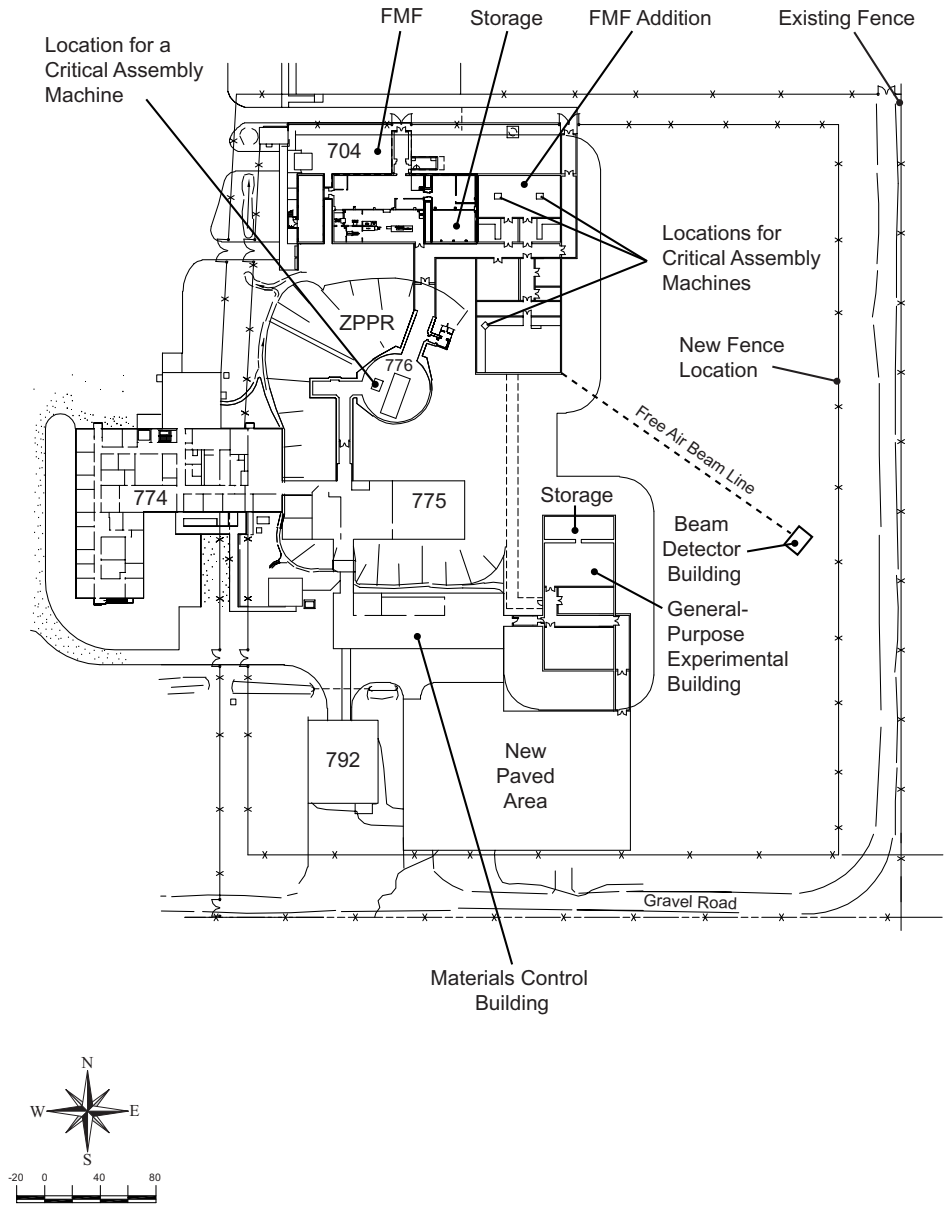

Figure 3–14 Proposed Relocation Layout (ANL-W Alternative)

Zero Power Physics Reactor

One critical assembly machine would be located in the reactor cell room of ZPPR (Building 776). It would share floor space in the reactor cell room with the existing ZPPR matrix. The material and equipment staging area for the machine would be located in Room 144 of Building 776, which is an alcove to the west of the reactor cell room. Space for instrumentation would be located in the workroom in Building 775.

