

604

8
2-106.8

**SUBMITTAL OF THE DRAFT FINAL INTEGRATED ENVIRONMENTAL
MONITORING PLAN, (IEMP) RESPONSE TO COMMENT DOCUMENT, AND
RELATED ON-SITE DISPOSAL FACILITY MONITORING DOCUMENTS -
(NOTE, ONLY THE RESPONSE TO COMMENTS DOCUMENT IS LOCATED
HERE - SEE 605 AND 606)**

03/06/97

**DOE-0658-97
DOE-FEMP EPAS
26
RESPONSES**



Department of Energy

**Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155**



604

DOE-0658-97

MAR 06 1997

**Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HSF-5J
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590**

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

Dear Mr. Saric and Mr. Schneider:

**SUBMITTAL OF THE DRAFT FINAL INTEGRATED ENVIRONMENTAL MONITORING PLAN,
(IEMP) RESPONSE TO COMMENT DOCUMENT, AND RELATED ON-SITE DISPOSAL
FACILITY MONITORING DOCUMENTS**

Enclosed is the Draft Final Integrated Environmental Monitoring Plan (IEMP) and associated Comment Response Document. The IEMP has been prepared to address all applicable, relevant and appropriate state, federal and Department of Energy (DOE) monitoring requirements, and to fulfill an Operable Unit 5 (OU5) Remedial Design deliverable. Also enclosed are the On-site Disposal Facility (OSDF) Groundwater Monitoring Plan and the Response to Comment Document for the OSDF Air Monitoring Plan. As previously agreed, the delivery schedules for these documents had been aligned to limit the potential for inconsistencies between these documents, which contain similar types of information.

Additionally, as discussed during the conference call on January 30, 1997, a revised OSDF Air Monitoring document will not be submitted since the air monitoring strategies outlined in the IEMP and the Impacted Materials Placement Plan address all OSDF air monitoring requirements.

The DOE is anxious to implement this program and, if necessary, would like to meet at your earliest convenience to resolve any outstanding concerns.

If you have questions regarding these documents, please contact Kathleen Nickel at (513) 648-3166.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Nickel

Enclosures: As Stated

cc w/encs:

S. Fauver, EM-42/CLOV
G. Jablonowski, USEPA-V, 5HRE-8J
R. Beaumier, TPSS/DERR, OEPA-Columbus
M. Rochotte, OEPA-Columbus
D. Bohannon, OEPA-SWDO
M. Proffitt, OEPA-SWDO
F. Bell, ATSDR
D. S. Ward, GeoTrans
R. Vandegrift, ODOH
S. McLellan, PRC
D. Carr, FDF/9
T. Hagen, FDF/65-2
J. Harmon, FDF/90
AR Coordinator/78

cc w/o encs:

EDC, FDF/52-7

**RESPONSES TO U.S. EPA AND OEPA COMMENTS
ON THE ON-SITE DISPOSAL FACILITY, AIR
MONITORING PLAN, REVISION F
AUGUST 1996**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

MARCH 1997

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

000003

**RESPONSES TO U.S. EPA COMMENTS
ON THE ON-SITE DISPOSAL FACILITY, AIR MONITORING PLAN, REVISION F
AUGUST 1996**

GENERAL COMMENTS

1. **Commenting Organization:** U. S. EPA **Commentor:** Saric
Section #: NA **Page #:** NA **Line #:** NA
DOE Response #: 4 (Original General Comment #: 4)
Comment: The original general comment requests that the On-Site Disposal Facility (OSDF) air monitoring plan (1) address the issue of air emissions associated with transport of excavated material from the various operable units (OU) to the OSDF or (2) clearly identify any other monitoring plans that will be developed to evaluate such emissions. This comment has not been addressed in the revised plan. Air emissions from material transport are separate and distinct from both excavation and disposal air emissions. Without a clear statement of which plans will address material transport emissions, these emissions could be overlooked. Thus, the plan should clearly state whether material transport emissions will be evaluated as part of the OSDF air monitoring plan or as part of the air monitoring plans for the various other projects being conducted under the Fernald Environmental Management Project (FEMP) accelerated remediation strategy. Section 1.6 of the OSDF air monitoring plan is an appropriate place to address this issue.
- Response:** The air monitoring approach for demonstrating Nation Emissions Standards Hazardous Air Pollutants (NESHAP) Subpart H compliance presented in Section 6 of the Draft Final integrated environmental monitoring plan (IEMP) accounts for fugitive emissions resulting from the transport of excavated materials to the OSDF. These emissions and all other fugitive emissions resulting from FEMP operations will be monitored via a proposed network of 17 high-volume air monitors sited at the FEMP property boundary and at selected off-property locations. The monitors will measure the ambient radionuclide particulate concentrations at or near potential receptor locations, thus providing a measure of the effectiveness of fugitive controls sitewide.
- In addition, the sitewide best available technology (BAT) determination for control of fugitive emissions has specific requirements addressing transportation activities. The projects generating wastes that will be transported to the OSDF for disposal are responsible for complying with the sitewide BAT requirements for controlling fugitive emissions, including those associated with the transportation of waste materials. Reference to the application of the BAT determination will be included in project remedial design deliverables, as appropriate.
- Action:** No action required.
2. **Commenting Organization:** U. S. EPA **Commentor:** Saric
Section #: NA **Page #:** NA **Line #:** NA
DOE Response #: 5 (Original General Comment #: 5)

Comment: The original general comment requests that the OSDF air monitoring plan address quality assurance requirements and qualification requirements for air monitoring personnel, as specified in Section 3.2.6.8 of the intermediate design criteria package. The revised plan addresses quality assurance requirements but does not discuss personnel qualifications. The plan should be modified to incorporate this information.

Response: Air monitoring personnel (environmental technicians) are required to complete the following training requirements prior to performing unsupervised collection of air samples.

- 40-hour training program for general site workers in accordance with 29 CFR 1910.120
- Sample collection and chain-of-custody training
- Procedural training on the collection of air samples, air sampler maintenance, and calibration of air sampling equipment
- 40 hours of supervised on-the-job training.

Action: Training requirements for air monitoring personnel will be included in the quality assurance section (currently Section 6.5.8) of the IEMP.

3. **Commenting Organization:** U. S. EPA

Commentor: Saric

Section #: NA **Page #:** NA

Line #: NA

Original General Comment #: 1

Comment: As currently presented, the OSDF air monitoring plan contains numerous serious deficiencies, is unacceptable, and should be revised. Many of the deficiencies are described in the specific comments that follow, but three of the most serious deficiencies are summarized in this comment.

First, the OSDF air monitoring plan relies entirely on the existing air monitoring network described in the integrated environmental monitoring plan (IEMP) for FEMP. No additional monitoring locations or parameters are proposed. According to Section 1.2 of the IEMP, the objective of the IEMP is to "provide an independent appraisal of the collective effectiveness of the administrative and engineering emission controls accompanying the individual remediation projects," one of which is the OSDF. The IEMP also states that "project-specific emission-control monitoring" falls outside the IEMP's scope and will be addressed in project-specific monitoring plans. Now, however, the OSDF air monitoring plan claims that the IEMP monitoring network is sufficient to characterize OSDF air emissions and that no additional monitoring locations or parameters are required. The plan does not provide sufficient technical justification for this claim. Moreover, the IEMP submitted in August 1996 does not meet its objective of providing "an independent appraisal" of air emissions and controls. This increases the burden on project-specific plans, such as the OSDF air monitoring plan, to provide technically sound approaches for monitoring air emissions during FEMP remedial activities.

Second, the plan relies heavily on a risk assessment included as part of the OU5 feasibility study (FS) to demonstrate that risks to public health from potential OSDF air emissions are low. However, further review of the OU5 risk assessment indicates that the assessment is not based on reasonable maximum exposure (RME)

concentrations, does not consider the receptor locations most likely to be affected by OSDF air emissions, and does not evaluate most OSDF activities that will generate air emissions. As a result, the plan's use of the risk assessment information to "formulate the OSDF environmental air monitoring program" is questionable.

