SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 08001111 Date Listed: 11/25/08

Property Name: Hale's Bar Dam Powerhouse

County: Marion State: TN

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Patrick Andrus
Signature of the Keeper

11/28/2008
Date of Action

==========

Amended Items in Nomination:

Section 8: Period of Significance; Criteria consideration

The period of Significance is hereby amended to 1912-1958. Criteria Consideration "G" is hereby deleted.

The industrial significance of the Hales Bar Dam Powerhouse does not meet the threshold of "exceptional significance." When constructed, the dam provided the only reliable source of power for commerce and industry in the surrounding area. In the 1930s, the dam was acquired by the TVA and became one of many in a complex of hydro dams. While continuing to be a significant provider of electricity until closed in 1968, its potential exceptional significance waned with the construction of other TVA dams in the 1930s.

The Tennessee State Historic Preservation Office was notified of this amendment.

DISTRIBUTION:

National Register property file
Nominating Authority (without nomination attachment)

NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of the Interior
National Park Service

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National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Hale's Bar Dam Powerhouse
other names/site number N/A

2. Location

street & number 1265 Hale's Bar Road N/A☐ not for publication
city or town Haletown N/A☐ vicinity
state Tennessee code TN county Marion code 115 zip code 37340

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set for in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally ☒ statewide ☐ locally. (See continuation sheet for additional comments.)

E. Patrick McIlwain, Jr. October 13, 2008
Signature of certifying official/Title Date

State Historic Preservation Officer, Tennessee Historical Commission
State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See Continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:
☑ entered in the National Register.
☐ See continuation sheet
☐ determined eligible for the National Register.
☐ See continuation sheet
☐ determined not eligible for the National Register
☐ removed from the National Register.
☐ other, (explain:) _____

Signature of the Keeper Date of Action

Patrick Andrus 11/25/2008

5. Classification

Ownership of Property
(Check as many boxes as apply)

- ☒ private
- ☐ public-local
- ☐ public-State
- ☐ public-Federal

Category of Property
(Check only one box)

- ☒ building(s)
- ☐ district
- ☐ site
- ☐ structure
- ☐ object

Number of Resources within Property
(Do not include previously listed resources in count)

Contributing	Noncontributing	
1		buildings
		sites
		structures
		objects
1		Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of Contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

INDUSTRY/energy facility

Current Functions
(Enter categories from instructions)

WORK IN PROGRESS

7. Description

Architectural Classification
(Enter categories from instructions)

Classical Revival influence

Materials
(Enter categories from instructions)

foundation Concrete; stone
walls Concrete; steel
roof Metal; steel; concrete
other Glass

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ **B** Property is associated with the lives of persons significant in our past.
- ☐ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all boxes that apply.)
Property is:

- ☐ **A** owned by a religious institution or used for religious purposes.
- ☐ **B** removed from its original location.
- ☐ **C** birthplace or grave.
- ☐ **D** a cemetery.
- ☐ **E** a reconstructed building, object, or structure.
- ☐ **F** a commemorative property
- ☒ **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)
INDUSTRY

Period of Significance
1912-1968

Significant Dates
1912, 1968

Significant Person
(complete if Criterion B is marked)
N/A

Cultural Affiliation
N/A

Architect/Builder
Bogart, John, engineer

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS): N/A

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ Previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☐ State Historic Preservation Office
- ☐ Other State Agency
- ☐ Federal Agency
- ☐ Local Government
- ☐ University
- ☒ Other

Name of repository: Nonie Webb (Hale's Bar Historian)

10. Geographical Data

Acreage of Property Approximately 2 acres Sequatchie, TN 100 SE

UTM References
(place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	16	633655	3878992	3			
2				4			

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Paul Archambault, Historic Preservation Planner
organization Southeast Tennessee Development District date May 30, 2008
street & number P.O. Box 4757 telephone (423) 424-4266
city or town Chattanooga state TN zip code 37405

Additional Documentation

submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 0r 15 minute series) indicating the property's location

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items
(Check with the SHPO) or FPO for any additional items

Property Owner

(Complete this item at the request of SHPO or FPO.)

name James Figuerado
street & number 1265 Hales Bar Road telephone (239) 707-4687
city or town Guild state TN zip code 37340

VII Physical Description

The Hale's Bar Dam Powerhouse is situated along the east bank of the Tennessee River at 1265 Hales Bar Road in unincorporated Haletown, Tennessee in Marion County, approximately 5 miles east of Jasper. The powerhouse juts out into the Tennessee River at the Hale's Bar Marina near the foot of Aetna Mountain. Located across the river on the west bank are the remnants of the Hale's Bar Lock, which is situated near the foot of Cedar Mountain and Little Cedar Mountain. Completed in 1912, the Hale's Bar Dam Powerhouse contained the generators and transformers necessary to generate electricity from the river. An addition to the powerhouse's west elevation was completed circa 1952, when the Tennessee Valley Authority added two more generators to increase energy production in the region. Rectangular in shape, the concrete and steel frame powerhouse features a flat metal roof and original metal multi-light windows. Although the generators, transformers, and switchboard are no longer present, the interior features original doors, windows, and stairs.

