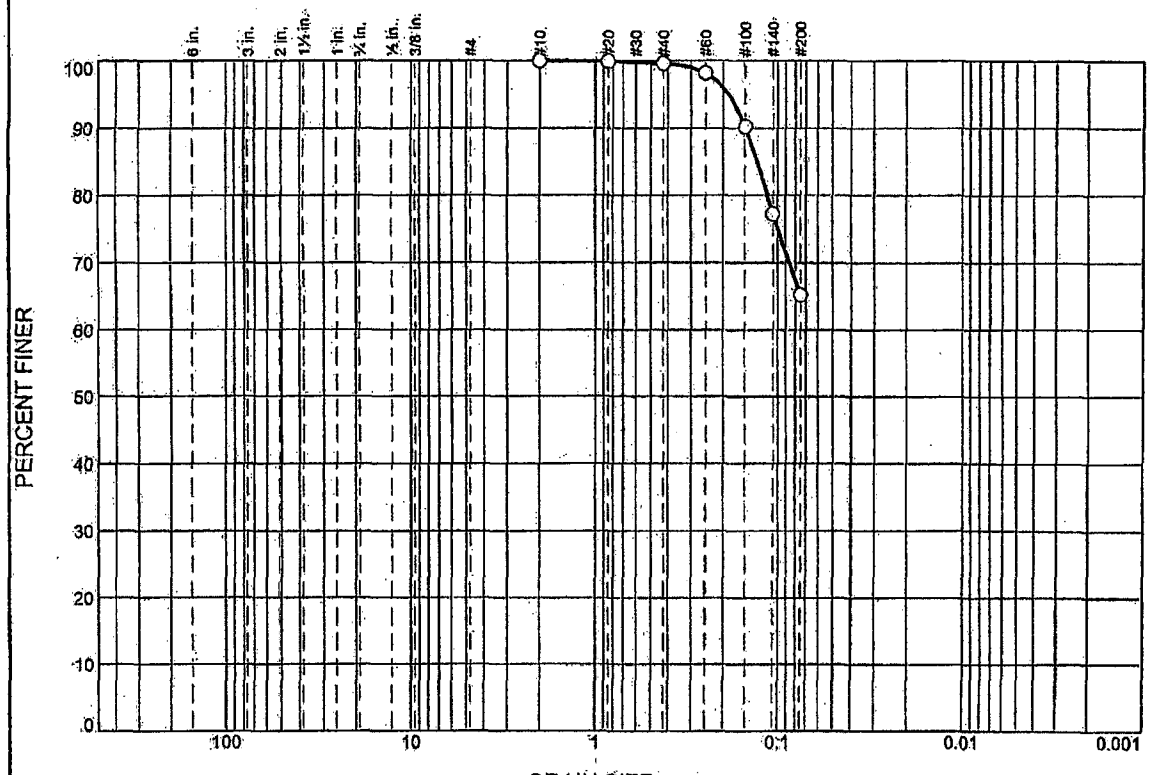
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-7	53.5	7.73	66.76	0.0841	0.14	Clayey Sand, greenish gray

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	34.4	65.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	98.2		
#100	90.2		
#140	77.3		
#200	65.2		

* (no specification provided)

Material Description

Silt and Clay with Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1291 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

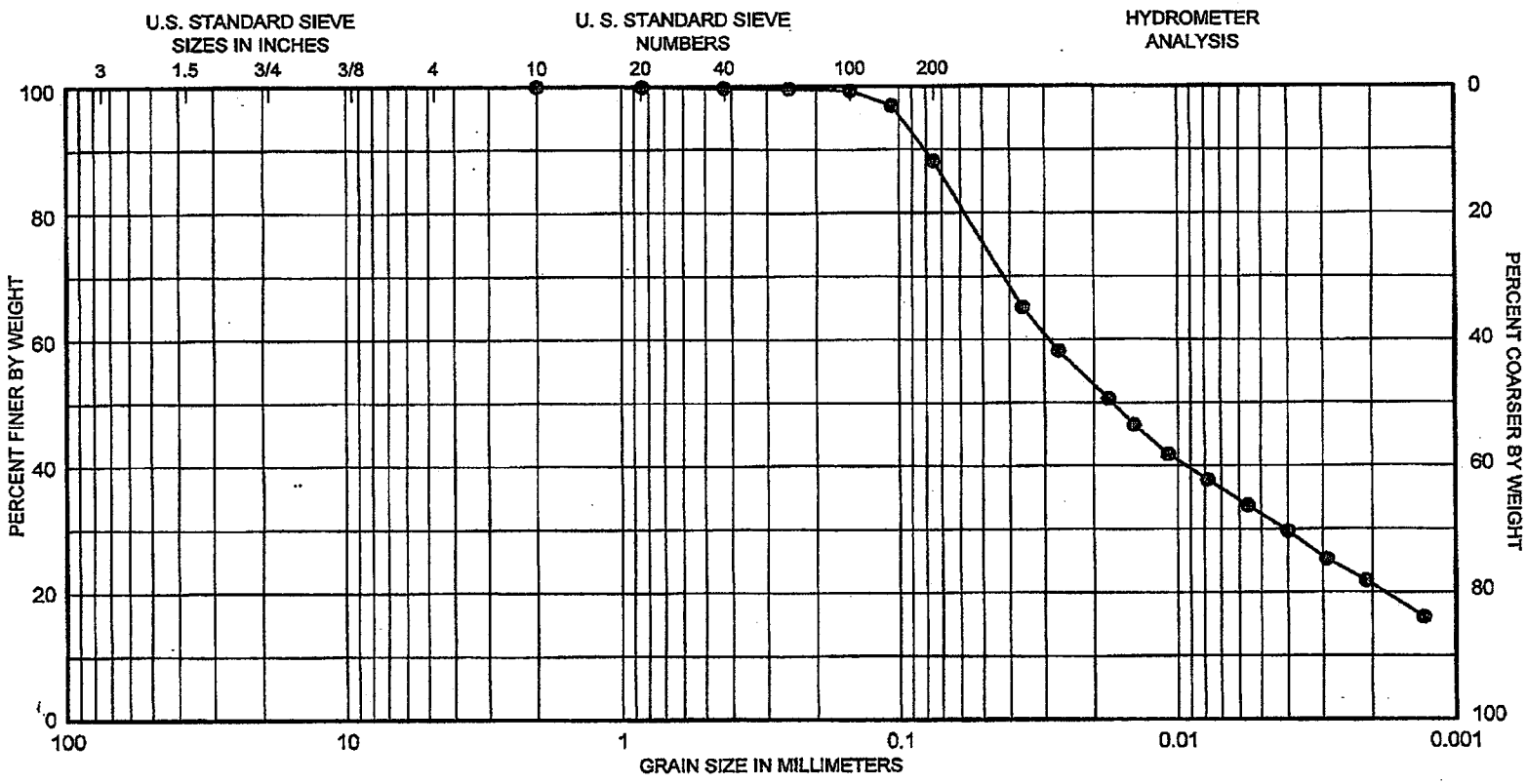
Remarks

ASTM D6913-04

Sample Number: S-15 **Depth:** 58.5-60.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure 9-20-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{60}	CLASSIFICATION
●	B-779-UD-8	60.18	NA	NA	0.0172	0.08	Fat Clay, greenish gray

GRAIN SIZE CURVE

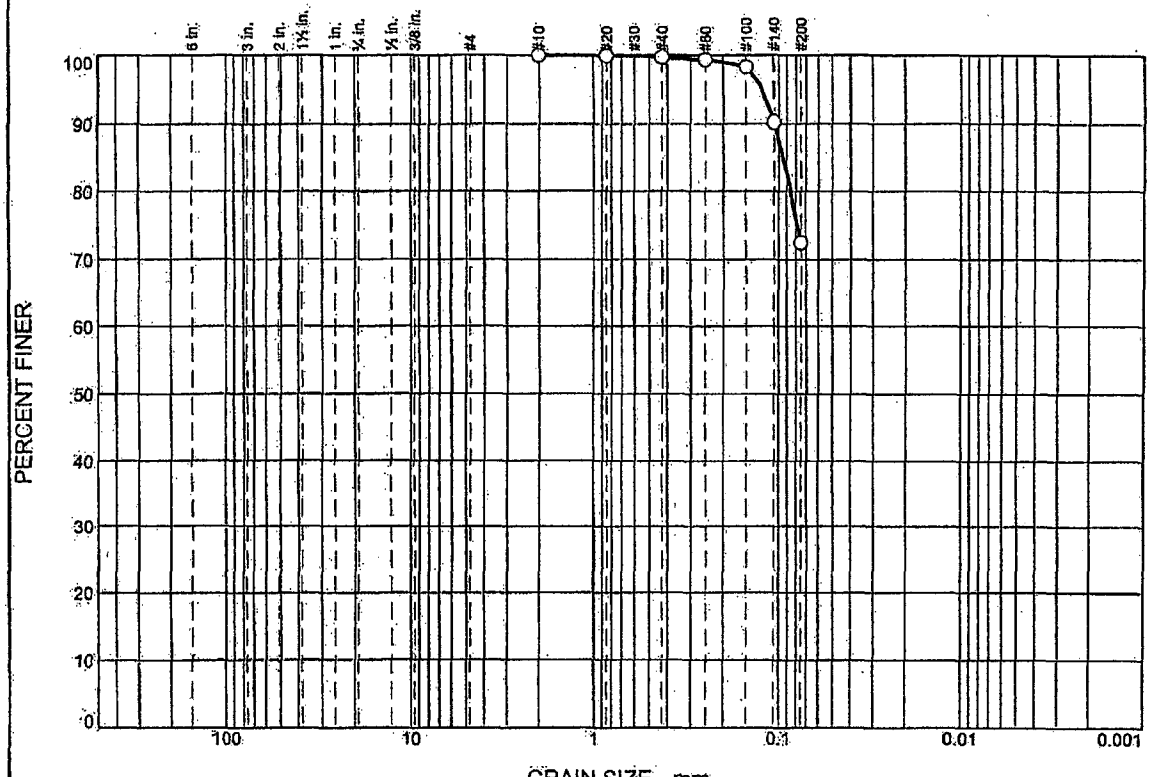
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	27.2	72.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.7		
#60	99.3		
#100	98.3		
#140	90.2		
#200	72.5		

* (no specification provided)

Material Description

Silt and Clay with Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.0943 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

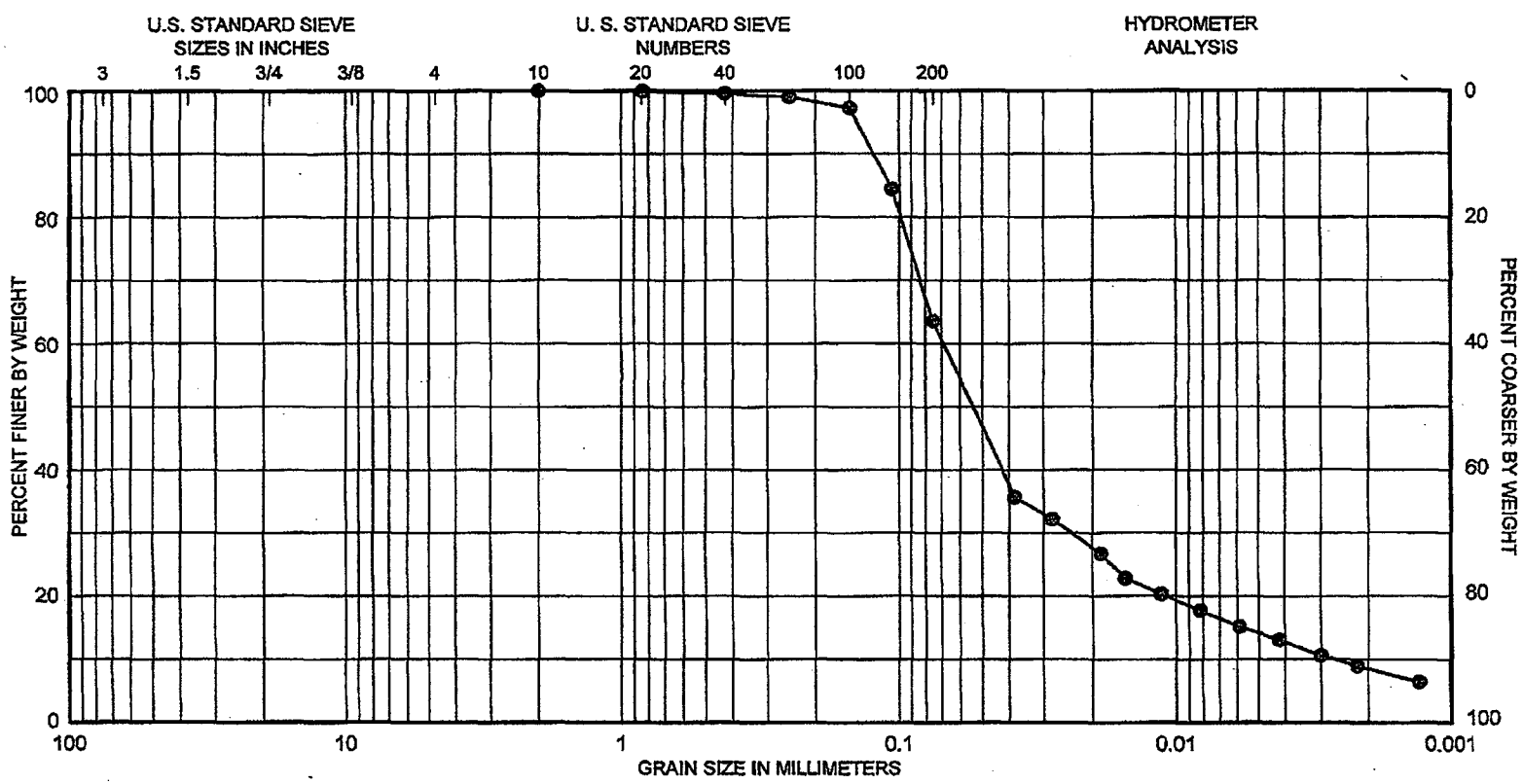
Remarks

ASTM D6913-04

Sample Number: S-17 **Depth:** 68.5-70.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-20-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

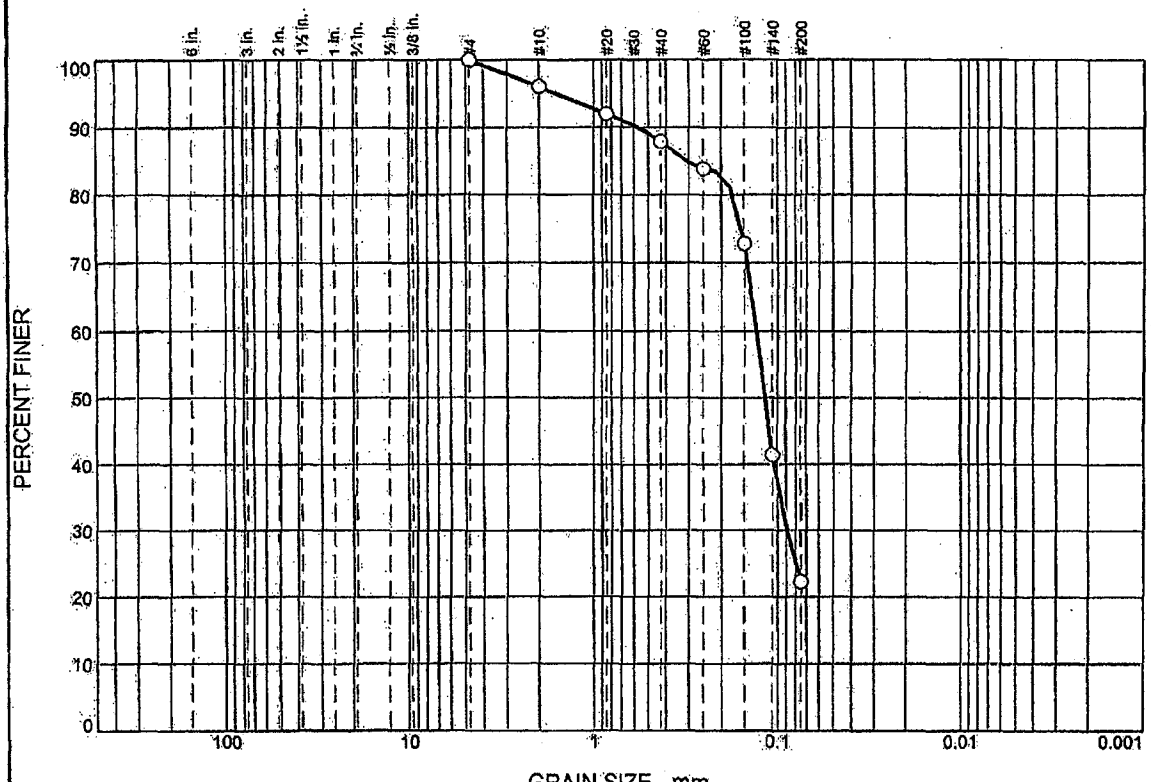
SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-9	70.18	3.06	25.76	0.0539	0.12	Sandy Fat Clay, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MA 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	4.0	8.1	65.7	22.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	96.0		
#20	92.0		
#40	87.9		
#60	83.8		
#100	72.8		
#140	41.4		
#200	22.2		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3091 D_{60}= 0.1292 D_{50}= 0.1167
D_{30}= 0.0890 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

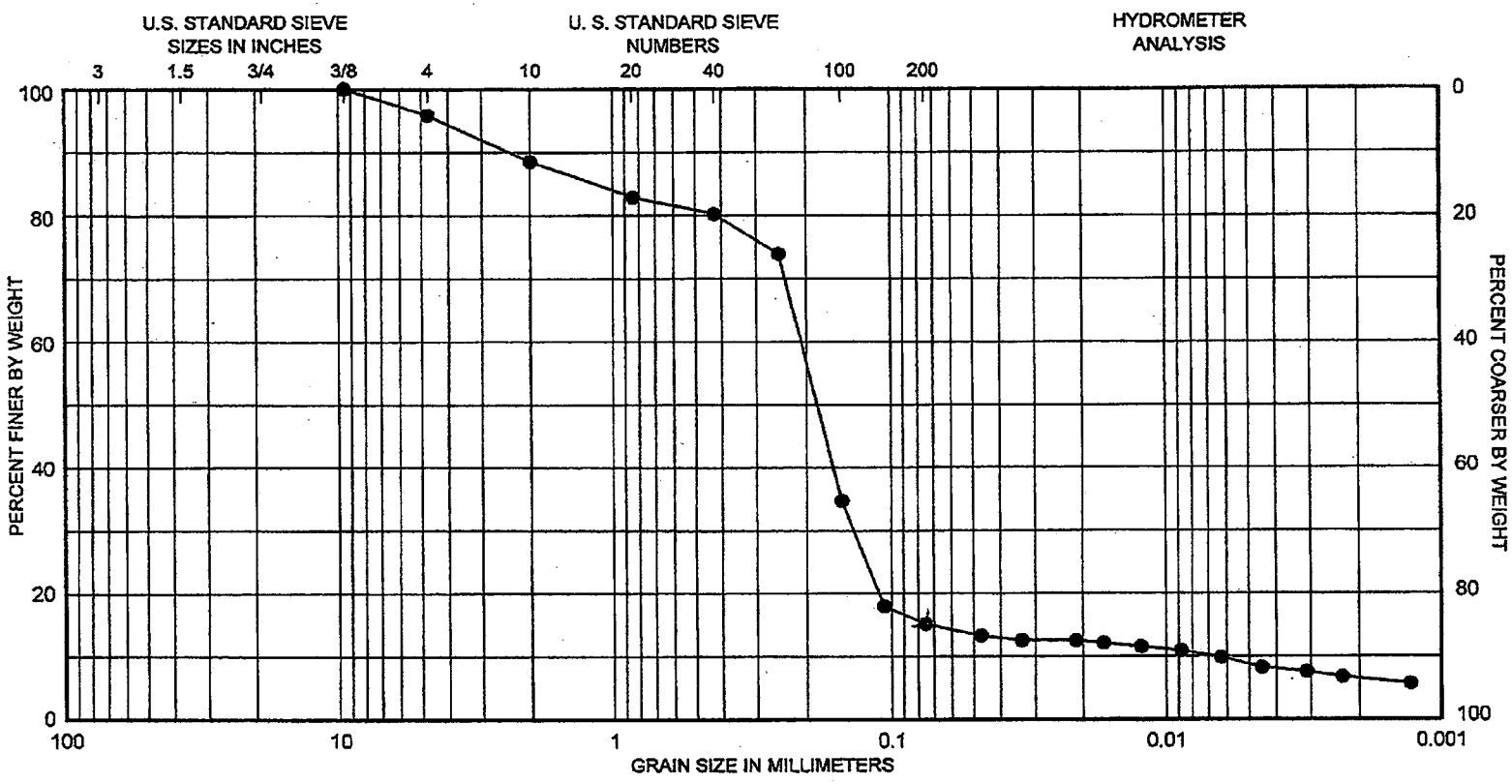
Remarks

ASTM D6913-04

Sample Number: S-18 **Depth:** 73.5-75.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** A 9-30-08

Tested By: DK **Checked By:** JA



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-10	82.7	13.25	31.16	0.1831	2.38	Clayey Sand, brown and gray, with shell fragments

GRAIN SIZE CURVE

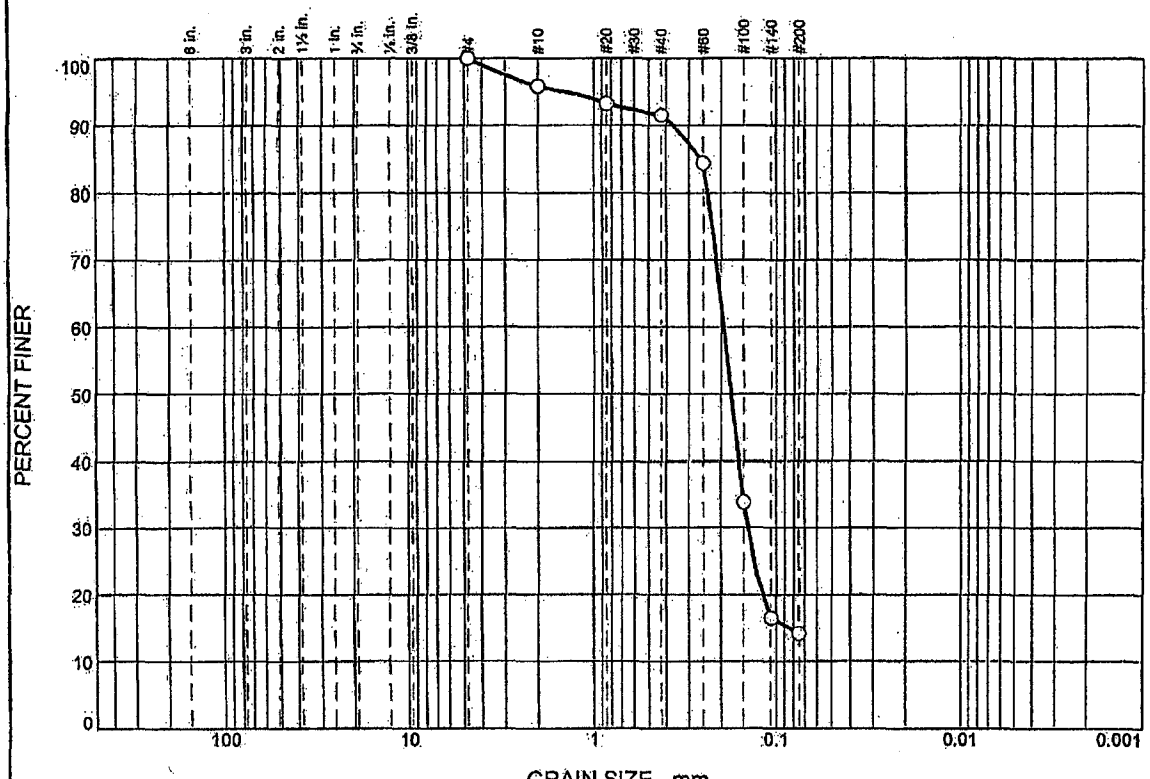
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MH 10-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	4.1	4.4	77.5	14.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	95.9		
#20	93.2		
#40	91.5		
#60	84.3		
#100	33.9		
#140	16.4		
#200	14.0		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2594 D_{60}= 0.1930 D_{50}= 0.1764
D_{30}= 0.1429 D_{15}= 0.0863 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

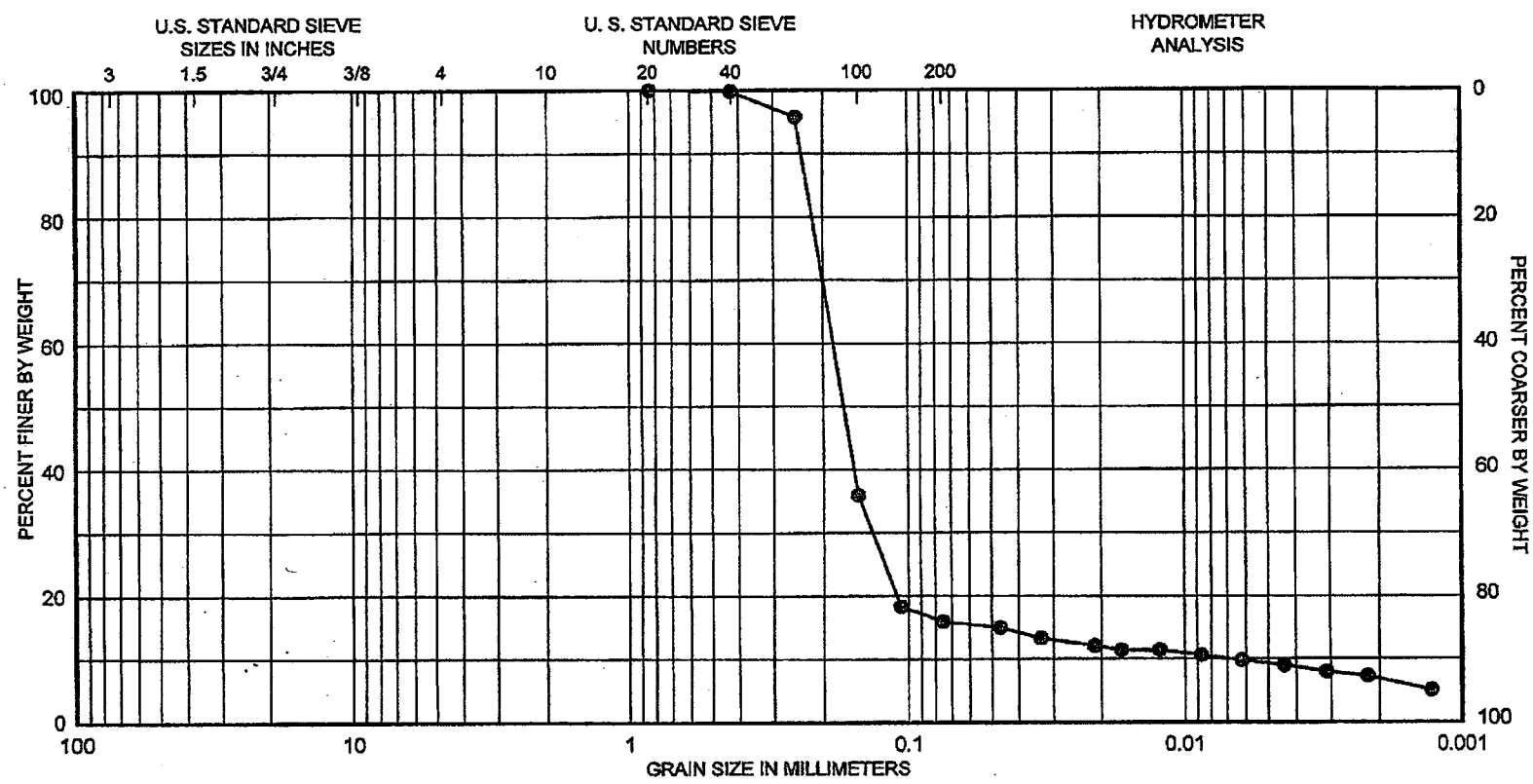
Remarks

ASTM D6913-04

Sample Number: S-20 **Depth:** 83.5-85.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** AA 9-30-08

Tested By: DK **Checked By:** JA



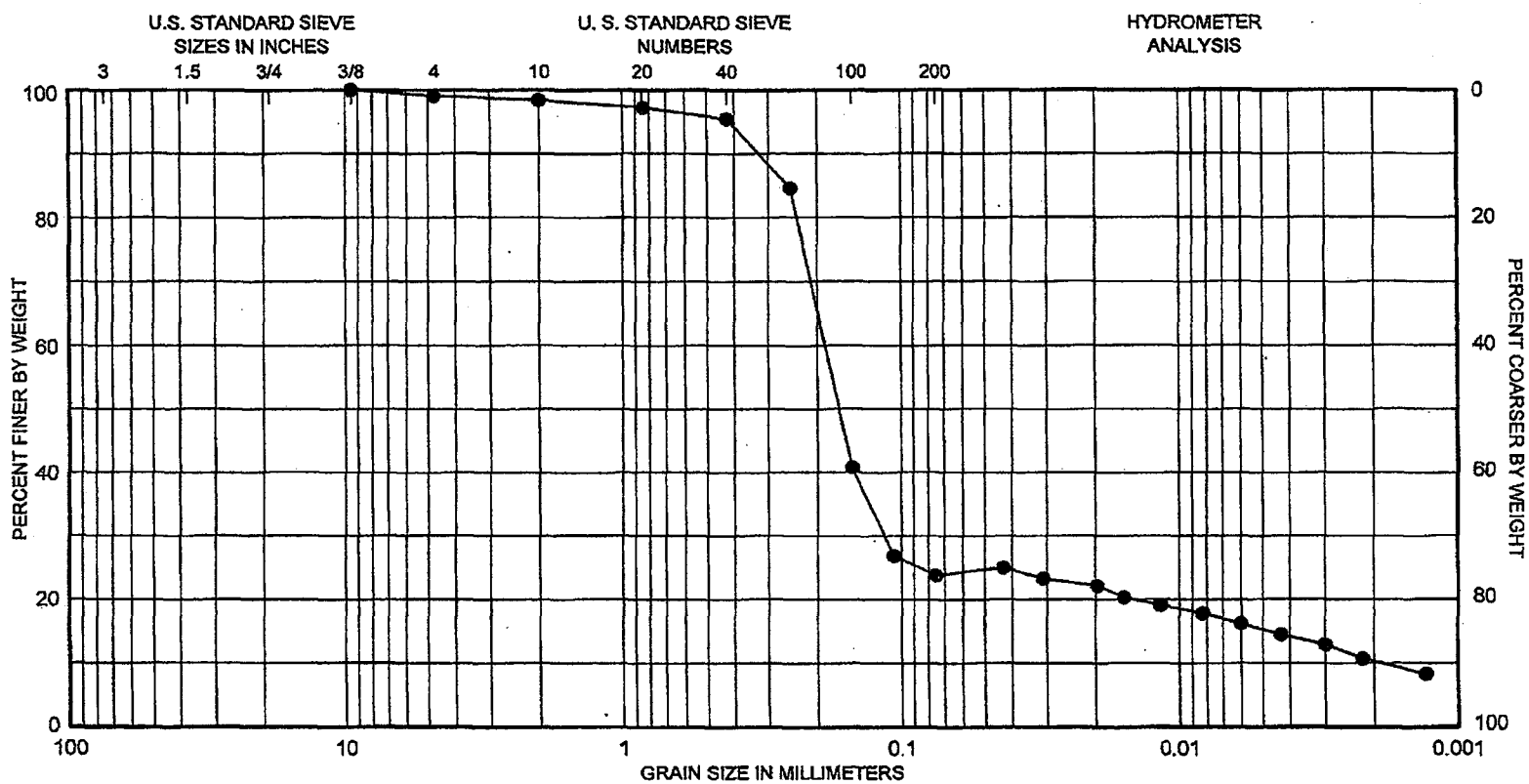
GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-11	98.44	14.31	27.29	0.1691	0.24	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

PLATE 1

MK 10-7-08



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	BORING	DEPTH, FT	C_c	C_u	D_{50}	D_{90}	CLASSIFICATION
●	B-779-UD-12	101.08	37.13	99.46	0.167	0.33	Clayey Sand, greenish gray, with shell fragments

