

SECTION 1. PUBLIC COMMENTS AND DOE RESPONSES

This section provides DOE's responses to comments received during the public comment period. Comments received during the public meeting in North Augusta, South Carolina are summarized. Letters and the transcriptions of telephone comments received over DOE's message line also are reproduced in this section. The transcripts from the meeting can be found in Appendix C. Appendix C also contains written comments submitted at the public meeting, letters that acknowledge receipt of the Draft EIS but do not provide comments requiring DOE responses, did, and a letter and form from the South Carolina Office of State Budget.

DOE published the *Draft Environmental Impact Statement for the Construction and Operation of a Tritium Extraction Facility at the Savannah River Site* in May 1998. On June 9, 1998, DOE held public meetings on the Draft Environmental Impact Statement (DEIS) in North Augusta, South Carolina. The public comment period ended on June 22, 1998.

Court reporters documented comments and statements made during two public meeting sessions. In those two sessions, eight individuals provided comments or made public statements. DOE also received four letters with comments (including one by electronic mail) on the Draft EIS. Two individuals left comments by telephone on DOE's message line.

This section presents the comments received and the DOE responses to those comments. If a comment prompted a modification to the EIS, DOE has noted the change and directed the reader to that change.

Comments are identified by one of the following letter codes:

- M1 – M2 (comments submitted in either session 1 or 2 of the public meeting)
- L1 – L4 (comments received by letter or email)
- V1 – V2 (comments submitted by telephone to DOE's message line)

DOE numbered specific comments in each letter or telephone message sequentially (01, 02, etc.) to provide unique identifiers. Table 1-1 lists the

individuals and government agencies that submitted comments and their unique identifiers.

The Department extends its gratitude to all the individuals and agencies who have shown the interest and taken the time to provide comments.

Table 1-1. Public comments on the Draft TEF EIS.

Comment source number ^a	Commenter	Page number
Commenters at the public meetings ^b		
M1-01, M1-02	Mr. Bob Newman	1-1, 1-2
M1-03	Dr. Mary Kelly	1-2
M1-04 to M1-07	Mr. Fred Humes	1-3
M1-08 to M1-09	Mr. Steve Parker	1-3
M1-10 to M1-11	Mr. Bob Newman	1-3, 1-4
M1-12	Mr. Ernie Chaput	1-3
M1-13	Mr. Steve Parker	1-4
M1-14	Ms. Paulette Thicke	1-4
M1-15 to M1-16	Mr. R. Stuhler	1-5
M2-01 to M2-02	Dr. Bob Smith	1-5, 1-6
Comments received by letter		
L1	Dr. David Moses	1-7 to 1-15
L2	Dr. David Moses	1-16 to 1-17
L3	U.S. Department of Health and Human Services	1-20 to 1-23
L4	U.S. Environmental Protection Agency	1-27
Comments received verbally at the DOE message line		
V-1	Mr. Marvin Lewis	1-28
V-2	Mr. Curt Graves	1-29

- a. Unique source codes were given to each of the public meeting sessions (M-1 and M-2 respectively). The individuals comments are coded M1-01, etc.
- b. Complete transcript of the meeting is in Appendix C.

Public Meetings

The public meetings consisted primarily of informal discussions and questions and answers related to the Tritium Extraction Facility (TEF). In this section, each public meeting speaker's statement is paraphrased because some statements span several pages of the transcript (see Appendix C). A number of comments and concerns were raised and discussed with Department officials during the meetings.

M1-01: One commenter stated that the EIS should include the costs for the facility with the impact on the community. DOE needs to provide the cost for the alternatives. This information should also include the basis for determining the costs.

Response: DOE is not required by National Environmental Policy Act (NEPA) to include cost in an EIS. Section 102(2)(B) of NEPA states "All agencies of the Federal government shall ... ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations." Cost **was** an important consideration when the Secretary selected the **CLWR as the** primary new tritium source. The EIS is intended to describe the environmental impacts of construction and operation of the facility. DOE has fully characterized and documented the socioeconomic impacts (e.g., the number of jobs created and the resultant effect of income generated on the local economy) of implementing each of the alternatives in the evaluation of socioeconomic impacts in Chapter 4 of the DEIS. DOE did not perform a cost-benefit analysis for construction and operation of TEF at H Area or AGNS; however, DOE used two sources of cost data for the socioeconomic analysis, which are available in the DOE public reading room (Brizes 1997; DOE 1997b).

M1-02: One commenter stated that there are little or no differences between AGNS and the H-Area alternatives, but the EIS makes these differences look like major differences.

Response: DOE did not intend to make qualitative judgments about differences in impacts between the two sites, but presented the data necessary for the reader to make those judgments. DOE did wish to capture the differences in environmental impacts for the decision maker(s) and the public. DOE has revised Section 2.4.1 starting on page 2-8 of the draft EIS to clarify the differences in these two alternatives. The revision is on page 2-9 of this Final EIS. Specifics of the environmental impacts of constructing and operating TEF in H Area and at the AGNS site are found in Chapter 4 and, in summary form, in Table 2-2 (page 2-9) of the DEIS and page 2-3 of this Final EIS. DOE considers the expected impacts from the preferred alternative or the AGNS alternative on the human environment to be minor and similar. Several differences between AGNS and H Area account for differences in environmental impacts between the two sites: one is a function of AGNS's closer proximity to the general public - operations at the AGNS site have a greater potential for affecting the offsite population near the Site boundary. For example, the impacts to the maximally exposed offsite individual associated with radiological and nonradiological air emissions are slightly greater for AGNS than for the H-Area alternative, but the differences are small and the emissions well below regulatory limits in both cases. Similarly, there is little to differentiate the two sites in terms of impacts on the natural environment because both sites have already been impacted by industrial development.

M1-03: One commenter stated that AGNS did not have an EIS prepared so it is difficult to consider the environmental impacts.

Response: AGNS prepared an Environmental Report on the Barnwell Nuclear Fuel Plant in 1971; the report is cited in the DEIS and available in DOE's public reading room in Aiken, South Carolina. In the DEIS, DOE described the environmental conditions at the AGNS site and the impacts of constructing and operating tritium extraction capability at the site, and compared those impacts with other alternatives.

The next seven comments deal with concerns about the U.S. nonproliferation policy. The DOE response follows the seventh comment.

M1-04: One commenter had reservations about producing tritium in a commercial reactor in that this may undermine U.S. nonproliferation policy.

M1-05, M1-09, and M1-12: Three comments stated that the DEIS is insufficient in that it does not address all environmental impacts. Producing tritium in commercial facilities is a change in national policy. Other nations may use this change as an excuse to use their commercial reactors for weapons production. This means that there will be additional environmental impacts throughout the world as other countries use their commercial reactors to produce tritium. These impacts should be addressed in this EIS.

M1-06: One commenter stated that the Commercial Light Water Reactor (CLWR) EIS does not address the nonproliferation policy.

M1-07: One commenter asked if the U. S. would endorse North Korea if they produced tritium.

M1-08: One commenter stated that we should use DOE [as opposed to commercial] facilities to avoid terrorists.

Response to comments M1-04, -05, -06, -07, -08, -09, and -12: The purpose of the proposed action and alternatives evaluated in this EIS is to provide tritium extraction capability to support a new tritium source for continuing the nuclear weapons stockpile of the U.S. The production of tritium in commercial reactor facilities, the conformity of such production with national policy on nonproliferation, or the impact of such a policy on the United States position internationally in regard to nonproliferation, are not within the scope of this EIS. However, the Statement of Administration Policy, dated May 20, 1998, from the Executive Office of the President, Office of Management and Budget, reads "Tritium production in commercial reactors is not inconsistent with U.S. nonprolifera-

tion policy. There have been several instances of cooperation between U.S. military and civilian nuclear programs, including dual use of uranium enrichment facilities and commercial sale of electricity originating from a weapons material production reactor." This conclusion was confirmed in the Interagency Review of July 1998 Report to Congress by DOE which further reinforced the position that the dual track strategy for tritium production should be maintained. Concerning the CLWR EIS, DOE has expanded the discussion on page S-2 of the TEF EIS to clarify the roles of the three project-specific EISs: one analyzing the production of tritium in a DOE-owned accelerator; one analyzing the production of tritium in a commercial light water reactor; and this EIS analyzing the extraction of tritium from irradiated targets regardless of their source. Concerning countries such as North Korea, the U.S. is a member of the Nuclear Nonproliferation Treaty, and as such supports reducing the nuclear threat by reducing the number of nuclear weapons and discourages the spread of the nuclear weapons. Concerning terrorists, the Nuclear Regulatory Commission (NRC) has stringent security requirements that apply to commercial facilities.

