Appendix C.1
Socioeconomics

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Appendix C.1
Socioeconomics

The socioeconomic impact analysis conducted for this environmental impact statement (EIS) examines the potential effects of the proposed Idaho HLW & FD EIS waste processing and facility disposition alternatives on the region of influence's social and economic resources, including employment, regional income, and population. The methodology for this EIS is similar to that used in the *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement* (SNF & INEL EIS) (DOE 1995) but uses updated data and a revised version of the Regional Input-Output Modeling System (RIMS II) model.

The analysis presented in Sections 5.2.2 and 5.3.2 evaluates the potential effects of the waste processing and facility disposition alternatives relative to the baseline socioeconomic conditions described in Section 4.3, Socioeconomics. The existing and projected economic conditions in the region of influence provide the framework for assessing the socioeconomic impacts of the alternatives. The impact analysis, as described in the following methodology section, estimates the effects of the alternatives on regional employment and earnings. Employment and earnings effects could generate possible changes in regional population and in the demand for housing and community services.

In general, the analysis indicates that each alternative would have the potential to generate changes in Idaho National Engineering and Environmental Laboratory (INEEL)-related expenditures and workforce levels with possible pass-through or indirect effects on the regional economy. Since 1991, INEEL employment levels have declined about 35 percent to approximately 8,100 jobs. Long-range employment forecasts are not available for INEEL missions but indications based on budget forecasts suggest workforce levels have stabilized at current levels and will not fluctuate more than ± 5 percent (McCammon 1999). Currently, about 1,100 of these workers are associated with the Idaho Nuclear Technology and Engineering Center (Beck 1998). The U.S. Department of Energy (DOE) assumes that these workers are the basis for the high-level waste (HLW) workforce.

C.1.1 REGION OF INFLUENCE

The analysis of socioeconomic impacts is limited to a seven-county area surrounding the INEEL comprised of Bannock, Bingham, Bonneville, Butte, Clark, Jefferson, and Madison counties and the Fort Hall Indian Reservation and Trust Lands (home of the Shoshone-Bannock Tribes). This region of influence is determined according to the following criteria previously used in the programmatic SNF & INEL EIS:

- Counties that contain the residences of at least 85 percent of the current INEEL operations and construction workforce
- Counties in which the resident INEEL workforce comprises 5 percent or greater of the county's civilian labor force

C.1.2 METHODOLOGY AND KEY ASSUMPTIONS

The analysis of socioeconomic impacts considers impacts on economic activity, as measured by changes in employment and earnings, and the community, as measured by changes in population and the demand for housing and community services. The socioeconomic impacts estimated in this analysis would be generated by expenditures and employment allocated to the waste management program at INEEL, which include DOE employment as well as site-related contractors and subcontractors.

The analysis addresses both direct and indirect socioeconomic impacts. Direct impacts are changes in INEEL employment and expenditures expected to take place under each alternative and include both construction and operations phases. Direct employment impacts represent actual increases or decreases in INEEL staffing for a given project regardless of whether or not the jobs are new or reassigned from other missions. Indirect impacts include (a) the impacts to businesses in the region of influence and employment resulting from changes in DOE purchases or non-

payroll expenditures and (b) the impacts to the region of influence businesses and employment that result from changes in spending by INEEL employees. The total economic impact to the region of influence is the sum of direct and indirect impacts.

To analyze socioeconomic effects, DOE used total employment and earnings multipliers, obtained from RIMS II developed specifically for the INEEL region of influence by the U.S. Bureau of Economic Analysis. RIMS II is widely used in both the private and public sector. In the private sector, analysts, consultants, and economic development practitioners use the model to estimate regional impacts of proposed projects. In the public sector, this model is used by state and Federal agencies, including the U.S. Department of Defense and DOE (BEA ***2000***). In addition, several recent DOE EISs and programmatic EISs for INEEL used the RIMS II model. The model's multipliers derive from the U.S. Bureau of Economic Analysis's national input-output table, adjusted using the U.S. Bureau of Economic Analysis's most recent region-specific information describing the relationship of the regional economy to the national economy (BEA 1997).

The indirect impacts are thus determined by applying the regional specific multiplier to direct job and INEEL expenditure estimates for each project to determine the comparable change in the regional economy. The multipliers vary by project phase. For example, the multiplier used to estimate indirect employment is approximately ***50*** percent higher for activities in the operational phase than it is for those in the construction or facility disposition phases. The multipliers used to estimate total earnings are less than 1% higher for the construction and facility disposition phases.

Since the publication of the Draft EIS, Census 2000 and related data have been incorporated into the socioeconomic analyses. Population figures, housing characteristics, labor information, and economic multipliers (such as employment and earnings multipliers) have been updated to reflect the most current socioeconomic environment in the region of influence.

C.1.3 ECONOMIC ACTIVITY

The following assumptions were used as a basis for conducting the analysis:

- Construction and operations employment are treated as if they were newly created jobs for all the alternatives; in reality, a substantial amount of retraining and reassignment of existing personnel would occur.
- Construction staffing is based on project data sheets (see Appendix C.6). Impacts are assessed for the peak year of construction.
- Operations staffing is based on project data sheets (see Appendix C.6). Impacts are assessed for the peak year of operations.
- For construction and operations workers, an average annual salary of $28,040 and $32,683 respectively is assumed (IDOL 1998).
- Based on DOE budget forecasts and historical trends, the analysis assumes a stabilized INEEL workforce of about 8,100 with a ± 5 percent fluctuation (McCammon 1999).

C.1.3.1 INEEL Employment and Expenditures

Potential jobs and total earnings associated with INEEL waste management activities would be greatest during the construction phase. The maximum peak year (2013) direct and indirect employment is estimated to be about ***1,700***. Compared to the estimated employment pool for the region of influence in that year of ***154,000*** (RIMS II), in the construction sector, forecasts indicate about 6,500 to 7,000 construction workers would be in the area.

Similarly, the maximum peak work force levels for the operational phase is estimated to be about ***1,560*** jobs (2015). Again, compared to the estimated employment pool in the peak year of

158,000 (RIMS II) any small net increase in new jobs required could be obtained regionally.

Because regional earnings or expenditures are fundamentally related to the workforce assigned to a project, the maximum related total earnings also would occur in 2013 and 2015 for construction and operations, respectively. The estimated total regional earnings for 2013 are about $***42*** million; an estimated $31 million would occur in the operational peak year (2015). Both of the earnings estimates take into account indirect job creation in the region of influence.

In the case of facility disposition activities, peak year estimates are not as meaningful. During disposition activities, the durations of discrete project elements are relatively short, and activities do not always occur sequentially. Consequently, annual employment rather than peak year estimates were utilized for each alternative to determine the potential impacts. ***Also, any HLW storage-related projects were eliminated from the peak year analysis because storage timing and durations are dependent on outside factors such as completion of the national geologic repository. It would be difficult to form estimates based on these unknowns.***

C.1.3.2 Population, Housing, and Community Services

Population changes associated with the project baseline conditions and the proposed alternatives are an important determinant of other social, economic, and environmental impacts. These population changes have three key components: (1) baseline growth, (2) relocation of workers and their dependents, and (3) natural increases in population over the longterm.

As mentioned in Chapter 5, indications are that the INEEL workforce has stabilized but could vary by about 5 percent. If the variation resulted in downsizing, about 400 jobs could be lost. Consequently, the reduction of employment could result in a reduced demand for housing and rental units. Assuming all 400 individuals own or rent housing units, the amount of available housing would increase by about one-half of 1 percent (or 0.005).