GRAIN SIZE CURVE

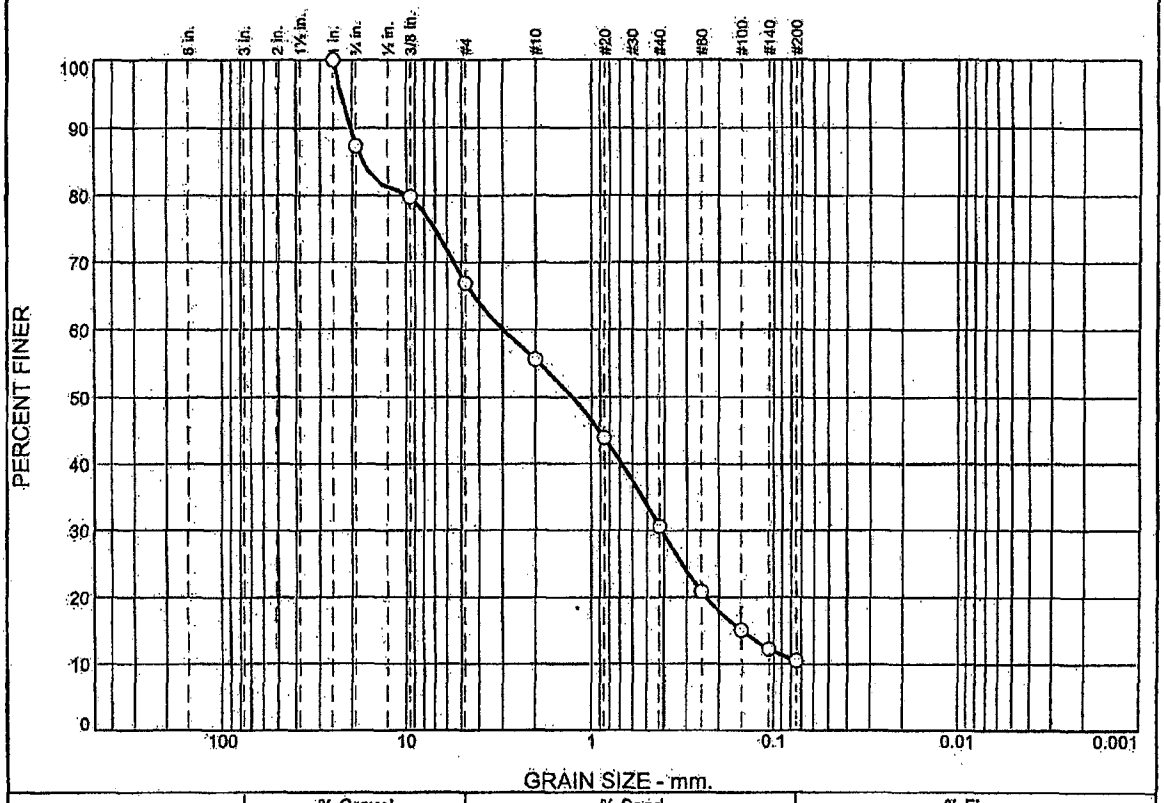
PLATE 1

Report No. 0411-08-1707

DCN: CALV-050

MA 12-7-08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.7	20.5	11.2	25.0	20.2	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	87.3		
3/8in.	79.8		
#4	66.8		
#10	55.6		
#20	43.9		
#40	30.6		
#60	20.8		
#100	15.0		
#140	12.2		
#200	10.4		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 17.5512 D_{60}= 2.9949 D_{50}= 1.2654
D_{30}= 0.4131 D_{15}= 0.1496 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

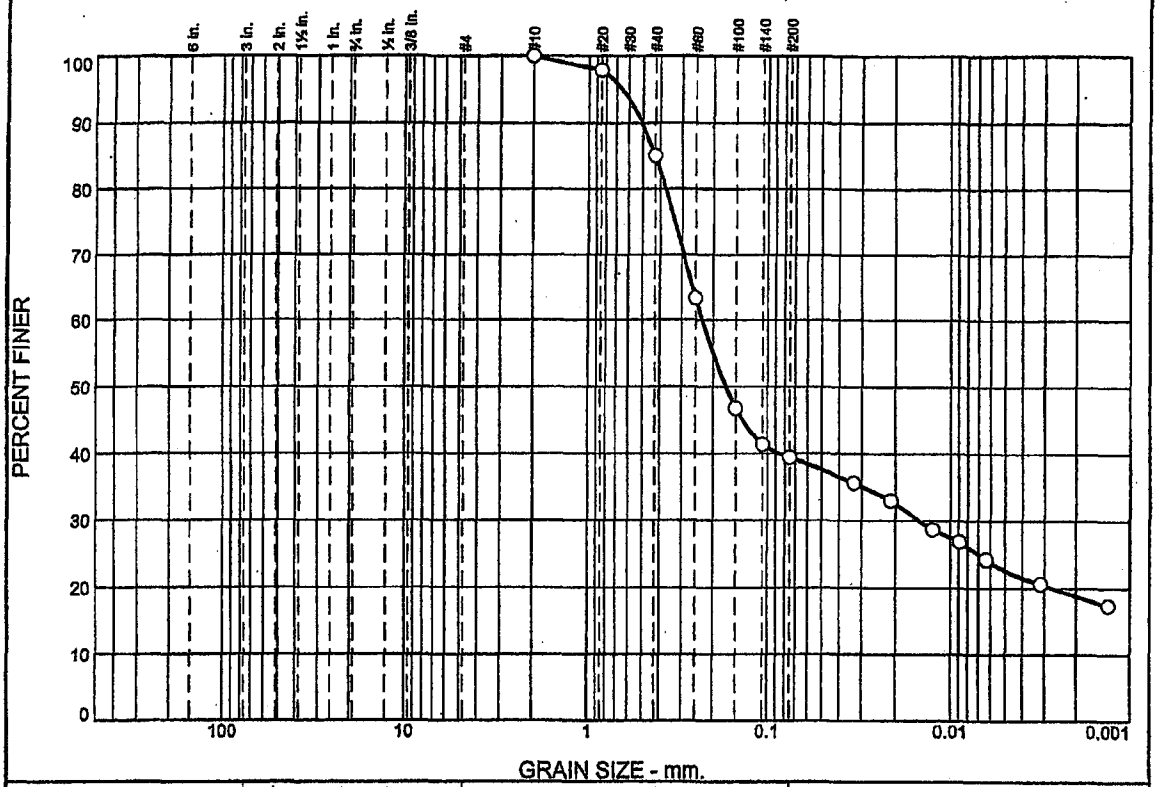
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-781 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** ~~A~~ 9.30.08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.9	45.6	16.9	22.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.8		
#40	85.1		
#60	63.3		
#100	46.8		
#140	41.3		
#200	39.5		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 15 LL= 24 PI= 9

Coefficients

D_{85}= 0.4242 D_{60}= 0.2299 D_{50}= 0.1705
D_{30}= 0.0149 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-4(0)

Remarks

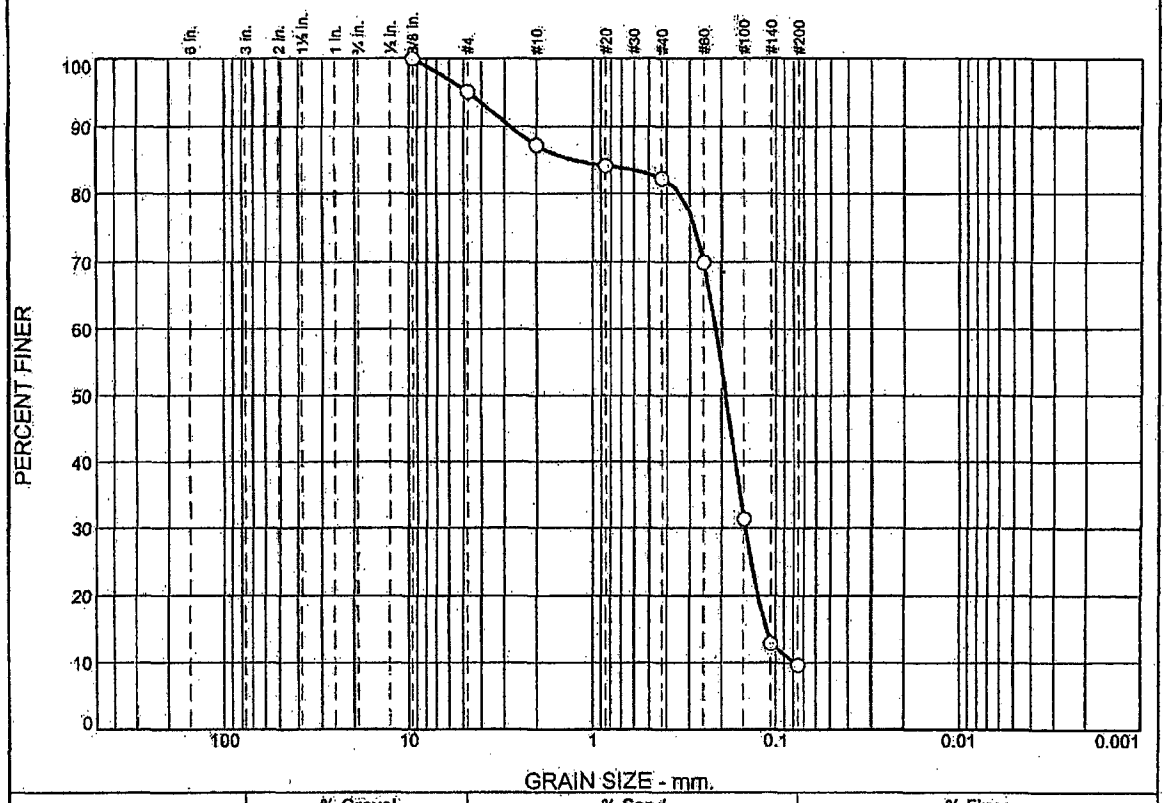
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-3 **Depth:** 5.0'-6.5'
Location: B-781 **Date:** 8-25-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.0	7.8	5.0	72.6	9.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	95.0		
#10	87.2		
#20	84.1		
#40	82.2		
#60	69.9		
#100	31.3		
#140	12.8		
#200	9.6		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.2587 D_{60}= 0.2149 D_{50}= 0.1893
D_{30}= 0.1473 D_{15}= 0.1131 D_{10}= 0.0785
C_u= 2.74 C_c= 1.29

Classification

USCS= NR AASHTO= NR

Remarks

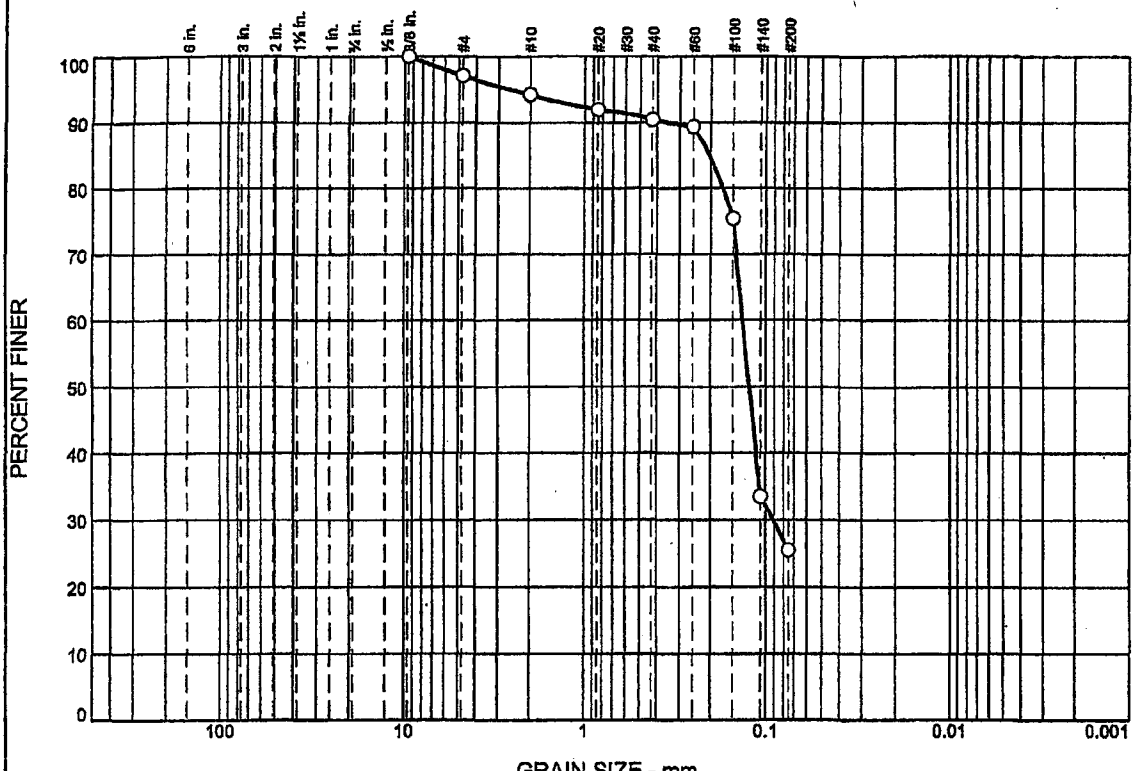
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5'-20.0'
Location: B-781 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	2.9	3.8	65.0	25.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	97.1		
#10	94.2		
#20	92.0		
#40	90.4		
#60	89.4		
#100	75.4		
#140	33.5		
#200	25.4		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2013 D_{60}= 0.1320 D_{50}= 0.1226
D_{30}= 0.0913 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

ASTM D6913-04
ASTM D4318-05

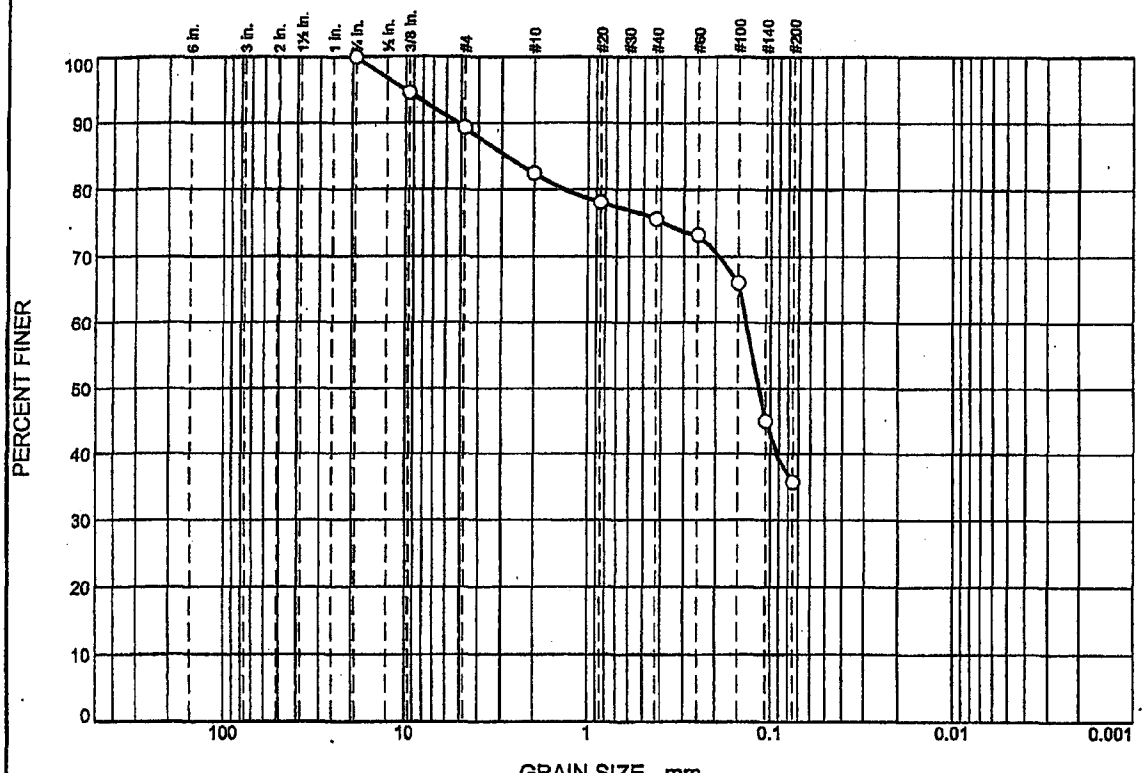
Sample Number: S-8 **Depth:** 23.5'-25.0'
Location: B-781

Date: 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.7	6.8	7.0	39.8	35.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	94.5		
#4	89.3		
#10	82.5		
#20	78.1		
#40	75.5		
#60	73.2		
#100	66.0		
#140	45.1		
#200	35.7		

* (no specification provided)

Material Description

Silty, Clayey Sand

Atterberg Limits

PL= 22 LL= 28 PI= 6

Coefficients

D_{85}= 2.8015 D_{60}= 0.1348 D_{50}= 0.1156
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC-SM AASHTO= A-4(0)

Remarks

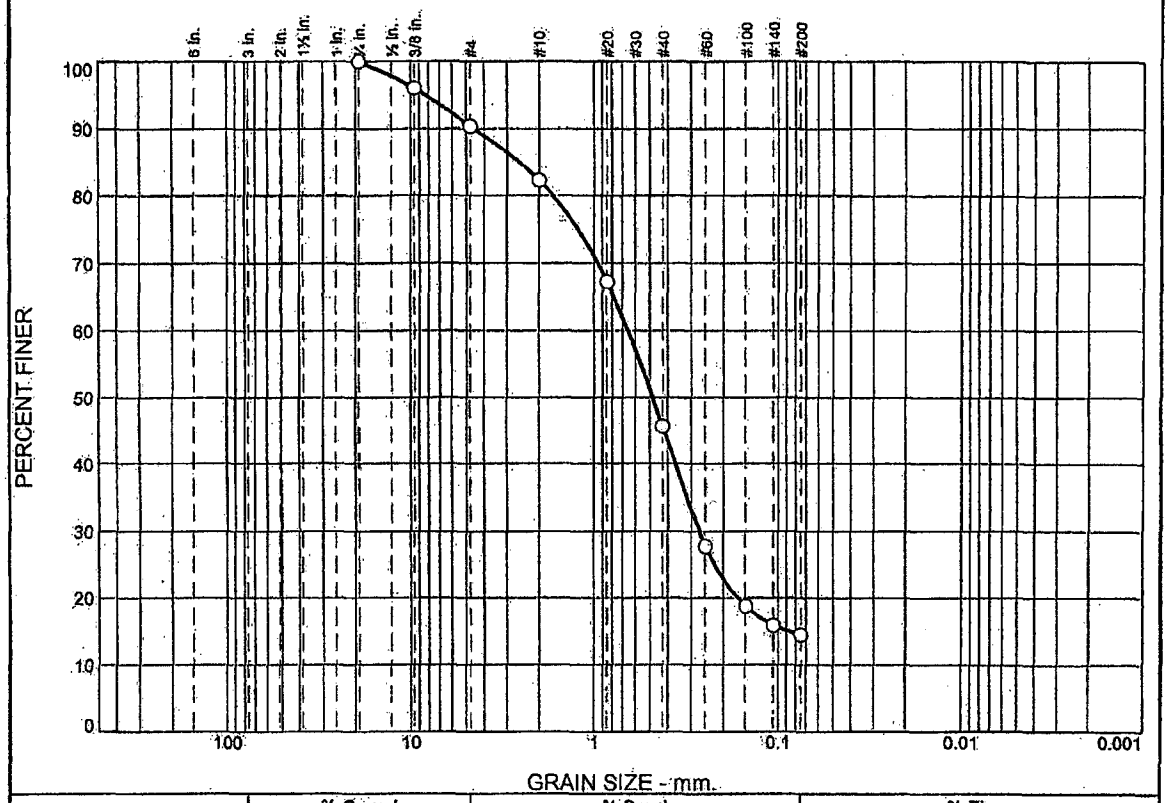
ASTM D6913-04
ASTM D4318-05

Sample Number: S-9 **Depth:** 28.5'-29.8'
Location: B-781 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.7	7.9	36.8	31.1	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	96.0		
#4	90.3		
#10	82.4		
#20	67.3		
#40	45.6		
#60	27.7		
#100	18.7		
#140	15.8		
#200	14.5		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.5575 D_{60}= 0.6543 D_{50}= 0.4810
D_{30}= 0.2709 D_{15}= 0.0877 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

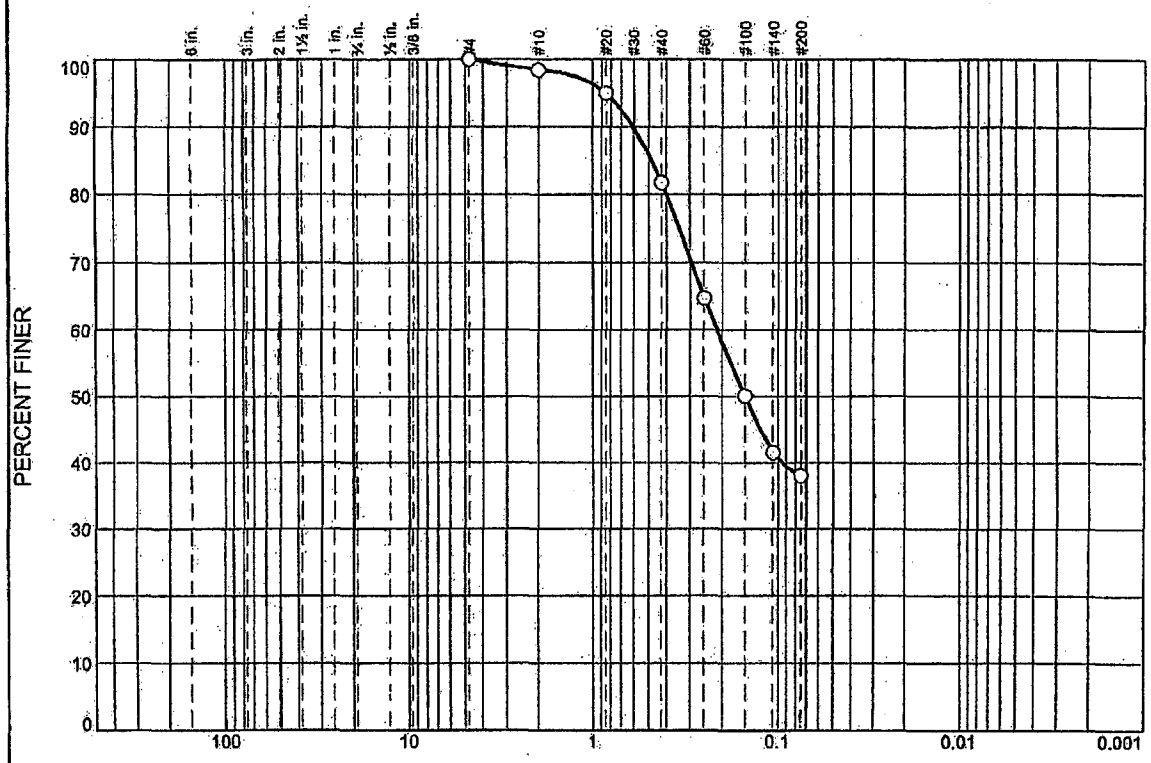
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** A-9-50-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.6	16.7	43.7	38.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.4		
#20	95.0		
#40	81.7		
#60	64.8		
#100	50.1		
#140	41.5		
#200	38.0		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4809 D_{60}= 0.2135 D_{50}= 0.1496
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

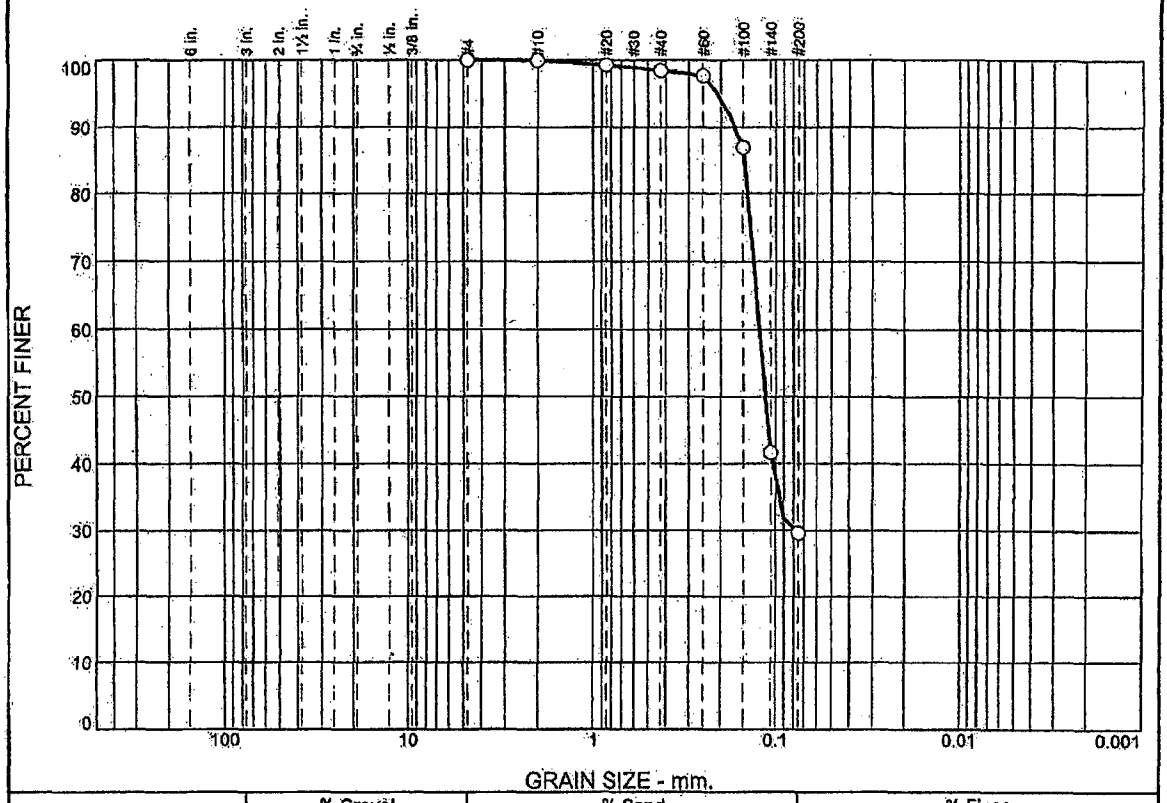
ASTM D6913-04

Sample Number: S-2 **Depth:** 25.'-4.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9.30.08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.5	68.8	29.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.2		
#40	98.4		
#60	97.6		
#100	86.9		
#140	41.6		
#200	29.6		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1473 D_{60}= 0.1226 D_{50}= 0.1141
D_{30}= 0.0812 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

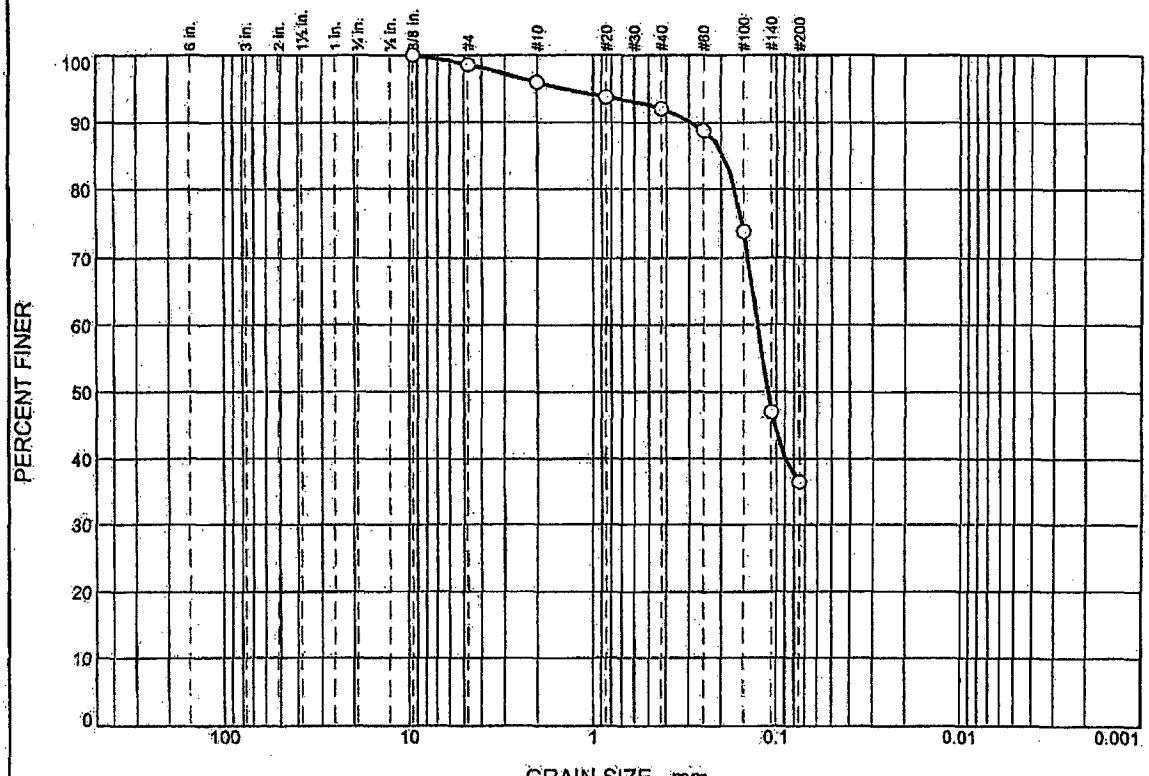
ASTM D6913-04

Sample Number: S-9 **Depth:** 28.5'-30.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** AA 9-10-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.7	3.9	55.5	36.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.6		
#10	95.9		
#20	93.7		
#40	92.0		
#60	88.7		
#100	73.9		
#140	47.0		
#200	36.5		

* (no specification provided)

Material Description

Sand with some Fine Gravel and some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1931 D_{60}= 0.1259 D_{50}= 0.1110
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

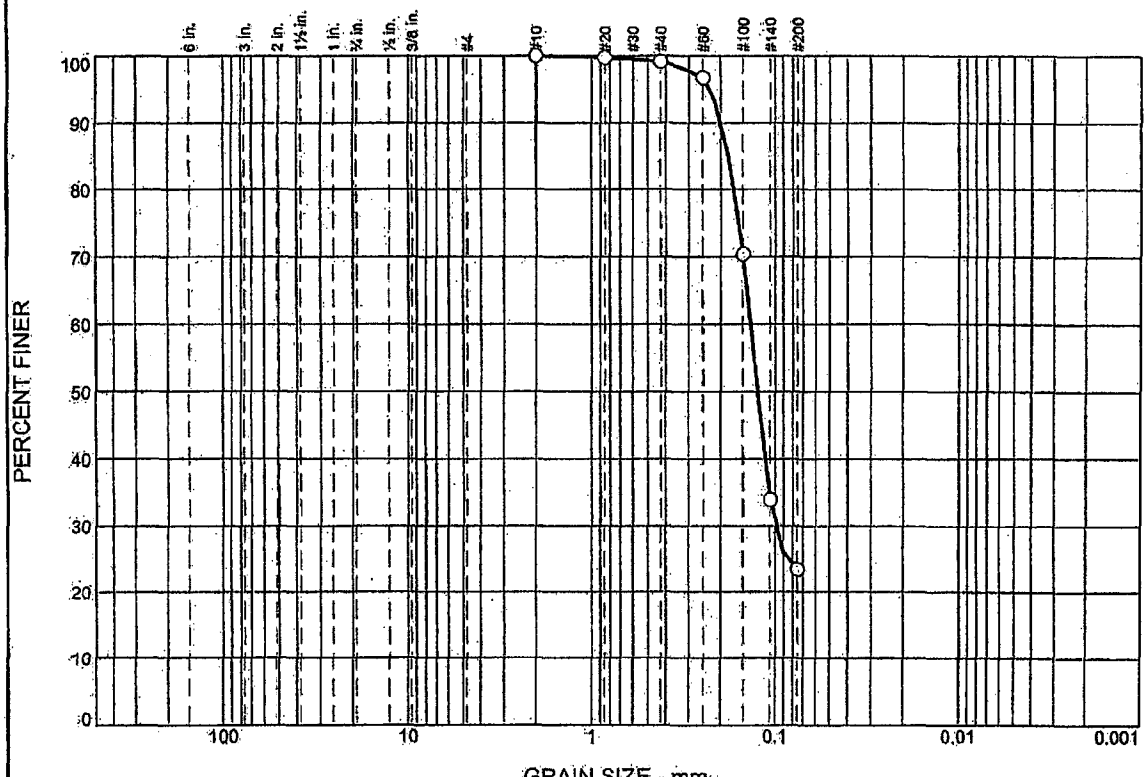
ASTM D6913-04

Sample Number: S-10 **Depth:** 33.5'-35.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	75.7	23.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	99.1		
#60	96.8		
#100	70.4		
#140	34.0		
#200	23.4		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1806 D_{60}= 0.1362 D_{50}= 0.1249
D_{30}= 0.0996 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

