



WATER-RIGHT DOCKET

Big Bend National Park

Docket No: 2

CHISOS BASIN WATER SYSTEM

Preliminary Docket Information

00-00-0000: water rights docket summary

BIG BEND NATIONAL PARK

WATER RIGHTS DOCKET NO. 2

CHISOS BASIN WATER SYSTEM

The Chisos Basin Water System, according to the various Water Use Reports, has as its sources Basin Well No. 1, Basin Well No. 2, Oak Spring, and Cattail Falls.

Basin Well No. 1 was dug to a depth of 400 feet in 1940. It is now dry, but records on it have been kept. Basin Well No. 2 was dug to a depth of 1160 feet in 1947. This well yielded a good volume of water in tests 1 through 9, but on the 10th test it proved not satisfactory as a steady producer. Our last report indicates that it yields only about one gallon per minute for only 4 to 8 hours a day. The Texas Board of Water Engineers has no jurisdiction over the regulation and control of underground waters in that state except to prevent waste of and prescribe rules and regulations for the preserving of the sanitary condition of artesian water. Basin Wells No. 1 and No. 2 are not artesian and, therefore, are not in any way subject to the appropriation laws of Texas.

Oak Spring and Cattail Falls are the major sources of the Chisos Basin Water System which includes, in addition, about 7600 feet of water lines, pumps, pump houses, two 500,000 gallon reservoir tanks, and one 25,000 gallon tank. Cottonwood Creek (from Cattail Falls) is partially diverted to provide the domestic supply for the main public accommodations in the Basin Area of the Chisos Mountains.

Texas uses a dual system of water law, incorporating both the riparian and the appropriation doctrines. In general, water which is surplus above reasonable riparian use is subject to appropriation. Thus, riparian users must report their water usage annually so that the Texas Board of Water Engineers will know what water is surplus and therefore available for appropriation. Use of Oak Spring and Cattail Falls water is riparian use; however, the applicable statute provides that, with the exception of public utilities and political subdivisions, no reports are needed for water used solely for domestic or stock-watering purposes.

Also in Texas, a spring originating from percolating waters is the absolute property of the landowner, unless the spring is the source of a stream serving other riparian owners. The owner of a spring is further favored by a statutory presumption that underground water is percolating water (as opposed to flowing in an underground stream) unless proved otherwise. Oak Spring and Cattail Falls, presumed to consist of percolating waters, serve no other riparian landowners and, therefore, are the absolute property of the National Park Service at Big Bend National Park.

In other words, since use of the water is municipal use only, and since the water is percolating water not used by any other riparians, and finally, since the water is found entirely within the park boundaries, it is not mandatory that water use reports be filed with the Texas authorities. In addition, the last reason given is important in that it insures there will be no future problem of interference by other water users with the subject water.

Nevertheless, under Riparian No. 38185, water use records have been filed with the State of Texas since 1958 stating that Big Bend makes municipal use of the available water. There are two reasons for this action: First, the National Park Service feels that it should keep adequate water use records in case there is a subsequent change in Texas water laws. Second, municipal use allows for more flexibility in future development in case of growth of the park facilities and use by the public.

William L. Mekeel

MAY 1969

BIG BEND NATIONAL PARK
WATER RIGHTS DOCKET NO. 2
CHISOS BASIN WATER SYSTEM

The Chisos Basin Water System, according to the various Water Use Reports, has as its sources Basin Well No. 1, Basin Well No. 2, Oak Spring, Government Spring, Santa Elena Well, Graham Spring, Cattail Falls, Cottonwood Creek of Cattail Falls, Spring No. 4, Boquillas Spring, Rio Grande Village, Cattail Spring, and, simply, various aquifers resulting in spring flow. Actually, it appears that the system only has four sources, these being Basin Well No. 1, Basin Well No. 2, Oak Spring, and Cattail Falls.

Basin Well No. 1 was dug to a depth of 400 feet in 1940. It is now dry, but records on it have been kept. Basin Well No. 2 was dug to a depth of 1160 feet in 1947. This well yielded a good volume of water in tests 1 through 9, but on the 10th test it proved not satisfactory as a steady producer. Our last report indicates that it yields only about one gallon per minute for only 4 to 8 hours a day. The Texas Board of Water Engineers has no jurisdiction over the regulation and control of underground waters in that state except to prevent waste of and prescribe rules and regulations for the preserving of the sanitary condition of artesian water. Basin Wells No. 1 and No. 2 are not artesian and, therefore, are not in any way subject to the appropriation laws of Texas.

Oak Spring and Cattail Falls are the major sources of the

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Chisos Basin Water System which includes, in addition, about 7600 feet of water lines, pumps, pump houses, two-500,000 gallon reservoir tanks, and one-25,000 gallon tank. Water from the sources does not follow surface drainage even though such sources are in, or tributary to, the Rio Grande drainage area; however, Oak Spring and Cottonwood Creek (from Cattail Falls) must be diverted somewhat to provide the domestic supply for the main public accommodations in the Basin Area of the Chisos Mountains. The water -- an available supply of 20 gpm behind a pump capacity of 100 gpm -- is used for the needs of a lodge with a dining room and sleeping accommodations, and not at all for irrigation.

Texas uses a dual system of water law, incorporating both the riparian and the appropriation doctrines. In general, water which is surplus above reasonable riparian use is subject to appropriation. Thus, riparian users must report their water usage annually so that the Texas Board of Water Engineers will know what water is surplus and therefore available for appropriation. Use of Oak Spring and Cattail Falls water is riparian use; however, the applicable statute provides that, with the exception of public utilities and political subdivisions, no reports are needed for water used solely for domestic or stockwatering purposes.

Also in Texas, a spring originating from percolating waters is the absolute property of the landowner, unless the spring is the source of a stream serving other riparian owners. The owner of a spring is further favored by a statutory presumption that under-

ground water is percolating water (as opposed to flowing in an underground stream) unless proved otherwise. Oak Spring and Cattail Falls, presumed to consist of percolating waters at least as of this moment, serve no other riparian landowners and, therefore, are the absolute property of the NPS at Big Bend National Park.

In other words, since use of the water is domestic use only, and since the water is percolating water not used by any other riparians, and finally, since the water is found entirely within the park boundaries, it is not mandatory that water use reports be filed with the Texas authorities. In addition, the last reason given is important in that it insures there will be no future problem of interference by other water users with the subject water.

Nevertheless, under Riparian No. 38185, water use records have been filed with the State of Texas since 1958 stating that Big Bend makes municipal use of the available water. There are two reasons for this action: First, the NPS feels that it should keep adequate water use records in case there is a subsequent change in Texas water laws. Second, municipal use allows for more flexibility in future development in case of growth of the park facilities and use by the public.

The unstable nature of this docket make much of the material written herein of highly tenuous value; therefore, minimum reliance should be placed on such material, at least is this true once this memorandum becomes dated.

Roger P. Smith
October 10, 1967

Area: Big Bend National Park #2
Title of Docket: Chisos Basin Water System

I. Source Description

1. Big Bend General Map -- NP-BB-17018A
2. Water Use Map -- NP-BB/6952
3. Basin Water System -- April, 1958 -- NP-BB/6953
4. Land Ownership Record -- Deed No. 3 -- June 17, 1940
5. Well No. 1
 - a. Well Log
 - (1.) Chemical Analysis -- February 23, 1942
 - b. Record of Well -- 1947
6. Well No. 2
 - a. Record of Well -- Geological Survey -- October 14, 1947
 - (1.) Analysis of Well Water -- Geological Survey -- June, 1947
7. Completion Report of Construction Project -- Extension and Improvement of Water System, Basin and Headquarters -- March 12, 1958
8. Report of Surface Water Used for the Year Ending December 31, 1964.

II. Appropriation Data

1. Report of Surface Water Used for the Year Ending
December 31, 1958.
2. Report of Surface Water Used for the Year Ending
December 31, 1959.
3. Report of Water Use - 1960.
4. Report of Surface Water Used for the Year Ending
December 31, 1961.
4. Report of Surface Water Used for the Year Ending
December 31, 1962.
5. Report of Surface Water Used for the Year Ending
December 31, 1963.
6. Report of Surface Water Used for the Year Ending
December 31, 1964.
7. Report of Surface Water Used for the Year Ending
December 31, 1965.
8. Report of Surface Water Used for the Year Ending on
December 31, 1972.
9. Land Ownership Record, deed No. 3, dated February 25, 1947
10. Additional Sworn Statement for Riparian Claimants, sworn on
April 23, 1971
11. Form for Recordation of Certain Water Claims, sworn on
August 29, 1969

III. Water Quality Reports

1. Alamo Creek

- a. U. S. Geological Survey Analytical Notes --
October 16, 1965.

2. Blue Creek

- a. U. S. Geological Survey Analytical Notes --
October 16, 1965.

3. Burro Mesa

- a. Analytical Statement -- June 15, 1964.

4. Cattail Falls

- a. U. S. Geological Survey Analytical Notes --
October 15, 1965.

5. Chisos Mountain Basin, Lower Well (or CCC Basin, Lower,
or Chisos Basin, No. 5)

- a. Analytical Statement -- June 25, 1964.
- b. U. S. Geological Survey Analytical Notes --
March 12, 1965.
- c. U. S. Geological Survey Analytical Notes --
October 15, 1965.

6. Chisos Mountain Basin, Upper Well (or CCC Basin, Upper,
or Chisos Basin, No. 6)

- a. Analytical Statement -- June 25, 1964.
- b. U. S. Geological Survey Analytical Notes --
March 12, 1965.

- c. U. S. Geological Survey Analytical Notes --
October 15, 1965.

7. Oak Springs

- a. Analytical Statement -- June 25, 1964.
- b. U. S. Geological Survey Analytical Notes --
March 12, 1965.
- c. U. S. Geological Survey Analytical Notes --
October 15, 1965.

Water Rights Book #2
BIBB ORIGINAL - RETURN TO COMMISSION

TEXAS WATER RIGHTS COMMISSION
P. O. BOX 13207, CAPITOL STATION
AUSTIN, TEXAS 78711

REPORT OF SURFACE WATER USED FOR THE YEAR ENDING ON DECEMBER 31 1972

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING OR OTHER CLAIM OF WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE UNLESS COMBINED REPORTING HAS BEEN AUTHORIZED BY COMMISSION ORDER. Use additional sheets if necessary to complete answers to any question. Texas Statutes require this report of water use to be filed with the Commission on or before March 1 of each year. Failure to timely report may subject the user to a civil penalty of \$25 and a further penalty of \$1 for each and every day thereafter until the report is filed, but in any case not to exceed a penalty of \$150.

Give name and address for changes, if any, in ownership:

**NATIONAL PARK SERVICE, SUPERINTENDY
SECTION 483
BIG BEND NATL. PARK, TEXAS 79834**

Name _____
Street or Route _____
City _____ State _____ Zip Co _____
Give changes, if any, in address: _____
Street or Route _____
City _____ State _____ Zip Co _____

Certified Filing No. _____ Permit No. _____ Claim No. _____ **1912** Reporting No. _____

1. Name of stream, canal or other source from which water was diverted Oak Springs
If you have a reservoir, please state:
(a) Name of reservoir: Present Upper Basin Original (if different) _____
(b) Present capacity of reservoir 500,000 gallons
(c) Condition of dam _____

2. The amount of water used was determined by: (a) Recording meter _____, (b) Weir _____
(c) Flume _____, (d) Other method of estimating quantity used (explain) Pumping rate x hrs. pump

3. Record of surface water taken or diverted. (Enter in acre-feet the amount of water taken or diverted each month and the water right or claim of water right shown above.)

For Reporting Purposes
1 cfs = 450 gallons per minute 1 acre-foot = 325,851 gallons
1 cfs = 2 acre-feet per 24 hours 1 million gallons per day = 3 acre-feet

Month	Maximum Diversion Rate (Specify)	Purpose of Use					Return Flow	
		Municipal	Industrial	Irrigation	Mining	Hydro-electric power		Other Use (Specify)
	cfs or gpm	acre-ft	acre-ft	acre-ft	acre-ft	acre-ft	acre-ft	acre-ft
Jan	50 gpm	1.80						
Feb	" "	2.05						
Mar	" "	2.25						
Apr	" "	1.63						
May	" "	1.75						
Jun	" "	2.22						
Jul	" "	4.87						
Aug	" "	4.56						
Sep	" "	3.35						
Oct	" "	2.98						
Nov	" "	2.85						
Dec	" "	2.58						
Total		32.89						

Total acre-feet surface water used: 32.89

4. Users of surface water for irrigation purposes:
(a) During this year, _____ acres were irrigated one or more times under this water right.
(b) Irrigation Districts supplying water for irrigation complete paragraph 4(b):
During the year, _____ acres were irrigated one or more times within the district's boundaries.
During the year, water was furnished to irrigate _____ acres one or more times outside of the district's boundaries.
(c) If diversions are not metered within 5 per cent accuracy, complete paragraph 4(c):
During the year, _____ acres were irrigated under this water right.
On _____ acres only 1 crop was produced.
On _____ acres 2 crops were produced.
On _____ acres _____ crops were produced.
Irrigated land is located in the _____ Survey or Surveys
No(s) _____ in _____ County.

(See reverse side)

4(c) (Continued)

Crop	Water was applied as follows:			Average Depth in Inches Applied Per Irrigation
	Acres	Number of waterings		
1.				
2.				
3.				
4.				
5.				
6.				

5. If you diverted surface water to others under this water right, complete the following:

Name and Address of Each One for Whom Water was Diverted	Purpose of Use	Acre-feet Diverted During the Year

Was this water reported in Section 3? _____

6. If you received or diverted water under a water right NOT owned by you, complete the following:

Name and Address of Owner of Water Right or Facilities Used	Purpose of Use	Acre-feet Received During the Year

Was this water reported in Section 3? _____

7. Municipal Users Only:

The amount of sewage effluent used for irrigation, industrial, or other purposes was None.
acre-feet. Estimated population served at the end of the year was: 1230

8. Industrial Users Only:

Type of Industry: _____
Of the amount of surface water reported on this form as being used during the year, the amount or percentage actually
consumed was _____ acre-feet or _____ %.

9. Well water is not to be included in the figures reported in Sections 3, 4, 5 or 6. However, the Commission is interested in obtaining figures for the total quantity of well water used during the year for other than domestic and live stock purposes:

NA acre-feet of well water was used for _____ purposes.

10. Additional Information:

NA

ALL USERS MUST EXECUTE THE FOLLOWING

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at Big Bend N.P., Texas, this the 22 day of January, 1973.

(Signature)

TEXAS WATER RIGHTS COMMISSION

Sam Houston State Office Building
 Area Code 512 475-4666 or 475-2711
 P. O. Box 13207
 Austin, Texas 78711

ADDITIONAL SWORN STATEMENT FOR RIPARIAN CLAIMANTS DESIRING RECOGNITION OF A RIGHT BASED ON USE FROM 1968 TO 1970, INCLUSIVE, AS REQUIRED BY THE WATER RIGHTS ADJUDICATION ACT OF 1967 [SECTION 4(B) AND (C), ARTICLE 7542A, VERNON'S CIVIL STATUTES]. THIS FORM SHALL BE TYPE-WRITTEN OR PRINTED LEGIBLY WITH INK. MAIL THE ORIGINAL TO THE TEXAS WATER RIGHTS COMMISSION IN THE ENCLOSED SELF-ADDRESSED ENVELOPE ON OR BEFORE JULY 1, 1971.

1. Name and address of claimant exactly as shown on original claim:

Superintendent

Big Bend National Park, Texas 79834

DO NOT WRITE
IN THIS SPACE

Claim No.....:

County.....:

River or
Coastal Basin.:

Purpose of Use:

Date Filed....:

Date Recorded.:

Volume____, P.____, Water
Rights Adjudication Act Claims
Record.

2. Claim No. Riparian 40006 (as assigned to claimant by Texas Water Rights Commission).

3. Name and address of present claimants if different from paragraph 1, above. If change of ownership occurred and the Commission has not been advised, attach with this statement a legal instrument evidencing proof of ownership in the present claimants:

4. General Location:

a. County Brewster, Original Survey(s) or Grant(s) with Abstract No(s).

Section 483, Block 6-4

b. Oak & Cottonwood Creeks, a tributary to Bough Run
(Stream or Watercourse) (River)

in Rio Grande River Basin.

5. Describe diversion and distribution facilities that were existing December 31, 1970, locating same on aerial photo as requested in paragraph 7. below. Indicate any differences between the existing facilities and those previously described in the original claim. (Use extra sheets as needed.)

