UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 18, 1997

MEMORANDUM TO: Chairman Jackson
Commissioner Rogers
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

FROM: Hugh L. Thompson, Jr.
Acting Executive Director for Operations

SUBJECT: SAVANNAH RIVER SITE HIGH-LEVEL WASTE TANK CLOSURE: CLASSIFICATION OF RESIDUAL WASTE AS "INCIDENTAL"

In a memorandum dated September 13, 1996 (see Attachment A to Attachment), Mr. Taylor informed the Commission of the U.S. Department of Energy's (DOE's) program to retrieve and process defense high-level wastes (HLWs) stored in 51 tanks at the Savannah River site and of DOE's plans to close the tanks once they are emptied of their contents. The memorandum also described the key issue with respect to tank closure, which is whether DOE effectively removes essentially all the HLW from the tanks such that the residual wastes can be classified as "incidental" and, thus, not subject to the U.S. Nuclear Regulatory Commission's licensing authority under the Energy Reorganization Act of 1974.

The purpose of this memorandum is to update the Commission on the status of events since mid-September in relation to DOE's tank closure plans. This memo also is intended to advise the Commission of the staff's plans to review DOE's waste classification methodology and to advise DOE on appropriate criteria for the classification of the residual waste in the tanks as "incidental," after waste removal operations. Lastly, this memo informs the Commission of DOE's plans to close 2 of the 51 tanks before the staff completes its review of DOE's waste classification methodology and prior to Commission approval of the application of the incidental waste classification criteria to HLW tank closure. Additional information on the background and status of NRC activities related to the classification of incidental waste at the Savannah River site is provided in the Attachment to this memo.

NRC staff met with DOE staff on January 27 and 28, 1997, at the Savannah River site to inspect the HLW tank farm and further discuss the request for NRC review of DOE's waste classification methodology, as well as its current plans and schedules for tank closure (see Attachment D to Attachment, letter dated December 20, 1996, from L. Watkins, DOE, to C. Paperiello, NRC). In this regard, as noted above, DOE is currently planning to close, in fiscal year 1997, two tanks that do not require enhanced cleaning to satisfy incidental waste classification criteria (see discussion in the Attachment). Of the 51 tanks, there are 14 that do not require enhanced cleaning. DOE recognizes

CONTACT: Richard A. Weller/NMSS/DWM
(301) 415-7287

that there are nominal risks in proceeding with tank closure before NRC completes its evaluation of DOE's methodology for waste classification. DOE also recognizes that a funding arrangement (Interagency Agreement/Memorandum of Understanding) will need to be developed before the staff can initiate any review. The staff is working with DOE to develop this arrangement now. Consistent with the resource estimates provided in Mr. Taylor's September 13, 1996, memorandum, staff believes that a review of DOE's methodology will necessitate approximately 1 to 1.5 full-time equivalents over a period of 6 to 7 months, including time for Commission review of the results of the staff's evaluation. It is expected that the determinations made with respect to the application of the incidental waste classification criteria to HLW tank closure will be used as a precedent at other DOE sites, such as Hanford and West Valley. Staff will seek Commission review and approval of these determinations.

Attachment: Status of NRC Activities @ SRS
Attachment A: Memo dtd 9/13/96 (EDO to Comm)
Attachment A.1: Ltr dtd 8/28/96 (DOE to NRC)
Attachment B: Ltr dtd 9/13/96 (NRC to DOE)
Attachment C: Mins of 9/17/96 mtg
Attachment D: Ltr dtd 12/20/96 (DOE to NRC)

cc: OGC
OPA
OCA
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DATE	1/15/97		1/15/97		1/23/97		1/24/97	

OFC	DWM*	NMSS*		EDO		
NAME	JGreeves	CPaperiello		HLThompson		
DATE	2/2/97	2/10/97		2/ /97		

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ATTACHMENT

STATUS OF THE U.S. NUCLEAR REGULATORY COMMISSION'S ACTIVITIES RELATED TO CLASSIFICATION OF INCIDENTAL WASTE AT THE SAVANNAH RIVER SITE

