

UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D.C. 20555-0001

January 26, 1998

DOCKET: 70-36

LICENSEE: Combustion Engineering, Inc. (CE) Hematite, MO

SUBJECT: SAFETY EVALUATION REPORT: APPLICATION DATED MAY 30, 1997, UPDATE OF THE DECOMMISSIONING PLAN FOR THE HEMATITE EVAPORATION PONDS

BACKGROUND

On May 4, 1995, a decommissioning plan for two former evaporation ponds at the CE Hematite facility was incorporated by amendment into License SNM-33. According to a submittal from the licensee dated October 26, 1994, the two evaporation ponds, which consisted of a 9.1m x 15.2m (30ft x 50ft) elliptical primary pond and a 9.1m x 30.5m (30ft x 100ft) overflow pond, had been used from 1958 to 1978. The ponds were originally built to receive limed filtrates from the low-enriches remonium diuranate conversion facility, but were later used for disposal of both high and low enrichment recovery liquid mastes after liming. After 1974, discharges consisted mainly of spent potassium hydroxide scrubber solution from the uranium dry recycle process and liquids from start-up testing of the wet recovery process. The practice of using these ponds was discontinued in September 1978.

Between 1978 and 1992, the licensee initiated several remediation efforts and removed some of the sludge and rocks from the unlined ponds. In 1992, the licensee conducted a comprehensive assessment of the remaining contamination in the two ponds. The results of this assessment were not in agreement with previous analyses. Due to the inconsistencies between the assessment results, the licensee proposed additional characterization to better define the magnitude of contamination, prior to further remediation. Therefore, the 1995 approved decommissioning plan for the evaporation ponds included only a tentative schedule for decommissioning. The licensee committed to update the plan after completing characterization. By letters dated May 30 and October 22, 1997, the licensee provided the revised plan.

As a result of a teleconference between the NRC and representatives of CE on October 21, 1997, the licensee submitted a supplemental application dated October 22, 1997.

DISCUSSION

The licensee's submittal dated May 30, 1997, as supplemented by its submittal dated October 22, 1997, provided a revised decommissioning plan based on the results of the characterization of the evaporation ponds. These results indicated that the contamination was more extensive than expected. For instance, 77% of surface soil samples taken from the primary pond indicate an insoluble uranium concentration level higher than the target level of 250 pCi/g specified in the 1995 plan. In addition, the berm surrounding each pond and the west side of the secondary pond are contaminated in excess of the remediation goals. Consequently, remediation beyond the removal of hot spots will be necessary.

The updated decommissioning plan provides greater detail on some aspects of the remediation plan, which included two significant points. First, the licensee added that water pumped from the ponds during remediation could be evaporated or used for dust suppression purposes. Second, the licensee indicated that following remediation and completion of the final status survey, the ponds will be backfilled. After discussions between CE representatives and the NRC staff, the licensee submitted a supplemental application that withdrew the proposal to use pond water for dust suppression purposes and included a commitment to providing the NRC the opportunity to perform a confirmatory survey prior to backfilling.

According to the tentative schedule in the 1995 decommissioning plan, the NRC expected to receive the revised plan in February 1996. By letter dated May 30, 1997, the licensee submitted the updated decommissioning plan and proposed a revised decommissioning schedule. The licensee indicated that the 15-month delay in submitting the updated plan was due to its investigation into beta particle activity in well # 4 (Safety Condition S-2) and the investigation into the former 20 304 disposal area. The staff has determined that the results of these investigations, which included important hydrogeologic information, were required prior to decommissioning of the evaporation ponds. Therefore, the delay is permissible because it was necessary to the effective conduct of decommissioning operations and presents no undue risk from radiation to public health and safety and is otherwise in the public interest. Thus the submittal date of May 30, 1997, for the decommissioning plan is approved in accordance with 10 CFR 70.38(g)(2).

The updated decommissioning plan includes an updated schedule which includes a delay in initiation of the decommissioning process. Once NRC approval is granted for this delay in accordance with 10 CFR 70.38(f), the licensee may commence decommissioning. The staff has reviewed the licensee's updated

schedule and has determined that the delay in initiation of decommissioning is not detrimental to public health and safety and is otherwise in the public interest. Therefore, the licensee's request is acceptatle, and pursuant to 10 CFR 70.38(f), the licensee may initiate decommissioning of the evaporation ponds in accordance with the decommissioning plan. The licensee's revised decommissioning schedule indicates that the project will be completed with submission of the final status survey report to the NRC by June 1999. Thus, the project will be completed within 18 months of initiation based on a January 1998 approval date, which complies with the 24-month decommissioning time limit specified in 10 CFR 70.38(h)(1).

