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**WASTE PIT AREA STORMWATER RUNOFF  
CONTROL REMOVAL ACTION**

03-05-91



## Department of Energy

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MAR 05 1991  
 DOE-887-91

Ms. Catherine A. McCord  
 Remedial Project Director  
 U. S. Environmental Protection Agency  
 Region V - 5HR-12  
 230 South Dearborn Street  
 Chicago, IL 60604

Mr. Graham Mitchell, DOE Coordinator  
 Ohio Environmental Protection Agency  
 40 South Main Street  
 Dayton, OH 45402

Dear Ms. McCord and Mr. Mitchell:

### WASTE PIT AREA STORMWATER RUNOFF CONTROL REMOVAL ACTION

- References:
- 1) Letter, C. A. McCord to A. P. Avel, "Removal #2 Pit Stormwater U. S. DOE Fernald OH6 890 008976," dated January 10, 1991
  - 2) Letter, G. E. Mitchell to A. P. Avel, "Conditional Approval - Waste Pit Area Runoff Removal Action Work Plan," dated January 11, 1991
  - 3) Letter, J. R. Craig to C. A. McCord, "Modifications to Waste Pit Stormwater Runoff Removal Action Work Plan (Removal #2)," dated February 11, 1991

References 1 and 2 approved, with modifications, the revised work plan for the Waste Pit Stormwater Runoff Removal Action submitted to the U.S. Environmental Protection Agency (U. S. EPA) on December 13, 1990. Reference 3 requested a 20 day extension for responding to the U. S. EPA and Ohio EPA comments on the Removal Action Work Plan.

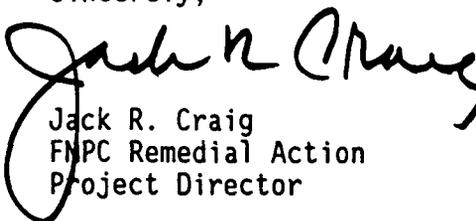
As outlined in the enclosure, DOE does not agree with one of the modifications in the U. S. EPA approval of the Removal Action Work Plan, which involves the need to analyze all samples supporting the removal action in accordance with the RI/FS Quality Assurance Project Plan (QAPP). DOE is proposing to collect additional samples from planned project excavation areas. These samples are proposed to be collected and analyzed on an expedited basis to provide a more thorough characterization of the concentration, if any, of hazardous

substances present in the affected soils. In an attempt to meet the proposed implementation schedule of the removal action, DOE is proposing to analyze these samples at a laboratory not currently identified within the approved RI/FS QAPP. The laboratory proposed for HSL analysis of the samples participates in the EPA CLP quality control program and has undergone a vendor quality assurance surveillance by the FMPC. Radiochemical analysis will be completed at the FMPC laboratories. This action is necessary due to a significant backlog at the QAPP laboratory. DOE has concluded that this action will not jeopardize the attainment of the removal action objectives and is warranted due to the important nature of the project.

The enclosure provides a response and proposed resolution for each of the proposed U. S. EPA and Ohio EPA modifications/conditions identified in References 1 and 2. As a result of the number of comments regarding the removal action sampling and analysis plan, provided in the enclosure is a revised plan fully addressing each of the modifications/conditions. Your approval of these responses will allow this project to proceed as expeditiously as possible.

If you have any questions, please contact me at (513) 738-6159 or FTS 774-6159.

Sincerely,



Jack R. Craig  
FMPC Remedial Action  
Project Director

DP-84:Craig

Enclosures: As stated

cc w/enclosure 1:

R. P. Whitfield, EM-40, FORS  
K. A. Hayes, EM-422, GTN  
L. August, GeoTrans  
K. Davidson, OEPA, Columbus  
M. Butler, USEPA-V, 5CS-TUB-3  
J. Benetti, USEPA-V, 5AR-26  
E. Schuessler, PRC  
R. L. Glenn, Parsons  
W. H. Britton, WMCO  
S. W. Coyle, WMCO  
S. M. Peterman, WMCO  
J. D. Wood, ASI

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cc w/o encl.:

W. D. Adams, EW-90, ORO  
P. J. Gross, SE-31, ORO  
W. E. Muno, USEPA-V, 5HR-13  
K. J. Pierard, USEPA-V, 5HR-12  
D. A. Ulrich, USEPA-V, 5H-12

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**RESPONSE TO U.S. EPA REQUESTS FOR MODIFICATIONS****MODIFICATION 1:**

All sampling and analysis must be performed in accordance with the U.S. EPA-approved Quality Assurance Project Plan (QAPP). Any required revisions to the QAPP should be submitted to U.S. EPA for review and approval. The onsite laboratory may only be used for screening and not used for any samples that are required to be collected under the Work Plan for this removal.