In a letter dated August 28, 1996 (see Attachment A.1 to Attachment A) from M. Fiori, Manager, Savannah River Operations Office (DOE) to C. Paperiello, Director, Office of Nuclear Material Safety and Safeguards (NRC), DOE requested staff's expedited review of a report on DOE's methodology for classifying the residual tank waste. The staff responded on September 13, 1996 (Attachment B) to Mr. Fiori's letter and met with DOE staff on September 17, 1996 (Attachment C) to further discuss DOE's request. It was decided that NRC could not review the report within DOE's requested timeframe. The staff explained that it had no budget for the work, and that before the technical review could begin, it would be necessary to establish a funding arrangement. It was estimated that 6 to 7 months would be required to complete the review, including time for Commission involvement. After discussing the estimated cost and schedule for NRC review, DOE decided to reevaluate its request for NRC review. This reevaluation was to include an internal review of the waste classification methodology and further consultation with the State of South Carolina and the U.S. Environmental Protection Agency, which regulate certain aspects of Savannah River site cleanup.

DOE has recently completed its reevaluation and, by letter dated December 20, 1996 (Attachment D), from L. Watkins, DOE Assistant Manager for High-Level Waste at Savannah River, to C. Paperiello, submitted a revised request for NRC review of DOE's waste classification methodology. Specifically, DOE is requesting NRC to review its general methodology for waste classification and the application of the existing criteria for the classification of "incidental" wastes (see Attachment A), with a particular focus on the appropriateness of 10 CFR Part 61 Class C concentration limits [Criterion (2) in Attachment A] for the residual waste in the storage tanks. In this regard, it should be noted that the existing criteria were developed for the classification of wastes removed from tanks and subsequently treated.

DOE has now determined that all 51 tanks can be closed in conformance with the NRC waste classification criteria. DOE's closure plans include the addition of a reducing grout to the tanks to immobilize the residual wastes to the extent feasible. However, conformance with Criterion (2) will necessitate DOE's use of radionuclide "concentration averaging" (i.e., the concentration averaged over a portion of the grout) to satisfy Class C limits for most, if not all, the tanks. Further, DOE estimates that 37 of the 51 tanks will necessitate additional cleaning (oxalic acid washing) before grouting to satisfy Class C limits. DOE plans to use the guidance provided in the staff's "Technical Position (TP) on Concentration Averaging and Encapsulation" (January 1995) to support meeting Class C limits. In this regard, DOE is requesting assistance from NRC concerning the application of guidance on concentration averaging in meeting Class C limits.

Attachment

While DOE can implement a program of enhanced cleaning of the 37 tanks to satisfy Class C limits, DOE questions, in its letter, whether this action would be cost-effective. DOE estimates the cost of enhanced cleaning at 800,000 dollars per tank, or roughly 30 million dollars for all 37 tanks. DOE notes that the focus of NRC Criterion (2) in limiting concentrations of immobilized wastes to values below Part 61 Class C limits is protection of individuals from inadvertent intrusion. DOE believes that, for several reasons, individual public health and safety will be well-protected from any inadvertent intrusion. The residual radioactive material will be generally immobilized and distributed in a fairly narrow layer (several centimeters to about 60 centimeters) of grout over the broad area of a large diameter tank (roughly 25 meters). Further, the narrow layer of immobilized waste will be topped with additional layers of protective grout to thicknesses of 6 to 9 meters, depending on the type and size of the tank. Lastly, DOE intends to maintain control of the site in perpetuity, although, in this regard, DOE understands that, consistent with current policy, NRC does not rely on institutional controls for more than 100 years. As such, any staff review of DOE provisions for protection of individuals from inadvertent intrusion would focus on the physical barriers planned by DOE as tank closure design features.

With respect to managing wastes for near-surface disposal, the Commission's requirements in 10 CFR 61.58 recognize the acceptability of other provisions for the classification and characteristics of waste if, upon consideration of the specific characteristics of the waste, disposal site, and method of disposal, there is reasonable assurance the performance objectives of Part 61 will be satisfied. DOE notes that, as part of its methodology for satisfying waste classification Criterion (3) in the March 1993 Bernero letter, it is committed to cleaning all tanks to the extent necessary to satisfy the performance objectives of Part 61 and, thereby, protect the public health and safety. Accordingly, DOE requests that, with due consideration of the planned tank closure design features (i.e., the grout) for protection against inadvertent intrusion and the commitment to meet Part 61 performance objectives for all other dose pathways of interest, NRC evaluate the acceptability of these other provisions for the classification of tank residual wastes as provided for in Section 61.58.

