

**IDAHO NATIONAL ENGINEERING LABORATORY**  
**FINDING OF NO SIGNIFICANT IMPACT FOR LOW-LEVEL**  
**AND MIXED WASTE PROCESSING**

**AGENCY:** U. S. Department of Energy

**ACTION:** Finding of No Significant Impact

**SUMMARY:** The Department of Energy (DOE) has prepared an environmental assessment (EA), DOE/EA-0843, for the Idaho National Engineering Laboratory (INEL) low-level and mixed waste processing. The original proposed action, as reviewed in this EA, was (1) to incinerate INEL's mixed low-level waste (MLLW) at the Waste Experimental Reduction Facility (WERF); (2) reduce the volume of INEL generated low-level waste (LLW) through sizing, compaction, and stabilization at the WERF; and (3) to ship INEL LLW to a commercial incinerator for supplemental LLW volume reduction.

In response to public comments, DOE is no longer proposing at this time the portions of the original proposed action related to the incineration of MLLW at the WERF. Rather, as explained in the Preface to the EA, DOE has decided to propose an additional alternative which consists of sizing, compacting, and stabilizing (i.e., mixing ash with cement) LLW at the WERF, shipment of INEL LLW to an offsite incinerator, and continued storage of MLLW. Future decisions on treatment of LLW and MLLW by means such as incineration at WERF would be deferred until the completion of the Programmatic Spent Nuclear Fuel

Management and INEL Environmental Restoration and Waste Management Program  
Environmental Impact Statement.

Based on the analyses in the EA, the DOE has determined that the proposed action, as defined in the Preface to the EA, is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act. Therefore, the preparation of an environmental impact statement is not required, and DOE is issuing a finding of no significant impact.

**COPIES OF THE EA ARE AVAILABLE FROM:**

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**FOR FURTHER INFORMATION ON THE NATIONAL ENVIRONMENTAL POLICY ACT PROCESS CONTACT:**

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**PROPOSED ACTION:** The proposed project would (1) reduce the volume of the INEL-generated LLW through sizing, compaction, and stabilization at the W (2) ship the INEL LLW to a commercial off-site incinerator for supplemental LLW volume reduction, and (3) continue storage of MLLW at the INEL storage facilities.

WERF has been an essential component of the INEL's waste management program since 1982 because its processes reduce the volume of waste requiring disposal as well as the toxicity and mobility of the waste being treated. However, operations of WERF were suspended in February 1991 to upgrade safety documentation, operating procedures, and management systems.

The proposed WERF operations would reduce the need to store accumulated waste, which in turn would reduce the radiation exposure to INEL workers and reduce the risk of additional exposure from storage container deterioration. The proposed action would also reduce the volume of waste being disposed of at the Radioactive Waste Management Complex, thereby conserving its disposal capacity. Under this alternative, the remaining storage capacity at the Radioactive Waste Management Complex would be consumed in about 21 years.

The proposed action includes transporting LLW to a commercial treatment facility for incineration to reduce the waste volume. The current proposal is to truck the LLW to a commercial incinerator, such as the Scientific Ecology Group, Inc. facility in Oak Ridge, Tennessee or an alternative facility. The resultant ash would be treated as appropriate and returned to INEL for management and disposal at the Radioactive Waste Management Complex.

Wastes proposed for volume reduction as part of the proposed action include the accumulated LLW and the LLW expected to be generated by ongoing and planned INEL operations. The waste proposed for volume reduction would have to meet the WERF waste acceptance criteria related to package size, type, and weight.

LLW currently stored at the various INEL facilities is approximately 10,000 cubic meters ( $m^3$ ) and future INEL activities are expected to generate approximately 4,000  $m^3$  each year. MLLW currently stored at the various INEL facilities is approximately 100  $m^3$ . Future INEL activities are expected to generate approximately 50  $m^3$  of MLLW each year, which would continue to be stored at the INEL.

**ENVIRONMENTAL IMPACTS:** The proposed action would occur in an existing, previously-developed INEL area and would not affect wetlands, floodplains, rare or endangered species or their habitat, archeological, or cultural resources. Significant construction activities would not be required, and there are no anticipated socioeconomic effects because the work force for the WERF is already in place.

Normal Operations. Airborne emissions of radionuclides would occur as a result of the compacting, sizing, and stabilizing of LLW. Offgas and ventilation air would be processed through a baghouse, prefilter, and high-efficiency particulate air filter before being discharged to the atmosphere to reduce the emissions.

The risk of an individual developing fatal cancer during his or her lifetime as a result of WERF emissions would be extremely low. The population of 160,000 within 80 kilometers of WERF could be exposed to a radiation dose of 0.2 person-rem per year from the proposed action; the estimated number of fatal cancers induced among this population from the radiation would be less than 0.0001 per year. Based on conservative assumptions, WERF operations

would result in a maximally exposed individual at the INEL boundary receiving an estimated dose of less than 0.1 mrem per year. This projected exposure level is less than one percent of the Environmental Protection Agency limit of 10 mrem per year that applies to the total air emissions from INEL. The maximum estimated exposure to a worker 100 meters from WERF is projected to be 1.0 mrem per year. It is most likely there would be no fatal cancers among workers and the public attributable to the proposed action at WERF.

