1667

Department of Energy

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AUG 27 1998

DOE-1146-98

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:

TRANSMITTAL OF DRAFT RESPONSES TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS AND PROJECT VARIANCES APPENDIX TO THE GEOTECHNICAL ENGINEERING REPORT OF THE FORMER PLANT AREA

Reference: DOE-0857-98, J. Reising to J.A. Saric and T. Schneider, "Transmittal of the Geotechnical Engineering Report for the Geotechnical Investigation of the Former Plant Area," dated June 5, 1998.

This letter transmits the draft responses to the Ohio Environmental Protection Agency's (OEPA) comments on the Geotechnical Engineering Report for Project Order 177, A-E Support Services for Geotechnical Investigation of the Former Plant Area, Revision C. Also included in this submittal is the new Appendix N (Project Variances) to the same report.

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

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Nickel

Enclosure:

Recycled and Recyclable

cc w/enclosure:

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R. Beaumier, TPSS/DERR, OEPA-Columbus
T. Schneider, OEPA-Dayton (total of 3 copies of enc.)
F. Bell, ATSDR
M. Schupe, HSI GeoTrans
R. Vandegrift, ODH
F. Barker, Tetra Tech
T. Hagen, FDF/65-2
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EDC, FDF/52-7

2

RESPONSES TO OHIO EPA COMMENTS ON THE GEOTECHNICAL ENGINEERING REPORT FOR PROJECT ORDER 177, A-E SUPPORT SERVICES FOR GEOTECHNICAL INVESTIGATION OF THE FORMER PLANT AREA

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 1 Pg #: 1-15 Line #: 3 Code: C
Original Comment #: 1

Comment: October 1991 and March 1992 perched groundwater elevations were used in the depth to groundwater analysis. Why was this data used when more recent data is probably available? The text should justify the use of 1991-92 data.

Response: The 1991-92 perched water elevation data was used because it represented the last comprehensive look at groundwater contours across the site (OU5 RI Report).

Action: Add the following sentence onto the last paragraph of Section 1.5 on Page 1-15:

"The 1991-92 perched water elevation data was used because it represented the last comprehensive look at groundwater contours across the site (OU5 RI Report)."

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5 Pg #: 5-23 Line #: 16 Code: C
Original Comment #: 2

Comment: A CAT 350L excavator (108,000 pounds) was assumed in the surcharge loading analysis. If any equipment heavier then the CAT 350L excavator is used, the surcharge loading analysis needs to be recalculated.

Response: The CAT 350L excavator represents one of the biggest/heaviest pieces of equipment that is generally used and its size exceeds that of equipment that was being used at the site when this report was written. The loads used for the CAT 350L were modeled at 108,000 lbs. over the footprint of the CAT 350L as a surcharge load in XSTABL (see Appendix J). The surcharge loading assumes an infinitely long loading along the entire edge of the open excavation (into the paper) which tends to overestimate the total loading. Also, it was assumed that a long-term (steady state) loading was used (as opposed to a transient one), which tends to overestimate the effects of the loading.

Action: For this report, no changes will be made to either the text or the calculations; however, the slope stability analysis will be recalculated (if required) based on the contractor's proposal. If the contractor's proposal uses equipment that is bigger/heavier than the CAT 350L near open excavations, then a re-analysis of slope stability will be required.

In addition, the bid documents will include an equipment size/weight restriction of that equaling the CAT 350L. If the contractor plans to use a bigger/heavier piece of equipment, he must notify FDF so that the slope stability can be re-analyzed and addressed safely.

Geotechnical Engineering Report
for
Project Order 177
A-E Support Services for Geotechnical
Investigation of the Former Plant Area

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PROJECT VARIANCES

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION

[ ] MINOR VARIANCE	[X] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
B. NO.: 20800-001	PAGE: 1 OF 1	DATE: 04/24/96 7ac

VARIANCE DESCRIPTION: Decontamination Requirements for Augers/Flights

VARIANCE

Add the following paragraph to Section 7.2.4.2 [Subsurface Sampling Equipment] of the GSTP:

"All augers and flights coming in contact with the subsurface soils will be decontaminated between each boring to SCQ Level I requirements (see Appendix K of the SCQ)."

JUSTIFICATION FOR VARIANCE

The SCQ only requires Level I decontamination for equipment that does not come in contact with sampled media. Since the augers and flights do not come in direct contact with the sampled material, SCQ Level I decontamination would be sufficient.