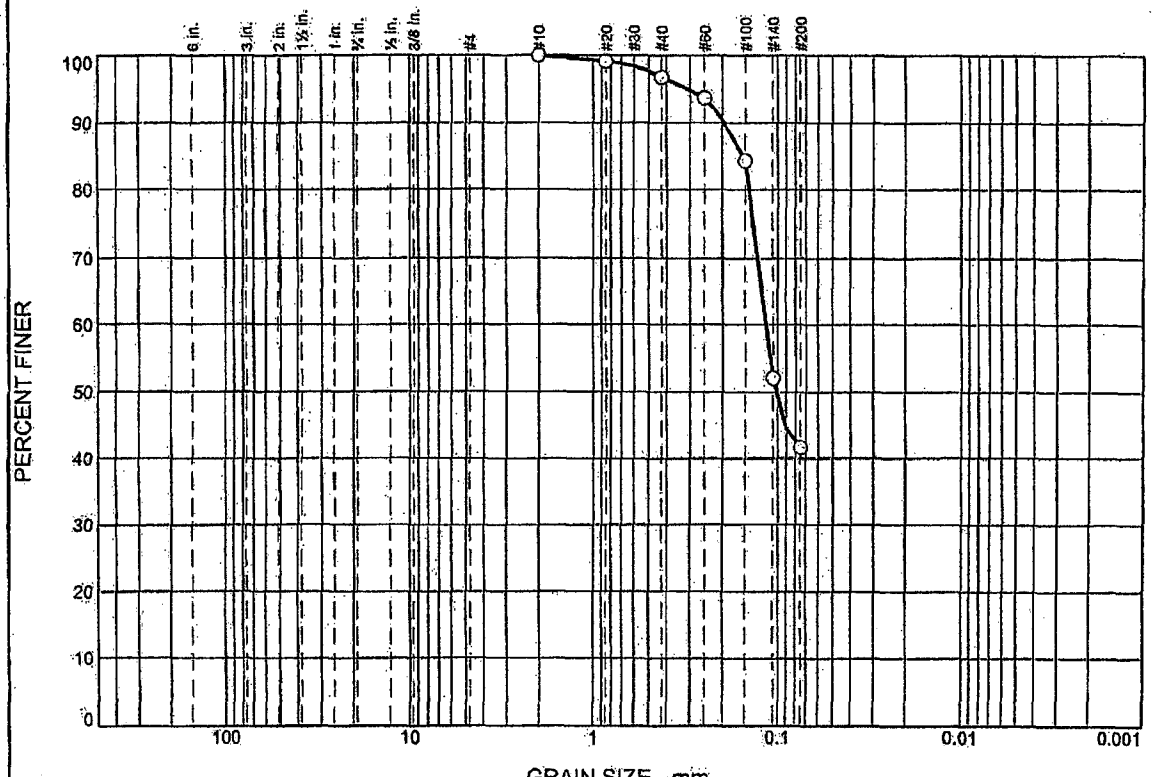
ASTM D6913-04

Sample Number: S-11 **Depth:** 38.5'-40.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** N/A 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.3	55.2	41.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.1		
#40	96.7		
#60	93.6		
#100	84.3		
#140	52.1		
#200	41.5		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1547 D_{60}= 0.1163 D_{50}= 0.1027
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

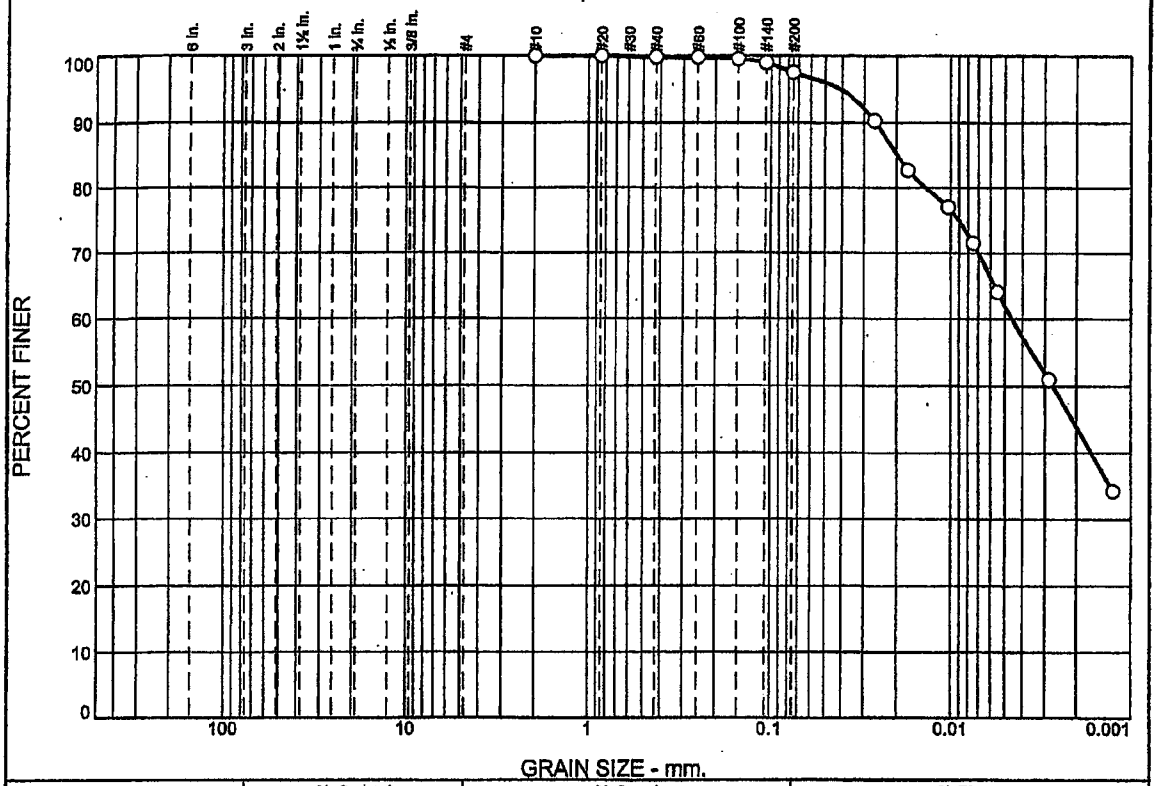
ASTM D6913-04

Sample Number: S-12 **Depth:** 43.5'-45.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** #D 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	2.3	35.5	62.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.8		
#100	99.5		
#140	99.0		
#200	97.5		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 31 LL= 66 PI= 35

Coefficients

D_{85}= 0.0198 D_{60}= 0.0046 D_{50}= 0.0027
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(42)

Remarks

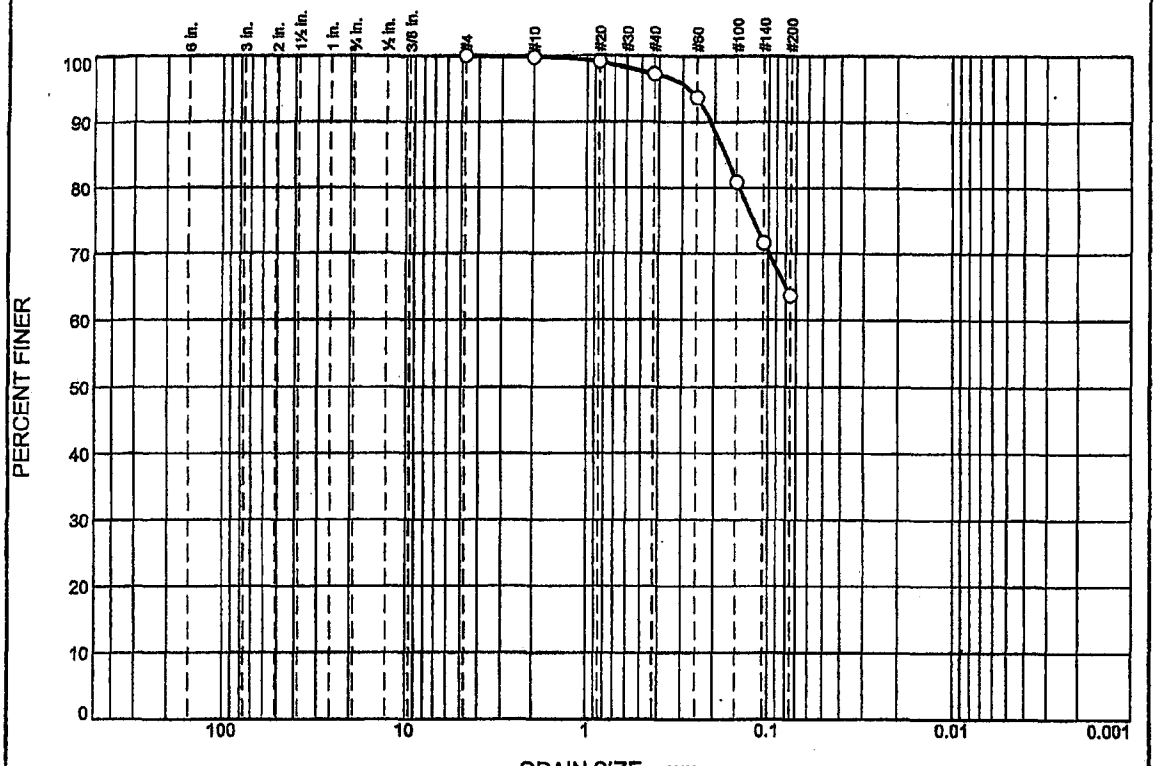
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-12 **Depth:** 43.5-45.0
Location: B-785 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.6	33.5	63.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	99.1		
#40	97.2		
#60	93.7		
#100	80.9		
#140	71.6		
#200	63.7		

* (no specification provided)

Material Description

Sandy Lean Clay

Atterberg Limits

PL= 19 LL= 41 PI= 22

Coefficients

D_{85}= 0.1732 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(12)

Remarks

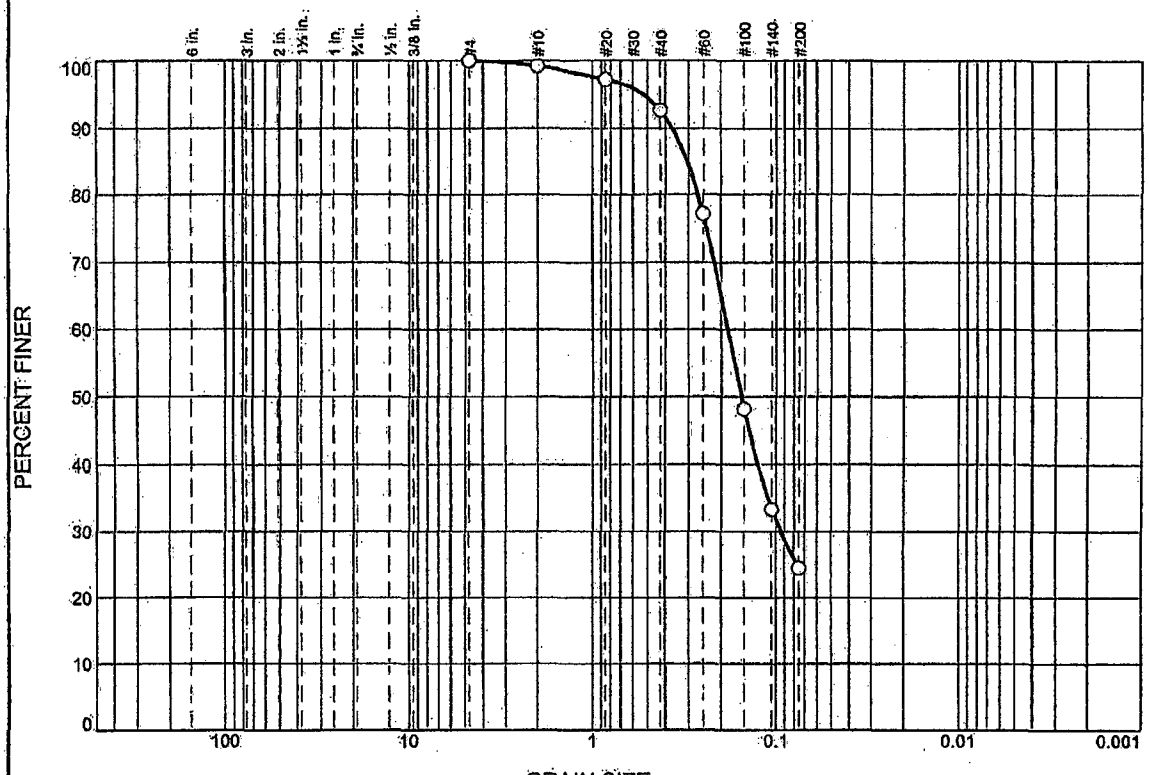
ASTM D6913-04
ASTM D4318-05

Sample Number: S-13 **Depth:** 48.5-50.0
Location: B-785 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	6.6	68.2	24.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.2		
#20	97.2		
#40	92.6		
#60	77.2		
#100	48.1		
#140	33.4		
#200	24.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3042 D_{60}= 0.1842 D_{50}= 0.1553
D_{30}= 0.0946 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

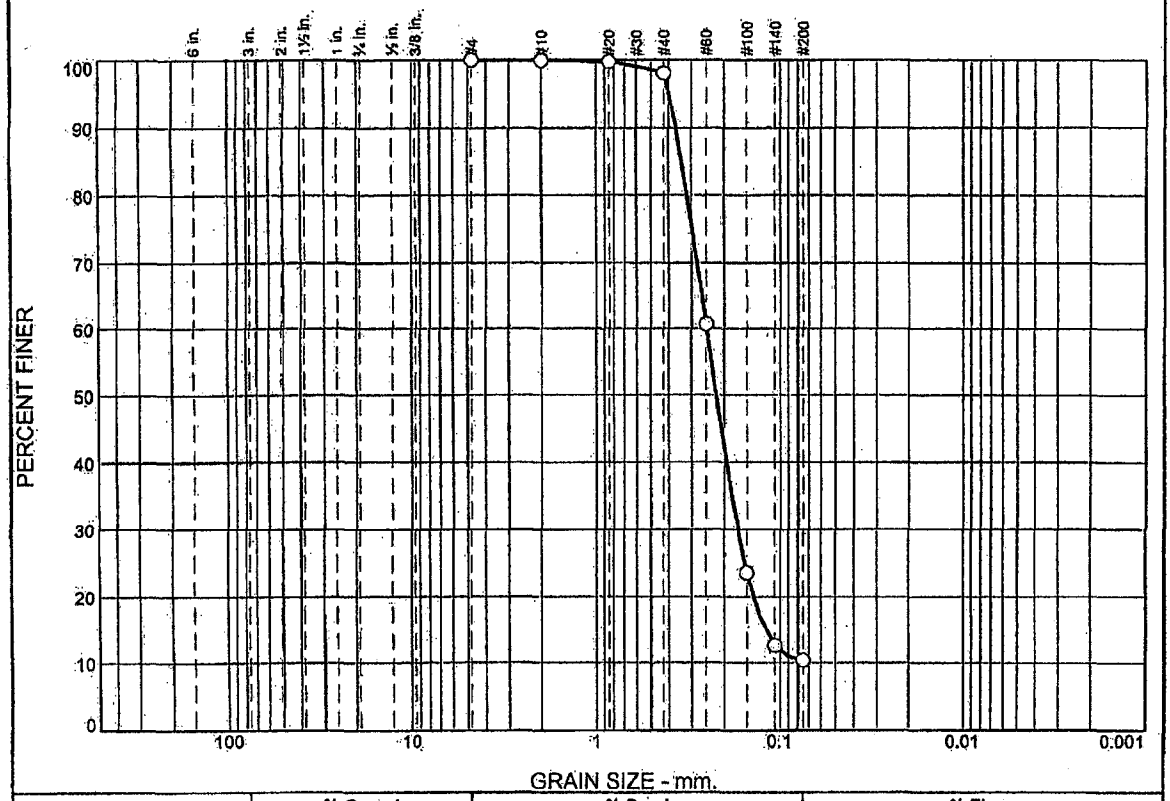
ASTM D6913-04

Sample Number: S-14 **Depth:** 53.5-55.0
Location: B-785 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	87.7	10.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.0		
#60	60.7		
#100	23.5		
#140	12.6		
#200	10.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3381 D_{60}= 0.2480 D_{50}= 0.2200
D_{30}= 0.1679 D_{15}= 0.1194 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

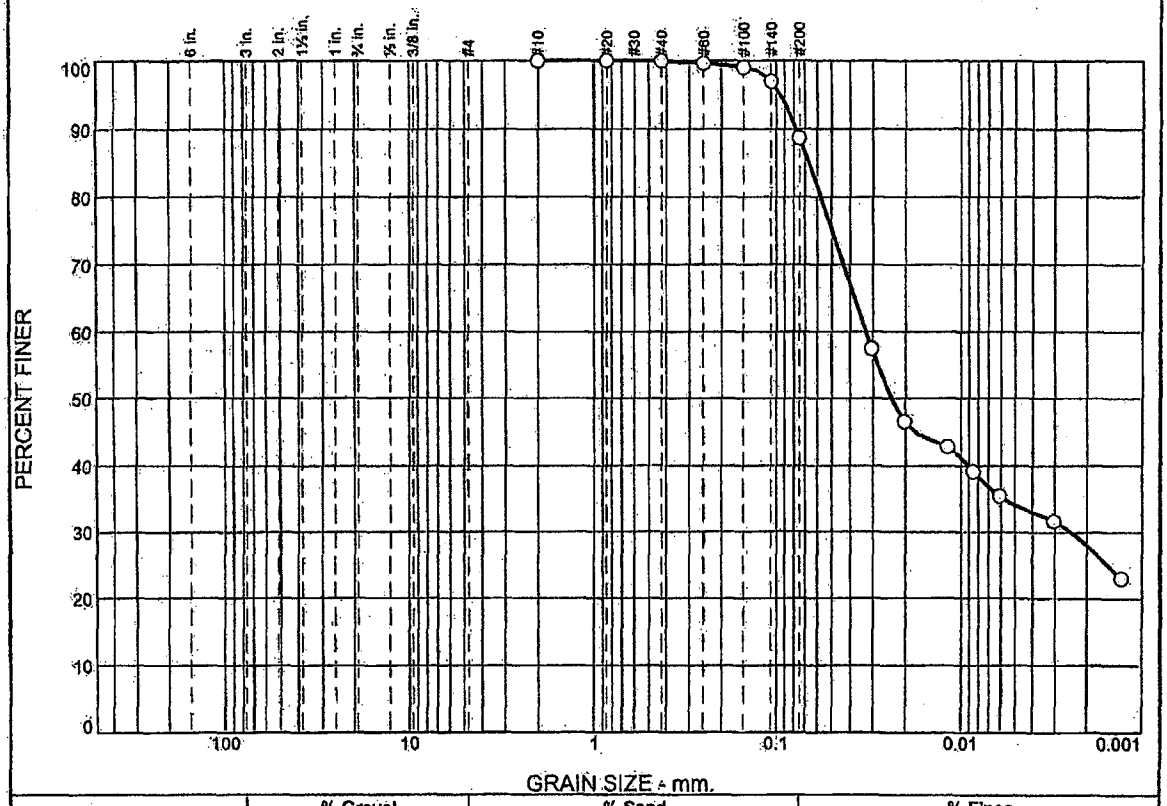
ASTM D6913-04

Sample Number: S-15 **Depth:** 58.5-60.0
Location: B-785 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MS 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	11.2	54.6	34.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.6		
#100	99.0		
#140	96.9		
#200	88.7		

* (no specification provided)

Material Description

Fine Sandy Clayey Silt

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 0.0668 D_{60}= 0.0329 D_{50}= 0.0238
D_{30}= 0.0025 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

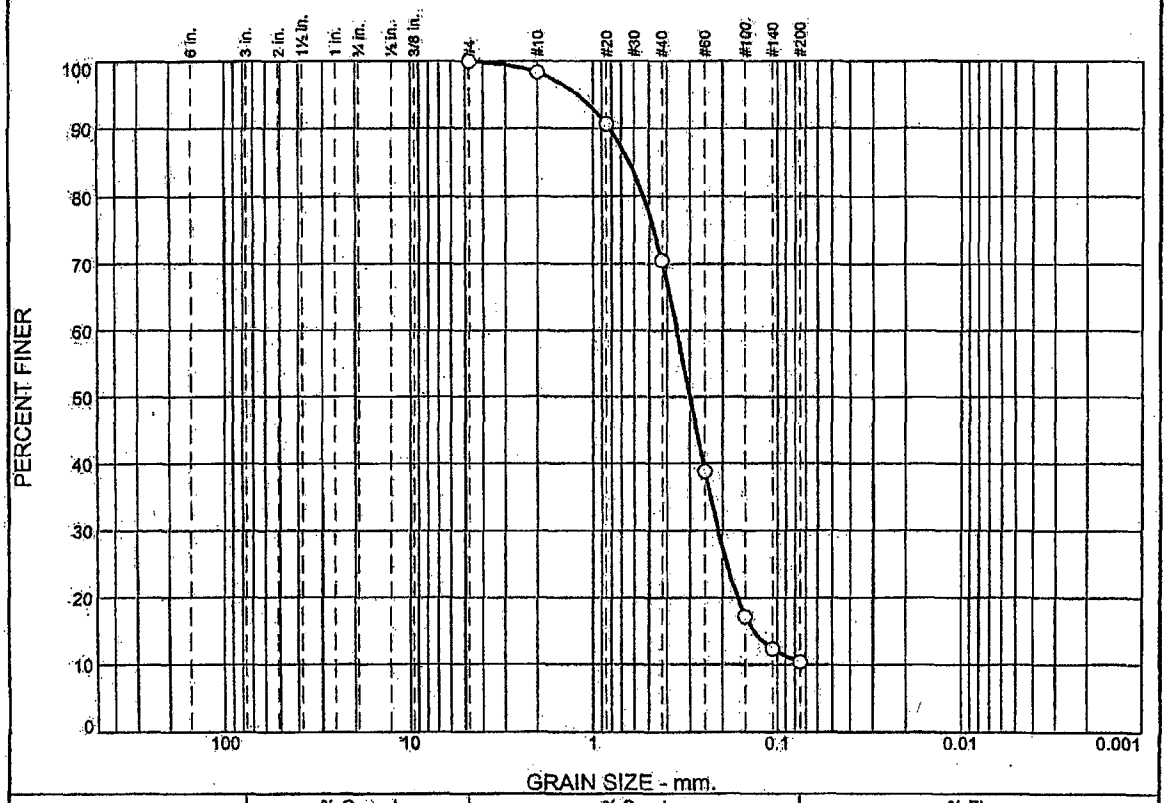
ASTM D422-63 (2007)

Sample Number: S-16 **Depth:** 63.5-65.0
Location: B-785 **Date:** 9-15-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.7	27.8	60.2	10.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.3		
#20	90.6		
#40	70.5		
#60	38.7		
#100	17.1		
#140	12.3		
#200	10.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.6353 D_{60}= 0.3524 D_{50}= 0.3004
D_{30}= 0.2124 D_{15}= 0.1355 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

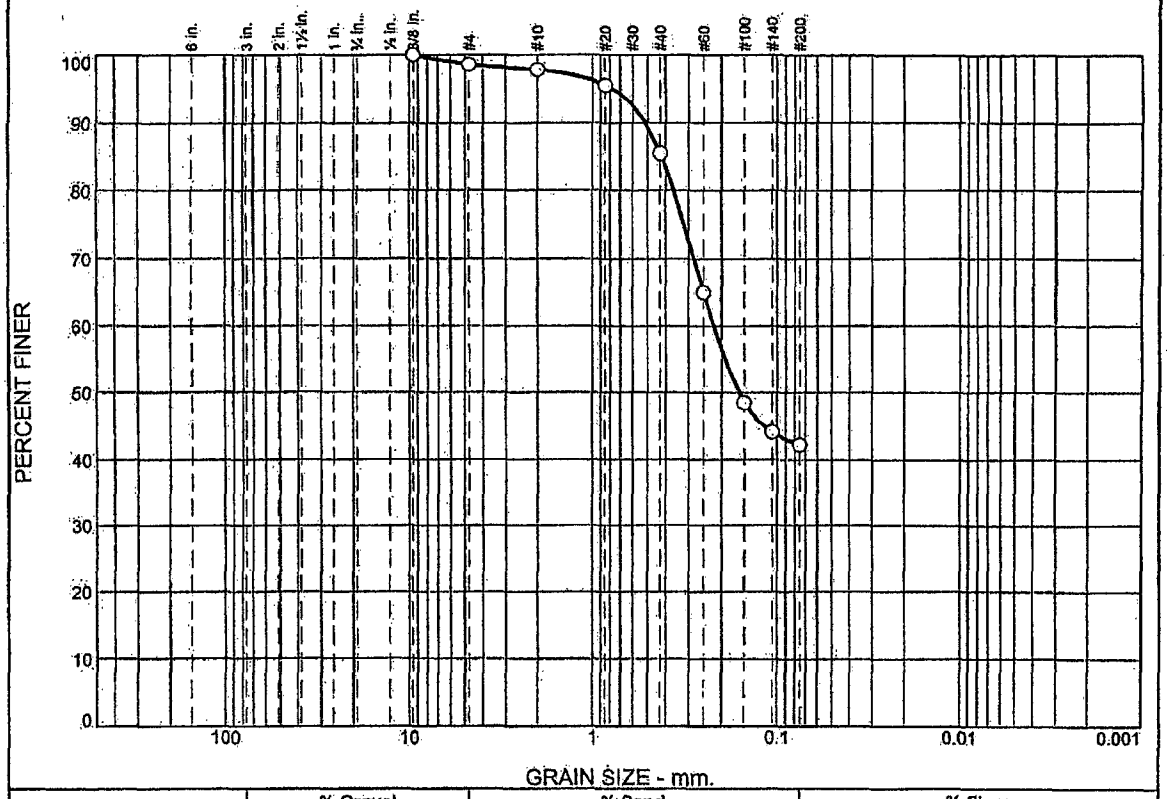
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-786 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.8	12.3	43.3	42.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.6		
#10	97.8		
#20	95.4		
#40	85.5		
#60	64.9		
#100	48.4		
#140	44.1		
#200	42.2		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4185 D_{60}= 0.2208 D_{50}= 0.1611
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

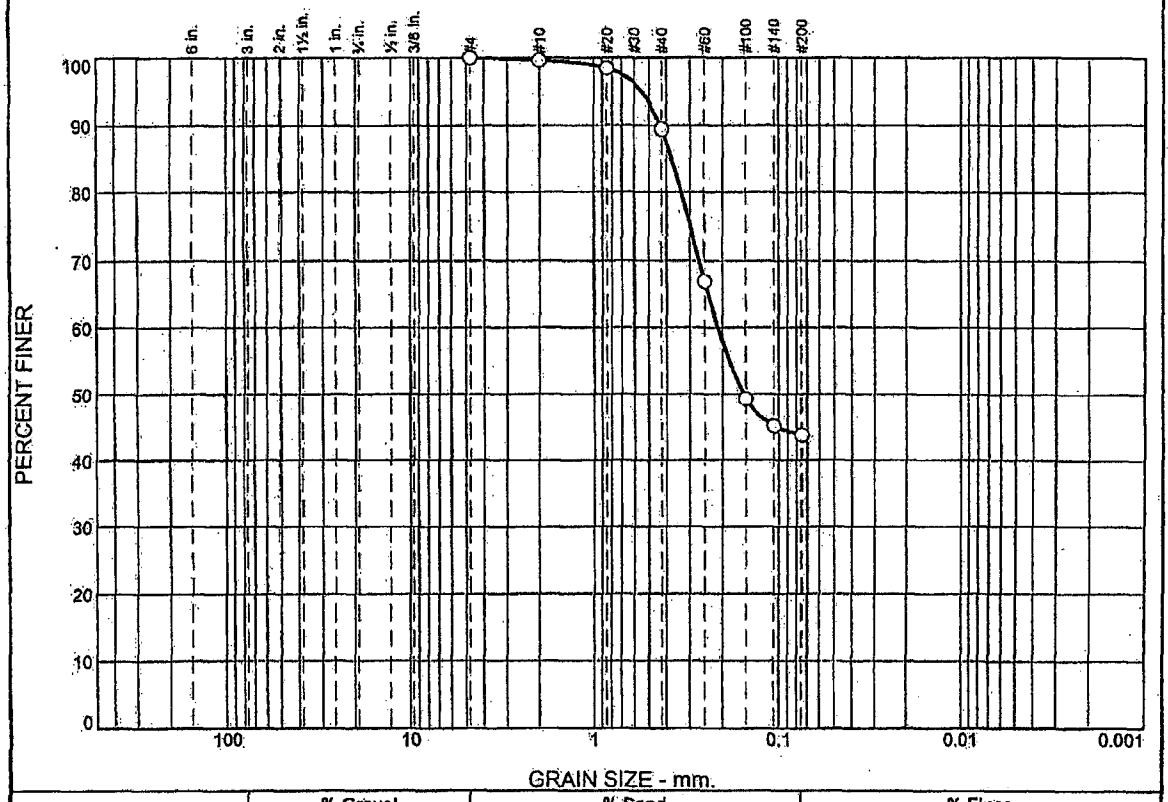
ASTM D6913-04

Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-786 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** AA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	10.2	45.6	43.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.4		
#40	89.4		
#60	66.9		
#100	49.3		
#140	45.1		
#200	43.8		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3755 D_{60}= 0.2122 D_{50}= 0.1551
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

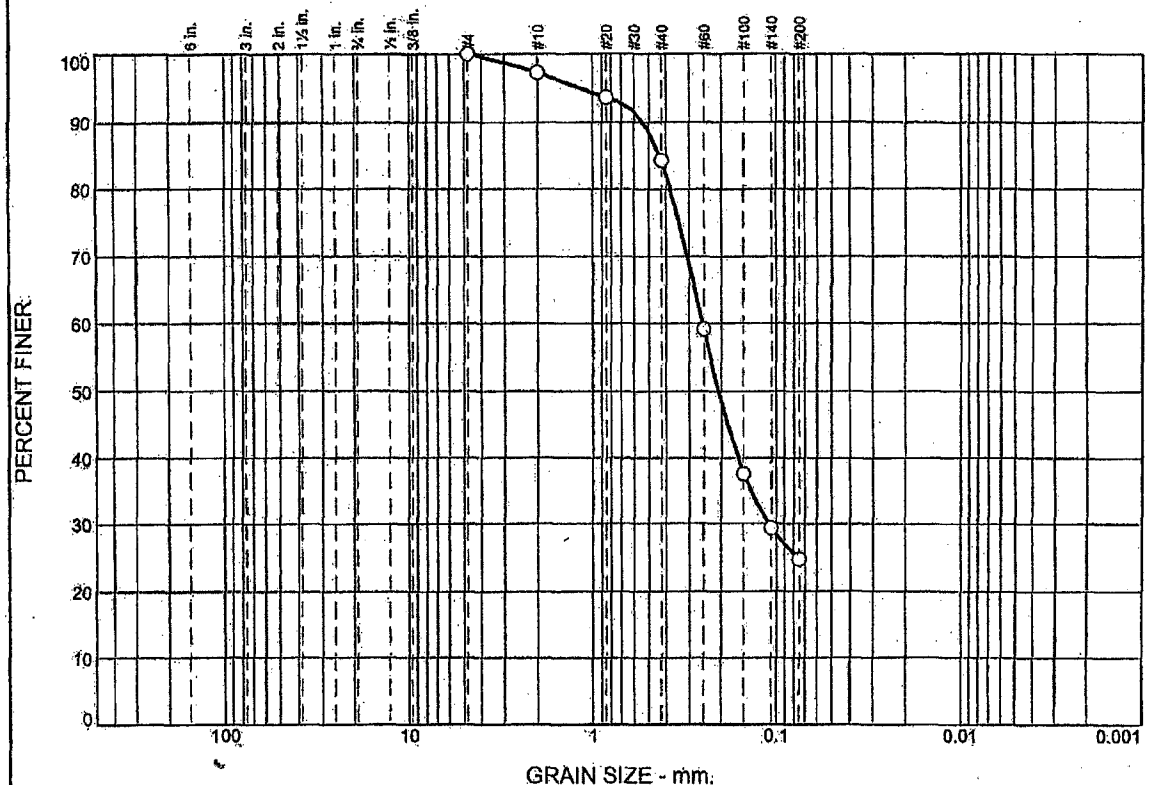
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-786 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 Figure 11 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.7	13.0	59.6	24.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.3		
#20	93.6		
#40	84.3		
#60	59.1		
#100	37.6		
#140	29.4		
#200	24.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4348 D_{60}= 0.2544 D_{50}= 0.2069
D_{30}= 0.1100 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

