

effluent monitoring program is in place at the facility to ensure releases to the environment are within Federal and State regulations and are also as low as is reasonably achievable (ALARA).

Gaseous exhausts from the controlled area are routed through High Efficiency Particulate Air (HEPA) filtration to remove entrained uranium particulates prior to discharge to the environment. Exhausts containing chemicals or uranium in soluble form are passed through aqueous scrubbers, preceding the HEPA filters. Each release stack is equipped with an isokinetic probe that continuously draws a sample through a fiberglass filter paper. The filter paper is changed daily and analyzed for uranium levels. Gaseous effluents are also sampled and analyzed for ammonia and fluoride.

The State of South Carolina has issued an air quality permit authorizing the use of the incinerator, boilers, and emergency diesel generators. The current permit expired on January 31, 1995. However, prior to expiration, Westinghouse submitted an application for renewing this permit and they are negotiating with the State over the terms of the new permit.

Liquid process wastes are treated in the Waste Treatment Facility (WTF) and then pumped to the Congaree River via a 4-inch pipeline. Waste treatment for the removal of uranium, ammonia, and fluorides consists of filtration, flocculation, lime addition, distillation, and precipitation in a series of holding lagoons. Compliance with Federal and State release limits for radioactive material in the liquid effluent is assured by passing the waste stream through on-line monitoring systems or by manual sampling and analysis on a batch basis. A review of the data indicates that radioactive liquid discharges have been within Federal regulations.

Site sanitary sewage is treated in an extended aeration package plant prior to discharge, either directly or through a polishing lagoon. The discharge effluent is chlorinated, and mixed with treated liquid process waste at the facility lift station.

Liquid process wastes and site sanitary sewage is combined and then passed through a final aerator, followed by pH adjustment as required and subsequently pumped to the Congaree River.

The WTF (advanced wastewater treatment) system provides additional uranium removal from major liquid waste streams. Other small waste streams are batch collected in quarantine tanks, sampled, and analyzed prior to discharge to the WTF. Other miscellaneous contaminated

liquid wastes, from sources such as laboratory drains and controlled area sinks, are discharged directly to a contaminated waste disposal system where they are collected, filtered, sampled, analyzed, and released to the WTF lift station. Wastes processed through the WTF are continuously sampled at the point of discharge. The samples are composited and each day's composite is then resampled and analyzed for gross alpha and gross beta activity.

The State of South Carolina reissued a National Pollutant Discharge Elimination System (NPDES) permit to Westinghouse authorizing discharge from the sanitary and process wastewater streams to the Congaree River. The previous permit expired on January 31, 1994. The current permit is based on the Anti-Backsliding Rule on existing permit limits, Best Professional Judgement (BPJ), and water quality considerations. Due to the Anti-Backsliding Rule none of the parameter limits were increased. However, based on BPJ and water quality considerations, the limits for ammonia, fluoride, fecal coliforms were decreased. In addition, an acute toxicity test requirement was added to the current permit.

A review of the NPDES permit data indicates that, for the most part, the licensee has complied with the permit limitations with the exception of the biological toxicity test. The licensee is working on methods to ensure compliance with this test.

Low-level contaminated wastes are stored in a Waste Storage Area. Prior to transfer to this area, contaminated items are visually inspected to ensure that no accumulation of radioactive material is present and are then surveyed and released in accordance with the appropriate contamination limits.

Solid wastes are sorted as combustible and noncombustible and are placed in specially designated collection containers located throughout the work area. The wastes consist of paper, wood, plastics, metals, floor sweepings, and similar materials which are contaminated by or contain uranium. Following a determination that the wastes are sorted properly, the contents are transferred to a waste processing station located in the Contaminated Control Area.

Materials that are suited for thorough survey may be decontaminated for free-release, or re-use, in accordance with the provisions of the license. Most combustible wastes are packaged in compatible containers, assayed for grams ^{235}U , and stored to await incineration. Noncombustible wastes and certain combustible wastes are

packaged in compatible containers, compacted when appropriate, gamma scanned to verify the uranium content, and placed in storage to await shipment for recovery or disposal. Contaminated wastes are shipped to a licensed burial facility.

Environmental Monitoring

The environmental media sampled for the environmental monitoring program at CFFF includes air, vegetation, groundwater, surface water, and soil. The program is designed to ensure compliance with State and Federal regulations and to assess the impact to the environment from site operations. Sample data for the period 1984 through 1994 were reviewed to determine if plant operations were impacting the environment.

Ambient air samples are collected at four locations onsite. The air samplers run continuously with the sample being collected on a particulate filter. This filter is changed weekly and, after the appropriate decay period, analyzed for gross alpha activity. Ambient air monitoring data indicate releases to the environment have been within regulatory limits.

Soil is collected from the four ambient air monitoring locations within the vicinity of the facility. The samples are analyzed for gross alpha and beta.

A review of the sampling data demonstrates that there is no indication of uranium accumulating in the soil at the sampling locations.

The soil was also analyzed for fluoride. Annual average fluoride values range from 0.1 ppm to 440 ppm. The annual average fluoride levels since 1992 have been less than 1 ppm. There is no indication that fluoride is accumulating in the soil.

Vegetation samples are collected from the four ambient air sampling locations. Samples are analyzed for gross alpha and gross beta. A review of the data indicates that there is no uptake of radioactive material in the vegetation.

The vegetation is also analyzed for fluoride. Annual average fluoride values range from 0.2 ppm to 3340 ppm. The annual average fluoride levels since 1992 have been less than 1 ppm. There is no indication of fluoride accumulating in the vegetation.

Surface water samples are collected from three locations onsite and three locations on the Congaree River. These samples are collected quarterly and analyzed for gross alpha and gross beta. A review of the surface water data from 1984 through 1994 indicates that liquid effluent discharges from the facility are not adversely impacting the onsite surface water or the Congaree River.