Appendix A

Prefinal Inspection Checklist

November 14, 2002 CCN 37532

Ms. Kathleen E. Hain
Environmental Restoration
U. S. Department of Energy
Idaho Operations Office
850 Energy Drive, MS 1222
Idaho Falls, ID 83401-1563

CONTRACT NO. DE-AC07-99ID13727 - TRANSMITTAL OF THE PRE-FINAL INSPECTION CHECKLIST FOR THE CENTRAL FACILITIES AREA-08 SEWAGE PLANT DRAIN FIELD

Dear Ms. Hain:

This letter transmits nine copies of the Pre-final Inspection Checklist for the installation of the Central Facilities Area-08 Sewage Plant Drain Field cover to Carol A. Hathaway of the U.S. Department of Energy, Idaho Operations Office for submittal to the U.S. Environmental Protection Agency and the Idaho Department of Environmental Quality for their concurrence. The pre-final inspection officially occurred August 20, 2002. The cover installation was completed August 26, 2002. The pre-final inspection checklist is supported by documentation including pictures of the remedial action, waste disposition paperwork, and a summary of the vendor data. Additional documentation for subsequent fence installation, re-vegetation, and monument and sign installation will be included in the construction complete report.

If you have any questions, please contact Robert E. James at 526-5020 or Deborah W. Wagoner at 526-9989.

Sincerely,

RE James

for Michael J. Graham, Manager of Projects
Environmental Restoration

DWW:sr

Enclosure

bcc: (w/o Enc.)
C. M. Hiaring, MS 3950
R. E. James. MS 3950
D. J. Preussner, MS 3950
A. M. Rosen, MS 3921
D. W. Wagoner File (DWW-12-02) DWW
Correspondence Control, MS 3106
M. J. Graham Letter File (MJG-243-02)

(w/Enc.)
ARDC File, MS 3922
WAG 5 Project File

Uniform File Code: 6102
Disposition Authority: ENV1-h-1
Retention Schedule: Cutoff at submission of the final financial status report for the site, or after resolution of all issues, whichever is later. Destroy 10 years after cutoff with written approval from the EPA award official.

NOTE: Original disposition authority, retention schedule, and Uniform Filing Code applied by the sender may not be appropriate for all recipients. Make adjustments as needed.

WAG 4 OU 4-13 Remedial Action
Pre-final Inspection Checklist
for the CFA-08 Sewage Plant Drain Field

Inspection Items	Reference	Satisfactory	Unsatisfactory	Comments
1. CFA-08 Drain Field area surveyed for bird nests before conducting any field work between March 15 through June 15	Work Plan Appendix H	X		Construction coordinator surveyed area before construction
2. INEEL Gravel/Borrow Request Form completed	Work Plan Appendix H, borrow request form (attachment A)	X		
3. CFA-08 construction site cleared of fence, telephone poles, and railroad ties and waste appropriately dispositioned in accordance with the OU 4-13 RD/RA CFA-08 Work Plan.	Work Plan Section 5.3.3 and Appendix F, site cleared (attachment B), waste forms (attachment C)	X		Fence posts were stockpiled for re-use on another job. The rest of the fence was stockpiled for re-use on this job.
4. Three perched water monitoring wells abandoned, locations surveyed and information submitted to Hydro-geological Data Repository (HDR) in accordance with the OU 4-13 RD/RA CFA-08 Work Plan.	Work Plan Section 5.3.4, memo to HDR (attachment D)	X		
5. CFA-08 Sewage Plant Drain Field cover installed per the RD/RA Work Plan	Work Plan Section 5.3.8 and Appendix B, Construction Specification 02200, QA inspection plan (attachment E), photographs (attachment F)	X		
6. Dust suppression measures implemented during excavation activities.	Work Plan Section 5.3.10, picture of water truck spraying work site and roads (attachment F)	X		
7. Fence, permanent markers, and signs installed per the RD/RA Work Plan.	Work Plan Section 5.3.11 and O&M Plan Section A-3			Work still ongoing
8. Seeding of cover and borrow source as required per the RD/RA Work Plan.	Work Plan Section 5.3.12			Work still ongoing
9. All CFA-08 miscellaneous wastes dispositioned in accordance with the RD/RA Work Plan.	Work Plan Appendix F, waste forms (attachment G)	X		Oil spill waste was sent to the CFA Landfill

WAG 4 OU 4-13 Remedial Action
Pre-final Inspection Checklist
for the CFA-08 Sewage Plant Drain Field

10. Surveyed boundaries and descriptions of land-use controls updated in the INEEL Land Use Plan.	Web address			Work still ongoing
11. Temporary exclusion zones, work control areas, equipment decontamination areas, and TAAs removed; excess materials such as rope, wire, fence posts, etc., removed.	Work Plan Section 5.3.13			Work still ongoing
12. Vendor Data Submittals submitted, approved and finalized	Work Plan Appendix B, Section Construction Specification 01300, page 2 and Specification 01051, page 1, summary of vendor data (attachment H)			

Attachment A
(Appendix A)

Borrow Source Request Forms

Attachment A

450.19
02/21/2000
Rev. 02

INEEL GRAVEL/BORROW REQUEST FORM

Requester Information

Present Date: 1/24/01

Requesting Organization: WAG 4 (ER)

INEEL Project Manager: DEBORAH WAGGONER

INEEL Construction Manager: J.A. LANDIS

INEEL Subcontractor: UNKNOWN AT THIS TIME

Phone: 526-6311

Mail Stop/Address: LANDJA @ INEL. GOV

Construction Project Name: SEWER PLANT DRAINFIELD COVER RESTORATION

Location of Project: CFA

Type of brow material request: native silt loam soil

Use of material (indicate size needed, if applicable):

INSTALLATION OF COVER OVER CFA-08

Preferred pit for excavation: LINCOLN BOULEVARD

Will stockpiling of borrow be necessary? Y ☑ N ☐

If Yes, how long? 2-3 months

Size and location of stockpile: 500-1000 yd³

Amount of borrow material requested (in cubic yards): 31950 yd³

Equipment to be used in borrow area (include copies of MSDS if applicable.) Front END loader, Dozer

Start date for borrow excavation: JUNE 15th 2002

Complete date for borrow excavation: SEPTEMBER 30th 2002

Completion date for transporting stockpile: SEPT 15th 2002

Is this excavation a one-time effect? Y ☑ N ☐

If No, Explain:

INEEL Roads & Grounds Supervisor (RGS) Information:

Assigned borrow pit: LINCOLN BLVD BERM

Assigned time interval for excavation:

Location of borrow material: Berm east of pit

(Attach map for exact site within the pit)
Location for stockpile (sketch on pit map)
** NOTE – Instructions On Next Page

INEEL Roads & Grounds Supervisor (RGS) Information (Cont.)

Has borrow area been appropriate marked by landlord personnel? Y ☑ N ☐

Has specific excavation site within the pit been reviewed for OSHA approval? Y ☑ N ☐

If topsoil is to be excavated, indicate exactly where the topsoil will be stockpiled (attach map):

Will be used for project

Are there plans to use this topsoil for any other purpose than to replace over this excavation? Y ☐ N ☑

If Yes, Explain:

Is the requester required to backfill the excavation? Y ☑ N ☐

On what basis? (Daily, weekly, etc.)

If Yes, Explain:

Is the requester required to barricade the excavation? Y ☐ N ☑

If Yes, Explain:

Is the requester required to re-vegetate the excavation? Attach re-vegetation plan, if applicable. Y ☑ N ☐

If Yes, Explain: Contact Roger Blew (Stoller) for instructions

NOTE: If borrow excavation is larger than 5 acres, issuance period for this permit may be longer.

Has requester been issued a key to pit entrance gate? Y ☐ N ☑

If Yes, Explain:

Approval for Excavation

The requester understands and will comply with the environmental, OSHA, and INEEL requirements for excavating in this pit.

Signature of Requester: [signature] Date: 2/5/02

Signature of INEEL RGS Representative: Michael K. Jackson Date: 02/01/02

Project Completion Data

The INEEL Roads & Grounds Supervisor (RGS) has inspected the borrow area described above and it has been properly maintained (backfilled and re-vegetated, if required) and pit walls brought to a proper slope, according to OSHA.

Post-It® Fax Note 7671	Date 2/4/02	# of pages ▶ 2
To J.A. LANDIS	From M. JACKSON	
Co./Dept.	Co.	
Phone # 6-9473	Phone # L-8872	
Fax # 526-2883	Fax #	

450.19
02/21/2000
Rev. 02

INEEL GRAVEL/BORROW REQUEST FORM

Requester Information

Present Date: 1/24/01

Requesting Organization: WAG 4 (ER)

INEEL Project Manager: DEBORAH WAGGONER

INEEL Construction Manager: J. A LANDES

INEEL Subcontractor: UNKNOWN AT this time

Phone: 526-6311

Mail Stop/Address: Landis D FAIR-GW

Construction Project Name: SEWER MAIN DRAINFIELD COVER INSTALLATION

Location of Project: CFA

Type of brow material request: Pit Run GRAVEL

Use of material (indicate size needed, if applicable):

INSTALLATION OF COVER OVER CFA-05

Preferred pit for excavation: CFA GRAVEL Pit

Will stockpiling of borrow be necessary? Y ☑ N ☐

If Yes, how long? 2-3 months

Size and location of stockpile: 50-100 yd³

Amount of borrow material requested (in cubic yards): 7600

Equipment to be used in borrow area (include copies of MSDS if applicable.) Front end loader

Start date for borrow excavation: JUNE 1st 2002

Complete date for borrow excavation: August 30th 2002

Completion date for transporting stockpile: August 15th 2002

Is this excavation a one-time effect? Y ☑ N ☐

If No, Explain:

INEEL Roads & Grounds Supervisor (RGS) Information:

Assigned borrow pit: CFA Pit

Assigned time interval for excavation:

Location of borrow material: Contact Met Wrought for instructions

(Attach map for exact site within the pit)
Location for stockpile (sketch on pit map)
** NOTE – Instructions On Next Page

INEEL Roads & Grounds Supervisor (RGS) Information (Cont)

Has borrow area been appropriate marked by landlord personnel? Y ☑ N ☐

Has specific excavation site within the pit been reviewed for OSHA approval? Y ☑ N ☐

If topsoil is to be excavated, indicate exactly where the topsoil will be stockpiled (attach map): Not used for landfill use

Are there plans to use this topsoil for any other purpose than to replace over this excavation? Y ☐ N ☑

If Yes, Explain:

Is the requester required to backfill the excavation? Y ☐ N ☑

On what basis? (Daily, weekly, etc.)

If Yes, Explain:

Is the requester required to barricade the excavation? Y ☐ N ☑

If Yes, Explain:

Is the requester required to re-vegetate the excavation? Attach re-vegetation plan, if applicable. Y ☐ N ☑

If Yes, Explain:

NOTE: If borrow excavation is larger than 5 acres, issuance period for this permit may be longer.

Has requester been issued a key to pit entrance gate? Y ☐ N ☐

If Yes, Explain:

Approval for Excavation

The requester understands and will comply with the environmental, OSHA, and INEEL requirements for exceveting in this pit.

Signature of Requester: J A Landes — Date: 2/5/02

Signature of INEEL RGS Representative: Michael L Jackson — Date: 02/01/02

Project Completion Data

The INEEL Roads & Grounds Supervisor (RGS) has inspected the borrow area described above and it has been properly maintained (backfilled and re-vegetated, if required) and pit walls brought to a proper slope, according to OSHA.

Signature of Requester — Date

Signature of INEEL RGS Representative — Date

450.19
02/21/2000
Rev. 02

INEEL GRAVEL/BORROW REQUEST FORM

Requester Information

Present Date: 1/24/01

Requesting Organization: INAG 4 (ER)

INEEL Project Manager: DEBORAH WAGNER

INEEL Construction Manager: JODY LANDIS

INEEL Subcontractor: UNKNOWN at this time

Phone: 526-6311

Mail Stop/Address: LANDJA @ INEEL.GOV

Construction Project Name: SEWAGE PLANT DRAINFIELD COVER INSTALLATION

Location of Project: CFA

Type of brow material request: NATIVE CLAY LOAM SOIL

Use of material (indicate size needed, if applicable):

INSTALLATION OF COVER OVER CFA-08

Preferred pit for excavation: SPREADING AREA A

Will stockpiling of borrow be necessary? Y ☑ N ☐

If Yes, how long? 2 - 3 months

Size and location of stockpile: 500-1000 yd³

Amount of borrow material requested (in cubic yards): 15,500

Equipment to be used in borrow area (include copies of MSDS if applicable.)
Front end loader, DOZER AND motor grader

Start date for borrow excavation: JUNE 15th 2002

Complete date for borrow excavation: Sept. 30th 2002

Completion date for transporting stockpile: SEPT 15th 2002

Is this excavation a one-time effect? Y ☑ N ☐

If No, Explain:

INEEL Roads & Grounds Supervisor (RGS) Information:

Assigned borrow pit: Spreading Area A

Assigned time interval for excavation:

Location of borrow material: TBD

(Attach map for exact site within the pit)
Location for stockpile (sketch on pit map)
** NOTE – Instructions On Next Page

INEEL Roads & Grounds Supervisor (RGS) Information (Cont.)

Has borrow area been appropriate marked by landlord personnel? Y ☐ N ☑

Has specific excavation site within the pit been reviewed for OSHA approval? Y ☐ N ☑

If topsoil is to be excavated, indicate exactly where the topsoil will be stockpiled (attach map):
TBD

Are there plans to use this topsoil for any other purpose than to replace over this excavation? Y ☐ N ☑

If Yes, Explain:

Is the requester required to backfill the excavation? Y ☑ N ☐

On what basis? (Daily, weekly, etc.) Completion of Project

If Yes, Explain:

Is the requester required to barricade the excavation? Y ☐ N ☑

If Yes, Explain:

Is the requester required to re-vegetate the excavation? Attach re-vegetation plan, if applicable. Y ☑ N ☐

If Yes, Explain: See Reclamation Plan (ROKA Work Plan)

NOTE: If borrow excavation is larger than 5 acres, issuance period for this permit may be longer.

Has requester been issued a key to pit entrance gate? Y ☐ N ☑

If Yes, Explain:

Approval for Excavation

The requester understands and will comply with the environmental, OSHA, and INEEL requirements for excavating in this pit.

J Landis — 2/5/02
Signature of Requester — Date

Michael Jackson — 02/5/02
Signature of INEEL RGS Representative — Date

Project Completion Data

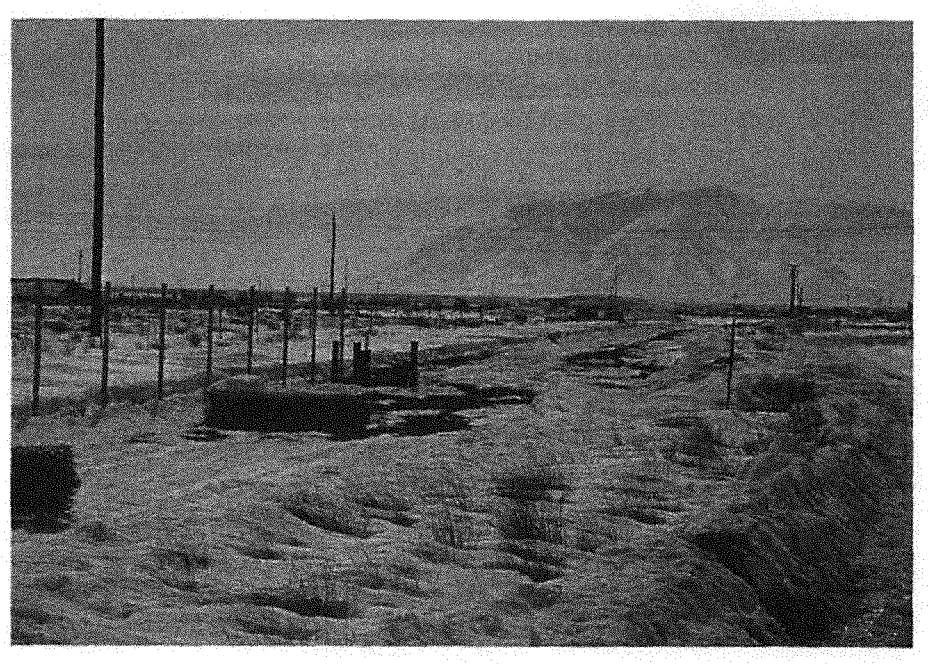
The INEEL Roads & Grounds Supervisor (RGS) has inspected the borrow area described above and it has been properly maintained (backfilled and re-vegetated, if required) and pit walls brought to a proper slope, according to OSHA.

Post-It® Fax Note 7671	Date 2/4/02	# of pages ▶ 2
To J. A. LANDIS	From M. JACKSON	
Co./Dept.	Co.	
Phone # 6-9473	Phone # L-8872	
Fax # 526-8553	Fax #	

Attachment B
(Appendix A)

Photos of Fence Removal and Mowing

Attachment B



Fence being removed at CFA-08 Sewage Plant Drain Field (Facing Southeast) March 4, 2002

CFA-08 Sewage Plant Drain Field after cleaning, mowing and roping-off
(Facing South/southwest) June 20, 2002

Attachment C
(Appendix A)

Waste Disposition of Debris in CFA-08

Attachment C

Anne L Lundahl
10/29/02 12:51 PM

To: Deborah J Wagoner/WIGG/CC01/INEEL/US@INEL
cc: Joseph A Landis/LANDJA/CC01/INEEL/US@INEL
Fax to:
Subject: Disposition of RR ties, telephone poles and timbers from CFA

The railroad ties, telephone poles, and timbers removed during remedial activities at the CFA drainfield (OU4-13) were determined to be non-hazardous per RCRA by evaluating analytical data resulting from sampling activities of similar items around the site, as follows:

- Closure Report for Railroad Tie Sampling at ARA-II, EMS-054-95
- Data Report for the Sampling of the Site Power poles

Subsequently, they were sent to the INEEL Landfill Complex at CFA in June of 2002.

