



**Department of Energy**

**Ohio Field Office  
Fernald Environmental Management Project  
P. O. Box 538705  
Cincinnati, Ohio 45253-8705  
(513) 648-3155**



**4816**

APR 10 2003

Mr. James A. Saric, Remedial Project Manager  
United States Environmental Protection Agency  
Region V, SR-6J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

DOE-0323-03

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5<sup>th</sup> Street  
Dayton, Ohio 45402-2911

**TRANSMITTAL OF RESPONSES TO COMMENTS ON THE ON-SITE DISPOSAL FACILITY  
PHASE V SUPPORT PLANS, CONSTRUCTION DRAWINGS AND DESIGN CRITERIA  
PACKAGE**

- References:
1. Letter, T. Schneider to J. Reising, "Comments OSDF Phase V Construction Documents," dated January 21, 2003
  2. Letter, J. Saric to J. Reising, "Final Design Criteria Package OSDF Phase V," dated February 5, 2003
  3. Email, J. Saric to J. Reising, "Comments on OSDF Phase V Package," dated February 24, 2003

Enclosed for your approval are responses to the United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA) comments on the On-Site Disposal Facility (OSDF) Phase V Support Plans, Construction Drawings and Design Criteria Package (DCP). The Phase V package addresses the construction of Cell Liner Systems #6 and #7 and Cell Final Cover Systems #3 through #7.

A conference call with the USEPA and OEPA concerning the initial USEPA comments to Phase V was held on February 19, 2003. At that time, comments were discussed and the USEPA agreed to revise the comments to be more in line with the current OSDF design and upcoming construction activities. Shortly thereafter, DOE received the revised comments as noted in Reference 3. DOE proceeded to respond to these revised comments. A list and descriptions of Design Change Notices (DCN), which have occurred over the last few years, is also included for the USEPA's formal approval. The DCNs have been approved by the OEPA and already incorporated in the Phase V package.

APR 10 2003

Mr. James A. Saric  
Mr. Tom Schneider

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DOE-0323-03

4816

If you have any questions or need further information, please contact Robert Janke at (513) 648-3124.

Sincerely,



Johnny W. Reising  
Fernald Remedial Action  
Project Manager

FCP:R.J. Janke

Enclosures: As Stated

cc w/enclosures:

R. J. Janke, OH/FCP  
A. Murphy, OH/FCP  
D. Pfister, OH/FCP  
T. Schneider, OEPA-Dayton (three copies of enclosures)  
G. Jablonowski, USEPA-V, SRF-5J  
M. Cullerton, Tetra Tech  
F. Bell, ATSDR  
M. Shupe, HSI GeoTrans  
R. Vandegrift, ODH  
AR Coordinator, Fluor Fernald, Inc./MS78

cc w/o enclosures:

R. Greenberg, EM-31/CLOV  
N. Hallein, EM-31/CLOV  
J. Reising, OH/FCP  
R. Abitz, Fluor Fernald, Inc./MS64  
T. Beasley, Fluor Fernald, Inc./MS60  
D. Carr, Fluor Fernald, Inc./MS1  
J. Chiou, Fluor Fernald, Inc./MS64  
T. Hagen, Fluor Fernald, Inc./MS1  
U. Kumthekar, Fluor Fernald, Inc./MS64  
R. Nichols, Fluor Fernald, Inc./MS1  
D. Powell, Fluor Fernald, Inc./MS64  
R. Reynolds, Fluor Fernald, Inc./MS64  
T. Poff, Fluor Fernald, Inc./MS65-2  
M. Stumbo, Fluor Fernald, Inc./MS60  
W. Zebick, Fluor Fernald, Inc./MS60  
ECDC, Fluor Fernald, Inc./MS52-7

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drainage channel to handle the design flows. Unless DOE intends to maintain this road in perpetuity, the evaluation should be repeated using the assumption that the road is removed.

**Response:** The Emergency Access Road referenced in the calculation package is located on an embankment, which is designed as part of the East runoff channel. The elevation of the road was determined based on the design of the East runoff channel. The road itself (subgrade and surfacing) is not intended to be maintained for 2000 years. However, the embankment, which the road is located on, will be maintained as part of the overbank design of the East runoff channel. Therefore, the evaluation of the runoff channel as stated is appropriate.

**Action:** No action.

**Commenting Organization:** Ohio EPA

**Commentor:** OFFO

**Section #:** 2.11.2.1A and 2.9.2.7 **Pg. #:** 2-106 **Line #:**

**Code:** C

**Original Comment #:** 3

**Comment:** During the design of the Cell 3/4 Access Ramp, an important consideration was to keep the maximum grade of the road less than 10 percent. This is not listed as a design criteria in these two sections.

**Response:** Page 2-107 in Section 2.11.2.1.A of the Design Criteria Package states under the 2<sup>nd</sup> bullet, "...Where required to obtain cell access, road grades as steep as 10 percent may be allowed for short distances..." The same statement is also included in the third bullet on Page 2-95 in Section 2.9.2.7 of the Design Criteria Package.

**Action:** No action.

#### OSDF Construction Quality Assurance (CQA) Plan

**Commenting Organization:** Ohio EPA

**Commentor:** OFFO

**Section #:** 4.8.3 **Pg. #:** 4-12 **Line #:** 8<sup>th</sup> Bullet

**Code:** C

**Original Comment #:** 4

**Comment:** This revision of this document deletes the responsibility of 'reviewing and confirming compliance appropriate certification and documentation from Contractor, vendors for the construction materials and Installer' from the CQC Site Manager. Who will perform these responsibilities?

**Response:** This responsibility was inadvertently deleted, during word processing. However, this is also the responsibility of the Certifying Engineer, as indicated in Section 4.7.3, Page 4-10, 7<sup>th</sup> Bullet.

**Action:** The 8<sup>th</sup> bullet has been added as a responsibility of the Construction Quality Control (CQC) Site Manager as well as the Certifying Engineer.

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Commenting Organization: Ohio EPA

Commentor: OFFO

Section #: 8.9

Pg. #: 8-6

Line #: 2<sup>nd</sup> Paragraph

Code: C

Original Comment #: 5

Comment: The criteria for rejecting the geo-composite clay liner (GCL) for hydration has been changed from 40 percent moisture content in the Phase IV package to 100 percent in this package. Justify that this changed criteria is equally protective. Manufacturer's data or literature reports should be provided.

Response: The two properties that are critical to long-term performance, including hydraulic conductivity, of an installed geosynthetic clay liner (GCL), are retention of shear strength and resistance to displacement of the bentonite from the installed GCL. Specifications relating to hydration of the GCL are revised to accept a moisture content of the GCL up to 100 percent during installation. Hydration up to a moisture content of 100 percent continues to assure these GCL properties that are necessary for long-term performance are retained in the installed GCL.

The current GCL material requirements are assuring the manufacturing of a GCL having all the properties required for long-term performance. The GCL material requirements are not revised and will remain the same.

During installation of the GCL products, the allowable moisture content of installed GCL to be considered pre-hydrated (i.e., before placement of the overlying soil) should be revised from a maximum water content of 40 percent to a maximum water content of 100 percent. This revision allows installed GCL material that has been shown to have acceptable properties for long-term performance to be retained. CQC monitoring will be continued to assure that products that are damaged or hydrated beyond the acceptable moisture content would be removed and replaced in accordance with the CQA Plan and Technical Specifications.

Retention of Shear Strength

GeoSyntec reviewed the GCL testing procedures regarding hydration of test specimens of GCL that was used as a part of the OSDF design process and predesign testing program. The testing procedure used in the direct shear testing program and reported in the document entitled "Soil-Geosynthetic Interface Testing Report" (GeoSyntec, 1997) was then used to specify a conformance testing procedure for prequalification of GCL products used for the OSDF liner and cap construction. In accordance with this procedure each GCL specimen is hydrated for seven days at a confining stress of 3 psi. This hydration procedure results in an initial moisture content in excess of 100 percent (see attached ~~moisture content test report from SGI Testing Services showing an initial moisture content of 121 percent~~). This means that the initial moisture content for both pre-design testing and conformance testing is greater than 100 percent. Therefore, hydration up to 100 percent moisture content during installation is consistent with the design program and with the conformance testing program for materials used in the OSDF.

To further confirm that hydration up to a moisture content of 100 percent with no confining stress is consistent with conformance testing results for the materials used in the OSDF, GeoSyntec had additional tests performed by SGI Testing Services. Two specimens from samples for the calendar year 2003 OSDF Phase V construction project were hydrated to slightly above 100 percent with no confining stress. These specimens were then sheared using the conformance testing procedures (i.e., consolidated and sheared

one specimen at 5 psi normal stress and one specimen at 45 psi normal stress at the shear rate of 0.004 inches per minute). The attached results confirm that the material exhibits shear strength parameters similar to conformance testing results with no apparent loss of shear strength. Additionally, it should be noted that for the tested specimens, the peak shear strength and the large displacement shear strength (at both 5 psi and 45 psi) were significantly higher than the test specimens that were hydrated in accordance with the conformance testing program. (See attached testing results from SGI Testing Services.)

Potential Displacement of Bentonite

The second property of GCL that is relevant to this discussion is resistance to displacement of the bentonite (in a hydrated or wet GCL) during construction activity, especially under equipment loading from the installation of the overlying layers. Monitoring construction activities to avoid displacement of the bentonite is a responsibility of the CQC Consultant. The CQC Consultant monitors the installation activity in accordance with the CQA Plan to meet this responsibility. As required by the CQA Plan and Technical Specifications, any GCL found to be damaged, to have bentonite displaced by construction activity or to be hydrated above the specified moisture content, has to be replaced.

### Conclusion

In conclusion, installed GCL may be retained with a moisture content up to a maximum of 100 percent with no impact on the long-term performance of the liner or cap system. The GCL properties that are required to maintain this long-term performance are low hydraulic conductivity, acceptable shear strength, and resistance to bentonite displacement. These properties are not changed at moisture contents of 100 percent or less for a GCL installed with adequate QA/QC monitoring as required by the OSDF CQA Plan and Technical Specification.

Action: No action.

Commenting Organization: Ohio EPA

Commentor: OFFO

Section #: 9.5

Pg. #: Table 9-1

Line #:

Code: C

Original Comment #: 6

Comment: The ASTM method for burst strength has been deleted and the test for static puncture strength has been added to the conformance testing requirements for geotextile. Justify that the static puncture test measures a more appropriate property of geotextile than does burst strength.

Response: The ASTM test method ASTM D 3786 "Standard Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics – Diaphragm Bursting Strength Tester Method" is a test method, as the name implies, used in the textile industry that was adapted for strength testing of geotextiles. Based on the initial test standard published by the Geosynthetic Research Institute (GRI) in 1986, ASTM Committee D 35 generated ASTM D 6241 "Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe" in 1998 as a more appropriate test method for measuring the force required to puncture the geosynthetic. As one geosynthetic industry expert reported in a recent issue of GFR, "...this test method has the potential to become a credible replacement for D 4833, as well as the dreaded Mullen Burst test, ASTM D 3786..." The GFR Specifiers Guide has also deleted the Mullen Burst test in the 2003 edition. The Specifiers Guide is used industry wide in the planning, design, and preparation of material specifications for geosynthetics used in the civil and

environmental engineering applications. Therefore, the static puncture test measures a more appropriate puncture strength of geotextile than does burst strength.

