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Department of Energy

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JUN 04 1998
DOE-0859-98

Mr. James Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF 5J
77 W. Jackson Blvd.
Chicago, IL 60604-3590

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

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF DRAFT FINAL REMEDIAL DESIGN DOCUMENTS PACKAGE FOR OPERABLE UNIT 1 AND RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY AND OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS

This letter transmits the Draft Final Remedial Design (RD) Documents Package, which was developed by International Technology (IT) Corporation, and the responses to the U.S. Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (OEPA) comments received on May 4, 1998, and May 8, 1998, respectively. Based on the receipt of the U.S. EPA comments by the Department of Energy (DOE) on May 6, 1998, the Draft Final RD Package and the responses to comments document are required to be submitted to your agency by June 5, 1998.

On June 9, 1998, we shall be meeting with you at the Fernald Environmental Management Project (FEMP). At this meeting we will discuss the major points covered in our response to comments document, and outline our suggested path forward in working together with the U.S. EPA and OEPA to finalize operational and construction related issues.

If you have any questions, please contact Dave Lojek at (513) 648-3127.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Lojek

Enclosure: As Stated

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RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

June 1998

Response to USEPA Comments on the Draft Remedial Design Package for Operable Unit 1

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

USEPA GENERAL COMMENTS

VOLUME 1

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: Not Applicable (NA) — Page #: NA — Line #: NA
Original General Comment #: 1

Comment: International Technologies Corporation (IT) and Fluor Daniel Fernald (FDF) discussed a number of changes to the overall design presented in Volume 1 during a meeting with the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency, among others, on April 8, 1998. All relevant documents comprising Volume 1 should be revised to completely and accurately present the design changes discussed in the meeting.

Response: The Draft Final WPRAP Remedial Design Package (RDP), contains the process design revisions which have been incorporated as a result of design verification testing conducted on archived pit materials by IT Corporation. These changes were summarized in the April 30, 1998 letter, with attachments, from DOE to the EPAs.

Action: The Draft Final RDP incorporates the design changes (e.g., see **Sections 2.4 - 2.6 of Description of Operation and Processes** and the **Process Flow Diagrams** referenced therein).

Description of Operations and Processes

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: NA — Page #: NA — Line #: NA
Original General Comment #: 2

Comment: The document uses "NF" and "EF" instead of "°F" to present temperatures in degrees Fahrenheit. An example appears on Line 5 of Page 9. The document should be revised to correct such typographical errors.

Response: Agree. This and other typographical errors have been corrected in the RDP.

Action: The RDP has been revised to correct these typographical error.

Process Flow Diagrams with Mass and Energy Balances

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: NA — Page #: NA — Line #: NA
Original General Comment #: 3

Comment: The mass flow information for the constituents of various streams listed on process flow diagrams (PFD) seems to be incorrect. For example, on PFD D-50-10-001, the mass rate of flow of water in gas stream no. 502, which enters the quench, is listed as 15,295 pounds per hour (lb/hr); however, the mass rate of flow for stream no. 504, which exits the quench, is listed as only 1,782 lb/hr. The mass rate of flow for stream no. 504 is expected to be greater than for stream no. 502 because water

is used to quench the gas. The reduction in the moisture content of the effluent gas from quenching appears to be excessive for cooling of a gas by quenching. Therefore, the mass flow information presented on the PFDs should be checked for accuracy and corrected as necessary. Equipment sizes should also be reviewed in light of any revisions of the mass flow information and should be revised if necessary.

Response: Some errors have been identified in the PFDs and have been corrected accordingly. However, the error example given in the above comment does not reflect a problem with the process. The spray quench in question does remove over 80 percent of the water vapor contained in the exhaust gas. The recirculation water is cooled prior to the spray tower and thus this recirculation water when mixed with the exhaust gases results in the thermal condensation of water vapor. In the example given, the difference in the mass rate of water in the exhaust gas inlet and outlet of the spray quench is a result of water condensation and its removal from the gas stream.

Action: The mass flow information on the PFDs, after having been revised to reflect the present process design, has been reviewed and corrected, as necessary, as reflected in the Draft Final RDP.

General Arrangement Plans

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 4

Comment: The details presented in the general arrangement plans are insufficient for construction purposes. Important information, such as the details of the heating, ventilation, and air conditioning system and the instrumentation details, is not included. The remedial design package (RDP) should be revised to include design drawings, including piping and instrumentation diagrams, detailed enough to be used for construction of remedial design components.

Response: The details presented in the general arrangement plans are not intended to "be used for construction". For example, it was never intended that details, such as piping and instrumentation drawings be provided as a part of this Package. As is evident in the information presented in Tables 4-1 and 4-2 of the U.S. EPA approved Remedial Action Work Plan (RAWP) for Remedial Actions at Operable Unit 1 (OU1), the RDP was developed to provide USEPA/Ohio EPA with enough detail to ensure that the remediation facility is being designed in a way which supports the implementation of the selected remedy of the OU1 ROD, in accordance with the requirements (e.g., ARARs) identified therein. Accordingly, DOE does not plan on providing EPA with an overall additional level of detail, which would result in modifying the plan agreed to through the RAWP.

Action: No further action required.

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

VOLUME 2

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 5

Comment: The excavation phases and waste blending plan are laid out in sufficient detail. However, the RDP should be revised to describe plans for managing contingencies that can be expected in waste pits 3, 5, and 6 as a result of excavation of waste slurries and in other pits as a result of nontypical waste excavation.

Response: The excavation of waste slurries is not anticipated. Waste dewatering will be undertaken in the pits prior to excavation to enable the use of conventional excavation methods. Site excavation and pit dewatering will be performed in a manner to ensure that a safe waste pit working face and berm slope stability is maintained at all times. In the event that pockets of waste slurries are encountered, stabilization efforts will be performed by dewatering, admixing suitable drier materials, or allowing adequate drying to occur in the waste pit to allow the safe removal of the material using conventional excavation techniques.

Additional contingency measures for excavation operations in pits 3, 5, and 6 as a result of slurry waste conditions include daily observations of the excavation sidewalls, faces, and upper edges for such indicators as spalling, heaving, and tension cracking which are used to indicate whether the existing controls are adequate. Should these conditions be observed, equipment will be relocated to a safe operating range (as determined by a Competent Person in accordance with OSHA requirements), cut backs will be performed of the waste materials to a flatter slope, equipment with extended reaching capabilities (i.e., long reach excavator, in lieu of excavators with conventional booms) will be used, additional dewatering will be performed, excavation operations of the affected area will be performed from a drier position, and/or the excavation efforts will be relocated to a more suitable location until such time as the affected area is stabilized.

Contingencies for bearing capacity concerns include all of these measures in addition to the proper equipment selection of machinery which imposes the lowest ground pressures, while suitably capable of performing the required work. Examples include machinery with high tracks, wide tracks, or swamp tracks.

Contingencies for encountering nontypical waste during the excavation operations include relocating to another work area (if deemed necessary by IT's Safety and Health Representative) while the nontypical waste is properly identified and associated hazards for its excavation are analyzed. Examples include drum encounters and concrete or associated construction debris encounters.

Action: The **Excavation Plan** has been revised, through the inclusion of a new **Section 4.3.5**, to describe these contingencies.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 6

Comment: If the berm material is to be used for interim grading, the RDP should be revised to discuss the quantity and quality of the soils in the berms between the waste pits. This discussion would support the assumption that off-site borrow material is not required for final regrading. In addition, the dewatering activities for the wet pits, pits 3 and 5 in particular, should be described in greater detail.

Response: Because of uncertainties in the actual amount of soils that will be excavated in and around the waste pits to reach the FRLs, and in the contours associated with final site grading, it is not clear at this point in time what quantity of berm material will be available for grading following excavation. Current plans, however, are to fulfill grading needs with clean berm material (i.e., soils which meet the FRLs). As the excavation progresses, berm material will be analyzed to determine if it is of sufficient quality to meet interim grading requirements and the quantities of suitable berm materials will be confirmed. The need for off-site borrow material will not be ascertained until late into the project, and will be based on the actual amount of soils removed, and what activities are necessary to establish a final grade consistent with the FEMP's Natural Resources Restoration Plan. See the response to Original General Comment #5, relative to a discussion of dewatering activities in waste pits 3 and 5.

Action: No revisions are necessary to further address the use of berm material for grading. As noted in the response to Original General Comment #5, the Excavation Plan has been revised to describe activities associated with dewatering waste pits 3 and 5.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 7

Comment: The use of geophysical surveys to determine the existence of nontypical waste in the pits should be described in greater detail, as it is unclear how the survey data will be used in planning waste excavation and handling. The RDP should be revised accordingly.

Response: Geophysical survey may be used to estimate the location of some types of nontypical waste (e.g., concentrated radioactive materials). Geographic survey of the waste pits will be performed in support of the excavation activities to confirm the progress of excavation, working face and berm slopes, and excavated volumes.

In addition, geophysical survey instruments may be used to assist excavation efforts in areas where drums, debris, etc., are found in an effort to better define the lateral extent of the buried debris, the approximate depth, and the relative size. Typical geophysical instruments include Ground Penetrating Radar (GPR) and electromagnetic (EM) devices. If used, these instruments will be calibrated and operated in accordance with the manufacturers recommendations.

Action: **Section 4.9.2 - "Geophysical Surveys"** of the **Excavation Plan** (Volume 2 of the RDP) has been revised to reflect this additional detail.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 8
Comment: Handling and stockpiling of subsoils meeting the On-Site Disposal Facility (OSDF) waste acceptance criteria (WAC) should be described in greater detail. Also, coordination of disposal of the subsoils in the OSDF with disposal of other material going to the OSDF should be described. The RDP should be revised accordingly.

Response: Excavation of subsoils and the documentation of their disposition option will be made according to the IT subcontract by means of Directed Excavation. Directed Excavation means the provision of direction by the FDF Soils Characterization & Excavation Project (SCEP) to the excavation operations to be performed by IT Corporation. SCEP will "direct" subsoils excavations exactly as presented in the Sitewide Excavation Plan (SEP), whose draft final revision is currently undergoing finalization, and in the Area 6 Integrated Remedial Design Package (IRDP), and will track movement of these subsoils as described in the SEP and the WAC Attainment Plan. In addition, through the directed excavation process, the SCEP will coordinate the movement and placement of these soils with the movement and placementof other FEMP materials destined for disposal in the OSDF.

There are several options which exist for the transporting and stockpiling of subsoils meeting the OSDF WAC. Section C.5.1.2.2.3 of the Statement of Work of the subcontract with IT states: "For soil destined to the OSDF, (IT) shall stockpile as necessary and then load the soil into containers provided by Fluor Daniel Fernald, Inc, remove any gross contamination from the containers and place them in a designated staging area for pick up by Fluor Daniel Fernald, Inc." With this as a basis, the following discusses options:

Option 1: Use of Trucks to Convey Soils to the OSDF

For Option 1, either the SCEP or IT would supply trucks which would receive the OSDF-bound soils in the pit area, undergo a decontamination, and transport the soils directly to the OSDF for coordinated placement therein.

Option 2: Use of Containers

In lieu of trucks, as discussed in Option 1, this option involves the direct loadout, within the pits, of OSDF bound soils into containers (i.e., probably roll-off boxes) provided by FDF, transport of the container to a decontamination area, and then transport of the decontaminated container to the Nontypical Waste transfer area. These areas are shown on the Site Facilities Layout Drawing (Figure 1-3) of the Site Plans (Volume 1). These containers would be picked up by the OSDF project and transferred to the OSDF according to a schedule integrated with OSDF overall operations and receipt of soils from other Certification Units.

Option 3: Use of Temporary Soils Stockpiles

If necessary, soils stockpiles for OSDF-bound soils may be designated within the OU1 Operating area. Such stockpiles will be designed and operated according to

the ARARs identified in the OU1 ROD. If such "dedicated" stockpiles are deemed necessary, they will be identified in later documents, such as the Area 6 IRDP. Under such a scenario, truck transport from the stockpile, directly to the OSDF for placement would occur on a schedule coordinated with other soils contributors.

Use of Trucks (i.e., Option 1) is the most probable option for the future. However, the specific option utilized will depend on conditions of the project at that time.

Action: No action required.

USEPA SPECIFIC COMMENTS

Volume 1

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.4 and 3.2 Page #: 7, 31 and 32 Line #: NA
Original Specific Comment #: 1
Comment: The text cites PFD D-10-10-001 for details of the dryer feed system. However, the PFD cited is not included in the RDP. The RDP should be revised to include the missing PFD.

Response: Drawing PFD D-10-10-001 should have been included in the Draft RDP. However, this drawing has subsequently been deleted from the design. The present process design has been revised to include the use of two rotary dryers with separate identical feed systems on each dryer unit. Feed system details are now shown on PFDs D-20-10-001 and D-20-10-002.

Action: The Draft Final RDP contains the revised PFD drawings D-20-10-001 and D-20-10-002.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.6 Page #: 10 Line #: 20, 21, and 24
Original Specific Comment #: 2
Comment: The text refers to a hydrocyclone recirculation pump (P5007), a hydrocyclone system (S-5009), and an oil and water (oil-water) separator (Z-7003). However, this equipment is not shown on any of the PFDs included in the RDP. The RDP should be revised to resolve this discrepancy between the text and the PFDs.

Response: The equipment numbers referenced in the above comment were not correct. The correct equipment numbers should have been hydroclone recirculation pump (P-6001 A,B), hydroclone system (S-6004), and oil/water separator (Z-6020). This equipment was shown on Drawing PFD D-60-10-001 which was included in the Draft RDP.

Design verification testing conducted on archived pit materials by IT Corporation demonstrated that gravity separation of particulates from the scrubber water would be more effective than the use of hydroclones. The design has been revised to

show a gravity separation system. The hydroclone system has, therefore, been deleted.

Action: The Draft Final RDP reflects the correct equipment numbers based on the revised process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.6 Page #: 11 Line #: 2 and 3
Original Specific Comment #: 3
Comment: The text refers to a venturi sump (T-5001) and states that excess scrubbing water will be purged from the venturi sump to the oil-water separator. However, the venturi sump is not shown on PFD D-50-10-001, which indicates that all scrubbing water goes to the settling tank (T-5003). The RDP should be revised to resolve this discrepancy between the text and the PFD.

Response: The text reference to the venturi sump (T-5001) was incorrect. The venturi scrubbing water drained directly to the settling tank (T-5003).

The process design of the gas cleaning system has been revised. The present design provides for particulate removal in a two-stage scrubber/subcool quench without effecting the operation of the WESP and HEPA filters. The venturi scrubber has been deleted.

Action: The RDP has been revised to reflect the correct process description based on the revised process design (see **Section 2.6 of the Description of Operation and Processes**).

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.6 Page #: 11 Line #: 27 and 28
Original Specific Comment #: 4
Comment: The text states that condensed and purged liquids from the gas cleaning system will be directed through the oil-water separator shown on PFD D-70-10-001. However, PFD D-70-10-001 does not show an oil-water separator. The RDP should be revised to resolve this discrepancy between the text and the PFD.

Response: The text reference to drawing number PFD D-70-10-001 was incorrect, the oil/water separator was shown on drawing number PFD D-60-10-001.

Based on revisions to the process design, gravimetric oil/water separation is now performed by the primary and secondary clarifiers (T-6001/T-6002) shown on the revised drawing PFD D-60-10-001. The oil/water separator (Z-6020) has been deleted.

Action: The RDP has been revised to reflect the correct process description based on the revised process design (see **Section 2.6 of the Description of Operation and Processes**).

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.6 Page #: 11 Line #: 30 through 33
Original Specific Comment #: 5

Comment: The text states that if the characteristics of the oil fraction do not meet the WAC for the Commercial Disposal Facility (CDF), the oil fraction will be used for dust suppression at the dryer discharge conveyor. However, the text does not specify whether health risks to workers from exposure to the potentially contaminated oil fraction have been evaluated and found to be acceptable. The text should be revised to clarify this matter.

Response: The use of this oil for dust suppression has been reconsidered and will not be undertaken.

Action: The text in the referenced section has been revised to delete the reference to using the oil for dust suppression.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.7 Page #: 12 Line #: 4 through 6
Original Specific Comment #: 6

Comment: The text states that during storage bin filling, a composite sample will be obtained such that the waste in the filled bin is characterized to meet the CDF WAC. The statement implies that the collection of the composite sample will be manipulated so as to indicate that the waste in the bins meets the CDF WAC even when this is not the case. The text should be revised to reflect the true nature and purpose of the sampling. Also, considering that the CDF will reject railcars containing waste that does not meet the CDF WAC, it would be prudent to ensure that waste not meeting these WAC is not shipped to the CDF. Therefore, IT should consider collecting a composite sample from each section of the storage bin containing enough waste to fill one railcar. The text should be revised as appropriate.

Response: The composite sample will be collected in accordance with the Sampling and Analysis Plan, which will be reviewed/approved by the CDF, and will be submitted for to the EPAs for review and approval in the RA Documents Package (see also the response to Original Specific Comment #20). The bin size was chosen based on 24 hours of operation. The sampling collection procedure has been designed to obtain a representative sample of the material in the bin, with the sample results being statistically representative of the material in each of the railcars. The sample results for each individual bin should be statistically representative of the material placed in the rail cars. This sampling and analysis program will enable IT to certify that the contents of each railcar will meet the CDF WAC prior to turnover of the railcar to FDF for shipment to the CDF.

Action: The text within the subject section has been revised to provide further clarification. Specifically, the third sentence has been revised to read "During storage bin filling, sampling of the material is undertaken per the Sampling and Analysis Plan and a composite sample is obtained to determine if the bin meets the requirements of the CDF WAC." Additional specifics relative to sampling will be provided in the Sampling and Analysis Plan, which will be submitted to the EPAs for review and approval as a part of the RA Documents Package, by September 25, 1998.

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: 2.7 — Page #: 12 — Line #: 30 through 34
Original Specific Comment #: 7

Comment: The text states that the railcar liners will help contain waste in the event of an incident. However, the text does not provide details regarding the liner material, construction, or sealing. Considering the importance of the liners during waste storage and shipment in railcars, the text should be revised to present these details.

Response: The main purpose of the railcar liner is to act as a contamination control measure. During railcar filling, the liner will be placed in the railcar with excess liner material being draped over the upper lip of the railcar box covering much of the outside of the railcar. Additionally, during the railcar unloading operation at the CDF, the liner facilitates release of the waste material from within the railcar. The liner also protects the under side of the railcar lid from contacting contaminated material. In the event that railcar integrity is breached as a result of a major incident, this will not provide assurance that material spillage will not occur. Typical liners are manufactured from reinforced polyethylene to fit the specific railcar interior dimensions (i.e., the liner will essentially be a prefabricated bag, constructed to fit into the railcar used by the project). The railcar box and fiberglass lid provide the integrity necessary to fulfill the DOT requirements.