ORIGINAL

REQUESTED BY: Thea Layne

Date: 04/24/96 7ac

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
	FDF GEOLOGIST			PARSONS GEOLOGIST	
	FDF TASK MANAGER A. C. Smith	4/24/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
X	FDF ENGINEERING MANAGER Gregory Robinson	4/24/97		FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE R. Smith	4-24-97		OTHER	

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION 1667

[X] MINOR VARIANCE	[ ] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
NO. 20800-002	PAGE: 1 OF 1	DATE: 4-29-97

VARIANCE DESCRIPTION: Boring G3-003 Test Plan Modifications

VARIANCE / 12268 MF 4-29-97

1. G3-003, 5-7', Not able to perform UCS test on this sample, tube crushed, no structural sample available, perform MC, GS and AL tests
2. ~~G3-003, 7-9', Shift GS+AL tests to 9'-11' interval to provide classification info~~
3. G3-003, 9-11', Took Denison sample due to high blow count material perform UCS, add GS+AL (shifted from 7'-9' interval)
4. G3-003, 13-15', Took Denison due to gravel in clay SS for extra recovery
5. G3-003, 15-17', Took Denison sample instead of SS for extra recovery for 3-pt CU test - No recovery - for MC test
6. G3-003 21-23' Took Denison sample for Shelby test, Denison for recovery & sample required for UCS. Gravel in clay. 17" Recovery

JUSTIFICATION FOR VARIANCE

Changes to test plan based on determination of variation in soil characteristics which preclude original testing methods for some intervals.

REQUESTED BY: J. Erjavec / K. Ernst Date: 4/29/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
X	FDF GEOLOGIST	4-30-97	X	PARSONS GEOLOGIST	4/30/97
	FDF TASK MANAGER	4/30/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER			FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE	4-30-97		OTHER	

ORIGINAL

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION

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[X] MINOR VARIANCE	[ ] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
V— NO.: 20800-003	PAGE: 1 OF 1	DATE: 5-1-97

ANCE DESCRIPTION: G3-007 Test Plan Modifications

VARIANCE

1. No Recovery 7-9', Shifted MC to 23-25' Sample, Shifted GS+AL to 9-11' interval to classify material - "CL/ML?"
2. Unable to recover structural, cohesive sample for UCS... plan to shift test to other boring
   → 19-21' ST - Notable to specify CU test due to sample disturbance; Shifted CU test to 23-25' sample
3. 25-26.5' Sample - Added MC test (Shifted from G3-003)
4. 26.5-28' Sample - Shifted GS+AL tests to 23-25' ST to provide for sample classification data, Not able to recover structural sample for planned UCS test; plan to shift test to other boring

JUSTIFICATION FOR VARIANCE

Changes to test plan are based on conditions encountered in the field, and variations in soil characteristics which caused modification of test plan.

ORIGINAL

REQUESTED BY: [signature] K. ERNST Date: 5-1-97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
X	FDF GEOLOGIST [signature]	5-6-97		PARSONS GEOLOGIST [signature]	5-6-97
	FDF TASK MANAGER A. C. Snider	5/6/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER			FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
	QUALITY ASSURANCE [signature]	5-6-97		OTHER	

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION

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[X] MINOR VARIANCE	[ ] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
VARIANCE NO.: 20800-004	PAGE: 1 OF 1	DATE: 5/5/97

VARIANCE DESCRIPTION: Change of Tests in Samples of Boring G3-008/12273

VARIANCE

1) 7-9' Interval, Sample 412333, MC test only because material is clay. GS + AL tests in sand sample 412334. Other tests shifted to 17-19' ST.

2) 9-11' interval, sample 412336, GS + AL tests in addition to MC (sand).

3) 11-13' interval, Sample 412338, MC only (GS + AL shifted to 9-11') (clay)

4) 17-19' interval, sample 412341, ST, - ~~MC, GS, AL~~, CD, DS + Perh. shifted from 7-9' because 17-19' was sand with apparent good recovery.

5) 19-21'. MC only sample 412343 because of ST shift to 17-19'. (clay) (~~GA~~ Sieve GS + AL tests)

6) Will perform UCS on ST 17-19' if material is appropriate for test.

JUSTIFICATION FOR VARIANCE

Field sampling of lithologies requires changes in tests for intervals because of variation in sediment composition.