Cattail Falls diversion takes water directly from Cottonwood Creek through infiltration pipes located in the creek bed. Oak Springs diversion consists of a collection box placed directly over the spring. The two diversions supply water by gravity flow to a 25,000 and 500,000 gallon storage tanks located at Oak Springs. From these reservoirs, a 50 gpm pump supplies water to a 500,000 gallon storage tank located in the Upper Chisos Basin. Water then flows by gravity from this tank to the Chisos Basin development. Type of Pump - centrifugal, Make - Byron Jackson, Size of Intake - 2", Size of Outlet - 2" connected to 3/4" pumpline. Rated capacity - 50gpm. Static Lift - 1550'. Kind of Power - 220/440v, 3 phase. Description of Powerplant - furnished by BEA, pump operated by a 40 H.P., G.E. Motor.

6. Historical use during the following period:

Year	Surface Waters Diverted (Acre-feet/annum)	Rated Pump Capacity In Gallons Per Minute or if not pump, diversion capacity in Cubic Feet Per Second	Irrigators tabulate acres actually irrigated each year with Surface Waters
1968	31.60	50 gpm	
1969	24.91	"	
1970	29.34	"	

7. The existing pertinent features of this claim shall be located on the most recent U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service aerial photograph (xerox or other type duplicating machine copy not acceptable) available and attached to and made a part of this sworn statement. The pertinent features include but are not limited to the following, if applicable:

- | | |
|-------------------------------------|--|
| a. Dams and reservoirs, | e. Original surveys with abstract numbers, |
| b. Actual irrigated areas, | f. Property boundaries, |
| c. Pipelines and/or canals, | g. Where dual systems of surface water and |
| d. Pumping plants and/or headgates, | ground water are used on the same irri- |
| | gated tracts show how system is inte- |
| | grated. |

If aerial photographs are not available, show accurately the requested information on a map.

THE STATE OF TEXAS

COUNTY OF Brewster

Before me, the undersigned authority in and for said County and State on this day personally appeared Luther T. Peterson, Jr. who being by me duly sworn on oath stated that the statements in the foregoing instrument are true and correct to the best of his knowledge and belief.

Luther T. Peterson, Jr.
Claimant

Subscribed and sworn to before me this 23rd day of April 19 71

(SEAL)

Charles E. Shannon (MS Notary)
Brewster
Notary Public
County, Texas

WR #2

TEXAS WATER RIGHTS COMMISSION

Sam Houston State Office Building
Area Code 512 475-2913
P. O. Box 12396 Capitol Station
AUSTIN, TEXAS 78711

FORM FOR RECORDATION OF CERTAIN WATER CLAIMS AS REQUIRED BY THE WATER RIGHTS ADJUDICATION ACT OF 1967 (SECTION 4, ARTICLE 7542A, VERNON'S CIVIL STATUTES). THIS FORM SHALL BE TYPEWRITTEN OR PRINTED LEGIBLY WITH INK. MAIL THE ORIGINAL TO THE TEXAS WATER RIGHTS COMMISSION IN THE ENCLOSED SELF ADDRESSED ENVELOPE.

1. Name and address of claimant:

Superintendent
Big Bend National Park, Texas 79834

DO NOT WRITE IN THIS SPACE
Claim No. _____
County _____
River or Coastal Basin _____
Purpose of Use _____
Date Filed _____
Date Recorded _____
Volume _____ p. _____, Water Rights Adjudication Act Claims Record.

2. Nature of Claim:

- a. Type of claim — Riparian (No. 38185)
- b. Purpose of use — Municipal
(Irrigation, Municipal, Mining, Industrial, etc.)
- c. Date of construction of diversion and/or distribution facilities On: Springs - August, 1955
Cattail Falls - October, 1956
- d. Date of first beneficial use of water — October, 1955

3. General Location:

- a. County — Brewster, Original Survey or Grant — Section 483, Block C-4
- b. Oak & Cottonwood Creeks, a tributary to Bough Run
(Stream or Watercourse) (River)
- in the Rio Grande River Basin.
- c. Location from a nearby town: 80 miles in a southerly
direction from Marathon, Texas.

4. Diversion Works:

- a. Location of point of diversion See Plan NP-BB 6952
& NP-BB 6953 feet (distance and direction) from the
corner of _____ Original Survey No. _____, Abstract No. _____
in _____ County, Texas.

b. The diversion is: (Check appropriate box)

- (1) Directly from the stream ☒; (2) From an on-channel reservoir ☐; (3) From a stream to an off-channel reservoir ☐; (4) Other method (explain fully) ☐

~~Cattail Falls diversion takes water directly from Cottonwood Creek through infiltration pipes located in the creek bed. Oak Springs diversion consists of a collection box placed directly over the spring.~~

(Attach additional sheets as necessary)

c. Describe diversion and distribution facilities. ~~The two diversions mentioned above, supply~~

~~water by gravity flow to a 25,000 and 500,000 gallon storage tanks located at Oak Springs. From these reservoirs a 50 g.p.m. pump supplies water to a 500,000 gallon storage tank located in the Upper Chisos Basin. Water then flows by gravity from this tank to the Chisos Basin development.~~

~~Type of Pump - centrifugal. Make - Byron Jackson. Size of Intake - 2". Size of Outlet - 2" connected to 3 1/2" pipeline. Rated capacity - 50 gpm. Static Lift - 1550'. Kind of Power - 220/440v, 3 phase. Description of Powerplant - furnished by REA, pump operated by a 40 H.P. G. E. Motor.~~

(Attach additional sheets as necessary)

5. Dam and Reservoir Information:

a. Location of dam is approximately _____ feet in a _____ direction from the _____ corner of _____ Original Survey No. _____, Abstract No. _____ in _____ County, Texas.

b. Acre-feet of water impounded by structure at normal maximum operating level. _____

c. Surface area, in acres, of reservoir at normal maximum operating level. _____

6. Lands to be Irrigated: (If applicable)

a. Total number of acres capable of irrigation with existing system. _____

b. Total number of acres to be irrigated in any one year. _____

c. Legal description of the tracts of land in which irrigation is claimed. _____

(Attach additional sheets as necessary)

7. Historical Use during the following period:

Year	Public Waters Diverted (Acre-feet/annum)	Rated Pump Capacity In Gallons Per Minute or if not pump, diversion capacity in Cubic Feet Per Second	Irrigators tabulate Acres actually irrigated each year with Public Waters.
1963			
1964	12.7	50 G.P.M.	---
1965	13.3	" "	---
1966	13.1	" "	---
1967	13.7	" "	---
	24.0	" "	---

8. Have you commenced or completed construction of facilities that will allow beneficial use of a greater quantity of water than was reported under Paragraph 7 above? Yes ☐ No ☒

If answer is yes, describe facilities for increasing use. _____

(Attach additional sheets as necessary)

9. The dam, reservoir, irrigated areas, pipelines, canals, original surveys with abstract numbers are shown on the aerial photograph or a map accompanying this claim. Refer to plan NP-BB 6952 & 6953.

- a. Does the tract for which you claim an irrigation right border on the stream from which you claim to have the right to divert? Yes ☐ No ☐
- b. Do you have a ditch or pipeline easement or license to cross the intervening land or facility? Yes ☐ No ☐
- c. Does surface water falling on your land drain naturally into the stream mentioned in 10. a.? Yes ☐ No ☐

IE STATE OF TEXAS

COUNTY OF Brewster

Before me, the undersigned authority in and for said County and State on this day personally appeared

Luther T. Peterson, Jr.

who being by me duly sworn on oath stated that the statements in the foregoing instrument are true and correct to the best of his knowledge and belief.

Subscribed and sworn to before me this 29th day of August 1969

(SEAL)

Notary Public
County, Texas.

P.O. BOX 12375, CAPITOL STATION
AUSTIN, TEXAS 78711Docket #2, 3; 4
Part 3

REPORT OF SURFACE WATER USED FOR THE YEAR ENDING DECEMBER 31, 1965

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING, OR OTHER WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE. The Statutes of Texas* require all users of public waters to keep records of and to file annual reports with the Texas Water Rights Commission showing such use. Please use additional sheets if necessary to complete answers to any questions.

Change, if any, in ownership:

NONE

NATIONAL PARK SERVICE
SUPERINTENDENT
BIG BEND NATIONAL PARK, TEXAS

Changes, if any, in address:

NONE

Street or Route

City

State

Riparian

Certified

Permit

No

No

Filing No.

1. Name of stream or canal from which water was diverted: Spring #4 Rio Grande Village, Boquillas Sprg., Caty
If you have a reservoir, please state: Cattail Spring Spr

(a) Name of reservoir: Present

Original

(b) Present capacity of reservoir:

(c) Condition of dam:

2. The amount of water used was determined by: (a) Recording meter: Recording Meter (b) Wier
(c) Flume (d) Other method of estimating quantity used (explain):

3. Detail of amount of surface water used: (ALL USERS)
In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this report. If your record is by gallons, convert to acre-feet. (325,851 gal. = 1 ac. ft.)

Mo.	Municipal & Domestic Use	Industrial Use	Irrigation Use	Mining Use	Hydro- electric Use	Recreation Use	Other Uses	Maximum Diversion Rate**	
								CFS	GPM
Jan.	2.60								89
Feb.	1.94								"
Mar.	2.81								"
Apr.	1.85								"
May	3.07								"
Jun.	1.99								"
Jul.	2.99								"
Aug.	1.33								"
Sep.	2.00								"
Oct.	3.91								"
Nov.	1.26								"
Dec.	3.76								"
TOTAL	29.51								

Total acre-feet surface water used:

**Indicate gal.
per minute or
cubic feet per
second.

4. WELL WATER is not to be included in the figures reported under item number 3 above. However, for planning purposes only, the Commission is interested in obtaining figures for the total quantity of well water used in 1965: NONE acre feet.
*Articles 7611, 7612, and 7612a, Revised Civil Statutes of Texas See T.W.R.B. Code No. 88952 (See reverse side)

5. If all of the water reported was not obtained from your facilities, please state name of supplier and approximate amount of water obtained from such source.

Name NONE Amount _____ Acre-Feet _____

6. If you supplied water to other users, give the names of those supplied, quantities of water supplied, and purpose for which the water was used. Was this water reported under Item Number 3?

Name and Address	Purpose	Acre-Feet
<u>NONE</u>		

7. Irrigators Only:

In 1965 NONE acres were irrigated under this water right.

On _____ acres only 1 crop was produced.

On _____ acres 2 crops were produced.

On _____ acres _____ crops were produced.

This property is located in the _____ Survey or Surveys
No(s) _____ in _____ County.

Water was applied as follows:

Crop	Acres	Number of Waterings	Average Depth in Inches Applied Per Irrigation
1.			
2.			
3.			
4.			
5.			

PLEASE DO NOT SHOW ANY DUPLICATION OF USE

8. Municipal Users Only:

The amount of water returned to the stream as sewage effluent was _____ acre-feet.

The amount of sewage effluent used for irrigation, industrial, or other purposes was _____

acre-feet. Estimated population served at the end 1965 was: 185 people served

9. Industrial Users Only:

Type of Industry: NONE

Of the amount of surface water reported on this form as being used during 1965, the amount or percentage actually consumed was _____ acre-feet or _____ %.

10. Additional Information:

ALL USERS MUST EXECUTE THE FOLLOWING AFFIDAVIT

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at Big Bend National Park, Texas, this the 21 day of February 1966.

/s/ Perry E. Brown

(Signature)

Subscribed and sworn to before me, the undersigned authority, on this the Twenty-first day of February 1966.

/s/ Charley E. Shannon

U.S. Commissioner, Brewster County, Texas

Notary Public in and for

TEXAS WATER COMMISSION

O. BOX 12311, CAPITOL STATION
AUSTIN, TEXAS 78711

REPORT OF SURFACE WATER USED FOR THE YEAR ENDING DECEMBER 31, 1964

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING, OR OTHER WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE. The Statutes of Texas* require all users of public waters to keep records of and to file annual reports with the Texas Water Commission showing such use. Please use additional sheets if necessary to complete answers to any questions.

Change, if any, in ownership:

NONE

NATIONAL PARK SERVICE
SUPERINTENDENT
BIG BEND NATIONAL PARK, TEXAS

Changes, if any, in address:

NONE

Street or Route

City State

Riparian

No. 38185

Certified

Permit

Filing No.

No.

No.

1. Name of stream or canal from which water was diverted: Various Springs

If you have a reservoir, please state:

(a) Name of reservoir:

(b) Present capacity of reservoir:

(c) Condition of dam:

2. The amount of water used was determined by: (a) Recording meter X (b) Wier
(c) Flume (d) Other method of estimating quantity used (explain)

3. Detail of amount of surface water used: (ALL USERS)

In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this report. If your record is by gallons, convert to acre-feet. (325,851 gal. = 1 ac. ft.)

Mo.	Municipal & Domestic Use	Industrial Use	Irrigation Use	Mining Use	Hydro- electric Use	Recreation Use	Other Uses	Maximum Diversion Rate**	
								CFS	GPM
Jan	1,645								124
Feb	952								72
Mar	2,531								198
Apr	3,031								235
May	2,743								206
Jun	2,756								207
Jul	4,004								309
Aug	2,281								172
Sep	3,920								296
Oct	1,898								144
Nov	1,898								144
Dec	2,289								173
TOTAL	30,068								

**Indicate gal.
per minute or
cubic feet per
second.

Total acre-feet surface water used: 30.068

4. WELL WATER is not to be included in the figures reported under item number 3 above. However, for planning purposes only, the Commission is interested in obtaining figures for the total quantity of well water used in 1964: 26.47 acre feet.

Articles 7611, 7612, and 7612a, Revised Civil Statutes of Texas

(See reverse side)

If the water reported was not obtained from your facilities, please state name of supplier and approximate amount of water obtained from such source.

Name NONE Amount NONE Acre-Feet

6. If you supplied water to other users, give the names of those supplied, quantities of water supplied, and purpose for which the water was used. Was this water reported under Item Number 3? _____

Name and Address	Purpose	Acre-Feet

7. Irrigators Only:

In 1964 _____ acres were irrigated under this water right.

On _____ acres only 1 crop was produced.

On _____ acres 2 crops were produced.

On _____ acres _____ crops were produced.

This property is located in the _____ Survey or Survey
No(s) _____ in _____

Water was applied as follows:

Crop	Acres	Number of Waterings	Average Depth in Inches Applied Per Irrigation
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			

PLEASE DO NOT SHOW ANY DUPLICATION OF USE

8. Municipal Users Only:

The amount of water returned to the stream as sewage effluent was _____ acre-feet.

The amount of sewage effluent used for irrigation, industrial, or other purposes was _____
acre-feet. Estimated population served at the end of 1964 was: _____

9. Industrial Users Only:

Type of Industry: _____

Of the amount of surface water reported on this form as being used during 1964, the amount or percentage actually consumed was _____ acre-feet or _____ %.

10. Additional Information:

ALL USERS MUST EXECUTE THE FOLLOWING AFFIDAVIT

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at Big Bend National Park, Texas, this the 22nd day of January, 1965.

(Signature) Perry R. Brown
Superintendent

Subscribed and sworn to before me, the undersigned authority, on this the 22nd day of _____, 1965.

Notary Public in and for

County, Texas

(SEAL)

TEXAS WATER COMMISSION
P. O. BOX 2011, CAPITOL STATION
AUSTIN 11, TEXAS

As-Set No. 12
Various Springs

REPORT OF SURFACE WATER USED FOR THE YEAR ENDING DECEMBER 31, 1963

DUPLICATE - RETAIN FOR YOUR FILES

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING, OR OTHER WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE. The Statutes of Texas* require all users of public waters to keep records of and to file annual reports with the Texas Water Commission showing such use. Please use additional sheets if necessary to complete answers to any questions.

Change, if any, in ownership: _____

NONE

NATIONAL PARK SERVICE
SUPERINTENDENT
BIG BEND NATIONAL PARK, TEXAS

Changes, if any, in address: _____

NONE

Street or Route _____

City _____

Certified _____

Permit _____

Riparian _____

Filing No. _____

No. _____

No. _____

33185

10

1. Name of stream or canal from which water was diverted: Various Springs

If you have a reservoir, please state:

(a) Name of reservoir _____

(b) Present capacity of reservoir _____

(c) Condition of dam _____

2. The amount of water used was determined by: (a) Recording meter ☒ (b) Weir _____
(c) Flume _____ (d) Other method of estimating quantity used (explain) _____

3. Detail of amount of surface water used: (ALL USERS)

In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this report. If your record is by gallons, convert to acre-feet. (325,851 gal. = 1 ac. ft.)