Third, the plan does not adequately describe how air monitoring data will be reported and reviewed and how the data will be used to evaluate the adequacy of OSDF air emission controls. The monitoring data should be evaluated on an ongoing basis because of the dynamic nature of OSDF operations; the annual program review described in Section 6.3 of the plan is not sufficient. In addition, the plan does not propose any short-term, parameter-specific action levels or other objective criteria that will be used to evaluate or interpret air monitoring data. Without such criteria, revisions to the air monitoring program and decisions on emission control measures cannot be made in a logical or consistent manner.

Response:

Concern 1

As discussed briefly in the response to Comment 1, the design of the air monitoring program presented in the Draft IEMP has changed significantly based on the input received from the U.S. Environmental Protection Agency (EPA) and Ohio Environmental Protection Agency (OEPA) on the role of air monitoring as the vehicle for demonstrating NESHAP (40 CFR 61) Subpart H compliance. In the revised air program presented in the Draft Final IEMP, Subpart H compliance will be demonstrated through an alternate approach that relies on actual measurements of ambient radionuclide particulate concentrations at or near potential receptor locations, rather than on estimates generated using computer modeling. As such, fugitive emissions from OSDF operations, as well as all other project-specific diffuse and point source emissions, will be measured collectively and evaluated against the NESHAP dose limit of 10 mrem. Therefore, the data collected through the IEMP air monitoring program provides a direct measure of the collective effectiveness of project-specific point source and diffuse source emission controls relative to a health-protective standard. Based on this approach, the IEMP does meet its objective of providing an independent appraisal of air emissions and controls. Additional monitoring at the project level, above those required under the BAT determination for fugitive dust abatement are not necessary to support compliance or to ensure protection of the public. Therefore, it is unclear how additional project-specific monitoring data would be used.

Concern 2

The U.S. Department of Energy (DOE) acknowledges the limitations associated with air modeling conducted as part of the short-term risk assessment in the OU5 FS and as discussed in the initial submittal of the OSDF Air Monitoring Plan. However, this information was not used as the basis for developing the alternate air monitoring approach presented in Section 6 of the Draft Final IEMP. Rather, the requirements specified under 40 CFR 61.93 (b)(5) and technical guidance received from the EPA were used to develop the alternate approach.

In addition, during the revision of the Draft IEMP, additional model simulations of potential air concentrations of total suspended particulates (TSP) along the FEMP fence line during remediation were conducted using more realistic assumptions regarding remedial activities. DOE presented the assumptions, emission equations, and modeling results to EPA and OEPA in the December 19, 1996 meeting. A package describing the modeling task also was distributed during the meeting.

Fugitive dust emissions were simulated for three scenarios that represent conditions in the first, second, and last three-year periods of active surface remediation. Potential emission sources evaluated include all the major remedial/construction activities in and between South Field, Waste Pit, former production area, OSDF, and soil borrow areas. The schedule, areal size, material characteristics (assuming no emission controls and conservative moisture estimates), and material-handling rate of each activity were estimated according to the latest project-specific planning information. Per EPA's request, a worst-case scenario which included all potential emission sources simultaneously was modeled following the December 19, 1996, meeting.

The simulated maximum annual average TSP concentrations along the fence line for the first, second, and third scenarios are 281, 280, and 286 $\mu\text{g}/\text{m}^3$, respectively. Locations of the maximum annual average concentrations were projected to shift from north to south along the eastern fence line, following the progress of OSDF construction. The estimated maximum annual average TSP for the hypothetical worst-case scenario is 483 $\mu\text{g}/\text{m}^3$. However, it should be noted that the assumption used in the worst-case scenario (all sources active simultaneously) is not realistic. All these simulated maximum annual average concentrations are significantly higher than historically measured conditions. As presented in the December 19, 1996 technical meeting, a TSP concentration of about 550 $\mu\text{g}/\text{m}^3$ may result in an annual air pathway dose of 10 mrem, assuming a uranium concentration of 50 mg/kg on the particle. The outcome of these modeling scenarios provides additional support to the expectation that off-site exposures as a result of fugitive emissions will be very low.

Concern 3

DOE agrees that data evaluation must be conducted in a routine, timely manner that supports effective decision making. As such, the data collected under the IEMP air monitoring program will be evaluated on an ongoing basis to monitor the sitewide effectiveness of emission controls and to track the FEMP's compliance status with 40 CFR 61 Subpart H requirements. Monitoring results will be evaluated in light of project operations active during the period and the associated meteorological conditions in order to target corrective actions when needed to specific remedial activities. If monitoring data indicate an increasing trend which, if sustained, could result in an exceedance of NESHAP limits, action will be taken at the project level to further control fugitive emissions. If increasing trends are identified but indicate NESHAP limits are not in jeopardy of being exceeded, projects will be asked to review remediation activities and the application of the sitewide BAT determination for fugitive dust control, to ensure all project activities are compliant. Additional fugitive dust controls may be implemented as provided for in the BAT determination, based on the project review. Additionally, this information will support collective decision making as outlined in Section 1 of the Draft Final IEMP. A more detailed discussion of the data evaluation process is provided in Section 6.6 of the Draft Final IEMP.

Data will be summarized and reported to the EPA and OEPA through the routine quarterly reporting mechanism outlined in the Draft Final IEMP. The quarterly reporting strategy proposed in the Draft Final IEMP will provide a routine, timely mechanism for involving EPA and OEPA in a collaborative decision making process.

Action: A more detailed discussion of the data evaluation process is provided in Section 6.6 of the Draft Final IEMP.

SPECIFIC COMMENTS

4. Commenting Organization: U. S. EPA

Commentor: Saric

Section #: 1.2 Page #: 1-3

Line #: 14 to 16

DOE Response #: 9 (Original Specific Comment #: 9)

Comment: The original specific comment points out that the OSDF air monitoring plan did not address the issue of real-time air monitoring for particulate emissions from the OSDF. The comment is nearly identical to Ohio Environmental Protection Agency (OEPA) Original Comment #64. The Department of Energy's (DOE) response is unacceptable. Contrary to the response, the U.S. Environmental Protection Agency's (U.S. EPA) original specific comment accurately quotes the requirement as it was stated in the plan; "provide for collection of airborne particulate data in real-time."

DOE's response also contends that EPA's original specific comment "misinterprets the commitment made in the OU2 and OU5 Records of Decisions (RODs)." Review of the OU5 record of decision (ROD) and responsiveness summary reveals that the commitment to real-time monitoring is clearly stated throughout:

- Section 9.1.7, Page 17, Paragraph 2: "Long-term environmental monitoring will also be conducted as part of the selected remedy. This monitoring will be designed to detect and quantify, to the extent practical, releases from the site attributable to the implementation of remedial actions and will include monitoring of the air, surface water, and groundwater pathways, Monitoring devices providing real-time or near real-time data will be evaluated and applied, if practical."
- Appendix A, Responsiveness Summary, Page A.3-52: "DOE is committed to executing a responsible and technically defensible environmental monitoring program during and following the conduct of remedial actions at the FEMP. . . . Commercially available and emerging monitoring techniques that could provide real-time or near real-time data an environmental released will be considered during the development of this monitoring program during remedial design."
- Appendix A, Responsiveness Summary, Page A.4-1: "The FEMP should implement a responsible monitoring program during remedy implementation to detect airborne discharges and/or releases to surface water. This monitoring program should use real-time monitoring techniques to the extent possible. Data from the program should be provided to the State of Ohio and the public in a timely fashion. The DOE should continue to evaluate their monitoring program throughout remedy implementation to possibly identify and apply, if practical, new or improved methods of measurement."

