

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
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THE TOWN OF JACKSON
Telephone 471-2227
Jackson, South Carolina 29831

October 10, 1983

United States Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29801

Gentlemen:

The Town of Jackson, South Carolina, is a close neighbor to the Savannah River Plant located in Aiken County, South Carolina. We have enjoyed very good relations with SRP officials for over thirty (30) years.

Comments and resolution noted.

We have extreme confidence in the DUPONT Company, the Department of Energy and the United States Government, that all phases of Plant operations will be done safely and economically. Based upon these determinations we would like to propose the following resolution.

RESOLUTION

THE TOWN COUNCIL AND MAYOR DO HEREBY RESOLVE TO GIVE THEIR FULL SUPPORT TO THE STARTUP OF THE L-REACTOR.

BE IT FURTHER RESOLVED THAT THE TOWN OF JACKSON DOES FULLY SUPPORT THE BUILDING OF A NEW REACTOR AT THE SAVANNAH RIVER PLANT.

WE URGE THE UNITED STATES DEPARTMENT OF ENERGY TO GIVE THEIR FULLEST CONSIDERATION TO SRP BEFORE SELECTING A SITE FOR THIS NEW REACTOR.

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
Respectfully submitted:	<u>COUNCIL MEMBERS</u>	
Hoyt E. Dunsfeth, Mayor	Fred Darnell	A. Ellfs
CC: President, Ronald Reagan US Dept. of Energy Secretary Senator Strom Thurmond Senator Fritz Hollings Rep. Butler Derrick Governor Richard Riley State Rep. Irene Rudnick Chmn Aiken County Council	Dennis Boring	Jean Collier
	Gurney Wiggins	Russell McKinney

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF DORETHEA SMITH		
October 31, 1983		
<p>Mr. Melvin J. Sires, III U.S. Department of Energy Savannah River Operations Office Post Office Box A Aiken, South Carolina 29801</p>		
Attn: EIS for L-Reactor		
Dear Mr. Sires:		
AV-1	<p>I'm very concerned about the Environment we live in today, we have the Department of Energy (DOE) along with the Environmental Impact Statement. The L-Reactor Operation at the Savannah River Plant should be studied very careful because we are talking about human beings, and the Environment which we live in. The startup of the L-Reactor will increase by 33% the load on seepage basins currently leaking toxic chemical into freshwater source for much of the Southeast.</p>	<p>See the response to comment AJ-1 regarding seepage basins and groundwater contamination at SRP.</p>
AV-2	<p>The amount of liquid high-level wastes produced at the Savannah River plant will increase by 33%.</p>	<p>Incremental processing by the chemical separations facilities as a result of L-Reactor operation will generate 1150 to 2300 cubic meters of liquid waste per year. This volume will be concentrated to 380 to 760 cubic meters per year. A maximum of three tanks would be required per decade of L-Reactor operation; however, because the Defense Waste Processing Facility is expected to be immobilizing SRP high-level waste into borosilicate glass by 1989, no new high-level radioactive waste tanks are expected to be required for L-Reactor. Section 5.1.2.8 describes the incremental impacts of L-Reactor on the waste-management operations at SRP.</p>
AV-3	<p>The Department of Energy plans involve the flushing of radioactive cesium into the Savannah River. This is not safe and I feel the startup of the L-Reactor should be avoided in South Carolina.</p>	<p>See the response to comment AA-2 regarding the relationship of radiocesium and radiocobalt concentrations to EPA drinking-water standards.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
AV-4	The Department of Energy facilities should be required to comply with Federal and state environmental standards applicable to commercial reactor sites;	See the responses to comments AA-3 and AF-1 regarding DOE's commitment to comply with applicable Federal and state environmental regulations and the differences between SRP reactors and commercial light-water reactors.
AV-5	and very serious steps be taken to avoid damage to the Environment before startup.	See the responses to comments AA-3 and AF-2 regarding DOE's commitment to comply with applicable Federal and state environmental regulations and to take all reasonable steps to mitigate impacts.
	And if proving found not to be safe for our Environment that we live in, I urge you and others not to start up the L-Reactor in South Carolina for the production of plutonium.	
	I would like to have a copy of the Final Draft Environmental Impact Statement, along with any other information you may be able to share with me.	
	Thanking you in advance for your assistance.	
	Sincerely,	
	Dorethea Smith	
	ADDITIONAL COMMENTS MADE AT PUBLIC HEARING ON NOVEMBER 1, 1983	
AV-6	As we can see, when we have public hearings to invite citizens here to meet with you to discuss the issue at hand, it's a time when citizens are at work. Most citizens are at work at 9:00 o'clock, and some of them are at work at 6:00 o'clock.	Hearings were held at both 9 a.m. and 6 p.m. in Augusta, Georgia, Aiken and Beaufort, South Carolina, and Savannah, Georgia, to provide a maximum opportunity for citizen response with minimum interference to work schedules. In addition, written comments were solicited in the EIS and in newspaper advertisements from persons who were unable to attend the hearings or who wished to supplement their oral statements.
AV-7	I'm sure we can't make it available for all that are concerned, but we should do something in the interest of the people that are being -- their lives are being jeopardized by trying to restart the L-Reactor.	As stated in the EIS, DOE will comply with all applicable Federal and state environmental protection regulations.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
AV-8	<p>I'm sure you have people who are saying that the L-Reactor is safe, but we understand that there's very toxic chemical that are being produced at the Savannah River Plant that causes birth defects and causes a lot of effects to human beings.</p> <p>We are asking each of you to please do something about the environment that we live in. We have the EPA; we have DOE; we have all these people who are working that's supposed to be protecting the environment which we live in. And every time you look around, there's something wrong. As you can see, we have people being born with a lot of birth defects, and it's no more than the toxic chemicals that we are drinking from our table.</p>	<p>Toxic chemicals and radioactive materials being produced and/or utilized at the Savannah River Plant are contained and handled in a safe manner. Releases to the environment are maintained within strict limits.</p> <p>The calculated overall reference case health effects to the population within an 80-kilometer radius around SRP and in the downstream population that consumes river water are 0.002 and 0.005 excess cancer death from the first and tenth years of L-Reactor operations, respectively. Risks from a 10-percent core-melt reactor accident are even lower, about 2.4×10^{-6} excess cancer death per reactor-year (Section 4.2.1.5).</p> <p>No detrimental health effects due to releases from the Savannah River Plant have been observed, and none are predicted to occur as a result of L-Reactor operation beyond those already identified in the EIS (Sections 5.1.2.5 and 5.2.7). These conclusions are supported by three health effects studies by Professor H. I. Sauer of the University of Missouri-Columbia (now retired), whose findings show no evidence of unusual cancer or infant death rates near the Savannah River Plant (Section 6.1.5).</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
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STATEMENT OF A. R. JARRETT, PH.D., P.E.

THE PENNSYLVANIA STATE UNIVERSITY
249 AGRICULTURAL ENGINEERING BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of Agriculture
and
College of Engineering
Department of Agricultural Engineering

October 28, 1983

Mr. Melvin J. Sires
Savannah River Operations Office
P.O. Box A
Aiken, SC 29801

Dear Mr. Sires:

In a letter dated October 27, 1983, I contributed a few comments to the Draft EIS on the L-Reactor Operation at Savannah River Plant. There was one correction necessary in that statement. I would appreciate if you would disregard the earlier comment and replace it with the enclosed statement. Thank you for your consideration.

Sincerely,

A. R. Jarrett, Ph.D., P.E.
Associate Professor

ARJ/sek

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
AW-1	<p>I have reviewed both Volume 1 and 2 of the draft Environmental Impact Statement (EIS) on the L-Reactor Operation at the Savannah River Plant (SRP). My review was limited to the areas of surface and subsurface hydrology and soils, areas of my expertise. Based on this review, I find this EIS to be in quite good condition, having addressed the necessary issues. I have noted below one or two areas of concern. These areas of concern appear to be based on interpretations of data collected and published in the EIS.</p> <p>Page 3-25 and Appendix F reveal an extensive review of the total heads existing at various locations within the SRP. These results are summarized several places, partially Fig. 3-8 and 3-9, which show most of the SRP to be in a zone of upward hydraulic gradient from the Tuscaloosa formation to the Congaree formation. The equal potential map, Fig. 3-9, reveals the magnitude of these head differences ranging from an upward head difference of greater than 30 ft. in the swamp region near the Savannah River where the Congaree is drawn down to support the flow in this river. As one moves northward, the upward differential decreases until it reaches an equal head condition near Par Pond and then a reversal implying that there is presently flow from the Congaree into the Tuscaloosa in the area of Par Pond. Figure 3-9 does not quantify the magnitude of this downward gradient but does suggest that Par Pond and the surrounding area is a recharge zone for the Tuscaloosa. This entire analysis is done using well data from the area, but nothing is said about the condition of pumping or the pumping history of wells used in the analysis when the head data were taken. It must be assumed that these data are under conditions of no withdrawal. The only pump drawdown data I could find in the report was on page 3-36 where drawdown values of 6 to 12 meters are suggested as typical for the existing withdrawal rates of the Tuscaloosa. If one superimposes these drawdowns to the stagnant well levels from the Tuscaloosa, the area of downward gradient enlarges as shown in Figures 1 and 2 (Your Figure 3-9 adapted). Even using the 6-m data enlarges the recharge area to include the L-Reactor area and during discharges creating a 12-m drawdown essentially the whole SRP becomes a recharge area.</p>	<p>The head differences between the upper Tuscaloosa and Congaree Formations at SRP (discussed in Sections 3.4.2.4 and F.4.1) were developed from measurements of the water levels that were made in monitoring wells in these formations, not in production wells. Thus, the head relationships shown in the EIS represent conditions during withdrawals of ground water by production wells. Figures 3-9 and F-30 have been modified to more accurately reflect the subtraction of the piezometric surfaces shown in Figures F-9 and F-18. In M-Area, which produces fuel and target assemblies for SRP reactors, the downward gradient between the Congaree and Tuscaloosa Formations was about 5.5 meters in 1982 (Section F.2.3). This is expected to increase to about 8.5 meters because of pumpage increases in support of L-Reactor operation.</p> <p>Sections 4.1.1.3 and 5.1.1.4 describe the long-term drawdowns in the Tuscaloosa beneath seepage and ash basins in L-, K-, F-, H-, and M-Areas. For example, beneath the L-Area seepage basin, the upward head differential would decrease to 1.4 meters in the long-term. Calculations indicate that the decline (about 0.16 meters per year) in water levels in wells used to monitor heads in the Tuscaloosa aquifer are primarily related to increased pumping rates at SRP (Section 3.4.2.5). Because pumping rates are expected to be relatively stable over the next six years with pumping rates less than in 1983 (Sections 5.1.1.4 and 5.2.3) this rate of decline (0.16 meters per year) is not expected to continue. Changes in the equilibrium piezometric surface developed in response to changes in SRP pumping rates occur very rapidly with near equilibrium levels being attained in about 100 days (Section F.4.2). Thus, stabilization of pumping at SRP is expected to stabilize Tuscaloosa water levels at SRP. A key point of the discussions in</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>This concern is further confounded by extrapolating the well water levels shown in Fig. 3-11 into the future. The water level (I assume stagnant) in well P7A has been declining at the average rate of 0.16 m/yr. and at this rate will reach the head levels in the Congaree (55.0 m) in 2012. A similar extrapolation for wells P5A, P54, and P3A shows the gradient reversal will occur in about 1990 for well P5A and that it already has occurred for the other two wells. I feel the key point which needs to be brought out in the EIS is that a closer look at these data reveals a problem which already exists in the area of the Par Pond and will more than likely increase in magnitude with time assuming the water withdrawal rates at SRP continue to remain about constant. The startup of the L-Reactor will have only a very small impact on this rate of change since the increased water for the L-Reactor is small.</p>	<p>Sections 3.4.2 and F.2 is how the characteristics of the hydrostratigraphic units in the central portion of the SRP afford protection against the contamination of the Tuscaloosa aquifers. The clay layer at the base of the Congaree formation and the upper clay layer of the Ellenton formation are effective confining units and tend to protect lower ground-water sands throughout the SRP (see the response to comment AJ-1, Table F-1, and Section 5.1.1.4, which have been revised). Pollutants entering shallow groundwater will migrate to onsite streams. This is not the case in M-Area, as noted in Section 5.1.1.4, and in the response to AJ-1.</p>
AW-2	<p>The remaining data, which makes this evaluation somewhat unimportant is that the EIS does not outline the extent and locations of the waste disposal operations at the SRP. The assumption has been made, and maybe rightfully so, that the restart of the L-Reactor will have no impact on any of the waste disposal operations within SRP. The EIS does, however, mention (p. S-5) the air-stripping clean up of the Congaree formation which is underway in Area M which implies the same waste disposal situation may evolve in Area L. If sedimentation, evaporation or adsorption waste disposal basins are needed as a result of the L-Reactor restart, their location north of the 6-m drawdown line (Figure 1) can be expected to eventually contaminate the Tuscaloosa especially if non-adsorbed species are included in the waste such as tritium.</p>	<p>The amounts of waste generated and the facilities to be used due to the restart of L-Reactor and incremental support facility operation are discussed in Sections 4.1.1.7, 4.1.2.8, and 5.1.2.8 of the EIS.</p> <p>The quantities of nonradioactive and radioactive pollutants that would be released to seepage basins due to the operation of L-Reactor and its support facilities and the locations of these basins are discussed in Section 3.4.2.2 (location of L-Reactor seepage basin), Sections 4.1.2.2 and 4.4.3.2 (discharges to L-Reactor seepage basin), Section 5.1.1.2 (incremental nonradioactive releases to K-, F-, H-, and M-Area basins), Section 5.1.2 (incremental radioactive releases to basins in the Central Shop area and F-, H-, and M-Area seepage basins), and Appendix F (location of L-, H-, and M-Area seepage basins). Changes to this EIS have been made to reflect the wastewater discharge rates to seepage basins and to more completely describe impacts to ground-water quality and surface water quality impacted by ground-water releases.</p> <p>Based on observations in monitoring wells (Appendix F and Du Pont, 1983 (DPST-83-829)), it is very unlikely that the Tuscaloosa Aquifer will become contaminated due to the operation of L-Reactor and its support facilities in the central portion of SRP. In the central portion of the SRP the green clay (which</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
AW-3	<p>A second area of concern is about the expanding delta expected to evolve near the outflow of Steel Creek into the Swamp. Nowhere is the cause of this delta growth described. Are the increased flow rates (minor) expected to accelerate the stream bank erosion to produce the delta? Are particulates from the Reactor included in the discharge stream? Or are natural erosion rates in this area sufficient to produce this delta?</p>	<p>(is discontinuous in A- and M-Areas) and the clays which overlie the Tuscaloosa are effective confining units. The green clay supports large head differences and has been an effective barrier to the downward migration of contaminants to the Congaree Formation. In L-Area this clay is 7 meters thick. Contaminants that might reach the Congaree in L-Area would be transported beneath SRP to the Savannah River in about 76 years. In A- and M-Areas, the chlorinated hydrocarbons reported in the Tuscaloosa Aquifer have entered A-Area production wells via defects in the cement grout of at least one production well and Tertiary groundwaters. Also see the response to comment AJ-1 which discusses the entry of chlorinated hydrocarbons into the Tuscaloosa aquifer, remedial action measures, and the F-, H-, and L-Area seepage basins.</p> <p>Section 4.1.1.4 of the EIS has been expanded to indicate that delta growth will be caused by erosion of the Steel Creek streambed and banks. The flushing of sediments, accumulated in the 186-basin from the withdrawal of water from the Savannah River, to Steel Creek would contribute only small quantities of sediments to the delta area.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment
number

