TALLASSEE SHOALS HYDROELECTRIC FACILITY
Middle Oconee River
Athens Vicinity
Clarke County
Jackson County
Georgia

HAER NO.GA-59

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
Department of the Interior
Southeast Region
Atlanta,Georgia 30303

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Tallassee Shoals Hydroelectric Facility

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Location:	The Middle Oconee River, on the Clarke and Jackson County boundary, approximately seven miles northwest of Athens, Georgia.
Date of Construction:	1900-1902. Rehabilitated 1926-1927
Present Owner:	Oglethorpe Power Corporation 2100 East Exchange Place Tucker, Georgia 30085
Present Use:	Presently not in use. Planned 1986 start-up date as a hydroelectric facility with a potential 1.9 megawatt capacity.
Significance:	The Tallassee Shoals Hydroelectric facility represents the beginning of electric power generation in the Athens, Georgia, area and enjoys a local level of historic significance.
Historian:	Betty A. Smith, 1981

Tallassee Shoals in Athens, Georgia, is the site of the existing Tallassee Shoals hydro facility. The Tallassee Shoals plant, constructed in 1902, was one of three plants built to bring electricity to Athens. Prior to this in 1891, a small steam plant near Mitchell's Bridge supplied electricity to this area. By 1896, more power was needed and a hydroelectric plant was built at Mitchell's Bridge. Also, by this time, electrical power was being used for other purposes in addition to running the electric street cars. In 1898, an additional turbine was installed at the Mitchell's Bridge plant. By 1900, the company (Athens Railway and Electric Company) needed additional generating capability, thus creating the Tallassee Shoals hydro facility. "A substation was erected on Prince Avenue and three phase electric current from Mitchell's Bridge was merged with that generated and transmitted from Tallassee on a common switchboard and from that switchboard distributed throughout the city." (Rowe, 1923:18).

When low water caused disruption of power generation in 1904, a combined steam plant and substation was installed at the site of the original steam plant. The steam turbine installed there was the first horizontal turbine used in Georgia. (Ibid.)

In 1911 the water power at Barnett Shoals was developed into a third hydroelectric plant. By 1923, the Athens Railway and Electric Company was generating nearly 10,.000 H.P. (Ibid.)

While these developments were occurring in Athens, other hydroelectric facilities were being constructed in other Georgia cities. In 1908, the Georgia Power Company was organized and, between 1926-28, these hydroelectric facilities were consolidated under Georgia Power Company. (Wright 1938: 212; 215).

Georgia Power continued utilizing the Tallassee Shoals hydroelectric plant until 1960. After that time, the equipment was removed from the powerhouse and, in 1964, the dam was breached.

The following is a description of the original Tallassee Shoals power plant, taken from Hall and Hall (1921:20-21):

Tallassee Shoals Power

> Completed in 1902, water backed four miles and covered 189 acres. The power head is 45 feet.
>
> The dam is 30 feet high, made of dry rock masonry and timber floored, and has rock abutment. The spillway is 366 feet long.
>
> The canal has 270 square feet of waterway and is 1,200 feet long.
>
> The powerhouwe is of brick and stone masonry 30 feet by 50 feet. Tailrace is 40 feet wide and 700 feet long.

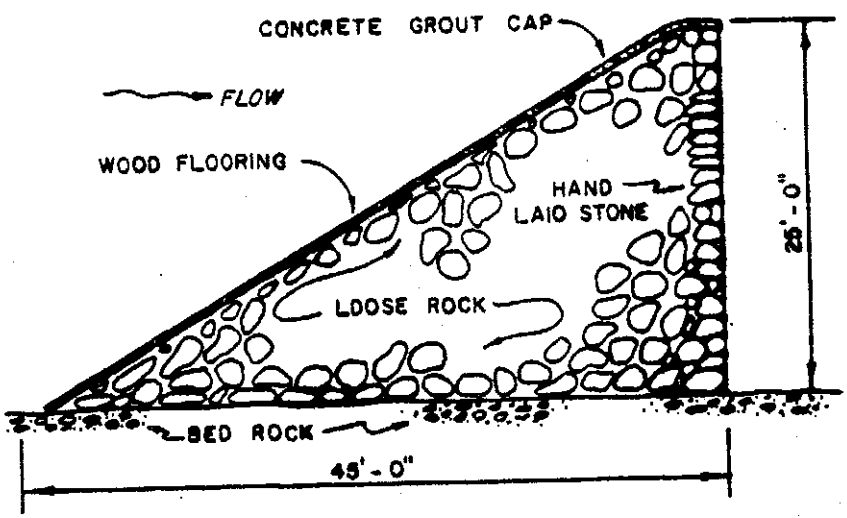
Machinery. Two horizontal, 24-inch Victor turbines, 360 r.p.m., 650 H.P., each, directly connected to 450 kW. generators, 3-phase, 60-cycle, 12,000 volts. Total wheel capacity, 1,300 H.P.

