Table 5.3-16. Lifetime radiation dose (millirem) by receptor and facility disposition scenario.

Facility	Maximally exposed resident	Future industrial worker	Intruder	Recreational user
No Action				
Tank Farm	84	4.4	5.1×10^{4}	0.64
Bin sets	490	25	2.3×10^{-4}	3.7
Performance-Based Closure or Closure to Landfill Standards				
Tank Farm	4.4	0.36	1.9×10^{4}	0.057
Bin sets	1.3	0.070	6.6×10^{-9}	0.010
New Waste Calcining Facility	0.034	1.7×10^{-3}	9.1×10^{-11a}	2.4×10^{-4}
Process Equipment Waste Evaporator	0.036	1.8×10^{-3}	9.6×10^{-11a}	2.6×10^{-4}
Performance-Based Closure with Class A Grout Disposal				
Tank Farm[b]	5.0	0.44	2.0×10^{4}	0.070
Bin sets[b]	2.2	0.19	6.7×10^{-9}	0.030
Performance-Based Closure with Class C Grout Disposal				
Tank Farm[c]	4.6	0.38	2.5×10^{5}	0.061
Bin sets[c]	2.1	0.16	2.4×10^{-7}	0.025
Class A or C Grout Disposal in a New Low-Activity Waste Disposal Facility				
Class A disposal facility	6.9	0.95	2.8×10^{-6}	0.16
Class C disposal facility	5.8	0.72	4.4×10^{-3}	0.12

a. Direct radiation dose to intruder from exposure to residual activity in closed New Waste Calcining Facility and Process Equipment Waste Evaporator was not assessed. Doses shown for these facilities are from groundwater pathway.

b. Includes residual contamination plus Class A-type grout.

c. Includes residual contamination plus Class C-type grout.

grout in a Low-Activity Waste Disposal Facility. The health hazard quotient is slightly below one for the bin sets - No Action and Class A Grout Disposal in a new Low-Activity Waste Disposal Facility scenarios (0.81 and 0.96, respectively), and slightly above one (1.1) for the Class C Grout Disposal in a new Low-Activity Waste Disposal Facility scenario. The effect of concern for fluoride intake is objectionable dental fluorosis, which is considered more of a cosmetic effect than an adverse health effect (EPA 1998). Table 5.3-17 presents a summary of noncancer hazard quotients for intakes of fluoride, nitrate, and cadmium.

Additional details on the modeling methodology used by DOE is included in Appendix C.9 of this EIS.

5.3.9 ENVIRONMENTAL JUSTICE

As discussed in Section 5.2.11, Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs each Federal agency to "make…achieving environmental justice part of its mission" and to identify and address "…disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations." The Council on Environmental Quality, which oversees the Federal government's compliance with Executive Order 12898 and the National Environmental Policy Act, subsequently developed guidelines to assist Federal agencies in incorporating the goals of Executive Order

Table 5.3-17. Noncarcinogenic health hazard quotients.

