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**RESPONSES TO U.S. ENVIRONMENTAL
PROTECTION AGENCY (EPA) AND OHIO EPA
COMMENTS ON THE REMOVAL ACTION WORK
PLAN FOR THE PLANT 1 PAD CONTINUING
RELEASE**

03-01-91

**DOE-866-91
DOE-FMPC/USEPA**

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LETTER



Department of Energy

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MAR 1 1991

DOE-866-91

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

Dear Ms. McCord:

RESPONSES TO U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA) AND OHIO EPA COMMENTS ON THE REMOVAL ACTION WORK PLAN FOR THE PLANT 1 PAD CONTINUING RELEASE

This letter transmits U. S. Department of Energy's (DOE) Plant 1 Pad continuing Release responses to U. S. EPA and Ohio EPA's (OEPA) comments on the Plant 1 Pad Continuing Release Removal Action Work Plan. DOE is submitting these responses for your review and upon receipt of approval will transmit the work plan, which will have been revised in accordance with the approved comment responses.

U. S. EPA general comment provides that the Feed Materials Production Center (FMPC) should conduct all sampling and analysis required to support the removal action in strict accordance with the provisions of the Remedial Investigation/Feasibility Study (RI/FS) Quality Assurance Project Plan (QAPP). DOE concurs with this position and is developing a comprehensive site-wide quality assurance program fully incorporating all site Comprehensive Environmental Response Compensation and Liability Act (CERCLA) related sampling and analysis activities. The issuance of this comprehensive quality assurance plan to U. S. EPA and OEPA is projected for the summer of 1991. In the interim, the FMPC will work toward achieving consistency with the RI/FS QAPP to the maximum extent practical.

For purposes of the Plant 1 Pad Removal Action, the following deviations are proposed to the RI/FS QAPP. These deviations are necessary to meet the schedule associated with the implementation of the removal action. It is DOE's position that the deviations are administrative in nature and are consistent with the objectives of the CERCLA Consent Agreement.

- o Additional pre-excavation samples are being collected from the proposed Stage II excavation area. These samples will be analyzed for full Hazardous Substance List (HSL) constituents at a laboratory other than those defined in the RI/FS QAPP. The use of this lab will allow the FMPC to receive analytical data within 10

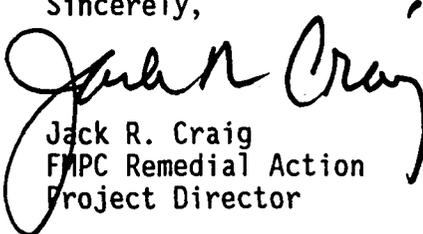
days of receipt by the lab. Laboratories listed in the QAPP will not be able to provide analyses data sooner than three (3) months from receipt of samples. This is due to a significant backlog in these laboratories. The proposed laboratory (NET, Dayton, OH) is a participant in the U. S. EPA CLP quality control program and has undergone a vendor quality assurance surveillance by the FMPC.

- o FMPC proposes to collect eighteen (18) surface samples as shown on the enclosed "Pre-Excavation Soil Sample Locations" drawing contained in Attachment 1 of the enclosure, prior to build over activities. These samples will be collected in accordance with the RI/FS QAPP. However, the four (4) samples from each grid will be composited and split in the laboratory. Provisions for compositing and splitting samples are not addressed with the RI/FS QAPP.
- o Portable air samplers are proposed to be used to monitor fugitive dust emissions during excavation and soil stockpiling operations. This sampling will be completed in a manner consistent with FMPC Environmental Monitoring procedures. The RI/FS QAPP presently contains no protocols for completing this type of sampling.
- o Routine surface water and groundwater sampling in support of the removal action will be completed in accordance with FMPC Environmental Monitoring procedures. These sample collection procedures are consistent with the RI/FS QAPP. Routine analysis of the collected samples, are proposed to be completed at the FMPC laboratories. Incorporation of these routine environmental programs is a primary focus of the ongoing site-wide quality assurance plan development process.

While the sampling and analyses outlined in this work plan do not strictly comply with the FMPC QAPP, DOE believes that the deviations are administrative in nature and that the quality of the data generated will not be compromised. DOE also believes it is in the best interest of all parties to expedite the execution of this work.

If you have any questions, please contact Andy Avel at FTS 774-6161.

