TANK CLOSURE & WASTE MANAGEMENT ENVIRONMENTAL IMPACT STATEMENT IMPACT ASSESSMENT METHODOLOGY JUNE 2007

The following summarizes the methodologies which will be used in the *Tank Closure & Waste Management Environmental Impact Statement (TC&WM EIS).* Methodologies are processes that impact areas in the *TC&WM EIS* will be analyzed. Methodologies describe direct, indirect, and cumulative effects of the potential action which may be taken and is being analyzed in the *TC&WM EIS* alternatives. The methodology format will apply both to the alternatives (e.g., those actions that the U.S. Department of Energy is considering making a decision on in the *TC&WM EIS*) as well as cumulative impacts (e.g., those activities occurring around the Hanford site which could influence the alternatives).

The methodologies presented here may differ from how methodologies are defined in other documents, areas, or on the Hanford site. The information presented here corresponds to how the *National Environmental Policy Act of 1969* defines the methodologies and is intended to familiarize the reader with these areas prior to when the *TC&WM EIS* is published.

Within a particular methodology section there is a Region of Influence. This is a geographical area in which the principal direct and indirect effects occur for a specific discipline. In most of the methodologies these Regions of Influence will be either the Hanford site or the Idaho National Laboratory site. Methodologies in an EIS use a sliding scale approach, which allows the EIS to discuss disciplines based on their importance. This results in analyses ranging from qualitative to quantitative. For the *TC&WM EIS* methodologies will be presented in two sections; short-term impacts and long-term impacts. Short-term impacts for the *TC&WM EIS* are defined as ranging from FY 2006 to FY 2250, which is the length of the longest *TC&WM EIS* alternative. Long-term impacts are defined from FY 2250 to FY 12250 (roughly out 10,000 years).

Short term methodologies include land resources, visual resources, infrastructure, noise and vibration, air quality, geology and soils, water resources, ecological resources, cultural and paleontological resources, socioeconomic, public and occupational health and safety, transportation, environmental justice, waste management, and industrial safety. Long term methodologies include groundwater, surface water, and ecological.

Short-Term Impact Methodologies

Land Resources – The method that land is developed and used in terms of anthropogenic activities (industrial, agriculture, conservation, residential). Impacts are usually measured by describing acreage usage.

Visual Resources – This includes the natural and manmade features that give a landscape its character and aesthetic quality. Impacts are usually measured by describing the change in appearance that can result from activities.

Infrastructure – This includes utility requirements and capacity for electrical power, fuel, and water. Impacts are measured consistent with how information is presented on resident's utility bills for their house or apartment.

Noise and Vibration – This includes noise and vibration from construction activities and increased traffic. Impacts are measured against Environmental Protection Agency guideline levels for outdoor activities.

Air Quality – This includes air releases, or emissions, from site activities. Impacts are measured against Environmental Protection Agency emission standards.

Geology and Soils – This includes the impacts to existing site geology, soil conditions, and resources (rock, mineral) and evaluates small and large scale geological hazards (earthquakes and volcanoes). Impacts are measured by total area of land disturbed and depth of excavation, as well as hazards to existing or new facilities from geologic hazards.

Water Resources – This includes surface-water bodies, vadose zone, and groundwater that could be directly impacted by project activities. These include water withdraws, effluent discharges, and spills.

Ecological Resources – This includes plant and animal species and communities closely associated with land and water resources. Wetlands, threatened, and endangered species will be discussed here.

Cultural and Paleontological Resources – This includes indications of human occupancy and the use of property protected by Federal and State regulations and guidelines. Prehistoric, historic, and Native American Indian resources are included. Paleontological resources cover the physical remains, impressions, or traces of plants and animals from a former geologic age.

Socioeconomic – This includes economic characteristics including staffing, labor forces, and changes in employment conditions. Discussion regarding potential changes in demographic characteristics will also be addressed.

Public and Occupational Health and Safety – This includes impacts to workers and the public related to normal operations and facility accidents. Impacts from both radionuclides and chemicals will also be addressed.

Transportation – This includes transportation of materials and waste to the Hanford site, transportation of materials on site, and transportation of waste off-site.

Environmental Justice – This includes disproportionately high or adverse human health or environmental effects on minority and low income populations. These include Hispanic, Native American Indian, Asian, African American, and Native Hawaiian.

Waste Management – This includes different waste types that are generated from the *TC&WM EIS* alternatives. They include low level waste, mixed low level waste, transuranic, high level waste, hazardous waste, and non-hazardous solid waste.

Industrial Safety – This includes illnesses, injury, and work related deaths resulting from completing the *TC&WM EIS* alternatives.

Long-Term Impacts Methodologies (Approximately 10,000 years)

Groundwater – This includes the impacts to the groundwater from radionuclides and chemicals. Evaluates movement of the contamination through the soil and into the aquifer.

Ecological Risk – This includes the impacts on terrestrial and aquatic biota from chemical and radionuclies released to the air and dispersed and deposited on the soil, from groundwater and from the Columbia River.