Cumulative radiological doses to the population from all existing and proposed INEL activities would be less than 0.85 person-rem per year, which is estimated to result in less than 0.0001 additional latent cancer fatalities per year to the affected population.

Transportation. Preparation and transport of LLW from the INEL to a commercial processing facility would be performed in accordance with DOE, Department of Transportation, Nuclear Regulatory Commission, and State requirements. A conservative analysis of transportation activities estimated that maximum cumulative radiological and non-radiological health risk to the public from incident-free transport may result in 0.8 excess cancer deaths in the exposed population over the 20-year shipping campaign. An estimated 0.8 deaths may also occur from radiological releases resulting from transportation accidents. In comparison, about 3,000 cancer deaths from all other sources would be expected in the same population over the 20-year shipping campaign.

Commercial Incinerator. Based on the pertinent circumstances, DOE does not expect that the INEL LLW would constitute a significant change in the overall level of operations of the commercial facility. Processing the INEL LLW waste would not materially change emission rates from its normal operations. The emissions from commercial facilities are controlled by regulatory limits, license restrictions, waste acceptance criteria, and process controls and are designed to adequately protect human health and the environment.

Potential Accidents. Impact analyses were conducted for a range of accidents at WERF. The maximum reasonably foreseeable accident relevant to the proposed action as modified by the Preface would be a compactor fire. In the event of a compactor fire, which has an estimated probability of  $9.0 \times 10^{-5}/\text{yr}$ , a worker in the compactor room is assumed to be exposed for 10 minutes, while workers 100 m away and the maximally exposed individual are exposed for 8 hours. The fire would release 2.8 Ci of radioactivity, exposing workers in the compactor room and 100 m away to doses of about 70 mrem each while the dose to the maximally exposed individual offsite would be 0.11 mrem. No adverse health effects would be expected from any of these doses.

**ALTERNATIVES CONSIDERED:** The EA, as modified by the Preface, evaluates the following alternatives:

(1) The original proposed action - This alternative would incinerate MLLW at the WERF; reduce the volume of the INEL-generated LLW through sizing, compacting, stabilization, and incineration at the WERF; and ship the INEL LLW to a commercial incinerator for supplemental LLW volume reduction. Under this

alternative, the remaining storage capacity at the Radioactive Waste Management Complex would be consumed in about 21 years. (Under the current proposal, any incineration of LLW and MLLW at the WERF would be deferred until the completion of the Programmatic Spent Nuclear Fuel Management and INEL Environmental Restoration and Waste Management Environmental Impact Statement.)

(2) No Action - This alternative would require the DOE to continue storing INEL MLLW in INEL storage facilities while using WERF for LLW volume reduction. This alternative could result in lower short-term worker exposure, but because of the prolonged storage requirements for MLLW could potentially result in long-term exposures. While this alternative would not assume the risk of shipping the LLW to a commercial facility, the continued treatment of the LLW at WERF would require storing, handling, and monitoring at INEL until it could be processed. Under this alternative, the remaining storage capacity at the Radioactive Waste Management Complex would be consumed in five to seven years.

(3) Treat MLLW by Methods Other Than Incineration and Continue Use of WERF to Incinerate, Compact, and Size LLW - This alternative would require gaining EPA approval for a different kind of treatment (incineration is the only approved treatment for many hazardous wastes), while delaying MLLW treatment until the demonstration and approval process ended. The alternatives include stabilization and biological and chemical treatment. The former does not reduce the toxicity of the waste and thus risks contaminating the disposal

site, while the latter increases the likelihood of exposure, because of the multiple processes required.

(4) Dispose of LLW Without Volume Reduction and Continue to Store MLLW - This would increase the risk of worker exposure, because of the greater number of containers of LLW and MLLW requiring management. Under this alternative, the remaining storage capacity at the Radioactive Waste Management Complex would be consumed in five to seven years.

(5) Construct and Operate a New MLLW Incinerator and Continue to Incinerate, Compact, and Size LLW at the WERF - This would be inefficient, because two incinerators would be used where only one is necessary. In addition, there would be no environmental benefit from this arrangement, and MLLW would have to be stored until the new incinerator was built and permitted.

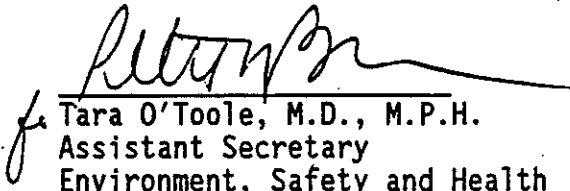
(6) Treat MLLW at Another DOE Incinerator and Continue to Incinerate, Compact, and Size LLW at the WERF - This is not an available option for MLLW; it would take at least three to five years before an existing or proposed DOE facility could be permitted to process the INEL waste.

**DETERMINATION:** Based on the information and analysis in the EA as modified by the Preface, DOE has determined that the proposed action at the INEL does not constitute a major Federal action significantly affecting the quality of the



human environment within the meaning of the National Environmental Policy Act. Therefore an environmental impact statement for the proposed action is not required.

Issued at Washington, D.C., this 3<sup>d</sup> day of June, 1994.

  
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Environment, Safety and Health