Sincerely,



Jack R. Craig
FMPC Remedial Action
Project Director

DP-84:Ave1

Enclosure: As stated

cc w/encl.:

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cc: ERA File
AR File

Revision 0 2/28/91

Response to U.S. EPA comments:

GENERAL COMMENTS

1. COMMENT:

There are several references in the work plan and attachments to analyses being conducted at the FMPC laboratory and following quality assurance (QA) procedures specified in the FMPC Analytical Laboratory Quality Assurance Plan, October 1987. All samples and analyses which are part of the response actions at the site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) must be conducted in accordance with the quality assurance project plan (QAPjP) for the site wide remedial investigation (RI). In addition, all analyses must be conducted at laboratories specified in the approved QAPjP until a revised QAPjP is approved by U.S. EPA.

GENERAL RESPONSE:

Based upon USEPA and OEPA comments, and DOE concerns, significant revisions have been made to the Sampling and Analysis Plan for the Plant 1 Pad 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 Section 8.0 Sampling and Analysis Plan is provided as an attachment to this comment response package. Specific USEPA and OEPA comments 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 Stage II activities, the FMPC is in the process of collecting 18 additional soil samples from the affected area to the west of the existing pad. These samples are being collected in accordance with the RI/FS QAPP. As a result of backlog at the RI/FS QAPP 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 by NET Laboratories in Dayton, Ohio. NET participates in the USEPA CLP quality control program.
- o In the unlikely event that significant concentrations of non-natural HSL's are identified in one, or more, of the 18 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 HSL's are detected above the range of natural background¹, 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 Work 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 to not 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 pad. FMPC realizes that additional final remedial actions for Operable Unit 3 may be required to address any remaining residual concentrations beneath the pad.
- o The Work Plan is revised to include collection of 480 samples from the excavated base which will be composited, in the laboratory, to 120 samples. Each of the 120 samples will represent 100 square meters. A split of each of the 120 will be analyzed on site for total uranium and thorium. A randomly selected ten percent of the samples will be sent to the RI/FS QAPP laboratory for full HSL analyses. A random 20 percent will be sent to the RI/FS QAPP laboratory for full radiological analyses. All remaining 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 on-site laboratory if they indicate that the BTP criteria have been met.

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.

- o The frequency of the surface water sampling program and the number of groundwater monitoring locations in the vicinity of the pad will be increased consistent with comments received from the USEPA and OEPA. The FMPC concurs that the additional monitoring is warranted.

SPECIFIC RESPONSE:

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 1 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.

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

RESOLUTION:

A revised Section 8.0, Sampling and Analysis Plan, is provided as Attachment 1 to these comment responses.

2. COMMENT:

The activities described in the work plan generally appear to be adequate to mitigate the continuing releases of contaminants from the Plant 1 pad. One area of concern which was not addressed is fugitive dust emissions from the Plant 1 pad prior to completing all the required removal activities.

RESPONSE:

Prior to initiation of removal actions, fugitive emissions are adequately addressed through the existing FMPC Environmental Management Program including the operation of the permanent boundary line air monitoring stations. The relative success of this program is demonstrated through the FMPC Annual Environmental Report.

During the field implementation phase of the removal action, a series of control measures will be employed to both control and monitor fugitive emissions. These measures include:

- o Emplacement of portable temporary air samplers at the perimeter of construction areas to measure localized fugitive dust emissions
- o Periodic wetting of excavation and stockpiling activities

- o Use of wet sawing of concrete and wetting of jack hammering areas
- o Tarping of all vehicles transporting the soils to the stockpile
- o Compaction of stockpiled materials, emplacement of erosion control fabric over the stockpile, and seeding of the stockpile

RESOLUTION:

The following will be added to Section 6.0 as a second introductory paragraph:

The existing permanent boundary air sampling stations are adequate for normal pad activities. Portable temporary air samplers will be used adjacent to construction activities to measure fugitive dust emissions. The pad is swept routinely, however, additional control measures such as the following will be implemented as required during the removal action:

- o Emplacement of portable temporary air samplers at the perimeter of construction areas to measure localized fugitive dust emissions
- o Periodic wetting of excavation and stockpiling activities
- o Use of wet sawing of concrete and wetting of jack hammering areas
- o Tarping of all vehicles transporting the soils to the stockpile
- o Compaction of stockpiled materials, emplacement of erosion control fabric over the stockpile, and seeding of the stockpile

3. COMMENT:

The sampling and analysis portion of this work plan lacks sufficient detail to determine if clean up goals will be adequately verified.

