UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

Te pp. 6-7
→ Clarissa

November 24, 1978

excerpt

Mrs. Leo Drey
(b)(6)

Dear Mrs. Drey:

This is in response to your letters dated October 13 and 18, 1978, requesting additional information about our inspection program for the Combustion Engineering uranium fuel fabrication plant at Hematite, Missouri.

Enclosed with this letter is a copy of our most recent confirmatory measurements inspection of September 20 and October 17, 1978. Included in that report are results of environmental and effluent samples which were collected in May of 1978. Additionally, we are enclosing a copy of the final Environmental Impact Appraisal as requested in your letter.

The NRC has accepted the invitation of the Missouri Clean Water Commission to participate in a public hearing regarding public concerns over Combustion Engineering's radioactive effluent discharges. The meeting is tentatively scheduled for 1:00 p.m. on November 30, 1978, in Hillsboro, Missouri.

We hope the enclosed information will be helpful in resolving your concerns about this facility.

Sincerely,

James G. Keppler
James G. Keppler
Director

Enclosures:
1. Responses to questions
2. Final Environmental Impact Appraisal
3. IE Inspection Rpt No. 70-36/78-07

cc w/encl 1:
W. Lamar Miller, Ph.D., USEPA Region VII
Richard F. Rankin, MCWC
J. G. Davis, Acting Director, IE
J. H. Sniezek, IE
J. B. Martin, NMSS

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during 1975 (the values in the EIA), and is well within the 25 mrem per year environmental dose limit for uranium fuel cycle facilities to be imposed by the USEPA (40 CFR 190) on December 1, 1979.

Question 4.b

b. *According to your letter of July 19, 1978, Combustion Engineering was discharging an average of 35 gallons per day of radioactive waste water into its two evaporation ponds at that time. A year earlier when the draft EIA was published (February 14, 1977), apparently 100 gallons were being discharged per day into the ponds. Is there a limit on the number of gallons CE is allowed to discharge per day or year to the ponds - - or may any number of gallons be discharged as long as the concentration level in each gallon (in microcuries per milliliter of gross alpha or gross beta) is kept within the limits you mention? Would an increase in the number of gallons per day not cause an increase in the buildup of radioactivity accumulating in the pond? If there is a limit to the number of gallons allowed for the present plant, will this limit be increased when the plant's capacity is doubled as planned?*

Answer 4.b

There is no limit to the number of gallons that may be discharged to the evaporation ponds. An increase in gallons would result in an increase in radioactivity in the ponds, assuming concentrations remained unchanged.

Question 4.c

c. *According to the formula on page 3-13 of the EIA, it seems that the concentration limits of gross beta and gross alpha must each be reduced if both beta and alpha emitters are present in the wastes. The method mentioned is to keep the waste "quarantined in 55-gallon drums until the contained radionuclides decay to acceptable levels," before discharging the wastes to the ponds. With the half-lives of uranium and thorium lasting for millenia, I cannot imagine how many drums would be needed to store the radwaste until sufficient decay has taken place. Do you know how many drums are at the Hematite site now, and how many more are planned for the expanded facility? Is there a limit?*

Answer

The situation that you are referring to in your question has been resolved. An elevated gross beta activity in waste solution from UF_6 cylinder heel washing was discovered in early 1976. At that time, the licensee believed the source of the activity to be coming from Th-234 (first daughter of U-238). It was expected that this activity (half-life of 24 days) present in the wash solution would decay to acceptable levels in less than one year. Therefore, the licensee planned to store approximately 5000 gallons of this waste solution in 55 gallon drums. The first 600 gallons were stored for six months and the expected decay did not take place. The

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licensee then sent samples to a consultant laboratory for analysis. The results indicated that the elevated gross beta activity was due to Tc-99 (half life of 2.1×10^5 years).

The licensee pursued this matter with NRC's Office of Nuclear Material Safety and Safeguards to clarify authorization to possess and process this waste. NRC granted permission to dispose of this waste. The waste was filtered through an ion exchange column and disposed of via the site evaporation ponds. All discharges were within the limits of 10 CFR 20, Appendix B, Table II. No credit was taken for adsorption on the soil beneath the ponds or for dilution in the ground water.

Question 4.d

d. *Would you please tell me what levels of beta and alpha the NRC inspectors have found when they have tested the liquid radwaste discharge prior to its release into the ponds? When were these tests last performed?*

Answer

We did not collect a sample of radwaste discharge to the evaporation ponds. Samples were collected from the laundry waste tank and the site pond for comparison with the licensee's results. These comparisons are presented in Table II of the attached inspection report.

Samples were taken from these sources because they represent the majority of radwaste liquid discharge directly to the environment. Comparative samples of radwaste discharges to the evaporation ponds will be collected during a future inspection.

Question 4.e

e. *Is fresh water used to dilute the liquid radwaste prior to its being measured for discharge to the ponds? If so, what is the ratio of fresh-to-contaminated water?*

Answer

Effluents from the wet scrubber system and UF_6 cylinder heel washing and processing operations in Building 240 are discharged to evaporation ponds located within the fenced plant area. Prior to discharge, this waste water is analyzed to ensure that uranium concentrations are within 10 CFR 20, Appendix B, Table II limits. There is no fresh water added for dilution purposes to the discharges to the evaporation ponds.