128-39

rm No. 10-300 (Rev. 10-74) VLR-12/28/79 NRHP-5/23/80

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
Crystal Spring (Indian name: Great Spring)

AND/OR COMMON
Crystal Spring Steam Pumping station (preferred)

2 LOCATION

STREET & NUMBER
2016 Lake Street, S.E. — NOT FOR PUBLICATION

CITY, TOWN
Roanoke — VICINITY OF

CONGRESSIONAL DISTRICT
Sixth (M. Caldwell Butler)

STATE	CODE	COUNTY	CODE
Virginia	51	(in city)	770

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
— DISTRICT	X PUBLIC	— OCCUPIED	AGRICULTURE	X MUSEUM
X BUILDING(S)	— PRIVATE	X UNOCCUPIED	— COMMERCIAL	X PARK
— STRUCTURE	— BOTH	— WORK IN PROGRESS	X EDUCATIONAL	— PRIVATE RESIDENCE
X SITE	PUBLIC ACQUISITION	ACCESSIBLE	— ENTERTAINMENT	— RELIGIOUS
X OBJECT	— IN PROCESS	X YES: RESTRICTED	— GOVERNMENT	— SCIENTIFIC
	— BEING CONSIDERED	— YES: UNRESTRICTED	— INDUSTRIAL	— TRANSPORTATION
		— NO	— MILITARY	— OTHER:

4 OWNER OF PROPERTY

NAME
City of Roanoke

STREET & NUMBER
Municipal Building

CITY, TOWN
Roanoke — VICINITY OF

STATE
Virginia 24010

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC
Roanoke City Ha13

STREET & NUMBER

CITY, TOWN
Roanoke

STATE
Virginia

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
None previously recorded

has this property been determined eligible? X Y ___ N

DATE

— FEDERAL — STATE — COUNTY — LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
X EXCELLENT	__DETERIORATED	__UNALTERED	X ORIGINAL SITE
__GOOD	__RUINS	X ALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Crystal Spring flows unceasingly today as it did 200 years ago. It provides four to five million gallons of drinking water daily; it is vital to the community. The spring, reservoir and connecting sluice are now covered for sanitary purposes, but still one may view the original spring through a recently constructed glass hatch.

The pump house is a one-story, common-bond brick structure fifty-eight feet in length and thirty feet in width. The front and back sides of the structure have four bays each. The front (east) facade has three windows and the building's only door, which is on the south end of the front as one approaches the building. The back (west side) has four windows. Double-hung sash windows have six panes per sash. Both the door and the windows on the east and west sides are topped by brick arches in a radiating pattern surrounded with molded wood trim. The windows have wood lugsills. The north end of the building has two, double-hung sash windows, side by side, that are similar to the other windows except they are topped by a single segmental arch. In the gable is a lunette. The south wall was rebuilt recently; an earlier adjacent building was destroyed and the original wall damaged. The new wall was reconstructed in the same style and of similar materials. Grills have been placed over the windows as a security measure. The sheet-metal roof has a cornice with sloped soffit and raking that is plain boxed. Inside the floors are oak. Some of the original boards, however, had to be replaced during the restoration. Large iron ceiling braces support the exposed wood slat ceiling. Both the inside walls and the exterior trim are painted white, their original color.

The two hundred-ton, Corliss-type Snow pump is a fine example of American industrial technology. Its eleven-ton flywheel with a thirteen-foot diameter, is in the center. At right angles from the wheel are high and low pressure steam chambers. To the side are large cylinders which housed the piston rods. Originally, the pump drew the water out of the springand moved it up to a reservoir on Mill Mountain. The pump, which was installed in 1905, had a five million-gallon pumping capacity during a twenty-four hour period. The Corliss-type pump was made by the Snow Pump Co. in Buffalo, N.Y. (later the Worthington Pump Company). When the pump was restored problems occurred with the pistons. They were disconnected, and a twenty-five horsepower motor and pneumatic tire were placed, out of sight, below the flywheel. The pump could then revolve minus the pistons and the large steam chambers. It was carefully repainted its original red, black and dark green. Around the pump are mounted plaques describing not only the pump, but the history of the spring area as well.

The restoration was carried out using old photographs, blueprints and the advice of Worthington Company officials along with the work of both local people and armed forces technicians.

DKC

(See Continuation Sheet #1)

BOUNDARY JUSTIFICATION

Boundaries have been drawn to include the pump house and the land on which it sits.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION	
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE	
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE	
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN	
__1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER	
X 1800-1899	X COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION	
X 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	X OTHER (SPECIFY)	
		__INVENTION			

Industrial Archaeology

SPECIFIC DATES 1905 BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

The Crystal Spring Pumping Station is one of Virginia's more interesting artifacts of industrial archaeology, and its history is intertwined with the development of the city of Roanoke. The pump, itself, is a duplex Snow pump, manufactured by the Snow Steam Pump Company of Buffalo, New York. It is believed to be a unique survival of its type. The pump employs the Corliss method of valve control, a technical breakthrough for its period, and was guaranteed by its maker to be "first class in every respect." During its period of operation from 1905 to 1957, the pump took water from Crystal Spring, a water source of remarkable capacity which has been important to the occupants of the Roanoke Valley since prehistoric times. Although the steam pump no longer functions and is used as a city park exhibition, the spring still supplies a significant quantity of water to the city.

