January 14, 2011

Ms. Sherri Ross, DOE-SR
Building 704-S, Room 43
U.S. Department of Energy
Savannah River Operations Office
Aiken, SC 29802

Deliver by email to Sherri.Ross@srs.gov

Subject: Draft Basis for Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site

Dear Ms. Ross:

This letter provides general comments of the Savannah River Site's Citizens Advisory Board ("SRS-CAB") Waste Management Committee on DOE's "Draft Basis for Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site," dated September 30, 2010 (Document designation: DOE/SRS-WD-2010-001 Revision 0), referred to herein as the "Draft Basis". As you are aware personally, since the enactment of Section 3116 of the *Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005* (NDAA), the SRS-CAB has requested briefings from DOE on the varied and diverse activities associated with Section 3116 and its implementation. DOE has provided those briefings and related information. As recent examples, on November 15, 2010, you and Ms. Virginia Dickert gave presentations on the closure plans for the SRS Tank Farms, with particular emphasis on the F Tank Farm Closure Schedule, including the F Tank Farm Performance Assessment ("PA"), DOE's Waste Decision Document Development and NRC's Request for Additional Information activities. The NRC provided additional perspective on its activities in the same meeting, as that agency also did on July 27, 2010 with respect to its consultation and monitoring activities at SRS. SRS-CAB members previously attended an educational forum on PAs, commented on the draft F-Tank Farm PA, and attended joint NRC/DOE meetings on the Waste Determination process. Members also requested and reviewed "input packages" developed by DOE's contractor, including input package FTF-WDIP-003. That package provides information used in Section 5.2.1, *Highly Radioactive Radionuclide Removal to the Maximum Extent Practical*, of the Draft Basis. Finally, in early December, 2010, SRS-CAB members were provided with the NRC's Requests for Additional Information ("RAIs").

At the outset, the SRS-CAB recognizes and appreciates that, after some initial interagency challenges that have significantly delayed the Waste Determination for F-Tank Farm, the DOE and NRC have identified approaches to potentially minimize further avoidable delay. As major examples, the input packages developed by DOE in June, 2010, allowed for earlier review of the supportive information before the Draft Basis Document was submitted to the NRC, and joint NRC/DOE meetings not only aired technical, legal and procedural issues but were also open for public observation. The SRS-CAB applauds these types of innovative, pro-

active efforts to increase public participation and knowledge and, at the same time, reduce "bureaucratic" dithering and avoidance of conflicts which arise principally from differences in regulatory approach.

At the same time, notwithstanding a multi-year exchange of information, discussions and technical consultation between the two agencies, the NRC's recent RAIs raise a troubling prospect that substantial additional foundation work by DOE may be a precondition to favorable NRC conclusions on DOE's Waste Determination:

> While some of NRC staff concerns are expected to be addressed during the RAI resolution process, other concerns can only be realistically evaluated over a longer time period than allowed for completion of NRC staff's Technical Evaluation Report in calendar year 2011. NRC staff expects that additional sampling and waste characterization, material property investigations, and other data collection activities will need to occur to provide adequate support for DOE PA models that may include (i) executing additional laboratory and field experiments, (ii) conducting expert elicitations, and (iii) performing additional modeling and calculations. NRC would like to initiate discussion with DOE regarding the types of activities that could be conducted to increase confidence that performance objectives can be met. "NRC Staff Comments on the Draft Basis for Section 3116 Determination and Associated Performance Assessment for the F-Tank Farm at the Savannah River Site", page 4.

We suggest that DOE further engage the NRC in detailed discussion to enhance the clarity and discipline associated with how the NRC will make its findings of "reasonable assurance of adequate protection." More specifically, the ultimate NRC conclusion is whether the NRC staff "has *reasonable assurance* that the NDAA criterion can be met for residual waste and related tank/auxiliary components" at the F-Tank Farm. Our reading of the Draft Basis indicates substantial conservatisms selected by DOE in its analyses to assure the criteria will be met, including DOE analyses of groundwater dose extending 20,000 years after closure and DOE quantitative analysis to identify radionuclides down to an aggregate contribution of dose of less than or equal to 1.25 mrem/year (See, footnotes 25 and 26, page 5-4 of the Draft Basis). Yet, the NRC apparently seeks greater specificity and analytical consistency on diverse underlying factors, such as the corrosion initiation time for different Type tanks and different corrosion mechanisms. If the Draft Basis effectively "bounds" these underlying factors by conservatisms, the additional efforts identified by the NRC may add information yet not materially affect the ultimate issues before DOE and the NRC.

We also suggest that, given the conservatisms in the DOE examinations and notwithstanding the pursuit of greater precision in some aspects of DOE analyses, DOE and the NRC develop a methodology or approach to pursue that greater precision without delaying the targeted schedule dates for closing tanks.