M1-10: One commenter stated that a recent emergency drill did not have all the people show up for their positions. Others did show up who filled those positions; however, each job function has specific responsibilities with its own expertise.

Response: The commenter is apparently referring to recent press reports regarding unsatisfactory response to pager communications initiating an emergency SRS drill. Test drills are conducted periodically and at no time during any of these drills has an SRS Emergency Operations Center position gone unfilled by a qualified individual. Each position in the Emergency Operations Center is staffed three deep with qualified individuals. Although these individuals rotate through their positions on a monthly basis, each carries a pager and is required to respond to emergency drills whether or not they are on shift. On April 27, 1998, a chemical spill at an SRS facility required acti-

vation of the Emergency Operations Center at 2:00 am. All Emergency Operations Center positions were filled by the designated, qualified individuals within one hour of the pager notification.

M1-11: One commenter stated that the EIS should evaluate impacts on involved as well as uninvolved workers and that the 640-meter distance from the stack used to evaluate uninvolved workers was a long distance; uninvolved workers 600 meters away from the stack are always included in EISs. He then asked about the involved workers and stated that these workers should be included in all EISs.

Response: DOE evaluated the impacts of normal operations on involved workers in the Draft EIS. See Section 4.1.2.5 (page 4-16), Table 4-13 (page 4-18), Section 4.2.2.5 (page 4-44), and Table 4-27 (page 4-46) of the Draft EIS. A quantitative analysis of the impact of accident conditions on involved workers was not performed because the large number of assumptions required in the consequence modeling would make the prediction unreliable. To protect involved workers, a qualitative evaluation of accident-related hazards is performed and reported in the hazards section of the Safety Analysis Report; this analysis is used to identify required administrative controls/safety features.

With respect to modeling uninvolved workers at 640 meters, limitations in industry-accepted modeling tools prevent the reliable modeling of airborne dispersion of radioactive or chemical materials at distances closer than 100 meters from an elevated or ground release. This is due primarily to limitations in the models themselves and to the difficulty of modeling air flow in and around complex structures. The use of 640 meters in the TEF EIS is appropriate because DOE calculated that maximum ground surface concentrations from TEF's elevated stack would occur at that approximate distance. Also, the use of 640 meters ensures consistency between this and previously prepared Savannah River EISs.

M1-13: One commenter stated that DOE should address where the reactor rods are coming from before it addresses the extraction of tritium from these rods.

Response: In order to provide tritium to the nuclear weapons stockpile by 2005, activities required for providing the nation's tritium supply must be conducted concurrently.

M1-14: One commenter stated that du Pont said that SRS was a clean site; however, Westinghouse is cleaning up SRS now. The commenter then asked if the current cleanup will be impacted by this TEF facility; if cleanup will be needed for this facility; and about the types of wastes and releases from this site.

Response: Locations on SRS needing cleanup were recognized when du Pont was operating the Site in 1987 in the *Final Environmental Impact Statement for Waste Management Activities for Groundwater Protection*. This EIS described the needed cleanup activities at known hazardous, radioactive, and mixed waste sites and the need for new waste disposal facilities. DOE has an ongoing Environmental Restoration program to clean up sites contaminated by past activities at the SRS. The SRS is listed on the National Priorities List and as such is subject to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as enforced by the U.S. Environmental Protection Agency and the South Carolina Department of Health and Environmental Control. As indicated in Chapter 7 of the Draft EIS, TEF operations would be required to comply with these regulations in the event of spills of hazardous materials. Funding of SRS cleanup activities would not be directly affected by construction and operation of the TEF because Congress funds DOE's environmental cleanup activities separately from defense facilities.

DOE estimates (Section 2.5 on page 2-18 of the Draft EIS) that the operating life of the TEF would be 40 years. DOE would address the environmental impacts of decontaminating and decommissioning TEF when the facility is ap-

proaching the end of its operating life, using technologies available at that time. Given the potential for advancements in waste minimization and waste management technologies over the next 40 years, DOE has not attempted in this EIS to estimate the types and quantities of waste that would be generated by decontamination and decommissioning of the TEF at the end of its operational life.

DOE has estimated the types and quantities of waste that would be generated by construction and operation of TEF and described the impacts of managing those wastes in Chapter 4 of the Draft EIS.

On page 2-15 in Section 2.4.1 of the DEIS, DOE discusses unknown contaminated materials. The DEIS states that if any were discovered, DOE would remove and dispose of such material in accordance with all applicable laws and regulations.

M1-15: One commenter asked if the Site Emergency Plan and H Area Plan had been considered for impact by adding additional facilities.

Response: Emergency response-related factors were considered first during the formal site selection process conducted for TEF. As part of the SRS emergency preparedness process and prior to becoming operational, the TEF would be incorporated into the Site and H Area Emergency Plans. These plans would consider the potential impacts of TEF accidents on personnel in nearby facilities, and the potential impacts of existing operations on personnel assigned to the TEF. DOE prepares and implements Site- and facility-specific plans for responses to potential emergencies such as chemical spills and accidents. The Emergency Operations Center and a spill response team ensure appropriate response. Emergency response personnel are trained extensively, and each position has a primary and two alternates on call. The response plans include specific responses to specific incidents for specific facilities (e.g., a TEF), processes, or events. DOE has either used plans in actual emergencies or exercised them in simulated operating conditions. DOE has integrated these

SRS plans with state and local offsite plans to enable coordination of a total response to SRS incidents.

M1-16: One commenter stated that the cobalt does not appear to be addressed for exposure and release.

Response: As indicated in Sections 4.1.1.2 (page 4-3), 4.1.1.4 (page 4-8), and 4.2.1.4 (page 4-37) of the DEIS, cobalt-60 is used to represent worst-case liquid discharges and atmospheric emissions from CLWR target residues. Cobalt-60 imparts the highest atmospheric dose per curie amount of all the radionuclides in the target residues. As shown in Table 4-5 of the Draft EIS, DOE estimates that about 4.2×10^{-4} curies of cobalt-60 would be released annually. This release is included in the source term used to calculate radiological doses to the public and workers that would result from TEF operation.

M2-01: One commenter asked about the targets if the TEF becomes part of the APT.

Response: If CLWR extraction capability is added to the APT, the CLWR targets processed at APT would be identical to those that would be processed in the TEF in H Area or AGNS. Also, an alternative APT target would require extraction in TEF.

M2-02: One commenter asked if the environmental impacts are more severe if APT and TEF are combined.

Response: Overall, the TEF/APT combination has higher release rates than APT alone. A comparison of the impacts of the APT facility with and without CLWR extraction capability is provided in Table 2-3, page 2-16 of the Draft EIS and page 2-11 of this Final EIS.

Letters

The comment letters DOE received on the Draft TEF EIS and DOE's responses are provided in the following section. Comments in each letter are identified, and the corresponding responses follow the letter.

130 Clemson Drive
Oak Ridge, Tennessee 37830-7664
Electronic Mail: mosesa@aol.com
June 2, 1998

Andrew R. Grainger
NEPA Compliance Officer
SR Operations Office
Building 773-42A, Room 212
Aiken, SC 29808

Dear Mr. Grainger:

Ref: My letter to you with comments and recommendations on the draft EIS for the APT at SRS, February 2, 1998.

The following comments and recommendations are submitted on the Draft EIS for the Tritium Extraction Facility (TEF) at SRS:

1. Designation of TEF as a Department of Energy defense nuclear facility:

Comment: As described in the enabling legislation for the Defense Nuclear Facility Safety Board (DNFSB), as codified in Title 42 of the *United States Code* (USC) and specifically at 42 USC 2286a, the functions of the DNFSB are restricted to and focused on assuring the safety at each existing or new "Department of Energy defense nuclear facility."

