As L-Lake recedes, the submersed and floating-leaved aquatics probably would desiccate and die as they become stranded. During high rainfall years, some littoral-zone wetland plants would survive in shallow water over the summer but probably would die during the next drought cycle. As the waters of the reservoir recede, this cycle of drying and dessication (during years in which the reservoir drops several feet or more), the reestablishment and even expansion (during wet years in which the reservoir drops a foot or less), and drying and dessication would repeat until the reservoir reaches equilibrium or empties. As noted above, the annual drop in lake elevation could range from 1.5 feet to 7.0 feet (0.5 to 2.1 meters) per year (Jones and Lamarre 1994).

Wetlands surrounding L-Lake would convert to uplands (through natural succession) as the lake levels drop. Wetland species such as red maple and sweetgum would continue to grow as the shoreline recedes, but upland species would, in time, assert their dominance.

Lowering the reservoir levels slowly would mitigate impacts to wetlands and to the animals that inhabit the wetlands along the shore. Erosion should be minimal during most years along much of the shoreline but could be a problem along the steeper section between elevations at 170 feet (52 meters) and 190 feet (58 meters) on the northeast shore, particularly in drought years.

As noted in Section 3.2.1, DOE would apply appropriate measures to revegetate the bare lakebed and attempt to reestablish the ecosystem that existed before the creation of the reservoir. These measures would include fertilizing and seeding bare areas to prevent erosion and could include a variety of other soil conservation measures, such as silt fences, sediment barriers, and fabric blankets, which promote seed growth as well as control erosion. These erosion control measures would be part of a larger effort to restore the stream ecosystem and associated floodplain forest that existed before SRS operations dramatically altered this ecosystem.

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DOE is currently drafting a plan for restoration of the upper portion of Steel Creek and its floodplain forest in consultation with soil scientists, ecologists, and foresters at the Savannah River Forest Station and Westinghouse Savannah River Company Savannah River Technology Center.

If DOE selects the Proposed Action, the Record of Decision for the EIS would contain a commitment to prepare a Mitigation Action Plan, as well as a more detailed implementation plan that provides a step-by-step guide to restoring the plant communities of the riparian corridor and floodplain that were lost when L-Lake was created. In addition to the soil stabilization measures discussed earlier, this plan would include provisions for planting and/or transplanting trees and shrubs that are likely to survive and propagate in the Steel Creek floodplain. The Mitigation Action Plan would also contain monitoring requirements to ensure the success of the restoration. The lack of woody vegetation in the bare lakebed (and the shallow water table) would simplify the reforestation effort and ensure a high degree of success because there would be no other trees competing for water, nutrients, and space.

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4.1.5.2.3 Shut Down and Maintain

Impacts of the Proposed Action would be the same as the Shut Down and Deactivate Alternative, except that if the River Water System was restarted and flows to L-Lake were increased, water levels could rise and inundate the shoreline. If the water level rises rapidly, the upland vegetation would die after a period of inundation. Wetland species would recolonize the shoreline when the rate of filling slowed and the lake level stabilized.

4.1.6 LAND USE

4.1.6.1 Affected Environment

Located in southwestern South Carolina, the SRS occupies an area of approximately 300 square miles (800 square kilometers). The

Savannah River forms the Site's southwestern boundary for 27 miles (43 kilometers) on the South Carolina-Georgia border. The SRS is approximately 25 miles (40 kilometers) southeast of Augusta, Georgia, and 19 miles (31 kilometers) south of Aiken, South Carolina, the nearest major population centers.

With the exception of Site facilities, land cover consists of a wide variety of natural vegetation types, with more than 90 percent in forest land. Land adjacent to the Site is used mainly for forest, agricultural, and industrial purposes; industrial uses include a commercial two-unit nuclear powerplant, a regional low-level radioactive waste repository, and a wide variety of conventional industries.

Open fields and pine and hardwood forests comprise 73 percent of the Site; approximately 22 percent is wetlands, streams, and two reservoirs (L-Lake and Par Pond); production and support areas, roads, and utility corridors account for 5 percent of the total land area (DOE 1993b). L-Lake occupies about 1,000 acres (4.0 square kilometers) of the site (Bowen 1993a). The SRS includes several production, production support, service, research and development, and waste management areas. The U.S. Forest Service (under an interagency agreement with DOE) harvests about 1,800 acres (7.3 square kilometers) of timber from SRS each year (DOE 1993b).