Action: The text in the referenced section has been revised to clarify the purpose of the railcar liner.

Commenting Organization: U.S. EPA — Commentor: Saric
Section #: 2.7.1 — Page #: 13 — Line #: 12 through 16
Original Specific Comment #: 8

Comment: The text presents a bulleted list of operations to be performed for completion of railcar loadout. The list should be revised to include railcar liner seaming.

Response: Following the completion of the railcar filling procedure, the liner will be folded over the waste in an overlapping manner such that no waste material is exposed to the underside of the railcar lid. As such, seaming of the liner is not necessary, nor is it specifically required to meet the requirements of the OU1 ROD. (See also the response to Original Specific Comment #7)

The railcar box and fiberglass cover satisfy the DOT regulations 49 CFR 173, 427, and 174.700(f), which specify that Low Specific Activity (LSA) I material be transported in a "strong tight package" in a closed transportation vehicle, under exclusive use conditions. A strong tight package is a package that will prevent the release of any radioactive material under normal transport conditions.

Action: No further action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.7.1 Page #: 14 Line #: 22 and 23
Original Specific Comment #: 9

Comment: The text states that FDF will transfer railcars containing waste to an on-site railyard after they are verified for radiological release. However, the text does not specify what will happen to a railcar if the radiological testing indicates that it cannot be released for off-site shipment. The text should be revised to discuss exactly what steps will be taken for a railcar that fails the radiological testing in order to make it fit for off-site shipment.

Response: The process for preparing a railcar for off-site shipment, involves the use of all reasonable decontamination efforts necessary to remove contamination from the railcar, as needed to meet the established radiological release requirements. This process essentially follows the steps identified in Section 2.7.1. However, if radiological survey results show that the established radiological limits have not been achieved, further decontamination and surveying will be performed until established radiological limets are met. Although the FEMP is optimistic that the railcars can be consistently decontaminated to the established radiological limits, it should be emphasized that if the limits cannot be met, the railcar will not be released from the site; consequently, the waste will be removed from this railcar and reloaded into another railcar.

Action: The referenced text has been revised to clarify this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.7.2 Page #: 14 Line #: 26 and 27
Original Specific Comment #: 10

Comment: The text states that if a railcar of waste is rejected by the CDF, measures may be taken at the CDF to bring the railcar into compliance with the WAC. However, the text does not specify what measures may be taken at the CDF, who will implement these measures, or who will pay for implementing them. The text should be revised to clarify these matters.

Response: For reference, the text and the RDP addresses the on-site activities performed within the confines of the Waste Pit area, by IT Corporation. The contents of the railcar are required to meet the CDF WAC when the railcar is loaded for shipment. The measures to deal with non-compliant railcar contents at the CDF, including specific actions and payments, will be dealt with on a case-by-case basis and are subject to various contractual relationships between DOE, FDF, IT, and the yet to be developed contractual relationships with rail carriers and the CDF. Actions to deal with non-compliant railcars are dependent on a number of variables including the specific basis for non-compliance (e.g., liquid in the railcar), contractual requirements and remedies between involved parties, specific methods and alternatives available to bring the materials into compliance, and costs. Such actions can include treatment at the CDF, and/or disposal potentially at an increased cost. The ultimate receipt and disposal of the waste materials will be in compliance with applicable regulations and licensing agreements for the CDF.

Action: The referenced text has been revised to clarify this issue.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.9.4 Page #: 29 Line #: 4 and 5
Original Specific Comment #: 11
Comment: The text states that the wastewater treatment system (WTS) will be temporarily shut down during backwashing of the sand filter if only one filter is installed. IT should consider using a continuous-backwash sand filter to avoid shutting down the WTS.

Response: The revised system will have two sand filters. The system will be designed to allow sufficient time to backwash filters without interrupting plant operation. Flow through the filters can be temporarily reduced to accommodate backwashing of one filter while the other filter remains in operation.

Action: The referenced section of the Draft Final RDP reflects these revisions to the present design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.0 Page #: 30 Line #: 17 and 18
Original Specific Comment #: 12
Comment: The text states that the audible and visible alarms will be triggered when any input parameter exceeds a preset limit or status. However, the text does not state whether personnel will always be on hand to respond to alarms. If the WTS is not to be manned 24 hours per day, the text should be revised to state that an autodialer will also be used to alert the maintenance crew of an input parameter exceedance.

Response: The system will be continuously manned during operation. A control room operator will be assigned to each shift to remotely monitor the process via a control system interface. The WTS has been relocated adjacent to the dryer gas cleaning system. The process area will be operated and maintained by personnel at all times during process operations. Accordingly, an autodialer interface to the WTS is not needed.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.2.1 Page #: 32 Line #: 19 through 23
Original Specific Comment #: 13
Comment: The text states that a high-level sensor in the feed hopper will activate an alarm beacon to notify the operator that either material plugging is occurring in the feed screw or the rate of material delivery to the hopper is greater than the rate of material delivery from the hopper to the dryer. IT should consider also using the high-level sensor to stop the belt conveyor feeding the hopper and the feed screw discharging to the belt feed conveyor in order to prevent spillage of waste material from the hopper.

Response: The high level sensor has been replaced with a video camera to monitor the condition of the material in the hopper. The video monitor will be located in the

control room. The control room operator will monitor the hopper level and take the appropriate actions in the event that a high hopper level is observed. Process knowledge has demonstrated the unreliability of hopper level switches. Real time video monitoring of process conditions such as waste material hopper level has proved to be effective.

Action: The text in the referenced section has been revised to describe the present bin level control strategy.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3 Page #: 33 Line #: 6, 9, and 14
Original Specific Comment #: 14
Comment: The RDP uses the terms "thermal dryer," "indirectly-fired rotary dryer," "rotary dryer," and "indirect dryer" (see the title of PFD D-20-10-001) to refer to a single device. The text and PFDs should be revised to consistently use one name for this device in order to avoid confusion.

Response: The term "Rotary Dryers" will be used to refer to the drying unit operation devices. The present design incorporates the use of two dryers.

Action: The text has been revised to consistently use the term "Rotary Dryers".

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.1 Page #: 36 Line #: 7
Original Specific Comment #: 15
Comment: The text states that off-gas from the quench will flow to the contact scrubber. However, PFD D-50-10-001 indicates that off-gas from the quench will flow to the venturi scrubber and then to the contact scrubber. The text or PFD should be revised to resolve this discrepancy.

Response: The text was incorrect. Off gas from the quench did flow to the venturi scrubber as indicated on the PFD.

The design has been revised reflecting the elimination of the venturi scrubber and the contact scrubber. The present design provides for particulate removal and water vapor condensation in a two-stage scrubber/subcool quench.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.1 Page #: 36 Line #: 8 and 9
Original Specific Comment #: 16
Comment: The text states that recycle water will be cooled in the noncontact scrubber heat exchanger to further cool the off-gas. However, PFD D-50-10-001 indicates that the recycle water will be cooled in the contact scrubber heat exchanger. The text or PFD should be revised to resolve this discrepancy.

Response: Agree. In the text, the term "noncontact scrubber heat exchanger" should have read "contact scrubber heat exchanger".

The dryer gas cleaning system process design has been revised. This device has been deleted. The present design provides for particulate removal and water vapor condensation in a two-stage scrubber/subcool quench.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.1 Page #: 36 Line #: 17 and 18
Original Specific Comment #: 17
Comment: The text states that the primary heat exchanger that will be used to remove heat from the scrubber recycle water is a noncontact heat exchanger. However, PFD D-50-10-001 indicates that the recycle water will be cooled in the contact scrubber heat exchanger. The text or PFD should be revised to resolve this discrepancy.

Response: The text is incorrect. The term "noncontact scrubber heat exchanger" should have read "contact scrubber heat exchanger". The "contact scrubber heat exchanger" was a device used to cool the water recirculated through the contact scrubber.

The dryer gas cleaning system process design has been revised. This device has been deleted. The present design provides for particulate removal and water vapor condensation in a two-stage scrubber/subcool quench.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.1 Page #: 36 Line #: 27 through 29
Original Specific Comment #: 18
Comment: The text refers to a venturi sump that is not shown in PFD D-50-10-001. The text or PFD should be revised to resolve this discrepancy.

Response: The text was incorrect. The venturi water drains to the settling tank not the "venturi sump". The dryer gas cleaning system process design has been revised. The venturi has been deleted.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.1 Page #: 36 Line #: 31 and 32
Original Specific Comment #: 19
Comment: The text states that off-gas from the mist eliminator will flow into the wet electrostatic precipitator for removal of residual particulate. However, PFD D-50-10-001 indicates that off-gas from the mist eliminator will flow into the contact scrubber. The text or PFD should be revised to resolve this discrepancy.

Response: The text was incorrect. The off-gas from the mist eliminator did flow to the contact scrubber. The dryer gas cleaning system has been revised. The mist eliminator has been deleted.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.2 Page #: 41 Line #: 28 and 29
Original Specific Comment #: 20
Comment: The text states that grab samples will be collected as material is added to the storage bins. The text further states that these grab samples will be composited to generate a representative bin sample. However, the text does not specify the volume of each grab sample, the compositing scheme, or whether a composite sample will be prepared to represent each bin or all bins together. The text should be revised to provide this information.

Response: The controlling document for sampling is the Sampling and Analysis Plan which will be provided to the EPAs as a part of the RA Documents Package, consistent with the EPA approved RAWP.

Action: The text will be updated to state: "The sample collection and compositing methods will be described in the Sampling and Analysis Plan." The Sampling and Analysis Plan, in turn, will be submitted to the EPAs, as a part of the RA Documents Package, by September 25, 1998 for review and approval.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.2 Page #: 44 Line #: 33
Original Specific Comment #: 21
Comment: The text "water. The" should be revised to read "water and to adjust the pH of the influent to the inclined plate clarifier. The" because, according to PFD D-65-10-001, caustic will also be used to adjust the pH of the influent to the inclined plate clarifier.

Response: Agree. The suggested text revision is descriptive of the process.

Action: The text has been revised as suggested in the above comment.

Design Criteria and Assumptions

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.0 Page #: 1 and 2 Line #: NA
Original Specific Comment #: 22
Comment: The text presents a list of key activities comprising the remedial action. However, the list does not include backfilling the excavated ponds with clean soil or developing them as ponds. The text should be revised to explain what will happen to the excavated ponds.

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Response: Section 4.11 of the Excavation Plan (Volume 2 of 3) discusses the final grading of the waste pit area following excavation. This final grading will be consistent with the FEMP's Natural Resources Restoration Plan. The project plan currently reflects a regrading of the waste pit area, using berm material to fill the "ponds", with the final surface sloping down from east to west toward Paddys Run, as shown in Appendix A of the Excavation Plan. Final grades (e.g., reflecting the inclusion of ponds) will not be ascertained until late into the project, will be based on the actual amount of soils removed, and will be consistent with the FEMP's Natural Resources Restoration Plan.

Action: The last bullet of **Description of the Remedial Activities**, on Page 2 of Section 2.0 has been revised as follows: "OU1 site restoration, including any regrading necessary to accommodate the FEMP's Natural Resources Restoration Plan".

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.0 Page #: 2 Line #: 21 through 31
Original Specific Comment #: 23
Comment: The text states that design assumptions requiring field verification include the assumptions that the material is suitable for (1) conveyance along vertical hopper sidewalls and via positive material moving devices such as screws and (2) drying in an indirect-fired dryer without excessive fouling. These two assumptions are crucial to the remedial design presented in the RDP. Modifying the material handling and drying system after its fabrication might not be easy if actual operation of the system reveals that the design assumptions cited above are not true. Therefore, IT and FDF should consider testing the material handling and drying system on a pilot scale and then modifying the RDP based on the pilot test results, if necessary.

Response: IT has recently completed bench and pilot scale design verification testing on archived material from the waste pits. The results of this testing has been incorporated into the revised design. The testing demonstrated that A) twin screw feeders are required to convey material into the dryer, B) the material can be dried without excessive fouling of the dryer internal heating surface, C) A wet scrubbing system is required due to varying organic concentrations in the waste, D) Gravity separation of suspended solids from the scrubber system blowdown water is required, and E) thermal oxidation is required to control CO and VOC emissions from the drying process.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.0 Page #: 3 Line #: 1 and 2
Original Specific Comment #: 24
Comment: The text states that the thermal dryer off-gas treatment system may not operate continuously because of organic fouling if the total organic carbon (TOC) content of the pit material and the fixed carbon fraction of the TOC are greater than those assumed in the RDP. However, the text does not present any modifications to the off-gas treatment system that may be necessary for continuous operation of the system. IT and FDF should consider the system modifications that may be

necessary and revise the relevant design components, such as the off-gas treatment building size and layout, to accommodate the modifications in the event that they become necessary.

Response: The revised system design has the flexibility to accommodate a range of conditions which could be encountered over the project duration. The present design incorporates the use of a Thermal Oxidizer to ensure removal of non-condensable organics/VOCs. The dryer gas cleaning system has been revised to remove non-aqueous phase organics. Inert gas blanketing on the dryer off gas has been incorporated. These changes have been accommodated in the layout and building size. The present design is based upon the available data and the recent design verification testing.

Action: The design documents have been revised to reflect the present process design.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1.1 Page #: 4 Line #: 26
Original Specific Comment #: 25
Comment: The text states that large debris will be segregated from waste in the pit area but does not specify how segregated large debris will be managed. The text should be revised to specify the disposition of the large debris segregated from the waste.

Response: Large debris will be segregated from waste material and will be size reduced in the pit area. Debris will be transferred from the pit area by truck or excavation equipment to the Material Handling Building for subsequent processing if required. Non-compactable large debris may be size reduced in the pit area using the methods described in Section 2.3.3 of the Description of Operation and Process (e.g., cleavage of debris with equipment bucket/blade; run over by equipment track; cleavage with equipment mounted ram, jaws, or other device). Debris which is size reduced to meet the CDF WAC will be transferred to railcars per the conditions of the WAC. Large debris, which can not be size reduced to meed the CDF WAC, will be managed as nontypical waste. There is no need to revise the text, since the issue of the handling of waste pit materials, including nontypical waste such as large debris, is discussed extensively in the Section 4.6 of the Excavation Plan (RDP Volume 2).

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1.1 Page #: 5 Line #: 4 through 8
Original Specific Comment #: 26
Comment: The text states that pumps, utility lines, monitoring wells, and other appurtenances within the waste pit area boundary will be removed and handled in a manner consistent with the handling of debris from the waste pits. However, as discussed in Original Specific Comment 25, the text does not specify how the large debris from the waste pits will be handled. The text should be revised based on the response to Original Specific Comment 25.

Response: See the response to Original Specific Comment 25.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1.1 Page #: 5 Line #: 21
Original Specific Comment #: 27
Comment: The text states that water collected in the pit excavation area will be discharged to the bio surge lagoon. However, the site water balance shown in PFD D-90-10-001 indicates that water from the pit excavation area will be discharged to the clearwell. The text or PFD should be revised to resolve this discrepancy.

Response: The intent of the subject statement is to say that this water will "ultimately" be discharged to the BSL, although the need for interim storage/treatment (e.g., to meet BSL influent criteria) may dictate flow through another system, such as the Clearwell or IT's WTS. Water collected in the pit excavation area is initially pumped to the Clearwell. Water from the Clearwell is pumped to the WTS for pre-treatment prior to discharge to the BSL. PFD D-90-10-001 depicts this flow sequence accurately. A water management process description is given in Section 2.8 of the Description of Operation and Process.

Action: The text in this section has been revised to state that excavation water will be transferred to the Clearwell.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1.1 Page #: 6 Line #: 4 through 6
Original Specific Comment #: 28
Comment: The text states that any nontypical waste encountered in the pit waste that does not meet the CDF WAC and that cannot be processed to meet the CDF WAC will be segregated for transfer to FDF. However, the text does not state whether such waste will be transferred to FDF immediately following its excavation or stored at some location until its transfer to FDF. The text should be revised to clarify this matter and, if the waste is to be temporarily stored on site, to identify the location and means of its storage.

Response: Nontypical wastes involve a variety of items that do not meet the CDF WAC including items such as derbies and crucibles. Since IT does not possess the proper site process knowledge to visually identify and categorize past production artifacts, involvement in the process includes FDF's Waste Management Programs organization. The operational scheme is as follows:

1) IT will excavate and segregate nontypical wastes.
2) IT will confirm that the waste does not meet the CDF WAC and cannot be processed to meet the CDF WAC.
3) IT will stage the materials in the pit area until a suitable quantity of material has accumulated, to facilitate containerization for transfer to FDF.
4) IT will notify FDF of need for transfer containers.

5) FDF's Waste Management Programs personnel will see that containers, appropriate for the waste, are transferred to the Nontypical Waste Transfer Area [between Pits 4 and 6, as shown on the Site Facilities Layout Drawing (Figure 1-3) of the Site Plans (Volume 1)]. The primary intent of these containers is to support the transfer of the material from IT's area to FDF for final management (as discussed below). To the extent practical, these containers may, in fact, serve as the shipping container. In other instances, however, repackaging of this material may be necessary by FDF, as a part of its management activities described in Item 8, below.

6) FDF's Waste Management Programs personnel, will direct the loading of nontypical wastes into the appropriate container. Materials will be grouped in accordance with planned treatment or disposal requirements.

7) IT will close the container and decontaminate its exterior such that it can be removed from the Waste Pits Area Thorium contamination zone by FDF.

8) After the containers are removed from the area, FDF will perform whatever management is necessary of the materials and/or the containers (e.g., sampling, treatment, further packaging, etc.) in preparation for treatment and disposal, in accordance with applicable requirement, site procedures, and the requirements of the appropriate disposal facility (e.g., NTS).

Action: The handling of these waste materials is discussed in greater detail in Section 4.6.3 of the Excavation Plan (Volume 2 of 3). With the exception of Item 8, which is outside the scope of this package, the text in Section 4.6.3 has been revised to provide additional clarification of the above. In addition, Section 2.1.1 of the Design Criteria and Assumptions has been revised to provide a reference to Section 4.6.3 of the Excavation Plan.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.3.1 Page #: 8 Line #: 1 and 2
Original Specific Comment #: 29

Comment: The text states that uranium debris and other nontypical wastes will be removed from the pit wastes and segregated for disposal in accordance with site procedures. However, the text does not specify whether the site procedures include transferring nontypical wastes to FDF. The text should be revised to specify the site procedures for disposing of uranium debris and other nontypical wastes or to cite the site procedure documentation.