Anne L. Lundahl
Waste Technical Specialist
Waste Generator Services
INEEL
(208) 526-9983/pager #4865

Attachment D
(Appendix A)

Documentation of Well Abandonment at CFA-08

Deborah J Wagoner

03/11/02 11:09 AM

To: Leah V Street/LST/CC01/INEEL/US@INEL
cc: Joseph A Landis/LANDJA/CC01/INEEL/US@INEL, Douglas H Preussner/DPRES/CC01/INEEL/US@INEL, Stephen G Wilkinson/WILKSG/CC01/INEEL/US@INEL, Michael J Mcguire/MCGUMJ/CC01/INEEL/US@INEL
Fax to:
Subject: Notice of well abandonment

Two shallow wells, DA-1(19'deep) and DA-4(27'deep) and one interbed well, IB-1(105'deep) will be abandoned this week at the CFA Sewage Plant Drainfield in accordance with IDAPA 37.03.09.025.12.a. This activity was approved by NEPA Environmental Checklist CFA-01-006.

The coordinates of the interbed well are:

N 683367.42
E 297412.18
EL 4922.88'

The coordinates of the other two shallow wells will be obtained this week.

```
2,683346.040067478,453363.557420881,4926.21362115509,C/L WELL CASING I
B-1
6,683270.514628600,453478.872018315,4925.32347943314,C/L WELL CASING D
A-4
10,682770.716789294,453157.175808983,4926.50993015092,C/L WELL CASING
DA-1
```

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==================================================================
==========
COORDINATE GEOMETRY ROUTINES
==================================================================
==========
==================================================================
==========
COORDINATE SYSTEM TRANSFORMATIONS
==================================================================
==========
Coord File          NAD83.CRD     :
Coord System:       TMERC                Spheroid:    GRS 1980
Zone:               40                   Description: IDAHO EAST
     Elevation MethINDIVIDUAL
------------------------------------------------------------------
----------
Point ID    NORTH          EAST           ELEV          Descriptor
            Latitude                Longitude            Convergence
            Scale Factor            Combined Factor
------------------------------------------------------------------
----------
2           683346.04      453363.56      4926.21       C/L WELL CASING
IB-1
            N  43 32 21.14047      W 112 55 53.42351     - 00 31 36.75772
            0.99999435             0.99975926

6           683270.51      453478.87      4925.32       C/L WELL CASING
DA-4
            N  43 32 20.40506      W 112 55 51.84862     - 00 31 35.66564
            0.99999430             0.99975924

10          682770.72      453157.18      4926.51       C/L WELL CASING
DA-1
            N  43 32 15.43990      W 112 55 56.15338     - 00 31 38.58316
            0.99999445             0.99975934
```

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==================================================================
==========
COORDINATE GEOMETRY ROUTINES
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==================================================================
==========
COORDINATE SYSTEM TRANSFORMATIONS
==================================================================
==========
Coord File          NAD83.CRD     :
Coord System:       TMERC                Spheroid:    GRS 1980
Zone:               40                   Description: IDAHO EAST
     Elevation MethINDIVIDUAL
------------------------------------------------------------------
----------
Point ID    NORTH          EAST           ELEV          Descriptor
            Latitude               Longitude            Convergence
            Scale Factor           Combined Factor
------------------------------------------------------------------
----------
2           683346.04      453363.56      4926.21       C/L WELL CASING
IB-1
            N  43.53920567         W 112.9315064    - 00 31 36.75772
            0.99999435             0.99975926

6           683270.51      453478.87      4925.32       C/L WELL CASING
DA-4
            N  43.53900139         W 112.9310689    - 00 31 35.66564
            0.99999430             0.99975924

10          682770.72      453157.18      4926.51       C/L WELL CASING
DA-1
            N  43.53762219         W 112.9322647    - 00 31 38.58316
            0.99999445             0.99975934
```

```
2,683369.250632596,297411.317311852,4922.75362115509,C/L WELL CASING I
B-1
6,683293.725877547,297526.632281175,4921.86347943314,C/L WELL CASING D
A-4
10,682793.926458235,297204.939033110,4923.04993015092,C/L WELL CASING
DA-1
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==================================================================
==========
COORDINATE GEOMETRY ROUTINES
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==================================================================
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COORDINATE SYSTEM TRANSFORMATIONS
==================================================================
==========
Coord File          NAD27.CRD     :
Coord System:       TMERC NAD 27        Spheroid:    Clark 1866
Zone:               40                  Description: IDAHO EAST
     Elevation MethINDIVIDUAL
------------------------------------------------------------------
----------
Point ID    NORTH          EAST           ELEV          Descriptor
            Latitude              Longitude            Convergence
            Scale Factor          Combined Factor
------------------------------------------------------------------
----------
2           683369.25      297411.32      4922.75       C/L WELL CASING
IB-1
            N  43 32 21.47471     W 112 55 50.43796     - 00 31 34.70370
            0.99999425            0.99975879

6           683293.73      297526.63      4921.86       C/L WELL CASING
DA-4
            N  43 32 20.73929     W 112 55 48.86312     - 00 31 33.61166
            0.99999420            0.99975878

10          682793.93      297204.94      4923.05       C/L WELL CASING
DA-1
            N  43 32 15.77408     W 112 55 53.16779     - 00 31 36.52916
            0.99999435            0.99975888
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==================================================================
==========
COORDINATE GEOMETRY ROUTINES
==================================================================
==========
==================================================================
==========
COORDINATE SYSTEM TRANSFORMATIONS
==================================================================
==========
Coord File          NAD27.CRD     :
Coord System:       TMERC NAD 27        Spheroid:    Clark 1866
Zone:               40                  Description: IDAHO EAST
     Elevation MethINDIVIDUAL
------------------------------------------------------------------
----------
Point ID   NORTH          EAST          ELEV          Descriptor
           Latitude                Longitude           Convergence
           Scale Factor            Combined Factor
------------------------------------------------------------------
----------
2          683369.25      297411.32      4922.75       C/L WELL CASING
IB-1
           N  43.53929851          W 112.93067690      - 00 31 34.70370
           0.99999425              0.99975879

6          683293.73      297526.63      4921.86       C/L WELL CASING
DA-4
           N  43.53909422          W 112.93023970      - 00 31 33.61166
           0.99999420              0.99975878

10         682793.93      297204.94      4923.05       C/L WELL CASING
DA-1
           N  43.53771500          W 112.93143530      - 00 31 36.52916
           0.99999435              0.99975888
```

Attachment E
(Appendix A)

Construction Planning Package, Consumer Grade, and Supporting Laboratory Results

Attachment E

432.83
09/05/2001
Rev. 01

CONSTRUCTION PLANNING PACKAGE, CONSUMER GRADE

Field Engineer: J. Landis

Date: 04/10/2002

WO/SC/PO No. 021048	Project Engineer: DH Pherusing	PE Approval: DH Pherusing	PFE Approval: D. Behrens 5/6/02
Activity/Project Description: CFA-08 STP Drainfield Cover			Release Date: 5/6/02

CPP No. 021048-1	Rev. 0	Page 1 of

Item No.	Item/Material or Equipment	Spec./Code Reference	Method/Procedure Reference	Freq.	Perform By	Instructions	Status/ Date/Initials
1	Surveying	01051	In-process and Final review	During field work	FE/STR	Periodically review survey data for applicable final elevations of the different layers, in compliance with the drawings and specifications. Pit Run gravel, native loam soil, cobble and pea gravel tolerance is ± 0.1' horizontal and + 0.1' & - 0.05' vertical. NOTE: Use the average elevation for cobble elevations	9/2/02 1
2	Surveying	01051	In-process	Prior to work	FE/STR	Verify surveyors are Registered Land Surveyors in the State of Idaho and certification submitted.	6/4/02
3	Surveying	01051	In-process	Initial and final	FE/STR	Verify topographical survey completed of existing borrow sources before borrow removal and upon completion of cover. Tolerance ± 0.1' horizontal & ± 0.05' elevation.	7/1/02 1
4	Earthwork	02200	Visual	Prior to placing pit run	FE/STR	Visually verify that the existing surface has been prepared by mowing to the specified requirements in Sec. 02200	5/2/02
5	Earthwork	02200	In-process	Prior to placing next layer	FE/STR	Verify finished shoulder elevation of the pit run layer to be 4922.84' ± 0.1' horizontal and +0.1' & -0.05' vertical per drawing and specification requirements before next layer is placed.	6/12/02 1
6	Earthwork	02200	In-process	Prior to placing next layer	FE/STR	Verify finish crown elevation of the pit run layer to be 4923.34' ± 0.1' horizontal and +0.1' & -0.05' vertical per drawing and specification requirements before next layer is placed.	6/12/02 1
7	Earthwork	02200	In -process	When placing	FE/STR	Visually inspect cobble and pea gravel layers to drawing and specification requirements.	7/15/02
8	Earthwork	02200	Visual and test method AASHTO T-27, M-145	Minimum of 3 test samples	Lab	Verify by AASHTO T-27 and M-145 that the Pit run gravel from the CFA Pit is classified as alluvial gravel.	10/8/02
9	Earthwork	02200	Visual and test method T-27, M-145	Minimum of 3 test samples	Lab	Verify by AASHTO T-27 and M-145 that the pea gravel is within the specified gradation, per 02200, pg. 3 of 10	10/8/02

1 See revised attached instructions. Instruction was changed to reflect no tolerances in the cover subcontract.

CONSTRUCTION PLANNING PACKAGE, CONSUMER GRADE

10	Earthwork	02200	Visual and test method T-27, M-145	Minimum of 3 test samples	Lab	Verify by AASHTO T-27 and M-145 that the cobbles are within the specified gradation, per 02200, pg.3 of 10	10/8/02
11	Earthwork	02200	Visual and test method M145	Minimum of 3 test samples	Lab	Verify by AASHTO M-145 that the native soil and pit run meets specification 02200 by classification.	10/8/02
12	Earthwork	02200	Test Method T-99	Minimum of 3 test samples per soil type	Lab	Verify Moisture/Density (Proctor) curves per AASHTO T-99 for each of the various soil types. (Lincoln Blvd., Spreading Area A, CFA Pit, pit run and native soils.)	10/8/02
13	Earthwork	02200	Test Method T-238	Minimum of 4 tests per lift	Lab	Verify by visual inspection and field testing that the various soil layers are compacted to the specified criteria per 02200. Note: The first layer over the pea gravel does not require verification for density.	10/8/02
14	Earthwork	02200	In-process	Upon completion	FE/STR	Verify finished cover surface has a uniform slope from crown to shoulder. Also verify finished surface sideslopes are 10H:1V or flatter.	9/2/02
15	General	General	Witness	Upon completion	FE/STR	Verify all vendor data submittals approved at time specified on the VDS.	9/26/02
16	Revegetation	02486	Visual	As Req'd	FE/STR	Verify seedbed conformance to specification requirements in section 02486 before seeding.	
17	Revegetation	02486	Surveillance	As Req'd	FE/STR	Complete surveillance during revegetation activities	
18	Punchlist			Upon Completion	FE/STR	Punchlist completed prior to completion of subcontract	9/2/02

432.83
09/05/2001
Rev. 01

CONSTRUCTION PLANNING PACKAGE, CONSUMER GRADE

Field Engineer: J. Landis Date: 10/28/2002

WO/SC/PO No. 021048	Project Engineer: Doug Preussner	PE Approval: D H Preussner	PFE Approval:
Activity/Project Description: CFA-08 STP Drainfield Cover		Kurt Fritz	Release Date: 10/28/02

CPP No. 021048-1	Rev. 0	Page 1 of 2

Item No.	Item/Material or Equipment	Spec./Code Reference	Method/Procedure Reference	Freq.	Perform By	Instructions	Status/ Date/Initials
1	Surveying	01051	In-process and Final review	Variable	FE/STR	Periodically review survey data for applicable final elevations of the different layers, in compliance with the drawings and specifications. NOTE: Use the average elevation for cobble elevations	
2	Surveying	01051	In-process		FE/STR	Verify surveyors are Registered Land Surveyors in the State of Idaho and certification submitted.	
3	Surveying	01051	In-process	Variable	FE/STR	Verify topographical survey completed of existing borrow sources before borrow removal and upon completion of cover.	
4	Earthwork	02200	In-process	Daily	FE/STR	Visually inspect cobble and pea gravel layers to drawing and specification requirements.	
5	Earthwork	02200	In-process		FE/STR	Verify finished shoulder elevation of the pit run layer per drawing and specification requirements before next layer is placed.	
6	Earthwork	02200	In-process		FE/STR	Verify finish crown elevation of the pit run layer per drawing and specification requirements before next layer is placed.	
7	Earthwork	02200	Visual		FE/STR	Visually verify that the existing surface has been prepared by mowing to the specified requirements in Sec. 02200	
8	Earthwork	02200	Visual and test method AASHTO T-27, M-145	Minimum of 3 test samples	Lab	Verify by AASHTO T-27 and M-145 that the pea gravel is within the specified gradations, per 02200 pg. 3 0f 10	
9	Earthwork	02200	Visual and test method T-27, M-145	Minimum of 3 test samples	Lab	Verify by AASHTO T-27 and M-145 that the cobbles are within the specified gradation, per 02200, pg. 3 of 10	
10	Earthwork	02200	Visual and test method T-27, M-145	Minimum of 3 test samples	Lab	Verify by AASHTO T-27 and M-145 that the pit run gravel from the CFA Pit is classified as alluvial gravel.	
11	Earthwork	02200	Visual and test method M145	Minimum of 3 test samples	Lab	Verify by AASHTO M-145 that the borrow and granular borrow meets specification 02200 by classification.	

CONSTRUCTION PLANNING PACKAGE, CONSUMER GRADE

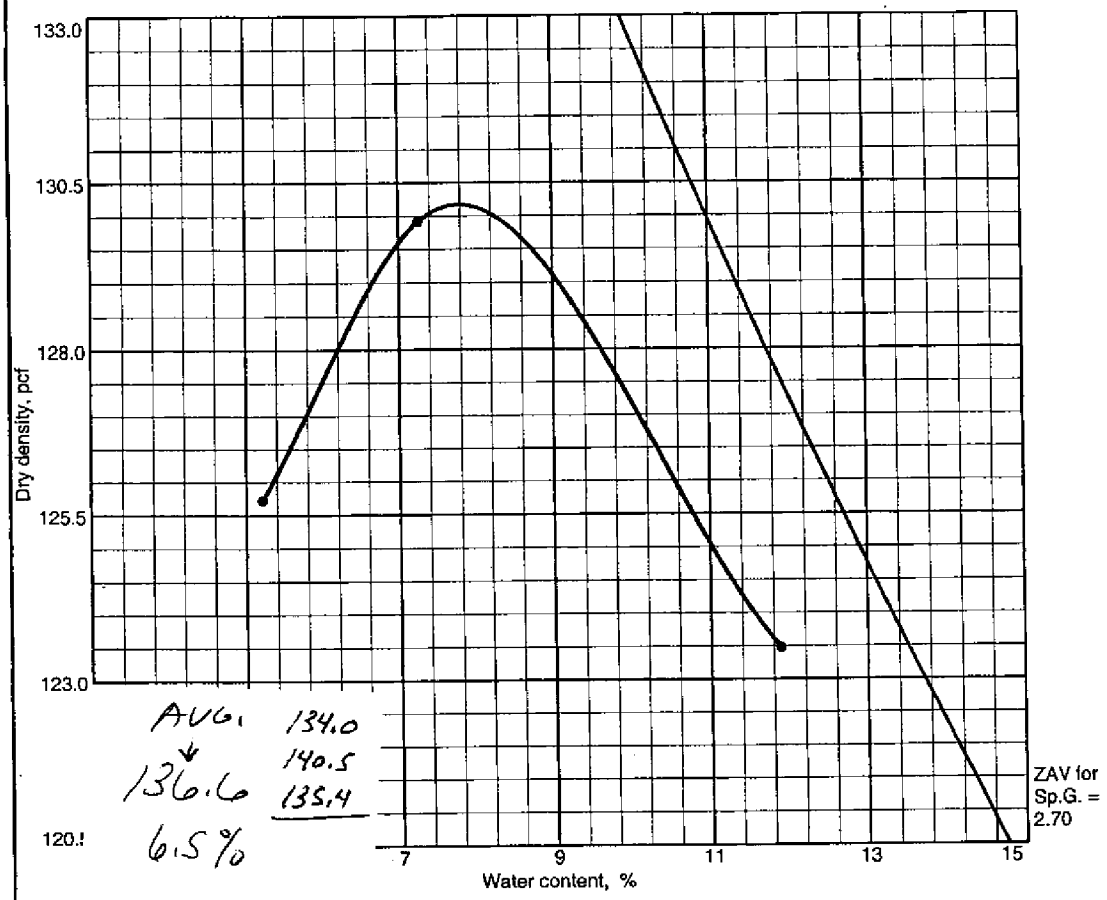
12	Earthwork	02200	Test Method T-99	Minimum of 3 test samples per soil type	Lab	Verify Moisture/Density (Proctor) curves per AASHTO T-99 for each of the various soil types. (Lincoln Blvd., Spreading Area A, CFA Pit, etc.)	
13	Earthwork	02200	Test Method T-238	Minimum of 4 tests per lift	Lab	Verify by visual inspection and field testing that the various soil layers are compacted to the specified criteria per 02200. Note: The first layer over the pea gravel does not require verification for density.	
14	Earthwork	02200	In-process	Variable	FE/STR	Verify finished cover surface has a uniform slope from crown to shoulder. Also verify finished surface sideslopes are 10H:1V or flatter.	
15	General	General	Witness	AR	FE/STR	Verify all vendor data submittals approved at time specified on the VDS.	
16	Revegetation	02486	Visual		FE/STR	Verify seedbed conformance to specification requirements in section 02486 before seeding.	
17	Revegetation	02486	Surveillance	AR	FE/STR	Complete surveillance during revegetation activities	

Item 8, 11, and 12
(Attachment E, Appendix A)

Compaction Test Reports, Moisture Density Test Data, Grain Size Distribution Test Data, and Particle Size Distribution Test Report

(8) (11) (12)

COMPACTION TEST REPORT



Test specification:
Oversize correction applied to final results

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
Stockpile	SP-SM	A-1-b	3.7%	2.60	NL	NP	14.5	6.5

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 134.0 pcf	130.2 pcf	Poorly graded sand with silt and gravel
Optimum moisture = 7.1 %	7.8 %	

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Location: Desert Sage Stockpile in CFA Pit

Remarks:
Sample CFA Pit #1 sampled from Stockpile for Desert Sage.