The situation involving potential impacts to community services and public finance is similar to that described for population and housing. As the demand for workers in a region vary, the pressure on community services and the tax base also varies. A potential downsizing of 400 jobs as discussed in the previous ***paragraph*** would not likely generate discernible impacts on community services and public finance within the region of influence. While the magnitude of the impacts may be small, they could result in reduced school enrollments and similar declines in demand for other community services.

C.1.4 DATA

Figures C.1-1 through C.1-***22*** summarize construction and operations-phase employment estimates for the various waste processing alternatives. Figures C.1-***23*** through C.1-***33*** show employment associated with disposition of new waste processing facilities required under the various alternatives. ***As stated previously, HLW storage-related projects were eliminated from the peak year analysis for facility disposition because storage timing and duration are dependent on outside factors such as the completion of the national geologic repository.***

The figures depict estimated direct employment on an annual basis. The multipliers and wage rate described in Section C.1.2 of this appendix were applied to these employment estimates to estimate the total employment and expenditure potential associated with each alternative.

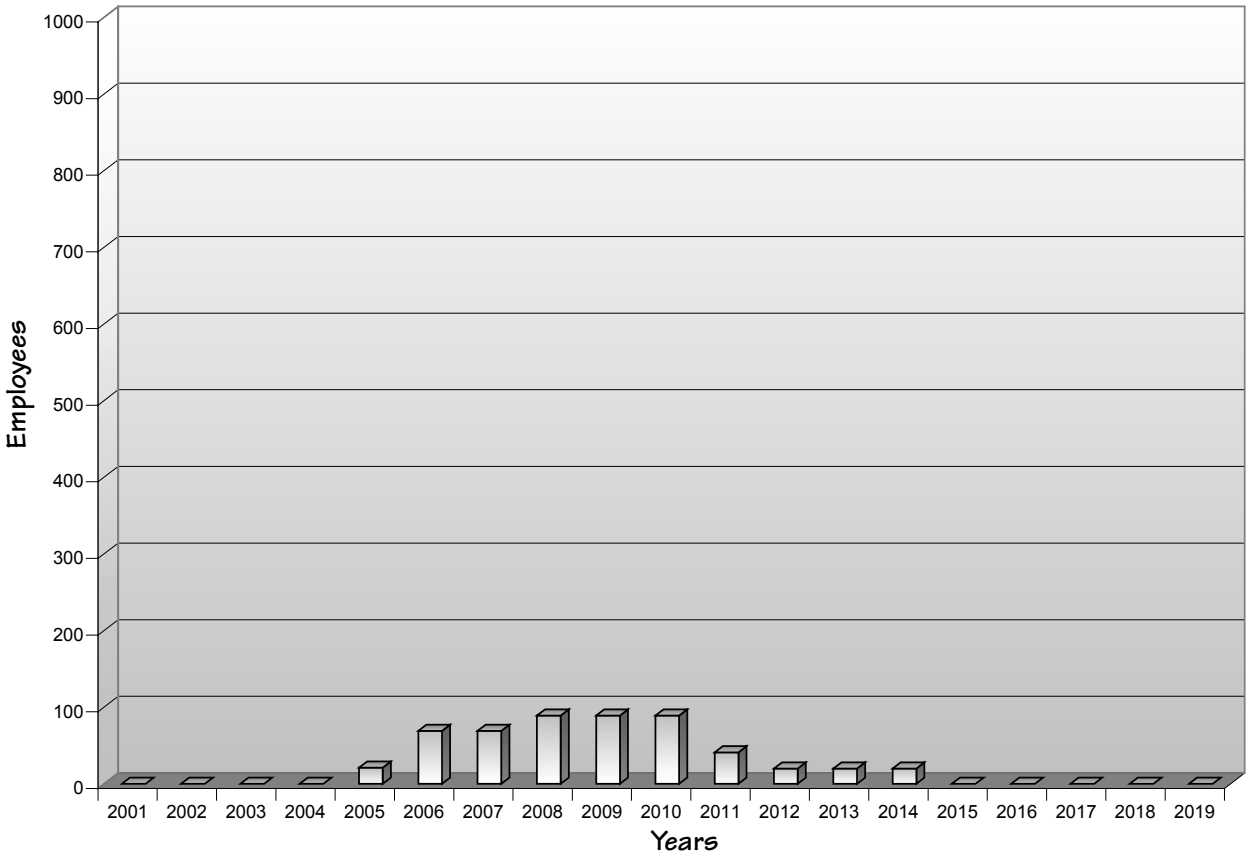

FIGURE C.1-1.
Continued Current Operations Alternative - Construction Employment.

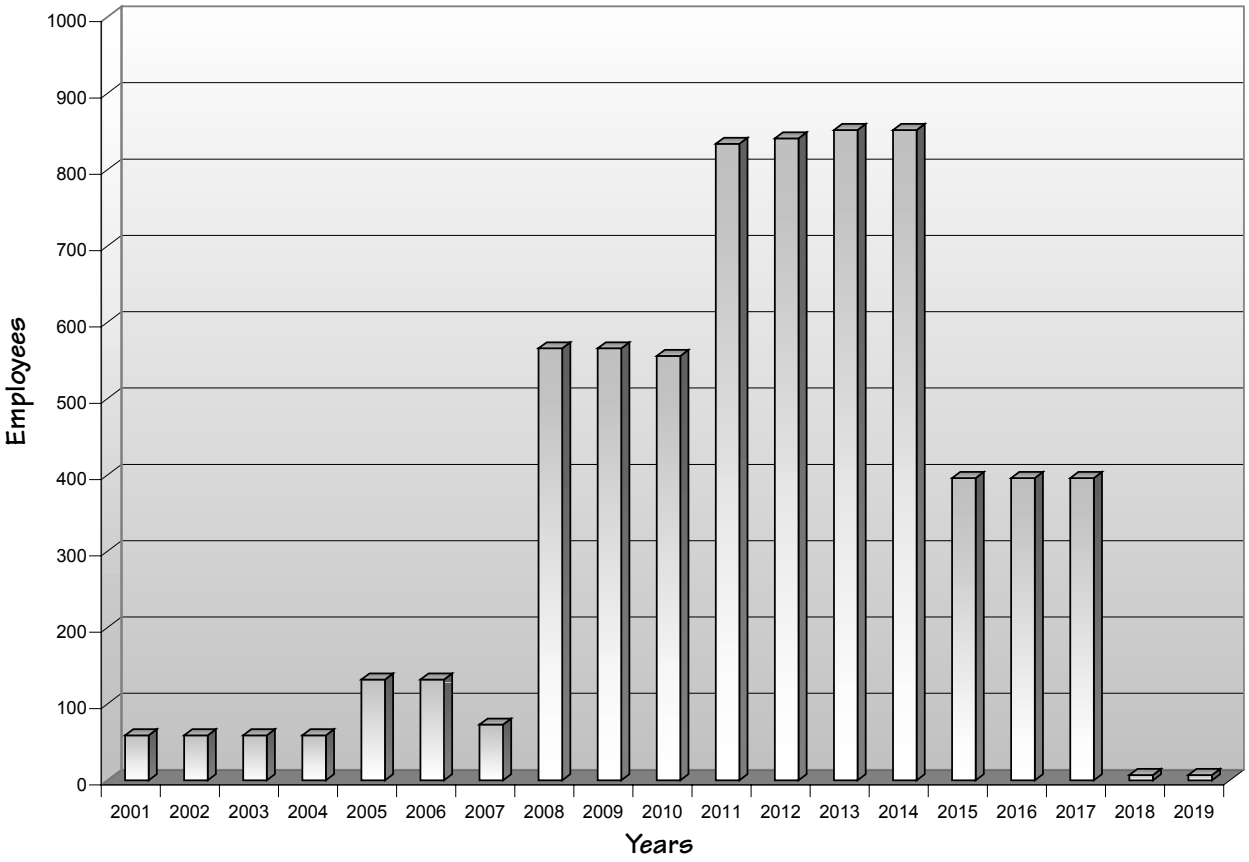

FIGURE C.1-2.
Separations Alternative - Full Separations Option - Construction Employment.