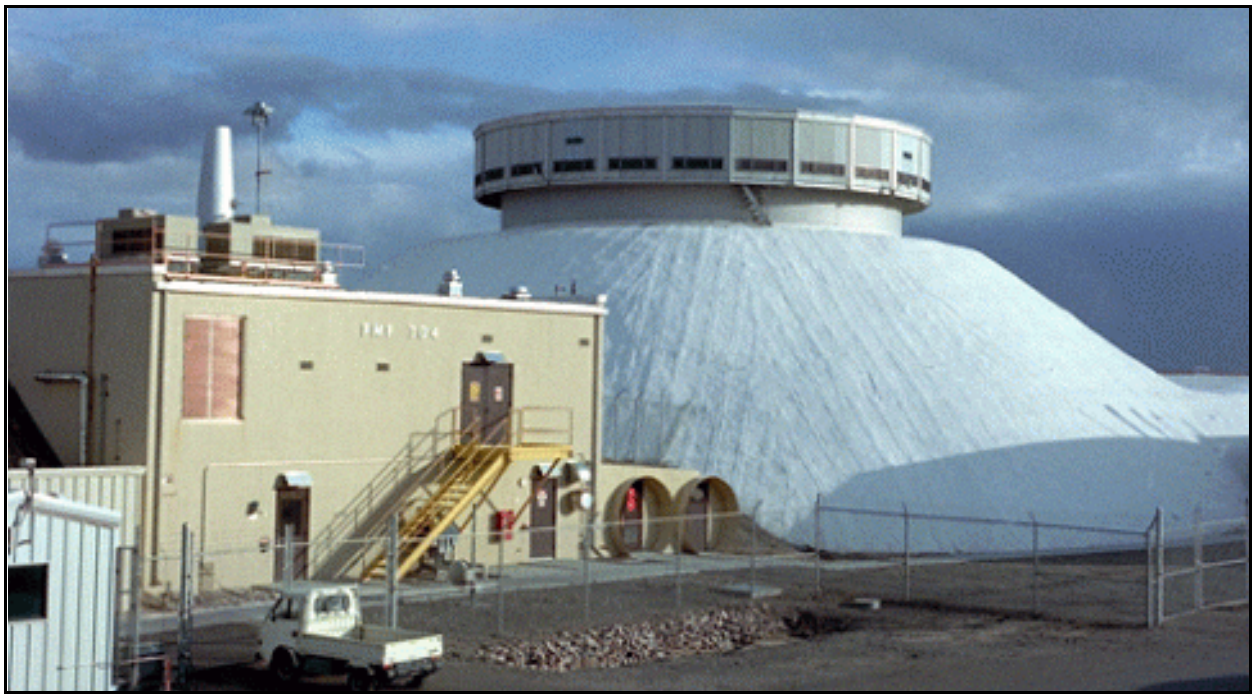

Figure 3–15 FMF and ZPPR Facilities

The ZPPR facility was built to allow the mock-up of full-sized breeder reactor cores using critical assemblies with full plutonium loadings. The facility includes a refined "Gravel Gertie" building, a type of construction originally designed for handling nuclear weapons. The principal experimental area has a very thick foundation and thick concrete walls covered with an earthen mound and a sand/gravel/high-efficiency particulate air filter roof. In addition to being explosion-resistant, the facility was designed to safely contain a fire involving a full breeder reactor core loaded with more than 2.7 metric tons (3 tons) of plutonium.

The ZPPR vault is located in Building 775, which is just south of the Building 776 ZPPR reactor cell within the protected area. ZPPR is currently in a nonoperational standby status. The ZPPR fuel inventory remains on the ANL-W site, and the ZPPR vault/workroom remains operational to support nuclear materials storage in the ZPPR vault. The stainless steel matrix and the support structure that make up the core, i.e., the critical assembly structure, remain in the reactor cell and are essentially uncontaminated and inactivated.

Experimental Breeder Reactor-II

The EBR-II containment building (Building 767) would be used for locating radiography equipment. The EBR-II facility is shown in **Figure 3–16**.

Transient Reactor Test Facility

Two locations have been identified that would be suitable for the low-scatter facility. One location is on the third floor of the power plant building, and the second is in the north end of the TREAT reactor building (Building 720). The TREAT facility is shown in **Figure 3–17**. A removable, elevated catwalk would need to be constructed for this purpose.

