

7 FEDERAL AND STATE ENVIRONMENTAL REQUIREMENTS

This chapter summarizes the Federal and State of South Carolina requirements that are applicable to the resumption of L-Reactor operations. Table 7-1 lists the permits and other environmental approvals needed for L-Reactor to resume operation. The requirements related to the cooling-water discharge reference case (direct discharge) and the preferred cooling-water alternative (the 1000-acre lake) are listed in Table 7-1; requirements corresponding to other cooling-water discharge alternatives are discussed in Section 4.4.2. To ensure that the preferred cooling-water alternative is a viable option for the decision-maker consistent with the restart of L-Reactor as soon as practicable, the Department prepared and filed dredge and fill (404) and NPDES permit applications with the U.S. Army Corps of Engineers and the South Carolina Department of Health and Environmental Control (SCDHEC), respectively, before the completion of this Final EIS. The requirements emphasize air quality, water quality, the disposal of solid and hazardous wastes, the protection of critical wildlife habitats, and the preservation of cultural resources.

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In addition to securing these permits and complying with applicable standards, as would be required for any similar large industrial facility, the Department of Energy (DOE), as a Federal agency, is also required to comply with a number of separate environmental requirements, such as the National Environmental Policy Act and wetlands/floodplains review requirements. DOE has established its own orders and regulations to assure the environmental, health, and safety protection of its facilities (Section 7.7).

National Environmental Policy Act of 1969, as amended (NEPA) (42 USC 4321 et seq.)

The National Environmental Policy Act of 1969, as amended, requires "all agencies of the Federal Government" to prepare a detailed statement on the environmental effects of proposed "major Federal actions significantly affecting the quality of the human environment." Signed by President Reagan on July 14, 1983, the Energy and Water Development Appropriations Act of 1984 directed the Department of Energy to prepare an environmental impact statement (EIS) on L-Reactor on an "expedited" basis. On July 15, the Federal District Court of Washington, D.C., ruling on a lawsuit filed in November 1982, directed the Department of Energy to prepare an EIS on the proposed restart of the L-Reactor as soon as possible. This environmental impact statement has been prepared in accordance with the Council on Environmental Quality Regulations on Implementing National Environmental Policy Act (40 CFR 1500-1508) and DOE Guidelines for Compliance with the National Environmental Policy Act (45 FR 20694, March 28, 1980).

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Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)

DOE is required to comply with radiation guidance pursuant to the Atomic Energy Act of 1954, as amended (42 USC 2021(h)). In accordance with the Energy Reorganization Act of 1974, DOE defense-related operations are not subject to the regulations of the Nuclear Regulatory Commission. DOE has issued extensive standards and requirements to ensure safe operations.

Table 7-1. Required regulatory permits and notifications

Activity/facility	Requirement(s)	Agency	Status
Water			
Process and sanitary-sewer outfalls	NPDES permit Construction permit	South Carolina Department of Health and Environmental Control, Industrial and Agricultural Wastewater Division	Discharges permitted Construction permitted
Domestic water supply system	Permit to construct ground-water wells, treatment and distribution systems	South Carolina Department of Health and Environmental Control, Water Supply Division	Domestic water-supply system construction permitted
Cooling-water discharge -	316(a) (thermal impact) study	South Carolina Department of Health and Environmental Control, Industrial and Agricultural Wastewater Division	See Appendix L
Cooling-water discharge, preferred alternative (1000-acre lake)	NPDES permit	South Carolina Department of Health and Environmental Control, Industrial and Agricultural Wastewater Division	Pending completion of FEIS
	Dredge and fill permit (Section 404)	U.S. Army Corps of Engineers	Pending completion of FEIS
	Certification (Section 401)	South Carolina Department of Health and Environmental Control, Industrial and Agricultural Wastewater Division	Requested by COE as part of the dredge and fill permit process
Oil storage	Spill prevention, control and counter-measure plan	EPA/South Carolina Department of Health and Environmental Control	To be included in overall plan for SRP

Table 7-1. Required regulatory permits and notifications (continued)