Response: Relative to the essence of the comment, reference should be made to the response provided for Original Specific Comment #28. Specifically, the segregation, interim management, and packaging of the nontypical wastes for transfer to FDF, will be undertaken by IT as stated in the response to Original Specific Comment #28. Once the nontypical wastes have been segregated, and packaged for transport to FDF, these containerized wastes will then be handled in accordance with existing FDF procedures. As noted in the response to Original Specific Comment #28, however, this transfer activity is outside of the scope of the RDP (which relates only to that portion of the work which is within IT's scope of work); rather, this is an FDF Waste Programs Management responsibility.

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FDF's WPRAP organization is preparing the *WPRAP Solid Waste Management Plan* which will describe how solid waste generated by the remediation of OU1 will be handled and disposed. It is currently anticipated that this Plan will be completed by December 1998. This Plan will describe the transfer of nontypical waste from IT to FDF personnel.

Examples of the site procedures which will be considered for the management of nontypical waste received generated by the OU1 are listed below:

EW-0001,	"Initiating Waste Characterization Activities Using the Material Evaluation Form"
EW-0003,	"Nuclear Materials Disposition Order Management"
EW-0004,	"Satellite Accumulation Areas for Hazardous Waste"
EW-0005,	"Handling Containers of Unidentified Materials"
EW-0014,	"Managing PCBs and PCB Items"
EW-1016,	"FEMP Task Order Procedure for Waste Management and Technology Operations"
PT-0003,	"Control and Issuance of Empty Containers at the FEMP"
PT-0005,	"Packaging Low-Level Radioactive Waste (LLW) in Drums for Shipment"
PT-0006,	"Packaging Low-Level Radioactive Waste (LLW) in ISO Containers for Shipment"
PT-0007,	"Packaging Low-Level Radioactive Waste (LLW) in Metal Boxes for Shipment"
PT-0009,	"Collection of Contaminated Trash for Disposition"
PT-0011,	"Evaluating Low-Level Radioactive Waste (LLW) Streams for Shipment to the Nevada Test Site (NTS)"

Procedures, other than those in the foregoing, may be considered for implementation, depending on the particulars of the waste, disposal facility, etc.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.3.2 Page #: 9 Line #: 1 through 9
Original Specific Comment #: 30

Comment: The text lists uranium metal; transformers; unopened, intact drums; and mechanical equipment as types of nontypical wastes. It may be possible to recycle some of these materials. However, the text does not state whether a plan exists to recycle such materials, especially the contents of unopened, intact drums. The text should be revised to clarify this matter.

Response: Materials within the waste pits are contaminated with uranium and/or thorium plus their respective radionuclide daughter products. The materials were placed into the waste pits due to their inherent lack of suitability for use or recycle. Methods to identify, segregate and extract, decontaminate, and certify materials for recycle in this situation are complicated and costly. Recycle of materials was not evaluated as part of the FS process and is not a requirement of the OU1 ROD. There are no current plans to attempt to recycle any of the waste pit materials.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.4.2 Page #: 9 Line #: NA
Original Specific Comment #: 31
Comment: The text specifies the design feed rate to the dryer. The feed rate is applicable to the design presented in the RDP, which includes only one dryer. However, during the April 8, 1998, meeting, IT discussed use of two dryers, each smaller than the one included in the RDP. Therefore, the feed rate presented in the text should be reviewed to evaluate its applicability to the two-dryer system and revised if necessary.

Response: The feed rate referenced in the text is applicable to the dryer unit operation independent of the number of dryers specified in the design. The two-dryer system provides a moisture removal capacity equivalent to the single larger dryer design. The feed rate to each of the two smaller dryers will be 50% of the larger single dryer feed rate.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.5.2 Page #: 10 Line #: NA
Original Specific Comment #: 32
Comment: The text specifies the design criteria used to select the dryer for the design presented in the RDP. However, during the April 8, 1998, meeting, IT discussed use of two dryers, each smaller than the one included in the RDP. Therefore, the dryer design criteria should be reviewed and revised to make them applicable to the two-dryer system discussed by IT.

Response: The design criteria referenced in the text is applicable to the dryer unit operation independent of the number of dryers specified in the design. The two-dryer system provides a moisture removal capacity equivalent to the single larger dryer design. The feed rate to each of the two smaller dryers will be 50% of the larger single dryer feed rate.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.6.1 Page #: 10 Line #: 44 and 45
Original Specific Comment #: 33
Comment: The text states that the stack emission limit for radon will be determined by FDF using a sitewide model and the point source emission estimate from the process design. However, the text does not present any schedule for determination of the stack emission limit. The stack emission limit for radon should be determined before submittal of the final RDP, and the relevant assumptions, the values of model input parameters, and the results of the sitewide modeling should be included in the final RDP for U.S. EPA review. In addition, the final RDP should include (1) the details of

the stack emission monitoring plan that will be used to determine compliance with the stack emission limit for radon and (2) a contingency plan to be implemented in the event that radon emissions from the stack exceed the FDF-determined limit.

Response: Through modeling, FDF has determined the emission limit for radon-222, based on current stack design and operating conditions, to be 3×10^{12} pCi/hr. A summary of the FDF modeling, including input parameters, is included in Attachment A to the response to comment document.

The radon emissions will be monitored with a flow-through ionization chamber that determines the total alpha ionization from a sample of filtered air. In the preliminary design a sample is drawn at a continuous flow rate of nominally 2 L/min from the stack, the sample is filtered, then flows into an ionization chamber or other appropriate detector. Calibration and functional checks are based on a gamma source reading on the chamber exterior wall. A local readout and alarm indicates elevated readings. A remote readout at the control room panel alerts the dryer operator of the readings. In the event that the radon-222 emission rates reach 95% of the allowable emission limit, the dryer operator will reduce throughput until the emissions are brought under control.

More detailed documentation relative to the stack emissions monitoring activities is scheduled to be provided to the EPAs with the RA Documents Package, which is scheduled for submittal to the EPAs on September 25, 1998. Pursuant to the approved RAWP, a Sampling and Analysis Plan (SAP) will be included in the RA Documents Package, which, in part, will address stack emissions monitoring during operations. In addition, performance test criteria detailing planned emissions testing of point sources, will be provided with the RA Documents Package, for review by the EPAs. Monitoring, controls, and contingency measures will also be discussed in the Operations and Maintenance Plan, to be included in the RA Documents Package.

Action: The dryer stack emissions modeling results have been provided with this response to comments document as Attachment A. Specifics relative to the stack emissions monitoring will be provided in the SAP and the performance test criteria plan. In addition, specifics relative to the implementation of contingency measures in the event that emissions limits are exceeded from the stack will be addressed in the Operations and Maintenance Plan. These documents will be submitted to the EPAs with the RA Documents Package, by September 25, 1998, for review and approval.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.7.1 Page #: 11 Line #: 44 and 45
Original Specific Comment #: 34
Comment: The text states that filled and decontaminated railcars will be radiologically surveyed to meet the requirements of the U.S. Department of Energy (DOE) and the U.S. Department of Transportation (DOT). This statement implies that conducting a radiological survey of the railcars, irrespective of the survey results, is sufficient to meet the DOE and DOT requirements, which is incorrect. The text should be revised to specify (1) the DOE and DOT requirements regarding the radiological survey of the railcars, (2) any radioactive emission limit that the railcars are expected to meet under the DOE and DOT requirements, and (3) procedures that

will be implemented if the radiological survey of a railcar indicates that the railcar does not meet the DOE and DOT requirements.

Response: The text in question states that "each railcar will be ... decontaminated (as necessary), radiologically surveyed to meet DOE and DOT requirements, and transferred to FDF for transport off site to the CDF". This discussion is not intended to imply that railcars may be released irrespective of the survey results, as is stated in the comment. Rather, this activity involves a prescribed and potentially iterative process, as described in the response to U.S. EPA Original Specific Comment #9.

The establishment of DOT requirements are divided into the following three major areas: waste characterization, packaging, and shipping documentation.

Waste characterization is the determination that the waste being shipped meets the WAC of the disposal facility. From this determination, proper packaging requirements and shipping name are applied to the waste. The proper shipping name for OU1 waste will be Radioactive Material, LSA-I, n.o.s., UN2912.

Packaging of this type of waste requires a strong, tight package for shipment (49 CFR 173.427). By definition, a strong, tight package prevents leakage of radioactive contents under normal transportation conditions. The FEMP gondola railcars will be designed to meet this requirement and will have a flexible polyurethane coating permanently applied to the internal surfaces to further reduce the chance of leakage. The railcars will be stenciled on both sides as follows: "FOR RADIOACTIVE USE ONLY."

Before accepting loaded railcars from IT, the exterior of each railcar will be surveyed by FEMP Radiological Control (as discussed above) for compliance with DOT regulations. Exterior non-fixed contamination levels will be determined per 49 CFR 173.443, "Contamination Control, " by either:

(a) Wiping an area of 300 cm^2 of the surface concerned with an absorbent material. Sufficient measurements must be taken in the most appropriate locations to yield a representative assessment of the non-fixed contamination levels. The amount of radioactivity measured on any single wiping material, when averaged over the surface wiped, may not exceed 2.2 dpm/cm^2 at any time during transport; or

(b) Using other methods of assessment of equal or greater efficiency, in which case the efficiency of the method used must be taken into account and the non-fixed contamination on the external surfaces of the package may not exceed ten times 2.2 dpm/cm^2 (i.e., 22 dpm/cm^2)

Given these numbers, for adherence to DOT requirements, each railcar may have up to 2,200 dpm/100 cm^2 of non-fixed alpha contamination. However, in taking into account DOE limits, the FEMP has set the limit at a more conservative level of 2,000 dpm/100 cm^2, which allows for the railyard to be controlled as a "contamination area" instead of "high contamination area".

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Action: The text in **Section 2.7.1** has been revised to clarify that railcars must meet the DOE/DOT requirements before being released from IT's facility.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.8.1 Page #: 15 Line #: 40
Original Specific Comment #: 35
Comment: The phrase "Storm water will" should be revised to read "Noncontact storm water will."

Response: Agree.

Action: The text has been revised in accordance with the comment.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.8.2 Page #: 16 Line #: 28 through 35
Original Specific Comment #: 36
Comment: The text presents criteria for designing the storm water management system. The design criteria include a 25-year, 24-hour storm for designing the new storm water system but only a 5-year storm for evaluating the flow velocity in open channels. Use of the 5-year storm criterion might lead to construction of open channels that overflow during a 25-year, 24-hour storm event. The text should be revised to provide the rationale for specifying a criterion for evaluation of flow velocity in open channels whose use might result in inadequate storm water management on site.

Response: Consistent with *Rainwater and Land Development*, Ohio's Standard for Stormwater Management, the text should have stated that open channels will use the velocity of flow expected from a 10-year, 24-hour storm, rather than a 5-year storm event currently cited in the text. This will provide adequate stormwater management through the life of the project.

Action: The text in this section has been revised to reflect the above change.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.2.3 Page #: 29 Line #: 1 and 2
Original Specific Comment #: 37
Comment: The text states that materials determined to be mixed wastes will be loaded into boxes and managed as nontypical wastes. However, the specifications for mixed waste storage boxes are not included in the text. In addition, procedures for managing nontypical wastes are not presented in the RDP. The RDP should be revised to specify material, construction, and size requirements for mixed waste storage boxes and the procedures, storage areas, and holding time requirements for managing nontypical wastes.

Response: As noted in the responses to Original Specific Comments #28 & 29, the provision of containers into which the nontypical waste is to be loaded, the transfer of these containers from the IT area, and the management of these nontypical wastes for treatment/disposal is outside the scope of this RDP. The issue of site procedures

which address the management of the nontypical waste is covered in the response to Original Specific Comment #29. Relative to the containers, FDF Waste Programs Management will identify the appropriate container to be used for a particular waste, based on the characteristics of the waste and the ultimate dispositioning of that material. Additionally, the *WPRAP Solid Waste Management Plan* which is discussed in the response to Original Specific Comment #29 will provide a summary description of the FDF management of these nontypical wastes (including mixed wastes).

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.0 Page #: 31 Line #: 23 and 24
Original Specific Comment #: 38

Comment: The text requires installation of impermeable barriers under "dirty haul roads." If the intention of the text is to require installation of impermeable barriers under dirt roads, the text should be revised accordingly. If installation of impermeable barriers under "dirty haul roads" is required, the RDP should be revised to define a dirty haul road and to include a site plan identifying the roads under which impermeable barriers must be installed. In addition, the text should be revised to include specifications, such as material and thickness requirements, for the impermeable barriers and their installation.

Response: The only "dirty haul road" to be constructed for the project, is the one shown on the Site Facilities Layout drawing [(Figure 3-1) in the Site Plans section of Volume 1], as the haul road extending from the waste pits to the Material Handling Building. In that this haul road is to be a concrete, curbed road, the installation of an impermeable barrier, as discussed in the referenced section is not required.

Action: Since no "dirty haul roads", other than the one described above, are to be constructed, the bullet referenced in the above comment has been deleted.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.0 Page #: 31 Line #: 28
Original Specific Comment #: 39

Comment: The text requires use of "effective flow logic" for waste transportation. The text should be revised to explain exactly what is meant by "effective flow logic."

Response: Effective flow logic would include access to several pits utilizing the same haul road, or use of a two lane direct access road verses single lane one way road which circumnavigates the pits.

Action: The referenced text has been revised to clarify what is meant by effective flow logic.

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Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.0 Page #: 31 Line #: 31 and 32
Original Specific Comment #: 40
Comment: The text states that during operations, standard operating procedures (SOP) will provide direction for controlling the spread of contamination. However, the SOPs are not included in the RDP, and no document containing them is cited in the text. Either the RDP should be revised to include all the relevant SOPs, or the text should be revised to clearly cite a document containing the SOPs.

Response: Pursuant to the approved RAWP, details associated with facility operations will be provided in the RA Documents Package to be submitted to the EPAs on September 25, 1998 for review and approval. Although the RA Documents Package will not include any specific operations procedures, it will include an Operations and Maintenance Plan which will provide a discussion of planned operation and maintenance activities, and, as agreed to, a list of the procedures to be developed in support of operations.

Action: The referenced text has been revised to reflect that a list of the standard operating procedures will be included in the Operation and Maintenance Plan.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 7.3.6 Page #: 41 Line #: 33 through 35
Original Specific Comment #: 41
Comment: The text specifies the minimum slope for various surfaces. The text specifies a minimum slope of 3 horizontal to 1 vertical (3H:1V) but does not specify the surface type to which this slope applies. The text should be revised to specify the surface type to which a 3H:1V slope applies.

Response: The 3H:1V slope will apply, in general, to the worst soil conditions, such as cohesionless granular material with no vegetative cover. This sloping requirement applies a margin of safety, over and above the OSHA recommended minimum sloping for this soil type (see CFR 1926.652). It should be noted, however, that all excavations will be characterized by a Competent Person, trained in soil excavations, prior to sloping requirements being completed and accepted. Ongoing daily inspections will also be performed, in compliance with referenced OSHA guidelines.

Action: The text in **Section 7.3.6 of the Design Criteria and Assumptions**, has been revised to:..."vertical (3H:1V) for slopes of cohesionless soils, with no vegetative cover present."

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 7.5.2.5 Page #: 48 Line #: NA
Original Specific Comment #: 42
Comment: The text specifies a dryer enclosure with open sides. Considering that (1) rotary dryers and material feed equipment can be noisy and (2) the dryer enclosure will be located in an area that contains several other facilities, use of a dryer enclosure with closed sides should be considered to minimize noise outside the dryer enclosure.

Also, based on discussions during the April 8, 1998, meeting, the enclosure size should be reviewed and modified, if necessary, in light of IT's decision to use two dryers instead of one.

Response: The facility buildings and structures are designed primarily to address weather protection, with noise control being a secondary consideration. Based on the revised process design, which includes two rotary dryers, the roof cover over the dryer unit area has been deleted. A new building has been provided in the design to enclose the process equipment associated with the dryer gas cleaning and wastewater treatment systems. This building has partial side walls to maximize building ventilation and reduce building interior temperatures during hot weather, and to allow building enclosure during anticipated periods of sustained cold weather.

Working with this layout/configuration, noise control measures can then be addressed through adherence by equipment suppliers to the Noise Level Specification, Section 13310 (contained in Volume 1 in the Equipment/Data Sheets Specifications section). In addition, protection of the workers is further addressed through the project hearing conservation program which is a part of both the Pre-Operational and Operational Health and Safety Plans.

Action: The design documents have been revised to reflect the present building design. Text in this section will be revised to describe the new building.

General Arrangement Plans

Commenting Organization: U.S. EPA Commentor: Saric
Drawing #: M-90-02-002 Page #: NA Line #: NA
Original Specific Comment #: 43
Comment: The drawing shows the equipment layout for the dryer process area. However, the drawing is based on the use of only one dryer, whereas IT has decided to use two dryers. Therefore, the drawing should be revised based on the design changes discussed by IT during the April 8, 1998, meeting. In addition, the associated PIDs should be provided in the RDP.

Response: The facility layout and general arrangement drawings have been revised to show the two-dryer configuration. PFDs for the dryers have also been provided. P&ID's are part of the detail design which is not part of this submittal (see response to Original General Comment #4).

Action: Drawing M-90-02-002 along with other facility layout and general arrangement drawings will be revised to show the present equipment configuration.

Commenting Organization: U.S. EPA Commentor: Saric
Drawing #: M-90-02-003 Page #: NA Line #: NA
Original Specific Comment #: 44
Comment: The drawing shows the equipment elevations and sections for the dryer process area. However, the drawing is based on use of only one dryer, whereas IT has

decided to use two dryers. Therefore, the drawing should be revised based on the design changes discussed by IT during the April 8, 1998, meeting.

Response: The facility layout and general arrangement drawings have been revised to show the two-dryer configuration. PFDs for the dryers have also been provided.

Action: The facility layout and general arrangement drawings have been revised to show the present equipment configuration.

Equipment Data Sheets and Specifications

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original Specific Comment #: 45
Comment: The document includes a 4-page table listing various design components and the specification sections where requirements for these components are presented. However, several relevant specifications included in the RDP are not listed in the table. For example, Specification Section 13122 contains the requirements for the material handling building but is not listed in the table. The table should be revised to list all relevant specification sections.

Response: The intent of this section was to provide standard industrial specifications for typical process equipment. A general specification for the pre-engineered building has been provide in the revised RDP. The equipment list table has been revised to list the associated equipment specifications which are included in the equipment data sheets/specifications section of the RDP.

Action: The table will be revised to list all relevant equipment specifications.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 11110 Page #: 11110-1 Line #: NA
Original Specific Comment #: 46
Comment: Article 1.2 of this and several other sections lists Specification Sections 13310 and 15050 as related sections. However, Sections 13310 and 15050 are not included in the RDP. The RDP should be revised to include Sections 13310 and 15050.

