

**U.S. NUCLEAR REGULATORY COMMISSION**

**OFFICE OF FEDERAL AND STATE MATERIALS AND ENVIRONMENTAL  
MANAGEMENT PROGRAMS**

**DIVISION OF WASTE MANAGEMENT AND ENVIRONMENTAL PROTECTION**

**FINAL ENVIRONMENTAL ASSESSMENT  
FOR THE PROPOSED RENEWAL OF  
U.S. NUCLEAR REGULATORY COMMISSION LICENSE NO. SNM-124  
FOR NUCLEAR FUEL SERVICES, INC.**

**DOCKET NO. 70-143**

**OCTOBER 2011**

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**Table 3-7. Economic Data by County, State, and City Within the Region of Influence\***

<b>Region</b>	<b>2006–2008 Median Household Income</b>	<b>2006–2008 Median Family Income</b>	<b>2006–2008 Families Below Poverty Level (Percentage)</b>	<b>2006–2008 Per Capita Income</b>	<b>2006–2008 Individuals Below Poverty Level† (Percentages)</b>
Erwin‡	\$29,644	\$37,813	7.5	\$28,420 (2007)	13.0

\*U.S. Census Bureau. "U.S. Census Bureau American Fact Finder." 2010. <<http://factfinder.census.gov>> (27 March 2010).  
† ‡Tennessee Department of Economic and Community Development. "Tennessee Community Data Sheet: Erwin." Erwin, Tennessee: Tennessee Department of Economic and Community Development. 2010.

The median household income in the ROI in 2006–2008 was below that of the state, with the highest income in Washington County. The percentage of families and persons living below the poverty level in the ROI in 2006–2008 was the highest in Carter and Greene Counties. Both of these counties had higher percentages of people living below the poverty level than did the state as a whole.

### **3.3.4 Education**

Education information is discussed for Unicoi and Washington Counties, and for the towns of Erwin and Johnson City, Tennessee, as the number of NFS employees is concentrated in these areas.

Unicoi County currently has four elementary schools, one middle school, and one high school. All of these schools are located in Erwin (Unicoi County School District, 2010). Currently, the total school population for Erwin is 2,264 students with a student-to-teacher ratio of 16-to-1 (Local School Directory, 2010a).

Washington County currently has 10 elementary schools, 2 middle schools, and 3 high schools (Washington County School District, 2010). Johnson City currently has 15 public schools.

There are approximately 8,955 students in Johnson City, with a student-to-teacher ratio of 15-to-1 (Local School Directory, 2010b).

### **3.3.5 Environmental Justice**

In 2004, NRC published a final policy statement on the treatment of environmental justice (EJ) matters in NRC regulatory and licensing actions (NRC, 2004). The policy statement provides that one of the first steps in the EJ analysis is to identify the geographic area for which to obtain demographic information. Current staff guidance in NUREG–1748 (NRC, 2003), which the 2004 policy statement affirms, provides that the potentially affected area is normally determined to be within a 1.0-km [0.6-mi] radius of the center of the proposed site in urban areas and 6.4 km [4 mi] if the facility is located in a rural area. NFS is considered to be located in an urban area. Once the potentially affected area is identified, demographic data for the area are collected from the U.S. Census Bureau at the census block group level. The goal is to evaluate the communities, neighborhoods, or areas that may be disproportionately impacted (NRC, 2003).

Census data are obtained to identify both minority and low-income populations, if present, and this is done by determining the percentages of these populations within each of the census block groups. These percentages are next compared to percentages at the county and state levels. If the percentage of the block groups significantly exceeds that of the state or county percentage for either minority or low-income population, EJ must be analyzed in greater detail. Generally, a difference of 20 percent or more, or alternately, a block group percentage of 50 percent or more, for either minority or low-income population is considered to be significant (NRC, 2003). If these percentages or differences in percentage are not present, then a detailed EJ review is not considered to be warranted.

For the purposes of this review, the NRC staff used the population, demographic, and economic data for the Town of Erwin, Unicoi County, and the State of Tennessee, provided in Tables 3-5 and 3-7. As shown in those tables, the percentages of minority or low-income populations in Erwin do not significantly exceed the corresponding percentages for Unicoi County or for the State of Tennessee. For this reason, no further EJ analysis was conducted.

### **3.4 Climatology, Meteorology, and Air Quality**

#### **3.4.1 Meteorology and Climatology**

The region surrounding the NFS site typically experiences warm summers and relatively mild winters. The warmer, wetter weather is associated with the air masses originating over the Gulf of Mexico and the cooler, drier weather is associated with the polar continental air masses. A previous NRC EA for license renewal (NRC, 1999) relied on climate data from the Bristol Tri-City climate station located about 32 km [20 mi] northeast of the NFS site. This EA will also utilize data from the Erwin 1 W station, which is located in the same city as the NFS site. Figure 3-2 is a map showing the location of these two climate stations.

Table 3-8 contains climate data collected from 1971 to 2000. Erwin 1 W station data collected from 1971 to 2000 generated an annual mean temperature of 13.1 °C [55.6 °F] (National Climatic Data Center, 2002). On average, July is the hottest month and January is the coldest.

From 2001 to 2008 the average annual temperatures for this station ranged between 19.5 and 21.3 °C [67.1 and 70.3 °F] (National Climatic Data Center, 2009a). The Erwin 1 W station data collected from 1971 to 2000 generated an annual mean precipitation level of 116 cm [45.7 in] (National Climatic Data Center, 2002). As depicted in Table 3-8, this precipitation is fairly evenly distributed throughout the year. On average, July is the wettest month and October is the driest. From 2001 to 2008, the average annual precipitation for this station ranged between 84.96 and 134.3 cm [33.45 and 52.89 in] (National Climatic Data Center, 2009a). Bristol Tri-City station data collected from 1971 to 2000 generated an annual mean snowfall level of 38.3 cm [15.1 in]. Snowfall can be expected to start in October and end around April. Almost two-thirds of the snow falls in January and February (National Climatic Data Center, 2004).

The prevailing wind direction is from the southwest. Data from the Kingsport, Tennessee, airport generated a 30-year average wind speed of 3.1 m/s [6.9 mph] (NFS, 2009b). Onsite wind speed data from 1991 to 1995 generated an average annual value of 3.4 m/s [7.6 mph] (NRC, 2002).