Figure 3–16 EBR-II Facility

Figure 3–17 TREAT Facility

TREAT is an air-cooled, thermal heterogeneous test facility designed to evaluate reactor fuel and structural materials under conditions simulating various types of transient overpower and undercooling situations in a nuclear reactor. The TREAT complex comprises reactor and control buildings located within a mile to the northwest of the main ANL-W protected area at the ANL-W site. The TREAT facility is located within its own security Category II protected area. To better accommodate program activities temporarily performed in the building, the TREAT protected area is currently administered as security Category III, but authorization for security Category II operation remains.

New General-Purpose Experimental Building

To support detector development, research and development, training, and technology demonstrations, a new security Category I GPEB would be constructed. GPEB would be located next to the Materials Control Building (Building 784), with a new paved area to support material transportation vehicles (see Figure 3–14). Additional vault space for large items would be provided in GPEB.

New FMF Addition

An addition to FMF would be constructed to locate three of the critical assemblies (see Figure 3–14). The FMF addition would use the same beamed structural design as FMF. The facility structure, as well as the ventilation, would constitute the confinement system of the FMF addition.

The FMF addition would have exterior dimensions of 44 meters (145 feet) long (north-south) and 19 meters (62 feet) wide (east-west). The facility would be accessed by a new access tunnel starting from the ZPPR reactor cell and traveling to the west side of the addition. An escape tunnel would be located on the east side of the facility leading to a grated area. Security doors would be installed in the new tunnel extension from ZPPR and the escape tunnel.

3.3.6.2 Annual Operations

The operational characteristics of the facilities under the ANL-W Alternative, common to all alternatives, are provided in Section 3.2.

3.3.6.3 Construction Requirements

Table 3–9 shows the construction requirement parameters used in the environmental impacts analysis.

3.4 Alternatives Considered but Eliminated from Detailed Study

3.4.1 Discontinue TA-18 Missions

As explained in Chapter 2, the operations conducted at TA-18 are vital for DOE's mission requirements and must be maintained. This determination is consistent with independent reviews made by the Defense Nuclear Facilities Safety Board. In separate 1993 and 1997 studies of the TA-18 missions (DNFSB 1993, DNFSB 1997), the Defense Nuclear Facilities Safety Board recommended that DOE continue to maintain the capability to support the only remaining criticality safety program in the Nation. Few or none of DOE's nuclear programs could ensure their safe execution without the continued training, expertise, and calibration experiments that are available at a general-purpose criticality experiments facility. This alternative did not meet DOE's need for action and was not further analyzed in this EIS.

Table 3–9 Construction Requirements under the ANL-W Alternative

Requirement	*Quantity*
Electrical energy (megawatt hours)	26.2
Peak electrical demand (megawatts)	0.033
Concrete (cubic meters)	7,301
Steel (metric tons)	675
Fuel/gasoline (liters)	(a)
Water (liters)	97,300
Land (hectares)	0.62
Construction workers	
Total (during construction)	104
Peak	120
Construction time (months)	24

[a] Considered to be part of construction costs; contractors to provide fuel/gasoline needed for their machinery.
Source: ANL-W 2001.

3.4.2 Alternative Sites

As explained in Section 3.2.2, during the initial screening process, all DOE sites were considered for the relocation of TA-18 operational capabilities and materials. The DOE sites that did not pass the screening criteria were Rocky Flats, Hanford, the Idaho National Engineering and Environmental Laboratory, and Brookhaven National Laboratory. In addition to the DOE sites, possible relocation to Department of Defense installations was considered. However, there were serious concerns regarding long-term mission compatibility and security Category I requirements; therefore, Department of Defense sites were removed from further consideration for this EIS.

All DOE sites that passed the initial screening criteria were sent a request for additional site information. Five sites—Pantex (Amarillo, Texas), the Y-12 Plant (Oak Ridge, Tennessee), Oak Ridge National Laboratory (Oak Ridge, Tennessee), the Savannah River Site (Aiken, South Carolina), and Lawrence Livermore National Laboratory (Livermore, California)—were eliminated from further consideration because they did not meet the minimum site selection criteria requirements.