Activity/facility	Requirement(s)	Agency	Status
Air			
L-Area emergency diesel generators	Operation permits	South Carolina Department of Health and Environmental Control, Bureau of Air Quality Control	Permitted
F-, H, and M-Area process facilities	Operation permit amendments	South Carolina Department of Health and Environmental Control, Bureau of Air Quality Control	Application under review
K-Area powerhouse	Operation permit	South Carolina Department of Health and Environmental Control, Bureau of Air Quality Control	New permit not required
Endangered species			
	Consultation/ biological assessment	U.S. Fish and Wildlife Service and National Marine Fisheries Service	Consultations with FWS in process; consultations with NMFS completed
Fish and Wildlife Coordination Act	Consultation/ consideration of fish and wildlife resources	U.S. Fish and Wildlife Service	Consultations with FWS in progress
Migratory Bird Treaty Act	Consultation with FWS and development of mitigation plan	U.S. Fish and Wildlife Service	Consultation with FWS in progress
Anadromous Fish Conservation Act	Consultation with FWS and development of mitigation plan	U.S. Fish and Wildlife Service	Consultation with FWS in progress

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Table 7-1. Required regulatory permits and notifications (continued)

Activity/facility	Requirement(s)	Agency	Status
Historic preservation	Archeological survey and assessment	South Carolina Historic Preservation Officer	1000-acre lake will require new survey compliance, etc.
Floodplain/wetlands	Assessment and determination	U.S. Department of Energy	To be updated based on FEIS
Hazardous wastes	Resource Conservation and Recovery Act Requirements	U.S. Department of Energy/ South Carolina Department of Health and Environmental Control/U.S. Environmental Protection Agency	RCRA Program Management Plan in place

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Executive Order 12088 (October 13, 1978)

This Executive Order requires Federal agencies to comply with applicable administrative and procedural pollution control standards established by, but not limited to, the following Federal laws:

1. Toxic Substances Control Act (15 USC 2601 et seq.)
2. Federal Water Pollution Control Act (33 USC 1251 et seq.)
3. Public Health Service Act, as amended by the Safe Drinking Water Act (42 USC 300 (f) et seq.)
4. Clean Air Act (42 USC 7401 et seq.)
5. Noise Control Act (42 USC 4901 et seq.)
6. Solid Waste Disposal Act (42 USC 6901 et seq.), also referred to as the Resource Conservation and Recovery Act.

Historic Preservation Act

No permits, certifications, or approvals related to historic preservation are required; however, DOE must provide the Advisory Council on Historic Preservation an opportunity for comment and consultation, as required by the Historic Preservation Act of 1966 (16 USC 470(f) et seq.). Section 106 of this Act requires any agency with jurisdiction over a Federal "undertaking" to provide the Council an opportunity to comment on the effect the activity might have on properties included in, or eligible for nomination to, the National Register of Historic Places.

In addition, Executive Order 11593 requires Federal agencies to locate, inventory, and nominate properties under their jurisdiction or control to the National Register of Historic Places if those properties qualify. Until this process is complete, the agency must provide the Advisory Council an opportunity to comment on the possible impacts of the proposed activities on the properties.

Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) (May 24, 1977)

These Executive Orders require governmental agencies to avoid to the extent practicable any short- and long-term adverse impacts on floodplains and wetlands wherever there is a practicable alternative. The DOE has issued regulations 10 CFR Part 1022, which establish DOE procedures for compliance with these Executive Orders.

Clean Air Act (42 USC 7401 et seq.) as amended by the Clean Air Act Amendments of 1977 (PL 95-95)

Section 118 requires that each Federal agency, such as DOE, having jurisdiction over any property or facility that might result in the discharge of air pollutants, comply with "all Federal, state, interstate, and local requirements" with regard to the control and abatement of air pollution. Authority for regulation of air emissions has been delegated by the U.S. Environmental Protection

Agency (EPA) to the South Carolina Department of Health and Environmental Control (SCDHEC), Bureau of Air Quality Control. The EPA has also proposed draft regulations for airborne radiation limits (40 CFR 61; 48 FR 15076).