Nothing in the original or revised OSDF air monitoring plans indicates that DCR has seriously considered this clearly stated commitment. The plan relies entirely on FEMP's existing air monitoring network, supplementing this only with visual observations of fugitive dust emissions from the OSDF. The only real-time data collected by this network are radon concentrations measured by alpha scintillation continuous radon monitors, which are described in Sections 4.1.4 and 4.2.2 of the plan. However, these real-time data are not discussed in Section 6.2 of the plan, which briefly described the air monitoring data that FEMP will use to evaluate the effectiveness of air emission control measures at the OSDF. There is no indication that DOE reviewed or considered available or emerging monitoring techniques that

Further review of the relevant sections and appendix of the OU5 FS raises serious concerns about whether the air emission evaluation presented in the FS (1) adequately characterizes potential air emissions from the OSDF and (2) provides a sound technical basis for making decisions about OSDF air monitoring requirements.

First, the evaluation of potential air emissions presented in the OU5 FS does not meet U. S. EPA's definition of RME. U. S. EPA guidance indicates that "because of the uncertainty associated with estimating the true average concentration at a site, the 95 percent upper confidence limit (UCL) of the arithmetic mean should be used for this variable" (Supplemental Guidance to RAGS: Calculating the Concentration Term, Publication 9285.7-081, May 1992). However, Appendix G of the OU5 FS (Page G-3-2) indicates that average soil concentrations were used as the basis for the evaluation. As a result, the air emissions estimated in the OU5 FS may be representative of average conditions but do not characterize RME.

Second, the RME receptor defined in the OU5 FS is not located where maximum contaminant concentrations resulting from OSDF air emissions are likely to occur. Figure G-2-2 places the representative RME receptor for the near-property public northwest of the OSDF at the northern property boundary of FEMP. This location is not the point of maximum impact for OSDF air emissions because (1) the OSDF will be constructed along the eastern boundary of FEMP and (2) the prevailing wind direction (based on the wind rose included in Figure 6-1 of the IEMP) is from the southwest or west. In fact, the RME receptor is located in an area likely to be least affected by OSDF air emissions because of the small percentage of time that the wind blows from southeast to northwest.

Third, it is not clear from the information presented in Appendix G of the OU5 FS that all possible air release mechanisms for the OSDF were evaluated. Attachment G.II to Appendix G includes a series of tables labeled "Intermediate Results for On-Site Disposal Cell Operations." The table on Page G.11-103 shows particulate emission rates for major OSDF operations. These emission rates were apparently used to predict ambient air concentrations and evaluate exposures to the near-property public. According to this table, the only OSDF activity that will cause particulate air emissions is construction of OSDF cells. Emission rates for the following activities are listed as "0.00 kg/day": dumping contaminated soil at the OSDF receiving area, short-term storage of contaminated soil at the receiving area, and wind erosion of uncovered soil that has been placed in a disposal cell. Other air emission generating activities, such as placement of contaminated soil in disposal cells and movement of the material after placement, are not listed in the table and apparently were not evaluated. Based on the information presented, the evaluation in Appendix G of the OU5 FS appears to significantly underestimate potential air emissions from OSDF operations because it does not consider most of the material handling activities likely to generate emissions.

In summary, the air emission evaluation presented as part of the short-term risk assessment in the OU5 FS appears to have serious deficiencies in that the evaluation (1) is not based on RME concentrations, (2) does not consider the receptor locations most likely to be affected by OSDF air emissions, and (3) does not include most of the OSDF activities that will generate air emissions. Because of these deficiencies, the OU5 FS air emission evaluation does not support the statement that the air monitoring "approach and frequency are considered more than sufficient," which appears on Page 6-2 (Line 27) of the OSDF air monitoring plan. A more thorough and complete

evaluation of potential OSDF air emissions is required, and the OSDF air monitoring program should be based on the results of this evaluation.

Response: DOE acknowledges the limitations associated with the air modeling predictions presented in the OU5 FS Short-term Risk Assessment. See response to comment 3.

Action: No action required

6. Commenting Organization: U. S. EPA Commentor: Saric
Section #: 4-1.1 Page #: 4-1 to 4-3 Line #: NA
DOE Response #: 15 (Original Specific Comment #: 15)

Comment: The original specific comment requests that the OSDF air monitoring plan describe how meteorological data (wind speed and wind direction) will be coordinated with the air monitoring program data or used to interpret program results. In response, DOE added a general discussion of meteorological data as Section 4.1.1 and states that this data will be "used in the evaluation and interpretation of environmental data collected from air, radon, and project specific monitoring data."

The plan does not provide any specific information concerning how meteorological data will be used. Meteorological data can be useful in selecting locations for portable air monitoring stations used to collect short-term or real-time data (see DOE Response #9 above). Meteorological data is also important in interpreting longer-term data from fixed air monitoring stations because (1) wind speed is a key factor in generating air emissions and (2) wind direction affects the contaminant concentrations measured at air monitoring stations. Air monitoring results that are not considered in terms of these and other meteorological variables are likely to be misinterpreted. The plan should be further revised to include a more focused and specific discussion of meteorological data.

Response: DOE agrees that meteorological data is important to the interpretation of air monitoring results. Short-term meteorological data will be used to relate air monitoring results to specific projects, when necessary. For example, if the results from a specific monitor are higher than expected, the monitoring result would be evaluated using the wind rose developed from meteorological measurements collected during the monitoring period. A remediation project upwind of the monitor during the monitoring period would then be considered a possible source of the higher-than-expected result. With further investigation, a specific work activity or event that took place at the remediation project may be connected to the higher results.

Meteorological data such as short term wind roses, peak and average wind speeds, and rainfall data will be used to interpret the air monitoring results. The existing meteorological tower continuously records wind speed, direction, temperature, barometric pressure, relative humidity, and precipitation data and will be used to supply the data needed for the interpretation of air monitoring results.

Action: The meteorological monitoring discussion included in the Draft Final IEMP has been revised to include additional detail on the use of meteorological data in interpreting air monitoring results.

7. Commenting Organization: U. S. EPA Commentor: Saric
Section #: 4.1.5 Page #: 4-8 and 4-9 Line #: NA
DOE Response #: 23 (Original Specific Comment #: 23)

Comment: The original specific comment questions the biweekly analytical frequency for total uranium and the once-per-year analytical frequency for target radionuclides. The comment also suggests that results from more frequent gross alpha analyses could be

used to help determine when to increase the analytical frequency for target radionuclides.

The response proposes no changes in analytical frequencies and is therefore not acceptable. Revised Table 3-2 in the OSDF air monitoring plan shows that thorium-230 and thorium-232, which are both alpha emitters, are responsible for nearly 75 percent of the estimated inhalation risk (based on predicted activity normalized to derived concentration guidelines). The plan presents no specific information to demonstrate that total uranium concentrations are a better indicator for thorium than gross alpha results. To adequately address the potential risk from thorium, the plan should include gross alpha analyses conducted at least biweekly. If gross alpha activity exceeds a reasonable threshold, alpha spectroscopy should be conducted. The reasonable threshold should be a fraction of the lowest spectroscopy method limit for thorium-230, uranium-236, and thorium-232, which account for over 98 percent of the estimated inhalation risk based on Table 3-2.

Response:

The proposed analytical suite (as discussed in the February 10, 1997 meeting with EPA) for the proposed IEMP air monitoring program to address remediation activities scheduled for years 1997 and 1998 includes the following:

- Bi-weekly samples analyzed for total uranium and TSP.
- Quarterly composite samples analyzed for expected major contributors to dose including U-238, U-235/236, U-234, Th-228, Th-230, Th-232, and Ra-226.

