



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
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June 15, 2000

Environmental Engineering
DERP Section

Mr. Ronald E. Nabors
State of Ohio Environmental Protection Agency
Northwest District Office
347 North Dunbridge Road
Bowling Green, Ohio 43402

RE: NASA Plum Brook Ordnance Works, Erie County, Ohio ID# 322-0552,
Pentolite Area Waste Lagoons

Dear Mr. Nabors,

The U.S. Army Corps of Engineers, Louisville District, Environmental Engineering Branch, has reviewed your Comments on the draft, "Limited Site Investigation, Quality Assurance Project Plan (QAPP)" and draft "Final Report" for the Pentolite Area Waste Lagoons at the former Plum Brook Ordnance Works, Sandusky, Ohio. Our responses to each of the comments are provided below:

Limited Site Investigation, Quality Assurance Project Plan

1. General Comment: The Ohio EPA, DERR, would prefer to receive the Quality Assurance Project Plan under separate cover and have it referenced in all site investigation Work Plan submittals.

Response: We apologize for not obtaining an OEPA, DERR preferred format to develop the Quality Assurance Project Plan (QAPP). We have prepared QAPP documents for projects in Illinois, Michigan and Ohio. The QAPP and associated FSP and DQO attachments were assembled for the Former Plum Brook Ordnance Works using the EPA Region 5 model QAPP, the format we typically use. We apologize for this inconvenience. If our office executes future phases of work for this Formerly Used Defense Site, we will incorporate the OEPA, DERR preferred format in preparing documents.

2. General Comment: The flow of the document is very confusing as it jumps back and forth between the entire Plum Brook Ordnance Works (PBOW) history of the Pentolite Area Waste Lagoons (PAWL). Please create a Plum Brook Ordnance

Works general history section and focus the remainder of the document on the Pentolite Area Waste Lagoons site investigation.

Response: The document will be edited accordingly.

3. Section 1.2.1 General, Page 1: Please indicate the approximate distance from the Pentolite Area Waste Lagoons to the nearest residence.

Response: The approximate distance between the nearest residence and the Pentolite Area Waste Lagoons is $\frac{3}{4}$ of a mile. This information will be added to section 1.2.1 of the document.

4. Section 1.2.3 PAWL, Site Specific, page 2: Please note what landmarks border the PAWL, not the entire PBOW facility.

Response: The former PAWL area is bordered to the north by the PBRF, to the south by Pentolite Road and by access roads to the east and west. This information will be added to Section 1.2.4.

5. Section 1.2.3 PAWL, Site Specific, Page 2: Please change the name of this section to "Site Specific Operational History."

Response: The report will be edited accordingly.

6. Section 1.2.3 PAWL, Site Specific, Page 3: Add a figure that shows the construction design of the waste lagoons discussed in the second paragraph.

Response: Figures will be added to the Figures section, and will be referenced in former section 1.2.3 now Section 1.3.2

7. Section 1.6.3 Rationale of Selected Sampling Locations, page 9: This section states that the rationale used to select sampling depths will be discussed in the Field sampling Plan and the Data Quality Objective sections. The rationale for sample locations is not clearly defined in either of these sections. Please give justification for each of the sampling locations and depths chosen.

Response: The rationale for the sampling locations and depth as presented in the QAPP, DQOs and FSP was to sample the subsurface material with the highest potential for contamination. That is, the soils within and below the former lagoon locations. This is stated in section 4.0 of the FSP, Section 3.7 of the DQOs and 1.4 of the QAPP. Specific features of the lagoons, such as inlet and outlet locations and vitreous sewer pipes, were not targeted for this limited SI. Specific features of the lagoons can perhaps be targeted for the future sampling events.

Final Report

1. Section 2.3, Hydrology, Page 2 and Section 5.1 Hydrology, Page 12: This section indicates that the surface water in the Pentolite Area Waste Lagoons flows northeast or northwest. This statement is incorrect. When the Plum Brook Reactor was constructed the entire reactor site, to include the PAWL, was engineered to capture surface water so that it could be tested. Please revise this section.

Response: The sections will be edited to reflect this information. Additional information has been obtained from NASA personnel.

2. Section 3.1 Sampling Activities, Page 8: This section does not provide discussion as to why sample locations were selected.