The Hale's Bar Powerhouse consists of three contiguous sections. The east and middle sections, both completed in 1912, feature the transformer house and the operating room, respectively. The west section, completed by TVA in 1952, is a continuation of the operating room. The powerhouse sits on concrete piers that rest on a stone foundation. The exterior of the east and middle sections is dominated by the original metal multi-light windows. Although some of the glass panes have been broken, the window units remain intact. The top of each bay in the east and middle sections has a corbelled design, while the west section is devoid of ornamentation.

The east section, or transformer house, is 133 feet x 64 feet and is constructed with concrete and a steel frame. The transformer house is four bays wide and five bays deep. Its metal roof is flat with concrete cornices and includes a single bay transmission line room on the northeast corner. The original metal multi-light windows are slightly recessed and each features a casement window in the center. Each window opening is divided vertically by projected concrete, rectangular pilasters.

The east facade faces towards Aetna Mountain and features a large two story entrance with a sliding replacement metal door in the southernmost bay. The first story also includes a wood door with a six-light transom near the center of the façade. A one story brick and concrete storage room extends north at the northeast corner. The large bay entrance, located at the southeast corner of the façade, serves as the main entrance for the powerhouse. The north two bays on the second story feature two twenty-five-light windows with slightly projected, rectangular-shaped concrete panels directly above. The third story features three twenty-light windows and a metal vent, and the fourth story has four fifteen-light windows. On the northeast corner is a one story projection that is one bay wide and five bays deep. It has five fifteen-light windows on its north and south elevations and three transmission line connectors on its east elevation.

The transformer house's south elevation features five, thirty-five light window units on the first story. Each unit contains two six-light casement windows. The second and third stories each have five twenty-light windows. The south elevation includes a sub-floor, which is partially inundated by water.

The two story middle section of the powerhouse extends west from the transformer house and is approximately 220 feet x 66 feet. The south elevation has sixteen bays. Each bay of the first story has a thirty-five-light window unit containing two six-light casement windows. Plain concrete panels are located between the first and second floor windows. The second story has twenty-light window units in each bay. The bays are separated by pilasters that rise to a concrete cornice.

The south elevation's sub-floor, located at water level, features sixteen twelve-light windows with metal framed window guards. The substructure of the powerhouse extends approximately 75 feet below ground and is inundated by the Tennessee River. Originally the sub-floor featured seven open bays that allowed water to be released from the turbines' wheels to a 450 foot long area below the powerhouse called a tail race. Water could be passed from the upper to the lower river at a rate of 5,000 cubic feet/second at its highest rate.

In 1952, the Tennessee Valley Authority completed an addition onto the original powerhouse's west elevation. The three-story concrete addition was constructed to add two large generators that each produced 23,400 KW of energy. Like the east and middle sections, it is constructed of concrete with a flat metal roof supported by steel beams. Both the north and south elevations feature ten multi-light windows at the top of the walls. A large majority of the windows have been broken due to vandalism. The lower portions of the elevations are plain and do not have any decorative elements. The west elevation features a single plain door and a concrete deck with a metal railing and concrete steps leading down to the water chambers on the north elevation. The north elevation features six water chambers that provided for the control of water flow to the turbines (sub-floor).

The north elevation of the middle section features fourteen, thirty-five-light windows on the first story with one window opening filled with concrete. It also features an entrance with two wood doors and a transom window. Located above the first story windows are rectangular-shaped concrete panels that are slightly projected. The second story has fourteen twenty-light window units.

Along the north elevation of the middle section are twelve water chambers. Ten water chambers are approximately 15 feet in length, 10 feet wide, and 15 feet in depth and the remaining two chambers are approximately 25 feet in length and 15 feet wide with a depth of 15 feet. The chambers served as holding tanks to control water flow to the turbines below the operating room in the lower section of the powerhouse. Each water chamber originally featured a steel door.

The first story of the east section's north elevation is covered by an earth embankment. There are four twenty-five-light windows (boarded) and two wood doors with transoms (boarded) located on the second story and five eight-light windows on the third story. The middle window panes have been removed from the third story windows. Located above the second and third story windows are rectangular-shaped concrete panels that are slightly projected.

Most of the powerhouse's interior is open space. The east section of the powerhouse (transformer house) and a portion of the middle section feature three floors with multiple rooms that once housed the switchboard and

transformer controls, oil circuit breakers, and multi-lightning arresters. The turbines were located in the powerhouse's sub-floor. The interior walls and floors are concrete and generally lack decorative elements.

The east section, or transformer house, interior features three floors that originally contained the generator buses, oil circuit breakers, and the multiplex lightning arresters. The first floor of the transformer house is composed of reinforced concrete and the upper floors and roof are constructed of flat concrete arches located between steel beams. The ceilings and floors are supported by steal beam supports. The transformer house is divided from the operating room by a twelve inch thick concrete wall.

The transformer house's first floor may be accessed through an entrance on the east facade or via the powerhouse's main corridor located along the south end of the interior. The east facade pedestrian entrance leads into multiple office rooms. It features an east-west hallway that leads to the switchboard control room and the operating room on the west end. The main corridor on the south end of the interior also provides access to the operating room. The north wall of the main corridor features five open bays divided by concrete walls. The bays are visible from the main corridor and originally housed generator and circuit equipment.

