

PH0041378

**NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM  
FOR FEDERAL PROPERTIES**

(Type all entries - complete applicable sections)

STATE: <b>Arizona</b>
COUNTY: <b>Coconino</b>
FOR NPS USE ONLY
ENTRY DATE <b>SEP 6 1974</b>

**1. NAME**

COMMON:  
**Water Disposal Plant (H.S.-2)**

AND/OR HISTORIC:  
**Water Reclaim Plant**

**2. LOCATION**

STREET AND NUMBER:  
**S of Grand Canyon National Park, <sup>Route 8A</sup> NE  $\frac{1}{4}$  of NE  $\frac{1}{4}$  of Sec. 27, T31N, R2E G & SR BM**

CITY OR TOWN:  
**Grand Canyon**

CONGRESSIONAL DISTRICT:  
**Third**

STATE:  
**Arizona**

CODE  
**04**

COUNTY:  
**Coconino**

CODE  
**005**

**3. CLASSIFICATION**

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input checked="" type="checkbox"/> District <input type="checkbox"/> Site <input type="checkbox"/> Object <input type="checkbox"/> Building <input type="checkbox"/> Structure <input type="checkbox"/> Object	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Both Public Acquisition: <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered	<input checked="" type="checkbox"/> Occupied <input type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress	Yes: <input type="checkbox"/> Restricted <input checked="" type="checkbox"/> Unrestricted <input type="checkbox"/> No
PRESENT USE (Check One or More as Appropriate)			
<input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input type="checkbox"/> Museum	<input type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input type="checkbox"/> Transportation <input checked="" type="checkbox"/> Other (Specify) <b>Water reclaim</b> <input type="checkbox"/> Comments

**4. AGENCY**

**National Park Service**

REGIONAL HEADQUARTERS: (If applicable)  
**Western Regional Office**

CITY OR TOWN:  
**San Francisco**

STREET AND NUMBER:  
**Box 450 Golden Gate Ave., 36063**

STATE:  
**California**

CODE  
**06**

**5. LOCATION OF LEGAL DESCRIPTION**

COURTHOUSE, REGISTRY OF DEEDS, ETC.:  
**Coconino County Courthouse**

STREET AND NUMBER:

CITY OR TOWN:  
**Flagstaff**

STATE:  
**Arizona**

CODE  
**04**

**6. REPRESENTATION IN EXISTING SURVEYS**

TITLE OF SURVEY:

DATE OF SURVEY:  Federal  State  County

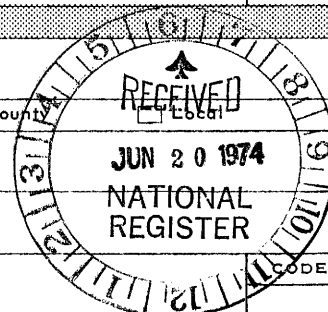
DEPOSITORY FOR SURVEY RECORDS:

STREET AND NUMBER:

CITY OR TOWN:

STATE:

CODE:



SEE INSTRUCTIONS

STATE: <b>California</b>
COUNTY: <b>San Francisco</b>
ENTRY NUMBER <b>SEP 6 1974</b>
DATE <b>1974</b>

FOR NPS USE ONLY

7. DESCRIPTION

CONDITION	(Check One)					
	<input checked="" type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input type="checkbox"/> Altered	<input checked="" type="checkbox"/> Unaltered		<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site	

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

Preservation recommended

This plant is composed of a number of related structures, and its appearance is essentially the way it has been over the years.

Pipes bring the waste water to the plant where it passes first through a bar-screen box that filters out solids. It passes through the pipe to a flume where the water is measured to determine the amount passing to the plant. From here, it goes to another bar-screen box that filters other solids. There, the solids are diverted to the sludge pond some distance from the plant. The waste water then passes on to a pre-sedimentation tank where grease is separated and solids are diverted to the sludge pond. The water then goes to aeration tanks where bacteria work to help purify the waste water. From there it goes to clarifiers, where remaining grease and solids are removed. The water then passes through filters of stone topped by anthracite coal where the water is "polished" to a clear appearance. This water is then chlorinated and transmitted to a storage tank.

The plant consists of the bar-screen boxes, a pre-sedimentation tank, three aeration tanks (two of 25,000 gallons, and one of 50,000 gallons), two clarifiers, a secondary tank, two filters, a storage tank (nearly 300,000 gallons capacity), a holding tank, and a water tank that is used to back-wash the filters. A frame structure with a corrugated tin exterior, houses the filter system, aeration generators, and the chlorination system. This two-level, concrete based building also has two shops, an office, and a laboratory to test the water.

Boundary: The historic land embraced in this site would be a rectangle formed by using the aeration tanks as a center and extending lines 100 yards to the north, 200 yards to the east, 200 yards to the west, and 400 yards to the south.

Class VI lands: 37 acres

Cost: current maintainance adequate

(The Water Disposal Plant is classified as a historic district in order to include the inter-connecting series of tanks, basins, and facilities, even though it varies from the normal description of a historic district, that of numerous seperate buildings.)

