

3.10S Workforce Characterization

In order to assess the environmental impacts of constructing and operating STP 3 & 4, particularly with regard to the potential socioeconomic impacts discussed in ER Sections 4.4 and 5.8, a description of the workforce required to construct and operate the new power units is required, including how the workforce will change over the course of construction, the availability of workers in the local area, and the potential for worker relocation and commuting constraints.

3.10S.1 Construction Work Force

The construction workforce would consist of two components: (1) Field Craft Labor; and (2) Field Nonmanual Labor. Field craft labor is the largest component of the construction workforce, with approximately 79% of the field workforce makeup in conventional Advanced Boiling Water Reactor (ABWR) nuclear plant construction. The field craft labor force comprises civil, electrical, mechanical, piping, and instrumentation personnel employed during the installation and startup of STP 3 & 4. The field nonmanual labor makes up the balance of the construction workforce, consisting of approximately 21%. The nonmanual labor force comprises field management, field supervision, field engineers, quality assurance/quality control (QA/QC), environmental, safety & health, and administrative/clerical staff.

Table 3.10S-1 illustrates the percent of the total work force for craft and field nonmanual labor makeup representative of conventional ABWR nuclear power plant construction.

In order to bound the impact of an influx of workers into the plant vicinity, it is assumed that 5% to 10% of the skilled craft workforce would come from within a 50-mile radius of the STP site. The remainder of the craft labor work force is assumed to come from outside the 50-mile area. Nonmanual labor is assumed to come entirely from outside the 50-mile area.

The STP 3 & 4 construction will incorporate a number of large prefabricated modules. Modularization shifts some of the work (and workforce) to another location that could be outside the 50-mile radius of the site, and hence decrease the onsite construction workforce and duration. The estimated construction duration and onsite workforce presented assume a high degree of offsite fabrication.

The total onsite construction workforce for sequential construction of two units at the STP site is estimated to be approximately 20 jobhours per kilowatt of generating capacity. The schedule assumes 12 months for site preparation, 12 months for LWA activities, and 45 months from COL issuance to Unit 3 fuel load, and 9 months for startup. Unit 4 fuel load is scheduled 12 months after Unit 3 for a total schedule duration of 90 months. Based on this schedule, the peak onsite construction workforce for Units 3 & 4 is estimated to be 5,950 people. Table 3.10S-2 summarizes the onsite construction workforce by month of the project. Figure 3.10S-1 graphically depicts the workforce curve for the project.

3.10S.2 Worker Relocation and Commuting

Construction workers typically commute up to 50 miles to a jobsite. Assuming 5% (lower estimate) of the construction craft workforce will be recruited from within the 50-mile radius, approximately 340 local craft people could be employed in Unit 3 & 4 construction. It is assumed that the balance of the construction workforce will come from outside the 50-mile radius. For the analysis of construction impacts in Chapter 4, it is assumed that the nonmanual labor workforce will relocate to the area from outside the 50-mile radius. Seventy to eighty percent of the construction workforce will be employed for more than four years. Most of the craft labor from outside the 50-mile radius will seek temporary housing, and most of the nonmanual staff will relocate to the area and seek permanent housing. Construction employees typically locate to within 50 miles of the construction area.

3.10S.3 Operation Work Force

A study commissioned by DOE (Reference 3.10S-1) estimated the additional operations work force for a new ABWR unit constructed at an existing site. Applying the DOE study analysis to the operation of STP 3 & 4, it is estimated that the additional onsite operations workforce would be approximately 405 people per unit, with an additional nonoperational offsite support staff of 39 people per unit. The total required additional operations personnel for STP 3 & 4 (both units) would be 810 onsite and 78 offsite support staff, for a total of 888 people. Figure 3.10S-2 graphically depicts the operations workforce for Units 3 & 4. The operations staff for each unit would be put in place approximately two years before fuel load of the unit, to allow time for simulator training and startup testing. It is assumed the operations workforce would be recruited from outside the 50-mile radius.

3.10S.4 References

- 3.10S-1 “Study of Construction Technologies and Schedules, O&M Staffing and Cost, Decommissioning Costs and Funding Requirements for Advanced Reactor Designs,” U.S., Department of Energy, Volume 1. Prepared under Cooperative Agreement DE-FC07-03ID14492, Prepared by Dominion Energy, Inc., Bechtel Power Corporation, TLG, Inc., and MPR Associates, May 27, 2004.