ATTACHMENT A

MEMO DATED SEPTEMBER 13, 1996,
TO COMMISSION FROM EDO

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 13, 1996

MEMORANDUM TO: Chairman Jackson
Commissioner Rogers
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: SAVANNAH RIVER SITE HIGH-LEVEL WASTE TANK CLOSURE: CLASSIFICATION OF RESIDUAL WASTE AS INCIDENTAL

In January of this year, the U.S. Department of Energy (DOE) initiated the process for retrieval, treatment, and vitrification of the defense high-level radioactive wastes (HLW) currently stored in 51 tanks at the Savannah River site in South Carolina. In relation to these activities, staff met with DOE representatives in April of this year to discuss DOE's plans for the closure of the tanks once they are emptied of their contents. Additional informal feedback on DOE's tank closure plans was provided by teleconference.

The key issue with respect to tank closure is whether DOE effectively removes essentially all of the HLW from the tanks such that the residual wastes in the tanks can be classified as "incidental." Wastes classified as "incidental" are not encompassed within the definition of "high-level radioactive waste" in Appendix F of 10 CFR Part 50 and, consistent with the requirements of Section 202 of the Energy Reorganization Act of 1974, the facilities (i.e., the tanks) to be used for disposal of these incidental wastes are not subject to U.S. Nuclear Regulatory Commission licensing authority under the Act. Criteria for distinguishing HLW from incidental wastes were clarified in the Commission's consideration, and subsequent denial in February 1993, of a petition for rulemaking, submitted by the States of Washington and Oregon, which dealt with the process and criteria for classification of radioactive waste materials at defense facilities as HLW or as non-HLW. In order to address issues related to Hanford tank wastes, the Commission's policy guidance on waste classification was explained to DOE in correspondence from the staff in March 1993 (letter from R. Bernero to J. Lytle). As noted in that letter, the Commission would regard the residual fraction as "incidental" waste if the tank waste: (1) has been processed (or will be further processed) to remove key radionuclides to the maximum extent that is technically and economically practical; (2) will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR Part 61;

CONTACT: Richard A. Weller, NMSS
(301) 415-7287

Attachment A

and (3) will be managed, pursuant to the Atomic Energy Act, so that safety requirements comparable to the performance objectives set out in 10 CFR Part 61 are satisfied.

The staff plans to use the above criteria, as appropriate, to evaluate DOE's methodology for residual waste classification in the Savannah River tanks and, ultimately, whether disposal of these wastes is subject to NRC licensing authority. In particular, the Commission guidance issued in March 1993 mainly addressed classification of the radioactive wastes removed from the tanks at Hanford and other DOE facilities. Therefore, staff will need to consider whether modification of the criteria may be needed to address the tanks themselves after removal of the wastes.

DOE has also been working with the South Carolina Department of Health and Environmental Controls and the U.S. Environmental Protection Agency to determine acceptable closure criteria. Regulator approval of the closure plan is contingent on NRC acceptance of the incidental waste classification methodology. In light of this, DOE recently submitted a formal request (attached letter dated August 28, 1996, from M. Fiori to C. Paperiello) for the staff's expedited review of DOE's methodology for classification of residual tank waste as "incidental." The letter further requested NRC concurrence with DOE methodology by the end of September 1996.

Although the staff intends to give DOE's request high priority, the staff believes that DOE's desired schedule for the review is infeasible. It should also be noted that this activity was not included in DOE's April forecast of needs for NRC technical support and, presently, therefore, no funding has been allocated for this review. It is the staff's intent to establish a funding mechanism for this review before resources are committed to this effort. This issue will be addressed with DOE and, if feasible, a funding provision will be included in an Interagency Agreement with DOE, as was done for NRC's review of DOE's plans for excess weapons plutonium disposition. The staff's estimate is that a review of DOE's methodology for residual waste classification will necessitate approximately 1-1.5 full-time equivalents over a period of 6 to 7 months. This includes time allocated for Commission review of the results of the staff's evaluation of this methodology.

