

4714

**TRANSMITTAL OF RESPONSES TO USEPA AND
OEPA COMMENTS ON THE PROJECT SPECIFIC
PLAN FOR SNAPSHOT MONITORING WELL
SAMPLING AND SURFACE WATER AND
SEDIMENT SAMPLING, MAY 1993**

08/31/93

**DOE-FN/EPA
DOE-2867-93
13
RESPONSES
OU5**

4714



Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6357

AUG 3 1993

DOE-2867-93

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HRE-8J
77 West Jackson Street
Chicago, Illinois 60604

Mr. Graham E. Mitchell, Project Manager
Ohio Environmental Protection Agency
40 South Main Street
Dayton, Ohio 45402

Dear Mr. Saric and Mr. Mitchell:

TRANSMITTAL OF RESPONSES TO UNITED STATE ENVIRONMENTAL PROTECTION AGENCY AND OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE PROJECT SPECIFIC PLAN FOR SNAPSHOT MONITORING WELL SAMPLING AND SURFACE WATER AND SEDIMENT SAMPLING, MAY 1993

- References: 1) Letter, J. A. Saric to J. R. Craig, "Approval of OU #5 Snapshot Sampling Work Plan Addendum - FEMP," dated July 15, 1993
- 2) Letter, G. E. Mitchell to J. R. Craig, "Comments on the Operable Unit 5 PSP," dated June 17, 1993

Enclosed for your review are the subject responses. The work plan will be revised once final resolution of these comments is achieved.

If you have questions regarding the responses, please contact Pete Yerace at (513) 648-3161.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack R. Craig".

Jack R. Craig
Fernald Remedial Action
Project Manager

FN:Yerace

Enclosure: As Stated

001
000

cc w/enc:

K. A. Chaney, EM-424, TREV
D. R. Kozlowski, EM-424 TREV
G. Jablonowski, USEPA-V, AT-18J
J. Kwasniewski, OEPA-Columbus
P. Harris, OEPA-Dayton
M. Proffitt, OEPA-Dayton
T. Schneider, OEPA-Dayton
J. Michaels, PRC
L. August, GeoTrans
F. Bell, ATSDR
K. L. Alkema, FERMCO
B. S. Biehle, FERMCO/52-5
P. F. Clay, FERMCO/19
AR Coordinator, FERMCO

cc w/o enc:

R. L. Glenn, Parsons
J. W. Thiesing, FERMCO/2

**RESPONSES TO U.S. EPA COMMENTS ON THE PROJECT
SPECIFIC PLAN FOR SNAPSHOT SAMPLING**

Commenting Organization: U.S. EPA
Section #: 3.1
Original Comment # 1

Pg. #: 3

Commentor:
Line #:

Code:

Comment: The text states that wells proposed for Snapshot sampling were selected to provide comprehensive coverage of the Site and surrounding areas. However, the text does not specifically state the criteria for well selection. The text should include a discussion of well selection criteria.

Response: The well selection was based on review of data from past groundwater sampling. The primary considerations were the importance of the well with respect to definition of the vertical and horizontal extent of contamination (i.e., the location of the well); and organic and radiological contaminant concentrations previously detected (with attention to comparison to health-based standards, such as MCLs). The major objectives were to define the horizontal and vertical limits of the contaminant plumes and to compare current conditions to past concentrations detected in the groundwater.

Action: Add figures to the PSP to show the locations of the wells identified in Appendix A of the PSP. Add a discussion of how the well locations were chosen.

Commenting Organization: U.S. EPA
Section #: 3.1.3
Original Comment # 2

Pg. #: 3

Commentor:
Line #:

Code:

Comment: The method used to determine the number of equipment rinsate samples is unclear. The number of equipment rinsate samples is usually one rinsate sample for every 20 samples collected, and equipment is decontaminated between each sample. The text states that equipment rinsates will be collected at frequency of 1 per 20 decontamination operations of sampling equipment. As written, equipment may not be decontaminated between each sample, and equipment rinsate samples may not be collected as frequently as necessary. The text must be modified to clarify this statement.

Response: The procedure for equipment rinsate blanks is that a rinsate sample will be collected for every batch of 20 instruments that have been decontaminated. The intent is that each sample instrument will be decontaminated before it is used to collect the sample and, after 20 individual instrument decontaminations have been performed, a new rinsate blank sample will be collected to verify competence of the decontamination process. Due to the use of dedicated sampling equipment, decontamination is not necessary for each sample generated.