**RESPONSE:**

Based upon U.S. EPA and OEPA comments, and DOE concerns, significant revisions have been made to the Sampling and Analysis Plan for this Removal Action. These comments and concerns centered on the availability of Hazardous Substance List (HSL) data, the use of QAPP Protocols, and certification sampling for build-over.

A completely revised Sampling and Analysis Plan is provided as Attachment A to this package. Specific U.S. EPA and OEPA modifications/conditions dealing with the Sampling and Analysis Plan will reference this attachment. The following significant changes have been made to the Plan:

- o In order to provide a good representation of the presence of any HSL constituents in the soil removal area associated with this Removal Action, the FMPC is in the process of collecting 40 additional soil samples from the affected area. These samples are being collected in accordance with the RI/FS QAPP. As a result of backlog at the mixed waste laboratory, expedited turnaround of the analyses, in a timeframe supportive of the removal action schedule, is not possible. To meet schedules, and still attain quality analytical results, the samples will be analyzed for HSLs by NET Laboratories in Dayton, Ohio and for full radiological analysis by the FMPC Laboratory. NET participates in the U.S. EPA CLP quality control program.
- o In the unlikely event that significant concentrations of non-natural HSLs are identified in one, or more, of the 40 samples, the soils in the vicinity of that location will be containerized and managed as a potentially hazardous waste consistent with the provisions of the Ohio Administrative Code (OAC). For purposes of this Removal Action, significant concentrations will be defined by the Quantitation Level of the laboratory analysis.
- o In the event that naturally occurring HSLs are detected above the range of

natural background<sup>1</sup>, the location(s) will be excavated, containerized, and managed as potentially hazardous waste. If previous data from that same area indicate the material is not present in the leachable form (i.e., passed EP Toxicity), then the soils will not be containerized.

- o During the process of excavation, real time monitoring will be performed at the open cut surface with hand-held organic vapor and radiological instrumentation. Soils will be managed as potentially hazardous waste if organic vapors are detected and/or radiological measurements indicate concentrations of total uranium in excess of 100 pCi/g.
- o As stated in the Sampling and Analysis Plan, it is the goal of the FMPC to attain the build-over criteria consistent with the guidance of the 1981 NRC Branch Technical Position which includes 35 pCi/g depleted uranium and 10 pCi/g natural thorium. In addition, a goal is not to build over significant concentrations of other hazardous substances. The FMPC is committed to attaining these goals to the maximum extent practicable within the context of the removal action. Final certification samples will be collected from the base of the excavation with analyses for radiological and HSL parameters. With the initial focused excavations of areas of elevated radiological and HSL constituents, real time scanning of the final excavation grade with portable instruments, and the final collection and analysis of split certification samples, there is reasonable assurance that build-over goals are attained. The Removal Action Final Report will include an assessment of residual concentrations underlying the new concrete sump. FMPC realizes that additional final remedial actions for Operable Unit 1 may be required to address any remaining residual concentrations.
- o The Work Plan is revised to include collection of build-over certification soil samples from the excavated base which will be composited in the laboratory. Each of the composited samples will represent 100 square meters. A split of each will be analyzed onsite for total uranium and thorium. All samples will be sent to the RI/FS QAPP laboratory for full HSL analyses and full radiological analyses. All samples will be archived for possible future inorganic and radiological analysis. Build-over will begin upon receipt of the total uranium and thorium results from the onsite laboratory if they indicate that the BTP criteria have been met.

RI/FS QAPP sampling and analysis procedures and protocols will be employed to the maximum extent practical. As previously mentioned, significant revisions have been made to the Sampling and Analysis Plan. The revised plan is provided as Attachment A of the Comment Responses. In general, all sampling activities will be conducted consistent with RI/FS protocols. Additional characterization samples presently being collected will be analyzed by a non-QAPP lab as a result of a significant backlog problem.

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1 Shocklette, H. T., and Boerngen, J. G., "Elemental Concentrations in Soils and Other Surficial Materials of the Conterminous United States," USGS Professional Paper 1270, 1984, p. 105.

Final certification samples will be split with screening done at the FMPC laboratories and all of the samples being analyzed at a RI/FS QAPP lab.

RESOLUTION:

A revised Sampling and Analysis Plan is provided as Attachment A to these comment responses.

