DOE/EA-0400

ENVIRONMENTAL ASSESSMENT

CONSOLIDATED INCINERATION FACILITY
SAVANNAH RIVER SITE

DECEMBER 1992

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT

Preface

This environmental assessment (EA) was prepared by the U.S. Department of Energy (DOE) to assess the potential impacts associated with the siting, construction, and operation of the proposed Consolidated Incineration Facility (CIF), at the Savannah River Site, Aiken, South Carolina. The text of the document is unchanged from the EA issued in June 1992, with the following three exceptions: (1) Section 2.1 refers to recent solid waste forecast information; (2) Section 4.5.1 deletes the reference to dioxin emission standards; and (3) a footnote to Section 4.6.2 includes the results of a more conservative risk factor. An additional appendix has also been added to the EA. Appendix B presents comments received on the June 1992 EA and the Proposed FONSI from federal, state, and local agencies, interest groups, and individuals. Appendix B also contains both general and specific DOE responses to these comments.

Consolidated Incineration Facility
Environmental Assessment

Table Of Contents

Section		Page
1.0	Purpose and Need for Action	
1.1	Purpose	1-1
1.2	Need for Action	1-1
2.0	Proposed Action and Alternatives	
2.1	Proposed Action: Replace Shipping and Storage of Untreated Hazardous, Mixed, and Low-Level Radioactive Waste at SRS with Onsite Incineration of These Wastes and Onsite Disposal of Their Resulting Waste Residues in SRS Disposal Facilities Permitted by RCRA	2-1
2.2	Alternative Action: Ship Untreated SRS Hazardous and Mixed Waste Offsite for Treatment and Disposal	2-9
2.3	Alternative Action: Construct One SRS Incinerator for DWPF Liquid Waste (Benzene) and Construct Another SRS Incinerator for Hazardous and Mixed Waste	2-9
2.4	Alternative Action: Treat SRS Hazardous Waste by Some Method Other Than Incineration	2-10
2.5	No Action	2-10
3.0	Affected Environment	
3.1	Geography	3-1
3.2	Demography and Socioeconomics	3-1
3.3	Meteorology and Climatology	3-5
3.4	Geology and Seismology	3-5
3.5	Hydrolog	3-7
3.6	Ecology	3-7
3.7	Radiation Environment	3-7
4.0	Environmental Consequences of the Proposed Action	
4.1	Land	4-1
4.2	Socioeconomics	4-1
4.3	Ecology	4-1
4.4	Water	4-2
4.5	Air Quality	4-2
4.6	Health and Safety	4-5
4.7	Other Impacts	4-12
4.8	Cumulative Impacts	4-13

Section		Page
5.0	Environmental Review Requirements	
5.1	National Environmental Policy Act (NEPA)	5-1
5.2	Resource Conservation and Recovery Act (RCRA)	5-1
5.3	Clean Air Act	5-1
5.4	Toxic Substances Control Act (TSCA)	5-2
5.5	Clean Water Act and Safe Drinking Water Act	5-2
5.6	Cultural Resources Management	5-2
5.7	Compliance with Other Environmental Regulations	5-2
6.0	Agencies and Persons Contacted	6-1
7.0	References	Ref-1
8.0	Appendices	
	Appendix A	App A-1
	Appendix B	App B-1

1.0 Purpose And Need For Action

1.1 Purpose

This document has been prepared by the Department of Energy (DOE) to assess the potential environmental impacts of the construction and operation of a new Consolidated Incineration Facility (CIF) at the Savannah River Site (SRS), Aiken, South Carolina. The SRS was previously known as the Savannah River Plant (SRP). The CIF would incinerate SRS hazardous, mixed, and low-level radioactive waste. The incineration of hazardous and mixed wastes would enable SRS to comply with existing and future Resource Conservation and Recovery Act (RCRA) requirements for treatment of hazardous waste prior to land disposal. Incineration is the best treatment method available for many SRS wastes. Presently, SRS ships its untreated hazardous waste offsite for treatment and disposal, stores its mixed wastes onsite and disposes of its low level radioactive waste onsite.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the requirements of the Council of Environmental Quality Regulations for implementing NEPA (40 CFR Parts 1500-1508), and the DOE NEPA Rule (10 CFR 1021). NEPA requires the assessment of environmental consequences of all major Federal actions that may affect the quality of the human environment. The potential environmental effects of SRS waste disposal, including disposal of the treated ash and scrubber blowdown byproducts resulting from operation of the CIF, are evaluated in the "Final Environmental Impact Statement (EIS), Waste Management Activities for Groundwater Protection," (DOE, 1987). That EIS stated that no significant impacts were expected from the operation of the new waste management facilities, including the CIF and related support facilities, analyzed in the EIS.

Incineration of SRS hazardous, radioactive, and mixed waste at the CIF would reduce the volume and toxicity of this waste and permanently immobilize the incinerator solid waste residue (ash) by in-drum stabilization for placement in an onsite hazardous waste/mixed waste disposal facility. The incinerator liquid waste residue (offgas scrubber blowdown) would be solidified for onsite disposal in an onsite RCRA hazardous waste permitted facility in accordance with required treatment standards. This would eliminate a potential source of groundwater contamination at SRS by incinerating this waste prior to its land disposal at SRS. In addition to allowing SRS to comply with the RCRA requirements, the CIF would also eliminate present SRS offsite shipments of incinerable hazardous waste for treatment and disposal.

1.2 Need For Action

Presently at SRS, untreated hazardous waste is being shipped offsite, mixed wastes are being stored onsite, and low-level radioactive wastes are disposed of onsite. One million pounds of hazardous and mixed waste is currently generated each year onsite. This waste will be required to be treated and disposed of in accordance with existing and future RCRA Land Disposal Restriction treatment standards and similar South Carolina Hazardous Waste Management Regulations. The CIF is also necessary to reduce the volume of this waste and the mobility of radioactive waste constituents.

SRS low-level radioactive waste is presently being disposed of in shallow land burial onsite. An additional two and a half million pounds of low-level radioactive waste is currently generated each year onsite. Beginning in 1992, this waste is to be disposed of in engineered SRS "vault-design" land disposal facilities, which will isolate the waste from the surrounding soil and groundwater at significantly higher disposal costs. However, presently there are no SRS facilities that can treat this waste. The CIF would use rotary kiln incineration in conjunction with a secondary

combustion chamber to reduce the volume of this waste in order to lower final disposal costs for low-level waste at SRS and help protect groundwater and soil resources on SRS. It is estimated that the CIF would reduce an annual average design waste volume of 580,000 cu. ft. down to 44,600 cu. ft. of stabilized ash and unstabilized blowdown (13:1 volume reduction factor). Stabilization of CIF scrubber blowdown at another SRS facility would add to the final volume of disposed blowdown, resulting in a net final volume of 72,500 cu. ft. of all waste processed through the CIF (8:1 volume reduction).

Types of waste to be incinerated by the CIF would include waste confirmed or suspected of being hazardous, low-level radioactive, or mixed waste. For this assessment, hazardous waste is waste defined as hazardous by RCRA and mixed waste means waste that has both radioactive and hazardous components. The CIF would not receive or treat any waste containing dioxins or polychlorinated biphenyls.

This waste is primarily generated during normal operations at SRS. It consists of solids, sludges, organic liquids, and aqueous waste such as oils, paint solids, solvents, rags, clothing, and floor cleaning materials. Due to the variety of waste forms and waste containers expected to be processed in the CIF, the CIF would have a rotary kiln primary combustion chamber and a secondary combustion chamber (SCC) to ensure at least 99.99% destruction of all hazardous materials, which is an EPA regulation. The CIF offgas treatment system would ensure that its SCC offgas meets all applicable regulatory limits prior to discharge to the environment. About 30 lb/hr of residual ash would result from CIF incineration and would be stabilized for permanent disposal at SRS in a RCRA hazardous waste permitted facility.

By the time the CIF would begin operations, hazardous and mixed wastes, such as benzene from continuing Defense Waste Processing Facility (DWPF) operations, would have accumulated at SRS and require incineration in accordance with RCRA. To reduce this inventory, the CIF would process and treat higher volumes, an estimated five million pounds of waste annually for the first three years, and then four million pounds annually after that. Some ninety-nine percent of the waste by volume to be processed by the CIF is expected to contain low levels of radioactivity.

The volume reduction of waste by the CIF complements the SRS sitewide waste minimization program (WSRC, 1989a), which reduces to the maximum practical extent the volume and toxicity of hazardous, low-level radioactive, and mixed waste requiring treatment and/or disposal. A reduction in waste volume and toxicity would result in a reduction of risk to the public and environment due to emissions and secondary waste resulting from operations of waste storage and disposal facilities. SRS has committed significant manpower and financial resources to the waste minimization program in order to realize the maximum practical benefit from this program.

A variety of techniques are being explored and utilized to minimize waste, and a number of techniques have been implemented resulting in a reduced generation rate for various SRS waste streams. Among these techniques are process and raw material changes, waste segregation (separate waste into toxic and nontoxic fractions), recycling and reuse of waste, and employee awareness training. The implementation strategy assures that all SRS waste streams are identified, one or more minimization techniques such as those listed above are selected and implemented, and progress toward established goals is reported and monitored. Significant waste reductions have already been realized at SRS.

2.0 Proposed Action And Alternatives

2.1 Proposed Action: Replace Shipping and Storage of Untreated Hazardous, Mixed, and Low-Level Radioactive Waste at SRS with Onsite Incineration of These Wastes and Onsite Disposal of Their Resulting Waste Residues in SRS Disposal Facilities Permitted by RCRA

Under this proposed action, the Department of Energy would construct and operate a CIF at SRS to treat hazardous, mixed, and low-level radioactive wastes by incinerating them prior to disposal at SRS. The CIF would be constructed in the 200-H Separations Area of SRS, an industrial area near the center of SRS. The CIF would be a new concrete and steel open building of about 31,000 square feet with processing facilities, control rooms, waste receiving areas, and waste handling areas.

The CIF's processing facilities would include the rotary kiln primary incinerator and a secondary combustion chamber (SCC) with solid and liquid waste feed systems, an offgas cleaning system, an ash solidification system, a scrubber blowdown system, and process control equipment. The 8-foot by 25-foot rotary kiln would be coupled to the 7-foot by 21-foot SCC. The incinerator's two combustion chambers would be maintained at a slight vacuum to minimize fugitive emissions. Liquid wastes, including benzene, would be fed using burner nozzles and solid wastes would be fed by a ram feed system. The kiln, SCC, and ducts leading to the quench chambers would have carbon steel shells lined with refractory. Specific areas of the CIF process would be totally enclosed and kept under continuous, negative pressure to insure no escape of radioactive or chemically toxic particulates. These enclosures, as well as a similar maintenance enclosure around the rotary kiln, are discussed later in this section. The remainder of the CIF process would not be enclosed in order to effectively dissipate the heat created in the combustion process. The general layout for the CIF and its supporting facilities is shown in Figures 2-1 and 2-2.

CIF supporting facilities would include truck loading and unloading stations, tank farm facilities for waste handling and storage, offices, storage, and maintenance areas. The tank farm facilities would consist of two 4,200-gallon agitated blend tanks, one 6,500-gallon agitated aqueous waste storage tank, and one 6,500-gallon spare waste storage tank. Each of these carbon steel tanks would be above grade tanks and would have a nitrogen blanketing system for fire protection and curbs and dikes for leakage containment. Two additional tanks shown in Figure 2-2 would be for fuel oil and nitrogen storage.

The CIF process building would have a 150-foot exhaust stack which would handle the offgas from the incinerator and the exhaust air from the building ventilation system. The offgas and exhaust air would be high efficiency particulate air (HEPA) filtered. The offgas would also be cooled in a quench vessel, and enter a free jet scrubber to remove particulates and acid gases before entering a cyclone separator to remove entrained moisture. The gas would then pass through a mist eliminator and a series of HEPA filters to remove any fine particles left in the emissions before being monitored and released through the stack. Spent scrubber solution ("blowdown") would be pumped to waste hold tanks for subsequent transfer to another onsite RCRA facility, where the solution would be solidified and disposed of in accordance with DOE Orders and standards and Federal and State hazardous waste regulations. The building ventilation system would maintain sufficient ventilation air flow and a slight vacuum in the following enclosures to prevent release of radioactive or chemically toxic particulates: container handling area, kiln feed enclosures, kiln seal hoods, and ash handling enclosure. Redundant induced-draft fans would be installed to insure adequate air flow and negative pressure is maintained in these enclosures at all times. A maintenance enclosure would also be installed around the rotary kiln.

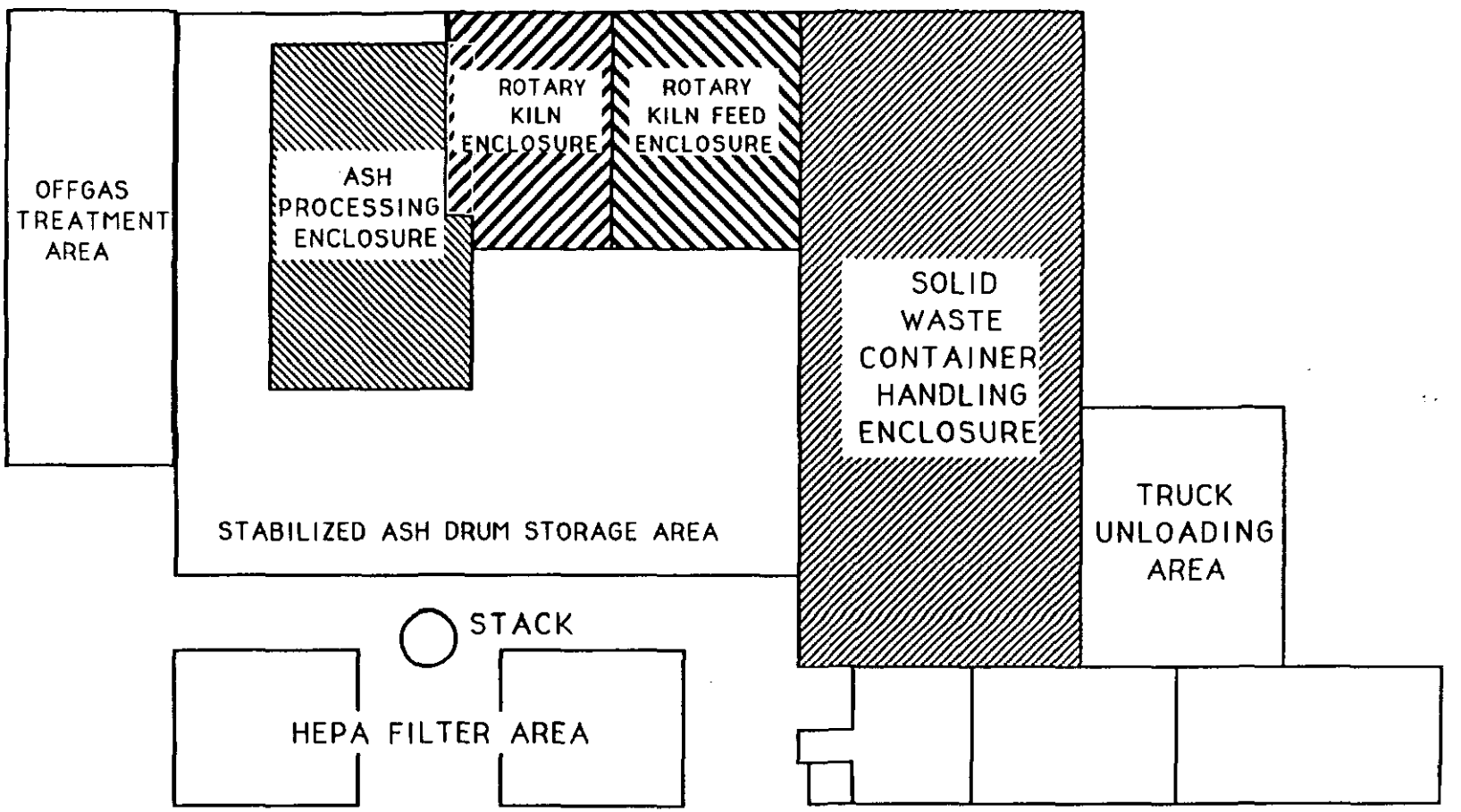

FIGURE 2-1. PROCESS BUILDING PLAN FOR CONSOLIDATED INCINERATION FACILITY

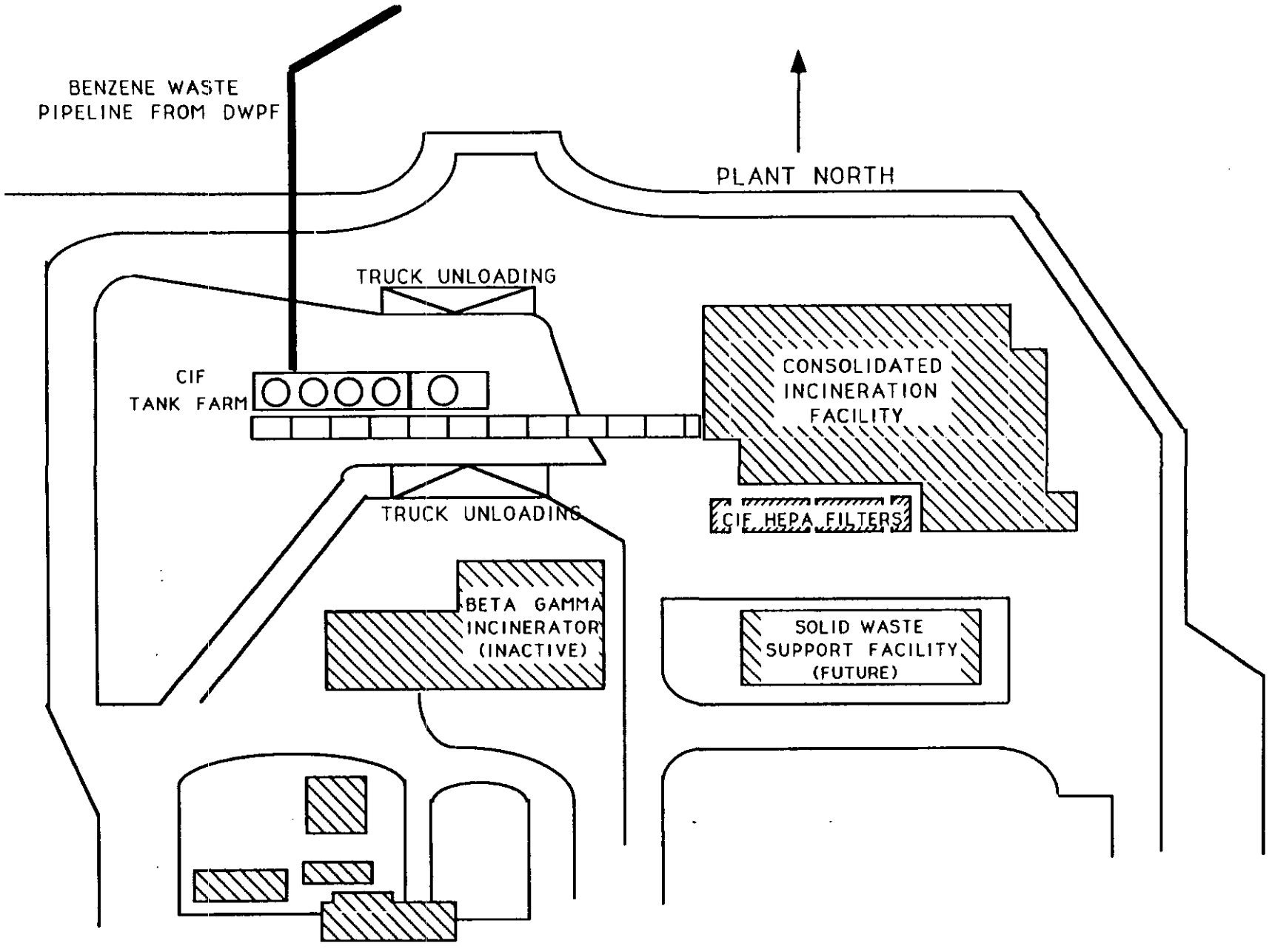

FIGURE 2-2. PLOT PLAN FOR CONSOLIDATED INCINERATION FACILITY

The enclosure would incorporate sidewall louvers and roof ventilators to facilitate heat dissipation during CIF operation. During kiln maintenance, the louvers and ventilators would be closed to prevent the release of radioactive or chemically toxic particulates. The building ventilation system would provide exhaust hoods around each of the kiln seals for the collection and HEPA filtration of gases. These hoods would collect any gas escaping from the kiln seals should a process upset create a positive pressure, instead of the normal negative pressure maintained within the kiln. Negative pressure is to be maintained in the process system by induced draft fans to minimize fugitive emissions. Liquid waste tanks in the CIF tank farm would be vented to another HEPA filter system with an activated organic carbon adsorption unit prior to release from a 42-foot stack. The CIF process diagram is shown in Figure 2-3.

Waste to be burned by the CIF would be transported to the CIF by truck or pipeline and would be monitored to ensure that it meets CIF acceptance criteria. The acceptance criteria will be established based on the requirements of the state and federal operating permits issued to the CIF and trial burn test results. A waste characterization plan has been developed by which all waste would be tested regularly to insure it meets the CIF acceptance criteria. Included is testing for types and levels of chemical and radioactive contaminants, and foreign objects not compatible with the incineration equipment. These programs are to aid in assuring that materials not suitable for incineration are excluded, CIF operation remains stable, and emissions do not exceed safe levels. No wastes containing dioxins or polychlorinated biphenyls (PCBs) would be received or incinerated in the CIF. Airlock-type devices would be used to prevent any spread of radioactivity, toxicity, or flammable combustion products into the waste feed system. Waste would be rejected and returned to the generator if it emits radiation above levels safe for worker exposure, contains bottled liquid or large metal pieces, is larger than 24 inches in length, or weighs less than 5 lbs or more than 75 lbs. Solid waste containing toxic materials would be handled using established site procedures to keep the emissions and worker exposures within levels permitted by DOE Orders and standards, DOE-adopted OSHA standards and EPA regulations.

Solid waste meeting acceptance criteria would be fed directly to the high temperature incinerator. However, liquid waste, delivered by pipeline, tank truck, or containers to the CIF tank farm, would be unloaded into storage tanks or pumped directly to the process building for incineration. Liquid waste would be blended with other waste in the storage/blend tanks and then fed to the incinerator. Auxiliary fuel, #2 fuel oil, would be added as necessary to maintain operating temperatures. Maximum feed rates to the kiln for solid waste would be 2025 lbs/hr, 950 lbs/hr for low heat value liquid waste, and 385 lbs/hr for high heat value liquid waste.

Solid waste inventories vary from high BTU materials such as paint solids containing non-chlorinated organics to chlorinated materials such as absorbed perchloroethylene, 1,1,2 trichlorotrifluorethane, trichloroethylene, 1,1,1 trichlorethane, and some pesticides. Job control waste typically consists of rags, plastic or cloth work suits, shoe covers, polyvinyl chloride (PVC) sheeting, mops and other floor cleaning equipment that may contain low levels of radioactivity and/or small quantities of hazardous constituents such as benzene.

Liquid waste inventories include hazardous and nonhazardous waste such as chlorinated and nonchlorinated organic solvents, machine oils, paints and thinners, lubricating oils, pesticides, laboratory organic wastes, and organic process waste streams. Some liquid waste contains low levels of radioactivity. Radioactive organic liquid waste from the DWPF is over 90 percent benzene mixed with other aromatics.

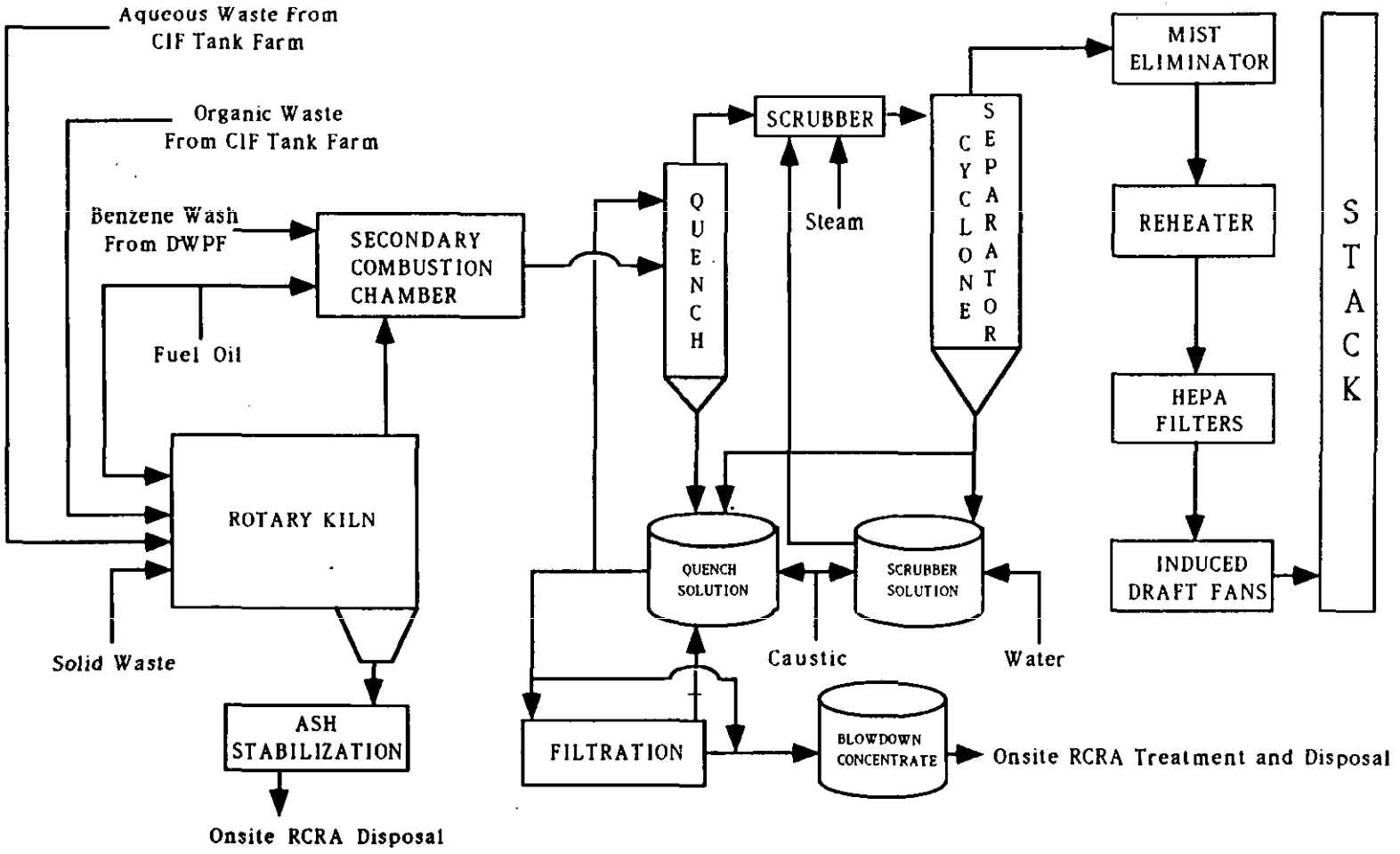

FIGURE 2-3. SCHEMATIC PROCESS DIAGRAM FOR CONSOLIDATED INCINERATION FACILITY

Estimated liquid and solid waste volumes were used to help establish the design basis of the CIF. These startup inventories and annual processing volume estimates are provided in Table 2-1. Actual volumes within each waste category may vary in response to changes in the SRS mission. For example, because the Fuel Materials Facility has been placed in stand-by, the actual volume of naval fuel organics to be incinerated will be only a few hundred gallons. DOE is satisfied that the sizing of the proposed CIF is still appropriate based on its review of the site's 1993 fiscal year solid waste forecast and allowing for expected fluctuations in waste generation (Westinghouse 1992).

Maximum design operating temperatures are 1832°F in the rotary kiln at a minimum 100% excess air and 2012°F in the SCC at a minimum 80% excess air. At maximum design throughput, the minimum offgas residence time in the SCC is two seconds.

Actual operating temperatures and actual SCC gas residence time required to insure 99.99% minimum destruction of the Principal Organic Hazardous Constituents (POHC) in the waste would be established by the RCRA trial burn and would become RCRA operating permit requirements. Solids retention time in the kiln would range from a minimum of 30 minutes to a maximum of 90 minutes. The average operating rate would be 720 lbs/hr for solids and 172 lbs/hr for liquids to the kiln and 139 lbs/hr for liquids to the SCC.

In accordance with EPA regulations, CIF ash would be handled, treated, stored, and disposed of onsite as RCRA hazardous waste because a portion of the ash would result from the treatment of listed hazardous wastes, and/or wastes containing varying levels of nonincinerable RCRA hazardous constituents (e.g., mercury, lead). In addition, most ash would contain detectable levels of radioactivity. Virtually all waste incinerated would be hazardous and/or radioactive, and essentially all resulting ash would be similarly hazardous (by EPA rule or composition) and/or radioactive. Therefore, no attempt would be made to segregate a very minor amount of nonhazardous, nonradioactive ash and handle it differently from hazardous and/or radioactive ash. The treatment and disposal methods selected for the CIF ash would meet applicable EPA Land Disposal Restriction treatment standards (or EPA approved alternate standards) for the hazardous constituents and also bind the radioactivity into an environmentally immobile form.

Ash not entrained in the offgas would empty into a water tank for removal to 55-gallon drums while still maintaining a vacuum seal with the rotary kiln. Controlled amounts of cement and water would be remotely added to the drums and mixed by a tumbling action to produce stabilized waste. The ash removal and drum mixing operations would be contained in an enclosure to prevent the release of radioactivity to the environment. The ventilation exhaust air from this enclosure is to be HEPA filtered. These operations are remotely controlled to minimize worker exposures to radiation and radioactive and chemically toxic ash particulate. The drums of stabilized ash would be monitored for surface contamination, decontaminated if needed, and transferred to onsite disposal facilities permitted for hazardous waste in accordance with RCRA and other applicable Federal and State requirements.

To insure a safe and efficient CIF design, other waste incinerators in DOE and the private sector were surveyed by SRS. The operating experiences of these other facilities have resulted in various CIF design features intended to minimize operating impacts on the environment (e.g., the hoods to be installed around the kiln seals will collect any gas or particulate that may occasionally escape due to seal wear).

All applicable DOE Orders and standards, DOE-adopted OSHA standards, and SRS requirements would be followed to assure the protection of worker health and safety during normal operations and in the event of accidents having the potential for radiological or toxic chemical exposure.

TABLE 2-1 CIF WASTE FEED SUMMARY

Waste Category	Waste Type	Key Chemical Component(s)	Estimated Startup Inventory	Estimated Annual Volume
High Heat Value Liquids (Heating Value > 7500 BTU/lb)				
High BTU	NRHW	Acetone, Methyl Ethyl Ketone, Toluene, Mineral Spirits	22,000 gal	22,000 gal
Chlorinated	NRHW	Perchloroethylene, Trichloroethane, Trichloroethylene	500 gal	500 gal
Purex Solvent	LL RAD	Parrafin, Tributylphosphate	36,000 gal	8,000 gal
DWPF Organic	Mixed	Benzene, Mercury	150,000 gal	50,000 gal
Naval Fuel Organic	Mixed	Classified	31,000 gal	4,500 gal
Tritiated Oils	Mixed	Lubricating Oil	15,000 gal	7,000 gal
Fuel Oil Flush	Mixed	Fuel Oil with traces of components from other liquid and solid wastes	20,000 gal	9,000 gal
Low Heat Value Liquids (Heating Value < 7500 BTU/lb)				
Aqueous	NRHW	Water with dissolved organics (e.g., benzene, trichloroethane) and metals (e.g., nickel, chromium, lead)	2,000 gal	2,000 gal
Aqueous Flush	Mixed	Water with traces of components from other liquid and solid wastes	7,000 gal	1,000 gal

TABLE 2-1 (CONT'D) CIF WASTE FEED SUMMARY

Waste Category	Waste Type	Key Chemical Component(s)	Estimated Startup Inventory	Estimated Annual Volume
Solids				
High BTU	NRHW	Acetone, Methyl Ethyl Ketone, Toluene, Mineral Spirits, Paint Solids, Rags, Inert Liquid Absorbents	440 cu ft	440 cu ft
Chlorinated	NRHW	Perchloroethylene, Trichloroethane, Trichloroethylene, Rags, Inert Liquid Absorbents	380 cu ft	380 cu ft
Job Control Waste	LL RAD/Mixed	Polyethylene, Polyvinylchloride, Cellulose, Lead, Cadmium	200,000 cu ft	560,000 cu ft

Notes

1. NRHW = Non-Radioactive Hazardous Waste LL RAD = Low-Level Radioactive Waste
   Mixed = Wastes that are both RCRA hazardous and radioactive
2. Solid waste rated at 5 lb/cu ft and 7500 BTU/lb; Yearly solids contribution = 21.0E9 BTU
3. Liquid waste rated at 8.33 lb/gal and 18,000 BTU/lb; Yearly liquids contribution = 13.4E9 BTU
4. Average throughput = 7.0M BTU/hr (based on 50% and 70% availability for solids and liquids respectively)
5. Facility Rated Capacity = 19.0M BTU/hr

Training for the safe handling of hazardous waste would be provided for workers and supervisors as required by DOE Orders, OSHA regulations, SRS requirements and procedures and other applicable Federal and State regulations. Annual comprehensive refresher training on routine CIF operations, emergency procedures, and safe handling of hazardous materials, among other topics, is required of all CIF operators and supervisors to insure continued safe operation of the CIF. In addition, all safety systems and equipment would be regularly inspected to insure they are available to help avoid or mitigate the impact of any potential operating incidents such as process upsets, spills, etc.

2.2 Alternative Action: Ship Untreated SRS Hazardous and Mixed Waste Offsite for Treatment and Disposal

DOE has considered transporting the hazardous and mixed wastes to offsite incinerators. Under this alternative, SRS incinerable mixed wastes would be shipped to offsite DOE mixed waste incinerators (e.g., Oak Ridge or INEL) for treatment and disposal. Commercial mixed waste incinerator capacity is not available. SRS incinerable hazardous waste would be shipped to offsite DOE incinerators or commercial hazardous waste incinerators for treatment and disposal. SRS low-level radioactive waste would be stored or disposed of at SRS without incineration.

An advantage of this alternative would be no CIF capital construction costs. However, DOE incinerators would not have sufficient available capacity for the volume of SRS mixed waste.

Even if capacity were available, this advantage would be at least partially offset by the expected need to invest additional capital funds at the other selected DOE incinerators to eliminate the design limitations (e.g., enhanced radiation shielding, offgas radioactivity filtration) that currently prevent them from safely processing certain SRS mixed waste streams. Further, the selected DOE incinerators would have to incur additional costs to obtain modifications to their state and federal operating permits and to perform the trial burn testing required to secure the modifications.

It is expected that the incremental cost of incinerating SRS mixed and hazardous waste would be similar at SRS or offsite, although considerable additional transportation costs would be incurred for shipment to offsite incinerators.

This alternative also has the disadvantage of requiring shipments of hazardous and radioactive waste off site for treatment and disposal. While transportation of hazardous materials on public highways is conducted safely, the CIF would allow SRS to keep wastes onsite and eliminate any risk, however slight, associated with public highway transportation. Transportation of wastes at SRS would be restricted to roads closed to the public or transported in accordance with DOT regulations.

Moreover, with the CIF, wastes would remain under the direct custody and control of DOE, thus maximizing the likelihood of proper handling of the waste materials. Also, this alternative causes sustained operation of SRS to be dependent on the availability of commercial waste treatment facilities. Any problems encountered by commercial vendors which would result in their inability to process SRS waste would impact site operations.

2.3 Alternative Action: Construct One SRS Incinerator for DWPF Liquid Waste (Benzene) and Construct Another SRS Incinerator for Hazardous and Mixed Waste

This alternative would involve multiple incineration systems to handle specific waste streams or combinations of waste streams. One incinerator would be constructed at SRS to burn miscellaneous solid and liquid hazardous wastes, with the unit to be subsequently upgraded to handle radioactive waste. Another incinerator would be constructed at SRS to burn only organic liquid waste from DWPF. Different technologies would be utilized for the different waste streams

based on the characteristics of the waste. An advantage of using different technologies would be that treatment efficiency, and possibly direct treatment costs, for a given waste could be optimized.

Two separate incinerators would result in a substantial duplication of facilities resulting in substantially greater costs than the proposed action of constructing one incinerator to handle all SRS waste types. This multiple incinerator alternative would result in higher actual and potential emissions to the environment from redundant equipment. For example, the aggregate number of liquid waste storage tanks would be higher for separate facilities, and the total vent emissions from these tanks would be higher than from the tanks to be installed at the CIF. Similarly, the increased number of process equipment items in the separate facilities would create a higher number of potential fugitive emission leaks and total quantity of fugitive emissions, as well as higher maintenance costs due to duplication of processing equipment.

Separate incinerators would not result in improved combustion efficiency and therefore lower incomplete combustion pollutant emissions than those from a single facility. A single consolidated facility would have to meet the same RCRA combustion efficiency requirements for principal organic hazardous constituents (99.99% or greater destruction and removal efficiency) and other offgas quality standards as separate facilities, without regard to choice of combustor design. Consequently, separate facilities would not provide a pollutant emission reduction advantage compared to a single combined facility.

2.4 Alternative Action: Treat SRS Hazardous Waste by Some Method Other Than Incineration

Solidification, biological treatment, and chemical treatment were considered as alternatives to incineration. Solidification would immobilize, but would not reduce the toxicity or the volume of the waste. The potential for contamination of the environment would still exist and the waste may have to be reclaimed at a later date. Thus, solidification was not deemed to be a reasonable alternative.

Chemical and/or biological treatment of the waste would lead to a multitude of treatment processes. A specific process would likely be required to treat each waste stream, since most bioengineered organisms are capable of breaking down only very limited types of wastes. The advantage of this method is that a specific treatment method would be utilized for each waste stream, possibly increasing the efficiency of destruction for each stream. A disadvantage of this alternative is that separate treatment facilities would be required for each waste stream, significantly increasing the cost, land usage and fugitive emissions due to the possible duplication of equipment. Another disadvantage is that no other treatment method compares favorably with incineration, which has been identified by the EPA as the Best Demonstrated Available Technology (BDAT) for treatment of many hazardous wastes in recent regulations that set treatment standards for hazardous waste for land disposal (i.e., EPA considers incineration to be one of the most effective treatment methods for hazardous waste for land disposal) (EPA, 1990a). SRS produces a number of hazardous wastes for which incineration has been specified by EPA as BDAT. Therefore, biological and chemical treatment were not deemed to be reasonable alternatives to incineration as a treatment technology.

2.5 No Action

Under this alternative, the CIF would not be constructed or operated. Untreated waste would continue to accumulate at SRS. Extended storage of untreated hazardous waste is generally not allowed except to accumulate sufficient quantities to facilitate proper treatment, recovery, or disposal. RCRA requires prompt treatment of restricted hazardous waste.

The no action alternative would save capital and operating cost of treatment facilities for SRS low level, hazardous and mixed waste. The disadvantage of this alternative is that failure to construct

and operate the CIF would not allow SRS to comply with requirements in the Land Disposal Restrictions Federal Facility Compliance Agreement which would affect DOE's ability to comply with other legal requirements. This would negatively affect operations at DWPF, would result in the continued offsite shipment of waste, and would not allow DOE to undertake an action which would reduce potential environmental impacts to groundwater and soil resources.

A comparison of the impacts associated with the different alternatives is presented in Table 2 - 2.

TABLE 2-2

Comparison of Impacts of the CIF and Alternatives

IMPACT	CIF	OFFSITE HW SHIPMENT	SEPARATE INCINERATORS	ALTERNATE TREATMENT	NO ACTION
Land Use	Three acres. No significant impact.	No additional permanent construction.	Up to six acres.	Depend upon number of treatment options. More treatment options would be expected to use more land area.	No impact
Site dedication	Only contaminated areas that could not be returned to public use after a 100 year institutional period would become dedicated sites.	No site dedication	Up to twice as much as CIF.	Expected to be greater than CIF due to the use of more sites.	No site dedication.
Groundwater	CIF would use 27 GPM of groundwater. Only uncontaminated storm water to be released to surface. No significant impacts.	No impact.	Expected to be same as CIF. Only uncontaminated storm water to be released to surface.	Water use expected to be greater. Solidification of untreated waste would probably require quantities of water beyond that needed for the CIF.	Possible impact from undetected container leaks.
Health effects	No major impact from expected discharge of radioactive or chemical effluents. Possible minor impact from accidental releases.	Possible impact in the event of an accident during shipping. Actual impact dependent upon circumstances of accident.	No major impact from expected discharge of radioactive or chemical effluents.	No major impact expected from discharge of radioactive or chemical effluents. Possible impact from increased potential for fugitive emissions.	Possible impact from accidental releases. Releases due to undetected container degradation are more probable with extended storage.
Aquatic ecology	Waste treatment will reduce potential impacts from long term storage with accidental releases. Siting constraints would preclude major impacts	Possible impact in the event of an accident during shipment.	Same as CIF.	Same as CIF.	Possible impacts from long term storage with undetected container leaks.

TABLE 2-2 (cont'd)

Comparison of Impacts of the CIF and Alternatives

IMPACT	CIF	OFFSITE HW SHIPMENT	SEPARATE INCINERATORS	ALTERNATE TREATMENT	NO ACTION
Terrestrial ecology	Site location adjacent to H-Area expected to result in no significant impact. No endangered species are known to exist on or near proposed site.	No new impacts expected at off site treatment facilities.	Impacts would depend upon area use and location of separate incinerators. Site would be chosen to have no adverse impact on threatened and endangered species.	Impacts would depend upon area use and location for treatment processes but would be expected to be greater than CIF due to the anticipated need for more sites. Site would be chosen to have no adverse impact on threatened or endangered species.	Undetected container degradation due to extended storage of this waste may have some floral and faunal impacts near the storage sites.
Habitats/ wetlands	No habitat or wetland would be impacted.	Possible impact in the event of an accident during shipment.	Siting constraints would preclude major impacts to habitat or wetland.	Impact would depend upon area use and location for for treatment proccesses.Siting constraints would preclude major impacts to habitat or wetland.	Undetected container degradation during extended storage of waste may hav some impacts on habitats near storage site.
Archaeological and historical sites	No impact.	Possible impact in the event of an accident during shipment.	No impact expected due to Agreement with State of South Carolina.	No impact expected due to Agreement with State of South Carolina.	No impact.
Socioeconomic	No significant impact. CIF workforce is only small fraction of total.	No impact at SRS. Probable minor increase at ultimate destination.	Workforce would be larger than CIF but still not major part of local workforce.	Multiple processes would be expected to require more workers than CIF. Number of workers would not be expected to be major part of local workforce.	Possible shutdown of all production facilities with layoff of significant fraction of workforce.
Accidents/ occupational risks	Risk exists for spills, leaks, fire and exposure of both onsite and offsite personnel. Engineering and administrative controls would be implemented to reduce exposure potential to acceptable levels.	Risk exists for spills, leaks, fire and exposure of both onsite and offsite personnel due to transportation and handling accidents. Impact would depend upon location and severity in the event of an accident.	Risk exists for spills, leaks, fire and exposure of both onsite and offsite personnel. An additional facility would be expected to increase incidence of accidents. Engineering and administrative controls would be implemented to reduce exposure potential to acceptable levels.	Risk exists for spills, leaks, fire and exposure of both onsite and offsite personnel. Additional facilities would be expected to increase incidence of accidents. Engineering and administrative controls would be implemented to reduce exposure potential to acceptable levels.	Risk exists for spills, leaks, fire and exposure of both onsite and offsite personnel Undetected leaks become more probable with extended storage.

