2.6 ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

2.6.1 General

The preoperational environmental radiological monitoring program established a baseline of data on the distribution of natural and manmade radioactivity in the environment near the plant site. By comparing data from the operational program with this background information and with data from control monitoring stations, accumulation or buildup of radioactivity in the environment can be identified.

Sample collection and analysis was initiated in April 1968 and will continue indefinitely.

TVA participates in an Interlaboratory Comparison Program. Samples supplied by the comparison laboratory are analyzed by TVA and the results submitted to the laboratory for comparison.

Reports describing the results of the environmental radiological monitoring activities are submitted routinely to the Nuclear Regulatory Commission as required by the plant Technical Specifications.

2.6.2 Monitoring Program

A general discussion of the environmental radiological monitoring program follows. More specific information can be found in the BFN Offsite Dose Calculation Manual.

2.6.2.1 Atmospheric Monitoring

The atmospheric monitoring network is divided into three subgroups. Local air monitors are located on or adjacent to the plant site. Perimeter monitors are located in areas of high population density out to approximately 10 miles from the plant. Remote air monitors are located at distances greater than 15 miles.

Each monitor is capable of continuously sampling air through a particulate filter. In series with, but downstream of the particulate filter, is a charcoal filter used to collect iodine.

2.6.2.2 Terrestrial Monitoring

External gamma radiation levels are monitored at selected locations near the site boundary in different sectors around the plant.

Samples of fresh milk are collected routinely from selected dairy farms in the vicinity of the plant. In addition, vegetation grown near the plant is sampled during the growing season. Municipal water systems downstream from the plant as specified in the BFN Offsite Dose Calculation Manual are also sampled on a routine basis.

Six groundwater monitoring wells near the Low-Level Radwaste Storage Area were sampled quarterly for one year (9/82 to 6/83) to obtain baseline radiological data. The wells are all hydrologically downgradient from the storage area. Parameters analyzed were: gamma scan, gross beta count, strontium 89 and 90, and tritium. Results show very low background levels of radioactivity.

2.6.2.3 Reservoir Monitoring

Reservoir water samples are collected from sampling locations upstream and downstream from the plant. In addition, samples of sediment and biological media are also taken from the reservoir in the vicinity of the plant.

Due to the expected low concentrations of radioisotopes in the plant effluent and the dilution provided by the streamflow past the plant site, it is expected that the radioactivity levels in the reservoir will be well below the limits established in Plant Technical Specifications. Radioactivity levels in the river at the nearest downstream water supply intake resulting from accidental slug release are expected to be well below the effluent concentration limits in 10 CFR 20, particularly since public water supplies are located at considerable distances from the site. Adequate environmental monitoring shall be provided to ensure the potable water supplies will not exceed regulatory limits for radioactivity due to operations at Browns Ferry Nuclear Plant. Both public and private potable water supplies taking water from the Tennessee River downstream from the plant will be monitored periodically. One upstream water supply will also be monitored and used as a control station.

2.6.2.4 Other Monitoring

Samples of terrestrial biological specimens may be collected and analyzed at periodic intervals as required to aid in the evaluation of overall radiological control programs. Types and frequencies of such samples shall be determined by TVA.