RESPONSE:

See response to USEPA Comment 1.

RESOLUTION:

See resolution to USEPA Comment 1.

4. COMMENT:

The work plan fails to include drum overpacking and the general pad area. The work plan needs to be revised to include these activities, or another work plan must be submitted and will be reviewed concurrently with this one.

RESPONSE:

A drum management plan which is in compliance with the Proposed Amended Consent Decree has previously been approved by OEPA. This document is currently being used to manage operational activities at Plant 1 Pad and is attached for information.

RESOLUTION:

The following will be added to the last paragraph of Section 3.5:

The drum management plan which is in compliance with the Proposed Amended Consent Decree is currently being used to manage operational activities at Plant 1 Pad.

5. COMMENT:

Applicable or Relevant and Appropriate Requirements (ARARs), which includes To Be Considered (TBC) requirements must be reviewed. Analysis of compliance with ARARs must also be included.

RESPONSE:

The FMPC, in the process of preparing a work plan and in the in-house review phase, routinely considers ARARs which would affect the action being addressed by that plan. A list of ARARs for this removal action has been developed.

RESOLUTION:

A listing of ARARs is included as Attachment 2 to this comment response and as Attachment 6 to the work plan and will be implemented to the extent practicable.

SPECIFIC COMMENTS

5. COMMENT:

Section 3.2, Page 5, Paragraph 1: Characterization of wastes should include the addition of the toxicity characteristic leaching procedure (TCLP) to 40 CFR 261.

RESPONSE:

Agreed. The use of TCLP analyses as defined pursuant to 40 CFR 261 would be appropriate.

RESOLUTION:

The text will be modified to read "... using TCLP procedures as outlined in 40 CFR 261 Appendix II (as amended by 55 FR 11798)".

6. COMMENT:

Section 3.4, Page 7, Paragraph 2: The citation of 40 CFR 264.12 is incorrect. The proper citation pertaining to requirements for closure activities should be included.

RESPONSE:

Correction will be made.

RESOLUTION:

Regulatory citation in Section 3.4, Paragraph 2 will be changed to "... 40 CFR 264.178".

7. COMMENT:

Section 4.1.2, Page 11, Paragraph 4: The analysis of soil samples from borings 1345 and 1346 probably do not accurately characterize the nature of the inorganic and organic hazardous substance list (HSL) contaminants beneath the entire Plant 1 pad. Total uranium is being used as an indicator contaminant and both soil samples collected from borings 1345 and 1346 have relatively low levels of total uranium (below FMPC's 50 part per million (ppm) action level). Samples with relatively high total uranium concentrations should have been (and now should be) collected to characterize the nature of HSL contamination. The lack of completely characterizing the nature of contamination should not interfere with the completion of the removal action, but should be fulfilled prior to the completion of the RI.

RESPONSE:

Data collected from the Plant 1 Pad area is currently under evaluation by the RI/FS contractor. An RI/FS Work Plan addendum will be proposed as required to satisfy additional data needs identified through this evaluation. The completion of this removal action is not anticipated to limit the implementation of any additional RI/FS field programs in the Plant 1 Pad area.

RESOLUTION:

The following sentence will be added to Section 4.1.2, Paragraph 4:

RI/FS Work Plan addendum will be issued as required to support additional RI/FS field programs in the Plant 1 Pad area.

8. COMMENT:

Section 6.2, Page 15, Paragraph 1: The term proper staging should be more clearly defined. This should include a listing ARARs that must be complied with, as well as the technical considerations that will determine what proper storage will include.

RESPONSE:

Staging, in reference to the action in Section 6.2 of this work plan, will be in a controlled area, in this case within the limits of a designated hazardous waste management unit (Part A Permit Application as modified on 9/25/90). All significant HSL constituent waste, floor sweepings, and debris are containerized and managed on Plant 1 Pad as hazardous waste. Soils which range between 35 and 100 pCi/g which do not contain a significant HSL constituent will be stockpiled on the existing Soils and Rubble Pile North of Plant 1 Pad where fugitive emissions will be controlled through seeding and the application of erosion control materials. Soils which contain a significant HSL constituent will be containerized and appropriately managed on a HWMU.