As described in activity reports issued by the DNFSB, where such reports can be found and retrieved on the Internet either on the DNFSB homepage (<http://www.dnfsb.gov/trip.html>) or in the archives of the DOE Departmental Representative to the DNFSB (<http://dr.tis.doe.gov/archive/default.htm>), the DNFSB has taken an active role in reviewing the safety of operations at existing DOE tritium facilities at both Mound and Savannah River. As also reported both by the Accelerator Production of Tritium (APT) Project in its monthly and weekly reports on the project homepage (<http://apt.lanl.gov/>) and by the DNFSB SRS Representatives 1998 Weekly Activities Reports (<http://www.dnfsb.gov/weekly/sr/sr1998.htm>), the DNFSB staff is also taking an active role in reviewing the conceptual design of the proposed APT. These activities by the DNFSB are noted to be prudent and appropriate in assuring the independent oversight of the health and safety both of workers involved in nuclear materials activities at DOE tritium facilities and of the public who may be living in areas near DOE tritium facilities. DNFSB's active oversight of these DOE nuclear activities is to be praised and must continue as the public expects and apparently as Congress intended.

Unfortunately, such actions by the DNFSB appear to have no legal basis since the definition for a "Department of Energy defense nuclear facility" as given in 42 USC 2286g restricts the term to apply to a production facility or utilization facility as defined in 42 USC 2014 or to a DOE-owned nuclear waste storage facility that is not otherwise regulated. Since the definitions for a production facility and a utilization facility at 42 USC 2014(v) and (cc) are restricted to facilities that use, produce, or process "special nuclear material" (SNM) and since tritium is not designated to be

SNM, legally the DNFSB has no current authority from Congress for reviewing the APT or the TEF. For purposes of planning work force restructuring and tracking worker exposures at Mound and SRS tritium facilities, certain DOE tritium facilities at these two sites had to be specially and individually designated as "Department of Energy defense nuclear facilities" in the Defense Authorization Act of 1993 as codified at 42 USC 7274j, but this restrictive definition does not apply to DNFSB safety oversight functions at these tritium facilities.

It is noted that, in reference to its own regulatory functions for emergency planning and response under the *Atomic Energy Act of 1954*, as amended, as given in Sect. 7.2.2 (p. 7-8) of the draft TEF EIS, DOE alludes to the issue of tritium not being a SNM; however, DOE's presentation of its statutory authority is a bit confusing as given in the draft EIS and lacks a specific reference to a document in which "DOE has determined...that DOE regulations apply to tritium-related activities." It is assumed that the unspecified reference is not an interpretation of "Section 57(b) of the Act," that is, 42 USC 2077(b), as cited by DOE in the discussion in the draft EIS, but rather the unprovided reference is to the DOE General Counsel's interpretation of 42 USC 2201(I)(3) as given at Sect. B.1, *Federal Register*, 61, pp. 4209-4910, February 5, 1996, where it is stated that "the requirements in [10 CFR] Parts 830 and 835 cover all activities under DOE's auspices with the potential to cause radiological harm." 42 USC 2201(i)(3) has nothing to do with SNM but does provide DOE with broad regulatory authority, which DOE uses to claim exemption from regulation by outside regulators such as the Occupational Safety and Health Administration (OSHA), to "prescribe such regulations or orders as it may deem necessary...to govern any activity authorized pursuant to this chapter, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property." Unfortunately Congress was not equally generous in equivalently granting similar authority to the DNFSB, which unlike DOE remains legally constrained by tritium not being determined to be an SNM or by the definition at 42 USC 2286g not being expanded to cover tritium facilities.

Thus, this situation raises serious questions as to the efficacy of the DNFSB's oversight at DOE tritium facilities, since DOE or its contractors can apparently halt or suborn any investigation or review of a tritium facility with legal impunity, and of DOE's ability to impose civil penalties for violations of DOE safety requirements that may be uncovered by DNFSB's "illegal" investigations or reviews. How can a contractor or contractor employee be held liable for violations discovered in a tainted investigation? Petty criminals are protected against illegal searches and seizures by law enforcement officers that are prohibited from introducing illegally-obtained evidence in courts of law. Can a DOE civil penalty withstand a challenge in Federal court if the law is violated or exceeded in uncovering an alleged offense?

This situation begs to be corrected either by DOE and DNFSB jointly seeking Congressional action to rectify the legal shortfall before it gets tested in an embarrassing or dangerous precedent or by DOE taking appropriate actions already authorized by law. The two alternatives that could be used to rectify this situation are (1) to have Congress revise the definition of "Department of Energy defense nuclear facility" at 42 USC 2286g in the DNFSB enabling legislation to include all DOE tritium facilities that are used for defense purposes or (2) to make the determination that tritium is SNM under the existing authority at 42 USC 2071. A broader version of the first option would be to expand the definition of "Department of Energy defense nuclear facility" at 42 USC 2286g to include all defense nuclear facilities that are regulated by DOE pursuant to 42 USC 2201(i)(3) or other pertinent law. The second option requires both Presidential assent and an opportunity for the Congressional Energy Committees to express dissent. Otherwise if the DOE and DNFSB General

Counsels have a consensus reason to believe that there is already a legal basis for DNFSB oversight of DOE tritium facilities, such a finding should be published jointly in the *Federal Register* so that the public and the DOE contractors can readily understand why further action is not necessary when reading the current law as written implies otherwise.

Recommendation: The Final EIS for the TEF and, for that matter, the Final EIS for the APT at SRS should include a detailed description of the actions that DOE proposes to take to assure that the TEF and the APT are each legally designated to be a "Department of Energy defense nuclear facility." Failure to mitigate this situation and to explain to the public how the situation will be mitigated would be irresponsible. DOE should not proceed with the preliminary design of the TEF or APT until this situation is rectified so that the public can be assured that timely design reviews under 42 USC 2286a for considering safety issues are being performed properly and without question of the legality of the independent safety oversight. DOE should also provide precise descriptive discussions of and clear references to documented determinations such as the one alluded to in Sect. 7.2.2 (p. 7-8) of the draft TEF EIS.

L1-01

2. Need for DNFSB review of the EIS sections on TEF accident analysis and waste management and of the accident analysis documented in Appendix B of the TEF EIS:

In the licensing of commercial production or utilization facilities under the *Atomic Energy Act of 1954*, as amended, the U.S. Nuclear Regulatory Commission (NRC) does not begin the EIS process until the applicant submits the license application, which contains both the preliminary safety analysis report (PSAR) and the environmental report, for NRC staff review. Thus, for licensed commercial nuclear facilities, the preliminary or final EIS is issued contemporaneously with NRC issuing the preliminary or final safety evaluation of the respective PSAR or final safety analysis report (FSAR). Therefore, consistent with the level of license being issued for a commercial nuclear facility, that is, either a construction permit or an operating license, an equivalently mature safety analysis report and its independent safety evaluation exist to support and supplement the EIS. However, as can be noted in the DOE EIS process for the TEF and the APT, the DOE EIS precedes the completion of the PSAR and the performance of any independent review or evaluation of the existing safety analysis documentation.

So while the NRC EIS is two step and is ultimately based on simultaneous NRC reviews of a mature safety analysis and a mature design basis, the DOE EIS process for its new nuclear facilities may be associated with little more than a cursory and internal safety assessment of an immature pre-conceptual or point design subject to no independent review and evaluation. DOE has made no attempt to correlate its EIS responsibilities under the *National Environmental Policy Act* as regulated upon DOE itself at 10 CFR Part 1021 either with its own nuclear safety oversight functions under 48 USC 2201(i)(3) and 2282a as regulated on its contractors at 10 CFR Parts 820 and 830 or with the DNFSB's independent oversight functions chartered by Congress at 42 USC 2286a. Included in DNFSB's legal mandate, subject of course to the restrictive definition at 42 USC 4486g, are the functions to "review the design of a new Department of Energy defense nuclear facility before construction of such facility begins and [to] recommend to the Secretary, within a reasonable time, such modifications of the design as the Board considers necessary to ensure adequate protection of public health and safety" and "in making its recommendations...[to] consider the technical and economic feasibility of implementing the recommended measures." As most experts in design and construction recognize, the early identification of problems leads to the most technically satisfactory and cost effective solutions. The EIS should be an integral part of a

timely and economic assurance of “adequate protection of public health and safety,” which is a key function of the DNFSB review process.

DOE’s internal review process for recent EISs raises serious questions in this commenter’s mind as to the adequacy of such reviews. DOE’s current approach to issuing an EIS allows unbridled promotion and marketing by its own staff and contractors without a prescribed outside objective review by technical and safety experts.