Federal Water Pollution Control Act of 1972 [Section 316(a)]

TC Section 316(a) of the Federal Water Pollution Control Act of 1972 (PL 92-500) authorizes the Environmental Protection Agency Regional Administrator to set alternative effluent limitations on the thermal component of discharges if the owner/operator (Department of Energy) demonstrates to the satisfaction of the Regional Administrator that the proposed effluent limitations are "more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of fish, shellfish and wildlife in or on a body of water into which the discharge is to be made." Such a demonstration will be made to the South Carolina Department of Health and Environmental Control, which has received the NPDES authority and is the decisionmaker, with program overview by EPA (Section 402 of PL 92-500). The owner/operator must demonstrate, for the cooling-water alternative to be implemented, that the critical functions of a particular trophic level are maintained in the water body as they existed before the introduction of heat and that the impact caused by the heated effluent will not result in appreciable harm to the balanced, indigenous community. Such a demonstration includes scientific evidence that a balanced biological community will be maintained; there will be no adverse impacts to threatened and endangered species; no unique or rare habitats will be destroyed; a zone of passage for representative, important species will be provided; and receiving water temperatures outside any (State-established) mixing zone will not exceed the upper temperature limits for survival, growth, and reproduction of any representative, important species occurring in the receiving water. DOE will comply with this law by conducting a 316(a) demonstration in accordance with negotiations with SCDHEC to assure that its proposed cooling-water alternative will meet the necessary thermal limitations for protection of a balanced biological community.

Federal Water Pollution Control Act (Section 404), as amended by the Clean Water Act of 1977 (33 USC 1251 et seq.); River and Harbors Act of 1899

TC The Federal Water Pollution Control and Clean Water Acts require all branches of the Federal government engaged in any activity that might result in a discharge or runoff of pollutants to comply with Federal, state, interstate, and local requirements. Authority for implementation of these requirements has been given to the U.S. Army Corps of Engineers (COE) for dredge and fill permits (404 permits) and SCDHEC has been delegated authority by EPA to regulate wastewater discharges (NPDES permits). Individual (case-by-case) permits issued by the COE under Section 404 of the Clean Water Act are also reviewed by EPA (40 CFR 230). Dredge and fill activities in headwaters of creeks where the natural flow is 0.142 cubic meter per second or less are covered under a "nationwide" permit issued by COE.

TC The River and Harbor Act of 1899 prohibits dredging, construction, or other work in or affecting navigable waters of the United States, except in compliance with Sections 9 and 10 of the Act. The COE has been empowered to issue permits specifying acceptable activities in navigable waters (33 CFR 320.4, 321, 322, and 325).

Federal Water Pollution Control Act (Section 401), as amended by the Clean Water Act of 1977

The public notice of the 404 application includes a paragraph that constitutes a request by the COE on behalf of DOE for certification by SCDHEC in accordance with Section 401 of the Clean Water Act. Section 401 requires certification from SCDHEC that construction and operation-related discharges into navigable waters will comply with the applicable effluent limitations and water-quality standards of the Clean Water Act. This certification is a prerequisite for the 404 permit.

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Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC 6901 et seq.)

This Act governs the generation, management, transportation, and disposal of solid and hazardous wastes. Currently, DOE is implementing Resource Conservation and Recovery Act (RCRA) requirements at the Savannah River Plant (SRP) pursuant to DOE Order 5480.2, "Hazardous and Radioactive Mixed Waste Management," issued on December 13, 1982. The SRP hazardous-waste management program meets the technical requirements of the EPA hazardous-waste regulations (40 CFR 260-265) and is compatible with SCDHEC requirements.

Since RCRA's enactment in 1976, DOE and one of its predecessors, the Energy Research and Development Administration, have taken the position that the regulatory scheme established by RCRA (including state permitting) does not supplant the regulatory scheme under the Atomic Energy Act that governs these facilities. This position is based on Section 1006(a) of RCRA, 42 U.S.C. 6905(a), that states that RCRA does not apply to "any activity or substance" that is "subject to" the Atomic Energy Act except to the extent that such application is not inconsistent with the requirements of the Atomic Energy Act. This position was communicated in writing to EPA in 1980; in 1982, EPA acquiesced in that view.

On June 22, 1983, the then Acting General Counsel of EPA disagreed with DOE's previously expressed views on the application of RCRA to these facilities. Although that analysis did not consider state permitting of Federal facilities generally authorized by RCRA, EPA seems to have taken the position that these facilities are subject to state permitting under RCRA, and therefore, their continued operation is dependent on permission granted by state officials or the annual facility-specific exemption authority provided to the President by Section 6001 of RCRA, 42 U.S.C. 6961.