Action: No action.

### Drawings

Commenting Organization: Ohio EPA      Commentor: OFFO  
 Section #: Drawing 90X-6000-G-00396    Pg. #: NA    Line #: Notes 6 & 8    Code: C  
 Original Comment #: 7

Comment: Modifications were to be made in mat and silt fence based on lessons learned from the cap of Cell 1.

Response: A note was added to Drawing 90X-6000-G-00397 to incorporate DCN 20103-038 from the Phase III - Cell 1 final cover construction. This DCN provides the use of coir matting at selected portions of the cap. Note 12 on Drawing 90X-6000-G-00397 reads as follows: "Erosion mat shall be provided and installed in accordance with Specification Section 02270. Erosion mat with a 100 percent coir yarn content shall be used at two locations, to limits indicated on detail and at the 10H:1V to 6H:1V final cover system slope transition. Two 6-foot widths of coir erosion mat shall be used at each location with a 1.5-foot overlap on each side of the 10H:1V to 6H:1V transition." Silt fencing should be placed on the sideslopes as appropriate on the final cover system prior to placement of soil erosion matting. The silt fence should be removed once the erosion matting is in place.

Action: No action.

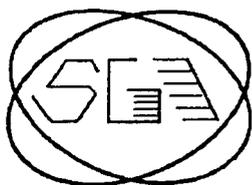
### Surface Water Management and Erosion Control Plan

Commenting Organization: Ohio EPA      Commentor: OFFO  
 Section #: SWMECP, 3.2      Pg. #: 3-2      Line #: 5<sup>th</sup> Bullet      Code: C  
 Original Comment #: 8

Comment: Please modify to read "riprap or erosion control matting and vegetation..." as in many cases erosion control matting and vegetation are a preferred alternative to riprap within and along watercourses (e.g., the drainage ditches along the North Access Road around the STP excavations).

Response: Agree.

Action: The phrase "or erosion control matting and vegetation" will be added to the section referenced above.



# SGI TESTING SERVICES

A Georgia Limited Liability Company

6 April 2003

Mr. Dave Phillips  
 GeoSyntec Consultants, Inc.  
 1100 Lake Hearn Drive N.E., Suite 200  
 Atlanta, Georgia 30342

Subject: Submittal Test Report  
 Moisture Content And GCL Internal Direct Shear Testing  
 Fernald OSDF Construction 2003  
 GeoSyntec Project No.: GQ1341-4.1

Dear Mr. Phillips,

SGI Testing Services, LLC (SGI<sub>sm</sub>) is pleased to present the attached test results for the above-mentioned project. The note section below addresses sample preparation, sample disposal and a disclosure statement.

SGI<sub>sm</sub> appreciates the opportunity to provide laboratory testing services for this project. Should you have any questions regarding the attached document(s), or if you require additional information, please do not hesitate to contact the undersigned.

Sincerely,

Robert H. Swan, Jr.  
 President and CEO

#### Attachment

**Notes:**

- (1) Unless otherwise noted in the test results the sample(s)/specimen(s) were prepared in accordance with the applicable test standards or generally accepted sampling procedures.
- (2) Contaminated/chemical samples and all related laboratory generated waste (i.e., test liquids, PPE, absorbents, etc.) will be returned to the client or designated representative(s), at the client's cost, within 60 days following the completion of the testing program, unless special arrangements for proper disposal are made with SGI<sub>sm</sub>.
- (3) Materials that are not contaminated will be discarded after test specimens and archived specimens are obtained. Archived specimens will be discarded 60 days after the samples are received at the laboratory, unless long-term storage arrangements are specifically made with the laboratory.
- (4) The reported results apply only to the materials and test conditions used in the laboratory testing program. The results do not necessarily apply to other materials or test conditions. The test results should not be used in engineering analysis unless the test conditions model the anticipated field conditions. The testing was performed in accordance with general engineering testing standards and requirements. The reported results are submitted for the exclusive use of the client to whom they are addressed.

SGIB012/SGI03044

Mail To: SGI Testing Services, LLC  
 P.O. Box 2427  
 Lilburn, Georgia 30048-2427

Web Site: [www.interactionspecialists.com](http://www.interactionspecialists.com)

#### Facility Location

4405 International Boulevard  
 Suite B-117  
 Norcross, Georgia 30093

Phone: 770.931.8222 Fax: 770.931.8240

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**SGI TESTING SERVICES, LLC**

4405 International Boulevard, Suite B-117, Norcross, Georgia 30093  
 Ph: (770) 931-8222 Fax: (770) 931-8240

Project Name: Fernald OSDF - 2003  
 Project No: SGI3012  
 Client Sample ID: GCL-03-04  
 Lab Sample No: S09768

**SOIL INDEX PROPERTIES**

**7-DAY SOAKED MOISTURE CONTENT UNDER 3 PSI**  
 ASTM D 2216   
 ASTM D 4643   
 Moisture Content (%): 121.1 Note 1

**DRY UNIT WEIGHT OF UNDISTURBED SAMPLE**  
 ASTM D 2937   
 Dry Unit Weigh ( $\gamma_d$ , pcf):

**SPECIFIC GRAVITY**  
 ASTM D 854   
 ASTM C 127   
 Specific Gravity (-):

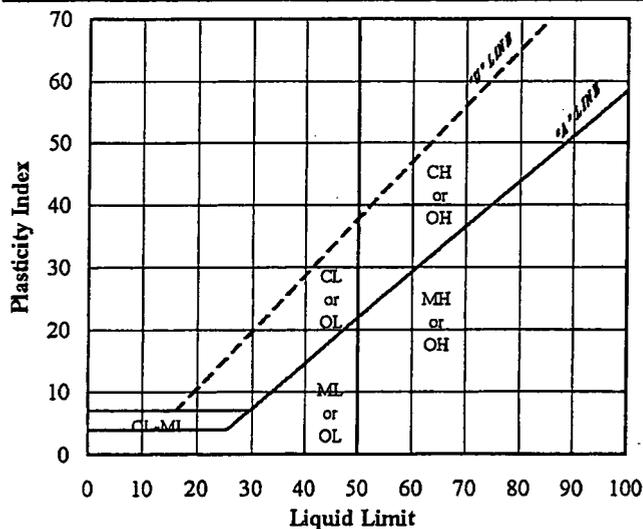
**SOIL pH**  
 ASTM D 4972   
 EPA MET. 9045   
 pH: (with distilled-deionized water)  
 pH: (with 0.01 M CaCl<sub>2</sub> solution)

**SOIL ORGANIC CONTENT**  
 ASTM D 2974   
 Organic Content (%):

**CARBONATE CONTENT**  
 ASTM D 4373   
 ASTM D 3042  (see figures)  
 Carbonate Content (%):

**PERCENT PASSING NO. 200 SIEVE**  
 ASTM D 1140   
 Passing No. 200 (%):

**ATTERBERG LIMITS**  
 ASTM D 4318   
 Liquid Limit (LL, %):  
 Plastic Limit (PL, %):  
 Plasticity Index (PI):



Sample ID	Lab Sample Number	Moisture Content (%)	Dry Unit Weight (pcf)	Passing No. 200 (%)	Specific Gravity (-)	Soil pH		Organic Content (%)	Carbonate Content (%)	Atterberg Limits		
						(water) (-)	(CaCl <sub>2</sub> ) (-)			LL (%)	PL (%)	PI (-)
GCL-03-04	S09768	121.1										

Note(s):  
 1. Moisture content was taken from an specimen of GCL-03-04 after soaking for 7 days under a normal stress of 3 psi.

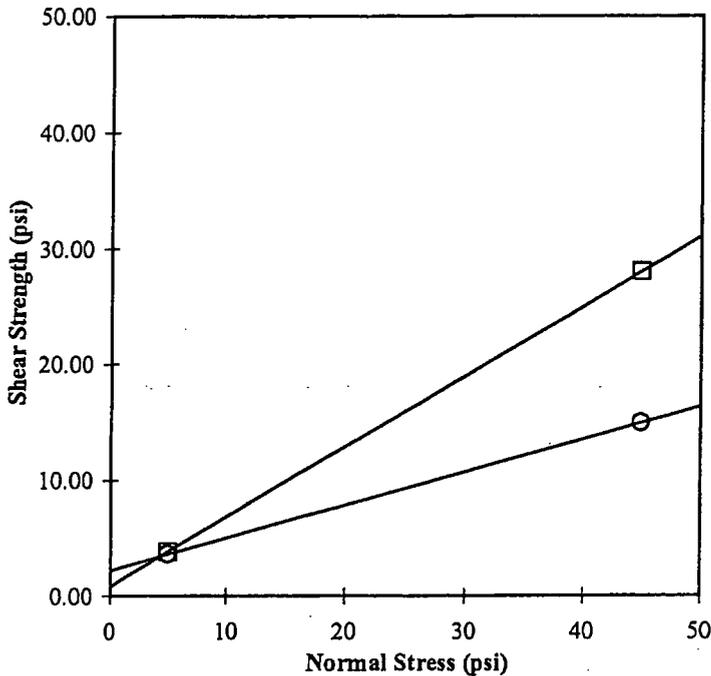


**SGI TESTING SERVICES, LLC**

**INTERNAL DIRECT SHEAR TESTING (ASTM D 6243)  
 GEOSYNTEC CONSULTANTS, INC.  
 FERNALD OSDF CONSTRUCTION 2003**

**Test Series No. D1:**  
 internal strength of Bentomat ST GCL (Sample # GCL-03-4) under hydrated, consolidated, and slow shear conditions

<u>GCL Moisture Contents:</u>	5 psi	Initial Moisture = 104.0 %	Final Moisture = 83.3 %
	20 psi	Initial Moisture = N/A	Final Moisture = N/A
	45 psi	Initial Moisture = 100.0 %	Final Moisture = 59.1 %



**Test Conditions:**

Shear Box Size (in x in): 12 x 12  
 Shear Area (sq. in.): 144

Upper Box: textured steel grip

Lower Box: textured steel grip

Soaking Stress (psi): N/A  
 Soaking Time (hour): N/A  
 Consolidation Stress (psi): 5 and 45  
 Consolidation Time (hour): 48

Shear Rate (in/min): 0.004

**Spec. Values:**

Norm. Stress	Peak Values	LD Values
5 psi	17 deg (1.53)	12 deg (1.06)
20 psi	17 deg (6.11)	7 deg (2.46)
45 psi	17 deg (13.76)	6.5 deg (5.13)

Normal Stress (psi)	Peak Load (lb)	Large Displ Load (lb)	Peak Strength (psi)	Large Displ Strength (psi)	Shear Strength Parameters			
					Peak		Large Displacement	
					Friction Angle (degree)	Adhesion (psf)	Friction Angle (degree)	Adhesion (psf)
-5	553	519	3.84	3.60	31	115	16	315
45	4038	2151	28.04	14.94				

Note: Partial separation of the GCL was observed at the normal stress of 5 psi and complete separation was observed at the normal stress of 45 psi