When this commenter previously reviewed and commented on the Programmatic EIS for Tritium Supply and Recycle, numerous examples were noted where the internal review process apparently failed to address obvious health and safety regulatory issues especially for the APT option, and, as noted in the above-cited reference set of comments on the draft EIS for the APT at SRS, many of these issues were still not resolved as of a few months ago. In the past, this commenter has made inquiries informally to DOE’s cognizant nuclear safety enforcement and investigative staff with regard to their roles in reviewing EISs. These inquiries revealed that staff management in DOE’s Office of Environment, Safety and Health (DOE/EH) routinely signed off on an EIS without a detailed review by the DOE/EH enforcement and investigative staff because such reviews were reportedly found to delay the process by raising technical or safety questions and thus prevented the obtaining of financial incentive bonuses by DOE managers for their timely processing of EIS paperwork. It is also apparent that DOE’s Office of Environmental Management (DOE/EM) has had little or no impact on the Programmatic EIS for Tritium Supply and Recycle since APT’s hottest radioactive wastes were characterized in that document as “routine low-level or mixed radioactive wastes” when under DOE/EM’s guidance documents these wastes should have been characterized as “special case wastes” or “inherently hazardous special wastes.” Similarly, the classification of these wastes as Greater-than-Class-C in the draft EIS for the APT at SRS, while more appropriate, is still inconsistent with both Federal law and the DOE/EM guidance documents for such wastes. One questions why DOE/EM bothers publishing guidance documents and policy statements on waste classifications since DOE staff and contractors apparently ignore them as evidenced by the recent record of EISs; this should be a matter of some interest to DNFSB, which is charged with oversight of DOE’s implementation of standards. Similarly, the DOE Office of General Counsel apparently does not review the EISs since obvious statutory and regulatory issues such as those raised previously for the APT were not addressed. Perhaps, this is evidence of a lack of cognizant staff review or possibly of the provision of inadequate time for a detailed review by cognizant and knowledgeable staff since it is understood from at least one senior DOE manager in the DOE Office of Fissile Material Disposition that his office was given less than a day to review and sign off on the three volumes of the Programmatic EIS for Tritium Supply and Recycle. It appears that the velocity of DOE’s internal review process for an EIS is more important than the validation of its veracity. If my understanding and description of this situation is indeed still a correct characterization, the need for an independent review of the waste management and safety assessments is true for the TEF draft EIS as well as also for other recent EISs, but my current focus is on the draft EIS for the TEF.

The situation described above can be rectified by requesting a DNFSB review of the TEF draft EIS waste management and accident analysis documentation and then publishing the results of the DNFSB review within the Final EIS. Even if that result is nothing more than a list of unanswered questions, it is important that the public know what the questions by the independent safety reviewer are and how DOE intends to address the questions. Such actions will go a long way toward making the DOE EIS process for a new nuclear facility more consistent with that used by the NRC for licensed nuclear facilities and will prevent DOE EISs from resembling marketing brochures for DOE staff or contractor proponents. This independent review can only better serve

the interests of the American public and taxpayers.

Recommendation: DOE should request a DNFSB review of the TEF draft EIS waste management and accident analysis documentation, publish the results of the DNFSB review within the Final EIS, and describe how DOE intends to resolve any questions raised by the DNFSB review.

L1-02

3. NRC licensing of commercial sales of tritium recovered in TEF or DOE prohibiting all commercial sales for tritium produced in the APT:

Comment: Under 42 USC 2141(a), NRC is authorized to license DOE's domestic commercial sales of tritium as a byproduct material as defined at 42 USC 2014(e)(1) and subject to the licensing provisions of 42 USC 2111 and 2114 as regulated at 10 CFR Part 20 and Parts 30-39 and for purposes of commercial exports at 10 CFR 110.9(c). Unfortunately, under the definition given at 42 USC 2014(e)(1), tritium is an NRC-regulated "byproduct material" only if it is produced in a reactor. This comment does not apply to the TEF for the recovery of tritium from CLWR irradiations.

Thus, if DOE's new source of tritium is the APT, then quantities of tritium recovered in the TEF, unlike the tritium recovered in older DOE tritium facilities from inventories produced in the now shutdown production reactors, are no longer subject to NRC regulation if sold for commercial purposes by DOE. In this case APT-produced tritium falls into the category of accelerator-produced radioactive material (ARM) that NRC claims to have no authority to license and regulate based upon the findings last reported by the NRC in the Policy Issue documented in SECY-92-325, James M. Taylor, Executive Director for Operations, to the Commissioners, "Characterization of discrete NARM and evaluation of the need to seek legislation extending NRC authority to discrete NARM," September 22, 1992 (NRC Public Document Room Accession No. 9204290244A). This policy issue document was issued by the NRC staff at the request of the Commission because a report on the subject requested by Commission Chairman Lando Zech from the Committee on Interagency Radiation Research and Policy Coordination (CIRRPC) was never issued. CIRRPC ceased to exist in 1992, and its replacement, the Interagency Steering Committee on Radiation Standards (ISCORS), which was formed about two years ago, is reportedly not considering ARM regulation on an active basis. Per SECY-92-325, NRC regulation of ARM is not authorized by the *Atomic Energy Act of 1954*, as amended, and therefore ARM falls under the regulatory authority of the States granted under the *U.S. Constitution* and under the regulatory authority of the Environmental Protection Agency (EPA) under the *Toxic Substances Control Act (TSCA)*.

It should be noted that SECY-92-325 and several preceding NRC documents cited therein on the subject of regulating both ARM and naturally-occurring radioactive material (NORM) are a little less than clear on the statutory provisions with regard to the licensing and regulation of ARM. Although not directly addressed in SECY-92-325, there is an apparent legal basis for regulating ARM that can be found within the *Atomic Energy Act of 1954*, as amended, but there is no readily clear basis for issuing a license for the ownership, possession, use, production, transfer, or disposal of ARM. NRC would need licensing authority in order to exercise its authorities for requiring financial protection under 42 USC 2210 and for issuing civil penalties under 42 USC 2282. The bases for regulating ARM under the *Atomic Energy Act of 1954*, as amended, stem from 42 USC 2011, 2013(c), 2014(c), and 2201(p) where these statutory provisions provide that (1) NRC can issue any regulation needed to carry out the purposes of the Act, (2) the purposes of the Act are stated to be "to effectuate the policies set forth above [in 42 USC 2011] by providing for...a program for Government control of the possession, use, and production of atomic energy," and (3)

atomic energy is defined to mean "all forms of energy released in the course of nuclear fission or nuclear transformation." Since ARM is created by machine-induced nuclear transformations and since ARM releases other energetic radiations by the process of nuclear transformation involved in radioactive decay, it is technically self-evident that the authority to regulate ARM exists within the *Atomic Energy Act of 1954*, as amended. However, as indicated above, there is no statutory authority given to license any activity associated with the production or use of ARM, as long as the ARM is not also SNM. Since NRC was granted only the "licensing and related regulatory functions of the Atomic Energy Commission" in the *Energy Reorganization Act of 1974* as codified at 42 USC 5841(f) and since NRC is also limited by the "consistent with existing law" provisions of 42 USC 2021b(9)(B) and 10101(12)(B) and (16)(B) with regard to classification authority for nuclear wastes, NRC does not regulate ARM as a radioactive product in use or as a radioactive material being disposed because NRC has no authority under current law to license the production, possession, and use of ARM.

In addition, if a domestic third party were to purchase from DOE tritium that had been produced in the APT and recovered for use in the TEF, since under current law that tritium is not byproduct material, there are no NRC nor Department of Commerce export licensing regulations to preclude its sale to a foreign government seeking tritium for use in a nuclear weapons program. As indicated at 15 CFR Part 774, for Commerce Commodity Control List Item 1B231, "Tritium facilities, plants and equipment," under related controls: "This entry does not control tritium, tritium compounds, and mixtures containing tritium, or products or devices thereof. See 10 CFR Part 110 for tritium subject to the export licensing authority of the Nuclear Regulatory Commission." Thus, the Department of Commerce regulations defer to the NRC regulations to control the export of tritium, but NRC controls tritium only if it is classified as byproduct material as defined in the law. It is noted however that the *Nonproliferation Treaty Act of 1978* modified 42 USC 2139 to add the following words:

"After consulting with the Secretaries of State, Energy, and Commerce and the Director, the Commission is authorized and directed to determine which component parts as defined in section 2014(v)(2) or 2014(cc)(2) of this title and *which other* items or *substances are especially relevant from the standpoint of export control because of their significance for nuclear explosive purposes*. Except as provided in section 2155(b)(2) of this title, no such component, *substance*, or item which is so determined by the Commission shall be exported unless the Commission issues a general or specific license for its export after finding, based on a reasonable judgment of the assurances provided and other information available to the Federal Government, including the Commission, that the following criteria or their equivalent are met:...(2) no such component, *substance*, or item will be used for any nuclear explosive device or for research on or development of any nuclear explosive device..."