COMPACTION TEST REPORT
INEL MATERIALS LAB

Plate

MOISTURE DENSITY TEST DATA

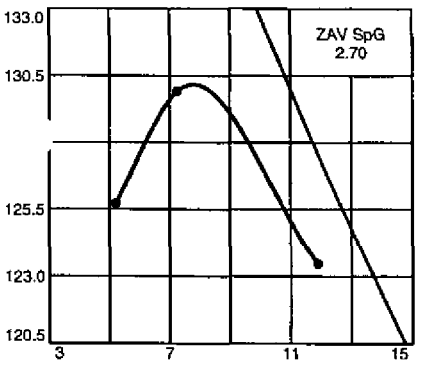
Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Specimen Data

Source: CFA Pit Run Gravel
Sample No.: CFA Pit #1
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Desert Sage Stockpile in CFA Pit
Description: Poorly graded sand with silt and gravel
USCS Classification: SP-SM **AASHTO Classification:** A-1-b
Natural Moisture: 3.7% **Liquid Limit:** NL **Plasticity Index:** NP
Testing Remarks: Sample CFA Pit #1 sampled from Stockpile for Desert Sage.
Percent retained on 3/4 in. sieve: 14.5
Percent passing No. 200 sieve: 6.5 **Specific gravity:** 2.60

Test Data And Results For Curve CFA-08 #1

Type of test: ASTM D 698-91 Method C Standard



POINT NO.	1	2	3
WM + WS	11020.0	11260.0	11220.0
WM	6520.0	6520.0	6520.0
WW+T	577.20	344.60	532.50
WD+T	548.60	321.30	475.90
TARE	0.00	0.00	0.00
MOIST	5.2	7.3	11.9
MOISTURE	5.2	7.3	11.9
DRY DEN	125.7	129.9	123.5

Max dry den= 134.0 pcf **Opt moisture=** 7.1 %
Uncorrected Results: **Max dry den=** 130.2 pcf **Opt moisture=** 7.8 %

ASTM D 4718 Correction Data:
Bulk Specific Gravity of Oversize Material = 2.59
Moisture of Oversize Material = 3.0 %
Corrections Applied to Calculated Maximum Density and Optimum Moisture Values

INEL MATERIALS LAB

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Pit Run Gravel
Sample No.: CFA Pit #1
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Desert Sage Stockpile in CFA Pit
Description: Poorly graded sand with silt and gravel
Date: 5/28/02 **Natural Moisture:** 3.7%
Liquid Limit: NL **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: Sampled by Russ Jones, BBWI. Sampled 5/27/02

Mechanical Analysis Data

Initial
Dry sample and tare= 13765.43
Tare = 0.00
Dry sample weight = 13765.43
Sample split on number 4 sieve
Split sample data:
Sample and tare = 285.72 **Tare** = .00 **Sample weight** = 285.72

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
3 inch	0.00	0.00	100.0
2 inch	0.00	0.00	100.0
1.5 inch	238.22	0.00	98.3
1 inch	780.00	0.00	92.6
0.75 inch	980.00	0.00	85.5
0.50 inch	1440.00	0.00	75.0
0.375 inch	840.00	0.00	68.9
# 4	1680.00	0.00	56.7
# 8	37.14	0.00	49.3
# 10	4.69	0.00	48.4
# 16	12.20	0.00	46.0
# 30	28.37	0.00	40.4
# 40	24.31	0.00	35.5
# 50	41.36	0.00	27.3
# 100	73.12	0.00	12.8
# 200	31.60	0.00	6.5

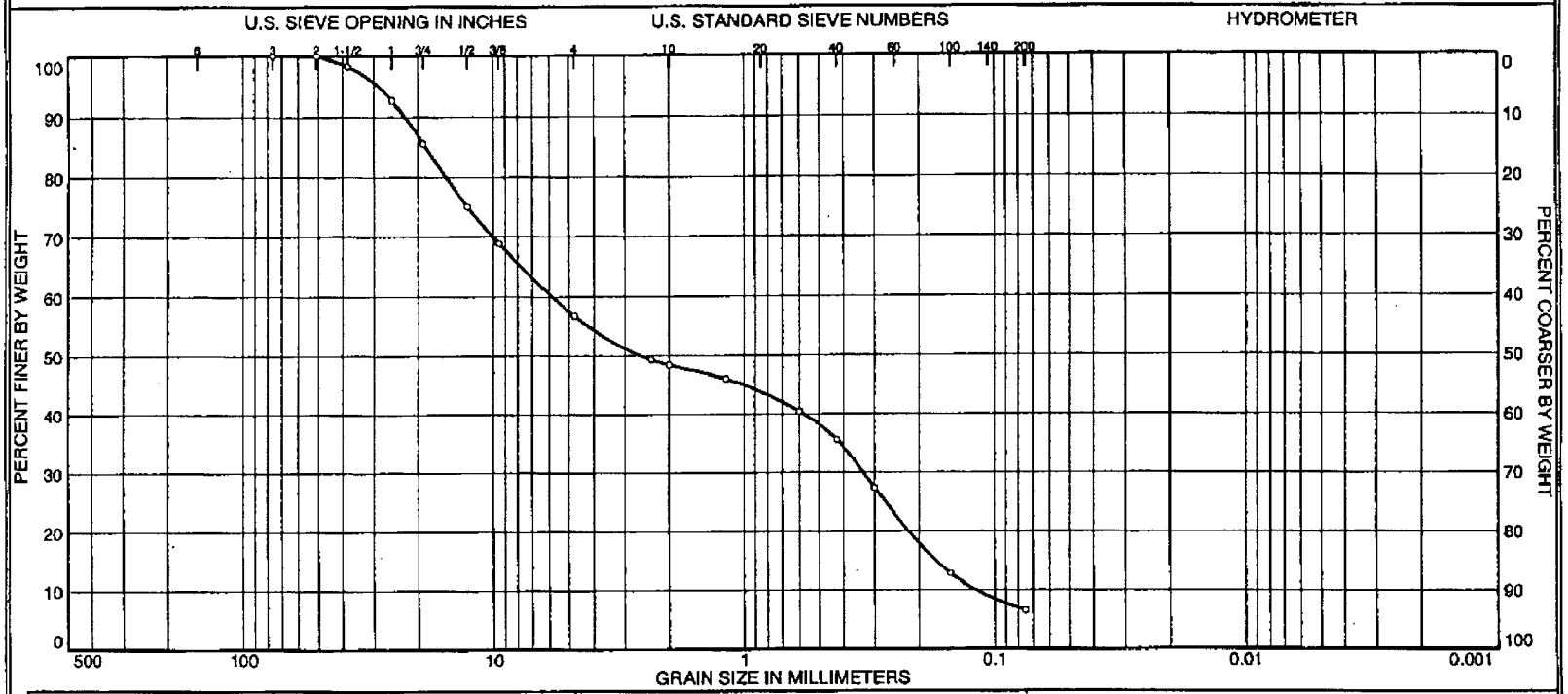
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = 0.0 **% GRAVEL** = 43.3 **(% coarse** = 14.5 **% fine** = 28.8)
% SAND = 50.2 **(% coarse** = 8.3 **% medium** = 12.9 **% fine** = 29.0)
% FINES = 6.5

D_{85}= 18.70 D_{60}= 5.87 D_{50}= 2.61
D_{30}= 0.33 D_{15}= 0.17 D_{10}= 0.12
C_c= 0.1594 C_u= 49.2226

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	14.5	28.8	8.3	12.9	29.0	6.5	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	CFA Pit Run Gravel	CFA Pit #1	Stockpile	5/28/02	SP-SM	Poorly graded sand with silt and gravel	3.7%	NL	NP

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

○ Sampled by Russ Jones, BBWI. Sampled 5/27/02

COMPACTION TEST REPORT

Curve No.: STP-#2

Project No.: SPC-1505 File # 021048 **Date:**
Project: CFA STP-08 Drainfield Cap

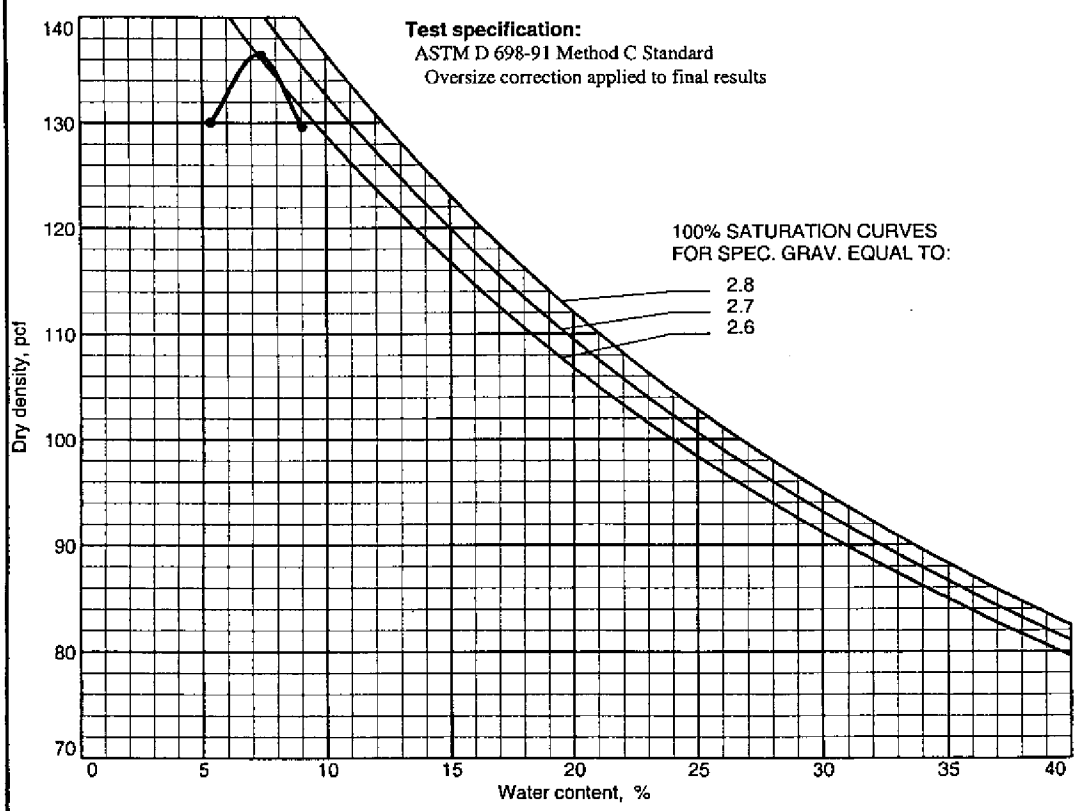
Location: Desert Sage Stockpile in CFA Pit
Elev./Depth:
Remarks: CFA Pit Sample #2, Desert Sage Stockpile

MATERIAL DESCRIPTION

Description: Poorly graded gravel with silt and sand

Classifications - **USCS:** GP-GM **AASHTO:** A-1-a
Nat. Moist. = 2.0 % **Sp.G. =** 2.62
Liquid Limit = NL **Plasticity Index =** NP
% > 3/4 in. = 17.2 % **% < No.200 =** 10.7 %

ROCK CORRECTED TEST RESULTS	UNCORRECTED
Maximum dry density = 140.5 pcf	136.5 pcf
Optimum moisture = 6.0 %	7.3 %



Plate

INEL MATERIALS LAB

MOISTURE DENSITY TEST DATA

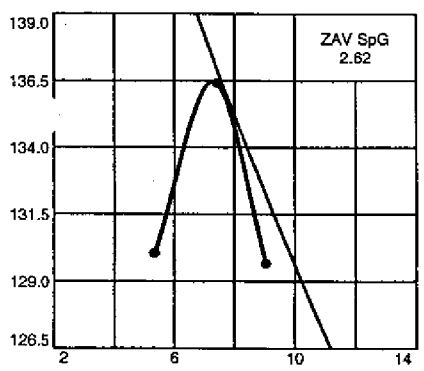
Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Specimen Data

Source: CFA Pit Run Gravel
Sample No.: CFA Pit #2
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Desert Sage Stockpile in CFA Pit
Description: Poorly graded gravel with silt and sand
Liquid Limit: NL **Plasticity Index:** NP **Natural Moisture:** 2.0
Date: **USCS Classification:** GP-GM
AASHTO Classification: A-1-a
Testing Remarks: CFA Pit Sample #2, Desert Sage Stockpile
Percent retained on 3/4 in. sieve: 17.2
Percent passing No. 200 sieve: 10.7 **Specific gravity:** 2.62

Test Data And Results For Curve STP-#2

Type of test: ASTM D 698-91 Method C Standard



POINT NO.	1	2	3
WM + WS	11155.0	11480.0	11305.0
WM	6495.0	6495.0	6495.0
WW+T	537.20	652.90	617.00
WD+T	510.00	607.80	565.80
TARE	0.00	0.00	0.00
MOIST	5.3	7.4	9.0
MOISTURE	5.3	7.4	9.0
DRY DEN	130.0	136.4	129.7

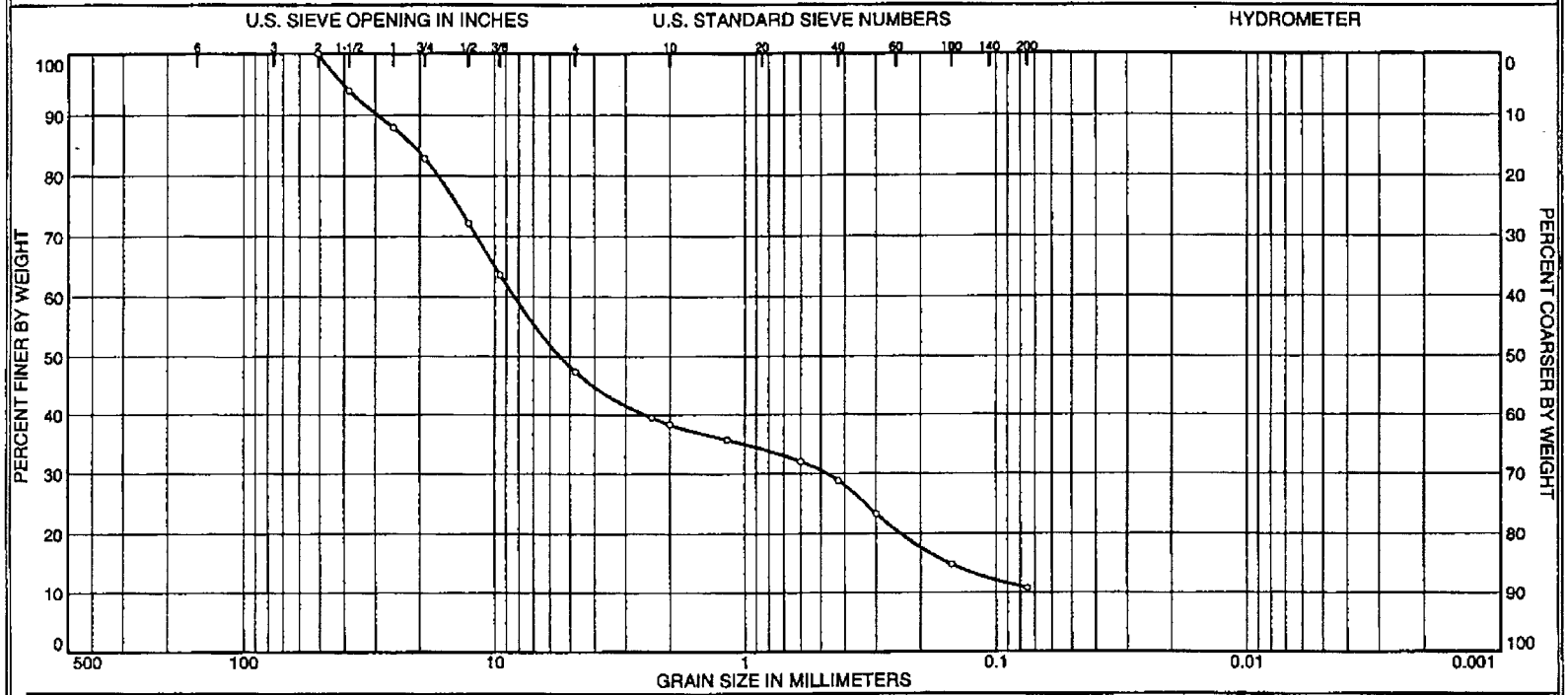
Max dry den= 140.5 pcf **Opt moisture=** 6.0 %