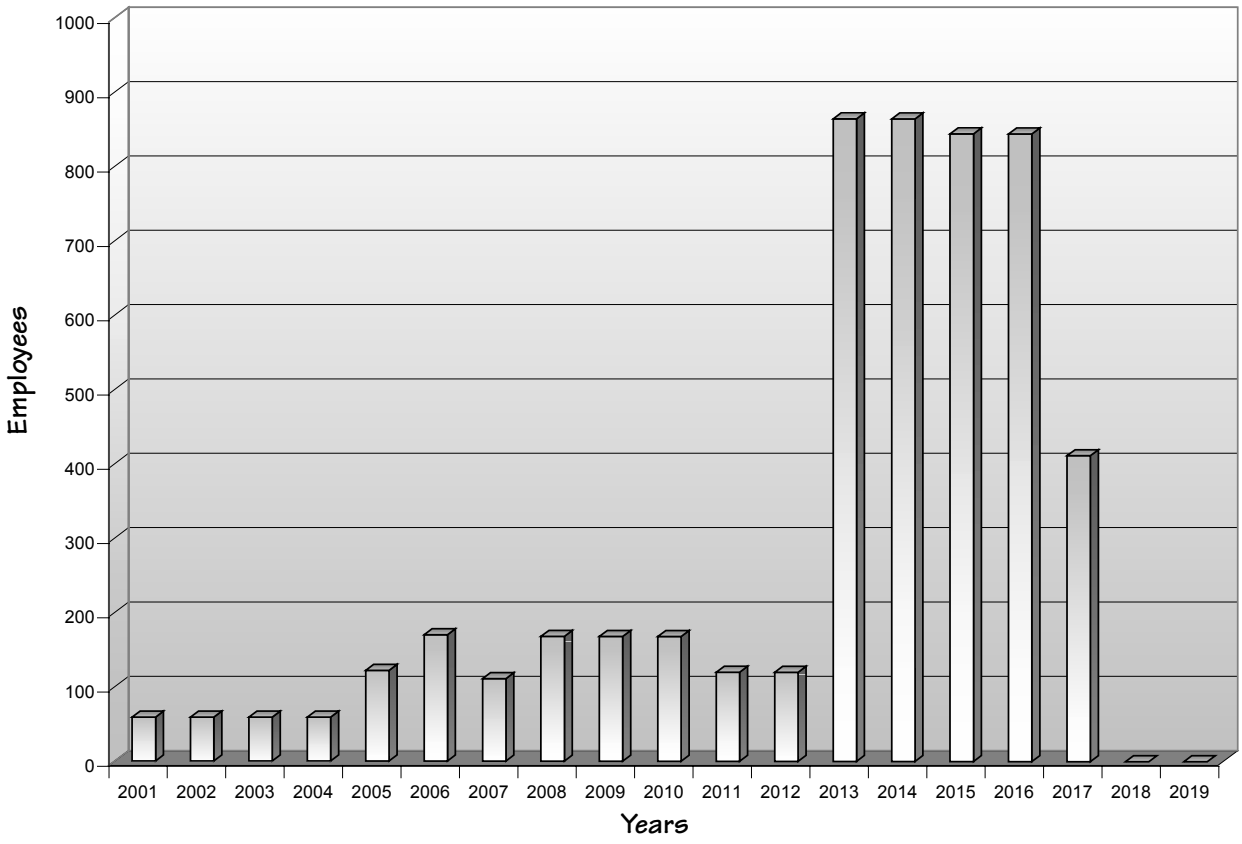

FIGURE C.1-3.
Separations Alternative - Planning Basis Option - Construction Employment.

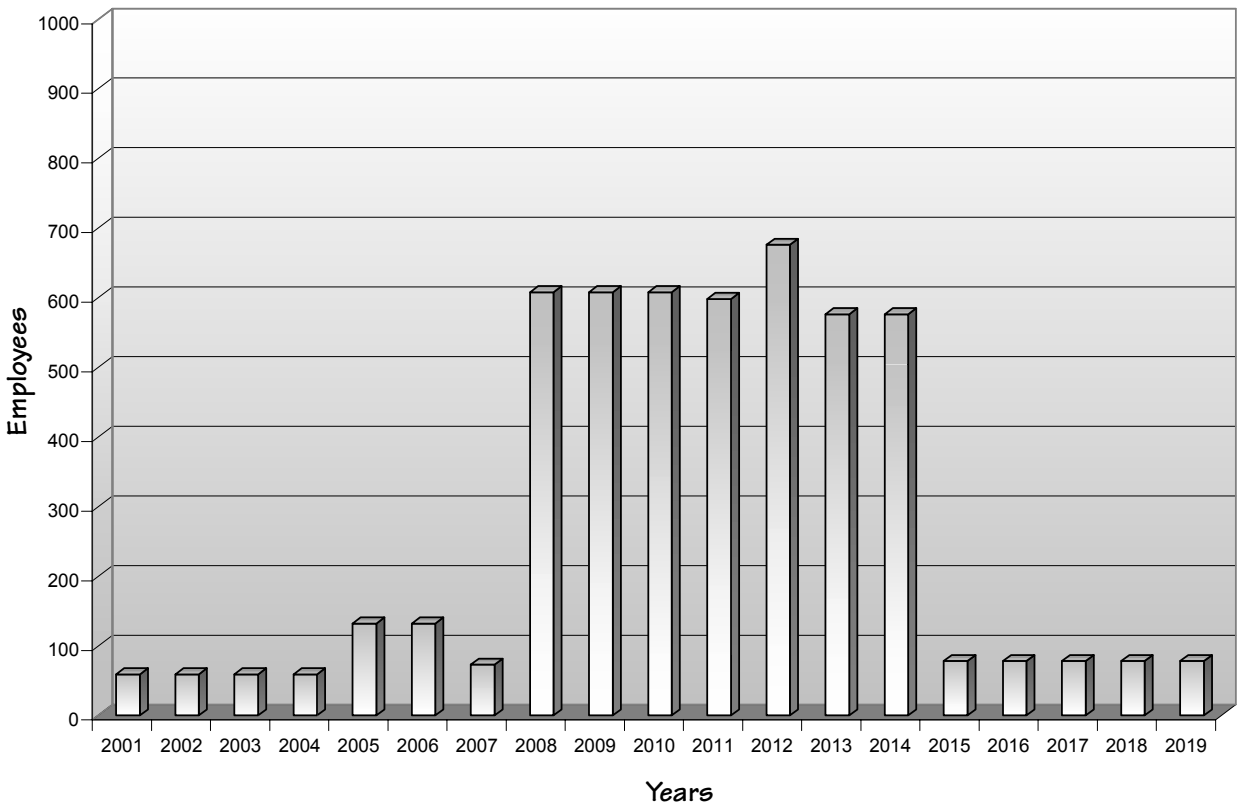

FIGURE C.1-4.
Separations Alternative - Transuranic Separations Option - Construction Employment.