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On February 22, 1984, DOE and EPA signed a Memorandum of Understanding (MOU) for hazardous waste and radioactive mixed waste. This MOU establishes a management program for such waste that is comparable to the design and performance criteria, other technical requirements, and recordkeeping and recording requirements of the regulations (40 CFR 260-266 and 270) that EPA has adopted to implement the Resource Conservation and Recovery Act. The MOU covers the generation, transportation, treatment, storage, and disposal of hazardous waste and radioactive mixed waste at SRP and other DOE facilities operated under the Atomic Energy Act, but does not address responsibilities for implementing the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). However, the MOU does address coordination with State and community relations concerning hazardous waste and radioactive mixed waste.

TC | A lawsuit was filed alleging noncompliance with RCRA by one of DOE's Atomic Energy Act (AEA) facilities [Legal Environmental Assistance Foundation, Inc. v. Hodel, C. A. No. 3-83-562 (E. D. Tenn., filed September 20, 1983)]. On April 13, 1984, the District Court decided that DOE AEA facilities are subject to Federal and State permitting requirements under RCRA with respect to the treatment, storage, and disposal of hazardous waste covered by RCRA. As of May 1, 1984, the Solicitor General of the United States had not decided whether to appeal the adverse decision. Should no appeal be taken, DOE will apply the rule of this case to all its facilities. In that event, the Department intends to handle chemical waste determined to be hazardous under the requirements of RCRA in a manner consistent with the court decision. Radioactive mixed waste and other wastes not subject to the requirements of RCRA will continue to be handled in accordance with the MOU.

Noise Control Act of 1972 (42 USC 4901 et seq.)

Section 4 of this Act directs all Federal agencies "to the fullest extent within their authority" to carry out programs within their jurisdiction in a manner that furthers a national policy of promoting an environment free from noise that jeopardizes health or welfare. The DOE will comply with such requirements to the fullest extent possible.

Endangered Species Act of 1973 (16 USC 1531 et seq.)

The Endangered Species Act of 1973, as amended, is intended to prevent the further decline of endangered and threatened species and to bring about the restoration of these species and their habitats. The Act, which is jointly administered by the Departments of Commerce and Interior, does not require a permit, certification, license, or other formal approval. Section 7 does, however, require consultation to determine whether endangered and threatened species are known to have critical habitats on or in the vicinity of the site. DOE will comply with this law by taking all necessary precautions to ensure that its proposed action will not jeopardize the continued existence of any threatened or endangered species and/or their critical habitats.

Fish and Wildlife Coordination Act (16 USC 661 et seq.)

TC | The Fish and Wildlife Coordination Act requires that equal consideration be given to the conservation of fish and wildlife resources during the development of a water-related project. Specifically, the Act requires that consultation be carried out with the Fish and Wildlife Service and appropriate state wildlife agencies with a view to the conservation of wildlife resources by preventing loss of and damage to such resources and by providing for the development and improvement thereof in connection with the project. DOE is required to give full consideration to the Habitat Evaluation Procedures report and recommendations of the Secretary of the Interior and the State agency, and the project plan shall include such justifiable means and measures for wildlife purposes as the reporting agency finds should be adopted to obtain maximum overall project benefits. No permit is required by this Act. However, the Department of Energy, subsequent to its consultations with the FWS, will consider the mitigation of impacts to fish and wildlife resources in accordance with the FWS Mitigation Policy (USDOI, 1981).

Migratory Bird Treaty Act (16 USC 703-712)

The Migratory Bird Treaty Act was enacted primarily to protect birds that have common migration patterns between the United States and Canada, Mexico, Japan, and Russia. It regulates the harvest of migratory birds by specifying the mode of harvest, hunting seasons, bag limits, etc. The Act stipulates that it is unlawful at any time, by any means or in any manner to "kill...any migratory bird." Thus, avian mortality attributable to SRP operations (e.g., from chemical pollutants in seepage basins) would be unlawful under the provisions of this Act. Although no permit for this project is required under the Act, the Department of Energy is required to consult with the U.S. Fish and Wildlife Service regarding impacts to migratory birds, and to evaluate ways to avoid or minimize these effects in accordance with the FWS Mitigation Policy (USDOJ, 1981).