Response: Specification Sections 13310 and 15050 will be added to the grouping of specifications contained in Volume 1 of the RDP.

Action: Specification Sections 13310 and 15050 have been added to the Draft Final RDP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 11182 Page #: 11182-2 Line #: NA
Original Specific Comment #: 47
Comment: Article 1.2B9 of this section cites Appendix 1 for pit waste characterization and surrogate feed drying test data. However, Appendix 1 is not included in the RDP, and the pit waste characterization data is presented in Appendix A. The text should

be revised to correctly cite Appendix A for pit waste characterization data, and the RDP should be revised to include surrogate feed drying test data.

Response: The purpose of Appendix 1 was to provide additional information to equipment vendors in support of equipment procurement.

Action: The waste characterization summary (Appendix A) has been deleted.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 11182 Page #: 11182-11 Line #: NA
Original Specific Comment #: 48
Comment: Article 2.1B of this section specifies materials and equipment to be provided by the seller of the thermal dryer. Based on discussions during the April 8, 1998, meeting, the text here and in all relevant specifications should be revised as necessary in light of design changes resulting from IT's decision to use two dryers instead of one.

Response: The specification has been revised to incorporate the use of two dryers.

Action: The revised specification has been included in the RDP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 13400 Page #: NA Line #: NA
Original Specific Comment #: 49
Comment: This section presents specifications for various components of the WTS. However, the specifications are not detailed enough to ensure selection of proper equipment, and for many components, the specifications are incomplete. For example, specifications for the caustic metering pump on Page 13400-3 do not include requirements for the construction material or the size of the static mixer. The WTS component specifications should be revised to make them complete and detailed enough to ensure selection of proper equipment.

Response: The approved RAWP does not specify that detailed specifications are to be provided for all of the facilities, equipment, and ancillary activities associated with the OU1 remediation facilities. As stated in Table 4-2 of the RAWP, the Plant Facilities Engineering Package is to provide "specification information (emphasis added) for various individual items of equipment (dryer, shredder, pumps, tanks, blowers, condensers, etc.)". The specification provided for the WTS provides information on the process equipment of sufficient detail for reviewers to determine if the treatment provided can meet applicable ARARs. The RDP was not submitted for the purpose of conducting a biddability review. Our ongoing process of design refinement assures that equipment vendors will be provided with the information necessary for proper selection of process equipment.

Action: No action required.

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

Point Source Emission Data

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.1 Page #: 2 Line #: NA
Original Specific Comment #: 50
Comment: The text in this section is not based on use of the thermal oxidizer discussed by IT during the April 8, 1998, meeting. The text should be revised in light of the design changes discussed by IT in the meeting.

Response: At the time of the initial RDP submittal the thermal oxidizer was included as an optional equipment item subject to the results of design verification testing. The point source emissions data section will be revised to include the use of the thermal oxidizer.

Action: The **Point Source Emission Data** section has been revised based on the revised process design.

VOLUME 2

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.3.2 Page #: 9 Line #: 11 through 15
Original Specific Comment #: 51
Comment: The assumptions that (1) 36 inches of subsoil is contaminated and (2) half of this material will be sent to the OSDF are crucial to material disposition planning. Therefore, the text should be revised to explain the basis for these assumptions.

Response: Without data to definitively estimate soil contamination depths below the waste pits, assumptions needed to be made. The subject assumptions were first used in the development of cost estimates to assess alternatives in the FS, and have been carried forward in the development of other WPRAP scoping/planning documents, including this scope of work. It is agreed that knowing the true depth of contamination is crucial to material disposition planning, and for that reason, as excavation proceeds, material disposition plans will be further defined to reflect actual depths of soil contamination found.

Action: No further action required.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.3.2 Page #: 9 Line #: 21
Original Specific Comment #: 52
Comment: In the text, the assumption is made that no off-site borrow material will be used to grade the excavated pits in accordance with the final design grading plan. The text should be revised to explain the basis for this assumption.

Response: As discussed in the response to USEPA Specific Comment #22, the assumption that no off-site borrow material will be needed is based on currently identified final grading plans for the waste pit area, and assumptions as to the subsoil

contamination depths. Under this scenario, clean berm material appears to be sufficient to fill excavated areas, as needed to achieve the final grade.

Action: The text in question has been revised to read as follows: "It is currently assumed that no off-site borrow material will be required to grade the excavated pits to the lines and grades as shown on the Waste Pit Restoration Plan (Appendix A), based on the assumed subsoil excavation depth of 36 inches.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.5.1 Page #: 36 Line #: 32
Original Specific Comment #: 53
Comment: The text states that steps will be taken to prevent premature excavation through the pit liner or into the top of the Great Miami Aquifer. The text should be revised to explain these preventive steps.

Response: See response to Ohio EPA Original General Comment #6.

Action: **Section 4.5** of the **Excavation Plan** has been revised to clarify the issues discussed above, and as discussed in the response to Ohio EPA Original General Comment #6.

VOLUME 3

Site Preparation Package

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.3 Page #: 11 Line #: 12
Original Specific Comment #: 54
Comment: The text states that a sanitary sewer will collect drain water from the maintenance building. However, Figure 5-1, which shows the site utility plan, does not show any sanitary sewer that will collect water from the maintenance building. Figure 5-1 should be revised to show the sanitary sewer that will collect drain water from the building.

Response: The sanitary line will not be extended to the maintenance building.

Action: The text on page 11 has been revised to eliminate the reference to the maintenance building.

Commenting Organization: U.S. EPA Commentor: Saric
Figure #: 2-1 Page #: NA Line #: NA
Original Specific Comment #: 55
Comment: Figure 4-5 shows the layout of a decontamination facility. However, the decontamination facility is not shown in Figure 2-1, which shows the site facilities layout. Figure 2-1 should be revised to show the location of the decontamination facility.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Response: Figure 4-5 makes reference to a Decontamination Facility. This reference is not correct. The reference to the "Decontamination Facility" in figure 4-5 will be changed to "Changeout Facility".

Action: Figure 4-5 has been updated.

Response to Ohio EPA Comments on the Draft Remedial Design Package for Operable Unit 1

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

Ohio EPA GENERAL COMMENTS

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 1

Comment: The treatment strategy as outlined in this Package appears adequately to satisfy the requirements of the PCDF's WAC policy and to address transportation safety issues. Many of our comments address the details of the pit excavation and strategies to minimize and prevent additional contamination of the groundwater. Our concerns are that the rate of contaminant migration will increase due to the pit excavation. Specifically, we are concerned about infiltration into the GMA during rainfalls that exceed the capacity of the storm water management system. A storm water management emergency plan should be developed (similar to the strategy established for the AWWT) that prioritizes the management of storm water so that those water sources which pose the greatest threat are preferentially treated before other storm water flows. Infiltration of storm water into the open pits should have the highest priority.

Response: It is agreed that a Stormwater/Wastewater Management Plan (SWMP), which prioritizes the management of stormwater within WPRAP, should be developed, and submitted to USEPA/OEPA for review and approval. Accordingly, WPRAP will develop a SWMP and submit it to the EPAs, with the RA Documents Package, by September 25, 1998, for review and approval.

In general terms, the SWMP will reflect the following stormwater management strategy:

1) Stormwater management will be accomplished by operating the Clearwell at the lowest level possible, thus maximizing the available holding volume for storm events. It is estimated that Clearwell can contain approximately 1,000,000 gallons of water.

2) If the water level in the Clearwell exceeds a predetermined value, and/or if flow to the Biodenitrification Surge Lagoon (BSL) is terminated, water discharges to the Clearwell will be throttled or shut down in a prioritized manner.

3) The OU1 Stormwater Management (SWM) Pond is not anticipated to receive contaminated water of any significance (i.e., it will be receiving water (e.g., stormwater) which does not come in contact with the waste). In addition, discharges from the SWM Pond to the BSL will be of a low priority (see response to Ohio EPA Original Comment #51).

4) During a storm event, WPRAP may also be able to operate Pit 5 with one extra foot of water level above the normal operating level. This would create additional surge volume.

5) Prioritization of discharges to the Clearwell and the BSL will be addressed in the SWMP.

Additional time is required to adequately assess the most appropriate path forward for the management of the various stormwater/wastewater streams within WPRAP. This assessment will also include WPRAP's relationship with sitewide water management activities described in the Operations and Maintenance Master Plan for Aquifer Restoration and Wastewater Treatment (OMMP). Accordingly, the SWMP for WPRAP will be developed and submitted as a part of the Remedial Action (RA) Documents Package.

Action: A SWMP for WPRAP will be developed and submitted as a part of the Remedial Action (RA) Documents Package, which is scheduled for submittal to the EPAs by September 25, 1998, for review and approval.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 2

Comment: This Package states that the typical operating schedule for the excavation activities would be a forty hour work week and that drying operations would continue around the clock. The Package does not contain contingencies for a winter shut-down when the Pits are frozen solid. We would expect these contingencies to consider the quantities of stockpiled materials that would be required to feed the dryers, and methods to control fugitive dusts.

Response: IT has taken into consideration the requirements for winter operations and the excavation quantities to meet the production schedule. The current excavation production based upon a 40-hour work week is adequate to support a 24-hour thermal drying operation. However, IT has the capability to increase manpower loading or to increase the standard work week for the excavation crew (with FDF approval) if necessary. There are currently no plans for scheduled seasonal shut-downs, including excavation in the pits during inclement winter conditions (e.g., when the pits are frozen). In addition, there are no plans to stockpile additional quantities of material, beyond those currently identified in the RDP (in the various facilities).

Action: No further action necessary.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 3

Comment: This document divides information dealing with potential air emissions into several sections throughout the three documents. It would be helpful to include in future documents a comprehensive section of air emissions data and control methods instead of it being scattered throughout the several volumes. The level of detail should be substantially equivalent to that typically submitted for an Ohio PTI.

Response: This division of discussion relative to air emissions is needed in order to support the functions of the various sections of the Remedial Design Package (RDP). Specifically, the design documents contain the discussion of the air emissions issues which are specific to particular work activities. Rotary Dryer operations along with

other point sources are addressed in the process description documents, PFDs, and point source emissions data section of Volume 1. The Excavation Plan (Volume 2) addresses dust control measures relevant to waste pit excavation activities. The Pre-operational Environmental Control Plan (Volume 3) is specifically intended to address dust control measures related to pre-operational activities. In other words, while this organization does not combine all air emission issues in to one section of the RDP, the information is organized in an effective manner for use in guidance of the execution of the work tasks.

To facilitate EPAs review relative to assessing PTI equivalency, the Point Source Emissions Data section of Volume 1 has been revised to provide the information which would traditionally accompany a State of Ohio PTI application for the rotary dryer operation.

Action: The **Point Source Emissions Data** section of Volume 1 has been revised to facilitate the PTI review, as described above.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Page #: Line #: Code: c
Original General Comment #: 4
Comment: The Ohio EPA is currently evaluating additional information recently provided by FDF regarding the RCRA characteristic waste issues. We will provide our guidance pertaining to these issues when that review is completed.

Response: Comment acknowledged. DOE is ready to provide any additional, available information that Ohio EPA might require to complete its review.

Action: No further action required relative to the Draft Final RDP.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 5
Comment: This Package does not contain provisions for monitoring groundwater quality of either the Great Miami Aquifer or perched water. A monitoring plan should be developed for review and approval that assesses the impact of the Pit excavations on the water quality of the aquifer. We expect that this plan will include sampling of existing monitoring wells immediately down-gradient of the excavation activities.

Response: DOE acknowledges that the RDP does not contain additional provisions for groundwater quality monitoring in the vicinity of OU1, beyond those already provided in the IEMP. Section 3.5.1.4 of the IEMP (Waste Storage Area Monitoring Module) provides the requested plan. DOE believes, however, that the groundwater monitoring network established in the IEMP is adequate for monitoring implementation of the OU1 remediation. Specifically, the IEMP provides for monitoring immediately downgradient of the waste pits and the Clearwell, with well numbers 3027, 2027, 2648, 2821, 3821, and 2649. The groundwater in the immediate vicinity of the waste pits is already contaminated, thereby requiring remediation. As previously discussed with your Agency, the IEMP monitoring

network, in conjunction with the planned pre-design monitoring, will be capable of detecting any changes in groundwater quality which would affect the design of the Waste Storage Area Module of the Enhanced Groundwater Remedy. As discussed at the April 8, 1998 meeting with your Agency, it is planned that the pre-design monitoring will consist of a direct push (i.e., geoprobe) sampling program similar to that used to refine the definition of the South Plume during late 1996 and early 1997.

DOE agrees fully with Ohio EPA that it is appropriate to complete waste excavation activities in a manner that minimizes impacts to groundwater (see the responses to Ohio EPA comments No. 1, 6, 7, 47, and 50, relative to this issue). As such, DOE is committed to reasonable measures to minimize impacts to the groundwater. Given this commitment, it is expected that any such impacts would be very localized and further contained by the low rate of contaminant movement in groundwater in the area (approximately 33 feet per year). Such localized impacts would affect neither the design or duration of the Enhanced Groundwater Remedy. Again, as stated above, the IEMP network is capable of detecting any impacts that would substantively affect the groundwater remedy. As such, DOE does not believe additional monitoring points, beyond those identified above, would provide useful data.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 6

Comment: The text and Figure 4-1 are not completely clear about the distinction between excavating the wastes, the liners and the sub-soils. In the legend of Figure 4-1, the pink coloring denotes "Waste excavation complete except for subsoils." From this, the reader infers that areas colored pink indicates that both the wastes and the liner have been excavated. If this is the case, the subsoils will be exposed to contaminated groundwater infiltration for long periods of time. An approach more protective of groundwater would be to remove all of the wastes down to the liner for an entire pit before any of the liner materials are removed.

Response: For Waste Pit Nos. 1, 2, 4, 5, and 6 :
IT will initially excavate the cover and waste soils, down to the point where the liner is visible. Elevation controls will be used to guide the excavations such that the equipment operators will be kept informed of the working elevation at all times. As the excavation approaches the given design elevation of the liner, smaller cuts (i.e., less depth) will be made until the liner is visibly located or the given design elevation of the liner is reached.

Once the liner (or liner design elevation) is reached, excavation of the waste materials will proceed laterally along the top elevation of the liner (or liner design elevation) until a suitable working surface area is established. A suitable working surface area will basically consist of a suitable subgrade with adequate reach to both the forward excavation working face, and the liner material, previously exposed. Liner materials will be utilized to construct stormwater segregation berms,

preventing contact stormwater (falling within an active, disturbed excavation area of the waste soils) and non-contact stormwater (falling in an area already excavated to subsoil elevation) from contacting one another. These stormwater segregation berms will be removed, along with applicable portions of the liners, as the excavation work progresses. New segregation berms will then be constructed out of and on top of the liner material at the back edge of the working area, with the excavation proceeding in this manner until the waste and liner have been removed. Directed excavation will then proceed to remove subsoils.

The potential for penetration into the Greater Miami Aquifer (GMA) will be minimized through initiation of proper elevation control at all times. Waste Pits 1, 2, 4, 5 and 6 have adequate native soil (relatively low permeability glacial till) and/or common fill between the liner bottoms and the aquifer layer so as to avoid direct cross contamination of the aquifer by the construction equipment during the excavation activities. Based on waste pit construction records, and the known thickness of the glacial overburden in the Waste Storage Area, these soil layers are expected to be between 5 and 15 feet in thickness, as given on Figure 2-2 of the Design Criteria and Assumptions section. Liner breaches during the neat-line excavation phase (cover, waste, and liner) should not pose a significant risk of contamination to the GMA from infiltration as the low permeability till would act to restrict flow into the GMA.

For Waste Pit No. 3 and the Clearwell:
Waste Pit No. 3 and the Clearwell appear to be constructed directly on top of the GMA. Based on construction records for these two pits, a thin, low permeability soil liner is currently in place to separate the wastes and the GMA. During excavation, every attempt will be made during the neat-line excavation phase for these pits to leave the existing liner in place until all wastes are removed.

However, since this liner is constructed of clay, there exists a likelihood that a certain amount of waste materials will remain within the cracks and uneven interim surface of the exposed clay liner, which is typical when excavating cohesive soils. Additionally, since the clay liner is very thin, corresponding concerns arise such as dessication and degradation resulting from the clay liner being exposed to the atmosphere (i.e., sun, wind, rain, etc.) for an extended period of time prior to its excavation. Re-entering the pit bottom with construction equipment could then pose a breaching concern. For these reasons, and in order to ensure that the wastes and liner are completely removed, the remaining Pit 3 and Clearwell soil liners will be removed concurrently with approximately one (1) foot of the underlying subsoils, as the final part of the waste pit excavation (i.e., prior to Directed Excavation).

Excavation of the liner material will proceed laterally across the pit bottom. Liner/ subsoil materials (as discussed above) will be utilized to contruct stormwater segregation berms, preventing contact stormwater (falling within the liner area) and non-contact stormwater (falling within the exposed subsoils area) from contacting one another. Stormwater segregation berms will be constructed during liner excavation similar to the method described for excavation of the other pits. Following liner removal, directed excavation will then proceed to remove contaminated subsoils.

For excavation activities within all of the pits, removal of stormwater (i.e., by pumping) will be a priority, both in the cover/waste/liner excavation, and in the exposed subsoil portion of the pits as the excavation progresses, in order to reduce the amount of possible infiltration into the underlying GMA.

Action: **Section 4.5** of the **Excavation Plan** has been revised to clarify this issue as discussed above. Further definition of WPRAP stormwater management priorities will be provided in the WPRAP SWMP, which is discussed in the response to Ohio EPA Original Comment #1.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 7
Comment: Contingency plans should be developed to identify and patch penetrations of the glacial overburden that expose the sands and gravels of the Great Miami Aquifer. These plans should address penetrations that occur during the excavation of both the waste and the liner. Excavations that completely penetrate the glacial overburden should intentionally occur only when chasing soils that are above the FRL during the subsoils excavation. During these phases, the waste materials should have already been removed from the pit. In this excavation strategy, infiltrating waters would only have contacted contaminated soils and would not have contacted waste pit materials.

Response: This comment is similar to Ohio EPA Original General Comment #6. Please see the response to Original General Comment #6. For Waste Pit Nos. 1, 2, 4, 5, and 6, due to the thickness of undisturbed glacial overburden beneath these pits (i.e., 5 to 15 feet), there is currently no defined need or plans to identify or patch penetrations of the liners if they are discovered during the excavation process. Phase II Directed Excavations into the subsoils will follow the Phase I Neat-Line Excavations, as directed by FDF and depicted on Figure 2-3 of the Design Criteria and Assumptions section. These directed excavations are the only excavations which may potentially penetrate the unsaturated portion of the GMA.

