

**RESPONSES TO OEPA COMMENTS ON SPRA -
PART 5**

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**OEPA/DOE-FSO
8
COMMENT
OU5**

Responses to OEPA Comments on SPRA-Part 5

2054

GENERAL

Commenting Organization:OHIO EPA Commentor:
Pg. # General Section # Paragraph # Sent./Line #
Original Comment #1

Comment: An additional goal, which should be incorporated into this study, is the analysis of groundwater for isotopic uranium in the vicinity of the Albright & Wilson facility. This will help delineate the source of uranium contamination in the area.

Response: The use of isotopic analyses will not help delineate the source of uranium. This topic has been the subject of many discussions and there is no way to determine the source of the uranium based on isotopes since the FMPC received depleted, normal, and slightly enriched materials.

Action: None

SPECIFIC

Investigation Goals

Commenting Organization:OHIO EPA Commentor:
Pg. #5 Section #Investigation Goals Paragraph #last Sent/Line#
Original Comment #1

Comment: Recent U.S. EPA publications suggest the MCL for uranium will be 20 ug/L. DOE should consider incorporating the proposed MCL into this investigation and change the goal to defining the southern extent of the ≥ 20 ug/L uranium plume. Redefining this goal could reduce future efforts/requirements to define the boundary of the 20 ug/L plume.

Response: The plan will be revised to indicate that the goal of the Part 5 sampling is to locate the 20 $\mu\text{g/L}$ isopleth.

Action: Revise the text to show the target boundary is 20 $\mu\text{g/L}$ total uranium.

Commenting Organization:OHIO EPA Commentor:
Pg. #5 Section #Investigation Goals Paragraph #last Sent/Line#
Original Comment #2

Comment: DOE needs to consider the rate of groundwater flow and the proposed date for the operation of the extraction system when attempting to define the 30 ug/L uranium plume.

Response: The flow rate and location of the 20 µg/L boundary will be considered when designing the extraction wells. Since the extraction wells for the removal action have been moved to a location well north of the leading edge of the plume, only the lateral boundary of the 20 µg/L plume is required at this time.

The southern boundary will be considered in the final Feasibility Study for Operable Unit 5. The definition of the southern boundary will be based on all data available at the time the Operable Unit 5 RI report is written and groundwater modeling efforts which utilize this data. This will include data collected under the FMPC RI/FS, WMCO quarterly sampling, PRRS RI/FS sampling, and the data from this investigation.

Action: None

Commenting Organization: OHIO EPA
Pg. #5 **Section #**Investigation Goals
Original Comment #3

Commentor:
Paragraph #last

Start/End #

Comment: A goal of the study is to facilitate final design of the recovery well system and the associated monitoring program. Based on prior discussions, there is concern that there may be great difficulty changing recovery well locations if the well system does not perform as expected. Given that the well recovery system design will be based on simulation analysis without conducting a substantial pumping test, what flexibility will be built into the program if alternative well locations are needed? The start-up of the system should be designed as a highly monitored aquifer test.

Response: The well field as designed provides for flexibility in the rate of groundwater extraction. The flexibility will be accomplished by installing wells which have the ability to be throttled below or increased above the normal design extraction flow rate to allow for adjustment to the site specific field conditions. Oversized well casings and well field collection main will be provided so that additional increased flexibility is available. In addition, the transfer pump station, to which the well field discharges, will be provided with variable speed pumps to accommodate the well field flexibility.

The start-up of the system will be designed as a highly monitored aquifer test. This data will be very useful in designing the wells for the final remediation of groundwater contamination at the site.

Action: None

Commenting Organization:OHIO EPA
Pg. #6 Section #Figure 2
Original Comment #4

Commentor:
Paragraph #

Sent./Line #

Comment: DOE should be aware that an additional monitoring well has been installed by the Paddys Run Road Site (PRRS) companies at an intermediate depth in the vicinity of monitoring well 2701. This additional well should be added to those sampled under this investigation.

Response: The well will be added to the list of wells in Table 3 to be sampled.

Action: Modify the text to add this well to the list of those to be sampled.

Commenting Organization:OHIO EPA
Pg. #7 Section #Investigation
Original Comment #5

Commentor:
Paragraph #

Sent./Line #

Comment: The section fails to discuss the modeling of the impact of the FMPC extraction wells on the two PRRS plumes. This must be a goal of the investigation in order to assure that minimal impact occurs on these two plumes.

Response: The text will be modified to include the requested discussion.

Action: Modify the text.

Commenting Organization:OHIO EPA
Pg. #7 Section #Investigation
Original Comment #6

Commentor:
Paragraph #

Sent./Line #

Comment: Site specific hydrogeologic parameters (i.e., hydraulic conductivity and transmissivity) should be determined from slug tests or pump tests in the area of the proposed removal action to refine input parameters and calibrate the groundwater model.