Anadromous Fish Conservation Act (16 USC 757a-f)

The principal purpose of the Anadromous Fish Conservation Act is to enhance the conservation and development of the anadromous fishery resources of the United States that are subject to depletion from water resource development. Its applicability to the SRP is that populations of anadromous fishes are to be sustained and their movements unobstructed by plant operations. Although there is no permit required by this Act, the Department of Energy is required to consult with the U.S. Fish and Wildlife Service regarding impacts to anadromous fishes, and to evaluate ways to avoid or minimize these effects in accordance with the FWS Mitigation Policy (USDOJ, 1981). When an anadromous fish is also an endangered species, the National Marine Fisheries Service (U.S. Department of Commerce) would be involved through the Endangered Species Act.

Safe Drinking Water Act of 1974, as amended

The L-Reactor public drinking water system is in compliance with the mandates of the Safe Drinking Water Act. The system received approval for startup from SCDHEC, which administers and enforces the Safe Drinking Water Act in the State. SCDHEC administration and enforcement consists of permits to construct, preliminary site inspections, final construction inspections, monthly sampling collections, and regular operations and maintenance inspections. Injection wells are not now and have not in the past been used for the disposal of wastewater.

7.1 HISTORIC PRESERVATION

An archeological and historic survey of the Steel Creek terrace and floodplain system was completed in February 1981. The survey revealed five sites that were nominated to the National Register of Historic Places (i.e., important and worthy of preservation from any adverse effects). A monitoring plan has been developed and implemented to protect these sites (Section 6.2.6).

A draft of the archeological survey report, which was prepared by the University of South Carolina's Institute of Archeology and Anthropology for DOE, was submitted to the South Carolina State Historic Preservation Officer (SCHPO). SCHPO representatives conducted a site visit in March 1982. DOE

requested a concurrence in a determination of no adverse effect on the five sites from the Keeper of the National Register of Historic Places and the Advisory Council on Historic Preservation. The State Historic Preservation Officer concurred in July 1982 with DOE-SR (Savannah River Operations Office) that these sites will not be impacted by L-Reactor restart provided that the proper erosion monitoring program is adopted (see Section 3.1.3).

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DOE has initiated the reconsultation process with SHPO concerning the mitigation of any new sites of historic significance that might be inundated by the 1000-acre lake or discovered in additional surveys for the lake.

7.2 SOLID AND CHEMICAL WASTE DISPOSAL

L-Area restart activities have generated a variety of residuals defined as solid and chemical wastes under Federal and South Carolina law. Disposal will take place at Savannah River Plant. DOE has developed a RCRA Program Management Plan (Sires, 1984a) for nonradioactive solid and hazardous waste at Savannah River Plant based on EPA and SCDHEC regulations.

Rubble materials are considered nonburnable wastes. Broken concrete asphalt and other construction debris have been buried in a rubble pit near L-Area. Notification and inspection of the SRP rubble pits have been completed. The use of rubble pits was discontinued on August 12, 1983.

The SRP sanitary landfill is designed and operated according to SCDHEC guidelines for the purpose of receiving domestic waste from SRP construction and operational activities. The sanitary landfill site was recently expanded from 10 acres to 32 acres, which will easily accommodate additional waste from L-Area.

Domestic sanitary sewage sludge is disposed of in a lagoon in the Central Shops area, consistent with SCDHEC guidelines.

7.3 ENDANGERED SPECIES

The Endangered Species Act requires Federal agencies to ensure that none of their actions jeopardizes the continued existence of endangered or threatened species (or those that are proposed as such) or result in the destruction or adverse modification of designated critical habitat for such species. Federal agencies are required to consult with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS) regarding the implementation of a proposed action. If FWS or NMFS indicates that an endangered or threatened species (or one that is proposed as such) or critical habitat could be present in the area of the proposed action, a biological assessment must be prepared. This assessment is used as a basis for evaluating the effects on Federally protected species through the formal consultation process.

AP-6,
AY-2,
BA-6,
CV-1

The following sections summarize the status of the consultation process with the FWS and NMFS for four endangered species that would be affected by the direct discharge of cooling-water effluent into Steel Creek. Implementation of another cooling system (e.g., the preferred alternative) would require the reinitiation of the consultation process.