Table 3.10S-1 Percent Construction Labor Force by Skill Set

Labor	Installation Items - Responsibility	Percent of Total Work Force for ABWR Construction
Mechanical Equipment	NSSS, Turbine Generator, Condenser, Process Equipment, HVAC	3%
Electrical	Equipment, Cable, Cable Tray, Conduit, Wire, Connections	12%
Concrete	Concrete and Reinforcing Steel	13%
Structural steel	Structural and Miscellaneous Steel	3%
Other civil	Piling, Architectural Items, Painting, Yard Pipe	4%
Piping/instrumentation	Pipe, tubing, valves, hangers/ supports	14%
Site support	Scaffolding, equipment operation, transport, cleaning, maintenance, etc	15%
Specialty labor	Fireproofing, insulation, rigging, etc	15%
Nonmanual labor	Management, supervision, field engineering, QA/QC, safety and health, administration	21%

Table 3.10S-2 Estimated Construction Work Force and Construction Duration for Two ABWR Units

Month	Workforce Strength	Month	Workforce Strength	Month	Workforce Strength	Month	Workforce Strength
-24 [1]	100	3	2800	29	5950	55	3000
-23	200	4	2950	30	5950	56	2800
-22	300	5	3100	31	5950	57	2600
-21	400	6	3250	32	5950	58 [6]	2400
-20	500	7	3400	33	5950	59	2200
-19	600	8	3550	34	5950	60	2000
-18	700	9	3700	35	5950	61	1800
-17	800	10	3830	36	5850	62	1600
-16	900	11	3960	37	5750	63	1400
-15	1000	12 [4]	4090	38	5650	64	1200
-14	1100	13	4220	39	5450	65	1100
-13	1200	14	4350	40	5250	66	525
-12 [2]	1300	15	4480	41	5050	67	0
-11	1400	16	4610	42	4850		
-10	1500	17	4740	43	4650		
-9	1600	18	4870	44	4450		
-8	1700	19	5000	45 [5]	4250		
-7	1800	20	5130	46	4050		
-6	1900	21	5260	47	3900		
-5	2000	22	5390	48	3800		
-4	2100	23	5520	49	3700		
-3	2200	24	5650	50	3600		
-2	2300	25	5800	51	3500		
-1	2400	26	5950	52	3400		
1 [3]	2500	27	5950	53	3300		
2	2650	28	5950	54	3200		