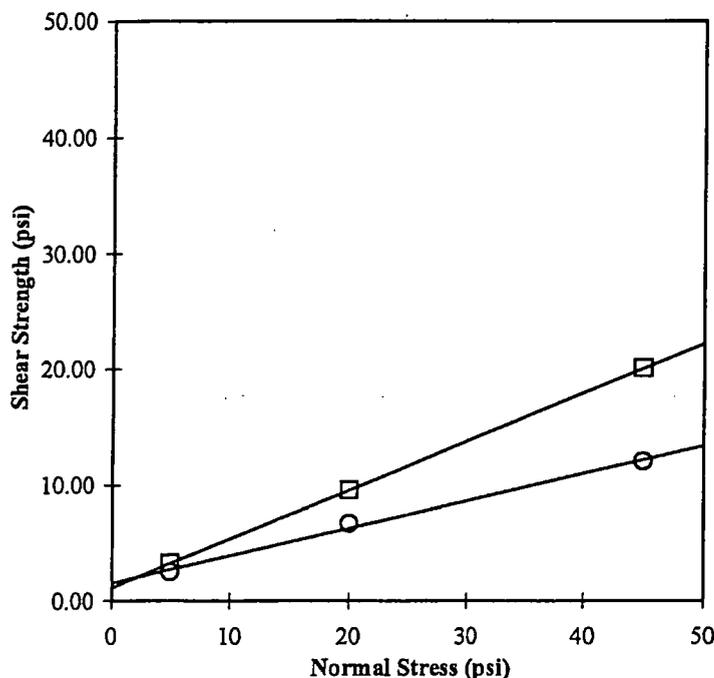
Project No.: SGI3012  
 File Name: S3012-D1



**SGI TESTING SERVICES, LLC**

**INTERNAL DIRECT SHEAR TESTING (ASTM D 6243)  
 GEOSYNTEC CONSULTANTS, INC.  
 FERNALD OSDF CONSTRUCTION 2003**

**Test Series No. 19:**  
 internal strength of Bentomat ST GCL (Sample # GCL-03-4) under soaked, consolidated, and slow shear conditions  
GCL Moisture Contents: 5 psi Initial Moisture = 24.6 % Final Moisture = 88.6 %  
 20 psi Initial Moisture = 24.6 % Final Moisture = 76.4 %  
 45 psi Initial Moisture = 24.6 % Final Moisture = 53.5 %



**Test Conditions:**

Shear Box Size (in x in): 12 x 12

Shear Area (sq. in.): 144

Upper Box: textured steel grip

Lower Box: textured steel grip

Soaking Stress (psi): 3

Soaking Time (hour): 168

Consolidation Stress (psi): 5, 20, 45

Consolidation Time (hour): 48

Shear Rate (in/min): 0.004

**Spec. Values**

Norm. Stress	Peak Values	LD Values
5 psi	17 deg (1.53)	12 deg (1.06)
20 psi	17 deg (6.11)	7 deg (2.46)
45 psi	17 deg (13.76)	6.5 deg (5.13)

Normal Stress (psi)	Peak Load (lb)	Large Displ Load (lb)	Peak Strength (psi)	Large Displ Strength (psi)	Shear Strength Parameters			
					Peak		Large Displacement	
					Friction Angle (degree)	Adhesion (psf)	Friction Angle (degree)	Adhesion (psf)
5	468	360	3.25	2.50	23	165	13	225
20	1378	960	9.57	6.67				
45	2895	1738	20.10	12.07				

Note: Partial separation of the GCL was observed at the normal stress of 5 psi and complete separation was observed at the normal stresses of 20 and 45 psi

Project No.: SGI3012  
 File Name: S3012-19

0184

**RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY  
TECHNICAL REVIEW COMMENTS ON THE  
ON-SITE DISPOSAL FACILITY PHASE V  
SUPPORT PLANS, CONSTRUCTION DRAWINGS,  
AND DESIGN CRITERIA PACKAGE  
(20100-CA-0001, 20100-DC-0001, 20100-PL-0004, 20105)**

**FERNALD CLOSURE PROJECT**

**GENERAL COMMENTS**

**Design Criteria Package**

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: All

Page #: Not Applicable (NA)

Line #: NA

Original General Comment #: 1

**Original Comment:** Consideration should be given to using and referencing documents that include the design and as-built drawings of Cells 3 through 6 of the On-Site Disposal Facility (OSDF). The Phase V OSDF expansion design should include lessons learned at Fernald and other Uranium Mill Tailing Remedial Action (UMTRA) sites and incorporate changes from existing OSDF cell design.

**Revised Comment:** The response comment states that lessons learned are incorporated each season including reference drawings from previously constructed cell liners and caps. The Design Criteria Package (DCP) should provide references to those documents which are relevant to lessons learned.

**Response:** Please refer to the tenth bullet in Section 1.2.2, Page 1-5, titled "Phased Certified-for-Construction (CFC) Design Packages." Additionally, a Construction Quality Assurance (CQA) Final Report is submitted for approval by OEPA and USEPA for each construction season. Cell Liners 1 through 3, the Enhanced Permanent Leachate Transmission System (EPLTS), and Cell Cap 1 have been constructed and CQA reports have been approved.

**Action:** As requested by USEPA, references to the approved phased construction packages Phase I, Phase II, Phase III, EPLTS, and Phase IV have been added to Section 1.9 of the DCP. References to the approved Construction Quality Assurance Final Reports for Cell Liners 1 through 3, the EPLTS, and Cell Cap 1 have also been added to Section 1.9 of the DCP.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.7

Page #: NA

Line #: NA

Original General Comment #: 2

Original Comment: Test pads are required to determine the as-built hydraulic conductivity and moisture content of a clay liner, as stated in Ohio Administrative Code (OAC) 3745-27-08(C) (1) (n). However, full-scale OSDF cells have been built from the same borrow source as will be used for Phase V construction. The clay from the borrow source has been tested *in situ* in Cells 3 through 6 of the existing OSDF, submitted for review and approved by the Ohio Environmental Protection Agency (OEPA) and U.S. Environmental Protection Agency (USEPA). Therefore, test pads would not be a requirement of the preconstruction testing program, according to OAC 3745-27-08(C) (1) (m) (ix). However, if the design of the Phase V clay liner or clay cap varies from that of Cells 3 through 6, or if a different clay borrow location is used, then OAC 3745-27-08(C) (1) (n) will apply and a test pad will be required.

Revised Comment: The reference to the document "Test Pad Program Final Report" (GeoSyntec, June 1997) should be included in the DCP.

Response: The test pad program was completed and results were reported in a document titled, "Test Pad Program Final Report" (GeoSyntec, June 1997). The results were approved by OEPA and USEPA prior to construction of any compacted clay liners or caps. There is no intent to implement additional test pad construction unless the quantity of brown till becomes so limited that other materials must be considered.

Action: As requested by USEPA, reference to the Test Pad Program Final Report has been added to Section 1.9 of the DCP.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.9

Page #: NA

Line #: NA

Original General Comment #: 3

Original Comment: A liner compatibility study is not required, unless the Phase V liner and cap use materials significantly different from those found in Cells 3 through 6. However, if the type of waste will differ from the type of waste in Cells 3 through 6, or if changes in liner and cap materials are planned, a liner compatibility study should be performed.

Revised Comment: The reference to the document "Leachate/Liner Compatibility Study" (GeoSyntec, June 1997) should be included in the DCP.

Response: The liner compatibility study was completed and results reported in a document titled "Leachate/Liner Compatibility Study" (GeoSyntec, June 1997). The results were approved by OEPA and USEPA prior to construction of any geomembrane liners or caps. There is no intent to implement additional leachate/liner compatibility testing.

Action: As requested by USEPA, reference to the approved Leachate/Liner Compatibility Study has been added to Section 1.9 of the DCP.

Commenting Organization: U.S. EPA  
 Section #: 2  
 Original General Comment #: 4

Page #: NA

Commentor: Saric  
 Line #: NA

Original Comment: The calculation sections should be revised to include the equations that will be used and what variables will be used in those equations. Rationale for the input variables used should be included in each section.

Revised Comment: General Comment No. 4 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA  
 Section #: 2  
 Original General Comment #: 5

Page #: NA

Commentor: Saric  
 Line #: NA

Original Comment: The references to OAC used in this section are inconsistent. Some use a full reference such as Section 2.4.3, and some omit the code number in the reference, such as Section 2.1.2. The text should be reviewed and revised accordingly.

Revised Comment: General Comment Nos. 5 and 6 refer to the inconsistent references to the OAC and should be addressed.

Response: DOE did not find an inconsistent reference to OAC within this section. Where the reference to a code section such as OAC 3745-27-07(H) is made within an opening paragraph (e.g., Section 2.1.2) and then bullets under that opening refer to [(H)(4)(b)], [(H)(4)(c)], [(H)(3)(c)], etc., DOE believes that the reference is clear. In the example stated, to add OAC 3745-27-07(H) to each bullet seems redundant and unnecessary for a correct interpretation of the criteria.

Action: No action required.

Commenting Organization: U.S. EPA  
 Section #: 2  
 Original General Comment #: 6

Page #: NA

Commentor: Saric  
 Line #: NA

Original Comment: All Applicable or Relevant and Appropriate Requirements (ARAR) references in this document should be checked and corrected. A number of OAC quotes are incorrect. Some specific examples are included in the specific comments.

Revised Comment: General Comment Nos. 5 and 6 refer to the inconsistent references to the OAC and should be addressed.

Response: DOE found no OAC quotes that were incorrect. The commentor did point out several typographical errors that have been corrected as requested. None of the typographical errors were of the type that would allow implementation of errant procedures or design criteria. All of the typographical errors were in the string of letters and numbers designating the specific reference within the OAC. This clarification is intended to assure USEPA that no errors in design criteria or omissions of applicable criteria were identified during this review.

Action: No further action required.

Drawings

Commenting Organization: U.S. EPA

Commentor: Saric

Drawings #: Cross Section Details

Original General Comment #: 7

Original Comment: Cross-section drawings that include buried pipes should be revised to show that pipes are at least 3 feet below ground surface to prevent frost damage.

Revised Comment: The detail 39/G-32 does show the minimum depth below grade as being 3 feet. This detail should be referenced where applicable on other drawings or a note included in the legend on Drawing 90X-6000-X-00362. Drawings 90X-6000-G-00379, 90X-6000-X-00401, 90X-6000-X-00402 show the corrugated metal pipe (CMP) and reinforced concrete structure (RCS) culverts. The depth of the culverts should be shown on these figures and any applicable details. This comment should be addressed.

Response: Refer to the detail on sheet G-29 regarding Leachate Conveyance System (LCS), Leak Detection System (LDS), and Redundant Leachate Collection System (RLCS) pipes. This detail clearly shows that the minimum depth below grade is greater than 3 feet. DOE does not concur with showing the depth to culverts on the drawings because the depth generally varies. Location of the pipes is more appropriately shown using invert elevations and control points.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Drawings #: G-30 and G-31

Original General Comment #: 8

Original Comment: Consideration should be given to field seaming geomembranes by thermal fusion welding instead of extrusion welding. Thermal welding provides several advantages over extrusion welding: (1) significantly higher peel strength can be achieved, (2) weld strength is more uniform, and (3) two parallel welds can be made, which allow for air pressure testing between the welds.

Revised Comment: The document which contains Technical Specification Section 02770 should be referenced in the DCP. This comment should be addressed.

Response: It is not customary to cover geomembrane seaming methods on design or construction drawings. This information is customarily covered in Technical Specifications. Geomembrane seaming for the OSDF project is covered in Technical Specification Section 02770. The approved legacy design package and each of the approved CFC packages include Technical Specifications. (Refer to General Comment Nos. 1 and 4).