In response to the August 28, 1996, letter, the staff will advise DOE of the scope and schedule of the planned review, as well as the issue of funding before conducting this review. Mr. Fiori, DOE Manager of the Savannah River Operations Office, is concerned about the time required for NRC review and concurrence beyond September 1996. While he has stated to the Office of Nuclear Materials Safety and Safeguards management that he was informed by his staff that NRC had committed to perform this work verbally in an April meeting and subsequent phone calls, NRC staff involved stated that no such commitments have been made. Nevertheless, NRC staff plans to meet with DOE and discuss scope, funding and schedule on September 17, 1996.

The staff will keep the Commission informed of further developments in this matter.

Attachment: 8/28/96 ltr (DOE to NRC)

cc: OGC
OPA
OCA
SECY

Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

AUG 28 1996

Dr. Carl J. Paperiello
Director
Office of Nuclear Materials and Safeguards
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Dr. Paperiello:

SUBJECT: Savannah River Site (SRS) High Level Waste (HLW) Tank Closure; Classification of Residual Waste as Incidental

The U.S. Department of Energy (DOE) Savannah River Operations Office (SR) is preparing to close the first of 51 HLW storage tanks at SRS by the end of this calendar year. Our respective staffs have been discussing the classification of the small amounts of residual high level waste remaining in the tanks, subsequent to waste removal operations, as "incidental" for the purposes of determining whether the Commission would be required to exercise licensing and related regulatory authority for the closed tanks. DOE will safely manage the residual high level "incidental" waste in accordance with existing DOE Orders and orders currently being revised to include the "incidental" waste terminology.

DOE has prepared the enclosed *Regulatory Basis for Incidental Waste Classification at the Savannah River Site High Level Waste Tank Farms* for the Commission's review and acceptance of the methodology for the "incidental" classification as logical and consistent with the Commission's rulings and requirements. DOE utilized the guidance provided in the Bernero, Nuclear Regulatory Commission to Lytle, DOE, letter dated March 3, 1993, as the basis for the "incidental" waste determination and has discussed this approach with your staff in a number of meetings and telephone conferences. DOE appreciates the efforts and the support of the Commission in developing the technical justification for classifying the residual waste as "incidental".

The South Carolina Department of Health and Environmental Controls (SCDHEC) and the Environmental Protection Agency (EPA) have been working closely with DOE-SR in determining closure criteria that will be protective of human health and the environment. The resulting *Industrial Wastewater Closure Plan for F and H Area High Level Waste Tank System* was formally approved by both SCDHEC and the EPA. The regulator approval of the closure plan is contingent upon the Commission's acceptance of the "incidental" waste determination methodology.

As previously discussed with the Commission's staff, Construction Technology Laboratories (CTL), Inc., a subsidiary of the Portland Cement Association, is currently formulating and testing the reducing grout that will be used to stabilize and bind up the residual waste in the tanks subsequent to waste removal operations. CTL is scheduled to complete the testing and verification of the required properties of the grout to assure the performance objectives for tank closure are met and provide a final technical report to DOE-SR by September 17, 1996. We will gladly forward a copy of that report to the Commission's staff. It should be noted that DOE-SR will not close any HLW tanks unless the CTL technical report provides verification that the grout meets tank closure performance objective requirements.

As the first tank to be closed, Tank 20 is scheduled to undergo pouring of the reducing grout on September 27, 1996, DOE would appreciate the Commission's support in reviewing of the enclosed document on a expedited basis. As previously mentioned, initial and subsequent comments from the Commission's staff have been included in this submittal.

This effort has the support of not only the regulators but the Citizens Advisory Board, which follows and makes recommendations relative to activities at the SRS, and the general public. All parties involved consider closure of the HLW tanks as the right thing to do. With the Commission's support, this activity will become a reality and the first HLW tank in the DOE complex will be closed.