The radionuclides in the analytical suite were selected based on the following considerations:

1. Radionuclides stored in large quantities at the FEMP that will be handled or processed during the remediation effort (total uranium, Th-232, and Ra-226).
2. Radionuclides that have been the major contributors to dose based on environmental and stack-filter measurements (uranium).
3. Radionuclides that, due to their concentration in waste and contaminated soil, will be the major contributors to dose if the waste or soil is released in the form of fugitive dust (total uranium, Th-228, and Th-230).

The proposed analytical schedule will quantify the major dose contributors on a quarterly basis. The quarterly analyses also are expected to confirm previous environmental measurements (1995 Sitewide Environment Report) that indicate uranium is the principal contributor to air pathway dose. DOE recognizes that as remediation progresses, in particular as the waste pit excavations are initiated, the principal contributors to air pathway dose may change and changes to the analytical schedule and suite of analytes may be necessary. These changes will be proposed through the IEMP in advance of the associated changes in remediation activities whenever feasible (i.e., OU1 remediation).

The large contributions from Th-230 and Th-232 to inhalation dose in Table 3-2 of the Draft OSDF Air Monitoring Plan are the result of averaging isolated Th-230/232 hot spots over large areas. In the case of the OU5 short-term risk assessment, this increased the significance of thorium well beyond the fraction attributed to thorium based on stack and environmental measurement data.

In response to the comment suggestion to use gross alpha analysis, DOE recognizes that gross alpha measurements can serve as a useful trending indicator for

environmental measurements. However, gross alpha measurements would be of minimal use in monitoring for Th-230 and Th-232 since historically the concentrations of these radionuclides in annual composite samples have been typically near or below the detection limit of (the more sensitive and isotope-specific) alpha-spectroscopy measurement technique. In the Draft Final IEMP, analyses for Th-230 and Th-232 will be conducted on a quarterly rather than annual basis, as was proposed in the initial submittal of the IEMP.

The bi-weekly uranium analysis provides an adequate indicator of the effectiveness of site emission controls since it represents the most pervasive contaminant and all other soil contaminants are encompassed within the areal extent of uranium-contaminated soil. Trending uranium concentrations on a bi-weekly basis and interpreting these trends relative to the quarterly composite data provide a reasonable and continuous means of evaluating the performance of site emission controls for the remedial operations expected over the next two years (1997 and 1998).

Action: The proposed analytical schedule for air samples will be incorporated into Section 6 and Appendix C of the Draft Final IEMP with an explanation and justification for the analytical suite and frequency of analysis.

8. Commenting Organization: U. S. EPA

Commentor: Saric

Section #: 4.1.5 Page #: 4-9

Line #: Table 4-1

DOE Response #: 21 (Original Specific Comment #: 21)

Comment: The original specific comment points out discrepancies between the radionuclides listed in original Table 3-1 (predicted airborne concentrations) and original Table 6-1 (minimum analysis regimen for ambient air samples). Specifically, plutonium-239/240 and thorium-234 were included in Table 3-1 but were not listed as target analytes in Table 6-1. The revised OSDF air monitoring plan includes an expanded version of Table 3-1, which is now Table 3-2, and a modified version of Table 6-1, which is now Table 4-1 (not Table 7-1 as indicated in DOE's response).

The response to the original specific comment is unacceptable. Table 4-1 now includes plutonium-239/240 as a target analyte but omits neptunium-237, which was included in the original target analyte list, and thorium-234. The rationale for omitting thorium-234 is presented in Section 4.2.3 of the revised plan and appears to be acceptable. However, the omission of neptunium-237 is not reasonable. Table 3-2 shows that this radionuclide contributes more to predicted doses than 10 other radionuclides that are included as target analytes. Omitting neptunium-237 while including the other 10 radionuclides simply to comply with the analytical scheme presented in the IEMP is not acceptable. If neptunium-237 is an important component of OSDF air emissions, it should be included as a target analyte in the plan.

Response: See response to comment 7. As prescribed in 40 CFR 61.93 (b)(5)(ii), the analytical regime specified in the Draft Final IEMP was developed to measure those radionuclides expected to be the major contributors to an effective dose received by potential off-site receptors. For transuranics, such as Np-237 and plutonium, even the small contributions to dose shown in Table 3-2 overstate the importance of these radionuclides as contributors to dose. The limited detections of Np-237 and plutonium contamination in soils were averaged over large areas in the OU5 short-term risk assessment, thus exaggerating the estimated dose contribution from these contaminants.

Action: No action required.

9.

Commenting Organization: U. S. EPA
 Section #: 4.2 Page #: 4-10 to 4-15
 DOE Response #: 17 (Original Specific Comment #: 17)

Commentor: Saric
 Line #: NA

Comment: The original specific comment requests that the OSDF air monitoring plan include (1) a figure showing the OSDF and proposed air monitoring locations and (2) a discussion of the methods used to select monitoring locations. The first part of the comment has been addressed in the revised plan, but the response to the second part of the comment is inadequate. The response states that text has been added to describe the basis for the selection of monitoring locations. However, as noted under DOE Response #10 above, the previous OU5 FS air emission evaluation that is supposed to provide much of this basis has serious deficiencies.

In addition, the proposed OSDF air monitoring network consists entirely of existing locations within the IEMP network, but the plan does not demonstrate that the locations are sufficient to evaluate OSDF air emissions. For example, Figure 4-1 shows that the OSDF will extend nearly ¼ mile from north to south. The figure also shows that three air monitoring stations for particulate matter will be located along the eastern side of the OSDF, the side most likely to be downwind based on prevailing wind directions. However, the plan does not provide any specific information to support its position that three monitoring stations over a ¼-mile distance are sufficient to evaluate particulate air emissions from the OSDF. Furthermore, because the OSDF will be constructed as nine separate disposal cells in a north-to-south line, the selection of monitoring locations should allow for repeated displacement of the OSDF working area as construction proceeds. The plan should be revised to provide a more complete and technically sound discussion of the methods used to select monitoring locations.

Response: The OSDF air monitoring strategy is described in the Draft Final IEMP. The monitoring locations in the Draft Final IEMP were selected to provide a comprehensive monitoring network of high-volume air monitors capable of collectively monitoring all fugitive and point source emissions emanating from the FEMP property to potential off-site receptors. Since the point of compliance under NESHAP Subpart H is the receptor location, monitors are proposed at the FEMP property boundary in wind rose sectors where potential receptors are located immediately adjacent to the property boundary (primarily in the south and west). In sectors where the nearest potential receptors are distant from the FEMP property boundary (primarily northwest and east), every effort will be made to place monitors at or near these receptor locations. However, if agreement can not be reached with private property owners for placement of off-property monitors, further discussions between EPA, OEPA, and DOE will be necessary to determine an acceptable alternative for demonstrating compliance at the receptor locations. The proposed on- and off-property monitoring locations were visited during the February 10, 1997, meeting by representatives of DOE, EPA, and OEPA.

Action: No action required

10. Commenting Organization: U. S. EPA
 Section #: 4.2.1 Page #: 4-10
 Original Specific Comment #: 1

Commentor: Saric
 Line #: 9

Comment: The text incorrectly cites Figure 4-3 as showing direct radiation monitoring locations. The text should be revised to cite Figure 4-2.

Response: Because the substantive requirements of the OSDF Air Monitoring Plan are being incorporated into the IEMP, the referenced text and figure are being eliminated. Figure 6-4 in the IEMP presents the proposed thermoluminescent dosimeter (TLD) monitoring locations.

Action: No action required.

11. Commenting Organization: U. S. EPA Commentor: Saric
Section #: 4.2.2 Page #: 4-10 Line #: 22 to 24
Original Specific Comment #: 2

Comment: The text incorrectly cited Figure 4-2 as showing radon monitoring locations. The text should be revised to cite Figure 4-3. In addition, Figure 4-3 does not show radon monitoring locations 8A and 9B. The figure should be revised to show all radon monitoring locations.