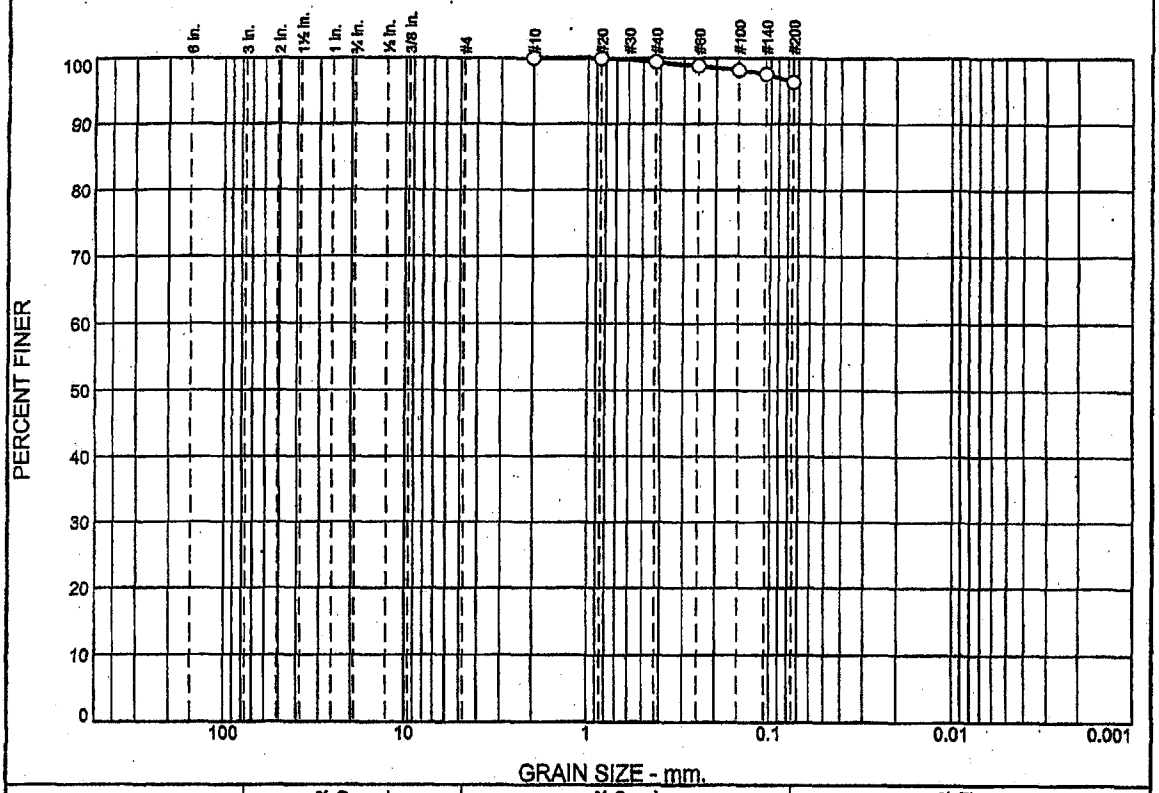
ASTM D6913-04

Sample Number: S-4 **Depth:** 7.5-9.0
Location: B-786 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	3.1	96.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	98.8		
#100	98.1		
#140	97.5		
#200	96.3		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 32 LL= 68 PI= 36

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(42)

Remarks

ASTM D6913-04
ASTM D4318-05

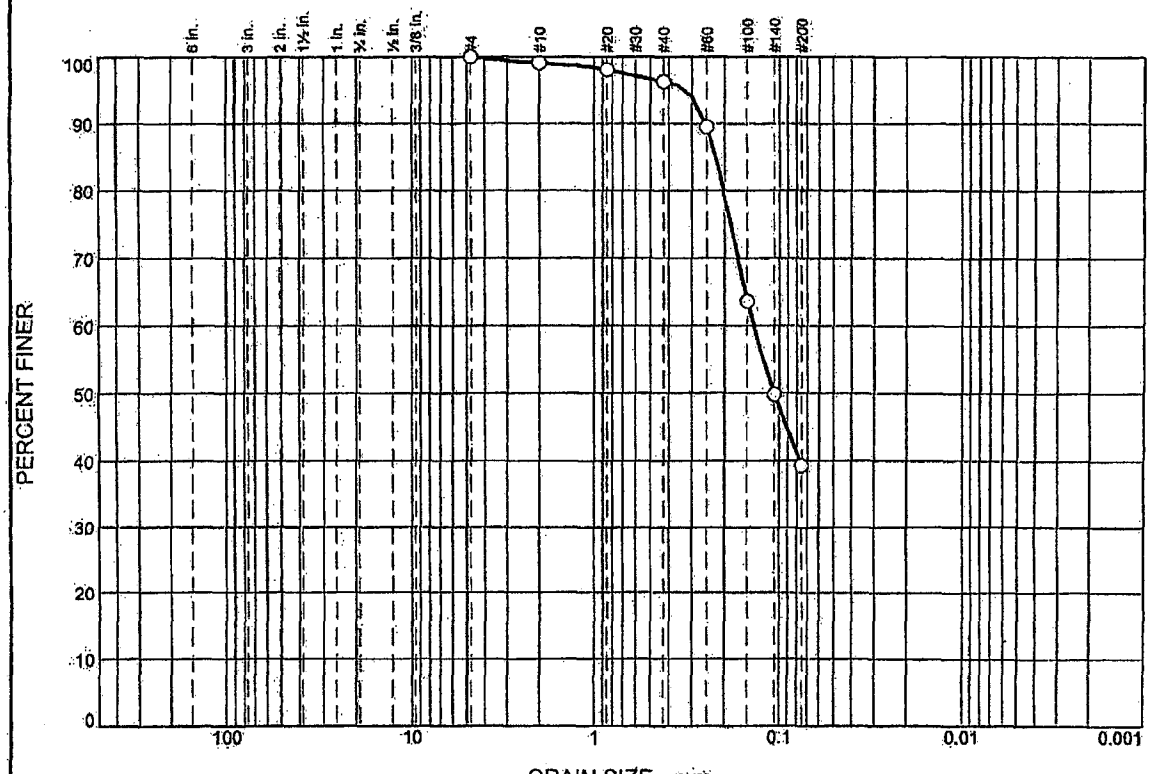
Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-786

Date: 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA-9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	2.8	56.9	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	98.1		
#40	96.2		
#60	89.4		
#100	63.6		
#140	49.8		
#200	39.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2244 D_{60}= 0.1388 D_{50}= 0.1065
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

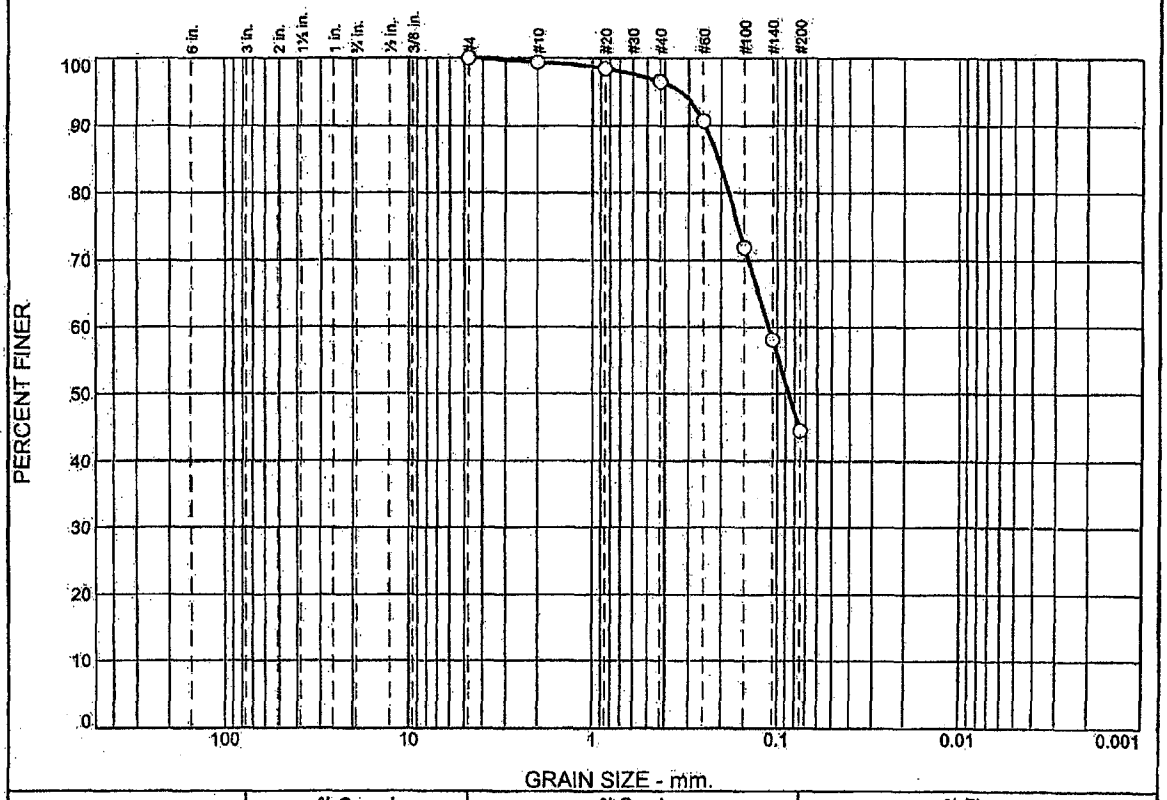
ASTM D6913-04

Sample Number: S-1 **Depth:** 13.5-15.0
Location: B-786A **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	2.9	52.1	44.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#20	98.5		
#40	96.5		
#60	90.7		
#100	71.9		
#140	58.0		
#200	44.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2079 D_{60}= 0.1115 D_{50}= 0.0864
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

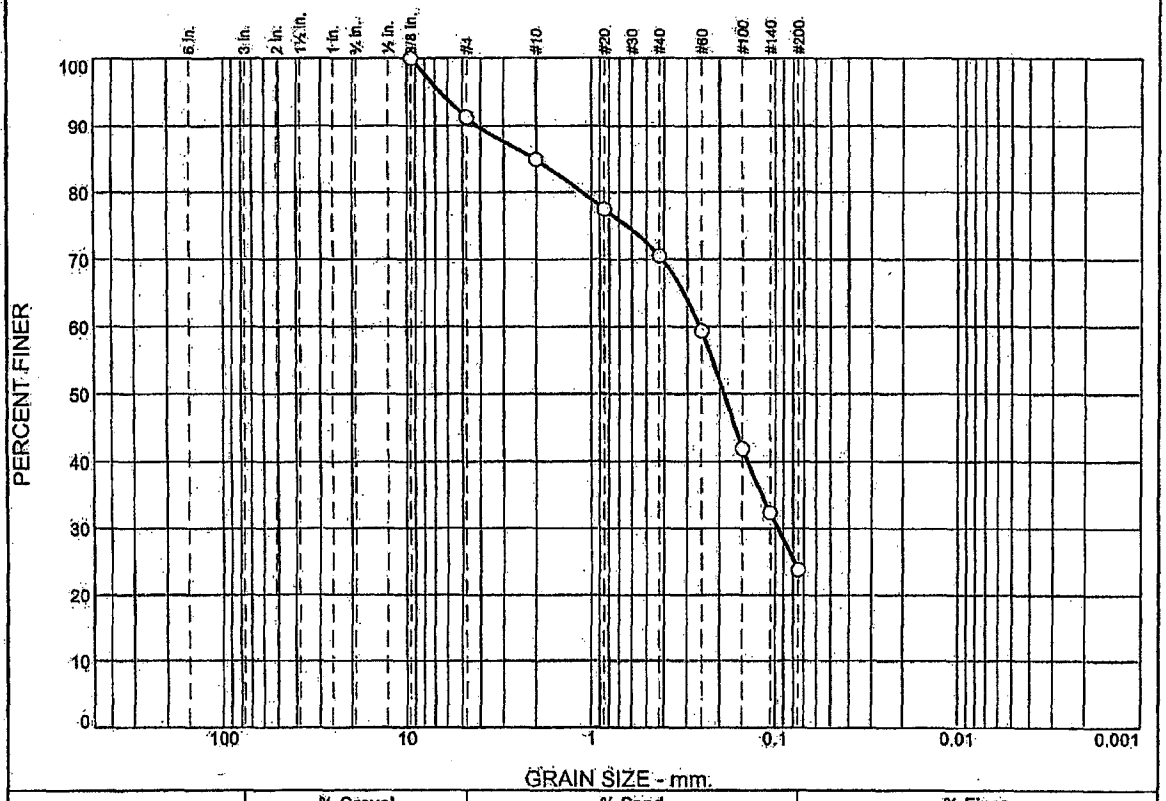
ASTM D6913-04

Sample Number: S-2A **Depth:** 18.5-19.3
Location: B-786A **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.8	6.3	14.4	46.8	23.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	91.2		
#10	84.9		
#20	77.5		
#40	70.5		
#60	59.3		
#100	41.9		
#140	32.3		
#200	23.7		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.0405 D_{60}= 0.2559 D_{50}= 0.1900
D_{30}= 0.0966 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

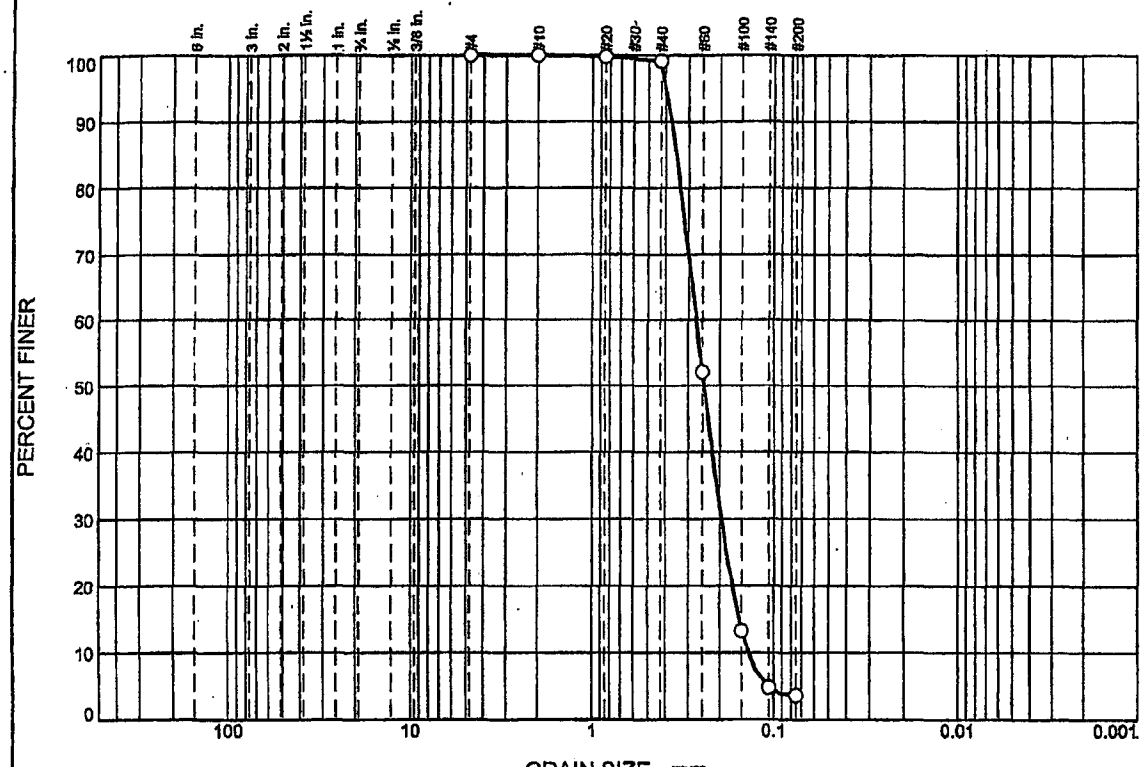
ASTM D6913-04

Sample Number: S-2B **Depth:** 19.3-20.0
Location: B-786A **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	95.5	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.1		
#60	52.1		
#100	13.2		
#140	4.8		
#200	3.6		

* (no specification provided)

Material Description

Poorly Graded Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3485 D_{60}= 0.2702 D_{50}= 0.2447
D_{30}= 0.1956 D_{15}= 0.1556 D_{10}= 0.1380
C_u= 1.96 C_c= 1.03

Classification

USCS= SP AASHTO= NR

Remarks

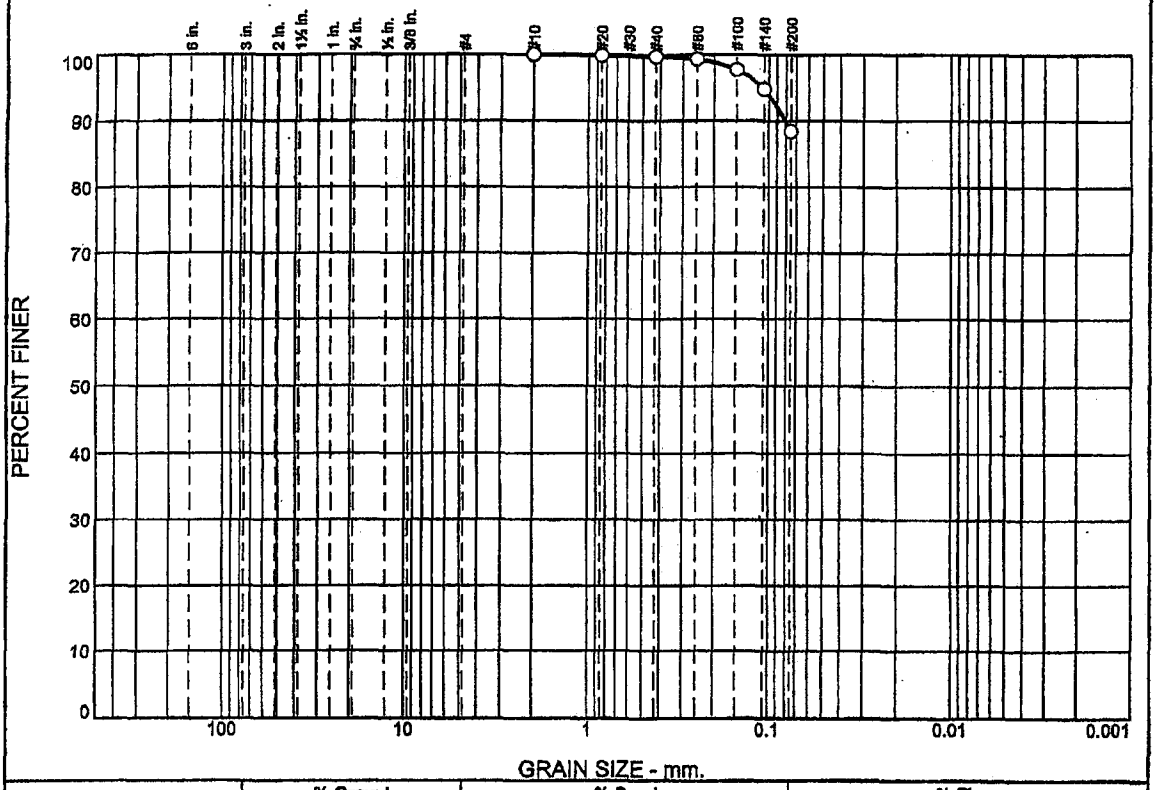
ASTM D6913-04

Sample Number: S-3 **Depth:** 23.5-25.0
Location: B-786A **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	11.2	88.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.4		
#100	97.7		
#140	94.7		
#200	88.5		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 33 LL= 75 PI= 42

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(43)

Remarks

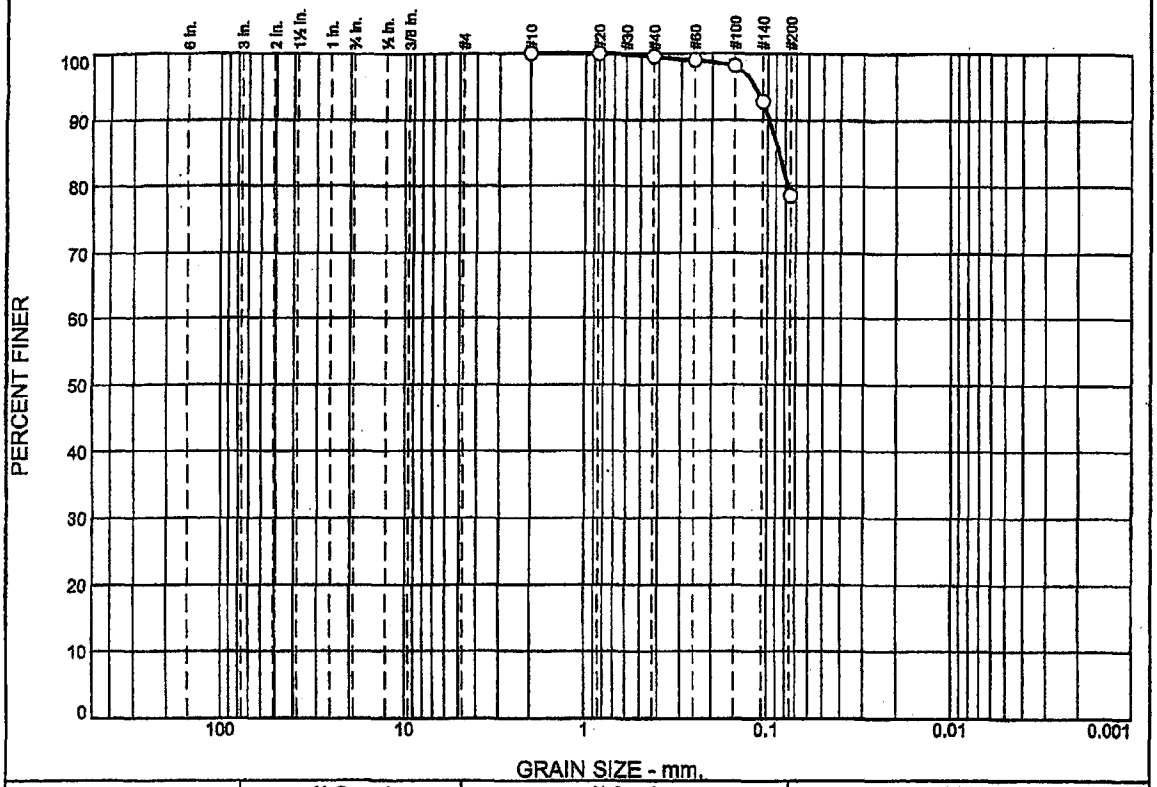
ASTM D6913-04
ASTM D4318-05

Sample Number: S-4 **Depth:** 28.5-30.0
Location: B-786A **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-(9-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	21.0	78.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.6		
#60	99.0		
#100	98.2		
#140	92.8		
#200	78.6		

* (no specification provided)

Material Description

Lean Clay with Sand

Atterberg Limits

PL= 24 LL= 48 PI= 24

Coefficients

D_{85}= 0.0861 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(20)

Remarks

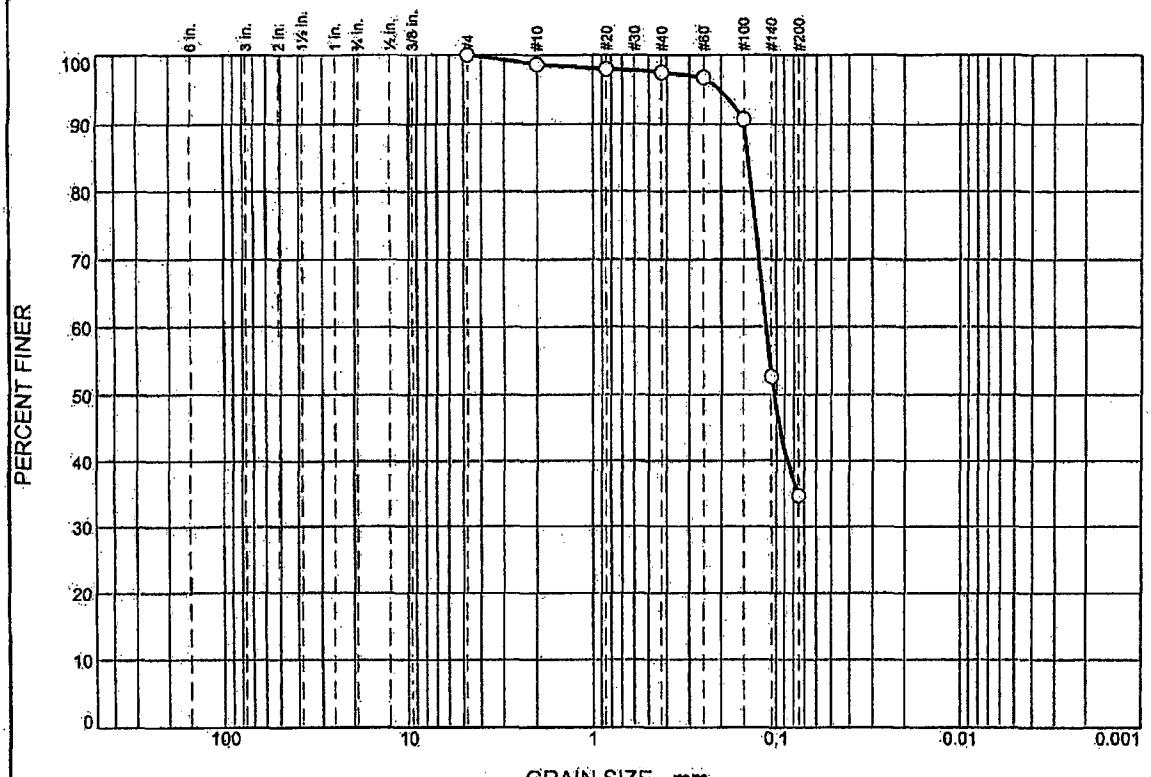
ASTM D6913-04
ASTM D4318-05

Sample Number: S-5 **Depth:** 33.5-35.0
Location: B-786A **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-(8-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.4	1.2	62.7	34.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.6		
#20	97.9		
#40	97.4		
#60	96.7		
#100	90.6		
#140	52.6		
#200	34.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1410 D_{60}= 0.1138 D_{50}= 0.1029
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

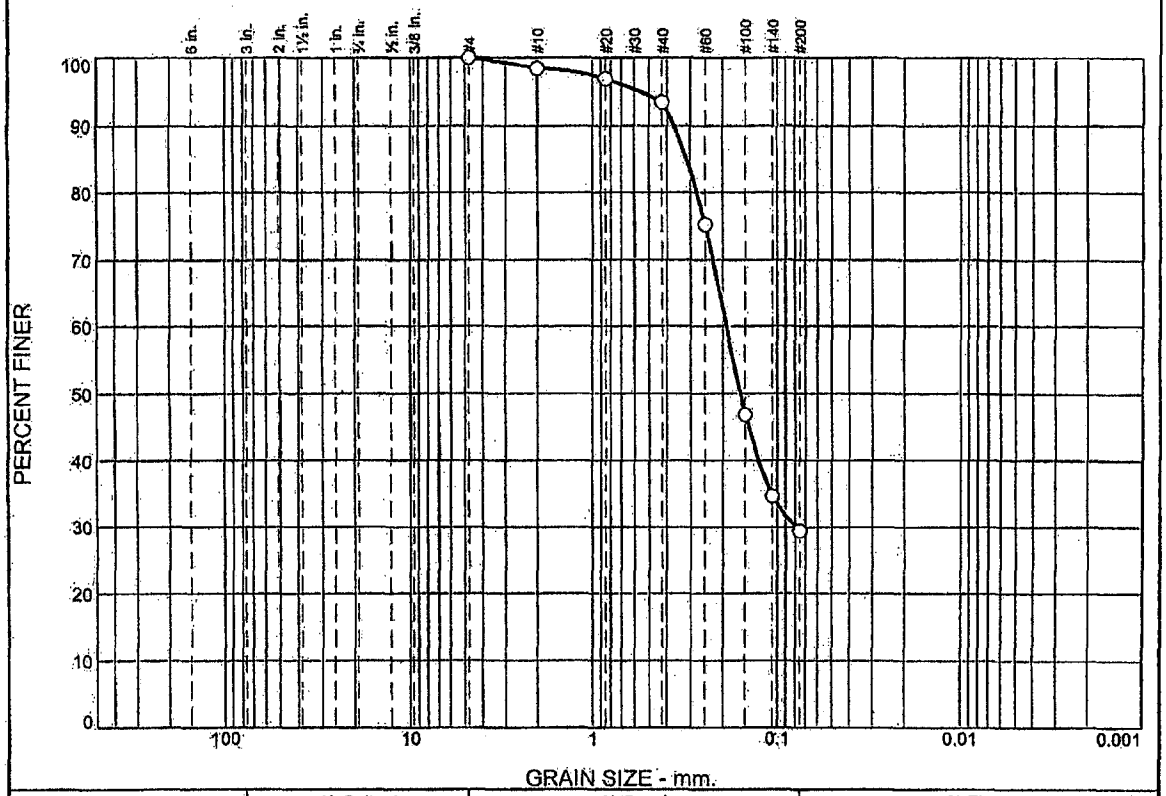
Sample Number: S-6 **Depth:** 38.5-39.7
Location: B-786A

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.7	5.0	63.9	29.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.3		
#20	96.8		
#40	93.3		
#60	75.3		
#100	46.8		
#140	34.7		
#200	29.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3125 D_{60}= 0.1909 D_{50}= 0.1598
D_{30}= 0.0790 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

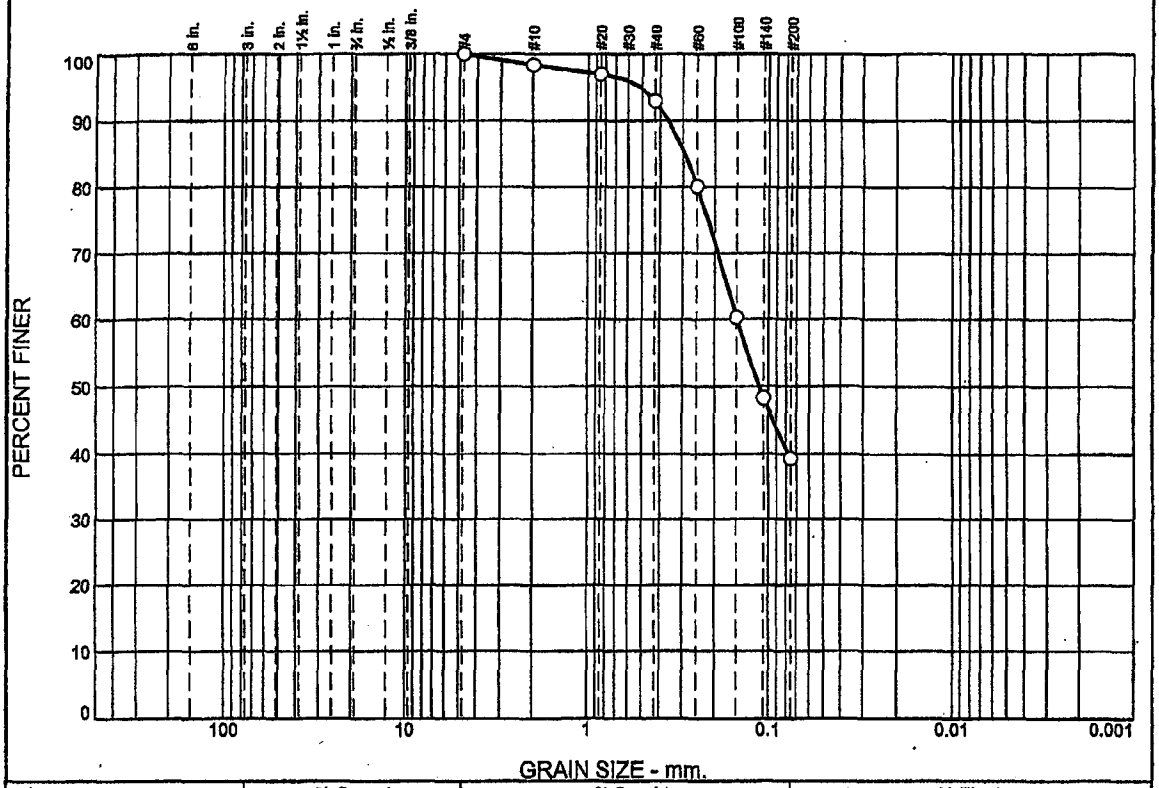
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA-9-30-02

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.6	5.5	53.6	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.4		
#20	96.9		
#40	92.9		
#60	80.1		
#100	60.3		
#140	48.3		
#200	39.3		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 31 PI= 12

Coefficients

D_{85}= 0.2925 D_{60}= 0.1489 D_{50}= 0.1121
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