My staff is available to provide any level of detail briefing necessary regarding this effort. Any questions may be directed to me or Charles E. Anderson at (803) 208-6084.

Sincerely,

Mario P. Fiori
Manager

PB-96-0171

Enclosure
Regulatory Basis for Incidental
Waste Classificationat the SRS
HLW Tank Farms

cc:
S. Cowan, EM-30, HQ
R. Erickson , EM-32, HQ

ATTACHMENT B

LETTER DATED SEPTEMBER 13, 1996,
FROM NRC TO DOE

r. Mario P. Fiori, Manager
Savannah River Operations Office
Department of Energy
P.O. Box A
Aiken, SC 29802

September 13, 1996

SUBJECT: SAVANNAH RIVER SITE HIGH-LEVEL WASTE TANK CLOSURE: CLASSIFICATION OF RESIDUAL WASTE AS INCIDENTAL

Dear Mr. Fiori:

The U.S. Nuclear Regulatory Commission has received your letter dated August 28, 1996, requesting Commission review of the Department of Energy's (DOE's) methodology for classification of residual wastes as "incidental" once the defense high-level radioactive waste tanks are emptied. In order to perform this review, we will first need to establish an agreement regarding funding, as this effort is currently unbudgeted. Once we have established a funding agreement, we intend to perform a scoping review of the tank closure technical support documents and provide you with a detailed schedule of our technical review. We are aware that you intend to begin grouting on September 27, 1996, however, it is not feasible to complete the review of DOE's methodology by this date.

Once the funding issue has been resolved, it is our intent to provide an expedited technical review as requested. This review may involve the Center for Nuclear Waste Regulatory Analysis, as well as NRC technical staff, because there are no NRC staff full-time equivalents budgeted for this task. If the reviewers consider it necessary, a Request for Additional Information may also be part of this process. Following the technical review, staff will seek the Commission's concurrence on the final decision. The expedited review process is roughly estimated to take 6 to 7 months, including time allocated for Commission review; it will take longer if contractor resources are necessary. Despite the constraints of the review process, we hope to work out a mutually acceptable schedule.

I look forward to meeting with your Assistant Manager, Mr. L. Watkins, on Tuesday, September 17, 1996, to discuss this matter. If you have any questions regarding the details of this letter, please contact Michael Bell of my staff on (301) 415-7286.

Sincerely,

[Original Signed by J. T. Greeves for]
Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards

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DATE	9/13/96		9/13/96		9/13/96		9/13/96		9/13/96

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Attachment B

ATTACHMENT C

MINUTES OF SEPTEMBER 17, 1996 MEETING
(DATED OCTOBER 22, 1996)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 22, 1996

MEMORANDUM TO: Carl J. Paperiello, Director
NMSS

THRU: Margaret V. Federline, Deputy Director
DWM/NMSS

FROM: Michael J. Bell, Chief
ENGB/DWM/NMSS

SUBJECT: MEETING WITH THE U.S. DEPARTMENT OF ENERGY STAFF TO DISCUSS REVIEW OF SAVANNAH RIVER TANK RESIDUAL WASTE CLASSIFICATION

DATE OF MEETING: September 17, 1996

PLACE OF MEETING: Two White Flint North, Rockville, MD (T8D-43)

ATTENDEES: Department of Energy (DOE)

Victor Stello, DOE HQ
Lee Watkins, DOE Savannah River Operations Office (SRO)
Lawrence Ling, DOE SRO

Nuclear Regulatory Commission

Carl J. Paperiello, NMSS/NRC
John T. Greeves, NMSS/NRC
Margaret Federline, NMSS/NRC
John Austin, NMSS/NRC
Michael Bell, NMSS/NRC
C. William Reamer, OGC/NRC

The meeting was held at DOE's request to discuss the letter dated August 28, 1996, from Mario P. Fiori, Manager of DOE's SRO, to Carl Paperiello, Director, NMSS, requesting NRC to review, on an expedited basis, DOE's report "Regulatory Basis for Incidental Waste Classification at the SRS HLW Tank Farms." NRC had responded by letter dated September 13, 1996, to Mr. Fiori that a review of the report on DOE's requested schedule was not feasible.