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Drawings #: G-17, G-18, G-39, G-40

Original General Comment #: 9

Original Comment: Pipe design should be revised to include manholes or clean-outs at each bend in the pipe.

Revised Comment: This comment does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Drawings #: 90X-6000-G-00386 to 90X-6000-G-00409

Original General Comment #: 10

Original Comment: Detail drawings should show individual graphic scales, because the 11 by 17-inch drawings provided are not to scale.

Revised Comment: This comment does not need to be addressed formally. However, for future design package submittals, one set of full scale drawings should be included.

Response: No response required.

Action: No action.

## SPECIFIC COMMENTS

### Design Criteria Package

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.1.2

Page #: 2-1 and 2-2

Line #: NA

Original Specific Comment #: 1

Original Comment: The fourth bullet of the first paragraph is missing a reference to OAC 3745-27-07(H) (2) (e). Also, the reference to OAC in the sixth bullet is not correct; the correct reference should be OAC 3745-27-07(H) (3) (a). The text should be reviewed and revised accordingly.

Revised Comment: Specific Comment Nos. 1 and 4 refer to incorrect references to the OAC and should be addressed.

Response: The text is correct as written.

Action: Reference to OAC 3745-27-07(H) (2) (e) has been added in the fourth bullet. The reference in the sixth bullet has been corrected from OAC 3745-27-07(H) (3) (c) to OAC 3745-27-07(H) (3) (a).

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.2.2

Page #: 2-5

Line #: NA

Original Specific Comment #: 2

Original Comment: The final cover system slope should be evaluated as to whether a slope up to 25 percent will provide an adequate factor of safety for the 200-year design period of the OSDF.

Revised Comment: Specific Comment No. 2 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.2.3

Page #: 2-5

Line #: NA

Original Specific Comment #: 3

Original Comment: The first bullet item states that the bottom of the OSDF will overlie at least 12 feet of undisturbed gray till. The second and bottom bullet items in Section 2.1.2 state that the bottom of the OSDF liner will not be less than 15 feet. The sections should be revised to be consistent with a 15-foot separation required between the bottom of the OSDF and the Great Miami Aquifer (GMA).

Revised Comment: Specific Comment No. 3 refers to inconsistencies between sections of the text itself and should be addressed.

Response: DOE does not find an inconsistency. The first bullet states that the bottom of the OSDF will overlie at least 12 feet of undisturbed gray till. The second bullet states that the distance between the bottom of the OSDF and the GMA will be at least 15 feet. The 15 feet minimum distance between the bottom of the OSDF and the GMA could be all gray till or, if the minimum of 12 feet of gray till were applicable, could be 12 feet of gray till and 3 feet of brown till.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.2.3

Page #: 2-5

Line #: NA

Original Specific Comment #: 4

Original Comment: The second bullet in this section incorrectly references OAC 3745-27-08(H) (2) (e) for the distance requirement for the bottom of the compacted clay component of the OSDF liner system and the underlying aquifer. The proper reference should be OAC 3745-27-07(H) (2) (e). The text should be corrected accordingly.

Revised Comment: Specific Comment Nos. 1 and 4 refer to incorrect references to the OAC and should be addressed.

Response: The text is correct as written.

Action: The reference has been changed from OAC 3745-27-08(H) (2) (e) to OAC 3745-27-07(H) (2) (e).

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.2.2.3

Page #: 2-5

Line #: NA

Original Specific Comment #: 5

Original Comment: The last bullet item on the page states that the slope requirement of 2 percent does not apply along the leachate collection corridor. The text should be revised to define the extent of the leachate collection corridor.

Revised Comment: Specific Comment No. 5 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.1

Page #: 2-10

Line #: NA

Original Specific Comment #: 6

Original Comment: The second bullet item should be revised to state that leachate will not be discharged to a wetland for treatment. OAC 3745-27-06(C) (10) (i-iii) states that construction and operation of a landfill will not: (i) Cause or contribute to violations of any applicable state water quality standard; or (ii) Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act; or (iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction of a critical habitat, protected under the Endangered Species Act of 1973. Discharge of leachate to a wetland may adversely affect the wetland according to the OAC cited in this comment.

Revised Comment: Specific Comment No. 6 refers to discharges of leachate to wetlands according to Ohio state and federal regulations. The text should be revised to state whether or not the appropriate approvals for the discharges have been obtained.

Response: This portion of the DCP is intended to present options for the final management strategy that may be considered by future decision makers. The specific comment is in reference to a wetland that may be established (i.e., constructed) for the purpose of natural treatment, not an existing wetland.

It should be noted that this comment is in reference to an issue fully addressed during the legacy package design process. No change to the referenced text of the DCP has been made since the DCP was approved in 1997.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.2.1.A

Page #: 2-12

Line #: NA

Original Specific Comment #: 7

Original Comment: The table states that the minimum factor of safety for slope stability in postflood drawdown conditions should be a minimum of 1.2. The text should be revised to explain why the factor of safety for postflood drawdown conditions is lower than the minimum factor of safety for other modes of failure.

Revised Comment: Specific Comment No. 7 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.2.2.B

Page #: 2-15

Line #: NA

Original Specific Comment #: 8

Original Comment: Section B. Calculations should consider the failure mode of liquefaction from seismic hazards. Of particular concern should be any granular layer, such as the drainage layers in the liner and cover. Potential for liquefaction also should be considered for the waste to be placed in the OSDF under saturated conditions. The text should be revised to address these issues.

Revised Comment: Specific Comment No. 8 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.2.3.B

Page #: 2-17

Line #: NA

Original Specific Comment #: 9

Original Comment: The first bullet item states that the geotechnical characteristics of the foundation and impacted materials should be evaluated using the site-specific data identified in Section 1.5. If the foundation and impacted materials for Phase V construction are similar to those used in OSDF Cells 3 through 6, consideration should be given to using values from testing reports from OSDF Cells 3 through 6 when determining what values will be used for the geotechnical characteristics of Phase V.

Revised Comment: Specific Comment No. 9 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.2.3.B

Page #: 2-17

Line #: NA

Original Specific Comment #: 10

Original Comment: The second bullet item on this page states that the depth of influence should be estimated for the stress that will be applied to the foundation soils by the OSDF. The depth of influence should be stated in terms of the percentage of stress as it decreases with depth.

Revised Comment: Specific Comment No. 10 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.2.3.B

Page #: 2-17

Line #: NA

Original Specific Comment #: 11

Original Comment: The third bullet item deals with settlement calculations for the foundation below the leachate collection system. Consideration should be given to calculating immediate settlement, particularly in the drainage layer, and long-term settlement, typically using drained conditions.

Revised Comment: Specific Comment No. 11 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.2.4

Page #: 2-17 and 2-18

Line #: NA

Original Specific Comment #: 12

Original Comment: Paragraph B also should consider settlement of impacted material caused by decomposition of organic materials. It is not clear what percentage of impacted material will be organic. If a large volume of organic material is placed in one area, it can create localized differential settlement. In addition, the document also should address the requirements for releasing gases, which will be generated inside of this landfill, from under the final cover. If a large volume of gas builds up inside the landfill, it can cause the final cover to fail. The text should be revised to include discussion regarding settlement.

Revised Comment: Specific Comment No. 12 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.3.3

Page #: 2-21

Line #: NA

Original Specific Comment #: 13

Original Comment: The reference for U.S. Department of Energy (DOE) "Natural Phenomena Hazards Mitigation," DOE Order 5480.28, dated 1993, has been superseded by DOE Order 420.1. The reference should be updated and the document reviewed according to the changes made in DOE Order 420.1. According to the new 420.1 guidance, every DOE facility must have a site-specific implementation plan for the requirement given in the order. The Fernald Implementation Plan should be referenced, or if Fernald does not have an implementation plan for 420.1, then the reason that this document was not created should be addressed.

Revised Comment: Specific Comment No. 13 should be addressed.

Response: DOE Order 420.1 is not applicable to disposal facilities. The objectives of DOE Order 420.1 are to establish safety requirements related to nuclear safety design, criticality safety, fire protection and natural phenomena hazards mitigation. The

OSDF is not considered a facility according to DOE Order 420.1. Disposal facilities, such as the OSDF, fall under the requirements of DOE Order 435.1.

**Action:** The appropriate reference for the OSDF is DOE Order 435.1. DOE Order 5480.28 will be replaced by DOE Order 435.1 in Section 2.3.3.

**Commenting Organization:** U.S. EPA

**Commentor:** Saric

**Section #:** 2.3.3

**Page #:** 2-22

**Line #:** NA

**Original Specific Comment #:** 14

**Original Comment:** The reference to the U.S. Navy document, Soil Mechanics, Foundation and Earth Structures, Naval Facilities Engineering Command (NAVFAC) Design Manual DM-7, 1971, should be split into the specific NAVFAC Design Manuals used. The most recent copy of each Design Manual should be used, which is 1982 for DM-7.1 and 1986 for DM-7.2. This reference should be changed to include these updates and the sections that use these documents, compared to the updated design recommendations.

**Revised Comment:** Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

**Response:** The USEPA approved calculation package included with the approved Legacy Design Package used approved methodology and is not affected by the reference cited. It should be noted that no change to the referenced text of the DCP has been made since the DCP was approved in 1997.

**Action:** No action required.

**Commenting Organization:** U.S. EPA

**Commentor:** Saric

**Section #:** 2.4.3

**Page #:** 2-25

**Line #:** NA

**Original Specific Comment #:** 15

**Original Comment:** The last sentence in the first bullet item states that the same guidelines only require not less than 20 to 30 percent of the particles, by weight, to be finer than a U.S. No. 200 standard sieve. It should be noted that OAC 3745-27-08(C) (1) (c) (iii) requires that no less than 50 percent of particles, by weight, passing through the 200-mesh sieve. The text should be corrected accordingly.

**Revised Comment:** Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

**Response:** Please refer to Section 2.4.3, Page 2-24 where the design criteria for the soil are listed for compliance with OAC 3745-27-08(C) (1). The text referenced in the comment is correct as written.

**Action:** No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.3

Page #: 2-26

Line #: NA

Original Specific Comment #: 16

Original Comment: The last bullet item on this page, "(iii) maximum shear strength between soil-geosynthetic and geosynthetic-geosynthetic interfaces" should be changed to read "(iii) maximum friction angle between any soil-geosynthetic interface and between any geosynthetic-geosynthetic interface." The text should be reviewed and corrected accordingly.

Revised Comment: Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

Response: DOE does not concur with the recommended change. It should be noted that a Soil-Geosynthetic Interface Testing Program was implemented as a part of the legacy design process. The Soil-Geosynthetic Interface Testing Report was approved by USEPA in 1997.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.3

Page #: 2-26

Line #: NA

Original Specific Comment #: 17

Original Comment: The section should be revised to discuss the general temperatures within which the geosynthetic clay liner can be installed. Two conditions that should be addressed are freezing and excessive heat requirements.

Revised Comment: Specific Comment No. 17 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.3

Page #: 2-27

Line #: NA

Original Specific Comment #: 18

Original Comment: The first bullet item states that the clay liner should be free of debris, foreign material, and deleterious material. Organic material should be added to this list. Also, add the following after the first bullet on this page: "Have a factor of safety for hydrostatic uplift not less than 1.4 [OAC 3745-27-08(C) (1) (1)]."