Response: Because the substantive requirements of the OSDF Air Monitoring Plan are being incorporated into the Draft Final IEMP, the referenced text and figure are being eliminated. Figure 6-3 in the Draft Final IEMP illustrates the locations of radon monitors 8A and 9B.

Action: No action required.

12. Commenting Organization: U. S. EPA Commentor: Saric
Section #: 4.2.3 Page #: 4-11 Line #: 18 to 21
Original Specific Comment #: 3

Comment: The text states that "monitoring equipment, operating procedures, and analytical procedures" used for OSDF air monitoring must "be compatible to those used in the IEMP." This logic is flawed. The OSDF air monitoring plan should be designed to collect radionuclides and other contaminants likely to be released to the air from OSDF operations, quantify these air contaminants, and evaluate the results to determine whether on-site workers or off-site populations are at risk. This comment applies to all activity-specific air monitoring that will occur as part of the FEMP accelerated remediation strategy. The IEMP should integrate the results from activity-specific air monitoring, but should not dictate the monitoring equipment, operating procedures, and analytical procedures that must be used. See the comment under DOE Response #21 above for a specific example. The text should be revised to emphasize the importance of OSDF air monitoring objectives, rather than IEMP objectives.

Response: DOE agrees that the design, implementation, and operation of any project-specific monitoring program will be the responsibility of the remediation project. The equipment used, sampling frequency, and analytical suite selected must support the project-specific data quality objectives. As such, the IEMP does not govern these activities. This approach is consistent with the programmatic boundary definitions and associated delineation of monitoring responsibilities presented in the IEMP.

Action: No action required.

13. Commenting Organization: U. S. EPA Commentor: Saric
Section #: 4.2.3 Page #: 4-11 to 4-14 Line #: NA
DOE Response #: 20 (Original Specific Comment #: 20)

Comment: The original specific comment requests that the OSDF air monitoring plan include more frequent data collection and analysis during the initial stages of OSDF operations and when a new type of waste is being placed in the OSDF. The comment was nearly identical to OEPA Original Comment #72. Although Section 6.3 of the revised plan states that "the frequency of airborne particulate analyses" will be reviewed at least annually, DOE's response does not directly address the original specific comment. Furthermore, DOE's response to the OEPA original comment includes misleading information concerning the technical feasibility of increased sampling frequency. In justifying a 2-week duration for particulate air sampling, the response states that

"more frequent sample collections decrease the particle mass aggregated," implying that shorter sampling periods are not acceptable. In fact, the high-volume particulate air sampling method used by DOE is designed to collect 24-hour samples in order to evaluate compliance with U.S. EPA's National Ambient Air Quality Standard for particulate matter.

The OSDF air monitoring plan should be revised to directly address the original specific comment. In addition, the plan should address the issue of critical OSDF operating periods (as defined in the U. S. EPA and OEPA comments) when air emissions may be of greater concern. The plan should provide adequate technical justification for the air monitoring and sample collection frequencies to be used during these critical periods.

Response: The bi-weekly and quarterly composite samples specified in the Draft Final IEMP provide a reasonable and continual basis for evaluating site emissions against the 10 mrem NESHAP standard. The sampling frequencies and analytical regime outlined in the Draft Final IEMP (and discussed with EPA and OEPA during the December 19, 1996, and February 10, 1997, meetings) have been developed in consideration of the types of remedial activities and waste materials that will be handled during years 1997 and 1998 inclusive of the OSDF. The sampling frequency will be evaluated continually, based on the filter loading and contaminant concentrations. Frequencies may be adjusted at anytime, with EPA and OEPA concurrence, to address observed or expected changes in contaminant concentrations or filter loadings.

As presented in the December 19, 1996 meeting, DOE agrees that prior to initiating waste pit excavations and associated waste processing the sampling frequencies should be reevaluated based on the expected composition of these wastes. This evaluation will be documented in revision 1 (scheduled for 1999) of the IEMP prior to waste pit excavation activities.

Action: Text has been added to Section 6 of the Draft Final IEMP to discuss provisions for modifying sampling frequencies in response to changing site conditions. Present evaluation of sampling and analytical frequencies will be presented in Revision 1 of the IEMP to address OU1 remedial activities.

14. **Commenting Organization:** U. S. EPA **Commentor:** Saric
Section #: 4.2.3 **Page #:** 4-13 **Line #:** 10 and 11
Original Specific Comment #: 4
Comment: The "Contribution to Total Predicted Concentration (Activity-basis)" entries for uranium-235 and uranium-236 do not match the values shown in Table 3-2. These entries and the subtotal should be corrected.
Response: This inconsistency was a typographical error. Because the substantive requirements of the OSDF Air Monitoring Plan are being incorporated into the IEMP, the referenced tables are being eliminated.
Action: No action.
15. **Commenting Organization:** U. S. EPA **Commentor:** Saric
Section #: 4.2.3 **Page #:** 4-13 and 4-14 **Line #:** NA
Original Specific Comment #: 5
Comment: The text offers several justifications concerning the appropriateness of airborne particulate uranium as an "indicator" for other radionuclides but does not provide a technical basis for these justifications. First, the text describes uranium as the "primary radiological contaminant in the FEMP's soil and soil-like remediation wastes." Although this may be true, data presented in Table 3-2 show that

thorium-230 and thorium-232 account for nearly 75 percent of the predicted dose from air emissions, whereas uranium accounts for less than 24 percent. The text should explain why uranium is an appropriate indicator for radionuclides that pose a much greater potential risk.

Second, the text states that other radionuclides not related to uranium through a decay chain (such as thorium-232) can be "scaled to the uranium concentration in a remediation waste stream." The purpose of FEMP, when operating, was to separate uranium from other heavy metals. Therefore, although uranium may be a reasonable indicator for the materials received at FEMP, its use as an indicator for waste materials separated out during production is questionable. The plan should provide or discuss data supporting the assumption that uranium concentrations in remediation waste streams can be consistently "scaled" to the concentrations of other radionuclides.

Third, the text provides no guidelines on how uranium indicator results will be used to determine when more frequent sampling and analysis for other radionuclides are warranted. The text should be revised to address this deficiency.

Response: See response to Comment 7 and Comment 13. The analytical regime presented in the Draft Final IEMP does not propose to use "scaling" as a means of correlating uranium concentrations with other radionuclides not related through a decay chain. However, an assumption of secular equilibrium between radionuclides in the same decay chain may be appropriate in some instances. The rationale for any such assumptions is described in Appendix C of the IEMP.

Action: No action required.

16. Commenting Organization: U. S. EPA
Section #: 4.2.4 Page #: 4-15
Original Specific Comment #: 6

Commentor: Saric
Line #: Table 4-2

Comment: This table lists monitoring locations 3, 8A, and 9B as downwind locations for air particulate, uranium, and radionuclide monitoring. However, for direct radiation monitoring, these locations are not identified as being downwind from the OSDF. This discrepancy should be corrected.

Response: The direct radiation monitoring program is not truly part of the air monitoring program since direct (gamma and X-ray) radiation are not affected by wind speed and direction. This program is included in the description of the overall air monitoring program because many of the TLDs are co-located at air-monitoring stations. DOE recognizes that the inclusion of direct radiation in Table 4-2 is confusing and inconsistent with the intent of the table. The direct radiation program is described using a separate map and tables in Section 6 of the Draft Final IEMP. Separating the direct radiation program description addresses the discrepancy noted in Table 4-2 of the OSDF air monitoring plan.

Additionally, see response to Comment 29 for discussion of TLD locations.

Action: No action required.

17. Commenting Organization: U. S. EPA
Section #: 5.4 Page #: 5-3
Original Specific Comment #: 7

Commentor: Saric
Line #: 8 to 13

Comment: The plan should be revised to more clearly describe the air monitoring that will be conducted following OSDF closure. If direct radiation monitoring, radon monitoring, and sampling and analysis for airborne particulate radionuclides will not be included, the plan should provide technical information to justify these omissions.

