



Department of Energy

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JAN 7 1999

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

DOE-0328-99

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

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF RESPONSES TO U.S. AND OEPA COMMENTS ON THE DRAFT
INTEGRATED ENVIRONMENTAL MONITORING PLAN (REVISION 1)**

This letter serves to transmit the subject document for the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) review and approval. Following approval of the response to comments by the agencies, the Draft Integrated Environmental Monitoring Plan (IEMP), Revision 1, will be finalized to reflect the agreed upon comment responses and submitted to the U.S. EPA and OEPA.

The Department of Energy (DOE) moved forward with implementation of the monitoring programs presented in Revision 1 of the IEMP on January 1, 1999. The following exceptions to the proposed monitoring programs have been made based on agency comments:

- In response to the OEPA Original Comment #15, the 4000 series monitoring wells have been added back to the Property Boundary Monitoring Activity.
- In response to the OEPA Original Comment #17, a water elevation monitoring point was added south of Willey Road and east of the modeled groundwater 10-year, uranium-based restoration footprint.
- In response to the OEPA Original Comment #34, surface water sampling for total uranium at location SWD-02 will be conducted on a monthly basis rather than quarterly.

JAN 7 1999

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Mr. James A. Saric
Mr. Tom Schneider

Should you have any questions regarding this submittal, please contact Kathleen Nickel at (513) 648-3166.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Nickel

Enclosure

cc w/enclosure:

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**RESPONSES TO U.S. EPA & OEPA COMMENTS
ON THE DRAFT
INTEGRATED ENVIRONMENTAL MONITORING PLAN
(REVISION 1)**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

JANUARY 1999

**U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE**

000003

**RESPONSES TO U.S. EPA COMMENTS ON THE DRAFT
INTEGRATED ENVIRONMENTAL MONITORING PLAN
(REVISION 1)**

1918

Specific Comments

1. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Table #: 2-2 **Pg.#:** 2-10 **Line#:** NA **Code:**
Original Specific Comment #: 1
Comment: The table states that the North Access Road will be relocated in the year 2000, but Figure 2-1 shows this event occurring in 1999. This discrepancy should be resolved.
Response: The U.S. Department of Energy (DOE) agrees with the comment. Table 2-1 accurately reflects the schedule for this activity.
Action: Figure 2-1 will be revised to reflect the relocation of the North Access Road in 2000.
2. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 3.3 **Pg.#:** 3-10 **Line#:** 2 **Code:**
Original Specific Comment #: 2
Comment: The text refers to Figure 3-1 for the location of the administrative boundary between the Fernald Environmental Management Project (FEMP) and the Paddys Run Road site contamination plume. However, Figure 3-1 and all other similar figures show Paddys Run and Paddys Run Road, but not the Paddys Run Road site. The location of the Paddys Road Run site should be shown in Figure 3-1 to clarify the discussion of groundwater flow.
Response: DOE agrees with the comment.
Action: Figure 3-1 will depict the location of the Paddys Run Road Site plume.
3. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 3.5.1.3 **Pg.#:** 3-42 **Line#:** 24 and 25 **Code:**
Original Specific Comment #: 3
Comment: The text states that groundwater will be monitored at 12 locations along the downgradient edge of the waste pit excavation area and the 20-microgram per liter $\mu\text{g/L}$ total uranium plume. Although the downgradient edge of the waste pit excavation area is well monitored, virtually no wells are located along the downgradient edge of the 20- $\mu\text{g/L}$ total uranium plume. Knowledge of the extent of the uranium plume and its rate of migration is essential to the adequate design of the aquifer restoration system. Monitoring wells should be installed to identify and monitor the downgradient edge of this plume. The text should be revised to address this issue.
Response: DOE does not believe that monitoring wells should be installed at the downgradient edge of the 20 micrograms per liter ($\mu\text{g/L}$) total uranium plume at this time. This issue was previously addressed in response to U.S. Environmental Protection Agency (EPA) and Ohio Environmental Protection Agency (OEPA) comments on the Draft Remedial Design Package for Operable Unit 1. DOE believes that the groundwater monitoring network established in the Integrated Environmental Monitoring Plan (IEMP) is adequate for monitoring implementation of the Operable Unit 1 remediation. The IEMP monitoring network, in conjunction with a planned pre-design monitoring activity (scheduled in 2000), will be capable of detecting any changes in groundwater quality which would affect the design of the Waste Storage Area Groundwater Restoration Module. The planned pre-design monitoring activity will consist of a direct push (i.e., GeoprobeTM) sampling program similar to the one used to refine the

definition of the South Plume during late 1996 and early 1997. By using a direct push sampling tool, the vertical as well as lateral extent of the 20 µg/L total uranium plume can be defined. DOE selected this strategy because it will interfere less with surface excavation activities than permanent monitoring wells would.

Action: No revision to the IEMP is required.

4. Commenting Organization: U.S. EPA Commentor: Saric
Section#: 3.7.1 Pg.#: 3-79 Line#: 26 Code:
Original Comment#: 4
Comment: The text refers to "Kallman filtering." Because this technique was developed by Emil Kalman, it should be called "Kalman filtering."
Response: DOE agrees with the comment.
Action: On line 26, of page 3-79, "Kallman Filtering" will be replaced with "Kalman filtering".

5. Commenting Organization: U.S. EPA Commentor: Saric
Section#: 3.7.1 Pg.#: 3-82 Line#: 15 through 17 Code:
Original Comment #: 5
Comment: The text states that modeled predicted uranium concentrations will be compared to actual field measurements at designated or various monitoring points. The text should be revised to either specify the monitoring wells to be used or describe the rationale used to select monitoring wells whose field measurements will be considered in this comparison. A comparison of uranium concentrations in groundwater from extraction wells and modeled predicted concentrations should be included. Lastly, the text should be revised to include quantitative (or qualitative) targets or ranges to be used in determining the model's ability to accurately predict future field conditions.
Response: It would be premature to select designated monitoring points to assess performance of the transport model until the VAM3DF groundwater model has been calibrated for both flow and transport and additional operational experience with the South Field (Phase 1) Extraction, South Plume Optimization, and Re-Injection Demonstration Modules has been obtained.

The current SWIFT groundwater model is not the most appropriate tool for making such an assessment. Work is in progress to convert the model over to the VAM3DF groundwater modeling code. Once the VAM3DF conversion is completed, monitoring points for making the subject comparison will be selected by considering:

- Areas within the aquifer where modeling confidence is low
- Data from extraction wells
- Depth of existing monitoring well screens in relation to layers within the model.

A comparison of uranium concentrations measured in groundwater from the extraction wells and model predicted concentrations will be conducted.

As for a quantitative/qualitative target or range which will be used to determine the model's ability to predict future field conditions, DOE plans on trending concentration data collected in the field at select locations and comparing the trends to modeled concentration trends to determine if final remediation levels (FRLs) will be achieved within the time frames predicted by the model.

The difference between modeled and actual concentrations is not as significant as the way in which the concentration data are trending. If the concentration data indicate that the concentration will reach its FRL within the scheduled clean-up time, then no recalibration of the model would be required. If on the other hand, the trend of the concentration data indicates that the FRL concentration will not be reached within the scheduled clean-up time, then an operational adjustment to the remedy may be needed. The model may need to be recalibrated to provide a better tool for predicting what effect an operational adjustment would have.

Action: The sentence beginning on line 15, of page 3-82, will be deleted and replaced with the text as follows:

"Model predictions for concentrations through time at extraction wells and various monitoring points will be compared to actual field conditions to determine if concentrations are decreasing or increasing as predicted by the model. Designated monitoring points will be selected once the VAM3DF flow and transport model has been calibrated. Monitoring points will be selected by considering the following:

- Areas within the aquifer where modeling confidence is low
- Data from extraction wells
- Depth of existing monitoring well screens in relation to layers within the model."

The following text will be added to line 17 on page 3-82:

"Concentration data collected in the field at select monitoring locations will be trended to determine if FRL concentrations will be achieved within the time frame predicted by the model."

6. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.3 **Pg.#:** 6-11 and 6-12 **Line#:** NA **Code:**
Original Comment #: 6
Comment: The intent of Section 6.3 is to differentiate between the integrated environmental monitoring plan (IEMP) air monitoring and the air monitoring requirements of specific ongoing remediation projects. The text states that (1) fugitive emissions "air monitoring information maintained by the projects will be used as necessary to support the data interpretations conducted through the IEMP" and (2) "data collected from point source emissions will be integrated into the IEMP reporting framework." However, the "1997 Integrated Site Environmental Report" and monitoring status reports for the first and second quarters of 1998 contain only limited information concerning project-specific monitoring activities and results. The U.S. Environmental Protection Agency (U.S. EPA) expects that, at a minimum, subsequent quarterly and annual reports will include all project-specific air monitoring information that meets the following criteria: (1) information that indicates an impact at or beyond the FEMP fenceline at a location not covered by the IEMP monitoring network; (2) information that indicates the exceedance of an applicable or relevant and appropriate requirement at an on-site location (for example, the radon limit of 100 picoCuries per liter [pCi/L]); and (3) any relevant project-specific air monitoring data that may provide early warning feedback that an increase in project-specific emissions is occurring.
Response: DOE recognizes that the information included in the first two criteria is relevant to data interpretations conducted under the IEMP and is clearly included within IEMP's reporting obligations. As such, this information is currently being provided in IEMP

quarterly status reports. However, for criterion 3, DOE does not believe that reporting on increases in project-specific air emissions falls within the purview of the IEMP unless these increases are relevant to explaining changes within the IEMP air monitoring network. As long as emissions from a project remain within applicable regulatory limits and process control specifications, the IEMP will not report on increases in project emissions. If the collective effect of emissions from multiple remediation activities indicate an unacceptable trend or condition, then the IEMP will report project-specific air monitoring data as necessary to define the situation and support any recommended corrective action.