ASTM D6913-04
ASTM D4318-05

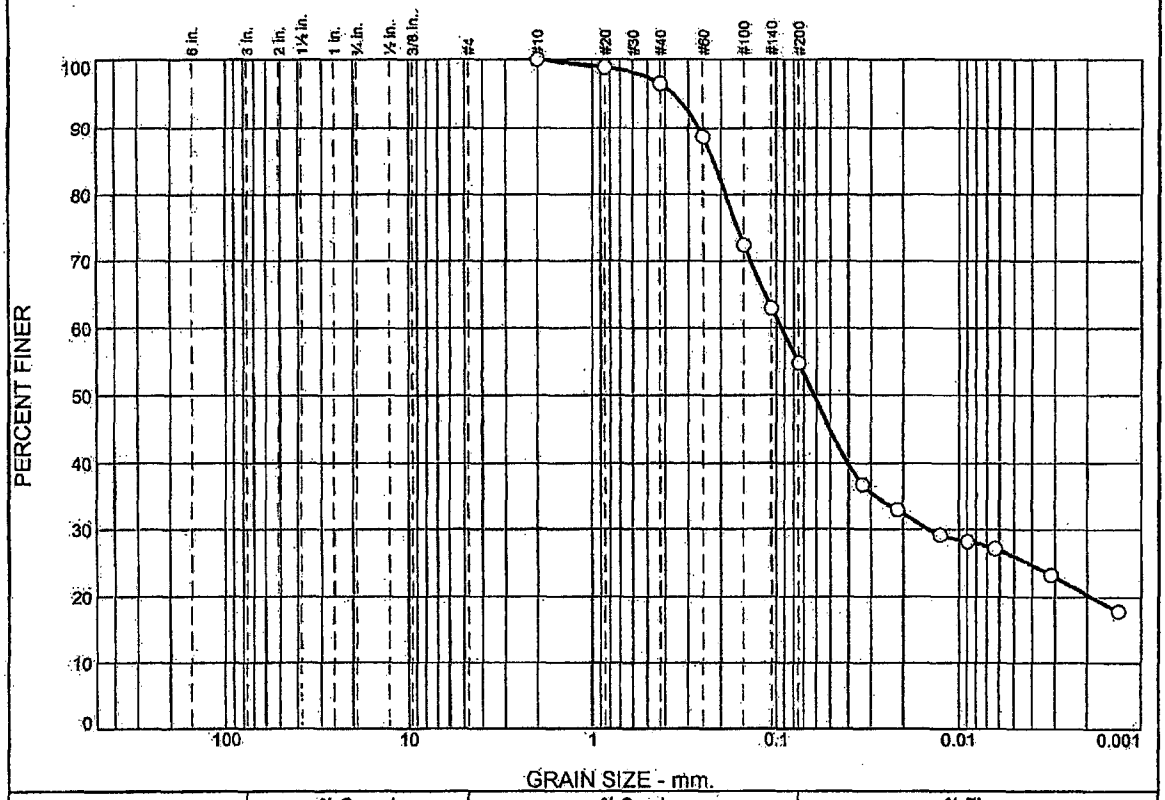
Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.5	41.7	28.8	26.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	98.8		
#40	96.5		
#60	88.6		
#100	72.4		
#140	62.9		
#200	54.8		

* (no specification provided)

Material Description

Clayey Silty Fine to Medium Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2197 D_{60}= 0.0939 D_{50}= 0.0619
D_{30}= 0.0145 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D422-63 (2007)

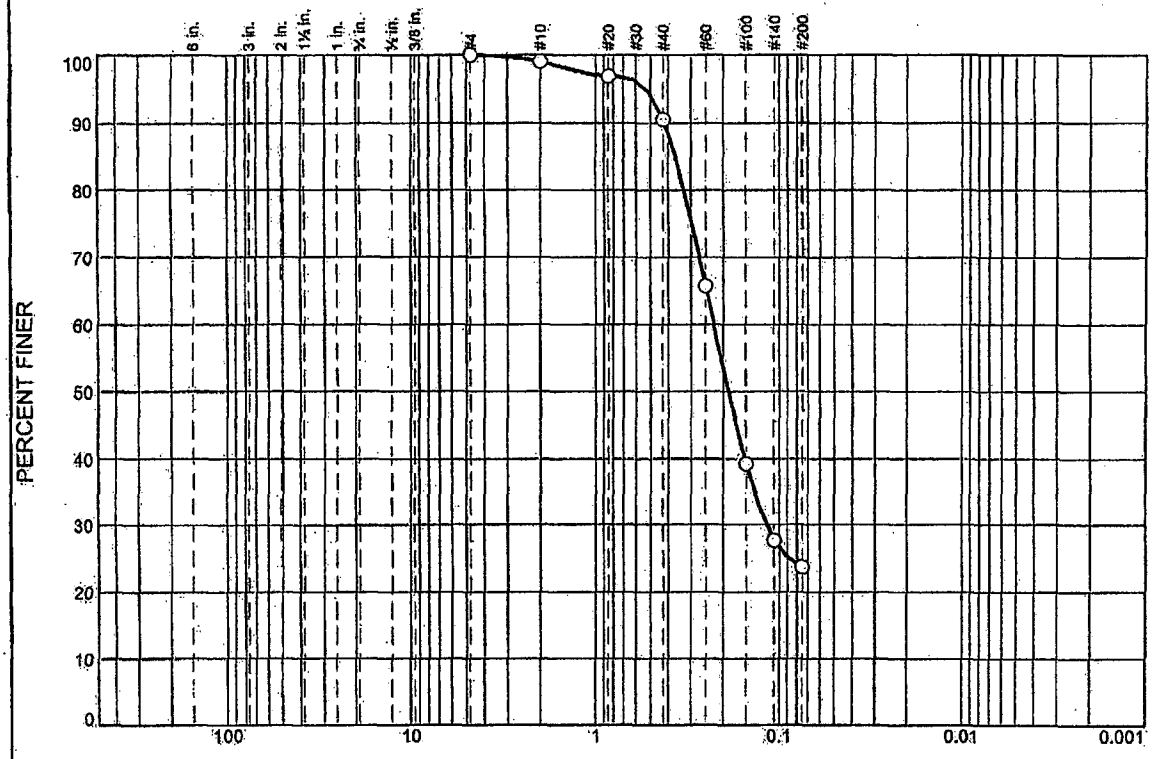
Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	8.5	66.8	23.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	96.8		
#40	90.5		
#60	65.7		
#100	39.2		
#140	27.6		
#200	23.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3657 D_{60}= 0.2257 D_{50}= 0.1875
D_{30}= 0.1166 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

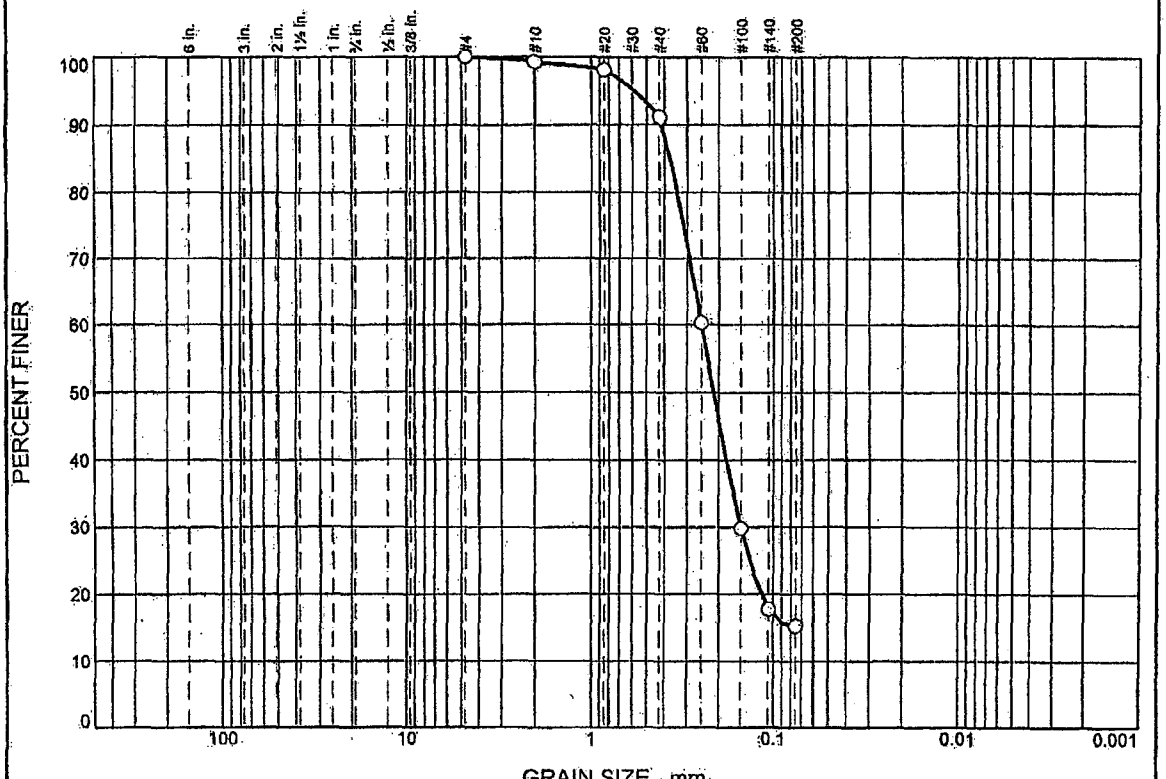
ASTM D6913-04

Sample Number: S-4 **Depth:** 7.5-9.0
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-20-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	8.2	75.8	15.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.2		
#20	98.1		
#40	91.0		
#60	60.3		
#100	29.8		
#140	17.7		
#200	15.2		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3713 D_{60}= 0.2489 D_{50}= 0.2137
D_{30}= 0.1505 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

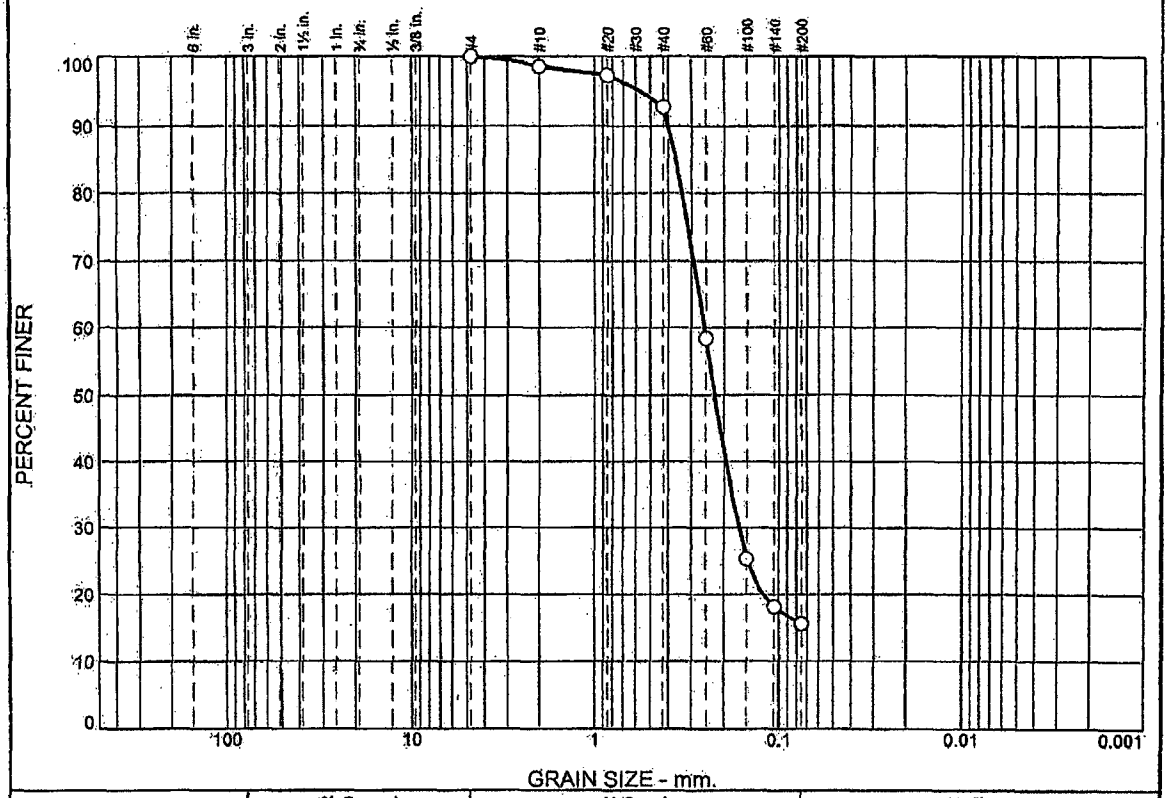
ASTM D6913-04

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure No.** 9-30-02

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.5	5.9	77.0	15.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.5		
#20	97.2		
#40	92.6		
#60	58.4		
#100	25.3		
#140	18.1		
#200	15.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3636 D_{60}= 0.2553 D_{50}= 0.2243
D_{30}= 0.1660 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

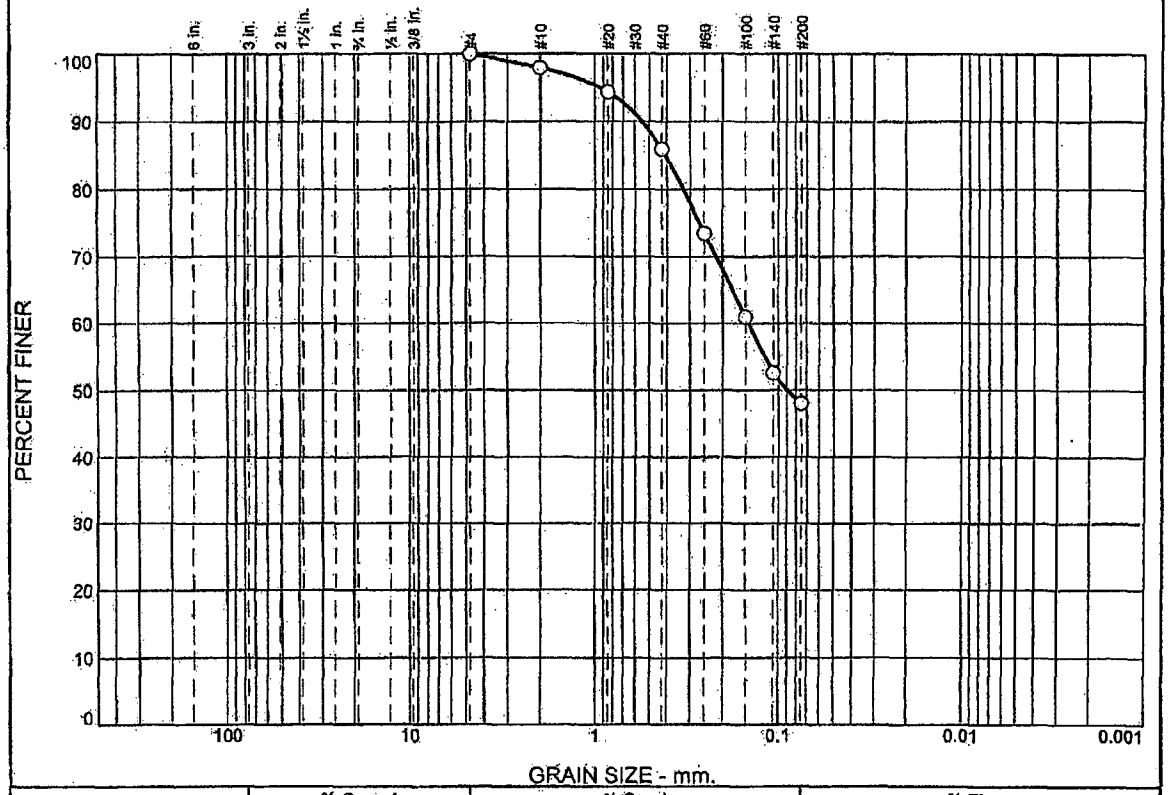
ASTM D6913-04

Sample Number: S-6A **Depth:** 13.5-15.0
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.1	12.0	37.9	48.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.9		
#20	94.3		
#40	85.9		
#60	73.4		
#100	60.9		
#140	52.6		
#200	48.0		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4059 D_{60}= 0.1447 D_{50}= 0.0897
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

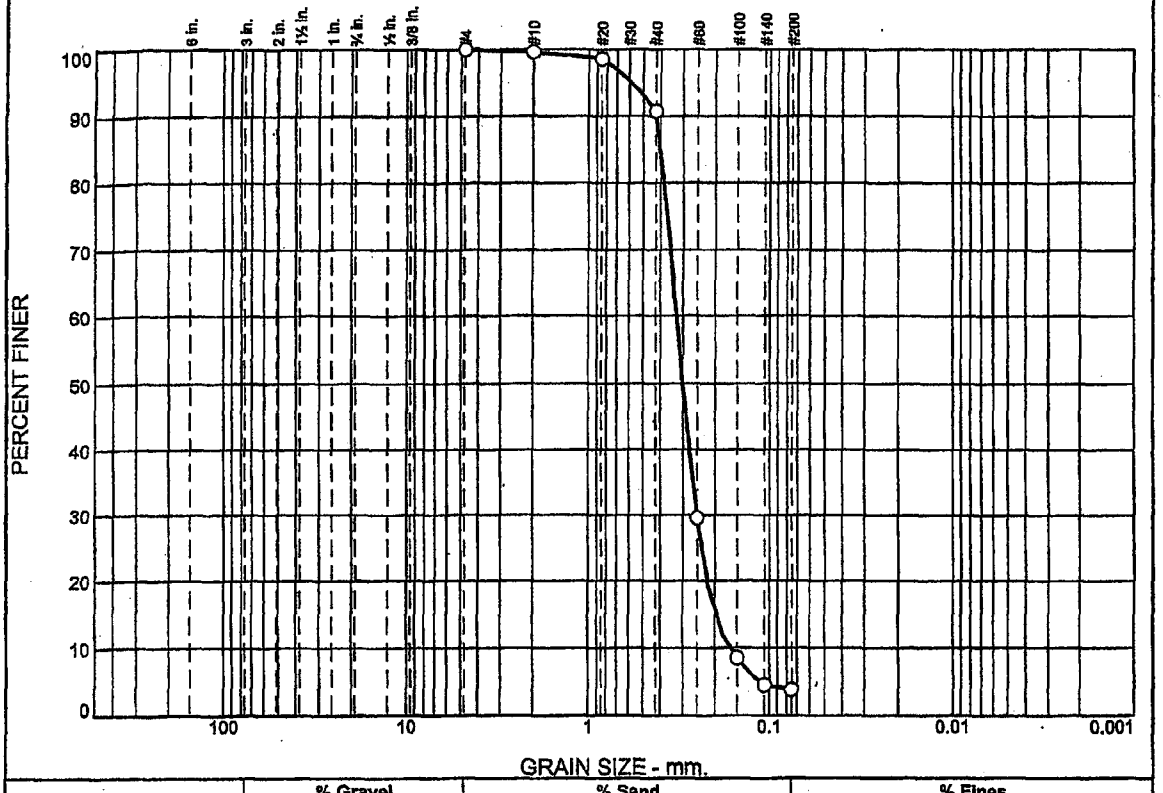
ASTM D6913-04

Sample Number: S-6B **Depth:** 13.5-15.0
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	8.9	86.9	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.6		
#40	90.7		
#60	29.5		
#100	8.5		
#140	4.5		
#200	3.8		

* (no specification provided)

Material Description

Poorly Graded Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3993 D_{60}= 0.3239 D_{50}= 0.2997
D_{30}= 0.2513 D_{15}= 0.1987 D_{10}= 0.1649
C_u= 1.96 C_c= 1.18

Classification

USCS= SP AASHTO= NA

Remarks

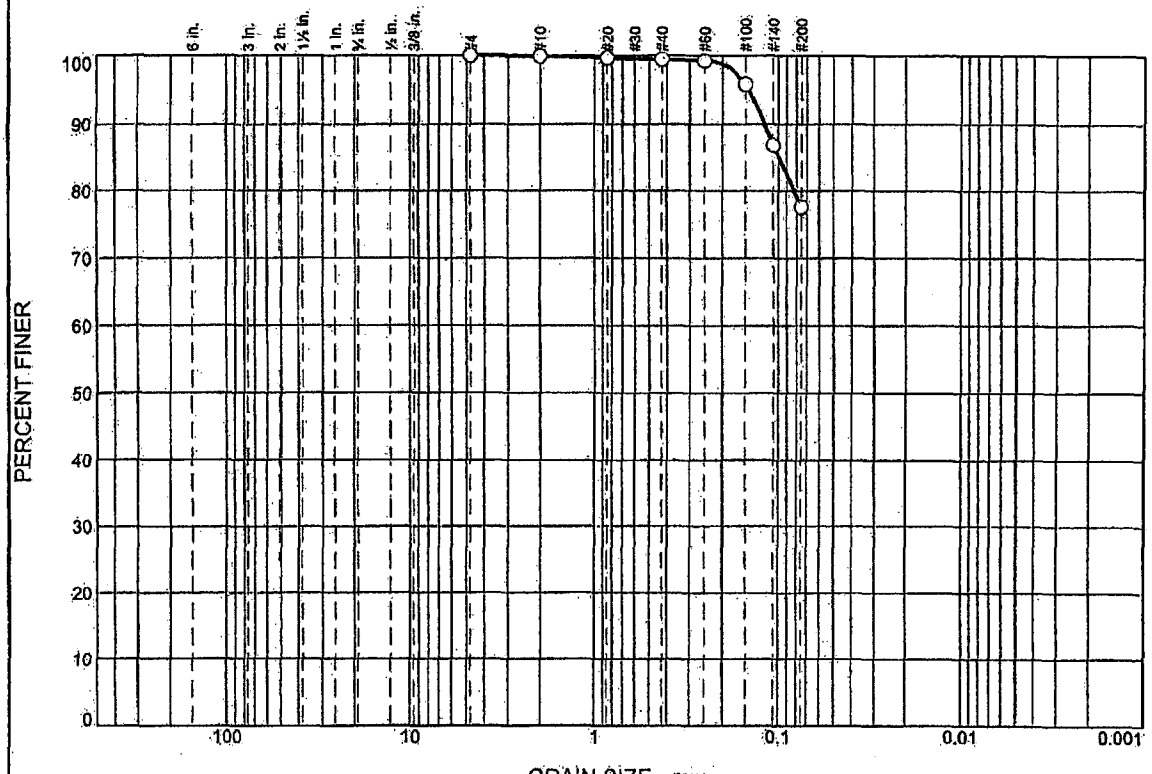
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	21.9	77.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.4		
#60	99.3		
#100	95.8		
#140	86.8		
#200	77.5		

* (no specification provided)

Material Description

Silt and Clay with Fine Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.0994 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

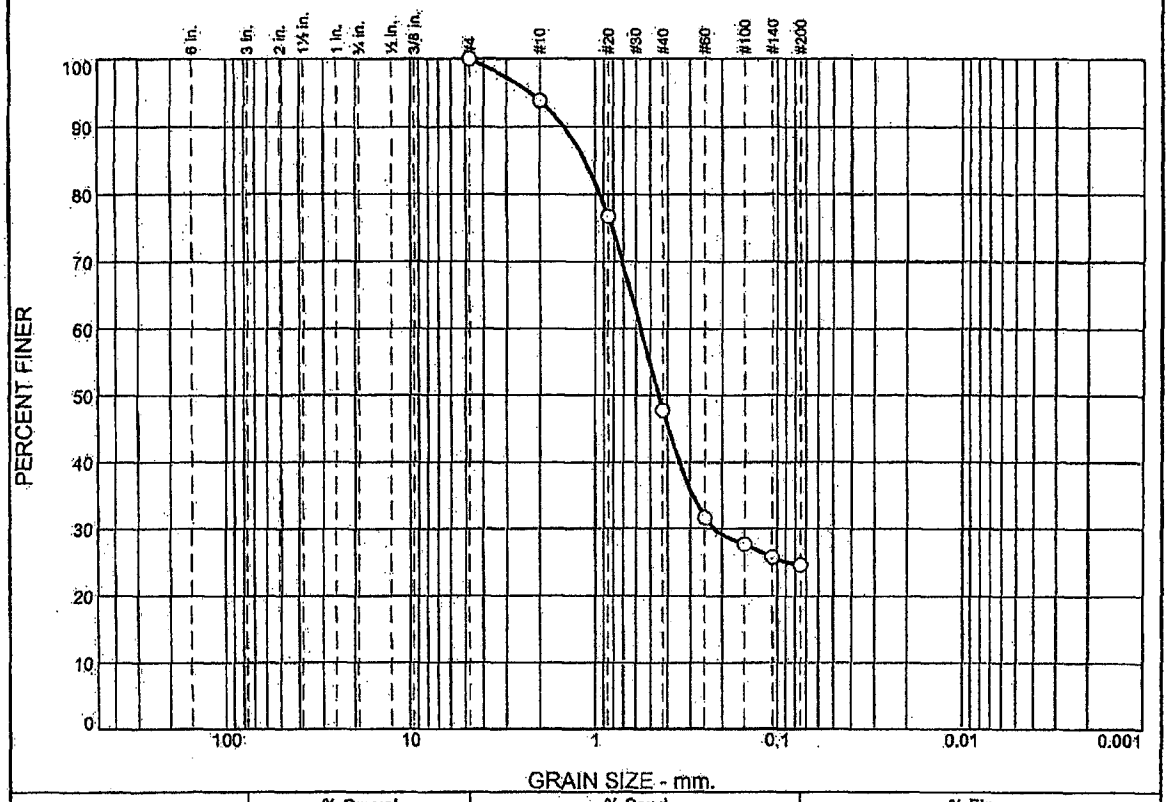
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-789 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** A 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	6.1	46.2	23.1	24.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	93.9		
#20	76.7		
#40	47.7		
#60	31.6		
#100	27.7		
#140	25.7		
#200	24.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.1390 D_{60}= 0.5649 D_{50}= 0.4490
D_{30}= 0.2227 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

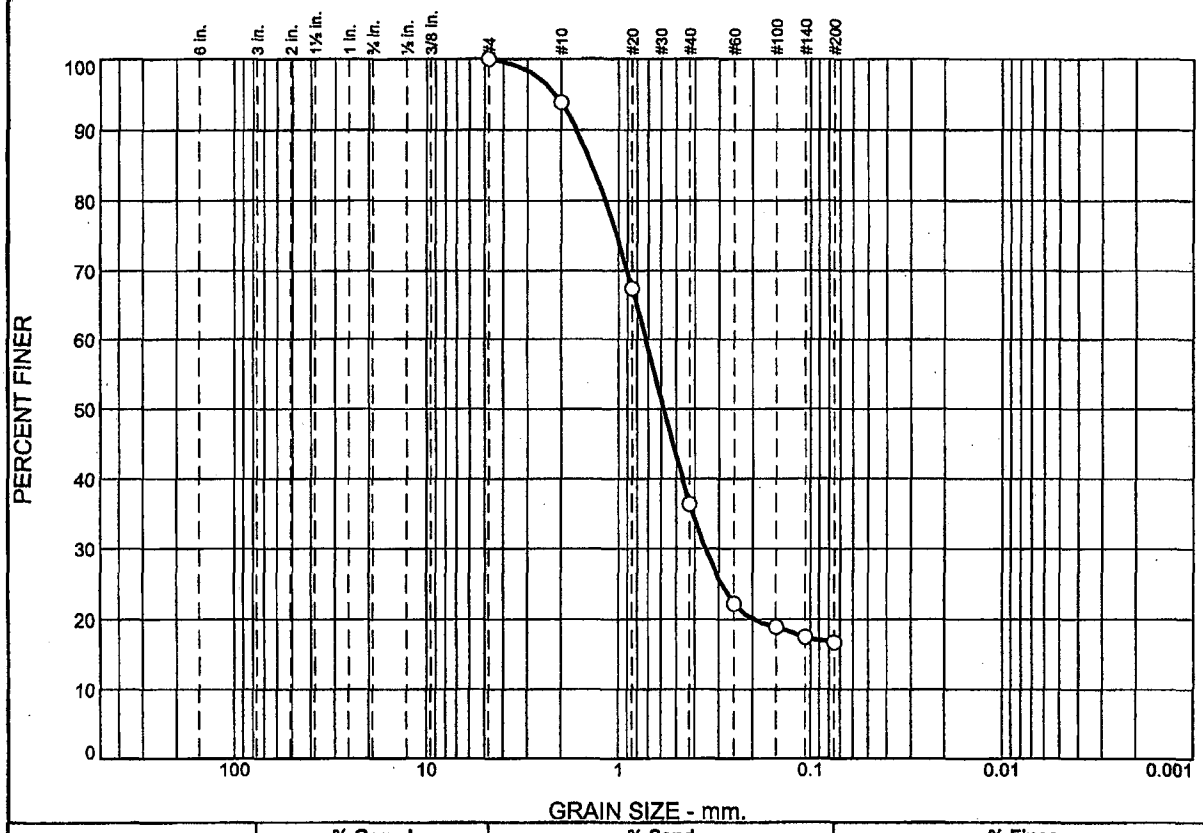
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-791 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** MA 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	6.2	57.4	19.7	16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	93.8		
#20	67.4		
#40	36.4		
#60	22.2		
#100	18.9		
#140	17.5		
#200	16.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.3746 D_{60}= 0.7209 D_{50}= 0.5820
D_{30}= 0.3532 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

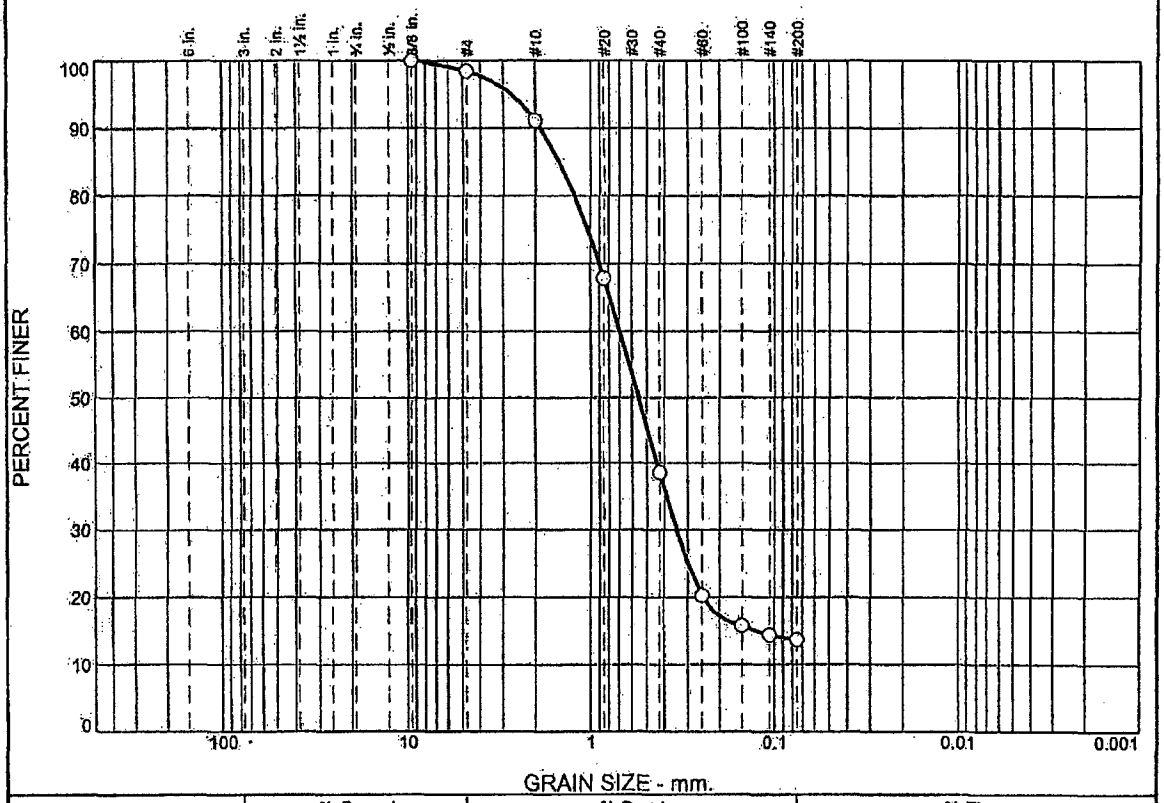
Sample Number: S-2 **Depth:** 2.6'-4.1'
Location: B-791 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** M 9-30-08

Tested By: DK **Checked By:** JA

DCN: CALV-050

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	7.4	52.5	25.0	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.5		
#10	91.1		
#20	67.8		
#40	38.6		
#60	20.2		
#100	15.7		
#140	14.4		
#200	13.6		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.4829 D_{60}= 0.6980 D_{50}= 0.5527
D_{30}= 0.3448 D_{15}= 0.1259 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

