The routine operations health impacts from carcinogenic chemicals are presented as the lifetime risk of cancer incidence from exposure in the given scenario. For non-carcinogenic chemicals, the impacts are expressed as a hazard quotient. Both types of impacts are presented as the sum over all chemicals in the release of the given type. A hazard quotient of one represents an exposure level that is considered safe for most members of the population (EPA 1991). A value greater than one may represent an exposure that is detrimental to public health.

The health impacts to workers from chemicals due to accidents are evaluated by comparing chemical air concentrations to the emergency response planning guideline (ERPG), or the temporary emergency exposure limit (TEEL). These are described in Appendix F. Although ERPGs are the official, preferred measure, ERPGs have not been established for many chemicals. Where ERPGs were not available, the TEELs were used.

The following sections present details of the human health impacts analyses for the six alternative groups considered in the HSW EIS. For a summary comparison of impacts among the alternatives, see Table 3.6 in Section 3.6. The impacts from the operational phase are presented for all alternative groups in Section 5.11.1, followed by the long-term health impacts resulting from contaminant transport through the groundwater (Section 5.11.2).

5.11.1 Operational Human Health and Safety Impacts

The impacts from the operational phase are presented by alternative group in the following sections.

5.11.1.1 Alternative Group A

The following sections present the potential human health impacts for Alternative Group A for the Hanford Only, Lower Bound, and Upper Bound waste volumes.

5.11.1.1.1 Construction

Primary impacts from construction activities would be air quality and injuries to construction workers. The construction activities would result in the emission of criteria pollutants (40 CFR 50) from the use of combustion engines and earthmoving activities. Impacts are measured by comparison of air concentrations with regulatory limits at the point of maximum potential public exposure. The air quality analysis (Section 5.2) indicates that maximum emissions of all criteria pollutants (including sulfur dioxide, carbon monoxide, nitrogen dioxide, and particulate material [PM_{10}]) from construction activities would result in air concentrations below the regulatory limits. As a consequence, no impacts on public health from emissions would be expected. Impacts from industrial accidents during construction are discussed in Section 5.11.1.1.3.