Uncorrected Results: **Max dry den=** 136.5 pcf **Opt moisture=** 7.3 %

ASTM D 4718 Correction Data:
Bulk Specific Gravity of Oversize Material = 2.62
Moisture of Oversize Material = %
Corrections Applied to Calculated Maximum Density and Optimum Moisture Values

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	17.2	35.5	9.0	9.5	18.1	10.7	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	CFA Pit Run Gravel	CFA Pit #2	Stockpile	6/502	GP-GM	Poorly graded gravel with silt and sand	2.0	NL	NP

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

O Sampled by RT Jones, 6/3/02

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Pit Run Gravel
Sample No.: CFA Pit #2
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Desert Sage Stockpile in CFA Pit
Description: Poorly graded gravel with silt and sand
Date: 6/502 **Natural Moisture:** 2.0
Liquid Limit: NL **Plastic Limit:** NP **USCS Class.:** GP-GM
Testing Remarks: Sampled by RT Jones, 6/3/02

Mechanical Analysis Data

	Initial
Dry sample and tare=	6710.00
Tare =	0.00
Dry sample weight =	6710.00

Sample split on number 4 sieve
Split sample data:
Sample and tare = 538.40 **Tare** = .00 **Sample weight** = 538.40

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
2.0 inch	0.00	0.00	100.0
1.5 inch	410.00	0.00	93.9
1.0 inch	405.00	0.00	87.9
0.75 inch	340.00	0.00	82.8
0.50 inch	720.00	0.00	72.1
0.375 inch	570.00	0.00	63.6
# 4	1090.00	0.00	47.3
# 8	88.30	0.00	39.5
# 10	13.80	0.00	38.3
# 16	30.10	0.00	35.7
# 30	41.80	0.00	32.0
# 40	37.00	0.00	28.8
# 50	62.80	0.00	23.3
# 100	96.40	0.00	14.8
# 200	47.00	0.00	10.7

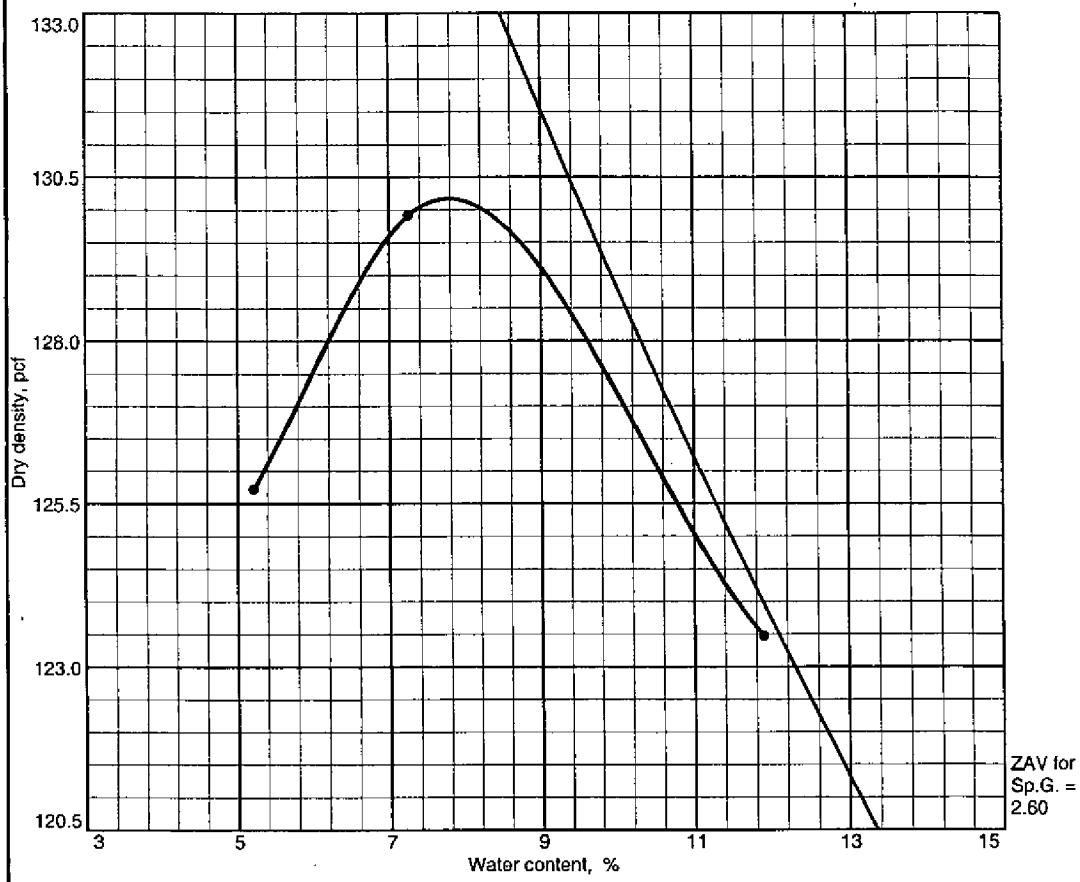
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = 0.0 **% GRAVEL** = 52.7 **(% coarse** = 17.2 **% fine** = 35.5)
% SAND = 36.6 **(% coarse** = 9.0 **% medium** = 9.5 **% fine** = 18.1)
% FINES = 10.7

D_{60}= 21.28 D_{60}= 8.37 D_{50}= 5.50
D_{30}= 0.47 D_{15}= 0.15

INEL MATERIALS LAB

COMPACTION TEST REPORT



Test specification: ASTM D 698-91 Method C Standard
Oversize correction applied to final results

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
Stockpile	GP-GM	A-1-a	NA	2.60	NL	NA	19.5	5.4

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 135.4 pcf	130.2 pcf	Poorly graded gravel with silt and sand
Optimum moisture = 6.3 %	7.8 %	

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Location: Desert Sage Stockpile in CFA Pit

Remarks:
Sample #3 from CFA Pit for the CFA-08 Drainfield Cap

COMPACTION TEST REPORT
INEL MATERIALS LAB

Plate

MOISTURE DENSITY TEST DATA

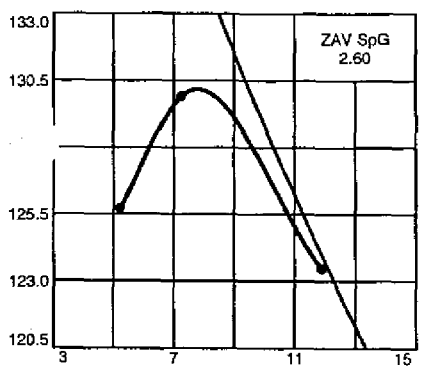
Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Specimen Data

Source: CFA Pit Run Gravel
Sample No.: CFA Pit #3
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Desert Sage Stockpile in CFA Pit
Description: Poorly graded gravel with silt and sand
USCS Classification: GP-GM **AASHTO Classification:** A-1-a
Natural Moisture: NA **Liquid Limit:** NL **Plasticity Index:** NA
Testing Remarks: Sample #3 from CFA Pit for the CFA-08 Drainfield Cap
Percent retained on 3/4 in. sieve: 19.5
Percent passing No. 200 sieve: 5.4 **Specific gravity:** 2.60

Test Data And Results For Curve CFA #3

Type of test: ASTM D 698-91 Method C Standard



POINT NO.	1	2	3
WM + WS	11020.0	11260.0	11220.0
WM	6520.0	6520.0	6520.0
WW+T	577.20	344.60	532.50
WD+T	548.60	321.30	475.90
TARE	0.00	0.00	0.00
MOIST	5.2	7.3	11.9
MOISTURE	5.2	7.3	11.9
DRY DEN	125.7	129.9	123.5

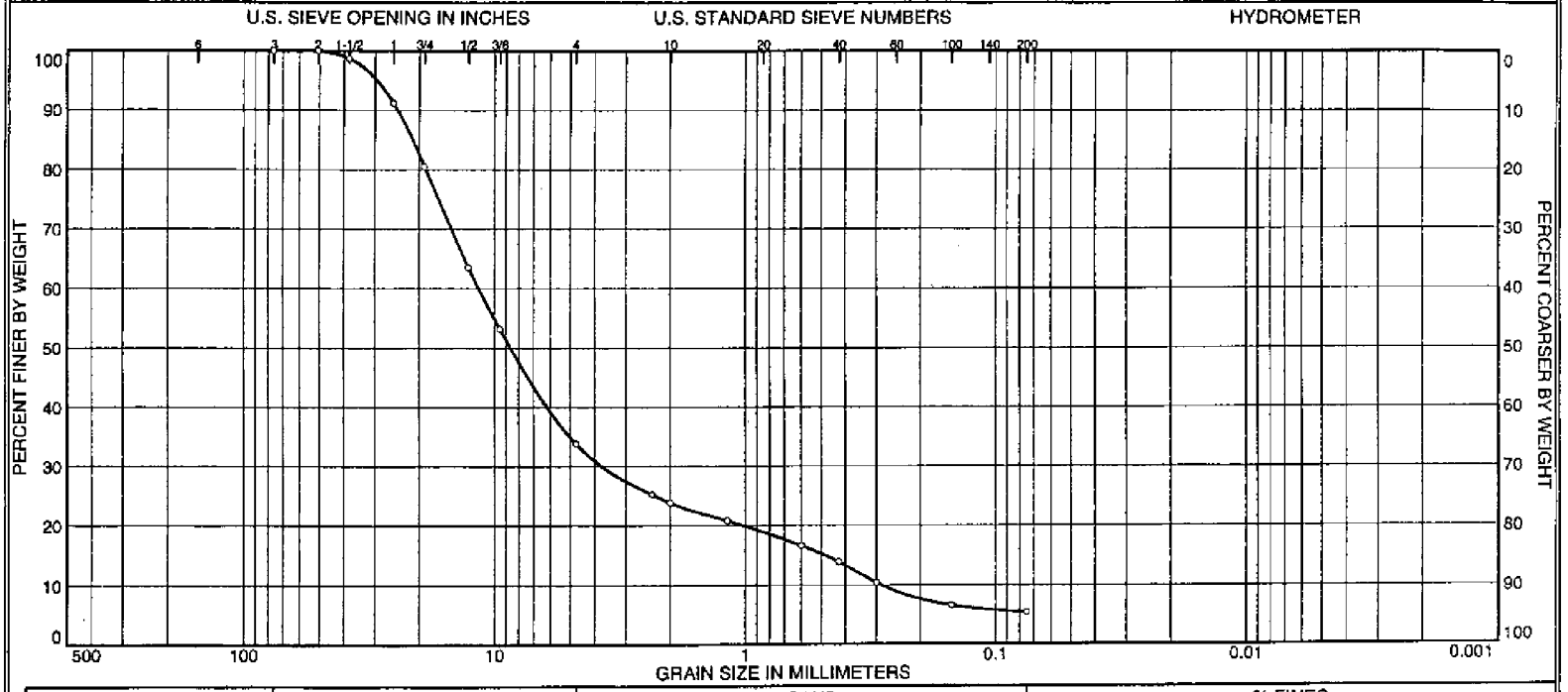
Max dry den= 135.4 pcf **Opt moisture=** 6.3 %

Uncorrected Results: **Max dry den=** 130.2 pcf **Opt moisture=** 7.8 %

ASTM D 4718 Correction Data:
Bulk Specific Gravity of Oversize Material = 2.60
Moisture of Oversize Material = %
Corrections Applied to Calculated Maximum Density and Optimum Moisture Values

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	19.5	46.7	10.0	9.9	8.5	5.4	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	CFA Pit Run Gravel	CFA Pit #3	Stockpile	6/5/02	GP-GM	Poorly graded gravel with silt and sand	NA	NL	NP

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # | Plate

INEL MATERIALS LAB

○ Sampled by RT Jones for CFA STP-08 Drainfield Cap

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Pit Run Gravel
Sample No.: CFA Pit #3
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Desert Sage Stockpile in CFA Pit
Description: Poorly graded gravel with silt and sand
Date: 6/5/02 **Natural Moisture:** NA
Liquid Limit: NL **Plastic Limit:** NP **USCS Class.:** GP-GM
Testing Remarks: Sampled by RT Jones for CFA STP-08 Drainfield Cap

Mechanical Analysis Data

	Initial
Dry sample and tare=	6675.00
Tare =	0.00
Dry sample weight =	6675.00

Sample split on number 4 sieve
Split sample data:
Sample and tare = 430.80 **Tare** = .00 **Sample weight** = 430.80

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
3 inch	0.00	0.00	100.0
2 inch	0.00	0.00	100.0
1.5 inch	90.00	0.00	98.7
1 inch	495.00	0.00	91.2
0.75 inch	715.00	0.00	80.5
0.50 inch	1140.00	0.00	63.5
0.375 inch	685.00	0.00	53.2
# 4	1295.00	0.00	33.8
# 8	110.30	0.00	25.2
# 10	17.40	0.00	23.8
# 16	38.20	0.00	20.8
# 30	53.60	0.00	16.6
# 40	34.50	0.00	13.9
# 50	44.80	0.00	10.4
# 100	48.20	0.00	6.6
# 200	14.60	0.00	5.4

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = 0.0 **% GRAVEL** = 66.2 (**% coarse** = 19.5 **% fine** = 46.7)
% SAND = 28.4 (**% coarse** = 10.0 **% medium** = 9.9 **% fine** = 8.5)
% FINES = 5.4

D_{85}= 21.28 D_{60}= 11.58 D_{50}= 8.65
D_{30}= 3.76 D_{15}= 0.48 D_{10}= 0.29
C_c= 4.2636 C_u= 40.3627

INEL MATERIALS LAB

Item 9
(Attachment E, Appendix A)

Particle Size Distribution Test Reports and Grain Size Distribution Test Data

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Drainfield Cap Pea-gravel
Sample No.: CFA-08 PG #1
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Pea-gravel stockpiles.
Description: Pea Gravel
Date: 6/11/02 **PL:** NP **LL:** NL **PI:** NP
USCS Classification: **AASHTO Classification:**
Testing Remarks: Sampled by RT Jones, 6-11-02.

Mechanical Analysis Data

	Initial
Dry sample and tare=	10910.00
Tare =	0.00
Dry sample weight =	10910.00

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
1.0 inch	0.00	0.00	100.0
0.75 inch	0.00	0.00	100.0
.50 inch	4665.00	0.00	57.2
.375 inch	3870.00	0.00	21.8
# 4	2180.00	0.00	1.8
# 8	10.50	0.00	1.7

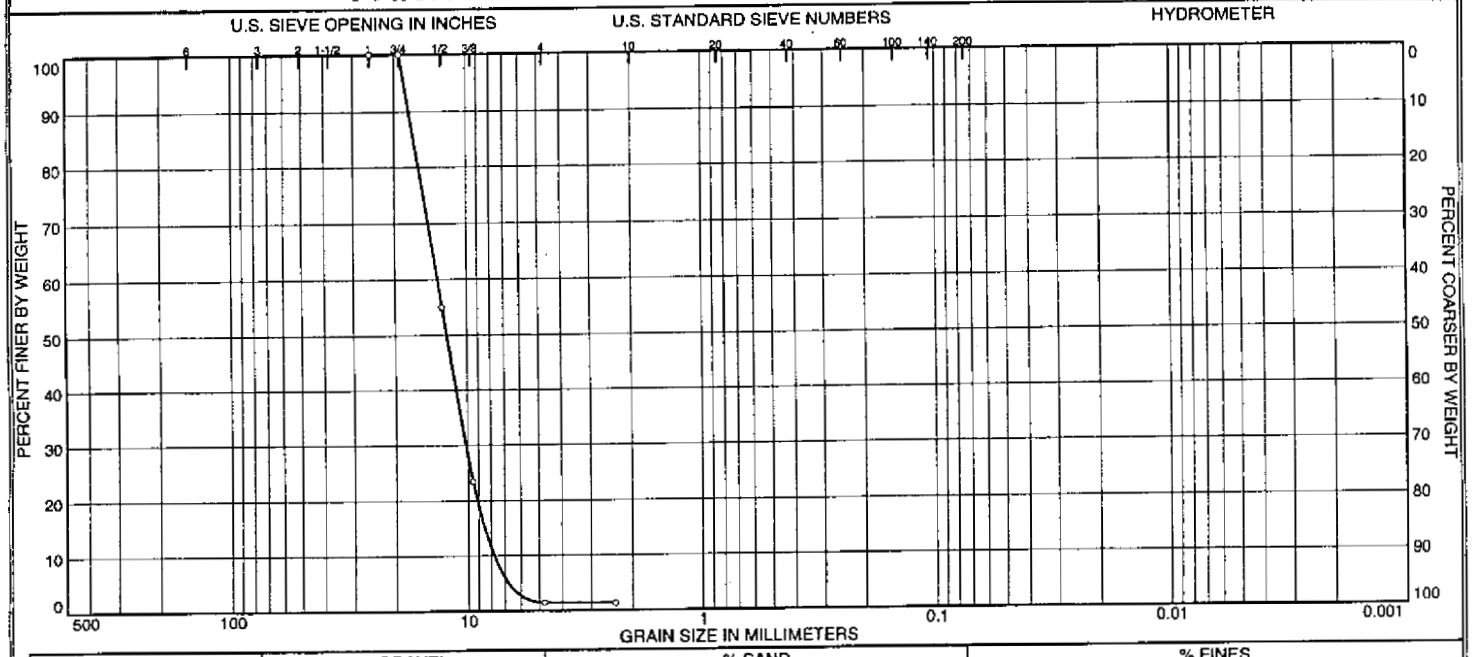
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = 0.0 % GRAVEL = 98.2 (% coarse = 0.0 % fine = 98.2)
% SAND = 1.8 (% coarse = 1.8 % medium = 0.0 % fine = 0.0)

D_{85}= 16.33 D_{60}= 12.99 D_{50}= 12.00
D_{30}= 10.26 D_{15}= 7.52 D_{10}= 6.32
C_c= 1.2831 C_u= 2.0564

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	98.6	1.4				

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	CFA Drainfield Cap Pea-gravel	CFA-08 PeaGravel #2	Stockpile	6/14/02		Pea Gravel	NA	NL -	NP

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # | Plate

INEL MATERIALS LAB

○ Sampled from Pea Gravel by RT Jones, 6/14/02.

