supply sources in those areas. If the River Water System is shut down, approximately 200 gallons per minute (0.013 cubic meter per second) of water would be added to each 186-Basin to ensure that the required reserve capacity is maintained. This make-up capacity would be provided by the existing K- and L-Area well water system. Piping alignments to the well water systems in both areas to supply the 186-Basins are associated actions, the impacts of which would be bounded by historic well water withdrawal rates. DOE believes that auxiliary equipment cooling replacement of river water blending for L-Area sanitary wastewater and K- and L-Area fire protection services are associated actions because the Proposed Action would not proceed until it implemented these actions.

4.5.2 AIR RESOURCES

Section 4.3.4.3 describes potential total maximum ground-level concentrations at the SRS boundary resulting from resuspended dried lakebed sediments from L-Lake and Par Pond. TE Table 4-72 lists the cumulative maximum SRS boundary line ground-level concentrations for TC air toxics (antimony, arsenic, beryllium, cadmium, lead, manganese, and mercury) and the criteria pollutant (PM_{10}) that could be released from dried lakebed sediments. This table also summarizes the combined releases associated with Par Pond and L-Lake, emissions from existing SRS facilities, background concentrations, and emissions expected from future activities. These data demonstrate that total modeled concentrations of nonradiological air pollutants from the SRS, including those from the River Water System shutdown, would be below regulatory standards.

Similarly, the concentrations of radioactive constituents would be very low. The combined airborne maximum-boundary line concentrations of cesium-137 and cobalt-60 from L-Lake TC and Par Pond would be 1.6×10^{-4} and 6.1×10^{-7} picocuries per liter, respectively. The cumulative impacts in terms of annual dose equivalents and health effects is discussed in the following section.

4.5.3 PUBLIC AND OCCUPATIONAL HEALTH

Sections 4.1.8 and 4.3.8 describe potential radiological releases from contaminated sediments of TE L-Lake and Par Pond, respectively. Table 4-73 lists the radiological doses to the hypothetical maximally exposed individual and the offsite population for the public and workers due to the exposures resulting from current and future SRS activities, including shutdown of the River Water System, and from offsite sources. The cumulative dose could result in an additional latent cancer fatality risk of 9.6×10^{-7} per year to that individual and a total of 0.033 additional cancer fatality per year to the 80-kilometer (50-mile) population from releases of radioactivity. The shutdown of the River Water System would account for approximately 0.4 percent of these TC effects. The cumulative impact could result in 0.31 additional latent cancer fatality to onsite workers; the shutdown of the River Water System would account for a negligible percentage (0.004 percent) of these health effects.

4.6 Unavoidable Adverse Impacts

The shutdown of the River Water System at the Savannah River Site would result in some adverse impacts to the environment. The impact assessment in this EIS identifies potential adverse impacts; the following paragraphs discuss those that would be unavoidable.

The recession of L-Lake associated with the shutdown alternatives would generate transient and minor air impacts as a result of minimal increases in the concentration of particulate matter less than 10 microns in diameter (PM_{10}) and slight increases in air toxics (including manganese, chromium, mercury, and beryllium).

These impacts coupled with those from existing operations and background values would still

fall well below applicable State and Federal standards.

DOE expects only minor unavoidable adverse impacts on public or worker health as a result of the shutdown alternatives. The amount of radioactivity that exposed lakebed sediments would release would be a small fraction of releases at the SRS and would be well below applicable regulatory standards. The hypothetical maximally exposed individual would receive an annual effective dose equivalent of 6.9×10^{-9} millirem, compared to about 300 millirem from natural radiation sources.

Exposure to contaminated lakebed sediments for the onsite worker would be well below established DOE limits.

Implementing either shutdown alternative would result in the recession of L-Lake; eventually L-Lake would reach equilibrium or recede to stream conditions. The recession of the lake would be unavoidable and would result in the loss of up to 1,000 acres (4 square kilometers) of lacustrine habitat. The loss of habitat would displace aquatic species, some of which could be lost depending on the rate of recession. Federally listed threatened or endangered species, such as the bald eagle, wood stork, and American alligator would be affected directly or by disruptions and loss to benthic and foraging habitat. These species would be able to disperse to more suitable habitats in the area. These impacts would not affect regional populations.

The shutdown of the River Water System would result in minor to nonexistent impacts to soils, groundwater, land use, and aesthetics. A minor impact to groundwater resources would result to support small equipment cooling loads in K- and L-Areas that the River Water System supplies. Groundwater resources in the area would accommodate the withdrawal needed to support these systems.

For the most part, impacts would be similar under both shutdown alternatives. However, under the Preferred Alternative, DOE would preserve the capability to pump water to reservoirs if unforeseen and unacceptable impacts occurred.

4.7 Short-Term Uses and Long-Term Productivity

This section considers the short-term uses of the environment and the maintenance of its long-term productivity. The implementation of the Proposed Action would stop river water flow to L-Lake, but would not involve construction, emissions, decommissioning, or waste generation associated with actions that typically place short-term demands on resources. However, the Proposed Action would affect resources of the L-Lake/Steel Creek ecosystem. The primary and secondary productivity of the lake would decrease from the reduction in nutrient loading that river water inputs had supplied. The standing crop of fish, in particular, would be reduced over time, and ultimately would be reduced to small populations of stream fish. Although the productivity of the lake would shift with recession, the decline in productivity would be temporary. An increase in terrestrial productivity would accompany the decline in aquatic productivity; as grasses, forbs, shrubs, and trees recolonized the former lakebed over time, a variety of terrestrial and semiaquatic animal species would inhabit the former lakebed. The regrowth of forested wetlands and uplands would enhance the long-term productivity and diversity of the area.