ORIGINAL

REQUESTED BY: [signature] Date: 5/5/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
X	FDF GEOLOGIST [signature]	5/5/97		PARSONS GEOLOGIST [signature]	5/5/97
X	FDF TASK MANAGER [signature]	5/6/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER			FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE [signature]	5-6-97		OTHER	

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION

1667

[X] MINOR VARIANCE	[ ] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
VARIANCE NO.: 20800-005	PAGE: 1 OF 1	DATE: 5/7/97

VARIANCE DESCRIPTION: G3-002/12267 TEST MODIFICATIONS

VARIANCE

Hole G3-002/12267.

No DS, Pcht CD sampling for 3'-5' Interval. Will move to another borehole.

No SP, GS&AL for Drill cuttings. Will move to another borehole.

PRIOR TO PLACEMENT OF GROUT SEAL FOR "TELESCOPING" AUGERS, AUGER STRING WAS PULLED BACK 3½ FT; PSP STATES PULL BACK 1 FOOT.

"VOLCLAY" BENTONITE GROUT WAS USED TO CREATE GROUT SEAL FOR "TELESCOPING" AUGERS INSTEAD OF "HOLE SEAL" BENTONITE GROUT.

ORIGINAL

JUSTIFICATION FOR VARIANCE

No sands were encountered in borehole for proper use of the above tests. Expect to encounter proper material types in subsequent boreholes to accommodate testing plan.

PULLING AUGERS BACK ONLY 1 FOOT WOULD HAVE LEFT TOO MUCH "STICK-UP" OF TOOL STRING ABOVE GROUND SURFACE TO CONTINUE SAMPLING.

VOLCLAY IS BENTONITE-BASED AND WAS AVAILABLE IN OUR STORED SUPPLIES.

REQUESTED BY: Jim Erjavec Date: 5/7/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
X	FDF GEOLOGIST	5-7-97	X	PARSONS GEOLOGIST	5/7/97
	FDF TASK MANAGER	5-7-97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER			FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
	QUALITY ASSURANCE	5-8-97		OTHER	

11

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION

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[ ] MINOR VARIANCE	[X] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
VAR. NO.: 20800-006	PAGE: 1 OF 1	DATE: 5/8/97

VARIANCE DESCRIPTION: Addition of Operating Procedures to Reference Documents List in Table 6-1

VARIANCE

Table 6-1, Soil Sampling and Testing Reference Guidelines, of the project plan references the Sitewide CERCLA Quality (SCQ) Assurance Manual for administrative, field, and sample handling procedures. Although these references to the SCQ are correct in terms of overall project quality assurance, specific departmental and site operating procedures should be referenced since field activities are being conducted to these procedures. Additionally, this variance will eliminate all references in Table 6-1 to the RI/FS Fernald Project Policy and Procedures Manual, FPP-200.

The following procedures are additional and applicable references for work performed under this project plan:

Field Activity	Reference Procedures
Field Planning and Permits	ADM-02, *Field Project Prerequisites*
Sample Chain of Custody	EW-0002 (SSOP-0018), *Chain of Custody/Request for Analysis Record for Sample Control*
Drilling Practices	DRL-02, *Solids Sampling in Drilled Boreholes*
Sample Equipment Decontamination	SMPL-01, *Solids Sampling*
Sample Screening	EQT-04, *Photovac MicroTIP Photoionization Detector - Calibration, Operation, and Maintenance*

The ASTM guidance referenced in Table 6-1 will override the above procedures if there is a contradiction on drilling practices.

JUSTIFICATION FOR VARIANCE

The referenced procedures are specifically applicable to the tasks being performed during the drilling and sampling project.

ORIGINAL

REQUESTED BY: Mike Frank Date: 5/8/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
	FDF GEOLOGIST	5/12/97		PARSONS GEOLOGIST	5-12-97
X	FDF TASK MANAGER	5/12/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER	5/11/97		FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE	5-12-97	X	OTHER	5-12-97

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION 1667

[ ] MINOR VARIANCE	[X] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
VAR. NO.: 20300-007	PAGE: 1 OF 1	DATE: 5/8/97

VARIANCE DESCRIPTION: Geotechnical Sample Collection Methods (TUBE REMOVAL TIME/HAMMER DROP)

VARIANCE

Operating procedure DRL-02, *Solids Sampling in Drilled Boreholes*, provides specific methods for sample collection when using the split spoon sampler, thin-walled sample tube, and the denison sampler. Geotechnical sampling under this project requires that alternative methods be available for use if necessary due to varying subsurface conditions and soil types encountered. The following alternative collection methods may be utilized in addition to the procedure method noted below:

1) Section 6.6.3 (step 7) and section 6.6.4 (step 12) of the DRL-02 procedure specifies that the soil sample should be allowed to swell in the thin-walled tube sampler and the denison sampler for 15 minutes prior to removal. This variance provides for the immediate removal of the samplers based on the Parsons geologist/engineer's direction.

