

1 **5.11.1.2.2 Accidents**
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3 The impacts of accidents involving radiological and chemical contaminants and industrial accidents
4 are evaluated in this section. Waste management operations would involve a continuing potential for
5 industrial accidents and accidental release of contaminants in four Hanford facilities: (1) the Central
6 Waste Complex (CWC) for waste storage, (2) the WRAP for waste treatment, (3) the T Plant Complex
7 (or similar new waste processing facility) for waste treatment, and 4) the HSW disposal facilities for
8 waste disposal. Accident information for each of these facilities is presented in the sections that follow.
9 Additional information on radiological and chemical accidents is provided in Appendix F, Section F.2
10 (including adjustments methods used to derive radiological consequence data).
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12 Non-radiological consequences were evaluated by comparing estimated air concentrations to the
13 TEEL or the ERPG for a given chemical. Additional information, including definitions of ERPG/TEEL
14 levels, is presented in Appendix F.
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16 Human health and safety impacts to workers actually involved in accidents (involved workers) are
17 addressed in the general sense and not for each particular facility or potential accident for any of the
18 alternative groups because the potential consequences would be highly variable, ranging from no effect to
19 a fatality for one or more workers. The most likely consequence for any involved worker would be no or
20 small impact. Workers involved in an accident could receive physical injuries or be killed during an
21 accident, receive a range of radiation doses (none likely to be fatal), or be exposed to a range of hazardous
22 chemical concentrations that could be high but of relatively short duration and, again, thought unlikely to
23 be fatal. The reason for an optimistic outlook on radiation dose or chemical exposure for the involved
24 worker under accident conditions is that in situations where there is a potential for radioactive or chemical
25 risks, additional precautions are taken and workers are typically accompanied by a health physics
26 technician.
27

28 The greatest likelihood of worker fatalities would be from physical trauma received during an
29 accident. For example, the drum explosion and ion exchange module explosion accidents could result in
30 involved worker fatalities if the workers were in the explosion blast zone. Most accidents would involve
31 only one or two workers; the exception would be low probability, beyond-design-basis seismic events
32 where a number of involved workers could be affected. Depending on the type of facility, worker
33 location, and time of accident, zero to perhaps a dozen worker fatalities could result. Burial ground
34 workers would probably be the least affected by extensive seismic structural damage for the types of
35 facilities considered. Similarly, CWC workers would be more likely to avoid obstacles and debris and
36 exit the facilities since there are no massive storage structures in this area. Workers in other waste
37 management facilities could be more affected by falling debris as a result of extensive seismic damage.
38

39 Anticipated health impacts to all workers from industrial accidents during construction and operations
40 would be 620 to 640 total recordable cases, 260 lost workday cases, and 8900 to 9200 lost workdays. A
41 total of about 20,600 to 21,200 worker-years would be required to complete all activities over the
42 operational period. Of that total, about 2800 to 3400 worker-years are for site support and waste
43 generator services that do not appear in the direct facility worker and impact estimates in the following
44 sections. About 97 to 99 percent of these health impacts are from operations.