4.0 Location and Affected Environment

4.1 Location of the Proposed Action

The proposed retrieval and storage activities would occur in the 200 West Area of the Hanford Site near Dayton Avenue and, between 16th and 27th streets. See Figure 2.

The Hanford Site (Figure 1) is 1,450 square kilometers (560 square miles) and located in southeastern Washington state. It is a semiarid region of rolling topography. Two topographical features dominate the landscape: Rattlesnake Mountain, a treeless 1,066 meters (3,500 feet) anticline, located on the southwest boundary and Gable Mountain, a small ridge 339 meters (1,112 feet) in height, located on the northern portion of the Site. The Columbia River flows through the northern part of the Hanford Site and forms part of the Hanford Sites' eastern boundary. Areas adjacent to the Hanford Site are primarily agricultural lands.

The 200 West Area is located on the 200 Area plateau 8 kilometers (5 miles) from the Columbia River and is not located in the 100-year or 500-year floodplain of the Columbia River, the probable maximum floodplain of Cold Creek, nor is it located within a wetlands area (Cushing 1994). The 200 West Area is the Hanford Site's waste management operation center. Burial trenches, waste storage facilities (solid and liquid), and retired chemical processing plants are located here. The 200 West Area does not contain any prime farmland, state or national parks, forests, conservation areas, or other areas of recreational, scenic, or aesthetic importance.

The 200 West Area is about 48 kilometers (30 miles) northwest of the City of Richland. The City of Richland (population 32,315), located in Benton County, adjoins the southernmost portion of the Hanford Site boundary and is the nearest population center (Figure 1).

The site for the proposed Retrieval Complex would occupy approximately 2.4 hectares (6 acres) within the western part of the 200 West Area. The site for the CWSC would occupy approximately 3.2 hectares (8 acres) just north of the Storage Facility (Figure 2). The access roads, septic and drainfield systems, runoff control, paved areas, and various utilities required for the proposed infrastructure upgrades would occupy an additional area of approximately 12.9 hectares (32 acres). A total of 18.6 hectares (46 acres) would be included within the combined "footprint" for the Retrieval Complex and the Storage Facility and Support Complex (Figure 2).

External radiation measurements were taken at 58 survey sites in the 200 Areas. The results indicated the average annual dose rate was 130 mrem per year (PNL 1994).

4.2 Socioeconomics

The Hanford Site is a dominant factor in local employment providing almost one-quarter of the total nonagricultural jobs (17,000 of 67,000) in Benton and Franklin Counties in 1992 (TRIDEC 1992). In fiscal year 1988, the DOE and its contractors purchased about $96 million of goods and services in the State of Washington. The Hanford Site has had many major construction projects ranging from office facilities to a major commercial nuclear plant.

The leading employers in the immediate region that impact the local economy are the DOE and its operating contractors, the Washington Public Power Supply System, and the agricultural sector including food processing plants. Other major employers include a nuclear fuel fabrication plant, a meat packing plant, a pulp and paper mill, railroad, and small manufacturing firms.

4.3 Physical Environment

The water table in the 200 West Area is approximately 70 meters (230 feet) to 88 meters (290 feet) below the surface. Groundwater is monitored routinely and the results are reviewed to detect any change (Cushing 1994).

There are no known groundwater contamination plumes beneath the area with the possible exception of the outer margin of the 200 West Area carbon tetrachloride plume where the isopleth shows the concentration at about 10 parts per billion (Ford 1993).

The soil in the 200 Area is predominately a sand and gravel mixture. As effluent percolates downward through a multi-layered soil column, considerable lateral spreading within each layer would occur. Localized perched water conditions may develop at various intervals in the soil column above the watertable which is about 70 meters (230 feet) below the surface.

The 200 West Area of the Hanford Site is characterized by relatively cool, mild winters and warm summers with an average of about 15 to 18 centimeters (6 to 7 inches) of annual precipitation and occasional high winds of up to 129 kilometers (80 miles) per hour. There has been no reported occurrence of a tornado on the site and the area has low to moderate seismicity. Air quality is well within the state and federal standards for criteria pollutants (such as sulfur dioxide, nitrogen dioxide, carbon monoxide, lead, ozone, and particulate matter) although there are natural events such as dust storms and brushfires that can cause particulate concentrations to reach high levels (DOE 1995). This increased particulate concentration is a short-term condition.

Atmospheric dispersion conditions of the area vary between summer and winter months. The summer months generally have good air mixing characteristics. If the prevailing winds from the northwest are light, less favorable dispersion conditions may occur. Occasional periods of poor dispersion conditions occur during the winter months.

4.4 Ecology

The vegetation on the Hanford Site is a shrub-steppe community of sagebrush and rabbitbrush with an understory consisting primarily of cheatgrass and Sandberg's bluegrass. The typical insects, small birds, mammals, and reptiles common to the Hanford Site can be found in the 200 West Area (Cushing 1994). Relatively undisturbed areas of mature shrub-steppe vegetation that are high quality habitat for many plants and animals have been designated as "priority habitat" by the State of Washington.

A Biological Review has been completed for portions of the proposed site (Appendix A). During this review, the loggerhead shrike (federal candidate 2 and state candidate species) and sage sparrow (state candidate) were observed in the area. The shrub-steppe habitat on and near the proposed site is considered priority habitat used for nesting/breeding/foraging by the loggerhead shrike and sage sparrow and is habitat for the northern sagebrush lizard. A red-tailed hawk and western meadowlarks were also observed in the area of the proposed action. No federal listed or candidate plant species were observed in the area of the proposed action although the stalked-pod milkvetch (state monitor species) was observed.

The Biological review of May 23, 1995 (Appendix A) covered an area of approximately 36 hectares (89 acres) of which approximately 20 hectares (50 acres) were identified as priority habitat. The project scope has been reduced since the survey and now contains approximately 18.6 hectares (46 acres) of which approximately 14.6 hectares (36 acres) is estimated to be priority habitat.

4.5 Cultural Resources

A Cultural Resources Review (CRR) has been completed by the Pacific Northwest Laboratory (PNL) (Appendix B). No cultural artifacts of significance were found during the survey and no restrictions were placed on construction or operation.

The historic White Bluffs Road has been identified as passing through the 200 West Area. The segment of the road that passes through the 200 West Area has been extensively disturbed by previous activities and has been found to be a noncontributing section to the road's historical status because of its loss of physical integrity (Appendix B). Construction activities from this proposed action would be close to or intersect this segment of the road. Other than the White Bluffs Road, there are no known archeological, historical, religious sites, or other sensitive cultural areas in the vicinity of the proposed action.