THE UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley A. Jackson, Chairman
Nils J. Diaz
Edward McGaffigan, Jr.

In the Matter of: **Docket No. _____**

U. S. DEPARTMENT OF ENERGY
(Savannah River High-Level Waste Tanks)

PETITION TO EXERCISE LICENSING AUTHORITY

I. Introduction and Summary

1. The Natural Resources Defense Council ("NRDC") requests that the Nuclear Regulatory Commission ("NRC") assume and exercise immediate licensing authority over all high-level radioactive waste ("HLW") that is stored in the 51 underground tanks located on the Department of Energy's ("DOE") Savannah River Site ("SRS Tanks"). The SRS Tanks are being decommissioned under DOE's High-Level Waste Storage Closure Program ("the Program"). Under the Program, DOE proposes to classify as "incidental waste" any radioactive waste remaining in the SRS Tanks after processing and removal and to exempt such "incidental waste" from NRC licensing authority under Section 202(4) of the Energy Reorganization Act of 1974 ("ERA"), as

amended, 42 U.S.C. § 5842(4).

2. Nothing in the ERA, or any other potentially applicable law, defines or recognizes the term "incidental waste" or exempts from NRC licensing authority HLW that is "incidental" to DOE waste-management activities. DOE has invented – without any statutory basis – the term "incidental waste" as a means of circumventing NRC licensing authority and safety oversight. Contrary to DOE's position, the licensing provisions of the ERA require that hazardous waste remaining in the decommissioned SRS Tanks retain its classification as HLW. Moreover, the remaining HLW in the SRS Tanks will be, in effect, permanently stored in them. Under the ERA, the SRS Tanks are therefore subject to NRC licensing because they will be used – and, in the case of completed tanks 17 and 20, are being used – "for the express purpose of subsequent long-term storage of high-level radioactive waste generated by the [AEC, ERDA, or DOE]." 42 U.S.C. § 5842(4).

3. Even if NRDC were to accept NRC's informal working definition of the term "incidental waste," the waste remaining in the SRS Tanks under the Program could not be construed to be "incidental" as the term is currently interpreted by DOE.

4. An immediate response by NRC to this petition is essential. DOE has already begun implementation of the Program, and two SRS Tanks (tanks 17 and 20) have been grouted, *i.e.*, filled with concrete, and closed. Furthermore, the State of South Carolina has approved the Program, but only on the condition that NRC accept DOE's

classification of the HLW remaining in the SRS Tanks as "incidental waste." Unless NRC assumes and exercises jurisdiction, dangerous high-level radioactive waste will be abandoned in the SRS Tanks without adequate protection against its dispersal into the environment. The absence of any oversight by NRC will therefore represent a serious threat to public safety and the environment, which will have a long-term impact on the region.

5. This petition does not call for NRC to exercise an enforcement or other judicially un-reviewable discretionary action within the meaning of 10 C.F.R. § 2.206 or the holding in *Hechler v. Chaney*, 470 U.S. 821 (1985). The NRC is required by the ERA to license all "long-term storage of high-level radioactive waste generated by the [AEC, ERDA, or DOE]." 42 U.S.C. § 5842(4). NRDC petitions the NRC to exercise its mandatory licensing jurisdiction of the Program under the ERA and urges the NRC not to sanction DOE's attempts to establish a permanent, unlicensed high-level waste repository at the SRS Tank farms.

II. NRDC

6. Petitioner NRDC is a national non-profit membership environmental organization incorporated under the laws of New York, with offices in Washington, D.C., New York City, San Francisco, and Los Angeles. NRDC's nationwide membership of over 350,000 currently includes 90 individual members in the five counties in South Carolina and Georgia (Aiken, Allendale, Barnwell, Burke, and Screven) that are in the

vicinity of or adjacent to the Savannah River Site. Additional members live in counties that border the Savannah River downstream from the Savannah River site. Many members have joined NRDC to obtain adequate representation and protection of the environmental interests that they share with NRDC.