Revised Comment: Specific Comment No. 18 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.3

Page #: 2-27

Line #: NA

Original Specific Comment #: 19

Original Comment: In the first paragraph on this page, second bullet item, American Society for Testing and Materials (ASTM) method for testing of moisture content and dry density is missing the appropriate number. There are several methods. The text should be corrected to include the proper ASTM number.

Revised Comment: Specific Comment No. 19 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.4.A

Page #: 2-27

Line #: NA

Original Specific Comment #: 20

Original Comment: The geosynthetic clay liner described in this section covers the secondary geosynthetic clay liner. It appears that the primary geosynthetic clay liner will not be installed over a compacted clay liner, but instead will be installed over an aggregate drainage layer (leak detection system). It is not clear from this document what measures will be taken to protect it from the sharp aggregate in the leak detection layer. According to Figure 1-1 in Section 1, a geotextile cushion is used between geomembrane liner and drainage layer; however, nothing is used between the geosynthetic clay liner, in the primary liner, and the drainage layer. The text should be revised to address this issue.

Revised Comment: Specific Comment Nos. 20 through 23 refer to whether the geomembrane will be textured on one side or two. This specification should be clarified.

Response: Requirements of the type discussed by the commentor are not design criteria. Selection of the specific geosynthetic clay liner and/or any protective geotextiles result from calculations performed as a part of the design. The approved Legacy Design Package (GeoSyntec, May 1997) includes the required calculations.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.5

Page #: 2-28

Line #: NA

Original Specific Comment #: 21

Original Comment: This section should include a discussion on the procedure to be used to handle punching failure in the geomembranes.

Revised Comment: Specific Comment Nos. 20 through 23 refer to whether the geomembrane will be textured on one side or two. This specification should be clarified.

Response: Requirements of the type discussed by the commentor are not design criteria. Selection of the specific geomembrane and/or any protective geotextiles result from calculations performed as a part of the design. The approved Legacy Design Package (GeoSyntec, May 1997) includes the required calculations.

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Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.5.A

Page #: 2-29

Line #: NA

Original Specific Comment #: 22

Original Comment: The first paragraph calls for use of textured geomembrane; it is not clear, however, if this geomembrane will be textured on one or both sides. The textured surface on the up-side of the geomembrane will impede the flow of leachate in the drainage layer, which may require an increase in the liner's slope. This issue should be reviewed and the text should be revised to address this issue.

Revised Comment: Specific Comment Nos. 20 through 23 refer to whether the geomembrane will be textured on one side or two. This specification should be clarified.

Response: Requirements of the type discussed by the commentor are not design criteria. Selection of the specific geomembrane results from calculations performed as a part of the design. Each design package also includes leachate calculations. The approved Legacy Design Package (GeoSyntec, May 1997) includes the required calculations. As shown in the Legacy Design Package and each CFC package (including Phase V), the geomembrane is an 80 mil HDPE textured on both sides

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.5.A

Page #: 2-29

Line #: NA

Original Specific Comment #: 23

Original Comment: The first paragraph calls for use of textured geomembranes. It is not clear, however, whether the geomembranes will be textured on one or both sides. Textured surface on the up-side of the geomembranes will impede the flow of leachate in the drainage layer, which may require increase in the liner's slope. This issue should be reviewed and the text should be revised to address this issue.

Revised Comment: Specific Comment Nos. 20 through 23 refer to whether the geomembrane will be textured on one side or two. This specification should be clarified.

Response: Requirements of the type discussed by the commentor are not design criteria. Selection of the specific geomembrane results from calculations performed as a part of the design. Each design package also includes leachate calculations. The approved Legacy Design Package (GeoSyntec, May 1997) includes the required calculations. As shown in the Legacy Design Package and each CFC package (including Phase V), the geomembrane is an 80 mil HDPE textured on both sides

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.5.A

Page #: 2-29

Line #: NA

Original Specific Comment #: 24

Original Comment: Paragraph 2 should be corrected to include the proper ASTM procedure for geomembranes testing. Also, the text is not clear as to what type of seaming technique will be used in joining the geomembrane panels. Typically, the liners are constructed by double-track wedge welding that produces an air channel between the two welds. This air channel is used to nondestructively air pressure test the integrity of the seam. This type of test was not listed in the text. The text should be revised to discuss the type of welding that will be used in constructing this primary and secondary geomembrane liners.

Revised Comment: Specific Comment No. 24 does not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.6.B

Page #: 2-30

Line #: NA

Original Specific Comment #: 25

Original Comment: Another calculation that should be considered for the geotextile is the shear strength of the geotextile in relation to the geomembranes below and the waste above.

Revised Comment: Specific Comment No. 25 does not need to be addressed.

Response: No required response.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.4.7.B

Page #: 2-31

Line #: NA

Original Specific Comment #: 26

Original Comment: The factor of safety to prevent development of geosynthetic tension should be at least 1.3, in accordance with the table in Section 2.3.2.1.A on Page 2-12.

Revised Comment: Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

Response: The commentor is correct with regard to slope stability. To prevent tension in the geotextile a minimum factor of safety of 1.0 is required. During preparation of each design package the designer selects the most conservative safety factor for the design element considered. Correct safety factors were used in the USEPA approved legacy design package and each phased construction CFC package.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.1.A

Page #: 2-35

Line #: NA

Original Specific Comment #: 27

Original Comment: The second bullet states that the leachate collection system will consist of a drainage layer placed on top of the geomembrane component of the primary liner. Figure 1-1 of Section 1, however, indicates that the leachate collection system drainage layer will be placed on top of geotextile cushion and not on the geomembranes as stated. The text or the figure should be corrected, as necessary.

Revised Comment: Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

Response: The commentor is correct regarding the geotextile that overlies the geomembrane. The geotextile is there to protect the geomembrane and not as a part of the leachate collection system. The text referenced is describing the leachate collection system. Refer to Specific Comment No. 21.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.1.A

Page #: 2-35

Line #: NA

Original Specific Comment #: 28

Original Comment: In the last bullet item, third and fourth sub-bullets, the OAC reference used should be switched. The text should be corrected accordingly.

Revised Comment: Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

Response: The text is correct as written.

Action: The reference to each subparagraph of the OAC has been removed from the bullets as unnecessary in this subsection of the DCP.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.1.A

Page #: 2-36

Line #: NA

Original Specific Comment #: 29

Original Comment: The third bullet item on this page states that additional pipes installed for redundancy need not meet the requirement of OAC 3745-27-08(C) (4) (b) (iii). The text does not state the reason for not meeting the requirements. If there is a need for a redundant pipe, it should be installed to meet the same requirements as the primary pipeline. The redundant pipe, without properly installed clean-outs, will become useless when it becomes clogged. If redundant pipes are installed, they should be installed so that they can be properly maintained in the future. This also applies to the last bullet item on this page. The text should be corrected accordingly.

Revised Comment: Specific Comment Nos. 29 and 30 refer to the design of the leachate transmission system. Since this system has already been constructed, these comments need not be addressed.

Response: No required response.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.1

Page #: 2-37

Line #: NA

Original Specific Comment #: 30

Original Comment: The last bullet item states that the minimum factor of safety for temporary pressure flow capacity in the permanent leachate transmission system gravity line is 1.0. A factor of safety of 1.0 means that the opposing forces in the line are in equilibrium. Given the uncertainties in the assumptions made to calculate the factor of safety and the unlikelihood of opposing forces being in equilibrium at all times, the factor of safety should be greater than 1.0. The text should be revised accordingly.

Revised Comment: Specific Comment Nos. 29 and 30 refer to the design of the leachate transmission system. Since this system has already been constructed, these comments need not be addressed.

Response: No required response.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.1.A

Page #: 2-38

Line #: NA

Original Specific Comment #: 31

Original Comment: The first paragraph on this page states that hydraulic conductivity and particle size distribution, using ASTM D 422 or ASTM C 136, will be performed on samples of granular material at a frequency of not less than one per 3,000 cubic yards per ARAR OAC 3745-27-08(D) (2). However, OAC 3745-27-08(D) (2) requires that the granular material be tested for permeability and grain size distribution using ASTM D 422 for the sieve method. The text should be corrected accordingly.

Revised Comment: Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

Response: ASTM C 136 is the proper testing standard for granular drainage materials based on grain size. Technical Specifications Section 02710 of the approved Legacy Design Package and each subsequent approved CFC package list ASTM C 136 as the testing standard for drainage aggregates and all testing for the completed portions of the OSDF have been performed using this standard

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.2.A

Page #: 2-40

Line #: NA

Original Specific Comment #: 32

Original Comment: The first bullet item on this page states that the maximum leak detection time should be less than 20 days. It is not clear how this number can be verified. It is also not clear how this number was selected. It appears to be rather high. It is also not clear if the above maximum detection time is for the smooth or textured geomembranes. The text should explain what criteria was used to establish the maximum leak detection time.

Revised Comment: Specific Comment No. 32 does not need to be addressed.

Response: No required response.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.2.B

Page #: 2-41

Line #: NA

Original Specific Comment #: 33

Original Comment: The first bullet item states that leachate migration through the liner will be calculated using the migration through the liner will be calculated using HELP model. Consideration should be given to checking this number by calculating the seepage through the clay liner using the hydraulic conductivity of the clay and the porosity of the clay.

Revised Comment: Specific Comment No. 32 does not need to be addressed.

Response: No required response.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-42

Line #: NA

Original Specific Comment #: 34

Original Comment: The second paragraph on this page lists ARARs relevant to the leachate transmission system [OAC 3745-27-08(C) (5) (a) through (d)]. OAC 3745-27-08(C) (5) (c) also requires that "If, at any time, leachate is evaluated to be hazardous in accordance with rule '3745-52-11' of the Administrative Code, it shall be managed in accordance with Chapters 3745-50 to 3745-69 of the Administrative Code, and the generator standards for storage shall apply in accordance with Chapter 3745-52 of the Administrative Code." The text should be corrected accordingly.

Revised Comment: Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

**Response:** The leachate transmission system has been constructed in accordance with the USEPA approved Legacy Design Package and USEPA approved EPLTS-CFC Design Package. It should be noted that the referenced text has not been changed from the DCP approved by USEPA in 1997.

**Action:** No action required.

**Commenting Organization:** U.S. EPA

**Commentor:** Saric

**Section #:** 2.5.3.A

**Page #:** 2-42

**Line #:** NA

**Original Specific Comment #:** 35

**Original Comment:** The third paragraph, second bullet item should be corrected to read as follows: "If authorized by the director or his authorized representative, the owner or operator may temporarily store leachate within the limits of waste placement until the leachate can be treated and disposed as outlined in the leachate contingency plan. [OAC 3745-27-19(K) (4)]."

**Revised Comment:** Specific Comment Nos. 14, 15, 16, 26, 27, 28, 31, 34, and 35 refer to inconsistencies between text section, grammatical text corrections, incorrect OAC references, or text revision based on requirements in the OAC and should be addressed.

**Response:** The abbreviated text will be expanded to be a quote of full text of the OAC as per comment.

**Action:** The comment has been implemented.

**Commenting Organization:** U.S. EPA

**Commentor:** Saric

**Section #:** 2.5.3.A

**Page #:** 2-44

**Line #:** NA

**Original Specific Comment #:** 36

**Original Comment:** In the last bullet on this page the text states that the leachate collection system and leak detection system piping inside of the valve house will be fabricated from carbon steel. Carbon steel should not be used on pipelines that may be conveying corrosive liquids and not flowing full. There are a number of plastic type pipe and fittings available for this type of installation. High-density polyethylene (HDPE), polyvinyl chloride (PVC), and other plastic pipe and fittings are available with flange connection so that they can be disassembled if required for maintenance. If metallic pipeline is required inside of the valve house, stainless steel should be used. The text should be revised accordingly.

