



## Department of Energy

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DEC 10 2001

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

DOE-0172-02

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

Dear Mr. Saric and Mr. Schneider:

### ORGANICALLY CONTAMINATED SOIL EXCAVATION CONTROL

Reference: Letter, J. Reising to J. Saric and T. Schneider, "Request for Concurrence to Initiate Soil Stockpiles," dated November 21, 2001

This letter is to request your approval for the excavation control and characterization process that will be performed for two special excavations in Area 3A due to organic contaminations, one behind the Maintenance Building (Building 12) and the other at the former Incinerator Pad (10D) as described in the Area 3A/4A Integrated Remedial Design Package. The Project Specific Plan (PSP) for Area 3A/4A Excavation Characterization and Precertification, which covers the entire Area 3A/4A excavation, has not yet been approved by either the United States Environmental Protection Agency (USEPA) or the Ohio Environmental Protection Agency (OEPA). Therefore, this letter directly addresses only these areas that require excavation prior to the Calendar Year (CY) 2002 construction season. The excavation of these two areas must be completed prior to the start of the coming construction season in an effort to prepare the general area for full-scale excavation. Excavation is scheduled to start as soon as your approval of this process is received.

Area 3A has several zones of organically contaminated soil that are "Above On-Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC)" or "Toxicity Characteristic Leaching Procedure (TCLP) Characteristic" under Resource Conservation Recovery Act (RCRA). Excavation of these zones and segregation of excavated materials will need to be controlled for both the area-specific organic constituents of concern and for the

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radiological constituents of concern using appropriate field screening and analytical instruments. The excavated soils will be stockpiled according to the approved method as per the above-listed reference.

For a designated "Above OSDF WAC" and "TCLP Characteristic" zones, the following controls will be implemented for the organic constituents (see Figure 1). After each 3 to 4-foot excavation lift, the side slopes will be visually inspected for discoloration and sampled for analysis by a portable Gas Chromatograph (GC) at a frequency of one (1) sample every twenty (20) linear feet along the perimeter of the excavation lift with a minimum of one sample per sidewall (i.e., at least four samples per lift). If after visual observation there is noticeable discoloration of the soil, the physical samples will be biased to the discolored soil. When additional "Above OSDF WAC" and "TCLP Characteristic" conditions are identified along the side slope, excavation extent will be expanded laterally. Excavation of a lift is considered complete when all field screening and analytical results have verified that all "Above OSDF WAC" and "TCLP Characteristic" materials have been removed. This requirement is further explained later. However, no samples will be collected on the floor of the intermediary excavation lift with the designated volume of targeted materials since the underlying material is already committed as either "Above OSDF WAC" or "TCLP Characteristic."

At design depth, the excavation floor as well as the side slopes will be characterized using the portable GC. Prior to sampling, the area will be visually inspected for discoloration of the soil. A systematic grid of 20-foot by 20-foot blocks will be established over the excavated area using either land survey methods or manual field measurement methods. The grid blocks will encompass the floor of the excavation and a sample will be collected from the center of each grid block. The intersection points of each block will be marked in the field to guide the sampling team. If the floor of the excavation is less than 40 feet in any direction, two samples will still be collected at representative spacing. This will ensure that a minimum of four (4) samples will be collected on the excavation floor. The side slopes will be sampled every 20 linear feet. A minimum of one sample per side will be collected. At a minimum, eight (8) physical samples will be collected from the final lift (e.g., one sample from each sidewall and four from the excavation floor). If after visual observation of either sidewall or floor there is noticeable discoloration of the soil, the physical sample will be biased to the discolored soil. Every sample that is collected will be analyzed by the portable GC for the area-specific Volatile Organic Compounds (VOC) of concern.

In all cases where physical samples are being taken for analysis by the portable GC, Photoionization Detector (PID) measurements will be taken to assist in identifying organic "hot-spots." These measurements will be conducted as a walkover survey with the PID at a height of 3 inches or less above the surface of the soil. As best as achievable, the entire surface will be scanned. An action level of 10 parts per million above background

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will be utilized to identify the presence of elevated organic material. For any area exhibiting results greater than this action level, an additional biased sample will be collected for analysis by the portable GC.

