



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

August 26, 2002

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of)	Docket Nos. 50-438
Tennessee Valley Authority)	50-439

BELLEFONTE NUCLEAR PLANT (BLN), UNITS 1 AND 2 - RESPONSE TO NUCLEAR REGULATORY COMMISSION (NRC) REQUEST FOR ADDITIONAL INFORMATION (RAI) - ENVIRONMENTAL ASSESSMENT FOR EXTENSION OF CONSTRUCTION PERMITS (TAC NOS. MB2549 AND MB2550)

This letter provides TVA's response to NRC's RAI dated June 5, 2002 to support the review of TVA's request for extension of Construction Permits CPPR-122 and CPPR-123 for BLN Units 1 and 2, respectively. The proposed action would extend the construction permit for BLN Unit 1 from October 1, 2001 to October 1, 2011 and the construction permit for BLN Unit 2 from October 1, 2004 to October 1, 2014.

If you have any questions, please call Chuck Wilson at (423) 751-6153 or Rob Brown at (423) 751-7228.

Sincerely,


 Mark J. Hurzynski
 Manager
 Nuclear Licensing

Enclosures
cc: See page 2

D030

U.S. Nuclear Regulatory Commission
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ENCLOSURE

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION RELATED TO CONSTRUCTION PERMIT EXTENSION FOR BELLEFONTE NUCLEAR PLANT (BLN)

NRC QUESTION NO. 1

The U.S. Atomic Energy Commission's (AEC) June 1974 Final Environmental Statement (FES) for construction of Bellefonte Nuclear Plant discussed one historic property and two potential archaeological sites near the facility.

- a. Have any additional archaeological sites in the area been identified that may be potentially impacted by the resumption of construction at Bellefonte. Have such sites been listed, or are they eligible for listing, in the National Register of Historic Places?

TVA Response

There are no additional known archaeological sites within the BLN site. No future disturbance is currently contemplated on or adjacent to known archaeological sites if construction at the BLN site is resumed. Moreover, historic structures would be unaffected from resumption of construction activities.

An initial archaeological reconnaissance of the 1,600 acres of BLN was conducted in 1972. This reconnaissance resulted in the verification of two sites (1JA978 and 1JA112 discovered during the pre-inundation archaeological survey of Gunterville Lake in 1936) and the discovery of three additional sites (1JA300-302). Site 1JA978 was noted in the riverbank and contains both Archaic and Woodland components. Site 1JA112 is on a natural levee adjacent to the original riverbank and is primarily inundated; cultural affiliation for this site could not be determined since it is submerged. Site 1JA300 covers an area of approximately 200- by 250-feet on a knoll adjacent to a small unnamed inlet which serves as the plant intake for make-up cooling water. This site contains Archaic, Woodland, and Mississippian components. Site 1JA301 consists of surficial remains from the Archaic on a knoll. Site 1JA302 consists of a Woodland component in the northeast edge of the peninsula near the confluence of Town Creek and the Tennessee River. Sites 1JA300 and 1JA302 were determined to be eligible for inclusion in the National Register of Historic Places. Since site 1JA300 was going to be adversely impacted by the construction of the plant intake structure and an access road, data recovery excavations were conducted in 1973 by the University of Alabama.

- b. Have all excavation activities been completed near the two potential archaeological sites? If not, what actions will be taken to ensure that the interests of the Alabama Historical Commission are preserved during excavation activities?

TVA Response

No additional excavation activities or other disturbances are known or contemplated on or adjacent to the two national register eligible archaeological sites at the BLN site. These archaeological sites are marked on BLN site drawings, along with a note stating the following: "NOTE: Archaeological Site. Contact TVA Cultural Resources prior to ground disturbance."

- c. How did Tennessee Valley Authority (TVA) respond to the Alabama Historical Commission's recommendation regarding restoration and adaptive reuse of the 1845 Tavern and Inn? (FES, p. A-39)

TVA Response

All structures associated with the original Bellefonte town site, including the 1845 Tavern and Inn, have been removed since 1974 when it was determined that the town site was eligible for placement on the National Register of Historic Places. The town site is on the north side of and adjacent to Jackson County Highway 33, between U.S. 72 and the BLN site. The town site is not on TVA property, and the buildings were removed by the owners. Before construction of the existing facilities at the BLN site, the Alabama State Historic Preservation Office approved the design and indicated that no mitigation would be required.

NRC QUESTION NO. 2

If construction of Bellefonte were to be resumed, what construction-related activities remain that might disturb previously undisturbed land or impact other natural resources? For example, are there access roads, transmission lines, buildings, facilities, etc., left to be completed, and do such activities differ from those previously evaluated in the FES?

TVA Response

In general, almost all of the construction required for completion of BLN as a two-unit nuclear plant has already been at least started; very few facilities remain that would require new land disturbance. Exceptions are as follows:

1. If construction resumes, it is planned to eventually move (re-route) the first half mile of the south entrance road such that it would still join Jackson County Highway 33 but to an intersection which is about 1200' east of the current connection point. The site has completed an Environmental Assessment for this change which would improve traffic visibility and thereby increase commuter safety. Some new ground would be disturbed for this road but there are no associated significant environmental impacts.
2. If construction resumes, some new backfill borrow pits may be required to obtain clay. These would likely be made in undisturbed ground east of the main site power plant buildings. The topsoil would be removed temporarily and replaced to restore the sites after clay removal. Tree cover would be removed in this process.
3. Meteorological monitoring requirements have changed, which might necessitate construction of a new environmental data station. This new facility could possibly be sited on undisturbed soil.

4. Construction of the Startup & Recirculation Equipment Building for Unit 2 has not been initiated; however, the site for this building is disturbed ground very close to the south side of the Unit 2 Auxiliary Building. Other potential construction activities on disturbed ground include increasing the size of the Construction & Administration Building (CAB); additional fire protection tanks by the CAB; additional waste tanks adjacent to the Unit 1 reactor building; and completion of the auxiliary feedwater pipe trench near the Unit 2 reactor building. The Power Stores building may be enlarged, and new plant security requirements may necessitate changes to the gatehouse.

NRC QUESTION NO. 3

- a. Does the projected construction workforce of 2200 persons remain bounding should Bellefonte construction be resumed?

TVA Response

The peak projected construction employment for BLN as listed in Table 2.8-2 of the 1974 FES is 2,300 persons. Prior to the first deferral of construction in 1988, actual construction employment reached approximately 4,200 and the operational workforce was estimated at over 400. For resumption of construction of either Unit 1 alone or both Units 1 and 2, the total on-site staff is now projected to peak at about 4600 persons. However, the duration of construction activities would be longer for two units compared with one. Of the 4600, approximately 2600 would be construction staff; 900 engineering staff; 850 plant staff; and 250 start-up testing staff.

- b. Since issuance of the construction permit, have there been changes to the demographics of the region that may lead to significant socioeconomic impacts different from those previously evaluated in the 1974 FES? Examples of this are demands on the local schools, hospitals, public facilities, utilities (e.g., water use), transportation infrastructure, construction worker shortages, etc.?

TVA Response

With regard to regional demographics, the population of the area surrounding BLN has grown since 1974. For example, the population of Jackson County has increased from 39,202 in 1970 to 53,926 in 2000 and the public infrastructure has grown proportionally.

The FES addressed both temporary impacts to community facilities and services which would occur during the construction period and those which would occur from the permanent workforce. Significant impacts were not expected in either case, but the FES concluded that facilities and services such as schools would unavoidably be stressed by construction and operation of BLN. Consequently, TVA committed to monitoring the situation and to working with local and state officials to mitigate any unacceptable adverse conditions which might result. In accordance with its commitment, prior to the 1988 deferral TVA provided a total of \$650,000 in mitigation funds to the towns of Scottsboro and Hollywood and to the state to mitigate increased demands on law enforcement, education, road, and water supply services.

The currently larger projected construction workforce will likely result in greater socioeconomic impacts than those projected in the FES. Two more recent Environmental Impact Statements analyze potential impacts at higher levels than those in the FES (see pertinent sections found in Attachments 1 and 2). The first of these analyzed potential impacts of converting and operating the Bellefonte site as a fossil-fueled power plant (*Final Environmental Impact Statement for the Bellefonte Conversion Project*, Tennessee Valley Authority, October 1997). The second analyzed the impacts associated with the production of tritium at various TVA nuclear sites, including the BLN site (*Final Environmental Impact Statement for the Production of Tritium in a Commercial Light Water Reactor*, U.S. Department of Energy, DOE/EIS - 0288, March 1999). Impacts of a peak construction employment level of 4,500, almost the same as now projected, were analyzed in the latter report. Based on these analyses, we would anticipate that about 1,500 workers would move into the area at peak construction (at sometime during the fourth year of construction). Of these, about 1,100 are likely to move to Jackson County, and the remainder to surrounding counties. This number of movers would result directly in a population increase in Jackson County of about 3,000 persons or less at peak construction. The maximum impact on Jackson County schools is estimated to be somewhat less than 1,000 additional students, roughly a ten percent increase. This level of impact, however, would be only for a short time with lesser impacts leading up to this peak and following it. Impacts on other public services, such as hospitals, transportation, and utilities are discussed in more detail in the documents referenced above. They would be significant at or near peak, but the higher levels would have a relatively short duration. Possible impacts on construction worker shortages would depend on the magnitude of other construction projects in the larger area around the BLN site. The labor market area for construction workers is much larger than for most other types of work, and construction workers typically move around within large areas thereby decreasing the likelihood of significant problems for other construction projects. All of these impacts would occur gradually, as the construction workforce builds up to its peak during the fourth year. If construction resumes, TVA will work with state and local officials and civic groups to mitigate possible adverse socio-economic impacts caused by activities undertaken to complete construction of BLN or to operate the plant after its completion.

