

Foreword



State of Idaho's Foreword

To the Final Idaho High-Level Waste (HLW) and Facilities Disposition Environmental Impact Statement (EIS)

A 1995 court settlement, commonly referred to as the Settlement Agreement, spells out a commitment by both Idaho and the U.S. Department of Energy (DOE) to act in good faith to fulfill and support its terms. By participating in the preparation of this EIS, Idaho hopes it can expedite progress toward the Settlement Agreement's goals to treat and remove HLW from the State. The EIS process should facilitate Idaho's negotiations with DOE concerning HLW management by discussing the relative merits of proposed treatment technologies and providing opportunities for public input. In this foreword, the State of Idaho explains its role in the preparation of this EIS and its position on key policy issues.

Idaho's Role in the EIS

The State of Idaho is a cooperating agency in the preparation of this EIS. Under the National Environmental Policy Act (NEPA), this arrangement is appropriate because Idaho has jurisdiction and expertise regarding issues evaluated in this EIS.

Idaho has regulatory authority over many activities addressed in this EIS, including hazardous waste management, environmental cleanup, and air emission controls. In addition to this regulatory authority, the Settlement Agreement establishes requirements and schedules for managing HLW at the Idaho Nuclear Technology and Engineering Center (INTEC). These terms include:

- By June 30, 1998, convert all non-sodium bearing liquid HLW into a granular powder called calcine (completed).
- By December 31, 2012, convert all sodium-bearing liquid HLW to calcine.
- By December 31, 1999, begin negotiating a plan and schedule for calcined HLW treatment (begun with this EIS).
- Complete treatment of all calcined HLW so that it is ready to be moved out of Idaho for disposal by a target date of 2035.

The Settlement Agreement allows DOE to propose changes to these requirements, provided they are based on adequate environmental analyses under NEPA, and Idaho will agree to such changes if they are reasonable. Because of technology developments and changes needed in existing treatment facilities to properly manage sodium-bearing waste, Idaho agreed with DOE that an EIS could facilitate negotiations required by the Settlement Agreement. A cooperating agency arrangement was an appropriate way for both parties to evaluate HLW treatment options and their respective environmental impacts.

By serving as a cooperating agency, Idaho was able to identify and discuss concerns regarding information and issues presented in this EIS, and request changes to preliminary drafts. The State

of Idaho was not, however, able to verify every aspect of this EIS.

In addition, Idaho and DOE did not have to agree on all issues before DOE published the EIS. The Memorandum of Agreement establishing the State of Idaho as a cooperating agency on this EIS recognizes that the two parties can "agree to disagree" on issues, and that the EIS will reflect both positions. Idaho has identified several key policy issues related to this EIS.

Key Policy Issues

1 *Idaho finds some alternatives and options to be inconsistent with the intent of the Settlement Agreement.*

Idaho recognizes that under NEPA, DOE may evaluate alternatives that are not consistent with existing legal obligations. However, Idaho wants to inform decision-makers and the public of *alternatives and options evaluated in this EIS* that are inconsistent with the Settlement Agreement.

One of the fundamental reasons Idaho agreed to the Settlement *Agreement* was DOE's commitment to convert all liquid waste in the INTEC Tank Farm into solid form by 2012 and to treat this waste so that it could be removed from Idaho by a target date of 2035. Therefore, *any EIS alternatives or options that contain the following elements* are inconsistent with the Settlement *Agreement*:

- *those* that leave liquid waste in the INTEC Tank Farm beyond the year 2012; and
- *those* that result in treated waste from the INTEC Tank Farm not being ready to be moved out of Idaho by 2035.

For example, the No Action Alternative, which leaves liquids in the Tank Farm, and the Continued Current Operations Alternative, which leaves calcined waste at

INTEC indefinitely, are inconsistent with the Settlement Agreement. Similarly, alternatives that propose to dispose of low-level waste fractions separated from *calcine or sodium-bearing waste* at INTEC will not meet the Settlement Agreement's intent to have all *this waste* treated and *ready to be* removed from Idaho.