Response: The 1st paragraph of the section will be edited to read: "Based on historical data, the most likely location to encounter contaminated media associated with the operation of the PAWL is within and below the former lagoon features. Using historical aerial photographs and geo-referencing the former lagoon locations were identified for soil borings and sample collection. Five soil borings were advanced within the footprint of the former lagoons using direct push sampling methods. Boring DP02 was advanced in the vicinity of the former east inlet location. Boring DP03 was advanced at the parameter of the former lagoons, that is the wastewater ditch. The remainder of the borings were located to incorporate the entire footprint of the lagoons attempting to capture a significant release. The boring locations are illustrated on the Sample Location Plan (Figure 4). In addition, the boring locations are shown on a 1950 aerial photograph and 1997 aerial photograph (Figures 6 and 7, respectively)."

3. Section 3.1 Sampling Activities, Page 8: The table located on page 10 utilizes the soil type descriptions discussed in section 3.1. However, the soil type of "SM" is not discussed. Please include this classification in this section.

Response: The "SM" classification is silty sands, sand silt mixtures. It will be included in the section 3.1.

4. Section 3.1 Sampling Activities, Pages 8 & 9: Please provide a discussion as to why the crushed limestone layer was not sampled as part of this investigation. It is stated in the text that it is believed that this material remains from the former PAWL.

Response: The crushed limestone was assumed to be remnant sub-base material for the concrete slabs that made up the bottom of the former lagoons. It was assumed that contaminants, if released, would most likely be encountered in the fine-grained soils above and/or below the crushed limestone layer.

5. Section 3.1 Sampling Activities, Pages 8 & 9: Figure 5 provides plans and sections for the pentolite wastewater settling basins. Please explain why samples were not collected from the east and west inlet locations, as referenced on page 5? Please explain if any attempt was made to locate the inlet, outlet or vitreous sewer pipes. Were any samples collected in the general locations of these lines?

Response: Boring DP02 was advanced in the vicinity of the former east inlet location. Boring DP03 was advanced close to the perimeter of the former lagoons near the wastewater ditch. The remainder of the borings were located to incorporate the entire footprint of the lagoons. No attempt beyond the borings was made to locate remnants of the inlet, outlet or vitreous sewer pipes. This investigation was limited in nature and attempted to focus on the most likely locations to be contaminated. The author agrees additional samples will help further evaluate the potential for contamination and proposes to obtain input from OEPA and NASA personnel prior to future sampling activities.

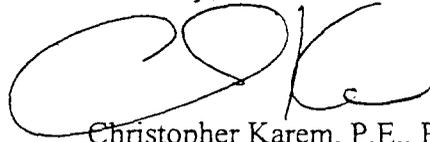
6. Section 3.1 Sampling Activities, Pages 8 & 9: Please clarify if any samples were collected below the crushed limestone materials in the first clay layer. The table on page 10 indicates that only three (3) samples were collected at or below the depth of four (4) feet. If this area was excavated during construction of the NASA Nuclear Reactor, the majority of the PAWL samples collected, during this site investigation, were from fill material. This would not adequately characterize the PAWL.

Response: Based on evaluation of the geology encountered in the borings, the following chemical samples likely represent the native materials below the former PAWL: samples from Boring DP02, the 2–4 feet sample from Boring DP03 and the 4-6 feet sample from Boring DP05. The remainders of the chemical samples likely represent the fill materials associated with decommissioning of the former PAWL. This text will be added to section 3.4 of the document.

The author agrees additional characterization is needed. The verbiage at the end of the report is not intended to request a NFA based on the existing data. However, the data obtained in this limited SI does indicate the PAWL were appropriately decommissioned. Therefore, we believe the approach to additional sampling should be to verify, with a more extensive sampling grid, that a NFA is appropriate. If the SI had indicated contamination, the approach to the future sampling would be to delineate the extent of contamination. To clarify the last paragraph of the report, the following verbiage will replace the last paragraph of the report text. "Based on the results of this SI, it appears that the operation and decommissioning of the PAWL has not negatively impacted the environment. However, additional investigation is warranted to verify these findings. Therefore, a Remedial Investigation (RI) is recommended. The scope of the remedial investigation should be developed in to cooperation with OEPA and NASA personnel to help ensure successful closure of the site."

The U.S. Army Corps of Engineers is submitting these corrections and clarifications for the approval of the Ohio EPA, DERR. It is requested that your office reply within thirty days of the date of this letter. If you have any questions or concerns regarding the responses please contact me at (502) 625-7248.

Sincerely,

A handwritten signature in black ink, appearing to read 'CK', with a large, stylized initial 'C' on the left and a 'K' on the right.

Christopher Kareem, P.E., P.G.
Environmental Engineer

CF:
Richard Meadows, Huntington District