Mo.	Domestic & Domestic Use	Industrial Use	Irrigation Use	Mining Use	Hydro- electric Use	Recreation Use	Other Uses	Maximum Diversion Rate**	
								CFS	GPM
Jan	1,597								120
Feb	0,924								30
Mar	2,554								193
Apr	2,962								224
May	2,667								200
Jun	2,676								201
Jul	3,838								300
Aug	2,215								167
Sep	3,806								287
Oct	1,843								140
Nov	1,843								140
Dec	2,222								168
71-193									

Total acre-feet surface water used: 29.193

4. WELL WATER is not to be included in the figures reported under item number 3 above. However, for planning purposes only, the Commission is interested in obtaining figures for the total quantity of well water used in 1963: 25,700 acre feet

*Sections 7411, 7412, and 7412a, Revised Civil Statutes of Texas

**Indicate gal. per minute or cubic feet per second.

TEXAS WATER COMMISSION
O. BOX 2311, CAPITOL STATION
AUSTIN 11, TEXAS

REPORT OF SURFACE WATER USED FOR THE YEAR ENDING DECEMBER 31, 1962

DUPLICATE - RETAIN FOR YOUR FILES

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING, OR OTHER WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE. The Statutes of Texas* require all users of public waters to keep records of and to file annual reports with the Texas Water Commission showing such use. Please use additional sheets if necessary to complete answers to any questions.

Change, if any, in ownership:

A certified copy of instrument conveying water rights to the new owner:

☐ is attached ☐ will be sent

Changes, if any, in address:

National Park Service
 Superintendent
 Big Bend National Park, Texas

Street or Route

City

State

Certified _____ Permit _____ City _____ State _____
 Filing No. _____ No. _____ No. 38185 (various Springs)
 (Oak Spring, Govt. Spring, Santa Elena Well, Graham Spring, Boquillas Spring)

1. Name of stream or canal from which water was diverted Various Aquifers resulting in spring flow.
 If you have a reservoir, please state:
 (a) Name of reservoir _____
 (b) Present capacity of reservoir _____
 (c) Condition of dam _____

2. The amount of water used was determined by: (a) Recording meter X(Pajor Springs), (b) Wier _____
 (c) Flume _____ (d) Other method of estimating quantity used (explain) _____
3 small springs were estimated

3. Detail of amount of surface water used: (ALL USERS)
 In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this report. If your record is by gallons, convert to acre-feet. (325,851 gal. = 1 ac. ft.)

Mo.	Domestic & Domestic Use	Industrial Use	Irrigation Use	Mining Use	Hydro-electric Use	Recreation Use	Other Uses	Maximum Diversion Rate**	
								CFS	GPM
Jan	1.678								200
Feb	.821								100
Mar	.959								100
Apr	1.756								200
May	.428								80
Jun	2.714								250
Jul	2.330								250
Aug	2.674								250
Sep	.960								100
Oct	2.532								250
Nov	1.967								190
Dec	.163								60
TOTAL	19.182								

19.182 (Riparian Springs & Well)

Total acre-feet surface water used: _____

**Indicate gal. per minute or cubic feet per second.

4. WELL WATER is not to be included in the figures reported under item number 3 above. However, for planning purposes only, the Commission is interested in obtaining figures for the total quantity of well water used in 1962: _____ acre feet.

*Articles 7611, 7612, and 7612a, Revised Civil Statutes of Texas
 C-36 (42-2)

(See reverse side)

5. All of the water reported was not obtained from your facilities, please state name of supplier and approximate amount of water obtained from such source.

Name NONE Amount _____ Acre-Feet _____

6. If you supplied water to other users, give the names of persons supplied, quantities of water supplied, and purpose for which the water was used. Was this water reported under Item Number 3?

Name and Address	Purpose	Acre-Feet
<u>NONE</u>		

7. Irrigator's Only:

In 1963, _____ acres were irrigated under this water right.

On _____ acres only 1 crop was produced.

On _____ acres 2 crops were produced.

On _____ acres _____ crops were produced.

This property is located in the _____ Survey or Surveys

No. (s) _____ in _____ County _____

Water was applied as follows:

Crop	Acres	Number of Waterings	Average Depth in Inches Applied Per Irrigation
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			

PLEASE DO NOT SHOW ANY DUPLICATION OF USE

8. Municipal Users Only:

The amount of water returned to the stream as sewage effluent was _____ acre-feet.

The amount of sewage effluent used for irrigation, industrial, or other purposes was _____ acre-feet. Estimated population served at the end of 1963 was _____

9. Industrial Users Only:

Type of Industry: _____

Of the amount of surface water reported on this form as being used during 1963, the amount or percentage actually consumed was _____ acre-feet or _____ %.

10. Additional Information:

ALL USERS MUST EXECUTE THE FOLLOWING AFFIDAVIT

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at Sig Bend National Park, Texas, this the _____ day of _____ 196_____

(Signed) Coleman C. Newman, Superintendent
(Signature)

Subscribed and sworn to before me, the undersigned authority, on this the _____ day of _____

_____, 196_____

Notary Public in and for _____

TEXAS BOARD OF WATER ENGINEERS

P. O. BOX 2311, CAPITOL STATION

AUSTIN, TEXAS

REPORT OF SURFACE WATER USED FOR THE YEAR ENDING DECEMBER 31, 1961

~~ORIGINAL RETURN TO BOARD~~

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING, OR OTHER WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE. The Statutes of Texas* require all users of public waters to keep records of and to file annual reports with the Board of Water Engineers showing such use. Please use additional sheets if necessary to complete answers to any questions.

Change, if any, in ownership:

National Park Service
Superintendent
Big Bend National Park, Texas

Change, if any, in address:

Certified Filing No. _____ Permit No. _____ Riparian No. 38185 (Various Springs)

1. Name of stream or canal from which water was diverted Various aquifers resulting in spring flow
If you have a reservoir, please state:
(a) Name of reservoir _____
(b) Present capacity of reservoir _____
(c) Condition of dam _____
2. The amount of water used was determined by: (a) Recording meter X, (b) Wier _____
(c) Flume _____, (d) Pump rating multiplied by hours of operation X, (e) Other method of estimating quantity used (explain) Estimate
3. Detail of amount of surface water used: (ALL USERS)
In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this report. If your record is by gallons, convert to acre-feet. (325,851 gal. = 1 ac. ft.)

Mo.	~~Domestic~~ & Domestic Use	Industrial Use	Irrigation Use	Mining Use	Hydro-electric Use	Recreation Use	Other Uses	Maximum Diversion Rate**	
								CFS	GPM
Jan	1.12								180
Feb	.66								100
Mar	1.35								180
Apr	1.55								170
May	1.56								180
Jun	1.62								180
Jul	2.34								200
Aug	2.46								180
Sep	1.26								170
Oct	1.15								180
Nov	.94								90
Dec	1.76								180
TOTAL	17.77								

Total acre-feet surface water used: 17.77 (Riparian)

**Indicate gal.
per minute or
cubic feet per
second.

4. WELL WATER is not to be included in the figures reported under item number 3 above. However for planning purposes only the Board is interested in obtaining figures for the total quantity of well water used in 1961: 15.3 acre feet.

*Articles 7611, 7612, and 7612a, Revised Civil Statutes of Texas

(See reverse side)

5. If all of the water reported was not obtained from your facilities, please state name of supplier and approximate amount of water obtained from such source.

Name _____ Amount _____ Acre-Feet _____

6. If you supplied water to other users, give the names of persons supplied, quantities of water supplied, and purpose for which the water was used.

Name and Address	Purpose	Acre-Feet

7. **Irrigators Only:**

During the year 1961, _____ acres were irrigated to produce only one crop, and _____ acres were irrigated to produce more than one crop. This property is located in the _____ Survey or Surveys No.(s) _____ in _____ County. Following is a breakdown of irrigation with respect to crops.

Crop	Number of Acres Irrigated	Number of Irrigations	Average Depth in Inches Applied Per Irrigation

8. **Municipal Users Only:**

The amount of water returned to the stream as sewage effluent was Estimate 1/2 acre-feet.

The amount of sewage effluent used for irrigation, industrial, or other purposes was _____ acre-feet. Estimated population served at the end of 1961 was: _____.

9. **Industrial Users Only:**

Type of Industry: _____
Of the amount of surface water reported on this form as being used during 1961, the amount or percentage actually consumed was _____ acre-feet or _____ %.

10. **Additional Information:**

Our riparian water sources reported in total above are made up as follows:

Oak Spring	3,299,987 gals.
Govt. Spring	21,802 gals.
Boot Spring	6,400 gals.
Graham Spring	2,196,499 gals.
Boquillas Spring	242,449 gals.
Santa Elena Picnic Well	12,800 gals.

ALL USERS MUST EXECUTE THE FOLLOWING AFFIDAVIT

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at _____, Texas, this the _____ day of _____, 19____.

(sgd) Coleman C. Newman
Acting Superintendent (Signature)

Subscribed and sworn to before me, the undersigned authority, on this the _____ day of _____,

_____, 19____.

Notary Public in and for

(SEAL)

_____, County, Texas

TEXAS BOARD OF WATER ENGINEERS
P. O. BOX 2311 CAPITOL STATION
AUSTIN, TEXAS

REPORT OF WATER USE - 1960

NOTE: WATER USED UNDER EACH PERMIT, CERTIFIED FILING OR OTHER WATER RIGHT MUST BE REPORTED ON A SEPARATE REPORT OF WATER USE. The Statutes of Texas* require all users of public waters to keep records of and to file annual reports with the Board of Water Engineers showing such use. Please use the reverse hereof if necessary to complete answers to any questions.

Docket # 2
Oak Springs & Cattail Falls
Basin Water System

NATIONAL PARK SERVICE
SUPERINTENDENT
RE OAK SPRING-CATTAIL FALLS
BIG BEND NATIONAL PARK TEXAS

Permit _____ Certified Filing _____

Riparian 38190

This report shall be used only for reporting water used under the above designation. Forms for reporting uses under other than the above designation will be provided upon request.

Watershed: RIO GRANDE

Please indicate any change in ownership and address from that shown above.

Present Ownership Same

Present Address Same

1. Name of stream or canal from which water was diverted:

If you have a reservoir please state: None

(a) Name of reservoir _____

(b) Present capacity of reservoir _____

(c) Condition of dam _____

2. The amount of water used was determined by: (a) Recording meter _____ (b) Wier _____
(c) Flume _____ (d) Pump rating multiplied by hours of operation X (e) Other method _____
of estimating quantity used (explain) _____

3. Detail of Amount of Water Used: (ALL USERS)

In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this report. If your record is by gallons, convert to acre-feet.
(325,851 gal. = 1 ac. ft.)

ALL USERS ARE REQUIRED BY LAW TO EXECUTE AFFIDAVIT AT END OF THIS REPORT

Quantity Used in Acre-Feet (450 gallons per minute = 2 acre-feet per 24 hour day; 450 GPM = 1 CFS)							
Mo.	Municipal & Domestic	Industrial Use	Irrigation Use	Mining Use	Hydro- electric Use	Recreation Use	Other Uses
							Maximum Diversion Rate**
							CFS
							GPM
Jan	0.426						
Feb	0.299						
Mar	0.487						
Apr	0.151						
May	0.540						
Jun	1.523						
Jul	0.689						
Aug	0.758						
Sep	0.747						
Oct	0.719						
Nov	0.750						
Dec	0.726						
TOTAL	7.875						

This water was pumped from spring

Total Acre-Feet Surface Water Used: _____

**Indicate gal.
per minute or
cubic feet per
second.

*Articles 7611, 7612 and 7612a Revised Civil Statutes of Texas

4. If all of the water reported here was not obtained from your own facilities, please state name of supplier and approximate amount of water obtained.
Name _____ Amount _____ Acre-feet _____

5. If you supplied water to other users, give the names of persons supplied, quantities of water supplied, and purpose for which the water was used. **Not applicable**

Name and Address	Purpose	No. of Ac. Ft.

6. **Irrigators Only:** **Not applicable**

Please state the number of acres of land in your irrigation program: _____ acres.
Of this amount, please state the number of acres irrigated during 1960: _____ acres.
Of the acres irrigated during 1960, how many acres were irrigated to produce only one crop: _____ acres.
How many acres were irrigated during 1960 to produce more than one crop: _____ acres. State the name of the survey or surveys in which the lands in your irrigation program are located: _____
Survey No. _____, Abstract No. _____, _____ County, Texas.

7. **Municipal Users Only:**

Indicate the amount of water returned to stream as sewage effluent: **None** Ac. Ft.
Indicate the amount of sewage effluent used for irrigation, industrial, or other purposes: **None** Ac. Ft. What was the estimated population connected to your system at the end of 1959? **Not applicable** 1960 **not applicable**

8. **Industrial Users Only:** **Not applicable**

Type of industry: _____
Of the amount of surface water you have reported on this form as being used during 1960, estimate the quantity or percentage actually consumed: _____ Ac. Ft. or _____ %.

9. **WELL WATER** is not to be included in the figures reported under item number 3, however for planning purposes only the Board is interested in obtaining figures for the total quantity of well water used in 1960: **None** acre feet.

10. **Other Comments:**

Cattails: Falls water was not use during 1960.

Wells # 1 and # 2 in the Lower Basin were developed in 1960, but not used.

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at **Big Bend Nat'l Park**, Texas, this the **28** day of **February**, 19 **61**

Stanley C. Joseph
Stanley C. Joseph (Signature) Superintendent

Subscribed and sworn to before me, the undersigned authority, on this the **28** day of

February, 19 **61**.

Charley E. Shannon
Charley E. Shannon
U.S. Commissioner
Big Bend National Park, Texas

(SEAL)

Docket #2 Oak Spring Cat Tail Falls

REPORT OF WATER USED FOR THE YEAR ENDING DECEMBER 31, 1959

Article 7612, Vernon's Annotated Civil Statutes, Texas, provides for the filing of an annual report to the Board of Water Engineers by all appropriators of public waters. The report is intended to show the amount of water used and the distribution of use. Each Permit or Certified Filing must be reported separately.

Change, if any, in ownership: _____

56260 A VANN V DUNN
CHIEF WATER RESOURCES SECTION
U S DEPT OF INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25 D C

Change, if any, in address: Superintendent, Big Bend National Park, Texas 1.5

Check the appropriate square or squares to indicate the use or uses for which your Permit was granted:
Municipal ☒; Industrial ☐;
Irrigation ☐; Mining ☐;
Hydroelectric ☐; Recreation ☐.

Source of Water:

- (1) Reservoir ☐. Name of reservoir _____
(2) Stream ☒. Name of stream Oak Spring and Cattail Falls
(3) Well ☐. (While your Permit covers only the use of surface water, information concerning the use of ground water is of value to this Board in compiling data.)
Basin Water System

Method of Determining Amount of Water Used:

- (1) Recording meter ☒; (2) Wier ☐; (3) Flume ☐; (4) Pump rating multiplied by hours of operation ☐; (5) Other method of estimating quantity used ☐. Explain other method.

Capacity of pump or pumps: 50 50
gal. per minute gal. per minute gal. per minute gal. per minute

Miscellaneous Information:

- (1) Was all of the water reported on this form obtained from your own facilities? Yes. If not, state here the name of your supplier and the approximate amount of water obtained.
Name of Supplier _____; no. of ac. ft. _____
Name of Supplier _____; no. of ac. ft. _____
(2) Did you supply water to other users? No. If so, give the names of persons supplied, quantities supplied, and purpose for which use was made:

Name	Purpose	No. of Ac. Ft.

- (3) Was your supply of water adequate in 1959? Yes. What plans, if any, do you have for increasing your supply? We expect to develop well #1 and Well #2 in Lower Basin Area of Chisos Mountains

Detail of Amount of Water Used: (ALL USERS)

In the appropriate column or columns below, show by months the amounts of water used for each purpose covered by this Permit or Certified Filing. While your Permit covers only the use of surface water (from reservoir or stream), information concerning the use of well water is also of value to this Board in compiling data. Please indicate such use by drawing a circle around the number of acre feet used from wells. If both sources were used during a given month (for example, 20 acre feet from a reservoir and 10 acre feet from a well), show the amount used in this manner: 20 (10). If your record is by gallons, convert to acre feet. (325,851 gal. = 1 ac. ft.)