TABLE 2-2 (cont'd)

Comparison of Impacts of the CIF and Alternatives

IMPACT	CIF	OFFSITE HW SHIPMENT	SEPARATE INCINERATORS	ALTERNATE TREATMENT	NO ACTION
Transportation	Use of packaging and site procedures would keep risk of a spill due to transportation accident very low. Engineering controls would keep magnitude of spill from bezene pipeline very small.	Use of packaging would reduce risk of spill in the event of an accident. Because amount being transported would be greater and speed would probably be faster, the potential magnitude of a spill in the event of an accident could be greater.	Use of packaging and site procedures would keep risk of a spill due to transportation accident very low.	Use of packaging andsite procedures would keep risk of a spill due to transportation accident very low.	Use of packaging and site procedures would keep risk of a spill due to transportation accident very low.

3.0 The Affected Environment

3.1 Geography

The Savannah River Site occupies an approximately circular area of 300 square miles (192,700 acres) in southwestern South Carolina, 25 miles southeast of Augusta, Georgia. The site borders the Savannah River for about 17 miles. Figure 3-1 presents the site location in relation to major population centers, the closest being Augusta, Georgia, and Aiken and Barnwell, South Carolina. The Atomic Energy Commission, a predecessor agency to the DOE, established SRS as the Savannah River Plant in November 1950, after studying more than 100 potential sites. The DOE produces nuclear materials for national defense at SRS, which is a controlled area with limited public access. SRS facilities are heavy industrial facilities and occupy less than 5 percent of the SRS area.

SRS facilities include five nuclear production reactors, two chemical separations areas, a fuel and target fabrication facility, and various supporting facilities. Onsite waste storage/disposal facilities include F- and H- Area tank farms for storage of high-level radioactive waste and 195 acres for burial of low level radioactive waste. The CIF would be constructed on three acres of industrially developed land within H-Area, which is one of the principal industrialized areas at SRS. H-Area is located near the center of the SRS site and well removed from public access (Figure 3-2). It is located within existing safeguards and security systems and approximately 7 miles away from the nearest SRS boundary. Just north of H Area, construction of the Defense Waste Processing Facility for the solidification of high-level radioactive waste is nearing completion.

Public access to SRS is controlled at primary roads by permanently manned barricades and closed to public traffic at other roads. The entire SRS site boundary is fenced except for the Savannah River which forms its western boundary and is closely patrolled. The proposed site of the CIF is within an additional security fence which surrounds H-Area. The SRS roadway system consists of over 200 miles of primary roads connecting the various facilities, in addition to state and Federal highways which border and transverse the site. Detailed site information on SRS and its physical and environmental characteristics can be obtained from the Waste Management Activities for Groundwater Protection EIS (DOE/EIS-0120).

3.2 Demography and Socioeconomics

Approximately 89 percent of the current SRS work force resides in Aiken, Bamberg, Barnwell, and Allendale Counties, South Carolina, and Columbia and Richmond Counties, Georgia (Figure 3-3). According to the 1980 Census, the urban counties--Aiken, Columbia, and Richmond--have a total population of 327,400 and experienced a combined population growth of approximately 19 percent between 1970 and 1980. The rural counties--Allendale, Bamberg, and Barnwell-- which had a net population decline from 1950 to 1970, experienced significant reversals of this trend between 1970 and 1980, when their population increases ranged from 9 to 16 percent.

Within a 50-mile radius of SRS, there is only one major urban center that exceeds 25,000 people, the city of Augusta, GA. Only five centers had 1980 populations between 10,000 and 25,000, the closest being Aiken, SC, 16 miles to the north-northwest. SRS workers and their families comprise roughly one-half of the City of Aiken's nearly 18,000 population (1986) and account for much of the high median family incomes in Aiken County.

The 13-county area surrounding SRS includes Columbia, Burke, Screven, and Richmond counties in Georgia; and Aiken, Allendale, Bamberg, Barnwell, Edgefield, Hampton, Lexington, Orangeburg, and Saluda counties in South Carolina. In this area urban uses account for less than 8 percent of the total land area. Most such uses are in and around the cities of Aiken and Augusta.

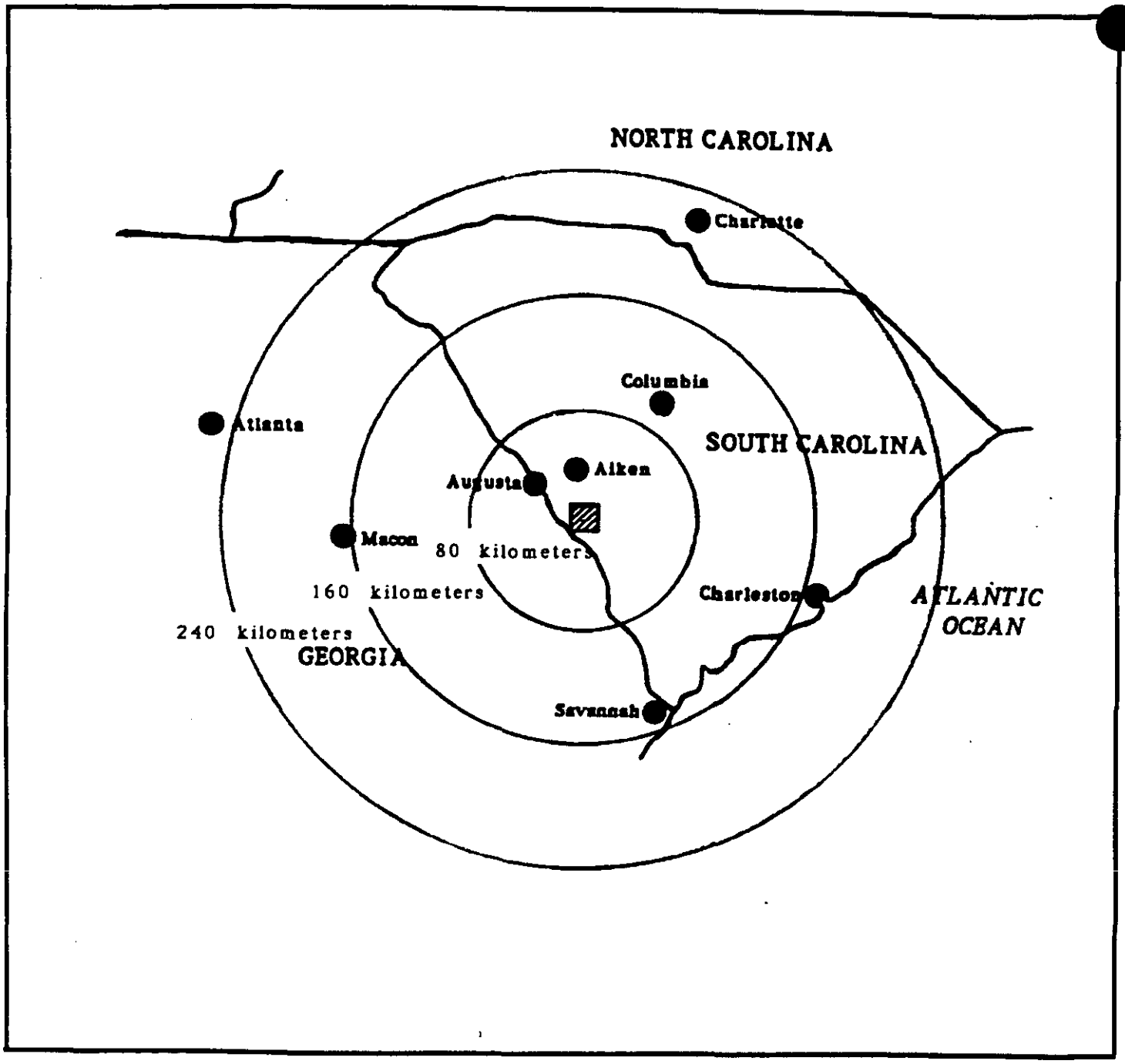

FIGURE 3-1. SRS LOCATION IN RELATION TO SURROUNDING POPULATION CENTERS

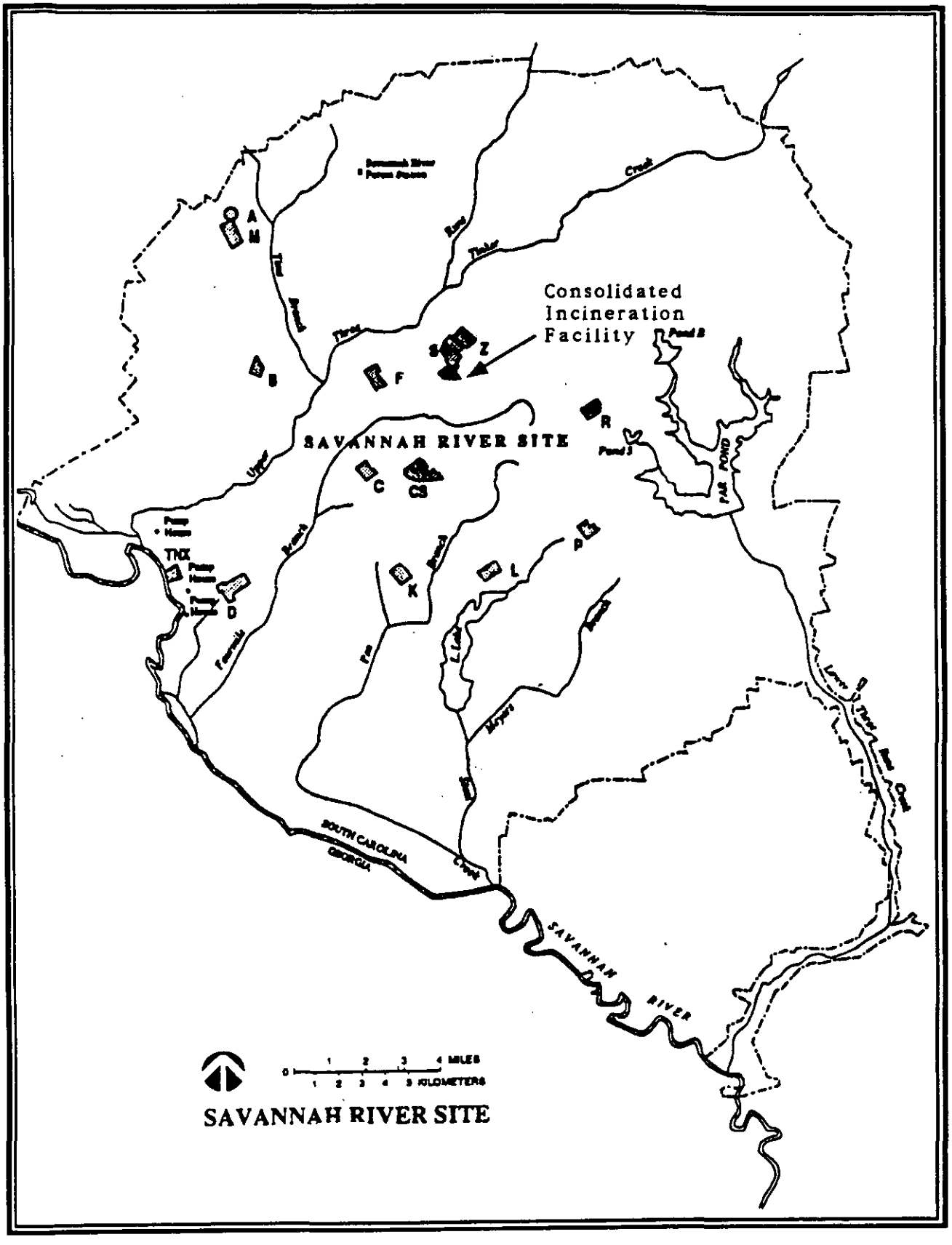

FIGURE 3-2. LOCATION OF THE CIF ON THE SRS MAP

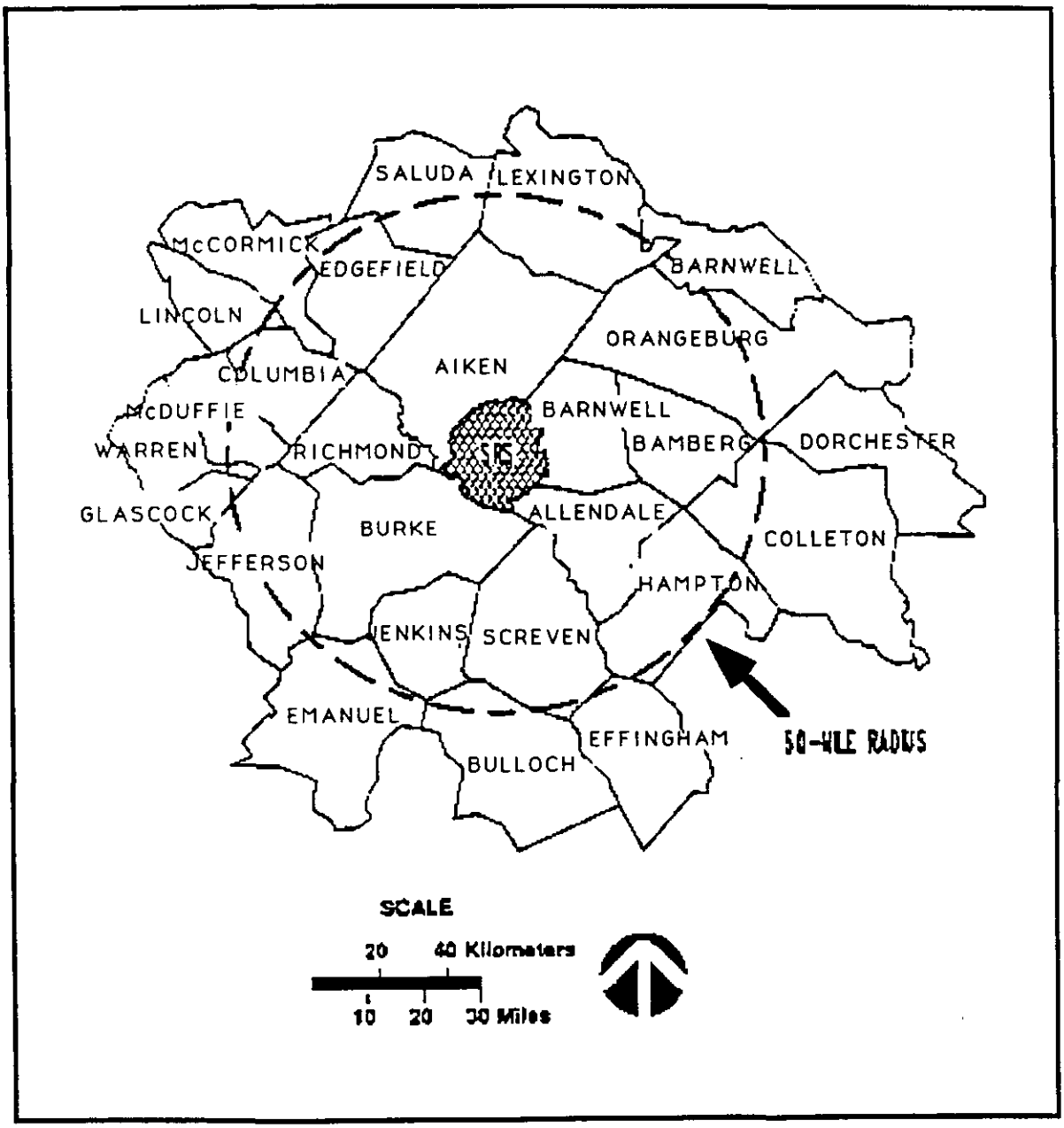

FIGURE 3-3. COUNTIES IN THE SRS AREA

Agriculture accounts for about 21 percent of total land use; forests, wetlands, and water bodies account for almost 70 percent of the land area.

Generally, the six counties surrounding the SRS provide adequate public services and facilities to the existing population. In 1982, their public school systems could accommodate approximately 5,000 new students; however, some districts and schools operated near or above capacity levels. Similarly, most public water and municipal waste-treatment systems have the capacity to provide additional water supply and sewage treatment services; however, some communities are experiencing waste treatment problems. Health and fire protection services tend to be concentrated in the urban areas of Aiken and Augusta.

Since 1970, the largest increases in the number of housing units have occurred in Columbia, Aiken, and Richmond Counties. Columbia County has grown the fastest, nearly doubling its number of housing units. Between 1970 and 1980, Aiken and Richmond Counties each experienced about a 36 percent increase in the number of housing units. In Aiken County, a fourth of this increase resulted from the high growth rate in the number of mobile homes.

Nonfarm employment is concentrated in the manufacturing industries. Manufacturing constitutes the largest employment category in each county except Richmond County. Retail sales and wholesale trade are major employment categories in Allendale and Richmond Counties.

Employment levels have increased in recent decades as both the total labor force and participation rates have increased. Per capita incomes in Aiken and Richmond Counties were the highest in the study area, and in 1974 ranked in the top 50 percent of the national averages. Most of the other counties, however, ranked in the bottom 11 percent of the national averages.

3.3 Meteorology and Climatology

SRS has a temperate climate, characterized by mild winters and long summers. The region is subject to continental influences, but it is protected from the more severe winters in the Tennessee Valley by the Blue Ridge mountains to the north and northwest. Average monthly wind speeds for Augusta, GA and prevailing wind directions for each month are shown in Table 3-1. The strongest winds in the SRS area occur in tornadoes, which can have wind speeds as high as 260 mph. Monthly average and extreme rainfall amounts at SRS are shown in Table 3-2.

Although tornadoes and hurricanes occur infrequently, they are most common in the spring and early fall, respectively. Hurricanes along the coastal region have some influence on SRS, although their high winds are greatly diminished by the time they reach the plantsite some 100 miles inland. Occasional tornadoes occur in the SRS area. However, on no occasion has there been tornado damage to any production facility on SRS.

3.4 Geology and Seismology

SRS is located in the Upper Atlantic Coastal Plain region of the United States in Aiken and Barnwell counties about 25 miles southeast of the fall line that separates the Atlantic Coastal Plain and Piedmont tectonic provinces of the Appalachian system. The topographic surface of the coastal plain slopes gently seaward and is underlain by a wedge of seaward-dipping unconsolidated and semiconsolidated sediments which increase in thickness from zero at the fall line to about 4000 ft near the coast of South Carolina. The bedrock under the plantsite is about 1,000 feet below the land surface.

TABLE 3-1 Average Monthly Wind Speed for Bush Field. Augusta, Georgia, 1951 - 1981, and WJBF-TV Tower, 1976 - 1977*

	Bush Field		WJBF-TV Tower elevation (m)		
Month	Mean speed (m/sec)	Prevailing direction	10	36	91
Jan.	3.2	W	3.0	4.5	6.1
Feb.	3.4	WNM	2.9	4.6	5.8
Mar.	3.6	WNM	3.3	4.5	5.9
Apr.	3.4	SE	2.8	4.2	5.4
May	2.9	SE	2.5	3.7	5.0
June	2.8	SE	2.4	4.0	4.8
July	2.6	SE	2.0	3.1	4.4
Aug.	2.5	SE	2.1	3.2	4.3
Sept.	2.5	NE	2.1	3.3	4.7
Oct.	2.6	NW	2.4	4.1	5.6
Nov.	2.8	NW	2.4	4.1	5.6
Dec.	3.0	NW	2.7	4.4	6.3
Annual	3.0	SE	2.5	3.9	5.3

*Source: DOE, 1987

TABLE 3-2 Precipitation at the Savannah River Site, 1952-1987*

	Monthly precipitation (cm)		
Month	Maximum	Minimum	Average
Jan.	25.5	2.3	10.6
Feb.	20.2	2.4	11.7
Mar.	27.8	3.8	12.8
Apr.	20.8	1.4	8.9
May	27.7	3.4	10.7
June	27.7	3.9	11.1
July	29.2	2.3	12.8
Aug.	31.3	2.6	12.3
Sept.	22.1	1.4	19.5
Oct.	27.6	0.0	6.3
Nov.	16.4	0.5	6.6
Dec.	24.3	1.2	9.2
Annual			122.4

*Source: WSRC, 1989b

The down-faulted Dunbarton Triassic Basin, which underlies SRS, contains several interbasinal faults. However the sediments overlying these faults show no evidence or basin movement since their deposition during the Cretaceous Period, millions of years ago. Surface mapping, subsurface boring, and geophysical investigations at SRS have not identified any faulting of the sedimentary strata that would affect SRS facilities. Two major earthquakes have occurred within 200 miles of SRS. They were the Charleston, South Carolina earthquake of 1886 (MMI Intensity of X) and the Union County, South Carolina earthquake of 1913 (MMI of VII to VIII). These magnitudes are equivalent to less than three on the Richter Scale. Both were less than 0.2 g acceleration at SRS.

3.5 Hydrology

SRS is drained by the Savannah River, one of the major river basins in the southeastern United States. SRS contains many surface streams, and no location on SRS is very far from a continuously flowing stream. The source of most of the water at SRS is either well water or water pumped from the Savannah River for various plant processes.

The CIF is not within a 100 year flood plain as determined from the U. S. Geological Survey Topographic Map, New Ellenton Southwest Quadrangle - flood plain information from USGS.

Groundwater occurs in three distinct hydrogeologic systems that underlie SRS: 1) the Coastal Plain sediments, where groundwater exists in porous sands and clays; 2) the crystalline metamorphic rock beneath the Coastal Plain sediments, where groundwater exists in small fractures in schist, gneiss, and quartzite; and 3) the Dunbarton Basin within the crystalline metamorphic complex, where groundwater exists in intergranular spaces in metamudstones and sandstones. The latter two systems are relatively unimportant as groundwater sources near SRS. The Coastal Plain sediments contain several prolific and important aquifers across SRS, generally consisting of the Barnwell, McBean, Congaree, Black Creek, and Middendorf Formations.

The Black Creek and the Middendorf Formations were formerly called the Tuscaloosa Formation and described as such in earlier reports. Among these formations the Black Creek and the Middendorf Formations are particularly prolific groundwater units because of their thickness, together approximately 600 feet beneath H-Area, and their high permeability.

3.6 Ecology

SRS was approximately two-thirds forested and the remaining area consisted of cropland when it was acquired by the U.S. Government in 1951. During the past 35 years, forestry management practices, natural succession, and the construction and operating activities at SRS have resulted in the ecological complexity and diversity of the site. Today, 90 percent of SRS lands are forested with pine trees and bottom land hardwoods. These forested areas support a diversity of wildlife habitats that are restricted from the public use. Forest and wildlife management practices include controlled cutting, reforesting, and hunting. SRS, which was designated as a National Environmental Research Park in 1972, is one of the most extensively studied environments in this country.

3.7 Radiation Environment

Natural radiation sources contribute about 295 millirem per year, or 82 percent, of the annual radiation dose of 360 millirem received by an average member of the public in the SRS area from all sources. Radiation received from medical diagnosis and therapy contributes about 53 millirem per year, or 15 percent, of this annual radiation dose. SRS releases contribute only 0.03 millirem, or less than 0.1 percent of this total annual dose. During 1989, the population dose from SRS atmospheric releases to the 555,100 people who live within 50 miles of the center of SRS was 16.9 person-rem (Westinghouse, 1990).

4.0 Environmental Consequences of the Proposed Action

4.1 Land

The CIF would occupy 3 acres of land on the SRS site immediately adjacent to H-Area in an area which has been subjected to construction activity since the early 1950s. These 3 acres would include space necessary for the new incinerator, its tank farm, supporting facilities, and roadways. Presently, the site is unused, level, grassy land. After the CIF is built, the site would become a part of H-Area. Land use impacts would be negligible. The nearest wetland is one-half mile away.

No archaeological or historical resources would be affected by the construction and operation of the CIF. An archaeological study in the immediate area for the DWPF (Brooks and Hanson, 1979) indicated no significant archaeological remains in the area. The disturbance of ground surfaces in the proposed CIF location during the initial construction of H-Area (circa 1951) would have disrupted any archaeological resources which may have been present. There would be no conflict between the CIF and cultural resources (Appendix A).

The CIF ash would be disposed of onsite in a RCRA hazardous waste permitted disposal facility. The combustion ash would be hazardous but would not be handled as dry dust. The combustion ash would fall from the incinerator into a water filled ash trough from which it would be transferred by a remote-controlled device to 55-gallon drums. About 30 lb/hr of ash would be generated at the CIF and would be fixed in drums by stabilizing with cement and then disposed onsite in the planned Hazardous Waste/Mixed Waste Disposal Facility. Any normal job wastes would be screened to verify that they are nonhazardous and nonradioactive before sending them to a sanitary landfill. No significant impacts are expected from the solid waste handling or disposal (DOE, 1987).

4.2 Socioeconomics

Direct and indirect socioeconomic impacts of the CIF workforce of 175 workers (peak) would be negligible when compared to today's total SRS employment of 19,000 people. It is expected that most of the CIF workforce would be composed of existing SRS construction workers finishing other projects such as the DWPF, rather than new workers immigrating into the SRS area. The construction of the CIF is scheduled to begin in 1992 and to conclude in 1994. Once operational in 1995, the CIF would employ 39 people.

4.3 Ecology

As mentioned above, the proposed three acre CIF site is essentially unused land containing grasses and bushes. Habitat quality is minimal except for perhaps small mammals and songbirds. Because of the proposed site's location adjacent to H-Area, CIF activities are expected to have a negligible impact on wildlife. No wetlands exist on the proposed CIF site. Standard erosion control measures (e.g. hay bales and grass) would be used to mitigate potential erosion and sedimentation impacts from rainfall during construction of the CIF.

A number of threatened or endangered species inhabit or periodically visit the SRS. Although the red-cockaded woodpecker, bald eagle, wood stork, and American alligator are the more common of these species, the peregrine falcon, Kirtland's warbler, brother spike mussel, and shortnose sturgeon have also been observed at or near the SRS. However, none of these species are known to exist on or near the proposed CIF site. Given its location, size, and operational characteristics, the CIF is not expected to adversely affect any threatened or endangered species. The United States Fish and Wildlife Service concurs in this determination (Appendix A).

4.4 Water

No surface water would be used during operation of the CIF. All CIF water would be obtained from the Black Creek and Middendorf Formations using existing H-Area water wells and distribution system. Twenty-seven gpm of water would be needed for CIF's domestic needs--change facilities, works engineering shop, drinking fountains, showers, restrooms--and for process needs and cooling water. The withdrawal of groundwater for CIF activities would not affect the offsite water levels in the aquifers.

There would be no direct process wastewater drains to the environment. Liquid waste from the CIF processing operations would be collected in permitted storage tanks and periodically transported to a permitted SRS hazardous/mixed waste treatment and disposal facility. The waste would be treated for disposal before placement in a SRS RCRA permitted vault disposal unit. Other liquid wastes, such as sanitary wastewater, would be analyzed and treated, as appropriate, before being discharged in compliance with existing National Pollutant Discharge Elimination System permits which would be modified for CIF effluents. Any leaks, spills, or water collected within the facility's curbed areas or sumps and found to be contaminated would be processed in the CIF. The proposed CIF would therefore not have any significant impacts on groundwater or surface water.

4.5 Air Quality

4.5.1 Nonradioactive Atmospheric Releases

During construction of the CIF, the sources of air pollution would be construction equipment that emit pollutants from their engines and dust from equipment operations. Dust would be controlled during dry weather by wetting the ground surfaces. Because extensive clearing and excessive earthmoving are not required, air quality impacts from construction activities are expected to be negligible.

During routine operations of the CIF, pollutants released to the atmosphere would include hydrochloric acid, nitrogen oxides, sulfur dioxide, carbon monoxide, fluorides, mercury and lead. Table 4-1 indicates the nonradioactive pollutants that would be released and the calculated annual releases based on incineration of the amounts of waste materials specified in the SCDHEC Air Quality Control Permit Application for the CIF (Revision 1; July, 1991). The release quantities in Table 4-1 are well below the Prevention of Significant Deterioration (PSD) emission limits established by EPA for modified stationary sources of air pollution in regions that meet federal ambient air quality criteria. PSD limits are established by EPA to insure that regional air quality is not significantly impacted by new facilities such as the CIF. By controlling emissions to levels significantly below the PSD requirements, the CIF would not significantly impact regional ambient air quality.

The CIF would be designed and operated to achieve a 99.99% minimum destruction and removal efficiency (DRE) of principal organic hazardous constituents (POHCs), as required by South Carolina air pollution control regulations and hazardous waste management regulations. The 99.99% DRE of POHCs would be achieved by subjecting the waste to a suitable high temperature oxidizing environment for a minimum acceptable residence time. The trial burn and periodic emission monitoring programs required by state and federal regulations would be conducted to show that CIF releases would be well within state and federal standards. During the trial burn, emissions would be analyzed for hydrochloric acid, total particulate, oxygen, carbon monoxide, and metals including lead and mercury. Initial trial burn testing would determine DRE for selected

Table 4-1*

Estimated CIF Pollutant Emissions

Pollutants	Projected Releases: PSD[1] Guide Ton/yr	Projected Releases: Tons/Yr
HCL	--	1.55
SO_2	40	0.17
HF	3	0.61
NO_x	40	27.3
CO	100	0.025
Particulates (PM 10)	15	12.3
Mercury	0.1	0.025
Lead	0.6	0.03
Benzene	--	0.06
Tritium	--	1.18×10^{3}[a]
Other Beta-Gamma & Alpha	--	4.31×10^{-2}[a]

[a] Curies/yr

[1] PSD - Prevention of Significant Deterioration, South Carolina Air Quality Standards. November 29, 1985.

* Reference: SCDHEC Air Quality Control Permit Application For The CIF (Revision 1; July 1991).

organic compounds such as trichlorofluoromethane and chlorobenzene. The trial burn would be monitored by SCDHEC. An operating permit would not be issued by SCDHEC until it is satisfied that CIF air emissions are below regulatory limits and that these emissions would not pose a threat to the public.

EPA has proposed rules (EPA, 1990b) further restricting emission of hazardous metals (e.g., lead and mercury), organic compounds, and hydrochloric acid from hazardous and mixed waste incinerators. EPA is applying these proposed rules to all hazardous and mixed waste incinerators under authority granted by RCRA. Before the CIF would be permitted to operate, it would have to demonstrate through trial burn stack testing and air dispersion modeling that the maximum permitted emissions from the CIF would not expose any member of the public to harmful levels of metals, organic compounds, and hydrochloric acid as determined by EPA. Dispersion modeling already completed as part of the RCRA permit application process shows (IT Corporation, 1990) that expected CIF emissions for hazardous metals (including lead and mercury emissions shown in Table 4-1) results in ambient air level concentrations and resulting fatal cancer health risk to the maximum exposed individual well below 10E-5, an incremental risk deemed acceptable by EPA (EPA, 1990b).

Even though the CIF would burn suspected dioxin precursors such as benzene and chlorinated compounds, expected CIF operating conditions indicate that CIF dioxin emissions would be similar to those at other permitted hazardous waste incinerators. EPA has tested or examined dioxin emissions at a number of hazardous waste incinerators similar to the CIF (Oppelt, 1987). One such test was at the Eastman Kodak's hazardous waste incinerator in Rochester, N. Y. This incinerator is generally similar to the CIF; that is, it consists of a rotary kiln, SCC, and a scrubbing (venturi) offgas treatment system (actually, the hydrosonic scrubber on the CIF is more efficient than the venturi scrubber). During this test, Eastman Kodak used a potential dioxin precursor, 1,2,4-trichlorobenzene, as a POHC. The DRE of this POHC and the emission of selected products of incomplete combustion were measured from the incinerator as it operated at a kiln temperature of $\geq$1400°F, SCC temperature of $\geq$1600°F, and a SCC retention time of 2 seconds. The DRE demonstrated for the POHC was 99.9953 percent and incomplete combustion products were only detected in the ng/m3 range. This test showed that the 99.99 percent DRE can be achieved (Bastian and Wood, 1987). The dioxin emissions from the Kodak incinerator were less than the State of New York dioxin emission standard.

In addition, the CIF would process up to 1.2×10^6 pounds of benzene waste annually from the DWPF and other SRS sources. The CIF would comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61, Subpart J) applicable to facilities with a benzene handling capacity similar to the CIF. The CIF mechanical design includes specific provisions to detect and minimize benzene emissions, e.g., the use of double mechanical pump seals with a barrier fluid system. EPA has granted the CIF a construction/operation permit in accordance with Subpart J requirements.

All worker exposures to benzene and other hazardous air contaminants would be controlled to levels permitted by DOE Orders and standards, DOE-adopted OSHA standards, and other applicable requirements (See Section 4.6.1, Worker Exposure).

Any fugitive emissions from the incineration system would be controlled by maintaining all parts of the system under vacuum during operation. Locations where feed would be introduced to the rotary kiln and where ash would be removed would be contained in special enclosures where HEPA filters would be used to control any fugitive ash. All tank vents would be HEPA-filtered to remove radioactive and chemically toxic particulates, and all tank farm waste storage tank vents would be passed through carbon bed absorbers with a minimum 95% removal efficiency to control emissions of hydrocarbon compounds. The expected annual emission of hydrocarbons from the

waste tank farm is approximately 8.5 lbs/yr. Leakage would be minimized by fitting pumps with proven seals, as would be done for pumps handling benzene wastes, or using pumps without seals. Routine inspections of the entire facility would be conducted to ensure any leaks that may occur are promptly repaired.

4.5.2 Radiological Releases

To contain radioactive material and combustion gases the incinerator would operate at a negative pressure at all times. The CIF estimated routine airborne effluents are listed in Table 4-1 and, as indicated in the table, they would be an insignificant source with respect to Prevention of Significant Deterioration (PSD) requirements.

The NESHAP (40 CFR 61, Subpart H) limits radionuclide emissions from DOE facilities to not exceed amounts that would cause more than 10 mrem/yr -effective dose equivalent to any member of the public. A NESHAP permit for possible radionuclide air releases from the CIF has been obtained from EPA to meet the 40 CFR 61 requirements for facility construction. For the permit application, radionuclide emissions including tritium that would result from CIF operation were calculated (Table 4-1). CIF emissions and those from other SRS facilities were entered into the EPA approved CAP-88 air dispersion computer model that calculates public exposure.

The source and release terms shown in Table 4-2 were used to determine dispersion concentrations. The maximum effective dose equivalent (weighted sum of organ dose equivalents) from existing SRS operations in 1988 was 0.46 mrem at the site boundary. The incremental increase in effective dose equivalent to the maximally exposed individual from routine operation of the proposed CIF would be 2.61E-3 mrem/yr. This contribution from the CIF is insignificant. The maximum combined impact from the existing operation of SRS and the CIF would practically remain at 0.46 mrem/yr to the maximally exposed individual at the site boundary. This is well below the 10 mrem/yr Federal standard. Thus no significant radiological impacts on air quality and human health are expected from the CIF. The CIF offgas scrubber and HEPA filters would be equipped with instruments that would promptly alert CIF operators of failure or unusual operation. In addition, radionuclide emissions from the process stack would be continuously monitored and abnormal emissions would trigger a stack radiation alarm. Immediate action to shut down the CIF or restore normal operation if unusual conditions were detected would be taken and would minimize the duration of abnormal emissions.

4.6 Health and Safety

4.6.1 Worker Exposure

Routine operations may result in some limited radiological and chemical exposures to workers. Normal operations are not expected to result in worker exposures to radiation or chemicals at levels that would be hazardous to their health. Most (greater than 90 percent by volume) of the annual waste feed would be solids packaged in boxes. Of the remaining waste, about half would be benzene from the DWPF which would be delivered by pipeline directly to the incinerator. The other liquid wastes would be transported by tank truck or containers and loaded into storage tanks at the CIF. Engineering controls such as shielding, ventilation, remote handling and other design features, along with administrative controls would be used to limit both chemical and radiological exposures to personnel. All applicable DOE Orders and standards, DOE-adopted OSHA standards, and SRS requirements would be followed to assure worker health and safety during normal operations and in the event of any accidents having the potential for exposures.

Table 4-2*

CIF RADIOACTIVE SOURCE AND RELEASE TERMS

Isotope	Feed (Ci/yr)	Emissions (Ci/yr)
Sr-89	2.1E+01	6.0E-04
Sr-90	2.7E+00	7.6E-05
Y-90	2.7E+00	7.6E-05
Y-91	1.6E+01	4.5E-04
Zr-95	1.7E+01	4.7E-04
Nb-95	5.4E+01	1.5E-03
Ru-106	6.2E+00	1.8E-04
Rh-106	6.2E+00	1.8E-04
Cs-137	8.4E+00	2.4E-04
Ba-137m	8.4E+00	2.4E-04
Ce-144	8.0E+00	2.3E-04
Pr-144m	8.0E+00	2.3E-04
Pr-144	8.0E+00	2.3E-04
Co-60	4.8E+00	1.4E-04
Cr-51	5.4E+02	1.5E-02
Pm-147	3.2E+01	9.1E-04
H-3	1.20E+03	1.18E+03
Other Beta-Gamma as Sr-90	7.9E+02	2.2E-02
Alpha as Pu-238	5.0E+00	1.4E-04
Alpha as Pu-239	1.8E-02	5.2E-07
TOTAL	2.7E+03	1.18E+03

Footnotes

1. The Decontamination Factor (DF) for non-tritium radioisotopes will be approximately 3.8E+04 as they pass through the CIF air pollution control (APC) system. Minor losses upstream of the APC system (e.g., leakage of rotary kiln seals, waste storage vents) reduce the effective decontamination factor to about 3.55E+04.

2. Tritium will not be specifically removed by the APC system. A minor quantity of tritium will transfer by equilibrium into the offgas scrubber liquid, and will not be a facility air emission.

*Reference: DOE, 1988.

4.6.2 Facility Accidents

The analysis of potential accidents which could occur during CIF (Emslie and Hurrell, 1987) operations and affect onsite and offsite populations is discussed in DPSTSAD200-6, Safety Assessment Document, Consolidated Incineration Facility. The Safety Assessment Document (SAD) determined the proposed CIF to be a "low-hazard facility that can be operated without undue hazard to the public, the environment, or the plant population."

Radiological doses associated with various facility accidents are summarized in Table 4-3. The accidents considered range from minor operational events (e.g., spills and leaks) to major events (e.g., tornado, fire). A minor operational event would, based on industrial experience, be expected to occasionally occur but result in an insignificant radioactive release and exposure risk to the public. A major event would occur much less frequently but result in a slightly higher but still minor radioactive release and exposure. The total doses due to accidents at the CIF are 7.6E-2 person-rem/yr for the offsite population, 9.8E-3 person-rem/yr for the onsite population, and 2.5E-6 rem/yr for the offsite maximum individual. To put these dose numbers in some perspective, consider the following comparisons. Risk is defined as the frequency of an event (how often it occurs) multiplied by the consequences (impact/result) of that event. The risk to the offsite maximum individual from natural radiation is (1 x 295) 295 mrem/yr or 0.295 rem/yr. Thus, the annual risk to the maximally exposed (hypothetical) individual from potential accidents in the CIF of 2.5 E-6 rem/yr is about 0.0008% of the unavoidable exposure the same person would receive from naturally occurring background radiation. Using a risk factor (relation between radiation dose and consequent health effects, e.g., latent cancer fatalities) of 4E-4 latent cancer fatalities per person-rem (EPA, 1989), none of these accidents would be expected to produce any radiation- induced fatal cancers in the exposed population. Potential accident scenarios are discussed further below. Using a risk factor (relation between radiation dose and consequent health effects, e.g., latent cancer fatalities) of 4E-4 latent cancer fatalities per person-rem (EPA, 1989), none of these accidents would be expected to produce any radiation-induced fatal cancers in the exposed population.[1] Potential accident scenarios are discussed further below.

Exposure to toxic chemicals and carcinogens, e.g., benzene, is also associated with certain facility accidents. These are discussed in Section 4.6.8, Chemical Exposure.

4.6.3 Natural Phenomena (Wind or Tornado)

During operation of the CIF, extremes in nature such as high winds and tornadoes could adversely impact the CIF. Damage to equipment resulting in a release of radioactivity could occur during a straight wind or tornado. An event producing a wind speed of 110 mph or greater is assumed to break piping and/or damage equipment throughout the facility such that 50% of the radionuclide inventory is released. The frequencies for a straight wind of 110 mph and a Fujita F-2 tornado (113 to 157 mph) (either assumed capable of causing the damage described above) are 1.2E-3/yr and 4.5E-5/yr respectively (See Table 4-3).

The liquid released in a high wind event could evaporate and become airborne. Due to the lack of a direct pathway and large distance to the closest stream, liquid releases would not be expected to reach surface water streams. Approximately 50% of a spill is assumed to escape confinement features (such as tank dikes), to disperse over the ground and to evaporate completely. In this case, no credit is taken for HEPA filtration, or for release from an elevated stack. The liquid radionuclide inventory released would be 25% of the total liquid inventory and 1% of the release becomes airborne as an aerosol.

[1] Even if a factor of 5E-4 were used (NRC, 1991), none of these accidents would be expected to produce any radiation-induced fatal cancers in the exposed population, either on-site or off-site.