DOE has set aside approximately 14,085 acres (57 square kilometers) of the SRS exclusively for nondestructive environmental research in accordance with its designation of the Site as a National Environmental Research Park. Research in the set-aside areas is coordinated by the University of Georgia's Savannah River Ecology Laboratory (DOE 1993b). The SRS has been proposed but not yet approved as a Congressionally designated National Environmental Research Park. Under that proposal, lands of the SRS would be under Federal control in perpetuity (Shearer 1996).

In January 1994, DOE began a process to seek internal and external stakeholder recommendations on future uses of lands and facilities at each of its sites. Each DOE field office was to obtain stakeholder-preferred future use recommendations. At the SRS, DOE formed the Future Use Project Team, which is comprised of representatives of local stakeholder groups such as the SRS Citizens Advisory Board, SRS Land Use Technical Committee, and Citizens for Environmental Justice. DOE used a variety of public involvement approaches, including public meetings, to arrive at stakeholder-preferred future use options.

In January 1996, DOE published the *SRS Future Use Project Report* (DOE 1996b), which summarizes stakeholder-preferred future use recommendations that DOE uses as it considers ongoing and future mission needs, technical capabilities, legal requirements, and funding throughout future planning and decisionmaking activities. In the report, the Future Use Project Team made the following recommendations:

- SRS boundaries should remain unchanged, and the land should remain under the ownership of the Federal government, consistent with the Site's designation as the first National Environmental Research Park.

- Residential uses of SRS land should be prohibited.

- If DOE or the Federal government decides to sell any SRS land, DOE should seek legislation to permit former landowners (as of 1950 to 1952) or their descendants to have the first option to buy back the land they owned.

- SRS land should be available for multiple uses (e.g., industry, ecological research, natural resource management, research and technology demonstration, recreation, and public education) where appropriate and nonconflicting, but not for residential use.

- Some SRS land should continue to be available for nuclear and non-nuclear industrial uses, and commercial industrialization should be an option.

- Industrial and environmental research and technology development and transfer should be expanded.

- Natural resource management should be pursued where possible, with biodiversity the primary goal.

- Recreational opportunities should be increased as appropriate.

- Future use planning should consider the full range of worker, public, and environmental risks, benefits, and costs associated with remediation.

The 1995 *Land-Use Baseline Report, Savannah River Site* (WSRC 1995b) does not project any other future mission for L-Lake. Appendix A contains more information on the environmental restoration implications of the proposed action in this EIS.

It was suggested by EPA in its comments on DOE's *Waste Management Activities for Groundwater Protection* EIS that DOE continue to use a 100-year institutional control period for guiding future SRS projects that have Site specific actions (DOE 1987a).

At present, there are no proposed privatization plans requiring the use of L-Lake or site-use permits for other than its current use (Hill 1996). Ten scientists and technicians conduct monitoring and research on L-Lake each week, and about three tour groups visit L-Lake each week (Marcy 1996). Research studies include effects of radioactive effluents and metals on aquatic macrophytes, fish, and other vertebrates (Janecek 1996). Otherwise, the use of L-Lake is restricted.

4.1.6.2 Land Use Impacts

4.1.6.2.1 No Action

Activities associated with the No-Action Alternative would not affect current uses of L-Lake. DOE has not identified the lake as an area for possible future missions. DOE would use the Future Use Project recommendations and the actions described in Section 4.1.6.1 to determine future uses for the lake.

4.1.6.2.2 Shut Down and Deactivate

Under this alternative, L-Lake would recede over approximately 10 years, returning to the stream flow conditions of Steel Creek. During this period, the research and monitoring described in Section 4.1.6.1 would continue. However, as the receding water exposed potentially contaminated sediments (see Section 4.1.8.2), the type and frequency of monitoring would differ from current operations. Appendix A describes environmental restoration implications and ongoing investigations associated with the cleanup of an exposed contaminated lakebed. Additional L-Lake research opportunities would become available, for example, studying how a biological community adjusts to stresses associated with the return of Steel Creek to original conditions.

4.1.6.2.3 Shut Down and Maintain

The impacts from this alternative would be the same as those from the Shut Down and Deactivate Alternative, except DOE could restart the River Water System if necessary. Section 3.3.1 discusses possible reasons DOE would restart the system.