



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

June 25, 1997

DOCKET NO: 40-6940

LICENSEE: Cabot Corporation
Boyertown, Pennsylvania

SUBJECT: SAFETY EVALUATION REPORT: APPLICATION DATED FEBRUARY 13, 1997, CHANGE INVESTIGATION ACTION LEVEL OF GROUNDWATER SAMPLES

BACKGROUND

Cabot Corporation currently holds Materials License SMB-920 issued by the U.S. Nuclear Regulatory Commission for the Boyertown facility for possession of source material. The last renewal of Materials License SMB-920 was granted to Cabot by the NRC on December 24, 1996, in response to Cabot's license renewal application, dated March 16, 1994.

By letter dated February 13, 1997, Cabot submitted an application requesting that the license be amended to change the investigation action level of groundwater samples from 1 percent to 5 percent and to reflect the current regulations of 10 CFR Part 20.

DISCUSSION

The amendment application requested that the license be amended to change the investigation action level of groundwater samples from 1 percent to 5 percent. Filtrates produced in feed/sludge digestion and filtration process steps contain low levels of uranium and thorium. Cabot controls and monitors liquid releases to the environment, and has committed to perform corrective actions if the concentration of radioactive material in the liquid effluent exceeds specified action levels. The controls, monitoring, action levels, and actions had been reviewed by NRC staff and are discussed in the Safety Evaluation Report, dated December 24, 1996, for the license renewal application, dated March 16, 1994.

License Condition 14.c required Cabot to investigate the possible cause and to take appropriate action if the concentration of any radionuclide exceeds 1 percent of the value given in 10 CFR Part 20, Appendix B, Table II. Cabot stated that the value of 1 percent is very close to the minimum detectable level of alpha spectroscopy performed at Cabot's contract laboratory. In addition, Cabot said that its investigations will be more meaningful, without a loss of public protection, if the investigation action level is increased to 5 percent.

The concentration values given in Table II of 10 CFR Part 20, Appendix B are equivalent to the radionuclide concentrations which, if inhaled or ingested continuously over the course of a year, would produce an annual total effective dose equivalent to 50 mrem. Thus, the maximum dose to a member of the public from groundwater at 5 percent of the value in 10 CFR Part 20, Appendix B is 2.5 mrem/yr. This dose is a very small fraction of the

allowable 100 mrem/yr dose to a member of the public in 10 CFR Part 20. Cabot shall still report groundwater samples, if the concentration of a radionuclide exceeds 10 percent of the value in Table II, to the Administrator, Region I, USNRC.

NRC staff has determined that changing the investigation action level for water samples from 1 percent to 5 percent of the value given in 10 CFR Part 20, Appendix B, Table II would not result in any significant change in the types or amounts of any effluents that may be released offsite or any significant increase in individual or cumulative occupational radiation exposure.

The amendment application also requested that the license be amended to reflect the current regulations of 10 CFR Part 20. License Condition 12 required Cabot to submit revisions of Attachments B, C and I to the renewal application, dated March 16, 1994, to reflect the current regulations of 10 CFR Part 20, which became effective on January 1, 1994. Cabot requested the deletion of Attachments B and I from the renewal application and replacement of Attachment C with a revised version submitted with this amendment application.

NRC staff agrees with Cabot that Attachment B and I are no longer necessary and may be deleted. As a result of a review of Attachment C, NRC staff has determined that Cabot's radiation protection commitments are adequate to provide reasonable assurance that the Boyertown facility can be operated in accordance with the radiation protection requirements of 10 CFR Part 20, and are therefore acceptable.

ENVIRONMENTAL REVIEW

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,
2. There is no significant increase in individual or cumulative occupational radiation exposure,
3. There is no significant construction impact, and
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

Based on this review, NRC staff concludes that the change of the investigation action level of any radionuclide in a representative groundwater sample from monitoring wells 1a, 2, 3, and 4 (identified in Figure 4.1 of NUREG-1027) from 1 percent to 5 percent and revisions to the radiation procedures (Attachment C) of the license renewal application are acceptable.

The Region I staff has no objection to this proposed action.

Principal Contributor

Sherry C. Wu

W. J. F. Wicks
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