Action: The text of the PSP will be modified to incorporate the above response.

471 -

Commenting Organization: U.S. EPA
Section #: Tables 3-1 through 3-3
Original Comment # 3

Pp. #: 4,5

Commentor:
Line #: Code:

Comment: These tables provide a list of existing wells to be sampled under the Work Plan Addendum. However, it is difficult to determine the adequacy of the wells chosen for snapshot sampling without a figure showing all the well locations and those sampled in the spring of 1993 and those proposed for the snapshot sampling. To allow U.S. EPA to better assess the adequacy of the wells chosen for sampling, a figure should be included showing all well locations and those proposed for snapshot sampling.

Response: Maps that indicate the locations of the wells will be provided.

Action: Add maps to the PSP depicting wells to be sampled for the Snapshot program.

Commenting Organization: U.S. EPA
Section #: 3.2.1
Original Comment # 4

Pg. #: 5

Commentor:
Line #: Code:

Comment: It is unclear why no surface water samples are planned in the Great Miami River, upstream of the Site effluent line. A Great Miami River surface water sample should be collected upstream of the Site effluent line or U.S. DOE should provide justification for omitting the upstream sample.

Response: Sampling points W1 and W5, which are upstream background locations for the Great Miami River and Paddys Run, respectively, are covered under a separate PSP titled "Pilot Plant Drainage Ditch Seepage and Surface Water Background Investigations."

Action: No change to the PSP is required.

Commenting Organization: U.S. EPA
Section #: 7.3.1
Original Comment # 5

Pg. #: 18

Commentor:
Line #: Code:

Comment: U.S. DOE must assure that steps are taken to adequately determine if purge water generated during sampling is a RCRA waste.

Response: A reason for including HSL inorganics and volatile organics in the target analyte list for this PSP is to develop a data base of analyses to determine if any of these constituents may be present over a very broad area. This is to perform a baseline risk assessment.

Under the ongoing RCRA sampling, which was included in the Snapshot PSP, 47 wells have been formally evaluated to determine if RCRA wastes would be generated during the sampling process. Of these wells, only two are identified to potentially generate RCRA wastes. These are Wells 1031 and 2649 which are located near the Clearwell, a specific waste source; purged water from these wells is handled as RCRA waste. It is

4714

unlikely that wells outside the RCRA-monitored area will contain RCRA constituents. Purge water from all wells other than 1031 and 2649 is disposed of in the general sump for treatment by the on-site waste water treatment system. This procedure is consistent with previous RI/FS groundwater sampling programs. Since 1988, this procedure has been approved by the U.S.EPA for groundwater sampling.

Action: No change to the PSP is required.

**RESPONSES TO OHIO EPA COMMENTS ON THE PROJECT
SPECIFIC PLAN FOR SNAPSHOT SAMPLING**

Commenting Organization: Ohio EPA

Commentor:

Section #:

Pg. #:

Line #:

Code:

Original General Comment # 1

Comment: DOE has failed to provide justification for the analytical suites chosen for groundwater, surface water and sediment sampling. It is unclear why contaminants detected during previous sampling events were not included in the Snapshot (e.g., Sr-90, etc.). A basic reason for conducting this sampling event is that a number of locations have not been sampled for the full suite of contaminants. This presents a problem when a contaminant is detected at one location but not sampled for at locations immediately surrounding it.

Response: There are three basic reasons for the groundwater and surface water Snapshot sampling event:

- The Snapshot will provide a comprehensive and current round of HSL inorganic and VOC data for the RI to compensate for the fact that HSL data were collected only from some of the monitoring wells installed under the RI/FS sampling programs.
- Groundwater data have been collected from monitoring wells across the site at different times and for different purposes over the past five years. The list of wells sampled during sampling event "A" may not be the same list sampled during sampling event "B" six months later. Nevertheless, complete radiological analyses, which include strontium-90 and technetium-99, were performed on over 800 well samples at the FEMP. The Snapshot provides a current site-wide picture of the groundwater contamination at the FEMP which provides a comprehensive basis for the analysis of contaminant fate and transport.
- Most of the groundwater samples collected to date were filtered in the field. The Snapshot will provide unfiltered data needed for risk assessment purposes.