Comments

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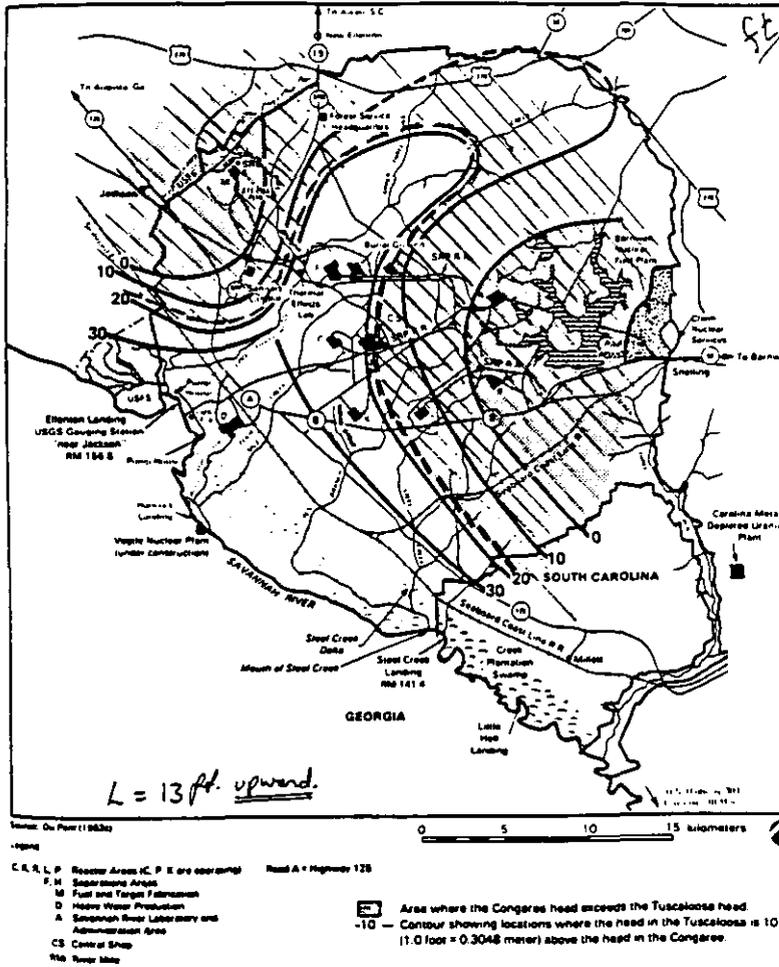


Figure 3-9. Head difference between upper Tuscaloosa and Congaree Formations at SRP.

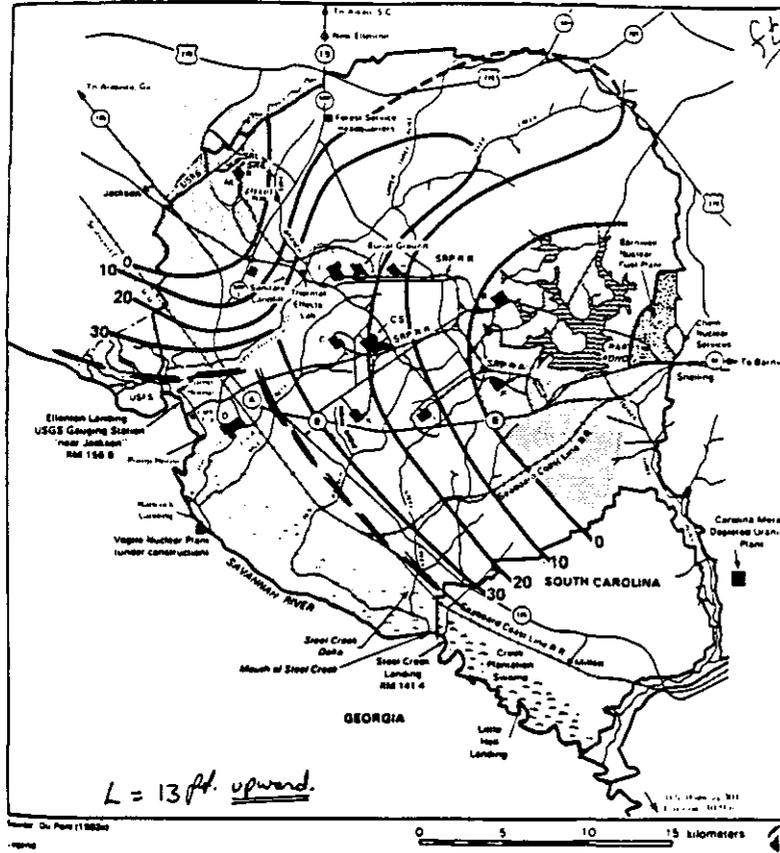
Figure 1. Equal Head Location Assuming 6-m Drawdown.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number

Comments

Responses



- C.R.R.P. Region Areas C, P, K are approved. Road A = Highway 125
 - F 14 Savannah River
 - M Fuel and Target Fabrication
 - D Heavy Water Production
 - A Savannah River Laboratory and Administration Area
 - CS Control Area
 - MS River Mile
- Area where the Congaree head exceeds the Tuscaloosa head.
 -10 - Contour showing locations where the head in the Tuscaloosa is 10' (1.0 foot = 0.3048 meter) above the head in the Congaree.

Figure 3-8. Head difference between upper Tuscaloosa and Congaree Formations at SRP.

Figure 2. Equal Head Location Assuming 12-m Drawdown.

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF IRA DAVIS		
	<p>Mr. Chairman, the Richmond County Property Owners Association wishes at this time to go on record as being heartily in favor of and endorsing the immediate restart of L-Reactor at the S.R.P. without waiting for any more "impact" studies, environmental studies or any other studies.</p>	Comments noted.
	<p>I suggest to you and to this audience that we have already "studied" the subject to death. The most important "study" and the study having the most bearing on the subject is the long successful operation of the entire plant. For thirty years plus it has lived in our midst. There have been no accidents, no babies have been born with three heads and the statistically normal number of people have departed from this world with the usual diseases. How much more proof do we need?</p>	
	<p>L-Reactor is a vital part in upgrading the nation's defense posture. Daily the news swirls around our heads of Red adventurism in every quarter of the globe - Cuba, Grenada, Lebanon - and probably some we don't even know about yet!</p>	
	<p>The only thing that keeps us free from Red attack is the sure and certain knowledge of the men in the Kremlin that an attack would bring a blow down on their own heads in return. No one starts a war they can't win.</p>	
	<p>So let us have done with worrying about what may happen to some obscure species of fish and fowl if we start up L-Reactor. Let us start worrying about what may happen to us if we do not start it up.</p>	
	<p>Let's do it now. It means a better defense, more jobs in our local economy, more money spent in our local business places and increases our chances of sleeping peacefully in our beds at night and dying at a ripe old age in a world at peace.</p>	
	<p>So in conclusion I say to my environmentalist friends. I respect your convictions gentlemen but I am a great deal more worried about what may happen to mankind while we debate the subject than I am worried about some species of fish if we take this step to make ourselves stronger.</p>	

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
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Thirty years of quite remarkable efficiency should, I think, speak for themselves and deserve to be heard. Let them be heard, here and now.