NRC QUESTION NO. 4

Are there any projects or activities occurring or planned for the area that may lead to additional cumulative impacts to the surrounding population or to the natural environment?

TVA Response

Jackson County has experienced considerable growth since the 1974 FES was prepared. Population has increased by 37.6 percent to 53,926, according to the 2000 Census of Population. This rate of growth is almost the same as the national rate (38.4) and is well above the state's increase of 29.1 percent. Over this same time period, per capita personal income increased from 67.9 percent of the national average to 72.8 percent, while the number of jobs in the county grew by over 9,900. This same general growth pattern appears to be continuing.

Jackson County had an average annual increase of 330 jobs between 1970 and 2000, along with an average population increase of about 500 per year. In general, this growth has consisted of numerous small-to-medium sized changes rather than one or a few very large events, except for the starting and stopping of TVA nuclear construction. Over the most recent decade of that period, the average increases were 310 jobs and over 600 in population. The construction labor

market area, which includes the cities of Huntsville and Chattanooga, had average increases of about 9,100 jobs and almost 7,800 in population over the 30 year period and slightly larger average increases of about 10,100 jobs and 9,700 in population between 1990 and 2000. The projected construction employment would be a major addition to the economy of Jackson County. However, many of the workers would live elsewhere in the labor market area, including some who temporarily relocated. Within this labor market area, the employment increase at peak construction would be about 46 to 50 percent of the recent annual increase in employment. During most of the construction period, however, the level would be smaller. In contrast to construction at or near peak, operating employment levels would be small compared to the normal growth of the area.

NRC QUESTION NO. 5

The AEC's 1974 FES referenced Appendices B2 and B3 of the Draft Environmental Statement (DES) for Bellefonte, which contained information about terrestrial and aquatic biota expected to occur in the environs of the Bellefonte site. Table 1 lists the species identified in Appendix B2 as rare or endangered. Table 2 is the list of species currently classified as threatened and endangered for Jackson County, Alabama, according to the Environmental Protection Agency's Website.

- a. Have any biota been added to or removed from the list of threatened or endangered species for the Bellefonte site environs (including transmission line right-of-ways) based on field studies or revisions to the threatened and endangered species list?

Table 1- List of rare and endangered animals (vertebrates) in Jackson County, Alabama from Appendix B2 of TVA's DES for Bellefonte

Common Name
Southeastern Shrew
Southeastern Myotis (Bat)
Hoary Bat
Indiana Myotis (Bat)
Sharpshinned Hawk
Cooper Hawk
Golden Eagle
Bald Eagle
Osprey
Peregrine Falcon
Bewick's Wren
Ruffed Grouse
Red Milk Snake
Tennessee Cave Salamander
Red-Cockaded Woodpecker ¹

¹Table B2-1 of TVA DES did not include Red-Cockaded Woodpecker; however, Appendix B2 lists this bird as having been seen at Wheeler National Wildlife Refuge

Table 2 - List of plants and animals listed as threatened or endangered species for Jackson County, Alabama by EPA²

Common Name	Species	Classification
Bald Eagle	Bird	Threatened
Red-Cockaded Woodpecker ³	Bird	Endangered
American Peregrine Falcon ⁴	Bird	Delisted
Gray Bat	Mammal	Endangered
Indiana Bat	Mammal	Endangered
Pale-Zone Shiner	Fish	Endangered
American Harts-Tongue Fern	Plant	Threatened
Harperella	Plant	Endangered
Green Pitcher Plant	Plant	Endangered
Anthony's River Snail	Mollusk	Endangered
Finerayed Pigtoe Clam	Mollusk	Endangered
Shiny Pigtoe Clam	Mollusk	Endangered
Alabama Lamp Pearly Mussel	Mollusk	Endangered
Pale Lilliput Pearly Mussel	Mollusk	Endangered
Pink Mucket Pearly Mussel	Mollusk	Endangered

²Threatened and endangered species are listed on EPA Website at <http://www.epa.gov/espp/database.htm>

³Red-Cockaded Woodpecker is not listed for Jackson County, Alabama; however, Appendix B2 of TVA's DES lists this bird as having been seen at Wheeler National Wildlife Refuge

⁴American Peregrine Falcon was listed in 1974; has been delisted

TVA Response

In Appendix B2 of the 1974 FES, the table of Rare and Endangered Vertebrates of Jackson County, Alabama, was taken from a June 1972 publication by that name authored by the Alabama Department of Conservation and Natural Resources, Division of Game and Fish. The table lists six Jackson County species as endangered: Indiana Bat, Bald Eagle, Osprey, Peregrine Falcon, Ruffed Grouse, and Tennessee Cave Salamander. The other species on the list were described as rare but not endangered. Though not on the list, the text of the FES also describes the Red-Cockaded Woodpecker as an endangered species which has been seen on the Wheeler National Wildlife Refuge 30 miles distant. Of these seven species, two are currently listed as threatened or endangered for Jackson County, Alabama, by the Environmental Protection Agency: Bald Eagle and Indiana Bat. The Peregrine Falcon has been delisted. The remaining four that are not currently listed by EPA for Jackson County are Osprey, Red-Cockaded Woodpecker, Ruffed Grouse, and Tennessee Cave Salamander.

Osprey, *Pandion haliaetus*, is not federally listed but is listed as Threatened by the State of Alabama. Population levels of osprey have been increasing on Guntersville Lake, and several nests have been observed in the vicinity of Coon and Crow Creeks. This species would use shoreline habitats fronting the BLN site for foraging. Red-Cockaded Woodpecker, *Dendrocopos borealis*, and Ruffed Grouse, *Bonasa umbellus*, are not known to occur at the BLN site. There are no caves at the BLN site which could provide suitable habitat for the Tennessee Cave Salamander.

The current list of federally threatened or endangered species for Jackson County, Alabama contains several species which were not identified or discussed in the original FES for BLN. However, none of these except the Gray Bat are known to occur at or adjacent to the BLN site, including transmission line right-of-ways, and none of these were added based on field studies at the BLN site. Gray bats forage in the sloughs and main channel of the Tennessee River. However, because of the nature of the activities undertaken at the plant and the distance of these plant activities from the foraging area, gray bats would not be adversely impacted by the proposed actions. Conversely, no species indigenous to the BLN site have been added to the federal or state lists of threatened or endangered species since the original FES.

- b. Are there any known potential adverse impacts to any listed or candidate species that might result from the resumption of construction at Bellefonte?

TVA Response

Resumption of construction activities at BLN would not be expected to cause adverse impacts to any federal- or state-listed or candidate species or their habitats. This is primarily because almost all ground or river disturbance construction activities have long since been completed. Operations at nuclear plants have proven to have little or no adverse environmental affects, and this is especially true for plants such as BLN which have a closed-cycle condenser cooling water design.

No federal- or state-listed threatened or endangered plant species are known to occur on or in close proximity to the site. In recent years, no aquatic species on the federal or state of Alabama lists of endangered or threatened wildlife have been found in the Tennessee River in the vicinity of the BLN site. Recent fish community assessments and a mussel survey in Guntersville Reservoir near the BLN site do not indicate the presence of listed or candidate endangered or threatened species. Two federally-listed terrestrial animals, the Bald Eagle and Gray Bat, have been seen foraging along the shoreline at BLN, but neither of them is known to reside at the site and very few construction activities remain near the shoreline. Therefore, resumption of construction is unlikely to have any significant effect on threatened or endangered species at BLN.