TABLE 4-3 CONSOLIDATED INCINERATOR FACILITY RISK*

EVENT	Airborne Release (mCi)	Event Frequency (events/yr)	50-YR TOTAL BODY DOSE: Offsite Population (person-rem)	50-YR TOTAL BODY DOSE: Onsite Population (person-rem)	50-YR TOTAL BODY DOSE: Maximum Individual (rem)	RISK: Offsite Population (person-rem/yr)	RISK: Onsite Population (person-rem/yr)	RISK: Maximum Individual (rem/yr)
Natural Events								
High Wind	4.1E+00	1.2E-03	4.9E+01	1.5E+00	5.7E-04	5.9E-02	1.8E-03	6.8E-07
Tornado	4.1E+00	4.5E-05	1.5E+02	7.1E+01	7.5E-03	6.8E-03	3.2E-03	3.4E-07
Earthquake	4.1E-02	2.0E-04	3.2E+01	1.5E+01	4.7E-03	6.4E-03	3.0E-03	9.4E-07
Fire								
Rad. Storage Tank	2 0E-01	5.0E-03	3.0E-04	1.7E-04	5.2E-08	1.5E-06	8.5E-07	2.6E-11
Blend Tank	7.1E-01	5.0E-03	1.1E-01	5.0E-02	2.0E-05	5.5E-04	2.5E-04	1.0E-07
Boxed Waste	1.4E-02	2.6E-02	1.2E-01	5.8E-02	1.8E-05	3.1E-03	1.5E-03	4.7E-07
Explosion								
Rotary Kiln	6.9E-04	1.5E-02	6.1E-04	2.9E-04	9.2E-08	9.2E-06	4.4E-06	1.4E-09
Secondary Combustion	6.1E-04	1.5E-02	5.3E-04	2.5E-04	8.0E-08	8.0E-06	3.8E-06	1.2E-09
Process Events								
Overflow	1.3E-04	2.0E-01	2.7E-07	1.2E-07	4.9E-11	5.4E-08	2.4E-08	9.8E-12
Spill	1.6E-05	2.0E-01	3.6E-08	1.6E-08	6.4E-12	7.2E-09	3.2E-09	1.3E-12
Leakage	1.2E-05	3.0E+00	2.6E-08	1.2E-08	4.7E-12	7.8E-08	3.6E-08	1.4E-11
Siphoning	1.5E-05	3.0E-03	3.2E-08	1.4E-08	5.9E-12	9.6E-11	4.2E-11	1.8E-14
Corrosion	1.2E-05	9.0E-02	2.6E-08	1.2E-08	4.7E-12	2.3E-09	1.1E-09	4.2E-13
Transfer Error	6.0E-05	2.0E-02	1.3E-07	5.7E-08	2.4E-11	2.6E-09	1.1E-09	4.8E-13
External Events								
Vehicle Crash	5.3E-03	1.8E-02	1.1E-05	5.0E-06	2.1E-09	2.0E-07	9.0E-08	3.8E-11
Total						7.6E-02	9.8E-03	2.5E-06

*Ref: Emslie and Hurrell, 1987.

Solid radioactive waste in the Low Level Waste (LLW) Lag Area and incinerator feed system could also be released in the event of a high wind. This assessment conservatively assumes that 25% of the solid is released from its container and 1% of that release becomes airborne as an aerosol.

4.6.4 Earthquakes

The CIF is designed for the earthquake loadings required by the Uniform Building Code for conventional structures with some upgrades for continuously occupied structures. The CIF is in the intermediate resistance building class for design loads in Zone 2 of the Uniform Building Code. It is estimated that the damage threshold is at least 0.09 g for the CIF. At 0.09 g the equipment would be shaken, but it is assumed that the equipment and joints between pieces of equipment would remain intact. The SRS general design for seismically resistant structures is 0.2 g, equivalent to a frequency of 2.0E-4/yr. For this assessment of the CIF, it is assumed that 0.2 g results in severe damage throughout the CIF and its supporting facilities, including its solvent storage tanks. The severe damage includes destruction of equipment connections and partial destruction of each piece of equipment in the CIF and its supporting facilities. At 0.2 g, it is assumed that one-half of the CIF and related storage tank inventory is available to become airborne through evaporation or released as an aerosol. The effective dose and risk of such an accident are summarized in Table 4-3.

4.6.5 Fire

Fire is a potential hazard in the CIF because of the types of waste which are stored and burned in this facility. Process solutions within the CIF are combustible including fuel oil, paint solvents, tritiated machine oil, Purex solvent, and DWPF organic (primarily benzene). A fire could also occur in the LLW Lag Area where boxes of solid waste are assayed and stored.

The estimated frequency of a fire in the LLW Lag Area is 2.6 E-2/yr. The frequency for a fire in the solvent blend or benzene tank is 5.0E-3/yr. For the purposes of this assessment, a fire in the tanks (benzene or blend) or in the boxed waste area is conservatively assumed to consume 100% of the radioactive material in one tank or the boxed waste inventory. Fire is estimated to cause 1% of the material consumed to become airborne. Since the boxed waste area is inside the CIF, it is assumed that only 10% of the release would become airborne outside the building. Because fire is a potential hazard in the CIF, multiple systems are provided to extinguish a fire. See SAD Section 3.2.2 of DPSTSAD-200-6, Safety Assessment Document, Consolidated Incineration Facility. The effective dose and risk of a fire in the radioactive organic storage tank, the blend tank, and the box handling areas are summarized in Table 4-3.

4.6.6 Nuclear Criticality

A criticality is a spontaneous nuclear reaction that can occur when a sufficient quantity of one or more fissile radioisotopes is collected together. Two fissile radioisotopes used or produced at SRS, U-235 and Pu-239, are possible contaminants of several SRS combustible wastes that would potentially be incinerated in the CIF. These wastes include low-level radioactive and mixed solid wastes, spent Purex solvent waste, DWPF organic waste, and Naval Fuel organic waste. Criticality events would be prevented in the CIF by not accepting waste at the CIF that is known to or thought to contain unacceptable amounts of fissile radioisotopes.

The Maximum Safe Mass, which is the maximum amount of a radioisotope that can be collected in any area of the CIF and under no conditions achieve criticality, would be determined for U-235 and Pu-239. CIF personnel would then employ operational controls such as waste acceptance criteria and other methods to insure that the total amount of fissile radioisotopes accumulated in the CIF would not exceed the combined Maximum Safe Mass for the radioisotopes. Insuring that wastes meet the acceptance criteria would be accomplished in several ways. Candidate wastes

would be qualified primarily through the use of screening programs that would include assaying and/or laboratory analysis performed by the waste generators. In addition, waste might be rejected from the CIF based on knowledge of the process in which the waste was generated. Some wastes from specific SRS production areas would be automatically rejected for incineration because the process and the resulting waste are known to contain an unacceptably high level of fissile radioisotopes.

In addition, normal operation of the CIF would include certain processing steps that would further preclude the possibility of a criticality. Ash created by the combustion process would have a potential to collect in certain CIF process equipment, e.g., the ash trough and the blowdown hold tanks. The fissile radioisotopes that can cause criticality, because they are solid, would collect in these same pieces of equipment. Operation and maintenance techniques would be employed to control the unacceptable accumulation of solids and maintain normal CIF operation.

4.6.7 Explosion in Incinerator

An explosion in the rotary kiln incinerator and the SCC is theoretically possible because all the elements of the fire triangle (fuel, oxygen, heat) are present. The worst conditions for an explosion would occur if the rotary kiln incinerator and SCC were filled with the most energetic concentration of a volatilized, perfectly mixed, organic compound and then ignited.

Based on an explosion analysis by Wilson (1987), the maximum credible explosion in the CIF rotary kiln incinerator results in a 7-psi blast wave. The blast wave would be less severe in the secondary combustion chamber. The size of an explosion is limited by the energy available for release. The incineration equipment and connecting ductwork have been designed to withstand such an explosion. If an explosion were to occur in the rotary kiln incinerator and secondary combustion chamber, a rupture of the incinerator, or any other vessel, would not occur. However, to provide conservatism, an explosion was assumed to occur at a frequency of 1.5E-02/yr and to result in 1% of the ash inventory in this equipment being released to a HEPA-filtered room. The HEPA filter was assumed to remain intact and operable, providing a removal efficiency of 99.9%. The ash radionuclide distribution was determined in the same manner as for the natural events. Explosion risk and effective dose for these two areas are provided in Table 4-3. The Nuclear Regulatory Commission has recommended using a HEPA filter efficiency of 99% for this type of accident scenario (NRC, 1978). Using a HEPA efficiency of 99% in the explosion risk analysis increases the exposure and risk results presented in Table 4-3 for explosions by a factor of ten. However, the resulting doses and risks remain very small.

4.6.8 Chemical Exposure

In order to determine the chemical exposure risk posed by the proposed CIF, the SAD considered potential exposure of onsite personnel and the public at the SRS boundary to various hazardous chemicals from releases caused by process upsets (e.g., loss of scrubber resulting in abnormal HCL emissions) or spills of liquid and solid wastes at the CIF. The analysis determined that no chronic exposure hazards would exist to onsite or offsite populations, and that the probability of an accident that could produce a harmful exposure would be very low (Emslie and Hurrell, 1987).

The analysis included a worst-case liquid spill of 5,910 gallons of concentrated DWPF benzene waste from a CIF tank farm storage tank into the secondary liquid containment system. Benzene is a carcinogen and EPA requires that risk be reduced to below 10E-4 in exposed receptors (EPA, 1990c). The analysis determined that the risk to an onsite employee due to total failure of a CIF benzene waste tank would range from 3.6E-6 at the spill site to 2.0E-8 at five miles from the spill. The maximum offsite risk would be 5.8E-7.

Subsequent to issuance of the SAD, the proposed CIF design has been simplified to feed benzene waste directly to the CIF burners from a tank at DWPF. The quantity of benzene waste available for release from the direct transfer system at CIF has been substantially reduced. The SAD conclusion regarding chemical exposure risk was re-examined and the risk reported in the SAD was found to envelope the reduced risk posed by the modified design.

For all chemicals, all applicable DOE Orders and standards, DOE-adopted OSHA standards, and SRS requirements would be followed to assure worker exposure to benzene and other toxic chemicals does not exceed levels permitted by those orders and requirements.

4.6.9 Process-Related Events

Release of radioactivity from process related events was considered to identify significant events directly resulting from CIF operations. The categories of such events were identified as overflow, spill, leakage, siphoning, corrosion, and transfer error. The potential for release was calculated based on the quantities of initial escapes from the process confinement as liquid, the fraction of released liquid which evaporates, and a liquid-air partition factor. The effective dose and radiological risks of such process accidents are summarized in Table 4-3. The risks associated with the release of hazardous chemicals from a process-related event are addressed in the discussion of chemical exposure in Section 4.6.8.

4.6.10 Man-Made External Events

Initiators resulting from external events were considered to identify significant events not caused by natural phenomena and not a direct result of CIF specific operations. Only two categories of external events (aircraft crash and ground vehicle accident) were identified as germane to the operations. The estimated frequency of an aircraft crash on the facility is about 3.6E-8/yr. This frequency is less than the 1.0E-6/yr considered credible. The estimated frequency of the crash of a truck, car, crane, etc. into the CIF tanks or piping is calculated to be 1.8E-2/yr.

The maximum consequence of any vehicle accident is assumed to be the rupture of a vulnerable tank containing the largest quantity of material which would deliver the greatest dose to the public. The source term for this release assumed that a blend tank containing 3,500 gallons of Purex solvent was ruptured. It was further assumed that an evaporation factor of 0.01 and the same partition factor as used in the process events could be applied to this release. Accordingly, the source term for the vehicle crash event is 5.3E-03 mCi. The effective dose and risk of vehicle accident are summarized in Table 4-3.

4.6.11 On-Site Transportation

With the exception of benzene, which will be transported to the CIF through a pipeline, trucks would be used to transport wastes to the CIF and to remove residual waste from the CIF. At the SRS, special procedures for the transport of radiological or hazardous materials, including low speeds and the use of warning vehicles, have contributed to the absence of recorded accidents for transport activities. These safety procedures, combined with the existing standards for the packaging of solid and liquid wastes, would be expected to reduce the potential for a spill due to a vehicular accident to a very low level. A conservative estimate of accident frequency is 5.0E-4/year for liquid waste carriers and the same for solid waste carriers.

For liquid waste, an evaluation of a spill into a creek was performed. Even when considering the largest tank load of the liquid with the highest radioactivity, the risk was negligible. The maximum radiation dose to an individual at the site boundary would be 5.2E-4 mrem; 99 percent of this dose

is a result of fish consumption. When the frequency is considered, this would yield a value comparable to those shown on Table 4-3 for the risk to the maximum individual of 2.6E-10 rem/yr.

For solid wastes, the release resulting from a vehicular accident was assumed to be similar to that resulting from a high wind; i.e., solid waste boxes would be moved with sufficient force to damage the box and spill a portion of the contents. Using the same assumptions as those in the high wind scenario, the dose to the maximum exposed individual from a truck accident would be approximately 3.8E-2 mrem. When combined with the frequency, this would produce a risk to the maximum individual of 1.9E-8 rem/yr.

The potential exposure from transportation accidents would thus make a negligible contribution to the already low risk from accidents at the CIF.

4.6.12 Environmental Surveillance

The environmental surveillance activities at and in the vicinity of SRS comprise one of the most comprehensive and extensive environmental monitoring programs in the United States. SRS publishes an annual environmental report. The 1989 report shows that, as in previous years, the radiological impact of SRS operations on public health was insignificant. The maximum radiation dose commitment to a hypothetical individual at the SRS boundary from total 1989 SRS atmospheric releases of radioactive materials was 0.5 mrem. To obtain the maximum dose, an individual would have had to reside on the SRS boundary at the location of the highest dose for 24 hours per day, 365 days per year. The average radiation dose commitment to the hypothetical individual on the SRS boundary was 0.2 mrem (WSRC, 1990).

The increase in effective dose equivalent to the maximally exposed individual from the proposed CIF operations would be less than .003 mrem. This contribution from the CIF is insignificant and does not change the SRS dose commitment to a hypothetical individual at the plant boundary.

4.7 Other Impacts

4.7.1 Safeguards and Security

The CIF would be located totally within the 200-H limited access area. All existing security systems and programs for 200-H limited access area facilities would be extended to the CIF, including physical security. All additional safeguard and security measures required for the CIF by the applicable DOE orders would be provided.

4.7.2 Emergency Planning

DOE has developed a series of emergency response plans with the cooperation of state and county agencies to comply with DOE Order 5500 series emergency preparedness orders to respond to any onsite incidents at SRS.

4.7.3 Decontamination and Decommissioning

The proposed CIF would ultimately require decontamination and decommissioning. Decontamination and decommissioning of the CIF would be carried out in accordance with RCRA permitting. The estimated date of closure for the CIF is the year 2025. All RCRA hazardous waste at the CIF would then be incinerated or sent to an SCDHEC-permitted hazardous waste treatment, storage, or disposal (TSD) facility at SRS and the incinerator would be shut down. Materials will be treated per existing treatment standards prior to final disposal.

Complete records would be kept as to the date of shipment, waste characterization, and waste quantity, as well as other appropriate information. No significant impacts are expected from decontamination and decommissioning activities.

4.8 Cumulative Impacts

Increases in environmental effects from the CIF, such as exposure and consequent doses to the public and SRS workers from CIF chemical and radioactive air emissions, would be negligible. As discussed in Sections 4.5.1 and 4.5.2, air emissions from the CIF have been found to be below all applicable requirements. Further, the impacts of the expected air emissions from the CIF have been evaluated and would not harm human health and the environment. Established SRS administrative and engineering controls would be applied to assure that the maximum dose to an on-site worker of 5 rem/yr (DOE Order 5480.11) is not exceeded. The principal cumulative impacts from the CIF are listed below:

- Reduction of the toxicity of SRS hazardous and mixed waste to be disposed of at the CIF by the destruction of their organic components
- Volume reduction of SRS wastes and therefore a more efficient use of land disposal, such as in the SRS burial ground
- Reduction of the environmental risks from the remaining hazardous and radioactive waste components by stabilization of the incineration residues
- Prompt disposal of SRS wastes thereby minimizing onsite storage of hazardous and mixed waste in SRS buildings, such as in the SRS Mixed Waste Storage Facility
- Minimization of offsite transportation of SRS hazardous wastes
- The maximum radiation dose commitment to a hypothetical individual on the SRS boundary from 1988 SRS atmospheric releases of radioactive materials was 0.46 mrem. The additional increase that would annually be attributable to the CIF is less than 0.003 mrem/yr.

5.0 Environmental Review Requirements

5.1 National Environmental Policy Act (NEPA)

This Environmental Assessment (EA) has been prepared in accordance with NEPA of 1969, as amended, and the requirements of the Council of Environmental Quality Regulations for implementing NEPA (40 CFR Parts 1500-1508). NEPA requires the assessment of environmental consequences of all major Federal actions that may affect the quality of the human environment. This EA has been written to determine whether the environmental effects of constructing and operating the CIF would be significant. If the effects are determined to be significant, an Environmental Impact Statement (EIS) would be prepared. If the effects are determined to be insignificant, DOE would issue a Finding of No Significant Impact (FONSI) and make a determination that an EIS is not required for these actions. This EA is tiered to an existing EIS, the "Final Environmental Impact Statement, Waste Management Activities for Groundwater Protection," (DOE/EIS-0120) for the evaluation of the potential environmental effects of SRS waste disposal, including CIF waste disposal.

5.2 Resource Conservation and Recovery Act (RCRA)

Hazardous waste management facilities within South Carolina are subject to regulation by the US Environmental Protection Agency (EPA), and the state regulatory agency, the South Carolina Department of Health and Environmental Control (SCDHEC). RCRA directs federally owned facilities to comply with Federal, state, and local hazardous waste management requirements. As stated earlier in this EA, the CIF would comply with existing RCRA requirements for hazardous and mixed waste management at SRS. The CIF would also enable SRS to comply with existing and future RCRA requirements prior to land disposal.

DOE has issued an interpretative ruling clarifying that DOE radioactive hazardous wastes (mixed wastes) are subject to RCRA requirements for the hazardous waste components and to DOE Atomic Energy Act requirements for radioactive components. Presently SRS ships its untreated hazardous waste offsite and stores its mixed and low-level radioactive waste onsite. The CIF would eliminate the offsite SRS shipments of untreated incinerable hazardous waste and the onsite SRS storage of untreated incinerable mixed and low-level radioactive waste. The CIF offgas treatment system would ensure that its SCC offgas meets all applicable regulatory limits prior to discharge to the environment. CIF residual ash would be stabilized for permanent disposal in the SRS burial grounds in a RCRA hazardous waste permitted facility. DOE-SR has submitted an application for a Hazardous Waste Part B Permit for the CIF. RCRA regulations also require hazardous waste transportation to be consistent with DOT shipping requirements for offsite use. SRS would comply with all RCRA, DOT, and SRS safety requirements that apply to onsite hazardous waste and its transportation.

5.3 Clean Air Act

A NESHAP permit for possible radionuclide air emissions from the CIF has been granted to DOE-SR by EPA in accordance with 40 CFR 61 requirements. Among the materials found in wastes to be treated by the CIF and currently regulated as hazardous air pollutants are radionuclides and benzene. CIF emissions would contribute to a maximum combined SRS dose of 1.28 mrem, significantly below the EPA standard of 10 mrem/yr to members of the general public from air emissions.

The CIF would be constructed and operated so as to comply with SCDHEC Regulation 6.1 - 6.2, Standard No. 3, for hazardous waste incinerators. This standard regulates the emission of

chemical air pollutants from industrial facilities. An application to construct and operate the CIF in accordance with this regulation has been submitted to SCDHEC.

5.4 Toxic Substances Control Act (TSCA)

The CIF would not receive or burn any waste containing polychlorinated biphenyls.

5.5 Clean Water Act and Safe Drinking Water Act

The small amount (27 gpm) of water the CIF would obtain from existing wells would not adversely affect groundwater or surface waters. In addition, the CIF would dispose of any liquid waste from its operations in permitted waste disposal facilities. Therefore the CIF is not expected to adversely affect any water supplies or water bodies.

5.6 Cultural Resources Management

Cultural resources at the SRS are managed under the terms of a Programmatic Memorandum of Agreement (PMOA) among DOE-SR, the South Carolina State Historic Preservation Officer (SCSHPO), and the Advisory Council on Historic Preservation. DOE-SR uses this PMOA to identify cultural resources, assess these in terms of National Register eligibility, and develop mitigation plans for affected resources in consultation with the SHPO. The South Carolina Institute of Archaeology and Anthropology has determined that there would be no conflict between the proposed siting of the CIF and SRS cultural resources (Hanson, 1988).

5.7 Compliance with Other Environmental Regulations

No wetlands or floodplains exist on the proposed CIF site. Therefore no permits from the U.S. Army Corps of Engineers would be required under Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act. Because of the CIF's location adjacent to an existing industrialized area, CIF activities are expected to have a negligible impact on wildlife. Although the bald eagle, red-cockaded woodpecker, wood stork, and shortnose sturgeon exist at SRS, no endangered or threatened species are known to exist on the CIF site. Therefore the CIF would not affect endangered or threatened species.

6.0 Agencies and Persons Contacted

The following agencies were consulted during the preparation of this Environmental Assessment:

S. C. Department of Archives and History - Columbia, South Carolina

U. S. Department of the Interior, Fish and Wildlife Service, Field Office - Charleston, South Carolina

U. S. Environmental Protection Agency, Region IV - Atlanta, Georgia

7.0 References

Amobi, J. J. to D. E. Gordon, 1988. Environmental Evaluation Impact Analysis, Consolidated Incineration Facility. Bldg. 261-H (Project S-2787), E. I. du Pont de Nemours and Company, Savannah River Plant, Aiken, South Carolina.

Bastian, R. E. and R. W. Wood, 1987. Eastman Kodak Company Checmical Waste Incineration Organic Chemical Destruction. Paper presented at the Conference on Rotary Kiln Incineration of Hazardous Waste, Baton Rouge, LA, November 12-13, 1987.

Brooks, R. D. and G. T. Hanson, 1979. The Intensive Archeological Survey of a Potential Defense Waste Processing Facility Site, Savannah River Plant, Aiken and Barnwell Counties, South Carolina. Research Manuscript Series 149. Institute of Archeology and Anthropology, University of South Carolina. Columbia, South Carolina.

DOE, 1982. Final Environmental Impact Statement, Defense Waste Processing Facility, Savannah River Plant, Aiken, South Carolina, DOE/EIS-0082.

DOE, 1987. Final Environmental Impact Statement, Waste Management Activities for Groundwater Protection, DOE/EIS-0120. U. S. Department of Energy, Savannah River Plant, Aiken, South Carolina.

DOE, 1988. NESHAPS Application for EPA Approval of Construction, Consolidated Incineration Facility, U. S. Department of Energy, Savannah River Plant, Aiken, South CArolina.

Dukes, E. K., 1984. The Savannah River Plant Environment, DP-1642. E. I. du Pont de Nemours and Company, Savannah River Plant, Aiken, South Carolina.

Du Pont, 1982. Guides for Estimating Consequences in 200 Area Systems and Safety Analysis, E. I. du Pont de Nemours and Company, Savannah River Plant, Aiken, South Carolina.

Du Pont, 1988. Final Safety Analysis, Defense Waste Processing Facility, DPSTSA 200-D, Supp. 20, E. I. du Pont de Nemours and Company, Savannah River Plant, Aiken, South Carolina.

Emslie, R. H. and S. J. Hurrell, 1987. Safety Assessment Document (DPSTSAD-200-6), Consolidated Incineration Facility, E. I. du Pont de Nemours and Company, Savannah River Plant, Aiken, South Carolina.

EPA, 1985. National Emission Standards for Hazardous Air Pollutants: Standards for Radioactivity, Title 40, Code of Federal Regulations, Part 61, Washington, DC.

EPA, 1987. A Compendium of Technologies Used in the Treatment of Hazardous Wastes. Center for Environmental Research Information, Office of Research and Development, U. S. EPA, Cincinnati, Ohio.

EPA, 1988. Hazardous Waste Incineration: Questions and Answers, EPA/530-SW-88-018, Fairfax, Virginia.

EPA, 1989. Risk Assessment Methodology, Final Environmental Impact Statement for NESHAPS for Radionuclides, Vol. 1, EPA 520/1-89-005, Sept. 1989.

7.0 References (Cont.)

EPA, 1990a. 40 CFR148 et al. Land Disposal Restrictions for Third Third Scheduled Wastes; Rule (S5FR22520-22720)

EPA, 1990b. 40CFR Parts 260, 261, 264, and 270: Standards for Owners and Operators of Hazardous Waste Incinerators and Burning of Hazardous Wastes in Boilers and Industrial Furnances; Proposed and Supplemental Proposed Rule, Technical Corrections, and Request for Comments, 55FR17862.

EPA, 1990c. 40 CFR300, National Contingency Plan.

Hanson, 1988. Memorandum to J.J. Amobi dated February 10, 1988. Consolidated Incineration Facility (CIF) Siting. *University of South Carolina*, Savannah River Archaeological Research Program, Aiken, South Carolina.

IT Corporation, October 12, 1990. U. S. EPA Tier III Emission Limits for Metals and Hydrogen Chloride, Consolidated Incineration Facility, U. S. Department of Energy, Savannah River Site, Aiken, South Carolina.

Marter, W. L. to D. J. Zecha, 1988. NESHAPS Calculation for Revised CIF Source Terms, E. I. du Pont de Nemours and Company, Savannah River Plant, Aiken, South Carolina.

NRC, 1978. U.S. Nuclear Regulatory Commission, Design, Testing, and Maintenance Criteria for Post Accident Engineered - Safety - Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light - Water - Cooled Nuclear Power Plants. Regulatory Guide, Revision 2, March 1978.

NRC, 1991. U.S. Nuclear Regulatory Commission, Standards for Protection Against Radiation, Final Rule, 56 Federal Register 23360, May 21, 1991.

NUS Corporation, 1989. SRP Consolidated Incinerator Facility (SR): Incineration Facilities Comparison and Assessment of SR Potential for Dioxin Formation, SRC-89-2088, Aiken, South Carolina.

Oppelt, E. T., 1987. Incineration of Hazardous Waste, A Critical Review, Journal of the Air Pollution Control Association, Volume 37(5), May 1987, Pgs 558-586.

Pocket Guide to Chemical Hazards, National Institute for Occupational Safety, and Health, September 1985.

Public Law 98-616, November 9, 1984. The 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act.

Stephens, K. W. to R. G. Garvin, 1990. Consolidated Incineration Facility Safety Assessment, Westinghouse Savannah River Company, Savannah River Site, Aiken, South Carolina (SRL-FPW-900071).

Westinghouse Savannah River Company, 1989a. Environmental Implementation Plan (WSRC-RP-89-453.

Westinghouse Savannah River Company, 1989b. Reactor Operation Environmental Information Document, Vol III (WSRC-RP-89-817).

7.0 References (Cont.)

Westinghouse Savannah River Company, 1990, Savannah River Site. Environmental Report for 1989. WSRC-IM-90-60. Volume 1.

Westinghouse Savannah River Company, 1992, Savannah River Site Solid Waste Forecast - FY 93 (WSRC-RP-92-1021), August 1992.

Wilson, W. Explosion Hazards in the Consolidated Incineration Facility. Letter to Steve Horrell, SAIC. San Diego, CA, August 18, 1987.

8.0 Appendices

APPENDIX A

U. S. Fish and Wildlife Letter Concerning Endangered and Threatened Species in Vicinity of the Consolidated Incineration Facility (CIF)

South Carolina Institute of Archaeology and Anthropology memorandum Regarding Siting of the Consolidated Incineration Facility (CIF)

United States Department of the Interior
FISH AND WILDLIFE SERVICE
P.O. BOX 12559
217 FORT JOHNSON ROAD
CHARLESTON, SOUTH CAROLINA 29412

January 4, 1991

A060099

Mr. A.B. Gould, Jr., Chief
Environmental Programs Branch
SR NEPA Compliance Officer
Savannah River Operations Office
P.O. Box A
Aiken, SC 29802

Re: Consolidated incineration facility at the Savannah River Site

Dear Mr. Gould:

We have reviewed the information received December 7, 1990 concerning the above-referenced project in Aiken County, South Carolina. Based on this information, we will concur with a determination that this action is not likely to adversely affect federally listed or porposed endangered and threatened species. In view of this, we believe that the requirements of Section 7 of the Endangered Species Act have been satisfied. However, obligations under Section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Your interest in ensuring the protection of endangered and threatened species is appreciated.

Sincerely yours,

Roger L. Banks
Field Supervisor

RLB/LWD/km

cc:

Mr. John E. Cely
Coordinator, Nongame and Endangered Species
South Carolina Wildlife and Marine Resources Dept.
P.O. Box 167
Columbia, SC 29202

THE UNIVERSITY OF SOUTH CAROLINA

SOUTH CAROLINA INSTITUTE OF ARCHAEOLOGY AND ANTHROPOLOGY

Savannah River Archaeological Research Program
Building 760-11G
Post Office Box A
Aiken, South Carolina 29801
(803) 725-3623

MEMORANDUM

DATE: February 10, 1988

TO: J. J. Amobi, 773-42-A

FROM: Glen T. Hanson, Program Manager

RE: Consolidated Incineration Facility (CIF) Siting

Subject siting plans have been reviewed by this office.

Based on site file records and survey conducted for the Defense Waste Management Facilities, a determination has been made that there will be no conflict between proposed CIF and cultural resources.

Copy of CIF Conceptual Design Report is returned herewith.

APPENDIX B

RESPONSE TO PUBLIC COMMENTS

Table of Contents

Number	Title	Page
Section I	Introduction	1-1
Section II	General Responses	
	A. Appropriate Level of NEPA Review	2-1
	B. Future Waste Management Needs	2-2
	C. Waste Streams/Offsite Wastes	2-3
	D. Waste Management	2-4
	E. Technologies	2-4
	F. Health	2-5
	G. Destruction and Removal Efficiencies	2-6
	H. Stack Emissions	2-7
	I. Emission Monitoring	2-11
Section III	Public Comments and Agency Responses	
L-01	United States Department of Health and Human Services	3-1
L-02	United States Department of Commerce (NOAA)	3-2
L-03	United States Department of the Army (COE)	3-3
L-04	South Carolina Department of Health and Environmental Control	3-4
L-05	Lower Savannah Regional Planning and Development Council	3-6
L-06	Office of the Governor, State of South Carolina Director of Natural Resources	3-7
L-07	South Carolina Water Resources Commission	3-8
L-08	South Carolina Human Affairs Commission	3-9
L-09	South Carolina Department of Highways and Public Transportation	3-10
L-10	South Carolina Wildlife and Marine Resources Department	3-11
L-11	South Carolina Office of the Adjutant General	3-13
L-12	South Carolina Department of Archives and History	3-14
L-13	North Carolina State Clearinghouse, Department of Administration	3-15
L-14	Aiken County Public Schools	3-16
L-15	Carolina Campaign for the Environment	3-17
L-16	Citizens for Clean Air and Water	3-26
L-17	Georgians Against Nuclear Energy	3-27
L-18	Greenpeace	3-32
L-19	League of Women Voters of the Augusta Area	3-58
L-20	League of Women Voters of Northern Beaufort County	3-63

Table of Contents

	Title	Page
L-21	League of Women Voters of South Carolina	3-67
L-22	League of Women Voters of South Carolina	3-68
L-23	Joint Statement of the Natural Resources Defense Council and the Energy Research Foundation	3-71
L-24	Southern California Federation of Scientists	3-100
L-25	20/20 Vision	3-102
L-26	William E. Bell	3-103
L-27	Martha M. Bequette	3-104
L-28	Sam Booher	3-105
L-29	James S. Bourne, III	3-107
L-30	S. W. Corbett	3-108
L-31	Robert D. Cox, M.D.	3-109
L-32	Robert D. Cox, M.D.	3-119
L-33	Rita A. Fellers	3-124
L-34	Claude Gilbert, Jr.	3-132
L-35	Karen L. Gilbert	3-133
L-36	C. J. Haight	3-135
L-37	Mr. and Mrs. C. M. Harrison	3-136
L-38	Merilyn Hiller	3-137
L-39	Cheryl W. Howle	3-140
L-40	Melissa F. James	3-142
L-41	Mr. and Mrs. Charles E. Kline, Jr.	3-143
L-42	W. F. Lawless	3-145
L-43	Sam P. Manning	3-149
L-44	Eleanor McCollum	3-151
L-45	Roderick McCoy	3-152
L-46	Rich Panter	3-162
L-47	E. H. Paxton	3-163
L-48	E. H. Paxton	3-165
L-49	Pauline Reimers	3-167
L-50	Ann Rickard	3-168
L-51	Virginia Robards	3-169
L-52	Joseph H. Roberts	3-170
L-53	Peter Sipp	3-171
L-54	Daniel E. Sweeny	3-172
L-55	John E. Sweeny	3-173
L-56	Virginia M. Sweeny	3-174
L-57	Peter Tepley	3-175
L-58	Jane Tollison	3-176
L-59	Tom Turnipseed	3-177
L-60	Warley Family	3-179
L-61	Patrick L. Whitworth	3-181
L-62	Mrs. Thomas Wilson	3-183

ABBREVIATION LIST

BDAT	Best Demonstrated Available Technology
CAP-88	Clean Air Act Programs-88 radionuclide dose and dispersion model
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIF	Consolidated Incineration Facility
CO	Carbon Monoxide
D&D	Decontamination and Decommissioning
DOE	Department of Energy
DRE	Destruction and Removal Efficiency
EA	Environmental Assessment
EDE	effective dose equivalent
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FFCA	Federal Facilities Compliance Agreement
FONSI	Finding of No Significant Impact
FR	Federal Register
HEPA	High Efficiency Particulate Air
LDR	Land Disposal Restrictions
LLW	Low Level Radioactive Waste
MEI	Maximally Exposed Individual
mrem	millirem
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
PEIS	Programmatic EIS
PIC	Products of Incomplete Combustion
POHC	Principal Organic Hazardous Constituent
ppm	parts-per-million
ppmv	ppm-by-volume
PSD	Prevention of Significant Deterioration
rem	Roentgen Equivalent Man
RCRA	Resource Conservation Recovery Act
SCC	Secondary Combustion Chamber
SCDHEC	South Carolina Department of Health and Environmental Control
SRS	Savannah River Site
TCLP	Toxicity Characteristic Leaching Procedure

I. Introduction

Section I. Introduction

On July 1, 1992, the U.S. Department of Energy (DOE) issued a Proposed Finding of No Significant Impact (FONSI) for its proposal to construct and operate the Consolidated Incineration Facility (CIF) at the Savannah River Site, Aiken, South Carolina.

The proposed FONSI stated that the CIF proposal does not constitute a major Federal action that would significantly affect the environment. This statement was based on the analysis contained in DOE's June, 1992, Environmental Assessment (EA), "Consolidated Incineration Facility, Savannah River Site," (DOE/EA-0400).

The purpose of issuing a proposed FONSI was to give federal, state, and local agencies, interest groups, and individuals an opportunity to review and comment on the proposed FONSI.

The proposed FONSI was published in the Federal Register on July 1, 1992. The proposed FONSI, EA, and supporting documents, including permit applications and the Environmental Monitoring Report concerning the CIF, were also made available in the DOE public reading room in Aiken. In addition, a four-hour public workshop and two-hour public meeting were held on July 20, 1992, to provide additional opportunity for public input into the review process.

The public comment period, initially scheduled for 30 days, was extended to 60 days to accommodate the public. Over 1600 copies of the proposed FONSI were distributed to federal, state, and local agencies; state, county, and local government officials; regional and local media; environmental interest groups; and interested citizens. Comments were encouraged at public meetings, a workshop, and a Resource Conservation and Recovery Act (RCRA)-required public hearing. A total of 60 responses were received, ranging in length from one sentence to 25 pages. Agency responses numbered 14; interest groups and individuals provided 11 and 35 responses, respectively. The majority of those responses raised issues or concerns which have been addressed in Section II and III of this document. At the RCRA public hearing, held August 6 in Aiken as part of the public comment period, eight area public officials and citizens endorsed the project, while one speaker expressed concerns with several issues.

The remainder of this appendix is divided into two sections. Section II briefly summarizes and provides general responses to the comments and questions most frequently raised by reviewers. Section III presents the unedited text of all letters received, as well as written comments submitted by individuals who attended the July 20 public meeting. This section also provides a direct response to each question or comment raised or references another location where the subject has already been discussed.

II. General Responses

Section II. General Responses

A. Appropriate Level of National Environmental Policy Act (NEPA) Review

Many commenters urged DOE to prepare an EIS for the CIF. One reason provided was that DOE's regulations for implementing NEPA (57 FR 15122, April 24, 1992) specify an EIS as the appropriate level of review for an incinerator such as the CIF, unless there are extraordinary circumstances that affect the significance of the proposal's impacts. The preparation of an EIS for the incinerator at DOE's Gaseous Diffusion Plant at Oak Ridge, Tennessee, was cited as precedent for requiring an EIS.

Under the DOE NEPA guidelines (52 FR 47662, December 15, 1987) that were in effect at the time DOE decided to prepare an EA for the CIF, there were no specific requirements regarding the type of NEPA documentation that should be prepared for the siting, construction, and operation of incinerators. Accordingly, DOE Headquarters held extensive discussions with SRS staff concerning the proposed CIF and its potential impacts. DOE also reviewed the characteristics and NEPA document level determinations of other DOE incinerators. Based on this review, DOE concluded that it was not clear that significant environmental impacts would result from the proposed action. Therefore, in accordance with applicable provisions of the Council on Environmental Quality's (CEQ) regulations implementing NEPA, DOE determined that it was appropriate to prepare an EA for the proposed CIF as the basis for determining whether to prepare an EIS or to issue a FONSI.

On May 26, 1992, a new DOE NEPA rule took effect which provides that an EIS will normally be prepared for proposals involving the siting, construction, and operation of incinerators such as the CIF. The rule provides that DOE need not prepare an EIS for incinerator proposals in cases where "there are extraordinary circumstances related to the specific proposal that may affect the significance of the environmental effects of the proposal" (57 FR at 15151, to be codified at 10 CFR 1021.400(c)).

The EA demonstrates that this specific incinerator proposal (i.e., the CIF) presents the type of extraordinary circumstances referred to in the rule. The conclusion that the CIF would not significantly affect the environment results from a combination of favorable factors: a site located in previously developed land and remote from any population centers; a facility design that incorporates many features to avoid or mitigate harmful emissions during normal and abnormal operations; and effective treatment of incinerator residuals. Consistent with the procedure CEQ provides when an agency believes a FONSI is warranted for a proposed action for which it would normally require an EIS (40 CFR 1501.4(e)(2)(i)), DOE made the proposed FONSI available for public review for 30 days (extended to 60 days) before making its final determination regarding preparation of an EIS.

In any case, the preamble to DOE's new NEPA rule indicates that DOE intended to apply the rule to NEPA documents that had been initiated before the rule's effective date "to the fullest extent practicable" (57 FR at 15123). The new DOE NEPA rule took effect only one month before DOE issued the EA on the proposed CIF. It would not have been practicable to prepare an EIS on the proposed CIF where the EA was substantially complete at the time the new DOE NEPA rule took effect, and where the EA indicates that the proposed CIF would not significantly affect the environment.

In 1982, DOE issued an EIS for an incinerator that was subsequently built at DOE's Oak Ridge, Tennessee, Gaseous Diffusion Plant. The DOE incinerator at Oak Ridge differs from the proposed CIF in several respects, including: type, quantity, and source of waste feeds; design;

stack emissions; aqueous effluents; and surrounding environment, including distance to land with public access. These differences preclude a conclusion that an EIS should be prepared for the proposed CIF only because an EIS was prepared for the Oak Ridge incinerator. DOE's decision to prepare an EA to serve as the basis for a decision of whether to prepare an EIS for the proposed CIF is in accordance with DOE regulations and policy and CEQ regulations.

B. Future SRS Waste Management Needs

Some commenters pointed to the significant change in the world political environment and questioned the continued mission of DOE to produce nuclear materials, the need for a waste treatment facility like the CIF at SRS, and the accuracy of DOE's prediction of the quantity of SRS generated wastes to be incinerated. The mission of SRS is to serve the national interest of the United States by safely producing nuclear materials while protecting employee and public health and the environment.

DOE recognizes that in recent years there has been a significant change in the world's political environment. In 1990, the Secretary of Energy chartered a Complex Reconfiguration Committee to re-examine the future activities of DOE. While the Secretary can encourage the evolution of the Department towards a new set of missions, in part developed by independent committees, task forces, and other citizen recommendations, any change to DOE's missions must come from the President and Congress. Although DOE has initiated an effort to determine in the long term how SRS capabilities can best be employed to serve the national interest, that effort has not yet reached the point of formulating any specific proposals for consideration by Congress and the President.

DOE presently is preparing other NEPA documentation to evaluate alternatives for the future configuration of its complex, and to develop a complex-wide, integrated strategy for environmental restoration and waste management activities. These documents include:

1. The Nuclear Weapons Complex Reconfiguration Programmatic EIS will evaluate alternatives for consolidating the nuclear functions of the weapons complex and for consolidating research, development, and testing activities through the creation of Centers of Excellence. The Record of Decision based on the document is scheduled for mid 1994.

2. The Nonnuclear Consolidation EA will evaluate alternatives for consolidating the non-nuclear manufacturing functions of the weapons complex. The EA is scheduled to be completed in mid 1993.

These two NEPA documents address related, but independent, proposals which deal with separate aspects of reconfiguring the nuclear weapons complex.

3. The Environmental Restoration and Waste Management Programmatic EIS (EM PEIS) will consider alternatives for an integrated, systematic approach to addressing remedial activities and waste management practices on a DOE complex-wide basis. The Record of Decision based on this document is presently scheduled for late 1994.

It is expected that environmental restoration and waste management activities will continue over time to increase at SRS. These activities will likely include decontamination and decommissioning (D&D) of SRS facilities. The CIF would provide SRS with the ability to treat many combustible hazardous and mixed wastes generated onsite, including those that might be generated from facility D&D. If nuclear facilities at SRS become part of a D&D program, waste volumes would increase. Many of the "job control" wastes generated by D&D activities

(contaminated protective clothing and equipment, rags, etc.) would be identical to wastes currently generated from SRS operations and maintenance activities. Even though the waste volumes have changed since the initial sizing of the CIF, a re-evaluation of the waste volumes indicates that the sizing of the CIF is justified utilizing only SRS waste. Reference to this re-evaluation has been added to section 2.1 of the EA.

Should any mission change at SRS involve hazardous constituents different from those listed in the CIF Resource Conservation and Recovery Act (RCRA) permits, SRS would be required to request a permit modification from either the South Carolina Department of Health and Environmental Control (SCDHEC) or the U.S. Environmental Protection Agency (EPA), which in turn would require a public comment period. In that event, DOE would also determine if any further NEPA documentation would be required.

C. Waste Streams/Offsite Wastes (See also Section D, Waste Management)

Some commenters either predicted the CIF would be used to treat offsite wastes or inquired if offsite wastes would be incinerated. Commenters stated that by failing to consider the potential impacts from transport and treatment of offsite wastes, the EA illegally segments the action.