Ira Davis
Pres. R.C.P.O.A.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF JUDITH E. GORDON		
October 31, 1983		
<p>SIERRA CLUB South Carolina Chapter ...To explore, enjoy and preserve the nation's forests, waters, wildlife and wilderness...</p>		
<p>To: Dept. of Energy, Savannah River Plant Operations From: Dr. Judith E. Gordon Re: Draft EIS, L-Reactor Operation, SRP</p>		
<p>I am here representing the South Carolina and Georgia Chapters of the Sierra Club.</p>		
<p>This is the fourth time that we, from our opposing points of view, have met to address the environmental problems associated with L-Reactor restart. Speaking for myself, I am thoroughly disheartened with the entire business, particularly when DOE seems determined to proceed with its original plans in spite of all the evidence that contradicts the wisdom of restarting this reactor. It is especially disheartening that few people will know or even care what happens given that press coverage deals more with the general statements made by both sides but seldom covers the evidence that supports these statements. None-the- less, if it is possible to convince even a few persons, then the effort is well made.</p>		
AY-1	<p>Having read the Environmental Assessment, and knowing of its inadequacy, I find it difficult to understand why DOE con- tracted the EIS to the same corporation that produced the EA found wanting by not only environmental groups, but by the United States judicial system as well. Thirty-seven of the 41 preparers of this questionable document are affiliated with NUS Corporation. I believe an explanation is in order.</p>	<p>See the response to comment AB-20 regarding the opinion of the United States District Court and the preparation of the <u>Finding of No Significant Impact</u>.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>It is indeed difficult to understand how any final conclusion can be drawn from this document when several critical studies have yet to be incorporated, e.g.</p>	
AY-2	<p>1. Studies on the wood stork, an endangered species, are still being completed. Yet even the partial evidence, to quote the EIS, "...indicate that the Savannah River Swamp, particularly the deltas of Beaver Dam and Steel Creek, represents important feeding habitat for wood storks of the Birdsville rookery." Quoting further, "A total of 386 wood storks have been observed on the SRP site in summer 1983. Foraging sites on Savannah River Plant were used by more wood storks than other regional wetlands based on the number of birds per foraging location." (C-37) Need I remind you that once a species is gone, it is extinct forever, and forever is a very long time.</p>	<p>Appendix C, Section C.3.2 of this EIS contains more detailed information on the woodstork than was available for the preparation of the Draft EIS. Section 7.3 of this final EIS presents the current status of DOE's consultations with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.</p>
AY-3	<p>2. Information on another endangered species, the shortnose sturgeon, is also incomplete. Although larvae have not yet been found in Steel Creek, they have been found in nearby areas.</p>	<p>The shortnose sturgeon is discussed in Appendix C, Section C.4.2.2 of this EIS. Additional data on the shortnose sturgeon from recent fisheries studies has also been included in Appendix C. In 1982, two shortnose sturgeon larvae were collected at River Mile 157.3, which is upstream from the IG canal. In 1983, seven shortnose sturgeon larvae were collected, five in the Savannah River adjacent to SRP (two from the canal and three from the river). Two larvae were also collected at River Miles 79.9 and 97.5, both of which are more than 60 miles downriver from SRP. DOE has prepared a Biological Assessment on the shortnose sturgeon which was provided to the National Marine Fisheries Service (NMFS) on October 28, 1983. On November 1, 1983, NMFS concurred in the DOE determination that SRP operations would not jeopardize the population of the shortnose sturgeon population in the Savannah River. The EIS has been revised to reflect this NMFS concurrence.</p>
AY-4	<p>3. At the scoping hearings I requested that information on wetlands importance be incorporated into the EIS, particularly with input from state agencies. On p. 5-24 a cursory treatment is given with no information on the extent of wetlands loss in Georgia and South Carolina. DOE would have us believe that this is a rather insignificant problem. After all, why get upset about swamps filled with mud, mosquitos, and moccasins? Of course, well-informed people know that</p>	<p>To date, there has been no published comprehensive inventory of wetlands in the contiguous United States. The U.S. Fish and Wildlife Service is in the process of inventorying the Nation's wetlands but current data in South Carolina and Georgia are restricted to coastal ecosystems. Neither South Carolina nor Georgia have an inventory of their wetland resources.</p> <p>Although no comprehensive inventory presently exists for wetlands, from available data, there were about 58 million acres</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>wetlands loss is one of our more important environmental problems in the United States today.</p>	<p>of bottomland hardwood forests in the United States (Clark and Benforado, 1981). Approximately 11.4 percent and 10.1 percent of the total land area of the States of South Carolina and Georgia, respectively, contain bottomland hardwood forests. The Savannah River watershed contains about 258,000 acres of wetlands dominated by bottomland hardwood forests. Of this total, South Carolina contains 138,000 acres and Georgia has 120,000 acres.</p>
		<p>From 1960 to 1975, South Carolina lost about 30,000 acres and Georgia lost 141,000 acres of bottomland hardwood forests. The overall net loss of bottomland hardwood forest wetlands from 1950 to 1970 was 6 million acres (Frayer et al., 1983).</p>
		<p>Section 4.4.2 and Appendix I assess cooling-water mitigation alternatives and their effects on wetlands. The purpose of presenting this information is to enable the decisionmaker to formulate a reasoned decision on the implementation of a cooling-water mitigation alternative--including the importance of the wetlands to be affected--in relation to the need for required defense nuclear materials. Also see the response to comment AA-1 regarding revisions to Section 4.4.2 and Appendix I contained in this final EIS.</p>
AY-5	<p>DOE assumes that if the Steel Creek corridor recovered from mistreatment once, it can do so again. This is probably true to a degree, but the next recovery might be made without the wood stork, without the shortnose sturgeon, and at the expense of further depletions in Savannah River fish populations. In the 1950's few people knew anything about thermal pollution. Have we learned nothing in the interim? It would seem so.</p>	<p>See the responses to comment AA-1 regarding cooling-water mitigation alternatives, and the responses to comments AY-2, AY-3, and AY-6 regarding the woodstork, shortnose sturgeon, and fish populations.</p>
AY-6	<p>I wonder how many fishermen in the CSRA are aware of the following:</p> <ol style="list-style-type: none"> <li data-bbox="354 1146 1100 1248">1. With restart of the L-Reactor, the number of fish eggs and larvae lost to entrainment in water intake canals at SRP will be about 19% of the numbers passing through the river along SRP? 	<p>The estimated cumulative percentage of fish eggs and larvae passing the Savannah River Plant in the river that will be lost to entrainment by the combined operation of C-, K-, and L-Reactors is about 19 percent (see Section 5.2.5.2 of the EIS). During periods of high water, the cumulative total fish impinged could reach about 104 fish per day, 31 of which would be due to L-Reactor operation (see Section 5.2.5.3 of the</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	2. With restart of the L-Reactor, total fish losses due to impingement will be about 19 per day but possibly as high as 104/day during high water?	EIS). Of the 1315 fish impinged during these high flow periods, bluespotted sunfish, threadfin shad, and gizzard shad made up the majority of those impinged (60 to 90 percent). The total individuals collected during these peak periods were small, averaging only about 9 grams in weight with an average total length of about 80 millimeters (approximately 3 inches).
AY-7	3. That comprehensive studies of river biology have been underway for only the last few years and that "The flood plain swamp, which includes the Steel Creek delta, bordering the river is the least known aquatic habitat on the Savannah River Plant."? (C-39)	The overall SRP swamp remains a relatively unstudied ecosystem, in sharp contrast to the Steel Creek delta region. The Steel Creek area will be affected by the L-Reactor restart. Intensive studies of the Steel Creek region of the swamp were initiated in 1980 as a component of the L-Reactor environmental studies. The results of these studies are included in Chapters 3, 4, and 5, and in Appendixes C, D, and I of the EIS. Information on the remainder of the swamp is less complete, but extensive ecological studies have been initiated as part of the comprehensive cooling-water study. Additional information from recent fisheries studies has been included in Chapter 4 and Appendix C of this Final EIS.
	There are other areas of concern dealing with wetlands and thermal pollution that contain questionable information, but I will submit written comments later.	Appendix H describes SRP emergency planning. Additional information on the current status of emergency planning and emergency planning zones has been provided in Appendix H of this Final EIS. With respect to Richmond County, the closest boundary lies farther than 10 miles from any SRP reactor and the Augusta city limits are more than 20 miles away. Calculated consequences of the worst credible accident at SRP are lower than EPA protective action guides for emergency planning at this distance, even under extreme meteorological conditions.
AY-8	I would now like to comment on another area of concern, that of emergency preparedness, particularly at the county level, and particularly given the age of reactors at SRP, including L-Reactor. I was somewhat surprised to learn that counties surrounding SRP are just now beginning to work with DOE to coordinate emergency procedures in the event of a major accident at SRP, one that would release radioactive contamination beyond SRP boundaries. The lateness of this concern is difficult to understand since local officials would likely be the first to deal with such emergencies. Even more surprising, Richmond County, GA, according to the EIS, has not developed any plan. The attitude seems to be that the projected accidents will never be severe enough to endanger the Augusta area and that the probabilities are so low that there is nothing to worry about. Officials at TMI probably said that, too.	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
AY-9	<p>In fact, the EIS does not clearly establish how the probabilities are calculated. Also, the accidents suggested could be more severe than projected in the EIS.</p>	<p>Section 4.2.1.4 of the EIS has been modified to include the basis for the probabilities. The accidents analyzed in Section 4.2.1.4 incorporate conservative assumptions: for example, the moderator spill accident considers tritium concentrations that are 30 to 40 percent higher than actual concentrations for current and planned charges; credit is not taken for any spray-system removal of airborne particulates or iodine in the discharge mishap; core-melt accidents consider a power level of 3000 megawatts, which is more than the actual power level at which L-Reactor will operate.</p> <p>Additional failures or more extreme meteorological conditions would be required for the accidents to be more severe than projected in the EIS. Additional failures would result in accident sequences of lesser probability than those considered in the EIS, and, as such, are not considered credible. The EIS provides an analysis of a hypothetical 10-percent core-melt accident that is more severe than any considered credible. The results calculated for credible accidents and the beyond-credible 10-percent core-melt accident assume meteorological dispersion conditions that are taken to be neither the best nor the worst for the site, but rather an average value determined by actual site measurements; they represent realistic values. Calculations to estimate the potential upper bounds for individual exposures from the same initiating accidents in the EIS were calculated in a Safety Analysis Report assuming extreme meteorological conditions rather than average conditions.</p>
AY-10	<p>Perhaps of more crucial concern is the failure of the EIS to deal adequately with another potential problem likely to be encountered by local officials--that of transport accidents. L-Reactor restart will add to the radioactive load already present at SRP. It will add to the processing to be done at the Waste Disposal Facility, and the subsequent shipping of high-level waste to a permanent repository, yet-to-be-designated. Several environmental groups, state officials, and local officials in other areas have questioned the adequacy and safety of the shipping casks and transport routes.</p>	<p>Section 4.3 of the EIS describes transportation requirements and transportation risks associated with L-Reactor operation. Transportation requirements and risks associated with the eventual shipment of high-level waste forms from the Defense Waste Processing Facility (DWPF) to a Federal repository are described in the DWPF EIS (DOE/EIS-082). These analyses made use of the NRC EIS on the transportation of radioactive materials (NUREG-0170). The draft EIS (Table 4-30) estimates a transportation risk of 1.1 person-rem per year with a maximum individual exposure of 0.017 millirem per year from offsite transportation activities associated with L-Reactor operation.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
		<p>The EIS points out that all offsite shipments of hazardous and nuclear materials in connection with L-Reactor will adhere to Department of Transportation (DOT) regulations 49 CFR 170-179. If shipping casks are required, a DOE- or NRC-approved certificate of compliance with the DOT regulations on packaging is issued. DOE Order 5480.1, Chapter 3, requires that DOE certificates be based on requirements that are equivalent to or better than those of the NRC.</p>
		<p>The response to a transportation accident varies with the material being transported. For shipments involving appreciable quantities of special nuclear materials, DOE couriers maintain constant radio communications with both DOE and local officials. For other shipments, DOE maintains regional emergency teams to respond to accident situations; Savannah River Plant has the response team for the Southeast. Current DOT regulations require that the shipping papers carried by the driver give instructions on how to contact these response teams. The response system is described in <u>Guidance for Developing State and Local Radiological Emergency Response Plans and Preparations for Transportation Accidents (FEMA REPS), Issued in March 1983.</u></p>
		<p>As indicated in Section 4.3 of the EIS, the transportation of high-level radioactive waste is regulated by the Nuclear Regulatory Commission and/or the Department of Transportation. Therefore, all persons or companies involved in any aspect of this transportation must be licensed and all activities must meet regulations and guidelines promulgated by these agencies. In addition, all containers and shipping casks are tested and licensed. Many regulations have been promulgated on the subject and many reports have been issued; existing NEPA-related documents describe the radiological impacts to be expected from normal operations and accidents involving high-level waste. A listing of references for many of these documents are contained in Appendix D of the <u>Final Environmental Impact Statement, Defense Waste Processing Facility, Savannah River Plant, Aiken, South Carolina (DOE/EIS-0082).</u> Also see comment letter "DK" and the responses to that letter.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
AY-11	I see no evidence of concern or attempts by DOE to work with local officials on this problem. The public is generally unaware of the potential hazards. In Appendix H, DOE appears more concerned about media communications than alerting and helping local officials.	<p>The States of South Carolina and Georgia have Nuclear Regulatory Commission and Federal Emergency Management Agency-approved emergency response plans that address, among other things, transportation accidents involving high-level radioactive waste. County plans include the identification of responsibilities, resources, and actions necessary to carry out the jurisdictional requirements of the state plans. These state plans include agreements with DOE-SR and DOE Region 3 Interagency Radiological Assistance Plans to coordinate Federal agency resources for a radiological emergency response in the Southeastern United States.</p> <p>As stated in the EIS, notification agreements have been in place for some time; all parties have agreed to the details of coordinations and responsibilities. The details of protective action planning have been completed for the States of South Carolina and Georgia and all counties except Burke County. The Burke County plan will be completed in June 1984. Drills and exercises to appraise the plans and actions are scheduled for November 1984. At that time, the details of notification and protective actions will be revised and modified as necessary to meet state and county public health and safety response needs.</p>
AY-12	In summary, this EIS is insufficient, biased, and unacceptable. There are solutions to many of the restart problems; cooling towers may be expensive, but wetlands losses are too. It is time to be more concerned about our future health and welfare and less concerned about how many jobs are saved. If we can't adequately protect the people of this country and their environment, perhaps we should ask if we really need this reactor or any others planned for the future.	<p>The subject matter covered in the EIS follows the regulations established by the Council on Environmental Quality for the preparation of an EIS. The EIS assesses environmental impacts so they can be balanced against the need for defense nuclear materials that has been established in the FY84-89 Nuclear Weapons Stockpile Memorandum and approved by the President.</p> <p>Along with other documents on the need for materials, DOE will use this EIS in reaching its Record of Decision. Mitigation alternatives, including cooling towers, are discussed in Section 4.4 and Appendix I. All factors, including environmental impacts, socioeconomic considerations, the need for materials, and health and safety will be considered in the decision process.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF JOHN STANYARNE WILSON		
AZ-1	<p>My name is John S. Wilson, and I would like to express my concern about a general aspect of the draft EIS. It seemed that the EIS did not give serious consideration to alternative procedures that would enable operation of the L-Reactor to comply with state regulations, and decrease the impact on the environment before restart.</p> <p>For instance, the use of fully recirculating mechanical draft cooling towers is a viable alternative cooling water system for the following reasons:</p> <ol style="list-style-type: none"> 1. It would bring operation of the L-Reactor into compliance with the state delegated NPDES permits, without reclassifying Steel Creek. 2. It would enable the continued growth and regeneration of the wetlands, wildlife, and ecosystem of the Steel Creek corridor, delta, and floodplains. 3. It would decrease the amount of radiocesium entering the Savannah River, a source of drinking water for many South Carolinians and Georgians. 4. It would decrease the amount of water needed to be withdrawn from the Savannah River. 5. It is economically and technologically feasible to implement the system. 6. The reference case of direct discharge into Steel Creek does not allow for any of these benefits, and seems to be the chosen method only because it allows restart of the L-Reactor according to "production schedules." 	<p>Section 4.4 of the EIS discusses mitigation alternatives that could reduce potential environmental effects. The discussion of alternative cooling systems, including mechanical-draft cooling towers, has been expanded in Section 4.4.2 of this final EIS. Also see the response to comment AA-1 regarding cooling-water alternatives and the identification of a preferred cooling-water alternative in this Final EIS.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
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I feel that the safety and protection of our citizens and our fragile environment takes priority over the necessity of re-start for the production of materials for the nuclear arsenal.

