

Safety Evaluation Report (SER)

The Safety Evaluation Report (SER) summarizes the analyses that DEQ and its contractor SC&A performed to determine whether the PA meets federal and state regulatory performance criteria for depleted uranium (DU) disposal sites. The SER determines the extent to which the depleted uranium performance assessment (DUPA) submitted by EnergySolutions complies with these regulatory requirements.

All conclusions in the SER, including determinations that issues have been resolved, conditionally resolved, or not resolved are subject to reconsideration based on public comments and the record as a whole. DEQ has not made a formal recommendation or determination at this time regarding EnergySolutions' proposal. The director of the Division of Radiation Control will make the final decision as to whether to issue a license amendment allowing EnergySolutions to dispose of large volumes of concentrated depleted uranium based on the SER/DUPA and comments received during the public comment period.

Summary of the Preliminary Conclusions in the SER

For the purposes of the SER, "resolved" means that a determination has been made that there is sufficient information to demonstrate that this requirement will be met. "Conditionally resolved" means that a determination has been made that there is sufficient information to demonstrate that this requirement will be met, provided that the applicable condition is also met. "Not resolved" means that a determination has been made that sufficient information has not yet been provided to DEQ to demonstrate that this requirement will be met. "Not resolvable" means that there is sufficient information to show that this condition cannot be met.

Resolved

The DEQ evaluation found that for the following topics, the EnergySolutions DU PA met the required regulatory criteria. The following issues have been resolved:

- Uranium solubility
- Protection of the public from releases of radioactivity
- Protection of individuals from inadvertent intrusion
- Uranium oral toxicity

Conditionally Resolved

The DEQ evaluation found that for the following topics, the EnergySolutions DU PA satisfactorily met the required regulatory *criteria*, and the following topics can be resolved, based upon the demonstration that the "Additional Conditions for Approval" listed below have been met. The following issues have been conditionally resolved:

- Kind, amount, classification, and specifications of the material
- Ground water quality discharge permit and compliance with ground water protection levels
- Waste emplacement and backfill

Not Resolved

The DEQ evaluation found that for the following topics, the *EnergySolutions* DU PA has not satisfied all of the Department's concerns and the topics are not resolved at this time. The following issues have not been resolved:

- Evapotranspiration cover
- Infiltration
- Erosion of cover
- Frost damage
- Effects of biological on radionuclide transport
- Clay liner
- GoldSim quality assurance
- Deep time analysis

Not Resolvable

The DEQ evaluation found that at this time there are no topics in the *EnergySolutions* DU PA that cannot be resolved because of affirmative information that standards cannot be met.

Additional Conditions for Approval

EnergySolutions must agree to meet the following conditions before DEQ can give final approval.

1. Agreement with Department of Energy (DOE)
Prior to disposal of DU waste, *EnergySolutions* shall provide a written agreement letter between DOE and *EnergySolutions* indicating that DOE will accept title to the Federal Cell after closure.
2. Disposal below grade
DU waste must be disposed of below the original-grade level of the proposed Federal Cell.
3. Depleted uranium as Class A waste
EnergySolutions shall provide documentation that the Nuclear Regulatory Commission (NRC) does not plan to reclassify DU.
4. Modeling of the remainder of waste.
EnergySolutions shall submit for DEQ approval a revised performance assessment that addresses the total quantities of concentrated DU and other wastes before any radioactive wastes other than the DU waste are emplaced in the proposed Federal Cell.
5. Waste acceptance criteria
Prior to any land disposal of significant quantities of concentrated DU, the *EnergySolutions* shall submit a written Waste Acceptance Criteria plan designed to ensure that all DU waste received by *EnergySolutions* conforms with all physical, chemical, and radiologic properties assumed in the DU PA modeling report.
6. Prohibition of recycled uranium in DU waste

EnergySolutions is prohibited from land disposal of any quantity of DU that was produced at DOE facilities from uranium-bearing materials containing recycled uranium.

7. Hydrological and hydrogeological properties of lower confined aquifer

EnergySolutions will develop and implement a program to provide more detailed site characterization and hydrogeological evaluation of aquifers in the area, particularly the deeper confined aquifer.