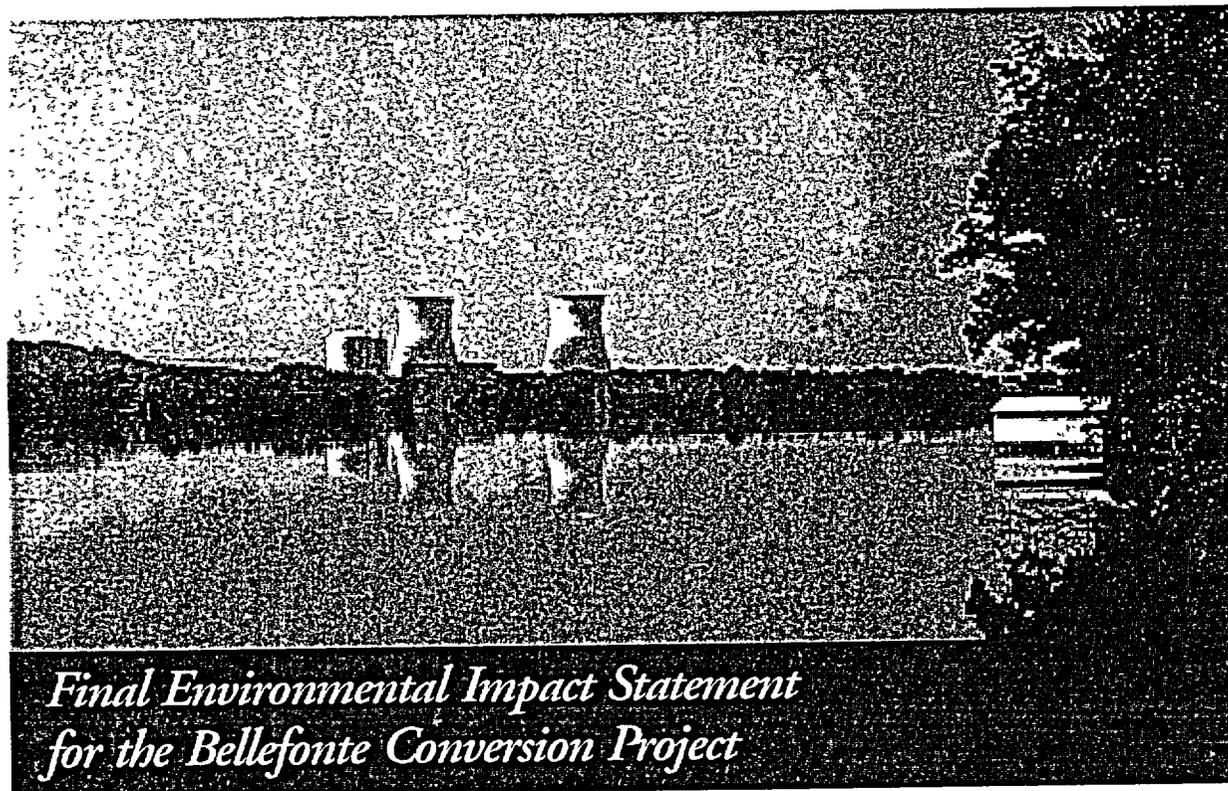
ATTACHMENT 1

EXCERPTS FROM:

Final Environmental Impact Statement for the Bellefonte Conversion Project, Tennessee Valley Authority, October 1997, Section 4.2.12 Socioeconomics

Volume I

Tennessee Valley Authority



October 1997



4.2.12 Socioeconomics

4.2.12.1 Impacts of Construction

Under each of the conversion options, construction would result in a temporary increase in population and income in the area as a direct and indirect result of the increased employment at the site. About 30 to 35% of the construction workers are expected to move into the area. The percentage varies somewhat over time depending on the need at any given time for workers with specialized skills not available in the local work force as outlined in the construction descriptions for each option in Chapter 2. Of those moving into the area, about 50% are likely to buy or rent houses. An additional 25 to 30% are expected to buy or rent mobile homes. The remaining workers generally would rent apartments or sleeping rooms.

Workers who bring their families are expected to make up about 70% of all construction workers moving into the area. Most of the remaining 30% would be single or would live in the area during the week and return home on weekends. On the average, it is expected that workers who bring their families would have about 0.9 school-age children per family.

About 75% of construction workers who move are expected to live in Jackson County. Within Jackson County, at least two-thirds of the movers can be expected to live in the Scottsboro-Hollywood area, assuming housing is available. An additional one-fifth is likely to be distributed along the Valley toward Guntersville or toward Bridgeport. The remainder, approximately one-tenth, would likely be scattered around the rest of the county.

Impact analyses for all of the options are estimated on the basis of these percentages.

Income and Employment

Peak employment levels range from 550 under the NGCC Option to 3,447 under the Combination Option (Table 4.2.12-1). Total person-years of employment during the construction period also vary greatly, from 3,008 under the NGCC Option to 15,759 under the Combination Option; total wages vary

Impacts to the Environment From Each of the Five Bellefonte Conversion Options
Socioeconomics

proportionately. Capital expenditures, on the other hand, are lowest under the NGCC Option, at \$1,315.0 million, and greatest under the IGCC Option, at \$4,067.6 million.

The labor market area, in which most of the construction workers either live or would be residing while working at the site, includes the Huntsville-Decatur area and the Chattanooga area as well as Jackson County and other nearby counties. The estimated income and employment impacts on this area during the construction of the plant, including indirect effects, are shown in Table 4.2.12-2. Employment impacts range from about 11,000 person-years under the NGCC Option to about 44,000 person-years under the IGCC Option. Income impacts range from about \$500 million under the NGCC Option to about \$2.2 billion under the IGCC Option.

Table 4.2.12-1 Plant Construction Employment and Expenditures

Option	Peak Employment (annual)	Total Employment (Person-Years)	Wages (millions of \$)	Capital Expenditures (millions of \$)
PC	1,612	11,912	833.8	3,131.2
NGCC	550	3,008	210.5	1,315.0
IGCC	2,162	15,604	1,092.2	4,067.6
IGCC/C	2,898	8,663	606.4	1,873.0
Combination	3,447	15,759	1,103.1	2,859.7

Table 4.2.12-2 Employment and Income Impacts, Labor Market Area

Option	Employment (Person-Years)	Income (Millions of \$)
PC	33,711	2,001.1
NGCC	10,528	532.6
IGCC	44,159	2,195.3
IGCC/C	22,784	1,146.1
Combination	39,870	2,018.7

Population

Depending on the option, between 211 and 1,200 workers are expected to move into the local area, with most of them moving into Jackson County (Tables 4.2.12-3 and 4.2.12-4). The population increase in Jackson County is expected to range from 420 to 2,241, depending on the option selected. According to the latest population estimates by the U.S. Bureau of the Census, population increase in Jackson County has averaged about 466 persons per year since the 1990 Census of Population. Even the smallest of the

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estimated impacts would be a noticeable change in population growth in Jackson County; the larger increase under the last two options would be especially noticeable impacts.

Table 4.2.12-3 Population Impacts of Peak Construction

Option	Number of Workers	Number moving into area	Total population increase
PC	1,612	608	1,634
NGCC	550	211	560
IGCC	2,162	815	2,134
IGCC/C	2,898	1,016	2,543
Combination	3,447	1,200	2,988

Table 4.2.12-4 Jackson County Population Impacts

Option	Moving into Jackson County	Moving into Scottsboro-Hollywood area	Moving elsewhere in Jackson County
PC	1,226	858	368
NGCC	420	294	126
IGCC	1,600	1,120	480
IGCC/C	1,907	1,335	572
Combination	2,241	1,569	672

Housing

The demand for housing in Jackson County and surrounding areas at peak construction ranges from less than 100 to over 500 houses, depending on the option selected (Table 4.2.12-5). Given the current population and population growth rates of Jackson County, these could be important impacts, especially for those options with the highest demand. The demand for mobile home facilities is somewhat less, but could also be an important impact. While the demand for apartments and sleeping rooms is likely to be smaller, these impacts may also be noticeable under the options with the highest demand, especially if the area is experiencing a tight market at the time of construction.

Table 4.2.12-5 Estimated Housing Choice of Construction Workers Moving into the Local Area

Option	Number of Workers Moving Into Local Area	Number Buying or Renting Houses	Number Buying or Renting Mobile Homes	Apartments or Sleeping Rooms
PC	618	278	216	124
NGCC	211	95	74	42
IGCC	815	367	285	163
IGCC/C	1,016	457	356	203
Combination	1,200	540	420	240

Fire

As noted in Chapter 3, most of the county, with the major exception of Scottsboro, is dependent on volunteer fire fighters. The influx of population during construction may place some strain on those facilities.

Schools

As of July 1996, the projected enrollment for the two school systems in Jackson County for the 1996-97 school year is 6,181, an increase of 172 students over the 1995-96 school year. The projected impacts from construction employment at peak would be largely to Jackson County, with small impacts on surrounding counties (Table 4.2.12-6). The total impact ranges from 161 students under the NGCC Option to 965 under the Combination Option. Of these, 132 of the 161 or 767 of the 965 are expected to attend schools in Jackson County.

Table 4.2.12-6 Student Impacts at Peak Construction

Option	Total Number of Students	Jackson County School System	Scottsboro City School System	Other Counties
PC	501	128	248	125
NGCC	161	45	87	29
IGCC	611	170	328	113
IGCC/C	718	191	371	156
Combination	965	261	506	198

The schools in Jackson County currently have a capacity of 7,841 students. Even with the projected increase of 172 in 1996-97, there would be facilities available to accommodate an additional 1,660 students, more than projected under any of the options.

Regardless of the impacts associated with TVA activities, both school systems would receive the state and federal contributions for instruction based on average daily attendance, and state school funding distribution formulas and would qualify for applicable federal program funding. However, the local funds contribution would be affected by an influx of new students. The influx would increase the local operating cost under each option.

Transportation services for students in the Scottsboro City School System would be adequate to accommodate a capacity of 4,080 students. With the impacts associated with the highest option, Combination, Scottsboro would have to transport an additional 506 students. The 1996-97 student projection would require that the system transport 2986 students. With the additional TVA impact, the Scottsboro City School System would have to transport a total of 3,492 students. This number could easily be handled with the existing capacity.

The Jackson County School System has a current transportation capacity of 6,269 students. The system would carry approximately 6,360 students during the 1996-97 school year. The small increase under the NGCC Option may not be important. However, those in the higher ranges, such as 261 additional students under the Combination Option, may strain the system and therefore be an important impact. Selection of the Combination Option, and perhaps the IGCC or IGCC/C Options, would likely lead to a need for one or two additional school buses and drivers.

4.2.12.2 Impact of Operation

Operation of the plant under any of the options would result in a permanent impact of employees who supervise, operate, and maintain the plant. About 45 to 55% of these are expected to move into the area. Close to 90% are expected to buy or rent houses, and at least 90% would be workers who bring their families. About 90% of those who move into the area are expected to live in Jackson County. At least two-thirds can be expected to live in the Scottsboro-Hollywood area. An additional one-fifth is likely to be distributed along the Valley toward Guntersville or toward Bridgeport. The remainder, approximately one-tenth, would likely be scattered around the rest of the county.