Mo.	Quantity Used in Acre Feet (1 Acre Foot = 325,851 Gallons)						Maximum Diversion Rate	
	Municipal & Domestic Use	Industrial Use	Irrigation Use	Mining Use	Hydro-electric Use	Recreation Use	Gal. per Minute	Cu. Ft. per Second
Jan	0.807						50	
Feb	0.495						50	
Mar	0.281						50	
Apr	0.532						50	
May	0.500						50	
Jun	1.131						50	
Jul	0.809						50	
Aug	1.265						50	
Sep	0.762						50	
Oct	0.470						50	
Nov	0.178						50	
Dec	0.480						50	
TOTAL	7.81							

Total Acre Feet Surface Water Used: _____ Total Acre Feet Ground Water Used: 7.81

ALL USERS ARE REQUIRED BY LAW TO EXECUTE AFFIDAVIT AT END OF THIS REPORT

(See Other Side of This Sheet)

Detail of Amount of Water Used: (Irrigators Only)

In the spaces below, list by months the number of acres irrigated and the depth of irrigation in inches for each crop that received water during 1959. In case well water was used for any of these irrigations, draw a circle around the number of inches so irrigated.

CROP	JAN		FEB		MAR		APR		MAY		JUN	
	Acres	In.	Acres	In.	Acres	In.	Acres	In.	Acres	In.	Acres	In.
Cotton												
Grain Sorghum												
Field Corn												
Sweet Corn												
Wheat												
Oats or Barley												
Rice												
Forage Sorghum												
Pasture												
Alfalfa												
Peanuts												
Orchard												
Sweet Potatoes												
Irish Potatoes												
Vegetable Crop												
Other Crop or Use												
CROP	JUL		AUG		SEP		OCT		NOV		DEC	
	Acres	In.	Acres	In.	Acres	In.	Acres	In.	Acres	In.	Acres	In.
Cotton												
Grain Sorghum												
Field Corn												
Sweet Corn												
Wheat												
Oats or Barley												
Rice												
Forage Sorghum												
Pasture												
Alfalfa												
Peanuts												
Orchard												
Sweet Potatoes												
Irish Potatoes												
Vegetable Crop												
Other Crop or Use												

TOTAL ACRES _____ TOTAL INCHES _____ TOTAL ACRE FEET _____ *

* Multiply total acres by total inches and then divide by 12 to get total acre feet.

Irrigators Only:

Of the number of irrigated acres reported above, how many of these acres were used to produce more than one crop during 1959? _____. How many acres do you farm which are subject to irrigation but were not irrigated during 1959? _____. How many acres are contained in the property on which you irrigate? _____. Do you own this property? _____. If not, give the name of the owner: _____;
address of owner: _____;
State the name of the survey in which this property is located: _____;
survey number: _____; abstract number: _____; name of county: _____.

Municipal Users Only:

Indicate the amount of water returned to stream as sewage effluent: None Ac. Ft.
Indicate the amount of sewage effluent used for irrigation, industrial, or other purposes: _____ Ac. Ft.
What was your estimated population at the end of 1958? Not Appl. ; 1959? Not Appl. .

Industrial Users Only:

Type of industry: _____
Of the amount of surface water you have reported on this form as being used during 1959, estimate the quantity or percentage actually consumed: _____ Ac. Ft. or ____ %.

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

Witness my hand at Big Bend Natl. Pk., Texas, this the 23rd day of March, 1960 .

Subscribed and sworn to before me, the undersigned authority, on this the 23rd day of March, 19 60 .

(SEAL)

Charley E. Shannon Notary Public in and for
U. S. Commissioner Big Bend National Park, Texas

Rickett

REPORT OF WATER USED FOR THE YEAR ENDING DECEMBER 31, 1958

Please complete all applicable items on both sides of this form. The Affidavit on the reverse side must be executed by all users. IF YOU OWN MORE THAN ONE PERMIT OR CERTIFIED FILING, FILL OUT A SEPARATE REPORT FOR EACH. IF GROUND WATER WAS USED TO SUPPLEMENT THE SURFACE WATER SUPPLY, FILL OUT ITEM 6.

NATIONAL PARK SERVICE
U S DEPT OF INTERIOR
WASHINGTON 25 D. C.

Certified Filing No. _____
Permit No. _____

Do Not Write In This Space	
_____	A.F.
_____	A.F.
_____	A.F.
Acres Irrigated _____	
Remarks _____	

Change, if any, in ownership or address No change

1. Source of Water.

Water was taken from Oak Spring & Cottonwood Creek of Cattail Falls (reservoir)(stream)
The capacity of the reservoir is _____ ac. ft.

2. The amount of water used was determined by: (1) recording meter ☐ ; (2) wier ☐ ;
(3) flume ☐ ; (4) pump rating multiplied by hours of operation ☐ ; (5) Explain any
other method of estimating quantity used. _____

3. In the space below show the total monthly amount, preferably in acre-feet*, of surface
water pumped or diverted from streams or reservoirs. Use a separate line for each
purpose for which water was used, as Irrigation (Irr); Municipal (Mun); Industrial
(Ind); Mining (Min); Hydroelectric (Hydro); or Recreation (Rec.)

Purpose	Quantity	Max. Diversion Rate in Gallons Per Minute	Purpose	Quantity	Max. Diversion Rate in Gallons Per Minute
Jan <u>Mun.</u>	<u>.24</u>	<u>50</u>	Jul <u>Mun.</u>	<u>.70</u>	<u>50</u>
Feb <u>Mun.</u>	<u>.34</u>	<u>50</u>	Aug <u>Mun.</u>	<u>1.25</u>	<u>50</u>
Mar <u>Mun.</u>	<u>.48</u>	<u>50</u>	Sep <u>Mun.</u>	<u>1.12</u>	<u>50</u>
Apr <u>Mun.</u>	<u>.65</u>	<u>50</u>	Oct <u>Mun.</u>	<u>1.14</u>	<u>50</u>
May <u>Mun.</u>	<u>.92</u>	<u>50</u>	Nov <u>Mun.</u>	<u>.64</u>	<u>50</u>
Jun <u>Mun.</u>	<u>1.35</u>	<u>50</u>	Dec <u>Mun.</u>	<u>.49</u>	<u>50</u>

*Note: One acre-foot equals
325,829 gallons.

Totals: 9.32 Acre-Foot

4. Was all of the water reported here obtained from your own facilities? Yes. If your
answer is no, please state name of supplier and approximate amount of water obtained.
Name _____ Amount _____ Ac. Ft.

5. Did you supply water to other water users? Yes. If so, give the names of persons
supplied, quantities of water supplied, and purpose for which use was made.

National Park Concessions, Inc. 3.65 acre ft. Mun.
(Concession operates public facilities under federal contract)

6. Was part of water supply used obtained from wells? Yes No
Amount of water pumped from wells inapplicable Ac. Ft.
This amount of water (was) (was not) included in figures above.
This ground water was used for irrigation ☐ ; industrial ☐ ; municipal ☐ ; combined
with surface supply ☐.

See Reverse Side

7. MUNICIPALITIES ONLY:

- (a) Total number of service connections 36 or more
- (b) Amount of water used from your system during year 9.32 Ac. Ft.
- (c) Amount of water returned to stream as sewage effluent negligible Ac. Ft.
- Amount of sewage effluent used for irrigation, industrial, or other purposes None Ac. Ft.

8. INDUSTRIAL USERS ONLY:

Type of industry Inapplicable

Of the amount of water itemized on page 1 it is estimated that _____ acre-feet were used for process water, _____ acre-feet were used for cooling water, and _____ acre-feet were used for _____.

9. IRRIGATORS ONLY:

- (a) A total of Inapplicable acres were irrigated under this report during 1958. These figures include _____ acres which were irrigated to produce one crop during the year and _____ acres which were irrigated to produce more than one crop during the year. Following is a breakdown of irrigation with respect to crops:

Kind of Crop	Number of Acres Irrigated	Number of Irrigations	Average Depth in Inches Applied Per Irrigation
<u>INAPPLICABLE</u>			

- (b) If you do not own all of the lands irrigated, please fill in the following:

I _____ acres of land owned by _____
(rent, lease)

(name and address)
located in the _____, Survey No. _____,
(name of survey)

Abstract No. _____, _____ County, which were irrigated.

- (c) If you own all or any part of the land that is irrigated, please fill in the following:
I own _____ acres located in Use HMC 22, Survey No. Block 10 Lots 31, 32,
(name of survey)
Abstract No. State to U.S. Brewster, _____ County, which were irrigated.

10. Additional Information

This space is provided for any remarks you may care to make with reference to your water use during the year 1958.
System serves community consisting of concession operated 24 unit public lodge, federally operated 20 unit public campground and related shops. Metered water is sold to concessioner. All other water provided at Federal expense.

All users must execute the following affidavit.

AFFIDAVIT

I hereby certify that the above is true and correct to the best of my knowledge and belief.

CITY OF WASHINGTON, DISTRICT OF COLUMBIA
Witness my hand at _____, Texas, this the _____ day of
March 3, 195 9.

A. van V. Dunn, Chief, Water Resources Sec., National Park Service

Subscribed and sworn to before me, the undersigned authority, on
this the 3rd day of March, 195 9.

Louis A. Davis
Notary Public in and for
CITY OF WASHINGTON, DISTRICT OF COLUMBIA
_____ County, Texas

Form NPS-L-1

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICEState Texas

LAND OWNERSHIP RECORD

Tract No. _____

County BrewsterDeed No. 3Civil Subdivision _____ Area Basin acres _____Big Bend National Park

Name of Park or Area

Area based on records Water Division Date June 17, 1940Chisos Mountains
Section of Park or AreaLegal Description: Claim to waters of an artesian well.Method of Acquisition: Drilling of well Appropriation or Source of funds: _____

Cost (if purchased) or estimated value: _____

Acquired from: _____

Accepted by Secretary (____) Opinion of Att'y. Gen.—title in U. S. (____) date: _____

Physical Characteristics: An artesian well 400 feet deep.
Initial capacity between 10 and 16 gallons per minute.
Capacity about 150 gph September 1946.

Improvements on Land at time of Acquisition: _____

Existing or outstanding special use permits, reservations, rights, or rights of way: _____

Report Based on: Records of Water Division, Log and Water Analysis of Well.Prepared by: A. van V. Dunn. date: Feb. 25, 1947.

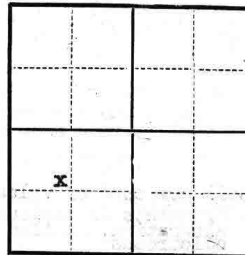
Map References: _____

Remarks: This well seems to be failing due to seepage losses, excessive pumping
or reduced inflow during dry seasons.

Supporting Hydro Data

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

RECORD OF WELL



1. Location: State of Texas County Brewster
Nearest P. O. Marathon Direction from P. O. South
Block 10
sec. 32, T. 7, R. 10

2. Owner: National Park Service Address Marathon, Texas
Driller: Parker & Jones Drilling Co. Address Iraan, Texas
Site selected by: Ross A. Maxwell Address Marathon, Texas

3. Situation: Is well on upland, in valley, or on hillside? Hillside

4. Type of well: Drilled; kind of drilling rig used Cable tools
(Dug, driven, bored, or drilled) (Solid tool, jetting, rotary, etc.)

5. Depth of well: 1160 ft. ft.; year in which well was finished 1947
Does well enter rock? Yes; if so, at what depth? 9 ft.; kind of rock Clay with gypsum and lignite

6. Depth to water: 268 ft.; Amount water rose above level where first struck 53 ft.

7. Diameter: At top 10 inches; at bottom 10 inches.

8. Principal water bed: Sand, fine-grained with angular quartz and dark green clay
(Gravel, sand, clay, or rock. If rock, state kind)

Depth to principal water bed 268 ft.; thickness of bed 6 ft.

If other water supplies were found, give depth to each 365 to 372

9. Casings: Kind oil well; size 8 1/2; length 375 ft.; between depths of 0 and 375 ft.

Kind oil well; size 6-5/8; length 801 ft.; between depths of 0 and 801 ft.

Kind oil well; size 6-5/8; length 801 ft.; between depths of 0 and 801 ft.

Packers (if any): Depth at which packers were used 265; kind rubber - cup type

Screen or Strainer: Was well finished with screen or perforated pipe? perforated; kind of screen no;

length of screen no ft.; diameter no inches; size of openings no

perforated pipe; size of perforations 1/8"x1/4"; how were perforations made; burned, drilled? torch

10. Head: Does well at present overflow without pumping? no; did it overflow when new? no;

11. Pump: Is the well pumped? yes; kind of pump Myers-self oil pump - 12" stroke;

size or capacity of pump 10 gal. per min.; kind of power gas engine

12. Yield: Natural flow at present (if any) 2 gallons per minute; original flow 25 to 30 gallons per minute;

well has been pumped at av. 1 to 2 gallons per minute continuously for 8 hours;

quantity of water ordinarily obtained from well 25 to 30 gallons per minute

13. Use: For what purpose is the water used? Domestic

14. Quality of the water: Slightly hard; is there an analysis? yes
(Hard or soft, fresh or salty, etc.)

Name of person filling blank Ross A. Maxwell

Date October 14, 1947

Address Marathon, Texas

On the back of this sheet give the record of the beds through which the well passes and any other facts not given above.

LOG OF WELL

KIND OF ROCK OR OTHER MATERIAL (Give color and tell whether hard or soft)	DEPTH, IN FEET		THICKNESS, IN FEET	REMARKS (Especially information as to water found)
	From—	To—		
Soil composed of volcanic ash fragments in various stages of alteration, mottled lavender color calcareous	0	9	9	Spudded in at 5:05 p.m. June 6, 1947
Sub-bentonite, olive-green color, calcareous, contains gypsum and specks of lignite	9	17	8	
Same	17	25	8	
Same	25	32	7	
Same	32	40	8	
Same	40	47	7	
Same	47	53	6	
Clay, greenish-gray color, calcareous; clay, lavender-gray color; soft	53	62	9	
Clay, lavender-gray color; clay, gray color, calcareous; soft	62	71	9	
Clay, chocolate color; clay, yellow color, calcareous; soft	71	80	9	
Clay, chocolate color; limestone, gray color, impure, fine-grained, soft	80	89	9	Hole caving
Clay, chocolate color; clay, yellow color, calcareous; soft	89	98	9	
Clay, chocolate color; limestone gray, fine-grained; medium	98	103	5	
Clay, chocolate color; clay, yellow color, calcareous; medium	103	108	5	
Clay, chocolate color; limestone, light gray, very fine gravel; medium	108	115	7	
Clay, chocolate color; limestone, gray color, impure, very fine-grained; clay, yellow color, calcareous; medium	115	123	8	
Same	123	129	6	
Same	129	135	6	
Same	135	142	7	Hole caving
Same	142	147	5	
Same; few quartz grains	147	153	6	
Sand, fine-grained, angular quartz, calcareous	153	160	7	

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LOG OF WELL (continued)				
Kind of Rock or Other Material	Depth in Feet		Thickness in Ft.	Remarks
	From	to		
Sand, fine-grained, angular quartz, calcareous	160	168	8	
Same	168	175	8	
Same	175	182	7	
Clay, chocolate color, calcareous	182	190	8	
Clay, chocolate color, calcareous; clay, yellow and green colors, calcareous; limestone, white, very fine-grained; medium	190	200	10	Hole Caving
Same	200	210	10	
Same; limestone, yellow and green, fine-grained: medium	210	220	10	
Same	220	226	6	
Same	226	232	6	Hole Caving
Clay, light-greenish-gray, and yellow colors, calcareous: med.	232	237	5	
Clay, dark-gray color, part calcareous: medium	237	247	10	
Clay, dark-gray color, slightly calcareous; medium	247	256	9	
Same; sand, fine-grained, angular quartz; medium	256	262	6	
Sand; fine-grained, angular quartz, clay, dark-green, medium	262	268	6	Encountered water that rose to 208 feet, bailed for 30 minutes at rate of about 35 gal. per min., lowered water to 238 ft. but couldn't bail dry. Shut down for orders at 3:25 a.m.
Same	268	274	6	Ran 274 ft. 9 in. of 8-1/4" in. casing., set on bottom at 274 ft. Shut down well for 8 hrs., water rose to 212 ft. Ran 45 gal. bailer 26 times in 30 min. lowered water to 242 ft. but couldn't bail dry.

