ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

February 2, 1994

Mr. Sam Nalluswami
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville, MD 20852

SUBJECT: RADIOLOGICAL STATUS SURVEY OF THE V-1 POND SITE, BP CHEMICALS, INC., LIMA, OHIO [DOCKET NO. 040-7604]

Dear Mr. Nalluswami:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) has reviewed the subject document and offers the attached comments for your consideration. Please direct any questions you may have to me at (615) 576-3355, Tim Vitkus (615) 576-5073, or Michele Landis at (615) 576-2908.

Sincerely,

Armin J. Ansari, Ph.D.
Project Leader
Environmental Survey and
Site Assessment Program

AJA:ttc

Attachment

cc: J. Austin, NRC/NMSS, 6H3
~~T. Mo, NRC/NMSS, 4E4~~
D. Tiktinsky, NRC/NMSS, 6E6
J. Berger, ORISE
M. Landis, ORISE
T. Vitkus, ORISE
PMDA, 6E6
File/247

Central Files

IF02
1/1

General Comments:

The contents of the subject report are well organized and, in general, contain the necessary and relevant information addressing the radiological status of the facility relative to the NRC guidelines for release to unrestricted use. The analytical procedures and methods are adequate. A few items - clarification are listed below. Some additional information is recommended for inclusion in the report.

Specific Comments:

1. Ground Water - The contaminant of concern at this site is in the form of uranium oxide which is considered insoluble in water. Therefore, the likelihood of any appreciable amounts of dissolved uranium in the ground water or migration by any great distance is rather small. Nevertheless, it will be helpful to provide some information regarding ground water sampling/analysis in this report. Such information may have already been provided to OEPA or included in the site hydrogeology which was submitted, as part of the license amendment application, to the NRC in 1992. Please clarify.

2. Cross Calibration - A SPA-3 probe with an Eberline ASP-1 meter were used to make measurements and report exposure rates. Please describe the method used to cross-calibrate the survey meter with an exposure rate meter.

3. Gamma Spectroscopy - For clarity, please describe the detector, geometry, counting time, and energy peaks used for determination of U-238 concentrations.

4. Guidelines - Throughout the report, U-238 concentrations are compared to the guideline value of 35 pCi/g. It should be noted that the NRC guidelines for unrestricted release specify total uranium concentrations. This could have been a major concern. However, since the highest reported U-238 concentration is <10 pCi/g, there is no impact on conclusions reached from the data.

5. Background Exposure Rate - For this site, the licensee reports a background exposure rate of 2 µR/h. This appears to be an underestimation. Background exposure rates, measured at 1 meter above surface, typically range from 3 to 5 times higher than the value reported here. Previous ESSAP data indicate a background exposure rate in the range of 7-9 µR/h for this site.

   Furthermore, the background count rate of the SPA-3 probe is reported to be 1,800-1,900 cpm. Measurements of up to 7,300 cpm (i.e., 4 times background) are reported for the site of excavation. Again, the background count rate of SPA-3 probe (typically around 7-8,000 cpm) appears to have been underestimated.

   The underestimated background exposure rate results in the misleading conclusion that site exposure rates are 2-4 times higher than the background exposure rate.

6. Appendix D - In this appendix, the results of gamma exposure rates measured for the V-1 Pond Survey Unit 2 are detailed. Please indicate where the data for Survey Unit 1 can be found. These are the data corresponding to the measurement locations which are shown in Figure 4, Appendix A.

7. Minor Corrections:

i) Section 3.5.4, last paragraph. Depth of the undisturbed soil from boreholes should be 42" - 48".

ii) Section 3.8, first paragraph. "Dose rate" should be exposure rate.

iii) Section 4.2.4, next to the last paragraph. A paragraph describing the 26 samples taken from the intermediate depths appears to have been deleted.

iv) Appendix A. On several data sheets (e.g., survey numbers 596, 603, 608), the background for Ludlum Model 19 meter is listed as 2 mR/h.