For Waste Pit No. 3 and the Clearwell, attempts will be made during the neat-line excavation phase for these pits to leave the existing liner in place until all wastes are removed. The remaining soil liner will then be removed concurrently with the first increment of directed excavation of subsoils, as directed by FDF.

Action: **Section 4.5** of the **Excavation Plan** has been revised to clarify this issue as discussed above, and as discussed in the response to Ohio EPA Original General Comment #6.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code: c
Original General Comment #: 8
Comment: The IEMP Environmental Monitoring Status Report for Fourth Quarter 1997 reported (page 3-2) that four project-specific air monitors for the waste pit area were shut off. The text went on to state that future needs for project-specific monitoring

would be evaluated, but the IEMP Report provides no timetable for this evaluation. Develop a project-specific air monitoring plan that addresses environmental impacts of the waste pit remediation. This plan should at a minimum include total particulate uranium (and other rads) concentrations at the four locations referred to in the IEMP. Additionally, radon monitoring should be performed at the WPRAP boundary.

Response: DOE acknowledges that the RDP does not contain provisions for environmental air monitoring in the immediate vicinity of OU1, beyond those already provided in the IEMP. DOE maintains the air monitoring network established in the IEMP provides adequate environmental monitoring for the implementation of the OU1 remediation. Specifically, the IEMP provides monitoring along the site fence line which is capable of detecting changes in emissions associated with all remediation activities on site, including emissions associated with the OU1 remediation. There will, however, be continuous point source air monitoring associated with the waste drying unit.

In addition to the IEMP fence line monitoring, a significant amount of occupational monitoring will be conducted within the waste pits themselves. As described in the Pre-Operational Health and Safety Plan, occupational monitoring will be conducted within the waste pit area for radiological exposure. Specifically, there will be approximately five Pylon monitors placed around the pits and at the boundary for monitoring radon concentrations as well as personal radon monitors and other types of occupational air monitoring instruments. Project-specific decisions relative to worker PPE, stay times and contamination control will be based on analysis of this data. The use of this type of continuous occupational monitoring will enable the project to modify work practices in a timely manner and thereby limit airborne emissions. Further, as required by fugitive dust BAT requirements, visual monitoring will be conducted during operations to ensure that emissions control measures are being adequately implemented.

The IEMP and occupational air monitoring programs, in combination with the continuous point source air monitoring associated with the waste drying unit, allows for more than adequate monitoring to confirm regulatory compliance, public protection and worker protection.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Page #: Line #: Code:
Original General Comment #: 9
Comment: The proposed onsite lab is located close to the rail loadout area, contaminated areas, and in general proximity where elevated radon levels and rad particulates may be smeared over from pit areas or OU4 silos. Has an assessment been performed on the impact of these conditions on other radiological analysis performed at the lab?

Response: A qualitative assessment has been performed. The lab may be impacted by elevated radon from the silos, or other site sources. The effects will be minimized by use of nitrogen blankets or other techniques applied to counting chambers and

gamma shields. Particulate contamination is not expected at the lab, nor is direct radiation from the actual pit effort.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Page #: Line #: Code:
Original General Comment #: 10
Comment: At the April 8 overview presented by IT Corp., no data was available of the pilot runs of archival pit waste from which modeled estimates of airborne radiologicals could be made to estimate NESHAPS compliance. Please provide the relevant data with the revised version of this Design Package.

Response: The primary focus of the design verification testing was to determine the effectiveness of a rotary drying technology applied to the waste. A secondary objective was to determine if organics would be present in the dryer offgas which would affect gas cleanup system design. During the testing, a qualitative radon emission test was performed, however, which confirmed the radon emission estimates stated in the Point Source Emissions section of the RDP. The results of the emissions testing from the design verification testing have been summarized in the Point Source Emissions section.

Action: The **Point Source Emissions** section (Volume 1 of the RDP) has been revised to incorporate the results of the design verification testing.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Page #: Line #: Code:
Original General Comment #: 11
Comment: Have blended wastes containing VOC's and pyrophores such as uranium and thorium fines been successfully dried without fires or explosions resulting?

Response: Design verification testing was performed on approximately one ton of typical waste material provided by FDF, from archived samples. This waste included VOCs, but it is not known if pyrophores were present. It is important to note that pyrophoric material is considered nontypical waste which is turned over to FDF for management (e.g., treatment, disposal, etc.). The operational strategy includes screening for nontypical waste prior to material being sent to the dryer facility. If any material did in fact reach the dryer, the dryer design reduces potential rapid oxidation issues through the use of an inerted atmosphere. The temperature of the waste is expected to range between 175 and 220 degrees F, which further reduces the possibility of a significant reaction.

Action: No further action required.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Page #: Line #: Code:
Original General Comment #: 12
Comment: As the excavation and transport of pit wastes is scheduled to be a multi-year process, has there been any attempt at modeling the radiological exposures/risk to maximally exposed individuals and the general public?

Response: In support of the Operable Unit 1 Feasibility Study and Record of Decision, quantitative evaluations of impacts to workers and the general public during remediation were completed. These evaluations are documented in the short-term effectiveness discussion for the selected remedy in both of the above referenced documents. These evaluations documented that short term risks to workers and the public were within acceptable boundaries. This included evaluation of an accident scenario during waste transportation. Mandatory compliance with the ARARs identified in the OU1 ROD will ensure these previous conclusions pertaining to short-term risk remain valid.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.1 Page #: 4 Line #: Code: c
Original General Comment #: 13
Comment: Project specific environmental monitoring, specifically air monitoring should be addressed in the remedial design package.

Response: See responses to Ohio EPA Original General Comments #5 and #8.

Action: No action required.

Ohio EPA SPECIFIC COMMENTS

Volume 1 of 3 Overview of Remedial Design

Description of the Operation and Processes, Revision B

Commenting Organization: Ohio EPA Commentor: DSW
Section #: Page #: N/A Line #: N/A Code #: c
Original Comment #: 14
Comment: The storm water controls for storage piles is not adequately addressed in this section. Please add information as to what will be done to control erosion, sediment, and storm water from storage piles.

Response: Stormwater controls for storage piles for pre-operational activities were addressed in section 3.2 of the Site Preparation Package. Stormwater controls for storage piles for the operational activities (i.e., waste excavation and drying) were given in Table 3-2c of the Design Criteria and Assumptions section and will be further addressed in the Operational Environmental Control Plan which will be provided as part of the future RA Documents Package.

Action: A new section (i.e., **Section 2.8.6**) has been added to the **Description of the Operation and Processes**) to address the storage pile stormwater control discussions mentioned above. Further, the Operational Environmental Control Plan, will be provided to the EPAs, by September 25, 1998, as a part of the RA Documents Package, for review and approval. Stormwater management issues such as the above will also be discussed in the WPRAP SWMP, which is discussed in the response to Ohio EPA Original General Comment #1.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Acronyms Page #: ix Line #: na Code #: E
Original Comment #: 15
Comment: Pages ix and x and duplicated on xi and xii.

Response: This is a word processing error. The list of acronyms and abbreviations section of this document should end on page "x".

Action: Pages "xi" and "xii" have been deleted.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.2 Page #: 3 Line #: 10 - 12 Code #: C
Original Comment #: 16
Comment: These lines state that nontypical wastes not meeting the CDF WAC will be stockpiled in the excavation area. The design should include a stockpile for nontypical wastes outside of the excavation area in a controlled area.

Response: The nontypical waste stockpile in the excavation area for each pit will be used for segregation and temporary holding of nontypical waste materials identified during pit excavation. Nontypical waste materials will be periodically transferred from the pit stockpiles to the designated controlled area between pits 4 and 6 for subsequent containerization and transfer to FDF. This nontypical waste transfer area was referenced in this section of the text and was shown on the Site Facilities Layout Drawing (Figure 1-3) of the Site Plans (Volume 1). The responses to U.S. EPA Original Specific Comments #28 and #29 provide further discussion on the subject of the management of nontypical wastes.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 2.3.4 Page #: 6 Line #: 22 Code #: E
Original Comment #: 17
Comment: There is no debris shredder M-1001 in the Process Flow Diagrams. M-1501 is likely the unit referred to.

Response: The text was incorrect. The debris shredder equipment number should be M-1501.

Action: The referenced text has been revised to indicated the proper equipment number reference for the debris shredder.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: 2.5 — Page #: 8 — Line #: 32 — Code #: C
Original Comment #: 18
Comment: Please describe further equipment or methods used to mechanically remove wastes that will stick to the sides of the drum.

Response: The design verification testing indicated that waste pit materials did not tend to stick to the interior heat transfer surfaces of the dryer if the shell temperature was maintained above 600 F. Mechanical internal shell cleaning devices should not be required.

Action: Reference to mechanical internal shell cleaning devices has been deleted.

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: 2.5 — Page #: 9 — Line #: 17 — Code #: C
Original Comment #: 19
Comment: Describe a drag flight conveyor and how the equipment will be utilized.

Response: A typical drag flight conveyor consists of a single or double strand of continuous chain having a series of attached flights or scrapers spaced on various centers and made of iron or steel. Material is conveyed by the flights which push or "drag" the material along a housing trough. This type of conveyor will be used to transfer dried material from the discharge of the rotary dryer to the Material Handling Building.

Action: No further action required.

Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 2.6 — Page #: 10 — Line #: 6 — Code #: E
Original Comment #: 20
Comment: It is not clear how P-5003 feeds the heat exchanger E-5002. E-5002 appears to be the spray quench E-5001 heat exchanger.

Response: The text was in error. As shown of the PFD D-50-10-001, pump P-5003 fed heat exchanger E-5003. However, the process design of the dryer gas cleaning system has been revised. The present design provides for particulate removal and water vapor condensation in a two-stage scrubber/subcool quench.

Action: The text in this section, as well as other design documents, has been revised to reflect the present process design.

Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 2.6 — Page #: 10 — Line #: 8 — Code #: E
Original Comment #: 21
Comment: The text "100EF" should be revised to "100 F."

Response: This is a typographical error.

Action: The document has been revised to correct the typographical error.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 2.6 Page #: 10 Line #: 19 - 21 Code #: E
Original Comment #: 22
Comment: P-5007 and S-5009 are not on the Process Flow Diagrams. P-6001 and S-6001 should be referred to instead.

Response: The text was in error. The correct equipment numbers should have been hydroclone recirculation pump (P-6001 A,B), and hydroclone system (S-6004).

Design verification testing conducted on archived pit materials by IT Corporation demonstrated that gravimetric settlement of particulates in the scrubber water would be more effective than the use of hydroclones. The design has been revised to show a gravimetric settlement system. The hydroclone system has been deleted.

Action: The text in this section, as well as other design documents, has been revised to reflect the present process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 2.6 Page #: 10 Line #: 23 - 24 Code #: E
Original Comment #: 23
Comment: The oil/water separator appears as Z-6020 on PFD D-60-10-001.

Response: The text was in error. The correct equipment number for the oil water separator should have been given as Z-6020.

Based on revisions to the process design, gravimetric oil/water separation is now performed by the primary and secondary clarifiers (T-6001/T-6002) shown on the revised drawing PFD D-60-10-001. The oil/water separator (Z-6020) has been deleted.

Action: The text in this section, as well as other design documents, has been revised to reflect the present process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 2.6 Page #: 10 Line #: 31 Code #: E
Original Comment #: 24
Comment: Section 2.8.1.9 does not exist, the reference should be to Section 2.8.1.1.

Response: The comment is correct. The text should reference Section 2.8.1.1.

Action: The referenced text has been revised to resolve this issue.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 2.6 — Page #: 11 — Line #: 28 — Code #: E
Original Comment #: 25
Comment: The PFD referenced should be D-60-10-001.

Response: The text reference to drawing number PFD D-70-10-001 was incorrect the oil/water separator was shown on drawing number PFD D-60-10-001.

Based on revisions to the process design, gravimetric oil/water separation is now performed by the primary and secondary clarifiers (T-6001/T-6002) shown on the revised drawing PFD D-60-10-001. The oil/water separator (Z-6020) has been deleted.

Action: The Draft Final RDP reflects the correct process description based on the revised process design.

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: 2.6 — Page #: 11 — Line #: 22 - 25 — Code #: C
Original Comment #: 26
Comment: Carbon beds may be necessary for the removal of radon.

Response: The revised process design stack limit, based on modeling, is expected to produce an off site radon concentration of not more than 0.5 pCi/L annual average at the fenceline above background. This facility will operate in compliance with this radon stack emission limit, without the use of carbon beds. A summary of the FDF air dispersion modeling results is included in Attachment A to this response to comment document.

In exploring the issue of utilization of carbon adsorption control technology, a comparison was made of the annual average offsite potential radiological dose rate to receptors at the fenceline, to the onsite dose to workers responsible for handling the carbon beds. The comparison indicated that for radon emission rates estimated for processing the pit wastes (i.e., release rate for Rn-222 of between 3.5 E+5 to 3.5 E+6 pCi/sec) an offsite (i.e., fenceline) dose of approximately 0.5 mrem/yr would be experienced. For workers handling the carbon beds, the potential exposure could be as much as 420 mrem/month for the same projected emission rate. For these reasons, and because the annual average 0.5 pCi/L fenceline concentration of Rn-222 is projected easily to be met without resorting to specific radon emission controls, carbon beds are not believed required for the removal of radon.

Action: No further action required.

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: 2.6 — Page #: 11 — Line #: 27 — Code #: C
Original Comment #: 27
Comment: Where will the wastes not meeting the CDF WAC be stored, disposed and/or treated?

Response: See the Response to Ohio EPA Original Comment #16 and U.S. EPA Original Specific Comments #28 and #29.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.7 Page #: 12 Line #: 13 - 14 Code #: C
Original Comment #: 28
Comment: It is Ohio EPA's expectation that FDF will manage RCRA wastes consistent with the hazardous waste regulations.

Response: Agree. Any identified RCRA wastes will be managed in accordance with all applicable requirements of the hazardous waste regulations.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8.2 Page #: 18 - 21 Line #: N/A Code #: C
Original Comment #: 29
Comment: Average flows from contact storm water are given, however peak flows can occur during storm events. How will contact storm water be handled during these peak events?

Response: The flows are averaged over 24 hours. However, storm events are included in the total values. Specifically, contact stormwater on the concrete pads will continue to be collected and transferred to the Clearwell. The sump capacities and sump pump sizes for the pads have been designed to handle a 24-hour, 25-year storm event. This will minimize the potential for contaminated stormwater migration out of the stormwater management system. See also the response to Ohio EPA Original General Comment #1.

Action: This issue will be one of the elements further addressed in the WPRAP SWMP, which is discussed in the response to Ohio EPA Original General Comment #1.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8.4.4 Page #: 25 Line #: 25 - 31 Code #: C
Original Comment #: 30
Comment: Please refer to where detail of how noncontact and contact storm water will be segregated can be found.

Response: The only stormwater streams that will be managed as "clean" noncontact stormwater will be the water collected in the basins that drain to the SWM Pond and the roof drains that also drain to the SWM Pond. Contact stormwater from haul roads, pads, etc., will be kept from mingling with the water that drains to the SWM Pond by curbing contaminated areas. Within the waste pit area, stormwater has been segregated into "noncontact" and "contact" stormwater streams. The distinction is that "noncontact" stormwater from within the waste pit area does not

contact raw, exposed waste. The "noncontact" stormwater in the waste pit area will follow existing drainage patterns to the Waste Pit Area Storm Water Runoff Control facility for subsequent treatment by the AWWT. "Contact" stormwater falling within the open excavations or onto areas awaiting certification as clean will be transferred to the Clearwell for subsequent treatment by the WTS and the AWWT. Segregation of these streams will be accomplished using ground slope as discussed in Section 6.2 of the Excavation Plan.

Action: This issue will be one of the elements further addressed in the WPRAP SWMP, which is discussed in the response to Ohio EPA Original General Comment #1.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.9.3 Page #: 28 Line #: 26 - 29 Code #: C
Original Comment #: 31
Comment: More detail is needed describing sludge handling. It is not clear if the sludge will be dewatered in the sludge holding tank or in the sites sludge handling facilities, and if the sludge will be managed with OU1 wastes or other sludge from the site or other waste.

Response: The sludge generated from the WTS will be managed with OU1 waste. Sludge from the Wastewater Treatment System (WTS) will be dewatered using a filter press. Filter cake generated from dewatering the sludge will be transferred to the Material Handling Building to be handled consistent with other pit waste materials.

The revised design includes additional details on the sludge handling and dewatering portion of the process design.

Action: The referenced section has been revised to reflect additional sludge handling and dewatering process design information.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.9.4 Page #: 29 Line #: 7 - 11 Code #: C
Original Comment #: 32
Comment: Please state whether the uranium concentration referred to is total or dissolved uranium concentration.

Response: The text refers to a dissolved Uranium concentration. This is a BSL influent parameter which is specified in section 2.8.1 of the Design Criteria and Assumptions document.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 3.1 Page #: 31 Line #: 21 - 27 Code #: C
Original Comment #: 33
Comment: This describes the logic of the flow to the Clearwell. Please describe what happens if the Clearwell is full and/or flow to the BSL is terminated.

Response: The Clearwell is a very large basin which can contain approximately 1,000,000 gallons of water. If flow to the BSL is terminated WPRAP activities will be curtailed when the level of the Clearwell exceeds the predetermined value. See also the response to Ohio EPA Original General Comment #1.

Action: This issue will be further addressed in the WPRAP SWMP, as discussed in the response to Ohio EPA Original General Comment #1.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.1 Page #: 31 Line #: 10 - 26 Code #: C
Original Comment #: 34
Comment: Will the pumps and exposed pipes be equipped with adequate freeze protection?

Response: The entire facility will be designed to allow sustained winter operation. Various freeze protection measures may be utilized including electric heat tracing, sloped and self draining process lines, enclosures around process equipment, etc.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.3.1 Page #: 33 Line #: 26 - 27 Code #: C
Original Comment #: 35
Comment: How are product moisture and temperature monitored in a way that can be used to control the drying operation?

Response: The product moisture will be controlled indirectly by monitoring the product temperature. The product moisture will be correlated to the product temperature during the startup phase of the project. The product temperature will then be used to control feed rate, dryer rotation rate, and/or burner firing rates.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.3.2 Page #: 34 Line #: na Code #: C
Original Comment #: 36
Comment: Are the instrumentation and controls for the burners standard equipment, or will new instrumentation and controls need to be developed for this process?

Response: The proposed rotary dryer technology has been in use for over 80 years. The controls and instrumentation are standard equipment which complies with the applicable industrial standards as listed in the RDP.