As mentioned earlier, at any location within the "Above OSDF WAC" zone where the GC results indicate an "Above OSDF WAC" condition, the excavation will proceed in the direction of the contamination. After excavation, re-sampling will occur at a frequency of one sample every 10 feet with a minimum of two samples taken per sidewall or floor for analysis by GC. The PID measurements will also be taken as indicated above. At any location within the "TCLP Characteristic" zone where GC results indicate levels above twenty (20) times the TCLP limit for the area-specific constituent of concern the excavation will proceed in the direction of the contamination. After excavation, re-sampling will occur at a frequency of one sample every 10 feet with a minimum of two samples taken per sidewall or floor for analysis by GC. PID measurements will also be taken as indicated above.

In the case of the incinerator pad area where there is more than one "Above OSDF WAC" zone in a vertical column, the intervening material between the two zones will also be excavated by lifts and scanned for potential above-WAC conditions (see Figure 2). Characterization will be accomplished by establishing the 20-foot by 20-foot grid system on the floor of each excavation lift and collecting a sample for analysis by the portable GC at the center of each grid block. If there is noticeable discoloration of the soil, the physical sample will be biased to the discolored soil. Again, if any single dimension is less than 40 feet in length, two samples will be collected at representative spacing. This will ensure a minimum of four (4) samples collected on the floor of the excavation lift. The PID measurements will be taken on the floor of the excavation lift as well as the side slopes. These PID measurements will be conducted in the same manner as described above. When analytical results are obtained from the portable GC, they will be evaluated for "Above OSDF WAC" conditions. Any result that is above OSDF WAC will trigger excavation process of remaining soil according to Figure 1.

The VOCs of concern for the two identified organic zones in Area 3A are cis (c) and trans (t) 1,2-Dichloroethene (DCE), Trichloroethene (TCE), and Tetrachloroethene (PCE). Table 1 describes the Method Detection Limit (MDL) for the portable GC and the corresponding OSDF WAC level and 20-time TCLP Limit for each of the organic compounds. TCE is the constituent of concern at the maintenance building area for both OSDF WAC and TCLP. The other three VOCs are constituents of concern at the incineration pad area for OSDF WAC.

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Mr. Tom Schneider

Table 1  
VOCs of Concern

COCs	TCE	PCE	t-1,2-DCE	c-1,2-DCE
MDL (mg/kg)	0.09	0.09	0.17	0.10
OSDF WAC (mg/kg)	128	128	11.4 (Total)	
20 x TCLP Limit (mg/kg)	10	14	N/A	

Before the Excavation Monitoring System (EMS) is approved for field applications, the radiological scanning for OSDF WAC attainment purposes in the organically contaminated areas will be accomplished by utilizing the sodium iodide (NaI) systems (i.e., the Radiation Scanning System (RSS) and Gator) and/or High Purity Germanium (HPGe) tripod systems. These systems will be used in accordance with the standard radiological scanning procedures whereby ensuring that the geometry and configuration of the scanned area are acceptable for the specific instruments.

These excavations, which are targeted to remove the organic soils, will require the removal of subareas within the Incinerator Pad area that are contaminated with technetium-99 (Tc-99) above the OSDF WAC. During the excavation of the Tc-99 zones, physical samples will be collected at the same frequency as described above for the intervening material (i.e., one sample every 20 linear feet on both side slopes and floor) and sent to the on-site laboratory for analysis. At any location where the analytical result for Tc-99 is above WAC, additional excavation will proceed in the direction of the contamination. Re-sampling and analysis will continue at a frequency of one sample every 10 feet until all results indicate that the remaining soils meet the OSDF WAC.