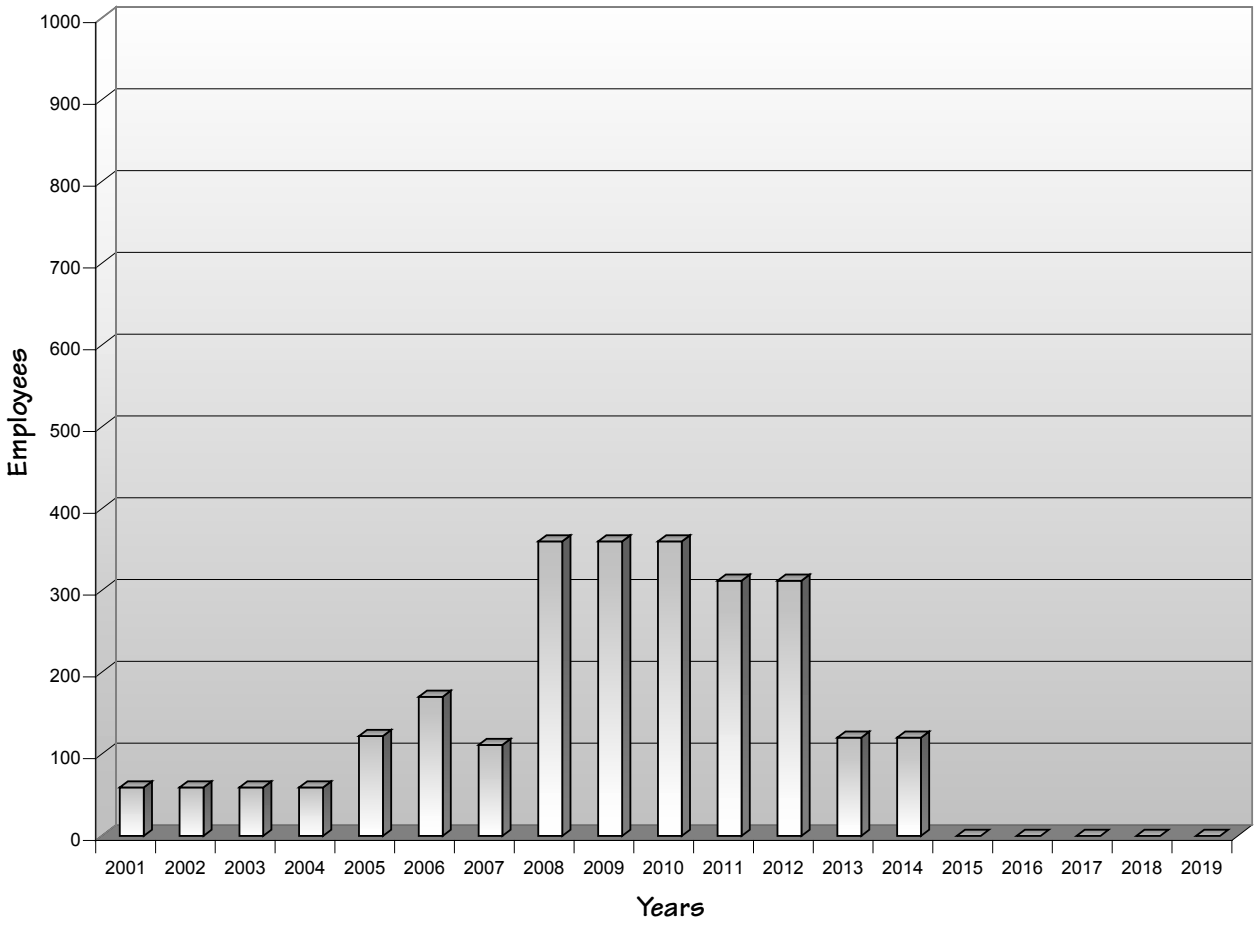

FIGURE C.1-5.
Non-Separations Alternative - Hot Isostatic Pressed Waste Option - Construction Employment.

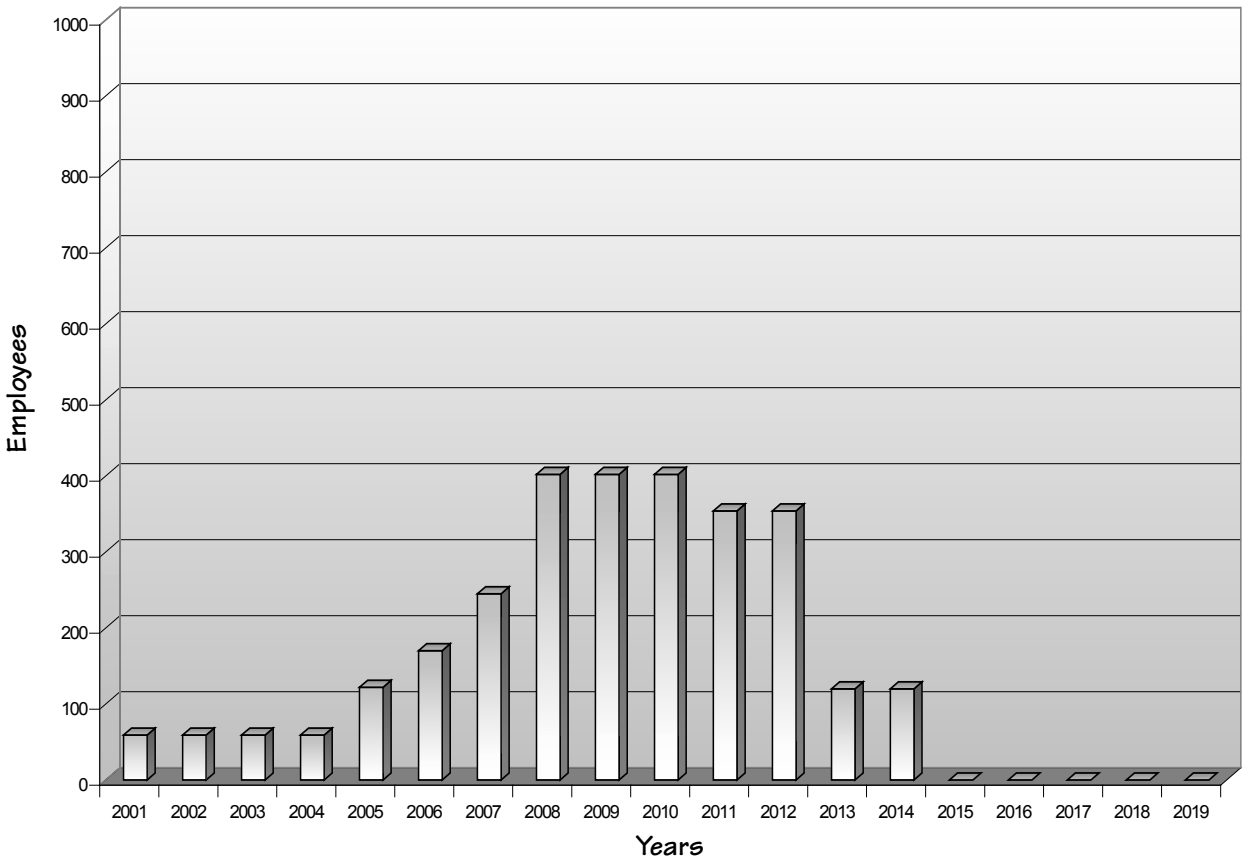

FIGURE C.1-6.
Non-Separations Alternative - Direct Cement Waste Option - Construction Employment.