7. NRDC's mandate includes maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since its inception in 1970, NRDC has sought to improve the environmental and safety conditions of nuclear facilities operated by DOE and the agencies that preceded it. To achieve this objective, NRDC and its members engage in legislative activities, litigation, administrative actions, and public education efforts to inform others about the environmental impacts of the activities of DOE. With respect to the DOE High-Level Waste Tank Farms at the Savannah River site and Hanford Reservation, NRDC has consistently pressed NRC, DOE, and the agencies that preceded DOE to comply with the National Environmental Policy Act and Energy Reorganization Act.

III. NRC Licensing Requirements

8. Section 202(4) of the ERA requires NRC to license "facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive waste generated by the Administration, which are not used for, or are part of, research and

development activities."[1] The ERA does not provide a definition of HLW for the purpose of applying Section 202(4). Instead, the ERA incorporates the definitions of HLW in effect when it was enacted in 1974: (1) the definition in Section 2(j) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. § 1402(j); and (2) the definition provided in the Atomic Energy Commission's regulations, 10 C.F.R. pt. 50, app. F, para. 2. Each of these definitions defines HLW as the liquid (aqueous) wastes resulting from the operation of solvent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels. 33 U.S.C. § 1402(j); 10 C.F.R. pt. 50. Importantly, these definitions depend on the origin of the radioactive waste (fuel reprocessing), as opposed to the concentration, form, or radiological hazard of the waste, and do not provide any exemptions for "incidental waste." *Id.*

9. When Congress enacted the Nuclear Waste Policy Act of 1982 ("NWPA"), a new definition of HLW was included in Section 2(12), 42 U.S.C. § 1010 (12). This definition included for the first time the requirement that HLW contain fission products in "sufficient concentrations." *Id.* This narrow definition is the only conceivable statutory provision that DOE could assert as a basis for the "incidental waste" exemption it is attempting to create. The NWPA definition of HLW, however, applies only to the NWPA and does not in any way affect or otherwise limit the licensing requirements of

[1] It is self evident, and DOE has not asserted otherwise, that the Program does not constitute a research and development activity within the meaning of the ERA.

the NRC. 42 U.S.C. § 10134(f). Accordingly, the NWPA definition does not and cannot be construed to alter the meaning of HLW as the term is used under the NRC licensing requirements of the ERA. Therefore, any use of the NWPA to exempt DOE facilities otherwise subject to NRC licensing under the ERA violates both it and the NWPA.

10. As a matter of law, Section 202(4) of the ERA requires NRC to license the SRS Tanks containing residual HLW; the residual radioactive waste is covered by the definition of HLW used under the ERA and will be stored there on a long-term basis.

IV. The Waste Contained in the SRS Tanks Fails To Satisfy NRC's Informal Definition of Incidental Waste

11. From the early 1950s until 1991, the primary mission of the Savannah River Site was to produce nuclear materials for national defense. To achieve that mission, processes were used to recover uranium and plutonium from reactor fuel and target assemblies in the F and H separations areas. This chemical reprocessing resulted in the generation of approximately 127,500 cubic meters (34 million gallons) of HLW in liquid, sludge, salt cake, and other forms. Most of this HLW is currently stored in the 51 HLW storage tanks in areas F and H of the SRS Tank farm. Area F includes 22 HLW tanks and area H includes 29 HLW tanks.

12. Even if one assumes, *arguendo*, that the waste remaining in the SRS Tanks is not subject to NRC licensing if it is "incidental," the residual SRS Tank waste is still subject to NRC licensing because it fails to satisfy the terms of this purported exemption.

NRC's working, informal definition of "incidental" is contained in an NRC Staff denial of a 1993 petition for rulemaking, dated March 2, 1993. This definition provides that HLW can be reclassified as "incidental" if (1) the HLW has been processed (or will be further processed) to remove key radionuclides to the maximum extent that is technically and economically practical; (2) the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level radioactive waste in 10 C.F.R. Part 61; and (3) the waste will be managed pursuant to the Atomic Energy Act in a manner that satisfies safety requirements comparable to the performance objectives of 10 C.F.R. Part 61.