LOG OF WELL (continued)				Remarks
Kind of Rock or Other Material	Depth in Feet From To		Thickness in feet	
Clay, greenish-gray color, calcareous; medium	274	281	7	Drilling inside 8 $\frac{1}{4}$ in. casing.
Same	281	290	9	
Clay, dark-green and light-gray colors, mottled, contains quartz grains and crystalline calcite; medium	290	298	8	
Same	298	303	5	Bailed hole dry - water shut off. Shut down to pull tubing rods and clean another well in accordance with Contract No. I-5np-13
Same	303	310	7	Started drilling 10-inch hole with 8-inch underdigger at 303.
Same	310	319	9	
Sandstone, fine-grained angular quartz, feldspar mostly altered to Kaolin, calcareous cement; medium	319	327	8	
Same	327	335	8	
Same	335	340	5	
Same	340	348	8	Hole caving
Same	348	356	8	
Same	356	365	9	
Same	365	372	7	Water, about 15 gal. per hour
Clay, light-gray color, calcareous; limestone, dark-gray color, very fine-grained, impure; medium	372	380	8	
Same	380	390	10	
Sandstone, light-gray color, very fine-grained, calcareous cement; medium	390	395	5	

LOG OF WELL (continued)				
Kind of Rock or Other Material	Depth in Feet		Thickness in feet	Remarks
	From	To		
Sand, fine-grained, angular quartz; clay, light-gray; hard	395	402	7	
Sand, fine-grained angular quartz hard	402	410	8	
Clay, greenish-gray color; hard	410	417	7	
Clay, dark-gray color; medium	417	424	7	Took off underdigger at 417 ft. and began drill- ing 8-inch hole
Same	424	432	8	
Same	432	440	8	Hole caving
Clay, dark-gray color; clay, chocolate color, calcareous; medium	440	449	9	
Same; soft	449	457	8	
Same; soft	457	466	9	
Same; soft	466	475	9	
Same; soft	475	478	3	
Clay, light-gray color, calcareous; clay, light-gray color, sandy, calcareous; medium	478	484	6	
Clay, greenish-gray color; medium	484	490	6	
Same	490	498	8	
Clay, dark-gray color; sandstone, fine-grained, calcareous; medium	498	505	7	
Same	505	512	7	
Clay, dark-gray color; medium	512	519	7	
Same	519	525	6	Hole caving
Same	525	532	7	
Clay, dark-gray color; sand, fine grained, calcareous; soft	532	538	6	

LOG OF WELL (continued)

Kind of Rock or Other Material	Depth in Feet		Thickness in feet	Remarks
	From	To		
Same	538	545	7	
Clay, dark-gray color; soft	545	552	7	
Clay, dark-gray color; sand, fine-grained, calcareous; soft	552	560	8	
Same; soft	560	567	7	
Clay, dark-gray color; soft	567	575	8	
Clay, light-greenish color, calcareous; sandstone, fine-grained, calcareous; medium	575	582	7	
Clay, dark-gray and chocolate colors; medium	582	589	7	
Same	589	595	6	
Clay, greenish-gray and chocolate colors; medium	595	600	5	
Clay, dark-gray color; medium	600	606	6	
Same	606	612	6	
Same	612	618	6	
Same	618	628	10	
Clay, greenish-gray color; soft	628	636	8	
Clay, mottled, greenish-gray and chocolate colors; soft	636	642	6	
Clay, chocolate color; calcareous; clay, greenish-gray color; hard	642	650	8	
Clay, greenish-gray color; sandstone, fine-grained, calcareous; hard	650	654	4	
Clay, chocolate and olive-green, mottled; clay, greenish-gray color, sandy and calcareous; soft	654	662	8	
Clay, greenish-gray color; soft	662	671	9	

LOG OF WELL (continued)

Kind of Rock or Other Material	Depth in Feet		Thickness in Ft.	Remarks
	From	To		
Same	671	678	7	Hole caving badly
Clay, greenish-gray color; sandstone, fine-grained, calcareous; medium	678	687	9	
Clay, greenish-gray color; medium	687	694	7	
Same	694	703	9	
Clay, greenish-gray and chocolate colors; medium	703	711	8	
Clay, chocolate color; medium	711	715	4	
Clay, chocolate and bluish-gray colors; medium	715	720	5	
Clay, chocolate and greenish-gray colors; medium	720	724	4	
Clay, chocolate, dark-gray and greenish-gray colors; medium	724	730	6	
Clay, dark-gray, greenish-gray and chocolate colors; medium	730	735	5	
Same	735	743	8	
Same	743	751	8	
Clay, dark-gray color; medium	751	758	7	
Clay, dark-gray and greenish-gray colors; medium	758	768	10	
Same	768	775	7	Hole caving badly
Clay, dark-gray color; medium	775	784	9	
Same	784	794	10	
Clay, dark gray and bluish-gray colors; medium	794	800	6	Put in rock bridge at 395-ft. to hold cement ran 8½-inch casing down to 375 feet.

P*. 7

LOG OF WELL (continued)

Kind of Rock or Other Material	Depth		Thickness in Feet	Remarks
	From	To		
				Cemented 8 $\frac{1}{4}$ " casing with 20 sacks cement at bottom of casing to shut off water at 365-372 ft. Also cemented 8 $\frac{1}{4}$ " casing with 20 sacks cement above water at 268 ft. Ran 800 ft. 6-5/8" casing.
Sand, gray, fine; sand, brown fine; medium	800	810	10	
Sand, gray, fine; medium	810	817	7	
Same	817	825	8	
Clay, brown, fine; sand, gray, fine; medium	825	833	8	Lost tools at 830', fished them out.
Same	833	835	2	
Sand, gray, argillaceous; clay, gray to brown; medium	835	840	5	
Sand, gray, fine, argillaceous; medium	840	848	8	
Sand, gray and brown, fine; clay, brown; medium	848	858	10	
Clay, gray, fine, silty; soft	858	866	8	
Clay, brown, sandy; soft	866	875	9	
Clay, brown, fine; sand, gray, silty; medium	875	883	8	
Sand, gray, fine, argillaceous; medium	883	890	7	
Clay, gray, sandy; medium	890	900	10	
Clay, gray and brown, sandy; medium	900	907	7	
Clay, brown, sandy; medium	907	914	7	

LOG OF WELL (continued)

Kind of Rock or Other Material	Depth in Feet Thickness			Remarks
	From	To	in Feet	
Clay, gray and brown;sandy;medium	914	920	6	
Sand, gray & brown,argillaceous, medium	920	925	5	
Clay, brown, sandy	925	935	10	
Same	935	940	5	
Clay, brown, sandy; medium	940	950	10	
Sand, gray, fine, some silt; medium	950	959	9	
Sand, gray, fine; medium	959	966	7	
Same	966	971	5	
Clay, brown, fine, sandy; medium	971	975	4	
Sand, gray, fine; medium	975	980	5	
Same	980	984	4	
Same	984	992	8	
Shale, brown, sandy; medium	992	1000	8	
Shale, brown and blue; sandy, medium	1000	1010	10	
Shale, gray and blue; sandy, medium	1010	1019	9	
Same; medium	1019	1029	10	
Shale, gray; medium	1029	1039	10	
Same; medium	1039	1045	6	
Shale, gray and brown; medium	1045	1055	10	
Shale, gray, sandy; medium	1055	1065	10	
Shale, gray and brown, sandy; medium	1065	1074	9	
Same	1074	1083	9	

LOG OF WELL (continued)				Remarks
Kind of Rock or Other Material	Depth in Feet		Thickness	
	From	to	in Ft.	
Shale, gray and brown; medium	1083	1089	6	
Sand, gray and brown; argilla- ceous; medium	1089	1098	9	
Shale, gray and brown; sandy; medium	1098	1105	7	
Shale, brown, sandy; medium	1105	1112	7	
Shale, brown; medium	1112	1119	7	
Shale, gray and brown; medium	1119	1126	7	
Same	1126	1134	8	
Same	1134	1140	6	
Shale, gray and blue, sandy; medium	1140	1146	6	
Shale, gray and brown; medium	1146	1150	4	
Shale, brown; medium	1150	1157	7	
Shale, gray and brown; sandy; medium	1157	1160	3	Total Depth, 1160 ft. Rock and mud bridge from 815 to 930 ft. Cement plug from 780 to 815 ft. Filled 6-5/8 in. casing with water 425 to 780 ft; set rock and mud bridge 415 to 425 ft. Cement plug 405 to 415 ft. filled with water from 215 to 405 ft. Waited for cement to set. Perforated 6-5/8-in. casing from 250 to 270 ft. Made Bailer test which showed 18 to 20 gal. per min. yield. Started taking down rig in preparation to moving out.

Region Three

LOG OF WATER WELL NO. 2: BASIN OF CHisos MOUNTAINS
BIG BEND NATIONAL PARK
MARATHON, TEXAS

Parker & Jones Drilling Co.
Irmaan & McGaney, Texas
Contract I-5np-10

Date	Kind of Rock or Other Material	Depth		Thickness in ft.	Remarks
		From	To		
1947					
5/31					Contractor moving in material and tools
6/1					" " "
6/2					" " "
6/3					Contractor moving in. Tools and rigging up.
6/4					Contractor rigging up.
6/5					" " "
6/6	Soil, composed of volcanic ash fragments in various stages of alteration, mottled lavender color, calcareous.	0	9	9	Spudded in at 5:05 p.m.
	Sub-bentonite, olive-green color calcareous, contains gypsum and specks of lignite	9	17	8	
	Same	17	25	8	
	Same	25	32	7	
6/7	Same	32	40	8	
	Same	40	47	7	
	Same	47	53	6	
	Clay, greenish-gray color, calcareous; clay lavender-gray color; soft	53	62	9	
	Clay, lavender-gray color; clay, gray color calcareous; soft	62	71	9	

Date	Kind of Rock and Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
6/7	Clay, chocolate color; clay, yellow color; calcareous; soft	71	80	9	
	Clay, chocolate color; limestone, gray color, impure, fine-grained; soft	80	89	9	Hole caving
	Clay, chocolate color; clay, yellow color, calcareous; soft	89	98	9	
	Clay, chocolate color; limestone, gray, fine-grained; medium	98	103	5	
	Clay, chocolate color; clay, yellow color, calcareous; medium	103	108	5	
	Clay, chocolate color; limestone, light-gray, very fine gravel; med.	108	115	7	
	Clay, chocolate color; limestone, gray-color, impure, very fine-grained; clay, yellow color, calcareous; medium	115	123	8	
	Same	123	129	6	
	Same	129	135	6	
	Same	135	142	7	Hole caving
6/8	Same	142	147	5	
	Same; few quartz grains	147	153	6	
	Sand, fine-grained, angular quartz; calcareous	153	160	7	
	Same	160	168	8	
	Same	168	175	8	
	Same	175	182	7	

Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
6/8	Clay, chocolate color, calcareous	182	190	8	
	Clay, chocolate color, calcareous; clay, yellow and green colors; cal- careous; limestone, white, very fine-grained; medium	190	200	10	Hole caving
6/9	Same	200	210	10	
	Same	210	220	10	
	Same	220	226	6	
	Same	226	232	6	Hole caving
	Clay, light-greenish-gray, and yellow colors, calcareous; medium	232	237	5	
	Clay, dark-gray color; part cal- careous; medium	237	247	10	
	Clay, dark-gray color; slightly calcareous; medium	247	256	9	
	Same; sand, fine-grained, angular quartz; medium	256	262	6	
	Sand, fine-grained, angular quartz, clay, dark-green; medium	262	268	6	Encountered water that rose to 208 ft. bailed for 30 minutes at rate of about 35 gal. per min. Lowered water to 238 ft. but couldn't bail dry. Shut down for orders at 3:25 a.m.
6/10	Same	268	274	6	Ran 274 ft. 9-in. of 8 $\frac{1}{2}$ -in. casing. Set on bottom at 274 ft. Shut down well for 8 hrs. Water rose to 212 ft. Ran 45-gal. bailer 26 times in 30 min. Lowered water to 242 ft. but couldn't bail dry.

Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
6/11	Clay, greenish-gray color, calcareous; medium	274	281	7	Drilling inside 8½" casing.
	Same	281	290	9	
	Clay, dark-green and light-gray colors, mottled, contains quartz grains and crystalline calcite; medium	290	298	8	
	Same	298	303	5	Bailed hole dry - water shut off.
6/11 to 6/19					Shut down to pull tubing rods and clean another well in accordance with Contract I-5np-13
6/19	Same	303	310	7	Started drilling 10-inch hole with 8-inch underdigger at 303.
	Same	310	319	9	
	Sandstone, fine-grained angular quartz; feldspar mostly altered to kaolin, calcareous cement; med.	319	327	8	
	Same	327	335	8	
	Same	335	340	5	
6/20	Same	340	348	8	Hole caving.
	Same	348	356	8	
	Same	356	365	9	
	Same	365	372	7	Water, about 15 gal./ hr
	Clay, light-gray color, calcareous; limestone, dark-gray color, very fine grained, impure; medium	372	380	8	

Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
6/21	Same	380	390	10	
	Sandstone, light gray color, very fine-grained, calcareous cement, medium.	390	395	5	
	Sand, fine-grained, angular quartz; clay, light gray; hard	395	402	7	
	Sand, fine-grained, angular, quartz; hard	402	410	8	
6/22	Clay, greenish-gray color; hard	410	417	7	
	Clay, dark-gray color; medium	417	424	7	Took off underdigger at 417 ft. and began drilling 8-inch hole.
	Same	424	432	8	
	Same	432	440	8	Hole caving
	Clay, dark-gray color; clay, chocolate color, calcareous; medium	440	449	9	
	Same; soft	449	457	8	
3a	Same; soft	457	466	9	
	Same; soft	466	475	9	
6/23	Same; soft	475	478	3	
	Clay, light-gray color, calcareous; clay, light-gray color, sandy, calcareous; medium	478	484	6	
	Clay, greenish-gray color; med.	484	490	6	
	Same	490	498	8	
	Clay, dark-gray color; sandstone, fine-grained, calcareous; medium	498	505	7	
	Same	505	512	7	

Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
6/23	Clay, dark-gray color; medium	512	519	7	
	Same	519	525	6	Hole Caving
	Same	525	532	7	
	Clay, dark-gray color; sand, fine-grained, calcareous; soft	532	538	6	
	Same	538	545	7	
	Clay, dark-gray color; soft	545	552	7	
	Clay, dark-gray color; sand, fine-grained, calcareous; soft	552	560	8	
	Same; soft	560	567	7	
	Clay, dark-gray color; soft	567	575	8	
6/24	Clay, light-greenish-gray color, calcareous; sandstone, fine-grained, calcareous; medium	575	582	7	
	Clay, dark-gray and chocolate colors; medium	582	589	7	
	Same	589	595	6	
	Clay, greenish-gray and chocolate colors; medium	595	600	5	
	Clay, dark-gray color; medium	600	606	6	
	Same	606	612	6	
	Same	612	618	6	
	Same	618	628	10	
	Clay, greenish-gray color; soft	628	636	8	
	Clay, mottled greenish-gray and chocolate colors; soft	636	642	6	
			6		

Date	Kind of Rock or Other Material	Depth		Thickness in Feet	Remarks
		From	To		
6/24	Clay, chocolate color, calcareous; clay, greenish-gray color; hard	642	650	8	
	Clay, greenish-gray color; sandstone, fine-grained, calcareous; hard	650	654	4	
	Clay, chocolate and olive-green colors, mottled; clay, greenish-gray color, sandy and calcareous; soft	654	662	8	
	Clay, greenish-gray color; soft	662	671	9	
	Same	671	678	7	Hole caving badly
6/25	Clay, greenish-gray color; sandstone, fine-grained, calcareous; medium	678	687	9	
	Clay, greenish-gray color; medium	687	694	7	
	Same	694	703	9	
	Clay, greenish-gray and chocolate colors; medium	703	711	8	
	Clay, chocolate color; medium	711	715	4	
	Clay, chocolate and bluish gray colors; medium	715	720	5	
	Clay, chocolate and greenish-gray colors; medium	720	724	4	
	Clay, chocolate, dark-gray and greenish-gray colors; medium	724	730	6	
	Clay, dark-gray, greenish-gray and chocolate; medium	730	735	5	
	Same	735	743	8	
	Same	743	751	8	
	Clay, dark-gray color; medium	751	758	7	
	Clay, dark-gray and greenish-gray colors; medium	758	768	10	

Date	Kind of Rock or Other Material	Depth		Thickness in Feet	Remarks
		From	To		
	Same	768	775	7	Hole caving badly.
6/26	Clay, dark-gray color; medium	775	784	9	
	Same	784	794	10	
	Clay, dark-gray and bluish-gray colors; medium	794	800	6	800-ft. reached at 2 a.m. Hole caving badly. Shut down.
6/27 to 7/1					Shut down to get swedge nipple and 6-5/8" casing shoe.
7/2					Pulled 8 1/2" casing and tried to run 675 ft. 6-5/8" but it wouldn't go down because of caving.
7/3					Pulled 6-5/8" casing and ran 275 ft. of 8 1/2" casing.
7/4-6					Shut down to get cement and cement dump bailer and holiday.
7/7					Put in rock bridge at 395 ft. to hold cement, ran 8 1/2" casing down to 375 ft.
7/8					Cemented 8 1/2" casing with 20 sacks cement at bottom of casing to shut off water at 365-372 ft. Also cement 8 1/2" casing with 20 sacks of cement above water at 268 feet.
7/9-10					Waited for cement to set.
7/12					Bailed and tested. Well made 30 to 35 gal. per min. Drilled out cement plug and bridge, cleaned hole to 430 ft. Carried too much to continue.