Thank you for listening.

John S. Wilson

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>Statement of Karen Arrington on the Draft Environmental Impact Statement L-Reactor Operation Savannah River Plant</p>	
BA-1	<p>My name is Karen Arrington. I live in Easley, South Carolina, 20 miles from Greenville. Since moving here seven months ago, I have become aware that this beautiful state has some very serious environmental problems, the crown jewel of which is the Savannah River Plant. The restart of the L-Reactor will release 33% more emissions and effluents from fuel fabrication and chemical processing and 33% more waste.</p>	<p>See the response to comment AA-3 regarding DOE's commitment to comply with applicable Federal and state regulations, the response to comment AJ-1 regarding seepage basins and ground-water contamination at SRP, and the response to comment AV-2 regarding high-level radioactive waste.</p>
	<p>Instead of mollifying my fears, reading the Draft Environmental Impact Statement has served to greatly sharpen my awareness of the seriousness of radioactive pollution, and has caused me to try to learn something of the nature of what constitutes these silent and invisible rays.</p>	
BA-2	<p>Although the calculations presented in the Draft Environmental Impact Statement are very technical, I seriously question the adequacy of the calculations for concentrations of radionuclides for the first-year and tenth-year operation of L-Reactor. Radioactive substances are concentrated in the lower forms of life and increasingly concentrated as they reach higher forms. A variety of radioactive substances are released from the Savannah River Plant in an environment of many different kinds of living organisms.</p>	<p>The dispersion and concentration of radioactivity released to the environment has been observed and studied for more than 40 years. Pathways and bioaccumulation factors through various ecological chains have been measured for a variety of natural conditions. These data are widely published and subject to intense peer review. The data have formed the basis for radiation exposure models that predict bioconcentrations close to measured values. Actual releases from the Savannah River Plant have been measured for more than 25 years; they have shown a close correlation with predicted environmental concentrations. Thus, concentrations of radioactivity in the environment from expected releases can be predicted with confidence. As more data become available, the models will continue to be refined so predicted values are even more precise.</p>
BA-3	<p>Radiocesium (primarily Cesium-137) is frequently mentioned in the Impact Statement. Radiocesium has already been released in large quantities from the disassembly basins of the L- and P-Reactors to Steel Creek. The Impact Statement traces the radiocesium flow from Steel Creek to the Savannah River downstream more than 10 miles from the confluence of the Steel Creek and Savannah River. Cesium-137 exists in the L-Area</p>	<p>See the response to comment AA-2 regarding the relationship of radiocesium and radiocobalt concentrations to EPA drinking water standards.</p> <p>Because of the relatively high distribution coefficient (K_d) for cesium-137 (up to 3960; see Section D.2.1), the cesium-137 existing in L-Reactor seepage basin soils will not be flushed</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BA-4	<p>seepage basin soil. L-Reactor will again release it into Steel Creek. Cesium-137 is known to be one of the more dangerous radioisotopes in existence. It also attacks the reproductive organs of humans.</p> <p>In addition to the regular annual releases of tritium by currently operating Savannah River Plant reactors, L-Reactor will release 80,000 curies annually of radioactivity, primarily tritium to the atmosphere and 9,600 curies annually directly and indirectly to surface streams. It is well known that in the past, very large releases of tritium have occurred. By these statements from the Impact Statement, it appears that the problem of tritium release is being shoved under the rug. "No facilities are currently available to remove tritium from the reactor moderator." "As noted in the table, 30% of the tritium discharged to the seepage basin is expected to be released to the atmosphere by evaporation." "Due to the low routine releases expected from the L-Reactor and its support facilities, insignificant short- and long-term health risk is anticipated." According to Peter Alexander in his book, Atomic Radiation and Life, "The dose of atomic radiation needed to produce many types of biological effects is often extremely small."</p>	<p>through the unsaturated zone to the water table by the resumed operation of L-Reactor.</p> <p>The doses associated with the L-Reactor releases including tritium are shown in Section 4.1.2 of the EIS to be very low, less than 1 percent of the natural background radiation to the population within 80 kilometers of SRP and the Beaufort-Jasper and Port Wentworth drinking water population.</p> <p>The large releases of tritium referred to have occurred at tritium facilities at the SRP that are not associated with the operation of L-Reactor or its support facilities. These releases and their consequences have been well documented in <u>DP-1639, Environmental Effects of a Tritium Gas Release from the Savannah River Plant on May 2, 1974, DP-1415, Environmental Effects of a Tritium Gas Release from the Savannah River Plant on December 31, 1975, and in the 1975 annual report, Environmental Monitoring in the Vicinity of the Savannah River Plant (DPSPU-76-30-1).</u></p> <p>The understanding of the biological effects of ionizing radiation is quite substantial, as discussed in Section B.6 of the EIS. The subject has received intense review by the National Academy of Sciences; it continues to receive intense review. The NAS Committee on the Biological Effects of Ionizing Radiation has recently revised downward its earlier assessment of health effects for a given exposure of radiation. From statistical analyses, there is no correlation of actual cancer death rates with radiation for regions of the United States (Denver, western mountain states) in which the background radiation levels are well in excess of the average radiation exposure for the entire nation.</p> <p>The models used in the evaluation of doses and associated health effects in the EIS do not assume any threshold level for health effects due to radiation exposure. The health effects estimators used in the EIS have been applied in a linear manner, implying that health effects are proportional to the dose, no matter how small the dose.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BA-5	<p>The most frightening pollution produced at the Savannah River Plant is the disposal of high- and low-level radioactive wastes. High-level wastes from fuel reprocessing emit highly acid and alkaline substances which make disposal difficult. Leaks definitely have been taking place of high-level waste. Knowing that the Savannah River Plant is storing over 30 million gallons of liquid high-level waste, how can 500,000 gallons more waste each year be allowed to be stored? In 1982, Savannah River Plant officials reported some contamination of ground water. The longevity of radioactive waste allows it plenty of time to seep into the aquifer. The Defense Waste Processing Facility sounds like it will help solve the waste disposal problems. Until then, however, it would behoove us to use the money for the L-Reactor restart to clean up present waste and contamination.</p>	<p>DOE has written four Environmental Impact Statements and one Environmental Assessment on SRP's high-level radioactive waste activities within the last six years. A program is presently underway at SRP that is transferring all high-level waste into new Type III double-steel walled storage tanks which have not evidenced any leakage. During the storage of high-level waste in older type tanks, only one tank--Tank 16--experienced cracks that allowed some waste to leak into the soil. Waste material from this tank has been transferred to a newer Type III waste tank. Over 60 monitoring wells have indicated that the waste has migrated only a few feet from the tank. As documented in DOE/EIS-0082, DOE is committed to a major program to provide a more permanent storage mode for high-level waste. Site preparation work at SRP has begun on the Defense Waste Processing Facility which will immobilize the high-level radioactive waste in borosilicate glass and store the glass in steel containers for eventual shipment to an offsite repository.</p>
BA-6	<p>Since our wetlands have been disappearing rapidly, it is no small matter that 1000 acres of wetlands will be impacted. The elimination of some of the habitat for the American alligator, waterfowl and wood stork cannot be tolerated.</p>	<p>Low-level wastes generated at the SRP are buried at an onsite burial ground that has been monitored extensively since operations began in the 1950's. Releases have been confined to the burial ground and its immediate vicinity. The Tuscaloosa aquifer is not subject to contamination since a hydraulic gradient head reversal occurs that greatly limits the depth of circulation of water from the burial ground.</p>
	<p>It is bitterly ironic that in order to defend our country we must subject our people to the very effects of radioactivity we are trying to avoid. When we can destroy ourselves so many times, the need for more weapons is dubious. We are planting the seeds of genetic damage with radioactive pollution. I strongly believe we ought to start thinking of our children and the generations of people we will never know before doing anything so foolish as restarting the L-Reactor.</p>	<p>The EIS describes impacts to wetlands, the American alligator, waterfowl, and the wood stork in Section 4.1.1.4 from direct discharge, and Section 4.4.2 and Appendix I discuss cooling-water mitigation alternatives and impacts to wetlands. Section 5.2.4.1 of the EIS compares wetland losses for the coterminous United States, as well as those for Georgia and South Carolina, to those of the SRP. Section 7.3 of this final EIS presents the current status of DOE's consultations with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF MR. & MRS. JOHN P. SWAIN, IV		
30 October '83		
Dept. of Energy:		
<p>It is my belief that each generation is given responsibility for our world's "upkeep." We must all do our very best to keep our environment in the best possible condition, and better than it was when we came to it as our knowledge and technology make this possible. I don't believe any of us would want to leave our sons and daughters less than we were given.</p>		
BB-1	<p>It is for these reasons I wish to speak up and insist that your facilities comply with federal and state environmental standards applicable to commercial reactor sites.</p>	<p>See the responses to comments AA-3 and AF-1 regarding DOE's commitment to comply with applicable Federal and state environmental regulations and the differences between SRP reactors and commercial light-water reactors.</p>
BB-2	<p>I urge you to accept your share of the responsibility for our environment and take a thorough look at all possibilities of damage and avoid it <u>before</u> startup--specifically now of the L-Reactor.</p>	<p>See the responses to comments AA-3 and AF-2 regarding DOE's commitment to comply with applicable Federal and state environmental regulations and to take all reasonable steps to mitigate impacts.</p>
<p>Use all feasible protection measures and keep searching for more. Don't take chances that may lead to uncorrectable mistakes.</p>		
<p>Our quality of living depends on it!</p>		
Thank you,		
<p>Mr. & Mrs. John P. Swain, IV 707 Corley St. Lexington, S.C. 29072</p>		