Response: Consistent with the two-year focus of the IEMP, future revisions will present an air monitoring approach that incorporates post-closure considerations.
Action: No action required.

18. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section #: 6.2.1 **Page #:** 6-1 **Line #:** 13 to 22
Original Specific Comment #: 8
Comment: This section should be revised so that the data recorded by the visible emissions evaluator will be consistent with the requirements of U.S. EPA Method 22 from 40 Code of Federal Regulations (CFR) Part 60, Appendix A. Specifically, the evaluator should record the estimated wind speed and direction at the time the visible emissions are observed as well as the duration of the emissions.
Response: When emissions measurements are performed at the OSDF in accordance with Method 22 or opacity measurements are performed at the OSDF in accordance with Method 9, the required records will be kept.
Action: A statement about record-keeping requirements will be added to Section 9.3 of the OSDF Impacted Material Placement Plan.
19. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section #: 6.2.2 **Page #:** 6-2 **Line #:** 2
Original Specific Comment #: 9
Comment: The text presents a predicted potential concentration for airborne particulate total uranium of 8.3×10^{-10} milligrams per cubic meter (mg/m^3) and cites Section 3.3 as the source of this value. This value differs from the sum of the uranium concentrations in Table 3-2 by almost three orders of magnitude. The discrepancy should be corrected.
Response: This was a typographical error. Because the substantive requirements of the OSDF Air Monitoring Plan are being incorporated into the IEMP, the referenced text and table are being eliminated.
Action: No action required.
20. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section #: 6.2.2 **Page #:** 6-2 **Line #:** 9 to 18
Original Specific Comment #: 10
Comment: The text briefly states that air particulate data, airborne particulate total uranium data, and occupational monitoring results from the OSDF will be used to determine whether improved administrative or engineering emission control measures are needed. Two significant deficiencies are associated with this approach. First, direct radiation monitoring results (Section 4.2.1) and radon monitoring results (Section 4.2.2) apparently will not be used to evaluate air emissions from the OSDF and the possible need for better emission control measures. Second, for the parameters listed, no specific action levels are proposed. The text refers to but does not define "administrative action levels." The plan should be revised to discuss how all air monitoring parameters will be used to evaluate OSDF air emissions. The plan should also identify specific action levels for each parameter whose exceedance will result in re-evaluation or improvement of air emission control measures.
Response: All air pathway monitoring data will be evaluated to assess the overall effectiveness of sitewide emission controls. IEMP data will be evaluated relative to the following health-protective standards:
- NESHAP Subpart H limits for radionuclide emissions (not to exceed an annual effective dose equivalent of 10 mrem to any member of the public).

- DOE Order 5400.5 limits for radon (3 pCi/l annual average above background at the property boundary).
- DOE Order 5400.5 limits on the total annual effective dose equivalent (100 mrem from all pathways).

These standards serve as the benchmarks for the ongoing evaluation of air particulate, radon, and direct radiation data to ensure that site emission controls are effective and performing as expected. The air pathway data will be evaluated routinely against these benchmarks to identify trends and to implement timely corrective actions when necessary to ensure that these health protective limits are never reached.

Action: No action required.

21. Commenting Organization: U.S. EPA
 Section #: 6.3 Page #: 6-4
 Original Specific Comment #: 11

Commentor: Saric
 Line #: NA

Comment: This section states that the OSDF air monitoring program will be reviewed at least annually to evaluate the number and locations of air monitoring stations, the frequency of analyses, and the effectiveness of air emission controls. This approach has two deficiencies. First, an annual review is not sufficient for making decisions on the effectiveness of emission control measures. Air monitoring results should be used to evaluate control measures on an ongoing basis, as waste materials placed in the OSDF change or as OSDF operations vary. Second, the plan provides no objective criteria or indication of the factors that will be considered to determine whether the number and locations of air monitors and the monitoring frequencies are sufficient to effectively characterize OSDF air emissions. The plan should be revised to correct these deficiencies.

Response: DOE agrees that the process of data evaluation/interpretation should be ongoing and conducted in a time frame that supports effective decision making. The bi-weekly and quarterly data collected through the IEMP air monitoring program will be evaluated routinely as the data becomes available. The evaluation will include consideration of project operations active during the monitoring period and the associated meteorological conditions. The data will be summarized and provided/discussed with the agencies on a quarterly basis, per the IEMP reporting schedule. The annual review process and two-year mandatory revision cycle outlined in the IEMP are intended to provide a routine mechanism for evaluating and aligning the monitoring program with the anticipated mix of near-term remediation activities. However, this does not preclude technical or programmatic changes from being made at any time based on the progressive findings of the air monitoring program.

The program design presented in the Draft Final IEMP is based on NESHAP Subpart H requirements and technical guidance provided by the EPA, as discussed in Comment 9. Any modification to this program following approval of the IEMP must be reviewed and approved by the agencies.

Action: No action required.

22. Commenting Organization: U.S. EPA
 Section #: 6.3 Page #: 6-4
 DOE Response #: 18 (Original Specific Comment #: 18)

Commentor: Saric
 Line #: 10 to 12

Comment: The original specific comment requests that the OSDF air monitoring plan state the specific criteria that will be used to determine whether the proposed air monitoring

network is adequately assessing potential public exposure. DOE's response does not provide any specific or objective criteria for making this assessment and is therefore not adequate. The plan should be revised to address the original comment.

Response: As discussed in Comment 9, the IEMP presents a monitoring approach for demonstrating NESHAP Subpart H compliance based on measurements of particulate radionuclide concentrations at or near potential receptor locations. As such, exposure to potential off-site receptors will be monitored. The ongoing comparison of air monitoring data to the 10 mrem NESHAP limit will provide continual assurance that fugitive emission controls are effective and subsequently public exposures do not reach this health-protective limit.

Action: No Action Required.

23. **Commenting Organization:** U.S. EPA **Commentor:** Saric
Section #: 6.4 **Page #:** 6-5 **Line #:** NA
Original Specific Comment # : 12

Comment: Section 6.4 consists of a single sentence stating that OSDF air monitoring program reporting will be conducted under guidelines established under the IEMP. However, the IEMP provides little relevant guidance, stating (in Section 8.3.2) only that "project-specific data and interpretation thereof would be transmitted to the IEMP program to support quarterly meetings and status reports with the regulators." Although the integration of OSDF air monitoring results with the IEMP data collection effort should be addressed in this section, it is not the primary concern. Section 6.4 should be revised and expanded to address the reporting and use of OSDF air monitoring results for the purposes of evaluating OSDF air emissions and emission control measures on a timely basis.

Response: See response to Comment 3, concern 3.

Action: No action required.

**RESPONSES TO OEPA COMMENTS
 ON THE ON-SITE DISPOSAL FACILITY, AIR MONITORING PLAN, REVISION F
 AUGUST 1996**

24. **Commenting Organization:** Ohio EPA **Commentor:** OFFO
Section #: 1.1 **Pg #:** 1-1 **Line #:** 7-11 **Code:** C
Original Comment #: 1

Comment: Throughout this air monitoring plan "reasonably available control measures (RACM) from OAC 3745-17-08(B) are referenced for implementation to mitigate potential emission of fugitive dust from OSDF activities. OAC 3745-31-01(D) defines a "air contaminant source" as each separate operation, or activity that results or may result in the emission of any air contaminant. This definition applies to operations or activities that emit air contaminants, whether regulated under Ohio Law or regulated under the Clean Air Act. OAC 3745-31-05(A) and OAC 3745-31-05(A)(3) states that "...the installation...and operation of the air contaminant source... will employ the best available technology (BAT). OEPA Engineering Guides 21 & 42 indicate that BAT determination for a new fugitive dust source must be made on a case by case basis.