RESOLUTION:

Paragraph 2 under Section 6.2 will be changed to read as follows:

Stage II of the removal action will involve the excavation of approximately 3,300 cubic yards of material (soil and concrete) based upon the sampling and analysis results of the area. Approximately 15% or 495 cubic yards of the material is estimated to exceed 100 pCi/g of total uranium contamination and will be containerized and staged on the existing Plant 1 Pad. Additionally, soils exhibiting elevated constituents of HSL, as defined in Section 8.0, which were identified during pre-excavation sampling or excavation phase monitoring will similarly be containerized. The containerized soil and rubble will then be sampled and analyzed per Section 8.0 of the Work Plan and if determined to be non-RCRA will

be placed in inventory as low level waste pending final disposition. If the containers are determined to contain RCRA constituents, the containers will be properly labeled and placed into proper HWMU storage.

The following will be added as paragraph 3 under Section 6.2:

The remaining 85% of the material removed during Stage II excavation is estimated to contain between 35 and 100 pCi/g of total uranium. These soils will be transported to a stockpile north of the Plant 1 Pad. At this location soils will be placed on grade, stabilized, covered with erosion control fabric, and seeded. The erosion control fabric will be maintained on the stockpile until a good vegetative cover is developed. Routine surveillance will be conducted on the Soils and Rubble Pile North of Plant 1 Pad to determine if additional controls are required to minimize erosion. These materials will remain on site until final disposition under the remedial actions of Operable Unit 3.

9. COMMENT:

Section 6.2, page 15, Paragraph 2: The work plan should estimate the amount of time that the waste pile of excavated materials will remain on site.

RESPONSE:

The materials which may contain a significant radiological or hazardous constituent will be moved to an appropriate controlled area on site until final disposition under the remedial actions of Operable Unit 3. See response to USEPA Comment 8.

RESOLUTION:

No additional text changes required.

10. COMMENT:

Section 6.2, Page 15, Paragraph 2: U.S. EPA requires that removal actions must comply with applicable relevant and appropriate requirements (ARARs) to the extent practicable (55 Fed. Reg. 8695). Therefore, because the requirements in 40 CFR 264 Subpart L are potential ARARs regardless if the materials contain RCRA hazardous waste or not, the work plan should discuss how U.S. DOE intends to comply or waive these requirements.

RESPONSE:

Subpart L of 40 CFR 264 provides requirements for the management of hazardous waste piles. The intent of these requirements are to effectively minimize releases to the environment from hazardous

waste storage/disposal activities. The FMPC proposes to fulfill these requirements to the maximum extent practical within the context of the removal action. To effectively minimize the potential for releases from the soil stockpile the FMPC proposes to:

- o. Containerize soils depicting concentrations of total uranium in excess of 100 pCi/g and those exhibiting elevated concentrations of non-naturally occurring parameters from the HSL. These soils will be segmented through pre-excitation (in-situ) sampling in the affected area. Additionally, real time monitoring with hand held radiological and organic vapor instruments will be employed during the excavation process. Soils depicting measurable organic vapor readings on an HNu meter or soils indicating the presence of total uranium in excess of 100 pCi/g will also be containerized.
- o. Remaining soils (not containerized) moved as a result of the excavation phase of the removal action will be transported to a stockpile north of the Plant I Pad. At this location soils will be placed on grade, stabilized, covered with erosion control fabric, and seeded. The erosion control fabric will be maintained on the stockpile until a good vegetative cover is developed. Routine surveillance will be completed of the stockpile to determine if additional actions are required to minimize erosion.

RESOLUTION:

No additional text changes are required.

11. COMMENT:

Section 6.2, Page 15, Paragraph 2: If the materials stockpiled on the membrane liner are seeded, then precipitation may generate leachate and produce seeps. The work plan should present a strategy for eliminating or managing releases from the waste pile. Additionally, the approach of the use of a waste pile (creating a land disposal unit) needs to be reconsidered. There are regulatory concerns for taking such an approach. Material should be placed into roll-off containers.

RESPONSE:

As previously stated, actions will be taken to minimize erosion from the stockpile through the application of erosion control fabric and the seeding of the pile. The erosion control fabric will be maintained until a good vegetative cover is developed. Routine surveillance will be performed of the stockpile to determine the need for additional controls to minimize erosion. Soils in excess of 100 pCi/g of total uranium or depicting detectable concentrations of non-naturally occurring parameters on the HSL, in addition to pad

sweepings, and removed concrete will be containerized and managed as potential hazardous waste materials.