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF MRS. JUDITH G. CATOE		
2535 Treeside Drive Columbia, South Carolina 29204 October 26, 1983		
Mr. Melvin J. Sires, III U.S. Department of Energy Savannah River Operations Office Post Office Box A Aiken, South Carolina 29801		
Re: Comment on L-Reactor Startup		
Dear Mr. Sires:		
I wish for my comment on the L-Reactor startup to be for the record.		
BC-1	First, I feel that startup should not occur until steps are taken to avoid damage to the environment.	See the responses to comments AA-3 and AF-2 regarding DOE's commitment to comply with applicable Federal and state environmental regulations and to take all reasonable steps to mitigate impacts.
BC-2	Second, I feel that DOE facilities should be required to comply with federal and state environmental standards that are applicable to commercial reactor sites.	See the responses to comments AA-3 and AF-1 regarding DOE's commitment to comply with applicable Federal and state environmental regulations and the differences between SRP reactors and commercial light-water reactors.
Very truly yours,		
(Mrs.) Judith G. Catoe		

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF MR. AND MRS. CHARLES F. COOK		
829 Wheelchel Drive Decatur, GA 30033 October 29, 1983		
Mr. M. J. Sires III Assistant Manager for Health, Safety and Environment Savannah River Operation Office		
Dear Sir:		
BD-1	We are Georgia citizens who are very much concerned about our environment and about the health and safety of people in the Savannah River Plant area.	DOE is concerned with the health, safety, and environment of people in the Savannah River Plant area. DOE will comply with all applicable Federal and state statutes and regulations on environmental and health protection. Regulations and requirements that are applicable to the resumption of L-Reactor operation are summarized in Chapter 7 of the EIS. DOE also has and will continue to <u>maintain an intensive surveillance program to monitor the health and safety impacts of its actions, both onsite and offsite,</u> as discussed in detail in Chapter 6. Section 5.2 describes the cumulative impacts of L-Reactor operation in conjunction with the effects from other SRP facilities and from major facilities near the Savannah River Plant.
We are opposed to the starting up of the L-Reactor operation at the Savannah River Plant.		
Mr. and Mrs. Charles F. Cook Decatur, Georgia		

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
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STATEMENT OF BILL CARROLL

Bill Carroll
 630 Lewisham Road
 Columbia, S.C. 29210

30 October 1983

Sir:

BE-1

The hands that are typing this letter have fired, in training exercises, using inert warheads, and stopping the propagation of the launch signal prior to the EBW circuit, at least 1,000 Polaris and Poseidon missiles in the fourteen years I was active as an engineer in that program. At core all I want to tell you is that for you to consider restarting the "L" reactor at SRP is, in a word - sick!

These comments are outside the scope of this EIS.

A SINGLE Poseidon missile launched from a square in the Aegean Sea and programmed to fly northeast from the Volga delta in the direction of its junction with the Kama could extinguish the following cities: Astrkhan, Vogograd, Kamyshin, Sarutov, Syzran, Kazan, Votikinsk, Krasnokamsk, Perm and Berzniki - this would incinerate the industrial core of the Soviet Union and render it an impotent economic and social entity. For you to suggest that a SINGLE Poseidon submarine could not repeat this operation 16 times is to flatly lie!

I know, and you don't know what those missiles are capable of doing - I've taught classes in those weapon systems, you have not and in all probability never will be able to - probably lack the discipline and intelligence requisite to learn anything seriously technical.

In a word to say that starting up that reactor is in some sick way associated with making this country a more secure area of the planet in which we live is a raw lie.

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BE-2	<p>The potential for contaminating the Savannah River with cesium is very real - to risk activation of that potential is flatly a clear case of criminal irresponsibility.</p> <p>I have two teen-aged daughters who have every right to become 21....things like you and other monsters associated with the Departments of Defense and Energy jeopardize their chances....a fact about which we in the peace movement are continually stunned.</p> <p>Little doubt in my mind that this letter, along with other complaints about your arrogant attitudes in regards to those of us who love our children and the land on which we live, will be trashed and characterized as yet another silly bitch from a peace freak. That will probab., happen but know this: (1) I am an honorably discharged ex-naval officer who made some significant sacrifices for you and your family - I have a naked and just right to complain; (2) in October of 1972 the hands that are typing this letter helped to carry a young trooper to a military hospital - he was nineteen - his legs had been blasted off his body - by a mine - in Vietnam! The military aristocracy whom you serve took his legs away from him. You really should think about that.</p> <p>If you should see your children dying, gagging on their own vomit - be assured that you were definitely in the cause chain that was responsible for their horrible deaths. I may be witness to the same horror with regard to my own children but at least I'll know something that you don't; namely that when it became clear to me that I was in the cause chain I quit and began to fight against those whom I had so faithfully served. I doubt if you have the intelligence and courage to do what I did - additionally you might be deterred because you can't find any other kind of work besides being a part of a huge machine that generates lies.</p>	<p>See the response to comment AA-2 regarding the relationship of radiocesium and radiocobalt concentrations to EPA drinking water standards.</p>
		<p>Peacefully,</p> <p>Bill Carroll</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF BEATRICE D. JONES		
BF-1	The issue of cumulative low-dose radiation is one in which many people in South Carolina and Georgia have particularly high stakes. The D.E.I.S. makes it abundantly clear that restarting the L-Reactor will substantially increase the radiation dose to the public from numerous sources.	The EIS states that the operation of L-Reactor and associated support facilities will increase the dose to the population within an 80-kilometer radius by 17.2 person-rem and the dose to downstream consumers of Savannah River water will increase by 18.6 person-rem, a combined total of about 36 person-rem. This dose is only about 0.03 percent of the natural radiation dose received by the population living within an 80-kilometer radius and the Beaufort-Jasper and Port Wentworth drinking water population in 1 year. This is equivalent to saying the population dose from L-Reactor operation will be equivalent to about 3 hours of exposure to natural radiation.
BF-2	It appears that few in government ever questioned by what right, legal or moral, the Department of Energy through its Savannah River Plant operations has been permitted to pollute the air we breathe with radioactive contaminants, the soil in which our food is grown, our water and our wildlife.	As stated in the EIS, DOE will comply with all applicable Federal and state environmental protection regulations that are summarized in Chapter 7 of this EIS. Also see the response to comment AA-3 regarding compliance with applicable regulations.
BF-3	It seems less likely that this would have occurred, at least to the extent that it has, if the promoters of this hazardous technology were not also its monitors. It is a situation that needs to be remedied. There are many complexities involved in assessing the risks to man from low-level ionizing radiation, but nuclear pollution can and should be reduced to a large extent at the Savannah River Plant, and never denied or belittled with half-truths about its consequences.	As discussed in Chapter 6 of the EIS, DOE has maintained and will continue to maintain an intensive surveillance program to monitor the composition of effluents from the SRP facilities, to measure radioisotope concentrations in the Plant environs, to assess the ecological health of the overall SRP environment, and to determine SRP compliance with applicable standards. The results of these monitoring programs are reported annually to the public. As also pointed out in Chapter 6 of this EIS, several state and Federal agencies also monitor SRP activities and participate in various studies; these include the Georgia Department of Natural Resources (radioanalysis of fish near SRP and crabs and oysters near the seacoast and monthly analysis of 13 water-quality parameters), South Carolina and Georgia (air-monitoring network, including eight sampling stations near SRP), U.S. Geological Survey (continuous monitoring of river flow and temperature above and below the SRP), National Centers for