The second floor is accessed by a metal stairway with wood steps via the powerhouse's main corridor. A main east-west hallway leads to the entrances of multiple office rooms in the east section and the second story switchboard control room, located on the west end. The second story offices may also be accessed through a double door entrance located near the center of the north wall.

The third floor is accessed via a staircase from the second floor's west end. The east section of the third floor opens up into a large room with high ceilings that feature visible steel beam supports and a concrete ceiling. This large area is divided into three sections with clay tile walls that were added in the 1950s. A metal staircase, leading to the rooftop transmission house, is located in the northeast corner of the room. During operation, transmission lines connected with steel towers on Aetna Mountain (east), which connected with 175 towers leading to the sub-station in Chattanooga. The third floor's west section includes a control room, restroom, and an additional office.

The remainder of the powerhouse's interior is all open space. The first and second story windows and metal truss roof supports are visible from the first floor. The powerhouse presently serves as a warehouse for boats at the Hale's Bar Marina, but once contained 14 generating units that produced 2,100 hp each. The location of the generators can be seen as round shapes on the powerhouse floor. They were removed in the 1970s when the Nickajack Marina purchased the property.

Also located in the powerhouse floor is a metal spiral staircase near the center of the operating room floor and rail tracks along the south wall. The spiral staircase descends to the sub-floor and a tunnel that ran under the dam. The sub-floor and tunnel are presently filled with water. During the lock and dam's use, the stairwell was used frequently by workers and residents who crossed the river through the narrow, dimly lit tunnel underneath the dam.

Rail car tracks originally extended the length of the operating room and the main corridor along the south wall of the powerhouse. Equipment for the powerhouse could therefore be easily moved in and out of the building utilizing the rail. Currently the rails are only extant in the southwest portion of the operating room.

Sitting above the operating floor on the ceiling of the powerhouse's east end is a 30-ton Morgan Crane. It spans the width of the powerhouse on parallel tracks that run the length of the operating room. During the powerhouse's operation, the crane was used to move generator and turbine equipment.

The interior of the TVA addition, like the original operating room, is open space. The floor that contained the turbines and generators is approximately 15 feet lower than the original operating room floor. The east end features a metal railing and concrete steps that descend to the sub-floor, which is presently filled with water. The north wall features a concrete walkway with a metal railing. The walkway leads to a concrete staircase that descends to the sub-floor along the west wall and a concrete staircase that ascends to a concrete landing with lockers on the upper west wall. An exit door leading out to the west elevation of the powerhouse along the Tennessee River is located on the upper landing.

The powerhouse has retained a high degree of its original features. Most of the generators, turbines, oil circuit breakers, and transformer equipment were removed in the mid-1970s. The main floor in the operating room presently contains a two-tier steel rack housing boats along the north wall. The sub-floors are not accessible because they are presently inundated with water.

VIII Statement of Significance

Hale's Bar Dam Powerhouse in Haletown, Tennessee was completed in 1912 as part of the construction for the Hale's Bar Lock and Dam on the Tennessee River in Marion County. It is being nominated to the National Register of Historic Places under Criterion A for its statewide significance in industry. In 1904, an Act of Congress allowed the first multipurpose lock and dam to be built on the Tennessee River. Hale's Bar Dam was the first dam in the country that both improved river navigation as well as providing hydroelectric power. The site chosen for the dam was at Hale's Bar, located 33 miles below Chattanooga on the Tennessee River. Josepheus Conn Guild first conceived of the idea for the dam, and through his efforts, as well as the financial backing of C.E. James and Anthony Brady, work on the dam began in 1905. The dam and lock operated from 1913-1968 before the Tennessee Valley Authority (T.V.A.) constructed a new dam 6.4 miles downstream. Today, the Hale's Bar Dam Powerhouse is the last remaining major feature associated with the dam, and serves as a physical reminder of the early efforts in Tennessee to construct a lock and dam system to provide hydroelectric energy to the region. The powerhouse meets criterion consideration G as an important early example of a hydroelectric development that continued to serve a broad region in southeast Tennessee until 1968.

Early hydroelectric efforts were typically small in scale and provided limited amounts of power to a small area. Difficulties in transmitting electricity over a large distance and the large amount of capital required to build a hydroelectric facility restricted the location of these developments to populated areas that had a demand for electricity and close access to a river. Additionally an appropriate site had to be located that had sufficient flow rate and volume. As a result the majority of early hydroelectric efforts were built in Middle and East Tennessee at or near the sites of mills that had previously been able to utilize a river.

The first city in Tennessee to develop a hydroelectric station was Winchester in neighboring Franklin County. This dam, known as 'The Loop', was built in 1901 on the Elk River and provided limited power for the community. Other early hydroelectric sites include Lawrenceburg No. 1 Hydroelectric Station (NR 4/20/1990) built in 1906 on Shoal Creek in Lawrence County; and Sparta Hydroelectric Station (NR 4/20/1990) built in 1909 on Calfkiller River in White County.