RESOLUTION:

No additional text changes required.

12. COMMENT:

Section 6.2, Page 15, Paragraph 3: Simply stating that the clean up objective will be reached when the average activity concentration of 35 Pci/gram is attained is not sufficient. A more detailed description should be included.

RESPONSE:

The cleanup objectives are described in detail in the revised Sampling and Analysis Plan which is included as Attachment 1 to this comment response.

RESOLUTION:

No additional text changes required.

13. COMMENT:

Section 6.3, Page 16, Paragraph 4: The sampling and management of soil and waste generated from Stage III of the removal action should be included in the work plan.

RESPONSE:

The stated quantity of materials generated during Stage III was erroneously listed as 5000 cubic yards. The corrected quantity is 100 cubic yards which will be containerized, sampled, and stored on a HWMU.

RESOLUTION:

The following will be added to the paragraph:

These materials will be containerized, sampled for TCLP constituents, and staged on a HWMU pending final disposition.

14. COMMENT:

Section 6.3, Page 16, Paragraph 4: A more detailed discussion of the specific activities included in Stage III of the removal action should be provided.

RESPONSE:

The construction specifications for activities in Stage III will be provided as part of Attachment 4 of the work plan. In addition, Section 6.3 will be enhanced to include more detail.

RESOLUTION:

The following paragraph will be added to Section 6.3:

After construction completion and turnover of Stage II work, the following activities will occur during Stage III:

- o Relocation of drums from the new construction section to Phase A/B covered structures
- o Removal and containerization of concrete, soil, or other materials from Phase C, D, and E areas
- o Installation of new materials per drawings and specifications as shown in Attachment 4
- o Progressive relocation of drums from next construction section to the completed section (ie., D to C, E to D)

15. COMMENT:

Section 8.0, Page 19, Paragraph 5: The target organic compounds did not include either 1,1,1-trichloroethane (1,1,1-TCA) or tetrachloroethylene (PCE) which are reported as being present in materials located on the Plant 1 pad. The determination of whether organic contaminants are present should include both sampling of soil when organic vapors are detected with field instruments above a specified level (e.g. 1 PPM above background) as well as random soil samples.

RESPONSE:

The response to USEPA Comment 1 describes collection of 18 additional samples which will be analyzed for full HSL including volatile and semi-volatile compounds. The Work Plan and the response to USEPA comment 1 address the use of HNu or OVA meters during the removal action. A percentage of final certification samples will also be analyzed for these compounds.

RESOLUTION:

No additional text changes required.

16. COMMENT:

Section 8.0, Page 20, Paragraph 1: The work plan should provide technical considerations and statistical procedures (including equations) to be used in determining the number and location of samples.

RESPONSE:

The revised Sampling and Analysis Plan describes the number and location of samples. The final report for the removal action will include a statistical analysis of the results as cited in the attached revised Sampling and Analysis Plan.

RESOLUTION:

No additional text changes required.

17. COMMENT:

Section 8.0, Page 20, Paragraph 4: Sampling and analysis used to determine if clean up action levels have been met should be consistent with the QA objectives of the RI (55 Fed. Reg. 8735); therefore, the RI QAP_jP should be followed for all sampling and analyses.

RESPONSE:

All sample collection for certification for build-over and much of the proposed analyses will be performed consistent with the RI/FS QAPP. See response to Comment 1.

RESOLUTION:

No additional text changes required.

18. COMMENT:

Section 8.0, page 20, Paragraph 6: The work plan should provide technical considerations and statistical procedures (including equations) to be used in determining what statistically representative samples are.

RESPONSE:

Consistent with the response to Comment 1, additional in-situ sampling is currently underway in the proposed excavation area. No additional sampling is deemed necessary for the stockpiled materials. Containerized material will be sampled consistent with the guidance presented in SW-846, Part III and other similar sampling presently underway at the facility pursuant to the Ohio proposed Amended Consent Decree.

RESOLUTION:

No additional text changes required.

19. COMMENT:

Section 8.0, Page 20, Paragraph 6: This paragraph states that samples will be collected and analyzed in strict accordance with SW-846, 3rd Edition, Test Method for the Evaluating Solid Waste. However, several references to different analytical procedures described in other documents are listed in the following paragraphs. Sampling and analysis should be conducted in accordance with the RI QAP,P (including analytical laboratories and procedures):

RESPONSE:

As previously identified in the response to Comment 1 and 18, no additional sampling is deemed necessary for the stockpiled materials. Sampling methodologies for characterizing containerized materials are not presently within the RI/FS Work Plan. To supplement the RI/FS Work Plan for purposes of completing a RCRA determination on the containerized materials, guidance is being obtained from SW-846, 3rd Edition.