**Revised Comment:** Specific Comment Nos. 36 to 40 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

**Response:** As stated in the DCP, the pipes, valves, and fittings were selected for ease of maintenance. The referenced section also states that the design should require that the steel piping and valves be removed and replaced with SDR-11 HDPE prior to the end of the period during which the EPLTS will be maintained. The EPLTS has been constructed in accordance with the USEPA approved design.

000029

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-45

Line #: NA

Original Specific Comment #: 37

Original Comment: In the first bullet on this page the text states that check valves will be used on tie-ins of gravity lines. Use of check valves on gravity lines is not recommended and should be avoided. Piping should be designed so that no check valves should be required. Check valves require higher head upstream to open. In a gravity system, higher head is not usually available and check valves remain only partially open, restricting flow and causing settling inside of the pipelines. The system should be designed so that the gravity lines are free of obstruction such as check valves or other type of backflow presenters. All gravity lines should be designed with proper slopes, so that they will drain properly without backing up. The design of the leachate collection system should be reviewed and revised.

Revised Comment: Specific Comment Nos. 36 to 40 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS valve houses and associated piping have been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-45

Line #: NA

Original Specific Comment #: 38

Original Comment: The Enhanced Permanent Leachate Transmission System (EPLTS) valve house foundation will be checked for at-rest earth pressures and perched water pressures. The local 3-foot frost depth also should be considered in the foundation design. Settlement of the foundation also should be considered.

Revised Comment: Specific Comment Nos. 36 to 40 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: Refer to the USEPA approved calculation package submitted with the EPLTS CFC package.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-46

Line #: NA

Original Specific Comment #: 39

Original Comment: The first bullet item on this page states that valve houses will be provided with a sump to collect free liquid that enters the house. The text also states that each sump will be equipped with a liquid level indicator and be accessible to pumps. It is not clear where this "free liquid" will come from. It is also not clear if these sumps will be equipped with dedicated sump pumps that will automatically pump out the accumulated liquid from the sump when a reset high liquid level is reached. It is also suggested that these sumps be equipped with high liquid level alarms in an event the sump pump fails to start. The text should be revised to address these issues.

Revised Comment: Specific Comment Nos. 36 to 40 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS valve houses have been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-46

Line #: NA

Original Specific Comment #: 40

Original Comment: The first bullet on this page indicates that liquid level switches will be used to detect the presence of liquids in the sump. Based on the information provided in the text, the sumps may remain empty for long periods of time. It is also possible that the sump may contain some liquid for a long period of time, without tripping the level switch. Level switches that are idle for a long period of time may be come inoperative. This type of system would be better served with a continuous liquid level probe, such as a capacitance probe or an ultrasonic level control system that does not rely on mechanical switches. The design should be reviewed and revised accordingly.

Revised Comment: Specific Comment Nos. 36 to 40 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS valve houses have been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-47

Line #: NA

Original Specific Comment #: 41

Original Comment: The third bullet item states that the EPLTS gravity line should be constructed with a minimum slope of 0.25 percent. Consideration should be given to settlement of the line that would effect a 0.25 percent slope. The text should be reviewed and revised accordingly.

Revised Comment: Specific Comment No. 41 comments on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS valve houses have been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-47

Line #: NA

Original Specific Comment #: 42

Original Comment: The last bullet item on this page states that a control valve house will be installed upstream from the permanent lift station. It also states that one of the functions of the control valve house is to throttle flow in the gravity line in order to protect the lift station from overflowing due to flows in excess of its capacity. The fourth sentence states that "a valve should be installed in the control valve house to provide a manual means for regulating or preventing flow into the permanent lift station." The last sentence states that "a motor-operated valve controlled by high level sign as from the permanent lift station will be installed in the control valve house." It is not clear why the lift station is not designed to handle the maximum flow rate of the gravity system. If valves are used to throttle flow rate out of the leachate collection drains, the leachate may eventually back up into the leachate collection layer of the landfill liner. When that happens, it is possible that the leachate head of no less than 12 inches in the leachate collection system will be exceeded, which will violate the design criteria OAC 3745-27-08(C) (4) and 40 CFR 258.40. It is also not clear why two valves (a manual and a motor-operated valve) are needed to control this flow. The design of the lift station and the control valve house should be reviewed and revised to comply with the design criteria and ARAR OAC 3745-27-08(C) (4) and 40 CFR 258.40.

Revised Comment: Specific Comment No. 42 comments on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS valve houses have been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-48

Line #: NA

Original Specific Comment #: 43

Original Comment: The ARAR quoted in the first bullet item on this page should be corrected to read "OAC 3745-27-08(C) (5)." The text should be corrected accordingly.

Revised Comment: Specific Comment No. 43 refers to an incorrect reference to the OAC. This comment should be addressed.

Response: The text is correct as written.

Action: The typographical error in the OAC reference has been corrected.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-48

Line #: NA

Original Specific Comment #: 44

Original Comment: The second bullet item on this page states that "the pumps for the permanent lift station should be sized to pump liquid through a double-wall forcemain to biosurge lagoon." Typically, the pumps are sized to handle the incoming flow from the leachate collection layer in the landfill. The forcemain is sized to adequately carry the maximum discharge rate of the lift station. The text should be revised accordingly.

Revised Comment: Specific Comment Nos. 44 and 49 do not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-48

Line #: NA

Original Specific Comment #: 45

Original Comment: The text in the third bullet item on this page states that "The lift station should also control a system for automatically closing the valve at the control valve house in the event of power failure or if liquid levels in the lift station rise to an unacceptable high level (below the rim of the lift station or any level that would cause an electrical short or damage to equipment in the lift station)." It is not clear how this will be accomplished. If power fails, the motor control valve located in the control valve house will remain in open position (the position it was in prior to power failure). Motorized valves require power to open and close. A valve that will close on power failure is a solenoid valve, the type that closes when de-energized. Also, electrical components that can short out when immersed should not be installed inside of the lift station. All electrical installation inside of the lift station's wet well should be watertight or fully encapsulated. The design and the text should be reviewed and revised.

Revised Comment: Specific Comment Nos. 45, 46, and 50 comment on technical feasibility issues inherent in the "Legacy Design Package." If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS valve houses and permanent lift station have been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-48

Line #: NA

Original Specific Comment #: 46

Original Comment: The last sentence in the fourth bullet item on this page needs to be revised. The design of the lift station should be based on an empty wet-well.

Revised Comment: Specific Comment Nos. 45, 46, and 50 comment on technical feasibility issues inherent in the "Legacy Design Package." If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The permanent lift station has been constructed in accordance with the DCP and design package approved by USEPA in 1997.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-49

Line #: NA

Original Specific Comment #: 47

Original Comment: The first bullet item on this page states that "potential surge flows from OSDF cell into the permanent EPLTS gravity line due to heavy precipitation into a newly open cell should be regulated using valving in the EPLTS valve house or in the control valve house so that the storm design-basis flow rate upon which the permanent lift station pump design is based is not exceeded." It is not clear what "newly open cell" means. If the cell is empty, there is no need to drain the storm water into the leachate system. However, if the cell is being filled with impacted material, the leachate must be removed so that the leachate head of no less than 12 inches in the leachate collection system will be exceeded. Closing the off valve on the leachate line will back-up leachate into the leachate collection layer in the landfill's cell. The text should be reviewed and revised accordingly.

Revised Comment: Specific Comment Nos. 47 and 48 pertain to operation and should be addressed since there appears to be conflict with the design criteria and the ARARs referenced.

Response: The text refers to clean storm water (i.e., no waste has been placed in the newly opened cell). It should be noted that the text has not changed from the DCP approved by USEPA in 1997. Five of the OSDF liner systems and the EPLTS have been constructed consistent with the DCP criteria.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.A

Page #: 2-49

Line #: NA

Original Specific Comment #: 48

Original Comment: The second bullet item on this page states that "the permanent lift station should have sufficient pump capacity to prevent the buildup of liquid in the manhole..." It is not clear where this manhole will be located. If the manhole is located on the gravity line upstream of the control valve house, then it will definitely have buildup of liquid (leachate) when the control valve is closed or partially closed. The text should be revised to clarify this issue.

Revised Comment: Specific Comment Nos. 47 and 48 pertain to operation and should be addressed since there appears to be conflict with the design criteria and the ARARs referenced.

Response: The permanent lift station has been constructed in accordance with the DCP and design package approved by USEPA in 1997.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.B

Page #: 2-50

Line #: NA

Original Specific Comment #: 49

Original Comment: The fourth bullet item states that it should be demonstrated that the pipes have adequate strengths to handle the predicted hydraulic pressures. A recommended factor of safety should be given to quantify "adequate strength."

Revised Comment: Specific Comment Nos. 44 and 49 do not need to be addressed.

Response: No response required.

Action: No action.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.B

Page #: 2-50

Line #: NA

Original Specific Comment #: 50

Original Comment: In the first paragraph, fourth bullet item, it is not clear why "hydraulic pressure inside the permanent EPLTS gravity line" needs to be calculated. Typically, gravity lines flow partially full. In this case, because the control valve can be closed on the gravity line inside of the control valve house, it will be impossible to calculate "hydraulic pressure" in that pipeline, because it will be impossible to predict how far the leachate will backup into the landfill cell. The text should explain the need for this calculation.

Revised Comment: Specific Comment Nos. 45, 46, and 50 comment on technical feasibility issues inherent in the "Legacy Design Package." If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS has been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.B

Page #: 2-51

Line #: NA

Original Specific Comment #: 51

Original Comment: The second bullet item from the bottom of the page states that the EPLTS valve houses and control valve house should have at least six air changes per hour. The air change should be quantified according to the volume of air that must be changed to achieve this recommendation as well as how this will be measured. It is not clear whether the six air changes per hour cycle is on a continuous basis or only when these structures are being serviced. The text should clarify these issues.

Revised Comment: Specific Comment No. 51 comments on technical feasibility issues inherent in the EPLTS design. If this technical issue have been previously addressed, the appropriate reference should be given or the text should be revised to state why this clarification is not necessary.

Response: The EPLTS has been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.B

Page #: 2-51

Line #: NA

Original Specific Comment #: 52

Original Comment: The third bullet item on this page states that "the elevations of the EPLTS valve house and control valve house should be evaluated for flooding potential based on 25-year, 24-hour storm." It is not clear why the permanent lift station was excluded from this evaluation. Furthermore, it is not clear why the hydrostatic uplift calculations for these structures is not based on the flood elevation, rather than high groundwater elevation. The text should be revised to address this issue.

Revised Comment: Specific Comment Nos. 52 and 53 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS has been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.B

Page #: 2-51

Line #: NA

Original Specific Comment #: 53

Original Comment: The seventh bullet item on this page states that the valve houses and control valve house will be maintained at 40°F. This temperature will promote condensation inside of these structures. Condensation on metallic components, specifically electrical controls and equipment, will promote corrosion, which will increase maintenance costs. The temperature requirements for these structures should be reviewed.

