2-502.4

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Department of Energy

Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

DEC 22 1997

DOE-0260-98

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

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

Dear Mr. Saric and Mr. Schneider:

CARBONATE TESTING RESULTS FOR ON-SITE DISPOSAL FACILITY GRANULAR DRAINAGE MATERIAL

Ohio Solid Waste Disposal Regulations require that the drainage layer for the leachate management system of the On-Site Disposal Facility (OSDF) be composed of granular material that does not contain carbonate material. Due to the regional geology this requirement cannot reasonably be met, so concurrence was received from the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) to implement an OEPA interpretation on the carbonate content of granular drainage material. This interpretation requires that the granular drainage material used in the liner not have a carbonate content greater than or equal to 5 percent by weight and the granular drainage material in the cap system not have a carbonate content greater than or equal to 10 percent by weight. These percentages are determined using ASTM 3042 at a pH of 4.0.

Recycled and Recyclable

This letter transmits the final test results on the granular drainage material used in construction of the leachate collection system and leak detection system for Cell 1 of the OSDF. This conformance testing was performed at a frequency of 1 test for every 5,000 cubic yards. The test results are as follows:

Type of Granular Material	Carbonate Result (%)
No. 57	0.1
	0.1
	0.1
No. 78	0.1
	0.2
	0.1
	0.2
	0.2

These results are far below the 5 percent carbonate content limit established by the OEPA interpretation. The carbonate data report is enclosed with this letter.

If there are any questions regarding this transmittal, please contact Jay Jalovec at (513) 648-3122.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Jalovec

Enclosure: As Stated

cc w/enc:

G. Jablonowski, USEPA-V, 5HRE-8J
R. Beaumier, TPSS/DERR, OEPA-Columbus
T. Schneider, OEPA-Dayton (3 copies total of enc)
F. Bell, ATSDR
D. Ward, GeoTrans
R. Vandegrift, ODH
F. Barker, Tetra Tech
T. Hagen, FDF/65-2
J. Harmon, FDF/90
AR Coordinator, FDF/78

cc w/o enc:

N. Hallein, EM-42/CLOV
J. Patterson, EM-42/CLOV
J. Jalovec, DOE-FEMP
J. Reising, DOE-FEMP
R. Warner, DOE-FEMP
D. Carr, FDF/9
R. Heck, FDF/2
M. Hickey, FDF/64
S. Hinnefield, FDF/2
U. Kumthekar, FDF/64
T. Walsh, FDF/65-2
EDC, FDF/52-7

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

LABORATORY TEST SUMMARY REQUEST FORM NO. _____

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION — DATE: 02 day JULY month 1997 year

MATERIAL TYPE: GRANULAR DRAINAGE MATERIAL — QA ID: NM

NOTE: Separate forms are required for each material type and source. Strike out nonapplicable tests.

SITE SAMPLE NO.	LAB SAMPLE NO.	MOISTURE CONTENT ASTM D 2216/ D 4643 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM ~~D 422~~ C 136 SIEVE	GRAIN SIZE: ASTM ~~D 422~~ C 136 HYDR.	ATTERBERG LIMITS ASTM D 4318: LL (%)	ATTERBERG LIMITS: PL (%)	ATTERBERG LIMITS: PI.	SP. GR. ASTM D 854	SOIL CLASS. ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
* GDM-01	97G26	—	0.1	✓	—	—	—	—	—	(GP)	—	0.1	—	—	103.4	DRY	9.2	~~P~~ F	SUBM. 43 REV 0
* GDM-02	97G27	—	0.0	✓	—	—	—	—	—	(GP)	—	0.1	—	—	104.8	DRY	15.1	F	SUBM. 44 REV 0
* GDM-02.1	—	—	0.1	✓	—	—	—	—	—	(GP)	—	0.1	—	—	—	—	—	F	SUBM. 44 REV 0 RETEST
OID GDM-03		—		✓	—	—	—	—	—		—		—	—					SUBM.
** GDM-04	—		0.0	✓	—	—	—	—	—	(GP)	—	—	—	—	—	—	—	F	SUPPLIER STOCKPILE
** GDM-05	97H217		0.2	✓	—	—	—	—	—	(GP)	—	0.1	—	—	102.5	DRY	14.8	P	SUPPLIER STOCKPILE
* GDM-06	971176	—	0.2	✓	—	—	—	—	—	(GP)	—	0.2	—		103.4	1.6	6.3	P ~~F~~ BN	3000
* GDM-07	971177	—	0.1	✓	—	—	—	—	—	(GP)	—	0.1	—	—	101.0	1.6	6.0	P	6000
* GDM-08	971178	—	0.1	✓	—	—	—	—	—	(GP)	—	—	—	—	98.8	1.2	7.8	P	9000
* GDM-09	971179	—	0.1	✓	—	—	—	—	—	(GP)	—	0.2	—	—	98.7	1.4	6.9	P	12000

COMMENTS: * NO. 78 ** NO. 57 NOTE: *** SPECIFICATION REVISED REFER DCN 1702-015 2/4/97 JTM

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF 0.1.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

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CHECKED BY: _____ SHEET NO. 1 OF _____

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GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

LABORATORY TEST SUMMARY REQUEST FORM NO. _____

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION — DATE: 10 day SEPT month 1997 year

MATERIAL TYPE: GRANULAR DRAINAGE MATERIAL — QA ID: NM

NOTE: Separate forms are required for each material type and source. Strike out nonapplicable tests.

	SITE SAMPLE NO.	LAB SAMPLE NO.	MOISTURE CONTENT ASTM D 2216/ D 4643 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM ~~D 422~~ C136 SIEVE	GRAIN SIZE: ASTM ~~D 422~~ C136 HYDR.	ATTERBERG LIMITS ASTM D 4318: LL (%)	ATTERBERG LIMITS: PL (%)	ATTERBERG LIMITS: PI	SP. GR. ASTM D 854	SOIL CLASS. ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL ***	ACUMUL. QUANT. PLACED (APPROX) (yd³)
*	GDM-10	971180	—	0.1	✓	—	—	—	—	—	(GP)	—	0.2	—	—	96.4	1.7	5.8	P	15000
**	GDM-11		—	0.1	✓	—	—	—	—	—	(GP)	—	—	—	—	—	—	—	P	100
**	GDM-12	971373	—	0.2	✓	—	—	—	—	—	(GP)	—	—	—	—	101.7	1.5	14	P	
*	GDM-13		—	0.5	✓	—	—	—	—	—	(GP)	—		—	—	—			F	
*	GDM-14		—	0.2	✓	—	—	—	—	—	(GP)	—		—	—				F	
*	GDM-15		—	0.1	✓	—	—	—	—	—	(GP)	—		—	—					
*	GDM-16		—	0.2	✓	—	—	—	—	—	(GP)	—		—	—				F	
*	GDM-17		—	0.2	✓	—	—	—	—	—	(GP)	—		—	—				F	
*	GDM-18		—	0.5	✓	—	—	—	—	—	(GP)	—		—	—				F	

COMMENTS: * NO. 7B ** NO. 57 *** SPECIFICATION REVISED, REFER DCN 1702-015

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF 0.1.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

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