The potential use of the existing Nuclear Materials Storage Facility (NMSF) at TA-55 at LANL was evaluated for partial fulfillment of the TA-18 Relocation Project requirements. The evaluation included consideration of the use of NMSF for three critical assembly machines (excluding Godiva) and existing tunnels or other NMSF spaces for nuclear material storage. It was concluded that the TA-18 missions would not fit well into the NMSF and its use would still require a new building to be constructed. Such a proposal would require increased capital and operational costs.

3.5 COMPARISON OF ALTERNATIVES

3.5.1 Introduction

To aid the reader in understanding the differences among the various alternatives, this section presents a summary comparison of the potential environmental impacts associated with the alternatives for the relocation of the TA-18 operational capabilities and materials. The comparisons concentrate on those resources with the greatest potential to be impacted.

The information in this section is based on the descriptions of each alternative presented earlier in this chapter and the potential environmental consequences (presented in Chapter 5). Because the potential

environmental impacts associated with each of the alternatives can be described in terms of *construction impacts* and *operations impacts*, the potential impacts are compared in those two areas. **Table 3–10** at the end of this chapter provides quantitative information that supports the text below. Table 3-10 also includes the environmental impacts associated with the potential relocation of the SHEBA activities and other security Category III/IV activities to new structures at LANL (see the last two columns of the table). These impacts should be considered in conjunction with the impacts involving the relocation of the TA-18 security Category I/II activities if SHEBA and other security Category III/IV activities do not remain at TA-18.

3.5.2 Construction Impacts

No Action Alternative—Under the No Action Alternative, as described in Section 3.3.1, there would be no new construction or upgrades. Accordingly, there would be no potential environmental impacts resulting from construction for this alternative.

TA-18 Upgrade Alternative—Under the TA-18 Upgrade Alternative, as described in Section 3.3.2, there would be minor construction impacts associated with upgrading the existing infrastructure and security at TA-18 to bring them into compliance with new and more stringent safety, security, and environmental standards. While most of the construction impacts would involve internal modifications to existing facilities, several new support facilities would be constructed, disturbing approximately 0.2 hectares (0.5 acres) of previously cleared land. The existing infrastructure would adequately support construction activities. Construction activities would result in potential temporary increases in air quality impacts, but these would be below ambient air quality standards. Construction activities would likely result in no or minor impacts on water, visual resources, biotic resources (including threatened and endangered species), geology and soils, or cultural and paleontological resources. The socioeconomic impacts associated with construction would not cause any major changes to employment, housing, or public finance in the socioeconomic region of influence. Waste generated during construction would be adequately managed by the existing LANL waste management infrastructure.

LANL New Facility Alternative—The construction of new security Category I/II buildings at LANL's TA-55, as described in Section 3.3.3, would disturb approximately 1.8 hectares (4.5 acres) of land, but would not change the area's current land-use designation. At TA-55, the construction activities would not change the current land-use designation. The existing infrastructure would adequately support construction activities. Construction activities would result in temporary increases in air quality impacts, but would be below ambient air quality standards, except for short-term concentrations of total suspended particulates at TA-55. Construction activities would not significantly impact water, visual resources, biotic resources (including threatened and endangered species), geology and soils, or cultural and paleontological resources. The socioeconomic impacts associated with construction would not cause any major changes to employment, housing, or public finance in the socioeconomic region of influence. Waste generated during construction would be adequately managed by the existing LANL waste management infrastructure.

SNL/NM Alternative—The relocation of the TA-18 capabilities and materials associated with security Category I/II activities to SNL/NM, as described in Section 3.3.4, would use 10 existing facilities, while also constructing a new, underground facility at TA-V. Approximately 1.8 hectares (4.5 acres) of land would be disturbed during construction of the new underground facility. The existing infrastructure would adequately support construction activities. Because the area was disturbed during previous construction activities at TA-V, further land disturbance is not expected to result in significant impacts on air, water, visual resources, biotic resources (including threatened and endangered species), geology and soils, or cultural and paleontological resources. The TA-18 operations would not change the area's current land-use designation. The socioeconomic impacts associated with construction would not cause any major changes to employment, housing, or public finance in the socioeconomic region of influence. Waste generated during construction would be adequately managed by the existing SNL/NM waste management infrastructure.