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
		<p>Disease Control (epidemiological studies), and the Academy of Natural Sciences of Philadelphia (long-term aquatic and water-quality studies in the Savannah River near SRP). The current reports documenting the radiation monitoring programs of the states are <u>Environmental Radiation Surveillance Report, Summer 1980-Summer 1982</u>, Georgia Department of Natural Resources, and <u>Nuclear Facility Monitoring</u>, South Carolina Department of Health and Environmental Control. Proposed EPA standards for radioactive air pollutants are acknowledged to be well below "safe" limits; the development of these standards was based on SRP's existing best available control technology practices.</p>
		<p>DOE performs several monitoring studies in compliance with both state and Federal permit requirements. DOE has also initiated a 2-year program to determine the environmental effects of cooling-water intake and discharge of the SRP production reactors. The States of South Carolina and Georgia, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers are participating in this program.</p>
BF-4	<p>Recently, while reading the April 18 - July 17, 1983 Hearing Report I came across the statement of a DuPont official. A part of his statement said that offsite radiological impact of the Savannah River operations is less than one percent of normal background. It struck me from things that I have read that his statement may be misleading as well as confusing to the public, since there is no reason to dismiss as negligible any radiation dose from a man-made source simply on the grounds that the dose it delivers is lower than the dose from some combined sources of normal background radiation.</p>	<p>Natural radiation exposes the entire population of the world and has done so since mankind has existed. The effects of man-made radiation do not differ in any manner or degree from the effects of natural radiation. Thus, radiological impacts of nuclear operations are often compared with natural radiation exposure. The intent of the statement that the population dose from the reference case L-Reactor operation would be only about 0.03 percent of natural radiation exposure was included to show that the radiological impact will be very small.</p>
		<p>The radiological effects of L-Reactor operation are also much smaller than the variation in natural background radiation from one place in the United States to another, or even from one place to another in South Carolina.</p>
BF-5	<p>The Department of Defense started issuing false assurances about radiation in the early 1950's when fallout from American and Soviet bomb testing began to pollute the world. Many false assurances continue today at the Savannah River Plant.</p>	<p><u>The Department of Energy has not concealed in the past nor will it conceal in the future any information concerning the radiological effects of plant operations on the public.</u> All assurances by DOE concerning radiological effects are based on monitoring data or analytical predictions based on recognized models and guidelines.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BF-6	<p>I believe I can say without fear of contradiction, that people in South Carolina and Georgia who have taken the trouble to inform themselves as best they could about the Savannah River Plant, are strongly opposed to having their families, themselves or any others become casualties of the D.O.E.'s codified permissible radiation doses, especially when much of it could be mitigated, or even avoided. No standard implies a safe amount of radiation.</p>	<p>The Department of Energy's radiation protection standards are comparable to those of the Nuclear Regulatory Commission (10 CFR 20) for a production facility (i.e., 500 millirem to the whole body in any one calendar year). These standards have been promulgated by the National Council on Radiation Protection (NCRP) and the International Commission on Radiological Protection (ICRP). The National Academy of Sciences BEIR Committee (<u>The Effects on Populations of Exposure to Low Levels of Ionizing Radiation: 1980</u>, National Academy of Sciences, Washington, D.C., 1980) has stated that it cannot determine if the low levels of radiation such as those that will result from L-Reactor and other SRP operations are, or are not, detrimental to man. Thus, the committee conservatively assumes that radiation-induced health effects will occur at all levels of exposure. The risk of health effects at low levels of exposure is extrapolated from observations at high levels of exposure. This approach is taken in the EIS (Appendix B) to calculate the health effects from L-Reactor operation. The EIS states that for the reference case the maximum annual health effects expected in the population living within an 80-kilometer radius and in the downstream water-consuming population from the operation of L-Reactor and its support facilities will be 0.005 excess cancer death and 0.009 excess genetic disorder. This level of health effects will not be detectable statistically in these populations, where the natural cancer death rate currently is about 650 per year and the natural fatal genetic effect death rate is about 100 per year.</p>
BF-7	<p>The Savannah River Plant's acting manager said in a 1980 interview that trying to build an air-tight canopy over an old reactor "is not worthwhile in my view." I agree, it is one of the reasons the L-Reactor should never have been renovated, but since it has, and present day nuclear reactor safeguards dictate the need for a containment dome, one should be installed.</p> <p>From a scoping letter I learned that the Reactor Engineering Division of the Savannah River Laboratory has advanced proposals and designs for containment domes over the years, and that proposals were turned down on the basis of cost.</p>	<p>Commercial light-water nuclear reactors have containment domes because of the need to confine high-energy releases during a potential loss-of-coolant accident from the high-pressure (greater than 2000 pounds per square inch), high-temperature (greater than 500°F) primary coolant. L-Reactor is a heavy-water-moderated reactor and not a commercial nuclear reactor; its design is different from that of commercial light-water reactors. The heavy-water moderator also serves as the reactor coolant. The maximum moderator temperature is 212°F and the moderator is pressurized by a 5-pound-per-square-inch overpressure.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>Excessive considerations of expediency and cost effectiveness have consistently been allowed to override proper considerations of the public health and safety.</p> <p>Containment domes could and should have been put in place long before now. Obviously some engineers in the Savannah River Laboratory must have thought they were needed. The time has come for government to stop placing a low dollar value on human lives.</p>	<p>Engineered safety features for nuclear reactors vary according to the different types of reactors. For example, the Fort Saint Vrain commercial nuclear power plant in Colorado licensed by the NRC has no containment dome, but has alternative safety features that NRC considers to be adequate. Similarly, L-Reactor has an alternative safety system, confinement, which serves a similar purpose as containment. The Savannah River Plant reactor confinement system filters all air leaving the reactor building; it traps particulates and radiiodine in the event of an accident. Although noble gases (e.g., krypton) and tritium would not be trapped, the offsite radiation dose would be within radiation protection guidelines and, as indicated in Section 4.2.1.4 of the EIS, would represent a very low risk to the public health and safety because of the long distance to the SRP boundary.</p> <p>DOE has not refused to consider the desirability of containment domes. The Department has funded containment investigations since the 1960s. A major investigation that began in 1979 is used as a basis for safety-system alternatives discussed in the EIS (see Section 4.4.1).</p> <p>The safety system mitigation alternatives identified in the EIS are for the mitigation of potential consequences from hypothetical reactor accidents, which have a very low estimated probability of occurrence and associated risk. Based on benefit, cost, and technical feasibility, this EIS has identified the reference case confinement system as the preferred safety system alternative.</p> <p>Finally, the NRC rule on the backfitting of licensed commercial reactors also requires interpretation and judgment similar to that to be exercised in the EIS selection process on improved confinement or containment. This rule (10 CFR 50.109) states:</p> <p style="padding-left: 40px;">"The Commission <u>may</u> ... require backfitting of a facility if it finds that such action will provide <u>substantial, additional protection which is required</u> for the public health and safety or the common defense and security (emphasis added)."</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BF-8	<p>Eighteen or more years ago the old U.S. Atomic Energy Commission made the observation that "even reactors that make bomb ingredients should be operated under the same basic safety criteria that are presently applied to licensed reactors," the AEC's advisory committee on reactor safeguards told the Commission.</p>	<p>The Savannah River Plant and, therefore, L-Reactor is a DOE-owned, contractor-operated facility. Section 110(a) of the Atomic Energy Act, as amended (42 U.S.C. 21240a), excludes this type of facility from NRC licensing requirements. DOE is responsible for regulating and has established its own comprehensive health and safety programs for its own facilities (see Section 7.8). The radiation protection standards of DOE are comparable to those of the NRC (10 CFR 20) for a production facility (i.e., 500 millirem to the whole body in any one calendar year).</p>
	<p>It seems pertinent to mention that a number of reports were opened to the only reporter allowed access to S.R.P.'s nuclear safety documents. One 1966 document noted that DuPont's reactors were considered inherently safe since their cooling water flowed at much lower temperatures and pressures than those anticipated in the electrical generating plants then still on the drawing boards. "Hence," the report states "they were not provided with containment enclosures." Interestingly, in 1977, eleven years later the Savannah River Plant released a diagram of its reactors for the first time as part of an E.I.S. statement. The reactor building was--misleadingly--labeled "containment building."</p>	
BF-9	<p>The D.E.I.S. states that atmospheric releases containing tritium, carbon-14, krypton-85 and iodine-129 will be released from the L-Reactor and its support facilities. The D.E.I.S. also states that there are studies in progress to determine the effectiveness and feasibility of using solid adsorbents for absorption of noble gases. It would be in the best interests of South Carolinians and Georgians that the D.O.E. give serious attention to the installation of equipment for the removal of krypton-85. Their program to "assess the technical feasibility and economic practicality" has the familiar sound of lame excuses for not installing environmental protection measures because "more research is always needed." The necessary technology for krypton-85 collection, containment and storage has been available for some time.</p>	<p>One of the reactor safety system alternatives discussed in Section 4.4.1.3 is a low-temperature adsorption system; this would be an addition to the existing airborne confinement system. The system uses a hydrogen mordenite (a form of zeolite) adsorbent to trap noble gases (krypton), a silver mordenite adsorbent to trap iodines, a combination hydrogen recombiner-chiller, and a molecular sieve to remove bulk moisture and tritium. Experimental research is in progress to determine the effectiveness and feasibility of the low-temperature adsorption technique. Approximately two years will be required to complete the program. A caustic scrubber is not needed in conjunction with the silver mordenite. Caustic scrubbers would be necessary only if the air flow contained high concentrations of nitrous oxides.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BF-10	<p>Similar action should be taken for iodine-129 which is of particular interest because of its 17 million year half-life, and its ability to enter the food chain and subsequently concentrate in the human thyroid. Because of its long half-life discharged iodine-129 becomes a permanent contaminant in the environment, and as a result represents a long term public health problem. I understand that an improved iodine removal system consists of a caustic scrubber followed by a highly efficient silver zeolite absorber. As a layman I don't pretend to understand all the technical aspects of these systems, but I have a fair idea of what it could mean in terms of greater iodine efficiency removal.</p> <p>Many people have responded in a meaningful way to the Energy Department's hearings. This happens to be my fourth, and I hope, the last. The public responses for the most part contained information which indicated they had done their homework, even though handicapped by a lack of information to which the D.O.E. has access. Intelligent, sensible suggestions have been offered, and for all practical purposes you might say that demands have been made. It remains now to be seen if the Department of Energy plans to rectify with constructive action the most prominently identified needs for containment domes at all reactor sites, the installation of cooling towers, and mechanisms supplied for recycling discharge waters.</p>	<p>The EIS explicitly identifies the methodologies used and the scientific and other sources of information relied on for its conclusions; it is based on comprehensive environmental information drawn from more than 100 publicly available documents developed over the last 30 years.</p> <p>The public has access to all pertinent unclassified information and reference documents supporting the EIS in the DOE Public Reading Rooms in Aiken, South Carolina, and Washington, D.C. In addition, annual monitoring reports and scientific papers produced as the result of research conducted at SRP are available in open scientific literature.</p> <p>Also see the response to comment AT-3 regarding preparation of this EIS, the response to comment BF-7 regarding containment domes, and the responses to comments AA-1 and AB-13 regarding cooling-water mitigation alternatives.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
<p>Statement by Dr. Mary T. Kelly, First Vice-President and Natural Resources Coordinator for the League of Women Voters of South Carolina, Draft Environmental Impact Statement Hearing for the L-Reactor Operation, Savannah River Plant, Aiken, S.C., November 1, 1983.</p>	<p>I am Mary T. Kelly, representing the League of Women Voters of South Carolina. We are one of the groups that sued to force the Department of Energy to prepare an Environmental Impact Statement under the provisions of the National Environmental Policy Act of 1969. We believe that the starting up of the L-Reactor is a major environmental impact and an essentially new activity because of the extensive rebuilding.</p>	
	<p>I would like to thank Senators Hollings, Thurmond and Mattingly and their staffs for their interest and assistance. I would also like to thank the Department of Energy and DuPont representatives for their unflinching courtesy throughout these hearings in dealing with those of us with whom they do not always agree.</p>	
BG-1	<p>As a organization dedicated to the informed participation of citizens in their government, we think that much has been achieved through the process leading to this EIS. However, we are even more aware, after trying to come to grips with the document, of the need for more time to permit review by experts, and the need for the development of information in certain areas. We hope that DOE in the future will not try to short cut the process mandated by the National Environmental Policy Act.</p>	<p>The Department followed the Council on Environmental Quality regulations [40 CFR 1506.10 (c)] for the comment period on the Draft EIS. The Energy and Water Development Appropriations Act, 1984, allowed the Secretary of Energy to reduce the comment period to 30 days. The Secretary chose not to exercise this option and allowed the full 45-day review period as requested by several comment letters submitted during the scoping period.</p>
BG-2	<p>One of the most important elements of an EIS is the assessment of need. We are well aware, and sympathetic with, the need for security. However, we think a report could have been done for public consumption by those with security clearance. Even in the top levels of government, there is not total unanimity on weapons production. A totally blank Appendix A for public consumption is not acceptable.</p>	<p>See the response to comment AB-2 regarding disclosure of quantitative information on need.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BG-3	<p>We believe that the Savannah River Plant should comply with all state and federal environmental laws, as do commercial nuclear power plants and nuclear operations. Given the magnitude of this (SRP) operation and the size of the military budget, this is a most reasonable expectation. A better informed public is no longer willing to accept threats to health and safety and environmental degradation with potential for tremendous negative impact.</p>	<p>See the responses to comments AA-3 and BF-7 regarding DOE's commitment to comply with applicable Federal and state regulations and the differences between SRP reactors and commercial light-water reactors.</p>
BG-4	<p>We in South Carolina and Georgia are very concerned about the ground water contamination caused by practices which scientists of the caliber employed at SRP should never have permitted. Now that information is available to the public and to the state regulatory agencies, we not only expect but demand that this federal agency cease to contaminate and proceed to cleanup.</p>	<p>Existing and potential L-Reactor-related ground-water contamination is related to the use of seepage/settling basins. The disposal of liquid radioactive and nonradioactive wastes via seepage basins has been used at SRP as an alternative to direct discharge to onsite streams. Seepage basins reduce the dose to users and consumers of Savannah River water through radioactive decay during the protracted time it takes ground water to travel through the unsaturated zone to the water table and then to seep line springs along onsite streams. For certain radionuclides and nonradioactive pollutants, the travel time is slowed even more by adsorption and ion-exchange processes along the travel path. In addition, this method of waste disposal has reduced the accumulation of radioactive and nonradioactive pollutants in stream, swamp, and river sediments and in biota. Impacts associated with the use of seepage/settling basins are discussed in response to comment AJ-1. Sections 4.1.2.2, 5.1.1.2, and 5.1.1.4 have been updated with current information on discharges to seepage/settling basins and provide an expanded discussion on impacts from their use.</p>
	<p>The information contained in the draft EIS seems to point to the fact that seepage basins will continue to be a form of liquid waste disposal. This method should be discontinued. We know about the contamination due to halogenated hydrocarbon cleaning fluids, but radioactive and metal contaminants are also a threat. According to the Columbia Record of Thursday, October 27, 1983, the U.S. Senate, through the request of Senator Thurmond, has authorized the transfer of \$30 million dollars to clean up ground water contamination in the M area. Chances of real success are not certain. Yet the Draft EIS tells us that when the L-Reactor starts withdrawing from the Tuscaloosa aquifer, the downward differential in the M area will be increased, and the upward head differential in the H area will be reduced to zero. It would seem that until the groundwater problems are cleared up, the L-Reactor should not start operation.</p>	<p>As noted in the opening remarks to the public hearings on the L-Reactor EIS, DOE is committed to several items related to onsite ground-water monitoring and mitigation at SRP, including (1) continuing an expanded program of ground-water monitoring and study; (2) involving the State of South Carolina in onsite and offsite ground-water monitoring activities; and (3) taking mitigative actions to reduce pollutants released to the ground water and establishing a mutually agreed-on compliance schedule for mitigation efforts. Current plans call for discontinuing the use of the M-Area seepage basin and constructing a process wastewater-treatment facility by April 1985. The treated process water would be discharged to an onsite stream under an NPDES permit.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BG-5	Information provided by Mr. Arthur Dexter in his letter of August 3, 1983, to Mr. Sires needs to be taken very seriously. I do not believe the questions raised about radioactive iodine release have been adequately answered, nor the need for containment structures negated by the information in the EIS.	Alternatives to the use of the L-Reactor seepage basin are discussed in Section 4.4.3. The use of seepage basins elsewhere on SRP is being considered on a sitewide basis. A draft "SRP Ground-Water Protection Implementation Plan" was developed recently to examine strategies and schedules to implement mitigative actions, including the closing and decommissioning of the SRP seepage basins under its hazardous waste programs; mitigative actions will be compatible with the State of South Carolina's hazardous waste management regulations. This implementation plan is summarized in Appendix F of this EIS.
BG-6	In particular, my copy does not contain a section 6.3.1.3 as referenced on p. K-75.	All comments received during the scoping period were considered, and several sections were specifically written in the EIS to address Mr. Dexter's comments. Also see the response to comment letter CW, a letter from Mr. Dexter, in this appendix.
BG-7	South Carolina and Georgia need to be extremely concerned about emergency response plans and procedures. The impact of the Savannah River Plant cannot be limited to a small radius.	The reference on page K-75 referring to Section 6.3.1.3 should read Section G.3.1.3. This typographical error has been corrected in the EIS.
BG-8	There has been no assessment of the effects of transportation of materials to and from the Savannah River Plant as a result of the added burden due to L-Reactor operation.	See Appendix H, which has been revised to reflect comments received on the Draft EIS.
BG-9	When South Carolina, in the wake of Three Mile Island, examined the emergency response mechanisms in place for a major nuclear accident at a commercial power plant, it became very clear that coordination between reactor operators, state and county officials, and Civil Defense, was an unworkable, underfunded, and badly organized mess. I am not convinced, even having read Section H, that emergency response for an accident with impact beyond a small restricted area under the direct control of DOE-SRP personnel, is in much better shape at this time. It is clear from the summary on p. H-17, that planning is still incomplete. A serious, almost incredible omission is the failure to acknowledge and plan for a military contingency, caused by an enemy or terrorist attack. Surely, the impact of this would be beyond SRP's boundaries, and the responsibility not solely that of state or local officials.	Section 4.3 describes the effects of the transportation of materials to and from the Savannah River Plant due to L-Reactor operation. Also see the response to comment AY-10 regarding the assessment of transportation effects.
		See the response to comment AY-11 regarding emergency response planning.
		DOE-SR has plans for responding to terrorist attacks on the SRP. These plans are developed and exercised as part of the Plant's Safeguards and Security Plans. The general emergency response plans that are already operational for a comprehensive range of emergency situations at the county level and the more specific radiological emergency response plans for state and Federal agencies provide an adequate base for responses to terrorist attacks. This same base of emergency resources applies in the commercial industry for licensed nuclear power plants.