Table 4.2.12-7 Population Impacts of Plant Operation

Option	No. of Employees Moving into Area	No. with Families	Single/Living Alone	Population Impact
PC	290	261	29	812
NGCC	100	90	10	280
IGCC	265	239	27	742
IGCC/C	215	194	22	602
Combination	320	288	32	896

lower end of the range; arising from peak construction and therefore should be easily accommodated as the project moves from the construction phase into operation.

Fire

The increased population would place some additional load on fire fighting facilities in Jackson County. However, the impacts are not greatly outside the current growth patterns and therefore this should not be an important impact.

Schools

The increase in school enrollment would be no greater than that generated by construction, and therefore should present no special problems to the county once the construction impacts have been accommodated.

ATTACHMENT 2

EXCERPTS FROM:

Final Environmental Impact Statement for the Production of Tritium in a Commercial Light Water Reactor, U.S. Department of Energy, DOE/EIS - 0288, March 1999, Section 5.2.3.8
Socioeconomics

DOE/EIS - 0288

March 1999

Volume 1

FINAL ENVIRONMENTAL IMPACT STATEMENT

for the Production

of Tritium in a

Commercial Light Water Reactor

United States Department of Energy
Assistant Secretary for Defense Programs
Washington, D.C. 20585



Construction

There are no known archaeological sites within the previously disturbed areas of the Bellefonte site. Historic resources would be unaffected, as all structures associated with the original Bellefonte town site have been removed since 1974, when it was determined that the site was eligible for placement on the National Register of Historic Places. The town site was not on TVA property, and the buildings were removed by non-TVA land owners. Before construction of the existing facilities at Bellefonte, the Alabama State Historic Preservation Office approved the design and indicated that no mitigation would be required (TVA 1997f).

Operation

No impacts to historic or archaeological resources would occur from tritium production activities at the Bellefonte site.

5.2.3.8 Socioeconomics

The socioeconomic impacts resulting from the completion and operation of the Bellefonte units are presented for Unit 1 and then for both units combined. Completion and operation of Bellefonte 2 without Bellefonte 1 is not considered a Reasonable Alternative (see Section 3.2.3).

5.2.3.8.1 Bellefonte 1

No Action

The No Action Alternative requires the continuation of the deferred status of Bellefonte 1. Therefore, no socioeconomic impacts are expected. Approximately 80 employees maintain the partially completed plant in its layup condition.

Tritium Production

Estimates of the staffing requirements needed to complete and operate Bellefonte 1 as a nuclear power plant for the production of tritium are presented as **Table 5-32**. About 12,800 person-years will be needed through the five-year construction phase and 800 per year for plant operations. [The estimate of 12,800 person-years takes into account the tendency to variation in employment throughout the construction period, especially in years one and five, and does not reflect the total construction employment figure given in the table.] A comparison of peak staffing levels by year for the No Action Alternative and for the completion of Bellefonte 1 is provided as **Figure 5-1**.

Table 5-32 Staffing for Completion and Operation of Bellefonte 1

Construction Year	Staffing (Peak)
1	1,500
2	2,700
3	4,100
4	4,500
5	2,600
6	800+ (operations begin)
7	800
8	800
9	800
10 to 40+	800

Sources: TVA 1998a, TVA 1997e.

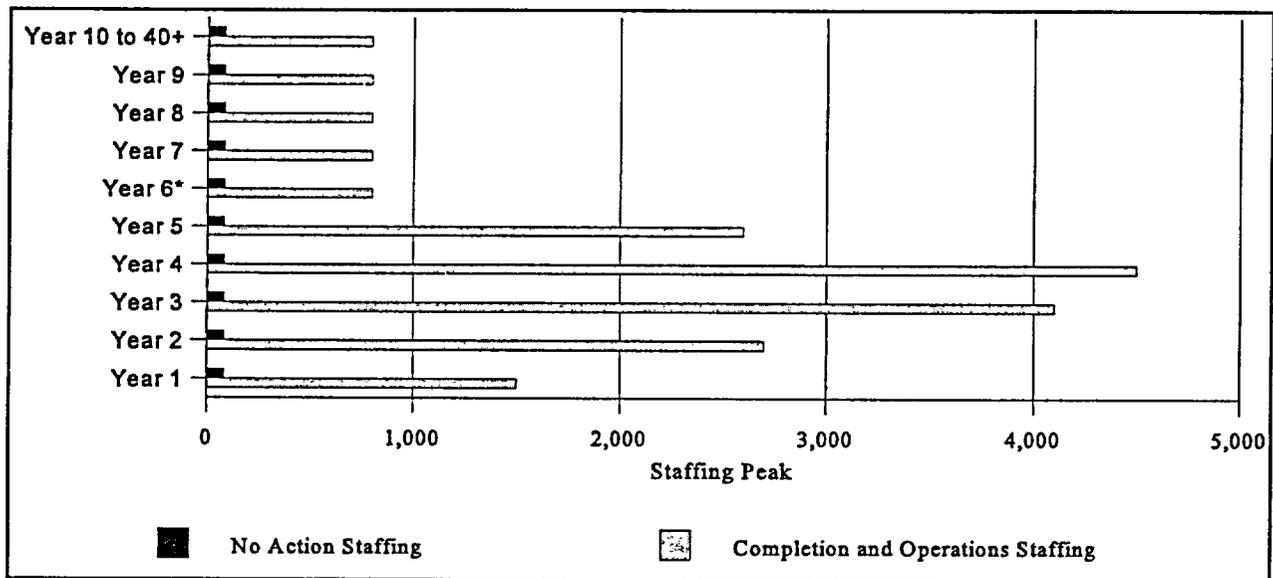


Figure 5-1 Staffing for Completion and Operation of Bellefonte 1, Compared to No Action from First Year of Construction

* Operations begin.

Source: TVA 1998a, TVA 1997e.

Income estimates for construction and operations staff are based on local earnings of about \$65,000 per person-year, an estimate that is 30 percent higher than the estimated labor cost to complete and operate the facility as a nonnuclear plant. Such high compensation reflects the requirements levels for many categories of nuclear construction and operations and would provide increased revenues to the local economy.

Another potentially important socioeconomic benefit is the direct and indirect income associated with the procurement of equipment and supplies for completion of the plant. Millions of dollars would be added to the local economy during the construction and operations periods.

The largest impacts would be experienced in the Scottsboro-Hollywood area of Jackson County. A larger region of influence encompassing the commuting area would have a lesser effect. The reasons for the

concentration of socioeconomic impacts within Jackson County and Scottsboro-Hollywood are several. First, Scottsboro-Hollywood—population approximately 15,000 (DOC 1998c)—is the only densely populated area within Jackson County. Second, due to the sparseness of the plant environs, local spending and indirect income generation from that spending are concentrated in the Scottsboro-Hollywood area. Third, procurement of goods and services by the plant and TVA outside Jackson County would be modest. Major impacts such as those relating to schools and taxes would be felt within the county, but not within the region of influence outside the county.

Population and Housing

The completion of Bellefonte 1 would result in a temporary increase in population and income in the region of influence as a direct and indirect result of increased employment at the site. An estimated 33 percent of the construction workers and 50 percent of the operations workers would be expected to move into the area. This is consistent with the values in the *Final Environmental Impact Statement for the Bellefonte Conversion Project* (TVA 1997f).

About 75 percent of the construction workers and 90 percent of the operations workers would be expected to live in Jackson County. About 70 percent could be expected to live in the Scottsboro-Hollywood area, assuming housing were available. About 20 percent likely would be located along Routes 79 and 72 in the valley between Guntersville and Bridgeport, with the remainder scattered throughout the county.

The influx of construction and plant operations personnel, plus families, would increase the population of Jackson County by about 3,200, or more than 6 percent. This influx within a period of four years would be about 70 percent greater than local growth in the seven years from 1990 through 1997. Within the Scottsboro-Hollywood area, the estimated peak population influx of about 2,200 workers and family members would represent a 14 percent overall population increase. Adding indirect employees and their families, the population influx into the Scottsboro-Hollywood area could exceed 25 percent at the peak. Peak population growth in Jackson County, including indirect employees and their families, would probably be no more than about 10 percent. Population impacts outside Jackson County would be negligible.

Most construction workers prefer not to buy permanent housing. Their housing needs would include rental homes and apartments, mobile homes, and camper-trailers. Operations workers generally purchase permanent single-family housing. Up to 70 percent of all incoming construction workers and 90 percent of all operations workers would be expected to bring their families. That number could be appreciably lower than 70 percent, depending on the availability of rentals and trailer parks for camper-trailers. Currently, trailer parks near the Bellefonte site are close to capacity. A trailer park with an estimated capacity of 250 campers/trailers is planned for operation near the site in the fall of 1998. Additional trailer parks could be built in three to four months if construction activity at the plant increased rapidly. DOE is estimating maximum housing and, more importantly, school system impacts, based on the expectation that up to 70 percent of construction workers moving into the area would bring their families.

| Demand for housing by construction and operations workers in the vicinity of Bellefonte would increase during
| the completion and operation of the plant. Data indicate that vacant permanent housing for sale and rent in
| the vicinity of the Bellefonte plant is insufficient to meet this demand. It is anticipated, however, that the
| completion and operation of Bellefonte will stimulate the construction of additional permanent housing, the
| opening of new trailer parks, and the expansion of existing parks to meet this demand, thereby producing a
| positive effect on the regional economy. It is expected that these new units also would meet permanent
| housing requirements for plant operations workers and their families.