Action: No action required.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.4.2 Page #: 38 Line #: 1 Code #: C
Original Comment #: 37
Comment: The specific radionuclides to be monitored need to be listed, and will this monitoring utilize isokinetic sampling?

Response: The specific radionuclides that will be monitored will be identified in the Sampling and Analysis Plan. A preliminary review indicates that the following radionuclides will be monitored following protocols stipulated in 40CFR61 Subpart H, Method 114: U-238, U-235, U-234, Th-232, Th-230, and Th-228.

The airflow in the stack will be sampled isokinetically and the particulate material collected on a sample filter. The sample filter will be continuously monitored with a detector to assure the effectiveness of the HEPA filtration. The sample filter will be collected on a scheduled basis for laboratory analysis in accordance with Method 114. Downstream of the sample filter, a portion of the sample will be collected at a constant airflow, nominally 2 L/min, for Radon monitoring. It is important that the radon be monitored after filtration so that as much of the particulate is removed as possible.

Action: A new table (Table 4-5) has been added to section 4.0. In addition, further details will be provided in the Sampling and Analysis Plan to be provided to the EPAs, by September 25, 1998, as a part of the RA Documents Package for review and approval.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.0 Page #: 40 Line #: na Code #: C
Original Comment #: 38
Comment: The referenced Sampling and Analysis Plan should be included as a part of the Remedial Design.

Response: Pursuant to the approved Remedial Action Work Plan (RAWP), the Sampling and Analysis Plan is to be submitted to the EPAs for review and approval as a part of the RA Documents Package.

Action: The Sampling and Analysis Plan will be provided to the EPAs, by September 25, 1998, as a part of the RA Documents Package for review and approval.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2 Page #: 41 Line #: 17 Code #: C
Original Comment #: 39
Comment: The specific radionuclides to be analyzed for and the specific methods should be included.

Response: The discussion presented in this section is a broad overview of planned sampling and analysis activities. The specific radionuclides to be analyzed for and the methods to be used are elements of the Sampling and Analysis Plan to be submitted as a part of the RA Documents Package.

Action: The requested details will be provided in the Sampling and Analysis Plan to be provided to the EPAs, by September 25, 1998, as a part of the RA Documents Package for review and approval.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2 Page #: 42 Line #: 27 - 38 Code #: C
Original Comment #: 40
Comment: Continuous monitoring for radionuclides, including radon, will be required by OEPA to ensure ALARA principles are applied to emissions to the public.

Response: See response to Ohio EPA Original Comment #37.

Action: See response to Ohio EPA Original Comment #37.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2 Page #: 42 Line #: 33 - 38 Code #: C
Original Comment #: 41
Comment: A more detailed air emission design is required. Simply stating the appropriate methods is not adequate.

Response: A written performance test criteria for stack emissions monitoring will be developed to guide dryer process stack testing. This document will be provided to the EPAs for review as a part of the RA Documents Package.

Action: The Performance Test Criteria for Stack Emissions Monitoring will be provided to the EPAs for review and approval, by September 25, 1998, as a part of the RA Documents Package.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 4.2 Page #: 42 Line #: 12 - 15 Code #: C
Original Comment #: 42
Comment: Noncontact storm water will enter Paddys Run from sources in addition to the SWM Pond (see section 2.8.3 Description of Operation and Processes). These other sources should be included here and a plan should be developed for sampling and analyzing them.

Response: The noncontract stormwater referred to in this section, is only that noncontact stormwater which is being discharged to Paddys Run through a point source (i.e., the noncontact stormwater which is discharged via the SWM Pond, as is stated in the text). Noncontact stormwater not flowing to the SWM Pond will be draining south and west towards Paddys Run through existing drainage courses for eventual discharge through NPDES Outfall 4005. Up stream of this NPDES outfall is IEMP monitoring location SWD-03. SWD-03 is located at the effluent of a 30-inch pipeline draining to the PPDD and is scheduled to be sampled monthly and quarterly for a variety of area specific constituents of concern.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

By the time WPRAP operations commence, a sufficient baseline of data should be available which can be trended to determine if any impacts to the surface water pathway are occurring from the operation of the WPRAP. Because the stormwater entering this existing drainage course (from areas within the project) is not expected to be negatively impacted by the operations (i.e., is not expected to have any significant contamination), it is not expected that this stormwater will impact the surface water quality. If a trend upward is identified, however, further upstream watershed sampling could then be tailored to identify from where the impacts originate. Appropriate corrective action will then be implemented, if necessary.

Action: The referenced text has been revised to clarify why the discussion only focuses on the noncontact stormwater discharge from the SWM Pond.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2 Page #: 42 Line #: na Code #: C
Original Comment #: 43
Comment: Project specific ambient and/or environmental air monitoring should be included to ensure the effectiveness of engineering controls.

Response: See response to Ohio EPA Original General Comment # 8.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2 Page #: 43 Line #: 23 - 24 Code #: C
Original Comment #: 44
Comment: The on-site laboratory should also be open for external, i.e. regulatory surveillance and audits.

Response: Agree. FDF's subcontract with IT provides for the potential for regulatory oversight of IT's sampling and analysis activities.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.5 Page #: 45 Line #: 33 - 34 Code #: C
Original Comment #: 45
Comment: Be aware that prolonged use of a desiccant may lead to the desiccant becoming contaminated due to elevated ambient radon concentrations in the air. Appropriate handling of discarded desiccant must be observed.

Response: The comment is noted. Used desiccant will be handled and disposed of in a manner consistent with other non pit waste residual solids, dependant upon its characteristics as determined through sampling.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 4 Page #: Table 4-1 Line #: na Code #: C
Original Comment #: 46
Comment: Other flow patterns of noncontact storm water to Paddys Run should be included (see previous comment).

Response: This comment is similar to Ohio EPA Original Comment #42. Please see response to Ohio EPA Original Comment # 42.

Action: No action required.

Design Criteria and Assumptions, Revision B

Commenting Organization: Ohio EPA Commentor: ODH
Section #: 2.1.1 Page #: 4 Line #: 28 Code #: C
Original Comment #: 47
Comment: This bullet describes the assumptions made about the excavation strategy and describes the excavation phases. We have serious doubts that the clay layers are continuous beneath the pits. In other comments we have requested that additional strategies be developed to prevent the infiltration of surface waters and to monitor the impacts to the GMA.

Response: This comment is similar to Ohio EPA Original General Comment #6. Please see response to Ohio EPA Original General Comment #6.

Action: **Section 4.5** of the **Excavation Plan** has been revised to clarify this issue as discussed above, and as discussed in the response to Ohio EPA Original General Comment #6.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.1.1 Page #: 6 Line #: 4 - 6 Code #: C
Original Comment #: 48
Comment: As mentioned in previous comments, where will nontypical wastes be stored prior to transfer to FDF and where will FDF store, treat and/or dispose of this waste.

Response: See the Response to Ohio EPA Original Comment #16 and U.S. EPA Original Specific Comments #28 and #29.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.6.1 Page #: 10 Line #: 42 - 45 Code #: C
Original Comment #: 49
Comment: The list of functional requirements does not include a reference to DOE Orders and/or NESHAPs that require and/or imply the following on stack emissions of radon:
1.) radon flux < 20 pCi/m^2/sec

2.) radon concentration above any point, anytime <100 pCi/L; and
3.) radon concentration on the facility <30 pCi/L annual average.

Response: Although the referenced text section does not include specific regulatory requirements, it does state that off-gases will be treated to control emissions per applicable regulatory standards. The applicable regulatory requirements are then discussed in Section 3.0 of the Design Criteria and Assumptions section, including Table 3-1, which addresses each of the specific Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBC) requirements for OU1, as identified in the OU1 ROD.

The 20 $pCi/m^2/sec$ flux standard does not apply to a point source, nor to an excavated portion of the pits. The standard is only applicable to unexcavated portions of the pits. If the pits remain unexcavated, the standard will not be exceeded, based on previous sampling and analysis of the waste pits. When the pits are being excavated, BAT will be applied to reduce the radon emissions.

It is the intent of DOE during the project is to keep radon levels below 100 pCi/L at any given point and below 30 pCi/L annual average. However, workers in the WPRAP area will be protected through the application of ALARA practices during every phase of the project.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8 Page #: 14 Line #: General Code #: C
Original Comment #: 50
Comment: This proposes to pump water from OU1 to the Biodenitrification Surge Lagoon. The BSL has already been reaching its storage capacity frequently (>1/yr) so that incoming sources had to be shut down. Although the clearwell of the waste pits is currently a source of water in the BSL, the plan will provide for additional volume from OU1. Some of this volume will come from the change in the reduction of soil water holding capacity from remedial activities. Some will come from water removal activities during excavation. The BSL will also be receiving additional volume from other sources on the site such as the OSDF leachate collection system. Additional surge flow storage may be required to accommodate the additional volumes of water requiring treatment. If additional capacity is not provided, there is an increased potential for contaminated water leaving the site or entering the groundwater (e.g., additional overflows to the swale by the waste pits). More detail showing all sources of water (from a site wide perspective) entering the BSL under different flow regimes and the sites hierarchy of shutdowns must be included.

Response: This comment requests additional detail on site-wide sources of water entering the BSL and the hierarchy of shutdown of these sources during periods when the storage capacity of the BSL is in danger of being exceeded. DOE does not agree that this sitewide detail is appropriate in WPRAP documentation. However, the requested sitewide detail is provided in the OMMP. Specifically, all projected site-wide flows to the BSL are described in the OMMP, Section 4.3, and are summarized in the OMMP, Figure 4-6. The hierarchy of shutdown decisions for

sources routed to the BSL is provided in the OMMP, Sections 5.3, 5.4 and in Figure 5-2 (Wastewater Operations Decision Flow Chart). It is anticipated that the OMMP will be updated periodically, as necessary, to reflect changes in sitewide water management.

The commentor is also referred to the response for Ohio EPA Original General Comment #1 for additional detail on prioritization of the individual flows within the domain of WPRAP.

Action: Please refer to the action for Ohio EPA Original General Comment #1.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8.1 Page #: 14 - 16 Line #: N/A Code #: C
Original Comment #: 51
Comment: A functional requirement should be added to this section that restricts the concentration of water that is discharged to or bypassed to Paddys Run to be less than the FRL.

Response: Conversations between FDF Environmental Compliance and DSW staff indicate the FRL referenced is the surface water FRL for uranium.

DOE proposes the following conservative control strategy:

Using uranium as an indicator parameter, sample the water for total uranium concentration. Upon receipt of analytical results:

- If less than the groundwater FRL (20 ppb) discharge to the ditch draining to Paddys Run.
- If greater than the groundwater FRL (20 ppb total uranium) discharge by pumping to treatment via the BSL. Note: Under normal circumstances, pumping to the BSL will occur immediately upon receipt of analytical results, however, if levels in the BSL prevent pumping, the water will be held in the SWM Pond. All practical measures will be undertaken to prevent overflow of the SWM Pond, however, during periods of extreme rainfall, overflow of waters in excess of the groundwater FRL may occur.

Action: The above details will be provided in the Sampling and Analysis Plan to be provided to the EPAs, by September 25, 1998, as a part of the RA Documents Package, for review and approval. In addition, this issue will be one of the elements further addressed in the WPRAP SWMP, which is discussed in the response to Ohio EPA Original General Comment #1.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: 2.8.1 Page #: 14 Line #: 41 Code #: C
Original Comment #: 52
Comment: Please provide the requirement that drives the stated discharge limits to the BSL.

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Response: These are the DCG's (derived concentration guidelines) for thorium isotopes out of DOE Order 5400.5.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8.1 Page #: 15 Line #: 39 - 41 Code #: C
Original Comment #: 53
Comment: State whether the storm water to be used will be "clean" or "contaminated" as defined in the bullet above.

Response: Only stormwater collected in the SWM pond will be used as defined in the bullet. This water is drainage from building roofs and stormwater from support areas of the facility, and is not expected to be contaminated.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8.1 Page #: 17 Line #: 3 - 5 Code #: C
Original Comment #: 54
Comment: Please include the *Rainwater and Land Development* reference in this bullet.

Response: A reference to *Rainwater and Land Development*, Ohio's Standards for Stormwater Management and Stream Protection, will be added to the bullet list.

Action: A bullet has been added to the text to state "Erosion control shall be consistent with the Rainwater and Land Development, Ohio's Standards for Stormwater Management and Stream Protection, and the FDF Stormwater Pollution Prevention Plan (SWPPP)."

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 2.8.2 Page #: 16 Line #: 32 - 35 Code #: C
Original Comment #: 55
Comment: The 5 year storm seems inadequate to properly design open channels. The new north access road has roadside ditches that are eroding at the base and sides. Open channels should be designed to carry the velocity of at least a 10 year 24 hour storm with a 25 year 24 hour storm preferred.

Response: See response to U.S. EPA Original Specific Comment #36.

Action: See response to U.S. EPA Original Specific Comment #36.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: 4.2 Page #: 26 Line #: 41 Code #:
Original Comment #: 56
Comment: The text states about 6 months are expected to be required to gain acceptance of the waste stream. Is this due to the lab capacity or expectation of high WAC flunkers per conveyance? Additional discussion on any contingencies and how excavation schedules may be impacted is warranted.

Response: The 6 months referred to in the text relates to the time period, prior to the initial shipment of waste, required for the FEMP to gain acceptance from the CDF of its waste stream. As such, this issue has nothing to do with "expected flunkers".

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 7.3.1 Page #: 38 - 39 Line #: 38 - 41, 1 - 4 Code #: C
Original Comment #: 57
Comment: These two bullets should be combined.

Response: The design criteria given in the bullets is not changed whether the bullets are separate or combined.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 7.3.7 Page #: 42 Line #: 19 - 20 Code #: C
Original Comment #: 58
Comment: Dust control policies should be the same as the FEMP Site Wide Dust Policy.

Response: Agree. The project will comply with the FEMP Sitewide Dust Control Policy. This requirement did not exist at the time of the Request for Proposal, and as such was not specifically included in IT's subcontract. This matter, however, is currently being addressed through a proposal to modify the subcontract, and adherence to this Policy will be a part of IT's scope of work prior to Authorization to Mobilize for construction. The specifics of this Policy will be addressed, as appropriate, in the various implementation documents, although primarily in both the Pre-Operational Environmental Control Plan and the Operational Environmental Control Plan.

Action: The referenced section, as well as the Pre-Operational Environmental Control Plan, have been revised to reflect adherence to this Policy. In addition, this Policy will be addressed in the Operational Environmental Control Plan, which is to be submitted to the EPAs, by September 25, 1998, as a part of the RA Documents Package for review and approval.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
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Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 2 Page #: Figures 2-1 and 2-2 Line #: 19 -20 Code #: E
Original Comment #: 59
Comment: The notes above the legends on Figures 2-1 and 2-2 are unreadable. In addition, the text annotations on the cross sections is distorted and only marginally readable. These figures should be recreated or produced in a manner such that all text is legible.

Response: Comment acknowledged.

Action: The referenced drawings have been provided in a more legible form.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 3-2a Page #: 3 of 8 Line #: na Code #: C
Original Comment #: 60
Comment: HEPA filtration is best for *particulate* radionuclides, but not for the inert gas, radon.

Response: Agree. HEPA filters are used to remove particulate forms of radionuclides, including the attached fraction of radon progeny. The use of HEPA filters in the exhaust system is considered BAT for control of particulate radionuclides.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 3-2a Page #: 4 of 8 Line #: na Code #: C
Original Comment #: 61
Comment: Radon emissions will need to be monitored to ensure that DOE Order 5400.5 and NESHAPs requirements are met. This may include treatment of exhaust gases from the dryer.

Response: Radon emissions from the dryer stack will be continuously monitored as discussed in the response to Ohio EPA Original Comment #37. Exhaust gasses from the dryer will be treated to remove particulate materials using a cyclone separator, wet scrubber, wet electrostatic precipitator, and HEPA filtration. Operational constraints will be utilized to limit the radon emission to preclude exceeding the stack limit. This limit, based on modeling, is expected to produce an offsite radon-222 concentration of not more than 0.5 pCi/L annual average, above background, at the fenceline.

The revised process design will operate in compliance with the radon stack emission limits, without the use of carbon beds.

Action: No further action required.

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: Table 3-2a Page #: 6 of 8 Line #: na — Code #: C
Original Comment #: 62

Comment: When the earthen and other covers are removed, some of the waste pits will likely exceed the 20 $pCi/m^2/sec$ flux limit. Ambient radon monitoring around the perimeter of the waste pits would be useful in evaluating the effectiveness of fugitive controls in reducing radon emissions.

Response: This comment is similar to Ohio EPA Original Comments #8 and #49. Please see the responses to Ohio EPA Original Comments #8 and #49.

Action: No further action required.

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: Table 3-2a Page #: 7 of 8 Line #: na — Code #: C
Original Comment #: 63

Comment: The substantive requirements of Ohio Administrative Code (OAC) 3745-31-05(A)(3) as cited in the Record of Decision requires the employment of BAT for new air pollution sources. Compliance with the substantive requirements is required for CERCLA activities in lieu of an Ohio EPA Permit to Install (PTI) for new sources of air pollution.

The Remedial Design has incorrectly cited Ohio Administrative Code (OAC) 3745-17-07(B)(4), (5), (6) as the governing regulations for the particulate emissions from paved roads, unpaved roads and material storage piles. OAC 3745-17-07 is applicable to "old" sources that were in existence prior to February 15, 1972. OAC 3745-31-05(A)(3) requires that new sources employ the best available technology (BAT). The BAT determination is made on a case-by-case basis. Activities such as controlling fugitive dusts from paved and unpaved roads have time and again resulted in standards that are more stringent than the standards cited in OAC 3745-17-07. The following examples have been taken from the Administrative Code for activities similar to those proposed in this Remedial Design.

Source	OAC	Standard
paved roadways	3745-17-12(F)(2)	1 minute exceedence in any 60-minute period
unpaved roadways	3745-17-12(F)(1)	3 minutes exceedence in any 60-minute period
material storage piles	3745-17-12(C)(2)	1 minute exceedence in any 60-minute period

Response: As discussed in the response to Ohio EPA Original Comment # 58, the project will comply with the Ohio EPA approved FEMP Site Wide Dust Policy, which reflects the approved BAT for control of fugitive dust. Specifically, the project, as a new source, shall meet BAT for controlling fugitive dust, pursuant to OAC 3745-31-05(A)(3).

Action: A note has been added to the discussion on the referenced ARAR, to address project specific compliance with the FEMP Site Wide Dust Control Policy.

