

Appendix I

Ecological Resources

Appendix I provides additional information regarding potential impacts to terrestrial and aquatic ecological resources that may result from implementation of Alternative Groups A, B, C, D₁, D₂, D₃, E₁, E₂, and E₃, or the No Action Alternative. Potential impacts to terrestrial resources would occur in the near term, i.e., during waste management operations and under current conditions. These relate primarily to surface disturbance associated with disposal in the Low Level Burial Grounds (LLBGs), the Environmental Restoration and Disposal Facility (ERDF), and in the proposed disposal facility near the PUREX Plant; Area C from which capping materials would be obtained and the associated stockpile area and conveyance road; and construction sites for the additional Central Waste Complex (CWC) facilities and New Waste Processing Facility. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These relate primarily to the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River.

I.1 Background

The 24 Command Fire, a range fire that occurred in late June–early July 2000 (DOE-RL 2000), burned 163,884 acres on the central part of the Hanford Site and the Fitzner/Eberhardt Arid Lands Ecology (ALE) Reserve (Baker 2000). The 24 Command Fire covered the 200 West Expansion Area, some of which has been identified for construction of the additional CWC facilities and the New Waste Processing Facility; a large area west and south of that location, including Area C; and the southern portion of the corridor between the 200 West Area and 200 East Area, including the ERDF. The 24 Command Fire did not affect the LLBGs in the 200 West Area (although some of these border the 200 West Expansion Area), nor did it reach the 200 East Area.

In general, approximately 85 percent of the burned area experienced severe fire intensity, resulting in complete destruction of all vegetation and organic litter on the soil surface (Baker 2000). In moderately burned areas, there was partial removal of the shrub layer and understory. Many of the severely and moderately burned areas have since been colonized by alien annual weeds, such as Russian thistle (*Salsola kali*) and cheatgrass (*Bromus tectorum*).

The most severely burned areas, particularly west and southwest of the 200 West Area (including the area identified for construction of the additional CWC facilities and the New Waste Processing Facility), were, and continue to be severely eroded by wind (Becker and Sackschewsky 2001a, 2001b; Sackschewsky and Becker 2001). Much of the topsoil and likely much of the buried seed (Baker 2000) have been removed. Plant communities in these areas, particularly the shrub components, may not