BAT determination for OSDF activities should be conducted to ensure that maximum emission control is achieved. References to RACM should be modified to demonstrate that a BAT determination will be conducted and the results of this determination will be used to control fugitive emissions during OSDF activities.

Response: The OSDF Project will comply with the final FEMP best available technology determination for fugitive dust control which is currently being finalized with EPA and OEPA. The application of the best available technology determination to OSDF operations will be described/referenced in Section 9.3 of the OSDF Impacted Material Placement Plan.

Action: Include FEMP best available technology determination for fugitive dust control within the OSDF Impacted Material Placement Plan.

25. **Commenting Organization:** Ohio EPA **Commentor:** OFFO

Section #: 2.3 **Pg #:** 2-5 **Line #:** 18-19 **Code:** C

Original Comment #: 2

Comment: This paragraph states that ALARA goals should apply to workers involved in air monitoring activities near the OSDF. This statement is confusing. ALARA principles should be applied throughout the FEMP remediation to ensure that exposures to workers, the public, and the environment are minimized.

Response: ALARA principles for the protection of workers, the public, and the environment have been applied throughout the design of the OSDF and will continue to be applied during construction. The OSDF Design Criteria Package states that "ALARA goals should apply to all impacted material excavation, removal, handling, and placement activities." (Section 2.11.2.3) In addition, the OSDF Project prepared an environmental ALARA report in accordance with DOE requirements for review by an internal committee that is independent of the OSDF project.

Action: No action required.

26. **Commenting Organization:** Ohio EPA **Commentor:** OFFO

Section #: 3.0 **Pg #:** General **Line #:** n/a **Code:** C

Original Comment #: 3

Comment: Section 3 of this air monitoring plan relies heavily on the predicted air concentrations derived in the OU5 FS short-term risk assessment, Appendix G of the OU5 FS (G.3.2.1) states that the exposure point concentrations utilized a 22 year remediation with "The maximum area actively excavated at any one time will be 0.5 acres to minimize contaminate releases." The 10 year plan (and current excavations) clearly exceed the 0.5 acre assessment area used in the OU5 FS, These point receptor concentrations used for the dose assessment in this air monitoring plan are questionable. Air monitoring should therefore focus on measuring actual airborne radionuclide concentrations, rather than relying on questionable concentration estimates.

40 CFR 61 Subpart H, states that CAP-88 or other EPA approved computer models, should be used to determine radionuclide concentrations and committed effective dose. The OU5 FS does not appear to use one of these models.

Response: The air modeling conducted as part of the short-term risk assessment in the OU5 FS and discussed in the initial submittal of the OSDF Air Monitoring Plan was not used as the basis for developing the alternate air monitoring approach presented in the Draft Final IEMP (See response to Comment 3). The design of the air monitoring program presented in the Draft Final IEMP has changed significantly based on the input received from the EPA and OEPA on the role of air monitoring as the vehicle for demonstrating NESHAP (40 CFR 61) Subpart H compliance. This represents a fundamental change in approach for the FEMP which has historically demonstrated compliance with Subpart H via computer modeling, as described in 40 CFR 61.93 (a). In the revised air program presented in the IEMP, Subpart H compliance will be demonstrated through an alternate approach that relies on actual measurements of

ambient radionuclide particulate concentrations at or near potential receptor locations rather than on estimates generated using computer modeling. This approach addresses OEPA's concern as expressed in the comment by utilizing a monitoring basis for evaluating the protectiveness of site emission controls and determining the dose received by off-site receptors as a result of remediation activities.

Action: No action required.

27. Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 3.3 Pg #: 3-7 Line #: 27-36 Code: C

Original Comment #: 4

Comment: In this paragraph the document references the NESHAPs threshold for continuous monitoring 0.1 mrem/year. This paragraph also states that 0.1 mrem/year threshold is for a point source. The measurement methods described for a point source do not apply, but 40 CFR 61 Subpart A - General Provisions, states that a "stationary source means any building, structure, facility or installation which emits or may emit any air pollutant which has been designated as hazardous..." The OSDF is therefore clearly a stationary source.

40 CFR 61 Subpart H, 61-93(b)(3) states that when it is impractical to measure the effluent flow rate that at an existing source...the owner or operator may use alternatives provided that: the requirements of paragraph (b)(1) or (2) are impractical for the effluent stream, (ii) the alternative procedure will not significantly underestimate the emissions, (iii) the alternative is fully documented, (iv) the owner or operator has received prior approval from the EPA.

The fact that the OSDF is not a point source does not relieve the air monitoring plan from the substantive requirements of 40 CFR 61, Subpart H.

Response: See response to Comment 3, concern 1. The substantive requirements of 40 CFR 61, Subpart H will be addressed through the alternate (monitoring) approach presented in Section 6 of the Draft Final IEMP. The proposed locations for air monitors presented in the Draft Final IEMP were selected based on the primary wind rose sectors and potential receptor locations. Since the point of compliance under NESHAP Subpart H is the receptor location, monitors will be placed at the FEMP property boundary in wind rose sectors where potential receptors are located immediately adjacent to the property boundary (primarily in the south and west). In sectors where the nearest potential receptors are distant from the FEMP property boundary (primarily northwest and east), every effort will be made to place monitors at or near these receptor locations. However, if agreement can not be reached with private property owners for placement of off-property monitors, further discussions between EPA, OEPA, and DOE will be necessary to determine an acceptable alternative for demonstrating compliance at the receptor locations. The proposed on- and off-property monitoring locations were visited during the February 10, 1997, meeting by representatives of EPA and OEPA.

Action: No action required.

28. Commenting Organization: Ohio EPA Commentor: OFFO

Section #: Figures 4-1,2,3 Pg #: 4-2,4,6 Line #: n/a Code: E

Original Comment #: 5

Comment: The scale of these figures do not clearly identify the critical monitoring locations adjacent to the proposed OSDF. Please edit the figures to clearly identify the monitoring locations with respect to the OSDF.

Response: The figures in Section 6 of the IEMP present the proposed air monitoring locations in relationship to the OSDF as well as other significant site features. The scale of the figures will be adjusted to provide the reviewer with a clearer perspective of proposed air monitoring locations.

Action: IEMP Figure 6-2 has been revised to reflect this comment.

29. **Commenting Organization:** Ohio EPA **Commentor:** OFFO

Section #: 4.1.3 **Pg #:** General **Line #:** n/a **Code:** C

Original Comment #: 6

Comment: Due to the close proximity of the OSDF to the FEMP fence line, additional TLD locations should be included in the plan to clearly demonstrate that the predicted levels of direct radiation from the OSDF are measured. According to Figure 4-2, there are only 2 TLD locations along the fence line adjacent to the OSDF. Additional TLD locations should be added incrementally along the fence line to measure potential exposures to the public. The spacing of the TLDs should be centrally located (i.e.) the closest point to the east fence line for each cell of the OSDF. These additional TLD locations should give the public confidence that additional exposures from the OSDF are minimal.

Response: DOE Order 5400.5 requires that exposure to members of the public from DOE activities not exceed, in one year, an effective dose equivalent of 100 mrem. Consistent with the approach to NESHAP compliance, an effective method for assessing dose to the public is through direct measurement at the receptor; therefore, TLDs will be co-located with all high-volume air samplers, so the actual contribution of direct radiation can be factored into the annual dose assessment to members of the public. Additionally, occupational monitoring of direct radiation exposures for OSDF site workers can be used as supplemental information in the interpretation of environmental direct radiation measurements.

Action: Figure 6-4 of the IEMP has been revised to show TLD locations co-located with the proposed air-monitoring stations.

30. **Commenting Organization:** Ohio EPA **Commentor:** OFFO

Section #: 4.2.2 **Pg #:** 4-10,11 **Line #:** n/a **Code:** C

Original Comment #: 7

Comment: There is only one continuous (1 hour measurement interval) radon monitoring location near the OSDF (AMS-2). Again, due to the close proximity of the OSDF to the FEMP fence line, additional continuous radon monitors should be placed at AMS-8A and AMS-9B. (Power is already available at these locations.) The integrating radon monitors, which are collected semi-annually, will not allow for sufficient time to take corrective action where/if elevated radon concentrations are detected.