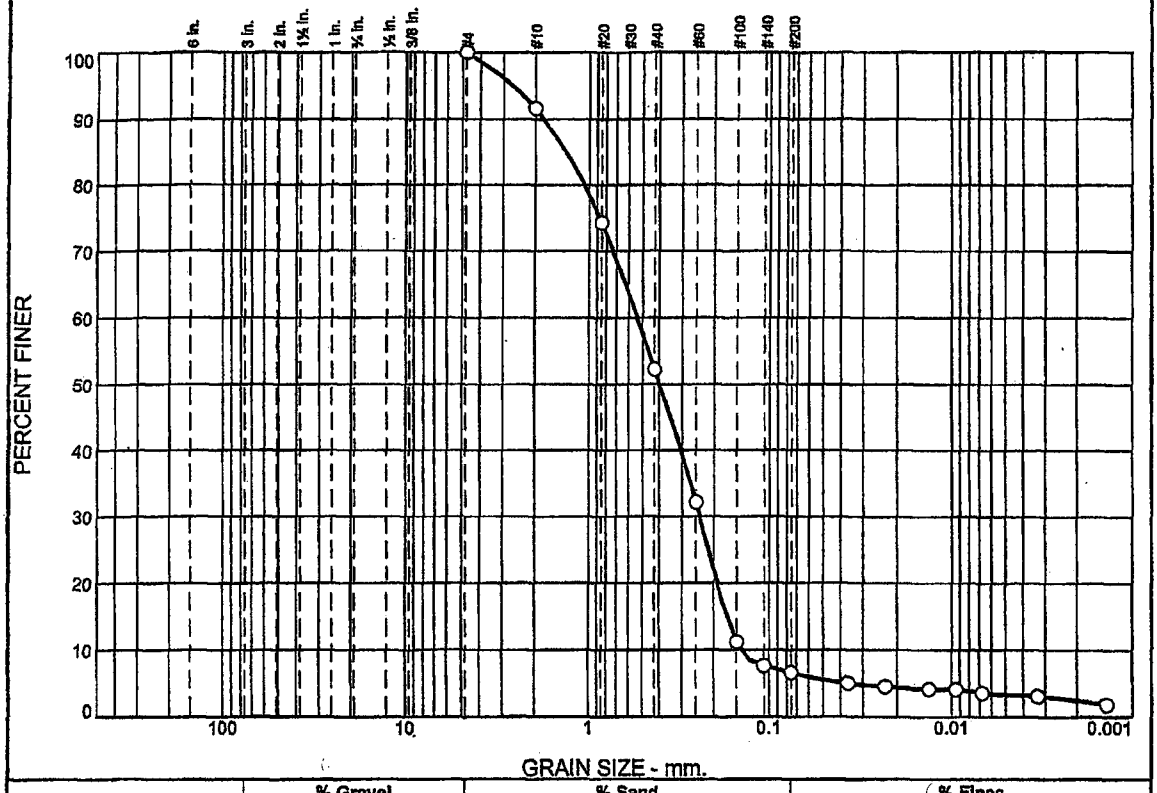
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0'-6.5'
Location: B-791 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** A-9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	8.4	39.4	45.6	3.3	3.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	91.6		
#20	74.2		
#40	52.2		
#60	32.1		
#100	11.2		
#140	7.6		
#200	6.6		

* (no specification provided)

Material Description

Poorly Graded Sand with Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.3440 D_{60}= 0.5350 D_{50}= 0.3986
D_{30}= 0.2386 D_{15}= 0.1698 D_{10}= 0.1415
C_u= 3.78 C_c= 0.75

Classification

USCS= SP-SM AASHTO= A-3

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

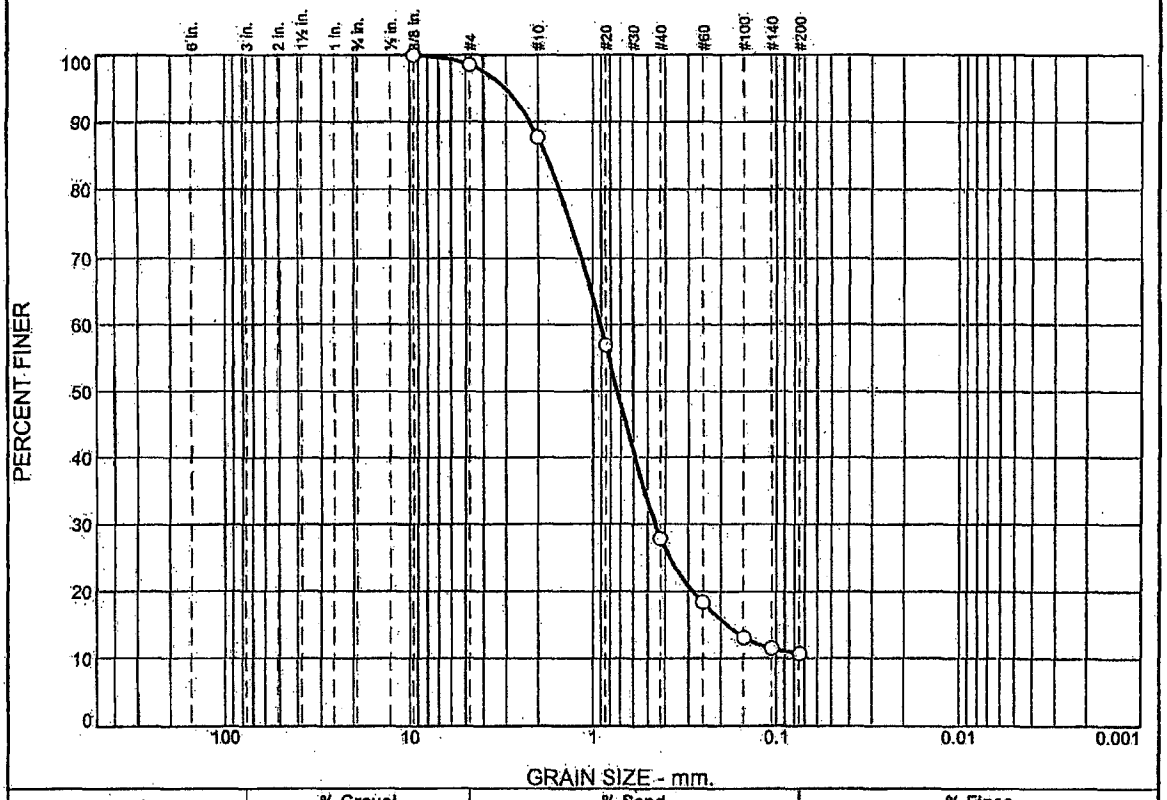
Sample Number: S-4 **Depth:** 7.5'-9.0'
Location: B-791

Date: 8-25-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	10.9	59.9	17.1	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.6		
#10	87.7		
#20	56.9		
#40	27.8		
#60	18.3		
#100	13.1		
#140	11.4		
#200	10.7		

* (no specification provided)

Material Description

Sand with some Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.8005 D_{60}= 0.9104 D_{50}= 0.7319
D_{30}= 0.4552 D_{15}= 0.1868 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

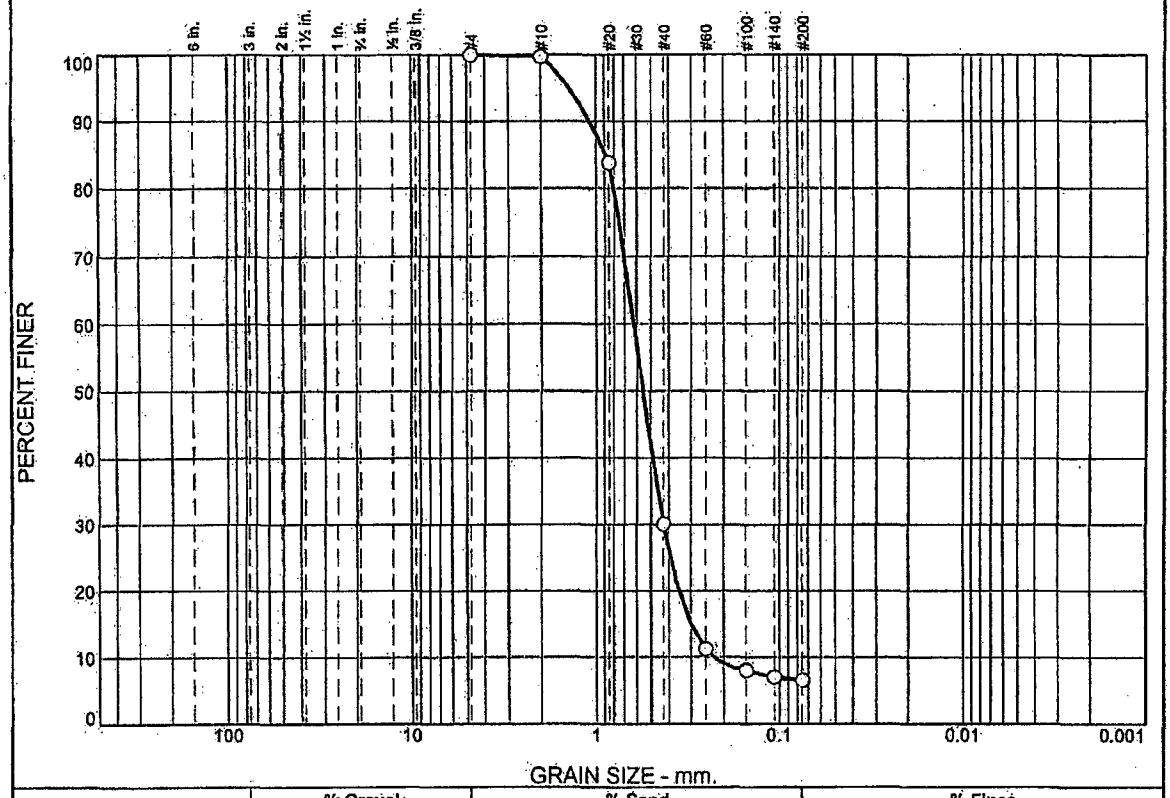
ASTM D6913-04

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	69.7	23.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	83.7		
#40	30.0		
#60	11.2		
#100	8.0		
#140	7.0		
#200	6.5		

* (no specification provided)

Material Description

Fine to Medium Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.8909 D_{60}= 0.6207 D_{50}= 0.5520
D_{30}= 0.4247 D_{15}= 0.3014 D_{10}= 0.2270
C_u= 2.73 C_c= 1.28

Classification

USCS= NR AASHTO= NR

Remarks

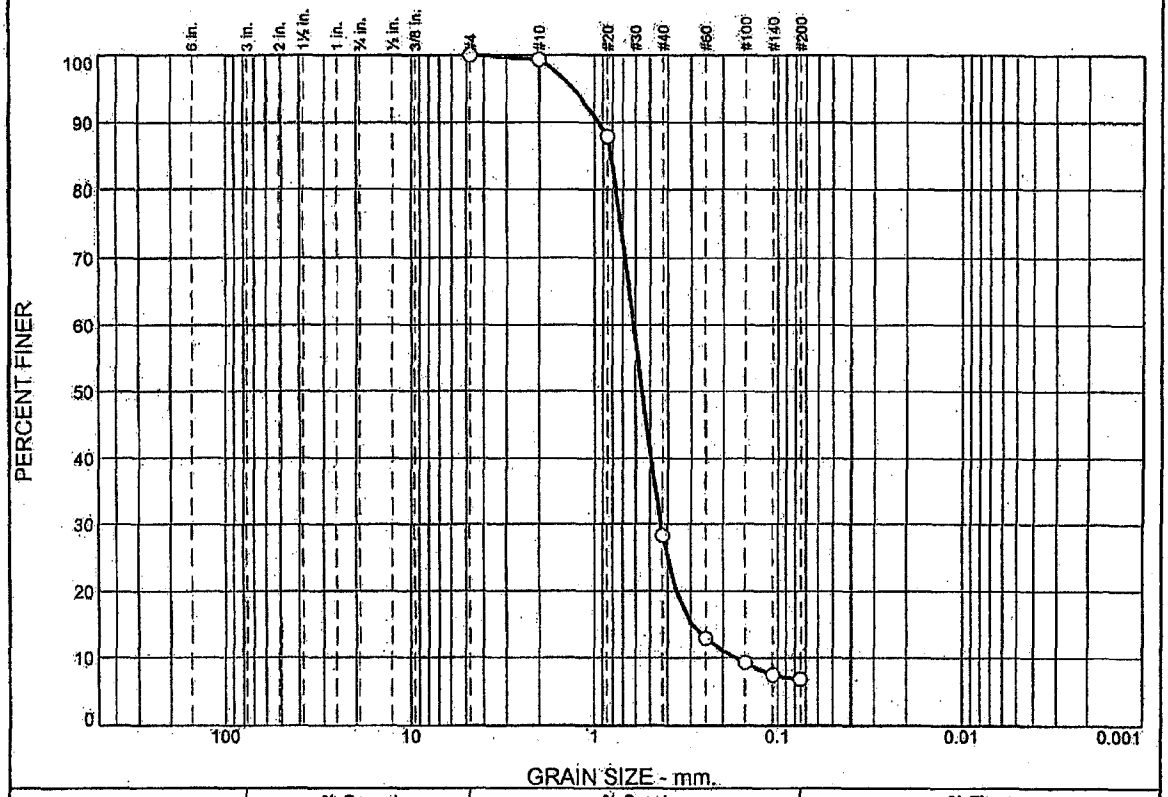
ASTM D6913-04

Sample Number: S-6 **Depth:** 12.5-14.0
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	71.0	21.5	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.3		
#20	87.9		
#40	28.3		
#60	12.8		
#100	9.2		
#140	7.4		
#200	6.8		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.8150 D_{60}= 0.6132 D_{50}= 0.5527
D_{30}= 0.4362 D_{15}= 0.2973 D_{10}= 0.1709
C_u= 3.59 C_c= 1.82

Classification

USCS= NR AASHTO= NR

Remarks

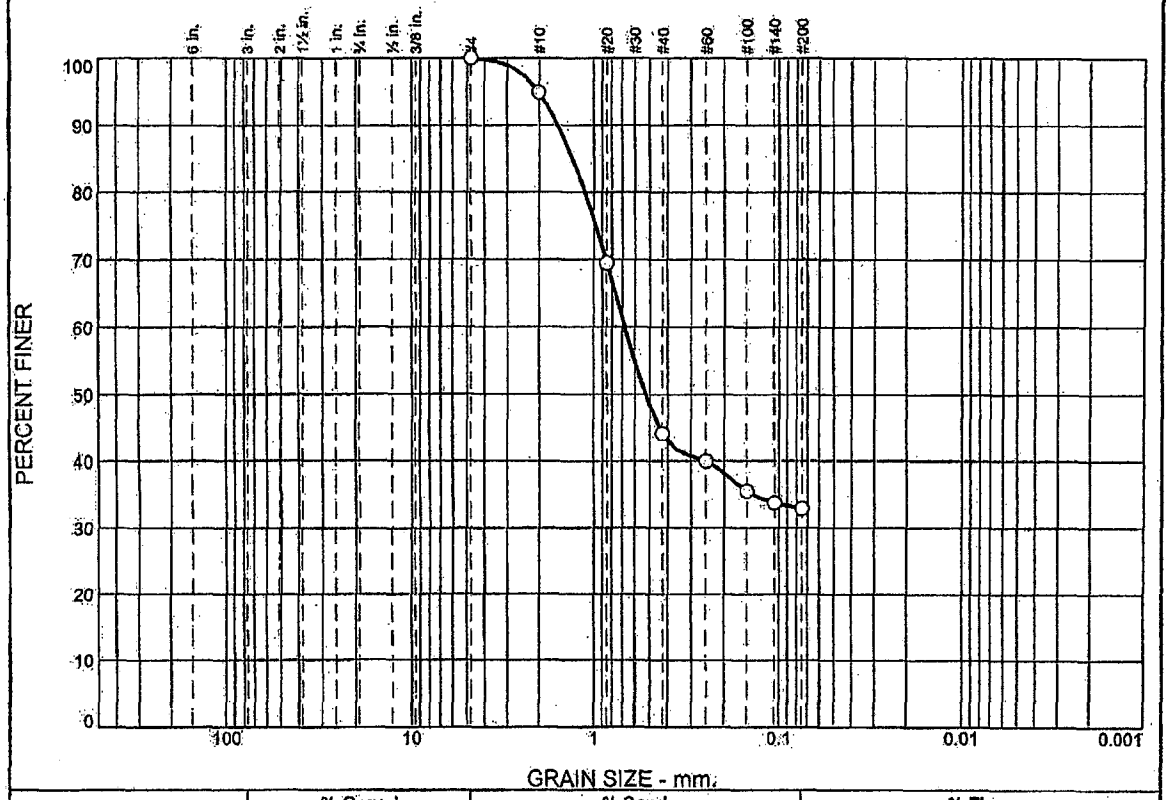
ASTM D6913-04

Sample Number: S-7 **Depth:** 15.0-16.5
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** AA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	5.1	50.9	11.1	32.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	94.9		
#20	69.5		
#40	44.0		
#60	40.0		
#100	35.6		
#140	33.8		
#200	32.9		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.3099 D_{60}= 0.6803 D_{50}= 0.5275
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

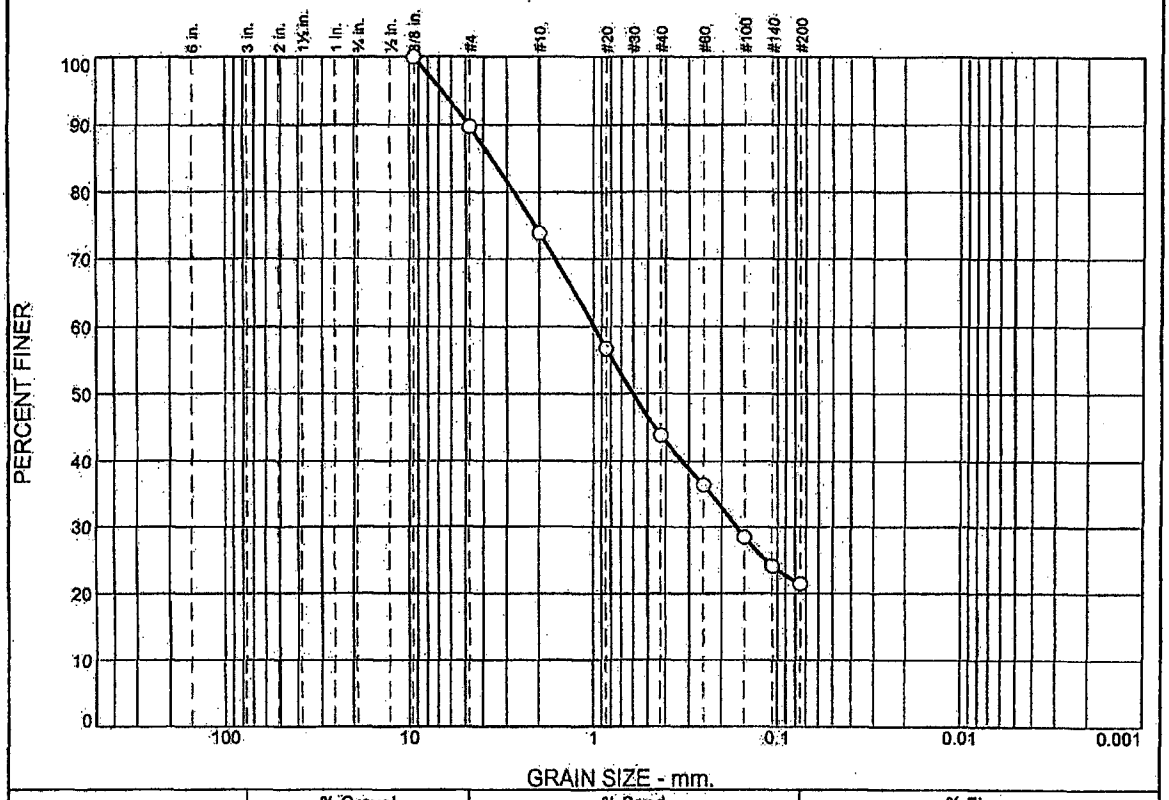
ASTM D6913-04

Sample Number: S-8 **Depth:** 19.0-20.5
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** ~~A9~~ 9-20.08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.3	15.9	30.1	22.2	21.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	89.7		
#10	73.8		
#20	56.8		
#40	43.7		
#60	36.4		
#100	28.4		
#140	24.1		
#200	21.5		

* (no specification provided)

Material Description

Sand with Fine Gravel and Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 3.6147 D_{60}= 0.9936 D_{50}= 0.6050
D_{30}= 0.1665 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

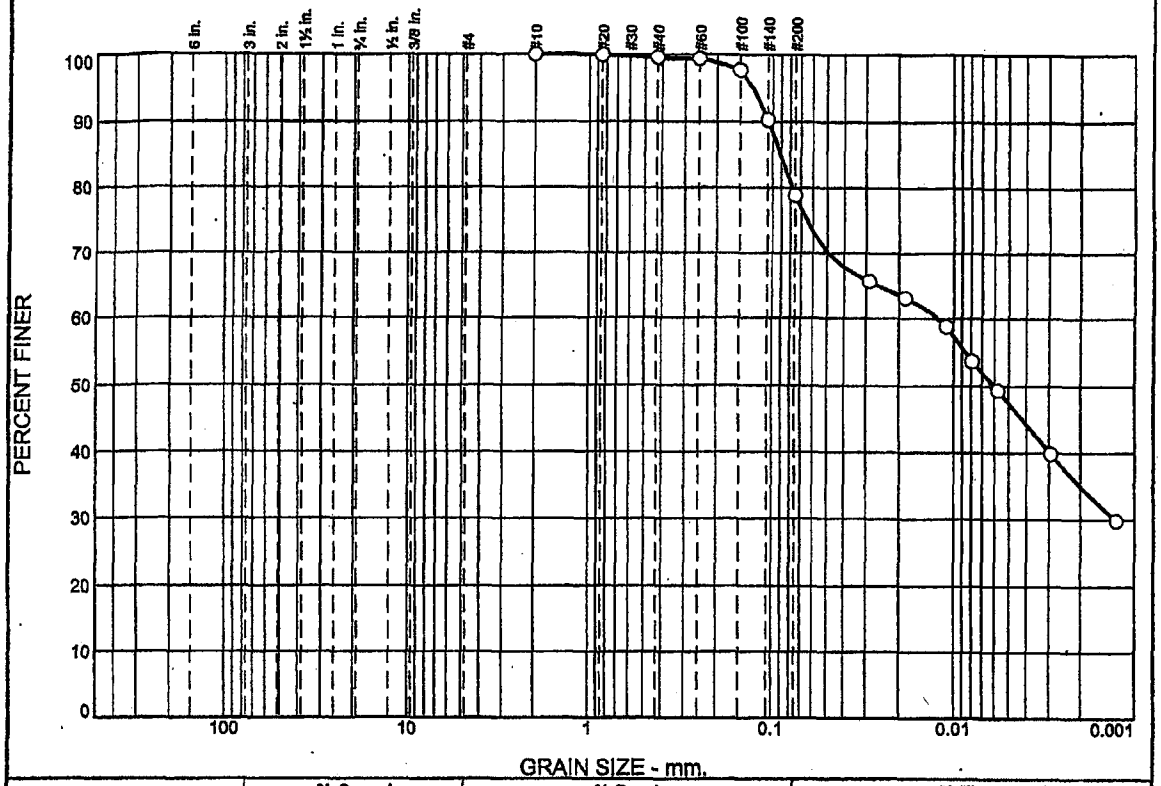
ASTM D6913-04

Sample Number: S-9 **Depth:** 23.5-25.0
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 11 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	20.6	31.4	47.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.5		
#60	99.4		
#100	97.7		
#140	90.3		
#200	78.9		

* (no specification provided)

Material Description

Fat Clay with Sand

Atterberg Limits

PL= 23 LL= 59 PI= 36

Coefficients

D_{85}= 0.0903 D_{60}= 0.0120 D_{50}= 0.0060
D_{30}= 0.0013 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(30)

Remarks

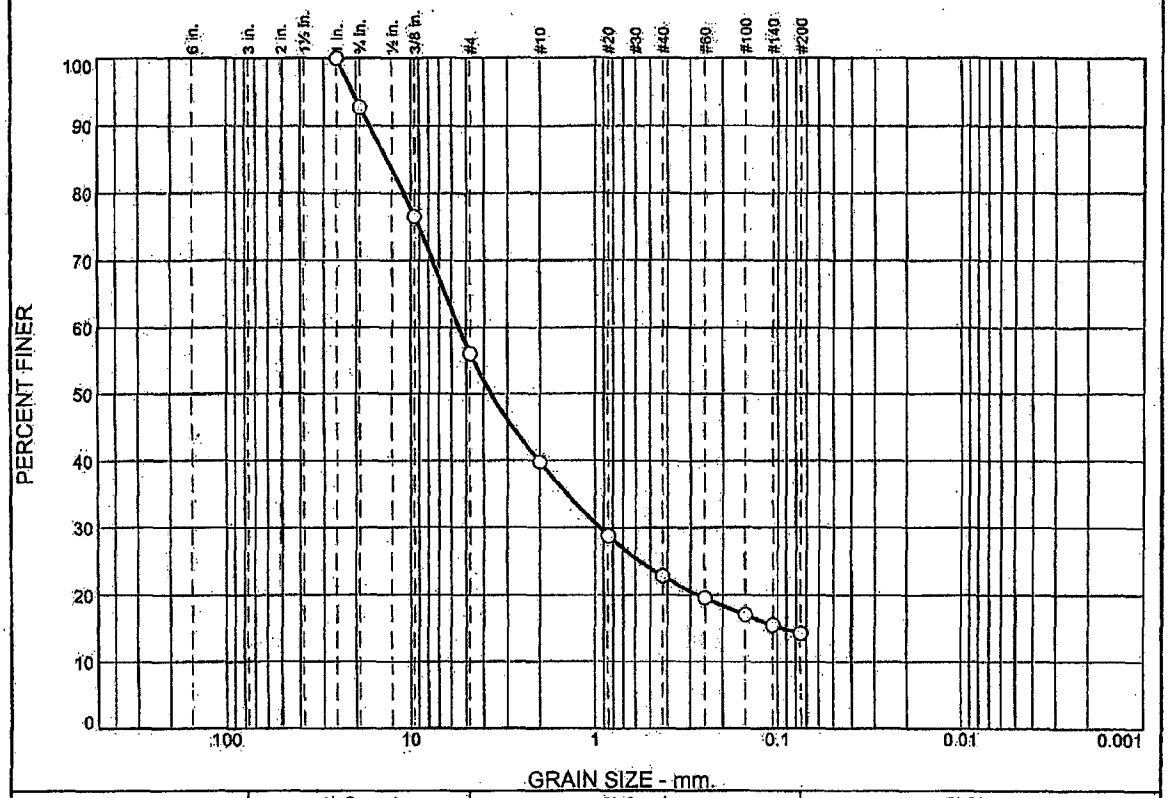
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-10 **Depth:** 28.5'-30.0'
Location: B-791 **Date:** 8-25-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.3	36.7	16.2	17.0	8.6	14.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	92.7		
3/8in.	76.5		
#4	56.0		
#10	39.8		
#20	28.8		
#40	22.8		
#60	19.5		
#100	17.0		
#140	15.5		
#200	14.2		

* (no specification provided)

Material Description

Fine to Coarse Gravel with Sand and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 13.5429 D_{60}= 5.4805 D_{50}= 3.6686
D_{30}= 0.9515 D_{15}= 0.0940 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

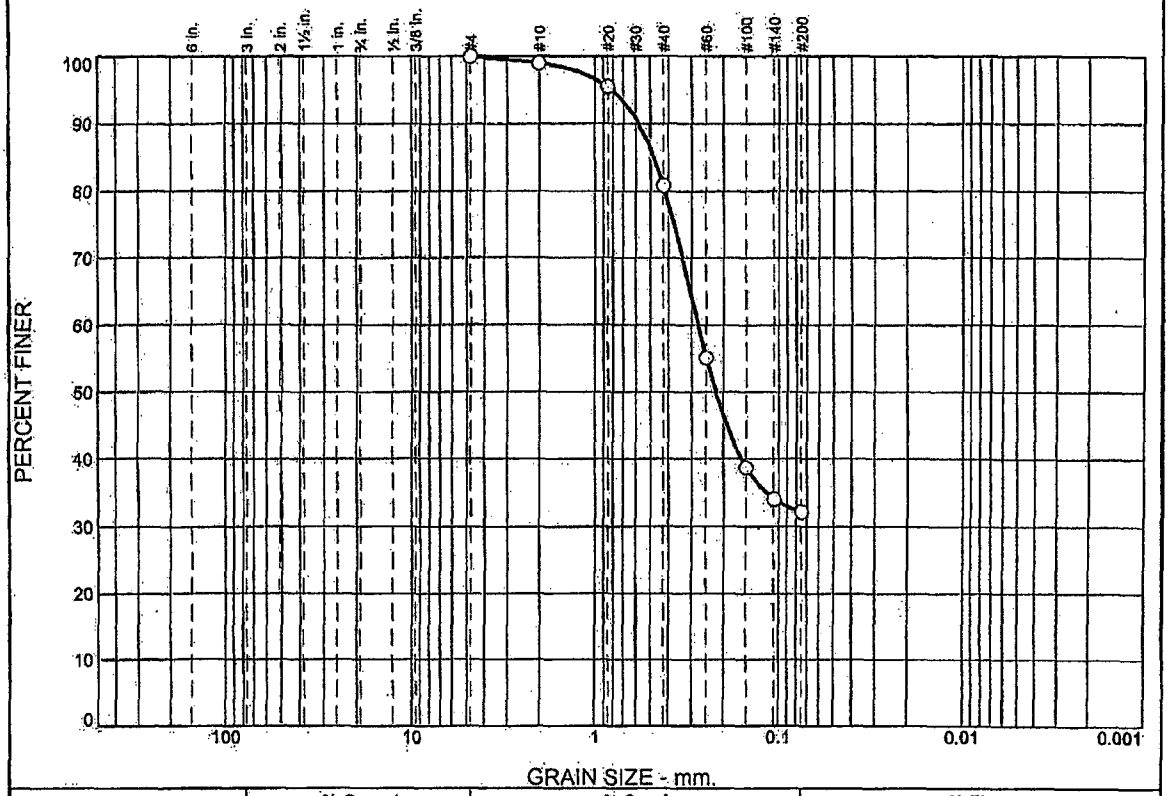
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 9-30-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	18.1	48.8	32.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	95.5		
#40	80.9		
#60	55.1		
#100	38.6		
#140	34.0		
#200	32.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4764 D_{60}= 0.2772 D_{50}= 0.2218
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

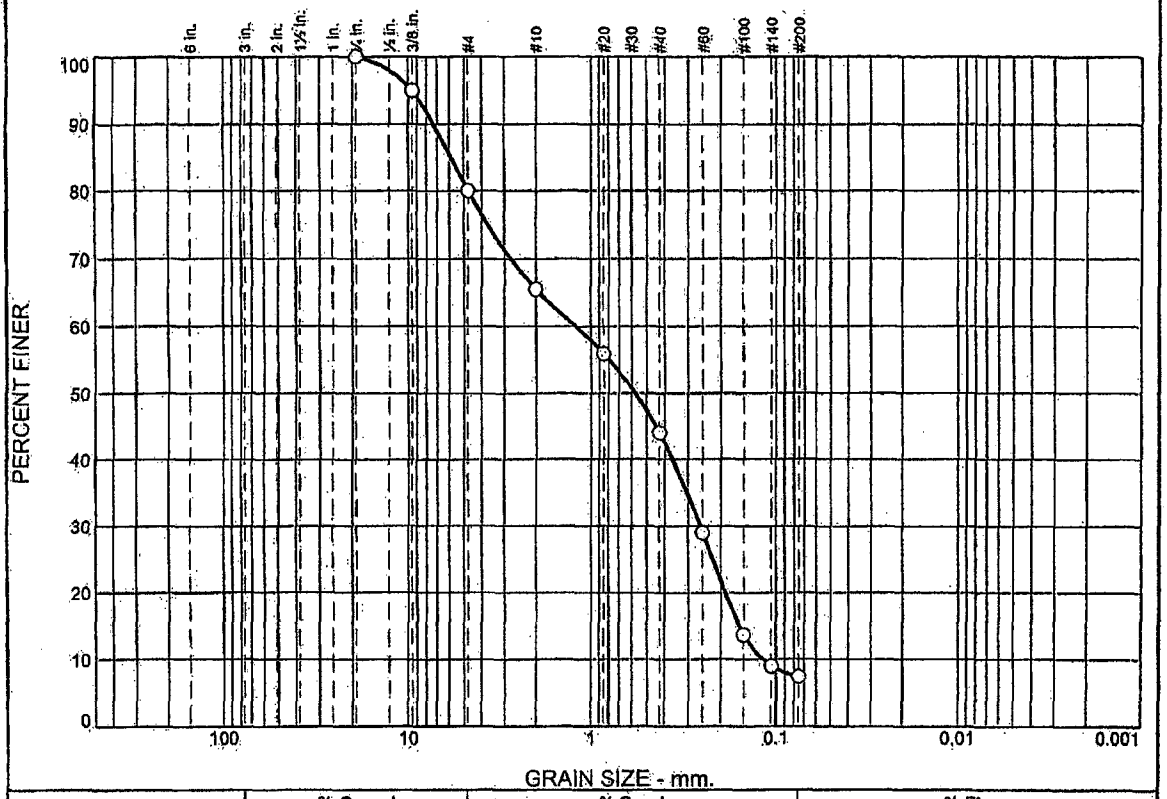
ASTM D6913-04

Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 1A 9-30-c 3

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	20.0	14.5	21.5	36.6	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	94.9		
#4	80.0		
#10	65.5		
#20	55.9		
#40	44.0		
#60	29.0		
#100	13.7		
#140	9.0		
#200	7.4		