Construction and operation of the CIF is being regulated by SCDHEC and by EPA under RCRA. SCDHEC and EPA have issued to DOE permits setting conditions for constructing and operating the CIF. Condition IIIE4.D.1 of the SCDHEC permit states that no offsite wastes shall be accepted or managed at the CIF. SRS is prohibited from incinerating offsite wastes without first applying for and receiving a RCRA permit modification. This would require an additional public comment period. Further, management of offsite wastes at the CIF would have to be addressed through appropriate NEPA documentation.

SRS has fully characterized the existing waste inventory that would be incinerated under existing permit conditions. Condition III.E5.C.1.c of the SCDHEC permit requires that nine months prior to the trial burn, DOE would submit for review and comment an updated report of hazardous waste feed volumes and composition, based upon SRS waste only. That report would include:

1. The annual volume of SRS generated hazardous waste to be incinerated.

2. The necessary incinerator waste feed rates for the existing and annually generated hazardous wastes.

3. An explanation of how the necessary waste feed rates for the incinerator were determined.

4. Any changes in waste character from the description of waste to be incinerated given in Volume X of the RCRA permit application.

A final waste feed assessment report addressing SCDHEC comments would be completed and submitted for SCDHEC approval prior to the trial burn. DOE does not expect that the final Waste Feed Assessment Report will depart materially from the waste feeds considered in the EA.

D. Waste Management

Several commenters criticized the choice of incineration as a waste treatment process, some arguing that the byproduct wastes could not be disposed of adequately. Some suggested that waste generation be minimized instead of incinerating the waste.

EPA regulations impose stringent conditions on the treatment, storage, and disposal of hazardous and mixed wastes. DOE and EPA have signed a Federal Facilities Compliance Agreement (FFCA) which commits SRS to the construction and operation of several proposed facilities, including CIF, for treating certain mixed wastes.

Currently, mixed wastes are stored at SRS and hazardous wastes are being shipped offsite for RCRA-specified treatment. As discussed in Section E (Technologies) below, incineration is the RCRA-specified treatment for many of SRS's waste streams, as well as the best demonstrated available technology (BDAT) for many others. Incineration would render these wastes less hazardous to public health and the environment and would reduce the volume of wastes requiring permitted disposal.

Secondary waste streams from the CIF must be managed in accordance with RCRA regulations. Ash from the kiln would be cement-stabilized and disposed of in onsite vaults. The CIF liquid waste, flyash, and blowdown would be stabilized to meet the regulatory requirements for disposal. In the commercial and nuclear industry sectors, a majority of solidification systems successfully utilize hydraulic cement to encapsulate ash materials and other waste contaminants. RCRA Land Disposal Restrictions (LDR) regulations (40 CFR Part 268) require that such a solidified waste form meet applicable treatment standards before it can be disposed of. A CIF solidified waste form would not be disposed of unless it can meet EPA and DOE requirements for disposal.

The onsite disposal vaults that would receive solidified CIF wastes would be permitted by EPA and SCDHEC. A RCRA Part B permit application for these vaults was submitted to SCDHEC in 1988. NEPA review of these vaults is included in the 1987 SRS Waste Management Activities for Groundwater Protection EIS (DOE/EIS-0120). The Record of Decision was published in March 1988.

SRS has implemented a waste minimization program, which reduces the waste at the generation site. The EA states on page 1-2 that "a variety of techniques are being explored and utilized to minimize waste, and a number of techniques have been implemented, resulting in a reduced generation rate for various SRS waste streams. Among these techniques are process and raw material changes, waste segregation (separate waste into toxic and non-toxic fractions), recycling and reuse of waste, and employee awareness training. The implementation strategy ensures that all SRS waste streams are identified, one or more minimization techniques such as those listed above are selected and implemented, and progress toward established goals is reported and monitored. Significant waste reductions have already been realized at SRS."

E. Technologies

Some commenters questioned the choice of incineration instead of other treatment methods as the proposed means of treating SRS wastes. Other commenters questioned whether DOE was following EPA's LDR regulations and BDAT requirements for the wastes to be treated.

The CIF is the preferred alternative to other waste treatment alternatives addressed in the EA because:

1. Incineration is the RCRA-specified treatment for the hazardous portion of certain mixed wastes generated at SRS.

2. Treatment onsite would avoid having to transport SRS waste to another site for treatment and/or disposal.

The EPA LDR regulations establish treatment standards for wastes that must be met before final disposal (e.g., a landfill). There are two types of treatment standards:

1. A technology standard requires that a waste must be treated by a specific industrial treatment process that has been shown to render the waste safe for disposal.

2. A concentration standard sets the maximum allowable concentration of a hazardous constituent in a waste at the time of disposal. While any process may be legally used to achieve a concentration standard, the best results are usually achieved by application of BDAT. EPA sets a concentration standard after determining which commercially-available industrial process achieves the lowest concentration of a hazardous constituent in a waste. Usually the process that provides the lowest concentration is designated the BDAT. In many cases the concentration standard may only be achievable by use of the BDAT.

The CIF would meet the EPA LDR treatment standards for all 230 waste codes that it would be permitted to treat. The incineration portion of the CIF process is the specified treatment process (technology standard) or the BDAT (where concentration standards are used) for 80 percent of these waste codes. The stabilization and neutralization portions of the CIF process would meet the EPA LDR treatment standards for the remaining 20 percent by being the specified treatment (technology standard) or by achieving the required concentrations (concentration standards).

Additionally, incineration is the technology that achieves the greatest volume reduction benefit for the large amount of low-level radioactive waste (LLW) generated at SRS. Incineration achieves a significantly higher volume reduction than other technologies such as supercompaction. Another advantage of the CIF process over other volume reduction methods for LLW is that the resultant ash from the CIF would be solidified, which would immobilize the radioactive contaminants to prevent leaching. Supercompaction or other volume reducing methods other than incineration do not immobilize the radioactive contaminants.

Although incineration is the RCRA-specified treatment technology for certain SRS mixed wastes, the EA considered alternatives to the CIF system that were proven technologies and commercially available. Technologies, such as chemical or biological treatment, were also considered in section 2.4 of the EA.

F. Health

Many commenters questioned DOE's procedures for estimating the health effects for workers and the general public that might result from operation of the CIF.

DOE used EPA risk assessment guidance, exposure models, and air dispersion models to assess whether operation of the CIF would pose significant risks to human health and the environment. DOE agrees with the recent findings of EPA's Science Advisory Board that recommends risk-based decision making. Based on the very conservative assumptions (that tend to overestimate

risks) built into the EPA models and risk equations, additional risk assessments were not considered.

EPA's proposed rules for controlling toxic emissions from hazardous waste incinerators are explained in detail in the April 27, 1990 Federal Register (55 FR 17862). DOE used this conservative risk-based approach to establish risk-based air concentrations and to set CIF emissions limits. These risk-based emission limits are incorporated into the SCDHEC RCRA permit. (Also see section H, below.)

The risk-based emission limits incorporate many protective assumptions to ensure that the most sensitive subpopulations (such as the very young and the very old) would be protected during periods of maximum exposure. The aggregate carcinogenic risk to the maximally exposed individual (MEI) is established at 1 in 100,000 (1×10^{-5}). For toxic compounds that do not exhibit carcinogenic effects, CIF air emissions are allowed to contribute only 25 percent of the dose that would exceed a health-based threshold. The results of these analyses indicate that potential emissions from CIF would be below risk-based emission limits.

DOE has also used several EPA approved air dispersion models to assess potential impacts on human health and the environment from emissions of heavy metals and radionuclides. DOE used the TSCREEN (Toxic Screening) model for heavy metals and organics, and the Industrial Source Complex Short-Term (ISCST) model for heavy metals and hydrogen chloride (HCl). For radionuclides, DOE used the CAP-88 model which considers doses from all major pathways including inhalation and food chain effects.

G. Destruction & Removal Efficiency

Some commenters questioned the ability of the CIF to achieve and maintain a 99.99 percent destruction and removal efficiency (DRE).

After testing the capabilities of existing hazardous waste incinerators, the EPA has established strict emission and performance standards for hazardous waste incinerators (40 CFR Part 264 Subpart 0). EPA has determined that these standards can be reliably and consistently achieved and are protective of human health and the environment.

The EPA standards require that no more than 0.01 percent of the principal organic hazardous constituents (POHC) – the organic chemicals used to test an incinerator – can be emitted unburned from the facility stack. This equates to a minimum DRE of 99.99 percent. Trial burns of hazardous waste incinerators have repeatedly demonstrated that the 99.99 percent DRE performance standard can be readily met. In fact, DREs of 99.999 percent or better are frequently achieved, such as at the Kodak incinerator in Rochester, New York.

A trial burn tests a hazardous waste incinerator's ability to achieve performance standards – including DRE – under conditions that would make achieving such standards difficult. It should be noted that there are well recognized operating methods which can increase DRE. For example, DRE generally increases as combustion temperature is raised; DRE is also improved the longer waste remains at the combustion temperature. If the trial burn is successful in demonstrating a DRE of 99.99 percent or greater, the permitting authority will generally establish the range of operating conditions used in the test as the boundary conditions for routine operation.

Similarly, test chemicals selected for use in a trial burn are those that are as difficult or more difficult to destroy than those the incinerator would be permitted to process. EPA has ranked

RCRA regulated hazardous constituents according to their resistance to incineration. This ranking is used to select test chemicals more resistant than the wastes to be incinerated. In summary, trial burn conditions are designed to be more severe than routine operating conditions. This ensures that routine operations can comply with the DRE standard.

The EPA approved CIF trial burn plan can be found in Section D-5 of the CIF RCRA permit application. The trial burn plan details the composition of the test feeds, the operating conditions to be tested, and the final permitted operating conditions that may be modified based on results of the trial burn. The trial burn plan also discusses operating data collection methods, instrument calibration procedures, sample collection and analysis protocols, chain-of-custody procedures, reporting requirements, and quality assurance procedures that would be utilized to ensure that the trial burn is properly conducted and accurately reflects the CIF's ability to reliably achieve the EPA performance standards.

To minimize emission increases that could result from process upsets, (e.g., a low temperature excursion in the rotary kiln or a reduction of scrubbing liquid flow to the freejet scrubber), equipment failures, or operator error, various measures will be employed to reduce the probability of occurrence and impact of such incidents. For example, engineering features, such as a waste feed cutoff system, will be built into the CIF. This system will automatically and instantaneously shut off waste feeds when the computer control system detects the existence of a problem condition (e.g., combustion temperature deviates outside of EPA and SCDHEC approved limits). Also, installed spare equipment and backup systems will be used in critical areas of the process (e.g., high efficiency particulate air (HEPA) filters) to immediately replace malfunctioning equipment to promote continued, efficient operation.

Carbon monoxide (CO) and oxygen concentrations in the stack gas would also be continuously monitored in the CIF. EPA has determined as a basis for proposed incinerator regulations (55 FR 17862, April 27, 1990) that a stack CO concentration of less than 100 parts per million by volume (ppmv) indicates that a high combustion efficiency in the incinerator is being achieved. This in turn indicates that POHC destruction is being maintained above 99.99 percent and the formation of products of incomplete combustion (PIC) are being limited to insignificant levels. The CIF would be equipped with an automatic waste feed cutoff interlock which would terminate waste combustion if the CO monitor indication exceeds 100 ppmv, which would prevent a significant emission of unburned organic waste constituents and PICs.

Administrative programs – including daily testing of key parts of the waste feed cutoff system – would also minimize the likelihood of an upset or malfunction. Comprehensive training of CIF operating personnel, performed and documented in accordance with DOE and regulatory requirements, is also expected to minimize the chance of operator error.

H. Stack Emissions

Many commenters were concerned about DOE's estimates of the destruction of the various waste components and the composition and dispersion of stack emissions.

As stated in Section G, DOE expects the trial burn to verify that the CIF would achieve a DRE of at least 99.99 percent of POHCs. Sampling would be conducted during the trial burn to quantify and qualify POHCs. Details concerning selection of POHCs and their destruction during the trial burn are found in the CIF RCRA Part B Permit Application.

The approved SCDHEC air pollution control permit for the CIF specifies the maximum allowable feed quantity and maximum allowable emission of each hazardous metal and organic compound that the CIF may incinerate. The metals emission calculations are provided in Appendix 2 of the same document.

The dispersion of these emissions in the atmosphere was modeled utilizing the EPA TSCREEN model and the ISCST model. The resulting ambient air concentration for each hazardous constituent was then compared to the regulatory standard established in SCDHEC Air Regulation 61-62.5 Standard No. 8, Toxic Air Pollutants.

In all cases, the concentrations were found to be less than the SCDHEC standards. Estimated emissions of hazardous metals and hydrochloric acid from the CIF were also determined to be well below EPA limits for control of heavy metal and hydrochloric acid emissions (risk-based limits found in 55 FR 17862, April 27, 1990). The CIF Clean Air Act and RCRA permit applications document the calculations that predict pollutant generation and apply emission control factors to arrive at predicted emissions removal.

When wastes containing both combustible materials (e.g., organic compounds, paper) and non-combustible materials (e.g., metals and radionuclides) are incinerated, the combustible fraction would be destroyed and its associated toxicity reduced or eliminated. The CIF has been designed to ensure that the amounts of non-combustible hazardous material entering the facility are strictly controlled. Also, pollution control devices (scrubbers, filters, etc.) have been designed to prevent these constituents from being emitted from the stack in harmful quantities. Prior to combustion in the CIF, all waste material would undergo a thorough analysis to ensure that non-combustible metals and radionuclides do not exceed pre-established limits.

Most metals and radionuclides processed through the CIF would remain in the residual ash or be captured by the offgas scrubber and HEPA filters. The ash material, scrubber residues, and HEPA filter elements containing the captured metals and radionuclides would be treated and disposed of in accordance with RCRA requirements.

Metals and radionuclides not captured in the ash, offgas scrubbers, or HEPA filters would be emitted from the stack. However, as described above, DOE used SCDHEC air regulations, air dispersion models, and EPA risk-based limits so that the CIF's emissions would meet all public health and environmental requirements for air emissions. The table presented below summarizes CIF air emissions. It includes a list of potential contaminants, the regulatory limits of the contaminants (as defined by the RCRA, NESHAP, or the CIF's air permit), the maximum estimated CIF emissions of the potential contaminants, and the estimated emission expressed as a percentage of the regulatory limit. It should be noted that CIF emissions are estimated to be below permit requirements for all contaminants.

CIF Air Emission Summary

Criteria	Regulatory Limit	Maximum Estimated CIF Emission or Ambient Air Concentration Impact	CIF % of Limit
Benzene			
Site boundary ambient air concentration (SCDHEC Air Regulation 62.5 Std. No. 8)	150 $\mu g/m^3$	0.01 $\mu g/m^3$	0.007
Radioactivity			
Dose to maximally exposed individual at site boundary (NESHAP - 40CFR61)	10 mrem/yr	0.0026 mrem/yr	0.026
Nitrogen Oxides (NOx)			
SCDHEC Prevention of Significant Deterioration (PSD) - incremental emission increase	40 tons/yr	27.3 tons/yr	68
SCDHEC PSD - incremental ambient air concentration increase (annual)	25.0 $\mu g/m^3$	0.022 $\mu g/m^3$	0.088
Sulfur Dioxide			
SCDHEC PSD - incremental emission increase	40 ton/yr	0.17 tons/yr	0.43
SCDHEC PSD - incremental ambient air concentration increase (annual)	20.0 $\mu g/m^3$	0.00014 $\mu g/m^3$	0.0007
Particulates (PM10)			
SCDHEC Hazardous Waste Regulations emission limit	0.08 gr/DSCF	0.02 gr/DSCF	25
SCDHEC PSD - incremental emission increase	15 tons/yr	12.3 tons/yr	82
SCDHEC PSD - incremental ambient air concentration increase (annual)	19.0 $\mu g/m^3$	0.01 $\mu g/m^3$	0.05
	Note: The PM10 emission estimate does not include additional reduction provided by the planned HEPA filters.		
Carbon Monoxide (CO)			
SCDHEC PSD - incremental emission increase	100 tons/yr	0.0245 tons/yr	0.025
Hydrogen Chloride (HCl)			
RCRA Tier III Emission Limit based on facility-specific dispersion modeling	329.88 lbs/hr	0.99 lbs/hr	0.30

CIF Air Emission Summary

Criteria	Regulatory Limit	Maximum Estimated CIF Emission or Ambient Air Concentration Impact	CIF % of Limit
Mercury			
RCRA Tier III Emission Limit based on facility-specific dispersion modeling	105.4 lbs/hr	0.0057 lbs/hr	0.005
SCDHEC PSD - incremental emission increase	0.1 tons/yr	0.025 tons/yr	25
Lead			
RCRA Tier III Emission Limit based on facility-specific dispersion modeling	31.6 lbs/hr	0.0-57 lbs/hr	0.018
SCDHEC PSD - incremental emission increase	0.6 tons/yr	0.025 tons/yr	4.2
Chromium			
RCRA Tier III Emission Limit based on facility-specific dispersion modeling	0.2839 lbs/hr	.034 lbs/hr	12
Site boundary ambient air concentration (SCDHEC Air Regulation 62.5 Std. No. 8)	2.50 $\mu g/m^3$	.0047 $\mu g/m^3$	0.19
Cadmium			
RCRA Tier III Emission Limit based on facility-specific dispersion modeling	.016 lbs/hr	.00027 lbs/hr	1.7
Site boundary ambient air concentration (SCDHEC Air Regulation 62.5 Std. No. 8)	0.25 $\mu g/m^3$	.00004 $\mu g/m^3$	0.016
Arsenic			
RCRA Tier III Emission Limit based on facility-specific dispersion modeling	.016 lbs/hr	.00067 lbs/hr	4.2
Site boundary ambient air concentration (SCDHEC Air Regulation 62.5 Std. No. 8)	1.0 $\mu g/m^3$	.00009 $\mu g/m^3$	0.009

Abbreviations:

μg	micrograms
m^3	cubic meters
mrem	millirems
hr	hours
lbs	pounds
yr	years
DSCF	dry standard cubic feet
PM10	particulate matter with a diameter of less than 10 microns

L. Emission Monitoring

Several commenters were concerned about the monitoring of the emissions from the CIF, raising questions about the compounds that would be monitored, techniques that would be used, and the frequency of the monitoring.

SRS operates a network of approximately 30 radiological air quality monitoring stations, some of which are located offsite. Additionally, the states of South Carolina and Georgia operate non-radiological monitoring stations in the vicinity of SRS. Although air dispersion modeling has indicated that no measurable air quality impacts would result from the CIF, these stations would be available to detect certain ambient air quality changes that could result from operation of the CIF, other facilities at SRS, and private industry in the vicinity of SRS. A comprehensive discussion of the SRS environmental monitoring program may be found in the 1991 Savannah River Site Environmental Report (document number WSRC-TR-92-186).

CIF monitoring programs required by state and federal regulations (Section 4.5.1 of the EA) refer to the initial trial burn testing and periodic follow-up testing required by the facility's operating permits and provisions of RCRA and the Clean Air Act. These testing programs would initially demonstrate and periodically confirm continued compliance with the RCRA performance standard of 99.99% minimum DRE and emission limits for metals and other pollutants. The proposed CIF would have continuous stack monitoring systems for measuring radionuclide emissions and concentrations of CO and oxygen. CO and oxygen would be used as an indicator of combustion efficiency. High combustion efficiency minimizes emissions of unburned organic compounds and PICs.

The emission of other pollutants such as metals, nitrogen oxides, and uncombusted organic compounds would be measured periodically to ensure compliance with regulatory performance standards and CIF permit limitations. The scope and frequency of the periodic sampling and analysis of CIF stack emissions are being developed and would be conditions of the CIF operating permits issued by EPA and SCDHEC. The methods to be used for the continuous and periodic stack sampling and analysis are those approved by EPA and required by Clean Air Act regulations (40 CFR Parts 60-61) and RCRA regulations (40 CFR Part 264). The methods are further described in the following CIF permit documents: Application for a SCDHEC Air Pollution Control permit (Revision 1; July, 1991), Application for a NESHAP Permit (September, 1988), and Application for a Hazardous Waste Part B Permit (Revision 4; July 1991).

DOE would continue to review the advancement of continuous emission monitoring systems for organic and metal constituents. In the interim, the emission of these pollutants would be measured periodically to ensure compliance with regulatory performance standards and CIF permit limitations. The scope and frequency of the periodic sampling and analysis of CIF stack emissions are being developed and would be conditions of the CIF operating permits issued by EPA and SCDHEC.

III. Public Comments and Agency Responses

Comment No.	Comment	Response

DEPARTMENT OF HEALTH & HUMAN SERVICES JUL 31 REC'D Public Health Service

Centers for Disease Control
Atlanta GA 30333

July 27, 1992

L-01

Stephen Wright, Director
Environmental and Laboratory Programs Division
Savannah River Field Office
U.S. Department of Energy
P.O. Box A
Aiken, South Carolina 29802

Dear Mr. Wright:

We have completed our review of the Draft Environmental Assessment (DEA) and Finding of No Significant Impact for the Consolidated Incineration Facility at the Savannah River Site (SRS). We are responding on behalf of the U.S. Public Health Service.

We have reviewed the DEIS for potential adverse impacts on human health, and we believe related issues have been adequately addressed. 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 EA, and future DEA's or Environmental Impact Statements which may indicate potential public health impacts and are developed under the National Environmental Policy Act (NEPA).

Sincerely yours,

Kenneth W. Holt

Kenneth W. Holt, M.S.E.H.
Special Programs Group (F29)
National Center for Environmental Health

Comment noted.

The National Center for Environmental Health has been added to Savannah River Site's environmental mailing list.

L-02

JUL 21 REC'D

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9450 Koger Boulevard
St. Petersburg, Florida 33702

July 16, 1992 F/SE021/RSS
919/728-5090

Mr. Steven R. Wright
U. S. Department of Energy
Field Office, Savannah River
P. O. Box A
Aiken, South Carolina 29802

Dear Mr. Wright:

This responds to your recent letter requesting National Marine Fisheries Service's comments on the proposed Finding of No Significant Impact (FONSI) for the Consolidated Incineration Facility at the Department of Energy's Savannah River Site adjacent to the Savannah River near Aiken, South Carolina.

Comment noted.

We have reviewed the draft FONSI and have determined that the project will not impact fishery resources for which we are responsible. Therefore, we have no comment.

Sincerely yours,

for Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

cc: F/SE02

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 919
CHARLESTON, S.C. 29402-0919

REPLY TO ATTENTION OF

Regulatory Branch

September 10, 1992

L-03

Mr. Stephen R. Wright
NEPA Compliance Officer
Department of Energy
Post Office Box A
Aiken, South Carolina 29802

Dear Mr. Wright:

This is in regards to your submittal of a proposed finding of no significant impact (FONSI) as a result of the environmental assessment prepared for the proposed construction and operation of the Consolidated Incineration Facility located at the Savannah River Site, Aiken County, South Carolina.

Comment noted.

Based on a review of aerial photographs and other information concerning the proposed project site, it has been determined that no wetlands or other waters of the United States subject to Section 404 of the Clean Water Act occur within the project boundaries. Therefore, we have no comments to offer since the Corps has no jurisdiction in this matter.

In future correspondence concerning this matter, please refer to N/R SAC-47-92-0732.

Sincerely,

Clarence A. Ham
Chief, Regulatory Branch

L-04

Office of the Governor • Grant Services
South Carolina Project Notification and Review

1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier
EIS-9207-008

Suspense Date
7/24/92

Steve Davis
S.C. Department of Health and Environmental Control

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

- ☐ Project is consistent with our goals and objectives.
- ☐ Request a conference to discuss comments.
- ☐ Please discontinue sending projects with this CFDA# to our office for review.
- ☑ Comments on proposed Application is as follows:

See attached memo.

Signature: K. Rockell Hanson Date: July 30 1992

Title: Manager, Hazardous Waste Permitting Phone: 734-4711

Comment No.	Comment	Response

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary

Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

MEMORANDUM

L-04-01

DATE: July 30, 1992

TO: Kathy Reis
Office of the Governor
Grant Services

FROM: G. Randall Thompson, P.E., Manager GRT
Hazardous Waste Permitting Section
Bureau of Solid & Hazardous Waste Management

RE: State Application Identifier EIS-9207-005
Environmental Assessment
Consolidated Incineration Facility
Savannah River Site

The Hazardous Waste Permitting Section has received the Environmental Assessment prepared by the United States Department of Energy for the proposed Consolidated Incineration Facility (CIF) at Savannah River Site. A review of the Environmental Assessment by this section resulted in no comments at this time.

Comment noted.

An application for a modification to the existing Resource Conservation and Recovery Act (RCRA) permit to construct and operate the CIF has also been reviewed by this section. A draft RCRA permit modification has been prepared. The draft RCRA permit modification, along with a draft construction permit for the CIF prepared by the Bureau of Air Quality Control, was made available to the public on July 3, 1992. Any government agency or member of the public is free to comment on the permit applications, the draft RCRA permit modification, and the draft construction permit during the public comment period which is scheduled to end on August 17, 1992.

The final RCRA permit was issued b SCDHEC on September 30, 1992.

Comment No.	Comment	Response

Office of the Governor • Grant Services

South Carolina Project Notification and Review

1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier EIS-9207-006
Suspense Date 7/24/92

L-05 Eric Thompson
Lower Savannah Regional Planning and Development Council

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

<u>If you have no comments, return of this form is still required.</u>

If you have any questions, call me at (803) 734-0435. Kathy Reis
Kathy Reis

- [x] Project is consistent with our goals and objectives.
- [ ] Request a conference to discuss comments.
- [ ] Please discontinue sending projects with this CFDA# to our office for review.
- [x] Comments on proposed Application is as follows:

According to the Environmental Assessment the C.I.F. [illegible]

RECEIVED
JUL 29 1992
GRANT SERVICES

Signature: [illegible] Date: July 22, 1992
Title: Executive Director Phone: 803 649-7981

Comment noted.

Comment No.	Comment	Response

Office of the Governor • Grant Services
South Carolina Project Notification and Review

1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier
EIS-9207-005
Suspense Date
7/30/92

L-06

Carlisle Roberts, Jr.
Governor's Div. of Natural Resources

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

- [ ] Project is consistent with our goals and objectives.
- [ ] Request a conference to discuss comments.
- [ ] Please discontinue sending projects with this CFDA# to our office for review.
- [x] Comments on proposed Application is as follows:

The project is consistent with our goal of reducing the volume and toxicity of wastes generated at the Savannah River Site. This determination of consistency is predicated upon assurances contained in the DOE proposal and discussions between Governor Campbell and the Secretary of Energy that the facility will treat only waste generated at SRS.

Signature: Carlisle Roberts, Jr. Date: July 30, 1992

Title: Office of the Governor Director of Natural Resources Phone: 803-734-0543

Comment noted.

Office of the Governor • Grant Services

South Carolina Project Notification and Review

1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier
EIS-9207-005
Suspense Date
7/24/92

L-07

Mr. Joe Dennis
South Carolina Water Resources Commission

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

- [x] Project is consistent with our goals and objectives.
- [ ] Request a conference to discuss comments.
- [ ] Please discontinue sending projects with this CFDA# to our office for review.
- [ ] Comments on proposed Application is as follows:

Signature: _____ Date: 7-28-92

Title: _____ Phone: _____

Comment noted.

Comment No.	Comment	Response

Office of the Governor • Grant Services
South Carolina Project Notification and Review

1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier
SIS-9207-006
Suspense Date 7/24/92

L-08

Earl F. Brown, Jr.
South Carolina Human Affairs Commission

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

- [x] Project is consistent with our goals and objectives.
- [ ] Request a conference to discuss comments.
- [ ] Please discontinue sending projects with this CFDA# to our office for review.
- [ ] Comments on proposed Application is as follows:

RECEIVED
JUL 30 1992
GRANT SERVICES

Signature: Earl E. Brown Jr. Date: 7/23/92

Title: Executive Director Phone: 253-6322

Comment noted.

Office of the Governor • Grant Services
South Carolina Project Notification and Review
1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier
EIS-9207-006
Suspense Date
7/24/92

L-09

William L. McIlwain
S.C. Dept. of Highways & Public Transportation

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

RECEIVED
JUL 29 1992
PRECONS. ENGR. MGMT. COORD.

- ☐ Project is consistent with our goals and objectives.
- ☐ Request a conference to discuss comments.
- ☐ Please discontinue sending projects with this CFDA# to our office for review.
- ☐ Comments on proposed Application is as follows:

NONE

Signature: W. L. McIlwain (W. L. McIlwain) Date: July 29, 1992

Title: Preconst. Eng. Mgmt. Coord. Phone: 737-1390

Comment noted.

L-10

Office of the Governor • Grant Services
South Carolina Project Notification and Review
1205 Pendleton Street
Room 477
Columbia, SC 29201

RECEIVED
JUL 27 1992
S. C. WILDLIFE

State Application Identifier
EIS-9207-006
Suspense Date
7/24/92

Dr. James A. Timmerman, Jr.
South Carolina Wildlife and Marine Resources Department

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

☐ Project is consistent with our goals and objectives.

☐ Request a conference to discuss comments.

☐ Please discontinue sending projects with this CFDA# to our office for review.

☑ Comments on proposed Application is as follows:

RECEIVED
AUG 3 1992
GRANT SERVICES

(SEE ATTACHED)

Signature: J. A. Timmerman, Jr. Date: July 30, 1992

Title: Executive Director Phone: 734-4008

South Carolina
Wildlife & Marine
Resources Department

James A. Timmerman, Jr., Ph.D.
Executive Director
Larry D. Cartee
Asst. Executive Director

L-10-01

July 30, 1992

Ms. Kathy Reis
Grant Services
1205 Pendleton Street
Room 477
Columbia, SC 29201

RE: EIS-9207-005 - Proposed FONSI and EA,
Consolidated Incineration Facility at SRS,
Aiken, S.C. (U. S. Dept. of Energy)

Dear Ms. Reis:

Personnel from the South Carolina Wildlife and Marine Resources Department have reviewed the above referenced proposed project and offer the following comments.

We do not have the expertise to evaluate the effect of the proposed treatment system. Therefore, we will not offer any comments on the impacts on fish and wildlife resources.

Comment noted.

Sincerely,

James A. Timmerman, Jr.
Executive Director

JATjr/sa

Office of the Governor • Grant Services
South Carolina Project Notification and Review

1205 Pendleton Street
Room 477
Columbia, SC 29201

State Application Identifier
EIS-9207-005
Suspense Date
7/24/92

L-11

Paul R. Lunsford
Office of the Adjutant General

The Grant Services Unit, Office of the Governor is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

If you have no comments, return of this form is still required.

If you have any questions, call me at (803) 734-0435. Kathy Reis

Kathy Reis

- [X] Project is consistent with our goals and objectives.
- [ ] Request a conference to discuss comments.
- [ ] Please discontinue sending projects with this CFDA to our office for review.
- [ ] Comments on proposed Application is as follows:

RECEIVED
AUG 6 1992
GRANT SERVICES

Signature: Paul R Lunsford Date: 08/04/92

Title: _____ Phone: 734-8020

Comment noted.

South Carolina Department of Archives and History

1430 Senate Street, P.O. Box 11,669, Columbia, South Carolina 29211 (803) 734-8577
State Records (803) 734-7914; Local Records (803) 734-7917

August 26, 1992

L-12

Mr. Drew Grainger
US Department of Energy
Savannah River Field Office
Aiken, SC 29802

Re: Consolidation Incineration Facility
Environmental Assessment
Savannah River Site
Aiken, Aiken County
EIS-9207-00S

Dear Mr. Grainger:

The SC State Clearinghouse has provided us with a copy of the Environmental Assessment for this project. As the State Historic Preservation Office (SHPO) for South Carolina, we are providing comments on the effect this undertaking could have on cultural resources.

A programmatic Agreement (PA) with the SHPO, DOE and the Advisory Council on Historic Preservation was ratified on August 24, 1990. This PA enables DOE to identify cultural resources, assess them in terms of National Register eligibility, and develop mitigation plans for affected resources in consultation with the SHPO. We note that his PA is referenced in Section 5.6 (p. 5-2).

Compliance with the stipulations of the PA should satisfy DOE's responsibility for cultural resources under Section 106 of the National Historic Preservation Act of 1966, as amended, and NEPA. If you have any questions, call either me or Ms. Nancy Brock, Review and Compliance Branch Supervisor, at 803/734-8609.

Comment noted.

Sincerely,

Ian D. Hill
Intergovernmental Review Coordinator
State Historic Preservation Office

cc: Mr. Mark Brooks, SCIAA-SRS
Ms. Kathy Reis, State Clearinghouse
Mr. Tom McCullouch, Advisory Council on Historic Preservation
Dr. Bruce Rippeteau, SCIAA

07-31-92

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
116 WEST JONES STREET
RALEIGH NORTH CAROLINA 27603-8003

AUG 05 REC'D

L-13

INTERGOVERNMENTAL REVIEW COMMENTS

MAILED TO

Mr. Stephen Wright
Dept. of Energy, Field Office, Savannah River
P.O. Box A
Aiken, South Carolina 29802

FROM

MRS. CHRYS BAGGETT
DIRECTOR
N C STATE CLEARINGHOUSE

PROJECT DESCRIPTION

FONSI - Proposed Construction and Operation of the Consolidated Incineration Facility at the Savannah River Site in Aiken, South Carolina

SAI NO 93-E-0012 PROGRAM TITLE - FONSI

THE ABOVE PROJECT HAS BEEN SUBMITTED TO THE NORTH CAROLINA INTERGOVERNMENTAL REVIEW PROCESS. AS A RESULT OF THE REVIEW THE FOLLOWING IS SUBMITTED (X) NO COMMENTS WERE RECEIVED

( ) COMMENTS ATTACHED

SHOULD YOU HAVE ANY QUESTIONS, PLEASE CALL THIS OFFICE (919) 733-0499.

Comment noted.

Comment No.	Comment	Response

L-14

Aiken County Public Schools
843 Edgefield Avenue, N.W. • P.O. Box 1137 • Aiken, South Carolina 29802-1137
Dr. Joseph R. Brooks, Superintendent
(803) 641-2700

August 7, 1992

Mr. Stephen Wright, Director
Environmental and Laboratory Program Division
U. S. Department of Energy
Savannah River Field Office
P. O. Box A
Aiken, SC 29802

Dear Mr. Wright:

This letter serves to support the Consolidation Incineration Facility (CIF) at the Savannah River Site (SRS).

As we move toward the 21st Century, it is extremely important to have a specific operational plan to treat hazardous and mixed waste. I fully support these activities at SRS because it will provide a clean-up of the accumulated waste from our pre-environment consciousness in an effective and safe manner at SRS. Westinghouse and the Department of Energy Staff at SRS are good neighbors and have my support.

Thank you for the opportunity to share my support.

Sincerely,

Joseph R. Brooks
District Superintendent

JRB:lae

Comment noted.

Comment No.	Comment	Response
L-15	STATEMENT OF CAROLINA CAMPAIGN FOR THE ENVIRONMENT Bridget M. Balog 2131 Devine Street Columbia, SC 29205	
L-15-01	Please replace our comments dated July 30, 1992 with the enclosed comments dated July 31, 1992. Carolina Campaign for the Environment (CCE) is a not-for-profit, non-partisan citizens environmental lobby dedicated to promoting sound environmental policy through increased public participation. We appreciate the opportunity to comment on the Environmental Assessment (EA and the proposed Finding of No Significant Impact (FONSI) for the proposed Savannah River Site Consolidated Incinerator Facility (SRS CIF). Providing adequate information for the public to thoroughly review, clearly understand and fully discuss the proposed incinerator is the minimum acceptable level of work. The people of South Carolina must be satisfied that the decisions we make to deal with these particularly dangerous wastes are the best we can devise. The documents don't provide enough information to satisfy us.	Action completed per your request.
L-15-02	After review of the EA and the FONSI, we believe that several pertinent questions remain, and urge the Department of Energy to perform a full Environmental Impact Statement to answer these and other questions which will no doubt arise during the public comment period.	Please refer to Section II, A.

Comment No.	Comment	Response
	1. Best Demonstrated Available Technology: The documents state that incineration was chosen because it is considered the Best Demonstrated Available Technology for many wastes generated at the SRS.	
L-15-03	It is not clear from the discussion for which wastes incineration is not BDAT, and what the BDAT may be for these wastes. DOE chose incineration because it is considered the best technology for many of the wastes generated at the site. The documents must specify each particular waste stream and discuss treatment options for each.	The CIF treatment system would include incineration, stabilization, and neutralization. Thus, the CIF would provide treatment that complies with the applicable EPA treatment standard for combustible waste streams. These waste streams may contain many EPA waste codes. The BDATs are for waste codes, not waste streams. It is not feasible or safe to separate all waste streams. Combustible wastes would be separated from noncombustible wastes where practical, when this does not result in unacceptable worker exposures. Cost was only one of several factors considered for the alternative selection, as discussed in Section 2.0 of the EA. Biological and chemical treatment technologies were eliminated based on technological reasons, not on cost comparisons. Section 2.0 of the EA discusses alternatives and focuses on potential health and environmental impacts. Also, please refer to Section II, E.
L-15-04	2. Monitoring: The documents are confusing on this point. At several places, it is stated that the facility will conduct continuous monitoring of offgases. At other places it is stated that emissions will be monitored by input and inspection, or by testing of certain parameters, or by a periodic emissions monitoring program.	Please refer to Section II, H and I.

Comment No.	Comment	Response
L-15-05	If stack testing will be performed, will it be continuous or periodic, what technology will be utilized, what parameters will be tested? If stack testing will be periodic, how often will it occur? Will testing include products of incomplete combustion?	Please refer to Section II, I.
L-15-06	While the monitoring program may meet minimum legal requirements, CCE believes that the best possible program to test for the most comprehensive array or of constituents at the most frequent intervals is imperative to ensure that unexpected releases will be detected and corrected as quickly as possible. It might be noted that in December of 1991 DOE did not detect the escape of radioactive materials in liquids for several days, despite what we would expect to be DOE's best efforts to prevent such events 3. Destruction and Removal Efficiency: It is stated that incineration reduces the volume and toxicity of wastes, and that by law, the facility must be designed to ensure 99.99 percent destruction and removal of principal organics.	Please refer to Section II, G, H, and I.
L-15-07	Please explain how the facility reduces the toxicity of non-organics, such as lead, mercury, and radionuclides.	An atom of a hazardous metal, such as lead or a radionuclide such as cesium-137, will not be altered when subjected to a non-nuclear industrial process such as incineration. However, when wastes are incinerated that contain both combustible materials (e.g., organic compounds, paper) and non-combustibles (e.g., metals and radionuclides), the combustible materials will be destroyed along with its associated toxicity.

Comment No.	Comment	Response
		A facility such as the CIF must therefore be designed to ensure that amount of non-combustible hazardous constituents that enter the incinerator are strictly controlled and the necessary pollution control devices are in place to ensure the non-combustible constituents are not emitted from the stack in harmful quantities. All wastes that will be fed to the CIF will undergo a thorough waste analysis to ensure that the amount of metals and radionuclides fed do not exceed established limits. Most metals and radionuclides that are fed to the CIF will remain in the ash or will be captured by the CIF offgas scrubber and HEPA filters. The ash, scrubber residues, and HEPA filter elements that contain the captured metals and radionuclides would be treated and disposed according to RCRA requirements to minimize the potential for the metals and radionuclides to re-enter the environment.
L-15-08	4. Tritium Gas: It was stated at the workshop of 7/20/92 that tritium gas will pass through the incinerator and will be released into the environment. What steps will be taken to prevent or reduce the incidence of tritium being introduced into the incinerator.	The CIF NESHAPS permit limits the amount of tritium introduced into the incinerator to 1200 curies per year. This results in an effective dose equivalent of .003 mrem per year. This is well below the regulatory standard of 10 mrem per year. The CIF NESHAPS permit requires that a waste tracking system be in place to ensure waste feed tritium is tracked to prevent exceeding the annual limit. Approved analytical techniques will be used to determine the tritium concentration in the feed. The incinerator blend tanks will be sampled for tritium upon addition of liquid waste. Suspect tritiated solid waste will not be accepted unless the maximum tritium concentration in the waste can be verified.
	5. Trial Burn: It appears, but is not clearly stated, that the results of the trial burn will affect several operations of the incinerator: feed rates, temperature, oxygen levels, and perhaps monitoring requirements.	

Comment No.	Comment	Response
L-15-09	A more thorough discussion of the trial burn process should be made, including what constituents will be burned, which constituents will not be burned, what parameters will be tested for, and what operating practices may be affected by the results.	Please refer to Section II, G and I.
L-15-10	6. Waste Generation: The CIF is designed to incinerate wastes primarily generated during "normal operations" It is not explicitly stated which wastes, and in what quantities, will be generated from production, the Defense Waste Processing Facility, and other sources. In light of the changing world scene and the changing mission of SRS, a more complete discussion of the effects of "cold storage" of the K-Reactor and other potentialities is in order.	Please refer to Section II, B and D.
L-15-11	7. Secondary Combustion Chamber: It is not clear from the feed rate and residence time information, but it appears that the Secondary Combustion Chamber (SCC) will be used for the initial and only burn of certain liquid wastes. Which wastes will be burned only in the SCC, and what will be the effect of not putting these wastes through a second treatment process?	Only liquid benzene waste generated at the Defense Waste Processing Facility would be injected directly into the Secondary Combustion Chamber (SCC). The SCC has been designed to operate at a sufficient temperature and residence time to efficiently destroy the benzene. The trial burn would specifically test the capability of the SCC to achieve the DRE requirement when directly firing a liquid waste mixture that has been determined by EPA to be more difficult to incinerate than benzene. Therefore, a secondary treatment process would not be required.
	8. Occupational Safety and Health Administration Standards: The documents state that the facility will meet all DOE-accepted OSHA standards.	

Comment No.	Comment	Response
L-15-12	Which OSHA standards has DOE not accepted?	DOE has adopted all the requirements of 29 CFR 1910, "Occupational Safety and Health Standards", and 29 CFR 1926, "Safety and Health Regulations for Construction."
L-15-13	9. Risk: What assumptions were used in calculating risks from accidental releases from unusual events. For example, how was it determined that in the event of a hurricane, only 10 percent of solid waste would be released? When calculating risk from benzene release, the risk to maximally exposed offsite individuals was higher than the risk to onsite individuals five miles away from the spill. Considering that the nearest boundary is seven miles away from the facility, why is this so?	Assumptions are used that would give reasonable assurance that the highest risk to the exposed individual is calculated. Where possible, test data or previous experience is applied, along with industry accepted models. Research results and engineering judgment are applied where needed. Section 4.6 of the EA mentions some of the assumptions used; however, listing all of them would be beyond the scope of the EA. This information is contained within the documentation supporting and referenced within the EA. The risk to an individual from a benzene release is a product of the dose rate and exposure time. In the case of a benzene spill, the maximally exposed offsite individual is assumed to be within the plume during the entire time it takes for the benzene to evaporate. The onsite individual would be located in a point of higher concentration in the benzene plume, but would be notified and relocated out of the plume. The calculation of risks based on these assumptions results in the slightly higher risk to the maximally exposed offsite individual than the onsite individual located five miles from the spill, due primarily to difference in exposure duration. The 10 percent figure noted in the comment regarding potential releases due to high winds is assumed to be referring to the 1 percent number indicated on page 4-9 of the EA (Subsection 4.6.3). Engineering judgment was used in applying this number which was derived from test data and supported by industry utilized information. This number represents the portion of the released material that becomes airborne as an aerosol.