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BG-10	<p>We continue to support the stand of the SC Department of Health and Environmental Control in refusing to permit degradation of the state's water quality standards for Steel Creek.</p> <p>We thank you for the opportunity to make these remarks. We would like to reserve the right to add additional comments in writing until the comment period ends.</p>	<p>Disasters caused by direct military actions are not used as a basis for emergency planning for nuclear facilities in the United States. The response to such actions would fall under general civil defense planning.</p> <p>In the development of the emergency planning zones, DOE considered the potential for expanding or otherwise modifying its zones based on a range of emergency occurrences. While the actual emergency planning zone represents worst-case predictions calculated for a 3-percent core-melt, the Contingency Planning Zone was designated to ensure that adequate levels of planning were completed (at least) to a 10-mile radius.</p> <p>See the responses to comments AA-1 and AA-3 regarding cooling-water alternatives and DOE's commitment to comply with applicable Federal and state regulations.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
<p>Testimony of W. F. Lawless, Nov. 1, 1983 before the L-Reactor Draft EIS public hearing</p>		
BH-1	<p>A. I want to applaud the DOE-Savannah River on the data listed in Appendix F, Vol. II of the draft Environmental Impact Statement L-Reactor Operations, Savannah River Plant, USDOE Draft Rep. DOE/EIS-0108D, Vol. 1 & 2 (1983). The information has heretofore not been found in the open literature. No conclusions have been drawn in either Vol I or Vol II on this data so I would like to offer the following:</p>	<p>Earlier documents (e.g., Langley and Marter, 1973) described the subsurface hydrology and water use at SRP and the surrounding area. In Appendix F of the EIS, the discussion of the relative piezometric heads in the subsurface formations beneath SRP includes information developed since the publication of the Environmental Assessment on the proposed restart of L-Reactor. Most of the ground-water quality data presented in Section F.5 and elsewhere in the EIS represent monitoring information acquired under the RCRA compliance program recently formulated by DOE. Ground-water monitoring data for the RCRA facilities are provided to SCDHEC on a quarterly basis. DOE has published site ground-water monitoring for radionuclides in the annual reports, <u>Environmental Monitoring at the Savannah River Plant</u> (e.g., DPSPU-79-302).</p>
		<p>As noted in the response to comment AJ-1, the EIS provides extensive discussions of the ground-water regime at SRP and of potential impacts to the ground waters beneath the SRP from the operation of L-Reactor and its support facilities.</p>
BH-2	<p>Of 500 monitoring wells at the SRP plant, detailed data is herein available only on eleven wells up and downgradient around F and H seepage basins (radioactive) over a period of just one year. The data lists approximately 45 categories of pollutants or pollutant signatures. Of these, 29 categories have listed or associated drinking water standards (DWS). Of the DWS standards, 100% of the wells break at least one standard, or stated another way, drinking water standards are broken in about 10 of 29 possible categories over 40 times. The drinking water standards are broken for Fe, Mn, Hg, Pb, NO₃, gross alpha, Ra, Cr, and Iodine. Interestingly, the gross beta contamination in these eleven wells ran to an incredible 8 rem/year, and although the plutonium nuclides are stated to be locked in the soil, gross alpha did exceed a drinking water standard in a downgradient well.</p>	<p>Potential impacts to the ground waters beneath the SRP are conservatively assessed in Sections 4.1.1.3, 4.1.2.2, 4.4.3, 5.1.1.2, and 5.1.1.4 of the EIS. The monitoring well data presented in Appendix F characterize the present environment and reflect past waste management practices. The data for the F-Area seepage basin monitoring wells show that the nonvolatile beta concentration ranged to 8 microcuries per liter. Because this is a controlled area, no one will be exposed to this contamination; thus, the reference to dose rates (rem/year) is incorrect. No drinking water wells produce from these areas of shallow ground water that have been contaminated. Contaminants that seep into the ground water in the Separations area will not reach offsite ground-water users (Section 5.1.1.2). Improvements in liquid waste disposal are continually being made at SRP. Contaminant loads to seepage basins have decreased over the past several years.</p>