Although this addition to the law appears to imply that NRC has the requisite authority to regulate the export of commercially-sold APT-produced tritium, which could be used in a nuclear explosive device, the current NRC export regulations at 10 CFR Part 110 continue to limit its licensing and regulatory authority only to materials and substances that are defined to be subject to licensing in the *Atomic Energy Act of 1954*, as amended, and to those reactor materials covered in the export control guidelines issued by the Nuclear Suppliers Group (NSG). The NSG export control guidelines that are published by the International Atomic Energy Agency address heavy-water, deuterium and reactor-grade graphite but do not address tritium. Since tritium is also not listed as a dual use item by NSG guidelines, the Department of Commerce has no basis for its regulation as such on the Commodity Control List.

The only regulatory safety net in this unfortunate situation is the exception cited in 10 CFR 110.1(b)(2) for "persons who export...U.S. Munitions List nuclear items." Under Department of State regulations issued under the *Arms Export Control Act*, as authorized under the *International Security and Development Cooperation Act of 1980*, 22 CFR 121.1, Article XVI(a) should be sufficiently broad enough to cover APT-produced, TEF-extracted tritium although 22 CFR 123.20(a) implies that the controls do not apply to items that should be regulated by either DOE or NRC. If this is the only regulatory safety net, then DOE is obligated to tighten the mesh of the net somewhat compared to what it appears to be now.

Therefore, for purposes of DOE domestic commercial sales of any tritium produced in the APT and recovered in the TEF, DOE should not permit such sales unless and until a clear and adequate regulatory regime is in place to control the material being sold with regard to both radiation safety and export prevention. DOE has several options that may be considered to mitigate this problem; these options include:

- Declaring in the *Federal Register* as DOE official policy that no tritium produced in APT and recovered in the TEF will be sold commercially.
- Obtaining an Executive Branch determination under 42 USC 2071 that tritium is SNM subject to NRC regulation.
- Obtaining, with NRC concurrence and assistance, Congressional action to amend the *Atomic Energy Act of 1954*, as amended, either to declare ARM to be byproduct material subject to NRC regulation or to declare that the production, possession and use of ARM is subject to licensing by the NRC.
- Securing EPA regulation of ARM under TSCA as considered in SECY-92-325 and either securing NRC regulation of tritium as a substance usable in a nuclear weapon under 42 USC 2139(b), securing Department of Commerce regulation of tritium as a dual use item (the latter may require action by the NSG), or issuing an official public policy statement that all tritium produced in APT and recovered in the TEF is covered solely for export control purposes by Department of State regulations under 22 CFR 121.1, Article XVI(a).

If DOE were to consider the alternative of mixing APT-produced tritium with existing inventories of previously-produced reactor-generated tritium as a means to effect the mixture's legal status as byproduct material, DOE needs to consider how records would have to be generated and maintained to prove its or the NRC's case in court for alleged violations of the *Atomic Energy Act of 1954*, as amended, in handling materials sold commercially. This alternative is judged to be an unnecessary risk and cost simply to avoid dealing with a legitimate problem in an open and professional manner that warrants public trust.

Recommendation: With regard to the potential of DOE domestic commercial sales of any tritium produced in the APT and recovered in the TEF, DOE should indicate in the final TEF EIS that DOE will not permit commercial sales of APT-produced, TEF-recovered tritium unless and until an adequate regulatory regime is in place to control the material being sold with regard to both radiation safety and export prevention. DOE should describe in detail the possible options, the adequacy of those options, and its specific plans to prevent such sales or to put in place the necessary regulatory controls. Failure to indicate in the TEF EIS how DOE intends to resolve this problem is unacceptable. The public needs to be assured that DOE is planning to act in a responsible manner to mitigate a serious legal question that could adversely effect both public health on a small scale and national defense on a much more serious scale.

L1-03

4. Inapplicability of 10 CFR Part 962 to the regulation of TEF radioactive wastes when contaminated with tritium produced in APT:

For the same reasons as described above for NRC's claimed inability to regulate tritium sold commercially if produced in the APT, DOE's regulations for byproduct materials at 10 CFR Part 962, which are "for use only in determining the Department of Energy's obligations under the Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.) with regard to radioactive waste substances owned or produced by the Department of Energy pursuant to the exercise of its responsibilities under the Atomic Energy Act of 1954," are invalid for APT radioactive wastes and for TEF radioactive wastes when processing APT-produced tritium.

This inapplicability could be interpreted to imply that all APT and associated TEF radioactive wastes fall under the full regulatory authority of the States and the EPA and are therefore fully subject to any DOE-state compliance agreements with regard to compliance with the *Resource Conservation and Recovery Act* (RCRA) and the *Federal Facilities Compliance Act* (FFCA). Given this interpretation, it appears that for such radioactive wastes DOE would not legally be able separate out the tritium content from other hazardous constituents as its sole regulatory responsibility for treatment and disposal.

As discussed previously, DOE would still be able to regulate occupational radiation exposures during handling of such wastes consistent with the DOE's General Counsel's interpretation of 42 USC 2201(i)(3) as given at Sect. B.1, *Federal Register*, 61, pp. 4209-4910, February 5, 1996, where it is stated that "the requirements in [10 CFR] Parts 830 and 835 cover all activities under DOE's auspices with the potential to cause radiological harm."

However, for military applications of atomic energy, 42 USC 2121(a)(3) authorizes DOE to "provide for safe storage, processing, transportation, and disposal of hazardous waste (including radioactive waste) resulting from nuclear materials production, weapons production and surveillance programs." Further, 42 USC 2011, 2013(c), 2014(c), and 2201(p), which were previously argued to provide a basis for NRC to regulate ARM, provide DOE with broad authority not currently reflected in 10 CFR Part 962.

Unless DOE has no objections to the regulation of the treatment and disposal of TEF and APT radioactive wastes by the State of South Carolina under RCRA and FFCA and by the EPA under RCRA/TSCA, the most direct means to avoid any future dispute over regulatory authorities in this situation, if viewed as a potential problem by DOE, would be either to obtain an Executive Branch determination under 42 USC 2071 that tritium is SNM subject to DOE and NRC regulation or to promulgate DOE rulemaking to amend 10 CFR Part 962 to extend DOE's regulatory authority over ARM including tritium produced in the APT and subsequently recovered in the TEF. The latter option would also clarify the issue of DOE regulation of ARM for the public in the upcoming EIS for the Spallation Neutron Source at Oak Ridge and provide a basis to preempt any intervenors from interceding through the states and EPA in the regulation of ARM wastes at DOE's other major accelerator facilities such as Argonne, Brookhaven, Fermi, and Los Alamos.

Recommendation: For the case in which TEF processes APT-produced tritium, DOE should explain in the Final EIS for TEF exactly how it intends to deal with TEF radioactive wastes in light of the current inapplicability of 10 CFR Part 962 in clearly defining the line between DOE authority

L1-04

and EPA/state authority under RCRA/FFCA. DOE should promulgate rulemaking to amend 10 CFR Part 962 or to add other rules to clarify its authority over ARM. This intent should be made clear in the Final EIS discussions of RCRA, FFCA and TSCA as currently given in Chapter 7 of the draft EIS. | L1-04

Respectfully submitted,

David L. Moses, Ph.D., P.E.
Nuclear Engineer

130 Clemson Drive
Oak Ridge, Tennessee 37830-7664
Electronic Mail: mosesa@aol.com
June 3, 1998

Andrew R. Grainger
NEPA Compliance Officer
SR Operations Office
Building 773-42A, Room 212
Aiken, SC 29808

Dear Mr. Grainger:

Ref: My letter to you with comments and recommendations on the draft EIS for the Tritium Extraction Facility (TEF) at SRS, June 2, 1998, specifically Comment 3, "NRC licensing of commercial sales of tritium recovered in TEF or DOE prohibiting all commercial sales for tritium produced in the APT."