AP-6,
AY-2,
BA-6,
CV-1

7.3.1 American alligator

Formal consultation on the American alligator was held under the Endangered Species Act in September 1982 with representatives of DOE-SR, Du Pont, NUS Corporation, the Savannah River Ecology Laboratory (SREL), and the U.S. Fish and Wildlife Service (FWS). A Biological Opinion was received from the FWS in which FWS judged that protection of the lagoons at SRP Road A should provide sufficient mitigation for the American alligator potentially impacted by L-Reactor restart with the direct discharge alternative. Protection of these lagoons has been completed. Since the preferred cooling-water alternative is now the 1000-acre lake, DOE has reinitiated consultations with FWS. DOE has transmitted the most recent information on impact projections for this species (Sires, 1984b) to the FWS. DOE is awaiting a decision on its conclusion that the impacts resulting from the delayed restart of L-Reactor will not jeopardize the continued existence of this species.

AP-6,
AY-2,
BA-6,
CV-1

7.3.2 Red-cockaded woodpecker

The FWS has determined that the red-cockaded woodpecker will be unaffected by L-Area operations.

7.3.3 Shortnose sturgeon

Sturgeon larvae were identified in water samples taken near the SRP pumphouses at the Savannah River in 1982 and 1983. A few of these were determined to be the federally endangered shortnose sturgeon. A biological assessment and consultation process with the National Marine Fisheries Service (NMFS) has been completed for this species. NMFS has concurred with DOE determination that the population of the shortnose sturgeon in the Savannah River would not be jeopardized (Oravetz, 1983).

AP-6,
AY-2,
BA-6,
CV-1

7.3.4 Wood stork

The endangered wood stork forages at the Savannah River Plant, but does not breed on the site. The feeding individuals have been observed to be from the Birdsville Rookery some 50 kilometers away. DOE initiated informal consultation with FWS in July 1983 and in March 1984. DOE has prepared a Biological Assessment for FWS review and use in formulating its Biological Opinion (Sires, 1984c). DOE is continuing to conduct studies and apprise FWS of the results of continuing studies.

AP-6,
AY-2,
BA-6,
CV-1

7.4 WILDLIFE AND FISHERIES

TC Three regulations afford protection to wildlife and fisheries resources; they are the Fish and Wildlife Coordination Act, the Migratory Bird Treaty Act, and the Anadromous Fisheries Conservation Act. None of these acts requires the application or acquisition of a permit. Each act, however, requires that the Department of Energy consult with the U.S. Fish and Wildlife Service about impacts to fish and wildlife. Furthermore, DOE and FWS will undertake a cooperative effort that will mitigate impacts to fish and wildlife resources in accordance with the FWS Mitigation Policy. Consultations are currently underway with the FWS to ensure that DOE will comply fully with these three acts.

The Department of Energy is working with the Department of the Interior to perform the Habitat Evaluation Procedure (HEP). The HEP will identify the value of habitat to be gained or lost with the implementation of the preferred cooling-water mitigation alternative for use in assessing further mitigation. DOE will implement additional mitigative measures that might be identified through the HEP process. If required, DOE will request Congressional authorization and appropriation for the additional mitigation measures.

7.5 WATER QUALITY

Section 402 of the Clean Water Act, as amended, is the basis for controlling "point source" discharges of pollutants into navigable waters of the United States through the National Pollutant Discharge Elimination System (NPDES); this system is administered by the EPA, which has delegated NPDES permitting authority in South Carolina to the State of South Carolina. DOE applied to the State in 1981 for renewal and consolidation of its original NPDES permits. All L-Area outfalls with the potential for future use were included in the NPDES permit renewal application. Between 1981 and 1983, negotiations between SCDHEC and DOE were held to resolve issues related to the L-Reactor NPDES permit.

On December 15, 1983, SCDHEC announced its determination to issue an NPDES permit to the DOE for Savannah River Plant effective January 1, 1984. Based on this permit and a mutually agreed upon consent order, all discharges except thermal discharge from L-Reactor would be permitted. Thermal discharges from the three operating SRP reactors (C, K, and P) would be permitted provided that DOE would:

1. Complete a comprehensive study of the thermal effects of all operations at Savannah River Plant.
2. Complete and submit thermal mitigation studies to SCDHEC within nine (9) months of signing of the consent order.
3. Implement the recommended thermal mitigation alternative approved by SCDHEC under a schedule to be established by SCDHEC in a subsequent order.
4. Submit and actively support appropriate funding requests to accomplish any actions resulting from the thermal studies.