Action: No revision to the IEMP is required.

7. Commenting Organization: U.S. EPA Commentor: Saric
Section#: 6.4.1 Pg. #: 6-12 Line#: 32 and 33 Code:
Original Comment #: 7

Comment: The last bullet in Section 6.4.1 states that one purpose of the IEMP is to "provide a program capable of assessing trends from year to year..." One significant change in IEMP Revision 1 is the elimination of radon measurements by alpha track-etch cup detectors from the air monitoring program. The summary table attached to the U.S. Department of Energy's (DOE) transmittal letter for the IEMP provides a technical justification for eliminating alpha track-etch cup detectors. However, the table does not indicate how this change may affect DOE's ability to identify long-term trends in radon concentrations. This issue should be addressed either within the IEMP or in response to these comments.

Response: Because concentrations should either stay at the present level or increase due to the transition from interim storage to remediation, the focus has changed primarily from long-term to short-term trending. By summarizing data from the continuous monitors, the ability to identify long-term trends remains unaffected. Baseline comparative data exist from previous monitoring years.

Action: No revision to the IEMP is required.

8. Commenting Organization: U.S. EPA Commentor: Saric
Section#: 6.4.2.1 Pg. #: 6-17 Line#: 2 through 4 Code:
Original Comment #: 8

Comment: The text states that the locations for two new monitors (WPTH-1 and WPTH-2) "were based on modeling results which predicted the distribution of particulate emissions from the excavation and handling of waste pit material." The section should be revised to state whether particulate emissions from the waste dryer were considered in the modeling (as is the case for the modeling of potential radon emissions discussed in Section 6.4.2.2).

Response: A HEPA filtration system with an efficiency in excess of 99.9 percent will be installed on the waste dryer. In comparison to particulate emissions from the excavation and handling of waste pit material, particulate emissions from the dryer will be insignificant. Therefore, particulate emissions from the waste dryer were not included in the modeling effort.

Action: No revision to the IEMP is required.

9. Commenting Organization: U.S. EPA Commentor: Saric
Section#: 6-3 Pg. #: 6-20 Line#: NA Code:
Original Comment #: 9

Comment: Table 6-3 lists the "detection level" for continuous radon monitor measurements as 1.0 pCi/L. This detection level is higher than many of the continuous radon

monitoring results reported in Table 3-4 of the "Integrated Environmental Monitoring Status Report for Second Quarter 1998." Either Table 6-3 should be revised to list a lower detection level or Section 6.4.2.2 should be revised to explain this apparent error.

Response: The listed detection level of 1.0 picoCuries per liter (pCi/L) was a manufacturer's quoted typical detection level for a one hour count. The detection level varies by instrument due to varying sensitivities and instrument background counting rates. The sampling duration also effects the detection level, especially because data are summarized on a daily basis as opposed to an hour. The revised table has a range of detection levels representative of instruments used at the Fernald Environmental Management Project (FEMP) and are indicative of the daily counts used for the summary tables.

Action: Table 6-3 will be revised as follows:

"Continuous/Daily," under Sample Frequency, will be replaced with "Continuous/24 hours" and the detection level of "1.0 pCi/L" will be replaced with "0.05 to 0.15 pCi/L."

10. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.4.2.2 **Pg.#:** 6-21 **Line#:** 12 **Code:**
Original Comment #: 10
Comment: The text states that continuous radon monitoring data presented in quarterly status reports will be "instrument background corrected data." The text should be revised to briefly explain this correction procedure and how it differs from the correction of on-site and fenceline results for off-site background radon concentrations.
Response: DOE agrees with the comment. The IEMP will be revised to explain instrument background corrected data.
Action: The text on line 12, of page 6-21, will be moved to start a new paragraph. The following text will be added to this new paragraph:
- "The instrument background is the laboratory-determined count rate for a specific electronic instrument, plus any responses from trace radioactive decay products and impurities found in the scintillation material of the continuous radon monitor. These counts are subtracted from the recorded data and have no relation to any net radon concentration from comparing fenceline and on-site monitors to the off-site background monitors."

11. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.5.2.2 **Pg.#:** 6-28 **Line#:** 19 through 22 **Code:**
Original Comment #: 11
Comment: The second bullet in this section discusses spike samples that will be submitted with each batch of biweekly filters for uranium analysis. The text should be revised to include spike samples for the two new air particulate monitoring locations designated for biweekly thorium analysis. A lower spike sample frequency (such as one per quarter) would be appropriate because of the small number of filters designated for thorium analysis.
Response: DOE agrees with the comment.
Action: Line 19, on page 6-28, will be revised as follows:
- "On a quarterly basis, one spike sample with a known amount of thorium will be submitted for analysis with the biweekly thorium filters."

12. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.5.2 **Pg.#:** 6-28 **Line#:** 29 **Code:**
Original Comment #: 12
Comment: IEMP Revision 0 includes two sections immediately after Section 6.5.2.2 (Section 6.5.2.3, "Decontamination," and Section 6.5.2.4, "Waste Dispositioning"). Both sections appear to have been inadvertently omitted from IEMP Revision 1. (Decontamination and waste dispositioning sections are included for other components of the air monitoring program). Section 6.5.2 should be revised to include the two missing sections.
Response: DOE agrees with the comment. The sections were inadvertently omitted during the IEMP revision.
Action: Section 6.5.2.3, "Decontamination," and Section 6.5.2.4, "Waste Dispositioning" will be added in order to be consistent with the rest of the document.
13. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.5.3.2 **Pg.#:** 6-30 **Line#:** 5 through 7 **Code:**
Original Comment #: 13
Comment: This section should be revised to specify the frequency at which source checks, a quality control (QC) measure for continuous radon monitors, will be conducted.
Response: At a minimum, the continuous radon monitors are source checked monthly. The frequency for source checking is found in the Sitewide CERCLA Quality Assurance Project Plan (SCQ) and the sampling procedures are referenced in Section 6.5.3.1.
Action: No revision to the IEMP is required.
14. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.5.4.2 **Pg.#:** 6-32 **Line#:** 7 through 15 **Code:**
Original Comment #: 14
Comment: The second and third bullets in this section identify spiked dosimeters and interlaboratory comparisons as QC checks for direct radiation measurements. The bullets should be revised to specify the frequency for each of these QC checks.
Response: DOE agrees with the comment. The text will be revised to include the frequency of quality control checks on thermoluminescent dosimeters (TLDs). It is important to note that the interlaboratory comparison discussed in the third bullet does not take place on a set schedule, but has typically taken place about every two years.
Action: The second and third bullets, respectively, under Section 6.5.4.2, will be revised as follows:
- "• Quarterly, spiked dosimeters..."
 - "• The FEMP will participate in interlaboratory comparisons conducted by DOE. The comparison..."
15. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: 6.6.1.1 **Pg.#:** 6-37 **Line#:** 16 through 19 **Code:**
Original Comment #: 15
Comment: The text states that (1) quarterly results from the air particulate monitoring program will be evaluated to confirm that uranium is contributing the largest percentage of measured dose and (2) the IEMP air monitoring program and analytical schedule will be revised if necessary to better monitor other major contributors to the inhalation dose. Sampling results from the first and second quarters of 1998 suggest that uranium may not be the major contributor to measured dose at several locations. During both quarters, uranium accounted for less than 30 percent of the measured dose at locations

AMS-4, AMS-24, AMS-25, and AMS-28, where thorium isotopes contributed most of the measured dose. This apparent trend should be evaluated for the remainder of 1998. If the trend continues through the fourth quarter, DOE's fourth quarter report should address the issue of whether modifications to the IEMP air monitoring program and analytical schedule are necessary for these locations.

Response: As mentioned in the 1997 Integrated Site Environmental Report, uranium isotopes contributed 94 percent of the annual dose equivalent based on the 1997 air composite data and historically (1990 through 1996), uranium accounted for 62 to 94 percent of the annual dose. During both the first and second quarters of 1998, selected air monitoring station locations (AMS-4, AMS-24, AMS-25, and AMS-28) indicated radionuclide isotopes other than uranium were contributing a major portion of the dose equivalent. Although the uranium contribution from all fence line monitor locations for this sampling period averaged 72 percent, DOE agrees that the results at AMS-4, AMS-24, AMS-25, and AMS-28 warrant attention.

A preliminary review of the third quarter air composite data reveals uranium isotopes accounted for 99 percent of the dose equivalent for AMS-4, AMS-24, AMS-25, and AMS-28 (see Integrated Environmental Monitoring Status Report for Third Quarter 1998 for validated data results). The third quarter data suggest that the earlier results at AMS-4, AMS-24, AMS-25, and AMS-28 were anomalies as opposed to a trend. As discussed in the Integrated Environmental Monitoring Status Report for Second Quarter 1998, difficulties encountered in the thorium analysis of quarterly composite samples may have contributed to the larger than expected thorium dose.

Action: An evaluation of radiological air particulate data will continue in order to determine the contribution to dose from the target radionuclides.

16. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Appendix #: B **Pg. #:** B-1 **Line#:** 19 **Code:**
Original Comment #: 16

Comment: The introduction to this appendix states that the appendix includes figures showing sampling locations where final remediation levels (FRL) have been exceeded. Table 4-2 on Page 4-13 notes that results for 25 analyses exceeded the total uranium FRL, but no figure in Appendix B documents the sampling locations for these results. A figure illustrating the locations of uranium exceedances should be included in Appendix B.

Response: DOE agrees with the comment. This figure was inadvertently omitted during the IEMP revision.

Action: This figure will be added to Appendix B as Figure B-14.

17. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section#: D.4.1.4 **Pg. #:** D-10 **Line#:** 26 **Code:**
Original Comment #: 17

Comment: The enclosure to the transmittal letter states that a 1998 floristic analysis was substituted for the planned 1999 survey discussed in the IEMP, Revision 0. However, the text in Appendix D refers only to Spring 1999 activities. This discrepancy should be resolved.

Response: DOE agrees with the comment.

Action: The sentence beginning on line 26, of page D-10, will be deleted and replaced with the text as follows:

"A floristic analysis for the northern woodlot and associated northern forested wetland was conducted in 1998. This analysis showed that no Spring Coral Root was present in the northern woodlot."

**RESPONSES TO OEPA COMMENTS ON THE
INTEGRATED ENVIRONMENTAL MONITORING PLAN
(REVISION 1)**

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Enclosure Comments

18. Commenting Organization: OEPA Commentor: OFFO
Section #: Enclosure Table/3.2.2 Pg#: 1 Line#: Code: C
Original Comment #: 1
Comment: Approval of the revised DF&O's is performed by central office Division of Hazardous Waste Management. Until they accept the revised orders, they must be considered draft and unapproved.
Response: DOE agrees with the comment.
Action: DOE will continue to work with OEPA to finalize the revised Director's Findings and Orders.
19. Commenting Organization: OEPA Commentor: OFFO
Section #: Enclosure Table 1/3.5.22 Pg#: 6 Line#: Code: C
Original Comment #: 2
Comment: Approval of the revised DF&O's is performed by central office Division of Hazardous Waste Management. Until they accept the revised orders, they must be considered draft and unapproved.
Response: See Comment Response #18.
Action: See Action #18.

General Comments

20. Commenting Organization: OEPA Commentor: OFFO
Section #: General Pg. #: Line #: Code: C
Original Comment #: 3
Comment: The IEMP is fairly clear on the boundaries of what monitoring is included under the IEMP. An issue still exists as to project specific monitoring for air contaminants. The document states that these types of monitoring will be included in project RD and RA documents, but history has shown that this is not the case, or the projects defer to the IEMP. This issue needs to be resolved within DOE to the satisfactions of OEPA.
Response: This issue has been resolved within DOE as defined below:
- Environmental monitoring will be conducted to meet all applicable or relevant and appropriate requirement (ARAR) obligations for monitoring as specifically defined in the record of decisions for operable units 1 through 5. Furthermore, the IEMP delineates the ARARs by assigning a project-specific or IEMP responsibility for demonstrating compliance.
 - It is a project obligation to fulfill the monitoring-related ARARs identified as project-specific under the IEMP.
 - To further clarify the delineation between IEMP and project-specific monitoring, Section 1.3 of the IEMP was revised to clarify the definition of project-specific process control monitoring. The definition of process control monitoring was identified by the agencies as a source of confusion between what was identified as a monitoring requirement in the IEMP and the agencies' expectation for project-specific monitoring under the definition of process control (which falls outside of what is specifically required under the ARARs).

Furthermore, it appears that OEPA believes that air monitoring is synonymous with high volume particulate sampling. It has never been DOE's intention to suggest that high volume particulate sampling would be a project-specific activity. The project documents must address process control monitoring; however, this monitoring will not necessarily include particulate sampling if such sampling is neither required by ARAR or necessary to assess process controls. Additionally, see Comment Response #24.

Action: No revision to the IEMP is required.

Specific Comments

21. Commenting Organization: OEPA Commentor: OFFO
Section #: 1.2 Pg. #: 1-2 to 1-3 Line #: 16-38 to 1-4 Code: C
Original Comment #: 4
Comment: One of the important program objectives would appear to be addressing stakeholder concerns, particularly in light of the site history. Although alterations made to the plan based on stakeholder expectations are mentioned under Section 1.4, Plan Organization, (page 1-8, line 15), it seems appropriate to list this under Section 1.2, Program Objectives and Scope.
Response: DOE agrees that addressing stakeholder concerns regarding the potential impact of remediation activities on the surrounding community is a primary objective of the IEMP. However, DOE believes this objective is embodied within the overall program design and is intrinsic to the IEMP's environmental surveillance monitoring function as defined in the first bullet under Section 1.2 (page 1-2, lines 17 to 21).
Action: No revision to the IEMP is required.
22. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 1.2 Pg. #: 1-3 Line #: 31-33 Code: C
Original Comment #: 5
Comment: The IEMP and subsequent sections do not indicate how the project-specific results will be factored into the sitewide interpretations. Please provide additional information on how project-specific results will be factored into sitewide interpretations.
Response: Project-specific information, such as results of monitoring activities, observations made during construction/remediation activities, and project status/schedule information, will be factored into the evaluation of IEMP monitoring data as necessary to understand changes in the data and formulate conclusions. These types of project-specific information will be evaluated together with meteorological information (e.g., wind speed and direction, precipitation, etc.), characterization data from the source areas undergoing active remediation, and IEMP sample results to understand the effect of specific remediation projects on sitewide environmental conditions. Additional information relating to this issue is provided in Comment Response #6.
Action: No revision to the IEMP is required.
23. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 1-4 Pg. #: 1-6 Line #: 35 Code: C
Original Comment #: 6
Comment: The Surface Water and Treated Effluent Monitoring Program Section should also include reporting of treated effluent volumes, total uranium mass and concentrations in the effluent and excursions from the surface water treatment priority scheme.
Response: Surface water and treated effluent program updates in both IEMP quarterly status reports and annual integrated site environmental reports contain volumes, pounds (total uranium mass), and concentrations associated with both the Storm Water Retention Basin overflows and bypass days and contain information on effluent from the Parshall Flume and the new sewage treatment plant. Monitoring and reporting of the surface water treatment priority scheme is a project-specific consideration and will not be

reported through the IEMP reports unless excursions impact monitoring data. In the unlikely event that excursions from the FEMP's treatment priority scheme (presented in Section 5.0 of the Operations and Maintenance Master Plan for the Aquifer Restoration and Wastewater Project) occur, they will be communicated to the EPA and OEPA through the weekly conference call or through a meeting with the agencies during one of their routine visits to the FEMP.

Action: No revision to the IEMP is required.

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24. Commenting Organization: OEPA Commentor: OFFO
Section #: 1.3 Pg. #: 1-5 to 1-6 Line #: Code: C
Original Comment #: 7

Comment: It is not within the purview of the IEMP to define the limits of project specific monitoring.

Response: Section 1.3 of the IEMP is not intended to define the limits of project-specific monitoring. The section was revised in response to EPA and OEPA requests for clarification of the definition and scope of project-specific process control monitoring. Section 1.3 does not limit the range of project-specific monitoring activities that may be defined and executed by individual remediation projects, rather it provides a framework for determining when additional project-specific environmental monitoring, beyond that required to meet ARAR obligations, may be implemented by remediation projects as a process control.

Action: The following text will be added to Section 1.3 on page 1-6, immediately following the bulleted text.

"While the criteria listed above provides a basis for determining when additional project-specific environmental monitoring (beyond that required to meet ARAR obligations) may be implemented, it is not intended to limit the range or scope of potential monitoring activities that may be implemented to successfully complete site remediation. Additional process control monitoring may be proposed in response to changes in the remedial design or discovery of unanticipated field conditions."

25. Commenting Organization: OEPA Commentor: OFFO
Section #: 1.3 Pg. #: 1-5 Line #: 8-18 Code: C
Original Comment #: 8

Comment: The meaning of this paragraph was extremely difficult to interpret. It appears to mean that project specific monitoring will only be required if specified by the IEMP. It also refers to ARAR analysis in the media-specific sections of the IEMP, and that the project specific monitoring will be specified in the media-specific ARAR analysis within the IEMP.

It is assumed that the ARAR analysis referred to is the Regulatory Drivers and Responsibilities Tables which are in the media specific sections of the IEMP. These do not appear to be ARAR analyzes and are incomplete even as lists of regulatory drivers. For example, Table 4-1 does not list anything from the Ohio Water Quality Standards (e.g., OAC 3745-1-04, which could apply to non-NPDES regulated outfalls), Federal Water Quality Criteria, 10 CFR 1022, CWA 401, etc., which should be included in an ARAR analysis.

It is not appropriate for the IEMP to state what project specific monitoring will be required. The extent and complexity of the remedial activities make it impossible to know in advance what monitoring activities may or may not be required. It is possible to state what the minimum monitoring requirements of the projects may be, but not be exclusive of any other potential conditions that are unknown at this time.

Response: The intent of this paragraph is to merely identify that those ARARs specific to the monitoring of each media are within the media-specific sections of the IEMP. It is not the intent of this paragraph to identify that project-specific monitoring will only be required if specified in the IEMP.

A complete list of ARARs are identified in Appendix B of the Record of Decision for Remedial Actions at Operable Unit 5; however, the IEMP identifies only those ARARs associated with monitoring. Also some codes and standards are not specifically identified in the media-specific ARAR tables in the IEMP as they are embodied within and compliance is met by complying with the specific regulatory drivers presented in the IEMP (e.g., National Pollutant Discharge Elimination System [NPDES] and Federal Facilities Compliance Agreement) (See Comment Response #43).

DOE agrees that it is not appropriate for the IEMP to state what project-specific monitoring will be required. As identified above, this was not the intent of this paragraph. See Comment Response #24.

Action: No revision to the IEMP is required.

26. **Commenting Organization:** OEPA **Commentor:** OFFO
Section #: 1.3 **Pg. #:** 1-5 **Line #:** 28-30 **Code:** E
Original Comment #: 9
Comment: There appears to be a typo in this sentence, perhaps *and* should read *by*.
Response: DOE agrees with the comment.
Action: "And" on line 30, of page 1-5, will be replaced with "by."