SEE INSTRUCTIONS



**8. SIGNIFICANCE**

PERIOD (Check One or More as Appropriate)

- |  |                                       |                                       |  |
|--|---------------------------------------|---------------------------------------|--|
| <input type="checkbox"/> Pre-Columbian | <input type="checkbox"/> 16th Century | <input type="checkbox"/> 18th Century | <input checked="" type="checkbox"/> 20th Century |
| <input type="checkbox"/> 15th Century  | <input type="checkbox"/> 17th Century | <input type="checkbox"/> 19th Century |  |

SPECIFIC DATE(S) (If Applicable and Known) 1924 (see below - 1926)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- |  |   |  |  |
|--|---|--|--|
| <input type="checkbox"/> Aboriginal              | <input type="checkbox"/> Education              | <input type="checkbox"/> Political           | <input type="checkbox"/> Urban Planning  |
| <input type="checkbox"/> Prehistoric             | <input checked="" type="checkbox"/> Engineering | <input type="checkbox"/> Religion/Philosophy | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Historic                | <input type="checkbox"/> Industry               |  | _____                                    |
| <input type="checkbox"/> Agriculture             | <input type="checkbox"/> Invention              | <input type="checkbox"/> Science             | _____                                    |
| <input type="checkbox"/> Architecture            | <input type="checkbox"/> Landscape Architecture | <input type="checkbox"/> Sculpture           | _____                                    |
| <input type="checkbox"/> Art                     |   | <input type="checkbox"/> Social/Humanitarian | _____                                    |
| <input type="checkbox"/> Commerce                | <input type="checkbox"/> Literature             | <input type="checkbox"/> Theater             | _____                                    |
| <input type="checkbox"/> Communications          | <input type="checkbox"/> Military               | <input type="checkbox"/> Transportation      | _____                                    |
| <input checked="" type="checkbox"/> Conservation | <input type="checkbox"/> Music                  |  |  |

STATEMENT OF SIGNIFICANCE 2nd order

The South Rim of Grand Canyon, where most of the tourist developments have traditionally been, possesses little water. To help augment the available supply of fresh water, the Santa Fe Railroad, then principal concessioner of the park, developed a plant to reclaim ~~waste~~ water. This reclaimed water was to return by its own pipeline to the hotel area where it would be used to water grass and plants, to flush toilets in the El Tovar Hotel, for train steam engines, etc. The plant was built and put into operation in May 1926, and since then has served well, supplying reclaimed water at nearly one-sixth the cost of obtaining fresh water.

Although tests have proved the <sup>e</sup>reclaimed water to be potable, it has never been used for drinking purposes.

With the building of the Bright Angel Lodge in 1934, the Water Reclaim Plant was expanded with the addition of the third aeration tank.

This plant has been in continuous operation with no serious breakdowns since it was first started, and much of the equipment and machinery is original. Moreover, this plant, basically simple in operation, has proven conclusively that reclaiming water is economically feasible.

The significance of this plant lies partly in the fact that it helped solve a major problem (water shortage) in the development of Grand Canyon National Park, and the fact that it is one of the earliest water reclamation plants in the country. Moreover, the scientific principles operating this plant are basically the ones used in today's water reclaiming systems.

SEE INSTRUCTIONS



9. MAJOR BIBLIOGRAPHICAL REFERENCES

Garthe, Edmund C., and Wilfred C. Gilbert - "History of Water Reuse at the Grand Canyon," mimeographed paper GCNP-E-297, in files of Grand Canyon National Park, reprinted from Journal, Water Pollution Control Federation (Sept. 1968).  
 "Disposal Plant Operation," mimeographed paper GCNP-E-298, in files of Grand Canyon National Park.  
 Superintendent, Grand Canyon National Park, "Annual Report, 1926," in the Library of Grand Canyon National Park.

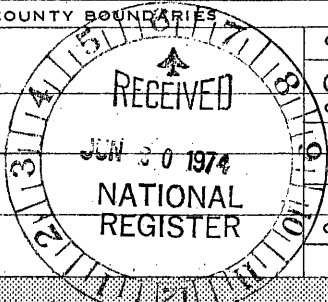
10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	36° 03' 00"	112° 09' 28"				
NE	36° 03' 00"	112° 09' 12"				
SE	36° 02' 49"	112° 09' 12"				
SW	36° 02' 49"	112° 09' 28"				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 37

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

STATE:	CODE	COUNTY:	CODE
Arizona	04	Coconino	005
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE



NO  
UTM  
(D)

SEE INSTRUCTIONS

11. FORM PREPARED BY

NAME AND TITLE: F. Ross Holland, Jr., Historian DATE: August 31, 1972

BUSINESS ADDRESS: Denver Service Center, NPS

STREET AND NUMBER: 7200 W. Alameda PHONE:

CITY OR TOWN: Denver STATE: Colorado CODE: 08

12. CERTIFICATION OF NOMINATION

NATIONAL REGISTER VERIFICATION

State Liaison Officer recommendation:

- Yes
- No
- None

*Dennis McCarty*  
 State Liaison Officer Signature

I hereby certify that this property is included in the National Register.

*AR Wertenster*  
 Director, Office of Archeology and Historic Preservation

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Liaison Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The recommended level of significance is  National  State

Date 9/6/74

ATTEST:

Local  
*Lyle D. Dorell* 9/1/74  
 Federal Representative Signature Date  
*Act. Reg. Director*  
 Title

*Charles D. Stewart*  
 Acting Keeper of The National Register  
 Date 9-6-74