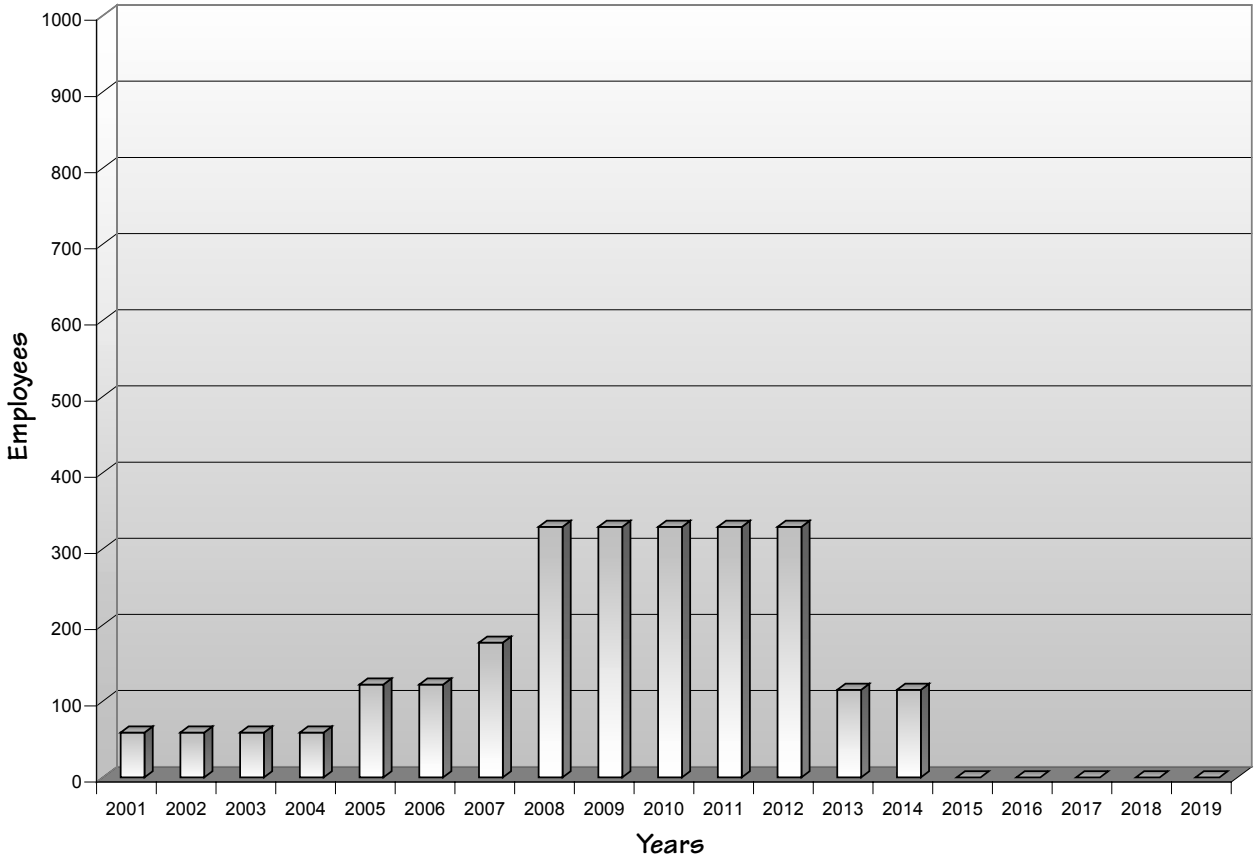

FIGURE C.1-7.
Non-Separations Alternative - Early Vitrification Option - Construction Employment.

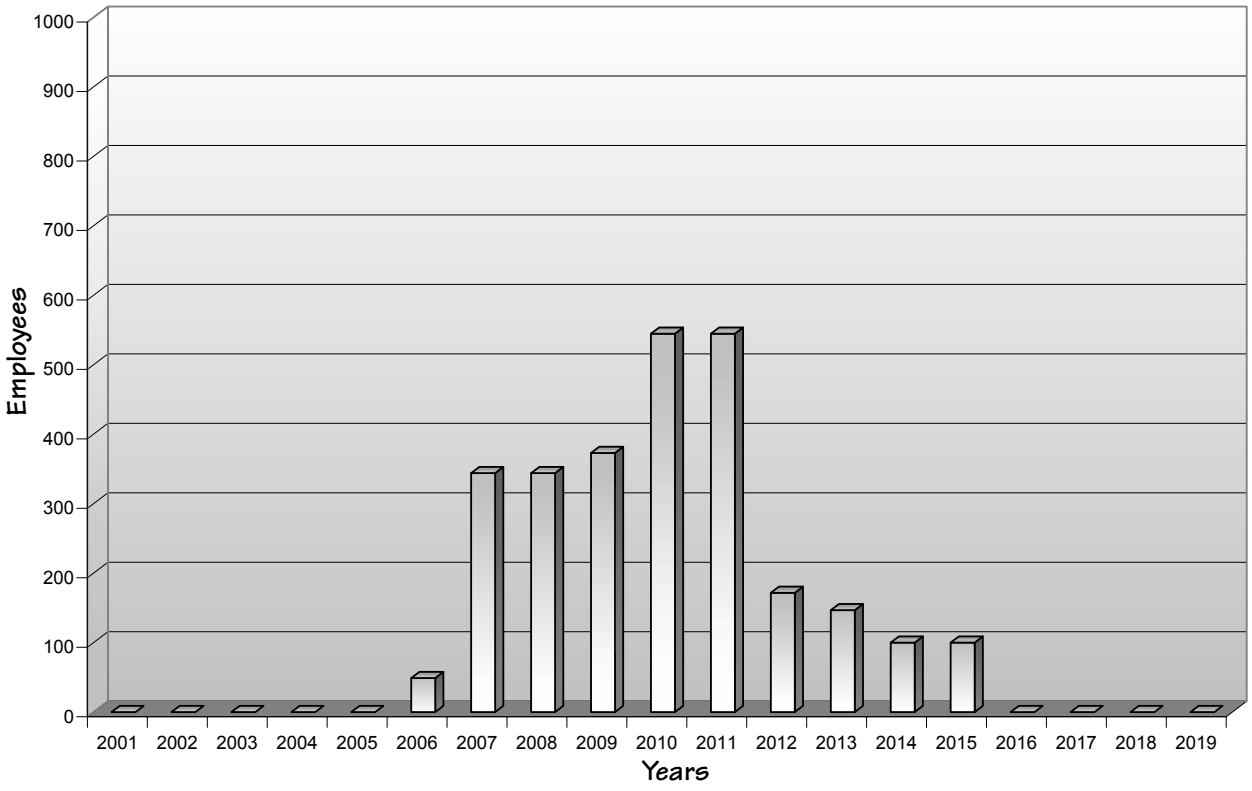

FIGURE C.1-8.
Non-Separations Alternative - Steam Reforming Option - Construction Employment.