27. **Commenting Organization:** Ohio EPA **Commentor:** OFFO
Section #: 1.5.1 **Pg #:** 1-9 **Line #:** **Code:** C
Original Comment #: 10
Comment: This section outlines management decisions that will be supported by the IEMP. There is no mention of using data collected to evaluate the effectiveness of ALARA practices at the FEMP.
Response: The effectiveness of as low as reasonably achievable (ALARA) practices is primarily evaluated at the project level for both occupational and environmental ALARA concerns. This is appropriate because each remediation project is responsible for implementing ALARA throughout the project design, construction, and operational phases of the project life. The data collected under the IEMP does not directly support determinations of the effectiveness of ALARA practices because the information collected through the IEMP reflects a collective view of environmental conditions rather than an activity specific view. Focusing the assessment of ALARA practices at the project level ensures that process improvements can be implemented efficiently.
Action: No revision to the IEMP is required.

28. **Commenting Organization:** OEPA **Commentor:** OFFO
Section #: 1.5.1 **Pg. #:** 1-10 **Line #:** 4-5 **Code:** C
Original Comment #: 11
Comment: This statement (line 4-5) says that project specific monitoring will be upgraded. Again, remedial activities make it impossible to know in advance what monitoring activities may be required and even more difficult to determine the type of upgrade necessary.
Response: The subject statement says that emission controls will be upgraded and does not address monitoring. The intent of this section is to describe (in general terms) a range of actions that would be considered if an increasing trend which could lead to an unacceptable cumulative condition is identified. As the commentor correctly points

out, the specific actions that are taken to mitigate such a condition would be dependent on the individual circumstances at the time.

Action: No revision to the IEMP is required.

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29. Commenting Organization: OEPA Commentor: OFFO
Section #: 1.5.2 Pg. #: 1-10 to 1-11 Line #: 29-38 & 1-5 Code: C
Original Comment #: 12

Comment: Ohio EPA would like to be informed of any unexpected upward trends of unusual results, or changes in monitoring stations, equipment, methods, etc. as soon as practical. Waiting until receipt of the quarterly report with the appropriate data may be more than six months after the unexpected result was discovered by the site. A more timely information exchange is desirable.

Response: DOE will continue to utilize the weekly conference calls with EPA and OEPA to convey information regarding proposed changes to IEMP sampling programs or reporting schedule. Additionally, DOE will use the weekly conference calls or schedule time with EPA and OEPA when they are on site to discuss significant data trends (i.e., trends indicating a potential future exceedence of a regulatory limit if an action is not taken) as they are identified through the IEMP.

Action: DOE will continue to notify EPA and OEPA as identified in the above response.

30. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: Section 3.0 Pg. #: Line #: Code: G
Original Comment #: 13

Comment: The groundwater model assessment in the groundwater data evaluation section (Section 3.0) focuses only on data collected as a result of the IEMP. Groundwater data collected as a result of other FEMP projects should also be discussed with respect to its use in adjusting the model calibration.

Response: DOE agrees that all available groundwater data will be considered when assessing or calibrating the groundwater model. Other than the Aquifer Restoration and Wastewater Project and On-Site Disposal Facility Project, no other FEMP projects are collecting groundwater data. The IEMP will be revised to better communicate this strategy.

Action: Lines 5 to 8, on page 3-79, will be revised as follows:

"To manage groundwater remedy performance, all groundwater concentration data and water-level data obtained from monitoring wells and extraction wells through the life of the remedy will be compared annually against modeled concentrations and water levels to evaluate if the remediation is proceeding as designed (Figure 3-17)."

The top box of Figure 3-17 will be revised as follows:

"Collect groundwater data from monitoring wells and extraction wells."

Figure 3-18 will be revised as follows:

"Collect, analyze, and evaluate monitoring well data per sampling schedule" will be replaced with, "Collect, analyze, and evaluate groundwater concentration and water-level data."

31. Commenting Organization: OEPA Commentor: OFFO
Section #: 3.3 Pg#: 3-10 Line#: Code: C
Original Comment #: 14

Comment: This section should include a discussion of the responsibility boundary between IEMP and OU1 remediation activities. This is discussed in section 3.5.1.4, but not referenced here.

persistent (although weak) downward hydraulic gradient exists up gradient from the boundary wells. Over the period of record from June 1993 to September 1997, the average vertical gradient for the seven nests was 0.2 ft/ft. Given a downward gradient and the discontinuities of the clay interbed in various site contaminant source areas (e.g., waste pits), the Type 4 boundary wells should be retained for monitoring as a necessary precaution.

Response: DOE will retain the 4000 series wells at least until finalization of a revised Director's Findings and Orders. OEPA requested removal of the statement in the IEMP that verbal approval of the modified Director's Findings and Orders was received. Without such a statement, any programmatic change that would vary from the original Director's Findings and Orders could impact DOE's compliance status. However, DOE would like OEPA to reconsider the need for Monitoring Wells 4424, 41217, 4426, and 4067 in the Property Boundary Monitoring Activity so that the wells can be eliminated in the future. There is an error in the interpretation of Figure 1, leading to the incorrect conclusion that a general persistent (although weak) downgradient of 0.2 ft/ft is present at these monitoring points.

The head difference shown on the ordinate of the graph is not a gradient. The gradient is the head difference given on Figure 1 (average of 0.2 ft) divided by the difference in elevation between the two measurement points. By using Monitoring Wells 3067 and 4067 as an example, well construction drawings indicate that the vertical distance between the two measurement points is 80 feet. Using the average head difference of 0.2 feet taken from Figure 1, the gradient at this location is 0.0025 ft/ft. This is roughly two orders of magnitude smaller than the 0.2 ft/ft estimate given in the comment and puts a better perspective on the vertical hydraulic gradient concern.

Action: Monitoring Wells 4424, 41217, 4426, and 4067 will be added back to the Property Boundary Monitoring Activity well list on page 3-55 and assigned footnote "a". These wells will also be added to Figures 3-14 and 3-16. Footnote "a" will be as follows:

"Monitoring well will remain as part of the activity at least until such a time that OEPA agrees with their removal and finalization of a revised Director's Findings and Orders."

Any text referring to the removal of the Type 4 wells will be removed. Therefore, lines 15 and 16 on page 3-53 will be deleted. Also, lines 13 to 18 on page 3-55 will be deleted.

33. **Commenting Organization:** OEPA **Commentor:** OFFO
Section #: 3.5.2.2 **Pg#:** 3-55 **Line#:** paragraph one, last sentence **Code:** E
Original Comment #: 16
Comment: Remove "Verbal concurrence has been received by the OEPA although," from the last sentence.
Response: DOE agrees with the comment.
Action: The text "Verbal concurrence has been received by the OEPA although," will be deleted from lines 3 and 4 on page 3-55.
34. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: 3.5.1.6 **Pg.#:** 3-50 **Line #:** 4 **Code:** C
Original Comment #: 17
Comment: The well locations' presented for routine water level monitoring are, with only a few minor exceptions, located within the capture zone predicted by particle tracking

modeling. Limiting well locations to the inside of the calculated capture zone does not allow for verification of the groundwater divide locations along large portions of the plume's eastern and southern boundaries. Some actual groundwater water level measurements confirming the capture zones that are claimed in the IEMP quarterly reports are needed.

Response: DOE does not agree with the comment that water-level monitoring locations have been limited to the inside of the calculated capture zone. To illustrate this point, the 10-year, uranium-based restoration footprint will be added to Figure 3-11, which gives the location of the water-level monitoring wells. As Figure 3-11 will depict, there is adequate coverage along the eastern side of the 10-year, uranium-based restoration footprint.

As presented in the summary table attachment to the IEMP, the water-level monitoring program planned for 1999 and 2000 is very similar to the program approved for 1997 and 1998.

DOE does agree that additional water-level monitoring points would be beneficial south of Willey Road and east of the modeled restoration footprint. This area is mostly farm land, and landowners are not receptive to the installation of any new wells in their fields. Access to one additional existing well has been recently obtained from a private well owner. This new monitoring location will be identified on Figure 3-11 and will be added to the water-level monitoring program.

Action: DOE will revise Figure 3-11 by adding the 10-year, uranium-based restoration footprint to the figure. The additional water-level monitoring well identified in the above response will be added to the list of groundwater elevation monitoring wells on page 3-48.

35. **Commenting Organization:** OEPA **Commentor:** OFFO
Section#: 3.6.5 **Pg#:** 3-74 **Line#:** paragraph two **Code:**
Original Comment #: 18

Comment: How long will it take to enter the data into the controlled database once the validated data is received from the lab?

Response: First, the analytical data are received from the laboratories and then validated by an independent quality control group at the FEMP by comparing/evaluating those standards identified in the IEMP, SCQ, and additional contractual agreements with the laboratories. Through this process, it may be necessary for the laboratories to provide additional information or to perform re-analysis on specific samples. Therefore, the time that it takes to enter the validated data into the site controlled database can vary. For the best case scenario, analytical data are received from the laboratories within 30 to 45 days from the laboratories' receipt of the samples and validation is performed within 30 days from receipt of the analytical data packages. After validation is completed, the data are entered, at best, within 14 days into the site controlled database. However, due to the complexities of many of the analyses (e.g., radiological analysis for neptunium-237), it frequently requires much more time to obtain a 'quality' data set and to reach the final endpoint of data in the controlled database.