Contaminant	Cadmium			Fluoride			Nitrate		
Facility	Maximally exposed resident	Future industrial worker	Recreational user	Maximally exposed resident	Future industrial worker	Recreational user	Maximally exposed resident	Future industrial worker	Recreational user
No Action									
Tank Farm	0.040	8.5×10^{-3}	9.7×10^{-4}	1.6×10^{-4}	1.9×10^{-5}	3.8×10^{-6}	0.047	3.8×10^{-3}	6.5×10^{-4}
Bin sets	0.81	0.17	0.020	7.1×10^{-3}	8.3×10^{-4}	1.7×10^{-4}	3.6×10^{-3}	2.9×10^{-4}	5.0×10^{-5}
Performance-Based Closure or Closure to Landfill Standards									
Tank Farm	5.3×10^{-3}	1.0×10^{-3}	1.2×10^{-4}	1.1×10^{-6}	1.3×10^{-7}	2.7×10^{-8}	1.7×10^{-4}	1.4×10^{-5}	2.4×10^{-6}
Bin sets	6.1×10^{-3}	1.3×10^{-3}	2.8×10^{-3}	6.0×10^{-5}	7.1×10^{-6}	1.4×10^{-6}	5.6×10^{-5}	4.6×10^{-6}	7.8×10^{-7}
NWCF	- [a]	-	-	3.8×10^{-6}	4.5×10^{-7}	9.2×10^{-8}	8.9×10^{-7}	7.2×10^{-8}	1.2×10^{-8}
PEW Evaporator	-	-	-	1.1×10^{-5}	1.3×10^{-6}	2.7×10^{-7}	9.2×10^{-7}	7.5×10^{-8}	1.3×10^{-8}
Performance-Based Closure with Class A Grout Disposal									
Tank Farm[b]	0.088	0.019	2.1×10^{-3}	7.2×10^{-4}	8.5×10^{-5}	1.7×10^{-5}	6.9×10^{-3}	5.6×10^{-4}	9.6×10^{-5}
Bin sets[b]	0.12	0.026	5.5×10^{-3}	1.0×10^{-3}	1.2×10^{-4}	2.5×10^{-5}	0.035	2.9×10^{-3}	4.9×10^{-4}
Performance-Based Closure with Class C Grout Disposal									
Tank Farm[c]	0.040	8.4×10^{-3}	9.6×10^{-4}	3.8×10^{-4}	4.5×10^{-5}	9.3×10^{-6}	9.1×10^{-4}	7.5×10^{-5}	1.3×10^{-5}
Bin sets[c]	0.14	0.031	6.1×10^{-3}	1.2×10^{-3}	1.5×10^{-4}	3.0×10^{-5}	0.028	2.3×10^{-3}	1.4×10^{-4}
Class A or C Grout Disposal In a New Low-Activity Waste Disposal Facility									
Class A disposal facility	0.96	0.20	0.023	9.1×10^{-3}	1.1×10^{-3}	2.2×10^{-4}	9.8×10^{-3}	8.0×10^{-4}	1.4×10^{-4}
Class C disposal facility	1.1	0.23	0.026	0.011	1.3×10^{-3}	2.6×10^{-4}	2.8×10^{-3}	2.3×10^{-4}	3.9×10^{-5}

a. A dash indicates that there is no quantifiable exposure to this toxicant.

b. Includes residual contamination plus Class A-type grout.

c. Includes residual contamination plus Class C-type grout.

NWCF = New Waste Calcining Facility; PEW = Process Equipment Waste.

12898 in the NEPA process. This guidance, published in 1997, was intended to "…assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed."

5.3.9.1 Methodology

The methods used to assess potential environmental justice impacts in Section 5.2.11 (Waste Processing) were also used to assess potential environmental justice impacts during facility disposition. The approach was based primarily on Council on Environmental Quality guidance (CEQ 1997).

Although no high and adverse impacts were predicted for the activities analyzed in this EIS, DOE nevertheless considered whether there were any means for minority or low-income populations to be disproportionately affected. The basis for making this determination would be a comparison of areas predicted to experience human health or environmental impacts with areas in the region of influence known to contain high percentages of minority or low-income populations as reported by the U.S. Bureau of the Census.

5.3.9.2 Facility Disposition Impacts

Relatively small numbers of workers would be required for facility disposition activities. DOE intends to retrain and reassign workers to conduct dispositioning activities to the extent practicable. Any socioeconomic impacts would be positive.

None of the facility disposition alternatives is expected to significantly affect land use, cultural resources, or ecological resources because no previously-undisturbed onsite land would be required and no offsite lands are affected.

DOE estimated emissions of radiological and nonradiological pollutants from dispositioning new and existing facilities required to support the various waste processing alternatives. These emissions would be temporary, lasting for a few (1 to 4) years following the shutdown of a facility. In general, radionuclide emission levels from dispositioning facilities would be lower than those resulting from operating the same facilities. In all cases, doses from dispositioning new facilities would be exceedingly low and a very small fraction of natural background levels and applicable standards. Criteria pollutant levels would remain well below applicable standards for all facility disposition alternatives. Toxic air pollutants would also be well below reference levels for all alternatives.

DOE also assessed the emissions from disposition of existing facilities including the Tank Farm and bin sets. In all cases, radiological doses from emissions would be low and nonradiological air impacts would be well below applicable standards.

DOE assessed short- and long-term impacts to groundwater that may occur as a result of facility disposition (closure) activities. Depending on the facility disposition alternative selected, small amounts of residual waste could reach into groundwater beneath INTEC. Based on computer modeling results, there are no instances where the peak groundwater concentration of a radiological or nonradiological contaminant would exceed its EPA drinking water standard.

