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VIA OVERNIGHT MAIL

Mr. Richard S. Clement, Sc. D., Health Physicist
Low-Level Waste and Decommissioning Projects Branch
Division of Waste Management
Office of Nuclear Materials and Safeguards
United States Nuclear Regulatory Commission
Two White Flint North
11545 Rockville Road
North Bethesda, MD 20852

June 28, 1999

Re: License No. SUB-908
Docket No. 040-07604

Subject: Revised "Final Survey and Sampling Summary for Remediation of the Northeast Section of SWMU-102" dated June 24, 1999

Dear Mr. Clement:

In response to NRC comments dated June 15, 1999, BP Chemicals, Inc. (BPCI) herewith submits for NRC review a revision to our release report entitled "Final Survey and Sampling Summary for Remediation of the Northeast Section of SWMU-102". The revision is dated June 24, 1999 and addresses the following NRC comments:

NRC General Comments

1. **All criteria given in Draft NUREG/CR-5849 (1992) were not fully satisfied to demonstrate compliance with NRC guidelines. For example, Grids/Samples IDs: A4-1/ID A4-1-6'-8' (90.8 pCi/g tot U); G2-3/ID G2-3-0'-2' (41.2 pCi/g tot U); and G2-5/ID G2-5-2'-4' (36.3 pCi/g tot U), in Table 2, were not further evaluated to show that the elevated area did not exceed the guideline value by a factor greater than $(100\ A^{-1})^{0.5}$. Final sampling and surveys only considered the three times the guideline level criteria and the exposure rate at one meter above background criteria. NRC requests an explanation on how these elevated areas meet the $(100\ A^{-1})^{0.5}$ criteria.**

   RESPONSE: All criteria for the areas requested to be released for unrestricted use have been satisfied. The areas containing uranium concentrations above 35 pCi/g total uranium sited by the NRC (Grids/Samples IDs: A4-1/ID A4-1-6'-8' (90.8 pCi/g tot U); G2-3/ID G2-3-0'-2' (41.2 pCi/g tot U); and G2-5/ID G2-5-2'-4' (36.3 pCi/g tot U) are not located within the area for which release is currently being sought. Therefore, the report does not attempt to demonstrate compliance with Draft NUREG/CR-5849 for grids A4 and G2. As stated in Section 5.0 of the release report, "Remaining areas of SWMU-102 will be remediated as part of future site wide remediation activities."

   For the locations with elevated activities within the release area, a determination as to whether or not these areas (i.e., all or portions of grids D3, D4, E3, E4, G3 and G4) meet the $(100/A)^{1/2}$ criteria was not performed at this time because all identified contaminated soil containing total uranium activity of 35 pCi/g or greater was

excavated from these areas. This is demonstrated by the final sample results provided in Table 3 of the report. However, Section 3 of the report has been expanded in the attached revision to include our pre-excavation assessment of the contamination. Our assessment evaluated all laboratory results exceeding 35 pCi/g on the basis of the following NUREG/CR-5849 criteria:

1. Maximum Concentration is less than 3 times the limit (i.e., less than 105 pCi/g total uranium);

2. Average of samples greater than 35 pCi/g in any grid is less than $(100/A)^{1/2}$ times the limit;

3. Average activity is less than 35 pCi/g;

4. Weighted average activity is less than 35 pCi/g.

2. **Sensitivity of all field and laboratory instrumentation used for measurements and analysis were not included in the FSR. In addition, soil concentrations, in Tables 2 and 3 were reported without the associated measurement uncertainties. NRC requests that this information be provided.**

RESPONSE: Table 1A listing the sensitivity of the various field instruments and laboratory instruments referenced in the release report has been added to the report. A reference to this new table has been inserted in Section 2.1 of the report text. Measurement uncertainties have been added to Tables 2 and 3.

3. **A summary of controls used to minimize recontamination of the section following release for unrestricted use is requested.**

RESPONSE: An 8-foot tall chain link fence topped with barbed wire will be installed to separate the released northeast portion of SWMU 102 from the remainder of the SWMU. The new fence will have no access gates between the clean area and the contaminated area. The fence will be posted with radiation warning signs in accordance with the BPCI Radiological Control Plan (BPCI, Rev 3, April 1997). This information has been added to Section 3.2 of the attached revision to the release report.

The following text has also been added to Section 3.2: "In addition to establishing a fence around the clean area, administrative controls, such as Radiation Work Permits and periodic site radiation control surveys, will be performed in accordance with the BPCI Radiological Control Plan (BPCI, Rev 3, April 1997)."

4. **Results from 10% of soil samples shipped from Sevenson Environmental Services, Inc. to Barringer Laboratories (BL) for QC analysis were received on June 4, 1999 as supplemental information to the April 13, 1999 report. NRC requests that the QA results be incorporated into the FSR and BL's QAPP should be mentioned.**

RESPONSE: Section 2.3 of the report has been expanded to mention the testing of 10% of the samples by Barringer Laboratories, Inc. These results are reported in Exhibit A.