DOE expressed concern with the estimated cost and schedule for NRC review. NRC explained that by law it was required to recover 100% of its fees, and that it had no budget to perform the requested review. Therefore, before the technical review could begin, it would be necessary to establish a funding arrangement for the work. As to schedule, NRC staff explained that in an earlier review of the classification of the wastes being removed from the

CONTACT: Michael J. Bell/NMSS/ENGB
415-7286

Attachment C

Hanford double shell tanks, the Commission reviewed and approved the staff's actions. Thus, the 6 to 7 month schedule estimated by the staff included time for Commission review in addition to the staff's technical review.

Based on these discussions, DOE said it will not be responding in the near-term to the September 13 letter to Mr. Fiori. DOE will do an internal analysis to demonstrate that the material remaining in the tanks is "incidental waste," using the criteria established in the 1993 letter from R. Bernero to J. Lytle. Following this analysis, DOE will consult with the State and Environmental Protection Agency, who regulate certain aspects of the Savannah River site cleanup. At the conclusion of this review, DOE will reevaluate the need for NRC review and request another meeting at that time. In the interim, NRC staff will not initiate work on a funding mechanism or technical review of the DOE report.

cc: V. Stello, DOE HQ
L. Watkins, DOE SRO
L. Ling, DOE SRO

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ATTACHMENT D

LETTER DATED DECEMBER 20, 1996,
FROM DOE TO NRC

Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

DEC 2 0 1996

Dr. Carl J. Paperiello
Director
Office of Nuclear Materials and Safeguards
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Dr. Paperiello:

SUBJECT: Savannah River Site (SRS) High Level Waste (HLW) Tank Closure; Classification of Residual Waste as Incidental

I appreciated the opportunity to meet with you and your staff this past September 17, 1996, to discuss the U.S. Department of Energy (DOE) Savannah River Operations Office (SR) plans for closure of the 51 HLW storage tanks on SRS and the classification of the residual waste as "incidental".

SR has determined that all 51 tanks can be closed under existing Nuclear Regulatory Commission (NRC) criteria for "incidental" waste as specified in the Bernero (NRC) to Lytle (DOE) letter of March 1993; some will require use of concentration averaging and others will require additional cleaning and the likely use of concentration averaging. DOE will assure that the waste: (1) has been processed (or will be further processed) to remove key radionuclides to the maximum extent that is technically and economically practical; (2) will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR Part 61; and (3) will be managed pursuant to the Atomic Energy Act, so that safety requirements comparable to the performance objectives set out in 10 CFR Part 61 are satisfied to assure safety to the public. In order to meet all the above criteria we plan to proceed forward with two separate approaches as follows:

- The first approach would close 14 tanks that meet the criteria stated in the Bernero to Lytle letter. However, for most if not all of the 14 tanks, guidelines found in the NRC Branch Technical Position (BTP) of January 17, 1995, "Issuance of Final BTP on Concentration Averaging and Encapsulation, Revision in Part to Waste Classification Technical Position" have been used to support meeting the Class C limits. Assuming the NRC takes "no objection" to this methodology, these tanks will not require additional cleaning. These 14 tanks will be addressed as Category I tanks.

- The second approach would address the 37, Category II, tanks that will require additional cleaning, which could include an oxalic acid wash, and the likely use of concentration averaging to meet the above criteria. The cost for the additional cleaning is approximately $800,000 per tank.

Concurrently with Category I tank closure activities, SR is requesting the NRC to review the SR general methodology and application of the Bernero to Lytle letter, particularly Criteria 2 to high level waste tank closure. With regards to Criteria 2, SR specifically requests under 10 CFR 61.58, consideration of an alternative to the Class C limits of 10 CFR 61.55 for tank closure as the intruder scenarios for Class C determination may not be appropriate; the residual waste will be

immobilized and the tank will be filled with a stable medium; and the performance objectives of 10 CFR Part 61 will be met. These points are discussed further in the below paragraphs. SR recognizes that consideration of 10 CFR 61.58 for Criteria 2 may also require NRC evaluation of SR application of Criteria 1 and 3. SR recognizes that this will require further discussion and evaluation by the NRC which SR will fund.