Leaving calcine in the bin sets without a well-defined treatment plan would also be inconsistent with the Settlement Agreement. With this EIS, DOE and the State began negotiating a plan and schedule for calcined HLW treatment, as required by the Agreement.

The State expects to complete these negotiations as DOE develops a Record of Decision based on this EIS, with the parties agreeing to a schedule and strategy for waste characterization and other information gathering, technology development, and treatment. The Settlement Agreement gives DOE until 2009 to issue a Record of Decision to establish a date for completing treatment of all calcined waste. Because the State and DOE invested considerable resources to prepare this EIS before 2009, however, the State expects the negotiations to accelerate this Decision.

2 Idaho maintains that sodium-bearing waste in the INTEC Tank Farm is HLW unless and until DOE reclassifies waste consistent with its regulations.

Reprocessing at INTEC used a three-cycle solvent extraction process to recover highly enriched uranium from spent fuel. Each cycle created liquid waste, as did *calciner operations and* decontamination activities. *For the most part, DOE stored first cycle liquids separately from the second and third cycle liquids. In addition, second and third cycle liquids were typically mixed with liquids from calciner operations, decontamination activities, and some INEEL sources not associated with reprocessing. This mixture of liquids is referred to collectively as sodium-bearing waste since rela-*

tively high concentrations of sodium are present as a result of decontamination agents. In preparing the EIS, DOE and the State agreed first cycle liquids are HLW, but disagreed on how to classify the sodium-bearing waste.

DOE's Radioactive Waste Management Order (DOE O 435.1) identifies HLW as liquid produced "directly in reprocessing." Idaho interprets this HLW definition to include waste from the first reprocessing cycle ("non-sodium bearing waste") and the second and third *reprocessing* cycles ("sodium-bearing waste"). This interpretation is consistent with language in the Settlement Agreement that identifies both sodium-bearing waste and non-sodium bearing waste as HLW.

DOE, however, maintains that only the liquid from the first reprocessing cycle is HLW. This difference of interpretation does not change the environmental impacts of this EIS's alternatives. However, it does affect the process DOE would follow if certain alternatives are selected, and could affect the eventual disposition of the material.

DOE's Order 435.1 has a process, called a "waste incidental to reprocessing (WIR) determination," *that sets criteria for deciding if the sodium-bearing waste should be classified as high-level, transuranic or low-level waste. Idaho maintains that DOE should manage the sodium-bearing waste as HLW unless and until it completes a WIR determination that classifies it as another waste type. As of the drafting of this EIS, DOE is conducting a WIR determination in consultation with the Nuclear Regulatory Commission for sodium-bearing waste. DOE has submitted justification for classifying the liquid as mixed-transuranic waste.*

As *discussed above under key policy issue #1*, even if DOE determines some of the HLW (*sodium bearing liquid or calcine*) should be classified as other waste types, all of it must be treated and prepared for shipment out of Idaho as the Settlement Agreement intended.

3 Idaho urges DOE to take steps to allow acceptance of certain hazardous constituents at a national geologic repository.

This EIS explains that current DOE policy will not allow the disposal of HLW containing certain hazardous waste constituents at the proposed geologic repository. Unless DOE changes its policy or seeks regulatory exemptions, *which historically have proved difficult to obtain*, it is unlikely there will be an appropriate place to receive INEEL's HLW.

The irony of DOE's policy, which effectively precludes INEEL HLW from being accepted at the proposed repository, is that long-term storage of this waste on the INEEL is the alternative management option offered in this EIS. Yet, it was the prospect of long-term storage of HLW calcine at the INEEL that motivated the State to negotiate the language in the Settlement Agreement that directs treatment of the calcine so it can be transported to a suitable storage facility or geologic repository outside of Idaho. Thus, the State urges DOE to change its policy regarding the acceptance of waste containing certain hazardous constituents at the proposed geologic repository.

4 Idaho urges DOE to calculate Metric Tons of Heavy Metal (MTHM) for DOE HLW in a way that more accurately reflects the actual concentrations of radionuclides, and relative risk. This approach would allow for the proper disposal of DOE's HLW inventory in a more timely manner consistent with the intent of federal legislation.