I sincerely apologize but I made an incorrect statement in Comment 3 of the reference letter dated June 2, 1998. A colleague of mine with whom I shared a copy of the letter has quickly pointed out that I had spoken in error when I made the statements that "Since tritium is also not listed as a dual use item by NSG guidelines, the Department of Commerce has no basis for its regulation as such on the Commodity Control List," and "securing Department of Commerce regulation of tritium as a dual use item (the latter may require action by the NSG)." In fact as you can verify yourself on the Internet at <http://www.iaea.or.at/worldatom/infcircs/inf254r2p2m1.html>, the NSG dual use guidelines at INFCIRC/254/Rev.2/Part 2/Mod.1, 19 March 1996, Sect. 8.3 state the following as being on the dual use list:

"Tritium, tritium compounds, or mixtures containing tritium in which the ratio of tritium to hydrogen by atoms exceeds 1 part in 1000 and products or devices containing any of the foregoing; except: A product or device containing not more than 1.48×10^3 GBq (40 Ci) of tritium in any form."

However, the recommendation for Comment 3 does not change since as can be inferred and understood by examining the NRC regulations at 10 CFR 110.1(a), 110.2 in the definition for "byproduct material," 110.9, 110.23(a)(1), and Appendix L to Part 110, the applicability of NRC regulations for the export of tritium is clearly conditioned upon the assumption that the regulated tritium is byproduct material, which "means radioactive material (except special nuclear material) produced by exposure to the radiation incident to the process of producing or using special nuclear material." Thus the assertion in Comment 3 that APT-produced tritium that is recovered in the TEF is currently not explicitly covered in the export regulations of the NRC remains valid. However, the assertion that the Department of Commerce, which currently defers regulation of tritium exports to the NRC, would not have a basis for regulating the export of APT-produced, TEF-recovered tritium as a dual use item is not correct. DOE must still work with the other cognizant and responsible government regulatory agencies to assure that a consistent and clear set of regulations is in place to regulate the export of any commercial sales of APT-produced tritium.

Respectfully and apologetically submitted,

David L. Moses, Ph.D., P.E.
Nuclear Engineer

Response to Comment L1-01 (Dr. David Moses)

The Defense Nuclear Facilities Safety Board (DNFSB) has the authority, under legislation establishing the DNFSB and its mission, to provide independent safety oversight to DOE in regard to the operation of defense nuclear facilities. The DNFSB from time to time provides recommendations to the Department. As the commenter points out, ambiguities may exist in the Board's authority to provide oversight to TEF and other DOE tritium programs because tritium is not a special nuclear material as defined by the Atomic Energy Act of 1954. As the commenter also points out, DOE cooperates fully with the Board on matters concerning existing and proposed DOE tritium facilities.

As indicated in the draft EIS, because of its radiological characteristics DOE has chosen to apply to tritium operations a number of regulations and standards which also apply to special nuclear material operations. DOE believes this is a conservative approach to safety management for tritium facilities. The regulations (including 10 CFR Parts 830 and 835) and DOE Orders are discussed and listed in Section 7.4 of the Draft EIS. DOE has evaluated the NRC Isotope Facility requirements; those facility NRC requirements that are more conservative and not covered in DOE Orders will be included in the final design of the TEF. DOE has a rigorous regulatory system in place for tritium facilities. Because of this, it is not likely that changes in the definition of DOE nuclear facilities or the designation of tritium as a special nuclear material would change the safety posture of these facilities or of the TEF. Therefore, DOE has not modified the Draft EIS in this regard.

Response to Comment L1-02 (Dr. David Moses)

The Defense Nuclear Facilities Safety Board (DNFSB) is an independent agency that freely conducts oversight activities of DOE facilities. DOE's Tritium Program has cooperated fully with Board and Board staff requests for information on the TEF. Board and Board staff have

been provided briefings on TEF issues, at their request. As the commenter suggests, DOE submitted a copy of the TEF Draft EIS to the Board for review and comment. No comments were received from the DNFSB or DNFSB staff. DOE prepared the TEF EIS early in the facility decision process as mandated by NEPA; implicit in this objective of obtaining early public input is the fact that detailed design information is not available to support the EIS. Assuming that the Department decides to proceed with development of the TEF, detailed design and safety reviews (including independent review and oversight by DNFSB) will be conducted according to DOE policy and established safety practices at appropriate stages of design.

Response to Comment L1-03 (Dr. David Moses)

The purpose of the proposed action and alternatives evaluated in the TEF EIS is to provide the capability to extract tritium from tritium producing burnable absorber rods irradiated in a commercial nuclear reactor, or targets of similar design, for the sole purpose of supplying tritium to the Department of Defense to support the nuclear weapons stockpile of the United States. Commercial sale of tritium extracted in the TEF, regardless of the source (CLWR or APT), is not contemplated at this time. However, it should be noted that tritium produced in a CLWR does fall within the scope of existing regulations. The commenter points out that it is unclear where regulatory authority rests in regard to accelerator-produced tritium. DOE does not consider "targets of similar design" the preferred target alternative for the proposed accelerator. The preferred alternative, as described in the APT EIS, is to produce tritium in a helium target and extract the tritium at the accelerator facility; the TEF would not be required if the accelerator was chosen as the primary source of tritium and the helium target technology was implemented. Thus it is unlikely for a number of reasons that commercial sale of accelerator-produced tritium from the TEF will become an issue.

Response to Comment L1-04 (Dr. David Moses)

Waste generated from TEF construction and operation would be managed as described in Section 4.1.1.5 of the Draft EIS. As much waste as possible would be treated and disposed at SRS facilities. As described in Chapter 7 of the Draft EIS, these facilities are under the regulatory purview of the U.S. Environmental Protection Agency and the South Carolina Department of Health and Environmental Control. During TEF operation, facility wastes and wastes from CLWR or APT sources, would, therefore, fall under the same regulations as other SRS wastes and waste management facilities. This is the case today for wastes generated at SRS tritium facilities. DOE does not see the need to propose changes to any regulations because it is clear that TEF waste will be regulated in the same manner as current tritium waste at the SRS.

June 22, 1998

Andrew R. Grainger, SR
NEPA Compliance Officer
Savannah River Site
Building 742-A, Room 183
Aiken, S.C. 29802

Dear Mr. Grainger:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Construction and Operation of a Tritium Extraction Facility at the Savannah River Site. We are responding on behalf of the U.S. Public Health Service, Department of Health and Human Services. Technical assistance for this review was provided by the Radiation Studies Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention.

The comments offered by the Radiation Studies Branch (RSB) are enclosed for your consideration as you prepare the Final EIS. Their review focused on health issues associated with the proposed project. The potential public health impacts appear to have been addressed in the DEIS, however, the comments provided offer some general and specific comments that may add clarity to the Final document. If you have any questions regarding these comments, you may contact Dr. Patricia L. Lee of the RSB at (770) 488-7627, or me at (770) 488-7074.

Thank you for the opportunity to review and comment on this draft document. Please ensure that we are included on your mailing list to receive a copy of the Final EIS, and future EISs which may indicate potential public health impact and are developed under the National Environmental Policy Act (NEPA).

Sincerely,

Letter L3 (page 1 of 4)

Kenneth W. Holt, MSEH
Special Programs Group (F16)
National Center for Environmental
Health

Enclosure

Letter L3 (page 2 of 4)

June 22, 1998

Patricia L. Lee, Ph.D., Staff Fellow, National Center for Environmental Health, Division of Environmental Hazards and Health Effects, Radiation Studies Branch (F35)

Review of 'Construction & Operation of a Tritium Extraction Facility at the Savannah River Site'

Ken Holt, Environmental Health Scientist, Special Programs Office, National Center for Environmental Health

This review focuses on the public health consequences associated with the construction & operation of a Tritium Extraction Facility (TEF) at the Savannah River Site (SRS). The public health consequences have been addressed for all the proposed alternatives. Some general and more specific comments are provided below that may add some clarity.

General Comments:

- This EIS very clearly states the need for tritium production. However, little emphasis is put on the reasons for not using the existing technology. It would be helpful if this was a part of the "Purpose and Need for Action" so that the public and other interested parties are clear up front as to why DOE is not using one of the five reactors already there. On Page S-3 there is a section on refurbishing the existing technology for the tritium extraction. This section is very clear on why the current technology for extraction of tritium won't work. This should be mentioned up front along with a similar statement of the inadequacy of the current reactors. | L3-01
- DOE has assessed the dose and risk but there are a couple of things that may make the results more clear:
 1. The methods used to estimate doses are not clear. There is a section on page 4-8 where the programs used to estimate doses are named, however, a more detailed description of what these programs do, the pertinent parameters and/or a reference to where to obtain this information would increase the readers understanding of dose estimation. | L3-02
 2. When referring to risk and dose, it would be clearer for the public if they were reported on a relative basis. It is | L3-03

Letter L3 (page 3 of 4)

clear that the numbers are small and risk is low, however, the percent increase in risk could be a more meaningful value.