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Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 3-2a Page #: 8 of 8 Line #: na Code #: C
Original Comment #: 64
Comment: Citations governing radon emissions should include DOE Order 5400.5 6.b.(2), which states: Controls shall be designed such that Rn-222 concentrations in the atmosphere above the facility surfaces or openings in addition to background levels, will not exceed: (a) 100 pCi/L at any given point; (b) An annual average concentration of 30 pCi/L over the facility site; and (c) an annual average concentration of 3 pCi/L at or above any location outside the facility site (d) Flux rates from the storage of radon producing wastes shall not exceed 20 $pCi/m^2/sec$, as required by 40 CFR Part 61.

Response: DOE Order 5400.5 is already correctly included in Table 3-1b (page 10 of 11), as a TBC requirement (pursuant to the OU1 ROD). This comment is otherwise similar to Ohio EPA Original Comment #49. Therefore, please see the response to Ohio EPA Original Comment #49. Compliance with the radone stack emission limit is predicted, based on modeling, to produce an off-site radon concentration of not more than 0.5 pCi/L at the fenceline, above background. Adhering to this limit will ensure that the site-wide compliance standard of 3 pCi/L at any location outside the facility will be met.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Page #: Line #: Table 4-2 Code #:
Original Comment #: 65
Comment: Table 4-2, CDF Radiological Acceptance Criteria, note (b) refers to U-239 when it appears that this should be U-238. In addition, what does the note of 5 years for Ra-228 refer to?

Response: Upon review, it was ascertained that note (b) is in fact incorrect, and that the reference should be to U-238, not U-239. The Ra-228 Radiological Acceptance Criteria for the CDF are given for a 1, 5, and 10 year Ra, along with a separate Ra concentration. For the preparation of the IT contract, FDF utilized the more conservative 5 year Ra-228 concentration (670 pCi/gram) in lieu of the standard Ra-228 concentration (1800 pCi/gram) due to the uncertainties with the CDF. The exact Ra-228 Radiological Acceptance Criteria will be established with the CDF once a contract is in place.

Action: Table 4-2 has been revised to reflect the correction to note (b).

Waste Characterization Study

Commenting Organization: Ohio EPA Commentor: ODH
Section #: 2.6 Page #: 7 Line #: last paragraph Code #: C
Original Comment #: 66
Comment: Will the results of the investigation of the temperature dependence of the hydrolysis of uranium tetrafluoride be available by the next design submittal?

Response: The referenced investigation consisted of a data search on existing information regarding this reaction. The results of the investigation indicated that minimal HF formation could occur. The process design has taken this into consideration.

Action: The last sentence on Page 7 has been deleted.

Process Flow Diagram(s) w/ Mass & Energy Balance, Revision B

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Table of Contents Page #: Line #: Code #: E
Original Comment #: 67
Comment: Two Drawings labeled D-10-10-001 are present while Drawing D-90-10-001 is absent.

Response: This is an apparent copy room error.

Action: The revised RD Package contains PFD D-90-10-001.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Page #: Line #: Code #: E
Original Comment #: 68
Comment: Equipment P-6001A appears twice on Drawing D-60-10-001 in the equipment list; the second call out should be changed to P-6001B.

Response: This was a typographical error. The comment states the proper correction. However, the process blowdown pre-treatment system shown of this drawing has been revised.

Design verification testing conducted on archived pit materials by IT Corporation demonstrated that gravimetric settlement of particulates in the scrubber water would be more effective than the use of hydroclones. The design has been revised to show a gravimetric settlement system. The hydroclone system has been deleted.

Action: The drawing has been revised to reflect the correct equipment numbers based on the revised process design.

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

Site Plans

Commenting Organization: Ohio EPA Commentor: DSW
Section #: Phased Construction Drawings Page #: Line #: Code #: C
Original Comment #: 69
Comment: Water flowing across the traffic routes is labeled as "non-contact". This is to be considered contact storm water. Additionally, better delineation is needed on the drawings between flows of non-contact and contact storm water.

Response: Without highly detailed drawings, it is difficult to explicitly present all of the intricacies of the stormwater flows in and around the waste pit area. However, as discussed in Section 2.8.4.4 of the **Description of the Operation and Processes** document, various mechanisms will be put in place to isolate the haul roads from the current noncontact stormwater drainage patterns (e.g., using curbing on the road sides, running noncontact stormwater under the roads through culverts, etc.). The response to Ohio EPA Original Comment #30 provides additional clarification of how various stormwater streams will be handled.

Action: No further action required.

General Arrangement Plans, Revision B

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Page #: Line #: Code #: G
Original Comment #: 70
Comment: The labels and notes on many of the 11 x 17 figures provided are unreadable.

Response: Comment acknowledged.

Action: Larger size sheets for drawings have been provided in this section.

Equipment Data Sheets/Specifications, Revision B

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc
Section #: 11110 Page #: Line #: Code #: G
Original Comment #: 71
Comment: The variation in the level of detail of the description for items to be supplied is substantial. It is recognized that some items are "off the shelf" and some must be fabricated. The difference in detail level between the various specifications, however, appears excessive.

Response: There was never an intent to provide detailed specifications for all of the facilities, equipment, and ancillary activities associated with the OU1 remediation facilities. As stated in Table 4-2 of the RAWP, the Plant Facilities Engineering Package is to provide "specification information (emphasis added) for various individual items of equipment (dryer, shredder, pumps, tanks, blowers, condensers, etc.)". The intent of this section was to provide standard industrial specifications for typical process equipment.

Action: The specifications have been revised based on the revised process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 11110 Page #: 11110-2 Line #: Code #: C
Original Comment #: 72
Comment: In the second paragraph, two items are referred to by PFD identification numbers and two are not. Throughout the specifications the numbers should be used for clarity. In addition, the text refers to "an existing feed hopper and mass flow twin screw feeder (H-1001)." This implies that both the feed hopper and the twin screw feeder are not supplied by the contractor. If this is, in fact, the case, it should be stated clearly and the source of this equipment should be clarified.

Response: Equipment tag numbers are used when needed throughout the specifications to clarify the specification requirements. Final decisions as to who will be providing specific pieces of equipment (i.e., which vendor) are still being made. Nevertheless, issues related to equipment supply, equipment sources, vendors, and other detail design information referenced in the specifications are not within the scope of the RD package documents (see response to Ohio EPA Original Comment #71).

Action: The specifications have been revised based on the revised process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 11110 Page #: 11110-2 Line #: Code #: E
Original Comment #: 73
Comment: In the ninth line of Paragraph 1.4A, "will" should be inserted after "conveyor".

Response: Agree. The comment states the proper text correction.

Action: The text has been corrected. The specification has been revised based on the revised process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 11112 Page #: 11112-14 Line #: Code #: E
Original Comment #: 74
Comment: In paragraph 3.1A, the text "380-volt" should be changed to "480-volt".

Response: Agree. The comment states the proper text correction.

Action: The text has been corrected. The specification has been revised based on the revised process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 11182 Page #: Line #: Code #: E
Original Comment #: 75
Comment: Appendix A for this section is redundant with the Appendix A included with the Design Document Design Criteria and Assumptions.

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Response: The purpose of Appendix A was to provide additional information to equipment vendors in support of equipment procurement.

Action: Appendix A has been deleted from the specification.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 13203 Page #: 13203-1 Line #: Code #: C
Original Comment #: 76
Comment: This specification should include an attachment stating the relevant items of equipment that it pertains to.

Response: This a general fabrication specification which will be referenced by equipment specifications. Inclusion of the referenced equipment list with this specification is not appropriate (see response to Ohio EPA Original Comment #71).

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 13400 Page #: 13400-2 Line #: Code #: C
Original Comment #: 77
Comment: The following comments pertain to Paragraph 2.1A:

- Would duplex pump systems be more appropriate for the main feed pumps P-6501 and P-6507?
- Polymer should be dosed in the flocculation tank (T-6503) not the flash mix tank (T-6502).
- The clarifier sludge pump (P-6503) will handle very dilute sludge (~1 to 3% solids) so the specific gravity will be less than 1.5.
- The 100 gpm capacity of the sludge pumps (P-6503 and P-6506) seems excessive for a 250 gpm water treatment system.
- The coagulant and polymer feed tanks (T-6505 and T-6506) are makeup tanks. Pure product storage tanks and feed systems will be necessary to get material to these tanks for dilution.
- The filter feed pump (P-6507) should have a higher capacity than the previous pump P-6501.

Response: The following addresses each of the above items:

- The clarifier feed pump (P-6501) and the sand filter feed pump (was P-6507), have been replaced with duplex pump systems P-6501A,B and P-6506A,B.
- Polymer is shown as being added to the flash tank to ensure adequate dispersion into the water. The addition point can be moved to the flocculation tank if needed based on field testing.
- The clarifier sludge pump specification is designed to allow some variation in sludge characteristics.
- The clarifier sludge pump will only be operated intermittently during each shift.
- The chemical feed systems in the WTS have been modified. The polymer will be drawn from a 55-gallon drum through a polyblend (or equivalent)

dilution system. Neat coagulant is expected to be shipped in 55-gallon drums or tote tanks. A blending tank is included in the system to dilute the neat coagulant to the required feed concentration.

- The WTS filter feed pump has been eliminated. The clarifier sludge pump now transfers the sludge to the filter press feed tank in Area 60.

Action: The WTS process design has been revised as indicated in the above response.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 15080 Page #: 15080-4 Line #: Code #: E
Original Comment #: 78
Comment: Figure 1 referred to in Paragraph 2.1C is unreadable in the provided volume.

Response: Comment acknowledged.

Action: This specification has been revised to more clearly show this figure.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 15150 Page #: 15150-3 Line #: Code #: C
Original Comment #: 79
Comment: The following comments pertain to Paragraph 2.1A:

- For consistency and clarity P-5006 and P-5009 should be referred to by different names.
- P-5007 is actually P-6001A & B in the PFD.
- There are A & B notations in the PFD for P-5001, P-5002, P-5003, P-5006, P-5008, P-5009, and P-5010. The specification should be consistent with the PFD and indicate the duplex systems.

Response: The following addresses each of the above items:

- The caustic metering pumps will be interchangeable and are used for identical service. The use of a common equipment name is appropriate.
- The comment is correct. The specification will be revised to state the proper equipment number.
- The specification will be revised to appropriately indicate duplex pump arrangements.

Action: The specification will be revised as noted above. The specification has been revised based on the revised process design.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 15620 Page #: 15620-4 Line #: Code #: E
Original Comment #: 80
Comment: In Paragraph 2.4B, "Crew Compressor" should be revised to "Screw Compressor".

Response: Agree. The comment states the proper text correction.

Action: The text has been revised.

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Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 15750 Page #: 15750-1 Line #: Code #: E
Original Comment #: 81
Comment: The title of this section"GAS STREAM REHEATER" should be revised to be consistent to the name used for the same piece of equipment in the PFDs (e.g., "OFF GAS REHEATER"). Similarly, the titles of Sections 15751, 15752, and 15860 are inconsistent with the relevant PFDs.

Response: Equipment specifications are cross referenced to the process equipment by the specification number shown of the equipment list. The specification has been revised based on the revised process design.

Action: No further action required.

Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 15751 Page #: 15751-3 Line #: Code #: C
Original Comment #: 82
Comment: The performance criteria given in Paragraph 2.1G are inconsistent with the criteria shown on PFD D-50-10-001.

Response: Comment acknowledged.

Action: The specification has been revised based on the revised process design.

Commenting Organization: Ohio EPA — Commentor: ODH
Section #: 15884 Page #: Line #: Code #: C
Original Comment #: 83
Comment: Carbon adsorbers are to be used to remove radon from drier off-gas. With significant throughput, it seems likely there may be buildup of gamma emitting radon progeny in the adsorber. The specifications in section 15884 do not mention the possible need to enhance shielding around this area to minimize occupational exposures.

Response: Particulate samples from the dryer exhaust are collected as discussed in the response to Ohio EPA Original Comment #37. Operational constraints will be utilized to limit the radon emission to preclude exceeding the stack limit. This limit, based on modeling, is expected to produce an offsite radon-222 concentration of not more than 0.5 pCi/L annual average, above background, at the fenceline.

The revised process design will operate in compliance with the radon stack emission limit without the use of carbon beds.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 15931 Page #: 15931-1 Line #: Code #: E
Original Comment #: 84
Comment: The specification number given in Paragraph 1.1A (S-5009) is inconsistent with the number given on PFD D-60-10-001 (S-6001 and 6002). In addition, "Hydrocyclonic" should be revised to "Hydrocyclone".

Response: The hydroclones have been eliminated from the design. This specification has been deleted.

Action: This specification has been deleted.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 15932 Page #: 15932-3 Line #: Code #: C
Original Comment #: 85
Comment: The performance requirements shown in Paragraph 2.1G are inconsistent with PFD D-50-10-001 (e.g., volumetric flow rate, temperature).

Response: The venturi/mist eliminator has been eliminated from the design. This specification has been deleted.

Action: This specification has been deleted.

Utility Plans for Portable Structures, Revision B

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Figures Page #: Line #: Code #: E
Original Comment #: 86
Comment: The text on Figure 5-1 is not readable.

Response: Comment Acknowledged.

Action: A larger size sheet has been provided for this drawing.

Point Source Emissions Data, Revision B

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Comment Page #: na Line #: na Code #: C
Original Comment #: 87
Comment: The data included in this section is incomplete. The design needs to include the information that would accompany a PTI, including modeling, etc., for Ohio EPA and NESHAPs requirements.

Response: See response to Ohio EPA Original General Comment #3.

Action: See response to Ohio EPA Original General Comment #3.

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Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 1.0 Page #: 1 Line #: 3rd paragraph Code #: C
Original Comment #: 88
Comment: This paragraph summarizes the sources of airborne pollutants. It does not include fugitive sources from roads, excavations, soil stockpiles, etc. If the intent is to summarize all potential airborne pollution sources, fugitive sources should be included.

Response: The purpose of this section is to summarize only point source emissions.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 1.0 Page #: 1 Line #: last line and continued to next page Code #: C
Original Comment #: 89
Comment: The text states that FDF will use the estimated emissions to model fenceline exposures and emission point source limits. The modeling results will be used to evaluate the effectiveness of the gas stream treatment system. The text does not provide a schedule for performing these activities or mention a deliverable to share the results with the regulators.

Response: The text as stated, was incorrect; estimated emissions will not be used to model fenceline exposures and emission point source limits. The FDF modeling was recently completed. A summary of the FDF modeling, including input parameters, is included in Attachment A to the response to comment document.

Action: The referenced text has been corrected as noted in the response. The dryer stack emissions modeling results have been provided with this response to comments document as Attachment A.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 1.0 Page #: 2 Line #: 1 Code #: C
Original Comment #: 90
Comment: For the purposes of this draft document, any preliminary air dispersion modeling results should be made available. These results should be presented and the resulting treatment system modifications (albeit preliminary) should be discussed.

Response: A summary of the FDF modeling, including input parameters, is included in Attachment A to the response to comment document.

Action: The dryer stack emissions modeling results have been provided with this response to comments document as Attachment A.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 1.0 Page #: 1 Line #: last line and continued to next page Code #: C
Original Comment #: 91
Comment: The text states that FDF will use the estimated emissions to model fenceline exposures and emission point source limits. The modeling results will be used to evaluate the effectiveness of the gas stream treatment system. The text does not provide a schedule for performing these activities or mention a deliverable to share the results with the regulators.

Response: See response to Ohio EPA Original Comment #89.

Action: See response to Ohio EPA Original Comment #89.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: 2.0 Page #: Line #: Code #: C
Original Comment #: 92
Comment: This section estimates fugitive emissions. It is limited to emissions from railcar loadout and the process and dryer buildings. Not included are fugitive emissions from excavations, roads, waste piles, etc.

Response: There is no plan to quantify the fugitive emissions from excavations, roads, waste piles, etc. These fugitive emissions are more appropriately discussed in the Environmental Control Plans (see response to Ohio EPA Original Comment #58). For example, Section 5.0 of the Pre-Operational Environmental Control Plan provides a discussion of fugitive emissions from these areas during the construction phase of the project.

Action: Section 2.0 of this document has been revised to refer the reader to the Pre-Operational Environmental Control Plan for additional discussions on fugitive emissions.

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Excavation Plan, Revision B

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 4.0 Page #: 36 Line #: 32, 33 Code #: C
Original Comment #: 93
Comment: More description of the caution to be taken to prevent excavation into the top of the Great Miami Aquifer (GMA) is needed. A plan should be presented to prevent contamination if the GMA is breached. Waste Pit 3 and the Clearwell reportedly have only 1 foot thick clay liners directly over the sand and gravel of the GMA. Controls and associated testing should be implemented so that this liner is not breached during the removal of materials.

Response: This comment is similar to Ohio EPA Original General Comment #6. Please see response to Ohio EPA Original General Comment #6.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
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FOR OPERABLE UNIT 1**

Action: **Section 4.5** of the **Excavation Plan** has been revised to clarify this issue as discussed above.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 4.0 Page #: Figures 4-2 and 4-3 Line #: Code #: C
Original Comment #: 94
Comment: It does not seem reasonable to advance the Waste Pit 5 excavation along a large face for such minimal volumes. The working face could be kept to a minimum so that sediment and erosion control and therefore water treatment would be more manageable.

Response: DOE feels the present plan is the best excavation approach, with all factors such as radiological levels, moisture levels, depth, surface area, stormwater control, etc., taken into consideration.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2.5 Page #: 22 Line #: 2 Code #: C
Original Comment #: 95
Comment: The text states that after Waste Pit No. 1 has been certified "clean", the rainwater will no longer need to be collected and treated. We agree that this is an acceptable approach and that there are many advantages to minimizing the quantity of water that requires treatment. Since the excavation of subsoils will be directed by FDF, the actual process that will be used to certify soils as clean is outside the control of IT. It will be important to develop a process to certify that a waste pit is clean to minimize the time period between the end of excavation and final certification.

Response: Agree. The process envisioned to certify that the waste pit area has been cleaned is identical to the process established for any other contaminated excavated areas: through implementation of the Sitewide Excavation Plan, the governing document which specifies the basis for conducting Directed Excavation. It is currently envisioned by the Excavation Plan included in the RDP, that Directed Excavation and certification will occur as soon as feasible after the removal of the waste materials. Reference to the Excavation Plan indicates that it is not anticipated that all wastes will be removed from all pits before Directed Excavation and Certification commences; rather, the waste pits will be progressively certified clean.

Action: No action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.5 Page #: 36 Line #: 7 Code #: C
Original Comment #: 96
Comment: As noted in the previous general comment, we agree with the concept of a two phase excavation approach. We believe that the Neat Line Excavation should include only the cap and waste. The Directed Excavation should include the liner and the subsoils.

Response: See response to Ohio EPA Original General Comment # 6.