2) Section 6.6.2 (step 10) of the DRL-02 procedure requires that the split-barrel sampler be driven by allowing the drill rig hammer to drop 30 inches ± 1 inch. The ASTM D1586-84 requires the "±1 inch" only on semi-automatic and automatic hammer drop systems. Since a cathead type hammer drop system is utilized for this project, the 30-inch free-fall requirement will be used as an "approximate" distance.

JUSTIFICATION FOR VARIANCE

Variance item 1 above is required to provide more latitude to the field leads to improve sample recovery based on specific field conditions within each borehole. Variance item 2 is necessary to clarify the procedure.

REQUESTED BY: Mike Frank Date: 5/8/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
X	FDF GEOLOGIST	5/12/97	X	PARSONS GEOLOGIST	5-12-97
X	FDF TASK MANAGER	5/12/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER	5/12/97		FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE	5-12-97	X	OTHER NF	5/12/97

ORIGINAL

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VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION 1667

[ ] MINOR VARIANCE	[X] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
VAR. NO.: 20800-008	PAGE: 1 OF 1	DATE: 5/8/97

VARIANCE DESCRIPTION: Geotechnical Sample Collection Methods (Decontamination)

VARIANCE

Operating procedure DRL-02, *Solids Sampling in Drilled Boreholes*, references procedure EQT-01, Equipment Decontamination. EQT-01 is no longer in effect for sampling equipment decontamination for Environmental Monitoring Department operations.

The applicable procedure is SMPL-01, *Solids Sampling*, which describes the decontamination methods utilized for sampling equipment (split-barrel samplers, dension sampler, etc.) on this project.

JUSTIFICATION FOR VARIANCE

The applicable decontamination procedure has been revised since the effective date of procedure DRL-02.

ORIGINAL

REQUESTED BY: Mike Frank Date: 5/8/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
X	FDF GEOLOGIST	5/12/97	X	PARSONS GEOLOGIST	5-12-97
X	FDF TASK MANAGER	5/12/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
	FDF ENGINEERING MANAGER	5/12/97		FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE	5-12-97	X	OTHER	5-12-97

VARIANCE FORM - FORMER PLANT AREA GEOTECHNICAL INVESTIGATION 1667

[ ] MINOR VARIANCE	[X] SIGNIFICANT VARIANCE	[ ] PROGRAMMATIC VARIANCE
VAR. NO.: 20800-009	PAGE: 1 OF 2	DATE: 05/13/97

VARIANCE DESCRIPTION: BORING G3-009 RELOCATION

VARIANCE

Relocate boring location G3-009 from south of Plant 6 to east of Plant 6 in accordance with Page 2 of this variance. This change effects Figure 7-1 of the GSTP. No changes will be made to Table 7-1.