RESOLUTION:

No additional text changes required.

20. COMMENT:

Section 8.0, Page 20, Paragraph 8: Toxicity Characteristic Leaching Procedure (TCLP) analytical procedures should be followed as updated in the Federal Register (55 Fed. Reg. 26986).

RESPONSE:

See response to Comment 5.

RESOLUTION:

No additional text changes required.

21. COMMENT:

Section 8.0, Page 21, Paragraph 2: The Removal Site Evaluation (RSE) states that the suspension of radionuclides in the air could lead to possible exposure to human receptors via inhalation; however, neither the RSE nor the proposed sampling plan indicated that this media will be monitored. Air samples must be collected to

determine if the emission of fugitive dust from the Plant 1 pad pose a health risk.

RESPONSE:

See response to USEPA Comment 2.

RESOLUTION:

No additional text changes required.

22. COMMENT:

Section 8.0, Page 21, paragraph 4: The frequency of surface water sample collection should be scheduled on a monthly basis and collected as necessary depending on the amount of precipitation received during the sample period.

RESPONSE:

Monthly sampling will be specified.

RESOLUTION:

The affected paragraph will be changed as follows:

Following construction activities and during operations on the pad the following water samples will be taken of the stormwater run-off on an approximately monthly basis depending on precipitation events until sample results indicate that quarterly sampling is sufficient:

23. COMMENT:

Section 8.0, Page 22, Paragraph 1: The number of "1000-series" monitoring wells listed to monitor ground-water quality is too limited. All "1000-series" wells should be sampled quarterly to establish baseline seasonal variation. In addition to the wells listed on Page 22, other wells should be considered in the semi-annual monitoring program. These wells include 1337 and 1339 which are located on the north end of the pad and wells 1356 through 1359 located in the southwest corner of the pad. Both of these areas exhibit high concentrations of total uranium in the ground water. Furthermore, wells along the perimeter of the Plant 1 pad which monitor areas of low total uranium concentrations should be sampled quarterly to monitor the magnitude of contaminant migration.

RESPONSE:

Additional groundwater sampling will be performed to enhance the proposed Work Plan activities.

RESOLUTION:

The sampling locations and frequency of sampling will be added to Section 8.0, Sampling and Analysis, of the work plan:

24. COMMENT:

Attachment 3: Although it requires no action, it should be noted that the schedule presented is very conservative. For example, the time to complete the activities described as Stage II of the removal action can conservatively be estimated at 10 months. The 15 months listed in the schedule is overly conservative considering that all design is apparently complete and that bid specifications have already been prepared. Although it appears that 24 months to complete Stage III of the removal action is also very conservative, there is insufficient information provided to justify the 24 months or estimate how conservative this estimate is. False schedules should not be developed just so that someone can say that the work was completed ahead of schedule.

RESPONSE:

The construction schedule included in the work plan is a reflection of the original schedule developed by the Architect-Engineer. The final completion date has slipped because of the incorporation of this project as a removal action and its required planning activities, but the duration has remained the same except for the added requirements of coating curing time and verification sampling of soils.

RESOLUTION:

None required.

25. COMMENT:

Attachment 3: From the description of Stage III activities in the work plan, it does not appear that it is a requirement that Stage II activities be completed prior to initiating work on Stage III activities.

RESPONSE:

The description of Stage II and III activities will be enhanced to show that Stage II must be completed and readied for storage prior to the start of Stage III.

RESOLUTION:

The following will be added to Section 6.2:

The covered controlled storage provided in Phase A/B will allow for the immediate transfer of drums currently stored on the existing pad and clear those areas for the Stage III construction activities. As space is limited and multiple handling of drums is an unfavorable action which increases the likelihood of potential spills, the prior completion of Stage II construction activities is essential to effectively reduce this threat.

RESPONSE TO OHIO EPA COMMENTS

1. COMMENT:

Page 2, Introduction, first full paragraph: Because final cleanup levels have not been established the work plan should state that it is possible that additional actions may be required depending on the selection of final cleanup levels.