Analytes were selected based on an understanding of the operating history of the FEMP and the predominant radionuclides processed at the FEMP, and a review of existing groundwater data. Several thousand groundwater samples have been collected under the RI since May 1987. The analytical results from these samples repeatedly show that if radiological contamination is present, the dominant contaminant is uranium. Therefore, the analyte list for the Snapshot does not include some analytes, such as strontium, which have been detected but are not significant in terms of risk or remediation options. The remedial actions taken to control or remove uranium will deal with the strontium as well, since it is always found with the uranium. If this were the beginning of the investigation, it would be important to sample for all possible analytes. However, this is the end of the remedial investigation and the inventory of contaminants is complete. Therefore, not every trace contaminant needs to be analyzed for in every sampling.

In terms of occurrence and distribution, the predominant radiological contaminants at the FEMP are uranium, thorium and radium. In terms of the history of the site, the predominant radionuclides processed were uranium, thorium and radium. A check of draft risk assessment documents available for a number of the operable units also indicated that these radiological parameters are predominant contaminants of concern. Thus, uranium, thorium and radium were selected for the Snapshot analyte lists.

Response:

As was discussed in the conference call on June 21, 1993 with Ohio EPA and GeoTrans, DOE does not agree that an RI need exists for a study of colloidal transport for the following reasons:

- The nature and extent of uranium in both the perched zones and the Great Miami Aquifer are well-defined by groundwater monitoring data. Colloidal transport data will not improve the understanding of the nature and extent of groundwater contamination by uranium. Existing data and data collected during the Snapshot sampling program will be sufficient to define the nature and extent of groundwater contamination for the RI.
- There is no well-developed and verified approach to modeling the rate of transport of colloidal particles. The presence or absence of colloidal transport, which might or might not be faster than the transport of soluble species, is one of numerous parameters with a degree of uncertainty that must be factored into any transport model. Others include hydraulic parameters, such as transmissivity, hydraulic conductivity and hydraulic gradient, as well as physical/chemical parameters, such as Kd, TOC, pH, and oxidation potential. The transport model can accommodate these uncertainties by conservatively estimating input parameters.
- Ohio EPA does not indicate how data concerning colloidal transport would be used in the RI/FS. It can be assumed, however, that the use would be in contaminant transport modeling. Since there is no well-developed and verified approach for modeling colloid transport, the practical usefulness of the colloidal data to contaminant transport modeling is questionable. An alternative approach is to use Kd, as a bulk property, to calibrate the model. This approach is already planned and is independent of specific colloidal transport data.

DOE does acknowledge that there may be colloidal transport at the site. Therefore, DOE is prepared to discuss with Ohio EPA a separate post-RI sampling program to investigate this phenomenon.

Action:

No change to the Snapshot PSP required. DOE will contact Ohio EPA to discuss the development of a separate sampling program to investigate colloidal transport.

Commenting Organization: Ohio EPA
Section #: 3.2
Original Specific Comment # 1

Commentor:
Line #:
Code:

Pg. #: 5

Comment:

It is unclear the selection process DOE used for choosing sampling locations. DOE should include W1, ASI-11, and ASI-12 in the sampling or provide sufficient justification for their exclusion. Ohio EPA assumes that DOE is planning to use Great Miami River background concentrations to compare results. This should be stated in the work plan.

Response:

Sampling points W1 and W5, which are background locations for the Great Miami River and Paddys Run, are covered under a separate PSP titled "Pilot Plant Drainage Ditch Seepage and Surface Water Background Investigation." Sample locations ASI-11 and ASI-12 were not included in the plan because of the very small drainage area they represent. By the time the Ohio EPA comments were received, the drainage was dry.

Action:

No change to the PSP is required.

008

Commenting Organization: Ohio EPA
 Section #: 3.2.1
 Original Specific Comment # 2

Pg. #: 5
 Line #:
 Code:

Comment: DOE should provide a justification for excluding the Great Miami River from sediment sampling.

Response: The Great Miami River was not excluded from sediment sampling. Both paragraphs in Section 3.2 state that the Great Miami River will be sampled for sediments. Section 3.2.1 will be modified so that it is in agreement with Section 3.2.

Action: Add the words "surface water and sediment" to the sentence under Section 3.2.1.

Commenting Organization: Ohio EPA
 Section #: 3.3.1
 Original Specific Comment # 3

Pg. #: 9
 Line #:
 Code:

Comment: DOE should sample 2000- and 3000- series wells in the vicinity of the Sewage Treatment Plant, waste pits, and K-65 Silos for Tc-99 since Tc-99 has been detected in the perched groundwater, waste pits, and decant sump respectively. DOE should discuss the grounds for not including all contaminants previously detected within the analytical suite.