Pursuant to 10 CFR 20.1401(b)(2), the licensee is not required to address the requirements of the recently promulgated final rule specifying radiological criteria for license termination [62 FR 39058]. The licensee's 1995 decommissioning plan for the evaporation ponds is compatible with the Site Decommissioning Management Plan Action Plan criteria [57 FR 13389] and was approved by the staff prior to the effective date of the new rule. The licensee's revisions of the decommissioning plan did not alter the clean-up criteria previously approved.

ENVIRONMENTAL REVIEW

The staff conducted an environmental review of the licensee's submittal pursuant to 10 CFR Parts 20 and 51. By letter dated November 21, 1997, the staff requested additional information on the potential environmental impacts which may result from decommissioning of the evaporation ponds. The licensee responded by letter dated December 19, 1997. In addition, a telephone conversation between the NRC staff and a representative of the licensee was held on January 6, 1998, to discuss liquid effluent sampling data and solid waste disposal.

Liquid and solid effluents will be generated during decommissioning of the evaporation ponds. Liquid effluents will result from rainwater collection in the ponds and will be released to the site creek or held for evaporation. Over a six-month period, the licensee expects to collect 900 m³ (3.18 x 10^4 ft³) of rainwater. During the same time-period, 3600 m³ (1.27 x 10^5 ft³) of liquid effluents are expected to be generated from normal operations.

In a telephone conversation between the NRC staff and a representative of CE on January 6, 1998, the licensee indicated that water pumped from the evaporation ponds is passed through the waste water treatment plant prior to discharge to the site creek. During the telephone conversation, the

licensee's representative compared the liquid effluent sampling data for the outfall of the waste water treatment plant during previous decommissioning activities when rainwater from the evaporation ponds was processed and for the time periods when no collected rainwater was processed. This data indicates that the addition of collected rainwater from the evaporation ponds into the facility's liquid effluent stream does not result in any statistical increase in the radionuclide concentration in liquid effluents leaving the site.

In addition to the generation of liquid effluents, the licensee expects to generate 100 m³ (3.53×10^3 ft³) of solid radioactive waste during decommissioning, compared to approximately 500 m³ (1.77×10^4 ft³) generated by the facility in 1996 and 1997. However, this waste will not be released to unrestricted areas and will instead be disposed of at the Envirocare low-level radioactive waste disposal facility in Utah. The additional solid waste generated during decommissioning is not expected to result in any additional shipments to Envirocare because the soil will be used to fill void spaces when packaging metal wastes already planned for shipment.

The staff does not expect the shipment of contaminated soil to Envirocare to significantly increase the radiological consequences associated with potential transportation accidents. Only a small fraction of soil, which is expected to contain relatively low concentrations of contaminants, is likely to become airborne in an accident. Because inhalation is the most important exposure pathway during an accident, the staff expects exposure to members of the public to be insignificant. In addition, the staff did not identify any other potentially significant radiological accidents associated with the decommissioning project.

By letter dated December 19, 1997, the licensee provided a conservative dose assessment for a worker involved in the decommissioning project. The licensee considered internal exposure due to dust inhalation and external exposure to the contaminated soil. The dose assessment is conservative because it assumes that the worker breathes dust at the maximum permissible exposure level specified by the Occupational Health and Safety Administration although minimum dust loading is expected, and because it assumes an average soil contamination level greater than the measured contamination level.

The licensee determined that the total effective dose equivalent to a worker engaged in the decommissioning activity full time would not exceed 2 mSv/yr (200 mrem/yr). This is less than the limit of 5 mSv/yr (500 mrem/yr) specified in 10 CFR 20.1502 requiring monitoring for an occupational worker and less than the projected average at the facility of 5 mSv/yr (500 mrem/yr) for 1997. The staff reviewed the 1 censee's assessment and concurs that the occupatio 1 dose would not be expected to exceed 2 mSv/yr (200 mrem/yr).

Therefore, the staff has determined that the following conditions have been met:

- 1. There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.
- There is no significant increase in individual or cumulative occupational radiation exposure.
- 3. There is no significant construction impact.
- 4. There is no significant increase in the potential for or consequences from radiological accidents.

Accordingly, pursuant to 10 CFR 51.22(c)(11), neither an environmental assessment nor an environmental impact statement is warranted for this action.

CONCLUSION

The staff recommends approval of the amendment application to update the decommissioning plan for the evaporation ponds and its revised schedule for completion of decommissioning of the ponds. The licensee is expected to notify the NRC in writing before initiating final status surveys and backfilling of the ponds after remediation of the area is completed so that the NRC may perform an inspection of the licensee's survey program and/or a confirmatory survey. The licensee is also expected to provide the final status survey report to the NRC no later than June 30, 1999.

The Region III staff has no objection to this licensing action.

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Midof 7. 6. 1998