L3-04

- DOE refers to "determining" emissions, dose, etc. (e.g., page 4-8). Aren't these actually estimates of expected releases?

L3-05

- Acronyms are used in the text that are not defined in the text (e.g., MEI (page 4-9), CSWTF (page 4-11))

L3-06

Specific Comments

- On Page S-7, in the second paragraph, a 'design-basis' and 'beyond-design-basis' seismic event is mentioned. These terms are used throughout (including Table S-2) but are not defined. Also used on page 4-11 is "pre-conceptual and conceptual design" and not defined.

L3-07

- On page 4-11, the second paragraph is a repeat of the prior paragraph. ("DOE incorporated waste...")

L3-08

- In table 4-7 and in the text low level radioactive waste (LLWR) and low-activity waste (LAW) is used. It is not clear what the difference is. LAW is not defined in Table 4-8 like the others.

L3-09

- On page 4-9 there is discussion in the first paragraph regarding validated census data. Is there a reference for this information?

L3-10

- Also on page 4-9 is a statement that tritium is 98% of the dose at the SRS but there is no reference or calculation to represent the source of this number. Is there a reference?

L3-11

Thank you for the opportunity to review this document. I hope that these comments and suggestions will be helpful to the preparers.

Patricia L. Lee, Ph.D.

Letter L3 (page 4 of 4)

Response to Comment L3-01 (U.S. Department of Health and Human Services)

DOE conducted an exhaustive review of technologies for supplying tritium, including using the five reactors on SRS, and documented it in the *Final Programmatic Environmental Impact Statement for Tritium Supply and Recycling*. The study revealed that only one of the reactors at SRS (K Reactor) was capable of returning to operation. DOE determined that operation of a first-generation reactor designed in the 1940s is not a reasonable alternative for a new, long-term, assured tritium supply. The purpose and need for this EIS is for the capability to extract tritium after tritium has been produced. DOE is evaluating new sources for tritium production in the Accelerator for Production of Tritium and Commercial Light Water Reactor(s) EISs.

Response to Comment L3-02 (U.S. Department of Health and Human Services)

Unlike using the production reactors discussed above, refurbishing the existing tritium extraction facility is an alternative means to respond to the purpose and need for the actions evaluated in this EIS. Although this alternative was determined to be unreasonable, DOE believes that it is correct to present it in the Proposed Action and Alternatives section of the Summary rather than earlier in the Summary, where background on the Programmatic EIS and its Record of Decision are presented.

Response to Comment L3-03 (U.S. Department of Health and Human Services)

DOE believes it has provided for the majority of readers the appropriate compromise between brevity and readability versus a more detailed discussion of the dose calculation algorithms.

However, for the commenter and other interested readers, DOE offers the following explanation from technical data input prepared for this EIS. Reference to the technical data input and references cited in the following paragraph are in the Reference list on page 2-29 in Sec-

tion 2 of this Final EIS. The following paragraph is quoted from Simpkins (1998).

“Site-specific codes MAXIGASP and POPGASP are typically used to determine the dose to the maximally exposed individual and the 50-mile population dose, respectively, resulting from routine atmospheric releases. MAXIGASP and POPGASP both access XOQDOQ (Sagendorf et al., 1982), which is based on U.S. Nuclear Regulatory Commission Regulatory Guide 1.111. The XOQDOQ model calculates the relative concentration and relative deposition at specific downwind locations for both individual and population doses. Both codes utilize the GASP module, which is documented by the U.S. Nuclear Regulatory Commission (Eckerman et al. 1980). The GASP module calculates the atmospheric concentrations, deposition rates, concentration in foodstuffs, and radiation dose to individuals and populations resulting from chronic releases of radionuclides to the atmosphere. The basis for GASP (Hamby 1992) is U.S. Nuclear Regulatory Commission Regulatory Guide 1.109. Both GASP and XOQDOQ (Bauer 1991) have been verified for use.”

Response to Comment L3-04 (U.S. Department of Health and Human Services)

DOE has revised Table 4-6 on page 4-9 of the Draft EIS in response to the suggestion. The revision is on page 2-15 of this Final EIS. The individual doses listed in this table range from 0.004 percent to 0.10 percent of the average 357 millirem per year exposure to individuals in the vicinity of SRS (Arnett and Mamatey 1997). The total dose to the population within a 50-mile radius (620,100 people; Arnett and Mamatey 1997) is 0.0003 percent of the average annual exposure.

Response to Comment L3-05 (U.S. Department of Health and Human Services)

The commenter is correct. The sentence on page 4-8 of the Draft EIS (page 2-14 of this Final EIS) is revised to read “After estimating routine emission rates, DOE used the computer

codes MAXIGASP and POPGASP to predict potential radiological doses to the maximally exposed individual, the hypothetical uninvolved worker, and the population surrounding SRS.”

Response to Comment L3-06 (U.S. Department of Health and Human Services)

DOE tries to reserve its use of acronyms for long strings of words that appear often in the text. For those words, the acronym is defined after its first use in each chapter. The words “maximally exposed individual” (MEI) and the Central Sanitary Waste Treatment Facility (CSWTF) are identified in the Draft and Final EIS list of *Acronyms and Abbreviations* in the front matter of the document.

Response to Comment L3-07 (U.S. Department of Health and Human Services)

As indicated on page GL-4 of the Draft EIS, a design-basis accident for nuclear facilities is a postulated abnormal event used to establish the performance requirements of structures, systems, and components to (1) maintain them in a safe shutdown condition indefinitely or (2) prevent or mitigate the consequences of an accident to the general public and operating staff (i.e., prevent exposure to radiation in excess of appropriate guideline values). Normally, a design-basis accident is the accident that causes the most severe consequences when engineered safety features function as intended. Typically, these events have an occurrence probability of greater than 10^{-6} per year.

A beyond-design-basis accident is more severe than the design-basis accident. It generally involves multiple failures of engineered safety systems and has an occurrence probability of less than 10^{-6} per year.

These definitions have been added to the *Glossary*, which is included in the back matter of this Final EIS.

Conceptual design is also defined in the *Glossary* (page GL-2 of both the Draft and Final EIS). Conceptual design involves the develop-

ment of a facility that will meet project goals while ensuring cost effectiveness and attainable performance; development of project criteria and design parameters for all engineering disciplines; and identification of applicable requirements such as environmental studies, construction materials, space requirements, health and safety safeguards, and security requirements.

Pre-conceptual design has been added to the *Glossary*, page GL-10 of this Final EIS. The definition is as follows: Pre-conceptual design involves the development of the preliminary information necessary to define a project. This preliminary information consists of (1) Statement of Mission Need (why the project is needed), (2) preliminary functional and technical requirements (how the project will satisfy the need), and (3) the development of the preliminary budgetary information (very rough estimate of the total cost of the project). This preliminary information is then used to obtain DOE Program office approval to proceed into the further developmental stages of the project.

Response to Comment L3-08 (U.S. Department of Health and Human Services)

The duplicated paragraph on page 4-11 of the Draft EIS is eliminated as shown on page 2-15 of this Final EIS.

Response to Comment L3-09 (U.S. Department of Health and Human Services)

DOE disposes of its post-treatment low-level radioactive waste (LLRW) in vaults in E-Area on SRS that are designed for appropriate disposal of low-activity waste (LAW) or intermediate-activity waste. The fraction of LLRW that radiates less than 200 millirem per hour (at 5 centimeters) is classified as LAW and disposed in LAW vaults. The remainder radiates more than 200 millirem per hour (at 5 centimeters) and is classified as intermediate-activity waste and disposed in intermediate-level vaults. DOE has identified these two subsets of LLRW in Table 4-7 on page 4-10 of the Draft EIS. Table 4-7, as revised, also directs the reader to Ta-

ble 4-9, which provides generating activities and examples of the basic waste types (e.g., LLRW). These revisions are on pages 2-16 and 2-18 of this Final EIS.

Response to Comment L3-10 (U.S. Department of Health and Human Services)

The population within 50 miles of the center of SRS referred to on page 4-9 of the Draft EIS is calculated from a database that identifies population densities in cells on a fine grid for an area covering most of South Carolina and eastern Georgia. There are over 800,000 total cells in the database. It uses data from the 1990 U.S. Census. The database and the calculation of the 50-mile radius population were developed and

validated by the Oak Ridge National Laboratory (ORNL 1991). It is updated periodically when new validated population data are published. This reference has been added to the text on page 2-14 of this Final EIS. The reference is included in the reference list on page 2-31 of Section 2 of this Final EIS.