Picturesquely located at the foot of a wooded hill, Crystal Spring was first frequented by Indians. In 1740 Mark Evans settled at the spring where he constructed a grist mill. A mill remained at the spot until 1886 when the last one burned. Many people passed by the spring during their travels in the western part of the state including George Washington who saw the spring in 1754 and noted it in his journals. When the city of Roanoke was incorporated in 1882, it was recognized that the city needed a reliable source of water. A private firm named the South Roanoke Land Company purchased the spring property and built a pumping station. By 1905 the city's population was growing extremely fast, necessitating an increased water supply. The present, higher capacity plant was then erected to replace the earlier one. The spring and pump house were purchased by the city in 1938. The Snow pump was in use until 1957, when it was replaced by an electric pump capable of supplying four to five million gallons of water daily. Although the spring continued to be tapped, the old pump house and pump were left inactive.

As a dependable source of potable water, Crystal Spring has been of great importance to Roanoke. It encouraged settlement in the area and contributed to the "Magic City's" growth. The park, which for years has surrounded the complex, has always been a popular recreation spot, with the pump house and its elaborate machinery being an item of interest even after operation ceased. During the Bicentennial, a civic-minded group obtained permission from the city government to restore the pump as a Bicentennial project. The work was accomplished through the support of local citizens and corporations. Today the pump house serves as a museum where visitors can marvel at the movement of the machine's parts which include an eleven-ton flywheel, a spinning governor, plunger push rods, and piston rods stroking in nineteen- and forty-foot cylinders. The machinery now moves with the help of a gasoline engine--the boiler was not preserved. The spring is enclosed and the adjacent reservoir is covered by tennis courts. However, the continuous rush of water out of the mountain can be viewed through a glass cover.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Kincanon, James. 702 Shenandoah Blvd., Roanoke, Va. Specifications.
Roanoke City Engineering Dept. Roanoke, Va.
Roanoke City Public Library, Roanoke, Va. Post Card Collection.
Roanoke Historical Society, Roanoke, Va. Address Files.
Roanoke Tax Assessor's Office. Roanoke, Va. Tax Map #406502.

UTM NOT VERIFIED

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY less than 1 acre

QUADRANGLE NAME Garden City, Va.

QUADRANGLE SCALE 1:24000

UTM REFERENCES

ACREAGE NOT VERIFIED

	ZONE	EASTING	NORTHING
A	17	593620	4122890
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

Located at a point 1.2 mi. NNW of Garden City, approximately .65 mi. E of US Route 220 and about 1 mi. N of Roanoke County line; the building measures 58' x 30'.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

(2) (See Continuation Sheet #3)

NAME / TITLE

(1) Virginia Historic Landmarks Commission Staff

ORGANIZATION: Virginia Historic Landmarks Commission

DATE: October 1979

STREET & NUMBER: 221 Governor Street

TELEPHONE: (804) 786-3144

CITY OR TOWN: Richmond

STATE: Virginia 23219

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE X LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE Tucker Hill, Executive Director
Virginia Historic Landmarks Commission

DATE DEC 28 1979

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

GPO 892-453

UNITED STATES DEPARTMENT OF THE INTERIOR
HERITAGE CONSERVATION AND RECREATION SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

Crystal Spring Pumping Station, Roanoke, Virginia

7. DESCRIPTION

Description of Snow Steam Pumping Engine at Old Crystal Spring Pumping Station

The heavy machinery in the brick pump house is a horizontal cross compound pumping engine, probably unique today, which was constructed and installed in 1905 by Snow Steam Pump Works of Buffalo, N.Y. and was operated by steam until 1959. The pumping engine occupies 34' x 13' of floor space, stands 14' above and hangs about 3 3/4' below the operating floor. It weighs upwards of 100 tons. Its outward appearance and visible iprocating, revolving and oscillating motions have been restored and the engine is operative by means of a concealed electric drive.

The general arrangement of the pumping engine includes two steam cylinders mounted side by side with their valve gears between. The cylinders are attached to the ends of main frames which support the main crank shaft journals. A pair of tandem water pumps with suitable chambers are attached to the other ends of the frames and are piped for cross suction and delivery. Thus, a steam engine on one end is directly connected to water pumps on the other end of the unit.

The steam engine was designed to operate at 125 p.s.i. at the throttle. Its 19" high pressure cylinder exhausted into a reheat receiver and, thence, to its 40" low pressure cylinder which, in turn, exhausted into a condenser. The stoke is 36" for both cylinders as well as for the water pump plungers. The Corliss valve gears have oscillating and drop type valves which are activated and timed by eccentrics on the main shaft, linkage,

(See Continuation Sheet #2)

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NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

Crystal Spring Pumping Station, Roanoke, Virginia

7. DESCRIPTION

wrist plates and dash pots. The main crank shaft which is activated through crossheads and main connecting rods revolves on two 9"x 18" journals and is 12" in diameter at the fly wheel fit. The fly wheel is 13' in diameter and weighs about 11 tons. The engine had a nominal operating speed of 43 r.p.m. which was variably regulated by a fail-safe centrifugal ball type governor.