RESPONSE:

The plan will be amended to state that additional actions may be necessary dependent upon the selection of final remedies and action levels.

RESOLUTION:

The following will be added to the stated paragraph:

"... additional actions may be necessary dependent upon the selection of final remedies and cleanup levels."

2. COMMENT:

Page 2, first full paragraph: This removal action may not contribute to the efficient performance of long-term remedial actions at the site if the build over criteria suggested is implemented. The 35 pCi/g total uranium build over criteria fails to address other radionuclides which are especially relevant to this action. Thorium is a common contaminant, yet DOE fails to implement any build over criteria for this radionuclide. Total thorium exceeds 10 ppm in several soil samples in which the total uranium level is below the 50 ppm build over criteria (ie. borings 1342-5'; 1345-1' & 5'; 1338-3'; 1349-2' thru 5.5'). Technetium-99 was found at 1.4 pCi/g (background assumed 0 pCi/g; fission product) at sample location 1345 while total uranium was below the build over criteria. Tc-99 is a highly mobile isotope and should receive more attention as it was detected in the only boring analyzed for it. This removal action may impair the implementation of final remediation if a final cleanup level of less than 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 for total uranium or other radioisotopes.

RESPONSE:

Appendix A to Attachment 1 describes the current data and further information will be provided as it becomes available. In the final report on this removal action, a more complete analysis of the data

will be provided. This will include comparison to the adopted removal action cleanup criteria. The analysis will include fractional contribution of risk and dose from all radionuclides and contaminants. Total thorium analysis yields the mass concentration of thorium-232. The specific activity of thorium-232 is 0.109 pCi/ug. Ten ppm (ug/g soil) corresponds to 1.09 pCi/g of thorium-232 which is approximately one-tenth of the BTP concentrations. Because of the physical and chemical relationships, it is usually assumed that equal activity concentrations of thorium-228 are also present. That is that 10 ppm Total Thorium represents 1.09 pCi/g of thorium-228 in equilibrium with 1.09 pCi/g of its parent thorium-232.

Because of its radiological characteristics, Tc-99 contributes relatively low dose. Based upon ingestion, it takes 2,000 times more Tc-99 activity than Th-232 activity to deliver an equal committed effective dose equivalent. That same comparison based upon inhalation yields a factor of 286,000. Risk can also be compared for ingestion. The ingestion Dose Conversion Factor (DOE, 1988) for technetium-99 is 1.3×10^{-6} mrem per pCi. If a risk coefficient of 2×10^{-4} (ICRP) is utilized, the corresponding risk per picocurie of ingested technetium-99 would be:

$$1.3 \times 10^{-6} \text{ mrem/pCi} * 2 \times 10^{-7} \text{ risk/mrem} = 2.6 \times 10^{-13} \text{ risk/pCi}$$

Therefore, a significant quantity of technetium-99 could be ingested prior to exceeding a risk of 1 in a million, or the departure from the NCP Guidance of 1×10^{-6} . The residual concentrations, through final certification sampling, will be compared to final cleanup criteria. These contaminants will be addressed during the final remedial action for Operable Unit 3.

RESOLUTION:

No further action required.

3. COMMENT:

Page 2, first full paragraph: The completion of this removal action may impede the final remediation of perched groundwater contamination within the immediate area of the removal action. DOE should include a discussion of how contaminated perched groundwater, such as that encountered in borings 1337 and 1339 (689 and 441 ug/l total U respectively) may be remediated under Operable Unit 3 final remediation or the current removal action designed to remove and treat contaminated perched groundwater.

RESPONSE:

The FMPC does not consider either the installation of the new concrete pad area and the "tensor" buildings or the coating of the existing Plant 1 Pad to offer significant impediment to any remedial or removal action to address perched water. Similar to the existing

Plant 6 perched water removal systems or those proposed for Plants 2/3, 8, or 9, recovery wells or trench systems can be installed through concrete pads or within structures.

RESOLUTION:

No additional text changes are required.

4. COMMENT:

Page 10, third paragraph: The volatile organic compound (VOC) analysis adjacent to the western edge of the pad provides little useful information due to the extensive contamination of laboratory blanks (Attachment 1 (RSE), Table A-3). The presence or absence of acetone in the soil is especially questionable since all sample locations but one had blank contamination. DOE has failed to appropriately address VOC contamination west of the pad and should keep this fact in mind when addressing the potential for mixed waste to result from excavation in the area. Consideration should be given to TCLP analysis for VOC's in excavated soil.