Revised Comment: Specific Comment Nos. 52 and 53 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The EPLTS has been constructed in accordance with the USEPA approved design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.5.3.B

Page #: 2-51

Line #: NA

Original Specific Comment #: 54

Original Comment: The second bullet item on this page states that "the liquid entering the horizontal monitoring well should flow by gravity to a monitoring point located at the western perimeter of the OSDF." It is not clear how this will be possible. In order for any liquid to flow by gravity, there must be a hydraulic gradient. It is not clear how this hydraulic gradient will be established. The text should be revised to address this issue.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: Please refer to the USEPA approved Legacy Design Package drawings and calculation package to achieve an understanding of the horizontal monitoring well design.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.6.1

Page #: 2-57

Line #: NA

Original Specific Comment #: 55

Original Comment: In addition to the General Design Criteria listed in this section, OAC 3745-27-08(C) (15) (g) states "The owner or operator shall provide a means of relieving pressure under the flexible membrane liner due to the generation of landfill gases." The text should include this requirement.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: This issue has been fully addressed in the legacy design process and has been incorporated into the USEPA approved design packages.

Action: No action required.

318A  
 Commenting Organization: U.S. EPA  
 Section #: 2.6.2  
 Original Specific Comment #: 56

Page #: 2-57

Commentor: Saric  
 Line #: NA

Comment: The second and third bullet items state that the roots of the vegetative cover should not grow below the vegetative cover and the vegetative cover should not be an attraction to burrowing animals. It has been found in other UMTRA sites, that even though the cover is designed to prevent these two issues, roots will penetrate the cover within the minimum 200-year design period of the landfill. Blacklaw *et. al.* reviewed several vegetative cover designs, including six UMTRA sites, for the Washington State Department of Health. His review is available in the published proceedings of the 24<sup>th</sup> DOE/NRC Nuclear Air Cleaning and Treatment Conference. The document is also available on the internet.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: This issue has been fully addressed in the legacy design process and has been incorporated into the USEPA approved design packages.

Action: No action required.

Commenting Organization: U.S. EPA  
 Section #: 2.6.3.A  
 Original Specific Comment #: 57

Page #: 2-59

Commentor: Saric  
 Line #: NA

Original Comment: The first bullet item on this page states that the topsoil erosion will have a maximum rate of 5 tons per acre per year. This maximum erosion rate should be revised to consider the 1,000-year design life of the landfill.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: This issue has been fully addressed in the legacy design process and has been incorporated into the USEPA approved design packages.

Action: No action required.

Commenting Organization: U.S. EPA  
 Section #: 2.6.6.A  
 Original Specific Comment #: 58

Page #: 2-62

Commentor: Saric  
 Line #: NA

Original Comment: The first bullet item states that the biointrusion barrier should consist of durable crushed rock or natural stone. The bullet item should state what size of crushed rock is acceptable according to Ohio Department of Transportation (ODOT), Construction and Material Specifications.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: This issue has been fully addressed in the legacy design process and has been incorporated into the USEPA approved design packages.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.6.7.A

Page #: 2-63

Line #: NA

Original Specific Comment #: 59

Comment: In the first paragraph, the first bullet item states that the drainage layer may consist of a geonet that has equivalent performance capabilities to a granular layer. If this substitution is made, the total thickness of the cover system will be reduced by about 12 inches. This may compromise the frost protection capability of the cover system. The text should be revised to address this issue.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: There is no intent to make a change from the approved Legacy Design Package.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.8.7.A

Page #: 2-84

Line #: NA

Original Specific Comment #: 60

Original Comment: The fifth and sixth bullet items state that field stone or rough, unhewn quarry stone will be used for riprap and granular soils will be used as filters. The bullet items should be expanded to include the specification ranges for these materials according to the ODOT Construction and Material Specifications.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: Complete Technical Specifications are included in the USEPA approved Legacy Design Package and each subsequent CFC package.

Action: No action required.

000039

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.7.2

Page #: 2-89

Line #: NA

Original Specific Comment #: 61

Comment: The text states that the clay material used for the test pad should be obtained from the same source as the clay material that will be used in OSDF construction. The text further states that clay material will satisfy the material property requirements in OAC 3745-27-08(C) (1) (c). However, the last paragraph of this section states that available borrow at the site may not meet some of the requirements of the above-referenced ARAR. The text should be corrected to clearly state that the material used for the test pad will not meet all of the requirements of OAC 3745-27-08(C) (1) (c).

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: The Test Pad Program Final Report (refer to General Comment No. 2) fully addresses this issue, including an alternative criterion proposed in the December 13, 1995 DOE document entitled "Alternative to OAC Prescriptive Specifications for Compacted Soil Liners."

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.9.2.3

Page #: 2-91

Line #: NA

Original Specific Comment #: 62

Original Comment: A bullet item should be added to address grounding of the temporary trailer, to provide protection from lightning strikes.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: Trailer installation shall be in compliance with NFPA 70 (National Electric Code), which includes grounding requirements.

Action: This section of the DCP has been revised to include NFPA 70 with reference to DOE Standard 1088-95.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.9.2.6

Page #: 2-94

Line #: NA

Original Specific Comment #: 63

Original Comment: The fourth bullet item states that the minimum acceptable section for construction of haul roads should include a prepared subgrade. The bullet item should explain what the definition of a prepared subgrade is in terms of modified or standard Proctor specifications (ASTM D 1557 or D 698).

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: Subgrade preparation for haul roads is covered in the USEPA approved Technical Specifications.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.10.2.3.B

Page #: 2-101

Line #: NA

Original Specific Comment #: 64

Original Comment: Part A states that the borrow area development may include processing, including moisture conditioning, blending, screening, or admixture modification. Part A also states that temporary surface water management and erosion and sediment controls may be established. Both of these activities would require calculations. Section B should be revised to include calculations for these activities.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: A complete calculation package is included in the approved Legacy Design Package and, as required, with each CFC design package.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.11.2.2

Page #: 2-109

Line #: NA

Original Specific Comment #: 65

Original Comment: The first bullet item on the page states that fugitive emissions should be controlled using crusting agents, surfactants, or other appropriate methods. The bullet item should state that fugitive emissions agents should not contain any petroleum products or lignosulfates.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: Technical Specifications are included with the USEPA approved Legacy Design Package and each CFC design package. Acceptable products are specified in Section 02930 of the approved Technical Specifications.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.11.2.5

Page #: 2-113

Line #: NA

Original Specific Comment #: 66

Original Comment: The first bullet item on this page should be revised to state quantitatively the meaning of "thin" with regard to the spreading of municipal waste.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: An Impacted Material Placement Plan (IMPP) was submitted and approved by USEPA along with the Legacy Design Package in 1997. Thickness and limits of placement of all materials approved for disposal are included in the IMPP.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2.11.2.6

Page #: 2-113

Line #: NA

Original Specific Comment #: 67

Original Comment: The paragraph should be revised to define a Category 2 through 5 material or cite a previous document as a reference.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: An IMPP was submitted and approved by USEPA along with the Legacy Design Package in 1997. Categories of materials are included in the approved IMPP.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 3

Page #: 3-1

Line #: NA

Original Specific Comment #: 68

Original Comment: Project deliverable requirements should be accompanied by a timeline or schedule that includes the order of reports, plans, and specifications to be submitted for review and the estimated time for review.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: All deliverables included in this section of the DCP were submitted and approved by USEPA in 1997.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 3.2.2

Page #: 3-5

Line #: NA

Original Specific Comment #: 69

Original Comment: The table should be labeled with a title or number.

Revised Comment: Specific Comment Nos. 54 to 69 comment on technical feasibility issues inherent in the EPLTS design. If these technical issues have been previously addressed, the appropriate reference should be given or the text should be revised to state why these changes are not technically necessary.

Response: All deliverables included in this section of the DCP were submitted and approved by USEPA in 1997.

Action: The title "Specification Sections" will be added to the table on Page 3-5.

### Drawings

Commenting Organization: U.S. EPA

Commentor: Saric

Drawing #: 90X-6000-G-00379

Section #: B/G-18

Original Specific Comment #: 70

Original Comment: The detail shows vertical sidewalls. Consideration should be given to slope stability issues and the general feasibility of leaving vertical sidewalls, given the soil types present.

Revised Comment: This comment should be addressed as stated.

Response: Commentor appears to be referring to a detail for pipe embedment within a trench. USEPA approved Technical Specifications for the Legacy Design Package and all CFC packages include trench support requirements (Specification Section 02215).

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Drawing #: 90X-6000-G-00379

Section #: C/G-18

Original Specific Comment #: 71

Original Comment: The detail should cite or show that the compacted fill friction angle will allow the fill to be shaped into 2H:1V slopes, with a factor of safety equal to 1.3, as stated in the Design Criteria Package.

Revised Comment: This comment should be addressed as stated.

Response: Construction drawings do not typically provide information of the type requested. The calculation packages submitted with the USEPA approved Legacy Design Package and USEPA approved CFC design packages include this information.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Drawing #: 90X-6000-G-00394

Section #: B/G-8

Original Specific Comment #: 72

Original Comment: The detail does not specify what type of material will be used to seal the area where the Leak Detection System (LDS) or Redundant Leachate Collection System (RLCS) pipes perforate the landfill liner. An example of this would be nonshrink grout.

Revised Comment: This comment should be addressed as stated.

Response: An HDPE liner penetration box with geomembrane flap extrusion welded to the geomembrane liner, as shown on the drawings and included in the Technical Specifications provide a seal of the geomembrane penetration. One hundred percent of the welds are tested using nondestructive testing methods.

Action: No action required.

Commenting Organization: U.S. EPA

Commentor: Saric

Drawing #: 90X-6000-G-00402

Section #: B/G-40

Original Specific Comment #: 73

Original Comment: Note 5 states that the fill above the 30-inch corrugated metal pipe (CMP) culvert will be placed and compacted according to Specification Section 02200. The note should be revised to state what precautions will be taken to avoid damaging the existing EPLTS pipe.

Revised Comment: This comment pertains to protection of existing piping during installation of new culverts. This comment should be addressed.

Response: The culvert does not cross the existing EPLTS pipe. USEPA approved Technical Specifications include protection of existing utilities, pipes, and structures

Action: No action required.