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

FEMP:R.J. Janke

Enclosure: As Stated

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Mr. Tom Schneider

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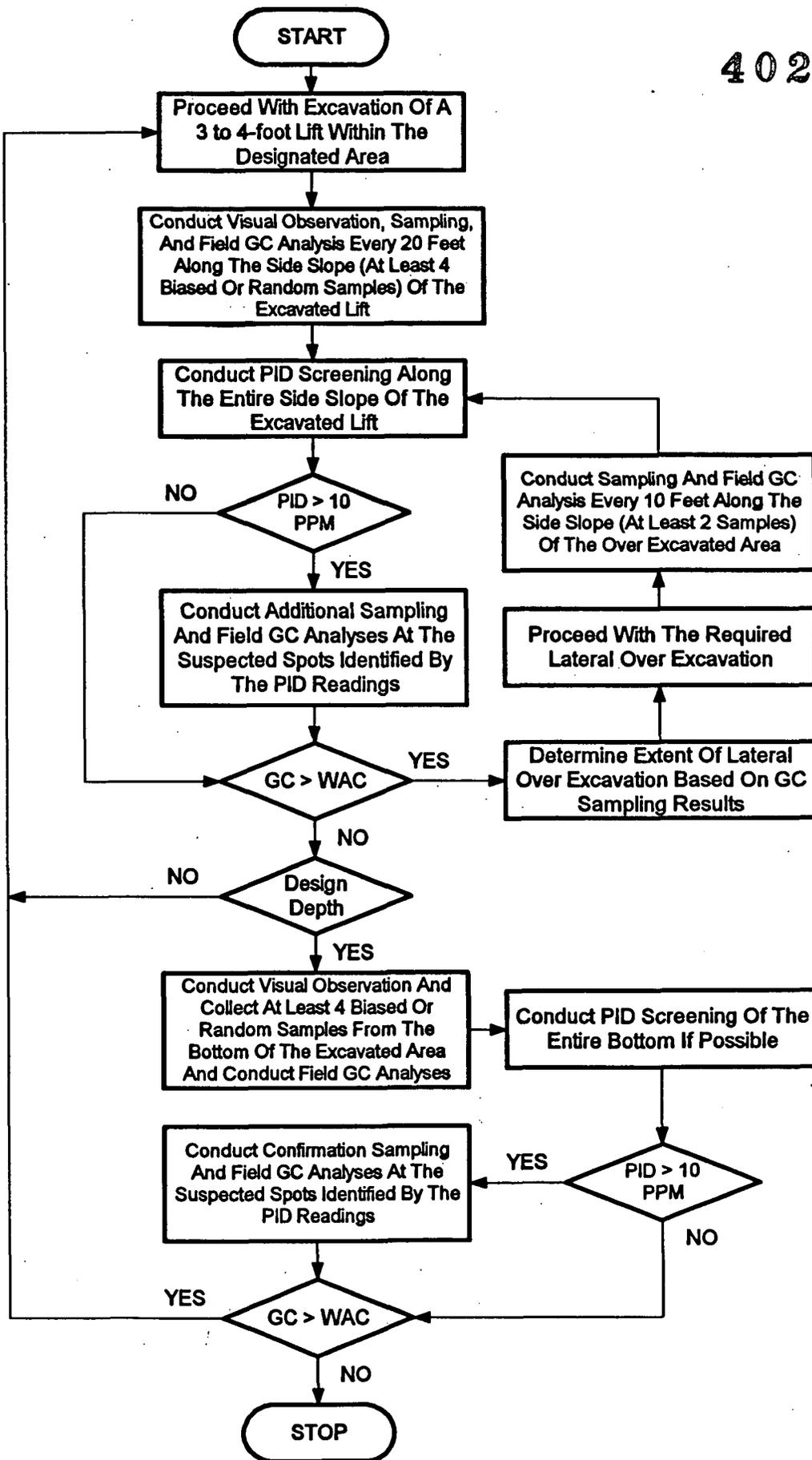
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cc w/enclosure:

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G. Jablonowski, USEPA-V, SRF-5J  
F. Bell, ATSDR  
M. Schupe, HSI GeoTrans  
R. Vandegrift, ODH  
F. Hodge, Tetra Tech  
AR Coordinator, Fluor Fernald, Inc./MS78