Date	Kind of Rock or Other Material	From	To	Thick. in Ft.	Remarks
7/12					Ran 430 ft. 6-5/8" casing. Cleaned through casing to 450 ft.
7/13					Cleaned out to 500 ft.
7/14-16					Cleaning out. Cave-in on bailer at 500 ft. broke sand line, fished out bailer, cleaned and ran 6-5/8" casing to 550 ft.
7/17-24					Cleaned out, freeing casing, and extending 6-5/8" casing to 801 ft. 5 in. connected to 8 1/2" casing at top with swedge nipple.
7/25	Sand, gray, fine; sand, brown, fine; medium	800	810	10	
	Sand, gray, fine; medium	810	817	7	
	Same	817	825	8	
	Clay, brown, fine; sand, gray, fine; medium	825	833	8	Lost tools at 830'; fished them out.
	Same	833	835	2	
	Sand, gray, argillaceous; clay, gray to brown; medium	835	840	5	
	Sand, gray, fine; argillaceous; medium	840	848	8	
	Sand, gray and brown; fine; clay, brown; medium	848	858	10	
	Clay, gray, fine, silty; soft	858	866	8	
	Clay, brown, sandy; soft	866	875	9	

Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
7/26	Clay, brown, fine; sand, gray, silty; medium	875	883	8	
	Sand, gray, fine, argillaceous; medium	883	890	7	
	Clay, gray, sandy; medium	890	900	10	
	Clay, gray and brown, sandy; med.	900	907	7	
	Clay, brown, sandy; medium	907	914	7	
	Clay, gray and brown, sandy; medium	914	920	6	
	Sand, gray and brown, argillaceous; medium	920	925	5	
	Clay, brown, sandy	925	935	10	
	Same	935	940	5	Shut down to await orders.
7/27-29					Shut down to get cement for cementing 6-5/8" casing perforating tools and to see if drilling was to continue.
7/30	Clay, brown, sandy; medium	940	950	10	Orders came to continue drilling. Began at 9:30 P.M.
7/31	Sand, gray, fine, some silt; medium	950	959	9	
	Sand, gray, fine; medium	959	966	7	
	Same; medium	966	971	5	
	Clay, brown, fine, sandy; medium	971	975	4	
	Sand, gray, fine; medium	975	980	5	
	Same	980	984	4	
	Same	984	992	8	

Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
7/31	Shale, brown, sandy; medium	992	1000	8	
	Shale, brown and blue, sandy; med.	1000	1010	10	
	Shale, gray and blue, sandy; med.	1010	1019	9	
8/1	Same; medium	1019	1029	10	
	Shale, gray; medium	1029	1039	10	
	Same; medium	1039	1045	6	
	Shale, gray and brown; medium	1045	1055	10	
	Shale, gray, sandy; medium	1055	1065	10	
	Shale, gray and brown, sandy; medium	1065	1074	9	
	Same	1074	1083	9	
	Shale, gray and brown; medium	1083	1089	6	
8/2	Sand, gray and brown, argillaceous; medium	1089	1098	9	
	Shale, gray and brown, sandy; medium	1098	1105	7	
	Shale, brown, sandy; medium	1105	1112	7	
	Shale, brown; medium	1112	1119	7	
	Shale, gray and brown; medium	1119	1126	7	
	Same; medium	1126	1134	8	
8/3	Same; medium	1134	1140	6	
	Shale, gray and blue, sandy; medium	1140	1146	6	
	Shale, gray and brown; medium	1146	1150	4	
	Shale, brown; medium	1150	1157	7	

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Date	Kind of Rock or Other Material	Depth		Thickness in Ft.	Remarks
		From	To		
8/3	Shale, gray and brown, sandy; medium	1157	1160	3	Total Depth, 1160 ft.
8/4					Rock and mud bridge from 815 to 830 ft. Cement plug from 780 to 815 ft. Filled 6-5/8 in. casing with water 425 to 780 ft. Set rock and mud bridge 415 to 425 ft.
8/5					Cement plug 405 ft. to 415 ft. filled with water from 215 to 405 ft.
8/6					Waited for cement to set. Perforated 6-5/8" casing from 250 to 270 ft.
8/7					Made bailer test which showed 18 to 20 gal. per min. yield. Started taking down rig in preparation to moving out.



FOURTH TEST:

Well cased with 8-1/4- and 6-5/8-inch casing, both cemented and perforated, 6-7/8-inch casing plugged at 405 feet. Water stood at 228 feet, ran 30-gallon bailer 22 times in 30 minutes or about 22 gallons per minute, lowering the water to about 350 feet; by listening to the water run into the well it took 18 minutes for the water to seek its entrance level, which is 268 feet.

FIFTH TEST:

Water stood at 241 ft. after a 30-minute rest. Bailed at the rate of 18 to 20 gallons per minute, lowered the water down to about 350 feet but couldn't bail dry.

SIXTH TEST:

Water stood at 228 ft. after a 12-hour rest. Bailed at rate of 18 to 20 gallons per minute, but couldn't bail well dry.

Installed pump from old well; this included 365 feet, 6 inches of 3-1/2 inch tubing and sucker rods. Myers pump, self-oiling head, 12-inch stroke powered with Nova 2-1/2 h.p. one cylinder gasoline motor.

SEVENTH TEST:

Ran pump for about 7-1/2 hours pumping about 4000 gallons of water or approximately 9 gallons per minute for the day's run.

EIGHTH TEST:

Next day, after 12 hour rest, ran pump for about 7-1/2 to 8 hours, pumping about 2500 gallons, or about 5-1/2 gallons per minute for the period. There was a definite decrease in the size of the stream when the pump was closed down.

NINTH TEST:

Ran pump 10 to 25 minutes and at the end of that time there was a definite decrease in size of the stream. Motor failed and had to be shut down.

Ordered a new cylinder and new parts for motor which were installed.

TENTH TEST:

After installing new pump cylinder and repairs to motor, well had three weeks' rest.

1:57 p.m. Started pump. Ten or more gallons per minute
2:06 p.m. Decrease in yield to 2-3 gallons per minute
2:50 p.m. Decreased to 1-1½ gallons per minute
5:00 p.m. Yield continued at above rate

Shut down pump, hear water running into well.

5:20 p.m. Started pump. Pumped at rate of about ten gallons per minute for 3 minutes, then decreased to about 1 gallon per minute.

We then began operating the pump daily. For the first ten or so minutes that the pump ran, the yield was 8-10 gallons per minute. Then the production gradually decreased so that by the end of the 30 to 40 minute period, the production had decreased to about 1-1½ gallons per minute. That condition continued throughout the 8-hour day pumping period. After pumping the well at this rate for about a month, there was a general decrease in the amount of water produced. At the present time the well will pump 3-4 hours, and after that time the well is completely dry until the next morning.

My conclusions are as follows: That the drill penetrated a water-producing zone - what some might term as a pocket, and that when the "flush production" was pumped off, the well settled back to a small steady yield. That yield has steadily decreased until now the well is virtually dry.

CASING RECORD

375 feet of 8-1/4-inch casing resting on shoulder of clay of medium hardness and light-gray color. Casing perforated with thirty (30) slots, average 1/8 inch width and 14 inches long. Rubber cup type packer placed at 265 feet and casing cemented above 265 feet with 20 sacks of cement. Bottom end of 8-1/4-inch casing cemented with 20 sacks of cement.

801 feet of 6-5/8-inch casing run inside 8-1/4-inch casing. Fastened at surface to 8-1/4-inch casing with 6-5/8- to 8-1/4-inch swedge nipple. Cemented at bottom, from depth of 780 to 815 feet with 20 sacks of cement. Casing perforated with casing ripper from 250 to 274 foot depth, with 15 to 20 holes.

PRODUCTION RECORD

FIRST TEST:

Uncased, water stood at 206 feet, bailed for 30 minutes at rate of 35 gallons per minute, lowered water to 238 feet, but couldn't lower water level beyond that point.

SECOND TEST:

Well not cased, 8-hour rest after first test. Water stood at 212 feet. Ran 45-gallon bailer 26 times in 30 minutes, lowered water to 242 feet, but couldn't lower farther or bail well dry. Yield, 35 to 40 gallons per minute.

Drilling was continued without obtaining appreciable water, but had to set 8-1/4" casing in order to continue drilling.

THIRD TEST:

Well cased with 8-1/4-inch perforated casing. Water stood at 215 feet. Ran 35-gallon bailer 26 times in 30 minutes, lowered water to 240 feet but couldn't lower more or bail dry. This averaged approximately 30 gallons per minute.

Further drilling was unsuccessful in obtaining additional water. 6-5/8-inch casing run, cemented, plugged, and perforated and following tests made from yield through both 8-1/4" and 6-5/8" casing:

ANALYSIS OF WELL WATER, MARATHON, TEXAS, BREWSTER COUNTY,
 June, 1947
 Owner: Big Bend National Park, New Water Well, Basin Area.

Analyses by Geological Survey, United States Department of Interior
 (Parts per million)

DATE OF COLLECTION 7-1947

Silica (SiO ₂)	
Iron (Fe)	
Calcium (Ca)	20
Magnesium (Mg)	3.5
Sodium (Na)	- 274
Potassium (K)	
Bicarbonate (HCO ₃).....	182
Sulfate (SO ₄)	402
Chloride (Cl)	54
Fluoride (F)	6.4
Nitrate (NO ₃)	0.2
Total dissolved solids ...	935
Total hardness as CaCO ₃ ..	64
Kx10 ⁵ at 25°C.....	120

MISCELLANEOUS DATA

New well (No. 2) is 1061 feet horizontal distance southward up the arroyo from old well (No. 1) and is 164.67 feet higher in elevation.

Surface formation is the Tornillo clay, the base of which was encountered at a depth of about 800 feet. The remainder of the hole is believed to be in the Aguja formation.

A definite correlation of the formations in the two wells cannot be established. Neither can the water producing zones be correlated. This suggests faulting. In which case, if additional wells are drilled, probably a more suitable location is about $\frac{3}{4}$ of a mile to the northwest.

The hole is straight and can be drilled deeper by drilling the plug, cleaning the hole and going on down. Deeper drilling should penetrate the basal aguja sands, and there isn't any good reason why they shouldn't yield water; however, the drill penetrated several sands that should have yielded.

There are no tools, pipe, cable or anything in the hole that will prevent deeper drilling.

(sgd.) ROSS A. MAXWELL

Ross A. Maxwell,
Superintendent.

United States
Department of the Interior
Geological Survey
Water Resources Branch

RECORD OF WELL

1. LOCATION: State Texas County Brewster
Nearest P.O. Marathon Direction from P.O. South
Sec. 32 Block 10
2. OWNER: National Park Service Address Marathon, Texas
DRILLER: Antonio Hess Address Aldine, Texas
SITE SELECTED BY: Ross A. Maxwell Address Marathon, Texas
3. SITUATION: Is well on upland, in valley, or on hillside? Hillside
4. TYPE OF WELL: drilled; kind of drilling rig use cable tools
5. DEPTH OF WELL: 400 ft.; year in which well was finished 1940
Does well enter rock? Yes; if so, at what depth? 8 ft. kind of rock: shale
6. DEPTH TO WATER: 383 ft. Amount water rose above level where first struck 247 ft.
7. DIAMETER: At top 8 inches; at bottom 8 inches
8. PRINCIPAL WATER BED: sandstone
Depth to principal water bed 380-385 ft.; thickness of bed 5 ft.
If other water supplies were found, give depth to each Same at 295-300 ft.
9. CASINGS: Kind oil-filled; size 8"; length 380'; bet. depths of 0.0 and 380 ft.
PACKERS: Depth at which packers were used 190 ft.; kind canvas
SCREEN or STRAINER: Was well finished with screen or perforated pipe? X
kind of screen: none.
perforated pipe: size of perforations 1/8" x 12"
10. HEAD: Does well at present overflow without pumping? No. Dry; did it overflow when new? no.
11. PUMP: Is the well pumped? no; kind of pump none at present.
12. YIELD: Natural flow at present none; original flow 10-12 gallons/minute;
well has been pumped at 1-12 gallons per minute continuously for 8 hours;
quantity of water ordinarily obtained from well 10-12 gallons per minute.
13. USE: For what purpose is the water used? It was used for domestic purposes
14. QUALITY OF WATER: soft; is there an analysis? yes

Name of person filling blank _____

Date _____

Ross A. Maxwell
Address Marathon, Texas

Prepared in November 1947
(92)

LOG OF WELL

KIND OF ROCK OR OTHER MATERIAL (Give color and tell whether hard or soft)	DEPTH IN FEET		THICKNESS IN FEET	REMARKS
	From	To		
Alluvial fill, boulders and clay	0	8	8	
Shale, medium hardness, brown and red	8	12	4	
Shale, soft, gray and blue	12	16	4	
Shale, soft, pink	16	20	4	
Shale, medium hardness, pink and gray	20	26	6	
Shale, medium hardness, pink and gray	26	30	4	
Conglomerate, medium hardness, yellow and sandy	30	35	5	
Conglomerate, medium hardness, yellow and sandy	35	38	3	
Conglomerate, medium hardness, gray	38	43	5	
Conglomerate, hard, gray, and sandy	43	49	6	
Conglomerate, hard, gray, and sandy	49	52	3	
Conglomerate, hard, red and pink	52	55	3	
Conglomerate, hard, red and pink	55	58	3	
Conglomerate, hard, red and pink	58	62	4	
Shale, soft red, and sticky	62	66	4	
Conglomerate, hard, yellow	66	69	3	
Conglomerate, hard, yellow	69	72	3	
Conglomerate, hard, yellow	72	74	2	
Conglomerate, hard, yellow and brown	74	77	3	
Conglomerate, hard, yellow, brown and sandy	77	80	3	

(Straightened hole, 6-22 to 6-29, 1940)

Conglomerate, hard, yellow, brown, sandy	80	84	4	
Shale or clay, soft gray	84	86	2	
Shale or clay, soft gray	86	90	4	
Shale, soft gray	90	95	5	
Shale, soft gray	95	101	6	
Shale, soft gray	101	104	3	
Shale, soft gray	104	108	4	
Shale, soft gray, sticky	108	111	3	
Conglomerate, hard, gray, brown, yellow red	111	113	2	
Conglomerate, hard, gray, brown, yellow red	113	117	4	
Conglomerate, medium hardness, pink and gray	117	119	2	
Conglomerate, medium hardness, pink and gray	119	120	1	
Conglomerate, medium hardness, pink and gray	120	122	2	
Conglomerate, hard yellow	122	125	3	
Conglomerate, hard yellow, brown	125	128	3	
Shale, medium hardness, gray, blue	128	131	3	
Shale, medium hardness, gray, green, blue	131	136	5	
Shale, medium hardness, gray, green, blue	136	140	4	
Shale, medium hardness, almost white	140	142	2	

Shale, medium hardness, almost white	142	145	3
Shale, medium hardness, almost white	145	150	5
Sandy shale, medium hardness, gray	150	155	5
Sandy shale, medium hardness, gray	155	157	2
Probably the Tornillo-Aguja contact			
Sandstone, soft, gray	157	160	3
Sandstone, soft, gray	160	165	5
Sandstone, soft, gray	165	170	5
Sandstone, soft, gray	170	175	5
Sandstone, soft, gray	175	179	4
Sandstone, soft, gray	179	183	4
Sandstone, soft, gray	183	190	7
Diameter of hole reduced from 12 to 10 inches			
Sandstone, medium hardness, gray	190	195	5
Sandstone, medium hardness, gray	195	200	5
Sandstone, medium hardness, gray	200	203	3
Sandstone, medium hardness, gray	203	205	2
Sandstone, medium hardness, gray	205	210	5
Sandstone, medium hardness, gray	215	220	5
Conglomerate, hard, red, gray	220	224	4
Conglomerate, medium hardness, red gray	224	229	5
Conglomerate, medium hardness, red gray	229	234	5
Conglomerate, medium hardness, red gray	234	238	4
Shale, medium hardness, red	238	241	3
Conglomerate, hard, gray, black brown	241	245	4
Sandstone, hard, gray red	245	250	5
Sandy shale, medium hardness, gray	250	255	5
Sandy shale, medium hardness, gray	255	260	5
Sandy shale, medium hardness, gray	260	265	5
Sandy shale, medium hardness, gray	265	270	5
Sandstone, medium hardness, gray	270	275	5
Sandstone, medium hardness, gray	275	280	5
Sandstone, medium hardness, gray	280	285	5
Sandstone, medium hardness, gray	285	290	5
Sandstone, medium hardness, gray	290	295	5
Sandstone, hard gray, water	295	300	5
Will make about 3 gallons per hour			
Shale, medium hardness, caving badly, gray	300	305	5
Sandy shale, hardness medium, caving badly, gray	305	310	5
Sandy shale, medium hardness, caving badly, gray	310	315	5
Sandy shale, medium hardness, caving badly, gray	315	320	5

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Sandy shale, medium hardness, caving badly, gray	320	325	5
Sandy shale, medium hardness, caving badly, gray	325	330	5
Sandy shale, medium hardness, caving badly, gray	330	335	5
Sandstone, medium hardness, caving badly, gray	335	340	5
Sandstone and shale, medium hardness, gray and red	340	345	5
Sandstone and shale, medium hardness, gray and red	345	350	5
Shale, soft, sticky red	350	355	5
Shale, soft, caving, red	355	360	5
Sandy shale, medium hardness, gray	360	365	5
Sandy shale, medium hardness, gray	365	370	5
Sandy shale, medium hardness, gray	370	375	5
Sandy shale, medium hardness, almost white	375	380	5
Sandstone, soft fine gray	380	385	5

This is the water sand, produces 10 or more gpm

Shale, medium hardness, blue	385	395	10
Shale, medium hardness, grayish white	395	400	5

T. D. 400 feet

Struck water at 383 feet at 2:00 p.m. August 1, 1940. Water rose rapidly to 330 feet, unable to lower with bailer at 15 gallons per minute. Water had raised to 100 feet at 2:00 p.m. on August 2, 1940. Bailed well for 20 minutes at about 26 gallons per minute, lowered water about 15 feet.