NTS Alternative— The relocation of the TA-18 capabilities and materials associated with security Category I/II activities to NTS, as described in Section 3.3.5, would entail upgrading DAF and constructing a new low-scatter building adjacent to DAF, as well as a new administration building. Approximately 0.7 hectares (1.7 acres) of land would be disturbed. Because NTS is such a large, remote site, and because the area was disturbed previously during construction activities associated with DAF, further land disturbance would likely result in no or minor impacts on air, water, visual resources, biotic resources (including threatened and endangered species), geology and soils, or cultural and paleontological resources. The TA-18 operations would not change the area's current land-use designation. The socioeconomic impacts associated with construction would not cause any major changes to employment, housing, or public finance in the socioeconomic region of influence. Waste generated during construction would be adequately managed by the existing NTS waste management infrastructure.

ANL-West Alternative—The relocation of the TA-18 operational capabilities and materials associated with security Category I/II activities to ANL-W, as described in Section 3.3.6, would entail the use of existing buildings and the construction of a new security Category I experimental building, an addition to FMF, and a tunnel to the existing ZPPR building. Approximately 0.6 hectares (1.5 acres) of land would be disturbed during construction activities. The existing infrastructure would adequately support construction activities. Because the area was disturbed during previous construction activities, further land disturbance would likely result in no or minor impacts on air, water, visual resources, biotic resources (including threatened and endangered species), geology and soils, or cultural and paleontological resources. The TA-18 operations would not change the area's current land-use designation. The socioeconomic impacts associated with construction would not cause any major changes to employment, housing, or public finance in the socioeconomic region of influence. Waste generated during construction would be adequately managed by the existing ANL-W waste management infrastructure.

3.5.3 Operations Impacts

TA-18 capabilities and materials relocated to any of the alternative sites would use similar facilities, procedures, resources, and numbers of workers during operations. As such, similar infrastructure support would be needed, similar emissions and waste would be produced, and similar impacts on workers would occur. For each alternative, the proposed construction or modification of buildings, structures, and infrastructure is slightly different, as is the environmental setting. These site differences would lead to some differences in environmental impacts based on the same operations. For most environmental areas of concern, however, these differences would be minor. It is not expected that there would be any perceivable operations impact differences among the alternatives on air, water, visual resources, biotic resources (including threatened and endangered species), geology and soils, cultural and paleontological resources, power usage, socioeconomics, or worker risks. Additionally, all alternatives have adequate existing waste management facilities to treat, store, and/or dispose of waste that would be generated by these operations. For all alternative sites, all impacts would be within regulated limits and would comply with Federal, state, and local requirements.

Normal operations under all alternatives would reduce radiological impacts as compared to the existing TA-18 operations. There would be small differences in potential radiological impacts on the public among the site alternatives. However, for all site alternatives, public radiation exposure would be small and well below regulatory limits and limits imposed by DOE orders. For all sites, the maximally exposed offsite individual would receive less than 0.067 millirem per year from the normal operational activities at TA-18. Statistically, this translates into a risk that one additional fatal cancer would occur approximately every 29 million years due to these operations. Doses from SHEBA operations account for 90 percent of the calculated dose at LANL. The operational impacts at SNL/NM, NTS, and ANL-W would be significantly smaller because of lower radioactive releases and specifically remoteness of the latter two sites, leading to

lower public radiation exposure. At all sites, the total dose to the population within 80 kilometers (50 miles) would be a maximum of 0.10 person-rem per year from normal operational activities at TA-18. Statistically, this would equate to one additional fatal cancer every 20,000 years. Again, doses from SHEBA operations account for 90 percent of the calculated dose at LANL. Further, due to the remoteness of NTS and ANL-W, and the fact that these sites have the smallest 50-mile-radius populations, the 50-mile-radius population dose would be the least at these sites.

Potential impacts from accidents were estimated using computer modeling. In the event of an accident involving the operational activities, the projected latent cancer fatalities at all relocation sites would be significantly less than 1. For the bounding accident analyzed in the EIS, the highest potential annual risk to the population within 80 kilometers (50 miles) from the TA-18 operations activities would be an increase in latent cancer fatalities of 5.1×10^{-5} from a potential hydrogen detonation accident at SHEBA. Statistically, this would equate to 1 additional latent cancer fatality among the affected population every 19,600 years of operation. Overall, the No Action Alternative, and specifically SHEBA operations, would produce the highest potential accident impact, primarily due to the fact that existing TA-18 facilities do not incorporate high-efficiency particulate air filtration, and, in the case of SHEBA, the design provides minimal containment.