DOE has been receiving 'quality' analytical packages from the laboratories up to three months from the laboratories' receipt of the samples (note: radiological maximum hold times are six months). It has also been necessary for laboratories to perform re-analysis of samples and provide additional information in order to obtain a 'quality' data set. Therefore, the length of time to enter validated data (once it is received from

the laboratories) into the site controlled database can vary and may be very lengthy. Although it is identified on page 3-74 (line 1) that a minimum of 10 percent of the analytical data will be validated to ensure analytical data meet data quality objectives, the remaining 90 percent can only be deemed 'useable' after the portion of data being validated is deemed useable. Moreover, it could be determined, through validation, that there is a data quality problem. As a result, it may be necessary to perform re-analysis or gather additional information on more than just the 10 percent of the data required to be validated. For this reason, the data should only be reported from the controlled site database after it has been determined that the entire data set meets data quality criteria.

Action: No revision to the IEMP is required.

36. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
 Section #: 3.7.1 Pg.#: 3-79 Line #: 26 Code: E
 Original Comment #: 19
 Comment: Change "Kallman" to "Kalman".
 Response: DOE agrees with the comment.
 Action: On line 26, of page 3-79, "Kallman" will be replaced with "Kalman."

37. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
 Section #: 3.7.1 Pg.#: 3-81 Line #: 9 - 12 Code: C
 Original Comment #: 20

Comment: There is no discussion regarding recalibration of the flow model, just the transport model. In a recent meeting, DOE has committed to recalibration of the flow model using the data obtained in the installation and testing of almost 20 wells which comprise the current reinjection and pumping modules.

Response: DOE has committed to recalibrate both the flow and transport model. The calibrations will be conducted as part of the model conversion project to VAM3DF. The IEMP will be revised to better communicate the scope of the calibration.

Action: The following text will be added to line 11 on page 3-81:

"Following Phase one, the flow model will be calibrated using all available groundwater data."

Line 11, on page 3-81, will be revised as follows:

"Phase two of the model upgrade project consists of adding the data fusion capability for transport calibration. The transport model will be calibrated using all available groundwater data."

Line 22, on page 3-81, will be revised as follows:

"Until the model upgrade project is complete, including flow and transport calibration, details concerning model assessment cannot be defined."

38. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
 Section #: 3.7.1 Pg.#: 3-81 Line #: 30 Code: C
 Original Comment #: 21
 Comment: The establishment of target water levels for each monitoring well for use in a model calibration should also take into consideration the effects resulting from the pumping and reinjection remediation modules.

Response: DOE does not intend to use the water-level ranges discussed on line 30 of page 3-81 for model calibration. Future model recalibration efforts will be performed to the same standards as previously applied to the SWIFT model.

The purpose of defining water-level elevation ranges for individual monitoring wells is to provide an interpretive link between field measurements and model predictions, both of which already consider or show the effects of pumping and re-injection. As explained below, the interpretive link is needed so that seasonal and long-term water-level trends in the aquifer are recognized and considered when modeled water-level predictions are compared to actual field measurements.

The elevation of the water table in the Great Miami Aquifer at the FEMP fluctuates naturally as much as eight feet in some areas. The groundwater flow model is calibrated using a representative water-level database collected in 1993 and run under steady state conditions. Water-level elevation predictions made by the model do not consider natural water table fluctuations within the aquifer. It is possible that actual water-level measurements taken in the field could be several feet off from a model prediction made for that location. Therefore, the measured water-level elevation range for a particular monitoring point needs to be considered before a conclusion can be reached concerning model recalibration. This issue is discussed further in Comment Response #39.

Action: In order to better differentiate between the issues of model calibration and model assessment, line 23 on page 3-81, will be revised as follows:

"However, the basic strategy for model performance assessment will be as follows:"

39. **Commenting Organization:** Ohio EPA **Commentor:** OFFO
Section #: 3.7.1 **Pg #:** 3-82 **Line #:** 1 **Code:** C
Original Comment #: 22

Comment: The text states that five feet will be the criterion used to judge the agreement of modeled and measured groundwater elevations. How was five feet chosen as the criterion? What is generally accepted as satisfactory agreement for aquifers of this type? We seem to recall that the SWIFTS model generally predicted groundwater elevations to within one foot.

Response: The comment discusses two concepts, 1) a criterion to use when calibrating the groundwater model, and 2) a criterion to use to assess model performance (e.g., comparing future model predictions made with the calibrated model with actual water levels collected in the field at a future date). This second concept was also discussed in Comment Response #1 on the Draft Final Integrated Environmental Monitoring Plan released in March of 1997.

1) The SWIFT groundwater model is a steady state model which was originally calibrated against a comprehensive groundwater elevation data set collected in June 1993. The model calibration target for that effort was one foot, as discussed in Sections 4.3.5 and 4.3.6 of Volume 1 of the SWIFT Great Miami Aquifer Model Summary of Improvements Report. Because the model is at steady state, it can not be expected to match groundwater elevations to within a foot over the seasonal rise and fall observed in the aquifer (see discussion below). Future model recalibration efforts will be performed to the same standards as previously applied to the SWIFT model.

2) Groundwater elevations in the Great Miami Aquifer at the FEMP typically vary by as much as eight feet from the wet to dry season. During seasons of high rainfall, aquifer recharge is relatively large, therefore groundwater elevations rise. Conversely, during dry seasons, aquifer recharge is relatively small and groundwater elevations fall. For a complete discussion of this seasonal variation in the aquifer, see Section 3.6.2.2 of the Remedial Investigation Report for Operable Unit 5.

The five-foot criterion for triggering a need to evaluate the recalibration of the groundwater model (mentioned in the comment) is based on the range of water elevations observed in monitoring wells in the South Field and South Plume areas where aquifer remediation activities are focused for the next two years. This range will be considered when the need to recalibrate the model is being considered.

Action: The following text will be added to line 22 on page 3-81:

"Future model calibration efforts will be performed to the same standard used to calibrate the SWIFT model."

40. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 3.7.1 Pg.#: 3-82 Line #: 4 Code: C
Original Comment #: 23

Comment: The text indicates that the decision to recalibrate will be based whether or not two-thirds of the modeled water levels are within five feet of field values for two consecutive quarters. These criteria are too broad and will do little to maintain an accurate model calibration. Specifically, as it is presented in the text, the recalibration assessment gives no consideration to the spatial distribution of the errors. In one area of the model, all of the calibration points may exceed the five foot criteria indicating that groundwater flow is not accurately simulated in that area. No recalibration, however, would be performed if the number of wells in the area is fewer than two thirds of the total. In addition, no mention is given to use of the transient data collected during remediation module startup. During startup of the reinjection demonstration module, for example, groundwater levels were monitored on a weekly schedule until overall stabilization of water levels in the aquifer was achieved. This data and similar data collected during startup of the south field and south plume optimization modules provide an excellent opportunity for verification of the flow calibration. The quality of the calibration should be defined based on the spatial distribution of the errors and on the root mean square error, sum of the squares, or equivalent statistic.

Response: DOE agrees that the calibration criteria should account for the spatial distribution of errors between observed and modeled groundwater elevations and that elevation data collected during start-up of the South Field (Phase 1), South Plume Optimization, and Re-Injection Demonstration Modules should be considered when the groundwater model is recalibrated.

Action: The first bullet on page 3-82 will be revised as follows:

- Model predicted groundwater elevations for the current pumping/re-injection configuration will be compared to measured elevations. If the difference between the actual quarterly measurement and the modeled prediction for that year is consistently (two or more consecutive quarters) greater than five feet for more than one-third of the monitoring wells within the capture zone of the extraction system, or for a significant local area of the model domain, then the need to implement model recalibration for the affected area of the model will

be evaluated. All relevant groundwater data acquired since the previous model calibration will be considered in future model recalibrations."

41. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 3.7.1 Pg.#: 3-82 Line #: 17 Code: C
Original Comment #: 24
Comment: The assessment of transport model performance should entail more than a simple comparison of actual versus predicted concentrations. The model should also be evaluated by comparing actual versus predicted extraction well concentrations, mass removed versus mass in place, and an assessment of the model's capability to predict the plume's general configuration.
Response: In response to OEPA's request for three different data assessments: 1) DOE agrees that providing a qualitative assessment of the model's capability to predict the plume's general configuration would be useful in assessing the performance of the transport model; 2) rather than provide a quantitative assessment of mass removed versus mass predicted to be in place, DOE proposes that an assessment of mass removed versus mass predicted to be removed be provided instead; and 3) the IEMP already states that actual concentrations will be compared to predicted concentrations, as identified on lines 15 to 17 on page 3-82.
Action: The following text will be added to line 20 on page 3-82:

"Performance of the transport model will also be assessed by comparing mass removed versus mass predicted to be removed, and the groundwater model's capability to predict the plume's general configuration."
42. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 3.7.2 Pg.#: 3-85 Line #: 27 Code: C
Original Comment #: 25
Comment: The operational assessment should be revised to include a graphic record of the pumping (or reinjection) rate of each well as a function of time for each quarterly monitoring period.
Response: DOE disagrees with the comment. The Operational Assessment Section of the IEMP was intentionally written so as not to include a graphic record of the pumping (or re-injection) rate of each well as a function of time. DOE does not feel that the usefulness of the data display justifies the time and resources which would be spent producing the graphics.
Action: No revision to the IEMP is required.
43. Commenting Organization: OEPA Commentor: OFFO
Section #: 4.2 Pg. #: 4-2 to 4-6 Line #: Code: C
Original Comment #: 26
Comment: The IEMP places great importance on the regulatory and to-be-considered requirements. As such, it is particularly important to include all relevant and appropriate and to-be-considered requirements in the IEMP. However, the results in 4.2.2 and Table 4-1 fall short of this. For example, the Ohio Water Quality Standards, OAC 3745-1-04, contains what is known as the *free froms*. Although it does not specifically contain a monitoring component, the only way to know if the requirement is being met is through monitoring. More consideration is needed in this section with emphasis placed on ARARs and TBCs.
Response: Section 4.2.2 and Table 4-1 list the results of the ARAR and to be considered (TBC) analysis. This analysis identifies only those regulatory drivers or agreements that require a surface water/treated effluent monitoring function at the FEMP. Section 4.2.2 and Table 4-1 identifies the NPDES permit as one of the drivers for surface water sampling.