WELL LOG
BIG BEND NATIONAL PARK PROJECT

Location: Basin of the Chisos Mountains
Surface Elevation: 5504.36 top of casing
Driller: Tony Hess, Contractor, Alpine, Texas
Drilling Started: June 17, 1940
Drilling Completed: August 1, 1940
Total Depth: 400 feet

Casing Record: Cased February 1941. 380 feet of 8-inch casing, resting on a hard sandstone. The two lower joints of casing, about 35 feet, are perforated. Canvas packer placed on casing at depth of 190 feet where diameter of hole was reduced from 12 to 10 inches. Well deepened to 400 feet with 7-inch bit by drilling inside casing. 350 feet of 3½-inch tubing is in the well. 3½-inch brass cylinder, working barrel, is attached to lower end of tubing. Pump with sucker rods installed powered with gasoline motor.

Production: 10 gallons per minute, potable water. Pump test: The well was pumped for 76 hours at a rate of 10 gallons per minute. No indication of failure, but draw down was not measured. An increase over the above pumping rate was not encouraged because it caused the pump to labor unnecessarily.

Bailer test: (1) one hour test, drawing 15 gallons per minute, lowered water in well from 137 to 180 feet. With one hour rest, the water raised to 133 feet.

(2) During a 21-minute test, at rate of 15½ gallons per minute, the water was lowered from 133 to 170 feet. During a 40-minute rest the water raised to 128 feet.

(3) One hour test, drawing 15 gallons per minute lowered the water from 128 to 160 feet. In 33 minutes the water had risen to 133 feet. All measures as indicated above were from surface of the ground.

Analysis of water: see attached sheet prepared by Texas State Department of Health.

Driller's Log of Well - compiled from data furnished by
Contractor

12-inch hole

<u>Depth in feet</u>	<u>Character of Rock Formation</u>
0 - 8	Alluvial fill, boulders and clay
8 - 12	Shale, medium hardness, brown and red
12 - 16	Shale, soft, gray and blue
16 - 20	Shale, soft, pink
20 - 26	Shale, medium hardness, pink and gray
26 - 30	Shale, medium hardness, pink and gray
30 - 35	Conglomerate, medium hardness, yellow and sandy
35 - 38	Conglomerate, medium hardness, yellow and sandy
38 - 43	Conglomerate, medium hardness, gray
43 - 49	Conglomerate, hard, gray, and sandy
49 - 52	Conglomerate, hard, gray, and sandy
52 - 55	Conglomerate, hard, red and pink
55 - 58	Conglomerate, hard, red and pink
58 - 62	Conglomerate, hard, red and pink
62 - 66	Shale, soft red, and sticky
66 - 69	Conglomerate, hard, yellow
69 - 72	Conglomerate, hard, yellow
72 - 74	Conglomerate, hard, yellow
74 - 77	Conglomerate, hard, yellow and brown
77 - 80	Conglomerate, hard, yellow, brown and sandy

(Straightened hole, 6-22 to 6-29, 1940)

80 - 84	Conglomerate, hard, yellow, brown, sandy
84 - 86	Shale or clay, soft gray
86 - 90	Shale or clay, soft gray
90 - 95	Shale, soft gray
95 - 101	Shale, soft gray
101 - 104	Shale, soft gray
104 - 108	Shale, soft gray
108 - 111	Shale, soft gray, sticky
111 - 113	Conglomerate, hard, gray, brown, yellow red
113 - 117	Conglomerate, hard, gray, brown, yellow red
117 - 119	Conglomerate, medium hardness, pink and gray
119 - 120	Conglomerate, medium hardness, pink and gray
120 - 122	Conglomerate, medium hardness, pink and gray
122 - 125	Conglomerate, hard yellow
125 - 128	Conglomerate, hard yellow, brown
128 - 131	Shale, medium hardness, gray, blue

131 - 136	Shale, medium hardness, gray, green, blue
136 - 140	Shale, medium hardness, gray, green, blue
140 - 142	Shale, medium hardness, almost white
142 - 145	Shale, medium hardness, almost white
145 - 150	Shale, medium hardness, almost white
150 - 155	Sandy shale, medium hardness, gray
155 - 157	Sandy shale, medium hardness, gray
Probably the Tornillo-Aguja contact	
157 - 160	Sandstone, soft, gray
160 - 165	Sandstone, soft, gray
165 - 170	Sandstone, soft, gray
170 - 175	Sandstone, soft, gray
175 - 179	Sandstone, soft, gray
179 - 183	Sandstone, soft, gray
183 - 190	Sandstone, soft, gray
Diameter of hole reduced from 12 to 10 inches	
190 - 195	Sandstone, medium hardness, gray
195 - 200	Sandstone, medium hardness, gray
200 - 203	Sandstone, medium hardness, gray
203 - 205	Sandstone, medium hardness, gray
205 - 210	Sandstone, medium hardness, gray
210 - 215	Sandstone, medium hardness, gray
215 - 220	Sandstone, medium hardness, gray
220 - 224	Conglomerate, hard, red, gray
224 - 229	Conglomerate, medium hardness, red gray
229 - 234	Conglomerate, medium hardness, red gray
234 - 238	Conglomerate, medium hardness, red gray
238 - 241	Shale, medium hardness, red
241 - 245	Conglomerate, hard, gray, black brown
245 - 250	Sandstone, hard, gray red
250 - 255	Sandy shale, medium hardness, gray
255 - 260	Sandy shale, medium hardness, gray
260 - 265	Sandy shale, medium hardness, gray
265 - 270	Sandy shale, medium hardness, gray
270 - 275	Sandstone, medium hardness, gray
275 - 280	Sandstone, medium hardness, gray
280 - 285	Sandstone, medium hardness, gray
285 - 290	Sandstone, medium hardness, gray
290 - 295	Sandstone, medium hardness, gray
295 - 300	Sandstone, hard gray, water
Will make about 3 gallons per hour	
300 - 305	Shale, medium hardness, caving badly, gray
305 - 310	Sandy shale, hardness medium, caving badly, gray
310 - 315	Sandy shale, medium hardness, caving badly, gray
315 - 320	Sandy shale, medium hardness, caving badly, gray

320 - 325	Sandy shale, medium hardness, caving badly, gray
325 - 330	Sandy shale, medium hardness, caving badly, gray
330 - 335	Sandy shale, medium hardness, caving badly, gray
335 - 340	Sandstone, medium hardness, caving badly, gray
340 - 345	Sandstone and shale, medium hardness, gray and red
345 - 350	Sandstone and shale, medium hardness, gray and red
350 - 355	Shale, soft, sticky red
355 - 360	Shale, soft, caving, red
360 - 365	Sandy shale, medium hardness, gray
365 - 370	Sandy shale, medium hardness, gray
370 - 375	Sandy shale, medium hardness, gray
375 - 380	Sandy shale, medium hardness, almost white
380 - 385	Sandstone, soft fine gray.

This is the water sand, produces 10 or more gpm

385 - 395	Shale, medium hardness, blue
395 - 400	Shale, medium hardness, grayish white

T. D. 400 feet

Struck water at 383 feet at 2:00 p.m. August 1, 1940. Water rose rapidly to 330 feet, unable to lower with bailer at 15 gallons per minute. Water had raised to 100 feet at 2:00 p.m. on August 2, 1940. Bailed well for 40 minutes at about 26 gallons per minute lowered water about 15 feet.

TEXAS STATE DEPARTMENT OF HEALTH
BUREAU OF LABORATORIES
412 EAST FIFTH STREET
AUSTIN, TEXAS

Laboratory No. 2-2-24	Sample number	Received 2-7-1942
Town Big Bend Park	Brewster County	Requested by Frank D. Quinn
Source Well	Formation: Gray water sand	Age 1 year Depth 400'
Ownership Tex. State Parks Board	Treatment None	Water level 50'
Collected by C. C. Supt.	at 10:30 p.m.	Pumpage rate 15 gpm on 2-4-1942

CHEMICAL ANALYSIS

	P.P.M.	pH	8.3	Color	P.P.M.
Total Solids	<u>614</u>	Calcium	<u>13</u>	Carbonate	<u>30</u>
Silica residue	<u>13</u>	Magnesium	<u>2</u>	Bicarbonate	<u>177</u>
As CaCO ₃ -		Iron //	<u>.6</u>	Sulphate	<u>234</u>
P _s alkalinity	<u>25</u>	Manganese less than	<u>.05</u>	Chloride	<u>28</u>
Total alkalinity	<u>195</u>	Sodium (Calc.)	<u>202</u>	Fluoride //	<u>6</u>
Total hardness	<u>40</u>			Nitrate less than	<u>.4</u>

HYPOTHETICAL COMBINATION

	P.P.M.	G.P.M.
Calcium carbonate	<u>32</u>	<u>1.9</u>
Magnesium carbonate	<u>7</u>	<u>.4</u>
Sodium carbonate	<u>11</u>	<u>.6</u>
Sodium bicarbonate	<u>244</u>	<u>14.2</u>
Sodium sulphate	<u>346</u>	<u>20.2</u>
Sodium chloride	<u>47</u>	<u>2.7</u>

REMARKS

- // The United States Public Health Service Standards do not recommend water for domestic use which contains an excess of:
Iron ----- 0.3 p.p.m.
- // Recognized authorities do not recommend water for domestic use which contains an excess of:

Fluoride — 1. p.p.m.

B.R.W. & J.H.L.
ANALYST

S.W. Behls, M.D.
DIRECTOR OF LABORATORIES

W.B. Wardlow
CHIEF CHEMIST

February 23, 1942
DATE RECORD

Other Supporting Information

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
Region Three
Santa Fe, New Mexico

AUG 26 1958

L-54

112

Memorandum

To: Director
From: Regional Chief of Lands
Subject: Annual Water Use Report, Board of Water Engineers
Big Bend

On June 17 Mr. Dunn wrote to the Texas Board of Water Engineers, 1410 Lavaca Street, Austin, regarding the annual water use report under Permit 927 for the Modin Ditch and adjusting the records of change in title to rights under Permit 125 for the Castellan Irrigation Project.

Our copy was inadvertently sent to the Regional Director, Region Four.

In this connection we have attached a copy of Superintendent Miller's memorandum of June 26 advising that water from Oak Spring and Cattail Falls does not follow the surface drainage to the river even though they are in, or tributary to, the Rio Grande drainage.

(SIGNED)

John E. Kell
Regional Chief of Lands

In Duplicate

Attachment

Copy to: Supt. Big Bend
W.O.D.C. ✓

WESTERN OFFICE DESIGN & CONSTRUCTION	
AUG 29 1958 A.M.	
CHIEF	
ADMIN. ASST.	
PERSONNEL	
PLANS & PROJ.	
SAFETY	
ARCHITECT	
ENGINEER	2
LAND ACQ.	1
RECORDS & COMM.	
ACTION TAKEN - DATE	
RMC	

NO COPY MADE IN MAIL ROOM

DURWOOD MANFORD, CHAIRMAN
R. M. DIXON
O. F. DENT

1958 JUL 7 AM 10 16



BEN F. LOONEY, JR.
SECRETARY

BOARD OF WATER ENGINEERS

1410 LAVACA STREET
AUSTIN

July 1, 1958

IN REPLY REFER TO

Permits

(DIVISION)

United States Department of the Interior
National Park Service
Washington 25, D. C.

Attention: A. van V. Dunn, Chief
Water Resources Section

Re: Water use, Basin area, Big Bend National Park
(Your L54-L)

Gentlemen:

Thank you for the maps accompanying your letter of June 17, 1958. After examining the maps it appears that you should continue to report this use on the riparian form which will be sent to you shortly after January 1st of each year, along with the forms for your Permit 125 and Permit 927.

Very truly yours,

G. S. Sawyer

G. S. Sawyer
Hydraulic Engineer

GSS:mn

Part II
Permit 125 &
Big Bend
A.E. Lee

132

L54

Big Bend National Park
Texas

June 26, 1958

Memorandum

To: Regional Director, Region Three
From: Superintendent, Big Bend
Subject: Water Use - Basin Area

Reference is made to Mr. Dunn's letter under date of June 17, to the Texas Bureau of Water Engineers, copies of which were furnished this office and your office. In this letter regarding water usage in the Basin area, Mr. Dunn states that he is uncertain whether water from Oak Spring and Cattail Falls flows into the Rio Grande and we thought you may want to advise him on this point.

The water from these sources quickly disappears into the ground and does not follow the surface drainage mentioned to the river.

He will also be interested in word that the domestic and irrigation water sources of Big Bend have been recently surveyed and all springs, wells and pumping stations are located in relation to section corners. Prints of these surveys will be forwarded to your office as soon as they have been filed with the Texas State General Land Office.

(Sgd) GEORGE W. MILLER

George W. Miller
Superintendent

In duplicate

Copy to: WODO

WESTERN OFFICE	
DESIGN & CONSTRUCTION	
JUN 20 1958 A.M.	
CHIEF	
ADMIN. ASSIST.	
PERSONNEL	
PLANS & PROG.	
SAFETY	
ARCHITECT	
ENGINEER	
LAND, ACQ.	
ACTION TAKEN	



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

IN REPLY REFER TO:

L-54-L

June 17, 1958

Board of Water Engineers
1410 Lavaca Street
Austin, Texas

Dear Sirs:

When preparing our annual water use report under Permit 927 for the Wedin Ditch, and adjusting the records of change in title to rights under Permit 125 for the Castellan Irrigation Project, in January and February, we also asked if the new regulations would require a report on the use of water at the Basin Area from Oak Spring and a diversion from Cottonwood Creek at Cattail Falls.

Enclosed, in accordance with your letter of March 6, is a print of our Drawing NP-BB-6953 which shows the general plan of the water system without geographical location. Also enclosed is a print of Drawing NP-BB-6952 which shows the geographical location of the water system, and the natural drainage from the two sources through Rough Run and Terlingwa Creek to the Rio Grande. I am not able to state, at this time, whether there is continuous or fairly consistent intermittent flow from the sources, particularly Oak Spring, to the Rio Grande.

A total of 1,776,195 gallons (5.45 acre-feet) of water were pumped and used at the Basin Area in 1957, at the Lodge Area, public campground, and employees' residences. The use is largely for domestic and fire protection purposes. You will note that there are also some wells which formerly served the Basin Area, of which some are still maintained for emergency use.

We shall appreciate your instructions as to whether water use reports should be filed in the future. We should also like to know whether an application should be filed for a permit to use this surface water.