13. None of these criteria is satisfied under the Program. In particular, the Program does not provide (1) waste tank chemical and radiological inventory analyses following bulk waste removal and cleaning; (2) a method of modeling ground-water transport of residual waste; or (3) adequate performance objectives. The performance objectives of the Program are particularly deficient. In particular, estimation of the spread of radionuclides in the groundwater is based on assessment of their concentration in the groundwater at the seepline over a time period of 10,000 years. However, because such radionuclides are not calculated to arrive at the seepline within the 10,000-year reference period, this performance objective of the Program is independent of the quantity

of residual radionuclide wastes. Similarly, the concentration-averaging methodology[2] used under the Program does not serve to bound reasonably the amount of high-level waste remaining in the SRS Tanks following Program cleanup. These environment and safety issues demonstrate that NRC oversight of the SRS Tanks is essential.

14. The inability of the Program to meet NRC's informal working definition of "incidental" is most clearly established by NRC's own evaluation, which was performed by the Center for Nuclear Waste Regulatory Analysis. The Center's evaluation is documented in NRC's letter to Mr. Roy J. Schepens, the Acting Assistant Manager for High Level Waste at DOE's Savannah River Operations Office, dated June 30, 1998. That analysis exposes numerous inadequacies, inconsistencies, and improper assumptions implicit in DOE's attempt to reclassify the HLW under the Program and to avoid NRC licensing authority. Among other things, the Center's analysis demonstrates that (1) DOE's waste characterization cannot establish whether wastes processed under the Program will be processed to the maximum extent technically and economically practical; (2) DOE does not provide any regulatory or scientific basis for the unique concentration-averaging technique it uses under the Program; and (3) assessment of the Program's success relative to its performance objectives is deeply flawed. The problems with evaluating the Program's performance objectives are of particular concern and include

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[2] The concentration-averaging methodology of the Program is used to compare the residual tank waste against Class C limits by recalculating the concentrations using the volume

omission of important radionuclides, failure to include the effects of long-term natural phenomena, incorporation of assumptions about the life of engineered barriers that are contrary to 10 C.F.R. Part 61, inconsistent and improper reliance on institutional controls, and use of inadequate groundwater transport modeling.

15. DOE itself recognizes that 37 of the 51 SRS Tanks will require additional processing, not included in the Program, to meet criterion 2 of the Program's performance objectives. Regulatory Basis for Incidental Waste Classification at the Savannah River Site High-Level Waste Tank Farms," Rev. 1, at 3.2 (April 30, 1997). DOE erroneously attempts to assert that its definition of "incidental" as it applies to HLW can be derived from 10 C.F.R. Part 61, which provides for alternative waste classifications for low-level waste. Apart from the obvious inapplicability of this definition, NRC's own analysis (see its June 30, 1998, letter) demonstrates that DOE's efforts to support its alternative waste classification are devoid of any scientifically defensible basis. In particular, the low-level-waste classification scheme is premised on several assumptions that do not apply under the present circumstances; specifically, the low-level-waste classification scheme, among other things, (1) considers only the most robust tanks (Type III tanks); (2) includes only four radionuclides, which excludes important radionuclides such as iodine-129, plutonium, and americium-241, among others; and (3) excludes the potential for groundwater intrusion.

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of waste and added stabilizing material.

16. In sum, DOE's effort to avoid NRC licensing, even assuming the existence of an "incidental waste" licensing loophole, is meritless.

V. Conclusion

17. There is no plausible basis upon which DOE can, under the governing law, avoid NRC jurisdiction of the SRS Tanks. The ERA requires NRC to assert its regulatory authority over the SRS Tanks and DOE's cleanup Program. Two of the SRS Tanks have been closed already, and DOE intends to continue its cleanup efforts under the Program through further SRS Tank closures in the near future. Immediate NRC oversight is therefore urgently required under the applicable law and the exigencies created by DOE's on-going actions on the Savannah River Site.

Respectfully submitted this 28th day of July, 1998,

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing document was served upon the below-listed individuals via U.S. Mail on this 28th day of July, 1998.

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