3.5.4 Transportation Risks

Except for the No Action Alternative and the TA-18 Upgrade Alternative, all other site alternatives would require the transportation of equipment and materials. Such transportation would involve the relocation of approximately 2.4 metric tons (2.6 tons) of SNM, as well as approximately 10 metric tons (11 tons) of equipment, some of which would be radioactively contaminated. For all alternatives, the environmental impacts and potential risks of such transportation would be small. For all alternatives, the risks associated with radiological transportation would be less than one fatality per 10,000 years under normal and accident conditions. Although the potential risks would differ among the alternatives primarily as a function of the transportation distance, the impacts would be very small. Based on distance, the ANL-W Alternative would have the highest potential impact, the NTS Alternative the second-highest, the SNL/NM Alternative the third-highest, and the LANL New Facility Alternative the least risk (compared to the No Action and TA-18 Upgrade Alternatives).

3.5.5 Relocation of SHEBA and Other Security Category III/IV Activities

Relocation of SHEBA activities to TA-39 would entail the disturbance of approximately 0.08 hectares (0.2 acres) on a 1.6-hectare (4-acre) parcel of land for the construction of new buildings. Water main and utility lines would follow roadways to the new structures. Relocation of security Category III/IV activities to TA-55 would entail the disturbance of approximately 1.6 hectares (4 acres) on a 3.2-hectare (8-acre) parcel of land.

At either TA-55 or TA-39, the construction activities would not change the current land-use designation. The existing infrastructure would adequately support construction activities. Construction activities would result in temporary increases in air quality impacts, but would be below ambient air quality standards, except for short-term concentrations of total suspended particulates at TA-55. Construction activities would not significantly impact water, visual resources, biotic resources (including threatened and endangered species), geology and soils, or cultural and paleontological resources. The socioeconomic impacts associated with construction would not cause any major changes to the regional economic area employment, housing, or public finance. Waste generated during construction would be adequately managed by the existing LANL waste management infrastructure.

SHEBA operations at TA-39 would not have any significant impact on air, water, visual resources, biotic resources (including threatened and endangered species), geology and soils, cultural and paleontological resources, power usage, socioeconomics, or worker risks. All impacts would be within regulated limits and would comply with Federal, state, and local requirements. During SHEBA operations, approximately 100 curies of argon-41 per year would be released to the environment. This would result in a dose of 0.061 millirem to the maximally exposed member of the public, which is well below the limit of 10 millirem per year set by both the U.S. Environmental Protection Agency and DOE for airborne releases of radioactivity. For the bounding accident analyzed in the EIS, the highest potential annual risk to the population within 80 kilometers (50 miles) from the TA-18 operational activities would be an increase in latent cancer fatalities of 4.4×10^{-5} from a potential hydrogen detonation accident at SHEBA. Statistically, this would equate to 1 additional latent cancer fatality every 22,700 years of operation. The existing waste management facilities at LANL would be adequate to treat, store, and/or dispose of waste that would be generated by this mission.

3.5.6 Impacts Common to All Alternatives

Critical Assembly Machine Refurbishment. One impact that would be common to all alternatives under the proposed action is the one-time generation of approximately 1.5 cubic meters (2 cubic yards) of low-level and mixed low-level radioactive waste from the refurbishment of the criticality machines currently housed at TA-18. The radioactive waste would consist of old electrical racks, hydraulic systems, control cartridges, and machine stands that would be replaced by new components as part of TA-18 mission relocation activities. The refurbishment of these criticality machines would occur under any of the proposed alternatives. Disposition of the radioactive and nonradioactive waste would be in accordance with established procedures. The impact of managing this waste would be minimal given the available site capacity at LANL (see Section 4.2.12).

Decontamination and Decommissioning. All alternatives would require some level of decontamination and decommissioning. Operations experience with TA-18 critical assembly machines has shown that, although some surface contamination may result from the conduct of specific criticality experiments, the nature and magnitude of this contamination is such that it can be easily removed and reduced to acceptable levels. Consequently, impacts associated with decontamination and decommissioning are expected to be limited to waste created that is within LANL's and other alternative sites' waste management capabilities. This, therefore, would not be a discriminating factor among the alternatives.