MODIFICATION 2:

U.S. DOE must submit to U.S. EPA a preliminary design report (at approximately 30% complete), and cost estimates at the preliminary and final design stages.

RESPONSE:

The project design package which includes final drawings, specifications, and a revised cost estimate based on the final design is provided as Attachment B. Cost estimating details and methodologies were previously provided with the EE/CA for this project.

RESOLUTION:

See Attachment B.

MODIFICATION 3:

Within thirty days of the date of this approval, U.S. DOE must submit a list of potential Applicable or Relevant and Appropriate (ARARs) and a strategy for compliance with them.

RESPONSE:

A listing of proposed ARARs and strategy for compliance, is provided as Attachment C.

RESOLUTION:

See Attachment C.

MODIFICATION 4:

Attachment II, Section 2.0, Page 2, Paragraph 4: Within thirty (30) days of this approval, U.S. DOE shall submit a Work Plan supplement that includes a "build-over" criteria for all Hazardous Substance List (HSL) contaminants.

RESPONSE:

The revised Sampling and Analysis Plan (Attachment A) provides additional information regarding build-over criteria for the new collection sump. As provided in the plan, a goal of the Removal Action is to ensure, to the maximum

extent practical, that the new collection sump is not constructed over significant concentrations of HSLs. Significant, as defined in the revised Work Plan, includes the quantitation limit for non-naturally occurring HSLs and above the range of background for naturally occurring HSLs. Reasonable assurance that this goal is attained is provided through:

- A) Collection of additional pre-excavation HSL samples to provide an indication of the presence of these constituents.
- B) Removal and containerization of soils indicating significant concentrations of HSL as determined by the pre-excavation samples and direct measurement (i.e., HNu) during excavation.
- C) Performing post-excavation measurements of the base of the excavation and during the collection of build-over samples and an HNu with focused removal of soils indicating a measurable above background reading.

Based upon completion of these activities and the receipt of screening data from the onsite lab, the FMPC will proceed with construction of the sump. The FMPC recognizes that additional cleanup actions may be required as part of Operable Unit 1 Remedial Actions following final definition of cleanup levels through the RI/FS process.

**RESOLUTION:**

See revised Sampling and Analysis Plan provided as Attachment A.

**MODIFICATION 5:**

Attachment II, Section 2.0, Page 3, Paragraph 1: Within thirty (30) days of this approval, U.S. DOE shall submit a sampling plan supplement that provides the size of the grid and the method to be used to collect "statistically representative" soil samples.

**RESPONSE:**

Final certification samples will be collected at the base of an excavation before build-over. FMPC has established a cleanup criteria based upon a 100 sq. meter area, a ten meter matrix. Four soil samples will be collected within each ten meter grid (actual samples are taken on a 5 meter grid) and are composited into a single sample. If an excavation area is less than 100 m<sup>2</sup>, a minimum of two samples will be collected and composited. All the collected samples will be screened at the FMPC Laboratory for total uranium and total thorium. All composited samples will be submitted to the RI/FS QAPP laboratory for full radiological and HSL analysis.

**RESOLUTION:**

A revised Sampling and Analysis Plan is provided as Attachment A, incorporating the above response.

**MODIFICATION 6:**

Attachment II, Section 2.0, Page 3, Paragraph 1: Within thirty (30) days of this approval, U.S. DOE shall submit a Work Plan supplement that specifies sampling below the upper six inches of soil when any HSLs are detected and provide additional sampling if the build-over criteria is exceeded.

**RESPONSE:**

As provided in the revised Sampling and Analysis Plan (Attachment A), the following triggers will be used to direct samples being taken below the upper six inches during both pre-excitation and build-over verification samples:

- o HNu meter readings of minimum detectable activity above background for VOC HSLs;
- o Hand-held radiological instrument (GM and alpha scintillation) readings of minimum detectable activity above background radiation;

**RESOLUTION:**

Modification incorporated into revised Sampling and Analysis Plan (Attachment A).

**MODIFICATION 7:**

Attachment II, Section 2.0, Page 3, Paragraph 2: Field screening techniques must also be used in selecting samples for "full HSL" analysis.

**RESPONSE:**

The Sampling and Analysis Plan has been revised to incorporate the collection of 40 additional pre-excitation samples with analysis for HSL. Additional clarity has also been added to the samples to be collected for HSL analysis to support build-over. Field screening will be employed during both sets of sampling consistent with U.S. EPA Modification #6 above.

**RESOLUTION:**

See revised Sampling and Analysis Plan (Attachment A).