[1] Site preparation activities begin

[2] LWA activities begin

[3] COL Issued, Unit 3 construction initiates

[4] Unit 4 construction initiates

[5] Unit 3 fuel load

[6] Unit 4 fuel load

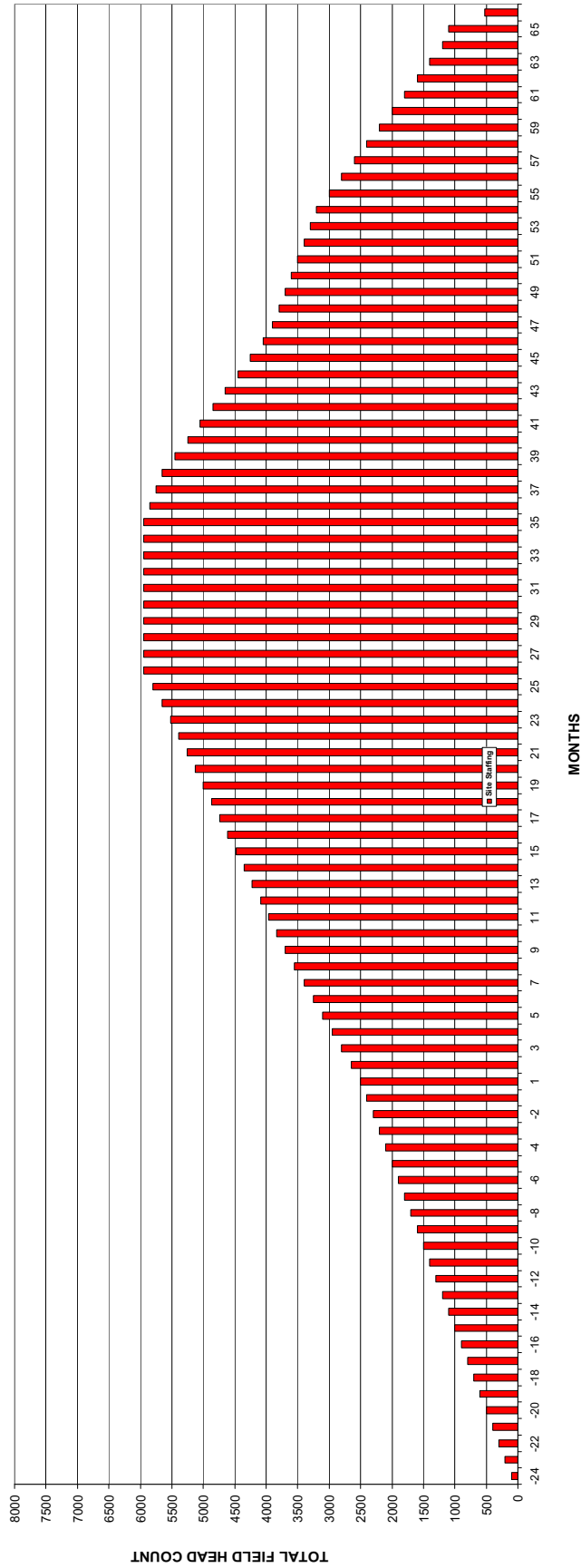


Figure 3.10S-1 Projected Construction Workforce by Month for Two ABWR Units

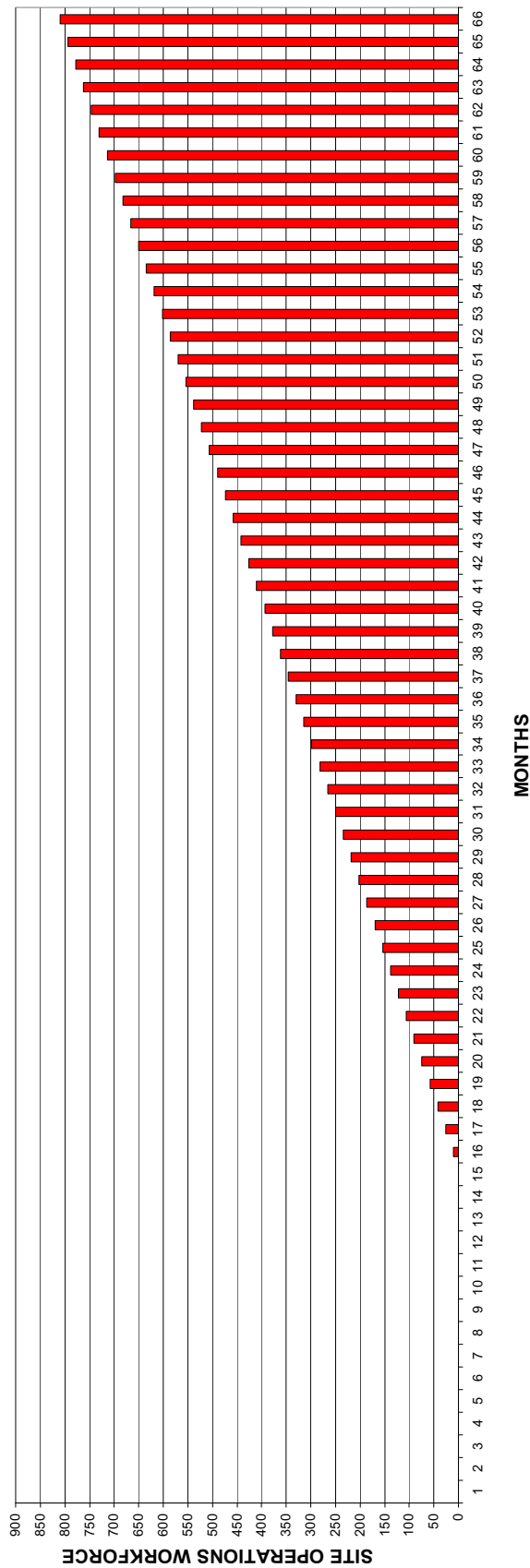


Figure 3.10S-2 Projected Operations Workforce by Month for Two ABWR Units