ACS
DRJ

ORIGINAL

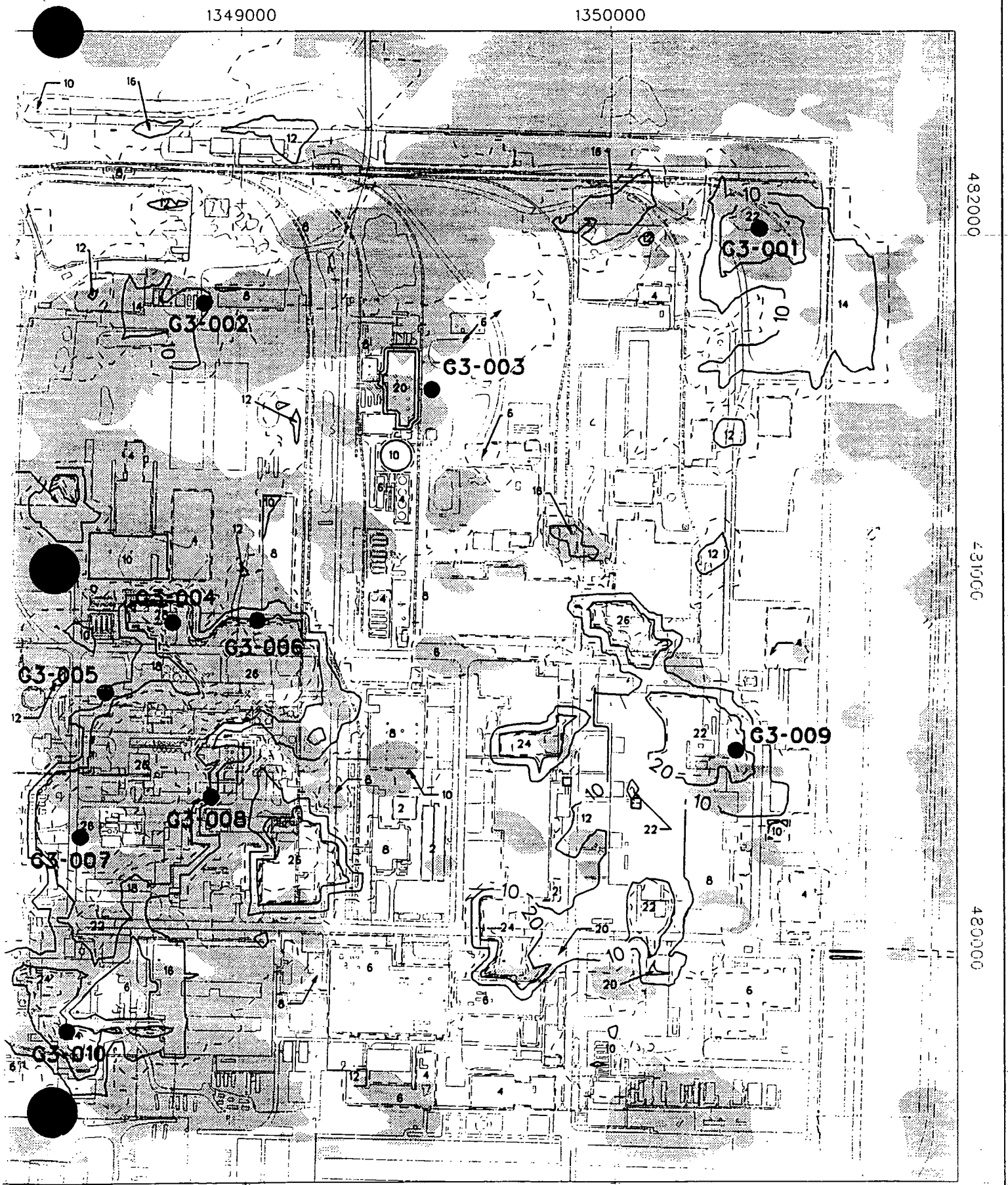
JUSTIFICATION FOR VARIANCE

An effective location for boring G3-009 cannot be found south of Plant 6. G3-009 was loacted in an area just south of Plant 6 where the proposed depth of excavation is greater than 20 feet deep. Actual drilling locations within this area are restricted by above and below ground utilities, Plant 6, and the Heavy Equipment Building (Building 46). Due the staging of multiple electrical carts requiring inspection and maintance in this area, there are no locations available where drilling is practical within the area of interest. There are various other locations surrounding Plant 6 where the proposed depth of excavation is greater than 20 feet deep and where drilling is acceptable. One of these locations is east of Plant 6 (see Page 2 of this variance). Of the alternative locations, the location east of Plant 6 was chosen due to its accessibility and limited interference from above and below ground utilities. According to Figure G-5 of the GSTP, the total till thickness in the original and new boring locations for Boring G3-009 are approximately 24 feet in depth. Since the total till thickness is comparible and since no coarse grained materials are expected to be encountered at either location, no modification to the plan for sampling and testing is required for the new location.

REQUESTED BY: Tony Snider Date: 05/13/97

APPROVALS

X IF REQD	APPROVAL	DATE	X IF REQD	APPROVAL	DATE
	FDF GEOLOGIST	5-13-97		PARSONS GEOLOGIST	5/13/97
	FDF TASK MANAGER	5/13/97		FDF SAFETY AND HEALTH REPRESENTATIVE	
X	FDF ENGINEERING MANAGER	5/13/97		FDF RADIOLOGICAL TECHNICIAN	
	FDF PROJECT MANAGER			FDF ENVIRONMENTAL TASK MANAGER	
X	QUALITY ASSURANCE	5-13-97		OTHER	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COORDINATES IN NAD STATE PLANE OHIO SOUTH, 1983