Action: **Section 4.5** of the **Excavation Plan** has been revised to clarify this issue as discussed above.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.5.1 Page #: 36 Line #: 36 Code #: C
Original Comment #: 97
Comment: We do not understand the meaning of the first sentence of this paragraph.. It is clear that the intent is to excavate from a pit within the waste rather than from the surface downwards. It is also apparent from the Phase 2 and Phase 3 excavation drawings (M-05-82-101 and 102) that the intent is to initially excavate down to final Neat Line grade and the to excavate laterally. Please rephrase this sentence.

Response: This sentence describes the manner in which the initial surface cut will be advanced to the neat-line grade, with the transition from an excavator on the soil cover surface to an excavator within the waste material layer.

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.5.2 Page #: 37 Line #: Code #: C
Original Comment #: 98
Comment: Consistent with the contaminated soil excavation strategy developed in other areas, Ohio EPA expects to review and approve plans detailing the Directed Excavation and the certification of subsoils.

Response: Ohio EPA's expectation that it will approve plans detailing the Directed Excavation and certification of subsoils is assured through its review and approval of the Sitewide Excavation Plan and the Area 6 Integrated Remedial Design Package, which comprise the basis for Directed Excavation within OU1.

Action: No Action Required.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Appendix B Page #: drawing M-05-82-002 Line #: Code #:
Original Comment #: 99
Comment: This Figure shows the waste pit cross sections. We have commented elsewhere that we doubt the existence of a complete clay liner in all of the pits and we have requested that contingency plans be developed if the underlying clays are breached.

Response: This comment is similar to Ohio EPA Original General Comment #6. Please see the response to Ohio EPA Original General Comment #6.

Action: See Ohio EPA Original General Comment #6.

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Appendix B Page #: Line #: Code #: E
Original Comment #: 100
Comment: Revise the title of Figure M-05-82-103 to indicate 64% of Waste Pit No. 3 excavated.

Response: The comment states the proper text correction.

Action: The drawing has been revised as indicated in the comment.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Appendix H Page #: H-4 Line #: Code #: C
Original Comment #: 101
Comment: Please provide a reference or a derivation for the formula for determining % U-235.

Response: The percent U-235 is determined based on the following approach:

Let W = weight of uranium isotope, grams
A = radioactivity, Ci
S = specific activity of the pure isotope, Ci/g
C = concentration of the radionuclide in waste, Ci/g
T = total weight of the waste, grams

% (by weight) U-235 = $(W_{235} \times 100)/ (W_{234} + W_{235} + W_{238})$

$W = A/S$ and $A = C \times T$

Substituting:

$\%_{235} = (C_{235} \times T/S_{235} \times 100)/(C_{234} \times T/S_{234} + C_{235} \times T/S_{235} + C_{238} \times T/S_{238})$

Reducing:

$\%_{235} = (C_{235} /S_{235} \times 100)/(C_{234} /S_{234} + C_{235} /S_{235} + C_{238} /S_{238})$

The specific activities of the uranium isotopes are:

U_{234} = 6.24 e-3 Ci/g

U_{235} = 2.14 e-6 Ci/g

U_{238} = 3.33 e-7 Ci/g

Substituting:

$\%_{235} = (C_{235} /2.14 \text{ e-6} \times 100)/(C_{234} /6.24 \text{ e-3} + C_{235} /2.14 \text{ e-6 Ci/g} + C_{238} /3.33 \text{ e-7})$

Dividing by C_{235} and rearranging

$$\% \text{ of } U_{235} = (100)/[1 + (6.42\ (C_{238}/C_{235})) + (0.000343\ (C_{234}/C_{235}))]$$

Action: No further action required.

Commenting Organization: Ohio EPA Commentor: ODH
Section #: Appendix H Page #: Table H-4 Line #: Code #: C
Original Comment #: 102
Comment: Add text to clarify how parameters such as analytical weight % and mass weight % were derived.

Response: The analytical weight percentage listed in Table H-4 is estimated from the fractional percent of wet mass from the pits containing radionuclides. So, for Waste Pit 1, assuming the wet waste mass (74,969 tons) consists of 100% waste which will require processing, and the liner (22,302 tons) consists of 50% material that will require processing, and the total mass of Waste Pit 1 is 82,409 tons, the Analytical Weight Percentage is calculated as:

AWP = [(1.00 x 74,969 ton) + (0.50 x 22,302 ton)]/ 99,354 ton
= 87%

Action: Table notes have been revised to clarify this issue.

Pre-Operational Schedule

Volume 3 of 3

Site Preparation Package, Revision B

Commenting Organization: Ohio EPA Commentor: DSW
Section #: 3.0 Page #: Figure 3-1 Line #: Code #: C
Original Comment #: 103
Comment: Show detail of silt fence overlap when joining two lengths of silt fence. Silt fence around catch basins may need additional support such as wire fence, to hold up under the hydraulic loads, show these on details. The silt fence installation along the paved surfaces does not follow the contour, instead following along the road. Adjust drawing to show the silt fence following the contour.

Response: The overlap detail will be added. The currently proposed silt fencing will be adequate to support expected hydraulic loadings, without the need for additional supports. The construction of the plant facilities will have the beneficial effect of actually reducing the affected surface area from which these catch basins were designed to receive stormwater. The roofs of the feed handling, railcar loadout, warehouse, maintenance, and GCS/WTS buildings will all collect stormwater and convey it to the SWM pond directly. In addition, the drawing will be revised to reflect the requested changes in the silt fence installation layout.

Action: The drawing has been revised to address this issue.

RESPONSE TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT REMEDIAL DESIGN PACKAGE FOR OPERABLE UNIT 1

Volume 3, Pre-operational Environmental Control Plan, Revision B

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: 2.2 — Page #: 4 — Line #: na — Code #: C
Original Comment #: 104
Comment: This project should utilize the standards of the FEMP Sitewide Dust Control Policy.

Response: See the response to Ohio EPA Original Comment # 58.

Action: A statement has been added in the referenced section that the project will comply with the FEMP Site Wide Dust Control Policy.

Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 6.0 — Page #: 11 — Line #: 32 — Code #: C
Original Comment #: 105
Comment: The indicated value of 26 inches for a 6-hour probable maximum precipitation event is excessive. A 6-hour duration for a 100 year return period is expected to yield between five and six inches of rainfall. The value of 26 inches should be verified and referenced. A return period should be indicated.

Response: Section 6.5.2 of the Pre-Operational Environmental Control Plan addresses the stormwater management contingency measures associated with a storm event in excess of the 25-year, 24-hour maximum design case. The text in this section has been revised to reflect that a catastrophic rainfall is defined as rainfall in excess of the 25-year, 24-hour maximum design case. Reference to the 6-hour Maximum Precipitation Event will be deleted.

Action: The text in **Section 6.5.2** of the **Excavation Plan** has been changed to clarify the catastrophic rainfall criteria.

Commenting Organization: Ohio EPA — Commentor: OFFO
Section #: 2.2 — Page #: 4 — Line #: na — Code #: C
Original Comment #: 106
Comment: This project should utilize the standards of the FEMP Sitewide Dust Control Policy.

Response: See the response to Ohio EPA Original Comment #58.

Action: See the response to Ohio EPA Original Comment #104.

Volume 3, Pre-Operational Health & Safety Plan, Revision B

Commenting Organization: Ohio EPA — Commentor: HSI GeoTrans, Inc.
Section #: 1.0 — Page #: 1 — Line #: — Code #: E
Original Comment #: 107
Comment: No Figure 1 was included in the HASP.

Response: Figure 1 should have been provided.

Action: Figure 1 has been provided.

Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Page #: Line #: Code #: C
Original Comment #: 108
Comment: The Pre-Operational HASP should include a section on protection of the public and the environment. Included in this section would be dose estimates from the project, from all sources, and individual sources; and environmental monitoring.

Response: The Pre-Operational HASP (POHASP) focuses on protection of workers during the construction phase of the project. It should be noted that preoperational activities are being conducted in areas where the contamination levels are such that neither increased dose to the public nor adverse environmental effects are anticipated from these activities.

Protection of the general public and the environment is addressed through the various controls described in the design package. DOE acknowledges that Ohio EPA has raised concerns related to environmental protection controls and references the reviewer to the individual comment responses on these issues. Protection of the public is principally achieved through mandatory compliance with the ARARs (i.e., NESHAPs Subpart H, fugitive dust control requirements, etc.) in the OU1 ROD.

Action: Text similar to the that presented in the first paragraph of the above response has been added to **Section 7.0**.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 3.0 Page #: 1 Line #: Code #: C
Original Comment #: 109
Comment: No identification and description of roles and responsibilities for personnel working at the site is included.

Response: Agree. The POHASP should include a description of roles and responsibilities for personnel working on the site.

Action: **Section 3.0** has been revised to include Identification and description of roles and responsibilities for personnel working at the site.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 4.0 Page #: 2 Line #: Code #: C
Original Comment #: 110
Comment: Should 29CFR1910.1450 - Laboratory Standard be included as a regulation or guideline?

Response: This was an incorrect reference.

Action: This reference has been deleted.

**RESPONSE TO USEPA AND OHIO EPA COMMENTS
ON THE DRAFT REMEDIAL DESIGN PACKAGE
FOR OPERABLE UNIT 1**

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: 7.0 Page #: 4 Line #: Code #: C
Original Comment #: 111
Comment: The section should be revised in accordance with 29CFR1910.132(d) with regard to a hazard assessment certification statement, requiring the employer to certify that they have conducted a workplace hazard assessment (a qualified individual to perform the assessment must be identified).

Response: Agree.

Action: A hazard assessment certification statement that identifies the name of the qualified individual has been added to **Section 7.0.**

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Attachment E Page #: Line #: Code #: E
Original Comment #: 112
Comment: Attachments 1, 2, and 3 to POHASP Attachment E are missing.

Response: In order to not overwhelm most workers, it was determined best to remove Attachment E - the "WPRAP Heat Stress Program" from the POHASP, make it a part of a higher level document, the "Health & Safety Program", and reference, in the POHASP, where the reader may this program.

Action: Attachment E has been deleted. The verbiage in Section 7.5.4, advises workers that the "WPRAP Heat Stress Program" is available for review at the onsite IT WPRAP Health & Safety Office.

Commenting Organization: Ohio EPA Commentor: HSI GeoTrans, Inc.
Section #: Attachment F Page #: Line #: Code #: E
Original Comment #: 113
Comment: Attachments A and B to this POHASP Attachment F are missing.

Response: In order to not overwhelm most workers, it was determined best to remove Attachment F - the "WPRAP Cold Stress Program" from the POHASP, make it a part of a higher level document, the "Health & Safety Program", and reference, in the POHASP, where the reader may this program.

Action: Attachment F "WPRAP Cold Stress Program" has been deleted. The verbiage in Section 7.5.5, advises workers that the "WPRAP Cold Stress Program" is available for review at the onsite IT WPRAP Health & Safety Office.

Attachment A

Dryer Off-Gas Stack Emissions

ATTACHMENT A

The purpose of this attachment, is to provide information relative to the modeling performed by FDF on the IT dryer off-gas system, and to show the resultant stack limits with the dryer off-gas emissions estimated by IT for their current design.

The specific stack configuration, off-gas volumes and velocities that were used for the FDF modeling are presented in Table 1 below.

Using these stack parameters, and the maximum allowable ground level concentrations (MAGLC) at the site boundary, the stack limits were calculated by FDF based on the modeling performed, with the purpose being to determine which off-gas constituents require treatment prior to stack emissions. The MAGLC values and the stack limits for individual compounds are presented in Table 2.

Estimated concentrations of air toxins, particulates, and radon in the dryer off-gas for the IT design are presented in Point Source Emissions Data section of the Draft Final RD Documents Package (Volume 1 of 3). Specifically, average, minimum, and maximum pollutant concentrations are provided for each of the blending phases, for controlled dryer exhaust emissions from the exhaust stack. Table 1-2 provides this emissions data for semi-volatile organics, Table 1-3 provides this emissions data for volatile organic compounds, and Table 1-5 provides data for radon content. In addition, Table 1-6 provides other emissions data for VOCs, CO, and particulates based on measured emissions from the Design Verification Tests. The maximum emission rate for each compound, over all of the phases, is shown as Worst Case Emission Rate in Table 2.

TABLE 1

Dryer Off-Gas Stack Parameters IT Design as Shown in the Draft Final RD Package FDF Site-wide Air Model	
Stack Height	60 feet
Stack Diameter	26 inches
Flow Rate	4800 acfm
Stack Exit Temperature	1600 degrees Fahrenheit

TABLE 2

Off-Gas Values for IT Dryer Off-Gas Stack Based on FDF Site-wide Air Model and IT Draft Final RD Package			
Acid Emission	MAGLC Value (mg/m^3)	Stack Limit (lbs/hr)	Worst Case Emission Rate (lbs/hr)
Hydrogen Fluoride	.0548 C	19	.5
Hydrogen Chloride	.1786 C	61	.2
Sulfur Dioxide	.1238	42	.3
Off-Gas Limits for Radon/Organic Emissions Dryer Off-Gas Stack Based on FDF Site-wide Air Model and IT Draft Final RD Package			
Organic/Radon Emission	MAGLC Value (mg/m^3)	Stack Limit (lbs/hr)	Worst Case Emission Rate (lbs/hr)
Radon	0.5 pCi/L	3.0 E+12 pCi/hr	3.12 E+9 pCi/hr
Carbon Monoxide	.6905	237	5.17 E-1
Aroclor-1221	n/a	n/a	1.31 E-3
Aroclor-1242	n/a	n/a	3.58 E-4
Aroclor-1248	n/a	n/a	2.99 E-3
Aroclor-1254	n/a	n/a	3.35 E-3
Aroclor-1260	n/a	n/a	1.70 E-3
1,1,1-Trichloroethane	45.48	15,591	3.75 E-4
1,1-Dichloroethane	9.64	3,305	3.86 E-4
1,1-Dichloroethylene	.4762	163	5.93 E-5
1,2-Dichloroethane	.9524	326	1.17 E-4
1,2-Dichloroethylene	18.88	6,472	1.22 E-4
1,4-Dioxane	2.15	737	4.40 E-3
2,6-Dinitrotoluene	.0036	1	3.46 E-4
2-Butanone	14.05	4,817	4.62 E-3
2-Hexanone	.4762	163	4.73 E-5
2,4,5-Trichlorophenol	n/a	n/a	2.88 E-3
2,4-Dichlorophenol	n/a	n/a	8.39 E-4
2,4-Dinitrophenol	n/a	n/a	4.01 E-3

TABLE 2
(continued)

Off-Gas Limits for Radon/Organic Emissions Dryer Off-Gas Stack Based on FDF Site-wide Air Model and IT Draft Final RD Package			
Organic/Radon Emission	MAGLC Value (mg/m^3)	Stack Limit (lbs/hr)	Worst Case Emission Rate (lbs/hr)
2-Chlorophenol	n/a	n/a	4.42 E-4
2-Methylnaphthalene	n/a	n/a	1.21 E-3
2-Pentanone	16.79	5,756	9.72 E-5
3-Methylphenol	n/a	n/a	1.96 E-4
3,3-Dichlorobenzidine	n/a	n/a	2.39 E-4
4-Chloro 3-methylphenol	n/a	n/a	8.39 E-4
4-Methylphenol	n/a	n/a	4.49 E-4
4-Nitrophenol	n/a	n/a	2.14 E-3
Acenaphthene	n/a	n/a	6.59 E-3
Acenaphthylene	n/a	n/a	6.62 E-4
Acetone	42.38	14,528	6.96 E-3
Anthracene	n/a	n/a	1.86 E-2
B-Chloropene	.8571	294	1.41 E-5
Benzene	.7619	261	1.64 E-5
Benzo (a) anthracene	n/a	n/a	2.01 E-2
Benzo (a) pyrene	n/a	n/a	1.86 E-2
Benzo (a) fluoranthene	n/a	n/a	2.01 E-2
Benzo (g,h,I) perylene	n/a	n/a	6.66 E-3
Benzo (k) fluoranthene	n/a	n/a	1.15 E-2
Benzoic Acid	n/a	n/a	3.13 E-3
Carbon Disulfide	.7381	253	9.47 E-6
Carbon Tetrachloride	.7381	253	9.37 E-6
Chlorobenzene	1.0952	375	8.91 E-6
Chloroethane	n/a	n/a	4.10 E-5
Chloroform	1.167	400	1.52 E-3
Chrysene	n/a	n/a	1.55 E-2
Dibutyl phthalate	.119	41	8.82 E-4
Di-n-octyl phthalate	n/a	n/a	4.57 E-4
Dibenzo (a,h) anthracene	n/a	n/a	3.06 E-3

TABLE 2
(continued)

Dibenzofuran	n/a	n/a	5.52 E-3
Off-Gas Limits for Radon/Organic Emissions Dryer Off-Gas Stack Fluor Daniel Fernald, Inc. Site-wide Air Model			
Organic/Radon Emission	MAGLC Value (mg/m^3)	Stack Limit (lbs/hr)	Worst Case Emission Rate (lbs/hr)
Diethyl Phthalate	.12	41	1.73 E-3
Dinitrotoluene	.0036	1	3.46 E-4
Dioxane	2.15	737	4.40 E-3
Ethylbenzene	10.34	3,545	3.01 E-4
Fluoranthene	n/a	n/a	7.52 E-2
Fluorene	n/a	n/a	9.51 E-3
Hexachloroethane	.231	79	
Ideno (1,2,3-cd) pyrene	n/a	n/a	7.27 E-3
Isobutyl alcohol	3.619	1,241	2.81 E-4
Isophorone	.67 C	230	3.25 E-4
Methylene Chloride	4.143	1,420	2.62 E-3
n-Nitrosodiphenylamine	n/a	n/a	4.42 E-4
Naphthalene	1.24	425	3.35 E-3
p-Nitroaniline	.0714	24	1.21 E-3
Pentachlorophenol	.012	4	2.77 E-3
Phenanthrene	n/a	n/a	5.69 E-2
Phenol	.452	155	6.35 E-4
bis (2-Ethylhexyl)	n/a	n/a	3.33 E-3
Pyrene	n/a	n/a	2.39 E-2
Styrene	5.0714	1,739	9.37 E-6
Tetrachloroethene	4.05	1,388	3.23 E-2
Toluene	4.476	1,534	3.75 E-4
Total Xylene	10.34	3,545	9.91 E-4
Tributyl Phosphate	.0524	18	2.63 E-2
Trichloroethene	6.4	2,194	6.60 E-4
Trichlorofluoromethane	133.81 C	45,872	1.64 E-5
Vinyl Chloride	.3095	106	3.48 E-4