Between 1926 and 1927, Georgia Power Company replaced the Victor turbines with two Leffel turbines with a combined output of 1,500 kW. The foundation of the original powerhouse was expanded to accommodate more modern transformers and associated electrical equipment, in addition to the new turbines.

A more technical description of the dam and associated facilities, as they exist today, is given below. This description is the result of field investigations and an extensive literature search.

The dam is approximately 365 feet long, 45 feet wide, 25 feet high at its maximum section and has a three-foot wide top. It is constructed of quarry rock, varying in size from a few inches up to several cubic yards. The upstream face of the dam is sloping on approximately a 1.5 horizontal to 1.0 vertical. The downstream face is essentially vertical.

The downstream vertical face was constructed by hand, placing various size rocks in bands four to six feet wide. These rocks are held in place by the use of cement mortar. The gravel for grout in the cement is limestone, perhaps from northwest Georgia (Smith, B.A.). Some surface or dental grouting was performed on the downstream vertical face. Upstream of the vertical band, rock appears to have been placed by hand with some mechanical help. This rock varies in size from small boulders up to large rock in the range of two to three cubic yards. At least some of the rocks used in the construction of the dam were quarried and brought into the area. (Ibid.) Smaller fragments were used to fill in the voids created by the placement of the larger rock. A concrete grout cap was constructed over the top of the dam to give a uniform flow area as the water flowed over the dam. The front face of the dam appears to have been covered with wooden boards to help reduce seepage through the dam. The dam was breached in 1964, creating a 70-foot wide hole near the middle of the channel.



The headrace gates at the original site were located in the left (east) abutment and, as of 1984, were in a state of complete disrepair. A sluiceway, six feet, eight inches high and four feet wide, is located just to the west of the head gates. The top of the sluiceway is approximately 14 feet, 8 inches below the top of the dam.

The headrace to the powerhouse is approximately 1,200 feet long, extending from the aforementioned gates to the inlet to the penstocks. The channel creates an additional 15 feet of head at the facility. The headrace is an earthen canal, approximately 20 feet wide on the bottom with sideslop at approximately two horizontal to one vertical. The channel is heavily overgrown with small trees and brush and, in several places, has been destroyed where access roads to the river have been graded across it.

The transition structure, from the earthen channel to the penstock, is a combination stone and reinforced concrete structure. When the site was abandoned, large blocks of stone and great quantities of earth was pushed into the openings, evidently to prevent accidents.

The two penstocks, which funnel the water from the transition structure to the two turbines, are approximately eight feet in diameter and are 60 and 100 feet long respectively. They were installed in 1926 and, as of 1984, appeared to be in sound condition.

The powerhouse foundation and turbines are all that remain of the original structure. The turbines are of the vertical type, James Leffel, circa 1926, with adjustable wicket gates. There are two in place at the site. There are two in place at the site. Records indicate an operating rating of 750 kW (approximately 1,010 horsepower) for this type of turbine.

The powerhouse superstructure at Tallassee was destroyed when the site was abandoned in the early 1960s. It was a brick structure, housing the previously-described electrical equipment and included a bridge crane to facilitate raising the various components of the turbine/generator for removal and repair.

There are no generators, switching equipment or transformers on the site now. The original generators were 750 kW, 23,000 volt, 3 phase, 60 cycle, mounted directly over the turbines.

The tailrace from the powerhouse back to the stream is approximately 700 feet in length. The lower end of the tailrace is silted in and no longer drains back into the river except during periods of unusually high rainfall.

Oglethorpe Power Corporation is rebuilding the Tallassee Shoals Dam, in order to reactivate the hydroelectric power plant. When the dam is completed, waters will be impounded to a full pool level at the 645 Mean Sea level contour.

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