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Drainfield Cap Pea-gravel
Sample No.: CFA-08 PeaGravel #2
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location:
Description: Pea Gravel
Date: 6/14/02 **Natural Moisture:** NA
Liquid Limit: NL **Plastic Limit:** NP **USCS Class.:**
Testing Remarks: Sampled from Pea Gravel by RT Jones, 6/14/02.

Mechanical Analysis Data

	Initial
Dry sample and tare=	12910.00
Tare =	0.00
Dry sample weight =	12910.00

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
1.0 inch	0.00	0.00	100.0
0.75 inch	0.00	0.00	100.0
.50 inch	5808.00	0.00	55.0
.375 inch	4080.00	0.00	23.4
# 4	2840.00	0.00	1.4
# 8	20.00	0.00	1.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = **% GRAVEL =** 98.6 **(% coarse =** **% fine =** 98.6)
% SAND =

D_{85}= 16.59 D_{60}= 13.26 D_{50}= 12.17
D_{30}= 10.20 D_{15}= 8.53 D_{10}= 7.79
C_c= 1.0076 C_u= 1.7021

INEL MATERIALS LAB

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Drainfield Cap Pea-gravel
Sample No.: CFA-08 PeaGravel #3
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location:
Description: Pea Gravel
Date: 6/14/02 **Natural Moisture:** NA
Liquid Limit: NL **Plastic Limit:** NP **USCS Class.:**
Testing Remarks: Sampled from Pea Gravel by RT Jones, 6/14/02.

Mechanical Analysis Data

	Initial
Dry sample and tare=	10230.00
Tare =	0.00
Dry sample weight =	10230.00

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
1.0 inch	0.00	0.00	100.0
0.75 inch	0.00	0.00	100.0
.50 inch	4320.00	0.00	57.8
.375 inch	3655.00	0.00	22.0
# 4	1990.00	0.00	2.6
# 8	26.50	0.00	2.3

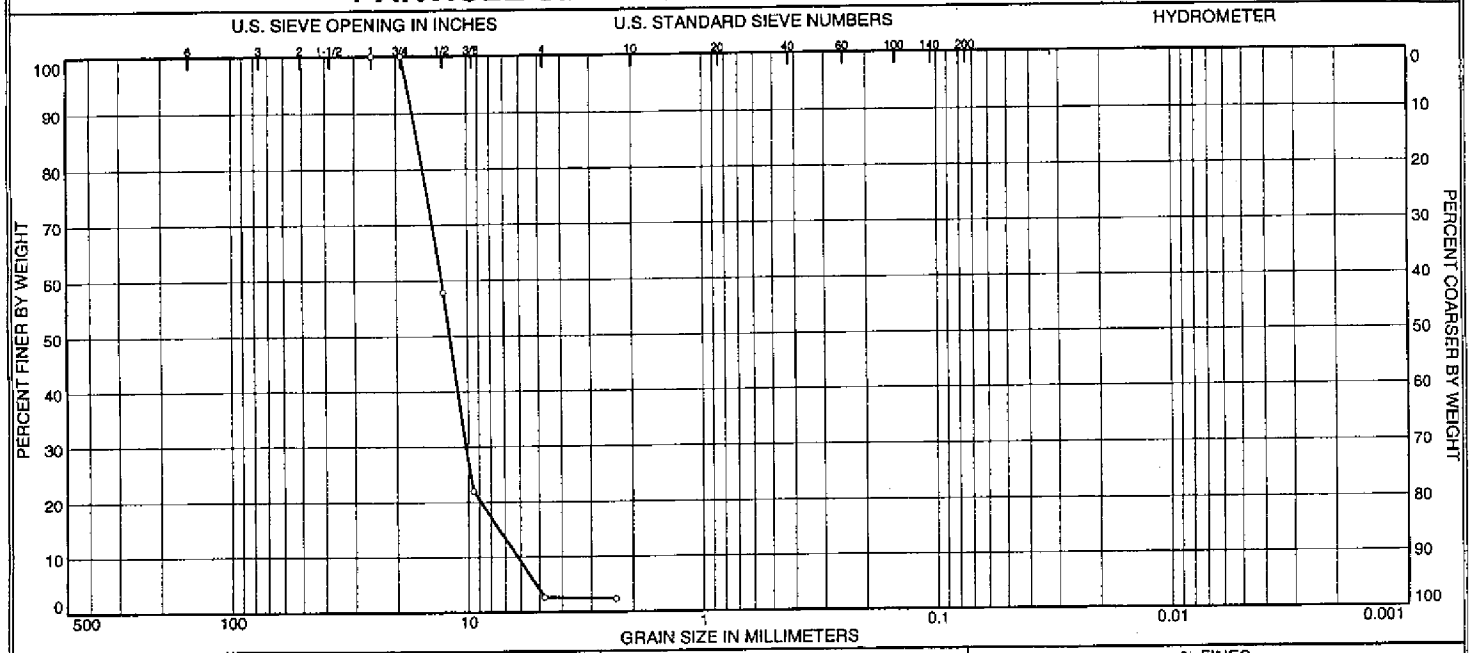
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = **% GRAVEL =** 97.4 **(% coarse =** **% fine =** 97.4)
% SAND =

D_{85}= 16.27 D_{60}= 12.93 D_{50}= 11.95
D_{30}= 10.24 D_{15}= 7.41 D_{10}= 6.19
C_c= 1.3087 C_u= 2.0872

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	97.4	2.6				

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	CFA Drainfield Cap Pea-gravel	CFA-08 PeaGravel #3	Stockpile	6/14/02		Pea Gravel	NA	NL	NP

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

○ Sampled from Pea Gravel by RT Jones, 6/14/02.

Item 10
(Attachment E, Appendix A)

Particle Size Distribution Test Reports, Grain Size Distribution Test Data, and Sieve Analysis Results

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Drainfield Cap Cobbles
Sample No.: CFA-08 Cob#1
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location: Cobble stockpile from contractor
Description: Cobbles
Date: 6/12/02 **PL:** NP **LL:** NL **PI:** NP
USCS Classification: **AASHTO Classification:**
Testing Remarks: Sampled by RT Jones, from Cobble placement, on 6/12/02.

Mechanical Analysis Data

	Initial
Dry sample and tare=	55435.00
Tare =	0.00
Dry sample weight =	55435.00

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
6 inch	0.00	0.00	100.0
2 inch	53145.00	0.00	4.1

Fractional Components

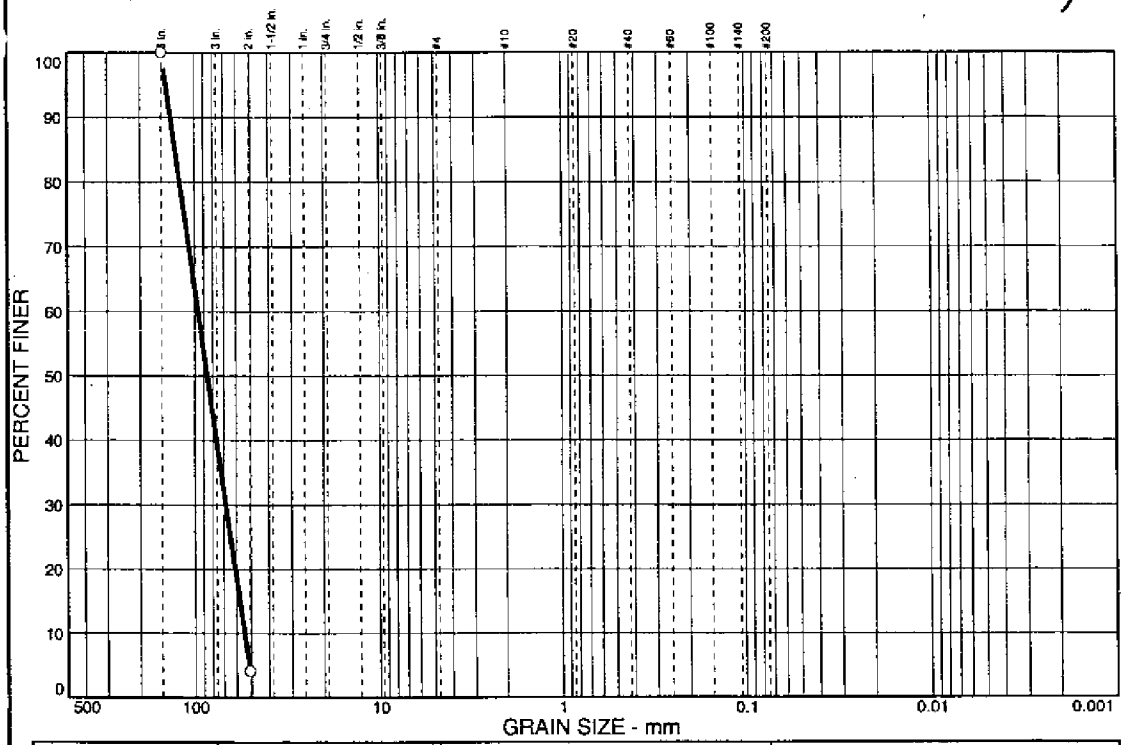
Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = 60.5 % GRAVEL = 39.5 (% coarse = 39.5 % fine = 0.0)
% SAND = 0.0

D_{85}= 128.34 D_{60}= 96.38 D_{50}= 85.95
D_{30}= 68.35 D_{15}= 57.56 D_{10}= 54.35
C_c= 0.8918 C_u= 1.7732

INEL MATERIALS LAB

(10)

PARTICLE SIZE DISTRIBUTION TEST REPORT #1



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
60.5	39.5	0.0	0.0				

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
6 Inch	100.0		
2 Inch	4.1		

* (no specification provided)

Soil Description

Cobbles

Atterberg Limits

PL= NP LL= NL PI= NP

Coefficients

D_{85}= 128.3 D_{60}= 96.4 D_{50}= 85.9
D_{30}= 68.3 D_{15}= 57.6 D_{10}= 54.4
C_u= 1.77 C_c= 0.89

Classification

USCS= AASHTO=

Remarks

Sampled by RT Jones, from Cobble placement, on 6/12/02.

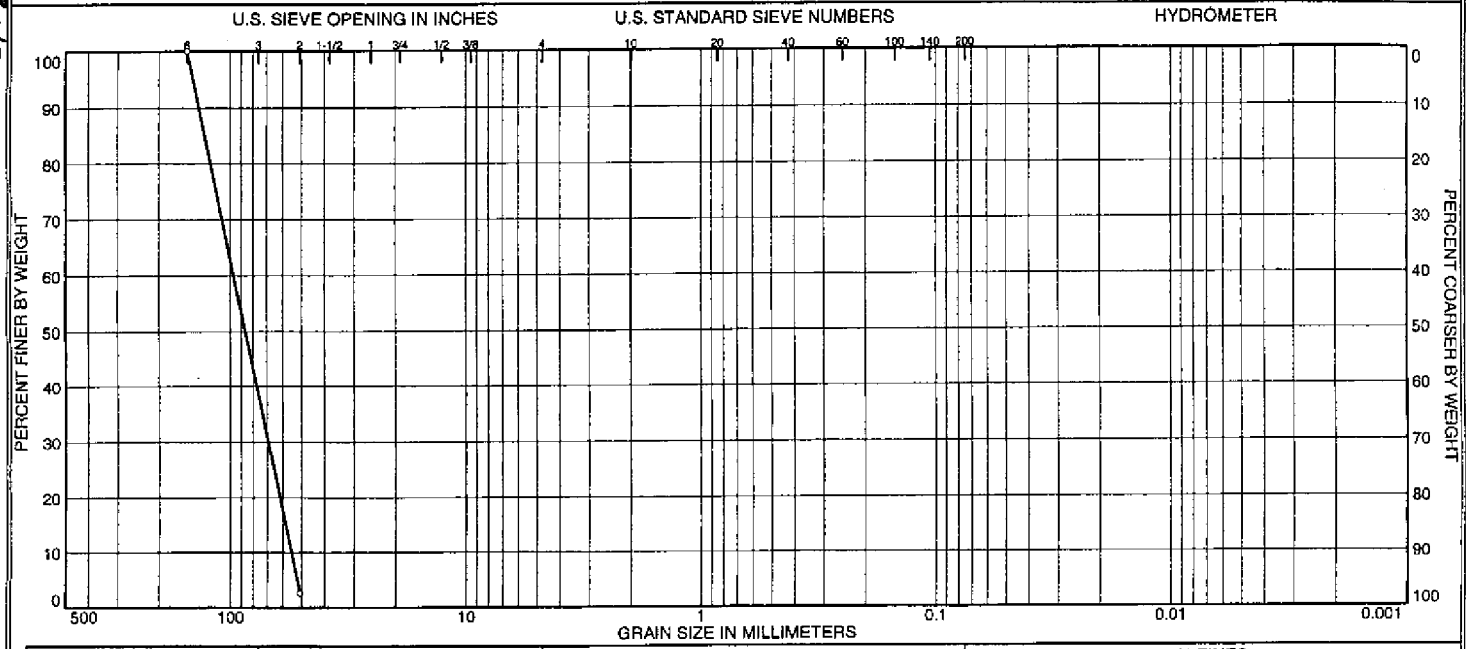
Sample No.: CFA-08 Cob#1 **Source of Sample:** CFA Drainfield Cap Cobbles **Date:** 6/12/02
Location: Cobble stockpile from contractor **Elev./Depth:** Stockpile

INEL MATERIALS LAB

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project No: SPC-1505 File # 021048 **Plate**

#2

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	61.5							

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	CFA Drainfield Cap	CFA-08	Stockpile	6/14/02		Cobbles	None	NL	NP
	Cobbles	Cobble #2							

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

○ Sampled on 6/14/02 by RT Jones.

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: CFA Drainfield Cap Cobbles
Sample No.: CFA-08 Cobble #2
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location:
Description: Cobbles
Date: 6/14/02 **Natural Moisture:** None
Liquid Limit: NL **Plastic Limit:** NP **USCS Class.:**
Testing Remarks: Sampled on 6/14/02 by RT Jones.

Mechanical Analysis Data

	Initial
Dry sample and tare=	59186.00
Tare =	0.00
Dry sample weight =	59186.00

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
6 inch	0.00	0.00	100.0
2 inch	57648.00	0.00	2.6

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = 61.5 **% GRAVEL =**
% SAND =

D_{85}= 128.68 D_{60}= 97.06 D_{50}= 86.71
D_{30}= 69.20 D_{15}= 58.43 D_{10}= 55.22
C_c= 0.8933 C_u= 1.7576

INEL MATERIALS LAB

#3

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

74.8 lbs

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: Gale Lim Construction
DATE SAMPLED: 5-28-02 DATE TESTED: 5-28-02
SAMPLED BY: [illegible]
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	38 lb.	50.8	49.2	
2"	73.5 lbs	98.2	1.8	< 10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	74.8			
TOTAL				

REMARKS: _____

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

76 pound Sample

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: Gale Lim Const.
DATE SAMPLED: 5-27-02 DATE TESTED: 5-27-02
SAMPLED BY: _____
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	50 lbs	65.9	34.1	
2"	74 lbs	97.3	2.7	Less 10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN				
TOTAL	76 lbs.			