RESPONSE:

As previously discussed in the response to USEPA Comment 1, additional sampling for HSL's will be performed prior to excavation.

RESOLUTION:

No additional text changes are required.

5. COMMENT:

Page 11, second paragraph: The only boring analyzed for Tc-99 contained above background levels of Tc-99 while total uranium was 13.3 ug/g, not above the current build over criteria. An individual soil sample did exhibit an above background concentration of a non-naturally occurring radionuclide in the absence of elevated total uranium concentrations.

RESPONSE:

As previously discussed in the response to OEPA Comment 2, the presence of Tc-99 in the referenced sample does not, in the technical opinion of the FMPC, represent a significant activity concentration.

RESOLUTION:

No additional text changes required.

6. COMMENT:

Page 12, second paragraph: The unit of measurement reported for trichloroethane in this section "mg/kg" does not correspond to the unit reported in Appendix A, page 3 of Attachment 1 (RSE) "ug/kg". If the unit of measure is mg/kg, DOE should consider TCLP(VOC) analysis of the soil.

RESPONSE:

The unit of measurement reported for trichloroethane should be ug/kg.

RESOLUTION:

The unit of measurement will be changed on Page 12 to "...ug/kg".

7. COMMENT:

Page 14, Section 6.2: DOE fails to include plans for dealing with perched groundwater which may be encountered during excavations to achieve build over criteria. The potential for this to occur is supported by the sporadic nature of perched groundwater levels and total uranium concentrations in the borings already completed. A good example of potential perched water encounter is shown in boring 1338 in which groundwater is reached at 6.5' and at 5.5' the total uranium concentration (73 ppm) still exceeds the build over criteria.

RESPONSE:

It is not anticipated, based on final construction plans, that excavations will be required below the local perched water level. If perched water is encountered, it will be sampled and analyzed for contaminants for determination of proper disposition.

RESOLUTION:

The following will be added to Section 6.0:

It is not anticipated that perched water will be encountered during this removal action. If perched water is encountered, it will be sampled and analyzed for contaminants for determination of proper disposition.

8. COMMENT:

Attachment 1 (RSE), Page 6, second paragraph: In this section DOE discusses the 1981 NRC Branch Technical Position Paper and reports the 35 pCi/g (approx. 50 ppm) level for total uranium. A level of 10 pCi/g for natural thorium is presented but no conversion to ppm is provided. DOE should provide this conversion for thorium since

most of the thorium data presented are in ppm and are not readily comparable to the standard. This conversion will allow the reviewer to better judge DOE assertions that levels of thorium in excess of its standard are only found in areas where total uranium exceeds 35 Pci/g.

RESPONSE:

A build-over criteria of 10 pCi/g for natural thorium would be as follows:

Approximately 46 ppm is equal to 5 pCi/g of thorium-232, with the additional 5 picocuries per gram coming from thorium-228. It is important not to forget the activity of thorium-228. Due to its relatively short half-life, as compared to thorium-232, it does not exhibit a significant mass at these activities, but nevertheless it does present a radiation source.

RESOLUTION:

No additional text changes are required.

9. COMMENT:

Attachment 1 (RSE), Appendix A, Page 3, Analysis Table: See comment 5.

RESPONSE:

Technetium-99 is not a principle contaminant. See response to Comment 2.

RESOLUTION:

No additional text changes are required.

10. COMMENT:

Attachment 1 (RSE), Appendix A, Table A-7: The relatively high detection limits for thorium (23 ppm) on a number of borings do not allow for determining if current standards or future cleanup levels for thorium are being exceeded. Lower detection limits for thorium would allow for a better judgement of the effectiveness of the 35 pCi/g total U build over criteria. DOE should work to reduce detection limits for total thorium.

RESPONSE:

The detection limit of 23 ppm is not necessarily high. For instance, 23 ppm corresponds to approximately 2.5 pCi/g for thorium-

232 and 2.5 pCi/g for thorium-228. Natural background levels for thorium are within this range.

RESOLUTION:

No further text changes required.

11. COMMENT:

Attachment 1 (RSE), Appendix A, Table A-10: The second series of U-235 measurements are probably U-238 and should be corrected.

RESPONSE:

Agreed.

RESOLUTION:

The row description in Table 10 will be changed to "U-238".