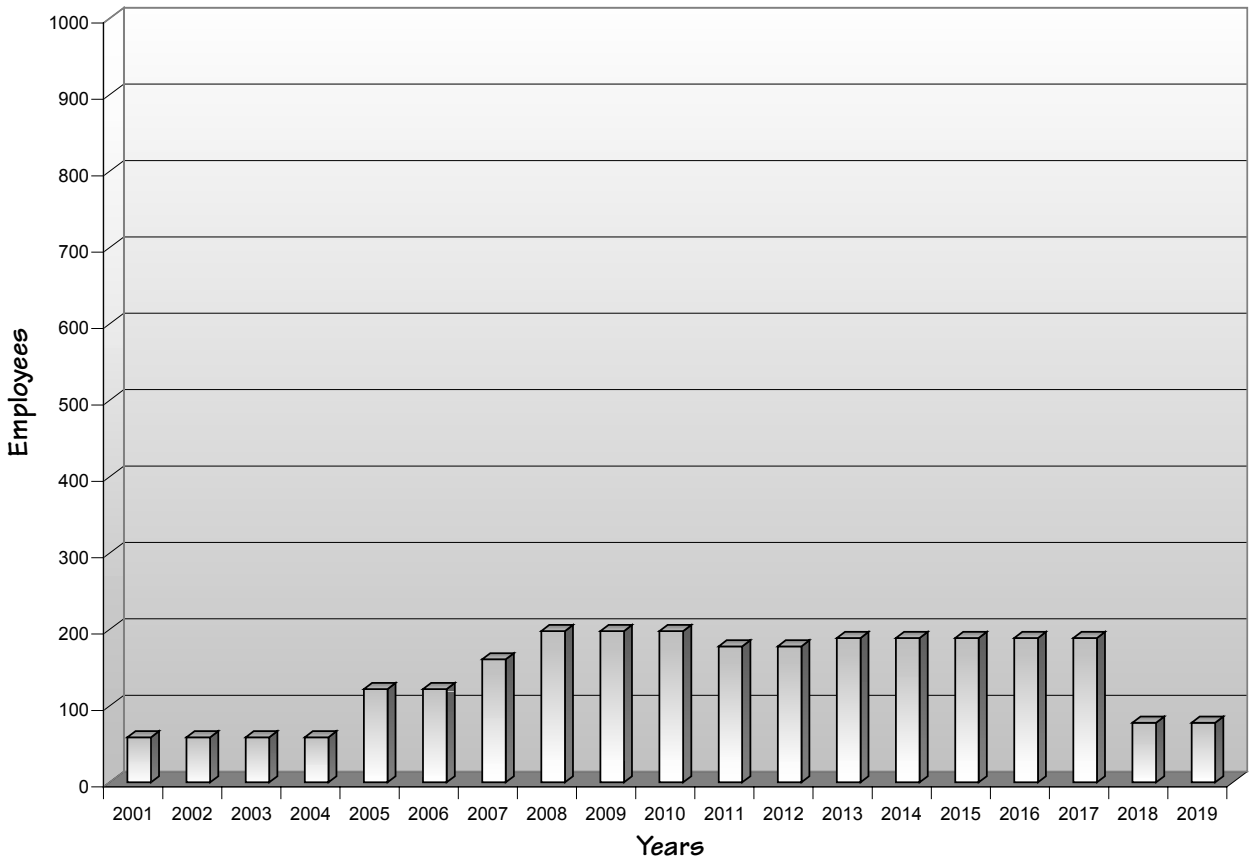

FIGURE C.1-9.
Minimum INEEL Processing Alternative - Construction Employment.

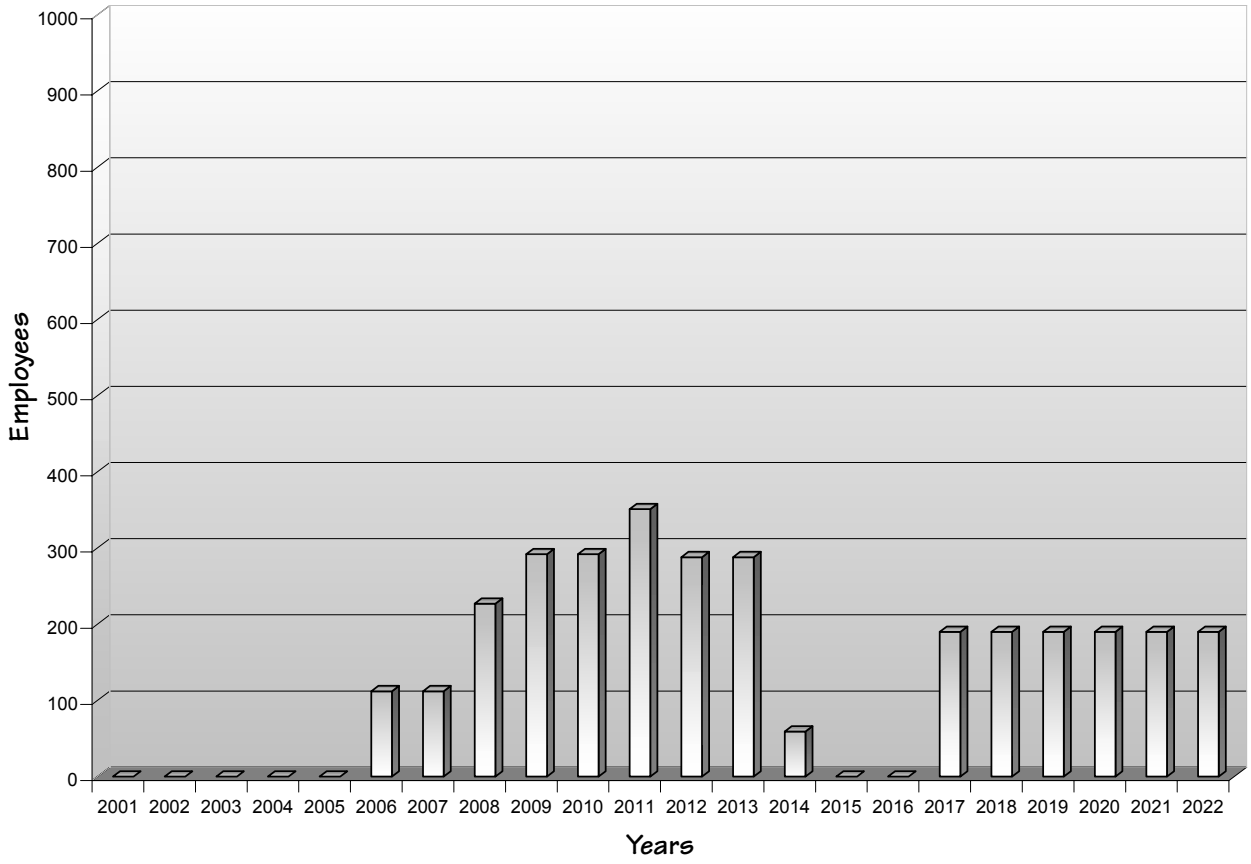

FIGURE C.1-10.
Direct Vitrification Alternative - Vitrification without Calcine Separations Option - Construction Employment.