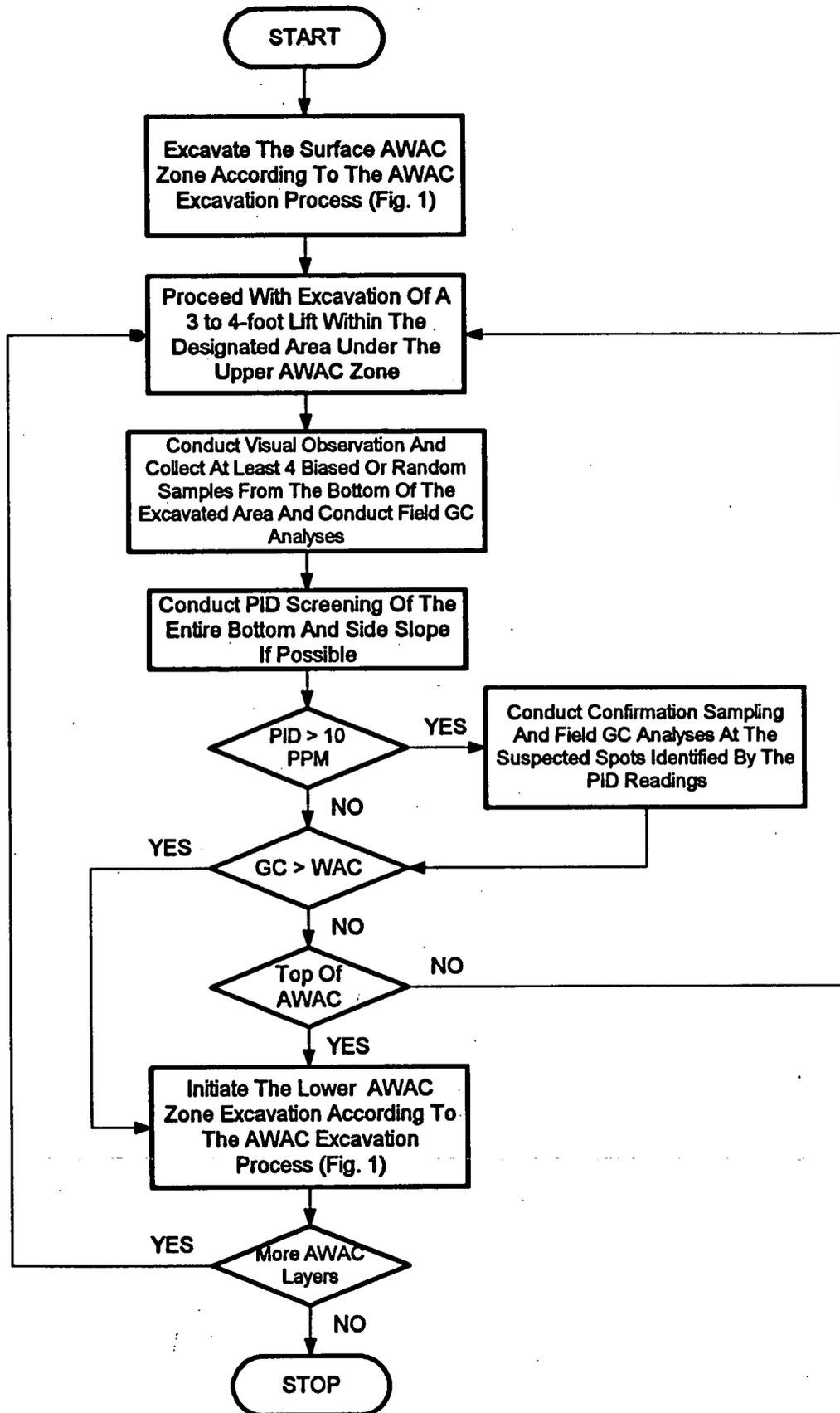
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T. Walsh, Fluor Fernald, Inc./MS46  
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ECDC, Fluor Fernald, Inc./MS52-7



**FIGURE 1 - ORGANIC ABOVE WAC SOIL EXCAVATION CONTROL PROCESS**

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**FIGURE 2 - MULTIPLE-LAYER ORGANIC ABOVE WAC SOIL EXCAVATION CONTROL PROCESS**