PDR

UNITED STATES

NUCLEAR REGULATORY COMMISSION

REGION IV

URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

NOV 0 3 1989

URFO:PJG
Docket No. 40-8902
04008902340E

MEMORANDUM FOR: Docket File No. 40-8902

FROM: Pete J. Garcia, Project Manager

SUBJECT: RELEASE OF CONTAMINATED DIESEL FUEL FROM THE BLUEWATER MILL

Introduction

By letter dated September 9, 1989, ARCO Coal Company submitted a report regarding contaminated diesel fuel currently being stored at the Bluewater Mill. The letter requested NRC approval to release the diesel fuel for unrestricted use. The staff review of the licensee's submittal is discussed below.

Background

The Bluewater Mill sold 76,000 gallons of kerosene solution to the Giant Refinery in Gallup, New Mexico in November 1985. Since the organic had been used in the solvent extraction circuit at the Bluewater Mill, ARCO scrubbed the organic repeatedly with ammonium chloride solution to remove residual metals and radioactive contaminants prior to the sale. ARCO then analyzed the organic for U-nat and gamma radiation exposure rate. The results indicated the organic met New Mexico Environmental Improvement Division (NMEID) guidelines for release for unrestricted use.

Following the purchase, the Giant Refinery blended the organic with a diesel fuel product for sale as a diesel fuel. Mechanical problems caused by fine, solid particles in the fuel resulted in an investigation by the NMEID and ARCO. The investigation revealed elevated levels of Po-210 in the fuel. The levels were above the NMEID criteria for release for unrestricted use. As a result of the elevated levels, ARCO retrieved approximately 380,000 gallons of unsold contaminated diesel fuel for storage at the Bluewater Mill in April 1986.

Discussion

The contaminated fuel has been stored for over two years at the Bluewater Mill. The results of sampling performed by ARCO and NMEID indicated an initial Po-210 concentration of about 70,000 pCi/l and negligible concentrations of the parent

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radionuclides Pb-210, Ra-226, and Th-230. Analysis data for the stored fuel indicates that current concentrations of Po-210 are less than 250 pCi/l, or approximately 36 percent of the maximum permissible concentration (MPC) for release to unrestricted areas as specified in Appendix B to 10 CFR 20. The analysis results are consistent with a half-life for Po-210 of 138 days and negligible concentrations of the parent radionuclides.

The ARCO submittal includes a radiological risk assessment to attempt to quantify the risks associated with the handling or use of the diesel fuel. The risks evaluated include inhalation of fuel vapors during filling of tanker trucks, inhalation of diesel exhaust, and uptake of Po-210 as a result of broken skin and contact with the fuel. The risk assessment, which assumed conservative values for all parameters, indicated a maximum effective dose of 0.3 mrem.

Conclusion

The staff concludes that the risks associated with the release of the contaminated fuel for use as a diesel fuel are insignificant. In addition, all radionuclide concentrations in the fuel are well below their respective MPC for unrestricted release. The staff further concludes that the release of the contaminated fuel for use as diesel fuel is in accordance with NRC regulations and the conditions of ARCO's license. The staff therefore recommends that a letter authorizing the release be transmitted to the licensee. No further action is necessary.

Pete J. Garcia Jr.

Pete J. Garcia
Project Manager

Approved by:

Ramon E. Hall
Director

Case Closed: 04008902340E

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