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

72.4

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: Gale Lim Const.
DATE SAMPLED: 5-28-02 DATE TESTED: 5-28-02
SAMPLED BY: Ken
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	28.3	39.08	60.92	
2"	71.7	99.03	.97	<10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	72.4			
TOTAL				

REMARKS: _____

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

63.7

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: _____
DATE SAMPLED: 6-5-02 DATE TESTED: 6-5-02
SAMPLED BY: Ron
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	21.2	33.28	66.72	
2"	60.9	95.60	4.4	<10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	63.7			
TOTAL				

REMARKS: _____

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

68.3

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: _____
DATE SAMPLED: 6-6-02 DATE TESTED: 6-6-02
SAMPLED BY: Ken
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	24.8	36.31	63.69	
2"	66.7	97.65	2.35	<10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	68.3			
TOTAL				

REMARKS: _____

TESTED BY: _____

2551 cy

Gale Lim Construction, Inc.
General Contractor

921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

84.1

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: _____
DATE SAMPLED: 6-8-00 DATE TESTED: 6-8-00
SAMPLED BY: Ken
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	29.6	35.19	64.81	
2"	82.9	98.57	1.43	<10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	84.1			
TOTAL				

REMARKS: _____

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

90.3

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: _____
DATE SAMPLED: 6-11-02 DATE TESTED: 6-11-02
SAMPLED BY: Rew
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	36.4	40.31	59.69	
2"	88.2	97.6	2.4	<10%
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	90.3			
TOTAL				

REMARKS: _____

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

87.4

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: _____
DATE SAMPLED: 6-12-02 DATE TESTED: 6-12-02
SAMPLED BY: Ken
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	43.9	50.22	49.78	
2"	86.1	98.57	1.49	<10
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	87.4			
TOTAL				

REMARKS: _____

TESTED BY: _____

Gale Lim Construction, Inc.
General Contractor
921 West 250 South, Blackfoot, Idaho 83221
Bus.: (208) 684-4608 Shop: (208) 785-0127 Fax (208) 684-4608

77.6

SIEVE ANALYSIS RESULTS

CLIENT: _____ LAB NO: _____
PROJECT: _____ JOB NO: _____
CONTRACTOR: _____
DATE SAMPLED: 6-13-02 DATE TESTED: 6-13-02
SAMPLED BY: Ken
LOCATION OF SAMPLE: Screening Plant
MATERIAL TYPE: Cobble Rock

SIEVE NO.	WEIGHT RETAINED	% RETAINED	% PASSING	SPECS. % PASSING
6"	0	0	100	100
3"	31.3	40.39	59.67	
2"	75.9	97.80	2.2	<10
1 1/2"				
1"				
3/4"				
1/2"				
3/8"				
#4				
#8				
#10				
#16				
#40				
#50				
#100				
#200				
PAN	77.6			
TOTAL				

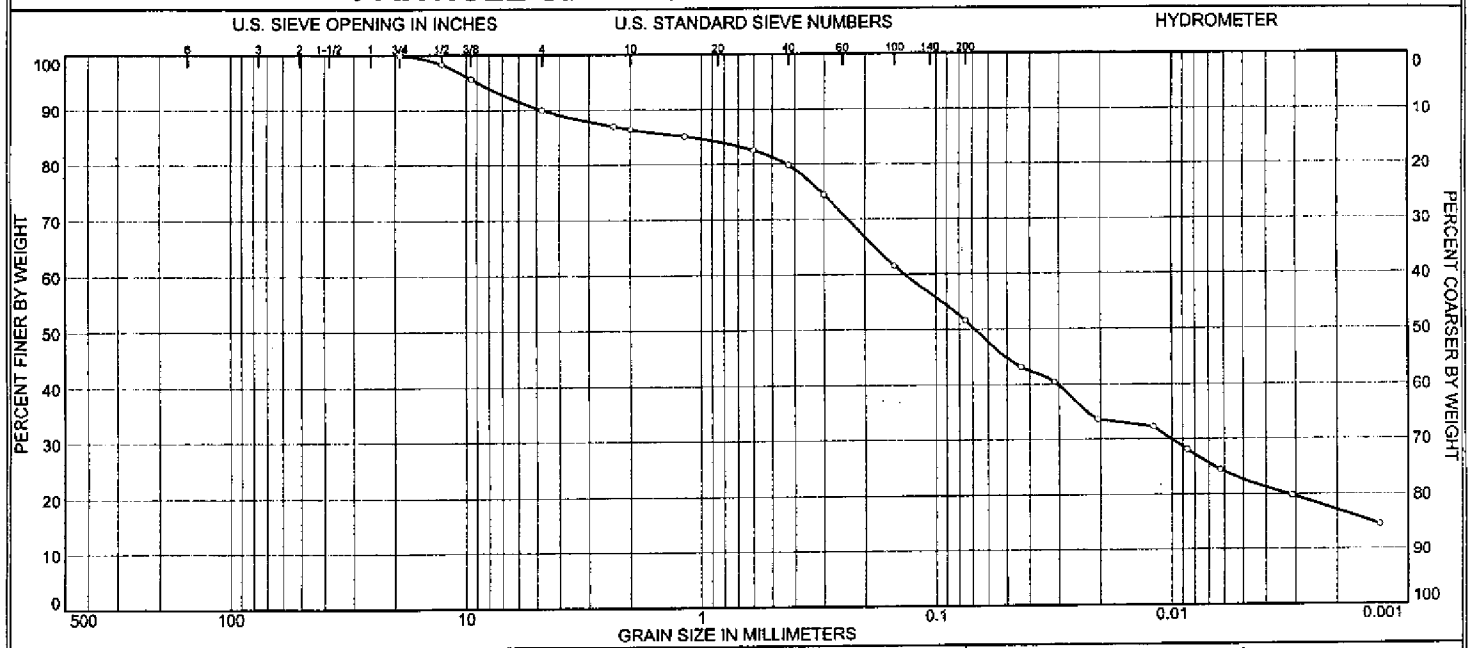
REMARKS: _____

TESTED BY: _____

Item 11
(Attachment E, Appendix A)

Particle Size Distribution Test Reports, Grain Size Distribution Test Data, Liquid and Plastic Limits Test Reports

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	10.0	3.6	6.6	28.2	28.9	22.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	NRF - Lincoln Road	CFA-08	Drainfield	9/12/02	CL	Sandy lean clay	4.6%	24.1	15.8
	overburden piles	West Side	Cap						

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

○ IAB-001, Sampled from Drainfield Cap, West side, by RT Jones.

#001

(11)

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 West Side
Elev. or Depth: Drainfield Cap **Sample Length (in./cm.):** Lab 001
Location:
Description: Sandy lean clay
Date: 9/12/02 **Natural Moisture:** 4.6%
Liquid Limit: 24.1 **Plastic Limit:** 15.8 **USCS Class.:** CL
Testing Remarks: lAB-001, Sampled from Drainfield Cap, West side, by RT Jones.

#001

Mechanical Analysis Data

		Initial
Dry sample and tare	=	422.27
Tare	=	117.22
Dry sample weight	=	305.05

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
3/4 inch	0.00	0.00	100.0
2 inch	5.22	0.00	98.3
3/8 inch	8.15	0.00	95.6
# 4	17.10	0.00	90.0
# 8	9.23	0.00	87.0
# 10	1.72	0.00	86.4
# 16	4.06	0.00	85.1
# 30	7.97	0.00	82.5
# 40	8.04	0.00	79.8
# 50	16.28	0.00	74.5
# 100	39.77	0.00	61.5
# 200	30.17	0.00	51.6

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 86.4
Weight of hydrometer sample: 66.31
Hygroscopic moisture correction:
Moist weight & tare = 61.51
Dry weight & tare = 59.52
Tare = 14.21
Hygroscopic moisture= 4.4 %
Calculated biased weight= 73.52
Automatic temperature correction
Composite correction at 20 deg C = -4.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.60
Specific gravity correction factor= 1.012

INEL MATERIALS LAB

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	22.0	35.0	31.4	0.0135	36.0	10.4	0.0436	43.2
2.00	22.0	33.0	29.4	0.0135	34.0	10.7	0.0313	40.5
5.00	22.0	28.0	24.4	0.0135	29.0	11.5	0.0205	33.6
15.00	22.0	27.0	23.4	0.0135	28.0	11.7	0.0119	32.2
30.00	22.0	24.0	20.4	0.0135	25.0	12.2	0.0086	28.1
60.00	21.5	21.5	17.8	0.0136	22.5	12.6	0.0062	24.5
250.00	22.0	18.0	14.4	0.0135	19.0	13.2	0.0031	19.8
1440.00	22.5	14.0	10.5	0.0134	15.0	13.8	0.0013	14.5

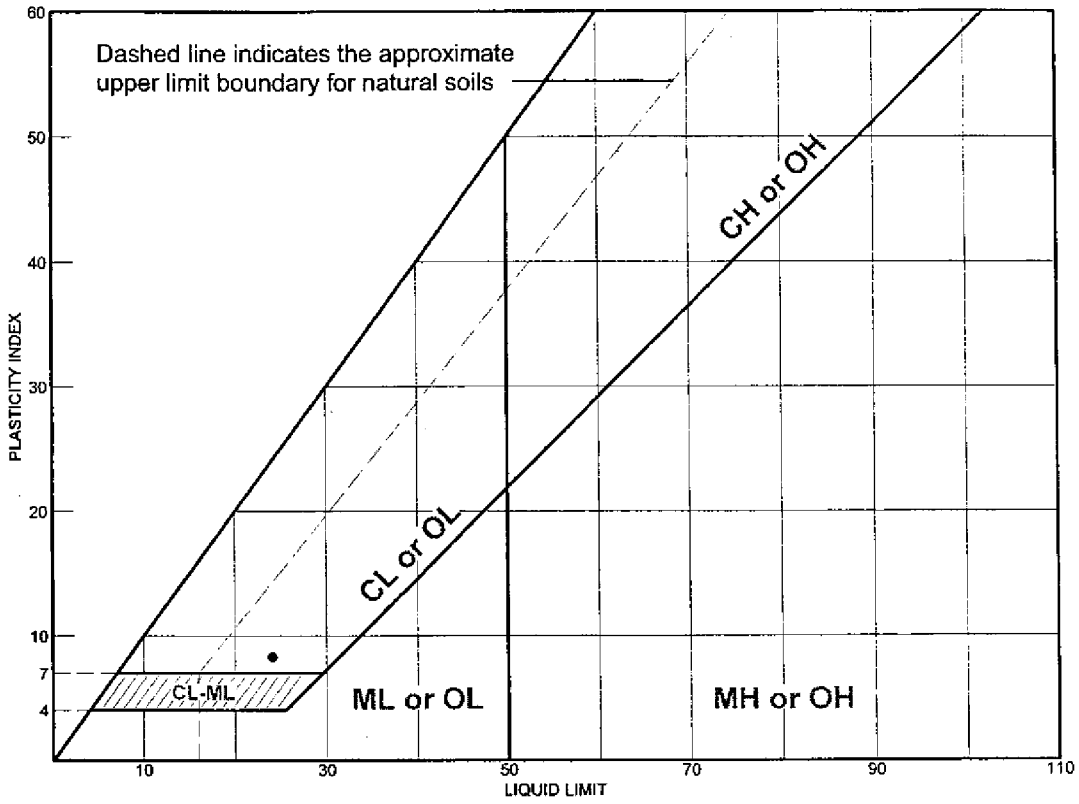
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 10.0 (% coarse = % fine = 10.0)
% SAND = 38.4 (% coarse = 3.6 % medium = 6.6 % fine = 28.2)
% SILT = 28.9 % CLAY = 22.7

D_{85}= 1.13 D_{60}= 0.14 D_{50}= 0.07
D_{30}= 0.01 D_{15}= 0.00

INEL MATERIALS LAB

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Sandy lean clay	24.1	15.8	8.3	79.8	51.6	CL

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner

Project: CFA STP-08 Drainfield Cap

● **Source:** NRF - Lincoln Road **Sample No.:** CFA-08 West **Elev./Depth:** Drainfield Cap

Remarks:

● LAB-001, Sampled from Drainfield Cap, West side, by RT Jones.

#001

LIQUID AND PLASTIC LIMITS TEST REPORT

INEL MATERIALS LAB

Plate

LIQUID AND PLASTIC LIMIT TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

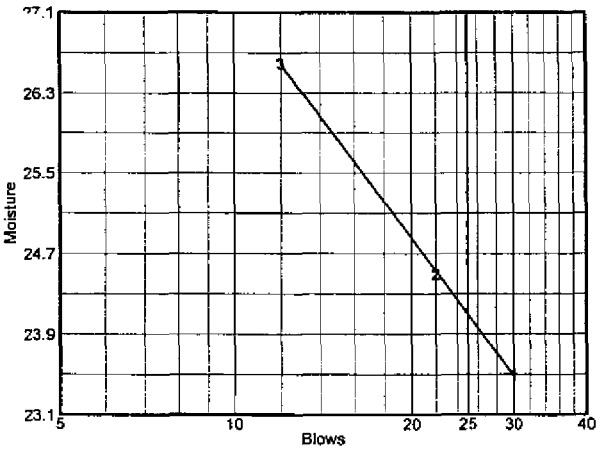
Sample Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 West Side
Elev. or Depth: Drainfield Cap **Sample Length (in./cm.):** Lab 001
Location:
Description: Sandy lean clay
%<#40: 79.8 **%<#200:** 51.6 **USCS:** CL **AASHTO:** A-4(1)
Testing Remarks: LAB-001, Sampled from Drainfield Cap, West side, by RT Jones.

#001

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.87	25.55	26.95			
Dry+Tare	21.44	22.70	23.62			
Tare	11.12	11.09	11.08			
# Blows	30	22	12			
Moisture	23.5	24.5	26.6			



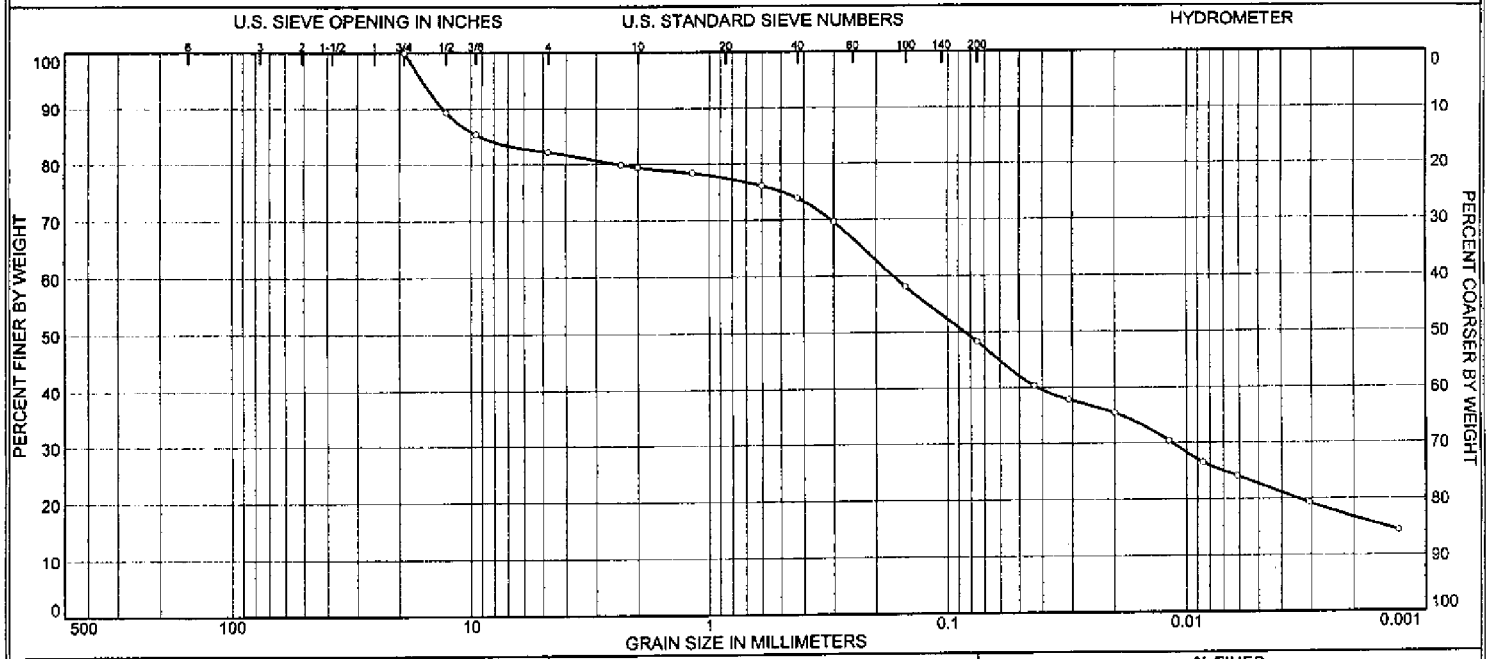
Liquid Limit= 24.1
Plastic Limit= 15.8
Plasticity Index= 8.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	8.99	7.67			
Dry+Tare	8.35	7.22			
Tare	4.33	4.36			
Moisture	15.9	15.7			

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	17.8	2.8	5.5	25.6	25.6	22.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	NRF - Lincoln Road overburden piles	CFA-08 Center Area	Drainfield Cap	9/12/02	SC	Clayey sand with gravel	2.9%	25.9	16.3

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

○ LAB-002, Sampled from drainfield cap, Center Area, by RT Jones.

#002

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
P· 'ect Number: SPC-1505 File # 021048

Sample Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 Center Area
Elev. or Depth: Drainfield Cap **Sample Length (in./cm.):** Lab 002
Location:
Description: Clayey sand with gravel
Date: 9/12/02 **Natural Moisture:** 2.9%
Liquid Limit: 25.9 **Plastic Limit:** 16.3 **USCS Class.:** SC
Testing Remarks: LAB-002, Sampled from drainfield cap, Center Area, by RT Jones.