Response: This topic has been the subject of several telephone calls and lengthy discussion in the meeting in Chicago on May 22, 1991. The agency is requesting a very difficult testing program without providing any justification for the testing. We agree that it is always better to use as much site-specific field data for calibrating a computer model as possible. We can not, however, agree that there are any tangible benefits to conducting a pump test of this aquifer at this location. The hydraulic conductivity of the aquifer is too high to allow a meaningful slug test. A pumping test would require pumping rates in the several hundreds of gallons of contaminated water per minute for eight to 24 hours for each step in a multiple-step drawdown test. The storage, transportation, and treatment of the water would be a severe logistical problem which the small incremental benefit anticipated from such a test would not outweigh. The agencies must clearly state what sensitive parameter would be significant refined to warrant this effort.

The hydraulic properties of this aquifer have been studied in a number of locations prior to the FMPC RI/FS and the agencies and their consultants are well aware of these studies. The Swift III model has been calibrated against field measurements of water table conditions and provides an acceptable representation of the aquifer conditions. The Ohio EPA has monitored the development and operation of the SWIFT III model using GEOTRANS consultants who developed the model. As the agencies are aware, there is a pump test currently underway for the aquifer to the west of the FMPC where there is no contamination. This pump test is to determine well size and construction details for the alternate water supply for companies in the south plume area. The data from this test will be incorporated into the model.

There is a significant amount of over capacity being designed into the wells and pumping system because no matter how good the modeling effort, there will have to be some adjustment for actual conditions. The well field as designed provides for flexibility in the rate of groundwater extraction. The flexibility will be accomplished by installing wells which have the ability to be throttled below or increased above the normal design extraction flow rate to allow for adjustment to the site specific field conditions. Oversized well casings and well field collection main will be provided so that additional increased flexibility is available. In addition, the transfer pump station, to which the well field discharges, will be provided with variable speed pumps to accommodate the well field flexibility.

Action: None

Commenting Organization:OHIO EPA	Commentor:	
Pg. #7	Section #Investigation	Paragraph #
Original Comment #7		Sent./Line #

Comment: An additional bullet which should be added to the "Conclusions of the investigation..." is the definition of the southern extent of the ≥ 30 or ≥ 20 ug/L uranium plume. The approved EE/CA was based upon capturing the >30 ug/L. DOE must consider the definition of at least the 30 ug/L plume, imperative under this investigation. This investigation must yield enough information to evaluate alternatives for capturing portions of this plume, which are already beyond the proposed locations of the extraction wells.

Response: The data gathered and the modeling will be used to delineate the 20 $\mu\text{g/L}$ -boundary of the plume. Since the location of the removal action wells has been moved north of the Albright and Wilson facility, the final remedial action for this area will be determined by the Feasibility Study for Operable Unit 5 based on ARARS.

Action: Modify the text to show the target boundary is 20 $\mu\text{g/L}$ total uranium.

Field Investigation

Commenting Organization:OHIO EPA Commentor:
Pg. #7 Section # Paragraph # Sent./Line #
Original Comment #8

Comment: Upon completion of the field investigation work, geologic cross-sections should be prepared to accurately display the geology and hydrogeology of the removal area.

Response: Cross sections will be prepared as part of the report for this investigation.

Action: None

Conventional Groundwater Sampling

Commenting Organization:OHIO EPA Commentor:
Pg. # 9 Section # Paragraph #2 Sent./Line #
Original Comment #9

Comment: DOE should detail how HNu screening will be conducted (over well pipe, etc.) VOC samples should be collected from wells at which above background HNu readings are sustained for ≥ 10 seconds.

Response: The HNu will be used as described in the QAPP for the RI/FS. For water samples obtained by the Hydropunch, the HNu will be used to sample the vapors from the sample bottle as the water is transferred from the Hydropunch.

Action: Add HNu procedure for Hydropunch samples to the text.

Commenting Organization:OHIO EPA Commentor:
Pg. #9 Section # Paragraph # Sent./Line #
Original Comment #10

Comment: In addition to HSL metals and VOCs, other groundwater indicator parameters should be analyzed from selected wells to characterize the groundwater quality to ensure that a direct discharge of untreated water would be acceptable. Additional parameters to be analyzed should include Iron, TDS, TSS, Total Phosphorous, etc.

Response: The analyses will be added to the wells to be sampled by WMCO.

Action: Modify the text to add the analyses.

Hydropunch II Groundwater Sampling

Commenting Organization:OHIO EPA Commentor:
 Pg. # 9 Section # Paragraph # Sent./Line #
 Original Comment #11

Comment: Continuous split spoon samples should be collected from all hydropunch locations to determine the specific geology of each boring and to verify the formation from which samples were obtained. Also, a detailed description along with the specifications for the Hydropunch II sampler should be submitted to the Ohio EPA for review prior to approval of its use in this investigation. The depth of hydropunch sampling should extend to at least 40 feet below the water table to verify the depth of contamination does not exceed the screen length of the recovery wells.