The need for hydroelectric facilities that could serve larger regional areas grew as the demand for electricity increased. The facilities known as Ocoee No. 1 (NR 7/5/1990) and Ocoee No. 2 (NR 10/31/1979), completed in 1912 and 1913 in Polk County, were among the first in the state to produce power for multiple communities. They served the communities of Athens, Chattanooga, Cleveland, Knoxville, Lenoir City, Loudon, and Sweetwater.[1] The Ocoee facilities, along with Hales Bar Dam, represent the beginning of a shift in hydroelectric power in the state from small scale efforts to larger scale facilities serving a broader area. At the time of its construction Hales Bar Dam was the largest hydroelectric station in the state.

[1] Jim Jones. "Pre-TVA Hydroelectric Development in Tennessee, 1901-1933." National Register Multiple Property Documentation Form. 1990.

Before the idea for the Hale's Bar Dam was conceived, the Tennessee River's passage through Hamilton and Marion counties was well known for its perilous whirlpools through a mountainous gorge. "The Pot," "The Suck," and "The Skillet" were the treacherous whirlpools that presented many challenges to the navigators on the Tennessee River. Since 1830, the U.S. Government was advised to improve the section of the Tennessee from Chattanooga in Hamilton County to Shellmound in neighboring Marion County. The 33 mile stretch of river was the most dangerous of the entire 652 miles of the Tennessee River.[2]

In 1900, a young Tennessee engineer by the name of Josepheus Conn (J.C.) Guild introduced a plan to both tame the water and harness it to provide energy to Tennessee. Mr. Guild met with his friend, Major Dan E. Klingman from the regional United States Army Corps of Engineers to discuss the building of a lock and dam and powerhouse. After the initial discussion, Major Klingman felt it was a workable plan, and together, they estimated the cost at $3 million dollars. The only shortfall was the lack of funding. Klingman doubted the U.S. Congress would appropriate money for its construction.[3]

J.C. Guild called upon local builder, Charles E. (C.E.) James, to provide financial support for the project and U.S. Congressman John A. Moon (3rd District) and U.S. Senator William B. Bate to provide legislative support in Washington D.C. Together, Moon and Bate influenced Congress to create a bill that would allow for the construction of the lock and dam. In 1904, permission was granted through an Act of Congress for the erection of the first multipurpose lock and dam system along the Tennessee River.[4] The congressional act authorized the city of Chattanooga to build a lock and dam on the Tennessee River. It further stipulated that private enterprise could build a lock and dam if the city was not able to do so. This was a precedent setting act as the Chattanooga and Tennessee River Power Company (formed and organized by J.C. Guild and C.E. James) became the first private company to be permitted to construct a dam over a large, navigable river in the United States.

Hale's Bar Dam was also unique at this time in that it both improved the river and provided power. An article written by the Byron Burt, general manger of the Chattanooga and Tennessee River Power Company, notes that Hale's Bar Dam "is the first case where a private company was permitted to construct a dam across a large navigable river, and where river improvement and power development was combined. The development a Keokuk, Iowa and those in Alabama are other and later examples."[5] Prior to this, hydroelectric developments did not include facilities to aid in navigation of the river.

The Chattanooga and Tennessee River Power Company chose the fertile farmland near Jasper, Marion County, Tennessee for the site the lock and dam. This area, located approximately five miles east of Jasper on property that belonged to George Hale, appeared adequate because it featured a natural river crossing bar.

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[2] Webb, Nonie. *Hale's Bar Lock and Dam History.* (Unpublished), 2005, p. 6.
[3] *Ibid.*
[4] *Ibid.*, pp.6-7.
[5] *Ibid.*,p. 37. Lock and Dam No. 19 Historic District on the Mississippi River at Keokuk, Iowa was listed in the National Register 3-10-2004. This multipurpose lock and dam was begun in 1910 and completed in 1913. Wilson Dam on the Tennessee River in Alabama was built in 1918 and was listed as a National Historic Landmark on 11-13-1966.

With the work set to begin in October of 1905, and the projected cost rising above $3 million, the project received a major financial boost from New York financier Anthony Brady.

W.J. Oliver and Company of Knoxville, TN was selected as the contractor to build Hale's Bar (named in honor of the Hale Family) Lock and Dam and the foundations for the powerhouse. With the job expected to last up to two years, Oliver and Company estimated the project would take 1600 carloads of cement with between 400,000 and 500,000 yards of earth and solid rock expected to be excavated. On the morning of October 18, 1905, work began on the lock and dam's foundation with the use of very large steam shovels, masonry machinery, and concrete mixers. A workforce of approximately 500 men laboring day and night six days a week was necessary to complete the project in a timely manner.[6]

A village literally grew overnight because of the large workforce that was hired to complete the massive project. Housing was constructed on both sides of the river to accommodate approximately 1500 workers and their families that quickly settled near the work site. Cottages were erected along the hillside at the foot of Aetna Mountain for the superintendents, engineers, foremen, and clerks. In 1907, the village became known as the Town of Guild, which was named in honor of Josepheus Conn Guild after his death earlier that year. The town included a hotel with two dining rooms, commissary, post office, bakery, boxing amphitheater, baseball park, athletic club, police station, telephone service, sewer and electric system, steamboat wharves, and railroad station.[7]