SR understands that Criteria 2 is based on protection of individuals from inadvertent intrusion. However, with regards to SRS high level waste tank closure, access to and ultimate contact with the waste from inadvertent intrusion is highly unlikely. The small amount of residual waste on the bottom of the tanks will be located under approximately 40 feet of cement. Additionally, as documented in the *SRS Future Use Project Report of January 1996,* DOE intends to maintain control of the site in-perpetuity. Therefore, the possibility of inadvertent intrusion into the closed high level waste tanks and the areas surrounding the tanks will be remote. Consequently, the intruder exposure scenarios used to establish Class C limits of 10 CFR 61.55 may not be appropriate for tank closure. Re-evaluation and reconsideration of the appropriateness of the Class C limits for tank closure would result in substantial cost savings as additional cleaning of 37 tanks may not be required. This approach will not affect meeting the performance objectives of 10 CFR Part 61 and human health and the environment will still be protected.

10 CFR 61.58, states that the Commission, on request, may authorize other provisions for the classification and characteristics of waste on a specific basis if, after evaluation of the specific characteristics of the waste, disposal site and method of disposal, it finds reasonable assurance of compliance with the performance objectives in Subpart C of 10 CFR Part 61. Section 3.9 of the above referenced BTP further states that alternatives to the determination of radionuclide concentrations for waste classification purposes, other than those defined in the BTP, may be considered acceptable. Additionally, the referenced BTP states that the physical form of certain discrete wastes may be such that intruder exposure scenarios, other than those used to establish the values in Tables 1 and 2 of 10 CFR 61.55, may be appropriate. The referenced BTP specifically mentions the disposal of a large intact activated component filled with a structurally stable medium (e.g., cement). Subsequent to removal of waste from a tank, reducing grout will be placed in the tank to bind up and immobilize any residual waste. The grout is formulated to bind up the residual waste. The height of the reducing grout is dependent on the amount and characteristics of the residual waste. A low-strength cement, Controlled Low-Strength Material (CLSM), forms the next layer (approximately 7500 cubic yards) on top of the reducing grout. The final layer consists of a high-strength cement at the top of the tank (approximately 1500 cubic yards of cement, 5 feet high). The attached figure provides a typical tank closure configuration.

The first four tanks that will be closed at SRS in order are Tanks 20, 17, 19 and 18. The following provides the amount of reducing grout required in the first four tanks to meet Class C limits using concentration averaging based on the guidelines of the aforementioned NRC BTP: Tank 20 - 2.2 inches; Tank 17 - 12.5 inches; Tank 19 - 2.2 inches; and Tank 18 - 13.2 inches. Qualitative tests conducted by Construction Technology Laboratories (CTL), Inc. indicate that mixing occurs between the residual waste and the reducing grout. Based on the preliminary qualitative CTL test results, for SRS to proceed forward with closure activities for those tanks would involve only minimal risks. A copy of the CTL report, "Development of Reducing Grout for Closure of Savannah River Site Tank 20" of October 1996, has been provided to the NRC staff. At SR request, CTL is conducting additional quantitative tests to verify the performance of the reducing grout. Results from these quantitative CTL tests will also be provided to the NRC. This information can be used to support evaluation of SR tank closure methodology. With quantitative CTL test results, SR will proceed with closure activities for Tanks 20 and 17 concurrently with the NRC review of our methodology and the application of the Bernero to Lytle letter. SR plans to commence closure activities for Tank 20 in early February 1997.

We recognize that an Interagency Agreement (IA) is necessary to support the NRC involvement in our tank closure activities. I will ensure that SR actions required to finalize the IA on an expedited basis are performed.

As we discussed in a telephone conference call with your staff on December 16, 1996, NRC plans to visit SRS to evaluate our tank closure activities in January 1997. I fully support this effort and will provide any assistance your staff may require for this visit.

I am prepared to further brief you and your staff on our plans for tank closure at your convenience. Please contact me or Larry Ling of my staff at (803) 208-8248 if you have any questions or would like to schedule a briefing.