**MODIFICATION 8:**

Attachment II, Section 2.0, Page 3, Paragraph 3: Full hazard substance list (HSL) parameters shall be analyzed for in soil and water. The table is modified to coincide with this requirement.

**RESPONSE:**

Full HSL analysis will be performed on the soil samples as described in Responses to U.S. EPA Modifications 1, 5, & 6 and as defined in the revised Sampling and Analysis Plan.

Based on existing RI/FS data that analyzed surface water runoff in the waste pit area for HSL constituents and as provided in the original Sampling and Analysis Plan, there is no plan to collect and sample water as part of this Removal Action.

**MODIFICATION 9:**

Attachment II, Section 2.0, Page 3, Paragraph 4: Within thirty (30) days of this approval, U.S. DOE shall submit a sampling plan supplement that specifies the number of environmental monitoring verification samples and how these samples will be selected and collected.

**RESPONSE:**

The original Sampling and Analysis Plan provided that FMPC Environmental Monitoring personnel would be employed to collect build-over verification samples. In response to U.S. EPA Modification 1, the Sampling and Analysis Plan has been revised (Attachment A) to provide that all build-over verification samples will be collected and analyzed pursuant to the QAPP.

**RESOLUTION:**

See revised Sampling and Analysis Plan. No further revision required.

**MODIFICATION 10:**

Attachment II, Section 2.0, Page 4, Paragraph 1: Full hazard substance list (HSL) parameters shall be analyzed for in soil and water. The table is modified to coincide with this requirement.

**RESPONSE:**

As provided in the revised Sampling and Analysis Plan, the FMPC is collecting a series of additional pre-excavation samples in the areas to be affected by the Removal Action. These samples will be collected in accordance with the RI/FS QAPP. Collected samples will be analyzed by non-QAPP labs for full HSL and radiological constituents. One objective of these samples is to provide a more thorough characterization of the soils proposed for excavation. Sample analytical data will direct the need for additional sampling and focused containerization of soils to limit HSL constituents from stockpiled excess soils.

As previously indicated in the response to Modification 8, the FMPC does not propose the collection of water samples to support the Removal Action.

**RESOLUTION:**

See revised Sampling and Analysis Plan (Attachment A).

**MODIFICATION 11:**

Attachment II, Section 2.0, Page 4, Paragraph 4: Within thirty (30) days of this approval, U.S. DOE shall submit sampling plan supplement that specifies the method used to collect a "statistically representative" sample.

**RESPONSE:**

The revised Sampling and Analysis Plan provides more clarity on proposed sampling protocols. All sampling will be completed in accordance with the RI/FS QAPP to the extent practical. RI/FS protocol will be supplemented by sampling guidance provided in SW-846, 3rd Edition pertaining to containerized materials.

As a result of the collection of additional pre-excavation samples, no additional sampling will be conducted on stockpiled materials.

**RESOLUTION:**

See revised Sampling and Analysis Plan (Attachment A).

**MODIFICATION 12:**

Attachment II, Section 2.0, Page 5, Paragraph 2: TCLP analysis shall be conducted by the method specified in 55 Federal Register 26986.

**RESPONSE:**

Agreed.

**RESOLUTION:**

The Sampling and Analysis Plan has been modified to specifically cite the specified Federal Register notice (Attachment A).

**RESPONSE TO OEPA COMMENTS****WORK PLAN****CONDITION 1:**

Page 6, 3.1.a: Information to be provided to U.S. EPA under this section, such as preliminary operations and maintenance manual discussion, etc, should also be made available to Ohio EPA for review.

**RESPONSE:**

The documents mentioned here will be transmitted to OEPA as they become finalized.

**CONDITION 2:**

Page 7, 4.0, first paragraph: A statement concerning the fact that contaminated stormwater will continue to flow to Paddy's Run from Drainage Area A should be incorporated into this section. The paragraph gives the impression that only non-contaminated stormwater will flow into Paddy's Run following the Removal Action. The fact that contaminated runoff will continue to Paddy's Run is revealed in DOE's response to Ohio EPA's EE/CA Comment 1 included in this review of the Work Plan.

**RESPONSE:**

Agreed.

**RESOLUTION:**

The Work Plan will be modified as follows:

Page 7, Section 4.0, first paragraph: Remove the words "which are not contaminated," from the fourth sentence.

Add the following between the fourth and fifth sentences: Other sources of uncontrolled stormwater leaving the FMPC site will be addressed by either Operable Unit 3 - Production Area and Additional Suspect Areas, or by Operable Unit 5 - Environmental Media. Drainage Area "A" is considered to be one such area that will need to be evaluated by one or both of these Operable Units. It is anticipated that additional sources of contaminated, uncontrolled stormwater runoff will be addressed by localized soil removal and remediation.