Comment No.	Comment	Response
L-15-14	10. Alternatives: The EA does not include an adequate discussion of alternatives. It is clear that incineration was the technology of choice before the EA was begun, and that DOE had decided to adopt a single technology to treat a single aggregated waste stream.	Please refer to Section II, E.
L-15-15	The documents state that incineration has been identified as the BDAT for many of the wastes generated at SRS, but does not specify which specific wastes these are. More importantly, there is no discussion of wastes for which incineration is not BDAT and what the BDAT is for these wastes. Treatment of the separate waste streams is not seriously discussed; this option was rejected because of the cost involved.	Please refer to L-15-03.
L-15-16	It is mentioned that biological or chemical treatment may actually increase the level of destruction for some wastes. Again these wastes are not specified and these alternatives are rejected largely because of cost. It could be argued that putting cost considerations ahead of environmental ones has greatly contributed to the fact that SRS is currently a hazardous CERCLA site.	Please refer to Response L-15-03.
L-15-17	It is imperative that alternatives be discussed in the context of desegregated and disaggregated waste streams.	Please refer to Response L-15-03.

Comment No.	Comment	Response
L-15-18	Rejecting technologies which may be BDAT for some waste streams because they are not BDAT for all waste streams without explicitly discussing those alternatives subverts the purpose of the required discussion of alternatives.	Please refer to Section II, E.
L-15-19	In conclusion, CCE is calling on the DOE to expand its examination of the environmental impacts of disposal of SRS wastes and provide a more thorough discussion of alternatives. This should be accomplished through a scientifically rigorous, detailed EIS, that fully explores all legitimate alternatives. We believe the citizens of South Carolina deserve nothing less that the best system that we can devise to deal with these dangerous toxic wastes.	Please refer to Section II, A, D and E.

Comment No.	Comment	Response

The level of secrecy that has surrounded the facility, along with recent disclosures concerning deception of the public at other nuclear weapons facilities has eroded public confidence in DOE. Performing painstaking review, providing the public with complete information, and allowing for full public discussion of the incineration proposal may help rebuild that confidence. Unfortunately, the EA and FONSI do not provide an adequate level of detail to allow for public understanding and comment on the CIF. We urge DOE to perform a complete Environmental Impact Statement to provide the information needed so that we are assured that we reach the best possible solution for dealing with these extremely hazardous wastes.

Again, we appreciate the opportunity to comment.

Comment No.	Comment	Response
L-16	STATEMENT OF CITIZENS FOR CLEAN AIR AND WATER Paul Sacco P.O. Box 614 Rock Hill, SC 29731	
L-16-01	DOE's proposed FONSI and substitution of it for a full fledged Environmental Impact study is a new public insult from a member of the pollution industry. We (CCAW) live under the pall of a hazardous waste facility (Thermal KEM), and you cannot whitewash the stench and stack emissions from our nostrils and lungs with an innocuous EA. If DOE cannot conduct a bonafide Environmental Impact Study, then close up shop and not kid the public. Personally I distrust their FONSI.	Please refer to Section II, A.

Comment No.	Comment	Response
L-17	STATEMENT OF GEORGIANS AGAINST NUCLEAR ENERGY PO Box 8574, Station 8 Atlanta, GA 30306 We are pleased to submit our views to our government on plans in the works that are to be funded with our money and that will impact our homeland. We are also pleased that our government is exploring ways to remove the hazards of atom bomb production from the people it is charged with defending. However, we do not agree with the environmental assessment finding of no significant impact from the construction and operation of a Consolidate Incinerator Facility.	
L-17-01	Most obviously, we note that if the burn does achieve a destruction and removal efficiency of 99.99%, 35,000 pounds of hazardous and radioactive emissions will still enter the environment surrounding the facility and this is unacceptable. And we doubt that the incinerator will perform with the desired efficiency in all situations during its lifetime. As the EA notes, the CIF will use experimental design features inspired by the shortcomings of incinerators that were studied prior to deciding that the CIF is the appropriate technology to use. We commend the intention to do better than existing incinerators, but do not have confidence in the experiment given the cost to build and operate the CIF and the diversion of attention from finding real solution to SRS waste problems.	Using the minimum acceptable DRE value of 99.99% and assuming that the CIF would burn 5 million lbs/yr of organic waste compounds as estimated in the EA, the annual emission of unburned organic compounds would be 500 lbs. and not 35,000 lbs. as stated in the comment. Based on the results of performance testing at other hazardous waste incinerators of similar design, DOE expects the CIF will perform significantly better than the RCRA performance requirement of a minimum 99.99 percent DRE. A typical example is the Kodak incinerator at Rochester, NY, which achieved DREs of better than 99.999% in trial burn tests. The wastes to be incinerated in the CIF, however, will contain a significant fraction of non-hazardous components, (e.g., paper, plastic, oils, water), and the actual amount of hazardous constituents processed through the CIF will be substantially less than 5 million lbs/yr. Please also refer to Section II, A, G, and H.

Comment No.	Comment	Response
L-17-02	We find the EA to be inadequate in identifying the sources and quantities of the wastes and radionuclides under consideration for the incinerator. There is much vague reference to controls and systems and procedures that will make the handling and burning of these mixed wastes safe, but these systems and procedures are not described. We note with dismay that tritium will not be trapped by the filters!	The waste types and their respective quantities that would be fed to the CIF are listed in Table 2-1 of the EA. This table lists the key chemical components for each of the waste types. Radionuclide source and release terms for the CIF are listed in Table 4-2 of the EA. Table 16 in the CIF NESHAPS permit application also lists the waste types with the respective maximum radioisotope concentration expected in each waste type. The CIF RCRA Part B Permit describes the handling/feeding of mixed and hazardous wastes. The application requires that specific operational procedures concerning waste handling/feeding be submitted 6 months before operation. The RCRA permit requires that waste volumes and types be updated 9 months prior to operation. Approved procedures are required for determining the concentration and quantity of each radioactive and hazardous constituent. Wastes would be accepted only when contaminant concentrations can be verified by approved techniques. Tritium gas cannot be trapped by HEPA filters. However, the quantity emitted is well within regulatory limits as explained in Response 15-08.

Comment No.	Comment	Response
L-17-03	We find the discussion of radioactive release to the public being described in person Rems a gross inadequacy, since the plume will never be democratic in its direction and distribution of hazardous substances.	The EA provides the calculated radiation dose to the "maximally exposed individual" due to radionuclide emissions from routine CIF operation (see Section 4.5.2) and emissions that could result from credible incidents (see Section 4.6.2 and Table 4-3). The maximally exposed individual is the person who would continuously inhabit the offsite geographical location where radiation exposure would be greatest. Factors such as distance from the CIF and air dispersion patterns due to local topography and meteorology are taken into account when the location and radiation dose to the maximally exposed individual are determined. The calculated radiation dose to the maximally exposed individual from routine emissions and incident-related emissions is well within applicable federal requirements. Doses from radionuclides emitted from CIF were calculated using the EPA-approved CAP-88 dose/dispersion model. This model considers the half-lives of the emitted radionuclides, the dose from daughter radionuclides, and all major pathways for human uptake and exposure, including indirect effect such as food-chain uptake.
L-17-04	We compare a discussion about whether endangered wildlife has ever been spotted on the acreage that is considered for the CIF to a discussion about the exposure levels in a 100-mile radius and do not share your conclusion that the red cockaded woodpecker and wood stork are safe from this project.	The U.S. Fish and Wildlife Service has reviewed the CIF project information and concurred in the determination no threatened or endangered species, including the red cockaded woodpecker and wood stork, would be affected by the CIF. Please refer to Appendix A of the EA, U.S. Fish and Wildlife Service letter of January 4, 1991.

Comment No.	Comment	Response
L-17-05	We expect that the workers would suffer the worst exposure to emissions, ash and water releases from the CIF.	Section 4.6.1 of the EA indicates that "Engineering controls, (e.g., shielding, ventilation, remote handling and other design features), along with administrative controls would be used to limit both chemical and radiological exposures to personnel. All applicable DOE Orders and standards, DOE-adopted OSHA standards, and SRS requirements would be followed to assure worker health and safety during normal operations and in the event of any accidents having potential for exposure." Specific examples of these measures taken in the facility design include the use of solid reinforced concrete walls around the ashout area to provide shielding for personnel, the use of continuous air monitors throughout the facility and the remote location of the ashcrete operating station. State and Federal agencies would have the authority to perform periodic inspections to ensure compliance with facility permit conditions. Internal Audits would be performed to ensure compliance with OSHA standards.
L-17-06	And, lastly, since we understand as well as you do that matter can neither be created or destroyed, we appreciate very well the hazards of handling the undeniably toxic, albeit, smaller volume, of waste ash and water effluents that would remain after the burn. In light of the real fact of toxic and radioactive waste, that we all agree must be dealt with sooner than later we do have a suggestion to offer as to the direction we would like you to take.	

Comment No.	Comment	Response
L-17-06 (continued)	We urge you to shore up the storage aspect of the waste first. Get new containers if you can't fix the old. But since we have no way to deal with the wastes that will be left from the incinerator any more than we can deal with the wastes in the states they are in now, let's put the CIF program to the side while we consider a genuine way of dealing with hazardous radionuclides. As one of our members quipped recently, our society has discovered ways to make mascara that doesn't run when you cry and cereal that stays crispy when you pour milk on it. If we make as sincere an effort to deal with the radioactive wastes as we did to develop the technologies that created the wastes, we can meet this great challenge.	Please refer to Section II, D.
L-17-07	GANE calls for the diversion of all creativity and resources that are currently devoted to atom bomb production, nuclear energy production and developing the irradiation industry to intense research and development in the area of nuclear waste. We urge our government to lead the world away from the precipitous danger these wastes pose to our species and embrace wholeheartedly the honorable project of finding a truly safe, responsible and permanent way to keep the wasteful legacy of the atomic age from threatening future generations.	Please refer to Section II, B.

Comment No.	Comment	Response
L-18	STATEMENT OF GREENPEACE Scott Brown, Southeast Toxics Campaigner 20 Street N.E. Atlanta, GA 30309 Enclosed please find my comments on the *Environmental Assessment for the* Consolidated Incineration Facility. I find the data incomplete and misleading. To base a finding of no significant impact on the merits of the data presented is unconscionable. In summary, I have noted here that, among other things, the EA:	
L-18-01	• assumes an unrealistic destruction and removal efficiency,	Please refer to Section II, G.

Comment No.	Comment	Response
L-18-02	• fails to attempt qualify and quantify the overwhelming majority of unburned chemicals, products of incomplete combustion and heavy metals likely to be emitted from the incinerator,	Quantification of the unburned chemicals (principal organic hazardous constituents or POHC) and heavy metals that would be expected to be emitted was delineated in the permits referenced in the EA (Section 5.0). The EA also indicates (Section 4.5.1) that the CIF would achieve a 99.99 percent DRE for POHC, which would be verified during the trial burn. Sampling would be conducted during the trial burn to quantify POHC emissions. Details concerning selection of POHCs and their destruction during the trial burn can be found in the CIF RCRA Part B Permit. This trial burn would also verify the removal efficiency and emission of heavy metals. The estimated emission of POHCs and heavy metals is presented in the trial burn plan, and are also summarized in Section II, F and H. DOE did not attempt to quantify products of incomplete combustion (PIC) emissions. EPA (55 FR 17862) has been unable to quantify and characterize PIC emissions. However, EPA believes that these emissions do not pose significant risks when incinerators are operated at high combustion efficiency. PIC emissions are minimized by maximizing combustion efficiency, and using carbon monoxide concentration as an indicator of combustion efficiency.
L-18-03	• ignores the risks of chronic exposure to incinerator emissions,	Potential risks from chronic exposures to CIF emissions were considered and used by SCDHEC and EPA to set emission limits, as explained in Section 4.5 of the EA. Also please refer to Section II, F of this appendix for further discussion. In general, the equations used to calculate the risk-based air concentrations found in the RCRA permit are consistent with EPA's basic approach for quantifying risks from chronic exposures to hazardous compounds, including heavy metals.

The EPA risk-based approach, found in the proposed regulations (55FR17862) and used to set emission limits, is based on a maximally exposed individual (MEI) and incorporates the following conservative assumptions (that tend to over estimate risks):

- The MEI resides at the point of maximum concentration. For carcinogenic compounds, the MEI resides at the point of maximum concentration for 70 years.
- For noncarcinogenic compounds, ingestion and dermal routes of exposure account for 75 percent of the dose, while inhalation accounts for 25 percent of the acceptable dose.
- For lead, the incinerator is limited to only 10 percent of the National Ambient Air Quality Standard.
- The EPA carcinogenic and noncarcinogenic toxicity values used for the incinerator emissions incorporate uncertainty factors to protect the most sensitive (such as the very old and the very young) portion of the population.

The EPA risk-based approach does address chronic effects through the use of toxicity values developed specifically for chronic carcinogenic and noncarcinogenic effects. Cumulative effects of contaminants through time are addressed through the uncertainty factors included in the EPA toxicity values.

Comment No.	Comment	Response
		Radiological releases are regulated by EPA through the NESHAP regulations, 40 CFR 61, Subpart H. This regulation limits releases from DOE facilities not to exceed an effective dose equivalent (EDE) of 10 mrem/yr. to the maximally exposed individual. Section 4.5.2 of the EA states that the EDE of CIF would be 0.00261 mrem/yr., which is insignificant when compared to the standard of 10 mrem/yr.
L-18-04	• seriously downplays the threat to worker health and safety,	Please refer to Comment L-17-05.
L-18-05	• overlooks potential impacts on the food chain, and	Food chain effects were considered in the dose calculations for radionuclides. Provisions for indirect effects, which includes food chain effects, for the non-radioactive emissions are made in EPA's proposed rules (April 27, 1990, Federal Register - 55FR17862), to which the CIF facility would comply (Section 4.5.1 of the EA). Potential food chain impacts from radionuclides are addressed in the EPA approved CAP-88 dose/dispersion model. This model is used to estimate radionuclide emissions due to routine operations of the CIF to determine exposure to the entire affected population around SRS and the maximally exposed individual (MEI). This model considers the half-lives of the emitted radionuclides, the dose from daughter radionuclides, and all major pathways for human uptake and exposure, including direct inhalation and ingestion via water and the food chain, when calculating the human radiation dose. The food chain pathways considered include meat, milk, and vegetation.

Comment No.	Comment	Response
		Although the EPA proposed rules (55FR17862) do not quantify indirect exposure through the food chain for the non-radioactive emissions, they do contain provisions for this indirect exposure. For carcinogens, this provision is made by establishing the aggregate risk to the MEI to 1-in-100,000 rather than 1-in-10,000. Both of these values are within EPA's acceptable carcinogenic risk range, with the 1-in-100,000 representing a more restrictive (safer to the public) level than the 1-in-10,000. For toxic compounds that do not exhibit carcinogenic effects, CIF emissions are allowed to contribute only 25 percent of the dose that would exceed a health-based threshold. For lead, the CIF is allowed to contribute only 10 percent of the National Ambient Air Quality Standard.
L-18-06	• paints an inaccurate picture of day-to-day incinerator operation and monitoring.	The CIF EA does account for impacts of emissions due to normal day-to-day operations. The EA's purpose is to address the environmental impacts of a proposed action. Additional operational details can be found in the RCRA Part B Permit.
L-18-07	Given the health risks already imposed by SRS on people in the vicinity of the site, and the lack of scientific research on health impacts of chronic exposure to toxic chemicals, any additional point sources must be considered significant. In cases of scientific uncertainty, citizens can no longer afford to be treated as guinea pigs. The burden of proof is on the DOE and the EA fails miserably to make a convincing case for the safety of the incinerator.	The Clean Air Act requires the EPA to establish ambient standards for pollutants determined to be injurious to public health and the environment. When a new source is considered in an area, the actual ambient concentration of selected pollutants is compared to these National Ambient Air Quality Standards (NAAQS), to determine the level of attainment necessary to protect public health, allowing for an adequate margin of safety. The Prevention of Significant Deterioration (PSD) emission limits, established by the EPA, are used to prevent deterioration of the air quality and are established by the EPA for areas that meet the NAAQS. Additional requirements are imposed for new sources in areas that do not meet the NAAQS. Through this permitting process, the effect of other sources is considered in the EA.

The CIF projected emissions would be below the PSD limits as shown in Table 4-1 of the EA, and Section II, H.

Toxic emissions from the CIF would be controlled in accordance with EPA's proposed rules for hazardous waste incinerators (55FR17862). Provisions for other sources are made by the EPA when they establish the allowable Reference Air Concentrations associated with non-carcinogens. Cumulative effects of carcinogens through time are also addressed in this guidance through the uncertainty factors included in the EPA toxicity values. These rules, which were used by SCDHEC to set emission limits, do allow for other contaminant sources, as explained in Response L-18-03. Response L-18-03 also summarizes the conservative assumptions used to establish these limits.

The cumulative effects expected from the construction and operation of the CIF are identifed in Section 4.8 of the EA. In addition, the cumulative effects from all radiological sources at SRS are presented in the Environmental Report for 1991 (WSRC-TR-92-186). CIF's measured radiological emissions would be quantified in future reports, and are expected to be negligible for the reasons explained in Response L-15-08 and L-15-07.

Dispersion modeling has been performed for the hazardous metal and organic compounds the CIF would incinerate. The resulting ambient air concentrations were found to be less than the standards required by the SCDHEC in its Air Regulation 61-62.5 Standard No. 8, Toxic Air Pollutants. Please also refer to Section II, F and H.

Comment No.	Comment	Response
L-18-08	At this point, I can only hope that the DOE will educate itself on the hazards associated with incineration and further consider other, safer alternatives for SRS. However, if the incinerator proposal goes forward, a full EIS is clearly required.	Please refer to Section II, A and E.
L-18-09	Emissions from hazardous waste incinerators are known to include a variety of persistent, bioaccumulative and toxic compounds such as dioxins, furans, PCBs, hexachlorobenzen, lead, cadmium and mercury. These chemicals include many which are known to cause cancer, birth defects, and for which no safe level has been established. For the CIF, significant radiological hazards are added.	Please refer to Section II, F and Response L-18-05.
L-18-10	The Environmental Assessment (EA) and resulting finding of no significant impact (FONSI) reflects an ill-informed understanding of the hazards of incineration, huge data gaps, and an attempt to hide behind scientific uncertainty and an inadequate regulatory framework. Existing regulations, as they pertain to emissions standards and "acceptable levels of risk," are clearly not protective of environmental/public health from either an acute or chronic exposure perspective. Therefore, if the letter and spirit of the National Environmental Policy Act is to be met, the DOE must perform a full and complete Environmental Impact Statement which considers the "real world" environmental impacts likely to result from the operation of the CIF. DESTRUCTION AND REMOVAL EFFICIENCY	Please refer to Section II, A and F and Response L-18-03.

Comment No.	Comment	Response
L-18-11	The premise of many of the DOE's conclusions regarding non-radioactive atmospheric emissions is that the incinerator will achieve a destruction and removal efficiency (DRE) of 99.99%.	Please refer to Section II, G.
L-18-12	Scientific evidence suggests that, regardless of technology used, 99.99% will not be achieved. The trial burn's sampling, analysis and calculation protocols, used to determine DRE, seriously overestimate incinerator efficiency by ignoring the following:	Please refer to Section II, G.
L-18-13	• Errors and inaccuracies. During a typical trial burn, a volume of stack gas no greater than 1/1,000 of a single minute's flow is sampled using devices which may have a margin of error of +/- 50%. This is followed by analyzing the concentration of the POHCs in the sample and using the gas flow rate to determine DRE. Each step of the calculation involves significant imprecisions, which are then multiplied by each other. The propagation of error may result in calculations that are inaccurate by a factor of up to 100.	EPA has implemented very strict sampling and analysis requirements for stack sampling to prevent the errors and inaccuracies alluded to in the comment. These requirements are incorporated in the CIF Quality Assurance and Quality Control (QA/QC) Trial Burn Plan. EPA has stated that if trial burns incorporate the level of QA/QC indicated in the QA/QC Handbook for Hazardous Waste Incineration, then levels of accuracy and precision will be documented and will be within acceptable ranges. By preparing and complying with an approved QA/QC Plan, DOE can achieve high levels of accuracy and precision during stack sampling that would result in an accurate and precise DRE.
L-18-14	• Delayed emissions. Current methods do not account for retention within the combustion system of the chemicals selected for trial burn (the "hysteresis effect") and their continued release for hours, and even days, after sampling has stopped. A calculated DRE of 99.99% that ignores the hysteresis effect may disguise a much lower actual DRE -- as low as 99%.	The EPA has investigated the hysteresis phenomenon in boilers and documented its effect only in boiler systems. In regard to hazardous waste incinerators such as the CIF, hysteresis is thought to occur but its significance on the determination of DRE has not been established. Hysteresis should be lower in incinerators than in boilers because of the lesser amount of soot-bearing surfaces typically found in incinerators. Soot provides a medium where unburned POHC's could be retained with in a combustion system. Although EPA is studying further the significance of the hysteresis effect in com-

Comment No.	Comment	Response
L-18-14 (continued)		bustion systems, including hazardous waste incinerators, the agency continues to rely on the current trial burn protocol for determining POHC emissions and DRE. During routine operation of the CIF, controlling combustion temperatures, CO emissions, and other operating parameters within permitted limits would provide reasonable assurance that the DRE being achieved would be better than the regulatory requirement of 99.99%. Hysteresis would only be potentially exhibited when the incinerator is shut down, and its significance in that instance is speculative. Additionally, please refer to Section II, I.
L-18-15	The test burn is irrelevant to day-to-day operating conditions for the following reasons:	
	• Burning a handful of pure chemicals (POHCs) does not accurately reflect incinerator operation when hundreds, or even thousands of chemicals, in constant fluctuation are burned.	Please refer to Section II, G.
L-18-16	• *Burning POHCs at high concentrations* overestimates actual DRE. EPA studies have proven that incinerators are less able to burn wastes in low concentrations than in high concentrations. Trial burns -- in which specific POHCs are fed in much higher concentration than are usually found in wastes -- thus exaggerate incinerator efficiency. EPA scientists have concluded that existing incinerators cannot meet the 99.99% requirement when actual wastes are burned.	The CIF is designed to protect human health and the environment at all contaminant concentrations. Highest emissions would occur when waste concentrations are highest. These emissions have been modeled using the conservative EPA T-Screen model, and results show air concentrations well below risk-based and regulatory limits. Please refer to Section II, G and Response L-17-01.

Comment No.	Comment	Response
L-18-17	• In the real world, combustion upsets are known to be a frequent occurrence. These deviations from ideal conditions cause significant increases in toxic emissions. The carefully controlled scenario of the trial burn bears a tenuous relationship to the actual daily operation of an incinerator.	Please refer to Section II, G and I.
L-18-18	Even assuming a DRE of 99.99%, the U.S. EPA Science Advisory Board has written that: "..as much as 1 percent of the mass of waste feed could exit an incinerator as compounds other than CO2, CO H20 and HCL". Based on this estimate the CIF could be expected to emit 50,000 pounds of PICs and unburned chemicals in the first three years of operation (assuming 5 million pounds of wastes burned in the three year period).	Please refer to Response L-17-01.
L-18-19	THE EA VIRTUALLY IGNORES PICs, POHCs, METALS AND RADIONUCLIDES PICs Regarding PICs and POHCs, the EPA has stated that between 40-90% of the total mass of chemicals thought to be emitted into the air from hazardous waste incinerators remain unidentified. According to the EPA PICs emitted from incinerators number in the "thousands". One list of known PICs includes some 100 individual chemicals plus PCBs, dioxins and furans. Of this list of chemicals only dioxin is mentioned in the EA. The EA states that the trial burn will include a measurement of dioxin emissions.	Please refer to Response L-18-02 for a discussion of PICs and Section II, F, for a discussion of metals. POHCs are discussed in Section II, G, H; and radionuclides are discussed in Responses L-15-08, L-17-03, L-18-05, and Section II, F.

Comment No.	Comment	Response
L-18-20	The EA also states that expected CIF operating conditions and test data from similar incinerators indicate that any dioxins emitted would not exceed "applicable standards." There are, in fact, no standards for dioxin emissions from incinerators or dioxin concentration standards in ambient air.	The comment is correct in that there are no standards for dioxin emissions or concentration standards applicable to the CIF. Section 4.5.1 of the EA has been appropriately modified. The Kodak hazardous waste incinerator located in Rochester, New York is comparable in design and operating conditions to those of the proposed CIF. The dioxin emissions from the Kodak incinerator were less than the State of New York dioxin emission standard. Dioxins can be formulated from any incineration (and combustion) process in which chlorine is present. This formulation occurs in a narrow temperature range that is below the CIF's combustion temperature, but above its release temperature. Rapid cooling of the offgas to a point below this critical range reduces the time available for such products to be formed. The CIF was designed without heat recovery equipment, to ensure rapid cooling is achieved, and dioxin formulation minimized.
L-18-21	The EA fails to qualify and quantify PIC and POHC emissions.	Please refer to Response L-18-02 and Sections II, G, H.
L-18-22	The EA also fails to discuss partitioning (air emissions, fly ash, bottom ash, waste water effluent), dispersal patterns and the ultimate uptake, bioaccumulation and impact of these emissions.	In order to conservatively assess the potential environmental impacts of organic emissions from the proposed CIF, it was assumed that only the minimum 99.99% DRE would be achieved. It was further conservatively assumed that the remaining 0.01% of the organics originally in the waste feeds would be emitted from the stack and no partitioning of organics to the bottom ash or offgas scrubber byproduct liquid waste would occur. The maximum ambient concentrations due to these emissions were determined through use of the conservative TSCREEN air dispersion model to be less than the ambient air concentration standards established by SCDHEC to be protective of public health and the environment. Detailed results may be found in the CIF Air Pollution Control Permit application.

Organics that would partition to the bottom ash or offgas scrubber liquid byproducts would be immobilized when these byproducts are solidified for disposal in EPA - approved land disposal units, as required by RCRA. Based on the strict RCRA and DOE disposal requirements for these wastes, human exposure from organics in these waste forms would not occur.

Partitioning of waste contaminants is dependent on many operating parameters (waste feed chlorine, temperature, air velocity, waste feed type) that are subject to change within the permitted range. Changes in operational parameters result in changes in partitioning factors. Changes in the partitioning factors would not pose unacceptable risks since:

- contaminants that partition to the ash would be stabilized in cement to meet RCRA land disposal requirements (LDRs).
- contaminants that partition to the offgas and are removed by offgas treatment will be immobilized with the offgas wastewater and flyash to meet RCRA LDRs.
- contaminants that partition to the offgas and are emitted from the stack will comply with regulatory and health-based emission limits.

Please also refer to Response L-18-05.

Comment No.	Comment	Response
L-18-23	Heavy Metals Being elements, heavy metals, are not destroyed in the incineration process. This means that every ounce of heavy metal going into the incinerator will exit out the stack or be present in the ash or wastewater effluent. At least 19 different metals have been detected in the emissions from hazardous waste incinerators or in commercial waste streams. According to the EPA, some hazardous waste incinerators in the U.S. emit heavy metals into the air in quantities sufficient to pose cancer risks as high as five per 1,000 and to exceed ambient concentrations associated with systematic toxic effects for hypothetical "most exposed individuals" living near facilities. EPA has concluded that: "Risks from the burning of metal-bearing hazardous wastes in incinerators can be unacceptable under reasonable worst-case circumstances. Clearly, metals can pose significant health risk". The EA has failed to fully qualify, much less, quantify the amount of metals in the waste stream.	The dispersion of the estimated metals emissions from the CIF were modeled using the EPA-approved Industrial Source Complex - Short Term air dispersions computer code, as specified in the EPA's proposed rules for control of metals, hydrochloric acid, and products of incomplete combustion emissions from hazardous waste incinerators (55 FR 17682). The model established that the maximum expected emission of hazardous metals from the CIF would be below the maximum allowable ambient air concentrations proposed by EPA to be protective of human health and the environment. Please also refer to Section II, F and H.

Comment No.	Comment	Response
L-18-24	The EA also fails to discuss partitioning (air emissions, fly ash, bottom ash, waste water effluent), dispersal patterns and the ultimate uptake, bioaccumulation and impact of heavy metal emissions.	For purposes of design and the analysis of potential environmental impacts, heavy metals contained in CIF waste feeds were conservatively assumed to partition completely to the offgas. Expected pollution control device removal efficiencies were then applied to estimate the heavy metals stack emissions. The trial burn testing of the CIF would include determinations of the actual partitioning, pollution control device removal efficiencies, and stack emission of heavy metals. Maximum allowable feedrates of heavy metals would then be established to insure the maximum allowable stack emission rates could not exceed health-based limits. Please also refer to Responses L-18-05 and L-18-23. In order to develop the processes for solidifying the bottom ash and offgas scrubber liquid byproducts in accordance with RCRA LDR treatment standards, it has also been assumed that all metals also partition completely to each of these byproducts streams. The solidified CIF byproduct must pass RCRA leaching tests and would be disposed of in land disposal units that are designed so that the contained metals would not migrate into the environment and present a human health risk.

Comment No.	Comment	Response
	Radionuclides	
L-18-25	For non-tritium isotopes, the EA provides no data to support the seemingly optimistic decontamination factor (DF) of 3.8E+04.	The current expected decontamination factor (DF) of 1.3E +06 is actually much higher (higher DF results in a lower emission rate) than the DF reported in the EA. The current DF is based on new calculations completed by DOE. The three factors that are used to determine the DF are: • Partition factor of ash Historical incineration data indicates that 75% of the ash will remain in the kiln and only 25% will partition to the offgas. • Scrubbing removal efficiency Actual test data from SRS and manufacturer guarantees indicate the scrubber efficiencies are in excess of 99.0 percent. • High Efficiency Particulate Air (HEPA) filter removal efficiency (FRE) The HEPA filter FRE is 99.97% which is tested and confirmed by performance of a dioctylphalate (DOP) test on the filters.
L-18-26	The DF is inconsistent, by orders of magnitude, with even the assumed DRE of 99.99%. As with heavy metals, every radionuclide present in the waste stream will eventually be dispersed into the environment.	Decontamination factor (DF) refers to particulate removal which is based on the collection removal efficiencies of the incinerator equipment. DRE refers to hazardous organic chemical destruction which occurs in the incineration chambers. All heavy metals and radionuclides would not be dispersed into the environment. The CIF treatment system is designed to contain radionuclides and heavy metals in the HEPA filters and secondary waste streams. Radionuclides and heavy metals that would be emitted would comply with all SCDHEC and EPA regulatory and risk-based requirements, as discussed in Section II, F and H.

Comment No.	Comment	Response
L-18-27	The EA fails to discuss half-lives, dispersal patterns and the ultimate uptake, bioaccumulation and impact of radionuclides.	Section 4.5.2 of the EA discusses estimated radionuclide emissions due to routine operation of the CIF. These emissions were processed through the CAP-88 air dispersion/dose model to determine the exposure to the entire affected population around SRS and the maximally exposed individual. The CAP-88 model is an EPA-approved model that must be utilized to show compliance with the EPA radionuclide National Emission Standard for Hazardous Air Pollutants (NESHAP). The CAP-88 utilizes local meteorological data collected over a five year period in the calculation of the dispersal of emissions. The model also considers the half-lives of the emitted radioisotopes, the dose from daughter radioisotopes, and all major pathways for human uptake and exposure, including direction inhalation and ingestion via water and the food chain, when calculating the human radiation dose. A detailed discussion of the estimated emission, dispersion, and dose due to radionuclide emissions from the CIF may be found in the CIF NESHAP permit application, which has been approved by the EPA. Please refer to Response L-18-05

Comment No.	Comment	Response
	MONITORING While making repeated reference to EPA and state monitoring programs,	
L-18-28	the EA fails to clearly state that these programs will not monitor actual emissions of unburned chemicals, PICs, metals and radionuclides.	EPA and state monitoring programs refer to stack emission monitoring requirements imposed by federal and state environmental regulations. Actual emissions of unburned chemicals (e.g., POCHs) and metals would be periodically measured in accordance with these requirements. Radionuclide stack emissions would be continuously monitored. PIC emissions would not be monitored, but measurement and control of carbon monoxide (CO). EPA has stated in their April 27, 1990, proposed rulemaking (55FR17882) that: "More importantly, however, available data indicate that when CO emissions are low (e.g., under 100 ppmv), PIC emissions are always low (i.e., at levels that pose acceptable health risk)". Also, please refer to Section II, I.
L-18-29	The technology does not exist to provide real-time analysis of actual emissions. Instead, incinerator performance is evaluated by observing variations in certain "surrogate indicators" -- carbon monoxide and total hydrocarbons -- and certain operating parameters (waste feed rate, combustion temperature, etc.). There is, however, no agreement within the scientific community that any of these measures are reliable indicators of incinerator performance. Because actual emissions will not be monitored, the real day-to-day health and environmental impacts of the incinerator will be unknown.	EPA has been regulating and studying hazardous waste incinerators since 1976. EPA has repeatedly stated (see 55 FR 17862) that by monitoring carbon monoxide emissions, and optimizing combustion efficiency, risks from products of incomplete combustion would not be significant. Also, please refer to Section II, F, G, H and I.

Comment No.	Comment	Response
L-18-30	Furthermore, increases in emissions due to combustion upsets, equipment breakdown and malfunction, and human error will go undetected. "Real world" emissions and scenarios must be considered.	Sections 2.1 and 4.5.1 of the EA address these issues. Emission increases can potentially result from operating incidents such as a process upset, equipment malfunction, or operator error. In order to minimize emission increases, various measures would be employed to reduce the probability of occurrence and impact of such incidents. For instance, engineering features such as a waste feed cutoff system would be built into the CIF. This system would automatically and instantaneously shut off waste feeds when the computer control system detects that a process condition, e.g., combustion temperature, deviates beyond the limit(s) proven by testing(the trial burn) and approved by EPA and SCDHEC to provide for efficient combustion and air pollution control. Also, installed spare equipment and backup systems would be used in critical areas of the process (e.g., HEPA filters) to immediately take over the job of malfunctioning equipment and provide for continued efficient operation. Numerous administrative programs would also minimize incidents leading to emission increases. Rigorous inspection and testing of equipment and instrument systems, including daily testing of key parts of the waste feed cutoff system, would minimize the likelihood of an upset or malfunction. Also, comprehensive training of CIF operating personnel, performed and documented in accordance with regulatory requirements, would minimize the chance of operator error. Also, please refer to Section II, H and I.

L-18-31

Fugitive Emission and Accidental Releases

The EA states that there could be a "possible minor impact from accidental releases" and states that fugitive emissions will be controlled by "maintaining all parts of the system under vacuum during operation". According to the EPA Science Advisory Board:

fugitive emissions and accidental releases "..may release as much or more toxic material to the environment than direct emissions from incomplete waste incineration. A potential exists for environmental and human exposures as chemicals are removed from storage containers at the generator site, moved to transportation vehicles, shipped to the incinerator, and moved about within the incineration facility".

A joint EPA/OSHA study released last year found widespread violations of both EPA and OSHA standards. *Among other things the* EPA noted:
". . . a significant number of waste feed cut-offs and emergency by-pass openings. The waste feed cut-off system is intended to stop waste entering the incinerator combustion unit when certain operating conditions are exceeded. Emergency by-passes are intended to prevent ground-level fugitive emissions and possible explosions from excessive pressure in the combustion unit. While both devices are designed for safety purposes, the frequent use of these devices at some facilities may indicate a need to improve operating practices".

Comment No.	Comment	Response
L-18-31 (continued)	The EA has failed to come close to addressing the full range of potential impacts from fugitive emissions and accidental releases. Furthermore, the EA discusses neither the CIF's waste feed cut-off nor emergency by-pass systems!	The EA discusses a full range of potential accidents ranging from minor operational events (e.g., spills and leaks) to major events (e.g., tornado, fire) in Section 4.6. Fugitive emissions would be controlled through design features delineated in the EA. Some examples of these features are the use of double mechanical pump seals with a barrier fluid system (Section 4.5.1) and maintaining the incineration system under vacuum during operation (also Section 4.5.1). These emissions are not expected to have significant offsite impacts, and are tightly controlled through periodic monitoring to protect onsite employees. Section 4.6.1 of the EA discusses the work health and safety requirement. Waste feed cut-off systems would be used in the facility. These systems stop the feeding of wastes into the incinerator during upset conditions, and are described in the RCRA permit application and Section 5.2 of the EA. The EA does not discuss emergency by pass systems because they would not be used on the CIF. Redundant systems would be used to provide a high level of reliability and safety, thereby eliminating the need for such bypasses.

Comment No.	Comment	Response
L-18-32	According to the EA, radiological exposures are to be minimized by operating the incinerator at negative pressure. Just how this is to be accomplished is not specified and the discussion leaves out the fact that, as stated above, potential exposure exists at every stage of the handling process.	Negative pressure in the incinerator causes any air exchange to leak into the incinerator rather than out from it. Thus, any leakage is run through the air pollution control system. Please refer to Response L-18-31.

Comment No.	Comment	Response
L-18-33	HEPA Filtration Systems The discussion of the special enclosures where HEPA filters will be used is incomplete. A report evaluating the then proposed hazardous, mixed and low level radioactive waste incinerator at Rocky Flats raises concerns that: 1) temperature excursions can cause the HEPA filter system to fail, and 2) condensation of water and hydrocarbons can foul the filter system. Some discussion of possible real world scenarios vis-a-vis the HEPA filtration system is required.	All CIF building air enclosure exhaust systems will be connected to a HEPA filter system with redundant capacity. Continuous pressure drop monitors on these filters will detect conditions requiring switching to spare filter banks. Lessons learned form the Rocky Flats Plant (RFP) HEPA filters are: • Prevention of Temperature Excursions - The offgas quench that cools the gases to 180 degrees Fahrenheit is provided with 3 separate sources of water to ensure adequate cooling: (a) normal recirculating water, (b) emergency process water, and (c) emergency fire water. The emergency quench system is designed for high reliability such that loss of quench water is not a reasonably foreseeable event (has a probability of less than 1 in 10,000). Therefore, a temperature excursion that could cause HEPA filter failure is not a reasonably foreseeable event. • Prevention of Condensation - A reheater is located upstream of the HEPA filters to increase the offgas temperature above the dewpoint of the offgas vapors to prevent condensation in the HEPA filter with subsequent pluggage. The filter banks are also insulated to minimize vapor condensation.

Comment No.	Comment	Response
L-18-34	WORKER EXPOSURE The EA states that "routine operations may result in some limited radiological and chemical exposures to workers". This statement speaks to the idealized, best-case scenario portrayed throughout the EA. Violations of OSHA standards discovered in the joint EPA/OSHA study included those pertaining to health and safety training, contingency plans, workplace surveillance and monitoring, potential chemical exposure and general health and safety. The report concluded, in part that: "..EPA and OSHA are concerned with the wide spread deficiencies in the area of worker health and safety training, which could lead to operational and exposure problems".	CIF would be operated by qualified operators who have received extensive training, including hazard communication training and radiation worker training. Also, please refer to Response L-17-05.
L-18-35	AGRICULTURAL IMPACTS The EA states that agriculture accounts for 21% of total land use in the area. Given this, some meaningful discussion of the potential for agricultural impacts would be valuable. A recent literature search conducted by Greenpeace found the following: 1) chemicals emitted from incinerators accumulate in crops and livestock, often in greatly magnified concentrations,	Considerations given to the food chain effects (comment items 1 and 3) can be found in the response provided to comment L-18-05. In response to item 2 of this comment, the EPA is developing procedures and requesting reviews to consider environmental effects (plants and animals) resulting from emissions from all categories of waste combustion facilities, but this information is not now available. Emissions from CIF would be limited and atmospheric dispersion would reduce the concentration of emitted chemicals that could reach crops and livestock. For these reasons, DOE considers any potential for CIF to affect productivity and health of crops and livestock to be speculative.

Comment No.	Comment	Response
L-18-35 (continued)	3) foodstuffs are already the major exposure route of the general population to heavy metals, dioxins, furans and other synthetic chemicals.	
	CUMULATIVE IMPACTS AND GENERAL CHRONIC EXPOSURES	
L-18-36	The EA states that there will be "negligible cumulative impacts" and that "no chronic exposure hazards would exist to onsite or offsite populations,..". This is supported, in part by a supposed "worst-case" benzene spill. First of all, a spill of any kind represents an acute hazard and not a chronic one. The chronic hazards associated with incinerators are primarily via day-to-day operations. As has been pointed out throughout these comments, the potential daily risks associated with the CIF have been seriously downplayed where they haven't been ignored altogether.	Section 4.8 of the EA indicates that the cumulative effects of the CIF would be negligible. This indication is based on expected emissions from routine operations (e.g., Section 4.5.1 of the EA) as well as abnormal events such as the benzene spill mentioned in the comment. Additionally, please refer to Section II, F and H, and Response L-18-07.

Comment No.	Comment	Response
L-18-37	The fact is, little is known about the cumulative effects of chronic exposure to low concentrations of toxic chemicals. Furthermore, • only a fraction of incinerator PICs have been identified, • identification and measurement of metals emissions are incomplete, • few PICs and metals have been fully evaluated for toxicity, • little is known about the synergistic effects of exposure to various combinations of toxic chemicals, and • no comprehensive study of the dispersal, uptake and bioaccumulation of PICs and metals has been done. To discount chronic exposure is, therefore, not scientifically supportable.	Cumulative effects, chronic effects, PICs, metals, dispersion, and bioaccumulation are addressed respectively in Responses L-18-07, L-18-03, L-18-02, L-18-23, L-18-27, and L-18-05; and Sections II, F, G, and H.