Specific Comments

1. **List of Tables: Add page numbers to the tables listed on page ii as appropriate.**

   RESPONSE: Page numbers have been added to the tables and to their listing in the Table of Contents.

2. **Section 1.0, page 1, revise the introduction to include a description of ownership and license history. Clearly define the section's boundary requested for unrestricted release.**

   RESPONSE: Additional text has been added to Section 1.0 of the release report to provide a description of ownership and license history. In addition, a definition of the property to be released is provided in terms of plant coordinates. Figure 3 has been revised to show the plant coordinates of the area to be released and the proposed new boundary fence.

3. **Section 1.2, page 2, reference the NRC and EPA approved work plans.**

   RESPONSE: The work plan followed for the sampling and remediation of the northeast section of SWMU 102 is described in BPCI's Application for On-Site Disposal of Contaminated Soil and Debris from SWMU 102 and AN-1, and Containerized Debris from Catalyst Plant Decommissioning, dated August 2, 1996. This plan was approved by Amendment No. 14 of NRC License No. SUB-908 in 1999. A reference to this document is added to the text of Section 2.1.

   There is no specific Ohio EPA approved workplan for SWMU 102 . Based on the results of the RCRA Facility Investigation conducted for US EPA in 1995-1996, Ohio EPA concluded that the predominant contaminant within the SWMU was depleted uranium and that the protection realized by excavating all radiological contamination and placing/compacting it in onsite closure cells was sufficient. Therefore, Ohio EPA did not require a separate workplan. A copy of an Ohio EPA letter clarifying that agency's position with regard to SWMU 102 is attached as Exhibit B. This letter is referenced in Section 1.2 of the report text.

   There are, however, workplans approved by Ohio EPA for sampling and remediation of contaminated soil and debris to be placed in the mixed waste pond closure disposal cells. Since Ohio EPA has authorized BPCI to place SWMU 102 soil and debris in the closure cells, BPCI considers these work plans to be applicable for work on SWMU 102 as appropriate. These various workplans are incorporated in the BPCI document entitled "Closure Plan - Mixed Waste Pond Closure Project" dated February 14, 1992, and subsequent modifications dated March 29, 1994, December 31, 1997 and April 20, 1998. NRC has been copied on all of these documents.

4. **Section 2.1, page 2, describe how all field and laboratory instruments are calibrated using NIST-traceable standards and performance checked to determine an instrument's acceptability for use between calibrations. The description should include the calibration frequency (i.e., semi-annual) and performance check frequency (i.e., before each use); minimum performance criteria (i.e., what response is bases for acceptance or rejection); and radiation sources, types and activities.**

RESPONSE: The text in Section 2.1 has been revised to provide a description of how all field and laboratory instruments are calibrated.

5. **Section 2.3, page 3, identify the instrument used to measure direct β-γ contamination. Reference the documents for the NRC approved site-specific isotopic ratio for DU and approved moisture correction factor.**

RESPONSE: The second sentence in Section 2.3 has been revised to provide a description of the instrument used to measure direct β-γ contamination.

The site specific isotopic ratio for DU (1.26) was approved by the NRC via letter from Sam Nalluswami of NRC to William Rupert of BPCI dated June 22, 1998. The subject letter is referenced in Section 2.3 of the report and is attached to the report as Exhibit C.

The moisture correction factor derivation has been utilized throughout the site-wide decommissioning project at BPCI. It is described in a letter from Rory Grube of Sevenson Environmental Services to William Rupert of BPCI dated April 21, 1998 which is attached to the report as Exhibit D. The NRC has not issued a separate approval to BPCI for this method. However, NRC has taken action to release Burn and Deepwell Ponds based on total uranium concentrations in soil calculated using a moisture content factor derived as described in the April 21, 1998 letter.

6. **Figure 1: A figure hatching key should be included in the site layout map to identify the indicated section requested for release.**

RESPONSE: Figure 1 has been revised to include a figure hatching key.

7. **Figure 2: Clearly define the boundary of the northeast section in the SWMU 102 location map. The symbols should be revised to more easily differentiate the indicated boring and surface sampling locations, and elevated areas.**

RESPONSE: A part of the problem with Figure 2 was that it included both surface samples and soil borings. To clarify the figure we have split it into two separate figures. Figure 2 now shows only the surface sampling locations while new Figure 2A sows the soil boring locations. The boundary of the northeast section of SWMU 102 has been added to both figures and the symbols have been revised to more easily differentiate between locations of elevated activity and locations with releasable levels of activity.

BPCI hopes that these responses adequately address NRC's concerns. We request that the subject portion of SWMU 102 be released for unrestricted use as soon as possible. If there are any questions, please give me a call at (419) 226-1299.

Sincerely,

William M. Rupert
Project Regulatory Specialist

cc: Ed Kulzer, USNRC Region 3
Ruth Vandegrift, Ohio Department of Health
Jim Ottarson, Ohio EPA, NWDO