Space in the proposed geologic repository is allocated by Metric Tons of Heavy Metal (MTHM). MTHM refers to the amount of

energy-producing material in nuclear fuel, primarily uranium and plutonium. DOE has allocated 4,667 MTHM in the proposed repository for its HLW. Determining the MTHM in spent nuclear fuel is straightforward, since the quantity was established when the fuel was fabricated. Because reprocessing removed plutonium and uranium from different types of nuclear fuel over three cycles, calculating MTHM for DOE's HLW is more complex.

DOE currently estimates MTHM in its HLW based on hypothetical comparisons between "typical" DOE waste and "typical" commercial materials. Using this method, DOE established a standard where one canister of DOE HLW is equivalent to 0.5 MTHM. Although easy to use, this conversion factor does not recognize that much of DOE's waste is significantly less radioactive and poses less risk than the "typical DOE waste" used in the comparison. Therefore, this method overestimates the MTHM in DOE HLW, exceeding the amount allocated in the repository.

DOE has evaluated other methods for calculating MTHM. One method compares the relative radioactivity in DOE HLW with that in a standard MTHM of a commercial spent fuel assembly. Because commercial spent fuel was irradiated for a much longer period of time, it exhibits significantly higher levels of radioactivity and contains much higher concentrations of long-lived radionuclides than the DOE spent fuel *that was reprocessed*. Thus, the amount of radioactivity in DOE HLW is a very small fraction of what is present in an equivalent amount of commercial spent fuel. A second method compares relative radiotoxicity with similar results.

Idaho advocates using either of these *alternate* approaches to better reflect the relative risk and actual concentrations of radionuclides in DOE HLW. Under these approaches, DOE HLW would be within the capacity established for the proposed repository.

5 Idaho's preferred alternative specifies treatment technologies to provide a more effective tool for public discussion and decision-making and to guide the pursuit of other options in case of changes in assumptions or technology developments.

DOE's preferred alternative does not specify technologies for achieving its proposed actions. Idaho's preferred alternative, however, specifies the vitrification technology to provide a clear baseline for fulfilling the objectives of removal of waste from Idaho within the timeframes envisioned by the Settlement Agreement.

In identifying a preference, Idaho considered the information in the Draft EIS, DOE's Tanks Focus Area's *Assessment of Selected Technologies for the Treatment of Idaho Tank Waste and Calcine* (PNNL-13268) and public comment. Idaho selected the alternative that we believe has the lowest technical and regulatory uncertainty for meeting waste removal goals--direct vitrification for liquid sodium-bearing waste and vitrification, with or without separations pending a technical and economic evaluation, for calcine.

In evaluating impacts for the proposed national geologic repository at Yucca Mountain, DOE has previously assumed that HLW would be transported and disposed in glass or ceramic form. Disposal requirements for HLW at a national geologic repository have not been set, however. Similarly, the Waste Isolation Pilot Plant repository for transuranic waste has not established disposal requirements for remote-handled waste. Depending on the selected waste acceptance criteria, some of the treatment or transportation proposals in this EIS may require additional regulatory action.

Given these regulatory uncertainties and uncertainties in less mature technologies for treating these waste streams, Idaho determined that a clear baseline was an important tool to facilitate negotiations required by the Settlement Agreement and to evaluate options in case circumstances change. A clear baseline allows the effective comparison of environmental impacts and potential mitigation, as well as schedule and costs impacts. It also allows decision makers to evaluate whether potential investments in technology development and regulatory actions are worthwhile, given incremental reductions in these impacts.

Idaho is willing to consider other waste treatment options arising from new technology developments or changes in assumptions regarding treatment, transportation or disposal requirements if they are comparable or better than the Direct Vitrification Alternative in terms of environmental impact, schedule and/or cost. Idaho expects DOE to have a clear strategy for evaluating pursuit and evaluation of such options.

To the extent DOE considers storage, treatment or disposal actions not discussed in detail in this or other relevant EISs in the future, however, the State expects DOE to perform required NEPA analyses and provide for appropriate public involvement.

***Public Involvement
Appreciated***

The State of Idaho appreciates the level of public interest in the EIS process. Public comment resulted in many improvements in the Final EIS.