All L-Area non-reactor-cooling-water effluent discharges are permitted pursuant to the December 15, 1983, announcement, including the discharge of sanitary wastewater and various nonprocess cooling waters from the control building, pumphouse, offices, and the security building.

Since August 1982, SCDHEC has considered SRP onsite streams and ponds to be Class B waters of the State, and not as receptors of industrial cooling water. This interpretation would limit the temperature of thermal effluents from L-Reactor as follows [SCDHEC, 1981; Section C.(7)].

- Discharges to an onsite stream - The temperature of the discharge "shall not exceed a maximum temperature of 90°F (32.2°C) at any time nor shall a maximum temperature rise above temperatures existing under natural conditions exceed 5°F (2.8°C) as a result of the discharge of heated liquids unless an appropriate temperature criteria or mixing zone, as provided below, has been established. The water temperature at the inside boundary of the mixing zone shall not be more than 18°F (10°C) greater than that of water unaffected by the heated discharge. The appropriate temperature criteria or the size of the mixing zone shall be determined on an individual project basis and shall be based on biological, chemical, engineering and physical considerations. Any such determination shall assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on a body of water to which the heated discharge is made and shall allow passage of aquatic organisms."
- Discharge to a lake or reservoir - The temperature of the discharge "shall not exceed a weekly average temperature of 90°F (32.2°C) after adequate mixing as a result of heated liquids, nor shall a weekly average temperature rise of more than 5°F (2.8°C) above temperatures existing under natural conditions be allowed as a result of the discharge of heated liquids unless an appropriate temperature criteria or mixing zone, as provided below, has been established. The water temperature at the inside boundary of the mixing zone shall not be more than 18°F (10°C) greater than that of water unaffected by the heated discharge. The appropriate temperature criteria or the size of the mixing zone shall be determined on an individual project basis and shall be based on biological, chemical, engineering and physical considerations. Any such determination shall assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on a body of water to which the heated discharge is made and shall allow passage of aquatic organisms."
- Case-by-case determinations - "Upon a case-by-case determination by the Department and in accordance with the Act, the Clean Water Act (P.L. 92-500, 95-217), and related regulations, the above temperature criteria may not apply to cooling water bodies with a primary purpose of providing a source and/or being a receptor of industrial cooling water."

As noted in Section C.(8) of SCDHEC (1981), the temperature standards for Class B waters of the State are applicable when the flow rate is equal to or greater than the minimum 7-day average flow rate that occurs with an average frequency of once in 10 years. However, the temperature of the discharge cannot

be so high that it interferes with water uses or is harmful to human, animal, plant, or aquatic life.

Section 4.4.2 describes alternative cooling-water systems for L-Reactor and indicates their ability to meet the Class B water-quality standards (discussed above). The preferred cooling-water alternative of the Department of Energy is to construct a 1000-acre lake before L-Reactor resumes operation, to redesign the reactor outfall, and to operate L-Reactor in a way that assures a balanced biological community in the lake (i.e., to maintain 32.2°C or less for about 50 percent of the lake). After L-Reactor is operating, DOE will conduct studies to determine the effectiveness of the cooling lake and to decide on the need for precooling devices to allow for greater operational flexibility. The preferred alternative, other alternative cooling-water systems, and other thermal mitigation measures have been the subject of ongoing discussions with SCDHEC. At the time of publication, discussions on these alternatives and mitigation methods and on the incorporation of L-Reactor thermal discharge into the overall SRP NPDES permit were continuing.

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In early December 1983, DOE also initiated discussions with the COE regarding dredge and fill permits under Sections 9 and 10 of the River and Harbor Act and Section 404 of the Clean Water Act. DOE has submitted its 404 application for the 1000-acre lake, and the public notice describing the proposed construction has been issued. The public notice of the 404 application also includes a paragraph that constitutes a request by the COE on behalf of DOE for certification by SCDHEC in accordance with Section 401 of the Clean Water Act. Section 401 requires certification from SCDHEC that construction and operation-related discharges into the navigable waters will comply with the applicable effluent limitations and water quality standards of the Clean Water Act. This certification is a prerequisite for the 404 permit approval from the Corps of Engineers.