Decontamination and decommissioning at TA-18 would also involve environmental restoration activities to reduce the long-term public and worker health and safety risks associated with potentially contaminated areas within the site or with surplus facilities and to reduce the risk posed to ecosystems. Decisions regarding whether and how to undertake environmental restoration action would be made after a detailed assessment of the short- and long-term risks and benefits within the framework of the Resource Conservation and Recovery Act (RCRA). The approach for controlling the consequences of environmental restoration activities at LANL is summarized in the *LANL SWEIS* (DOE 1999b). Decontamination and decommissioning of TA-18 would involve the general types of activities described and analyzed in the *LANL SWEIS* (e.g., generation of low-level radioactive waste). Specific alternatives to be considered in the decontamination and decommissioning process would likely follow the RCRA framework and will be subject to project-specific National Environmental Policy Act (NEPA) analysis.

Table 3–10 Summary of Environmental Impacts for the Relocation of TA-18 Capabilities and Materials

Resource/Material Categories	*No Action Alternative*		*TA-18 Upgrade Alternative*		*LANL New Facility Alternative*		*SNL/NM Alternative*	
Land Resource								
- Construction/Operations	No impact		0.5 acres/no impact		4.5 acres/no impact		4.5 acres/no impact	
Air Quality								
- Construction	No impact		Small temporary impact		Small temporary impact		Small temporary impact	
- Operations	110 curies per year of argon-41 released		110 curies per year of argon-41 released		10 curies per year of argon-41 released		10 curies per year of argon-41 released	
Water Resource								
- Construction	No impact		Small temporary impact		Small temporary impact		Small temporary impact	
- Operations	Small impact		Small impact		Small impact		Small impact	
Socioeconomics								
- Construction	No noticeable changes; No impact		No noticeable changes; 100 workers (peak); 422 jobs		No noticeable changes; 300 workers (peak); 1,152 jobs		No noticeable changes; 300 workers (peak)	
- Operations	No increase in workforce		No increase in workforce		No increase in workforce		20 people relocated or new hires	
Public and Occupational Health and Safety								
Normal Operations	***Dose***	***LCF***	***Dose***	***LCF***	***Dose***	***LCF***	***Dose***	***LCF***
- Population dose (person-rem per year)	0.10	0.00005	0.10	0.00005	0.011	5.5×10^{-6}	0.020	0.00001
- MEI (millirem per year)	0.067	3.4×10^{-8}	0.067	3.4×10^{-8}	0.0025	1.3×10^{-9}	0.00032	1.6×10^{-10}
- Average individual dose (millirem per year)	0.00030	1.5×10^{-10}	0.00030	1.5×10^{-10}	0.00004	2×10^{-11}	0.000026	1.3×10^{-11}
- Total worker dose (person-rem per year)	21	0.0085	21	0.0085	10 [b]	0.0040	10 [b]	0.0040
- Average worker dose (millirem per year)	100	0.00004	100	0.00004	100	0.00004	100	0.00004
Hazardous Chemicals	None		None		None		None	
Accidents (Maximum Annual Cancer Risk, LCF)								
- Population	5.1×10^{-5}		5.1×10^{-5}		9.1×10^{-8}		2.2×10^{-7}	
- MEI	1.7×10^{-7}		1.7×10^{-7}		6.1×10^{-11}		1.7×10^{-11}	
- Noninvolved worker	2.0×10^{-6}		2.0×10^{-6}		2.8×10^{-9}		2.8×10^{-9}	
Chemical Accidents	None							
Environmental Justice	No disproportionally high and adverse impacts on minority or low-income populations							
Waste Management (cubic meters of solid waste per year): Waste would be disposed of properly with small impact								
- Low-level radioactive waste [d]	145		145		145		145	
- Mixed low-level radioactive waste [d]	1.5		1.5		1.5		1.5	
- Hazardous waste	4		4		4		4	
Transportation								
- Incident-free	***Person-rem***	***LCF***	***Person-rem***	***LCF***	***Person-rem***	***LCF***	***Person-rem***	***LCF***
- Population	(f)	(f)	(f)	(f)	(f)	(f)	0.040	0.000020
- Workers	(f)	(f)	(f)	(f)	(f)	(f)	0.025	0.000010
Accidents								
- Population	(f)	(f)	(f)	(f)	(f)	(f)	7.0×10^{-6}	3.5×10^{-9}

LCF = latent cancer fatality; MEI = maximally exposed individual.