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BH-3	<p>Special attention in Vol. 1 was drawn to mercury pollution (5.1.1.2, Table 5-3, Vol. 1) surrounding the F and H radio-active seepage basins, but not the fact that the drinking water standards of 2 ppb were broken on the average by a factor of 10 in the downgradient wells increased to a factor of 15 with L-Reactor in operation. The single highest reading was over 27 times the drinking water standard in one well that is also indicating rapidly increasing readings.</p>	<p>See the response to comment BH-2 above. Significant decreases in releases of mercury to seepage basins have occurred since 1971; the small increases in mercury discharges related to L-Reactor operation will not approach pre-1971 levels. The discussion in Section 5.1.1.2 directs the reader to Appendix F, which compares the measured levels of ground-water contamination with EPA drinking-water standards.</p>
BH-4	<p>Questions resulting from this information are:</p> <ol style="list-style-type: none"> 1. How long will these standards be broken after plant operations cease? 2. Will this area surrounding F and H seepage basins be recoverable or must it and other plant areas be impounded for perpetuity? 3. What will it cost to repair the damage done and the damage proposed by the L-Reactor restart once plant operations cease? 	<p>See the response to comment BG-4 regarding DOE commitments for ground-water protection.</p>
BH-5	<p>Dupont document DPST-77-444 (1977), <u>New Criteria For Seepage Basin Use</u>, by W. L. Marter notes the hundreds of years needed before seepage basin radiation levels decay to inhabitable levels. This document should be included as a companion reference to the Fenimore-Horton DPST-72-548 (1972) reference on the radioactive seepage basins.</p>	<p>The EIS has been modified to include a reference to Marter, 1977 (DPST-77-444).</p>
BH-6	<p>B. ERDA EIS 1537, <u>Waste Management Operations, Savannah River Plant</u>, has been liberally referenced in this L-Reactor draft EIS, but the companion and subsequent EIS on SRP <u>Waste Management Operations, High Level Waste Radioactive Storage</u>, Final EIS, USDOE Rep. DOE/EIS 0062, has not been referenced. EIS 0062 was written to review the SRP high level waste tank safety and it speaks of major design changes in the new generation of SRP high level waste tanks and of enlightened Dupont quality assurance construction procedures. EIS 0062 also spoke of the insignificance of pitting corrosion. What has been the SRP pitting corrosion experience for these new high level waste tanks?</p>	<p>DOE/EIS-0062, which is a supplement to the general waste management EIS for SRP, ERDA-1537, presented the environmental information from which DOE reached a Record of Decision that the new double-wall, high-level waste tanks now in use at SRP are environmentally acceptable; this document is part of the SRP NEPA record and has been referenced in the EIS. As alluded to in the comment, some of these tanks did suffer pitting corrosion when they were temporarily floored with plywood during construction. The reports referenced in the comment expressed concern that this corrosion might limit the lifetime of these tanks, although the referenced independent evaluation by A. D. Little concluded that the tanks could safely enter service.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>Two reports, one by Dupont (<u>Investigation of Pitting in Primary Bottom Plates of Type III Waste Tanks, DPE 3687 (1981)</u>) and the other by A. D. Little (<u>The Effect of Corrosion Pitting on the Integrity of Radioactive Waste Storage Tanks 38 to 51 at the Savannah River Operations (1981)</u>) have been published on the HLW waste tank corrosion pits and they should be referenced in this draft EIS.</p>	<p>The waste chemistry is closely controlled to prevent pitting. The cited documents have been added to the collection in the DOE Public Reading Room in Washington, D.C., and Aiken, South Carolina.</p>
	<p>W. F. Lawless Oct. 31, 1983</p>	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF MR. WILLIAM McDANIELS		
<p>My name is William H. McDaniels, and I live in Aiken, South Carolina. I've only lived here about a year, but some of the things here in regards to this L-Reactor deeply disturb me due to the fact that I have worked in the field of ecology in my spare time since the late 1940's. I am with the Sierra Club, but I am representing the National Council of Senior Citizens Organization in Washington, D.C., which I am starting a chapter in the State of South Carolina.</p>		
BI-1	<p>In reference to some of the things that I read here, I feel, first of all, we don't need to produce more plutonium. I feel that we should try to sit down and reason together as far as the countries that we feel are evil nations, or whatever. We are all human beings. I feel we should work harder for peace. We seem to be driving a wedge between peace that probably will never prevail again.</p>	<p>See the response to comment AB-2 regarding information in the EIS on need and production alternatives.</p>
	<p>"When the age of Industrial" -- this is from a book here on future survival. I'll just read part of it here. "When the age of industrialization came, it seemed to promise man a utopia, the way to improve the quality of life on earth. The need for fuel necessary to run this industrial complex can be the very thing that will destroy man as it eats up all of his natural resources. The human animal is the only animal that fouls its own nest."</p>	
	<p>Quoting from a book on radiation, <u>Radiation in Human Health</u>, by John W. Hoffman, M.D., Ph.D., I'll reference a chapter here, Chapter 5, of a young man who's 24 years old. He's asking questions here. It says there is no better way to determine practicable applications of the whole body cancer, that the dose value -- which we now have available in Tables 21 and 22 to ask a number of concrete questions, the kind of questions which came up again and again bleakly medical and legally and from the general public. It's interesting, the radiation hazards.</p>	

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>Question No. 1: "I am an industrial photographer working with the gamma ray source through a malfunction in equipment. The source was still present when I moved to an unshielded area. It was estimated that I received 78 rads" -- short for radiation -- "by my 24th birthday." Of course, he refers to himself as a male sex.</p>	
	<p>"Is my risk of developing cancer increasing with exposure? Just how much? If I do develop cancer from this radiation, by how much will my life be shortened on an average?"</p>	
	<p>The answer is, "The risk of cancer somewhere in the body is certainly increased in exposure. We can analyze just how much in the following manner: Exposure from the beginning in the 24-year-old life, the whole body dose of 98 rads from Table 21, the whole-body cancer dose equals 200.9 percent rads per cancer." This is in reference to cancer.</p>	
	<p>I was reading an article Senator Thurmond had in the Aiken paper. We all know that the contaminants from the L-Reactor, which was built in 1955, I think, and it was shut down in 1968, that it is down to the water table and has been down to the water table for all of these years, shortly probably after starting up the reactor in 1955. Our water table is very fragile, but like our ozones, it moves only two inches per 24 hours.</p>	
B1-2	<p>Now, we have some pretty concrete evidence that the water in all directions for 40 miles from the L-Reactor has been contaminated. I feel here that human lives are not taken under consideration as much as there's a possibility of big business trying to agitate or create wars, and this is what it's all about.</p>	<p>DOE is not aware of any ground-water contamination off the Savannah River Plant that has been caused by SRP operations. Radioactive constituents in municipal water wells in the SRP region are measured and the results reported in the annual reports, <u>Environmental Monitoring in the Vicinity of the Savannah River Plant (DPSPU-Year-30-1)</u>.</p>
B1-3	<p>I don't believe we need additional plutonium. I don't think we should arm ourselves any further. I believe in peace. I think we should sit down and start talking peace instead of invading islands and spreading ourselves out all over the world.</p>	<p>See the response to comment AB-2 regarding information in the EIS on need and production alternatives.</p>
	<p>I am also with the Sierra Club. I said here I'm not speaking for the Sierra Club; mostly I'm speaking as a concerned citizen in regards to part of these things I'm bringing out here.</p>	

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
	<p>Now, this book here, it's about <u>Radiation in Human Health</u>, a Comprehensive Investigation of Evidence Related from Low-Level Radiation to Cancer and Other Diseases, by John W. Hoffman, M.D.</p>	
	<p>I thank you for listening to me, but I am deeply concerned. I'm concerned about people that went out to demonstrate and the manner in which those people were put in jail just because they were going to come out and express their concerns. I am concerned, so that's the reason why I am saying I am a concerned citizen. I have been a concerned citizen; I will continue to be a concerned citizen.</p>	
	<p>I thank you.</p>	

Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
STATEMENT OF MS. DORCAS ELLEDGE		
<p>I am Dorcas J. Elledge, a native South Carolinian. I'm from Columbia, South Carolina; and I'm here because I care about my own health and the health of my fellow South Carolinians and Georgians.</p>		
<p>I'm not familiar with the EIS Statement per se because I did not know or lost a message somewhere. I am only taking from Mr. Sires a comment or two.</p>		
BJ-1	<p>I do wonder that, after all this assessment of the situation, the two years for groundwater monitoring and all of that, if the L-Reactor will be started in spite of these things that need to be addressed now before it should be started. Are the citizens' comments and the study that was made going to fall on deaf ears or be ignored or become a voice in the wilderness due to what we are told is expediency in building nuclear weapons? This I do wonder about.</p>	<p>The purpose of the EIS hearings was to provide the public the opportunity to comment on the adequacy of the EIS and the merits of alternatives discussed in the EIS. DOE has considered all comments received at these hearings and during the 45-day comment period; responses are contained in this appendix. Transcripts of the EIS hearings and a record of all comments submitted have been placed in local libraries.</p>
<p>The the need to restart L-Reactor and production alternatives are discussed in Sections 1.1 and 2.1, respectively, and in Appendix A (classified). The consequences of a delay of the L-Reactor restart is discussed in Sections 2.1.3.</p>		
BJ-2	<p>The health and safety of the people of this state and of our neighboring state--and maybe if contamination of the ocean should occur; is this going to be sacrificed to build a weapon that could destroy us all but which, in the meantime, could maybe lead us to a slow death? I really am concerned about this, and I hope that the DOE will not let the expediency of building weapons take this precedent over the life and safety and health and safety of the people of South Carolina and Georgia.</p>	<p>DOE policy has always been to maintain and operate the SRP with the assurance that releases are as low as reasonably achievable and below applicable standards. The operation of L-Reactor will meet all applicable safety and environmental requirements. The health and safety of the residents of South Carolina and Georgia are of paramount importance to DOE.</p>
BJ-3	<p>One thing that I will also wonder about is: I have never heard to what degree on the Richter scale the buildings are built for, the reactor buildings are built for, at Savannah River</p>	<p>Section 4.2.2,3 describes hazards to L-Reactor from earthquakes. Probabilistic and deterministic analyses have determined that the maximum seismic hazard at the SRP is due to a</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
BJ-4	<p>Plant, to what degree they are supposed to stand or collapse. That would cause a great safety problem. I don't remember ever reading that, and I would like to know that in any future documents you might give.</p> <p>I also am concerned about the location of the Savannah River Plant to possible enemy attack. I don't know, as Dr. Kelly pointed out, that this has really been addressed, either. We are a vulnerable state; and I think, if I were a worthy enemy, that might be the first thing I would want to hit. It could be a very, very catastrophic thing for this state and for this nation.</p> <p>I do believe that the citizens of this state do deserve first priority in their health and safety. It should be a first priority. It has been too long ignored. I am a registered nurse. I was in the Army 20 years, and I do know what bad health brings to all people. I would hate to think this would be the condition of the people of this state due to precautionary and preventive measures not being taken.</p> <p>It seems to me we've done cleanup long enough. Let's do a little preventive work. I really feel that very keenly. I do hope the voice of the people would be heard on this issue because I think it's time. Thank you very much.</p>	<p>magnitude 5.0 to 5.5 earthquake on the Richter Scale in the immediate vicinity of SRP or a postulated magnitude 6.6 earthquake near Bowman, South Carolina. In both cases, the expected peak free-field horizontal acceleration would be about 0.10 times that of gravity (0.10g). The design-basis earthquake peak acceleration for all SRP production reactors is 0.20g.</p> <p>See the response to comment BG-9 regarding emergency response planning.</p>

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Table M-2. DOE responses to comments on Draft EIS (continued)

Comment number	Comments	Responses
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STATEMENT OF MR. JAMES W. HAMMOND

I'm Jim Hammond. I represent me. I spent 30 years with the DuPont Company. I didn't have much of a job there, didn't amount to much; but what I did was in safety and fire. It required that I go into most of the facilities once or twice a year there. After 30 years, I spent a good bit of time there.

Comments noted.

I didn't worry about cancer. If I had I'd have left here. I live within 20 minutes of the place; and if I was afraid, I'd leave.

The Environmental Impact Study, seems to me, is very adequate. From working with DOE and AEC and the other agencies through the years, I've found all of them very sincere. They've made detailed studies of everything they've done out there. I think DuPont Company and DOE has all the capabilities and abilities and interests to protect the environment, the people. From my experience, L-Reactor should have been started on schedule. I know these people are sincere.

At Michigan State University, I had to do a term paper. It took me back into the early newspapers of America. One area was when we were converting from DC electricity to AC. Very informed people, very alarmed people, were saying: If we have AC electricity, we're going to electrocute the world. We're going to turn our stoves into hot plates.

It didn't happen, and I know people are concerned. But from my experience out there, DOE and DuPont Company will do everything possible to see that the environment and the public is protected.

Thank you, sir.

James W. Hammond