Comment No.	Comment	Response
	THE FONSI IS PURE VALUE JUDGMENT	
L-18-38	The EA makes repeated reference to "acceptable risks". These references tend to ignore the very real and significant risks already imposed upon the people in the vicinity of SRS. "Acceptable" implies a voluntary decision, one made after participation in a meaningful process. The DOE would be ill-advised to discuss "acceptable risks" while offering neither honest and complete information to inform decisions nor a meaningful forum for public debate. The picture of incinerator performance, as depicted in the EA, is an Alice in Wonderland fairy tale that lacks credibility. The EA probably underestimates the impacts of the CIF by a factor of at least 1,000, e.g. actual DRE is closer to 99% than it is to 99.99%, most emissions have been ignored, bioaccumulation and persistence are overlooked, the significance of combustion upsets and fugitive emissions are downplayed.	Please refer to Section I, Introduction, and Section II, A and G and response L-18-05.
L-18-39	The EA offers little real data and the report is littered with unsupported value judgments. As one concerned about public health and the environment, I can only hope that an EIS is forthcoming and meaningful public debate is allowed.	Analyses of potential environmental impacts of the CIF are presented in the EA. The results of these analyses are also provided in the EA (e.g. Tables 2-1, 2-2, 4-1, 4-2, and 4-03) and its references. Please refer to Section I and II, A.

L-19

STATEMENT OF THE LEAGUE OF WOMEN VOTERS OF THE AUGUSTA AREA
Jeanette Cummings, President
P.O. Box 3373
Augusta, GA 30914-3373

The Natural Resources Committee of the League of Women Voters Augusta Area (LWVAA) has been looking into the matter of solid waste management. Nuclear and hazardous wastes are included in those materials being studied. The Savannah River Site is among local and nearby facilities included in our efforts.

The purpose of the LWVAA is to promote political responsibility through informed participation of citizens in government and to act on selected issues. The local chapter is an integral part of the League of Women Voters of the United States (LWVUS) and the League of Women Voters of Georgia (LWVGA).

League members choose for study a pertinent issue, raise questions about it, research it and come to consensus on courses of action the group might take regarding it.

Plans for a Consolidated Incineration Facility are of importance to LWVAA. The Natural Resources Committee in its study of waste management has paid attention to data about its development.

Information reviewed included fact sheets disseminated by the Savannah River Site; Environmental Assessment, CIF SRS, by DOE and OERWM; data from the Energy Foundation (Columbia, S.C.); "Comments on the Environmental Assessment" by Greenpeace; and other data. A representative of the committee attended public hearings on CIF. The group looked at LWVUS position statements on environmental matters Some of these are pertinent to the subject.

They are the following:

Under the League's Waste Management position the organization supports policies to reduce the generation and promote the reuse and recycling of solid and hazardous wastes; supports the establishment of processes for effective involvement of state and local governments and citizens in siting proposals for treatment, storage, disposal and transportation of radioactive wastes; supports full environmental review of treatment, storage and disposal facilities for radioactive wastes; supports safe transportation, storage and disposal of radioactive wastes; supports management of civilian and military high- and low-level radioactive wastes to protect public health, and air, water and land resources.

Comment No.	Comment	Response
	Also: Public Participation in policy making is supported. The appropriate level of government should publicize, in an extensive and timely manner and in readily available sources, information about pollution levels, pollution-abatement programs, and resource management, policies and options. Hearings should be held for public comment and citizen participation in decision making.	
L-19-01	The committee discussed the materials and reached consensus that we oppose construction of CIF until further environmental study is undertaken and an Environmental Impact Statement prepared. Our reasoning considered several factors. Prominent in these are the following: 1. Disagreement between scientists about the adequacy and completeness of the Environmental Assessment;	Please refer to Section II, A for discussion of the adequacy and completeness of the EA in satisfying the NEPA process. Regarding disagreement among scientists, the technical basis for the EA has been subject to review via the permitting process and accepted by the regulatory agencies as noted below in L-19-02.

Comment No.	Comment	Response
L-19-02	2. Scientific knowledge at this time seems insufficient accurately to predict pollution emission level of the proposed facility;	The calculations of estimated generation, control, and stack emission of pollutants from the CIF are presented in the RCRA and Clean Air Act permit applications. These calculations have been reviewed and approved by the EPA and SCDHEC. The methods of calculations used in the applications are standard techniques available in the scientific literature. Generally, these techniques were derived and are periodically refined using various combinations of emission and operating data collected from actual fuel and waste combustion facilities, laboratory studies and equipment testing, and combustion theory. Consequently, these techniques are expected to yield a good estimate of expected emissions. Also, please refer to Response L-18-29 and Section II, H.

Comment No.	Comment	Response
L-19-03	3. Health research, recently begun, undoubtedly will add to the data based upon which predictions can be made;	While it is recognized that continued health research may eventually lead to further understanding of health effects from various exposures, the risk-based emission limits imposed on the CIF contain conservative EPA exposure assumptions that account for areas of uncertainty. Also, please refer to Response 18-03 and Section II, F.
L-19-04	4. An EIS will allow for further citizen input.	Please refer to Section I, and II, A.
L-19-05	5. Hazardous and nuclear waste disposal matters will be with us for a long time; enough, perhaps, for scientists to discover ways to recycle or reuse some of the materials now headed for incineration and for due consideration to the many intertwining factors to be looked at further before plans for CIF are finalized.	Waste minimization is discussed in Section 1.2 of the EA. RCRA has mandated the treatment of hazardous and mixed wastes. Land Disposal Restrictions (LDR) impose stringent restrictions on the treatment, storage, and disposal of these wastes. DOE, SCDHEC, and EPA have signed an agreement, the Federal Facilities Compliance Agreement, which commits SRS to construction and operation of several proposed facilities for treatment of hazardous and mixed wastes. There are currently hazardous and mixed waste stored at SRS. In order to bring the site into compliance with federal and state environmental regulations, SRS must treat and dispose of its hazardous and mixed wastes. Incineration will render these wastes less hazardous to public health and the environment while reducing the volume of wastes requiring permitted disposal.

Comment No.	Comment	Response
L-20	STATEMENT OF THE LEAGUE OF WOMEN VOTERS OF NORTHERN BEAUFORT COUNTY (LWVNBC) Dr. Zoe G. Tsagos On the proposed establishment of a Consolidated Incineration Facility (CIF) at the Savannah River site (SRS) Aiken, SC The problem of waste treatment and removal at SRS has long been of great concern to individuals as well as to a number of organizations including the LWVNBC. I am glad that a definite proposal is now being made by the Department of Energy (DOE) by one means of treatment, incineration, for low level radioactive, mixed, and hazardous wastes and for storage of the much lower volume of ash or other residue remaining. This is to be stored onsite until such time as a permanent federal burial facility can be established. After having carefully considered the proposals and analyses in the DOE Environmental Assessment (EA), I wish to make the following observations.	
L-20-01	1. On the matter of alternative proposals for waste management, I have come to the conclusion that CIF seems to be overall the most effective method for the designated waste treatment. According to the EA, in the long run it will be the least costly, with the exception, of course, of taking no action.	Comments noted.

Comment No.	Comment	Response
L-20-02	2. On the matter of the siting of the CIF and its environmental impact, I have questions as to whether we are not being presented with too sanguine a conclusion on the CIF environmental impact. This is an area in which the federal as well as the state environmental legislation must be stringently applied, such laws as the National Environmental Policy Act (NEPA), the Resource Conservation and Recovery Act (RCRA), the legally established Environmental Protection Agency (EPA), and for the state the South Carolina Department of Health and Environmental Control (SCDHEC) and many other applicable laws and agencies.	Comments noted.
L-20-03	3. On the matter as to whose wastes will be processed at the CIF several people in Beaufort have talked to me about this. They fear that the CIF may be used not only to process the onsite designated waste at SRS but also wastes brought to SRS from elsewhere. However, in the time schedule laid out for waste processing by the use of CIF, and given the many waste sites at SRS and the yearly generation of one million tons of mixed and hazardous wastes (EA p. 1-1) it seems to me that in the 30 year period during which the CIF is supposed to be in operation that it could not handle any more wastes than are, and some will continue to be generated, onsite at SRS. Mine is a lay persons reasoning; the question should be researched by people in the applicable sciences. Bringing in outside waste to the SRS for processing and storage is a very serious matter and I, and I know many others, would be opposed to it.	Comments noted. As a corrective note, the EA cite (page 1-1) indicates one million pounds, not tons, per year. Also please refer to Section II, c.

Sections in the EA which commits the DOE to a time schedule for CIF

1. P. 4-1, sec. 4.2 The projection for the construction of the CIF is that building will begin in 1992 and will be completed in 1994. It will start to operate in 1995.

2. P. 4-13, sec. 7.3 under Decontamination and Decommissioning. It is projected that the CIF would continue to operate until the year 2025 in order to treat all the designated waste at SRS. Then the CIF will be decontaminated and decommissioned.

The question as to whether an Environmental Impact Statement (EIS) is required for the CIF is handled on p. 5-1, sec 5.1. Here it is stated that the EA has been prepared according to NEPA regulations and that "NEPA requires the assessment of environmental consequences of all major Federal actions that may affect the quality of the human environment. This EA has been written to determine whether the environmental effects of constructing the operating the CIF would be significant."

If it is determined by NEPA standards that the use of the CIF in waste treatment will bring about serious environmental consequences, then an EIS would be prepared. If it is determined that no significant environmental consequences would occur, then the DOE will issue a Finding of No Significant Impact (FONSI) and assure that no EIS is necessary.

Comment No.	Comment	Response
L-20-04	In view of the material in the EA that I have brought forward in this presentation, I believe, that all of the things being equal, the EA will be sufficient for the DOE to proceed in the construction of the CIF under the guidance of Federal and State environmental laws. We, who have become concerned, will continue our interest in what is occurring at the SRS. We will monitor the building of the CIF and its waste processing. We may even become acerbic at times. It is heartening to know that something will be done about wastes at the SRS. It may be also that by the time of the CIF startup, the problems facing the Defense Waste Processing Facility (DWPF) will have been resolved and that the high level nuclear wastes will at last be glassified completing the waste management program that we have all wanted at the SRS for such a long time.	*Comment noted.*

Comment No.	Comment	Response
L-21	STATEMENT OF THE LEAGUE OF WOMEN VOTERS OF SOUTH CAROLINA Mary T. Kelly, PHD 1314 Lincoln Street, Suite 212 Columbia, SC 29201	
L-21-01	This is a request that an Environmental Impact Statement be prepared for the proposed Consolidated Incinerator Facility. We consider that this major hazardous waste incinerator which in time could receive waste from throughout the DOE system needs extremely careful scrutiny because of its potential impact on public health and the environment.	Please refer to Section II, A.
L-21-02	We also request that the comment period on the EA be extended for at least an additional month. Summer schedules make it difficult for many of us to either participate in the informational meetings or to comment within the current time frame of thirty days. Additional time would facilitate communication with our interested members. I would appreciate a copy of the EA and any other pertinent documents. Thank you for your consideration of these requests.	The review period was extended an additional month. Please also refer to Section I, Introduction.

Comment No.	Comment	Response
L-22	STATEMENT OF THE LEAGUE OF WOMEN VOTERS OF SOUTH CAROLINA Mary T. Kelly, PHD 1314 Lincoln Street, Suite 212 Columbia, SC 29201 The League of Women Voters appreciates the extension of the comment period on the Consolidated Incineration Facility proposed for the Savannah River Site and for the opportunity to submit these comments. We strongly disagree with the conclusion that the building of this facility "does not constitute a major Federal action that would significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act of 1969" and with the further conclusion that it is appropriate for DOE to issue a finding of no significant impact (FONSI) at this time.	
L-22-01	We request that an EIS be prepared based on the most currently accurate information including revised estimates for waste production based on the new realities of a	Please refer to Section II, A.
L-22-02	greatly downsized nuclear weapons program brought about by changes in the world situation. Technology changes which are rapidly occurring in response to demands for	Please refer to Section II, B.
L-22-03	reduction in the production of hazardous waste and toxic emissions also need to be taken into	Please refer to Section II, D

Comment No.	Comment	Response
L-22-04	account. One such change cited by Energy Research Foundation in their comments to you, based on a General Accounting Office report, could obviate the need for incineration of benzene through eliminating the use of large quantities of this carcinogenic chemical in the DWPF process. This change in procedure would be in keeping with changes taking place throughout industry to eliminate or minimize waste production and to drastically curtail the production of VOC's.	DOE has not proposed to replace the process that generates benzene with an ion exchange process. Benzene wastes will be generated in the DWPF process and will require treatment as a mixed waste. The BDAT for this waste is incineration and the CIF would provide this capability.
L-22-05	One question whether the fact that EPA considers incineration to be the Best Available Technology for the disposal of many wastes means that it is the best and safest way to dispose of waste or whether it is a pragmatic choice of the cheapest practical way to get rid of the largest amount of hazardous waste in the shortest possible time. We are sure you understand that South Carolinians are not	Please refer to Section II, E.
L-22-06	inexperienced on the subject of incineration. As a state with two major commercial hazardous waste incinerators we are leery of adding this federal facility. We know that incinerators do not operate perfectly 100% of the time. We are convinced that the results are not in about their health effects.	Please refer to Section II, F.
L-22-07	We question basing everything on one test burn limited to a small group of chemicals, a test which provides a one time profile of emissions. We think that we should be provided much more information about possible emissions, their health effects, and greater detail about measures that will be taken to minimize such emissions.	Please refer to Sections II, F, G, and H.

Comment No.	Comment	Response
L-22-08	Will you have continuous monitoring and if so for what emissions; which ones will not be monitored? Such details would come out in an EIS. Last but not least, we are leery of what longer term use will be made of the CIF.	Please refer to Section II, I.
L-22-09	What about transportation problems in bringing in waste from out of state facilities? What will be the nature of these wastes? The questions are many and should be explored in an EIS with ample opportunity for the public to consider the information and to participate in the decision making process. We are well aware of the backlog of waste at SRS and at other federal facilities in need of treatment and disposal. It needs to be dealt with. But we also want well considered least cost decisions with minimal impact on the citizens of South Carolina arrived at through an open process with all the facts on the table. Thank you for your consideration of these comments.	Please refer to Section II, C.

Comment No.	Comment	Response
L-23	JOINT STATEMENT OF THE NATURAL RESOURCES DEFENSE COUNCIL AND THE ENERGY RESEARCH FOUNDATION James D. Werner Natural Resources Defense Council 1350 New York Avenue, NW, #300 Washington, DC 20005 Brian Costner Energy Research Foundation 537 Harden Street Columbia, SC 29205 A. SUMMARY	
L-23-01	We have reviewed the proposed Finding of No Significant Impact (FONSI) and Environmental Assessment (EA) for the Consolidated Incineration Facility (CIF), as well as related documents. Based on this review, we conclude that construction and operation of the proposed CIF constitutes a "major federal action significantly affecting the quality of the human environment" as defined by the National Environmental Policy Act of 1969 (NEPA). Further, we conclude that the EA is inadequate as a basis for the proposed FONSI. Prior to a decision to construct the CIF, the Department of Energy (DOE) should prepare and circulate for public comment an Environmental Impact Statement (EIS) for the following reasons:	Please refer to Section II, A.

Comment No.	Comment	Response
L-23-02	• Operation of the CIF could significantly affect public health and the environment, and generate controversy;	Please refer to Section II, F and the Response to L-23-11.
L-23-03	• DOE's own NEPA regulations normally require an EIS for an incinerator, unless "extraordinary circumstances" exist. The EA documents no "extraordinary circumstances"; and	Please refer to Section II, A.
L-23-04	• The CIF is similar in scope to another incinerator built in Oak Ridge for which an EIS was prepared. Moreover, the EA is inadequate as a basis for the proposed FONSI for the following reasons:	Please refer to Section II, A.
L-23-05	• The EA takes a piecemeal approach - constituting illegal segmentation - because it fails to consider the potential for incineration of waste generated off-site from the SRS and is not integrated into DOE's national waste management plans;	Please refer to Section II, B and C and also the Response to L-23-21.
L-23-06	• The EA is based on outdated technical information. In particular the EA ignores SRS mission changes that will have a significant affect on the projected CIF waste feed; and	Please refer to Section II, B and C.
L-23-07	• The EA fails to adequately evaluate several reasonable alternative.	Please refer to Section II, E.

Comment No.	Comment	Response
L-23-08	Finally, we are concerned that DOE has prejudged the NEPA decision and has made financial obligations toward the construction of the proposed CIF before completing the NEPA process. Specifically, 80 percent of the equipment for the CIF has already been ordered, and some equipment has been delivered, suggesting that DOE has already decided to build and operate the proposed CIF. For the reasons summarized above, adoption of the proposed FONSI would be contrary to law. NRDC and ERF urge DOE to proceed immediately to prepare, circulate for comment and consider in its decision making a legally sufficient EIS. Compliance with NEPA, however, is not our only goal. Neither are we irrevocably opposed to incineration of waste. Rather, we seek to improve DOE's decision making process and to improve the final decision to ensure that waste management facilities are as safe and cost-effective as possible.	Between 80 and 90 percent of the incinerator engineered equipment has been purchased at a cost of approximately $10.9 million out of a total project cost in excess of $100 million. The early procurement of this equipment was initiated to enhance DOE's ability to expedite planned construction and does not, of itself, commit DOE to the construction of the CIF. The equipment could be used at another DOE site, or even be sold. For these reasons, the procurement does not prejudge the NEPA process.
L-23-09	At a minimum, DOE should publish a revised and updated EA to provide sufficient information to determine the need for and environmental impacts of the CIF and the need for an EIS. If DOE re-proposes a FONSI based on this new review then it must explain the "extraordinary circumstances" that qualify the CIF for an exemption from DOE's normal NEPA requirements.	Please refer to Section II, A.

B. THE NATIONAL ENVIRONMENTAL POLICY ACT AND IMPLEMENTING RULES MANDATE THE PREPARATION OF A LEGALLY SUFFICIENT EIS

NEPA governs DOE's activities, and mandates that the agency prepare, circulate for comment and consider in its decision-making a legally adequate EIS in connection with the proposed construction and operation of the Consolidated Incineration Facility. Specifically, NEPA provides that DOE must prepare an EIS whenever it embarks on "major Federal actions significantly affecting the quality of the human environment."

1. NEPA Regulations Require DOE to Prepare an EIS

L-23-10

In implementing this congressional mandate, the President's Council on Environmental Quality (CEQ) has promulgated regulations that explain the requirements for a legally adequate EA, and the circumstances in which an EIS must be prepared. These regulations have been adopted by DOE. Specifically, the CEQ explains that an EA:

(a) [Is] a concise public document for which a Federal agency is responsible that serves to: (1) Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or FONSI.

(2) Aid an agency's compliance with NEPA when no environmental impact statement is necessary.

Please refer to Section II, A.

(3) Facilitate preparation of an EIS when one is necessary.

b) Shall include brief discussions of the need for the proposal, of alternatives as required by NEPA, section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

Comment No.	Comment	Response
L-23-11	The CEQ regulations emphasize that a "major federal action" includes "new and continuing activities" and the "approval of specific projects..". Moreover, the regulations also classify as "significant" projects that are controversial, that affect public health, safety and the natural environment, and that pose unknown or unique risks on the human environment. The CEQ also emphasizes that "significance cannot be avoided by terming an action temporary or by breaking it down into small component parts".	"Significance", as used in the NEPA context, refers in part to the severity of a proposal's impact, and includes the "degree to which the effects on the quality of the human environment are likely to be highly controversial." 40 CFR 1508.27 (b) (4). EPA has designated incineration as the RCRA specified treatment for many of SRS's waste streams, as well as the BDAT for many others. Cognizant regulators have issued permits to DOE that set operating conditions designed to protect public health during the CIF's construction and operation. DOE believes that the state and federal authorities would not have issued the requisite permits to DOE if a substantial controversy existed about the effects of incineration. DOE has weighed the relative merits of the information generally available in the scientific community about the effects of incineration, and has relied on the reasonable opinions of its own qualified experts in siting and designing the CIF. While there may exist some conflicting views on the effects of incineration, DOE has relied on views generally accepted by the scientific and regulatory communities regarding the effects of incineration. DOE believes that the effects of incineration as applied in the context of the CIF are not highly controversial, and, in fact, would be insignificant. DOE is evaluating, as part of the EM PEIS, alternative waste management configurations by waste category. The PEIS evaluation of these alternative waste management configurations is intended to provide input to decisions on whether to and where to locate selected DOE waste management facilities. Incineration is one of a number of available technologies that will be evaluated in the PEIS as a waste management alternative for certain types of waste. DOE, however, has made no decision, as asserted by the commenter, for "widespread use of incineration to 'treat' radioactive waste." Moreover, the sizing of the CIF is justified using only known and expected SRS waste

streams, and the CIF is independently justified as a method of waste management at the SRS, regardless of what decision is made regarding use of incineration on a DOE complex-wide basis. Accordingly, DOE has complied with NEPA's requirements regarding the consideration of the impacts of incineration in the context of the CIF.

Although the FONSI fails to analyze these points, the major question is not whether the CIF is a "major federal action", but whether it may have a "significant impact on the human environment". We believe that construction of the CIF could have "significant" impacts for two reasons.

First, the CIF may have "significant" impacts on public health, safety and the natural environment, and may pose unknown or unique risks on the human environment. We are particularly concerned about the potentially significant impacts of the CIF in light of DOE's plans for widespread use of incineration to "treat" radioactive waste. DOE hopes to reduce the volume of contaminated materials by burning them in a large number of existing and proposed incinerators.

Comment No.	Comment	Response
L-23-12	Incineration of mixed waste may control the radioactive portion of the waste, or the hazardous constituents, but controlling both could be difficult. For example, incineration of radioactivity-contaminated clothing, rags and industrial wipers must be performed at low or intermediate temperatures (less than 2,000 degrees F) to avoid vaporization of the radionuclides, which would render them essentially invisible to HEPA filters. However, incineration at temperatures low enough to avoid vaporization of radionuclides is inadequate to destroy hazardous chemicals such as refractory halogenated organics (e.g., trichloroethylene). In fact, at such low temperatures, incineration could result in the generation of products of incomplete combustion (e.g., dioxin), which are more dangerous than the original contaminant. Moreover, incinerating mixed wastes could disperse hazardous constituents to the environment more rapidly and in a more dangerous form (e.g., respirable) than might otherwise be the case.	The CIF would utilize equipment and operating practices that would effective control both the hazardous and radioactive components of mixed waste. Combustion temperatures would be maintained within limits demonstrated during the trial burn to produce efficient destruction of organic waste components. The resulting combustion gases would be quickly cooled in the quench vessel (please see Figure 2-3 of the EA) to minimize the formation of products of incomplete combustion. Non-combustible metals and radionuclides that would be vaporized due to exposure to the high combustion temperatures would be recondensed by the quench into a particulate form. These particulates along with other ash particulate would be removed from the stack gas by the free-jet scrubber and the HEPA filters, which would be specifically designed for this purpose.
L-23-13	Because of the unique technical challenge posed by incineration of mixed waste, DOE should describe, in sufficient technical detail to permit peer review in an EIS process, the control technologies intended for the CIF.	The CIF is described in technical detail in the RCRA Part B and NESHAP Permits to allow technical reviews to be performed by cognizant regulators and the public. Also please see Section I.

Comment No.	Comment	Response
L-23-14	Instead of a forthright analysis of potential public health impacts of the CIF and alternative technologies, the EA simply states that the CIF would reduce risk because it "would eliminate a potential source of ground water contamination at SRS by incinerating this waste prior to its land disposal at SRS." This simplistic assertion ignores the relative health impacts resulting from different routes of exposure. Although the total volume of air emissions may be smaller from incineration than the volume of groundwater contamination from land disposal, the health impacts from the air emissions may nonetheless be more significant because of the inherently greater physiological vulnerability of humans from inhalation compared to oral ingestion. The lack of technically adequate data and analysis in the EA violates the NEPA requirement that "agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in EISs".	The RCRA Land Disposal Restriction (LDR) regulations were established to protect groundwater resources while allowing the land disposal of hazardous and mixed wastes. The CIF would, as required by the LDR regulations, process certain SRS hazardous and mixed wastes into a form which have been determined by EPA to be a safe land disposal method and protective of groundwater. A summary of SRS's approach for assessing potential public health risks from operation of CIF is provided in Section II, F. Section II, E provides a summary of alternative technologies that were considered. SRS used EPA's proposed rules for hazardous waste incinerators (FR17862, Vol. 55) to establish incinerator limits. These risk-based limits include provisions for different routes of exposure, including inhalation, oral, and dermal exposures. EPA's risk assessment process does incorporate the greater physiological vulnerability from inhalation versus oral ingestion. For example, noncarcinogenic reference doses and carcinogenic slope factors are developed using both oral and inhalation studies, when available. Route-to-route extrapolations incorporate appropriate conversion factors when developing inhalation toxicity values from oral studies. Additional information on the EPA conservative assumptions included in EPA's risk-based approach are described in Response L-18-03.

Comment No.	Comment	Response
L-23-15	A second basis for establishing that the CIF may have "significant" impacts is that it is controversial. Incinerators are traditionally very controversial proposals and have typically engendered massive public opposition, and the controversy shows no signs of abating. Few incinerators have been sited because of this widespread opposition, based on concerns about the potential health impact of incinerating hazardous waste. Most recently, in December 1991 and in the Summer of 1992, a group of citizens staged demonstrations and undertook civil disobedience, including a takeover of the Ohio EPA offices and a hunger strike at the headquarters of the U.S. Environmental Protection Agency in Washington, DC, because of concerns about a hazardous waste incinerator in East Liverpool, Ohio. Also, the ocean incinerator program was canceled in the 1980s largely as a result of overwhelming public opposition. It is unlikely that a mixed hazardous and radioactive waste incinerator will be less controversial. Although the CIF has clearly not generated as much public concern as these other facilities, DOE may be courting controversy if it fails to address the need for enhanced public participation and more thorough technical analysis afforded by an EIS process. Neither NRDC nor ERF are opposed to incineration, per se. But we are concerned that DOE's waste management plans will not succeed in providing safe treatment and disposal facilities if it fails to provide adequate technical review and meaningful public participation through the EIS process.	Regarding the comment on "significant" impacts, please see Response L-23-11. Regarding the comment on public participation, please see Section I.

Comment No.	Comment	Response
	2. DOE's Own NEPA Guidelines Clearly Require the Preparation of an EIS. DOE has promulgated its own guidelines for implementing NEPA, which apply to any actions by "organizational elements of DOE...affecting the quality of the environment of the United States". These guidelines provide lists of proposed activities that (1) normally require an EIS, (2) normally require an EA but not an EIS, and (3) normally require neither an EA nor an EIS. According to these	
L-23-16	guidelines "Siting/construction/operation of incinerators other than research and development, and other than nonhazardous solid waste" is among the "Classes of Actions that Normally Require EISs". Further, DOE's rules indicate that, If a DOE proposal is encompassed within a class of actions listed in the appendices to this Subpart D, DOE shall proceed with the level of NEPA review indicated for that class of actions, unless there are extraordinary circumstances related to the specific proposal that may affect the significance of the environmental effects of the proposal	Please refer to Section II, A.
L-23-17	DOE has failed to identify in the EA any "extraordinary circumstances" related to Consolidated Incinerator Facility siting, construction and operation, and none are apparent. Therefore, compliance with DOE's own guidelines requires preparation of an EIS.	Please refer to Section II, A.
L-23-18	3. DOE Previously Prepared an EIS for a Similar Incinerator in Tennessee	Please refer to Section II, A.

Comment No.	Comment	Response
	Currently, DOE has only one mixed waste incinerator in operation (Oak Ridge K-1435 TSCA incinerator at DOE's K-25 site in Tennessee), and DOE prepared an EIS for this facility. The CIF is the only incinerator now planned for construction by DOE that is of comparable size (2/3's capacity) to the Oak Ridge incinerator. The other planned incinerators would provide only 6 - 28 percent of the capacity planned for the CIF.	
L-23-19	There appear to be no reasons why a large mixed waste incinerator in Tennessee constitutes a "major federal action significantly affecting the quality of the human environment" warranting an EIS, but a similar incinerator in South Carolina does not.	Please see Section II, A.
	C. DOE's NEPA PROCESS HAS BEEN SUBVERTED BY PURCHASING EQUIPMENT BEFORE COMPLETING ITS ENVIRONMENTAL REVIEW.	
	Shortly after taking office, Energy Secretary Watkins stated that the Department would implement "the letter and spirit of NEPA". In the case of the CIF decision, DOE has done neither. While publicly claiming to be "Meeting Environmental Obligations",	

Comment No.	Comment	Response
L-23-20	DOE has quietly been buying and storing capital equipment for the incinerator - 80 percent of the CIF equipment and materials have already been ordered, according to a DOE official. In addition, according to a Bechtel Savannah River Corporation Interoffice Memorandum DOE purchased and received significant amounts of CIF equipment prior to the signing of the Finding of No Significant Impact on June 24, 1992. Far from considering alternatives, DOE appears to have already made its decision, and is merely going through the motions of a NEPA process. Unfortunately, this obligation of public funds for CIF equipment purchases before completing the environmental review has not been readily visible to the public or Congress. DOE's Budget Requests submitted to Congress for FY 1991, 1992, and 1993 have failed to reveal any "construction" purchases for the CIF. The CIF has not been identified as a "construction" project for which a Construction Project Data Sheet is compiled. The only information on the CIF in the Budget Request is a brief mention as part of the description of the treatment activities under the Waste Management program of the office of Environmental Restoration and Waste Management. In each of the three budget years (FY 1991, 1992, and 1993), the budget request indicates that funding is to be used for "providing technical support, selection of test equipment...manpower for permitting.... No indication is given that funds have been used for the purchase of equipment for CIF construction.	Please refer to Response L-23-08. Please note that the FONSI was not signed on July 1, 1992. Rather, a proposed FONSI was issued on July 1, 1992, for public comment. In regards to the budgetary comment, the CIF has been included in the Construction Project Data Sheet for Line Item 83-D-148. Budget requests for FY 1991, 1992, and 1993 have included CIF in this line item.

Comment No.	Comment	Response
	The CEQ's regulations for implementing NEPA impose the following limitations on an agency's decisions during the NEPA process:	
L-23-21	While work on a required program environmental impact statement is in progress and the action is not covered by an existing program statement, agencies shall not undertake in the interim any major Federal action covered by the program which may significantly affect the quality of the human environment unless such action: (1)Is justified independently of the program; (2)Is in itself accompanied by an adequate environmental impact statement; and (3)Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.	CEQ's regulation concerning permissible interim actions, 40 CFR 1506.1 (c), applies by its terms only to major federal actions which may significantly affect the quality of the human environment. The analysis contained in this EA demonstrates that the proposed CIF does not constitute such an action. However, even if the considerations embodied in CEQ's regulations were applied in this case, the proposed CIF would be permissible under NEPA. First, the proposed CIF is independently justified because it is needed for the treatment of waste generated at the SRS. This need is based upon both the improvement in conditions that would occur by virtue of the reduction in volume and toxicity of waste and its stabilization as a result of the CIF process, and also the regulatory impetus to treat existing and projected waste streams. Further, the sizing of the CIF is justified using only known and expected SRS waste streams. Second, this EA provides an appropriate level of environmental review under NEPA for the proposed action. Accordingly, an EIS is not required. Third, it is not clear that there would be excess capacity at the CIF to accomodate offsite wastes, even if the CIF's RCRA permit were modified to accomodate such wastes. Thus, DOE does not believe that the proposed CIF would prejudice programmatic waste management decisions concerning whether to and where to locate selected DOE waste management facilities, as considered in the EM PEIS that is currently under preparation.

Comment No.	Comment	Response
	The DOE has failed to satisfy these three requirements. No EIS for the CIF has been prepared.	
L-23-22	Also, siting, construction and operation of the CIF could significantly prejudice the configuration of DOE's waste management facilities - it would constitute more than 25 percent of the Department's existing and planned mixed waste incineration capacity. In its proposed FONSI, DOE indicates that it "will consider comments received in making a final determination on whether to issue a FONSI or to prepare an EIS for the proposed CIF". In light of these revelations of the significant commitments of resources already made by DOE, this pledge to "consider comments" does not seem valid.	Please refer to Section II, B and C and also to the Response to L-23-21.
L-23-23	The decision to build and operate the CIF without an EIS appears to be preordained. D. DOE's ENVIRONMENTAL ASSESSMENT FAILS TO SUPPORT A FINDING OF NO SIGNIFICANT IMPACT	Please refer to Section II, A.
L-23-24	The EA, standing alone, is legally insufficient insofar as it fails to "provide sufficient evidence and analysis for determining whether to prepare an EIS or FONSI" and fails to analyze adequately "the environmental impacts of the proposed action" as required by law.	Please refer to Section II, A.

Comment No.	Comment	Response
	According to the CEQ's NEPA regulations, the purpose of an environmental assessment is to help determine "whether to prepare an environmental impact statement or a finding of no significant impact". Even if we assume that a prima facie case for the preparation of an EIS does not exist, the EA prepared by DOE *nonetheless* fails to provide a sufficient basis for a "Finding of No Significant Impact" (FONSI).	
L-23-25	1. The EA's Determination of Non-significance is Based, in Part, on Illegal Segmentation. An EIS is required by NEPA for any major federal action "significantly affecting the quality of the human environment". In making a Finding of No Significant Impact (FONSI), DOE has improperly avoided the full significance of the proposed action, "by breaking it down into small component parts".	Please refer to Section II, B and C.
L-23-26	A number of related issues should have been included in the analysis - most fundamental is the almost certainty that if the CIF is built, it will receive off-site wastes. As a result, DOE has ignored potential environmental impacts from transportation of off-site wastes and the impacts of burning these wastes in the CIF. a. Incineration of Off-Site Waste at the CIF is More Likely Than Not if the CIF is Built. DOE has failed to acknowledge in its EA and FONSI the potential for burning offsite waste in the CIF.	Please refer to Section II, B and C.

Comment No.	Comment	Response
	Instead, the EA indicates that "the CIF would incinerate SRS hazardous, mixed, and low-level radioactive waste". A more widely distributed SRS public relations brochure indicates that "the CIF has been designed and permitted to treat only SRS-generated waste". Further, DOE's application to the South Carolina Department of Health and Environmental Control for a RCRA Part B permit states that only wastes generated at the SRS will be stored and incinerated at the CIF Despite these repeated assurances, other DOE practices and documents indicate that it is more likely than not that off-site wastes will be incinerated at the CIF if it is constructed. We are concerned that DOE may acknowledge its intention to burn off-site waste at the CIF only after the facility is constructed. Our concern is not based merely on speculation but on three pieces of evidence.	
L-23-27	First, DOE historically ships low-level radioactive waste (LLW) from the Pinellas site in Florida to SRS for burial. It would be inconsistent for LLW from Pinellas to be buried directly at SRS while waste generated at SRS is incinerated and grouted prior to burial. DOE's EA and FONSI have failed to mention this ongoing practice and explain how the inconsistency would be reconciled.	SRS has received low level radioactive waste from Pinellas site in Florida for disposal. If low level radioactive waste is shipped to SRS for disposal in the future, it would continue to be disposed of by burial and would not be incinerated in the CIF. The CIF is not permitted to incinerate offsite wastes under the RCRA Part B permit. Also please refer to Section II, B.

Comment No.	Comment	Response
L-23-28	Second, DOE's draft Implementation Plan for the EM-PEIS describes the current program and possible alternatives for the management of DOE's LLW and Low-Level Mixed Waste (LLMW). In both cases, continuation of the current program entails shipping waste from relatively small DOE facilities to six DOE sites -- one of which is SRS -- for treatment and/or disposal.	The draft Implementation Plan for the EM PEIS does allow for consideration of shipment of low level waste and low level mixed waste to SRS. However, these offsite wastes could not be incinerated in the CIF as delineated by the current RCRA Part B Permit. Please refer to Section II, C and Response L-23-27.
L-23-29	Moreover, the only alternatives under consideration entail consolidating LLW and LLMW treatment and disposal operations at fewer than six sites -- possibly at as few as two sites. DOE is obliged to incorporate this new information into the NEPA analysis for the proposed CIF. At a minimum, the CIF EA should have referenced the EM-PEIS process, projected potential impacts from adoption of the alternatives, and explained how DOE intends to update its NEPA analysis when the EM-PEIS is complete.	Please refer to Section II, B.

Comment No.	Comment	Response
L-23-30	Third, DOE has indicated to EPA in a recent RCRA deadline extension application that the CIF is the second largest of seven existing and planned incinerators on which it would rely for mixed waste treatment. Of these incinerators only the Oak Ridge "TSCA" (K-1435) incinerator is operating. The CIF would have the largest total capacity (948 cubic meters) of the planned facilities listed. Of the remaining five incinerators, most are in serious jeopardy of not being built or operated because of lingering or growing environmental concerns. Hence, if constructed, the CIF would likely play a very large role in DOE's national incineration plans. The department should, at a minimum, acknowledge this possibility in the EA.	Please Refer to Section II, B.
L-23-31	b. Incineration of Off-Site Waste in the CIF Raises Significant Environmental Issues Ignored by the EA. If, as we predict, DOE will eventually incinerate offsite LLW and LLMW at the CIF, it is built, the potential resulting environmental impacts should be considered comprehensively, as part of a larger environmental analysis, rather than in the current piecemeal fashion. We are not irrevocably opposed to treatment of offsite waste at SRS. But, the impacts of and alternatives to shipment of wastes from off-site must be analyzed thoroughly prior to any decision to ship wastes to SRS for treatment or disposal. Although under RCRA DOE could apply for a "permit modification" to accommodate off-site wastes, under NEPA such action could amount to illegal segmentation.	Please refer to Section II, B and C.

Comment No.	Comment	Response
	DOE is obligated, at a minimum, to (1) evaluate the likelihood of such offsite shipments, based on available information; (2) analyze the potential cumulative environmental and safety impacts from transportation of such wastes; (3) analyze the cumulative potential environmental and safety impacts of treating the particular types and volumes of offsite and onsite wastes to be incinerated; and (4) analyze alternatives to incineration of offsite wastes at SRS.	
L-23-32	c. The FONSI Depends on an Inadequate Tiered Analysis of the Treatment and Disposal of CIF Byproducts. An integral part of CIF operation is the treatment and disposal of the ash and other byproducts of the incineration process. The proposed FONSI describes the CIF as "part of a combination strategy for the treatment, storage and disposal of SRS waste" which was described in a previous EIS. According to the EA,	Please refer to Section II, D.

Comment No.	Comment	Response
	"The potential environmental effects of SRS waste disposal, including disposal of the treated ash and scrubber blowdown products resulting from the operation of the CIF, are evaluated in the "Final (EIS), Waste Management Activities for Groundwater Protection", (1987). That EIS stated that no significant impacts were expected from the operation of the new waste management facilities, including the CIF and related support facilities." Hence, the EA is "tiered", in NEPA terms, on the analysis of impacts and alternatives presented in this 1987 EIS.	
L-23-33	The 1987 EIS, however, provides an inadequate analysis of the potential environmental impacts and the alternatives to the treatment of the byproducts from the CIF. First, contrary to the statement in the EA, the 1987 EIS does not mention the CIF, much less include a determination "that no significant impacts were expected from the operation of the...CIF and related support facilities".	The Waste Management Activities for Groundwater Protection, Savannah River Plant, Aiken, SC (DOE/EIS-0120, December 1987), analyzes the impacts and alternatives to the disposal of waste byproducts of the CIF. Technologies for treating and disposal of hazardous, low-level radioactive and mixed wastes and benzene are discussed in Appendixes D, E, and G of the Waste Management Practices for Groundwater Protection EIS. The CIF is introduced in the EIS as part of SRS facilities that may contribute to cumulative impacts.

Comment No.	Comment	Response
L-23-34	Second, to the extent that the EIS considers the disposal of waste similar to treated byproducts from the CIF, it provides virtually no consideration of the treatment operations such as solidification of ash or quench solutions. Potential impacts that warrant consideration are the effectiveness of the proposed treatment, the integrity of the liquid and ash storage facilities, the integrity of the disposal facility planned for the treated waste, and on-site transfer and transportation of wastes.	Detailed information on the treatment and disposal of CIF scrubber liquids, sludges, and ash was not available at the time of preparation of the Waste Management Activities for Groundwater Protection, Savannah River Plant, Aiken, SC (DOE/EIS-0120, December 1987) However, it was noted (pages 2-40 and 4-123) that residues from any incinerators would be solidified and disposed of in the M-Area Waste Disposal Facility. Appendix E.1.14 (page E-4) describes cement flyash matrix (CFM) vault disposal of pretreated incinerator ash, and Table E-2 (page E-15) identifies treated (by incineration) and untreated mixed waste volumes, including DWPF benzene. Impacts of mixed waste disposal were evaluated for CFM vaults as "least protective" of the alternative technologies (Appendix G.2.1 - page G-6); predictions indicated no exceedance for such wastes in vaults except for uranium after 10,000 years (Appendix G.2.2.2, Tables G-3 and G-4).
L-23-35	Third, one of the fundamental assumptions of the CIF EA and the 1987 EIS may no longer be valid as a result of a recent court ruling invalidating EPA's "mixture" and "derived from" rules and proposed rules that would drastically change the hazardous waste identification regulations. These original regulations are referenced in the EA as the basis for asserting that strict environmental protections and independent oversight would occur "because a portion of the ash would result from the treatment of listed hazardous wastes, and/or wastes containing varying levels of non-incinerable RCRA hazardous constituents (e.g., mercury, lead)".	Although the "mixture" and "derived from" rules have been vacated, the hazardous waste identification rules (40CFR261) that are used to determine if a waste is hazardous, based on the concentration of hazardous constituents, are still in effect. The CIF ash and scrubber blowdown are expected to contain levels of certain hazardous constituents (e.g. heavy metals) that will render these waste streams characteristically hazardous and subject to the provisions of RCRA. This would be true even if the ash and blowdown containing these hazardous constituents are products of the incineration of non-hazardous wastes.

Comment No.	Comment	Response
L-23-35 (Continued)	EPA has proposed rules at the request of DOE, that would exempt from RCRA regulation a large amount of waste currently regulated by RCRA. If these mixed wastes were exempted from RCRA regulation, then the assumption in the 1987 EIS that the wastes would be handled in compliance with RCRA would no longer be valid, and hence one of the fundamental bases of the EIS would be invalid. Most significantly, if these mixed wastes are regulated only under the Atomic Energy Act, not RCRA, then DOE would again be self regulating with regard to this waste, and many of the environmental and human health protections assumed for the 1987 EIS as mitigation measures would not occur. In light of this proposal by EPA, and DOE's role in it, the department cannot reasonably reach a FONSI conclusion based on the 1987 EIS, until the proposed hazardous waste identification rule has been adopted or withdrawn.	
L-23-36	2. The EA is Deficient Because it Does Not Analyze Adequately the Environmental Impact of the Proposed Action and Alternatives to the Action. The FONSI and EA conclude that no significant impacts from CIF construction and operation are expected.	Please refer to Section II, A.