* (no specification provided)

Material Description

Sand with Fine Gravel and with some Silt and Clay

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 5.8925 D_{60}= 1.2190 D_{50}= 0.5726
D_{30}= 0.2580 D_{15}= 0.1589 D_{10}= 0.1187
C_u= 10.27 C_c= 0.46

Classification

USCS= LM AASHTO= LM

Remarks

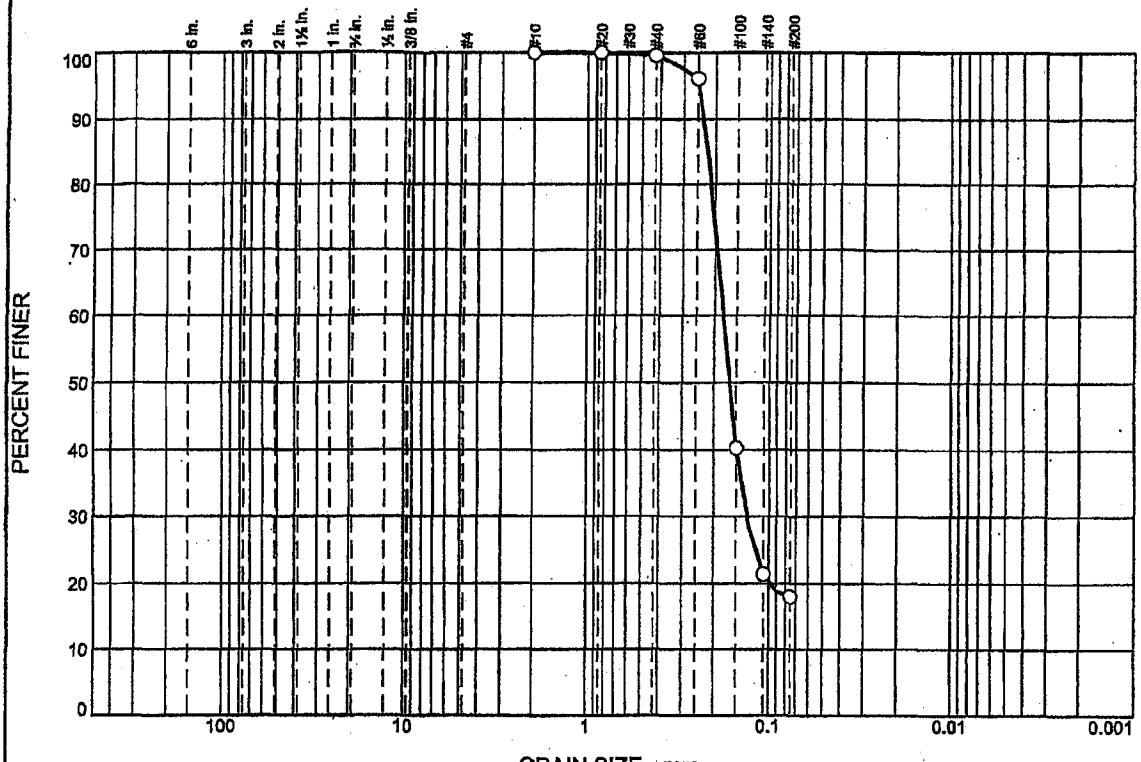
ASTM D6913-04

Sample Number: S-4 **Depth:** 7.5-9.0
Location: B-821 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** A 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	81.6	18.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	96.1		
#100	40.2		
#140	21.3		
#200	18.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2205 D_{60}= 0.1789 D_{50}= 0.1646
D_{30}= 0.1312 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

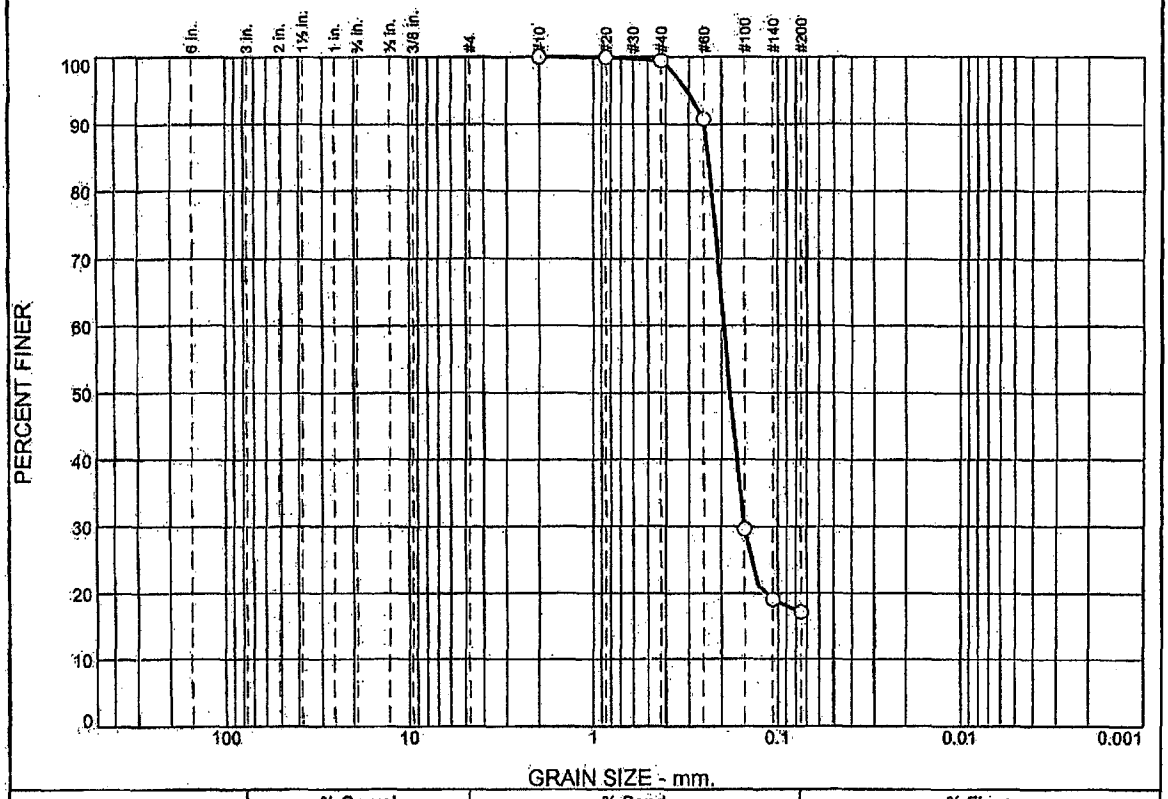
ASTM D6913-04
ASTM D4318-05

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-19-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	82.3	17.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	90.8		
#100	29.6		
#140	19.0		
#200	17.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2356 D_{60}= 0.1938 D_{50}= 0.1801
D_{30}= 0.1508 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

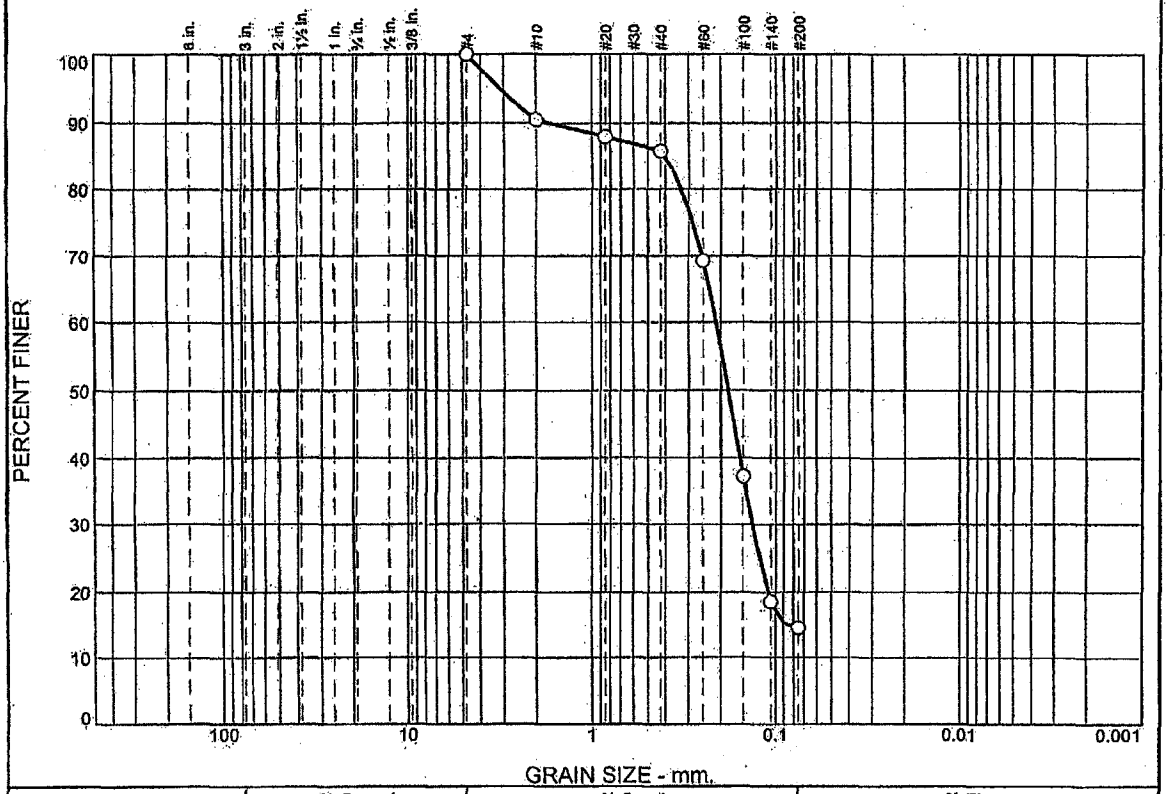
ASTM D6913-04

Sample Number: S-6 **Depth:** 13.5-15.0
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** MA 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	9.5	4.8	71.1	14.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	90.5		
#20	87.9		
#40	85.7		
#60	69.3		
#100	37.3		
#140	18.6		
#200	14.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4055 D_{60}= 0.2119 D_{50}= 0.1814
D_{30}= 0.1340 D_{15}= 0.0864 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

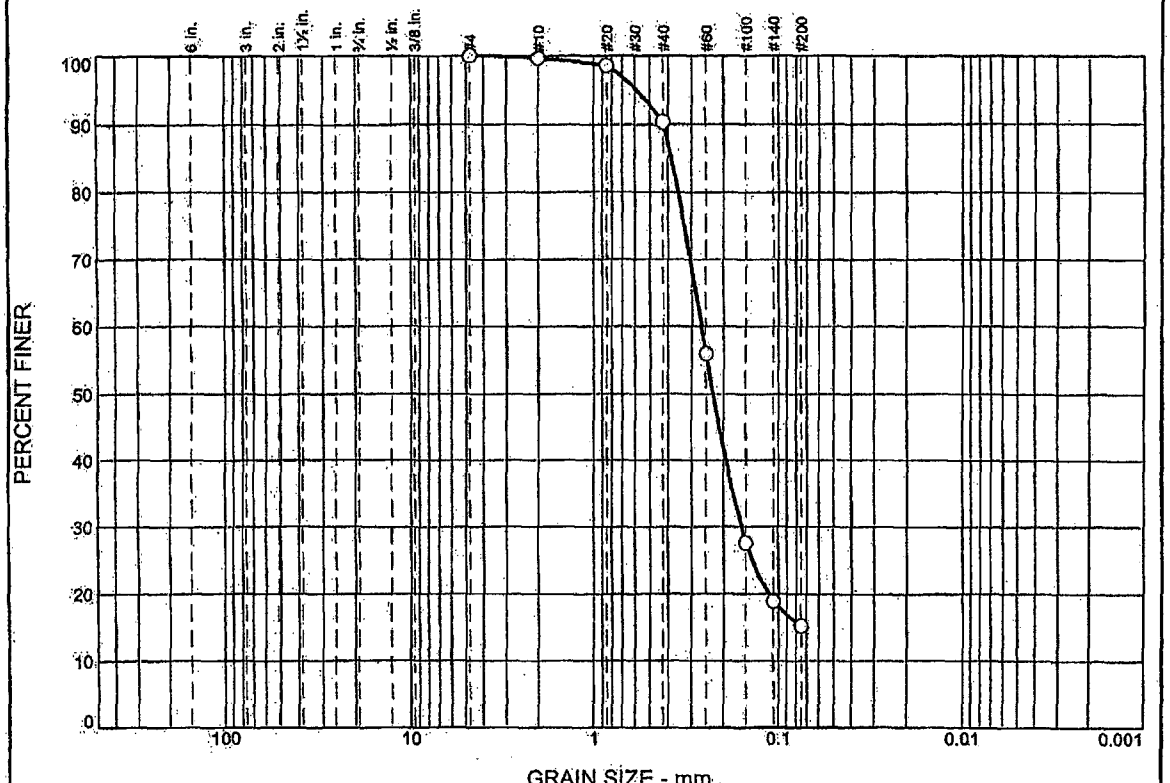
ASTM D6913-04

Sample Number: S-8 **Depth:** 23.5-25.0
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** M4 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	9.3	75.2	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.6		
#40	90.3		
#60	56.0		
#100	27.6		
#140	18.8		
#200	15.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3821 D_{60}= 0.2645 D_{50}= 0.2290
D_{30}= 0.1594 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

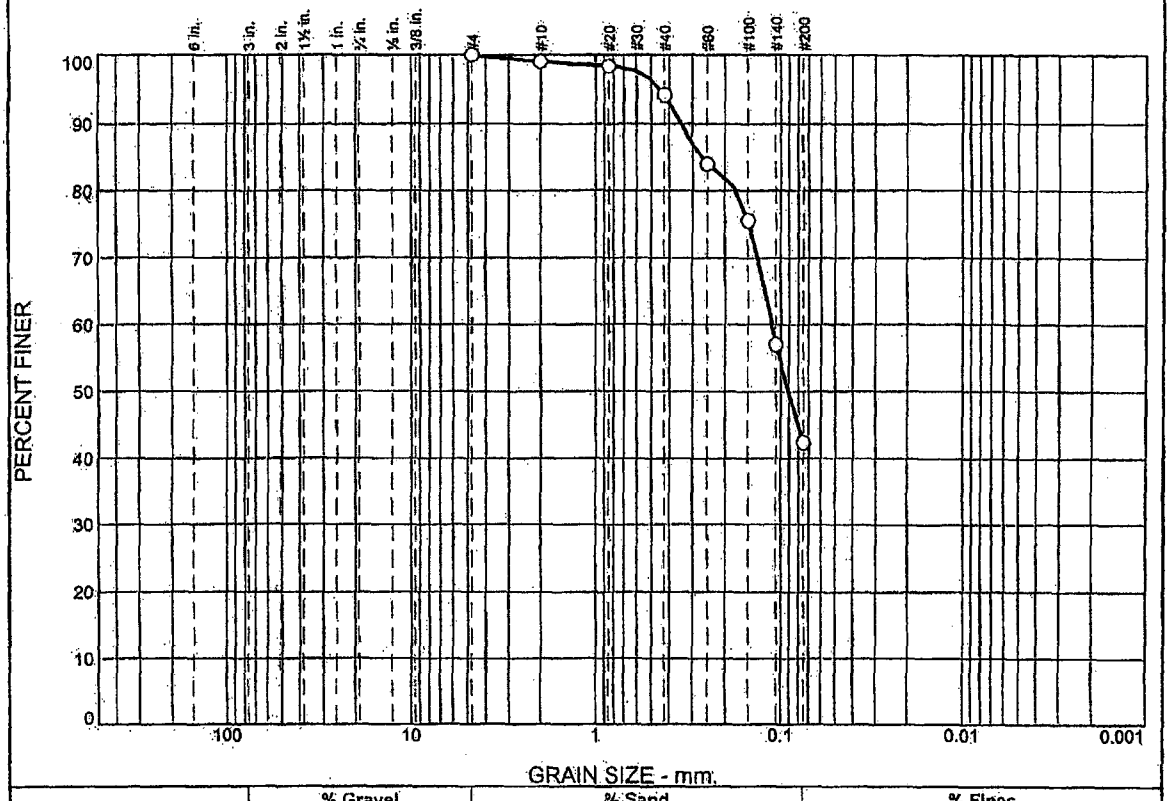
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-822 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

DCN: CALV-039
DCN: CALV-050

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	4.9	51.8	42.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	98.3		
#40	94.1		
#60	84.0		
#100	75.6		
#140	57.0		
#200	42.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2681 D_{60}= 0.1119 D_{50}= 0.0914
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

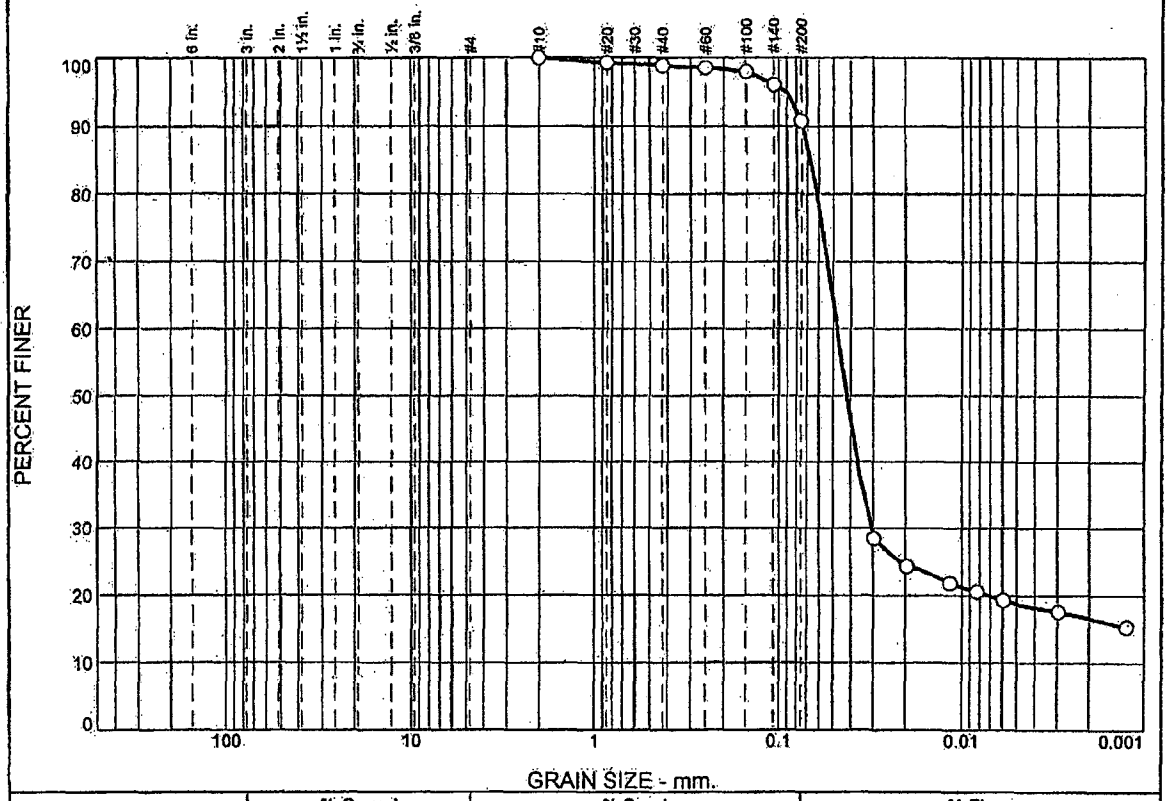
Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-822

Date: 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 11A 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	8.1	72.0	18.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	98.8		
#60	98.5		
#100	98.0		
#140	96.0		
#200	90.7		

* (no specification provided)

Material Description

Clayey Silt with some Fine Sand

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 0.0665 D_{60}= 0.0475 D_{50}= 0.0420
D_{30}= 0.0308 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

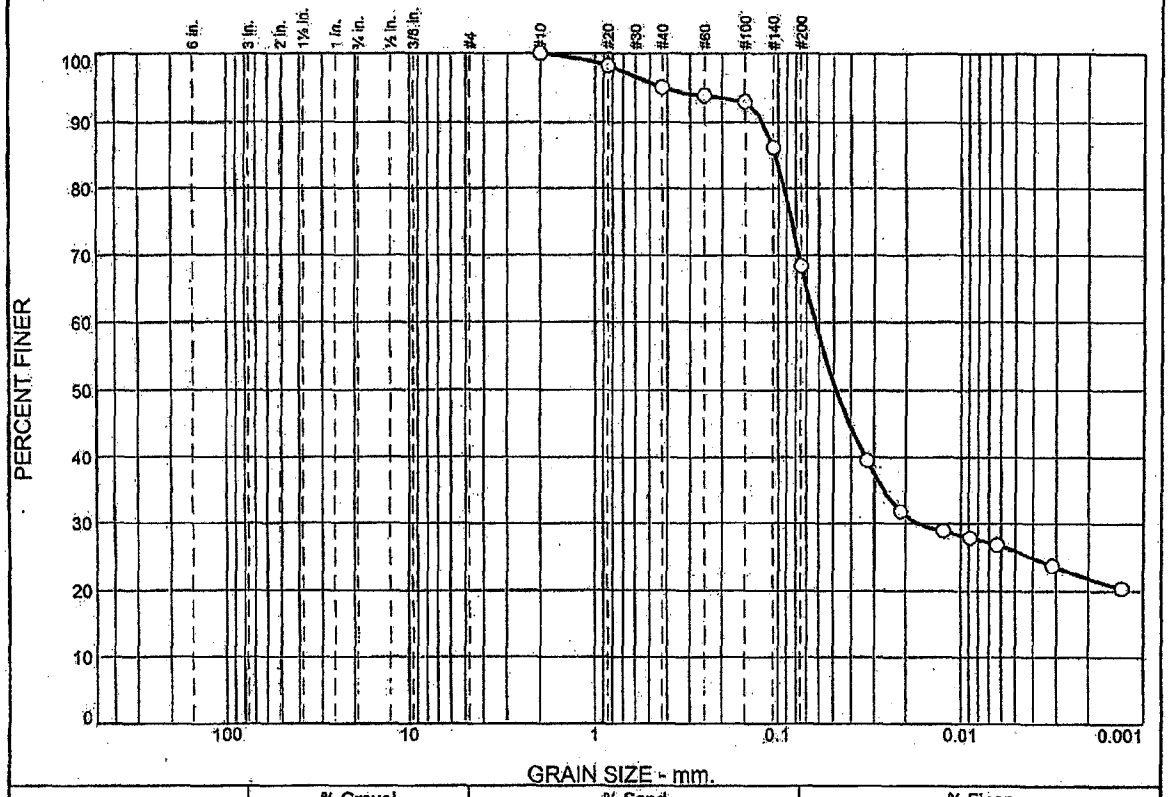
ASTM D422-63 (2007)

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-822 **Date:** 9-15-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure** 11, 9-30-08

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.0	26.7	42.5	25.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	98.2		
#40	95.0		
#60	93.9		
#100	92.9		
#140	86.1		
#200	68.3		

* (no specification provided)

Material Description

Clayey Sandy Silt

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 0.1030 D_{60}= 0.0631 D_{50}= 0.0484
D_{30}= 0.0173 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

ASTM D422-63 (2007)

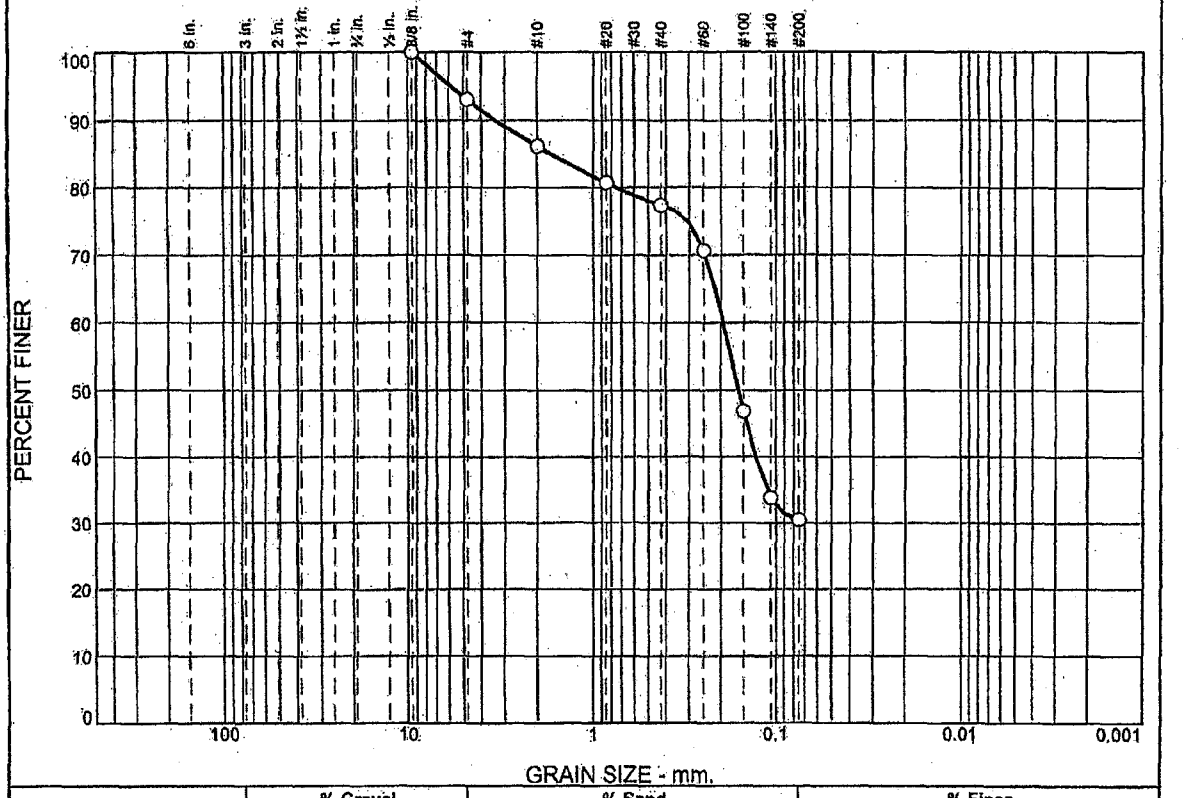
Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-822 **Date:** 9-15-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** AK 9-30-08

Tested By: DK **Checked By:** JA

DCN: CALV-039
DCN: CALV-050

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.0	6.8	8.9	46.9	30.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	93.0		
#10	86.2		
#20	80.7		
#40	77.3		
#60	70.7		
#100	46.8		
#140	33.8		
#200	30.4		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.6850 D_{60}= 0.1942 D_{50}= 0.1598
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

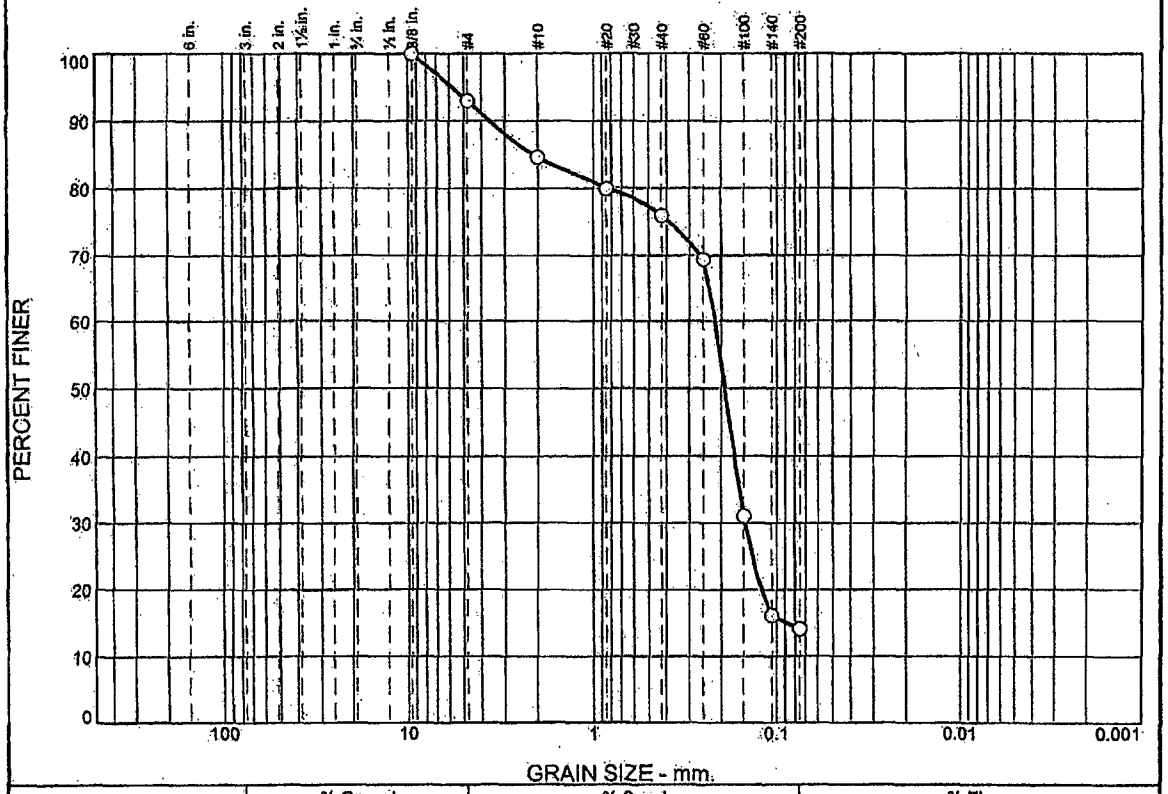
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-822 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** AA 9-8-03

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.1	8.3	8.7	61.9	14.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	92.9		
#10	84.6		
#20	79.9		
#40	75.9		
#60	69.3		
#100	31.0		
#140	16.0		
#200	14.0		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.1123 D_{60}= 0.2158 D_{50}= 0.1906
D_{30}= 0.1478 D_{15}= 0.0888 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

Sample Number: S-8 **Depth:** 23.5-25.0
Location: B-822

Date: 9-11-08

MACTEC Engineering and Consulting, Inc. Charlotte, North Carolina	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234-08-4783 **Figure** 9-30-08