**CONDITION 3:**

Drawing C-1: A legend must be included with this drawing in order to enable the reader to interpret the information provided in it.

**RESPONSE:**

The drawing is "flag noted" to define the work area, and can be interpreted on the full-size drawings being provided in Attachment B.

**RESOLUTION:**

See full-size drawing provided as Attachment B.

**SAMPLING AND ANALYSIS PLAN****CONDITION 1:**

Page 2, 2.0, first paragraph: The data discussed in this section should be provided so as to support DOE's conclusion that the soils in the proposed construction area are non (RCRA) hazardous. This information is also necessary to better understand the working environment and potential risks to workers during the removal action.

**RESPONSE:**

A data package is provided with this transmittal as Attachment D. An additional series of samples are being collected to characterize the proposed excavations for HSL and radiochemical parameters. This sampling is described in the U.S. EPA Modification #10 and the revised Sampling and Analysis Plan (Attachment A). When the data from this additional sampling becomes available, DOE will transmit it to OEPA and U.S. EPA.

**CONDITION 2:**

Page 2, 2.0, second paragraph: Thorium and Radium are not considered in the build-over criteria considered here. Both of these are contaminants within the waste pit area and should be considered when determining build-over criteria. This Removal Action may impair the implementation of final remediation if a cleanup level of less 35 pCi/gm of total uranium is determined and a structure vital to the Removal Action is placed over soils above the final remediation cleanup level.

**RESPONSE:**

The Sampling and Analysis Plan has been revised to include thorium and HSL as described in Attachment A. Screening samples will be collected from the base of the excavation prior to build-over and analyzed at the onsite lab for total uranium and thorium. Additionally, verification samples will be submitted to the RI/FS QAPP Lab for full radiological analysis including isotopic uranium, thorium, and radium.

At the base of the excavation, a hand-held radiological instrument (2x2 NaI) will be used to scan for elevated concentrations of gamma emitting radionuclides. The scan will provide an indication of the presence of above background concentrations of radium in the soils.

RESOLUTION:

See Sampling and Analysis Plan as provided in Attachment A.

CONDITION 3:

Page 3, second paragraph: DOE should provide justification for sampling only 10% of the locations for full HSL analysis. This seems to be a rather insignificant sampling effort and probably does not provide a representative view.

RESPONSE:

As described in the revised Sampling and Analysis Plan (Attachment A), eight composite samples will be collected from the base of the excavation beneath the collection sump and analyzed for full HSLs.

RESOLUTION:

See revised Sampling and Analysis Plan as provided in Attachment A.

CONDITION 4:

Page 4, 3.0, second paragraph: DOE should stipulate whether the 35 pCi/gm discussed in this paragraph is solely for total uranium or includes all radioisotopes. If all radioisotopes are not included, what values will determine criteria for other radioactive contaminants such as thorium, radium, cesium, etc.?

RESPONSE:

The Sampling and Analysis Plan has been revised to provide additional clarification in build-over criteria. The criteria has been adopted from the 1981 NRC Branch Technical Position regarding disposal or Onsite Storage of Thorium or Uranium Wastes From Past Operations (46 FR 52061). This criteria was adopted as it presents a conservative interim action level pending the development of final cleanup goals through the RI/FS process.

Samples will be collected from the base of the excavation and submitted for full radiological analysis. The results of this analysis will be documented in the Removal Action Final Report.

RESOLUTION:

See revised Sampling and Analysis Plan provided as Attachment A.

**CONDITION 5:**

Page 4, 3.0, fifth paragraph: It appears from Section 3 that soils which are not stockpiled or packaged as low level waste (i.e. soils < 35 pCi/gm) will not be analyzed for TCLP. DOE should consider conducting TCLP on a representative samples of soils, which are excavated and then used as backfill somewhere else, in order to assure that hazardous substances are not being used.

**RESPONSE:**

Additional pre-excavation samples are planned to be collected from the areas to be disturbed by the Removal Action. As indicated in the revised Sampling and Analysis Plan, these samples will be analyzed for full HSL to provide a characterization of the soils planned for excavation. Soils indicating significant concentrations of HSLs will be containerized and managed as potential hazardous waste. Remaining soils will be stockpiled, covered with control fabric, and seeded. Erosion control fabric will be maintained until a good vegetative cover is developed.

**RESOLUTION:**

See revised Sampling and Analysis Plan as provided in Attachment A.