[a] Impacts to be considered in conjunction with the relocation of security Category I/II capabilities and materials if the security Category III/IV activities do not remain at TA-18.

[b] There would be an additional one-time dose to the workers of 2.3 person-rem from handling activities of the SNM that would be transported from TA-18 to the alternative site.

[c] There would be an additional one-time dose to workers of 0.02 person-rem from handling activities of materials associated with SHEBA operations.

NTS Alternative		*ANL-W Alternative*		*SHEBA Relocation to TA-39* [a]		*Other Security Category III/IV Relocation to TA-55* [a]	
1.7 acres/no impact		1.5 acres/no impact		0.2 acres/no impact		4.1 acres/no impact	
Small temporary impact		Small temporary impact		Small temporary impact		Small temporary impact	
10 curies per year of argon-41 released		10 curies per year of argon-41 released		100 curies per year of argon-41 released		Trace level of radioactivity released	
Small temporary impact		Small temporary impact		Small temporary impact		Small temporary impact	
Small impact		Small impact		Small impact		Small impact	
No noticeable changes; 60 workers (peak)		No noticeable changes; 120 workers (peak)		No noticeable changes; 25 workers (peak)		No noticeable changes; 45 workers (peak)	
20 people relocated or new hires		20 people relocated or new hires		No increase in workforce		No increase in workforce	
Dose	***LCF***	***Dose***	***LCF***	***Dose***	***LCF***	***Dose***	***LCF***
0.000070	3.5×10^{-8}	0.00041	2.1×10^{-7}	0.087	0.000044	Small	
0.000087	4.4×10^{-11}	0.00021	1.1×10^{-10}	0.061	3.0×10^{-8}	Small	
3.9×10^{-6}	1.9×10^{-12}	1.7×10^{-6}	8.6×10^{-13}	0.00019	1.0×10^{-10}	Small	
10 [b]	0.0040	10 [b]	0.0040	11 [c]	0.0045	Small	
100	0.00004	100	0.00004	100	0.00004	Small	
None		None		None		None	
7.7×10^{-10}		7.7×10^{-9}		4.9×10^{-5}		Small	
2.5×10^{-12}		7.3×10^{-12}		1.4×10^{-7}		Small	
4.0×10^{-9}		7.2×10^{-9}		2.0×10^{-6}		Small	
None							
No disproportionally high and adverse impacts on minority or low-income populations							
145		145		(e)		(e)	
1.5		1.5		(e)		(e)	
4		4		(e)		(e)	
Person-rem	***LCF***	***Person-rem***	***LCF***	***Person-rem***	***LCF***	***Person-rem***	***LCF***
0.33	0.00016	0.39	0.00019	(f)	(f)	(f)	(f)
0.25	0.00010	0.28	0.00011	(f)	(f)	(f)	(f)
0.000028	1.4×10^{-8}	0.000038	1.9×10^{-8}	(f)	(f)	(f)	(f)

[d] There would be a one-time generation of 1.5 cubic meters of low-level radioactive and mixed low-level radioactive waste at LANL from the refurbishment of the critical assembly machines.

[e] Waste generation from SHEBA, security Category III/IV, and security Category I/II activities would be similar to those generated under the No Action Alternative.

[f] LANL intrasite SNM and material transportation impacts would be bounded by the normal operation and accident impacts evaluated for the various LANL alternatives.

3.6 PREFERRED ALTERNATIVE

Council on Environmental Quality regulations require an agency to identify its preferred alternative, if one or more exists, in the draft EIS (40 CFR 1502.14(e)). The preferred alterative is the alternative which the agency believes would fulfill its statutory mission, giving consideration to environmental, economic, technical, and other factors. When the former Secretary of Energy announced that DOE would prepare this *TA-18 Relocation EIS*, it was also announced that a new location at LANL to conduct the TA-18 operations and store associated materials was the Preferred Alternative (the LANL New Facility Alternative).