The NPDES permit defines which point source discharges are regulated outfalls and the effluent limitations and monitoring requirements at these outfalls necessary to achieve State of Ohio water quality standards. The standard identified by the commentor, and its associated requirements, are integral to the NPDES permit. Although this code is not specifically identified in Table 4-1, compliance with this code and monitoring requirements are met through NPDES. This is the case for many other regulatory and TBC-based requirements in that although they may not be listed in a media-specific ARAR table (such as Table 4-1), they are addressed and complied through other specific regulatory drivers identified within the ARAR tables presented in the IEMP.

Action: No revision to the IEMP is required.

44. Commenting Organization: OEPA Commentor: OFFO
 Section #: 4-2 Pg. #: 4-4 Line #: 20-22 Code: C
 Original Comment #: 27

Comment: It is not within the purview of the IEMP to define the limits of project specific monitoring.

Response: The text referred to in the comment identifies that the Storm Water Pollution Prevention Plan is a project-specific surface water monitoring driver and briefly specifies the purpose of the plan, itself. DOE agrees that it is not within the purview of the IEMP to define the limits of project-specific monitoring; however, some of these project-specific monitoring requirements are directly linked to IEMP reporting and are prudent to note.

Action: No revision to the IEMP is required.

45. Commenting Organization: OEPA Commentor: OFFO
 Section #: 4.3 Pg. #: 4-7 Line #: 21-26 Code: C
 Original Comment #: 28

Comment: It is assumed that the programmatic line of demarcation described here is between controlled and non-controlled areas. However, this is not specifically indicated.

Response: DOE agrees with the comment.

Action: Line 22, on page 4-7, will be revised as follows:

"...demarcation between the areas where surface water remains uncontrolled and where surface water is currently controlled..."

46. Commenting Organization: OEPA Commentor: OFFO
 Section #: 4.4.1 Pg. #: 4-10 Line #: 20-23 Code: C
 Original Comment #: 29

Comment: This same bullet was in the August 4, 1997 revision of the IEMP. Aren't there enough data at this time to make this determination?

Response: The IEMP was not fully implemented until the fall of 1997 and only analytical data for 1997 were used in the assessment to update the IEMP due to delay in receipt of analytical data from the laboratory. As stated in the Section 4.6.1, of the revised IEMP, data for one full year (a minimum of four quarters) are required before a determination can be made as to whether these constituents can be removed from the monitoring program. If, however, these constituents were determined to have the potential to exceed a surface water or groundwater FRL or surface water benchmark toxicity value (BTV) based on modeling, then the constituent will continue to be monitored until the sources within the drainage areas are certified as being remediated and the surface water and sediment pathways have been certified as achieving FRLs.

Action: No revision to the IEMP is required.

47. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: 4.4.1 Pg #: 4-10 Line #: Code: C
 Original Comment #: 30
 Comment: This Section lists the program expectations and design considerations for the surface water and treated effluent monitoring program. Add a bullet that lists documenting that flows to the treatment modules are being prioritized with the highest concentration streams being treated first.
 Response: Documentation on waste stream prioritization is provided in the Operation and Maintenance Master Plan for the Aquifer Restoration and Wastewater Treatment Project. The monitoring of individual wastewater streams from individual treatment modules is a project-specific consideration and, based on the programmatic boundaries of the IEMP, determining the priority of waste stream treatment is not included in the IEMP.
 Action: No revision to the IEMP is required.
48. Commenting Organization: OEPA Commentor: OFFO
 Section #: 4.4.2.3 Pg #: 4-18 Line #: 6 Code: C
 Original Comment #: 31
 Comment: It had been stated previously that the IEMP would also examine the actual flow in the Great Miami River to see if a lower flow rate would be appropriate to determine BTV or FRL exceedances during certain times of the year.
 Response: As identified in Comment Response #32 on the 1997 Integrated Site Environmental Report, for overall tracking of impacts, it appears that the current use of the 7Q10 value (583 cfs) is sufficiently conservative to ensure that persistent exceedances are identified. In addition, as identified in Action #32 on the 1997 Integrated Site Environmental Report, when the NPDES permit is renewed, if it is determined that OEPA used a different 7Q10 value for determining NPDES requirements, then DOE will begin to use this value in the mixing equation. In addition, periodic review of the flows from the Hamilton Dam gauge will be conducted to determine the conservativeness of the 7Q10 value.
 Action: No revision to the IEMP is required.
49. Commenting Organization: OEPA Commentor: OFFO
 Section #: 4.4.2.4 Pg #: 4-18 Line #: Code: C
 Original Comment #: 32
 Comment: Nothing is indicated in this section to monitor surface water flows from the Waste Treatment Plant excavation area. Are there any plans to monitor this area during remediation of the old waste water plant?
 Response: As identified in the Draft Area 1, Phase II Implementation Plan (Section 4.3) submitted to the EPA and OEPA in September 1998, surface water monitoring for this area will be addressed through IEMP monitoring locations SWD-02 and STRM 4003, with no additional project-specific sampling being conducted. Constituents that are being monitored at these locations are identified in Table 4-3 of the IEMP.
 Action: No revision to the IEMP is required.
50. Commenting Organization: OEPA Commentor: OFFO
 Section #: 4.4.2.5 Pg #: 4-22 to 4-23 Line #: Code: C
 Original Comment #: 33
 Comment: Many samples have been collected under the IEMP to date. What will be the criterion to determine a sufficient number of samples having been collected to assess the constituents addressed in this section?
 Response: See Comment Response #46. In addition, as stated in Section 4.6.1 of the revised IEMP, analysis of constituents for which little historical data exist or for which the detection

limit exceeded the FRL or BTV will continue to be monitored for a minimum of four quarters.

Action: No revision to the IEMP is required.

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51. Commenting Organization: OEPA Commentor: OFFO
Section #: 4.4.3 Pg. #: Table 4-3 Line #: Code: C
Original Comment #: 34
Comment: All monthly monitoring has been deleted from the schedule. The approval of the OU1 RAP was contingent on the IEMP continuing to monitor SWD-03 on a monthly basis, yet this table indicates that monitoring has been reduced to quarterly. This change is unacceptable to Ohio EPA and we are very surprised to see it. There are new flow regrimes to the SSOD through A1PII, yet the sampling for the SSOD has also been reduced to quarterly. It would seem prudent to continue monthly monitoring here during the life of this revision of the IEMP. Table 1, the Summary of Technical Changes provided within the document, indicates that some monthly monitoring will continue, yet Table 4-3 does not indicate this.
Response: As noted in Table 4-3, footnote "b", monthly monitoring will be conducted at SWD-03 for total uranium. As identified in the Draft Area 1, Phase II Implementation Plan (Section 4.3) submitted to the EPA and OEPA in September 1998, surface water monitoring for this area will be addressed through IEMP monitoring locations SWD-02 and STRM 4003, with no additional project-specific sampling being conducted. For this reason, DOE agrees to commit to monitoring total uranium monthly at SWD-02 until such time that the area is remediated.
Action: Footnote "b" (which identifies monthly monitoring) will be added to total uranium at monitoring location SWD-02 in Table 4-3.

52. Commenting Organization: OEPA Commentor: OFFO
Section #: Figure 5-2 Pg. #: 5-11 Line #: Code: C
Original Comment #: 35
Comment: Is location G4 the location of the downstream of an effluent sample or is it actually taken on the other side (west) of the river?
Response: Sediment monitoring location G4 is located on the west side of the Great Miami River approximately 300 feet south of the effluent line.
Action: Figure 5-2 will be revised to accurately represent sediment location G4 on the west bank of the river.

53. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.1 Pg. #: 6-2 Line #: 26 Code: C
Original Comment #: 36
Comment: Add Silo #3 to the radon emission sources.
Response: DOE agrees with the comment.
Action: The fourth bullet on page 6-2 will be revised as follows:

"• Radon emissions from the silo area"

54. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.2.2 Pg. #: 6-4 Line #: 33-41 Code: C
Original Comment #: 37
Comment: Although 10 CFR 834 has not been promulgated, the 0.5 pCi/L above background level should be used as an action level for DOE to investigate the source(s) causing increased radon concentrations at the fence line.

Response: See Comment Response #55.
Action: See Action #55.

55. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.4.2 Pg. #: 6-20 Line #: 1--7 Code: C
Original Comment #: 38
Comment: Ohio EPA recommends using the 0.5 pCi/L above background level at the fence line as an action level for the DOE to investigate increased radon concentrations. The 0.5 pCi/L above background level is cited as an ARAR in the OU5 ROD.
Response: The listing in the Record of Decision for Remedial Actions at Operable Unit 5 spells out 10 CFR 834 as a TBC. It is DOE's opinion that until 10 CFR 834 is promulgated and a guidance document on determining compliance is issued, the limits listed under DOE Order 5400.5, "Radiation Protection of the Public and Environment" remain the applicable standard.
Action: No revision to the IEMP is required.
56. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.4.2 Pg. #: 6-20 Line #: 17 Code: C
Original Comment #: 39
Comment: The text mentions that an additional monitoring location was added at the predicted maximum concentration location. Please clarify which location it is.
Response: The added monitoring location is at the western edge of the former production area at the southwest corner of tension support structure 4 (TS4) (see Figure 6-3).
Action: No revision to the IEMP is required.
57. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.4.2 Pg. #: 6-20 Line #: 17-18 Code: C
Original Comment #: 40
Comment: Any changes to the program design should be approved prior to implementation by the Ohio EPA and USEPA.
Response: DOE agrees with comment. Any changes in the IEMP program design will be submitted to the EPA and OEPA for approval prior to implementation.
Action: No revision to the IEMP is required.
58. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.5.2.1 Pg. #: 6-27 Line #: Code: C
Original Comment #: 41
Comment: Ohio EPA recommends that independent audits of air flow through the air samplers be conducted periodically. The Ohio EPA, Division of Air Pollution Control (DAPC), has personnel trained in performing audits of high volume air samplers.
Response: The IEMP air monitoring program, including the operation, calibration, and flow rate of the air samplers is already independently audited by the EPA according to the requirements and conditions of 40 CFR 61 Subpart H (NESHAP). The FEMP Quality Assurance Department also conducts inspections and surveillances on the IEMP air monitoring program operations and equipment. Under the IEMP air monitoring program, the air samplers are calibrated annually per the manufacturer's specifications and after any repairs are made. Air sampling flow rates are checked and adjusted, if necessary, on a weekly basis; operation of the monitors is checked daily. DOE believes the existing procedures and practices of the IEMP air sampling program and the auditing functions of the EPA and the FEMP Quality Assurance Department are sufficient to ensure the

consistent and accurate operation of the air samplers. Additional review and auditing by OEPA, Division of Air Pollution Control, is not warranted.

Action: No revision to the IEMP is required.

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59. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.6.1.2 Pg. #: 6-39 Line #: 1 Code: C
Original Comment #: 42
Comment: Include the median of hourly radon concentrations as a part of the descriptive statistics.
Response: DOE agrees with the comment.
Action: Line 11, on page 6-21, will be revised as follows:

"...minimum daily average, maximum daily average, and hourly median concentration for the month."

60. Commenting Organization: OEPA Commentor: OFFO
Section #: 6.4.2.2 Pg. #: General Line #: Code: C
Original Comment #: 43
Comment: Ohio EPA believes that this section should state that the alpha track-etch cups will no longer be used under the IEMP. This is a major change from previous environmental monitoring plans and should be included within this document.
Response: The transition from interim storage to remediation shifts the monitoring focus primarily from long-term to short-term trending. Accordingly, the continuous environmental radon monitoring program has been expanded to the 16 cardinal wind sectors in order to replace the alpha track-etch detectors. This programmatic shift is well defined in the IEMP (Sections 6.4.2.2 and 6.5.3). The use of continuous environmental radon monitors allow a more timely access to data review, thereby supporting short-term trending, than generated by the use of alpha track-etch detectors.
Action: No revision to the IEMP is required.

61. Commenting Organization: OEPA Commentor: OFFO
Section #: 7.2.2 Pg. #: 7-2 Line #: 28 Code: E
Original Comment #: 44
Comment: The secondary pathways listed in this sentence appears to contain a typo. *Sediment* is specified when *soil* should be in its place.
Response: DOE acknowledges the error in including sediment and grass in a list of secondary dose pathways. Unlike produce, fish, meat, and milk, sediment and grass are not typically included in the ingestion dose pathway.
Action: On line 28, of page 7-2, "sediment and grass" will be deleted from the list of secondary dose pathways.

62. Commenting Organization: OEPA Commentor: OFFO
Section #: 7.4.2 Pg. #: 7-6 Line #: 21 Code: E
Original Comment #: 45
Comment: *EMP* is used in this sentence instead of *IEMP*.
Response: The comment refers to a design consideration which used the phrase "consistent with the EMP" to refer to historical data collected under the former Environmental Monitoring Plan.
Action: To avoid further misunderstanding, the term "EMP" will be replaced with "historical data". The second bullet on page 7-6, lines 20 and 21, will be revised as follows:

- Sampling frequency, constituents analyzed, and analytical support level (ASL) should be consistent with historical data so that appropriate comparisons can be made."

63. Commenting Organization: OEPA Commentor: OFFO
 Section #: 7.4.3 Pg. #: 7-6 Line #: 36 Code: C
 Original Comment #: 46
 Comment: The sentence states, that biota monitoring locations were selected on the basis of being *next to or near* Fernald. What guideline was used to determine this and how far, in miles, is *near* (i.e., 5 mile radius used for background)?
 Response: The Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance was the guideline used for selecting produce sample locations. Section 5.8.2.2 of the regulatory guide states "Samples of vegetables should be collected at local farms or from family gardens...." Based on a review of the 1997 produce data, monitoring locations which are within three miles of the site are considered to be "near" the site.
 Action: No revision to the IEMP is required.
64. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: 8.2.2 Pg #: 8-3 Line #: 1 Code: C
 Comment: To be consistent with Section 3.7.1, a sentence should be added to include VAM3D model calibration as one use of the groundwater monitoring data.
 Response: It is not the intent of Section 8.0 to provide specific details on project requirements. All media programs identified in the IEMP (Sections 3.0 through 7.0) provide specific details. For this reason, Section 3.0 provides the detailed information regarding the specific uses of groundwater monitoring data and the VAM3DF model calibration.
 Action: No revision to the IEMP is required.
65. Commenting Organization: OEPA Commentor: OFFO
 Section #: 8.2.3 Pg. #: 8-4 Line #: 19-28 Code: C
 Original Comment #: 48
 Comment: Please revise the text. Ohio EPA is no longer operating under the AIP. The existing mechanism between Ohio and DOE is the Cost Recovery Grant (CRG).
 Response: DOE agrees with the comment. All references to the Agreement In Principle (AIP) will be changed to Cost Recovery Grant (CRG) and will include the appropriate textual changes, where necessary (e.g., the approval date).
 Action: On lines 20, 21, and 23, of page 8-4, "Agreement In Principle" will be replaced with "Cost Recovery Grant". On lines 21 and 22, of page 8-4, "(approved in October 1993)" will be deleted.
66. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
 Section #: 8.3.3, Figure 8-1 Pg.#: 8-6 Line #: 7 Code: C
 Original Comment #: 49
 Comment: Figure 8-1 is confusing in that it suggests that a report will be issued at the end of each quarter with that quarter's monitoring results. In reality, there is an approximately 90-day lag time between data collection and the issuance of the report. The figure should be revised to show the actual release date for each quarter's monitoring report or should note that the figure's symbols denote the end of the data collection period for each quarter and that there is a lag time for reporting.

Response: DOE agrees with the comment. A footnote will be added to Figure 8-1 indicating that there is a lag time for data reporting and that the report includes data from previous quarters.

Action: On Figure 8-1, footnote "a" will be added to the column headers for 1999 and 2000. Footnotes "a, b, c, and d" will be changed to footnotes "b, c, d, and e", respectively. Footnote "a" will be added to the bottom of the figure as follows:

"There is a time lag for reporting analytical results because of the time needed to analyze, submit, validate, and enter the data into the database. Therefore, each IEMP quarterly status report contains data from the previous quarters."

67. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: 8.3.3 **Pg.#:** 8-6 **Line #:** 7 **Code:** C
Original Comment #: 50
Comment: This section should include a figure that shows the eight future quarterly reports for 1999 and 2000 and indicates which of the five groundwater restoration modules will be included in each report.
Response: Section 8.0 is only an overview of reporting and is not intended for that level of specificity. Section 3.4.2.1 provides detailed information regarding which modules will be operational during 1999 and 2000.
Action: No revision to the IEMP is required.
68. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: Appendix A **Pg.#:** N/A **Line #:** N/A **Code:** G, E
Original Comment #: 51
Comment: The terms "MP," "N," "<," and ">" are defined multiple times in Appendix A. For clarity and readability, the text should define these terms only on first occurrence and use the short hand abbreviation for all subsequent occurrences.
Response: DOE does not agree that the terms "MP", "N", "<", and ">" are defined multiple times. The discussion in Appendix A builds by first defining the subject terms on page A-4. This is the only time that they are defined individually. On page A-9, individual terms are combined and the new combinations defined (i.e., ">MP", ">N", "<MP", and "<N"). This is the only time that they are defined in these combinations.
Action: No revision to the IEMP is required.
69. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: Appendix A **Pg.#:** A-6 **Line #:** 21 **Code:** E
Original Comment #: 52
Comment: Change "aquifer" to "qualifier."
Response: DOE agrees with the comment.
Action: On line 21, of page A-6, "aquifer" will be replaced with "qualifier".
70. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: Appendix A **Pg.#:** A-7 **Line #:** 10 **Code:** C
Original Comment #: 53
Comment: For the four FRL constituents with method detection limits above the FRL, it is not clear in the text what is meant by the statement "These four constituents were categorized as either having an exceedance or not having an exceedance based upon criteria presented in the previous section". It is not obvious how the previous section criteria were applied to reach this conclusion.

Response: The last bullet on page A-4, in Section A-3, is the criterion that was applied to the four FRL constituents with method detection limits above the FRL referred to in the comment. The bullet states, "FRL constituents analyzed using a method detection limit above the FRL value and predicted to be unable to migrate vertically to the aquifer and create an unacceptable risk are categorized as not having a FRL exceedance (<)."

Because these four constituents are categorized as <N, they were not sampled in 1997 or 1998. They will be sampled in 2001, when all <N constituents are to be sampled. Data collected in 2001 will then be used to determine if the constituents need to be re-categorized from "<N" to ">N".

Action: No revision to the IEMP is required.

71. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: Appendix A **Pg.#:** A-13 **Line #:** 41 **Code:** C
Original Comment #: 54

Comment: The IEMP (or alternatively, the IEMP annual summary report) should include a table summarizing the FRL constituents that have experienced a change in mobility/persistence characteristic over the period of record. Although it is recognized that the quarterly reports will present any change in status for each constituent, a historical summary of the changes in the IEMP will be a useful tool for tracking changes in monitoring frequency. The table should note the most recent monitoring interval (year or quarter, depending on constituent) that the status change occurred.