Comment No.	Comment	Response
L-23-37	However, the waste for which the CIF was designed, and for which the determination of insignificant impacts was made, is unlikely to be the waste that will require management by the time the CIF is scheduled to be completed. We have discussed above the prospect for off-site waste to be burned in the CIF (See section D.1.). In addition, the onsite waste feed estimates on which the EA and FONSI are based are derived from outdated technical information. We are concerned that DOE's failure to assess realistically the nature and amount of waste expected to be burned and treated at the CIF may result in avoidable human health and environmental impacts, and could result in time-consuming and expensive delays to *retrofit the completed or almost completed* facility to accommodate a change in the waste stream. The CIF appears to have been designed primarily for wastes that are no longer generated, and of which no significant stored backlog exists.	Please refer to Sections II, B and C. Also please see Section 2.1 of the EA which refers to the results of recent SRS waste forecasts.

Comment No.	Comment	Response
L-23-37 (Continued)	According to the EA, 97 percent of the annual waste volume to be burned in the CIF is "Job Control Wastes" (see Table 1 and Figure 1). The source of this waste is not clear from the EA, but in response to a query from the Energy Research Foundation, DOE indicated that most (75 percent) "Job Control Waste" comes from reactors, separations, tritium and raw materials (reactor fuel and target manufacturing) facilities - activities that the Energy Department has indicated will likely not continue in the future because of a lack of need, or in the case of tritium loading facilities, will continue at a significantly lower level (See Table 2 and Figure 2).	
L-23-38	It is unclear why DOE anticipates continued generation of waste from non-operational facilities. Some waste will be produced from decontamination and decommissioning (D&D) activities. But DOE has not finalized any D&D plans for these facilities, and D&D waste is not evaluated in the EA. The remaining three percent non-"Job Control Waste" also raises questions about the need for, and appropriateness of, the CIF.	Please refer to Section II, B and C.
L-23-39	The largest source of non-"Job Control Waste" is benzene from the Defense Waste Processing Facility (DWPF) vitrification plant (see Figure 3). This waste, however, may not be generated if ion exchange is used instead of in-tank precipitation as a pretreatment for the DWPF.	Please refer to Section II, B and C, and Response to L-22-04.

Comment No.	Comment	Response
	This potential change in pretreatment technology was suggested recently by the General Accounting Office based on DOE analyses.	
L-23-40	Twenty percent of the non-"Job Control Waste" is non-radioactive solvents. These wastes can be treated readily by using existing commercial facilities or seeking an independent vendor proposal. Existing commercial incineration facilities often seek such wastes to improve the performance of their facilities because of its high BTU value. Hence, this waste cannot be used to justify a need for the CIF.	Non-radioactive solvents are presently being shipped offsite to commercial facilities for treatment. However, this waste accounts for approximate 2% of the total waste to be incinerated at the CIF and was not considered as a major contributing factor to justify the need for CIF.

Comment No.	Comment	Response
L-23-41	No technical information is given on the organic Naval Fuels waste because DOE has indicated that it is "classified". Presumably no additional wastes from the Naval Fuels Facility will be generated since DOE has not indicated that the facility will operate. Regardless, we have serious questions about the justification for withholding information on the waste in light of the need for independent review of the potential environmental and human health impacts of incinerator operations. Moreover, the extent that certain details of Naval operations may be legitimately restricted to protect the national security of the United States - and override the national security interest of adequately protecting human health and the environment - the stated assumption that the organic contaminant is methanol is unreasonably optimistic. Methanol is a flammable, non-halogenated solvent sometimes known as "wood alcohol" and commonly used to heat casseroles in banquet chafing dishes. Many organic contaminants are significantly less flammable, more refractory and persistent, and more hazardous than methanol. Hence, if an assumption, rather than actual data, must be used, another compound such as trichloroethylene should be used for the safety and environmental analyses.	Methanol was selected to serve as the surrogate for the Naval Fuels waste in the design, environmental analysis, and permitting of the CIF because its physical and chemical properties, including those related to combustion and difficulty of destruction, are conservatively representative of the Naval Fuels waste. Human exposure and toxicity factors as well as industrial safety were also key considerations in the selection process. Naval Fuels waste comprises about 1% by mass of all CIF waste feeds (see Table 2-1 of the EA).

Comment No.	Comment	Response
L-23-42	The EA also fails to address adequately the post-closure decontamination and decommissioning of the CIF. The operable life of the CIF and the removal of contaminated materials should be analyzed.	Decontamination and decommissioning (D&D) are discussed in Section 4.7.3 of the EA and in detail in Section I of the RCRA Part B Permit. Specific D&D plans would be addressed in the future by DOE when there is a proposal to decommission the CIF. At that time, specific methods or technology proposed to be utilized in the decommissioning activities would be addressed. Since such methods and technologies are unknown at the present time, it would be pure speculation for DOE to attempt to evaluate decommissioning options at this time.
L-23-43	Additionally, the FONSI and EA fail to adequately consider several alternatives to the proposed action. For example, combinations of alternative technologies (e.g., supercompaction, microwave treatment or wet air oxidation) with alternative sites (existing and new offsite vendors) were not considered. The range of alternatives is unreasonably restricted to a narrow range of technologies, and a limited combination of options. CONCLUSION In sum, the construction and operation of the Consolidated Incineration Facility at the Savannah River Site is a major federal action significantly affecting the quality of the human environment. This waste incinerator poses serious potential risks to public health, safety and the environment by, among other things, threatening the ecological, economic, and recreational values of the surrounding area; generating hazardous waste; and releasing radioactive materials into the environment under routine and accident conditions.	Though incineration is the required treatment technology for certain SRS mixed wastes, the EA evaluated and rejected alternatives to the CIF system that were proven technologies and commercially available. For instance, microwave treatment and wet air oxidation are not considered viable because they are in the research and development phase or are not yet commercially available for treatment of combustible solid waste. Also, please refer to Section II, E.

Comment No.	Comment	Response
L-23-44	If the DOE fails to prepare a legally sufficient EIS or, alternatively, an adequate update and revision to the June 1992 EA, prior to the construction and operation of the CIF at the Savannah River Site, DOE will be in violation of NEPA and the regulations promulgated thereunder. We strongly urge DOE to reconsider its decision not to issue a legally adequate EIS and to comply with the governing laws and regulations. At a minimum, DOE should publish a revised and updated EA to provide sufficient information to determine the need for and environmental impacts of the CIF and the need for an EIS. If DOE re-proposes a FONSI based on this new review then it must explain the "extraordinary circumstances" that qualify the CIF for an exemption from DOE's normal NEPA requirements.	Please refer to Section II, A.

Comment No.	Comment	Response
L-24	STATEMENT OF SOUTHERN CALIFORNIA FEDERATION OF SCIENTISTS Sheldon C. Plotkin, Ph.D. 3318 Colbert Avenue Suite 200 Los Angeles, CA 90066 Proposed Consolidated Incinerator Facility at the Savannah River Site. Several aspects have apparently been ignored which need to be addressed:	
L-24-01	1. Radioactivity does not get destroyed in any combustion process. What happens generally is that part of the hazard is sent airborne with the erroneous argument that dilution by the atmosphere relieves the risk while the rest gets trapped in the filters if everything works properly. Based upon known experimental data it is now recognized, as John Gofman has been telling us since the initiation of health hazard evolution, that lower level radioactivity has a greater health risk than linear proportionality would indicate. In fact Jack Jennings, of SCFS has found excellent correlation with experimental results by math modeling the health risks with an exponential. Such a model gives the larger health risk indication at lower doses, but still falls somewhat below those predicted by Gofman.	DOE used methodologies accepted by the majority of health physicists to determine radiation dose and health effects of the proposed CIF. On the other hand, Dr. Gofman favors a dose response model that results in a risk factor several times greater than the range of factors accepted by the vast majority of health physicists worldwide, not just in the United States. The commenter did not include the referenced experimental results of math modeling by Mr. Jennings, and DOE has been unable to locate through a literature search any reference to Mr. Jenning's work.

Comment No.	Comment	Response
L-24-02	2. Chemical analyses of the proposed Lancer commercial waste incinerator for Los Angeles revealed that while dioxins were not present in the initial waste system, they were created by the combustion process.	Please refer to Response to L-18-20.
L-24-03	3. While the larger initial volume of mixed waste in this case has a certain inherent toxicity, the resulting smaller volume of ash based again on Lancer analyses as well as additional similar analytic efforts will most likely be so hazardous that the material cannot be shipped to any waste dump off site. Thus SRS would be creating a smaller volume but much more toxic waste stream than what goes into the CIF in the first place.	The hazardous organics in the waste stream processed by the CIF would be significantly destroyed (99.99 percent). Metals that are in this same waste stream would not be destroyed by the incineration process, but the resulting waste stream would be reduced in volume and toxicity, facilitating the next treatment step, solidification. As indicated in Section 2.1 of the EA, the CIF ash would be handled, treated, stored, and disposed of onsite as RCRA hazardous waste. The treatment method selected for the ash (cement solidification) would meet the applicable EPA Land Disposal Restriction treatment standards for the hazardous constituents.
L-24-04	4. Safety engineering principles in matters like this one indicate that the only acceptable solutions are to eliminate the toxic wastes in the first place with simple burial of the low-level organic wastes already created. Conclusions from analyses of other proposed incinerator projects has been that the trade off simply isn't worth it.	Please refer to Section II, D.

Comment No.	Comment	Response
L-25	STATEMENT OF 20/20 VISION Joan O. King Route 1, Box 1037 Sautee, GA 30571	
L-25-01	I did not receive notice in time to attend the Monday meeting on the proposed incinerator. I cannot imagine how it would have "no significant environmental impact" on the area and would have been at the Technical College hearing if I could have made the trip. Please note my protest and provide more lead time for any future meetings.	Please refer to Section II, A.

Comment No.	Comment	Response
L-26	STATEMENT OF WILLIAM E. BELL 1600 Alpine Drive Aiken, SC 29803	
L-26-01	Contrary to the quote "DOE has done a poor job exploring alternatives to incineration" as published in the local paper; I feel, after both the workshop and public hearing presentation (and thorough review of the EA) that a very good job of assessing alternatives has been done! The best choice of "Best Available Demonstrated Technology" has been made by the EA, and we need to get the FONSI, permits and proceed ASAP to deal with these waste problems as proposed.	Comment noted.

Comment No.	Comment	Response
L-27	STATEMENT OF MARTHA M. BEQUETTE 2B Pelican Point Harbor Island, SC 29920 As a relatively new resident of Beaufort County, I do not claim to be as knowledgeable and informed about the SRS and its operations as some. However, on the face of it, I find it unsavory at best, when considering the cost, its questionable necessity, and the potential for great harm to the environment.	
L-27-01	I must, however, register my absolute opposition to the hazardous waste incinerator that I understand is currently proposed at the site. What possible benefit can it provide for anyone? Unfortunately, I believe I can answer my own question!	Please refer to Section II, B and D.

Comment No.	Comment	Response
L-28	STATEMENT OF SAM BOOHER 4387 Roswell Road Augusta, GA 30907 Thank you for your letter and information on the Consolidated Incineration Facility. Because your Public Meetings are scheduled the day before election day, I can not get the time off to attend (if I want to vote, which I do - bad timing). I only have several comments so I am taking the time to write you. 1. First - I am pleased that you will be filtering the gas waste.	
L-28-01	However, no sufficient information was given me on where you will be storing the toxic waste ash.	Please refer to Section II, D.
	2. I have no objection to incineration as long as it the last and final step in a long process of waste reduction, reuse, recycle.	

Comment No.	Comment	Response
L-28-02	In your report you NEVER EVEN mentioned that you have made any effort to reduce the amount of waste in the waste stream that will feed the incineration. My guess is that since you will now have an incineration, the amount will increase BECAUSE you have the capability. Everyone that has lived around SRP now SRS knows people that tell stories. An example of one story told me is that your building people want a one foot long 2" x 4". What do they do? Cut a foot off of a 10 foot long one and throw the remainder in the waste pile.	Please refer to Section II, D.
L-28-03	I offer that you need a strong training program up front of and front end loaded that concerns incineration waste.	SRS has implemented employee awareness programs and training in the areas of waste management and waste minimization.
L-28-04	Also, you said you will not be handling out of state waste. I offer this will not be the case. You will be getting out of state waste coming to you from other DOE site if not other Federal sites. PS, I would appreciate knowing that these comments will be at least addressed.	Please refer to Section II, C.

Comment No.	Comment	Response
L-29	STATEMENT OF JAMES S. BOURNE, III P. O. Box 2262 Georgetown, SC 29442	
L-29-01	In regards to the Proposed FONSI (Finding of No Significant Impact) for the construction & operation of the CIF Consolidated Incineration Facility at the Savannah River Plant in Aiken, please allow me to offer my opinion as to necessity of ordering an environmental impact statement prior to the construction of the CIF. In view of its horrendous record on environmental control at such facilities as SRS and, necessarily, an abysmal cleanup record, an EIS is essential to the environmental well-being of the people of this state.	Please refer to Section II, A.

Comment No.	Comment	Response
L-30	STATEMENT OF S. W. CORBETT 626 Greenwich Drive Aiken, SC 29803	
	I have read the environmental assessment for the SRS CIF and agree with the FONSI. I believe further that to	Comment noted.
L-30-01	1. delay CIF for an EIS 2. build two incinerators, or 3. delay in order to spend more money while considering other alternatives, would be a waste of taxpayers money.	
	Table 2-2 states "risk exists for spills" under all alternatives but for no action "undetected leaks become more probable with extended storage."	
	I am comfortable with the proposed CIF being built at SRS.	

L-31

STATEMENT OF ROBERT D. COX, M.D., PH.D.
Assistant Professor
Department of Pharmacology and Toxicology
and Science of Emergency Medicine,
Department of Surgery
Medical College of Georgia
Augusta, Georgia 30912-4007

I am writing to you to address the DOE's proposed construction of the Consolidated Incineration Facility (CIF) and the finding of no significant impact (FONSI) on the local strong background in environmental issues and monitoring. I was asked to review the proposed CIF and FONSI by SRS and to assist in fielding public questions in the public meeting on July 20, 1992. I reviewed as much as I could in the short time that I was given and assisted in the public meeting. I supported the construction and use of the CIF at the public meeting and stated that I felt it could be operated in a way that would not pose a health hazard to the residents of our community. However, I also stated that I did not feel that the monitoring program was sufficient to assure that there would be no health threats, and that I would propose a much more thorough monitoring program to the DEA and SRS. The public was told on numerous occasions that SRS has an extensive

Comment No.	Comment	Response
L-31-01	environmental program. I feel that this was extremely misleading to the public because the SRS environmental monitoring program is only for radioactivity. From what I have seen of the CIF documents, radiation is the least of my concerns. I would like to review my major issues of concern. It is possible that some of my concerns have been addressed in documents that have not been made available to me.	Please refer to Section II, I.
L-31-02	1. Oxides of Nitrogen (NOx)- The CIF is proposing to produce 27 tons on NOx per year. The technology exists to significantly reduce this, but is not proposed to be used on the CIF. Since the CIF is in a relatively rural area with clean air, the state of South Carolina allows this, as long as the emissions are below 40 tons per year. If the CIF were in an urban area with existing air pollution, it would be required to reduce its NO_x emissions. I personally do not believe in this double standard and feel that to knowingly construct a facility that will produce this large quantity of a pollutant when the technology is available to significantly reduce the pollutant is irresponsible. Large quantities of pollutants are just that, no matter where they are emitted. NO_x is a pollutant that has long reaching environmental impact.	Please refer to Response to L-32-01.

Comment No.	Comment	Response

In addition, there is no plan to monitor NO_x stack emissions or local environmental NO_x levels. I question how SRS will ever know that their yearly emission are actually below 40 tons.

A question was asked at the public meeting as to whether the CIF would have any impact on acid rain. The DOE representative that answered the question pointed out that the CIF had s scrubber to remove sulfur dioxide. This representative had a good engineering background, and I am sure that he knew that NO_x is also a major component of acid rain and did not inform the public that the CIF would be producing 27 tons per year of this pollutant. I also feel that to construct the CIF without NO_x controls is not good foresight. if stronger controls are mandated for the Clean Air Act, this could require the CIF to install NO_x removal devices, which would be much more expensive after the CIF is already constructed.

Comment No.	Comment	Response
L-31-03	2. Benzene - Benzene is the main hazardous chemical that the CIF will be incinerating. Benzene is a human carcinogen. The current estimate is that over 50,000 gallons per year of benzene will be incinerated. There is no plan to monitor benzene levels in stack emissions or in the surrounding environment. Benzene is a volatile compound and under the current operational plan I strongly feel that it is necessary to monitor benzene emissions and environmental levels to assure that there are not hazardous levels of emissions. I do not feel that the proposed test burn is in any was sufficient to assure that 99.99% of the benzene is destroyed on a routine basis. The DWPF waste stream that contains benzene will be used as the fuel for the secondary combustion chamber. I feel confident that hazardous organics that are incinerated in the rotary kiln then passed through the secondary combustion chamber will be destroyed at 99.99%. However, the majority of the DWPF stream will be incinerated in the secondary combustion chamber only. This chamber is designed to have a very low retention time and I am concerned that volatile organics such as benzene will not be incinerated completely.	Please refer to Comment and Response to L-32-02.

Comment No.	Comment	Response
	Benzene is a human carcinogen and I feel that it is very important to know the quantity that is being emitted on routine basis. I do not know how the FONSI was reached without this information. There was no modeling done based on stack benzene emissions that I have seen. The emergency release modeling is not applicable to the long term situation. There is not way of assuring that benzene emissions are not affecting public health without routine monitoring.	
L-31-04	3. Halogenated Organics - My concerns here are the same as for benzene. Many of these are suspected human carcinogens. I feel a little safer, since much smaller quantities of these wastes are scheduled to be incinerated. These compounds should never be incinerated in only the secondary chamber. That is, they should only be fed to the rotary kiln. I feel that there should be stack and environmental monitoring for several of these species for a least one year. If the emissions are found to be very low, then this can be dropped unless the waste composition is changed.	Please refer to Comment and Response to L-32-03.

Comment No.	Comment	Response
L-31-05	There is also concern over the formation of dioxins when halogenated hydrocarbons are incinerated in the presence of aromatic hydrocarbons, like benzene. I saw some plans to analyze the ash for dioxins, but not the stack emissions. I am not nearly as concerned about low levels of dioxins in solidified drums as I am about atmospheric emissions. I do not feel that this will be a major problem, but feel that there should be some semi-routine emission monitoring for dioxins to alleviate public fears.	Please refer to Response to L-18-20.

Comment No.	Comment	Response
L-31-06	4. Mercury - Mercury is a constant component of the DWPF waste stream, at a concentration of <120 ppm, as diphenyl mercury. This should mean less than 53 lb per year of feed of mercury into the CIF. Mercury is a volatile metal and will not be trapped efficiently on the HEPA filters. Furthermore, many organomercurials are more toxic than elemental mercury. My main concern with mercury is the proposed emission limit of 1 lb/hr of mercury, or over 8500 lbs of mercury emitted to the atmosphere on a yearly basis. Knowing the propensity of mercury to bioaccumulate in the environment, I do not understand how anybody could reach a finding of no significant impact at this emission level. emitting this quantity of mercury to the environment over several years could result in serious environmental contamination, potential birth defects and million dollar law suits. I cannot support the safety of the CIF with this emission limit. I realize that with the current waste composition, this limit will in no way be approached. However, I am wary of the lax regulatory limit if SRS decides to change the mercury concentration in the waste feed. I propose that SRS accept a voluntary limit of not more than 100 lbs of mercury per year emitted from the stack and have routine monitoring for mercury.	Please refer to Comment and Response to L-32-04.

Comment No.	Comment	Response
L-31-07	5. Other Heavy Metals - Lead emissions are another major concern. When I reviewed the chemical analyses of your current waste streams, the lead concentrations were very low. My concern here is again the current accepted permitted limit of 13.4 lb/hr. This would mean over 117,384 lbs of lead emitted to the atmosphere every year. There is no way that I could be convinced that this would have not significant impact. Again, your current feeds are far below this level. One of the main public criticisms of hazardous waste incinerators is the attempted combustion of wastes that are heavily contaminated with noncombustible heavy metals. I feel that SRS needs to be extremely responsible in choosing the wastes to be incinerated. The current wastes should not produce significant levels for environmental or health concern. However, I do feel that if the CIF were operated at the current stated emission limits for heavy metals, then, over several years this could have a significant impact on the environment and health. I ask SRS to place voluntary limits for stack lead emissions at 0.134 lb/hr and to do routine monitoring for lead and other heavy metals if present in the incineration wastes.	Please refer to Comment and Response to L-32-04.

Comment No.	Comment	Response
L-31-08	6. Other Wastes - The question was raised in the public hearing concerning how the HEPA filters would be disposed of. The DOE responder told the audience that they would be disposed by land fill. I had previously asked this question and was told by a different individual that the HEPA filters would be incinerated. The HEPA filters may contain high concentrations of heavy metals and dioxins. I feel that it makes not sense to put this noncombustible material back into the incinerator. The HEPA filters should be disposed of by landfill. I also saw in the permit application a plan to attempt to incinerate asphalt. To my knowledge that is not readily combustible and could produce significant levels of polycyclic aromatic hydrocarbons (PAH). This should probably be avoided and if burned, PAH monitoring should be performed. The public was also concerned over the acceptance of off-site wastes and the incineration of uncharacterized wastes from old waste ponds. I echo their concerns, and request thorough characterization of any wastes to be incinerated.	Please refer to Comment and Response to L-32-05.

Comment No.	Comment	Response
	In summary, I feel that the CIF can be operated in a manner that is safe for the environment and the health of local residents. However, I also feel that if the CIF is operated such that some of permitted emission limits are approached, then I feel that it could have a significant impact on the environment and health. I ask that you strongly consider the issues that I have raised. I feel that for the best public image, it would be wise to have the monitoring data made public and to have some form of public review of the operation of the CIF, especially when the composition of the waste streams are going to change significantly. I would be happy to discuss any of this further if you feel that is necessary.	

L-32

STATEMENT OF ROBERT D. COX, M.D., Ph.D.
Assistant Professor
Department of Pharmacology and Toxicology
and Section of Emergency Medicine,
Department of Surgery
Medical College of Georgia
Augusta, Georgia 30912-4007

I am writing this as an addendum to my previous letter to you, dated July 28, 1992. That letter was not intended to be part of the National Environmental Policy Act Process, but was only intended as a general communication to SRS to provide my views on the public meetings that I attended and the potential health impacts of the CIF. Unfortunately, I was only given several days to review the permit applications and other information on the CIF prior to making my comments. Since that time, I have been able to meet with several of the engineers and project managers for the CIF and received a lot of information that was not initially available. As a result of these conversations and this additional information, I am writing this follow-up to the initial letter.

Comment No.	Comment	Response
L-32 (Continued)	In general, I would like to say that I was very pleased and impressed by the fact that the main health and environmental issues that I raised had already been considered and addressed by those working on the CIF. My recommendations for the monitoring program will not change as a result of this, but my comfort with the safety of the CIF with respect to health issues is much greater. I would like to make some brief comments on the specific issues that I initially raised. I will not go into specifics on monitoring for now, but will mention what compounds I feel should be monitored.	

Comment No.	Comment	Response
L-32-01	Oxides of Nitrogen (NO_x) I mentioned in the previous letter that I was concerned that there were not controls to reduce NOx emissions. I have since learned that this problem has been considered and the CIF engineers hope to reduce NOx emissions by as much as 50% by controlling operational parameters. I am not an engineer and am not qualified to choose the best technology for this purpose. I am pleased to see that this issue has been addressed and that there are plans to reduce NO_xemissions. I still feel that there is a need for NO_x monitoring.	The estimated 27 tons/yr of potential CIF NO_x emissions is based on incinerating the annual waste generation listed in Table 2-1 of the EA and operating the CIF at the conditions specified in Section 2.1 (pg. 2-8). However, SRS would operate the CIF in a way that would significantly reduce the amount of NO_x expected. NO_x generation decreases as combustion temperatures are reduced. Even though maximum design temperatures are higher, SRS has requested to operate the CIF at normal combustion temperatures of 1400°F in the rotary kiln and 1600°F in the SCC. Operation at these temperatures would theoretically result in only about half of the 27 tons/yr NO_x actually being produced. Operation at these temperatures would only be allowed after a trial burn shows that the required minimum DRE of 99.99% would be achieved. The ISCST air dispersion model has shown that a 27 tons/yr increase in NO_x emissions from SRS would not have a measurable impact on regional air quality. The model predicts that the measured regional NO_x concentration of 8.0 ug/m^3 would be increased by 0.022 ug/m^3 due to the CIF emissions. For comparison, the Ambient Air Quality Standard for NO_x established by SCDHEC is 100 ug/m^3. Any significant effects on regional air quality due to operation of CIF and other SRS facilities would be detected by regional monitoring stations operated by the State of South Carolina and Georgia.

Comment No.	Comment	Response
L-32-02	Benzene I have been supplied information on benzene modeling that I did not originally have. On the basis of the model it appears that benzene emissions will be well within safe limits. However, this is only a model. I definitely still feel the need to do benzene monitoring.	The Secondary Combustion Chamber (SCC) would be designed for the direct injection of DWPF benzene waste. The trial burn of the CIF would test the destruction of benzene fed directly to the SCC to insure that the 99.99% minimum DRE would be achieved. The trial burn of the SCC would be performed using halogenated organics that EPA has determined to be more difficult to destroy than benzene. A successful test of the SCC using halogenated organics would prove that the SCC would be effective in destroying benzene. As stated in the CIF RCRA permit, SRS would only inject benzene directly into the SCC. Dispersion modeling of potential CIF benzene emissions were performed using the EPA TSCREEN screening model. The model indicates that the ambient air concentration of benzene emissions from CIF (assuming 0.01% of benzene is released uncombusted) would not exceed 0.01 ug/m^3 at the SRS boundary. The SCDHEC regulatory standard for ambient benzene is 150 ug/m^3.
L-32-03	Halogenated Organics I was glad to see that the plans are to only feed these substances into the rotary kiln and not directly into the secondary combustion chamber. The quantities of these are small and I do not perceive a health risk. However, I feel that there should be some monitoring for these substances.	Dispersion modeling of potential CIF halogenated organic emissions were performed using the EPA TSCREEN methodology. The model indicates that the ambient air concentration of halogenated organics from the CIF (assuming 0.01% each halogenated organic compound fed to the CIF is unburned) would not exceed the applicable SCDHEC standard. (Please refer to the air pollution control permit for the CIF). The CIF trial burn would be conducted using halogenated organics.

Comment No.	Comment	Response
L-32-04	Mercury and Lead As you know, I was very concerned with the EPA emission limits of 8500 lbs per year for mercury and 117,000 lbs per year for lead. I proposed voluntary limits of 100 lbs per year for both of these. I have since learned that the state of South Carolina has limited the air emissions for each of these metals to 50 lbs per year. I am very pleased with this. If the current waste feeds do not change, there should be no problem in staying within these limits. There should be monitoring for both of these metals.	Emissions of mercury and lead would be monitored during the trial burn and periodically thereafter in accordance with the CIF DHEC RCRA and Air Pollution permits. SRS proposed limit of 50 lbs. per year was submitted in the July 1991 Air Pollution Control Permit Application. Although the final SCDHEC permit has increased this amount, SRS estimated emission of these metals remains the same. See Section II, H.
L-32-05	Other Wastes The problem with government regulations concerning the disposal of used HEPA filters and asphalt have been explained to me. I sympathize with your situation. The project managers have assured me that they realize that combustion is not the ideal method for disposal of these substances and it will not be used unless there are no other options. I appreciate the time that the DOE and SRS representatives took to provide me with this additional information. I feel that if the present emission guidelines are met, then there should be no significant impact on the health of our community from the CIF. I still request that you strongly consider my recommendations for additional monitoring. I know that you do not have to do this additional monitoring to meet government regulations. However, I feel that it is necessary to have this monitoring information to help better address any public concerns on health issues.	HEPA filters and asphalt could become contaminated with organic hazardous constituents. The specified EPA treatment for these wastes would then be incineration. HEPA filters and asphalt not contaminated would be disposed of by other means that would meet the EPA requirements.

Comment No.	Comment	Response

L-33 STATEMENT OF RITA A. FELLERS
Department of Geography, CB#3220
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27599-3220

L-33-01 Introduction

Please refer to Section II, A.

The U.S. Department of Energy (DOE) has produced an Environmental Assessment (DOE/EA-0400) on the Consolidated Incineration Facility (CIF) proposed for the Savannah River Site in Aiken, South Carolina. Within this document, DOE describes many areas of potential impact of the proposed CIF required to be assessed in an environmental impact statement (EIS). The agency outlines its reasoning for concluding that the CIF does not present a potentially dangerous environmental impact for the land resources, wildlife or human populations residing within its area of influence. Based on this assessment, DOE has issued a "Proposed Finding of No Significant Impact" memorandum (6450-01) (FONSI), arguing that the anticipated low impact of the proposed CIF precludes the necessity of producing a full-scale Environmental Impact Statement.

Comment No.	Comment	Response
L-33-02	Numerous deficiencies exist within the EA with regard to air pollution impacts which could be more fully addressed during an EIS process. Were DOE to forego the FONSI and pursue a full EIS, the independent scientific community and the public would have a greater opportunity to address those deficiencies and avoid the possibility of negative public health impacts not anticipated by the current Assessment.	As discussed in Sections 4.5.1 and 4.5.2 of the EA, the air pollution impacts of the proposed CIF have been analyzed using several air dispersion models approved and specified by EPA. The results indicate that the CIF would have no significant impacts on ambient air quality or human health. The modeling results for emissions of radionuclides and Clean Air Act-regulated pollutants are presented in the approved CIF Clean Air Act permit applications. Emissions of RCRA regulated pollutants, particularly metals are discussed in detail in the RCRA Permit. See also Response L-18-23 and Section II, A, F, H, and I.

Comment No.	Comment	Response
L-33-03	Problems With the Dispersion Model Other commentors will likely address deficiencies of the proposed test burn. This commentor will focus on the question of dispersion of airborne contaminants which will be emitted by the CIF. In this commentor's opinion, the EA and its dispersion models fail to take into account numerous aspects of South Carolina and Georgia's climatology which aggravate poor dispersion and create very high potential for air pollution problems in the SRS environs. These aspects include the presence of the Bermuda High, its attendant high frequency of stagnation days and presence of inversion layers, restricted mixing heights, low wind speeds, and the interaction of topography with pollution plumes.	The computer models used to estimate the atmospheric dispersion and the annual average groundlevel concentration of the CIF emissions employ SRS-specific meteorological data. This approach insures that all local weather conditions that could inhibit dispersion, including those mentioned in the comment, are considered. SRS maintains a network of meteorological data collection stations that record all necessary data including wind speed, wind direction, and other factors relevant to estimating dispersion. These stations are elevated on towers to insure that important atmospheric conditions present above groundlevel, such as inversion layers, are detected. In order to further insure that all meteorological conditions are accounted for, the models use a five-year database consisting of data collected from 1982 - 1986.
L-33-04	There is a serious problem with the document citation on the CAP-88 dispersion model developed by EPA: there is no government document number on any reports which might describe and list the code for CAP-88 when it was being evolved and tested. It is difficult to know what the model contains, and which version is being employed in this assessment, if there are updates to the model, which there usually are.	The use of the CAP-88 Code is required by Clean Air Act Regulations (40 CFR61). Documentation of the computer code package is available from the RSIC Computer Code Collection maintained by the Oak Ridge National Laboratory.

Comment No.	Comment	Response
L-33-05	There is no citation in the "References" section of the EA mentioning an atmospheric dispersion model. A search of the GPO on-line database complete from 1972 and updated through June 1992 failed to locate a reference to a "CAP-88". Also not found was a title describing any dispersion model likely to be the CAP-88. The library employed was the University of North Carolina at Chapel Hill, a complete government documents repository library which subscribes to the GPO database. This omission introduces an unnecessary obstacle to commentors. It is unfair to present commentors with a lack of information situation with which to fairly evaluate the environmental assessment. This situation by itself justifies a full-fledged EIS process with adequate document citation in order to provide the public with a real opportunity to evaluate and comment on the adequacy of the EA or EIS process with regard to the CIF.	The dispersion model used by CAP-88 Code is a modified Gaussian plume model. The dispersion model is the same as used in the earlier code, AIRDOS-EPA, published by Oak Ridge National Laboratory. Documentation of the computer code package is available from the RSIC Computer Code Collection maintained by the Oak Ridge National Laboratory.

L-33-06

Air Pollution Climatology in the SRS Region

The climate of South Carolina and Georgia is characterized by frequent conditions of high atmospheric pressure associated with the Bermuda High, which resides at the foothills of the Appalachian mountain chain just to the northwest of Augusta, Georgia in the late summer and autumn. With this high pressure system comes very low wind speeds, frequent stagnation events, and general conditions ill-suited to the dispersal of air pollutants. Throughout the year, temperature inversions varying between 300 and 1500 meters above the surface restrict the mixing layer. Taking all these conditions together, we have a situation in which pollutant plumes retain greater integrity than in other areas of the continent, and high pressure works to push pollutants toward the surface without promoting dispersion.

Past atmospheric dispersion models and related studies (Crawford, 1977; Pepper and Kern, 1977; Hoel, 1984) have documented underestimates of ground-level concentrations off site of factors of 4 and more. In spite of early beliefs of SRP officials that almost all of the plutonium emitted by F and H separators was being deposited on site and fairly close to the F and H stacks, later, more sophisticated modeling efforts suggested this belief was probably too optimistic. Carlson and Garrett (1982) concluded that only between 33% and 38% of SRP-emitted plutonium had probably deposited within 30 km of the two stacks in question.

Comment No.	Comment	Response
L-33-06 (Continued)	The EA and its associated Safety Assessment Document (DPSTSAD-200-6) make reference to low site-boundary ground-level concentrations (GLC's) of radioactive emissions, and use these as the basis for computations of population dose exposure (p. 4-5, DOE/EA 0400; p. 5-1, DPSTSAD-200-6). Underlying these computations is the assumption that, as one moves from the site boundary and out toward populated areas, GLC's continue to diminish. This assumption is also inherent in all dispersion models I have seen DOE or NRC employ to compute population exposure. However, the climatology of the SRS region does not operate in this manner much of the time. Pollutants rise from the stacks to the inversion layer, whereupon they are "capped off" and travel horizontally. Under the often stable conditions, these plumes disperse little but slowly descend toward the surface. Therefore, under the stable conditions with low wind speeds often experienced in this region, GLC's can often increase as one moves away from the plant boundary, because the plume is descending toward the surface largely intact.	The CAP-88 dispersion model is a standard, time-proven model used by meteorologists for the distances considered in dose assessments. As stated in the response to Comment L-33-03, SRS-specific weather data is used with the CAP-88 model to insure that the effect of the poor dispersion conditions mentioned by the commenter are taken into account in the calculation of average annual groundlevel pollutant concentrations at specific locations. Annual radiation doses are then calculated on the basis of these average concentrations. The CAP-88 model predicts that, from the SRS perimeter outward, the average concentration would continue to decrease. This prediction has been verified by comparing calculated average concentrations with measured average concentrations of tritium oxide, the only radioactive material released from SRS that is normally measurable at offsite locations by routine measurement techniques. This comparison has consistently shown that the average concentrations estimated by CAP-88 (and its predecessors AIRDOS-EPA and CAAC) are higher than the average measured concentrations. These overestimates are generally about twice as high as measured concentrations. The CAP-88 Code generates concentration estimates that are almost identical with those generated by the GASPARXOQDOQ Codes also used at SRS (Echerman 1980, Sagendorf 1982). Calculated concentrations of tritium oxide are compared with measured concentrations each year, and the results are published in the annual environmental reports for SRS. Special non-routine measurements of other radionuclides (Kr-85, Pu-238, and I-129) have been compared with model predictions, and these comparisons show that the predictions are in reasonable agreement with the measurements. See also Sections II, H and II, I.

Comment No.	Comment	Response
L-33-06 (Continued)	Numerous environmental monitoring reports from SRP have detailed higher ground-level concentrations at the 25-mile-radius than at the plant boundary, and higher GLC's at the 100-mile radius than the 25-mile. To mention only a few, DP-473 (Butler, 1960) documented soil-deposited strontium-90 at 124 uuc/kg at F and H areas, at 150 uuc/kg at the outer perimeter, and at 171 uuc/kg at the 25-mile radius. Vegetation samples of alpha emitters during the first quarter of 1960 showed higher concentrations at the 25-mile radius than at the plant perimeter (Quarterly Report, January-March 1960). The Environmental Monitoring Report published in Radiological Health Data and Reports covering January through June 1969 demonstrates maximum readings of alpha radioactivity in air roughly twice as high in Columbia and Greenville, South Carolina as the maxima at either the 25-mile radius or the plant boundary. Other quarterly reports and Radiological Health Data and Reports articles offer numerous additional examples. These maxima are important, and are comparable with the close-in maxima because they represent similar conditions, and may often reflect monitoring of the same plume near the stack at ground-level, and at the various distances.	

Comment No.	Comment	Response
L-33-07	Conclusion The fact that this trend of increasing GLC's with distance recurs often in both maxima and averages indicates that the problem of plumes rising under stable conditions, leveling off, and descending without the anticipated dispersal is quite likely to be the reality in South Carolina and Georgia, and any models which fail to reproduce this trend picture cannot accurately calculate a reasonable estimate of population exposures. Without better citations on the nature of the dispersion model being utilized, it is impossible to give an adequate critique of the Environmental Assessment's suitability. In this commentor's opinion, the Environmental Assessment is wholly inadequate. The Finding of No Significant Impact should not be upheld, and a full Environmental Impact Statement process is necessary if we are to assure ourselves that conditions obtaining in the environment will not combine with the incinerator's emissions to create an unacceptable level of hazardous and radioactive substances exposure to the public.	Please refer to Response L-33-02 and L-33-06.

Comment No.	Comment	Response
L-34	STATEMENT OF CLAUDE GILBERT, JR. 1104 Candlewood Drive Hopkins, SC 29061	
L-34-01	I am strongly opposed to the DOE building a $90 million hazardous waste incinerator without an environmental impact statement. Frankly, during the last 40 years in South Carolina, the DOE and it's contractors have never been caught telling the whole truth. There is no reason to believe you now when you state that there will be no impact on the	Please refer to Section, II, A.
L-34-02	environment. An independent study is needed.	Please refer to Response L-23-13.
L-34-03	Another concern of mine is that you will not only burn nuclear and hazardous waste that is generated on site, but also from other states, as well as other countries.	Please refer to Section II, C.

Comment No.	Comment	Response
L-35	STATEMENT OF KAREN L. GILBERT 1200 Woodrow St. Columbia, SC 29205 It has come to my attention recently that the Dept. of Energy plans to construct a Consolidated Incineration Facility at the Savannah River Site.	
L-35-01	This is disturbing to me as I understand that this proposed incineration is the "best technology" for only 25% of the materials proposed to be burned there. Furthermore, I feel there is a very real possibility that the construction of this facility will lead to more and more hazardous waste being imported into S. C. from other states. Our state has enough radioactive and hazardous waste all on its own!	Please refer to Section II, C and E.

Comment No.	Comment	Response
L-35-02	Incredibly, the DOE has apparently no plans to conduct an in-depth analysis of the risks and environmental impact of this proposed facility! Given the amount and characteristics of the waste to be burned, this seems almost unbelievable. The citizens of S. C. deserve a full investigation into the environmental impact of constructing and operating this proposed facility. As a voting citizen of S. C. and the U. S., I demand that an Environmental Impact Statement be conducted on this facility! I appreciate your prompt response to this critical situation.	DOE used EPA-approved air dispersion models and a risk-based approach to ensure the CIF would not exceed emission levels that could affect the public health. Also, the environmental regulations established to limit the emissions from facilities such as the CIF are based on protecting the public health. These limits incorporated generally accepted research and scientific knowledge. Also, please refer to Section II, A, F, H and I, and State of South Carolina Letters L-4 through L-12.

Comment No.	Comment	Response
L-36	STATEMENT OF C. J. HAIGHT 18 Berryhill Rd #26C Columbia, SC 29210	
L-36-01	Questions asked that related to defining what the real health and cost and future were of the facility will be were evaded, sidestepped or simply greeted with the standard "We don't have those figures/information available tonight". These omissions lead me to most emphatically implore you to ignore the FONSI and proceed with an EIS. The possible risks to the people who will be affected by this facility surely outweighs the cost and time delay factors. Once again it seems DOE is doing what it wants to, how it wants in disregard of public health, or wants.	Please refer to Section II, A and F.

Comment No.	Comment	Response
L-37	STATEMENT OF MR. AND MRS. C. M. HARRISON P. O. Box 602 Hampton, SC 29924 We are very disturbed to learn that a hazardous and mixed waste incinerator is in the plans for the Savannah River Site. South Carolina is overburdened with waste incinerators and land fills. Our land values are pitiful and our health could be endangered.	
L-37-01	Don't you people at the DOE even care that already we are overburdened with incineration, radioactive waste and polluted streams and air? We implore you people to stop this terrible treatment to a state which used to be beautiful and strong. We don't want to be the dumping ground of the nation. Neither do we need jobs of the sort you people wish to foist upon us.	Please refer to Section II, C, D, F and H.
L-37-02	The least you can do for South Carolina will be to make an Environmental Impact Statement and let us citizens speak out. Why don't you want an EIS?	Please refer to Section II, A.

Comment No.	Comment	Response
L-38	STATEMENT OF MERILYN HILLER 12 Atwood Avenue Provincetown, MA 02657 I have some questions and comments in response to a document that was mailed to me -- "Proposed Finding of No Significant Impact, CIF at SRS".	
L-38-01	1.) The document states that "incineration would reduce the volume and toxicity of these	Please refer to Section II, D.
L-38-02	wastes." Incineration would certainly change the form of these wastes (e.g. solids to gas, ash) but what about the toxicity of the ash? Depending on the wastes themselves, it is most likely that the resulting residue ((ash) will be more toxic through the simple process of concentration. Its disposal will certainly have an "impact" somewhere, sometime.	Please refer to Response L-24-03.
L-38-03	Disposal at a "proposed" facility for the CIF residue does not address this problem sufficiently.	These disposal vaults would be permitted by SCDHEC and EPA. The RCRA Part B permit application to construct and operate these vaults was submitted to SCDHEC in February 1988. NEPA documentation for the disposal vaults was included in the 1987 SRS Waste Management Activities for Groundwater Protection Environmental Impact Statement (EIS), completed in 1988.
L-38-04	2.) Although it is stated that the CIF "would not receive or treat waste containing dioxins....", there is evidence that the incineration process itself can produce dioxins, depending on what's burned and the combustion temperature. I did not see this matter addressed.	The combustion of wastes containing chlorine can result in the formation of dioxins. Since the CIF would incinerate some chlorinated wastes, the potential for the formation and emission of dioxins from the CIF has been evaluated. The evaluation is discussed in Section 4.5.1 of the EA. Also, refer to Response L-18-20.