#002

Mechanical Analysis Data

	Initial
Dry sample and tare=	579.18
Tare =	103.81
Dry sample weight =	475.37

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
4 inch	0.00	0.00	100.0
1/2 inch	50.98	0.00	89.3
3/8 inch	18.77	0.00	85.3
# 4	14.81	0.00	82.2
# 8	11.20	0.00	79.9
# 10	2.08	0.00	79.4
# 16	4.98	0.00	78.4
# 30	10.82	0.00	76.1
# 40	10.23	0.00	73.9
# 50	20.85	0.00	69.6
# 100	54.45	0.00	58.1
# 200	46.77	0.00	48.3

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 79.4
Weight of hydrometer sample: 66.25
Hygroscopic moisture correction:
Moist weight & tare = 61.21
Dry weight & tare = 59.57
Tare = 14.25
Hygroscopic moisture= 3.6 %
Calculated biased weight= 80.52
A· matic temperature correction
mposite correction at 20 deg C = -4.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.62

INEL MATERIALS LAB

Specific gravity correction factor= 1.007
Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	21.5	36.0	32.3	0.0135	37.0	10.2	0.0432	40.4
2.00	21.5	34.0	30.3	0.0135	35.0	10.6	0.0311	37.9
5.00	21.5	32.0	28.3	0.0135	33.0	10.9	0.0199	35.4
15.00	21.5	28.0	24.3	0.0135	29.0	11.5	0.0119	30.4
30.00	21.5	25.0	21.3	0.0135	26.0	12.0	0.0086	26.6
60.00	21.5	23.0	19.3	0.0135	24.0	12.4	0.0061	24.1
250.00	22.0	19.0	15.4	0.0134	20.0	13.0	0.0031	19.3
1440.00	22.5	15.0	11.5	0.0134	16.0	13.7	0.0013	14.4

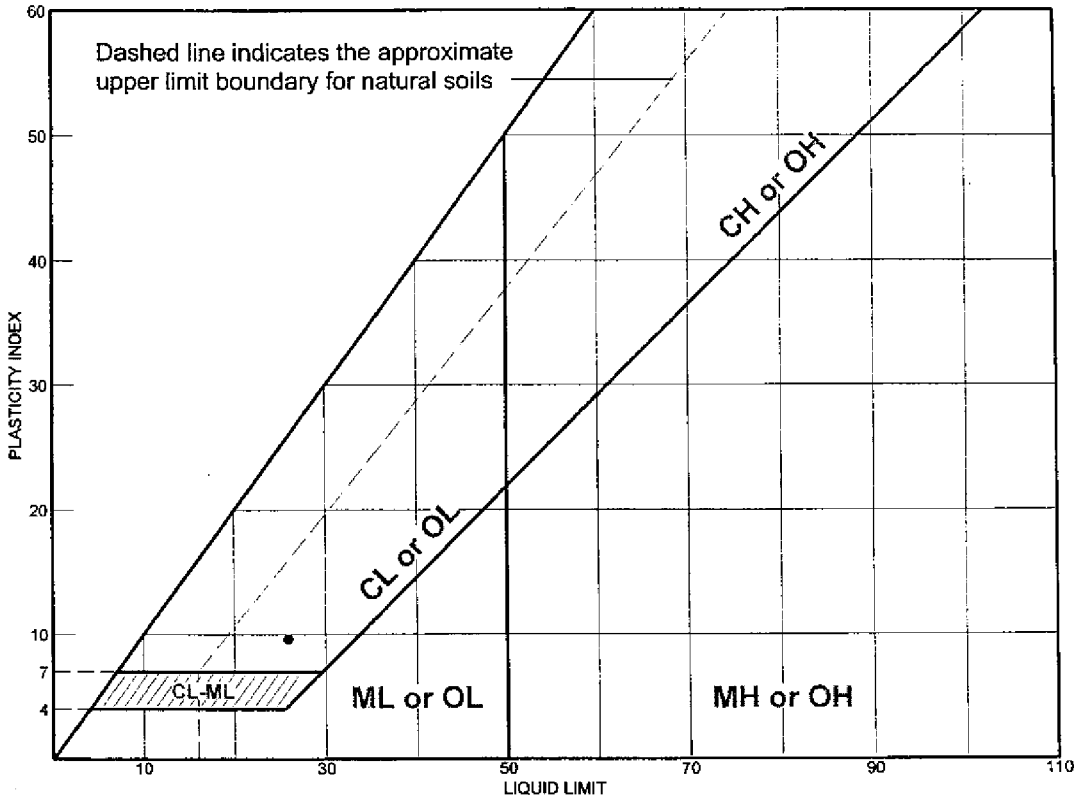
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 17.8 (% coarse = % fine = 17.8)
% SAND = 33.9 (% coarse = 2.8 % medium = 5.5 % fine = 25.6)
% SILT = 25.6 % CLAY = 22.7

D_{85}= 9.21 D_{60}= 0.17 D_{50}= 0.08
D_{30}= 0.01 D_{15}= 0.00

INEL MATERIALS LAB

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Clayey sand with gravel	25.9	16.3	9.6	73.9	48.3	SC

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner

Project: CFA STP-08 Drainfield Cap

• **Source:** NRF - Lincoln Road **Sample No.:** CFA-08 **Elev./Depth:** Drainfield Cap

Remarks:

• LAB-002, Sampled from Center area of Drainfield Cap, by RT Jones.

#002

LIQUID AND PLASTIC LIMITS TEST REPORT

INEL MATERIALS LAB

Plate

LIQUID AND PLASTIC LIMIT TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

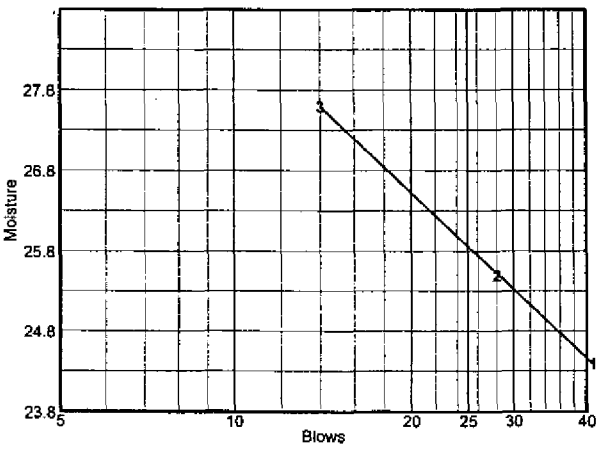
Sample Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 Center Area
Elev. or Depth: Drainfield Cap **Sample Length (in./cm.):** Lab 002
Location:
Description: Clayey sand with gravel
%<#40: 73.9 **%<#200:** 48.3 **USCS:** SC **AASHTO:** A-4(2)
Testing Remarks: LAB-002, Sampled from Center area of Drainfield Cap, by RT Jones.

#002

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.52	31.11	32.71			
Dry+Tare	28.13	27.66	28.74			
Tare	14.25	14.14	14.35			
# Blows	41	28	14			
Moisture	24.4	25.5	27.6			



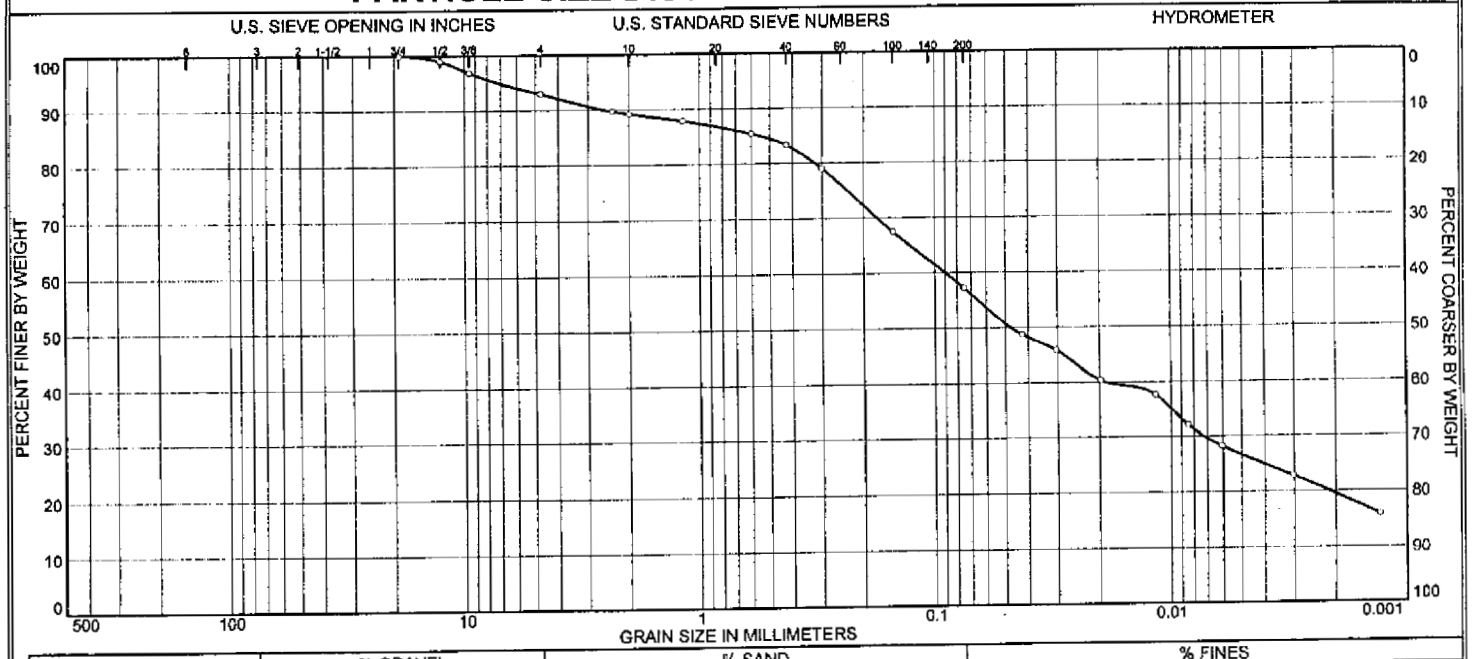
Liquid Limit= 25.9
Plastic Limit= 16.3
Plasticity Index= 9.6

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	7.68	8.07			
+Tare	7.21	7.54			
Tare	4.33	4.30			
Moisture	16.3	16.4			

INEL MATERIALS LAB

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
0.0	0.0	7.0	3.8	5.9	26.0	30.7	26.6

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
NRF - Lincoln Road overburden piles	CFA-08 East Side	Drainfield Cap	9/13/02	CL	Sandy lean clay	4.3%	26.2	16.4

Client ER Projects Deborah Wagoner

Project CFA STP-08 Drainfield Cap

Project No. SPC-1505 File # Plate

INEL MATERIALS LAB

○ LAB-003, Sampled from Drainfield Cap, East Side, by RT Jones.

#003

GRAIN SIZE DISTRIBUTION TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Sample Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 East Side
Elev. or Depth: Drainfield Cap **Sample Length (in./cm.):** Lab 003
Location:
Description: Sandy lean clay
Date: 9/13/02 **Natural Moisture:** 4.3%
Liquid Limit: 26.2 **Plastic Limit:** 16.4 **USCS Class.:** CL
Testing Remarks: LAB-003, Sampled from Drainfield Cap, East Side, by RT Jones.

#003

Mechanical Analysis Data

	Initial
Dry sample and tare=	593.89
Tare =	113.98
Dry sample weight =	479.91

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
3/4 inch	0.00	0.00	100.0
2 inch	4.84	0.00	99.0
3/8 inch	10.42	0.00	96.8
# 4	18.38	0.00	93.0
# 8	15.68	0.00	89.7
# 10	2.50	0.00	89.2
# 16	6.07	0.00	87.9
# 30	12.16	0.00	85.4
# 40	10.24	0.00	83.3
# 50	20.60	0.00	79.0
# 100	54.85	0.00	67.5
# 200	49.03	0.00	57.3

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 89.2
Weight of hydrometer sample: 67.54
Hygroscopic moisture correction:
Moist weight & tare = 56.14
Dry weight & tare = 54.62
Tare = 14.29
Hygroscopic moisture= 3.8 %
Calculated biased weight= 72.97
Automatic temperature correction
Composite correction at 20 deg C = -4.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.62
Specific gravity correction factor= 1.007

INEL MATERIALS LAB

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	21.5	39.0	35.3	0.0135	40.0	9.7	0.0422	48.7
2.00	21.5	37.0	33.3	0.0135	38.0	10.1	0.0303	45.9
5.00	21.5	33.0	29.3	0.0135	34.0	10.7	0.0198	40.4
15.00	21.5	31.0	27.3	0.0135	32.0	11.0	0.0116	37.7
30.00	21.5	27.0	23.3	0.0135	28.0	11.7	0.0084	32.1
60.00	22.0	24.0	20.4	0.0134	25.0	12.2	0.0061	28.2
250.00	22.5	20.0	16.5	0.0134	21.0	12.9	0.0030	22.8
1440.00	22.5	15.0	11.5	0.0134	16.0	13.7	0.0013	15.9

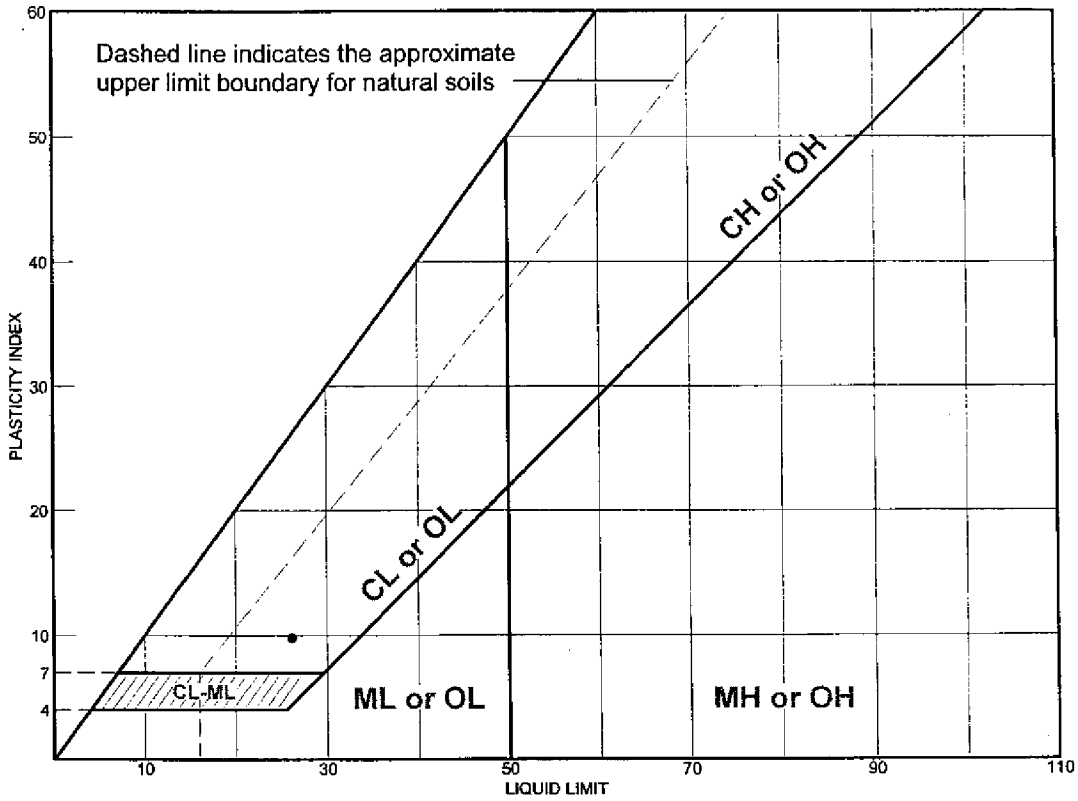
Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 7.0 (% coarse = % fine = 7.0)
% SAND = 35.7 (% coarse = 3.8 % medium = 5.9 % fine = 26.0)
% SILT = 30.7 % CLAY = 26.6

D_{85}= 0.55 D_{60}= 0.09 D_{50}= 0.05
D_{30}= 0.01

INEL MATERIALS LAB

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Sandy lean clay	26.2	16.4	9.8	83.3	57.3	CL

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner

Project: CFA STP-08 Drainfield Cap

• **Source:** NRF - Lincoln Road **Sample No.:** CFA-08 East **Elev./Depth:** Drainfield Cap

Remarks:

• LAB-003, Sampled from East Side of Drainfield Cap, by RT Jones.

#003

LIQUID AND PLASTIC LIMITS TEST REPORT

INEL MATERIALS LAB

Plate

LIQUID AND PLASTIC LIMIT TEST DATA

Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
P' 'ect Number: SPC-1505 File # 021048

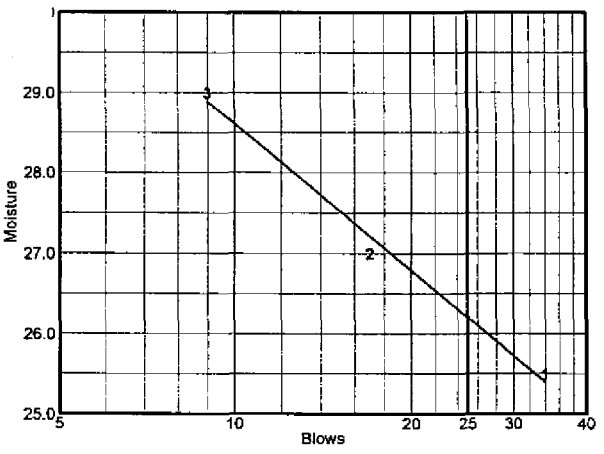
Sample Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 East Side
Elev. or Depth: Drainfield Cap **Sample Length (in./cm.):** Lab 003
Location:
Description: Sandy lean clay
%<#40: 83.3 **%<#200:** 57.3 **USCS:** CL **AASHTO:** A-4(3)
Testing Remarks: LAB-003, Sampled from East Side of Drainfield Cap, by RT Jones.