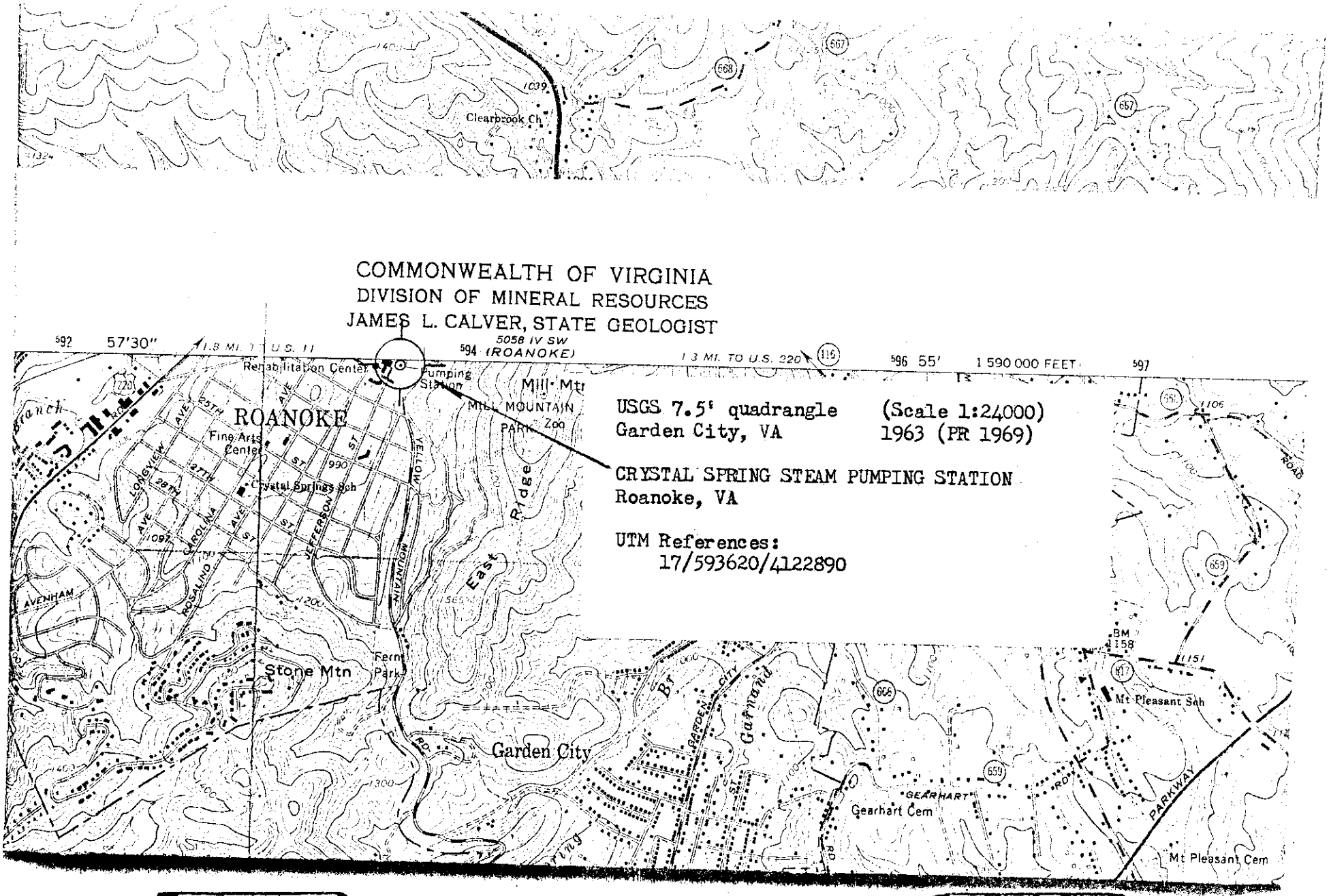
The twin tandem water pumps which are directly connected to the steam engine have 13½" cast iron plungers with 30 suction and 30 discharge valves serving each end of each plunger; a total of 240 medium hard rubber 4" valves. At nominal operating speed, the pumps had a daily capacity of 5,000,000 gallons of mountain spring water, including water by-passed for condenser cooling, against a head of 220'.

Five gauge instruments with 5½" dials are mounted above and between the steam cylinders and adjacent to the throttle valves and other operating controls.

Supplied by

J.B. Osborne
and
J. N. Kincanon

COMMONWEALTH OF VIRGINIA
DIVISION OF MINERAL RESOURCES
JAMES L. CALVER, STATE GEOLOGIST



USGS 7.5' quadrangle (Scale 1:24000)
Garden City, VA 1963 (PR 1969)

CRYSTAL SPRING STEAM PUMPING STATION
Roanoke, VA

UTM References:
17/593620/4122890