In November 1907, W.J. Oliver and Company abandoned the Hale's Bar Dam project because the estimated cost exceeded the company's budget and the project faced an extension. The contractors experienced some unforeseen difficulties as the first cofferdam began eroding and leaking which caused problems to the foundation. As a result, Oliver and Company invested more money in the project than was originally estimated. Oliver eventually sued the Chattanooga and Tennessee River Power Company and was awarded $500,000. After a couple of other selected contractors were unwilling to finish the job, Baillie and Dumary of New York was selected as the new contractor in March of 1908.[8]

The lock and dam's construction was under the supervision of U.S. Government engineers and was designed by Major H.C. Newcomer. The lock contained 57,000 cubic yards of concrete and featured a 300 foot long chamber between gates with a 60 foot width. The walls of the locks were 59 feet high and the steel gates were operated by electric motors. The dimensions for the main dam, constructed of cyclopean concrete, were 45 to 65 feet (40 feet high above the water level) in height above the bedrock where it rested on a base of 65 feet in width. The crest of the dam was 8 feet in uniform width and a total length of 1,200 feet between ship lock and the bulkhead wall at the end of the power way.[9]

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[6] *Ibid.*, pp. 9-10.
[7] *Ibid.*, p. 12.
[8] *Ibid.*, pp. 13, 21.
[9] *Ibid.*, p. 22

The powerhouse began construction circa 1909 and was completed in 1912. The powerhouse and hydraulic works were designed by John Bogart, an engineer from New York. It is constructed of concrete with a steel frame on the east bank of the river at the end of the dam. The powerhouse features seven bays with two, 4,200 hp generating units in each bay. Its original dimensions were 240 x 98 feet with a substructure 75 feet below the ground level. The 64 x 113 foot, concrete and steel transformer house, located on the east end of the powerhouse, is four stories and served as an extension of the powerhouse featuring fourteen 3,000 KW transformer units and a switchboard apparatus.[10]

Both the lock and dam proved very difficult during construction in large part because the foundation of the dam rested on limestone rock. The limestone rock, filled with seams, eroded quickly due to the active flow of water. The open seams were filled with mud, gravel, and sometimes clay. To control the water leakage, the engineers decided to sink drill holes on the footing and fill them with grout. Seams were evident on both the surface and the subsurface of the limestone rock. However, many cavities and caves allowed for a great amount of water to pass through it. Despite these difficulties, the engineers were able to make it work, at least temporarily, through the use of cofferdams and sealing the subterranean cavities with grout.[11]

After eight years of construction, the Hale's Bar Lock and Dam was completed in November of 1913 at a cost of approximately 10 million dollars. At the time, the Hale's Bar project was one of the largest hydroelectric projects in the United States. The formal opening for the lock and dam took place on November 13, 1913 with officials and special guests embarking on a steamer in Chattanooga near Market Street in the morning. Arriving at approximately 11 a.m., a luncheon with special presentations regarding the construction and operation of the lock and dam took place. In the afternoon, Jane and Annie Grant, the granddaughters of the late financier Anthony Brady, turned on the power and lights in the powerhouse officially beginning operations at the dam.[12]

In ongoing attempts to prevent leaks at the Hale's Bar Dam workers known as "The Rag Gang" were hired. Water inlets would be sealed by the use of heavy rags, old carpets, or burlap with cinder concrete and strips of mesh. Because the original river bed was loose rock with fissured rock below, the inlets of water never ceased. As a result, "The Rag Gang" remained employed and were paid $1.00/day.[13]

On May 27, 1922, the Tennessee Electric Power Company (TEPCo) was formed with the merger of the Chattanooga Railway and Light Company, Tennessee Power Company, and the Chattanooga and Tennessee River Power Company.[14] The following year, TEPCo began work on the Hale's Bar Steam Plant, which was located directly east of the powerhouse. The plant featured two concrete stacks and multiple boilers because

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[10] *Ibid.*, pp. 14-15, 22

[11] *Ibid.*, p. 24. See also, Rogers, J. David. *Hale's Bar Dam and the Potential Pitfalls of Constructing Dams on Karst Foundations.* University of Missouri-Rolla: Department of Geological Engineering. Presentation, Fall 2005.

[12] *Ibid.*, p. 35.

[13] *Ibid.*, p. 46.

[14] The Chattanooga and Tennessee River Power Company owned the Hale's Bar Lock and Dam until 1922 when the Chattanooga Railway and Light Company and the Tennessee Power Company merged to form TEPCo.

of increasing demand. Each stack unit produced a capacity of 26,500 hp and each boiler had a capacity of up to 53,000 hp. The steam plant, designed by the E.W. Clark Engineering Corporation of Columbus, Ohio, was the only one constructed by TEPCo.

The Hale's Bar Private School was constructed by TEPCo in 1922 on the lower hillside in Guild near the steam plant. The school included two classrooms, a cloak room, girls' restroom (ground level), boys' restroom (basement), a furnace, and a water fountain. The large classroom served grades 5 thru 8 and the small classroom known as the "Little Room" served grades 1 thru 4. Children who lived on the west bank of the river (lock side) had to travel across the river in a dimly lit and damp tunnel that ran underneath the dam. Once they arrived to the east side of the river, the children made their way up the spiral steps and walked through the powerhouse and on to the schoolhouse. The narrow tunnel served as common passage for the workers and children on a daily basis.[15]

In 1939, the Tennessee Valley Authority, founded in 1933, took over operations at the Hale's Bar Dam. TVA was known for dam building and the mass production of hydroelectric energy. Like its predecessors, TVA faced the challenges of a dam with frequent leaks and water that mainly flowed under the dam instead of over it. Due to stubbornness and persistence, the dam was constructed regardless of its limestone base and extensive fissuring. The problem was initially recognized but the engineers did not realize how great of a problem this would be for the dam's foundation. Immediate investigations were made when TVA acquired the dam, and by this time, the leakage had nearly doubled. As a result, this warranted prompt repair on the foundation from 1940-1943.