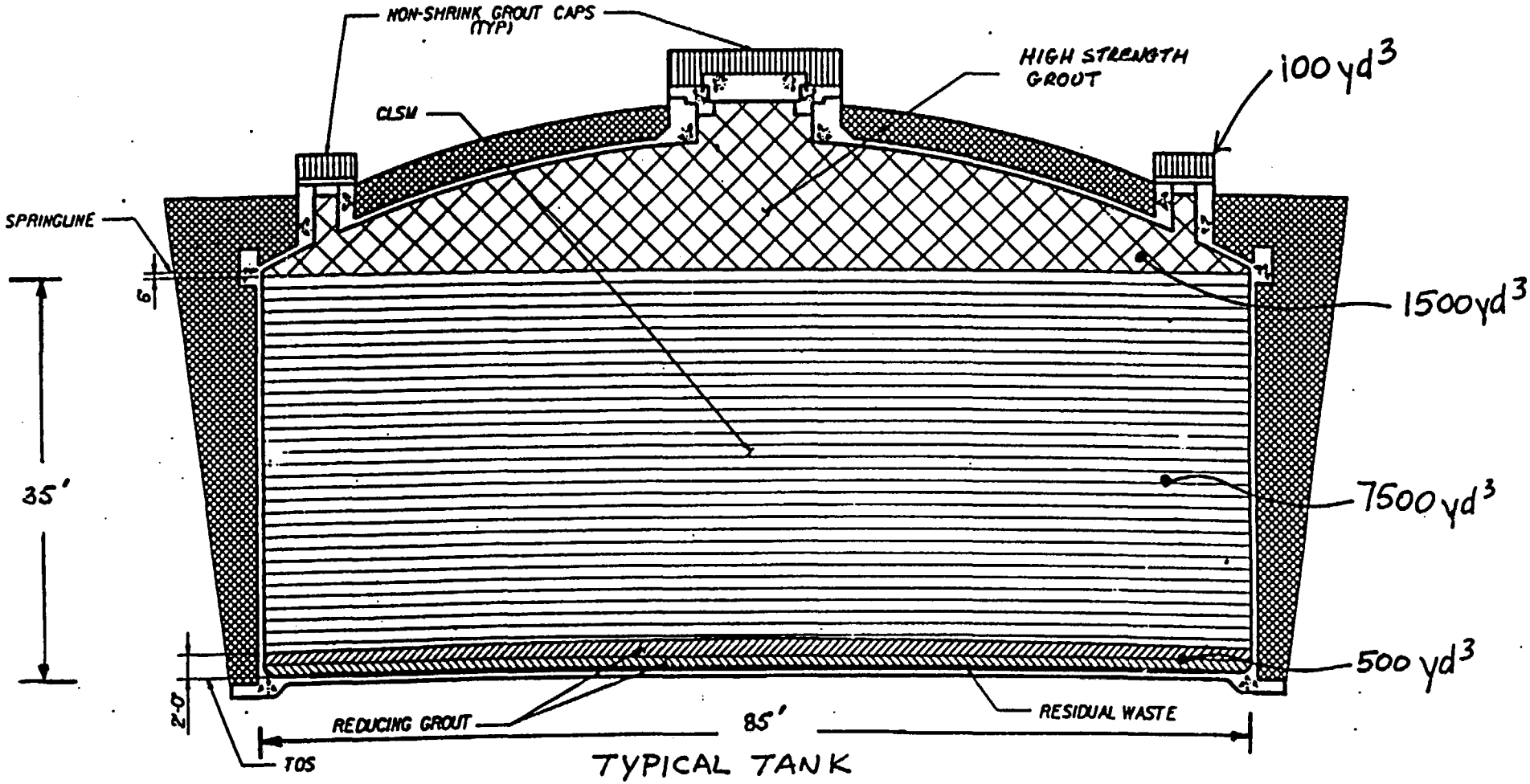
Sincerely,

A. Lee Watkins
Assistant Manager for
High Level Waste

PB-97-0011

Enclosure
Tank Closure Diagram

cc:
S. Cowan, EM-30, HQ
R. Erickson, EM-32, HQ



TYPICAL TANK CLOSURE