L-Area will contain two surface fuel-oil storage tanks with capacities of approximately 30,000 and 11,000 liters. Each tank has a spill containment structure around it. L-Area will be included in the Spill Prevention Containment and Control plans for the Savannah River Plant.

7.6 FLOODPLAIN/WETLANDS

DOE issued a floodplain/wetlands notice regarding the proposed reactivation of L-Reactor on July 14, 1982 (47 FR 30563). A floodplain/wetlands determination regarding no practical alternative was published in the Federal Register on August 23, 1982 (47 FR 36691-2). The floodplain/wetlands assessment has been updated (see Appendix I) and the floodplain/wetlands determination will be updated and/or modified after completion of the Final Environmental Impact Statement.

The Fish and Wildlife Service's mitigation policy for wetlands is stated in 46 FR 7644-7663. This policy establishes four resource categories to establish mitigation levels consistent with the fish and wildlife resources involved. The wetlands that would be impacted by the restart of L-Reactor are categorized under Resource Category 2 as habitat of "high value for evaluation species" and

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are "scarce or becoming scarce." The mitigation goal under this policy requires that there be "no net loss of inkind habitat value."

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7.7 AIR QUALITY

The authority for the regulation of air emissions has been delegated by the EPA to the Bureau of Air Quality Control of the SCDHEC. The Bureau issues operating permits and performs Prevention of Significant Deterioration reviews. Because existing facilities will be used to supply steam and electric power to L-Reactor on a continuous basis, no new SCDHEC operating permits will be required for these facilities.

SCDHEC air pollution regulations require both construction and operating permits for emergency diesel generators that have greater than 150-kilowatt-rated capacity. L-Area will have three emergency diesel generators rated at more than 150 kilowatts; they have been on standby since L-Reactor operation was suspended in 1968. The permits necessary for their operation have been received from SCDHEC.

Modifications to the operating permits for increases in nitrous oxide emissions from the process facilities in F-, H-, and M-Area are currently under review by SCDHEC.

EPA has retained jurisdiction for the regulation of airborne radionuclides. The Savannah River Plant operates within the limits of the draft regulations currently proposed (48 FR 15076) and will remain in compliance after the restart of L-Reactor.

7.8 DEPARTMENT OF ENERGY HEALTH AND SAFETY ORDERS

DOE is responsible for assuring the health and safety of its own facilities and has established comprehensive health, safety, and environmental programs. These are contained in the following DOE Orders:

- DOE Order 5440.1B, "Implementation of National Environmental Policy Act," May 14, 1982.
- DOE Order 5480.1A, "Environmental Protection, Safety, and Health Protection Program for DOE Operations," August 13, 1981.
 - Chapter I - Environmental Protection, Safety, and Health Protection Standards
 - Chapter II - Reserved
 - Chapter III - Safety Requirements for the Packaging of Fissile and Other Radioactive Materials

- Chapter IV - Reserved
 - Chapter V - Safety of Nuclear Facilities
 - Chapter VI - Safety of Department of Energy Owned Reactors
 - Chapter VII - Fire Protection
 - Chapter VIII - Contractor Occupational Medical Program
 - Chapter IX - Construction Safety and Health Program
 - Chapter X - Industrial Hygiene Program
 - Chapter XI - Requirements for Radiation Protection
 - Chapter XII - Prevention, Control, and Abatement of Environmental Pollution
 - Chapter XIII - Aviation Safety
- DOE Order 5484.2, "Unusual Occurrence Reporting System," August 13, 1981.
 - DOE Order 5483.1, "Occupational Safety and Health Program for a Government Owned Contractor Operated Facility," April 13, 1979.
 - DOE Order 5484.1, "Environmental Protection, Safety, and Health Protection Information Reporting Requirements," February 24, 1981.
 - DOE Order 5480.2, "Hazardous and Radioactive Mixed Waste Management," December 13, 1982.
 - DOE Order 5481.1A, "Safety Analysis and Review System," August 13, 1981.
 - DOE Order 5482.1A, "Environmental Protection, Safety, and Health Protection Appraisal Program," August 13, 1981.
 - DOE Order 6430 (draft), "Department of Energy General Design Criteria Manual," June 10, 1981.

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