With TVA in control, changes were not only made to the dam's foundation, but to the powerhouse and the workers' village in the Town of Guild. In 1942, twenty-six families in the Hale's Bar Village were presented with options to sell their property when TVA decided to raze 15-20 buildings that were associated with the lock and dam. When the Town of Guild was deserted, the post office moved to nearby Haletown the same year. Between 1946-1949 the dam was raised by 5 ¾ feet, and by 1952, TVA added two more generators (48,600KW/unit) at an estimated cost of 15 million dollars. The generators were housed in a new extension constructed on the powerhouse's west elevation.[16]

Renovations made to the Hale's Bar Lock and Dam were under the supervision of TVA Chief Engineers, First Col. Theodore B. Parker and Clarence E. Blee, and by A.H. Weber, who served as project manager. With improvements made to the spillway dam and the purchase of new generators, TVA now was able to add 100,000 KW into the grid system for electrical energy in 1952.[17]

Despite the thousands of hours of labor and millions of dollars spent on the repair of the Hale's Bar Dam for a half century, water leakage remained a major problem. The water continued to find its way underneath the dam through the porous limestone rock and parts of the concrete dam. It was estimated that between 1,500 to

[15] *Ibid.*, pp. 50, 54.
[16] *Ibid.*, pp. 65, 69-73.
[17] *Ibid.*, pp. 75-76.

2,000 cubic feet of water escaped per second. After continuous studies in the early 1960s, TVA decided to abandon the dam and construct a new one approximately 6.5 miles downstream near the mouth of the Sequatchie River.[18]

With the construction of the new Nickajack Dam looming, the Hale's Bar Lock and Dam was experiencing its final years. The steam plant, located behind the powerhouse, was demolished circa 1964. Soon after, in June of 1965, the two, 200 foot concrete smokestacks, located in front of the steam plant, were razed at a cost of $217,000. The powerhouse and lock remained, however, the 1,000 foot spillway was demolished circa 1966. The last boat to travel through the locks occurred in December 1968.[19]

The new $70 million Nickajack Dam is located halfway between Haletown and South Pittsburg. The dam, approximately 80 feet high and 2,700 feet in length, was under construction by April 1964 and began operation in December 1967. At one time during construction, 1,400 men were employed for the project. Continuing its operation today, the Nickajack Dam is one of nine TVA dams and locks that allow for a continuous navigation channel on the Tennessee River.[20]

The area surrounding the Hale's Bar Powerhouse became the Nickajack Marina in the mid-late 1970s and Hale's Bar Marina in the 1980s. It remains in operation today. The powerhouse, presently under the same ownership as the marina, is used for boat storage. Plans to rehabilitate the powerhouse for some type of adaptive reuse project are in the planning stage. Ideas for a Hale's Bar Lock and Dam Museum and a restaurant have been discussed. The Hale's Bar Powerhouse retains a majority of its integrity, and besides the lock, serves as the only physical evidence of the Hale's Bar Dam and village that was once present at the foot of Aetna Mountain. It is a recognizable feature to all who use the Tennessee River for recreational use or travel over the Marion County Memorial Bridge (N.R listed, 9/6/2007) and U.S. Interstate 24 in their automobiles. Its future preservation is of the utmost importance to the owner and the members of the community.

[18] *Ibid.*, p. 81.
[19] *Ibid.*, p. 86.
[20] *Ibid.*, p. 90.