The wastes which will be placed in the OSDF are not expected to have significant quantities of radium. A demonstration that radon emissions will be insignificant based on the quantities of radium bearing materials being placed in the OSDF may be an acceptable approach to only use IEMP radon monitoring locations.

Response: Section 16.4 of the OSDF Calculation Package included in the OSDF final design calculates the emissions of radon-222 and demonstrates that the release of radon is minimal and well within regulatory requirements [40 CFR 192.02(b)]. The calculated radon emission rate from the OSDF before the cap system is constructed is 4.48 pCi/m²/s. With the cap system in place, the calculated radon emission rate is 4.7353 x 10⁻³pCi/m²/s. Based on these low emission rates, the radon monitoring network located adjacent to the OSDF consisting of one real-time alpha scintillation detector and 5 alpha track-etch detector locations is adequate.

Action: No action required.

31. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2.3 Pg #: 4-14 Line #: 13-17 Code: C
Original Comment #: 8

Comment: The frequency and analytical regimen for the air monitoring stations adjacent to the OSDF are not adequate for OSDF activities. Due to the close proximity of the OSDF to the FEMP fence line, 40 CFR 61, Subpart H requirements, and the questionable air concentration predictions, OEPA with EPA concurrence recommends that isotopic analysis be performed quarterly, rather than annually as stated in the OSDF, Analysis for the isotopes of thorium, uranium, and radium should be considered as a minimum analytical suite. The environmental measurements should be compared to the concentrations listed in Table 2, Appendix E of 40 CFR 61. (See 40 CFR 61, Subpart H 61.93(b)(5).) This allows for adequate protection of the public, and will allow for corrective actions to be implemented if necessary.

Response: Based on EPA and OEPA input received on the air monitoring program presented in the Draft Final IEMP, an alternate approach to demonstrating NESHAP Subpart H compliance is presented in the Draft Final IEMP. The alternate approach is based on taking direct measurements of radionuclide concentrations in the environment at or near potential receptor locations and comparing the measured values to the isotope-specific NESHAP limits found in Table 2, Appendix E of 40 CFR 61. Included in the proposed approach, composite samples will be analyzed quarterly for isotopic uranium, isotopic thorium and radium 226.

Action: No action required.

32. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.3.2 Pg #: 5-2 Line #: 16 Code: C
Original Comment #: 9

Comment: Critical wind speeds for which impacted materials will or will not be placed into the OSDF have not been determined. This critical wind speed should be determined as part of the air monitoring plan.

Response: Section 6.6.2 (Inclement Weather Operations) of the OSDF Impacted Material Placement Plan states that:

"Placement of impacted material in the OSDF shall cease when the average wind speed measured at or near the working face of the active OSDF cell is in excess of 20 mph (25 kph) or when wind gusts exceed 30 mph (40 kph) for more than 1 minute in the previous 60 minutes. The CQC Consultant or FDF will provide and maintain a weather station at or near the active working face of the OSDF to provide a continuous record of wind speed and temperature during the working day. The Construction Manager will determine when unacceptable wind conditions exist."

This statement in the Impacted Material Placement Plan fully addresses this comment.

Action: No action required.

33. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 6.2,1 Pg #: 6-1 Line #: 13-22 Code: C
Original Comment #: 10

Comment: The procedure indicated in this paragraph to implement dust control measures seems rather lengthy. Other DOE sites have implemented a "no visual emission" administrative level to control fugitive emissions. The length of time to implement the procedures in this paragraph would probably allow for exceedances of the rule.

Response: See response to Comment 24.
Action: See action associated with Comment 24.

34. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 6.2.2 Pg #: 6-2 Line #: 9-12 Code: C
Original Comment #: 11
Comment: Will work stop if this situation is encountered? A corrective action plan should be in place to ensure that the schedule is not impacted by this possible situation.
Response: See response to Comment 24.
Action: See action associated with Comment 24

35. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 6.2.2 Pg #: 6-3 Line #: 1-3 Code: C
Original Comment #: 12
Comment: ALARA principles and OAC dictate that fugitive emissions be minimized through BAT. OEPA recommends that an administrative level of "no visible fugitive emissions" be adopted.
Response: See response to Comment 24.
Action: See action associated with Comment 24.

36. Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 6.2.2 Pg #: 6-3 Line #: 6-8 Code: C
Original Comment #: 13
Comment: The potential risk was calculated based on 0.5 acre being exposed at any one time. The risk from accelerated clean-up and areas larger than 0.5 acre may increase the risk associated with this remedial action.
Response: The DOE acknowledges that some of the assumptions used to develop the short-term risk assessment are no longer true, based on current remediation schedules. However, since the air monitoring approach presented in the Draft Final IEMP relies on measurements of ambient radionuclide particulate concentrations at or near potential receptor locations, any increased exposures due to an accelerated remediation schedule will be monitored. In addition, during the revision process on the initial draft of the IEMP, additional model simulations of potential air concentrations of total suspended particle (TSP) along the FEMP fence line during remediation were conducted using more representative assumptions regarding remedial activities. DOE presented assumptions, emission equations, and modeling results to EPA and OEPA in the December 19, 1996, meeting. A package describing the modeling task also was distributed during the meeting.

Fugitive dust emissions were simulated for three scenarios that represent conditions in the first, second, and last three-year periods of the active surface remediation. Potential emission sources evaluated include all the major remedial/construction activities in and between South Field, Waste Pit, former production area, OSDF, and soil borrow areas. The schedule, areal size, material characteristics, and material handling rate of each activity were estimated according to the latest project-specific planning information. Per EPA's request a worst-case scenario which includes all the potential emission sources simultaneously, was modeled following the December 19, 1996 meeting.

The simulated maximum annual average TSP concentrations along the fence line for the first, second, and third scenarios are 281, 280, and 286 μ/m^3 , respectively. Locations of the maximum annual average concentrations were projected to shift from

north to south along the eastern fence line, following the progress of OSDF construction. The estimated maximum annual average TSP for the hypothetical worst-case scenario was $483 \mu/m^3$. However, it should be noted that the assumption used in the worst case scenario (all sources active simultaneously) is not realistic. All these simulated maximum annual average concentrations are significantly higher than historically measured conditions. As presented in the December 19 technical meeting, a TSP concentration of about $550 \mu/m^3$ may result in an annual air pathway dose of 10 mrem assuming a uranium concentration of 50 mg/kg on the particle. The outcome of these recent modeling scenarios provides additional support to the expectation that off-site exposures as a result of fugitive emissions will be very low.

Action: No Action required.

37. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: 6.2.2 Pg #: 6-3 Line #: 9-16 Code: C
 Original Comment #: 14

Comment: The predicted radionuclide concentrations are questionable (based 0.5 acre excavation). The dose estimate of 0.56 mrem/year may be underestimated.

Response: See response to Comment 36.

Action: See action to comment 36.

38. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: 6.4 Pg #: 6-5 Line #: n/a Code: C
 Original Comment #: 15

Comment: The OEPA request reporting of baseline data prior to OSDF activities, as well as, quarterly reporting of data during OSDF activities. This request is consistent with the IEMP reporting mechanism.

Response: Agree. However, the availability of baseline data is dependent on how quickly property owner approvals can be obtained for siting monitors on private property prior to OSDF construction. However, if agreement can not be reached with private property owners for placement of off-property monitors, further discussions between EPA, OEPA and DOE will be necessary to determine an acceptable alternative for demonstrating compliance at the receptor locations. The proposed on- and off-property monitoring locations were visited during the February 10, 1997, meeting by representatives of EPA and OEPA.

Action: No action required.