Employment and Income

Peak employment during construction has been estimated at 4,500. Average employment for construction workers during the four years of the construction phase would be about 2,400 per year. Operations workers would average 800 per year over the operational life of the plant. Indirect employment (e.g., food, retail, banking) could reach an average at least equal to the number of operations workers. During the construction phase, indirect employment would be considerably higher. The effect of this change in employment at the county level would be high. Unemployment in 1997 averaged 8.2 percent. This could decline by very roughly half over the first few years of construction, and then unemployment likely would stabilize at least two points below the average. The unemployment rate would not drop by as much as the employment requirements would suggest. As the construction project escalated and the labor market tightened, the labor pool would expand from the influx of immigrating workers.

Total person-years of employment during construction, including operations staff, have been estimated at about 12,800 over the five-year construction phase. This level of employment should generate about \$835 million in direct labor earnings to the region of influence (i.e., wages and benefits). A large fraction of the locally generated income would be spent locally, and indirect economic impacts would be expected. By means of an income multiplier of 1.7, total earnings during the period would exceed approximately \$1.4 billion. This multiplier compares to the roughly 1.8 to 2.5 multipliers TVA used to estimate the impact of conversion of Bellefonte 1 to a nonnuclear plant (TVA 1997f).

Regional earnings during the period of plant operation have been estimated at a minimum of \$100 million per year. This estimate was developed using a multiplier of 1.8. The higher multiplier reflects the longer-term, more level injection of income into the region during operations than during construction. It is consistent with the multipliers used by TVA for the largest conversion scenario at Bellefonte.

Public Finance and Schools

Construction and operation of Bellefonte 1 as a nuclear unit would generate about \$5.5 million per year in tax-equivalent payments (payments in-lieu-of-taxes) for Alabama. Tax revenues to the region of influence and Jackson County and, in part, to the Scottsboro-Hollywood area are derived from real estate taxes, motor vehicle taxes, and motor vehicle and mobile home sales taxes. Income and sales taxes are collected at the state level. Jackson County collected approximately \$9.4 million (roughly \$200 per capita) in taxes in 1997.

Completion of the plant would affect the school systems of Jackson County and Scottsboro City. The county school system has approximately 6,500 students; the city system, approximately 3,000. Roughly two-thirds of the students (about 6,300) are in the Scottsboro-Hollywood area and the Guntersville-to-Bridgeport corridor, the major impact areas within the county and the region of influence. School facilities within the Scottsboro-Hollywood area and the Guntersville-Bridgeport corridor have the capacity to accommodate about 7,850 students. The peak influx of schoolchildren associated with in-migrating construction and operations workers in the fourth year of construction would be an estimated 970 for the whole of Jackson County, consisting of about 640 in the Scottsboro-Hollywood area, 220 in the Guntersville-Bridgeport corridor, and the remainder in other parts of the county. DOE believes these estimates to be conservative. As discussed in the section on housing, more construction workers than expected could choose to live without their families in camper-trailers rather than with their families in apartments, mobile homes, or single-family homes. As a result, the increase in the number of schoolchildren associated with construction and operations workers would be lower than expected. The number of schoolchildren from the families of in-migrating operations workers would decline to about 325 from the sixth year onward. The impacts of schoolchildren from in-migrating families not directly associated with Bellefonte would be additional.

The Scottsboro school transportation system (excluding Hollywood) operates 26 buses on a dual-route system and 8 on a single-route system (for a maximum of 3,600 students). The actual number of students transported is less than 3,000, leaving a surplus of more than 600. The conversion of some of the 8 single-route buses to a dual-route system could accommodate the peak influx of about 600 students in the Scottsboro system (excluding about 40 students in Hollywood) from families of in-migrating construction and operation workers.

The Jackson County school transportation system would experience an impact similar to the Scottsboro school transportation system. By increasing the number of dual-route operations, the additional number of schoolchildren associated with construction and operation workers could be accommodated.

The combined Jackson County and Scottsboro Boards of Education receive about 40 percent of TVA's payment in-lieu-of-taxes. Completion of Bellefonte 1 would increase TVA's payment to about \$5.5 million. Assuming that the 40 percent share were maintained, this would translate into a payment to the Jackson County and Scottsboro boards of about \$2.2 million. Over the long term, a payment of \$2.2 million would exceed the increase in school costs attributable to students whose families directly support the operation of Bellefonte 1.

In the short term, however, construction of Bellefonte 1 would impose costs averaging almost twice Jackson County's likely long-term receipts from the TVA payment. The TVA payment would not reach the \$5.5 million level until plant operations began. Educational costs in the Scottsboro school system could increase by an estimated average of \$3 million per year (1997\$) for the three busiest years of the construction phase. This estimate includes the cost of hiring 37 additional teachers for the estimated 530 new students averaged over the three peak years of construction to maintain the current student-teacher ratio of about 14:1. The peak year of construction could require an additional 5 teachers over the three-year average of 37 to maintain the current student-teacher ratio. Average educational costs could rise to an estimated \$5,432 per student (1997\$), based on actual costs of \$5,120 per student for the 1995-96 school year plus inflation.

For the Jackson County school system (excluding Scottsboro but including Hollywood), educational costs could increase by an average of less than \$1.8 million per year (1997\$) for the three busiest years of the construction phase. This estimate includes the cost of hiring 23 additional teachers for the estimated 305 new students averaged over the three peak years to maintain the current student-teacher ratio of about 14:1. The peak year of construction could require an additional 4 teachers over the three-year average of 23 to maintain the current student-teacher ratio. Average educational costs could rise to an estimated \$5,716 per student (1997\$), based on actual costs for the 1997-98 school year.

Assuming inflation-related increases of 3 percent per year in costs per student from the amounts reported above, average annual costs for the three-year period beginning with the 2001-2002 school year could rise to an estimated \$3.4 million per year for Scottsboro and \$1.9 million for the rest of Jackson County. These amounts are in the range of 18 percent and 4 percent of the current school system budgets for Scottsboro and Jackson County, respectively. The costs per student from in-migrating families not directly associated with Bellefonte would be additional.

Costs for the first two years would be well below the three-year construction period average and would allow a gradual phase-in of revenues and expenses to meet the costs associated with the increased student population. Figures 5-2 and 5-3 reflect the projected budget requirements for the first four years of construction versus the No Action Alternative for the Scottsboro and Jackson County school boards. To meet its expenses, the Scottsboro Board of Education could request additional funding from the State of Alabama.

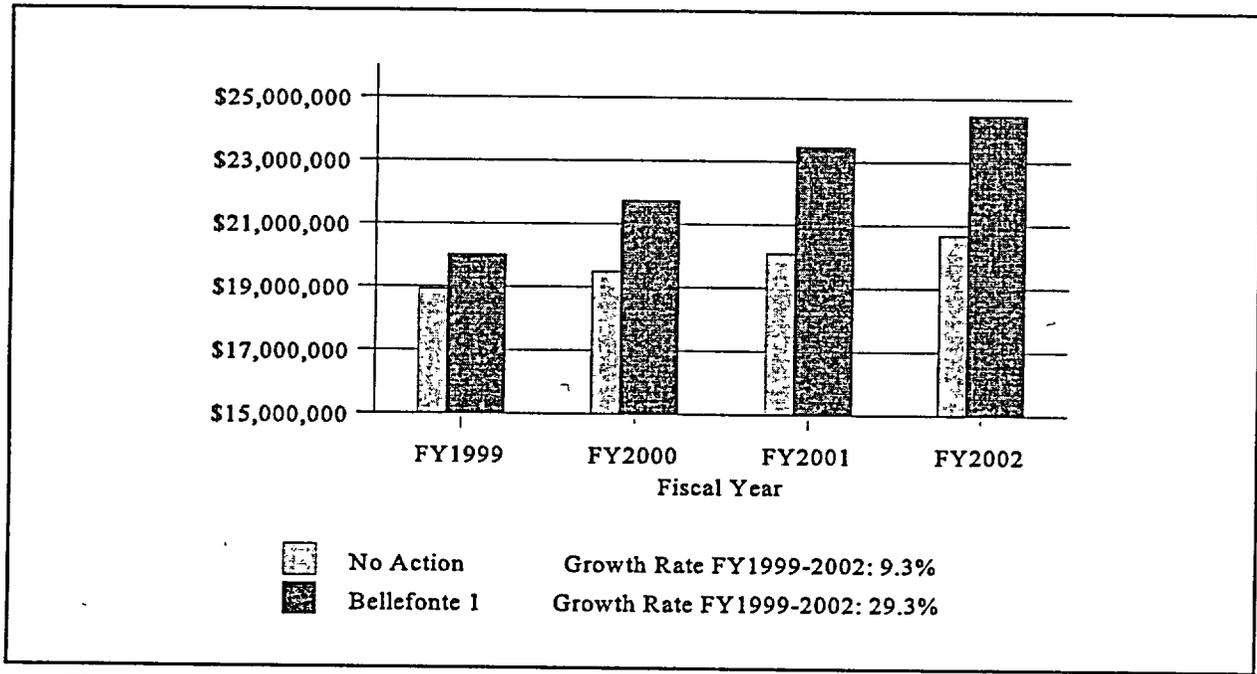


Figure 5-2 Scottsboro School Board Projected Budget, Completion of Bellefonte 1 Versus the No Action Alternative (FY 1999-2002)

Source: Scottsboro 1998.