Response: As discussed in response to General Comment No. 1, radiological analytical parameters for the Snapshot were selected to monitor for predominant site process radionuclides, which are uranium, thorium and radium. In addition, analysis for technetium was selected at all 1000-series well locations and at 2000- and 3000-series well locations where it had previously been detected. The following 2000- and 3000-series wells in the vicinity of the waste pits and K-65 silos were designated for technetium analysis: 2028, 2033, 3009, 3034, 2643 and 2648.

Review of analytical data from 2000- and 3000-series wells did not determine the presence of technetium beneath the perched groundwater in the vicinity of the Sewage Treatment Plant; therefore, technetium analysis was not selected for those wells. Monitoring Wells 2429 and 3429 being installed directly downgradient of the Sewage Treatment Plant are near completion and scheduled for RCRA compliance sampling. Analysis of these wells will include technetium for use in RI assessments.

Chemical analytical parameters were selected to monitor predominant organic and inorganic constituents. Volatile organics compounds and metals were the predominant analytes. Although scattered detections of semivolatiles, pesticides, PCBs and BNAs have occurred, their distribution does not justify site-wide monitoring defined for the Snapshot sampling program.

Action: A discussion clarifying the analyte selection will be added to Section 3.3.1.

471
Commenting Organization: Ohio EPA
Section #: 3.3.2
Original Specific Comment # 4

Pg. #: 9

Commentor:
Line #:

Code:

Comment: DOE should sample surface water locations for Tc-99. Previous sampling has detected Tc-99 in multiple surface water locations. DOE should discuss the basis for not including all contaminants previously detected within the analytical suite.

Response: As discussed in the Response to General Comment No. 1, a review of the results from five years of environmental monitoring determined uranium, radium and thorium to be the predominant radiological contaminants at the FEMP. Review of RI surface water data shows that technetium was detected once, at 50 pCi/L, in 85 samples collected from 16 locations on Paddys Run and the Great Miami River (GMR). In addition, a review of 14 samples from the Zone of Influence Study showed technetium to be detected at values ranging from 31.4 to 57.2 pCi/L in 14 samples collected within 3/4 mile downstream of the effluent discharge to the GMR. Two six-month composite samples collected in 1992 from a location upstream of the effluent discharge, showed technetium present at 21.7 and 33.4 pCi/L. The calculated PRG, as presented in the Site-Wide Characterization Report (DOE 1993), for technetium is 3,750 pCi/L, based on an MCL dose of 4mRem per year.

Concentrations of technetium varied throughout the above-mentioned range and showed no discernible trends with respect to proximity to the effluent discharge. The 14 technetium detections did not appear to be significantly above the background levels shown in the 1992 monitoring. Therefore, the concentrations of technetium in surface water samples does not present a strong basis for an effort to analyze for it.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 3.3.3
Original Specific Comment # 5

Pg. #: 9

Commentor:
Line #:

Code:

Comment: DOE should describe the reasoning for not analyzing sediment samples for Pesticides and PCBs.

Response: The selected radiological, inorganic and volatile and semivolatile organic analytical parameters were focused on analyzing for constituents that are attributable to site sources.

Although there have been occurrences of pesticides and PCBs on the site, there are no data to indicate that the FEMP ever generated or used these materials in quantities that would affect the streams or sediments in the area. The FEMP is surrounded by agricultural land where pesticides may be used regularly. Analysis for pesticides would be inconclusive to characterize the extent of pesticide contamination attributable to the FEMP.

PCB-containing wastes are stored, along with solvents, in maintained drums. A substation of functioning electrical transformers and capacitors is located on site; and PCBs have been detected at low concentrations in surface soils at a few scattered

locations. Given the containment integrity and on-going maintenance of the storage and substation areas, the potential for release of PCBs from these sources to Paddys Run is not considered significant enough to warrant analysis. While PCBs were detected in surface soils, analysis for PCBs in surface water and sediments is not warranted because of: the relatively low concentrations detected in soil samples; the distances from these areas to Paddys Run and the Great Miami River; and the runoff control measures in place at the FEMP. Analyses of surface water and sediments at locations immediately downstream of the FEMP Storm Sewer Outfall Ditch did not detect PCBs.