Future Waste Cleaning Technologies and Removal of Liquid Waste "to the Maximum Extent Practical"

We observe, and concur with DOE's suggestion, that removal of liquid wastes from the Tank Farm "to the maximum extent practical" as required by Section 3116 allows DOE to factor into its Waste Determination a broad range of considerations, including but not limited to technical and economic practicalities. See, for example, Section 5.2 of the Draft Basis, page 5-9[1]. DOE's compliance with its Federal Facilities Agreement, especially established schedules for environmental remediation milestones, and Tank Farm life-cycle cost avoidance or minimization, would be permissible considerations. Thus, for example, a selection of proven, previously-deployed technology to remove liquid waste in lieu of deploying (or waiting for) emerging or transformational technology may be not only reasonable and appropriate to assure compliance but also crucial in avoiding significant project risk or schedule slippage.

The Draft Basis discusses in some detail the history of liquid waste removal, exchange of information within the DOE complex about removal techniques, and the deployment of proven technology to date. See, in particular, Section 2.3.2 (page 2-58), section 5.2.2 (page 5-10) and section 5.3 (page 5-16) for information on the evolution of removal of liquid waste through -- what is now -- a systematic progression of waste removal and cleaning activities using proven technologies to a point of diminishing returns relative to protection of public health and the environment as compared to expenditure of resources, radiological exposure to workers, and extended life cycle economic costs. We suggest that DOE more extensively describe its "systematic progression" as a **prospective game plan for the tanks**. Of key significance might be a description of the factors or evaluations that DOE will use to determine that the "maximum extent practical" has been reached, recognizing that real time factors will come into play. For example, DOE might describe the evaluative nature of weighing future cleaning campaigns against the likely reduction in radiological inventory, the manner in which dose to workers will be considered, and the role and responsibilities of specific DOE representatives or groups in decision-making.

We also suggest that more detail be provided in Section 2.3.7 (page 2-64) and Section 5.2.2.2 (page 5-13) with respect to the identification, evaluation and deployment of emerging or additional technologies for waste removal. What we mean by this is a more expanded description of the evaluative process by which DOE prospectively will assure that potentially viable, cost-effective and technically-sound (and without appreciable project risk) new technologies might be applied to F-Tank Farm. The description should also clearly delineate, at least in a general narrative or qualitative form, the limitations of such a future evaluative process. In particular, we see little overall benefit from significant departure from proven and deployed, existing technology when the results achieved by the existing technology are consistent with and supportive of the relevant PAs and achievement of the performance objectives in 10 CFR Part 61, Subpart C.

[1] "…The MEP standard contemplates room for exercising expert judgment in weighing several factors. Such factors may include environmental, health, timing or other exigencies; the risks and benefits to public health, safety and the environment arising from further HRR removal as compared with countervailing considerations that may ensue from not removing or delaying removal; the reasonable availability of proven technologies; the usefulness of such technologies; and the sensibleness of using such technologies…"

Specific Comments

We agree that Tanks 17 and 20 are not "in scope" for the Design Basis, recognizing that the Performance Assessment takes into account the residuals in those tanks (footnote 1, page 1-1) and South Carolina DHEC approval.

The experience base for the use of oxalic acid for removal of liquid waste is extensive and compelling (Section 2.3.3, page 2-60; Section 5.2.2.2, page 5-11). We understand that DOE is evaluating the costs and benefits of such issues as sequencing, number and volumes of this treatment technique, which may vary from tank to tank, e.g. "the selection of a chemical cleaning method will be considered on each individual application basis…" We encourage DOE to provide a narrative for the flexibility and judgment that necessarily will be inherent in this "fine tuning" from tank to tank.[2] Similarly, to the extent that particular techniques or approaches for removal will *not* be pursued because experience indicates their application is not advantageous, DOE might include additional documentation about the exclusion of those techniques.

With respect to the flushing of cooling coils, Section 2.3.5, page 2-63, DOE's knowledge base appears to be more limited, or at least not as extensive, as experience with waste removal from tanks. The Draft Basis should address the potential contingency for plugging cooling coils and leaving them in place with residual waste, should flushing prove less achievable or to address instances in which coils can not be flushed (e.g. blockage; physically constricted coils; damaged coils). Perhaps a narrative on the upper limits ("bounding") volume of liquid waste abandoned in coils might be evaluated as within the conservatisms of the PA, either on a coil, tank or tank farm basis.

The SRS-CAB appreciates the opportunity to comment on the Draft Basis.

Very truly yours,

Joe Ortaldo
Chair,

Art Domby
Vice-Chair

SRS-CAB Waste Management Committee

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[2] The NRC's RAI-MEP-1 suggests that DOE provide a fuller explanation of the waste removal technologies "expected to be deployed" for the different tank types, and the "expected effectiveness of these technologies" based on experience to date. We consider important, too, a discussion of the prospective technical judgment that, without question, will have to be applied to particular circumstances. In this regard, DOE might articulate a threshold, perhaps akin to an Unresolved Safety Question definition, in the absence of which technical judgment may be exercised within the Design Basis.