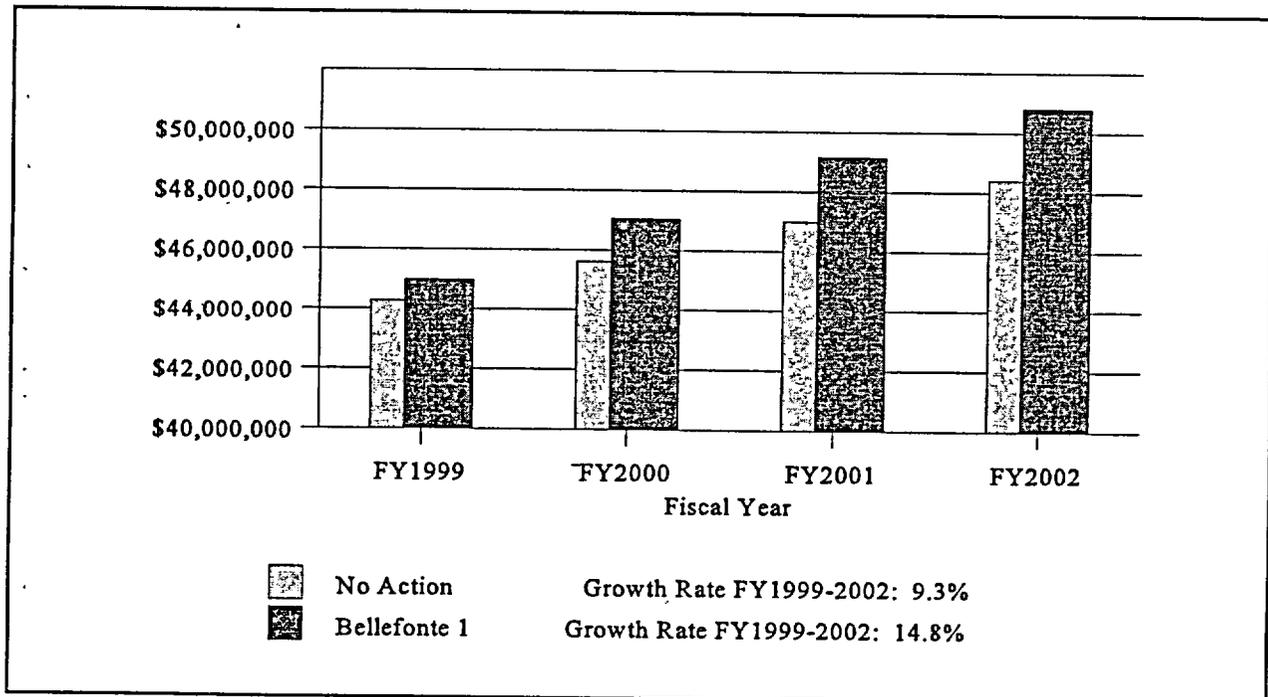


Figure 5-3 Jackson County School Board Projected Budget, Completion of Bellefonte 1 Versus the No Action Alternative (FY 1999-2002)

Source: Scottsboro 1998.

Additional tax revenues also would be generated by the increased economic activity involving the plant and plant workers. Such revenues (e.g., property taxes, income taxes, real estate transfer fees, sales taxes, motor vehicle taxes) are collected by or on behalf of the state government and then distributed to the jurisdictions.

The effect of an influx of families on other areas of public finance (e.g., fire, police, ambulance, hospitals) should be minimal. Additional and new equipment would be required for the police and fire departments, but these items could probably be accommodated within the overall expanding budgets arising from additional tax revenues and payments in-lieu-of-taxes.

Local Transportation

Traffic generated by construction activities associated with the completion of Bellefonte 1 could strain the capacity of the local road network. Traffic impacts during construction would be temporary and similar to the impacts described for the Bellefonte conversion project (TVA 1997f). During peak construction periods, U.S. Highway 72 could experience a 46 percent increase in traffic volume during morning and evening rush hours to the north, and a 48 percent increase in traffic volume to the south. Access roads to the Bellefonte site could experience more than an 80 percent increase in traffic volumes during these hours.

Increased traffic volumes during plant operations, attributable both to the commuting of 800 additional plant employees and to truck transport requirements, would decrease the available capacity of site access roads during morning and evening rush hours. The impacts would be lower than those experienced during peak construction. During plant operations, U.S. Highway 72 could experience a 13 percent increase in traffic volume during morning and evening rush hours to the north, and a 14 percent increase in traffic volume to the south. Access roads to the Bellefonte site could experience a 43 to 59 percent increase in traffic volumes during these hours. Additional truck traffic during plant operations would include a total of 16 shipments of TPBARs to and from the plant per year.

Possible measures that could be used to mitigate traffic volume impacts are physical improvements to the local roads or road network to increase capacity, including construction of additional vehicle lanes throughout road segments, construction of passing lanes in certain locations, or realignment to eliminate some of the no-passing zones. Employee programs that provide flexible hours also could reduce road travel during peak hours, and restrictions for trucks traveling during the peak hours could be made. Also, establishing employee programs and incentives for ride-sharing could be encouraged, and bus and/or vanpool programs could be initiated.

5.2.3.8.2 Bellefonte 1 and 2

No Action

The No Action Alternative requires continuation of the deferred status of Bellefonte 1 and 2. Therefore, no socioeconomic impacts are expected. Approximately 80 employees maintain the partially completed plant in its lay-up condition.

Tritium Production

Estimates of the staffing requirements needed to complete and operate Bellefonte 1 and 2 as a nuclear power plant are presented as Table 5-33. About 15,600 person-years will be needed through the six-year construction phase and 1,000 persons per year will be needed for plant operations. In terms of construction workers, completion of Bellefonte 1 and 2 is estimated to require about 10 percent more labor hours than completion of Bellefonte 1 alone, because all the common facilities were completed as part of Bellefonte 1. Peak employment would be about the same in either case; the additional Bellefonte 2-related employment would

occur mainly in the fifth and sixth years of the construction program. A comparison of the peak staffing levels by year for the No Action Alternative and for the completion of Bellefonte 1 and 2 is provided in Figure 5-4.

Table 5-33 Staffing For Completion And Operation of Bellefonte 1 and 2

Construction Year	Staffing (Peak)
1	1,400
2	3,000
3	4,000
4	4,500
5	3,900 (Bellefonte 1 operates)
6	2,000 (Bellefonte 2 operates)
7	1,000
8	1,000
9	1,000
10 to 40+	1,000

Source: TVA 1998a.

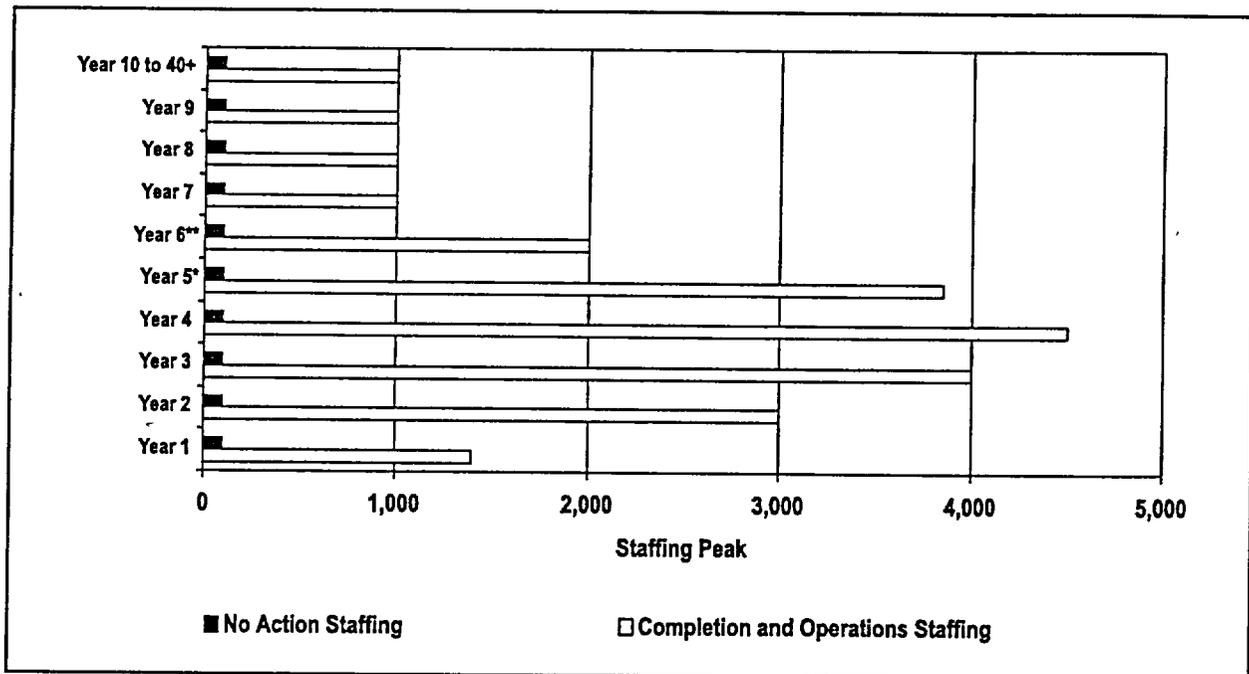


Figure 5-4 Staffing for Completion and Operation of Bellefonte 1 and 2, Compared to No Action from First Year of Construction

*Operations at Bellefonte 1 begin.
 **Operations at Bellefonte 2 begin
 Sources: TVA 1998a, TVA 1997e.

