

in Section 4.3.6.1. DOE would make decisions on future uses in accordance with Future Use Project recommendations.

4.3.6.2.2 Shut Down and Deactivate

Activities associated with this alternative would not affect current or future uses of Par Pond. DOE anticipates no changes and no impacts to the lake. In January 1996, DOE discontinued pumping river water to Par Pond to enable water levels to fluctuate naturally (DOE 1995a,b). Since then, the lake level has not fallen below the 199-foot (60.7-meter) level (Kirby 1996).

4.3.6.2.3 Shut Down and Maintain

The impacts under 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 discusses possible reasons for a restart of the system.

4.3.7 AESTHETICS

4.3.7.1 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, the rolling terrain, normally hazy atmospheric conditions, and heavy vegetation, Par Pond is not visible from off the Site or from roads with public access.

With the exception of the dam area, Par Pond characteristically has wetlands along the shoreline with pine and hardwood forests farther up the slope. Marsh or shallow water vegetation such as cattails inhabit cove areas, while deeper areas provide habitat for open-water species such as water lilies and lotus (Jensen et al. 1992). Figure 4-33 shows Par Pond from Road 8 looking north.

Current users and those who would regularly view Par Pond (about 10 scientists and technicians per week) conduct research and monitoring for chemical, metal, physical and biological properties, water level and radioactive effluents; the frequency of use varies depending on the sample type. Par Pond is restricted from other uses (Marcy 1996).

4.3.7.2 Aesthetic Impacts

4.3.7.2.1 No Action

Under the No-Action Alternative, the aesthetic setting of Par Pond would not change and there would be no impacts.

4.3.7.2.2 Shut Down and Deactivate

Activities associated with this alternative should not affect the current or future aesthetic setting of Par Pond. In January 1996 DOE shut off the River Water System to Par Pond to allow water levels to fluctuate naturally (DOE 1995a,b). Since then, the lake level has not fallen below the 199-foot (60.7-meter) level (Kirby 1996). Figure 4-34 shows Par Pond at the 195-foot (59.4-meter) pool elevation; some of the shoreline is exposed in the background. This photograph was taken in 1991 during the lake drawdown.

In the unlikely event that the lake level dropped below 195 feet (59.4 meters), aesthetic impacts could occur (depending on how far down the lake level dropped and for how long). There would be some loss of vegetation and wildlife habitat. Tree stumps would be exposed, dried mud flats would appear for periods of time until revegetation began, and there could be intermittent odor problems. Figure 4-35 is a 1991 photograph of Par Pond at the 181-foot (55.2-meter) pool elevation showing the exposed shoreline and wetlands in the background. If the lake level fell below 195 feet, DOE would apply measures to minimize adverse effects of exposed sediments in the lakebed; these measures would also help to minimize the aesthetic impacts.

4.3.7.2.3 Shut Down and Maintain

Aesthetic impacts under this alternative would be the same as those noted for the Shut Down and Deactivate Alternative, except DOE could restart the River Water System if necessary. Section 3.3 contains possible reasons for restarting the system.

4.3.8 OCCUPATIONAL AND PUBLIC HEALTH

4.3.8.1 Affected Environment

Releases from R-Reactor in the form of process leaks, purges, and makeup cooling water have contaminated Par Pond with low levels of radioactive materials, primarily cesium-137 [originally 222 curies in Par Pond, the R-Reactor canals, and Lower Three Runs (DOE 1995a)]. All radiological releases except tritium stopped after the shutdown of R-Reactor in 1965. Most of the cesium-137 resides in the upper 1 foot (0.3 meter) of fine sediments, in the original stream corridors. Because its half-life is 30 years, more than half of the cesium-137 associated with Par Pond has decayed since the releases occurred [currently about 43 curies remain in Par Pond, more than two-thirds below the 190-foot (57-meter) level]. Elevated levels of mercury have accumulated in sediments from water pumped from the Savannah River (DOE 1995c).

In 1995 DOE completed an environmental assessment that enabled the cessation of pumping from the River Water System to Par Pond. Until that time, DOE had maintained the water level in Par Pond at full pool [approximately 199.2 feet (59.7 meters)] with the addition of flow from the River Water System. DOE stopped the pumping to reduce operating costs and, as a result, Par Pond water levels fluctuate naturally, depending only on rainfall and groundwater recharge. As a result, the surface-water level of Par Pond is likely to fluctuate naturally from a full pool of approximately 199.2 feet (60.7 meters) to 196 feet (59.7 me-

ters) exposing about 340 acres (1.4 square kilometers) of sediment (Figure 4-36) (DOE 1995a).

DOE collected samples from the exposed sediments of Par Pond in early 1995, shortly before refilling the reservoir after the drawdown. The sampling was confined to elevations between 190 and 200 feet (58 and 61 meters) above mean sea level, which included sediments likely to be exposed when the water level can fluctuate naturally, as expected under the alternatives. The sediments were analyzed for a number of radionuclides and metals. Some of the soil samples were analyzed for organic contaminants, none of which were detected above EPA or Canadian screening criteria for contaminants in terrestrial soils (Paller and Wike 1996b).

DOE detected a number of radionuclides in the Par Pond sediments, but only cesium-137 occurred consistently and at levels well in excess of levels at the control sites. The geometric mean concentration of cesium-137 was 7.2 picocuries per gram; the maximum was 56.7 picocuries per gram (Paller and Wike 1996b).

DOE detected mercury in exposed dry sediments in concentrations high enough to be of possible concern. Mercury concentrations were characterized by a geometric mean and maximum levels of 62 and 485 micrograms per kilogram, respectively.

4.3.8.2 Environmental Impacts

The 1995 environmental assessment (DOE 1995a) estimated human health impacts from a natural fluctuation in Par Pond. However, DOE calculated these impacts in accordance with guidance provided by the EPA (EPA 1989), and limited them to individuals working and living (residential scenario) close to contaminated sediments. The impacts, therefore, represent a conservative upper bound of risk probability.

Impacts calculated for this EIS are based on more realistic exposure parameters (e.g., people are assumed to not live close to contaminated