The annual radiation doses to the maximally exposed onsite and offsite individuals and the offsite public (population within 50 miles of INTEC) from disposition of new facilities would be insignificant. The highest collective dose to the population within 50 miles of INTEC (1.6×10^{-8} person-rem per year) would be associated with disposition of new facilities under the Minimum INEEL Processing Alternative. This collective dose would be associated with a very small increase (1.8×10^{-11}) in latent cancer fatalities in the population.

The annual radiation doses to the maximally exposed onsite and offsite individuals and the offsite public (population within 50 miles of INTEC) from disposition of existing waste management facilities would also be very small. The highest collective dose to the population with 50 miles of INTEC (6.1×10^{-8} person-rem per year) would result from Closure to Landfill Standards of the bin sets. This collective dose would be associated with a very small increase (3.1×10^{-11}) in latent cancer fatalities in the population.

Impacts from other existing facility disposition alternatives would be lower.

Because facility disposition impacts would be small in all cases, and there is no means for minority or low-income populations to be diproportionately affected, no disproportionately high and adverse impacts would be expected for minority or low-income populations.

As noted in Section 5.3.8, public health impacts from facility disposition activities are based on projected airborne releases of radioactive and nonradioactive contaminants. Because prevailing winds are out of the southwest and northeast (see Section 4.7.1), contaminants released to the atmosphere from INTEC tend to be carried to the northeast (into the interior of the INEEL) or southwest (into the sparsely-populated area south and west of the INEEL). Minority populations tend to be concentrated south and east of INTEC, in urban areas like Pocatello and Idaho Falls and along the Interstate 15 corridor (see Figure 4-2***0***). The Fort Hall Indian Reservation is also some 40 miles southeast of INTEC (see Figure 4-2***1***). This suggests that minority and low-income populations would not experience higher exposure rates than the general population and that disproportionately high and adverse human health effects for minority or low-income populations would not occur as a result of facility disposition activities at INTEC.

5.3.10 UTILITIES AND ENERGY

Upon completion of waste processing operations, DOE would disposition surplus facilities. Disposition activities would result in the consumption of electricity, water, and fossil fuels, and the generation of wastewater.

Table 5.3-1***8*** presents the utility and energy requirements for disposition of new facilities that would be built to support the waste processing alternatives. These facilities would be clean-closed in accordance with applicable permits or regulations.

Table 5.3-1***9*** presents impacts for disposition of the Tank Farm and bin sets by closure alternative. Disposition of the Tank Farm and bin sets would be a long-term activity because facility closure and operation as a disposal facility could last 20 to 35 years depending on the facility, closure method, and low-level waste fraction disposal option chosen. Closure of the remaining existing HLW generation, treatment, and storage facilities ***would*** not ***be*** long-term compared to the Tank Farm and bin sets.

Table 5.3-***20*** presents impacts for disposition of other existing facilities associated with HLW management.

5.3.11 WASTE AND MATERIALS

Waste would be produced as a result of disposition of new waste processing facilities. Table 5.3-2***1*** summarizes total volumes of industrial, low-level, mixed low-level, and hazardous waste that would be generated from disposition of new facilities under each of the waste processing alternatives. As noted in Section 5.2.13, waste volumes have been conservatively estimated. Future regulatory changes could affect predicted waste volumes and, in the worst case, some reanalysis could be required to show that predicted impacts are bounding.

Generation of transuranic waste is not expected under disposition of any of these facilities. These facilities would be closed in accordance with the applicable permits or regulations, and closure activities would be typically between 1 to 5 years in duration. Although the No Action Alternative includes some minor construction actions, the evaluation of impacts presented here assumes it would involve no facility disposition activities.

Table 5.3-2***2*** shows volumes of industrial, low-level, mixed low-level, and hazardous waste that would be generated by disposition of existing HLW management facilities. As with disposition of new facilities, generation of transuranic waste is not anticipated for any of the facilities. Waste generation estimates are presented by facility (or facility grouping) and disposition alternative. Disposition of the Tank Farm and bin sets represents the more complex activities and would be long-term actions, lasting upwards of 30 years, depending on the alternative. Because of these complexities, the Tank Farm and bin sets are being evaluated under each of