IX Bibliography

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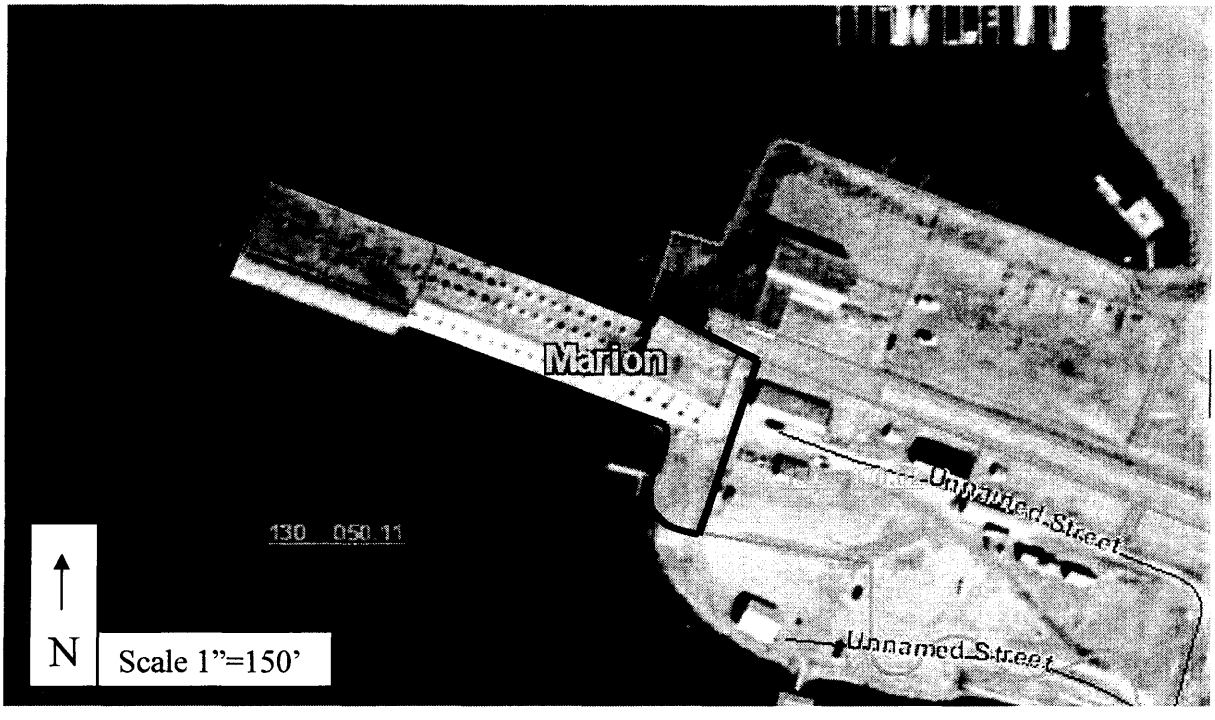
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Verbal Boundary Description

The Hale's Bar Dam Powerhouse is located on 1265 Hale's Bar Road at the Hale's Bar Marina, located directly north of U.S. Highway 41. The boundary of the nominated property is a portion of parcel 70.02 on Marion County tax map 130 that extends into the Tennessee River. The north, south, and west boundary lines follow the boundary of the parcel. The east boundary is a line approximately 30 feet from the east façade of the powerhouse and extends from a road right of way to the parcel line as shown on the attached map.



PHOTOGRAPHS

Hale's Bar Dam Powerhouse
Guild, TN
Photos by Paul Archambault
Date: July 2008
Negatives: Tennessee Historical Commission

Hale's Bar Dam Powerhouse, East Façade (Facing West)
1 of 14

Hale's Bar Dam Powerhouse, South Elevation (Facing Northwest)
2 of 14

Hale's Bar Dam Powerhouse, North Elevation (Facing Southeast)
3 of 14

Hale's Bar Dam Powerhouse, North Elevation (Facing Southeast)
4 of 14

Hale's Bar Dam Powerhouse, East Façade, Main Corridor Entrance
5 of 14

Hale's Bar Dam Powerhouse, Main Corridor (Interior)
6 of 14

Hale's Bar Dam Powerhouse, Operating Room (Facing West Wall)
7 of 14

Hale's Bar Dam Powerhouse, Operating Room/Switchboard Room (Facing East Wall)
8 of 14