Response: The geology of the area of investigation consists of alluvial deposits overlying the Great Miami Aquifer. Boring logs from the FMPC and PRRS investigations clearly indicate that the groundwater occurs in the aquifer below the alluvium. The issue is to determine lateral migration within the aquifer.

There is no material gain from the requested split-spoon sampling. The investigation will not be in any source area, so vertical migration above the water table is not an issue and the geology of the alluvium above the aquifer is not relevant to lateral migration within the aquifer.

A copy of the Hydropunch descriptive literature is enclosed which includes specifications for the equipment.

The screen length of the recovery wells will be based on the sampling, not the original EE/CA. The plan calls for multiple sample depths of 7, 20, and 30 feet below the water table at several locations. Sampling at a depth of 40 feet below the water table is approximately the same as sampling the 3000-series wells in the area. The purpose of the multiple sampling depths is to determine the nature of the plume in the interval between the 2000 and 3000-series well depths. Therefore, Hydropunch sampling at a depth of 40 feet below the water table is not warranted.

Action: None

Commenting Organization:OHIO EPA Commentor:
 Pg. # 9 Section # Paragraph #last Sent./Line #
 Original Comment #12

Comment: Will any QA/QC duplicate samples be sent to the IT Lab for confirmatory analysis from the Hydropunch sampling? DOE should scrutinize volume requirements for total U at both WMCO and IT labs in an attempt to collect 10% duplicates for confirmation.

Response: The ten percent duplicates can only be achieved by splitting the sample in between two 500-ml bottles and sending one to the IT Laboratory. Both laboratories request a one liter sample for total uranium analyses; however, the actual amount of water required for the analysis is considerably smaller. The requested amount is to assure that there will be a sufficient sample for QA purposes and repeat analysis if there should be a malfunction in the analytical equipment during the initial analysis.

The text will be changed to show a one-in-ten sample going to the IT Laboratory for QA on the Hydropunch sampling.

Action: Modify the text to add the one-in-ten procedure.

Commenting Organization:OHIO EPA	Commentor:
Pg. # 10 Section #	Paragraph #3 Sent./Line #
Original Comment #13	

Comment: VOC samples should be collected at locations where above background HNu readings are sustained for ≥ 10 seconds.

Response: This is what the plan calls for.

Action: None

Soil Vapor Sampling

Commenting Organization:OHIO EPA	Commentor:
Pg. #11 Section #	Paragraph #1 Sent./Line #
Original Comment #14	

Comment: The depth of the soil vapor sampling should be dependent upon the thickness of lower permeable soils above the sand and gravel deposits. For example, the major soil type in the proposed soil vapor survey area is comprised of Martinsville silt loam and as described in the Hamilton County Soil Survey 1982, typically consists of a surface layer of dark silt loam about 9 inches thick above a subsoil about 35 inches thick. The upper and middle parts of the subsoil consist of silty clay loam and sandy loam. In some areas, the substratum has silty clay loam or silty clay lacustrine deposits which can greatly restrict the gas permeability of the sediments necessary for soil vapor sampling. In this area, a depth of 60 inches or more should be used. Also, the probe will need to be sealed to prevent drawing in atmospheric air into the sample.

Response: The depth of the sampling point will be increased to five feet. Boring logs for existing wells indicate that there is less than three feet of silts or clays overlying the aquifer in the area where the soil vapor survey will be conducted.

The detailed sampling procedure is being prepared for inclusion in the QAPP.

Action: Prepare addendum to the QAPP.

Commenting Organization:OHIO EPA	Commentor:	
Pg. # 11	Section #	Paragraph #last
Original Comment #15		Sent./Line #

Comment: Total uranium samples should also be collected from these Hydropunch locations. Total uranium data from these locations will allow for determining uranium concentrations at the boundary of the VOC plume. Total conductivity should also be measured at these locations with collection of TCL metal samples when warranted.

Response: These samples will be analyzed for total uranium and, if the specific conductance is greater than 750 μ mohs/cm, a sample will be collected for HSL metals.

Action: Modify the text.

Groundwater Modeling

Commenting Organization:OHIO EPA	Commentor:	
Pg. # 12	Section #	Paragraph #
Original Comment #16		Sent./Line #

Comment: Additional bullets should be added to include; 1) modeling of the affect on PRRS plumes from placing the removal action wells north of the A&W Plant 2) modeling of the 30 and 20 ug/l isopleths using the most current data available.

Response: The text will be modified as requested.

Action: Modify the text.