Response to Comment L3-11 (U.S. Department of Health and Human Services)

DOE has revised the Draft EIS (page 4-9) to provide the source for the percentage of dose that is due to tritium (Simpkins 1997b). The revision appears on page 2-14 in this Final EIS.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

June 25, 1998

4EAD/rkm

Mr. Andrew R. Grainger
NEPA Compliance Officer
Savannah River Site
Building 742-A, Room 183
Aiken, South Carolina 29802

SUBJECT: Draft Environmental Impact Statement (DOE/EIS-0271D) for the
Construction and Operation of a Tritium Extraction Facility(TEF)
at the Savannah River Site

Dear Mr. Grainger:

We have reviewed the subject Draft Environmental Impact Statement (DEIS) in accordance with Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The proposed action is to design, construct, test and operate a new Tritium Extraction Facility (TEF) at Savannah River Site (SRS). The preferred alternative is to locate the TEF near the center of SRS at H Area. The purpose of the action is to provide the capability to extract tritium-containing gases. Overall, the DEIS is well written and illustrated. Our comments are listed below.

EPA has environmental concerns about the project; in particular, the final EIS should provide more information about emergency response plans for potential spills and accidents.

L4-01

In addition, Section 4.1.2.5 of the DEIS, Occupational Health, states that DOE expects a minimal increase in occupational injuries and potential for traffic fatalities during construction of the TEF. The final EIS should give more information about measures to be taken to mitigate these potential risks.

L4-02

Thank you for the opportunity to review this DEIS. Based on our review, we rate the DEIS "EC-2", that is, we have environmental concerns about the project, and more information is needed to fully assess the impacts. If you have questions, please contact Ramona McConney of my staff at 404/562-9615.

Sincerely,

Heinz J. Mueller, Chief
Office of Environmental Assessment

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (40% Postconsumer)

Response to Comment L4-01 (U. S. Environmental Protection Agency)

Response: Emergency response-related factors were considered first during the formal site selection process conducted for TEF. As part of the SRS emergency preparedness process and prior to becoming operational, the TEF would be incorporated into the Site and H Area Emergency Plans. These plans would consider the potential impacts of TEF accidents on personnel in nearby facilities, and the potential impacts of existing operations on personnel assigned to the TEF. DOE prepares and implements Site- and facility-specific plans for responses to potential emergencies such as chemical spills and accidents. The Emergency Operations Center and a spill response team ensure appropriate response. Emergency response personnel are trained extensively and each position has a primary and two alternates on call. The response plans include specific responses to specific incidents for specific facilities (e.g., a TEF), processes, or events. DOE has either used plans in actual emergencies or exercised them in simulated operating conditions. DOE has integrated these SRS plans with state and local offsite plans to enable coordination of a total response to SRS incidents.

Response to Comment L4-02 (U. S. Environmental Protection Agency)

Positive measures are taken to minimize an increase in occupational injuries during any construction activities at the Savannah River Site. These include the adherence to agreements, safety plans, and safety procedures by all contractors, subcontractors, and Site forces. All contractors must sign a Site Project Agreement that requires a properly trained workforce. Proper training of the workforce is guaranteed through hiring of only recognized labor trades. Subcontractors must also submit a health and safety plan that meets Occupational Safety & Health Administration (OSHA) requirements and is approved by the Savannah River Site Safety Department. In addition to meeting OSHA requirements, Site workforces must ad-

here to Site safety procedures documented in Site Safety Manuals.

The potential risk for increase of traffic fatalities during construction is minimized through traffic law enforcement by the Site security force, Wackenhut Security Inc. (WSI). WSI Site security forces are Marshals for the State of South Carolina with full jurisdiction to enforce traffic laws at the Savannah River Site.

In accordance with NEPA, mitigation measures are identified that should reduce significant impacts in construction and operation. Although an increase in actual numbers of accidents or fatalities could occur as a result of additional construction activities and the additional workers required, DOE does not expect the accident or fatality rate to increase. Therefore, DOE has not modified the Draft EIS.

Verbal Comments

Transcripts of the messages left on the DOE message line are presented next, followed by DOE responses.

Mr. Marvin Lewis (Comment V1-01)

This is a comment line; it is supposed to be open through June 23, 1998 according to the letter from Andrew R. Grainger to stakeholders April 30, 1998. If this is supposed to be a comment line, it is supposed to be open as a comment line.

I want to make some comments, actually additions to my previous comments. First and again and again I have to reiterate, there is plenty of commercial tritium available we can buy it on the open market if we really need it.

We don't really need it; we have got plenty of tritium from present weapons to recycle if we really need it.

I would like to point out what the media, several of the media, are saying about the India nuclear bomb tests or nuclear device tests or whatever you want to call it. Namely that there was no

benefit to India from it. There was only negative to India from it and apparently the only real reason for India to go ahead with their nuclear testing was to buoy up the nuclear industry, nuclear bomb industry in the U.S. Namely with the Third World nations setting off bombs, everybody is going to run to the nuclear bomb makers to make more bombs.

I lost count already of how many things I have pointed out here, but I have to point out another thing. We sure don't need Project Stage Coach and the other sub-critical tests to find out anything. A lot of it can't be found out by computer simulation and a lot of it shouldn't be found out and needn't be found out, there is just no reason for it.

Finally, please don't sell nuclear bomb making stuff to Iran even if it is routed through Russia. Now this is the old gag: we did not sell, Russia sold it. Yeah, sure! Since when? We sell it, we know it. By the way I am pro-military but this hog wash that is coming down from DOE and DOD and whatever the Eisenhower's so well put in military industry complex is just bull. I am getting tired of it. I would like it stopped. Thank you.

Response to Comment V1-01 (Mr. Marvin Lewis)

The Purpose and Need Section in the Summary (page S-2) has been expanded to clarify why the U.S. needs tritium. Technologies to meet tritium production needs are not within the scope of this EIS. The 1995 *Final Programmatic Environmental Impact Statement Tritium Supply and Recycling* (PEIS) addressed the full range of reasonable alternatives for tritium production. Currently, no extractable tritium is being produced at commercial nuclear reactor sites, but the performance of tritium-producing burnable absorber rods is currently being demonstrated at a Tennessee Valley Authority reactor. As stated in the 1995 Tritium Supply PEIS, DOE considered the purchase of tritium from foreign nations. While there is no national policy against purchase from foreign sources, DOE determined that the uncertainties of purchasing tritium from

a foreign country render such an action unreasonable for an assured long-term supply.

This TEF DEIS stated on page S-2 and in Section 1.3 that the need for tritium is based upon the Nuclear Weapons Stockpile Plan approved by the President, which calls for a new tritium source by 2005 if the CLWR option is selected. The amount of tritium that could be expected to be recovered from retired weapons would not sustain the long-term need under current stockpile requirements. A safe, reliable, domestic supply is required to maintain levels determined by national defense policies.

The purpose of the proposed action and alternatives evaluated in this EIS is to provide tritium extraction capability to support tritium production technology. Sub-critical testing is not within the scope of this EIS. Previous national decisions determined that subcritical experiments are essential to the United States' commitment to a world free of nuclear testing while maintaining a reliable nuclear deterrent. These experiments are an integral part of DOE's stockpile stewardship and management program.

Mr. Curt Graves (Comment V2-01)

I believe in the concept of the tritium facility, but would like to see a separate, independent (maybe non-governmental) group perform inspections on the facility to ensure it is in compliance with all environmental, health, and other regulations.

Response to Comment V2-01 (Mr. Curt Graves)

One or more regulatory bodies, including EPA and the South Carolina Department of Health and Environmental Control oversee all Site activities. Other agencies, including the Defense Nuclear Facilities Safety Board, oversee particular facets of SRS operations. For example, the DOE industrial hygiene program complies with the Occupational Safety and Health Administration's regulatory requirements for tracking the incidence and type of injuries and illnesses and the resulting days lost from work.

These agencies would exercise the same responsibilities for TEF operations.

DOE and the U.S. Nuclear Regulatory Commission (NRC) are currently exploring the possibility of NRC oversight of certain DOE facilities. A pilot program is being conducted during which the NRC is performing mock inspections of three DOE facilities, including the Receiving Basin for Offsite Fuels at SRS. DOE and NRC will further examine the process after this pilot project is completed.