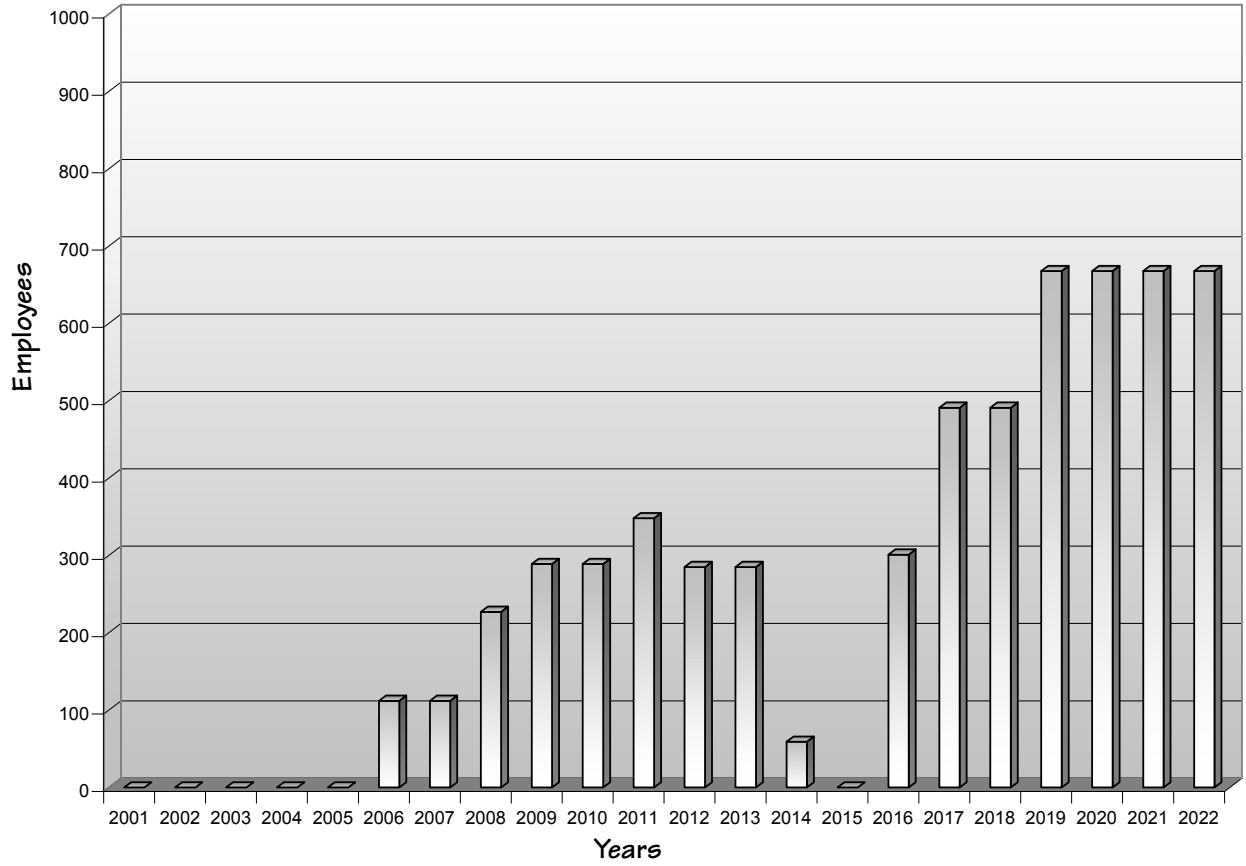

FIGURE C.1-11.
Direct Vitrification Alternative - Vitrification with Calcine Separations Option - Construction Employment.

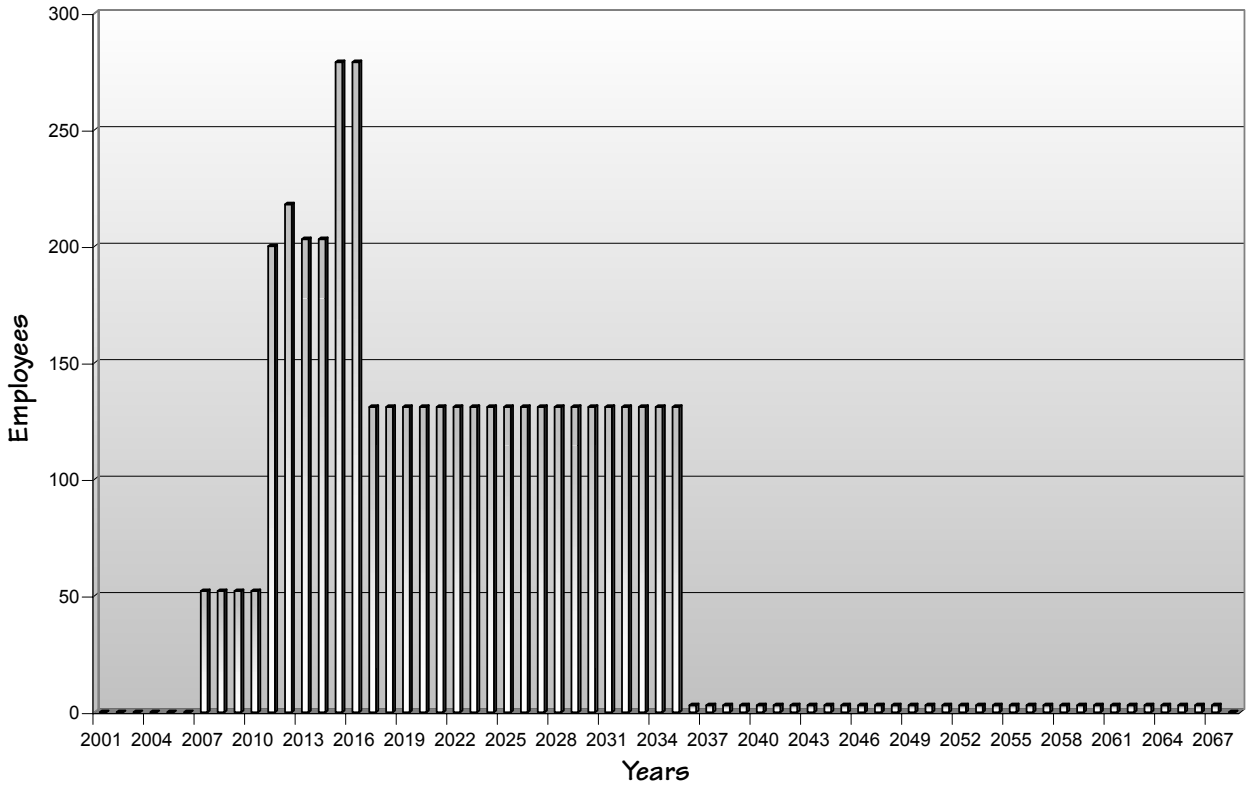

FIGURE C.1-*12*.
Continued Current Operations Alternative - Operations Employment.

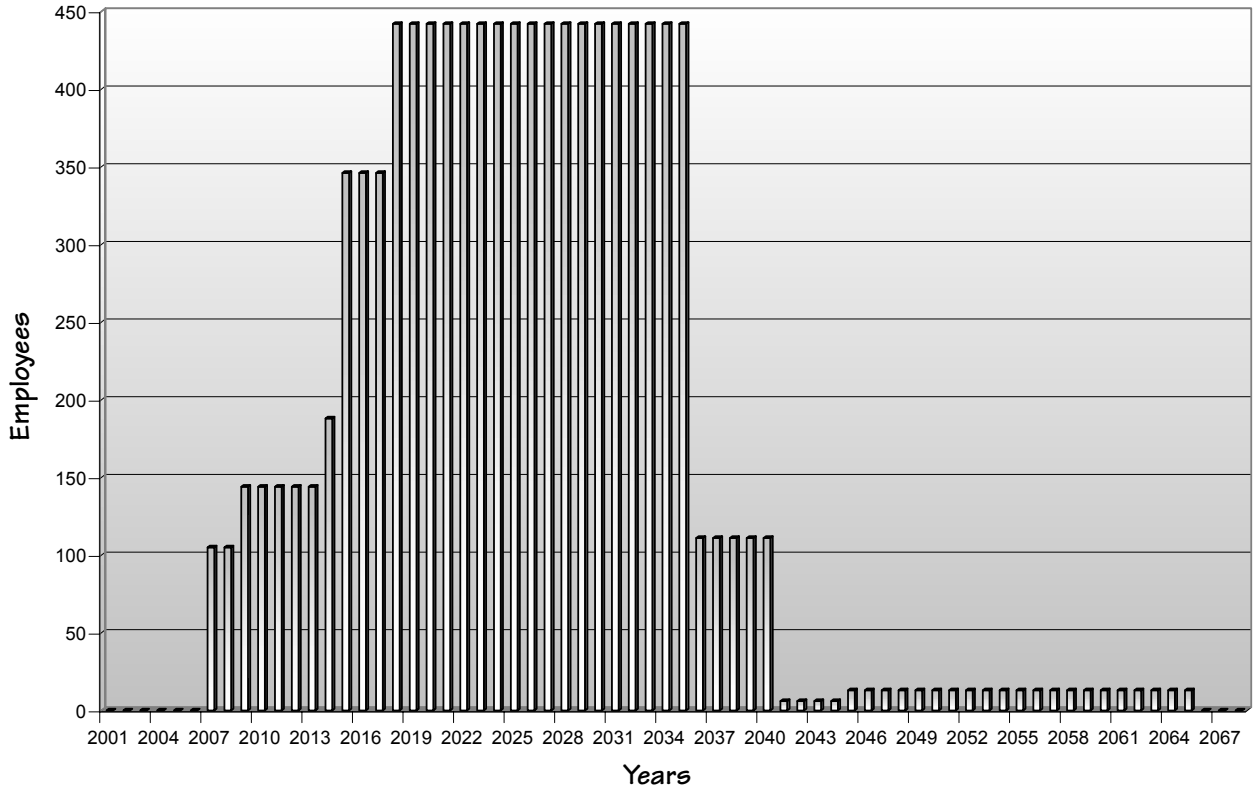

FIGURE C.1-13.
Separations Alternative - Full Separations Option - Operations Employment.

