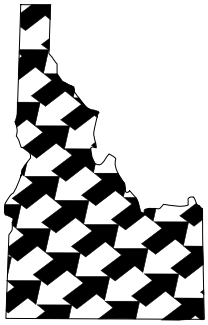

Environmental Management Site Specific Advisory Board Idaho National Engineering Laboratory

STATIONARY LOW-POWER REACTOR-1 and the BOILING WATER REACTOR EXPERIMENT I BURIAL GROUNDS (OperableUnits 5-05 and 6-01) and CENTRAL FACILITY AREA LANDFILLS I, II, AND III (OperableUnit 4-03)

INTRODUCTION

The Environmental Management Site Specific Advisory Board - Idaho National Engineering Laboratory (EM SSAB-INEL) visited, on June 19, 1995, two of the three Idaho National Engineering Laboratory (INEL) clean-up sites identified in the following recommendations. The Board also received printed information describing each of the projects and their associated alternatives for remedial action.

Following presentations and discussion with Department of Energy-Idaho Operations Office (DOE-ID), Department of Environmental Quality, and Environmental Protection Agency (EPA) Region X personnel at its August 2, 1995 meeting, the Board participated in a facilitated, consensus-building process through which the following recommendations were developed for each of three clean-up sites at the Idaho National Engineering Laboratory. These recommendations were unanimously accepted by the Board.

Note: Although the Stationary Low-Power Reactor- 1 (SL-1) burial ground was not visited due to the location and unpaved road access, the EM SSAB-INEL did visit the Boiling Water Reactor Experiment I Burial Ground Site (BORAX-I) site, and is comfortable in providing recommendations on both these sites. The constituents of concern in both cases are radionuclides, but due to differences in physical characteristics of the buried materials and existing conditions of the sites, the two sites will be treated separately.

STATIONARY LOW-POWER REACTOR-1 BURIAL GROUNDS (Operable Unit 5-05)

RECOMMENDATION

Regarding the SL-1 site, the EM SSAB-INEL recommends Alternative 2: Containment by Capping with an Engineered Long-Term Barrier Comprised Primarily of Natural Materials, as its preferred alternative. This recommendation is based on the following factors:

The presence of many long-lived radionuclides resulting from the extended operation of SL-1 justifies a cap that will prevent casual access to the waste after 100 years and also limit intrusion by plants, animals and precipitation to meet solid waste disposal requirements.

Monitoring will provide assurance that the aquifer is being protected so that remedial action can be taken later, if needed.

Due to the increased risk to workers, the general public, and air quality as well as the significantly greater cost involved in Alternative 3, the Board does not feel that removal and disposal of the materials at the Radioactive Waste Management Complex is justifiable.

We question DOE-ID's estimates of the cost of cap construction and monitoring. Savings may be possible by a range of alternatives, including privatization, innovative contracting mechanisms and optimizing design, construction and monitoring. A goal for the total cost including monitoring, should be comparable to that incurred by the private sector.

BOILING WATER REACTOR EXPERIMENT I BURIAL GROUNDS (Operable Unit 6-01)

RECOMMENDATION

Regarding the BORAX-I site, the EM SSAB-INEL recommends Alternative 2: Containment by Capping with an Engineered Long-Term Barrier Comprised Primarily of Natural Materials, as its preferred alternative. This recommendation is based on the following factors:

While the BORAX I reactor was much smaller, and operated for a shorter period, with a significantly lesser fission product inventory and residue, the site has not been completely characterized.

Such a cap will provide shielding, contaminant migration protection, and will prevent long term erosion and airborne contamination. This is necessary to meet solid waste disposal requirements.

Monitoring will provide assurance that the aquifer is being protected so that remedial action can be taken later, if needed.

Due to the increased risk to workers, the general public, and air quality as well as the significantly greater cost involved in Alternative 3, the Board does not feel that removal and disposal of the materials at the Radioactive Waste Management Complex is justifiable.

We question DOE-ID's estimates of the cost of cap construction and monitoring. Savings may be possible by a range of alternatives, including privatization, innovative contracting mechanisms and optimizing design, construction and monitoring. A goal for the total cost including monitoring, should be comparable to that incurred by the private sector.

CENTRAL FACILITY AREA LANDFILLS I, II, AND III (Operable Unit 4-03)

RECOMMENDATION

Regarding CFA landfills, the EM SSAB-INEL recommends Alternative 3: Uniform Containment with Native Soil Cover, Institutional Controls, and Monitoring as its preferred alternative. This recommendation is supported by the following factors:

The bulk, if not total content, of the landfills is typical of thousands of landfills throughout the United States. DOE-ID is subject to the same rules which govern the owners of these other landfill sites. This alternative would meet all legal requirements without waiver.

Initial characterizations led to the conclusion that contaminants of concern may be present in relatively low quantities.

We conclude that the CFA landfills have not produced any significant contamination problems. On the other hand, because the contents of the landfills are imperfectly known, and because the water infiltration pathway remains a possible route for future groundwater contamination, we would like to see a more aggressive remedial program. We believe, based on cost experiences for municipal and private sector landfills, that it should be possible to construct a naturally vegetated soil cap sufficient to restrict contaminant migration, dust emissions and runoff erosion at a cost far below the cost figures provided by DOE-ID. A goal for the total cost, including monitoring, should be comparable to that incurred by the private sector.