



Coal Combustion Residuals (CCR) Environmental Investigation Plan (EIP) Glossary

Environmental Investigation Plan (EIP)

The EIP lays out the proposed investigation that TVA will conduct to provide additional information on the storage and management of CCR at the site.

Background Soil Investigation

The constituents found in CCR are also found in nature. This investigation detects CCR constituent level in background soils. These levels can be compared to other soils to determine if they are higher than natural levels and determine to what extent CCR constituents also occur naturally in native soils in the area.

Benthic Investigation - Biological Studies

Surface streams are evaluated to determine the health of aquatic wildlife upstream, downstream and adjacent to the fossil plant site. These evaluations have two parts: (1) testing mayfly adults and mayfly nymphs (both depurated and non-depurated) for bioaccumulation of metals included in the CCR constituents (excluding radium); and (2) counting the types and numbers of different benthic macroinvertebrates in the surface streams to assess benthic community diversity.

Benthic Investigation - Sediment Studies

Sediment samples are collected from surface streams upstream, downstream and adjacent to the fossil plant site and analyzed using a phased approach. In Phase 1, all samples are analyzed for percentage ash, and shallow sediment samples collected from 0 to 6 inches deep are analyzed the CCR constituents. Deeper sediment samples collected for analysis of the CCR constituents are held pending the results of Phase 1. Phase 2, which is triggered by Phase 1 percentage ash results greater than 20%, consists of analyzing the deeper held samples from the location with > 20% ash for the CCR constituents and the potential collection of additional samples from the area.

CCR Material Characteristics

The ash and pore water in the landfills and surface impoundments at the fossil plant site are tested for CCR constituent levels. The ash is also subjected to leachability tests to determine the amount of CCR that can possibly leach and enter the pore water in the landfills and impoundments.

CCR Material Quantity

Surveys of the fossil plant site track the location and quantity of CCR to aid the overall site management, developing 3-dimensional model of CCR units and confirming the CCR volumes.

Dye Trace Study

Dye trace studies are used to investigate how water moves underground. An environmentally safe dye is released into an area, and the amount of time it takes for the dye to appear at the collection spot – and how much makes it there – are used to determine the flow path and the speed of the flow.

Exploratory Drilling

Exploratory drilling helps better understand what is in and under each CCR unit. It indicates (1) what is there: material types (CCR, soil) and properties (strength, permeability, etc.); (2) where it is (material locations); and (3) where the water level(s) are (material saturation).

External Geotechnical Evaluation

Existing geotechnical borings, laboratory testing results, slope stability analyses, etc. were reviewed for adequate documentation, appropriate methods and representative conditions. Existing data, if evaluated and found to be adequate, are used to support EIP information request responses.

Fish Tissue Investigation

Fish are captured using electroshocking and gill netting, then tissue samples are taken. The tissue samples are tested to determine the bioaccumulation of CCR constituents in the fish.

Groundwater Investigation

Groundwater samples are collected frequently to test for a number of quality measures. By testing groundwater regularly, TVA can track compliance with regulatory permits and requirements.

Hydrogeologic Investigation

These investigations consist of installing monitoring wells to collect information about groundwater. This helps to better understand how groundwater moves in a particular area, as well as how it interacts with the surrounding soils and rocks. It is also used to study water quality changes.

Seepage Investigation

A visual inspection is conducted by walking the dikes and toes of the landfills and impoundments at the fossil plant site to identify potentially active seeps. Water quality measurements is taken at surface stream banks to identify potential seeps at inaccessible areas. The soils and water at active seep areas are tested for CCR constituent levels.

Slope Stability

These analyses help determine that the slopes of the CCR units are stable. Multiple locations around each CCR unit are checked for stability. Normal (long-term) conditions and earthquake conditions are evaluated through this process.

Surface Stream Investigation

Surface stream sampling is conducted in streams and rivers upstream, downstream and adjacent to the fossil plant site to determine CCR constituent levels.

Water Balance

Water balance studies are used to better understand how water moves into, stays within and leaves a defined area that can be as large as a valley or watershed, or as small as a single piece of land. From a big picture perspective, these studies are used to measure all of the sources of water entering this area (rainfall, rivers, etc.) and how much leaves. The studies can also be used to see the effect human activities are having on these flows and how they are changing over time.

Water Use Survey

A water use survey is an investigation of private water supplies (e.g., domestic wells, springs) located within a 1/2- to 1-mile radius of the fossil plant site. It is used to evaluate the quality of groundwater used in these private wells.