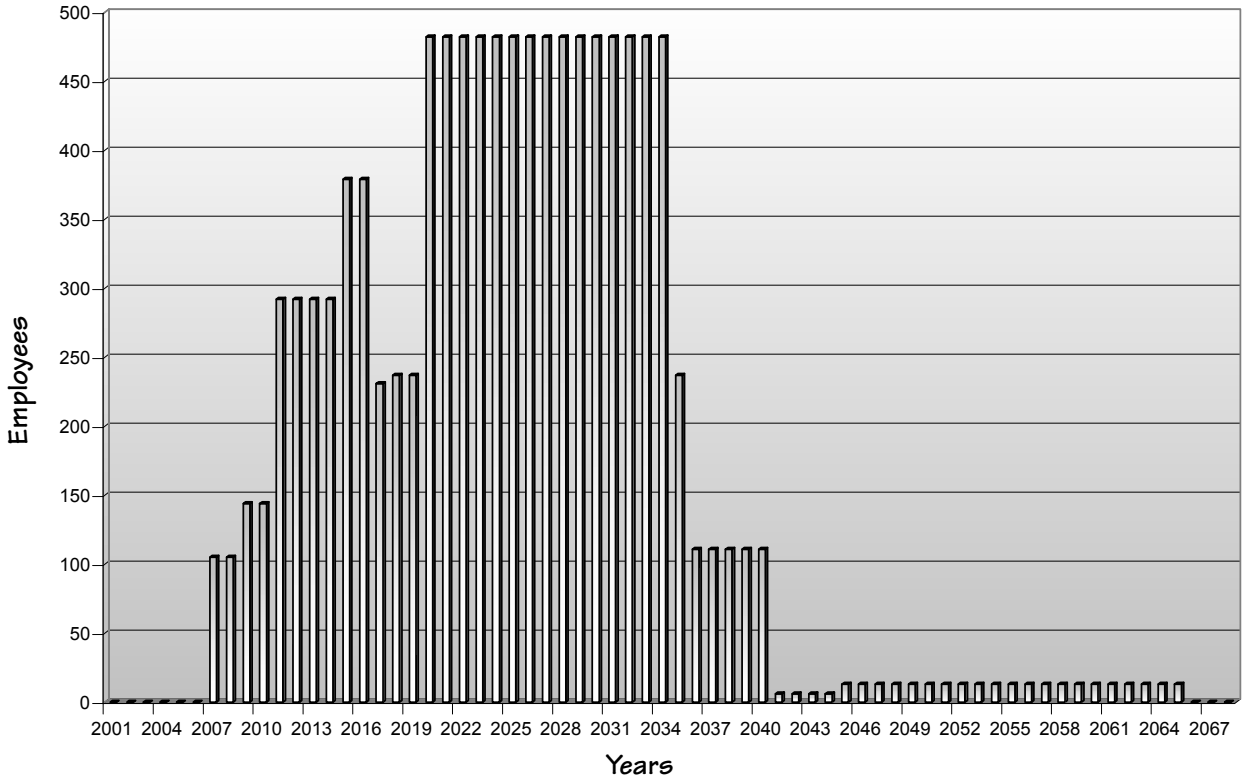

FIGURE C.1-*14*.
Separations Alternative - Planning Basis Option - Operations Employment.

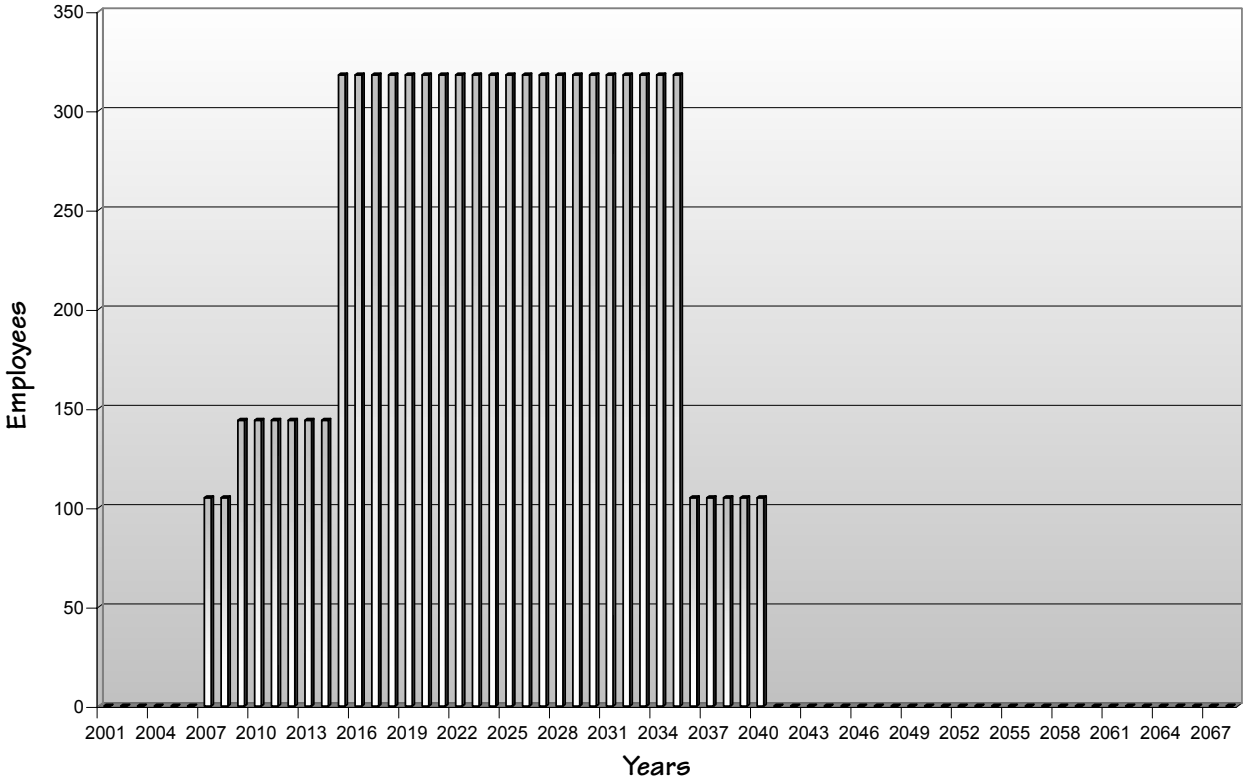

FIGURE C.1-*15*.
Separations Alternative - Transuranic Separations Option - Operations Employment.