Design Change Notice (DCN) List for On-Site Disposal Facility (Phases III and IV)

DCNs affecting Final Cover System Construction	Title Final Cover System	Description
20103-001 (7/6/00)	Modification to Original CFC Drawings – Support for RFP	Rev. 0 drawings modified incorporating scope reduction to Cell 1 Final Cover construction only and mulch deleted from vegetation specification for permanent seed – seed drilling method
20103-002 (7/17/00)	Riprap Material Requirements	Modified submittal and material requirements for consistency with previous Fluor Fernald studies and ODOT requirements
20103-007 (10/2/00)	Vegetation and Erosion Control Modifications	Revised specifications 20103-TS-001 and 20103-TS-003 and sections 02270 and 02930 to incorporate OEPA comment responses
20103-010 (10/16/00)	Changes to Geosynthetic Clay Liner and Cap Property Values	Typographical error corrected in Table 02772-1 (hydraulic conductivity value is a "minimum" value)
20103-011 (2/21/01)	Biointrusion Barrier and Choke Stone Material Changes	Biointrusion Barrier material was changed to ODOT Type D from Type C dumped rock fill. Choke stone was changed to AASHTO #57 from #1 coarse aggregate
20103-012 (3/5/01)	Changes to Gradation of Granular Drainage Layer Material	Standard M43 gradation requirements for No. 78 coarse aggregate changed to allow 85 to 100% by weight passing through the 1/2 sieve
20103-013 (4/24/01)	Change to Non-impacted Contouring Layer Thickness Tolerance	Revise thickness tolerance for non-impacted contouring layer to remove the maximum thickness tolerance
20103-021 (8/8/01)	Change to Permanent Vegetation Seed Mix and Crusting Agent	<ul style="list-style-type: none"> <li>- Permanent seed mix adjusted to increase Canada Wild Rye and decrease ReGreen,</li> <li>- Crusting agent alternatives changed to pinesap or approved equal.</li> </ul>
20103-022 (8/30/01)	Constructability of Final Cover Toe/Interface with Drainage Channel at Cell 1	Originally RCI 20103-008R from IT: Expanded to include monitoring device access on N and E sides of Cell 1
20103-023 (8/8/01)	Changes to Final Cover System Temporary Termination Detail	Changes to S. side of Cell 1 include silt fence, crusting agent or interim vegetation on protective layer and two diversion berms to the catchment area

Design Change Notice (DCN) List for On-Site Disposal Facility (Phases III and IV)

DCNs-affecting Final Cover System Construction	Title Final Cover System	Description
20103-025 (8/9/01)	OSDF Cell 1 Final Cover Monitoring Devices - Change to Settlement Plate and Rod Assembly	Eliminate weld of protective pipe to settlement plate and weld sleeve to settlement plate allowing independent movement of plate from protective pipe
20103-034 (10/24/01)	Change to Cell 1 Final Cover Seed Mix	Revise seed mix for Cell 1 Final Cover per agreement at 10/11/01 meeting with DOE and OEPA
20103-035 (10/24/01)	Changes to Placement of Cell 1 Final Cover Topsoil	Prior to spreading topsoil, scarify or otherwise loosen the upper surface of the previous layer
20103-038 (10/24/01)	Change to Cell 1 Final Cover Erosion Mat	Coir Mat is specified as the only erosion mat to be used in two specific OSDF cell final cover locations.
20103-039 (12/12/01)	Change to Installation Periods and Methods for Permanent Seed Mixes and Erosion Mat	Extend fall planting season w/CM appr, expand potential use of broadcast seeding method, modify erosion mat stapling method and installation period.
20104-008 (10/21/02)	Smooth edge on Geomembrane liner (GML) material	Add statement in procurement specifications to ensure that textured geomembrane shall be manufactured with a smooth edge for seaming efficiency.
20103-002 (7/17/00)	Riprap Material Requirements	Modified submittal and material requirements for consistency with previous Fluor Fernald studies and ODOT requirements
20103-007 (10/2/00)	Vegetation and Erosion Control Modifications	Revised specifications 20103-TS-001 and 20103-TS-003 and sections 02270 and 02930 to incorporate OEPA comment responses
20103-010 (10/16/00)	Changes to Geosynthetic Clay Liner and Cap Property Values	Typographical error corrected in Table 02772-1 (hydraulic conductivity value is a "minimum" value)
20103-012 (3/5/01)	Changes to Gradation of Granular Drainage Layer Material	Standard M43 gradation requirements for No. 78 coarse aggregate changed to allow 85 to 100% by weight passing through the 1/2 sieve

DCNs affecting Final Cover System Construction	Title Final Cover System	Description
20103-021 (8/8/01)	Change to Permanent Vegetation Seed Mix and Crusting Agent	<ul style="list-style-type: none"> <li>- Permanent seed mix adjusted to increase Canada Wild Rye and decrease ReGreen,</li> <li>- Crusting agent alternatives changed to pinesap or approved equal.</li> </ul>
20103-024 (8/8/01)	Addition of Soil - Bentonite Plugs	Addition to Spec Section 02215 to address backfilling of horizontal monitoring well and LCS/LDS/RLCS pipe trenches for Cells 4 and 5
20103-039 (12/12/01)	Change to Installation Periods and Methods for Permanent Seed Mixes and Erosion Mat	Extend fall planting season w/CM appr, expand potential use of broadcast seeding method, modify erosion mat stapling method and installation period.
20103-040 (12/18/01)	Addition of Bent Strap and Low Air Pressure Tests for HDPE Pipe	Perform a Bent Strap Test on trial butt fusion joints at least once at beginning of day to confirm joint integrity, operator procedure, and fusion machine setup. Also, perform a low air pressure test prior to lowering pipe into trench.
20103-042 (01/17/02)	Hydrostatic testing requirements for Horizontal Monitoring Wells (HMWs)	Delete requirement for hydrostatic testing of HMWs since low pressure air and bent strap tests will be performed per DCN 20103-040.
20104-002 (03/13/02)	Extension of secondary Geomembrane liner over compacted clay liner	Secondary geomembrane liner extended over compacted clay liner to provide additional protection.
20104-003 (05/20/02)	Testing of Liner Penetration Boxes	An alternate vacuum test in lieu of the air pressure test for liner penetration boxes is approved for safety reasons.
20104-004 (03/06/02)	Revised inlet gravity structure coordinates and elevations	Change coordinates and elevations to move a gravity inlet structure 10 feet north away from existing Valve House.
20104-005 (06/10/02)	Alternate intercell berm side slope revision	Intercell berm sideslope revised to 10H:1V to facilitate deployment of geomembrane material.

## Design Change Notice (DCN) List for On-Site Disposal Facility (Phases III and IV)

DCNs affecting Final Cover System Construction	Title Final Cover System	Description
20104-008 (10/21/02)	Smooth edge on Geomembrane liner (GML) material	Add statement in procurement specifications to ensure that textured geomembrane shall be manufactured with a smooth edge for seaming efficiency.
20104-010 (11/26/02)	Cell 4 temporary Access Ramp	Construct access ramp between Cell 3 and 4 to facilitate placement of protective and select impacted layers.
20103-003 (8/16/00)	Revised Ditch Configuration to Borrow Area Sedimentation Basin	Provided sketch showing new ditch alignment
20103-006 (8/24/00)	Incorporation of RFP Amendment 1	Provided three sketches to show updated plan for stockpile relocation and add an existing road crossing
20103-021 (8/8/01)	Change to Permanent Vegetation Seed Mix and Crusting Agent	<ul style="list-style-type: none"> <li>- Permanent seed mix adjusted to increase Canada Wild Rye and decrease ReGreen,</li> <li>- Crusting agent alternatives changed to pinesap or approved equal.</li> </ul>
20103-026 (8/21/01)	OSDF Phase III Borrow Area Subareas 1A, 1B, and 2 Excavation, Grading, and Restoration Changes	Changed the SOW to be performed by IT rather than by Others as shown on contract drawings. Added drawings of borrow area grading/restoration
20103-039 (12/12/01)	Change to Installation Periods and Methods for Permanent Seed Mixes and Erosion Mat	Extend fall planting season w/CM appr, expand potential use of broadcast seeding method, modify erosion mat stapling method and installation period.
20103-004 (8/23/00)	Removal of fence and gates from design of Construction Laydown Area Access Road Ramp to Laydown Area	Provided sketch showing revised fence/gate layout.
20103-005 (8/23/00)	Access Road Overflow Drain/Laydown Area Monitoring Well Protection	Provided 3 sketches to address drainage of recently identified low spot and to utilize existing jersey barriers
20103-009 (10/9/00)	OSDF Construction Laydown Area West End Modifications	Move the western boundary of the Construction Laydown Area to the east to avoid infringing on the adjacent CU

## Design Change Notice (DCN) List for On-Site Disposal Facility (Phases III and IV)

DCNs affecting Final Cover System Construction	Title Final Cover System	Description
20103-015 (9/19/01)	Removal of OSDF Temporary Leachate Line and Equipment Decontamination Facility (EDF), including Surrounding Soil	Excavate/remove/backfill: EDF, EDF drain pipe, approx. 1890' of temporary leachate line, approx. 325' of interim leachate line, and the surrounding soil
20103-018 (7/12/01)	Addition of Monitoring Devices for Cell 1 Final Cover	Add the following monitoring devices: ground penetrating radar targets, settlement plates, soil water status nests, and pressure transducer risers
20103-019 (7/17/01)	Electrical Service to Trailers T-98 and T-125	Relocate Trailers T-98 and T-125 to the northeast corner of the bulk debris storage area and provide electrical service
20103-020 (7/25/01)	Telephone Service for T-98	- Provide phone service to Trailer T-98, - Remove telephone service to Trailer T-96 and relocate terminal equipment to Trailer T-98
20103-027 (8/20/01)	Reroute electrical feeder to T-336/337 and OP-280	Install two new utility poles and reroute the 480V feeder
20103-028 (8/21/01)	Install electrical service to T-125 and relocate the street light from OP-279 to NE-106	Install electrical service to Trailer T-125 in order to operate sampling ovens in lab
20103-030 (9/19/01)	OSDF Cell 1 Final Cover Monitoring Devices - Change to Settlement Plate Installation Detail	Add pipe sleeve and associated wrapping with geotextile material. In addition, change annular space fill material technical specification
20103-032 (10/13/01)	OMTA Expansion Air Monitor Circuits	Revise work recently- voided DCN 20103-014 to mitigate conflicts related to installation of four utility poles and electrical circuits to three air monitors.
20103-033 (10/29/01)	Cell 1 Final Cover Monitoring Equipment and Cable Addition	Complete monitoring device installation including instruments, data loggers, multiplexors, antennas, cable connections, conduit, etc.
20103-036 (10/24/01)	Remove Overhead Electrical Cable and Associated Utility Poles	Remove 480-volt cable from three poles and remove two utility poles for temporary leachate line removal work.
20103-037 (10/24/01)	Remove/Replace Utility Poles	Revise a portion of work approved in DCN 20103-032: Remove and replace utility poles NW20 and NW19. Also, remove utility pole NW18.

Design Change Notice (DCN) List for On-Site Disposal Facility (Phases III and IV)

DCNs affecting Final Cover System Construction	Title Final Cover System	Description
20103-041 (01/14/02)	Cell 1 Final Cover Monitoring - Revision at Valve House 1 (VH1)	Mount the battery and charger enclosures and power receptacles on the outside of VH1, rather than inside.
20103-043 (01/23/02)	OMTA Trailer Electrical Services	Expand electrical capabilities including additional power poles to supply additional power for the north access control facility
20103-044 (03/08/02)	Trailer T-139 Electrical Service	Upgrade power to provide 480-volt 3 phase to Trailer T-139 (existing power is 480 volt single phase)
20103-045 (08/05/02)	Lime Sludge Pond Change to Equipment Requirement	Due to high moisture content of lime sludge material, BAT for controlling dust emissions is "no action."
20104-001 (1/10/02)	Emergency Access Road Realignment	Alignment of the emergency access road was changed to provide a safer access for the emergency vehicles.
20104-006 (10/03/02)	Addition of Sedimentation Basin #2 to Phase IV scope of work	Sedimentation Basin #2 needs to be constructed in year 2003 to manage storm water because of OSDF Cell 6 liner
20104-007 (9/30/02)	Non-impacted access to OMTA from Valve House Road	Road provides access to a non-impacted fueling/equipment area located in the container area of the OSDF Material Transfer Area (OMTA)