4.1.7 AESTHETICS

4.1.7.1 Affected Environment

The dominant aesthetic settings in the vicinity of SRS are agricultural land and forest, with limited residential and industrial areas. The reactors and most of the large facilities are in the interior portions of the Site (see Figure 1-2). Because of the distance to the SRS boundary, rolling terrain, normally hazy atmospheric conditions, and heavy vegetation, L-Lake is not visible from off the Site or from roads with public access.

Wetlands are more prevalent along the east side of L-Lake; lotus is the dominant surface plant in deeper water habitats at the outer edges of the cattail beds (Jensen et al. 1992). Wading birds are often observed foraging in lake shallows, and turtles are abundant, sunning on stumps and logs. Section 4.1.5 describes the flora and fauna of the L-Lake area. Figure 4-15 shows L-Lake/Steel Creek from the north side of Road B looking upstream. Figure 4-16 shows L-Lake from the boat ramp on the west side of the lake toward the southeast. Figure 4-17 is a view to the north of L-Lake from the road across the dam at the south end of the lake.

Current users and those who regularly view L-Lake include 1,790 vehicles a day that travel east or west across the north end of the lake on Road B, three SRS tour groups a week, and about 10 scientists and technicians who conduct monitoring and or research on the lake. The lake is restricted from other uses (Marcy 1996).

4.1.7.2 Aesthetic Impacts

4.1.7.2.1 No Action

Under the No-Action Alternative, DOE would continue to pump water from the Savannah River through the River Water System to L-Lake and would maintain it at full pool. The aesthetic setting of the lake would not change and there would be no impacts.

4.1.7.2.2 Shut Down and Deactivate

Under this alternative, DOE would shut down the River Water System, thereby pumping no water to L-Lake. The only water the lake would receive would come from natural recharge from the environment. The lake would recede over approximately 10 years to the original Steel Creek channel.

Figure 4-18 shows L-Lake at partial pool to illustrate how it would look as it recedes. As the lake recedes, there would be a loss of wildlife habitat and vegetation. Dried mud flats would be exposed until revegetation began, and there could be intermittent odor problems. However, based on the 1991 through 1995 Par Pond drawdown, plants would invade the newly exposed shoreline fairly rapidly. Grasses, sedges, and rushes colonized the bare Par Pond lakebed (Wike et al. 1994), and some old field species also became established. Figures 4-19 and 4-20 are artists' rendering of how the lake would appear as it recedes and revegetation of the exposed lakebed begins. TE

During the drawdown period, DOE would apply the following measures to minimize adverse effects of exposed sediments in the lakebed; these measures would also help to rebuild natural resources and minimize aesthetic impacts:

- Plant grass seed on exposed sediments to minimize effects of erosion and exposure of contaminants in the lakebed
- Apply other appropriate vegetation measures to accelerate the reversion of the lake to the original conditions of Steel Creek
- Seed the upstream face of the dam after the lake level dropped below the top portions of the dam, which are protected by riprap

The effects of these landscape changes cannot be quantified. Aesthetics is a subjective factor, dependent on individual perception and opportunity. In essence, it depends on whether a

particular object or scene would affect the individuals viewing it. The nearly 1,800 persons who pass by L-Lake each day are SRS workers accustomed to changes in the Site landscape who might not consider these changes significant, assuming they perceive SRS as strictly an industrial complex.

4.1.7.2.3 Shut Down and Maintain

The consequences of this alternative would be the same as those for the Shut Down and Deactivate Alternative, except DOE could restart the River Water System if necessary. Section 3.3.1 contains possible reasons for restarting the system.

4.1.8 OCCUPATIONAL AND PUBLIC HEALTH

4.1.8.1 Affected Environment

4.1.8.1.1 Public Health

A release of radioactivity to the environment from a nuclear facility is an important issue for both SRS workers and the public. However, the environment contains many sources of ionizing radiation, and it is important to understand all such sources to which people are routinely exposed.

Sources of Environmental Radiation

Environmental radiation consists of natural background radiation from cosmic, terrestrial, and internal body sources; radiation from medical diagnostic and therapeutic practices; radiation from weapons test fallout; radiation from consumer and industrial products; and radiation from nuclear facilities. All radiation doses mentioned in this EIS are effective dose equivalents (i.e., organ doses are weighted for biological effect to yield equivalent whole-body doses) unless specifically identified otherwise (e.g., absorbed dose, thyroid dose, bone dose).

Releases of radioactivity to the environment from the SRS account for less than 0.1 percent of the total annual average environmental radiation dose to individuals within 50 miles (80 kilometers) of SRS (Arnett, Mamatey, and Spitzer 1996).

Natural background radiation contributes about 82 percent of the annual average dose of 360 millirem received by an average member of the population within 50 miles (80 kilometers) of SRS (Figure 4-21). Based on national averages, medical exposure accounts for an additional 15 percent of the annual dose, and the combined doses from weapons test fallout, consumer and industrial products, and air travel account for about 3 percent of the total dose (DOE 1995c).

External radiation from natural sources comes from cosmic rays and emissions from natural radioactive materials in the ground. The radiation dose to the individual from external radiation varies with the exposure location and altitude.

Internal radiation from natural terrestrial sources consists primarily of potassium-40, carbon-14, rubidium-87, and daughter products of radium-226 that people consume in food grown with fertilizers containing these radionuclides. The estimated average internal radiation exposure in the U.S. from natural radioactivity (primarily indoor radon daughter products) is 240 millirem per year.

Medical radiation is the largest source of man-made radiation to which the population of the U.S. is exposed. The average dose to an individual from medical and dental X-rays, prorated over the entire population, is 39 millirem per year (DOE 1995c). In addition, radiopharmaceuticals administered to patients for diagnostic and therapeutic purposes account for an average annual dose of 14 millirem prorated over the population. Thus, the average medical radiation dose in the U.S. population is about 53 millirem per year. Prorating the dose over the population determines an average dose that, when multiplied by the population size, produces an estimate of population exposure; it does not mean