Hale's Bar Dam Powerhouse, TVA Addition (Facing East Wall)
9 of 14

Hale's Bar Dam Powerhouse, TVA Addition (Facing West Wall)
10 of 14

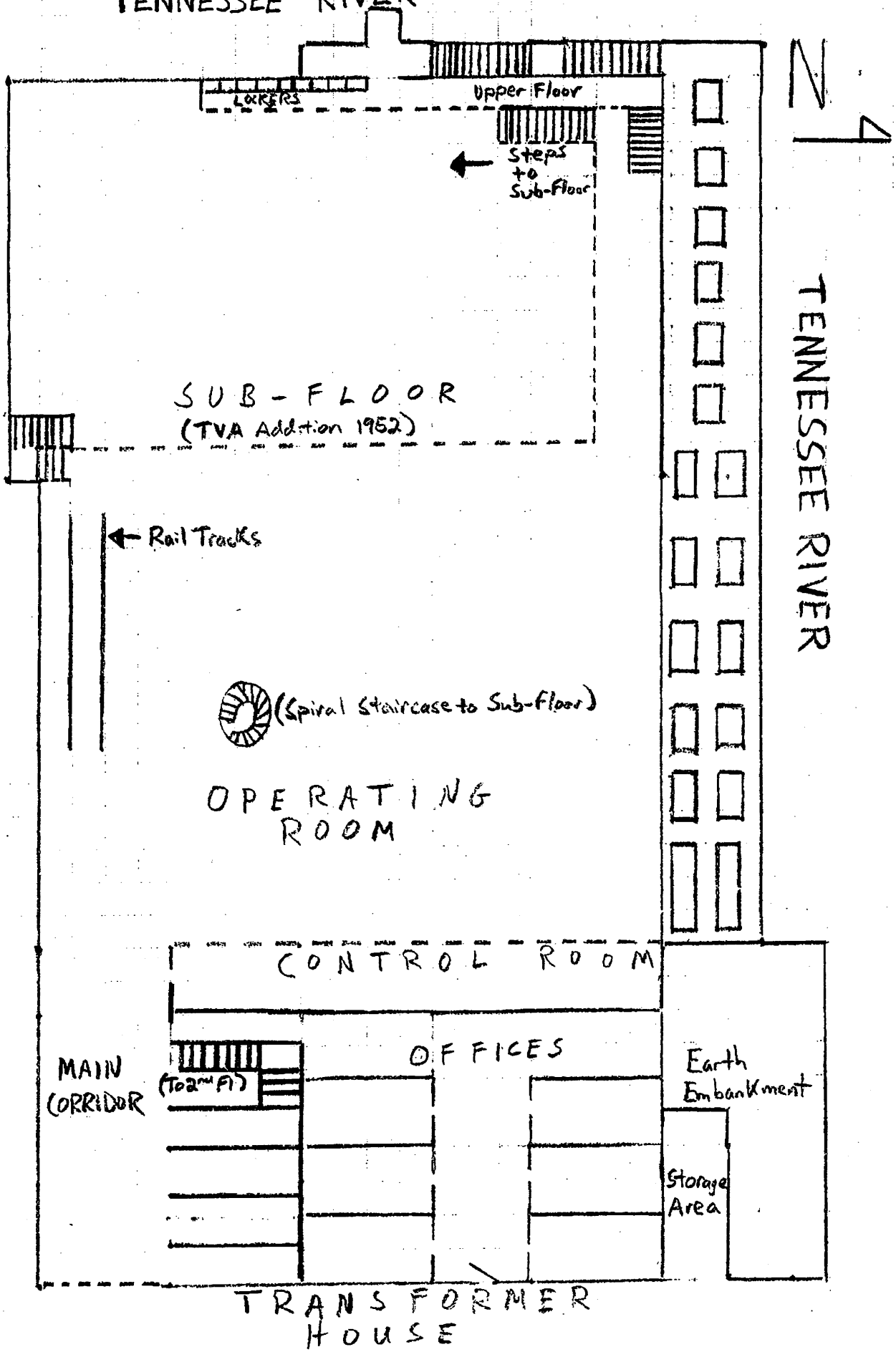
Hale's Bar Dam Powerhouse, Transformer House, 3rd Floor Interior, (Facing East Wall)
11 of 14

Hale's Bar Dam Powerhouse, Transformer House, 3rd Floor Interior, (Facing West Wall)
12 of 14

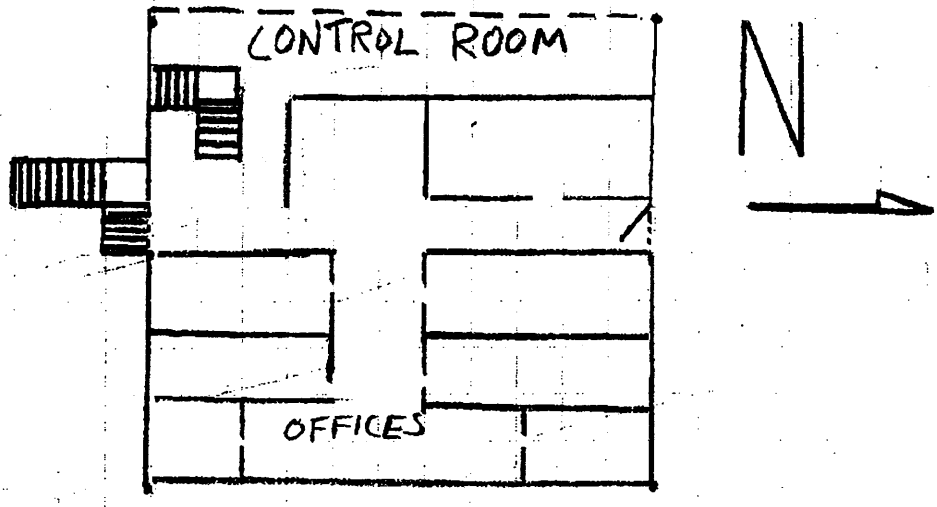
Hale's Bar Dam Powerhouse, Water Chambers, North Elevation, (Facing West)
13 of 14

Hale's Bar Dam Powerhouse, 30-Ton Morgan Crane (Facing East)
14 of 14

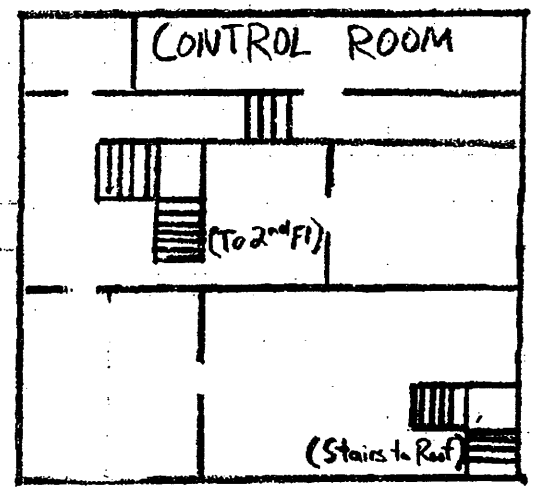
HALE'S BAR POWERHOUSE



HALE'S BAR POWERHOUSE



TRANSFORMER HOUSE (2nd Floor)



TRANSFORMER HOUSE (3rd Floor)