Income estimates for construction and operations staff are based on local earnings of about \$65,000 per person-year, an estimate that is 30 percent higher than the estimated labor cost to complete and operate the facility as a nonnuclear plant. Such high compensation reflects the requirements levels for many categories of nuclear construction and operations and would provide increased revenues to the local economy.

Another potentially important socioeconomic benefit is the direct and indirect income associated with the procurement of equipment and supplies for completion of the plant. Millions of dollars would continue to be added to the local economy during the construction and operations period.

The largest impacts would be experienced in the Scottsboro-Hollywood area of Jackson County. A larger region of influence encompassing the commuting area would have a lesser effect. The reasons for the concentration of socioeconomic impacts within Jackson County and Scottsboro-Hollywood are several. First, Scottsboro-Hollywood—population approximately 15,000 (DOC 1998c)—is the only densely populated area within Jackson County. Second, due to the sparseness of the plant environs, local spending and indirect income generation from that spending are concentrated in the Scottsboro-Hollywood area. Third, procurement of goods and services by the plant and TVA outside Jackson County would be modest. Major impacts such as those relating to schools and taxes would be felt within the county, but not within the region of influence outside the county.

Population and Housing

The completion of Bellefonte 1 and 2 would result in a temporary increase in population and income in the region of influence as a direct and indirect result of increased employment at the site. An estimated 33 percent of the construction workers and 50 percent of the operations workers would be expected to move into the area. This is consistent with the values in the *Final Environmental Impact Statement for the Bellefonte Conversion Project* (TVA 1997f).

About 75 percent of the construction workers and 90 percent of the operations workers who moved would be expected to live in Jackson County. About 70 percent could be expected to live in the Scottsboro-Hollywood area, assuming housing were available. About 20 percent likely would be located along Route 79 and Route 72 in the valley between Guntersville and Bridgeport, with the remainder scattered throughout the county.

The influx of construction and plant operations personnel, plus families, would increase the population of Jackson County by about 3,500, or more than 7 percent. This influx within a period of four years would be about 80 percent greater than local growth in the seven years from 1990 through 1997. Within the Scottsboro-Hollywood area, the estimated peak population influx of about 2,300 workers and family members would represent a 15 percent overall population increase. Adding indirect employees and their families, the population influx into the Scottsboro-Hollywood area could exceed 25 percent at the peak. Peak population growth in Jackson County, including indirect employees and their families, would probably be no more than about 12 percent. Population impacts outside Jackson County would be small.

Most construction workers prefer not to buy permanent housing. Their housing needs would include rental homes and apartments, mobile homes, and camper-trailers. Operations workers generally purchase permanent single-family housing. Up to 70 percent of all incoming construction workers and 90 percent of all operations workers would be expected to bring their families. That number could be appreciably lower than 70 percent, depending on the availability of rentals and trailer parks for camper-trailers. Currently, trailer parks near the Bellefonte site are close to capacity. A trailer park with an estimated capacity of 250 campers/trailers is planned for operation near the site in the fall of 1998. Additional trailer parks could be built in three to four months if construction activity at the plant increased rapidly. DOE is estimating maximum housing and, more importantly, school system impacts, based on the expectation that up to 70 percent of construction workers moving into the area would bring their families.

l Demand for housing by construction and operations workers in the vicinity of Bellefonte would increase during
l the completion and operation of the plant. Data indicate that vacant permanent housing for sale and rent in
l the vicinity of the Bellefonte plant is insufficient to meet this demand. It is anticipated, however, that the
l completion and operation of Bellefonte would stimulate the construction of additional permanent housing, the

opening of new trailer parks, and the expansion of existing parks to meet this demand, thereby producing a positive effect on the regional economy. It is expected that these new units also would meet permanent housing requirements for plant operations workers and their families.

Employment and Income

Peak employment during construction has been estimated at 4,500. Average employment during the middle four years of the construction phase would be about 3,650 per year. Operations workers would average 1,000 per year over the operational life of the plant. Indirect employment (e.g., food, retail, banking) could reach an average at least equal to the number of operations workers. During the construction phase, indirect employment would be considerably higher. The effect of this change in employment in Jackson County would be high. Unemployment in 1997 averaged 8.2 percent. This would be expected to decline to perhaps 3 percent over the first few years of construction, and then likely would stabilize at least two points below the average. The unemployment rate would not drop by as much as the employment requirements would suggest. As the construction project escalated and the labor market tightened, the labor pool would expand from the influx of immigrating workers.

Total person-years of employment during construction, including operations staff, have been estimated at about 15,600 over the six-year construction phase. This level of employment should generate about \$1 billion in direct labor earnings to the region of influence (i.e., wages and benefits). A large fraction of the locally generated income would be spent locally, and indirect economic impacts would be expected. By means of an income multiplier of 1.7, total earnings during the period have been estimated at more than \$1.7 billion. This multiplier compares to the roughly 1.8 to 2.5 multipliers TVA used to estimate the impact of conversion of the Bellefonte Nuclear Plant to a nonnuclear plant (TVA 1997e).

Regional earnings during the period of plant operation have been estimated at a minimum of \$115 million per year. This estimate was developed using a multiplier of 1.8. The higher multiplier reflects the longer-term, more level injection of income into the region during operations than during construction. It is consistent with the multipliers used by TVA for the largest conversion scenario at Bellefonte.

Public Finance and Schools

Construction and operation of Bellefonte 1 and 2 as a nuclear plant would generate more than \$8 million per year in tax-equivalent payments (payments in-lieu-of-taxes) for Alabama. Tax revenues to the region of influence and Jackson County and, in part, to the Scottsboro-Hollywood area are derived from real estate taxes, motor vehicle taxes, and motor vehicle and mobile home sales taxes. Income and sales taxes are collected at the state level. Jackson County collected approximately \$9.4 million (roughly \$200 per capita) in taxes in 1997.

Completion of the plant would affect the school systems of Jackson County and Scottsboro City. The Jackson County school system has approximately 6,500 students; the city system, approximately 3,000. Roughly two-thirds of the students (about 6,300) are in the Scottsboro-Hollywood area and the Guntersville-to-Bridgeport corridor, the major impact areas within the county and the region of influence. School facilities within the Scottsboro-Hollywood area and Guntersville-Bridgeport corridor have the capacity to accommodate about 7,850 students. The peak influx of schoolchildren associated with in-migrating construction and operations workers in the fourth year of construction would be an estimated 1,055 for the whole of Jackson County, consisting of about 700 in the Scottsboro-Hollywood area, 235 in the Guntersville-Bridgeport corridor, and the remainder in other parts of the county. DOE believes these estimates to be conservative. As discussed in the section on housing, more construction workers than expected could choose to live without their families in camper-trailers rather than with their families in apartments, mobile homes, or single-family homes. As a result, the increase in the number of schoolchildren associated with construction and operations workers would

be lower than expected. The number of schoolchildren from the families of in-migrating operations workers would decline to about 400 from the seventh year onward. The impacts of schoolchildren from in-migrating families not directly associated with Bellefonte would be additional.

The Scottsboro school transportation system (excluding Hollywood) operates 26 buses on a dual-route system and 8 on a single-route system (for a maximum of 3,600 students). The actual number of students transported is less than 3,000, leaving a surplus of more than 600. The conversion of some of the 8 single-route buses to a dual-route system could accommodate the peak influx of about 655 students in the Scottsboro system (excluding about 45 students in Hollywood) from families of in-migrating construction and operation workers.

The Jackson County school transportation system would experience an impact similar to the Scottsboro school transportation system. By increasing the number of dual-route operations, the additional number of schoolchildren associated with construction and operation workers could be accommodated.

The combined Jackson County and Scottsboro Boards of Education receive about 40 percent of TVA's payment in-lieu-of-taxes. Completion of Bellefonte 1 and 2 would increase TVA's payment to about \$8 million. Assuming that the 40 percent share were maintained, this would translate into a payment to the Jackson County and Scottsboro boards of about \$3.2 million. Over the long term, a payment of \$3.2 million would exceed the increase in school costs attributable to students whose families directly support the operation of Bellefonte 1 and 2.

In the short term, however, construction of Bellefonte 1 and 2 would impose costs averaging almost twice Jackson County's likely long-term receipts from the TVA payment. The TVA payment would not reach the \$8 million level until plant operations began. Educational costs in the Scottsboro school system could increase by an estimated average of \$3.5 million per year (1997\$) for the three busiest years of the construction phase. This estimate includes the cost of hiring 43 additional teachers for the estimated 615 new students averaged over the three peak years of construction to maintain the current student-teacher ratio of about 14:1. The peak year of construction could require an additional 3 teachers over the three-year average of 43 to maintain the current student-teacher ratio. Average educational costs could rise to an estimated \$5,432 per student (1997\$), based on actual costs of \$5,120 per student for the 1995-96 school year plus inflation.

For the Jackson County school system (excluding Scottsboro but including Hollywood), educational costs could increase by an average of less than \$2.1 million per year (1997\$) for the three busiest years of the construction phase. This estimate includes the cost of hiring 23 additional teachers for the estimated 355 new students averaged over the three peak years to maintain the current student-teacher ratio of about 14:1. The peak year of construction could require an additional 6 teachers over the three-year average of 23 to maintain the current student-teacher ratio. Average educational costs could rise to an estimated \$5,716 per student (1997\$), based on actual costs for the 1997-98 school year.