Tested By: DK **Checked By:** JA

DCN: CALV-039
DCN: CALV-050

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f deg.	Effective c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-344	Tube	181.5	UD-1	SC	29.1	0.0	44	23	21				30.6	1.9	116.8	2.598					X		UU		12.50				0.021	0.081	0.799	11.50
B-344	Tube	204.0	UD-4	SC	51.0	0.0	81	25	56				47.2	2.7	105.8	2.475					X		UU		35.35				0.041	0.194	1.044	5.85
B-344	Tube	221.5	UD-6	CH	84.3	0.0	119	31	88				65.5	4.7	96.5	2.392					X		UU		51.39				0.086	0.397	1.434	21.60
B-344	Tube	241.5	UD-8	CH	95.6	0.0	176	50	126				91.3	6.2	86.8	2.284					X		UU		43.12				0.129	0.466	2.079	11.90
B-301A	Tube	60.0	UD-2	SM	31.8	0.1	NV	NP	NP				21.5	0.2	128.4	2.684					X		UU		5.69				0.011	0.020	0.629	15.15
B-301A	Tube	60.0	UD-2	SM	31.8	0.1	NV	NP	NP				21.5	0.2	128.4	2.684					X		VS		16.9				0.011	0.020	0.629	15.15
B-301A	Tube	198.0	UD-4	CH	91.3	0.0	115	25	90				64.1	5.0	100.9	2.596					X		UU		34.44				0.160	0.695	1.767	21.05
B-301A	Tube	198.0	UD-4	CH	91.3	0.0	115	25	90				64.1	5.0	100.9	2.596					X		VS		28.8+				0.160	0.695	1.767	21.05
B-301A	Tube	218.0	UD-5	SC	37.7	0.0	66	26	40				38.8	2.1	109.3	2.553					X		UU		13.68				0.033	0.178	1.019	14.30
B-301A	Tube	218.0	UD-5	SC	37.7	0.0	66	26	40				38.8	2.1	109.3	2.553					X		VS		28.8+				0.033	0.178	1.019	14.30
B-301A	Tube	238.0	UD-6	CH	68.7	0.0	96	26	70				49.2	3.8	104.7	2.530					X		UU		51.32				0.063	0.311	1.278	13.50
B-301A	Tube	238.0	UD-6	CH	68.7	0.0	96	26	70				49.2	3.8	104.7	2.530					X		VS		28.8+				0.063	0.311	1.278	13.50
B-301A	Tube	258.0	UD-7	CH	70.8	0.0	113	31	82				58.6	4.1	98.5	2.472					X		UU		32.78				0.076	0.334	1.484	16.60
B-301A	Tube	258.0	UD-7	CH	70.8	0.0	113	31	82				58.6	4.1	98.5	2.472					X		VS		28.8+				0.076	0.334	1.484	16.60
B-301A	Tube	268.0	UD-8	CH	96.3	0.0	182	49	133				85.7	7.3	88.3	2.336					X		UU		57.64				0.138	0.573	2.060	16.00
B-301A	Tube	268.0	UD-8	CH	96.3	0.0	182	49	133				85.7	7.3	88.3	2.336					X		VS		28.8+				0.138	0.573	2.060	16.00
B-301A	Tube	278.0	UD-9	CH	94.8	0.0	187	54	133				109.8	7.2	86.5	2.232					X		UU		52.92				0.141	0.572	2.443	20.00
B-301A	Tube	278.0	UD-9	CH	94.8	0.0	187	54	133				109.8	7.2	86.5	2.232					X		VS		28.8+				0.141	0.572	2.443	20.00
B-301A	Tube	288.0	UD-10	CH	69.8	0.0	115	30	85				57.4	3.6	99.8	2.476					X		UU		64.31				0.089	0.472	1.461	22.15
B-301A	Tube	288.0	UD-10	CH	69.8	0.0	115	30	85				57.4	3.6	99.8	2.476					X		VS		28.8+				0.089	0.472	1.461	22.15
B-301A	Tube	298.0	UD-11	CH	93.1	0.0	135	35	100				94.2	5.0	92.9	2.400					X		UU		51.25				0.158	0.925	2.332	25.00
B-301A	Tube	298.0	UD-11	CH	93.1	0.0	135	35	100				94.2	5.0	92.9	2.400					X		VS		28.8+				0.158	0.925	2.332	25.00
B-301A	Tube	308.0	UD-12	SC	30.0	1.5	56	17	39				24.6	1.6	125.6	2.741					X		UU		53.13				0.035	0.122	0.730	18.10
B-301A	Tube	308.0	UD-12	SC	30.0	1.5	56	17	39				24.6	1.6	125.6	2.741					X		VS		28.8+				0.035	0.122	0.730	18.10
B-301A	Tube	318.0	UD-13	SC	32.3	0.3	36	14	22				13.4	1.4	132.0	2.785					X		UU		31.67				0.010	0.033	0.409	16.00
B-301A	Tube	318.0	UD-13	SC	32.3	0.3	36	14	22				13.4	1.4	132.0	2.785					X		VS		11.5				0.010	0.033	0.409	16.00
B-301A	Tube	328.0	UD-14	SC	13.9	0.7	79	20	59				27.0	4.3	126.9	2.930					X		UU		36.46				0.037	0.220	0.852	15.30
B-301A	Tube	328.0	UD-14	SC	13.9	0.7	79	20	59				27.0	4.3	126.9	2.930					X		VS		28.8+				0.037	0.220	0.852	15.30
B-301A	Tube	338.0	UD-15	SC	14.1	0.8	66	22	44				44.5	5.1	123.5	2.983					X		UU		38.96				0.148	0.411	1.421	17.40
B-301A	Tube	338.0	UD-15	SC	14.1	0.8	66	22	44				44.5	5.1	123.5	2.983					X		VS		28.8+				0.148	0.411	1.421	17.40

Prepared By DAK 10-7-08 Checked By JWA 10-7-08 Reviewed By MAL 10-7-08 CEF 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Ccr	Cec	eo	Pp' tsf
B-771	Jar	0.0	S-1										7.2	0.8																		
B-771	Jar	2.5	S-2										11.3	0.3																		
B-771	Jar	5.0	S-3										14.2	0.6																		
B-771	Jar	7.5	S-4										18.4	0.5																		
B-771	Jar	10.0	S-5							5.1	15.0	315	20.7	0.1																		
B-771	Jar	13.5	S-6							7.8	79.9	1400	29.3	5.7																		
B-771	Jar	18.5	S-7							7.8	22.7	664	25.6	1.9																		
B-771	Jar	23.5	S-8							8.0	33.0	1590	37.4	0.5																		
B-771	Jar	28.5	S-9							8.1	5.5	1070	17.6	0.4																		
B-771	Tube	31.5	UD-1	SC	16.5	0.0	36	23	13				28.5	1.4	111.8	2.603					X		DS			29.8	3.96		0.021	0.084	0.867	12.75
B-771	Jar	33.5	S-10							7.7	12.0	2130	36.7	0.7																		
B-771	Jar	38.5	S-11							7.6	3.7	3100	57.7	1.2																		
B-771	Tube	41.5	UD-2	SC	31.8	0.0	59	18	41				33.0	2.2	110.9	2.610					X		DS			38.7	2.01		0.060	0.219	1.019	16.15
B-771	Tube	41.5	UD-2	SC	31.8	0.0	59	18	41				33.0	2.2	110.9	2.610					X		UU		26.94				0.060	0.219	1.019	16.15
B-771	Jar	43.5	S-12							8.0	24.9	1890	40.1	1.0																		
B-771	Jar	48.5	S-13							7.5	9.4	1400	30.3	1.0																		
B-771	Tube	51.5	UD-3	SC	35.4	4.1	52	19	33				27.8	1.8	118.2	2.654					X		CU	18.7	19.0	35.0	12.08		0.017	0.103	0.804	12.85
B-771	Jar	53.5	S-14							7.8	2.5	4030	40.6	1.5																		
B-771	Jar	58.5	S-15							7.7	4.4	3770	62.8	2.4																		
B-771	Tube	61.5	UD-4	SC	57.6	0.0	64	21	43				43.9	3.0	111.6	2.596					X		UU		29.79				0.032	0.147	0.969	13.55
B-771	Jar	63.5	S-16							7.9	2.3	2360	40.8	1.4																		
B-771	Jar	68.5	S-17							7.8	2.3	3310	45.2	1.9																		
B-771	Tube	71.5	UD-5	SC	38.6	0.0	55	21	34				33.4	2.4	114.1	2.623					X		UU		33.54				0.036	0.141	0.897	12.20
B-771	Jar	73.5	S-18	SC	49.0	0.0	64	26	38				41.0																			
B-771	Jar	78.5	S-19	MH	79.4	0.0	122	74	48				71.2																			
B-771	Tube	81.5	UD-6	CH	98.3	0.0	136	37	99				68.5	7.5	96.0	2.556					X		UU		45.42				0.208	0.591	1.841	20.40
B-771	Jar	83.5	S-20	MH	62.9	0.0	119	65	54				73.9																			
B-771	Jar	88.5	S-21	MH	65.4	0.0	96	54	42				63.6																			
B-771	Tube	91.5	UD-7	CH	78.0	0.0	140	32	108				68.6	9.3	93.6	2.653					X		UU		38.61				0.266	0.606	1.949	15.00
B-771	Jar	93.5	S-22	MH	53.9	0.0	110	71	39				67.3																			
B-771	Jar	98.5	S-23	MH	74.7	0.0	92	52	40				48.7																			

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MA 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Cer	Ccc	eo	Pp' tsf
B-773	Jar	0.0	S-1										12.8																			
B-773	Jar	2.5	S-2	SM	31.0	0.0	NV	NP	NP				12.4																			
B-773	Jar	5.0	S-3				NV	NP	NP				21.1																			
B-773	Jar	7.5	S-4	SM	23.0	0.0	NV	NP	NP				19.1																			
B-773	Jar	10.0	S-5				NV	NP	NP				34.4																			
B-773	Jar	12.5	S-6				NV	NP	NP				15.4																			
B-773	Jar	15.0	S-7							8.1	21.9	869	22.4																			
B-773	Jar	20.0	S-8	SM	35.9	0.0	NV	NP	NP				29.7	0.6																		
B-773	Jar	25.0	S-9							7.6	307.0	1720	41.0																			
B-773	Jar	30.0	S-10				NV	NP	NP				37.9	1.2																		
B-773	Jar	35.0	S-11							7.3	52.1	2650	55.8																			
B-773	Jar	40.0	S-12				45	24	21				40.8	1.4																		
B-773	Jar	45.0	S-13							7.9	15.5	1430	35.8																			
B-773	Jar	50.0	S-14				65	33	32				44.3	1.6																		
B-773	Jar	55.0	S-15				80	44	36				46.4																			
B-773	Jar	60.0	S-16				66	37	29				47.3	1.7																		
B-773	Jar	65.0	S-17				64	27	37				41.6																			
B-773	Jar	70.0	S-18	SM	45.0	0.0	58	31	27				38.3																			

Prepared By OAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MH 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Ccr	Csc	eo	Pp' tsf
B-773	Jar	75.0	S-19				103	45	58				67.5	3.4																		
B-773	Jar	80.0	S-20				132	53	79				77.2																			
B-773	Jar	85.0	S-21				123	57	66				69.5																			
B-773	Jar	90.0	S-22				129	50	79				84.1	3.3																		
B-773	Jar	95.0	S-23	SC	45.6	0.0	73	32	41				41.8																			
B-773	Jar	100.0	S-24	MH	59.3	0.0	97	58	39				54.2	3.2																		
B-773	Jar	105.0	S-25				109	59	50				59.1																			
B-773	Jar	110.0	S-26				128	76	52				78.5																			
B-773	Jar	115.0	S-27	SP-SM	11.0	0.0	NV	NP	NP				35.5																			
B-773	Jar	120.0	S-28	SM	28.2	0.0	49	34	15				42.4																			
B-773	Jar	125.0	S-29				60	35	25				45.3																			
B-773	Jar	130.0	S-30				69	36	33				46.7	1.5																		
B-773	Jar	135.0	S-31				73	42	31				49.4																			
B-773	Jar	140.0	S-32				91	50	41				58.8																			
B-773	Jar	145.0	S-33	MH	55.7	0.0	97	55	42				56.0																			
B-773	Jar	148.5	S-34	MH	68.6	0.0	112	63	49				66.8	2.2																		
B-773 A	Tube		UD-2	SC	31.4	0.1	42	20	22				31.4	1.2	119.6	2.640					X		DS			28.2	3.19					
B-773A	Tube		UD-2	SC	31.4	0.1	42	20	22				31.4	1.2	119.6	2.640					X		VS		19.0							
B-773 A	Tube		UD-8	CH	89.9	0.0	143	33	110				70.7	4.9	96.8	2.592					X		CU	0.9	69.6	54.0	12.2		0.203	0.716	1.782	20.85
B-773 A	Tube		UD-9	CH	74.1	0.0	116	26	90				54.0	4.6	109.2	2.661					X		DS			32.6	0.00					
B-773A	Tube		UD-10	CH	79.9	0.0	110	25	85				22.4	4.6	104.9	2.633																
B-773 A	Tube		UD-11	SC	24.3	0.0	43	22	21				32.1	1.7	118.4	2.610					X		CU	16.0	21.7	37.3	0.0		0.041	0.156	0.882	18.50
B-773A	Tube		UD-11	SC	24.3	0.0	43	22	21				32.1	1.7	118.4	2.610					X		VS		28.8+				0.041	0.156	0.882	18.50
B-773 A	Tube		UD-12	SC	34.4	0.0	59	26	33				40.0	2.0	112.5	2.569					X		CU	0.0	53.3	19.4	25.2		0.032	0.141	1.079	11.15
B-773A	Tube		UD-12	SC	34.4	0.0	59	26	33				40.0	2.0	112.5	2.569					X		VS		28.8+				0.032	0.141	1.079	11.15

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By [illegible] 10-7-08 CE 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-774	Jar	0.0	S-1		15.4	24.0							20.4																			
B-774	Jar	10.0	S-5	SC	28.6	0.0	24	14	10				17.9																			
B-774	Tube	11.5	UD-1	SC	34.1	0.5	22	12	10				17.6	1.8	126.8	2.657					X		CU	ND	ND	38.0	0					
B-774	Jar	13.1	S-6	SM	17.9	0.0	NV	NP	NP				15.6																			
B-774	Jar	15.0	S-7	SM	15.9	30.7	NV	NP	NP				18.7																			
B-774	Tube	16.5	UD-2	SP-SM	8.4	28.1	20	19	1				22.1	1.0	123.4	2.668													0.010	0.050	0.635	12.50
B-774	Jar	18.5	S-8	SM	15.4	5.9	NV	NP	NP				28.7																			
B-774	Jar	20.0	S-9				28	23	5				34.6																			
B-774	Tube	21.5	UD-3	SC	31.1	0.2	30	19	11				23.3	1.2	118.2	2.651					X		CU	13.0	27.07	35.84	5.0					
B-774	Jar	23.5	S-10	SM	30.1	0.0	NV	NP	NP				22.8																			
B-774	Jar	25.0	S-11	SC-SM	37.9	0.0	30	23	7				34.7																			
B-774	Jar	27.5	S-12	SC	46.5	0.0	40	22	18				44.3																			
B-774	Jar	30.0	S-13				36	21	15				34.5																			
B-774	Tube	31.5	UD-4	SC	20.3	0.0	42	22	20				31.2	1.4	116.0	2.604					X		DS			28.3	5.35		0.019	0.106	0.816	19.50
B-774	Tube	31.5	UD-4	SC	20.3	0.0	42	22	20				31.2	1.4	116.0	2.604					X		UU		26.74				0.019	0.106	0.816	19.50
B-774	Jar	33.5	S-14				30	25	5				37.4																			
B-774	Jar	35.0	S-15				37	24	13				37.6																			
B-774	Jar	37.5	S-16	MH	59.4	0.0	82	51	31				59.4																			
B-774	Jar	40.0	S-17				75	31	44				46.4																			
B-774	Tube	41.5	UD-5	SC	31.0	0.0	56	19	37				38.2	2.8	112.0	2.607					X		DS			31.7	6.32		0.037	0.169	0.980	13.35
B-774	Tube	41.5	UD-5	SC	31.0	0.0	56	19	37				38.2	2.8	112.0	2.607					X		UU		33.61				0.037	0.169	0.980	13.35
B-774	Jar	43.5	S-18				46	23	23				45.7																			
B-774	Jar	45.0	S-19				57	22	35				47.1																			
B-774	Jar	47.5	S-20				NV	NP	NP				31.9																			
B-774	Jar	50.0	S-21	SM	15.8	2.9	NV	NP	NP				34.3																			
B-774	Tube	51.5	UD-6	CH	53.0	0.0	63	20	43				39.2	3.5	112.5	2.645					X		DS			33.0	5.56		0.041	0.081	0.981	16.50
B-774	Tube	51.5	UD-6	CH	53.0	0.0	63	20	43				39.2	3.5	112.5	2.645					X		UU		29.10				0.041	0.081	0.981	16.50
B-774	Tube	81.5	UD-7	CH	96.3	0.0	136	38	98				68.9	7.3	94.7	2.553					X		UU		36.25				0.213	0.553	1.769	15.40
B-774	Tube	101.5	UD-8	CH	88.4	0.0	94	24	70				46.0	5.1	101.5	2.564					X		UU		57.78				0.102	0.272	1.316	10.35
B-774	Tube	111.5	UD-9	CH	69.8	0.0	131	29	102				94.5	6.6																		
B-774	Tube	121.5	UD-10	SC	21.5	0.0	42	25	17				33.9	1.3	113.5	2.608					X		DS			27.6	3.12		0.028	0.103	0.906	20.90
B-774	Tube	121.5	UD-10	SC	21.5	0.0	42	25	17				33.9	1.3	113.5	2.608					X		UU		13.33				0.028	0.103	0.906	20.90

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MK 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-774	Tube	131.5	UD-11	SC	41.9	0.0	70	24	46				36.3	3.1																		
B-774	Tube	141.5	UD-12	CH	52.0	0.0	90	24	66				50.0	3.1	103.9	2.474					X		DS			24.4	14.65		0.049	0.289	1.146	16.00
B-774	Tube	141.5	UD-12	CH	52.0	0.0	90	24	66				50.0	3.1	103.9	2.474					X		UU		40.21				0.049	0.289	1.146	16.00
B-775	Jar	0.0	S-1		11.8	40.3							4.3																			
B-775	Jar	2.5	S-2				27	16	11				13.8																			
B-775	Jar	5.0	S-3		16.5	8.1							7.9																			
B-775	Jar	7.5	S-4		24.9	0.0							17.1																			
B-775	Jar	10.0	S-5										19.6																			
B-775	Jar	12.5	S-6		6.7	18.7							19.2																			
B-775	Jar	15.0	S-7		44.2	7.2				8.6	10.9	203	19.9																			
B-775	Jar	17.5	S-8	SC	16.7	9.1	27	17	10				31.0																			
B-775	Jar	20.0	S-9							8.0	20.5	649	29.0																			
B-775	Jar	22.5	S-10				NV	NP	NP				33.2																			
B-775	Jar	25.0	S-11							8.1	89.2	1260	29.1																			
B-775	Jar	27.5	S-12	SC	33.8	0.0	34	23	11				38.2																			
B-775	Jar	30.0	S-13							7.9	37.7	1300	24.6																			
B-775	Jar	32.5	S-14		12.9	1.8							41.4																			
B-775	Jar	35.0	S-15							7.3	26.2	2370	41.2																			
B-775	Jar	37.5	S-16		26.6	0.0							39.9																			
B-775	Jar	40.0	S-17							7.3	6.5	6240	59.9																			
B-775	Jar	42.5	S-18		39.6	0.0							43.9																			
B-775	Jar	45.0	S-19										39.1																			
B-775	Jar	47.5	S-20										42.3																			
B-775	Jar	50.0	S-21	SC	23.4	0.0	42	25	17				34.5																			
B-775	Jar	52.5	S-22										31.0																			
B-775	Jar	55.0	S-23										34.8																			
B-775	Jar	57.5	S-24										44.0																			
B-775	Jar	60.0	S-25				64	28	36				46.7																			
B-775	Jar	62.5	S-26				84	35	49				58.5																			
B-775	Jar	65.0	S-27				44	25	19				44.2																			
B-775	Jar	67.5	S-28										39.6																			
B-775	Jar	70.0	S-29										40.9																			
B-775	Jar	72.5	S-30										42.2																			
B-775	Jar	75.0	S-31		45.0	0.0							49.8																			
B-775	Jar	77.5	S-32				90	38	52				66.2																			
B-775	Jar	80.0	S-33										74.0																			
B-775	Jar	82.5	S-34										72.8																			
B-775	Jar	85.0	S-35				118	48	70				75.8																			

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MA 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Csr	Csc	eo	Pp' tsf
B-775	Jar	87.5	S-36										66.8																			
B-775	Jar	90.0	S-37										63.9																			
B-775	Jar	92.5	S-38				110	50	60				67.1																			
B-775	Jar	95.0	S-39										76.1																			
B-775	Jar	98.5	S-40				54	24	30				41.5																			
B-778	Jar	5.0	S-3		49.9	0.0							13.0																			
B-778	Jar	8.5	S-4		26.6	0.0							5.9																			
B-778	Jar	10.0	S-5		26.9	0.0							6.1																			
B-778	Tube	11.5	UD-2	SC	20.7	0.0	27	14	13				23.2		118.2	2.693					X		DS			28.6	2.29					
B-778	Jar	13.5	S-6		33.0	0.0							23.5																			
B-778	Jar	18.5	S-7		7.5	0.0							3.9																			
B-778	Jar	25.5	S-8		39.3	0.0							18.4																			
B-778	Jar	28.5	S-9		41.7	0.0							16.5																			
B-778	Tube	33.5	UD-6	SM	26.3	0.0	NV	NP	NP				15.1		124.6	2.677					X		DS			29.1	0.76					
B-778	Jar	35.5	S-10										21.9																			
B-778	Jar	38.5	S-11A				36	19	17	4.8	12.4	69.2	29.5																			
B-778	Jar	38.5	S-11B				38	19	19	3.8	6.6	1020	31.3																			
B-778	Tube	41.5	UD-7	SC	43.4	0.0	39	15	24				26.6		120.7	2.709					X		UU		10.90							

Prepared By OAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MA 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	f deg.	c psi	f deg.	c' psi	Failure Criterion	Cer	Cec	eo	Pp' tsf
B-778	Tube	42.5	UD-7	SC	43.4	0.0	39	15	24				26.6		120.7	2.709					X		DS			22.4	4.31					
B-778	Jar	43.5	S-12	SM	21.6	0.0	NV	NP	NP				33.8																			
B-778	Jar	48.5	S-13	CH	94.2	0.0	63	30	33				36.9																			
B-778	Tube	51.5	UD-8	ML	53.2	1.4	NV	NP	NP				32.3		129.5	2.762					X		UU		54.51							
B-778	Tube	51.5	UD-8	ML	53.2	1.4	NV	NP	NP				32.3		129.5	2.762					X		DS			25.6	3.68					
B-778	Tube	61.5	UD-9	CH	95.9	0.0	50	17	33				23.7		114.8	2.748					X		UU		27.85							
B-778	Jar	63.5	S-16		24.8	30.0							21.5																			
B-778	Jar	68.5	S-17	CH	51.2	0.0	54	22	32				37.1																			
B-778	Tube	71.5	UD-10	CH	85.6	0.0	66	18	48				48.2		113.5	2.753					X		UU		18.75							
B-778	Tube	71.5	UD-10	CH	85.6	0.0	66	18	48				48.2		113.5	2.753					X		DS			16.4	14.79					
B-778	Tube	81.5	UD-11	CL	60.8	0.0	46	20	26				28.1		119.7	2.719					X		UU		23.13							
B-778	Tube	81.5	UD-11	CL	60.8	0.0	46	20	26				28.1		119.7	2.719					X		DS			25.5	4.38					
B-778	Jar	88.5	S-21		14.5	6.0							22.0																			
B-778	Jar	95.5	S-22		13.8	9.2							21.9																			
B-778	Jar	98.5	S-23		13.7	7.1							21.0																			
B-778	Tube	101.5	UD-14	SC	12.1	0.0	28	20	8				25.1		121.7	2.660					X		UU		17.64							
B-778	Tube	101.5	UD-14	SC	12.1	0.0	28	20	8				25.1		121.7	2.660					X		DS			28.1	5.76					
B-778	Jar	108.5	S-25		16.1	0.0							31.8																			
B-778	Jar	118.5	S-27		28.1	10.1							21.1																			
B-778	Jar	120.0	S-28		21.3	11.5							23.5																			

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MA 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f deg.	Effective c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-779	Jar	5.0	S-3		12.4	0.0							3.6																			
B-779	Tube	6.5	UD-1	SM	46.4	0.0	NV	NP	NP				9.5		101.0	2.671																
B-779	Tube	11.5	UD-2	SM	22.4	0.0	NV	NP	NP				17.0		127.9	2.674					X		CU	38.3	7.0	32.2	1.2					
B-779	Jar	13.5	S-6		37.5	1.7							10.0																			
B-779	Jar	18.5	S-7		27.5	0.0							8.7																			
B-779	Tube	21.5	UD-3	SM	18.8	0.0	NV	NP	NP				24.5		120.8	2.664					X		UU		2.36							
B-779	Tube	21.5	UD-3	SM	18.8	0.0	NV	NP	NP				24.5		120.8	2.664					X		DS			28.7	2.22					
B-779	Jar	23.5	S-8	SC	43.4	0.0	32	18	14				19.1																			
B-779	Tube	31.5	UD-4	SC	32.4	0.0	32	19	13				26.7		121.4	2.682					X		UU		15.42							
B-779	Tube	31.5	UD-4	SC	32.4	0.0	32	19	13				26.7		121.4	2.682					X		DS			24.5	3.61					
B-779	Jar	33.5	S-10				58	30	28				38.0																			
B-779	Tube	41.5	UD-5	CH	87.8	0.0	69	19	50				22.7		115.7	2.761					X		UU		14.38							
B-779	Tube	41.5	UD-5	CH	87.8	0.0	69	19	50				22.7		115.7	2.761					X		CU	3.7	38.6	36.6	5.1					
B-779	Tube	53.5	UD-7	SC	43.1	0.0	40	20	20				30.1		118.4	2.712					X		UU		20.35							
B-779	Jar	58.5	S-15		65.2	0.0							40.1																			
B-779	Tube	61.5	UD-8	CH	88.2	0.0	68	19	49				42.3		111.0	2.734					X		UU		22.99							
B-779	Tube	61.5	UD-8	CH	88.2	0.0	68	19	49				42.3		111.0	2.734					X		CU	9.4	20.8	25.6	13.2					
B-779	Jar	68.5	S-17		72.5	0.0							39.2																			
B-779	Tube	71.5	UD-9	CH	63.6	0.0	51	20	31				34.2		115.2	2.702					X		UU		10.42							
B-779	Tube	71.5	UD-9	CH	63.6	0.0	51	20	31				34.2		115.2	2.702					X		CU	3.1	52.3	36.6	12.6					
B-779	Jar	73.5	S-18		22.2	0.0							36.7																			
B-779	Tube	81.5	UD-10	SC-SM	15.1	4.1	26	19	7				23.0		126.7	2.670					X		DS			30.5	2.85					
B-779	Jar	83.5	S-20		14.0	0.0							22.4																			
B-779	Tube	96.5	UD-11	SC	16.0	0.0	32	20	12				27.0		121.3	2.659					X		UU		7.22							
B-779	Tube	96.5	UD-11	SC	16.0	0.0	32	20	12				27.0		121.3	2.659					X		DS			30.0	0.00					
B-779	Jar	98.5	S-23										34.6																			
B-779	Tube	100.0	UD-12	SC	23.8	0.9	39	17	22				28.3		118.6	2.653																

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MK 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Csr	Cec	eo	Pp' tsf
B-781	Jar	0.0	S-1		10.4	33.2							9.9																			
B-781	Jar	2.5	S-2										6.6																			
B-781	Jar	5.0	S-3	SC	39.5	0.0	24	15	9				13.8																			
B-781	Jar	7.5	S-4										15.6																			
B-781	Jar	10.0	S-5										16.5	0.9																		
B-781	Jar	13.5	S-6				NV	NP	NP				25.1																			
B-781	Jar	18.5	S-7		9.6	5.0							26.3																			
B-781	Jar	23.5	S-8	SM	25.4	2.9	NV	NP	NP				27.0																			
B-781	Jar	28.5	S-9	SC-SM	35.7	10.7	28	22	6				22.7																			
B-781	Jar	38.5	S-11				83	36	47				58.5																			
B-781	Jar	43.5	S-12				46	23	23				40.6																			
B-781	Jar	48.5	S-13				NV	NP	NP				36.9																			
B-782	Jar	0.0	S-1		14.5	9.7							7.4																			
B-782	Jar	2.5	S-2		38.0	0.0							13.8																			
B-782	Jar	5.0	S-3							8.3	4.0	73.2	4.3																			
B-782	Jar	7.5	S-4							7.8	5.2	22.1	14.1																			
B-782	Jar	10.0	S-5							8.0	7.3	26.3	17.8																			
B-782	Jar	13.5	S-6							8.3	20.8	497	28.0																			
B-782	Jar	18.5	S-7							8.3	4.7	428	22.1																			
B-782	Jar	23.5	S-8							8.1	4.8	1360	34.9																			
B-782	Jar	33.5	S-10		36.5	1.4							35.2																			

Prepared By OAK 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08, MMA 10-7-08

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Ccr	Csc	eo	Pp' tsf
B-782	Jar	38.5	S-11		23.4	0.0							40.3																			
B-782	Jar	43.5	S-12		41.5	0.0							43.4																			
B-782	Jar	47.3	S-13				45	23	22				51.2																			
B-782	Jar	50.0	S-14				NV	NP	NP				41.9																			
B-785	Jar	43.5	S-12	CH	97.5	0.0	66	31	35				35.9																			
B-785	Jar	48.5	S-13	CL	63.7	0.0	41	19	22				33.1																			
B-785	Jar	53.5	S-14		24.4	0.0							30.9																			
B-785	Jar	58.5	S-15		10.3	0.0							10.6																			
B-785	Jar	63.5	S-16		88.7	0.0							43.4																			
B-785	Jar	68.5	S-17				49	24	25				38.1																			
B-786	Jar	0.0	S-1		10.3	0.0							0.5																			
B-786	Jar	2.5	S-2		42.2	1.4							8.1																			
B-786	Jar	5.0	S-3		43.8	0.0							6.2																			
B-786	Jar	7.5	S-4		24.7	0.0							4.4																			
B-786	Jar	10.0	S-5	CH	96.3	0.0	68	32	36				28.7																			
B-786A	Jar	13.5	S-1		39.3	0.0							19.9																			
B-786A	Jar	18.5	S-2A		44.4	0.0							27.9																			
B-786A	Jar	19.3	S-2B		23.7	8.8							27.1																			
B-786A	Jar	23.5	S-3	SP	3.6	0.0							17.8																			
B-786A	Jar	28.5	S-4	CH	88.5	0.0	75	33	42				47.6																			
B-786A	Jar	33.5	S-5	CL	78.6	0.0	48	24	24				41.1																			
B-786A	Jar	38.5	S-6		34.7	0.0							34.6																			
B-787	Jar	0.0	S-1		29.4	0.0							14.5																			
B-787	Jar	2.5	S-2	SC	39.3	0.0	31	19	12				7.9																			
B-787	Jar	5.0	S-3		54.8	0.0							24.2																			
B-787	Jar	7.5	S-4		23.7	0.0							15.2																			
B-787	Jar	10.0	S-5		15.2	0.0							14.7																			
B-787	Jar	13.5	S-6A		15.6	0.0							13.4																			
B-787	Jar	13.5	S-6B		48.0	0.0							22.9																			
B-787	Jar	18.5	S-7	SP	3.8	0.0							24.1																			
B-789	Jar	0.0	S-1		77.5	0.0							28.2																			
B-789	Jar	2.5	S-2							5.0	1.7	40.7	29.1																			
B-789	Jar	5.0	S-3							4.8	2.7	36.2	26.6																			
B-789	Jar	7.5	S-4							4.5	3.3	39.2	34.3																			
B-789	Jar	10.0	S-5							2.8	ND	6180	27.3																			
B-789	Jar	12.5	S-6							3.2	1.7	5210	25.4																			
B-789	Jar	15.0	S-7							3.3	3.8	3870	31.1																			
B-789	Jar	18.5	S-8							3.4	7.4	5040	32.0																			

Prepared By DAY 10-7-08 Checked By JHA 10-7-08 Reviewed By CES 10-7-08 MAA 10-7-08

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MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY REV. 3

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride	Sulphate					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Prepared	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-789	Jar	23.5	S-9							5.8	19.0	20.8	27.3																			
B-791	Jar	0.0	S-1		24.6	0.0							7.2																			
B-791	Jar	2.6	S-2		16.7	0.0							8.1																			
B-791	Jar	5.0	S-3		13.6	1.5							8.4																			
B-791	Jar	7.5	S-4	SP-SM	6.6	0.0	NV	NP	NP				4.9																			
B-791	Jar	10.0	S-5		10.7	1.4							5.9																			
B-791	Jar	12.5	S-6		6.5	0.0							5.4																			
B-791	Jar	15.0	S-7		6.8	0.0							15.7																			
B-791	Jar	19.0	S-8		32.9	0.0							23.1																			
B-791	Jar	23.5	S-9		21.5	10.3							14.7																			
B-791	Jar	28.5	S-10	CH	78.9	0.0	59	23	36				34.6																			
B-821	Jar	0.0	S-1		14.2	44.0							2.6																			
B-821	Jar	2.5	S-2		32.1	0.0							8.2																			
B-821	Jar	7.5	S-4		7.4	20.0							9.4																			
B-821	Jar	10.0	S-5	SM	18.0	0.0	NV	NP	NP				33.9																			
B-821	Jar	13.5	S-6		17.1	0.0							31.3																			
B-821	Jar	18.5	S-7				NV	NP	NP				20.2																			
B-821	Jar	23.5	S-8		14.6	0.0							29.1																			
B-822	Jar	0.0	S-1		15.1	0.0							9.4																			
B-822	Jar	2.5	S-2		42.3	0.0							11.7																			
B-822	Jar	5.0	S-3		90.7	0.0							25.8																			
B-822	Jar	7.5	S-4				53	21	32				23.1																			
B-822	Jar	10.0	S-5		68.3	0.0							34.8																			
B-822	Jar	13.5	S-6				45	22	23				39.2																			
B-822	Jar	18.5	S-7		30.4	7.0							18.6																			
B-822	Jar	23.5	S-8		14.0	7.1							29.9																			

Note: Cohesion values determined by vane shear with a "+" after the value indicate the vane shear device reached the maximum torque prior to failing the sample

Prepared By DAK 10-7-08 Checked By JHA 10-7-08 Reviewed By MA 10-7-08 CEJ 10-7-08