Comment No.	Comment	Response
L-38-05	3.) Among the alternatives considered, you did not mention ceasing production of such wastes. In this post cold-war world, this should be a real alternative. Why is it not mentioned?	Please refer to Section II, B
L-38-06	4.) Many incinerators are operating that were "sold" as not having an effect on air quality because of their high-tech scrubbers and filters. It was only after they began operation that they were shown to be much less effective than designers/manufacturers claimed. What assurances are there for the CIF's equipment? How will filters be maintained and monitored? Who will be responsible? What assurances are there that there will not be a fiasco such as that at Rocky Flats where radionuclide-laden filters burned and released their deadly pollutants into the air?	The CIF design calculations use conservative removal efficiencies for the pollution control devices (free-jet scrubber and HEPA filters) that have been demonstrated through testing of the same equipment in other facilities to be reliably achieved. During startup and periodically throughout the life of the facility, the CIF would perform stack testing in accordance with permit requirements to confirm the normal functioning of the air pollution control system. Continued operation of the CIF would be disallowed if periodic testing could not confirm that actual emissions were less than the limits established by state and federal regulatory authorities and in the CIF operating permits. Please also refer to Response to L-18-33.

Comment No.	Comment	Response
L-38-07	How will air quality be monitored both on and off site - at least within the "footprint" of the stack's emission? Who will be responsible?	SRS operates a network of approximately 30 radiological air quality monitoring stations, some of which are located offsite. Also, the states of South Carolina and Georgia operate non-radiological monitoring stations in the vicinity of SRS. Although air dispersion modeling has indicated that no measurable air quality impacts would result from the CIF, these stations would detect air quality changes should any occur from the operation of the CIF, other facilities at SRS, and private industry in the vicinity of SRS. A comprehensive discussion of the overall SRS environmental monitoring program may be found in the 1991 Savannah River Site Environmental Report (WSRC-TR-92-186).
L-38-08	Lastly, is anyone looking at the "big picture"? That is, how will this CIF contribute to the total environmental pollution, from various sources, already going on and soon to become operational? It is conceivable that each polluting source can/may meet established "standards", but that the combined total is more than we can bear.	Please refer to Comment L-18-07.

Comment No.	Comment	Response
L-39	STATEMENT OF CHERYL W. HOWLE P. O. Box 1054 Camden, SC 29020 I am writing with concerns about the Consolidated Incinerator Facility (CIF) to be located at the Savannah River Site (SRS). One thing I am wondering is the Environmental Assessment done earlier this year, that showed a Finding of No Significant Impact on health and the environment.	
L-39-01	Was this study based on the additional impact of the CIF on the environment as it is now or from the view point that SRS never existed in the area? If the findings were based on the environment before SRS, I am sure the findings would be different. However due to the timing of these findings being so close to the accident that took place in December, 1991 would also give a false EA of the area, simply	Section 3.0 of the EA, Affected Environment describes the existing environment. As such, it incorporates the changes that previous developments, including SRS, have had on the area environment. Section 4.0 of the EA, Environmental Consequences of the Proposed Action, describes the additional environmental impacts associated with the proposed construction and operation of the CIF.
L-39-02	because the long range effects of that accident are not known at this time and that it will be years before the full impact is known.	The impacts of the 1991 tritium release are quantified in Chapter 10 of the 1991 Environmental Report, WSRC-TR-92-186. Based on these minimal impacts, the 1991 release does not affect the analyses contained in the EA.
L-39-03	I do not know what the efficiency of the proposed CIF would be, but I do know that most efficiency ratings for incinerators are based on "Ideal Conditions". As you well know Mr. Wright "Ideal" just does not exist in the "Real World"!	Please refer to Section II, G.

Comment No.	Comment	Response
L-39-04	I believe that "My State" South Carolina has been the "dumping ground of the nation" and the world far too long. It is time some other state took this load or has South Carolina been listed as "expendable" for the "good of the nation". This is a common mind set among the Department of Defense and the Department of Energy.	Please refer to Section II, B and C.

Comment No.	Comment	Response
L-40	STATEMENT OF MELISSA F. JAMES 1896 Virginia Avenue Augusta, GA 30906	
L-40-01	I attended the meeting that was held July 20, 1992 at Aiken Technical College, concerning the proposal for a waste incinerator at SRS. I live in the Augusta area, and I am concerned about the long term effects upon the environment. Many of these issues were raised, but I was not convinced that the incinerator would be safe. Since a mixed waste incinerator has never been in production, I feel that an environmental impact study should be done.	Please refer to Section II, A and F.

Comment No.	Comment	Response
L-41	STATEMENT OF MR. & MRS. CHARLES E. KLINE, JR. 8 Bear Island Road Hilton Head Island, SC 29926	
L-41-01	In a previous letter (May 30, 1990) we voiced our objections to the continuation of tritium production at the Savannah River Site (SRS). Information we have received recently indicates that tritium can be recycled to eventually eliminate wastes or significantly reduce the amount of wastes. If this is so, then the production of tritium can be virtually eliminated or greatly reduced. This letter is in response to the DOE NEWS of July 30, 1992 invitation to comment on the DOE, FONSI, SRS. After reading the publications listed at the end of this letter and the "DOE Proposed FONSI, CIF" paper [6450-01] page 4, paragraph 2, we support the modification of existing off-site DOE mixed waste incinerators. The effort and expertise to reduce the volume and toxicity of the mixed wastes (p. 3, para 2) is positive.	Please refer to Section II, B.

Comment No.	Comment	Response
L-41-02	Our concern: The SRS location threatens, should there be leaks of any kind, the communities that rely upon the Savannah River below the SRS site for their water supply. Whatever the assurances that another leak will not occur, we feel strongly opposed to the facilities proposed, the CIF.	The CIF would be equipped with secondary containment systems to prevent the release of any liquid spills. These containment systems would surround all areas of the CIF where wastes would be stored or processed. They would consist of concrete dikes or curbs and would have sumps equipped with instrumentation to rapidly detect any liquid spills in the containment. These containment systems would effectively prevent the release of a spill to any surface water, including a spill from the largest storage tank if completely filled. Also, as stated in Section 4.4 of the EA, the CIF would have no direct process wastewater discharges to the environment.
	Therefore it seems logical to transport the wastes to less threatening DOE incinerator sites. No dollar costs were included in any of the publications. It would be important for us to know and compare dollar costs and environmental risks for the CIF with off-site incinerator modifications.	Section 2.2 of the EA discusses offsite transport of SRS hazardous and mixed wastes. Detailed dollar costs are not described in Section 2.2. However, this section does include a comparison of the general costs and risk associated with the CIF and the offsite incineration alternative.
	ERF Mixed Waste Incinerator Proposed for SRS.	
	Research Notes, SRS Consolidated Incineration Facility	
	Proposed Findings - 6450-01	

Comment No.	Comment	Response
L-42	STATEMENT OF W. F. LAWLESS Departments of Mathematics and Psychology Paine College 1235 15th Street Augusta, GA 30901-3182 The following comments are based solely on a review of the information provided by DOE and mailed to the author (i.e., the summary from the "Proposed finding of no significant impact, CIF, Savannah River Site"; reportedly, the summary was based on the environmental assessment (EA) (DOE/EA-0400):	
L-42-01	1. Independent Peer Review (IPR). No information in the summary was provided about an IPR review of the EA. If the EA has not been reviewed by an IPR group, DOE should cease its plans to proceed with the FONSI until a peer review of the EA has been completed. However, if an IPR has been completed, DOE should include the results of the IPR in its summary.	A request for comments on the proposed FONSI was published in the Federal Register, which has a nationwide distribution. All interested parties, including federal and state agencies and technical experts, were encouraged to provide review comments on the proposed FONSI. The EA was also submitted to the states of South Carolina and Georgia for review and comment prior to the publication of the proposed FONSI. In addition, the EA was available for review to anyone upon request. Also, please refer to Section I.

Comment No.	Comment	Response
L-42-01 (continued)	It may be that DOE managers do not know what is meant by IPR, or they may be afraid of giving technical personnel that much control over the technical decisions that are made each day at SRS. For example, at a recent DOE public meeting, held in Augusta, GA, SRS personnel expressed the opinion that reviews of technical documents by CDC or the State of South Carolina should qualify as independent peer reviews, but to use these agencies as such is to make a mistake. Because IPR's remove politics and management decisions from the technical decision making process until after the technical decision has been made, regulators and managers do not provide an IPR review. Although the CDC or State of South Carolina regulators should continue to provide regulatory oversight of SRS military radioactive and hazardous wastes operations, their reviews should not be substituted for an IPR review. To do so would only serve to weaken or to erode the technical decision making process. For instance, IPR's might prevent future problems analogous or similar to the environmental problems created by the use of cardboard boxes for the disposal of solid radioactive wastes at SRP until 1985.	

Comment No.	Comment	Response
	Using the cardboard box as the primary container for solid radioactive wastes was a problem created by both the management structure of AEC, ERDA, and DOE, and the isolation of technical personnel from scientific peer review (for an interesting and early analysis of how the combination of AEC management and isolation of technical personnel from the mainstream of science and engineering caused technical problems, see Lilienthal's (1963),	
L-42-02	Change, hope, and the bomb. 2. Beta-Gamma Incinerator. SRS has had an almost 10-year operational period incinerating radioactive, hazardous, and mixed wastes in its BGI incinerator. The history of the BGI operations bear on the determination that the CIF will or will not have an environmental impact. But no information was provided by DOE in its summary, and that information should be presented to and re-viewed for the public before a decisions made to proceed with the FONSI. In particular, the review should include a comparison of the environmental operational history should also include a review of the SRS literature on the BGI incidents.	To ensure a safe and efficient CIF design, other waste incinerators at DOE facilities, including the beta-gamma incinerator and the private sector, were surveyed by SRS. The operating experiences of these other facilities have resulted in various CIF design features intended to minimize operating impacts on the environment (e.g., the hoods to be installed around the kiln seals will collect any gas or particulate that may occasionally escape due to seal wear).

Comment No.	Comment	Response
L-42-03	3. SRS Pu-238 Wastes. No information was provided in the summary about the possibility of burning the SRS wastes currently classified as Pu-238, or SRS wastes that were ever classified as PU-238 or ever associated with Pu-238 wastes. These wastes were stored on TRU waste (alpha waste) pads and in trenches at the SRS burial ground. It is possible that the PU-238 wastes, or alpha wastes of any type, could be incinerated in the CIF, that information should be provided to the public. In addition, because of the extreme hazard of the Pu-238 combustible waste matrix, because past plans did include the potential for incineration at SRS (e.g., the alpha waste incinerator), the exact plans for disposal of the Pu-238 should also be reviewed in the summary. Further, a discussion of the SRS plans regarding the Pu-238 should be presented to and reviewed for the public before a decision is made to proceed with the FONSI.	Transuranic wastes, including those containing Pu-238, would not be incinerated in the CIF. However, the CIF may process some wastes containing traces of Pu-238 or other alpha emitters, at levels less than 10 nanocuries per gram. The impact of this has been assessed in the CIF NESHAP Permit and the EA. Plans for disposal of Pu-238 containing greater than 10 nanocuries per gram is outside the scope of this proposed action.

Comment No.	Comment	Response
L-43	STATEMENT OF SAM P. MANNING 435 Montgomery Building P. O. Box 355 Spartanburg, SC 29304	
L-43-01	I respectively request that an Environmental Impact Statement (EIS) be made before approval of any (CIF) at (SRS) for hazardous and low-level nuclear waste.	Please refer to Section II, A.
L-43-02	The construction of a (CIF) should also be delayed awaiting the development of the accurate technology for monitoring of organic hazardous waste emissions from an incinerator which can be done on a minute by minute basis using a Fourier transform infrared spectrometer (FTIR) and the second by second monitoring of metal emissions by use of the Laser-Spark-Emission Spectroscopy (LSES). At present incinerators are monitored only every 12 to 18 months. The organic waste can in theory be destroyed at a temperature of 2,000 degrees in an incinerator if everything is handled perfectly. In theory the destruction rate of the organic waste must be 99.99%. The metals are not destroyed but must rely on a scrubber for their removal. Attached to this letter is a Xerox copy of an article entitled "Trace Metal Poisoning" from Cecil Text Book of Medicine which starts on page 2385. This article shows the danger of certain metals to the general public.	RCRA requires that hazardous and mixed wastes be promptly treated after generation using methods approved by the EPA. Incineration is specified by EPA in the LDR regulations (40CFR268) as the required treatment for certain hazardous and mixed wastes generated at SRS. The CIF would provide the required treatment. The CIF would implement proven continuous stack monitoring systems to measure radionuclide emissions and carbon monoxide concentration. Carbon monoxide would be monitored as indication of combustion efficiency and good destruction of organic waste constituents (low carbon monoxide concentration suggests high combustion efficiency). Other proven stack monitoring techniques would be used at regular intervals to insure that the CIF would meet the applicable state and federal emission limits for other pollutants such as metals and nitrogen oxides.

Comment No.	Comment	Response
L-43-03	The so-called low-level radio active waste cannot be destroyed by incineration. Additional work and study must be done.	Please refer to Response L-15-07.

Comment No.	Comment	Response
L-44	STATEMENT OF ELEANOR McCOLLUM 4 Harvest Lane Beaufort, SC 29202 Commentor referenced letters to editor published in: The Gazette P. O. Box 399 Beaufort, S.C. 29901	Comment noted.

Comment No.	Comment	Response
L-45	STATEMENT OF RODERICK McCOY 20-13th St., N.E. Atlanta, GA 30309	
L-45-01	Enclosed you will find my comments on the Environmental Assessment for Consolidated Incineration Facility prepared by the Department of Energy at SRS. Please understand that I find this "finding of No Significant Impact" to be a rather bland attempt to avoid a number of salient issues of interest to not only the immediate community , but to the country, as a whole. Certainly, DOE realizes the seriousness of the potential repercussions of not only catastrophic events, but routine operations, as well. Perhaps the immensity of the dilemma posed for us by the situation brings the DOE to do something, if only for the sake of doing something. This proposal (CIF) appears to me to be a poor choice of actions.	Please refer to Section II, A.

Comment No.	Comment	Response
L-45-02	This Environmental Assessment does not improve my perception of DOE's level of commitment to protection of the community's welfare. In fact, it appears to me to attempt through languaging alone to minimize scrutiny of the implications and potential hazards of this project, i.e. the compounded burdens of negative health effects to the community, potentials for catastrophic events, and the certainty that some human life will be diminished or taken as a result of DOE's intention to incinerate in order to reduce the volume of wastes stored on the site; a 300 square mile area, of which only 5% is currently in use. Several oversights stand out to me as I read these statements by DOE. Several questions arise that DOE must answer.	Please refer to Section II, A, D, and F.

Comment No.	Comment	Response
L-45-03	It is my hope that DOE will reconsider the serious nature of the flaws in logic which have lead EPA to regard incineration as a "waste *destruction*" *technology*, as well as its own intentions to include nuclear materials in the feestocks; and go on from that point to seek other potential means of dealing with SRS waste issues. My feeling is that with the nature of the materials stored and produced at SRS, dilution is not an adequate solution and reduction is a mere chimera. Further, I perceive this as an issue of precedent and am extremely uncomfortable with allowing a standard to be set by this facility (or any other, for that matter) incinerating irradiated materials, at any level of activity. In view of this particular issue, I see the need for serious investigation of the potential environmental impacts of CIF. I find DOE's slighting of the need with its "Finding of No Significant Impact" treacherous and potentially treasonous.	Please refer to Section II, C and E.

Comment No.	Comment	Response
L-45-04	Incineration has come under increasing attack as a waste disposal technology in both scientific and government circles. Numerous studies have found that EPA requirements of DRE's (Destruction Removal Efficiency) of 99.99% are not only not routine but unattainable. A Greenpeace report by Pat Costner on the Jacksonville, Ark. incinerator revealed a DRE of 99.96% allowing for emissions of 400 times regulated levels. This "key demonstration project" established by EPA Administrator, William Reilly was expected to operate at a demanding 99.9999% DRE. The Jacksonville incinerator is located in a residential area. Its mission is the "destruction" of military toxics, specifically 16.5 million pounds of herbicides 2,4,5-T and 2,4-D (Agent Orange) with dioxin concentrations of 3-40 ppm. 2,4,5-T and 2,4-D are both materials whose primary constituents are dioxins. Further discovered, by Costner was a 1984-5 EPA study by private contractors that stated 99.99% DREs are unattainable at concentrations below 10,000 parts per million (ppm), as well as a 1984 study of eight facilities, none of which achieved the standard "four 9's".	Please refer to Section II, G.

Comment No.	Comment	Response
L-45-05	This information places serious doubt as to CIF's potential to destroy any organic chlorine substances. Additionally, questions pertaining to the appropriateness and comprehensiveness of test burn measurements, protocols, and parameters bring any quoted values regarding incinerator operating standards into a rather dim light. In April of 1992, the International Joint Commission, a joint US/Canadian scientific advisory panel which makes recommendations to their respective governments on water and air quality issues for the Great Lakes and its watershed, adopted a zero tolerance position with regard to "persistent-bioaccumulative toxins", specifically organochlorines and heavy metals. This included the recommendation that incineration be banned in "certain areas near the Great Lakes". In this same statement IJC has, also, recommended adoption of a "Weight of Evidence" approach to protection from toxics, undermining the traditional "Risk Assessment" formula which forms the basis of current regulatory strategy and DOE's findings in this proposal for CIF. Since IJC makes its recommendations directly to EPA in the US these findings promise to have significant impact on EPA's current regulatory approach toward all point sources of persistent-bioaccumulative toxins, particularly incineration, on a national scale.	Please refer to Section II, F, G, and H.

Comment No.	Comment	Response
	EPA is required to review and respond to IJC findings within 6 months, that is, October 1992 in this instance.	
L-45-06	The dioxin problem is an especially pernicious one in regard to incineration for the reason that ANY material containing elemental chlorine (i.e. plastics, pressure treated lumber, bleaches, many industrial solvents, etc.) becomes a source of these persistent-bioaccumulative toxics due to the presence of heat and hydrocarbons (Dioxins being a class of 175 organochlorines considered carcinogenic and mutagenic in concentrations as low as parts per quadrillion) giving incineration of hazardous wastes the distinction of being a most efficient manufacturer of these ambiguous and pervasive poisons. Further, it has been found that "Cancer may not be the most sensitive toxic response resulting from dioxin exposure. Immunotoxicity and reproductive effects appear to occur at body burdens that are approximately 100 times lower than those associated with cancer. Recent data indicate that there may not be a threshold for certain responses to dioxin. However the implications for specific risk assessments, such as cancer, are not yet clear".	Please refer to L-18-20 response.

Comment No.	Comment	Response
L-45-07	DOE goes a step further with this proposal by introducing the variable of radioactive materials, many of which are heavy metals (a class of substances labeled as persistent and bioaccumulative toxics, included in IJC's recommendations discussed earlier) into the	Please refer to Responses to L-15-07 and L-18-05.
L-45-08	incineration process. These are elemental substances which cannot be destroyed by incineration. These will, as acknowledged, be present in the ash, smoke plume and scrubber water. The certainty of particulate releases is downplayed with description of the HEPA filter system, decontamination procedures and hoods installed around seals intended to capture fugitive emissions, but the discussion of radiation exposure levels "at the plant boundaries" would belie the expectation of particulate deposition. Presumably this would not occur beyond the plant boundaries (?). Who will be the recipient(s) of those inhaled or ingested micrograms of Plutonium, etc. which will find their way into the community? Who will bear that "acceptable risk"?	Please refer to Responses to L-18-05, L-18-33 and Section II, H.
L-45-09	Additionally, CDC has begun long overdue assessments of the health effects to communities adjacent to our weapons facilities, which will be likely to include information of interest to DOE's process relating to the impact of CIF, as well as other ongoing operations at SRS.	The Centers for Disease Control (see comment L-01 in this section) has reviewed the CIF EA and commented that SRS has adequately addressed potential adverse impacts on human health. Please also refer to Section II, [illegible].

SUMMARY

L-45-10	To summarize, this EA and its "Finding of No Significant Impact" relies heavily on regulatory standards and assumptions (i.e. "acceptable risk", etc.) currently due for review. The Agency's conclusions cannot help but be dated before construction even begins. DOE's conclusions declare a commitment to compliance with applicable standards, including EPA, NEPA, etc., for environmental quality. In most cases, it quite optimistically pushes those standards to their outer limits while considerable established data, including that of EPA, as well as recent counsel of other government scientific bodies pose serious doubts as to the basis of those standards and the efficacy of incineration as a waste "disposal" technology.	EPA has promulgated numerous environment regulations that impose strict design, operating, performance, and emission standards on the CIF, including the RCRA Land Disposal Restriction regulations that require the use of incineration for treatment of certain wastes. These regulations are initially formulated and proposed using available and generally-accepted scientific evidence. They are finalized only after the scientific and industrial communities have been given the opportunity to review the proposed regulations and supporting data and comment as to whether the proposed regulations appropriately reflect the data and meet public health and environmental protection goals.
L-45-11	The intention to burn equates to the intention to disperse contaminants currently contained, however poorly, to a broader environment where effects can be masked. Once contamination is beyond the plant boundaries it will be difficult to point to a source in a truly conclusive way. Remember, DOE has yet to publicly acknowledge responsibility for the Tritium found in Burke County, Georgia wells, even while footing the bill for monitoring wells demanded by Gov. Zell Miller.	The CIF processes are intended to destroy hazardous organics through incineration and stabilize radionuclides and metals. Refer to Sections II, F and H and also Response to L-23-14 for additional information.

Comment No.	Comment	Response
	"CURIOUSER AND CURIOUSER"	
L-45-12	This proposal further belies a flawed system in that a major factor in the need for CIF is the Defense Waste Processing Facility (DWPF), which requires the venting of benzene gas and entrained radioactive materials from the canisters to prevent explosion and dispersal to the environment. Apparently the incinerator is considered implicit to DWPF's mission yet it seems to have been omitted from consideration in that EIS(?).	The DWPF Final EIS was issued by DOE in February 1982. In its Record of Decision (ROD) DOE elected the "staged process" alternative (i.e., a staged or modular construction program), which was to include improvements resulting from ongoing waste immobilization research and development. However, modifications to the DWPF proposal have been made since 1982. The environmental effects of these changes were presented in DOE's January 1991, "Analysis of the Environmental Impacts Resulting from Modifications in the Defense Waste Processing Facility." The role of the CIF is identified in the 1991 analysis of the modified DWPF (pages 2-7 and 3-12).

Comment No.	Comment	Response
	CONCLUSION	
L-45-13	In conclusion, this proposal and its alternatives, including the potential for limiting CIF's mission to handling DWPF waste stream only and seeking to improve on site-handling methods, deserve further exploration by DOE, who has an obligation, and maintains its willingness to observe matters of public welfare closely. Therefore, it is essential that a good faith Environmental Impact Statement be produced which takes into account potential changes in the regulatory climate regarding incineration.	Please refer to Section II, A.
L-45-14	Other factors should include, but not be limited to, the CDC studies of health effects of nuclear facilities on neighboring communities, "Synergistic" and cumulative effects of various contaminants, potential changes in SRS mission (including total cessation of production) and the ACTUAL NEED to reduce the volume of these stored wastes vs. improvements in containment scenarios. I would like at this point to thank the Department of Energy for its time and attention to these matters and for the opportunity to make my concerns known.	Please refer to Response 18-07 for cumulative considerations and Section II, B for potential changes in SRS's mission. Synergistic effects are a theoretical consideration that are rarely quantified in human health risk assessments. There are few documented cases where synergetic effects have been quantified, such as the risks of cigarette smoking and asbestos exposure. Based on the available data, potential synergistic effects cannot be quantified for the CIF.

Comment No.	Comment	Response
L-46	STATEMENT OF RICH PANTER 309 S. Stonehedge Drive Columbia, SC 20210	
	I strongly believe the proposed Consolidate Incinerator Facility, (CIF), for the Savannah River Site, (SRS), should not be built, and will strongly protest its construction.	
L-46-01	I think the date contained in your Environmental Assessment of the proposed CIF assumes an unrealistic destruction and	Please refer to Section II, G.
L-46-02	removal efficienty, fails to quantify the unburned chemicals, ignores the risk of chronic exposure to incinerator emissions, and	Please refer to Response L-18-02.
L-46-03	the cumulative effects of yet another incinerator in South Carolina. To maintain that another incinerator here will have no significant impact on the State is an insult to all of us who live here.	Please refer to Responses L-18-03 and L-18-07.
	As a citizen of this State, I demand that at the very least, an EIS be conducted for this CIF.	

Comment No.	Comment	Response
L-47	STATEMENT OF E. H. PAXTON 1 York Circle Greenville, SC 29605 Regarding the consolidated "Rotary Kiln" incineration program being considered for the Savannah River Site.	
L-47-01	I suggest its best for DOE to continue its current waste storage program until a better means than incineration is developed.	Please refer to Section II, D.
	There are some drawbacks to the incineration program as proposed. A couple are as follows:	
L-47-02	1. A storage facility would continue to be required in that the residue from the kiln cannot be listed.	Please refer to Section II, D.
L-47-03	2. The flue gas filtration (absorption) system is not fool proof.	A design philosophy of the CIF is to utilize in the combustion and emission control systems only technologies that have been proven by industrial application that reliably meet stated pollutant removable efficiencies. In this manner the key components of the CIF air pollution control system, the free-jet scrubber and HEPA filters, have been shown to be reliable. For this equipment, only those pollutant removal efficiencies that have been demonstrated were utilized in the CIF design calculations.

Comment No.	Comment	Response
L-47-03 (Continued)		Initial and periodic stack testing would be performed as specified in the CIF environmental operating permits to further demonstrate the CIF pollution control equipment consistently performs as required. In addition, the air pollution control equipment would be equipped with instrumentation that would shut down waste incineration should the instrumentation detect any abnormal condition in the pollution control devices that could lead to excessive emissions.
L-47-04	I suggest DOE hold a competition and award money to the party who presents the means to best treat the waste DOE makes. It is my opinion that DOE has too long excluded the general public from its activities (on the premise that the public is stupid) and this exclusion is the reason the environmental problems at Savannah River (and some other DOE sites) are as big as they are.	Where appropriate, DOE does hold competitive bids for waste treatment options. DOE is committed to involving the public on waste management and environmental restoration issues. This includes pursuing public involvement through workshops and meetings.

Comment No.	Comment	Response
L-48	STATEMENT OF E. H. PAXTON 1 York Circle Greenville, SC 29605 I have read the CIF-EA-0400 dated 4 June 1992 and I think is an absolute crock.	
L-48-01	The reason its a crock is its not designed to solve the problem. Specifically, there is no way the residual from the process can be mixed with cement and water and made into a stabilized mass. It might be made into a more stabilized mass than it was in prior to the incineration of materials away from the hazardous components but in final analysis the hazard continues to exist. I find no apparent fault with the structure of the EA, its just that the writers of the EA were not given a solution to the problem to begin with.	The majority of solidification systems for stabilizing ash materials and other waste contaminants, both in the commercial sector and the nuclear industry, successfully utilize hydraulic cement to encapsulate waste materials. The EPA has confirmed in the RCRA Land Disposal Restriction (LDR) regulations (40CFR268) that cement solidification is the preferred technology (Best Demonstrated Available Technology, or BDAT) for immobilization of certain hazardous constituents such as many heavy metals. Since the CIF secondary wastes would contain heavy metals, these wastes would be solidified using the EPA's specified BDAT. SRS would perform regular testing in accordance with the LDR regulations to confirm that the solidified waste forms limit leaching of hazardous constituents to less than the level allowed by the LDR regulations. The LDR regulations and BDATs have been specified by EPA to prevent hazardous constituent migration into the environment and contamination of groundwater. If a waste form does not meet the requirements, it must be reprocessed until it does. Please refer to Section II, D,

Comment No.	Comment	Response
	Cement is not the answer; cement is not a leach proof product and it matters little what kind of cement is used or what the technical representatives of the Portland Cement Association claim. I stand 100% opposed to this CIF until what time a product encapsulating the residue from the process into a leach proof mass is proposed. Cement per the EPA is now a no-no. Your process is aged technology and this CIF needs to be put on the back burner till something better than cement is proven	

Comment No.	Comment	Response
L-49	STATEMENT OF PAULINE REIMERS 2417 Craig Road Columbia, SC 29204 I write concerning the Consolidated Incineration Facility (CIF) proposed for the Savannah River Site. I strongly disagree with your contention that the incineration of waste in the CIF, as proposed, would not significantly and negatively affect the environment.	
L-49-01	Even if "successful" by destroying 99.99 percent of wastes being incinerated, at least 400 - 500 lbs. of hazardous materials, such as lead, mercury, hydrochloric acid, and so on, per year, could still be released into the environment, posing a health threat. In addition, the planned regular releases of radioactive materials into the atmosphere would further compromise public health.	Please refer to Section II, F and H.
L-49-02	The potential health hazards as a result of operating such a CIF are enormous. I believe additional and more thorough analyses of the proposed project, its outcomes, and its alternatives are essential before any commitment to a CIF should be made. Therefore, I strongly urge you not to proceed with developing the CIF at the Savannah River Site without preparing an Environmental Impact Statement.	Please refer to Section II, A and F.

Comment No.	Comment	Response
L-50	STATEMENT OF ANN RICKARD Beaufort, SC Savannah River Site: NO INCINERATOR, PLEASE!	Comment noted.

Comment No.	Comment	Response
L-51	STATEMENT OF VIRGINIA ROBARDS 312 Quail Hollow Road Jefferson, NC 28640 I am happy to suggest the solution to the environmental difficulties faces by politicians, businessmen, officials, et al. in regard to SRP and CIF's toxic waste and nuclear waste handling. However, the solution will require brave people - courageous citizens who gladly say that processing nuclear and toxic waste into air, war, earth (or reconstituted forms) is criminal, and when asked to facilitate the processing, refuse. Certainly conscientiously objecting to handle the wastes translates into the answer to our problems: keep pressuring manufacturers to stop producing hazardous by-products. My teacher taught me that pollution is offensive and wrong for the most obvious reasons. Maybe many adults had either inadequate teachers or were brain-dead elementary students, for they consistently err on the wrong side. I expect educated people to act accordingly, not defend the selfish aims of those working to justify poisons because it's economically sound or convenient. You may have read my words before. Please pass them on. Industrial polluters must be put out of a job forever.	Please refer to Section II, B and D.

Comment No.	Comment	Response
L-52	STATEMENT OF JOSEPH H. ROBERTS 800 Old Whiskey Road, SW New Ellenton, SC 29809	
L-52-01	A lot of "waste" that now is sent to waste might be cleaned up and recycled at a monetary advantage.....	Please refer to Section II, D.
L-52-02	Will hi-level waste now in burial ground be sent to CIF?	High level radioactive wastes will not be incinerated in the CIF.
L-52-03	Will SRS generate enough waste to require a CIF with the down-sizing of nuclear weapons grade requirements? or is it cost effective?	Please refer to Section II, B.
L-52-04	Define heavy metals to be sent to CIF.	The CIF has received permits from the EPA and SCDHEC to incinerate wastes that may contain limited amounts of certain metals and metal compounds. These metals would include antimony, barium, silver, thallium, mercury, lead, chromium, cadmium, nickel, and arsenic. Because these metals may affect human health at certain levels of exposure, the handling, treatment, and emission of these metals are strictly regulated by the EPA in order to protect human health and the environment. The SRS received permits from the EPA and SCDHEC to treat wastes containing heavy metals in the CIF only after demonstrating through use of EPA-approved air dispersion models that the projected emissions of metals from the CIF and the resulting ambient air concentrations would not pose a threat to human health and the environment.

Comment No.	Comment	Response
L-53	STATEMENT OF PETER SIPP 5260 Story Mill Rd Hephzibah, GA 30815 Thank you for the opportunity to write you. I am working for a contractor that is working at your SRS. I am seeing for myself the positive attitude Bechtel and SRS people have towards our environment. Hopefully, this attitude can permeate off site to other people by following your example.	
L-53-01	It will be unnecessary to burn oils. There are companies that would come and pick oil up at no cost to DOE. The floor cleaning materials, should be collected and completely used. The containers recycled. The paints, I don't know here. Solids, like? Solvents - capture all of it and use it all. The containers, recycle them too. Ya'll could and should lead the way for the rest of us. Recycling creates jobs and helps save our environment. We only have one planet...we must start treating our home that way before its too late. I am not in favor of using my tax money on an incinerator.	Please refer to Section 1.2 of the EA and Section II, D.

Comment No.	Comment	Response
L-54	STATEMENT OF DANIEL E. SWEENY P. O. Box 2269 Aiken, SC 29802	
L-54-01	Will the CIF and its emissions have an added effect on the existing ground water problems in the Savannah River Site? My question stems from information at the workshop that stated the maximum "fallout" effect of the CIF will occur within the boundaries of the SRS. This fallout, within time, will add to DuPont's mistakes with no current ground water clean-up procedures in effect. We live within 3.5 miles of SRS boundaries so our questions are vital to our family environment.	Based on the expected low emissions from the CIF, no groundwater impacts are anticipated. Also, please refer to Section II, H. SRS manages a comprehensive program that effectively deals with groundwater contamination. Since 1985, through the use of an air stripper and 11 recovery wells, SRS has been removing volatile organics from the groundwater. Other remediation efforts are also in the research phase, such as electrokinetic migration, horizontal wells, and soil vapor extraction, to enhance existing groundwater treatments. An extensive groundwater monitoring program, consisting of almost 2,000 monitoring wells sampled regularly, allows scientists to keep watch on any migration of contamination in the groundwater.

Comment No.	Comment	Response
L-55	STATEMENT OF JOHN E. SWEENY P. O. Box 2269 Aiken, SC 29802	
L-55-01	I do not feel that building an incinerator under the guise of "it's the best idea at the time" is an acceptable plan. Many things are and have been done in the past with this explanation and have later produced health and environmental effects that were negative. This country's government seems to take the attitude that they are going to do whatever they want no matter what the people think. This must and, I hope, will change. Other solutions to the waste problem must be researched.	Please refer to Section II, D and F.

Comment No.	Comment	Response
L-56	STATEMENT OF VIRGINIA M. SWEENY P. O. Box 2269 Aiken, SC 29802	
L-56-01	I am concerned about possible side effects - that is specifically ...a spill, leak, accidental release, or explosion. I am concerned and even frightened about our close proximity to SRS. There is a definite problem with trust between the general population and government facilities, for this reason I do not feel reassured about future use of the CIF.	Please refer to Section 4.6 of the EA. The analysis concludes there are no significant risks.
L-56-02	I am concerned about a health risk assessment not being done - no matter how long it takes, not the cost. My children are the most important thing in the world to me. They are worth the time and money it would cost to determine health risks.	Please refer to Responses L-18-03, L-18-07 and Section II, F.

Comment No.	Comment	Response
L-57	STATEMENT OF PETER TEPLEY 31 Downing Street Columbia, SC 29209 The proposed Finding of No Significant Impact (FONSI) on the proposed Consolidated Incineration Facility (CIF) at the Savannah River Site is not warranted. The data in the Environmental Assessment (EA) study that was the basis for the proposed FONSI was incomplete and misleading. The EA: (1)	
L-57-01	assumed unrealistic destruction efficiency;	Please refer to Section II, G.
L-57-02	(2) failed to qualify and quantify the unburned chemicals, products of incomplete combustion, and the heavy metals likely to be emitted from the proposed CIF;	Please refer to Response L-18-02, and Section II, F.
L-57-03	(3) ignored the health risks of chronic exposure to incinerator emissions;	Please refer to Response L-18-03
L-57-04	(4) down played the health and safety threats to workers; and	Please refer to L-17-05.
L-57-05	(5) failed to address the accumulative effect of having a third hazardous waste incinerator in South Carolina. For these reasons, an Environmental Impact Statement (EIS) on the proposed CIF must be done. The people of South Carolina deserve no less. In addition, as a matter of policy, a facility like the CIF should never be considered without an EIS. I look forward to hearing that the DOE will take our health and safety seriously and order an EIS on the proposed CIF.	Please refer to Section II, A and Response L-18-07.

Comment No.	Comment	Response
L-58	STATEMENT OF JANE TOLLISON Box 314 Norway, SC 29113	
L-58-01	I am opposed to incineration of hazardous waste including wastes such as solids (?), sludges (?) and organic and aqueous liquids (?) - including the examples (?) oils, paints, solids (?), rags (what kinds of?), clothing (what kinds of?), and floor cleaning materials (made of what?). First, what ever we put into the air, water, and land cycles back to us! I don't want to breath this radioactive waste. I don't want to drink it, and I don't want to eat it. Putting it into the air, as you propose, assures us of all three. Second, you have no research to prove the safety of what you propose. Third, I do not want to be your guinea pig for your research into this matter. Apparently, you people failed third grade science and the life cycle bit. Or your greed in the name of government controls you. Not me! Think, people! You are screwing it up!	Please refer to Section II, C, D, F, H and Section 4.6 of the EA.

Comment No.	Comment	Response
L-59	STATEMENT OF TOM TURNIPSEED 1337 Assembly Street P. O. Box 11601 Columbia, SC 29211-1601	
	As a former state senator who represented the Aiken and Barnwell counties and an environmental activist in South Carolina, I hereby respectfully request that an Environmental Impact Statement (EIS) be made regarding the proposed Consolidated Incineration Facility (CIF) at the Savannah River Site.	Please refer to Section II, A.
L-59-01	More than anything else, I am concerned about the accumulative effects of having another incinerator in South Carolina when we already import so much carcinogenic materials for incineration in South Carolina.	Please refer to Response L-18-07 response.
	I also respectfully request an EIS because I believe the environmental assessment done earlier this year:	
L-59-02	1. Fails to account for potential impacts on the food chain.	Please refer to Response L-18-05.
L-59-03	2. Gives an inaccurate picture of day-to-day incinerator operation and monitoring.	Please refer to Response L-18-06.
L-59-04	3. Does not take into account the serious threat to worker health and safety.	Please refer to Response L-17-05.
L-59-05	4. Gives an unrealistic appraisal of destruction and removal efficiency.	Please refer to Section II, G.

Comment No.	Comment	Response
L-59-06	5. Does not qualify and quantify the overwhelming majority of unburned chemicals, products of incomplete combustion and heavy metals likely to be admitted from the incinerator	Please refer to Response L-18-02.
L-59-07	6. Ignores the risk of chronic exposure to incinerator emissions. Thank you for your consideration of this important matter.	Please refer to Response L-18-03.

Comment No.	Comment	Response
L-60	STATEMENT OF THE WARLEY FAMILY 103 Whetsell Reevesville, S. C. 29471	
L-60-01	On behalf of the health and welfare of my family, I strongly object to the proposed CIF to incinerate oils, paints, solvents, etc. only approximately 50 miles from where we live in Reevesville, S. C.; This incineration will add more and more air pollution to our already overloaded bad quality air. Cement plants in Harleyville and Holly Hill already overburden our polluted air by burning hazardous waste. They are 10 -15 miles from us. South Carolina's air is terribly polluted at the present time by almost 200 different types of chemical plants. The EPA TRI report shows that South Carolina is the 16th worst air polluted state in the nation with industrial only (i.e. no auto fumes included) deadly poisonous toxic chemicals in the amount of 62,613,127 lbs being released on an annual basis into S.C.'s air. According to this report, S. C. has more industrial toxic chemical releases to the air than New Jersey or Massachusetts. Also, according to this report, S. C. ranks right behind New York and California with releases of toxic chemicals to the air, and those two states have much greater areas than S. C. The Westinghouse Electric plant and the medical waste incinerator in Hampton, S. C. also adds air pollution to the air my family breathes.	Please refer to Response L-18-07.

Comment No.	Comment	Response
L-60-01 (Continued)	A recent study (monitoring) test by Regional EPA showed that our air was badly polluted by the ethyl petrochemical plant in Orangeburg with above normal amounts of the following toxic chemicals: Toluene, benzene, methylene chloride, and acetone. S.C.'s topography is similar to the basin effect in Los Angeles; we need to clean up, rather than add more air pollution with hundreds of additional autos coming on the road each week. The power plants at Canady's Cross Roads also adds pollution to our air.	Please refer to Response L-18-07.

Comment No.	Comment	Response
L-61	STATEMENT OF PATRICK L. WHITWORTH 5 Guyton Street Greenville, SC 29615	
L-61-01	The statement that a hazardous waste incinerator does not pose a threat to the environment is ludicrous. Available documentation on existing hazardous waste incinerators proves quite the opposite is true. The least that should be expected of the Department of Energy is the performance of an environmental impact statement.	Please refer to Section II, A.
L-61-02	With the cold war with Russia no longer posing a threat, the need to continue the manufacture of plutonium and uranium is questionable. The present amounts of the necessary materials in storage is enough to supply present all of the nations unnecessary nuclear weapons. What little of this material that will deteriorate can be easily replaced with current stores. Therefore, the need for waste disposal methods is not as great as maybe it once was.	Please refer to Section II, B.
L-61-03	The proposed solution of encapsulating the ash materials, left after incineration, in cement is not a proven scientific solution. Cement is not leak-proof which will allow leakage and the cement will deteriorate over time, leaving us to deal with the problem again through expensive remediation. And who will pay for the remediation? The U. S. taxpayers and the citizens of South Carolina will.	Please refer to Response L-48-01.

Comment No.	Comment	Response
L-61-04	Another hazardous waste incinerator in South Carolina is not what we need! The Thermal-Kem incinerator in Roebuck has continually had problems meeting the maximum emissions allowable by the South Carolina Department of Health and Environmental Control (SCDHEC) and has been fined numerous times by SCDHEC. It would be foolish indeed to assume that the proposed incinerator for Aiken would be operated with less detrimental effects.	Please refer to L-18-07.
L-61-05	Incinerators have the potential to pollute the air, soil and water in a wide circle from the plant. The higher the stack on the incinerator, the further widespread the potential for pollution. I have attached a position paper on incinerators based on extensive research I gathered from numerous identified sources. If your office will take the time to peruse the paper, there can be little doubt that an Environmental Impact Statement is necessary before consideration can be given to constructing an incinerator for radioactive and other hazardous wastes. I am opposed to the siting of a hazardous waste incinerator at the Savannah River Site.	DOE has reviewed the commenter's position paper. Please refer to Section II, A

Comment No.	Comment	Response
L-62	STATEMENT OF MRS. THOMAS WILSON 300 Wood Haven Dr., Apt. 2507 Hilton Head Island, SC 29928	
L-62-01	The citizens of S.C. deserve a thorough analysis of the risks and environmental impact of constructing and operating the CIF. Please consider this analysis very carefully for the health of the entire state.	Please refer to Section II, A.