Response: Under the original IEMP, monitoring frequency was established by each constituent's mobility/persistence characteristics and whether it did or did not have an FRL exceedance (designated by either a ">" or "<", respectively). Mobility/persistence characteristics, which are designated as either "MP" or "N", will not change because these categorizations are inherent properties of the constituents themselves. Therefore, changes to monitoring frequency are based solely upon a change in a constituent's exceedance designation, as specified under Section A.5.1 of the IEMP.

While it is true that the IEMP quarterly status reports will indicate whether a constituent had an FRL exceedance, the actual change of a designation from either ">" to "<" or "<" to ">" will be identified on an annual basis as defined in Section A.5.1 of the IEMP. DOE agrees that maintaining a historical summary in the IEMP of constituent re-categorizations would be useful. However, no revision to the IEMP is required at this time because the summary table which accompanied the IEMP identified those constituents that have been re-categorized since the original IEMP. Subsequent IEMP revisions (or change pages) will identify those constituents that have been re-categorized in order to clearly identify and track monitoring frequency changes.

Action: No revision to the IEMP is required.

72. **Commenting Organization:** OEPA **Commentor:** HSI GeoTrans, Inc.
Section #: Appendix A, Table A-1 **Pg.#:** A-15 **Line #:** N/A **Code:** E
Original Comment #: 55

Comment: The notation "NA" should be defined in the table footnotes.

Response: DOE agrees with the comment.

Action: The notation "NA" will be defined as "not applicable" in the table footnotes.

73. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: C.1 Pg #: C-1 Line #: 13-21 Code: C
Original Comment #: 56

Comment: This paragraph completely undermines and fails to show how ALARA will be applied to the site, public and the environment. Please provide a section in the IEMP of how ALARA will be implemented as it applies to environmental media and doses to the public. DOE Order 5400.5 Chapter I (4) states, "...this Order adopts the ALARA process in planning and carrying out all DOE activities."

Response: DOE does not agree that the referenced paragraph undermines the application of ALARA within the environmental monitoring program. As discussed in earlier comment response documents (Responses to U.S. EPA and OEPA Comments on the 1997 Integrated Site Environmental Report), the ALARA process is relevant to controlling all contaminant releases associated with remediation activities at the FEMP. DOE actively applies the ALARA process throughout the life of each project beginning in the conceptual design phase. This ensures the selection of the optimum physical design features and administrative controls to eliminate, control, or mitigate the hazards that can cause exposures to site workers, the public, and the environment. It is important to note that the objective of the ALARA process is not the attainment of a particular dose or exposure level, but rather the attainment of the lowest practical level of exposure after considering the various technical, economic, practical, social, and public policy considerations that specifically apply to the project.

The paragraph mentioned in the comment provides a general description of how the IEMP's radiological air particulate monitoring program tracks the effectiveness of sitewide emission controls by comparing measurements to historical levels as well as the NESHAP regulatory limit. Through this process, the need for corrective actions can be identified early and implemented long before site emissions exceed the health protective compliance limit. Tracking emissions and comparing the results to the NESHAP regulatory limit is a method for ensuring emissions are ALARA. The NESHAP regulatory limit is not used as an acceptable upper limit or action level for initiating corrective actions.

Action: No revision to the IEMP is required.

74. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: C.2.1 Pg #: C-2 Line #: 34-38 Code: C
Original Comment #: 57

Comment: The dose from radon emitted from the site has previously been reported in the site environmental reports. The information is important, and relevant as the site begins remediation of radon producing wastes.

Response: Although there is no regulatory driver for determining a dose due to radon and its daughter products, and the IEMP does not require the calculation of a dose estimate, the FEMP will provide a dose estimate in annual integrated site environmental reports for informational purposes.

Action: No revision to the IEMP is required. However, DOE will provide a radon dose estimate in annual integrated site environmental reports.

75. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: C.3.1.1 Pg #: C-4 Line #: General Comment Code: C
Original Comment #: 58

Comment: The IEMP leaves the impression that feed back to the projects will not occur unless a site-wide limit is likely to be exceeded. ALARA would indicate that tracking and

trending is used as a method to keep emissions ALARA. The project specific monitoring is the best method for ensuring that emissions are ALARA.

Response: Projects receive regular feed back on measured emissions at the fenceline. For example, during the third quarter of 1998, construction managers were notified of the increasing trends observed at some monitoring locations along the east fenceline. As a result, a memorandum was issued from Fluor Daniel Fernald Soil and Water Projects construction management to construction supervisors reminding field staff to continue their aggressive efforts in controlling fugitive dust. The notification to the construction managers occurred even though fenceline uranium levels were within historical values and the year-to-date dose was less than 0.5 millirem (mrem).

DOE maintains that project planning and design, which includes the selection of the optimum physical design features and administrative controls, are the most effective means of ensuring emissions are ALARA. Project specific monitoring serves to confirm and track the effectiveness of project specific efforts to maintain emissions ALARA.

Action: No revision to the IEMP is required.

76. **Commenting Organization:** Ohio EPA **Commentor:** OFFO
Section #: C.3.1.1 **Pg #:** C-5 **Line #:** 10-29 **Code:** C
Original Comment #: 59
Comment: This section should refer to 40 CFR 61, Subpart H, 10 mrem limit for the air pathway.
Response: DOE agrees with the comment. The section will be revised to note that dose attributable to airborne emissions is subject to the 10 mrem per year limit of 40 CFR 61, Subpart H.
Action: The following text will be added to line 16 on page C-5:

"(Dose attributable to airborne emissions is subject to 40 CFR 61, Subpart H limit of 10 mrem per year.)"

77. **Commenting Organization:** Ohio EPA **Commentor:** OFFO
Section #: C.3.3 **Pg #:** General Comment **Line #:** **Code:** C
Original Comment #: 60
Comment: Please provide a generic equation and specific example for how quarterly and annual dose estimates for the air pathway will be calculated.
Response: A generic equation for the calculation of the air pathway dose component for demonstrating compliance with 40 CFR 61 Subpart H (NESHAP) is provided on the data diskette with every IEMP report.
Action: No revision to the IEMP is required.

78. **Commenting Organization:** OEPA **Commentor:** OFFO
Section #: Appendix D, D.4.1.2 **Pg. #:** D-9 **Line #:** 10-17 **Code:** C
Original Comment #: 61
Comment: Ohio EPA recommends DOE conduct a baseline Indiana Brown Bat survey around Area 8 Phase 2 prior to initiating restoration activities. This information will be useful for assessing any impacts restoration may have as well as determining if the bats are currently utilizing the area.
Response: DOE agrees with the comment.
Action: The following text will be added to line 15 on page D-9:

"In addition, a survey will be conducted before ecological restoration activities are conducted."

79. Commenting Organization: OEPA Commentor: OFFO Line #: 1918 Code: C
Section #: Appendix D, D.4.2 Pg. #: D-11
Original Comment #: 62

- Comment: a) The text should be revised to discuss the wetland impacts that will be occurring in Area 1 Phase 2 and the wetland delineation which must occur there in the near term.
- b) The section should discuss that the quarterly IEMP reports should report new wetland delineations as well as any wetland impacts occurring in the previous quarter.
- c) The text should state that quarterly IEMP reports will report wetland mitigation success monitoring data unless DOE is planning to submit this as a separate report.

Response: DOE agrees with the comment. Mitigation success monitoring will be separately reported from the IEMP. Narrative summaries will be provided in IEMP reports.

Action: The following text will be added to line 8 on page D-11:

"This acreage may increase soon, with the delineation of an additional acre of jurisdictional wetland within Area 1, Phase II. The new wetland area will be impacted by remediation activities which will require additional mitigation. Updates on this wetland will be provided in IEMP reports. DOE does not expect additional wetland delineations as all naturally created wetlands on the site have been identified. It is possible that as a result of remediation activities, areas of poor drainage will be created and some wetland vegetation may emerge. Because these areas could be temporary, and their creation inadvertent, they would not be delineated as wetlands."

A new paragraph will be added after line 13, on page D-11, as follows:

"Details of mitigation monitoring will be reported separately from IEMP reporting. Narrative summaries will be provided in IEMP reports."

80. Commenting Organization: OEPA Commentor: OFFO Line #: Code: C
Section #: Appendix D, D4.4 Pg. #: D-11
Original Comment #: 63

Comment: The text should be revised to state that the quarterly IEMP reports will include monitoring data as required by the individual natural resource restoration design packages.

Response: IEMP quarterly status reports will provide narrative summaries on the status of restoration. Any monitoring data collected will be reported separately from the IEMP.

Action: No revision to the IEMP is required.

81. Commenting Organization: OEPA Commentor: OFFO Line #: Code: C
Section #: Attachment D.1, D.2.2 Pg. #: D.1-5
Original Comment #: 64

Comment: DOE's concept of "Refuge Preservation" is seriously jeopardized by the continued impact on Paddys Run within this area by cattle. As previously stated, Ohio EPA believes the continued grazing of the area by cattle is negatively impacting DOE's ability to conduct restoration. Therefore, DOE's strategy on impacts of grazing on the "Refuge Preservation" only further supports Ohio EPA's recommendation to expedite an end to grazing in the area.

Response: DOE agrees that grazing does cause an impact. However, because grazing has been practiced at the FEMP since the mid-1970's and the most recent survey for Sloan's Crayfish (1996) showed that the site population is flourishing, DOE does not agree that

the refuge preservation concept is in jeopardy. All grazing will be stopped by the spring of 2002. For the area of concern, grazing will be discontinued by the spring of 2001.

Action: No revision to the IEMP is required.