#003

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.51	25.20	26.10			
Dry+Tare	23.35	22.20	22.71			
Tare	10.94	11.08	11.03			
# Blows	34	17	9			
Moisture	25.5	27.0	29.0			



Liquid Limit= 26.2
Plastic Limit= 16.4
Plasticity Index= 9.8

Plastic Limit Data

Run No.	1	2	3	4
W~t+Tare	7.83	7.11		
+Tare	7.34	6.71		
Tare	4.28	4.32		
Moisture	16.0	16.7		

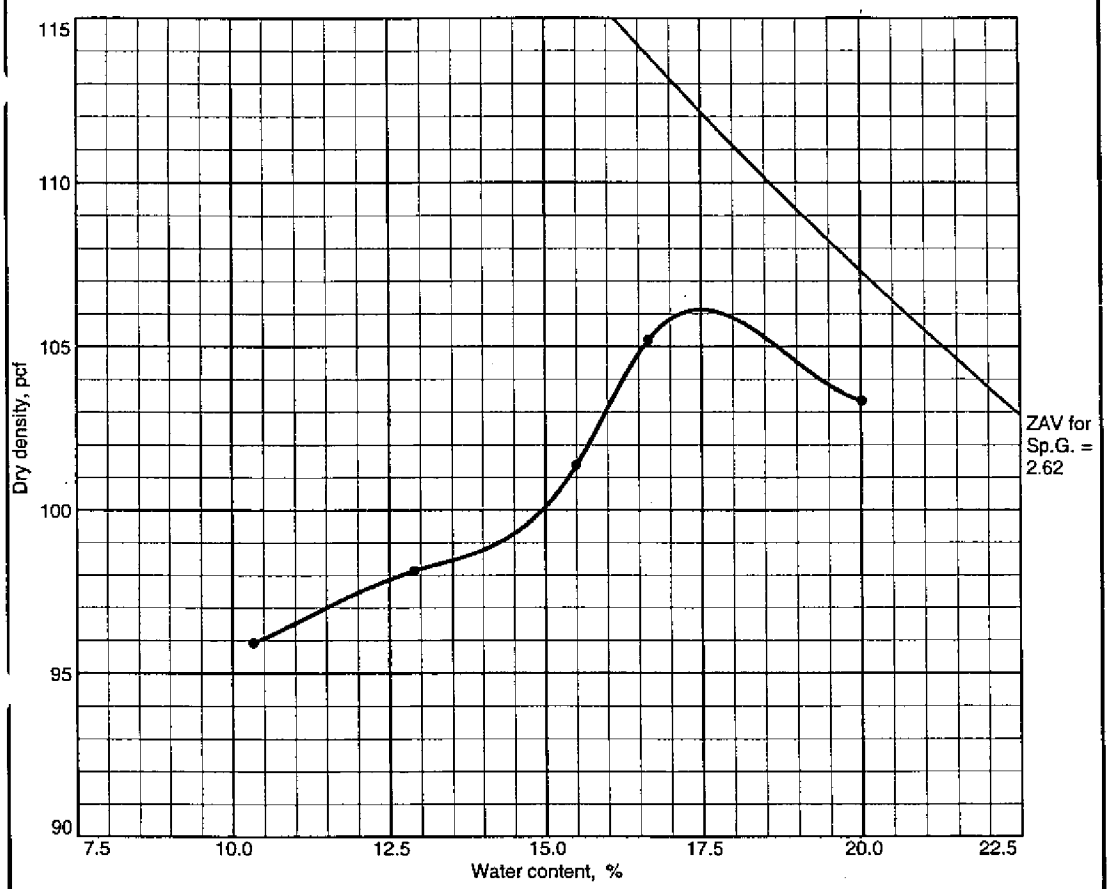
INEL MATERIALS LAB

Item 12
(Attachment E, Appendix A)

Compaction Test Reports and Moisture Density Test Data

(12)

COMPACTION TEST REPORT



Test specification: ASTM D 698-91 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
Stockpile	CL	A-4(6)	8.1%	2.55	27.3	9.8	0.0	81.3

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 106.1 pcf Optimum moisture = 17.5 %	Lean clay with sand

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap

● **Source:** NRF - Lincoln Road **Sample No.:** CFA-08 **Elev./Depth:** Stockpile

Remarks:
Sampled from NRF Lincoln Road pit, north berm.

COMPACTION TEST REPORT

INEL MATERIALS LAB

Plate

MOISTURE DENSITY TEST DATA

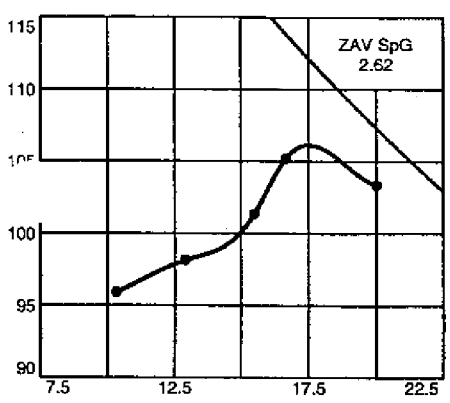
Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Specimen Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 North Berm
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location:
Description: Lean clay with sand
USCS Classification: CL **AASHTO Classification:** A-4(6)
Natural Moisture: 8.1% **Liquid Limit:** 27.3 **Plasticity Index:** 9.8
Testing Remarks: Sampled from NRF Lincoln Road pit, north berm.
Percent retained on No.4 sieve: 0.0
Percent passing No. 200 sieve: 81.3 **Specific gravity:** 2.55

Test Data And Results For Curve NRF #1

Type of test: ASTM D 698-91 Method A Standard



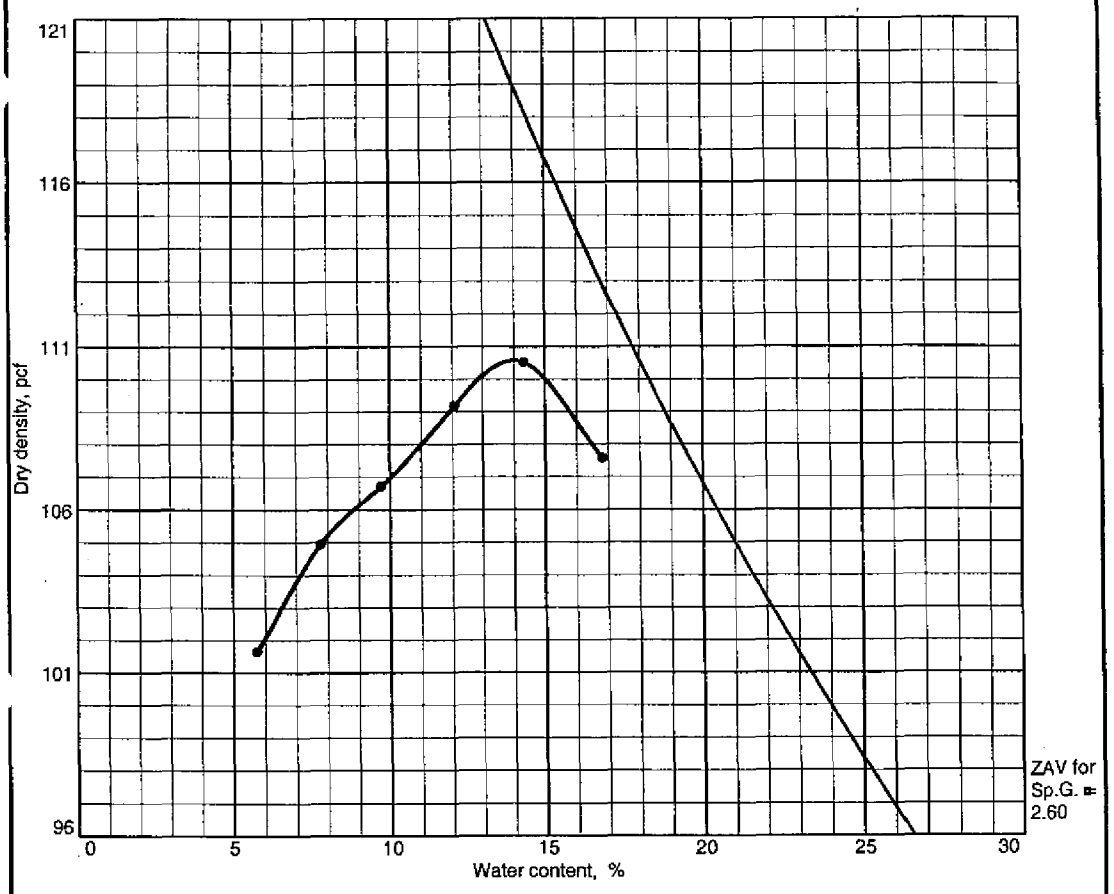
POINT NO.	1	2	3	4	5
WM + WS	5895.0	5970.0	6065.0	6150.0	6170.0
WM	4295.0	4295.0	4295.0	4295.0	4295.0
WW+T	653.05	991.63	1136.43	965.36	1039.06
WD+T	601.76	890.38	998.24	842.80	883.08
TARE	105.65	105.17	106.33	106.54	103.72
MOIST	10.3	12.9	15.5	16.6	20.0
MOISTURE	10.3	12.9	15.5	16.6	20.0
DRY DEN	95.9	98.1	101.4	105.2	103.3

Max dry den= 106.1 pcf **Opt moisture=** 17.5 %

Oversize Correction Not Applied

INEL MATERIALS LAB

COMPACTION TEST REPORT



Test specification: ASTM D 698-91 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
Stockpile	SM	A-2-4(0)	3.65%	2.54	NL	NP	0.0	33.3

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 110.6 pcf Optimum moisture = 14.0 %	Silty sand

Project No. SPC-1505 **Client:** ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap

● **Source:** NRF - Lincoln Road **Sample No.:** CFA-08 **Elev./Depth:** Stockpile

Remarks:
Sampled from small berm south of pit access road.

COMPACTION TEST REPORT

INEL MATERIALS LAB

Plate

MOISTURE DENSITY TEST DATA

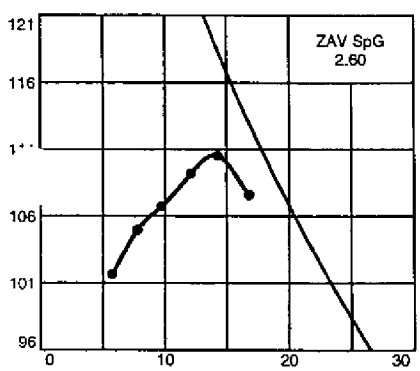
Client: ER Projects Deborah Wagoner
Project: CFA STP-08 Drainfield Cap
Project Number: SPC-1505 File # 021048

Specimen Data

Source: NRF - Lincoln Road overburden piles
Sample No.: CFA-08 South Berm
Elev. or Depth: Stockpile **Sample Length (in./cm.):**
Location:
Description: Silty sand
USCS Classification: SM **AASHTO Classification:** A-2-4(0)
Natural Moisture: 3.65% **Liquid Limit:** NL **Plasticity Index:** NP
Testing Remarks: Sampled from small berm south of pit access road.
Percent retained on No.4 sieve: 0.0
Percent passing No. 200 sieve: 33.3 **Specific gravity:** 2.54

Test Data And Results For Curve CFA-08 #2

Type of test: ASTM D 698-91 Method A Standard



POINT NO.	1	2	3	4	5	6
WM + WS	5920.0	6005.0	6065.0	6145.0	6205.0	6195.0
WM	4295.0	4295.0	4295.0	4295.0	4295.0	4295.0
WW+T	1007.36	1033.75	902.49	773.85	876.09	829.42
WD+T	958.88	966.68	832.06	701.80	779.76	725.25
TARE	113.98	103.94	106.61	105.21	106.62	105.55
MOIST	5.7	7.8	9.7	12.1	14.3	16.8
MOISTURE	5.7	7.8	9.7	12.1	14.3	16.8
DRY DEN	101.7	104.9	106.7	109.2	110.5	107.6

Max dry den= 110.6 pcf **Opt moisture=** 14.0 %

Oversize Correction Not Applied

INEL MATERIALS LAB

Item 13
(Attachment E, Appendix A)

Nuclear Relative Compaction Test Data

(NRF Topsoil Refers to the Lincoln Area Borrow Source)

(13)

NUCLEAR RELATIVE COMPACTION TEST DATA

NRF

TOPSOIL

Project: STP-03

Contract No.: DESERT SALE

Date: 9-5-02

Tested By: R T JONES

Test Number	1	2	3	4	5	6	7	8	9 N.	10
Station										
Location TOP LIFT 80-85%						X 5	X 4	X 3	X 2	X 1
Elevation or Lift										
Mode & Depth	8"									
Wet Density PCF	93.9	98.3	96.2	92.1	98.3					
Moisture PCF										
Dry Density PCF	89.5	93.2	92.4	88.6	93.7					
% Moisture	4.9	5.5	4.1	3.9	4.9					
Optimum Moisture										
Max. Obtainable Density PCF	110.6									
% Relative Compaction	80.9	84.3	83.6	80.1	84.7					
% Specification Compaction Minimum	80-85%									

Standard Count	
Density	Moisture
2620	660

NOTE: Use reverse side for more definitive location of tests.

Record Inst. S/N: 15793

Date Calibrated: 9-5-02

ASTM Methods:

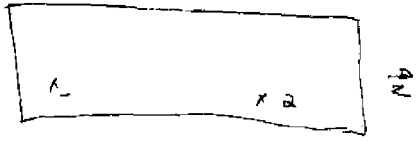
D-2922

D-3017

INEEL

FORM L-0432.11
(09-96 - Rev. #00)

NUCLEAR RELATIVE COMPACTION TEST DATA



Project: STP-04
Contract No.: 021044
Date: 8-20-02
Tested By: STACEY LILYA

Test Number	1	2	3	4	5	6	7	8	9	10
Station 3800										
Location 4TH LIFT -										
Elevation or Lift										
Mode & Depth	8"	8"								
Wet Density PCF	95.1	98.3								
Moisture PCF	4.7	5.1								
Dry Density PCF	90.4	93.3								
% Moisture	5.2	5.4								
Optimum Moisture										
Max. Obtainable Density PCF	106.1	106.1								
% Relative Compaction	85.2	87.9								
% Specification Compaction Minimum	85-90	85-90								

Standard Count	
Density	Moisture
2604	662

NOTE: Use reverse side for more definitive location of tests.

Record Inst. S/N: 14089

Date Calibrated: 8-20-02

ASTM Methods:

D - 2922

D - 3017

432.11
04-97
Rev. 01

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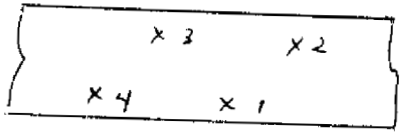
NUCLEAR RELATIVE COMPACTION TEST DATA



Project: STP-09
Contract No.: 021045
Date: 8-12-02
Tested By: RT JONES

Test Number	1	2	3	4	5	6	7	8	9	10
Station										
Location 3RD LIFT										
Elevation or Lift										
Mode & Depth	8"	8"	8"	8"						
Wet Density PCF	103.8	101.6	103.8	103.8						
Moisture PCF										
Dry Density PCF	94.7	91.4	93.9	95.4						
% Moisture	9.6	11.1	10.6	8.9						
Optimum Moisture										
Max. Obtainable Density PCF	106.1									
% Relative Compaction	89.3	86.2	88.5	89.9						
% Specification Compaction Minimum	85-90%									

Standard Count	
Density	Moisture
2791	509

NOTE: Use reverse side for more definitive location of tests.

Record Inst. S/N: 19793
Date Calibrated: 8-12-02

ASTM Methods:
D-2922
D-3017

INEL

FORM L-0432.11
(09-96 - Rev. #00)

NUCLEAR RELATIVE COMPACTION
TEST DATA

5
1
2
3
4

Project: SIP
Contract No.: 021045
Date: 7-29-02
Tested By: [illegible]

Test Number	1	2	3	4	5	6	7	8	9	10
Station										
Location - 2ND LIFT -										
Elevation or Lift										
Mode & Depth	8"	8"								
Wet Density PCF	97.6	100.2	101.4	101.7	99.4					
Moisture PCF	7.3	6.6	6.6	9.2 ~~10.0~~	6.0					
Dry Density PCF	90.3	93.4	94.6	92.6	93.9					
% Moisture	8.1	7.3	6.9	10.0	6.4					
Optimum Moisture	17.5									
Max. Obtainable Density PCF	106.1									
% Relative Compaction	85.1	88.0	89.3	87.2	88.5					
% Specification Compaction Minimum	85									

Standard Count	
Density	Moisture
2601	645

NOTE: Use reverse side for more definitive location of tests.

Record Inst. S/N: 18792

Date Calibrated: 7-29-02

ASTM Methods:

D - 2922

D - 3017

432.11
04-97
Rev. 01

NUCLEAR RELATIVE COMPACTION TEST DATA

Project: CFA-DB STP COVER
Contract No.: 021043
Date: 6-6-02
Tested By: RT JONES

CFA GRAVELS

Test Number	#1	#2	#3	#4	#5	#6	#7			
Station										
Location EAST SIDE OF PAD LOOKING TOWARDS THE WEST -GRADE-										
Elevation or Lift	GRADE -									
Mode & Depth	8"									
Wet Density PCF	138.7	137.7	137.6	137.8	139.2	138.1	136.9			
Moisture PCF										
Dry Density PCF	131.0	131.4	129.9	132.6	133.2	131.5	130.5			
% Moisture	5.9	4.8	6.0	3.9	4.5	5.0	4.9			
Optimum Moisture	6.5									
Max. Obtainable Density PCF	136.6									
Moisture/Density Curve # used										
% Relative Compaction	95.9	96.2	95.1	97.1	97.5	96.3	95.5			
% Specification Compaction Minimum	95%									

Standard Count	
Density	Moisture
2630	660

NOTE: Use reverse side for more definitive location of tests.

Record Inst. S/N: 18793
Date Calibrated: 6-6-02

ASTM M
D-
D-

PIT RUN
CFA PIT

CPP
ITEMS 9, 11, 12, 13