Assuming inflation-related increases of 3 percent per year in costs per student from the amounts reported above, average annual costs for the three-year period beginning with the 2001-2002 school year could rise to an estimated \$3.9 million per year for Scottsboro and \$2.3 million for the rest of Jackson County. These amounts are in the range of 20 percent and 4 percent of the current school system budgets for Scottsboro and Jackson County, respectively. The costs per student from in-migrating families not directly associated with Bellefonte would be additional.

Costs for the first two years would be well below the three-year construction period average and would allow a gradual phase-in of revenues and expenses to meet the costs associated with the increased student population. Figures 5-5 and 5-6 reflect the projected budget requirements for the first four years of construction versus the No Action Alternative for the Scottsboro and Jackson County School Boards. These growth rates are similar to those for the case in which only Bellefonte Unit 1 is completed, as the differential impacts of

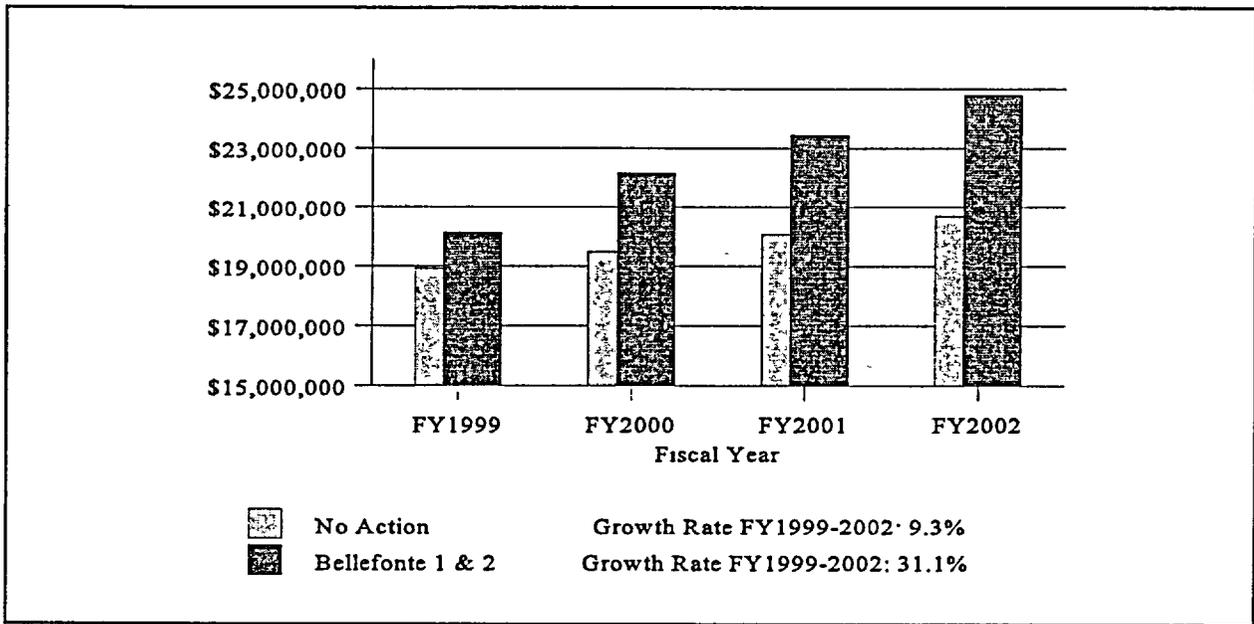


Figure 5-5 Scottsboro School Board Projected Budget, Completion of Bellefonte 1 and 2 Versus the No Action Alternative (FY 1999-2002)

completing Unit 2 become greater in the fifth year of construction. To meet its expenses, the Scottsboro Board of Education could request additional funding from the State of Alabama.

Source: Scottsboro 1998.

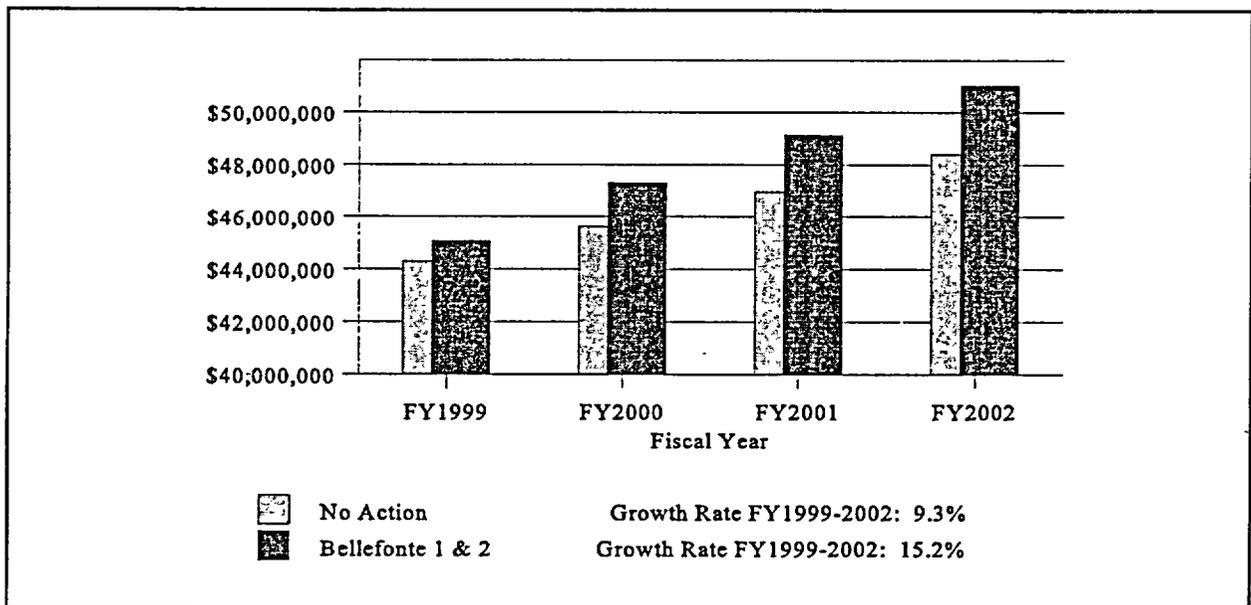


Figure 5-6 Jackson County School Board Projected Budget, Completion of Bellefonte 1 and 2 Versus the No Action Alternative (FY 1999-2002)

Source: Scottsboro 1998

Additional tax revenues also would be generated by the increased economic activity involving the plant and plant workers. Such revenues (e.g., property taxes, income taxes, real estate transfer fees, sales taxes, motor vehicle taxes) are collected by or on behalf of the state government and then distributed to the jurisdictions. The effect of an influx of families on other areas of public finance (e.g., fire, police, ambulance, hospitals) should be minimal. Additional and new equipment would be required for the police and fire departments, but these items could probably be accommodated within the overall expanding budgets arising from additional tax revenues and payments in-lieu-of-taxes.

Local Transportation

Traffic generated by construction activities associated with the completion of Bellefonte 1 and 2 could strain the capacity of the local road network. Traffic impacts during construction would be temporary and similar to the impacts described for the Bellefonte conversion project (TVA 1997f). During peak construction periods, U.S. Highway 72 could experience a 46 percent increase in traffic volume during morning and evening rush hours to the north, and a 48 percent increase in traffic volume to the south. Access roads to the Bellefonte site could experience more than an 80 percent increase in traffic volumes during these hours.

Increased traffic volumes during plant operations, attributable both to the commuting of 1,000 additional plant employees and to truck transport requirements, would decrease the available capacity of site access roads during morning and evening rush hours. The impacts would be lower than those experienced during peak construction. During plant operations, U.S. Highway 72 could experience a 16 percent increase in traffic volume during morning and evening rush hours to the north and a 17 percent increase in traffic volume to the south. Access roads to the Bellefonte site could experience a 48 to 64 percent increase in traffic volumes during these hours. Additional truck traffic during plant operations would include a total of 16 shipments of TPBARs to and from the plant per year.

Possible measures that could be used to mitigate traffic volume impacts are physical improvements to the local roads or road network to increase capacity, including construction of additional vehicle lanes throughout road segments, construction of passing lanes in certain locations, or realignment to eliminate some of the no-passing zones. Employee programs that provide flexible hours also could reduce road travel during peak hours, and restrictions for trucks traveling during the peak hours could be made. Also, establishing employee programs and incentives for ride-sharing could be encouraged, and bus and/or vanpool programs could be initiated.

5.2.3.9 Public and Occupational Health and Safety

This section describes the impacts of radiological and hazardous chemical releases resulting from the construction activities required to complete the units, as well as the normal operation, abnormal conditions, or accidents due to tritium production at Bellefonte 1 or both Bellefonte 1 and 2.

5.2.3.9.1 Normal Operation

RADIOLOGICAL IMPACTS

The annual gaseous radioactive emissions and liquid radioactive effluents from the production of tritium at Bellefonte 1 are presented in Sections 5.2.3.3 and 5.2.3.4, respectively. Presented in **Table 5-34** are the radiological impacts of both gaseous and liquid radioactive releases on the maximally exposed offsite individual and on the general public living within 80 kilometers (50 miles) of Bellefonte 1 in the year 2025. **Table 5-35** provides the radiological impacts on the facility workers. A facility worker is defined as any "monitored" reactor plant employee. Doses to these workers would be kept to minimal levels through programs to keep worker doses as low as reasonably achievable. The tables include the impacts of the No