Action: A discussion of the reasoning for not analyzing sediments samples for pesticides and PCBs will be added to the PSP.

Commenting Organization: Ohio EPA
Section #: Table 7-1
Original Specific Comment # 6

Pg. #: 18

Commentor:
Line #:
Code:

Comment: Appendix K of the SCQ should be added as a reference document for decontamination for both groundwater and surface water sampling. Section 6.8 of SCQ simply refers the reader to Appendix K for details on decontamination.

Response: DOE agrees. The text will be modified to include the references to Appendix K.

Action: Add reference to Appendix K, Subsection K.11, as appropriate to Table 7-1.

Commenting Organization: Ohio EPA
Section #: Table 7-3
Original Specific Comment # 7

Pg. #: 17

Commentor:
Line #:
Code:

Comment: A subsection providing the "proposed disposition methodology" for unused soil cores is not included as suggested by the last sentence on the page.

Response: Since soil cores are not a part of this plan, they should not have been mentioned.

Action: The text will be corrected to remove reference to soil cores.

Commenting Organization: Ohio EPA
Section #: 7.3.1
Original Specific Comment # 8

Pg. #: 18

Commentor:
Line #:
Code:

Comment: The fact that DOE has not predetermined which wells generate potential RCRA waste purge water is disconcerting. If DOE has conducted a sufficient review of historical data for selecting wells for sampling, such a review should also define which wells will likely generate RCRA waste. DOE must make this determination prior to sampling wells.

Response: A reason for including HSL inorganics and volatile organics in the target analyte list for this PSP is to develop a data base of analyses to determine if any of these constituents may be present over a very broad area. This is to perform a baseline risk assessment.

Under the ongoing RCRA sampling, which was included in the Snapshot PSP, 47 wells have been formally evaluated to determine if RCRA wastes would be generated during the sampling process. Of these wells, only two are identified to potentially generate RCRA wastes. These are Wells 1031 and 2649 which are located near the Clearwell, a specific waste source; purged water from these wells is handled as RCRA waste. It is unlikely that wells outside the RCRA-monitored area will contain RCRA constituents. Purge water from all wells other than 1031 and 2649 is disposed of in the general sump for treatment by the on-site waste water treatment system. This procedure is consistent with previous RI/FS groundwater sampling programs. Since 1988, this procedure has been approved by the U.S.EPA for groundwater sampling.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 7.3.2
Original Specific Comment # 9
Pg. #: 18
Line #:
Code:

Comment: Appendix K of the SCQ does not specifically address contact waste. DOE should provide a more detailed discussion of contact waste handling and disposition or provide a more specific reference to the SCQ.

Response: DOE agrees that there is not a section in the SCQ directly pertaining to investigation derived wastes, although some sampling procedures in Appendix K do mention waste handling. The reference was made in error. Investigation-derived wastes are disposed of in accordance with DOE procedures and federal regulations. Contact waste, such as PPE, wipes, rags, etc., will be handled in either of two ways. If work is performed in a radiological control area, contact wastes will be placed in a bag labelled "contaminated waste" and secured for future off-site disposal as contaminated waste. If work is performed outside the radiological control areas, contact wastes will be placed in a bag labelled "clean" and disposed of as clean trash.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: Table A-1
Original Specific Comment # 10
Pg. #: A-2
Line #:
Code:

Comment: The table should be footnoted to describe which removal actions and OU 5 work plan addendum are being used for the Snapshot sampling.

Response: DOE agrees.

Action: The suggested footnotes will be added to the table.

Commenting Organization: Ohio EPA
Section #: Table A-1
Original Specific Comment # 11

Pg. #: A-7
Line #:
Code:

Commentor:

Comment: DOE should sample monitoring Wells 1442 and 1448. Significant perched groundwater contamination exists in the area of the STP justifying sampling of these wells.

Response: DOE agrees. The wells will be sampled.

Action: Add Wells 1442 and 1448 to Table 3-1 and Table A-1.

Commenting Organization: Ohio EPA
Section #: Table A-1
Original Specific Comment # 12

Pg. #: A-10
Line #:
Code:

Commentor:

Comment: DOE should sample monitoring Well 2094. The well's placement is within the South Plume and within the Paddys Run Road site plume.

Response: DOE agrees. The well will be sampled.

Action: Add Well 2094 to Table 3-2 and Table A-2.