Sincerely yours,

(SIGNED)

A. van V. Dunn
Chief, Water Resources Section

Enclosures 2

Copy to: Regional Director, Region Three, w/c Drawing NP-BB-6953
Superintendent, Big Bend, w/c Drawing NP-BB-6953
Chief, WODC, w/c Drawing NP-BB-6953

Form 10-174
(Rev. 1/58)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

REPORT 7 SPL

COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION Three	AREA Big Bend National Park	COUNTY Brewster	STATE Texas
PROJECT OR JOB TITLE Extension and Improvement of Water System, Basin & Headquarters		PCP NO. U-18, U-27-1, U-38-1	
LOCATION IN AREA Chisos Basin and Headquarters		BUILDING NO.	
WORKING DRAWING NO. AND TITLE NP-BB-201-202-203 Reservoir Site		MASTER PLAN NO. NP-BB-2108H	
APPROPRIATION TITLE AND SYMBOL NP-BB-2055 Oak Springs Pump House		ACCOUNT NO. NP-BB-2128	
CONTRACT NO. 14X1035 Construction		DATE WORK STARTED November 1954	
NAME OF CONTRACTOR Sivalls Tanks, Inc.		DATE WORK COMPLETED November 1956	
ADDRESS Odessa, Texas			

COST ANALYSIS

CONSTRUCTION ITEMS	QTY.	UNIT COST IN PLACE	TOTAL COST IN PLACE
(See pages attached)			
TOTAL			199,267.15

Field Finance Office Clearance:

Robert L. Giles
Robert L. Giles
Regional Accountant 2/17/58

SUMMARY OF EXPENDITURES

PERSONAL SERVICES	EQUIPMENT	MATERIALS AND SUPPLIES
\$ 54,091.91	39.37	54,946.04
OTHER		
90,189.83		

CHANGE ORDERS

ORIGINAL CONTRACT AMOUNT	FIRST	SECOND	THIRD
FINAL CONTRACT AMOUNT	FOURTH	FIFTH	SIXTH

THIS PROJECT OR JOB HAS BEEN COMPLETED IN ACCORDANCE WITH
APPROVED DRAWINGS, SPECIFICATIONS, AUTHORIZED CHANGES

SUBMITTED BY (Name and title) <i>Howard Emrich Park Engineer</i>	DATE <i>March 6, 1958</i>
APPROVED BY (Name and title) <i>Henry G. Schmidt Asst. Sup't</i>	DATE <i>March 12, 1958</i>

(ATTACH NARRATIVE STATEMENT, PHOTOGRAPHS, AND "AS BUILT" DRAWINGS TO THIS FORM)

Extension and Improvement of Water System, Basin and Headquarters
Big Bend National Park, Texas

Item	Qty.	Unit Cost	Total Cost
Developing Oak Spring and constructing concrete basin & desilting box	1	L. S.	\$ 700.00
Constr. Oak Spring Pump House	1	L. S.	2,000.00
Purchase and installation of 25,000 gal. steel water tank - Oak Springs	1	L. S.	4,000.00
Purchase and installation of two 50 g.p.m. 700 p.s.i. multi-stage turbine pumps, with automatic electric controls	2	6,000	12,000.00
Constr. 3½ inch galv. water line from Oak Springs to Basin	15,000 L.F.	3.20	48,000.00
Purchase and installation 500,000 gal. steel water tank - Chisos Basin	1	L. S.	22,000.00
Construction 6" cast-iron water distribution main in Chisos Basin including 3 fire plugs, meters and service connections to buildings	1,600 L.F.	5.63	9,000.00
Construction 4" galv. iron gravity water line - Cattail Falls to Oak Springs - Includes perforated intake and desilting box	6,000 L.F.	5.00	30,000.00
Purchase and installation of 500,000 gal. steel water tank at Oak Springs	1	L. S.	25,956.40
Purchase and installation of electric motor-driven 50 g.p.m. vertical turbine pump at K-Bar #2. Including automatic electric controls	1	L. S.	1,000.00
Purchase and installation of 25,000 gal. steel water tank, K-Bar #2	1	L. S.	4,000.00
Purchase and installation of electric motor-driven 35 g.p.m. positive displacement pump at K-Bar #2. Including automatic electric controls	1	L. S.	1,600.00
Construction of 3-inch galv. iron water line concrete water storage at Headquarters	11,000 L.F.	2.20	24,200.00

Extension and Improvement of Water System, Basin and Headquarters (cont'd)
Big Bend National Park, Texas

Item	Qty.	Unit Cost	Total Cost
Construction 6-inch cast iron water distribution main from existing headquarters system through proposed residential area to the Panther Junction Service Station	3,000 L.F.	4.00	12,000.00
Purchase (2) centri-multi-stage turbine pumps with electric starters, 35 g.p.m.	2	1,121.80	2,243.60
Furnish and install 400' 2" galv. iron pipe, Lower Basin Fire Line	400 L.F.	1.00	400.00
Clean-up and Miscellaneous	1	L. S.	167.15
TOTAL			\$ 199,267.15

NARRATIVE STATEMENT

Construction funds totalling \$199,155 were provided for the extension and improvement of the water systems at the Basin and Headquarters by allotment advices, as follows:

No. 3-138 - 14X1035 Construction		
July 1, 1954	\$ 35,000	
No. 3-152 - 14X1035 Construction		
Aug. 9, 1954	131,090	
No. 3-285 - 14X1035 Construction		
July 26, 1954 2.....	<u>33,065</u>	
		\$ 199,155

Of this amount, \$199,267.15 was expended.

The work consisted primarily of the following:

A - Extension of Chisos Basin Water System

1. Developing Oak Spring, including the construction of a concrete catchment box.
2. Construction of the Oak Springs pump house.
3. The purchase and installation of a 25,000-gallon *contract* steel water storage reservoir.
4. The purchase and installation of two 50 g.p.m., 700 PSI multistage turbine pumps with electrical controls.
5. The construction of 15,000 linear feet of 3½-inch galvanized iron water line from Oak Springs to the Chisos Basin.
6. The purchase and installation of a 500,000-gallon *contract* steel water storage reservoir in the Chisos Basin.
7. The construction of 1600 linear feet of 6-inch C.I. water distribution main in Chisos Basin, including two fire plugs, meters and the necessary connections to buildings.
8. The construction of a perforated intake line and a desilting box at Cattail Falls.

9. The construction of 6,000 linear feet of 4-inch galvanized iron gravity water line from Cattail Falls to Oak Springs.

10. The purchase and installation of 500,000-gallon steel storage reservoir at Oak Springs. *contract?*

B - Extension of Headquarters Water System.

1. The purchase and installation of a 50-gp.m. vertical turbine pump at K-Bar Well No. 2

2. The purchase and installation of a 25,000-gallon steel water storage reservoir at K-Bar Well No. 2. *contract*

3. Purchase and installation of a 35 gpm positive displacement pump at K-Bar Well No. 2. *Replaced by item 6-*

4. The construction of 11,000 linear feet of 3-inch galvanized iron water line from K-Bar Well No. 2 to the existing concrete water storage reservoir at Headquarters.

5. The construction of 3,000 linear feet of 6-inch cast iron water distribution main from the existing headquarters system through the proposed residential area to Panther Junction service station.

6. The purchase and installation of two 20 HP, 3 phase, 60-cycle, 2-stage, centrifugal pumps at K-Bar No. 2 pump house. *gals. per min.*

DATES

Completed the chlorination of the 500,000-gallon steel reservoir at Oak Springs and began storing water from Cattail Falls system on October 15, 1956. The tank was full for the first time on October 29, 1956.

Completed the chlorination of the 500,000-gallon steel reservoir at the Chisos Basin and began storing water on August 24, 1955, from Oak Springs. The tank was full for the first time on October 20, 1955.

The pipeline from K-Bar Well No. 2 to Panther Junction reservoir was placed in operation on August 5, 1955.

C O P Y

L54

January 30, 1958

Memorandum

To: Director

From: Acting Superintendent, Big Bend National Park

Subject: Water Use Reports for 1957 Calendar Year -
Big Bend National Park

Reference is made to Mr. Dunn's memorandum of January 23, 1957, to the Regional Director, Region Three, relating to the above subject.

We have attached to this memorandum a copy of a completed 1957 Water Use Report for Application No. 978, "Wedin Ditch" and for Spring No. 4 (Wedin Spring) as required by the Texas Board of Water Engineers.

Also included is one set of prints of NP-BB-3030 showing existing ditches. This drawing is not an "As Constructed" plan. It does, however, indicate the majority of the ditches and their approximate location. When "As Built" drawings are complete, one set will be forwarded to you.

Acreage irrigated was calculated by using the measured lengths of ditches and allowing a strip 150 feet wide on either side. This gives a figure of some 316 acres. This seems rather high to me but since we plan to flood irrigate as many areas as possible, the figure is probably satisfactory.

In case we are required to file an additional report on the surface waters sources for the Basin, the following information is given:

	<u>Gals. Pumped</u>	<u>Guests</u>	<u>Employees</u>	<u>Park & Conc.</u>
January	83,709	936	69	
February	83,709	873	69	
March	127,572	1,539	69	
April	136,112	3,559	69	

	<u>Gals. Pumped</u>	<u>Guests</u>	<u>Park & Conc. Employees</u>
May	168,257	2,892	69
June	156,789	6,155	69
July	220,212	5,290	69
August	218,899	6,031	69
September	175,289	2,140	69
October	154,859	1,516	69
November	140,419	1,341	69
December	110,369	1,012	25

1,776,195
Mr. Gene Cartledge has been contacted regarding his Water Use Report on the Castolon property, and a copy of this report will be forwarded to your office.

/s/ Howard F. Emrich

Howard F. Emrich
Acting Superintendent

Attachments

Copy to: Regional Director, Region Three
WODC

154-L

January 23, 1958

State Board of Water Engineers
1410 Lavaca Street
Austin, Texas

Re: Annual Water Use Reports
Big Bend National Park

Dear Sir:

We have received forms for the subject reports on water use under Application 978, Permit 927; and from Spring B under a number 5825. The previous reports on Spring B have been under your assigned No. M-825. Before preparing the report on the use of Spring B we should like to know whether the new number applies to it, and the classification of the claim or right to which the number series applies.

By deed of January 28, 1957, which was recorded in the county on August 8, 1957, and accepted for the United States on November 5, 1957, the Cartledge family conveyed the land and rights under Application 129, Permit 125, subject to the continued use of 500 acres of the land and the water system for several years. Since no report forms have been supplied by you, we assume that you have not been notified of the transfer in compliance with your Regulation 505.3. We are referring the matter to the Superintendent. We shall also appreciate receipt of necessary forms for the report, which should doubtless be signed by a Federal agent even though Mr. Cartledge will have to supply the data.

Before making the first report on the use of Spring B, we supplied you with a list of water systems and requested your advice as to which uses should be reported to comply with Articles 7612 and 7612a of the Civil Statutes. You suggested that the two above numbered reports seemed necessary.

During the past summer I inspected the water systems of the Park, and found that Oak Spring and Cottonwood Creek below Cattail Falls, are diverted, 20 miles or more by the water courses from the Rio Grande, by a combined system to provide the domestic supply for the main public accommodations in the Basin Area of the Chisos Mountains. This use was listed in our previous correspondence with you, but I was unable to give many details. You did not recommend annual water use reports. Article 7612 prescribes reports on use of water from water flowing in a natural stream or

Handwritten:
154-L
2/1/58
[Signature]

water course, provided that, with the exception of public utilities and political subdivisions, no reports are needed for water used solely for domestic and stockwatering purposes. The water is used for the needs of a lodge with dining room and sleeping accommodations. There is no irrigation. There is an available supply of about 20 gpm, and the water system includes regulatory storage and two pumps with a capacity of 100 gpm. To be sure that we understand each other, I gather that no report is needed because the use is for domestic purposes.

Very truly yours,

A. van V. Dunn
Chief, Water Resources Section

Copy to: Regional Director, Region Three
Superintendent, Big Bend
Chief, WODC

LE4-L

January 17, 1956

Mr. Ivan M. Stout, Chief Engineer
Board of Water Engineers
302 West 15th Street
Austin, Texas

Dear Mr. Stout:

The Instructions with your form for the Water Service Report for 1955, under Water Right Application 978, Permit 927, quotes a more comprehensive Article 7612 than the Instructions of past years. The significant addition is that reports are prescribed for water used under riparian or prescriptive rights, or otherwise, in addition to use under established permits.

The following list of existing and proposed water systems at Big Bend National Park may, or may not be complete, and includes many for which the records of this office are incomplete, and some proposals which may not be attempted. There may be a few more actually in operation:

System	Source	Comments
Basin Water System	2 Wells	Domestic use
Boot Spring	Spring	
Border Patrol Camp	Well	Domestic use
Boguillas		
Castolon		
Government Camp	Spring	
K-Bar	Well	Domestic
Mexican Village	Well and Spring	(See maps with Wedin Ditch File)
Panther Junction	3 Wells	
Rio Grande	Well	(See maps with Wedin Ditch File)
Santa Elena		
Wedin Ditch	Rio Grande	Appl. 978, Permit 927

We shall need at least 22 more report forms if we are to report on all systems, and at least 30 forms if a report is needed for each source, with a copy for our files. It is also probable that we can do little more than supply an inventory for this year, in many cases.

Please advise what procedure is desired, and supply us with a somewhat liberal supply of forms to meet the need.

Sincerely yours,

A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Big Bend, detached
Regional Director, Region Three, detached
Western Office of Design and Construction, detached

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
CHICAGO, ILLINOIS

ADDRESS ONLY
THE DIRECTOR, NATIONAL PARK SERVICE

February 27, 1947.

MEMORANDUM for the Regional Director, Region Three.

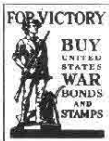
We enclose two assemblies of Big Bend National Park Deed 3, covering records of the well at Basin. This well has been designated as Well No. 1 in order to differentiate it from others to be drilled, and from the CCC well. Form L-1, also in duplicate, is enclosed for index purposes.

An attempt is being made to assemble records of all water systems of this Service, its concessioners, and permittees as time permits. In some cases, the records will be largely composed of the water right instruments. In other cases, where appropriate rights are not required, such as for ground water in Texas, the record will consist of plans and historical data which may be required if the State water laws are amended. In all cases for wells, they will include the well driller's log, and any records of compliance with State regulation which may be required.

The present assembly is not yet complete, but should be filed in your Office and at the Park to preserve such data as we have. Additions will be distributed as they become available.

Chief, Water Division.

Enclosure 528.
In duplicate.



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BIG BEND NATIONAL PARK

(Undated)

Copy of longhand
memorandum by Supt., Big Bend.

Alpine, Texas.

(Received in Chief Clerk's
Office Sept. 16, 1946)

MEMORANDUM for the Regional Director.

Copy of your airmail memorandum of 9-4-46 regarding Big Bend well received. The well is definitely weak. The water rises to about 25 feet over the cylinder, which is to a depth of about 75 feet if the well has not caved and filled in materially. It can be pumped for about 20 minutes at the rate of about 8 gallons per minute and it is dry, or I mean the water is drawn down to the cylinder. If we continue to pump about every 10 to 12 strokes it will pump a little water. If the well rests for one hour, we can pump another 20 minutes. We were able to pump 25 minutes after an all night rest.

I think we can keep the operation going for there has been a decided decrease in travel the past few days. Anyway, we are preparing to haul water from the headquarters' wells if necessary.

I believe the 800 foot well will get a strong supply of water. If not, it is a good time to find out, before any more development goes into the Basin area.

/s/ Ross A. Maxwell,
Superintendent.

P.S. The casing mentioned in my wire will be used oil well casing.
R.A.M.



BOARD OF WATER ENGINEERS

STATE OF TEXAS

AUSTIN 14

302 W. 15th Street

C. S. CLARK, CHAIRMAN
A. H. DUNLAP
JOHN W. PRITCHETT

A. W. McDONALD
SECRETARY

September 15, 1944

Mr. A. van V. Dunn
Hydraulic Engineer
National Park Service
Chicago 54, Illinois

Dear Sir:

This is to acknowledge receipt of your letters, dated September 2, 1944, which came while I was in Chicago attending the Nation-wide Water Conservation Conference.

In reply to your letter requesting information regarding the ground water laws of Texas, you are advised that underground waters are not included in the water appropriation statutes of this State, and the Board of Water Engineers has no jurisdiction over the regulation and control of ground waters, except to prevent waste of artesian waters and prescribe rules and regulations for the preserving of the sanitary condition of such waters. I am sending you under separate cover copy of rules and regulations of this Board for the conservation, protection, preservation, and distribution of the underground water supply of Texas

You are further advised that some of the area between longitude 103°00' and 103°50' west and latitude 29°00' and 29°40' north is classed as an artesian basin. For further information on this point, I suggest that you write to Mr. Walter N. White, Chief of Ground Water Division, U. S. Geological Survey, 302 W. 15th Street, Austin, Texas.

We appreciate the information contained in your letter regarding Permit No. 927 for the appropriation of the waters of the Rio Grande River in Brewster County, and please be advised that the Board will give you all the time necessary for completing your investigations regarding the use of the water under this permit.

In compliance with your request, we are sending you under separate cover the necessary blank forms for making the annual water services report required by Texas statutes.

When we can be of further service to you, kindly let us know.

Yours very truly,

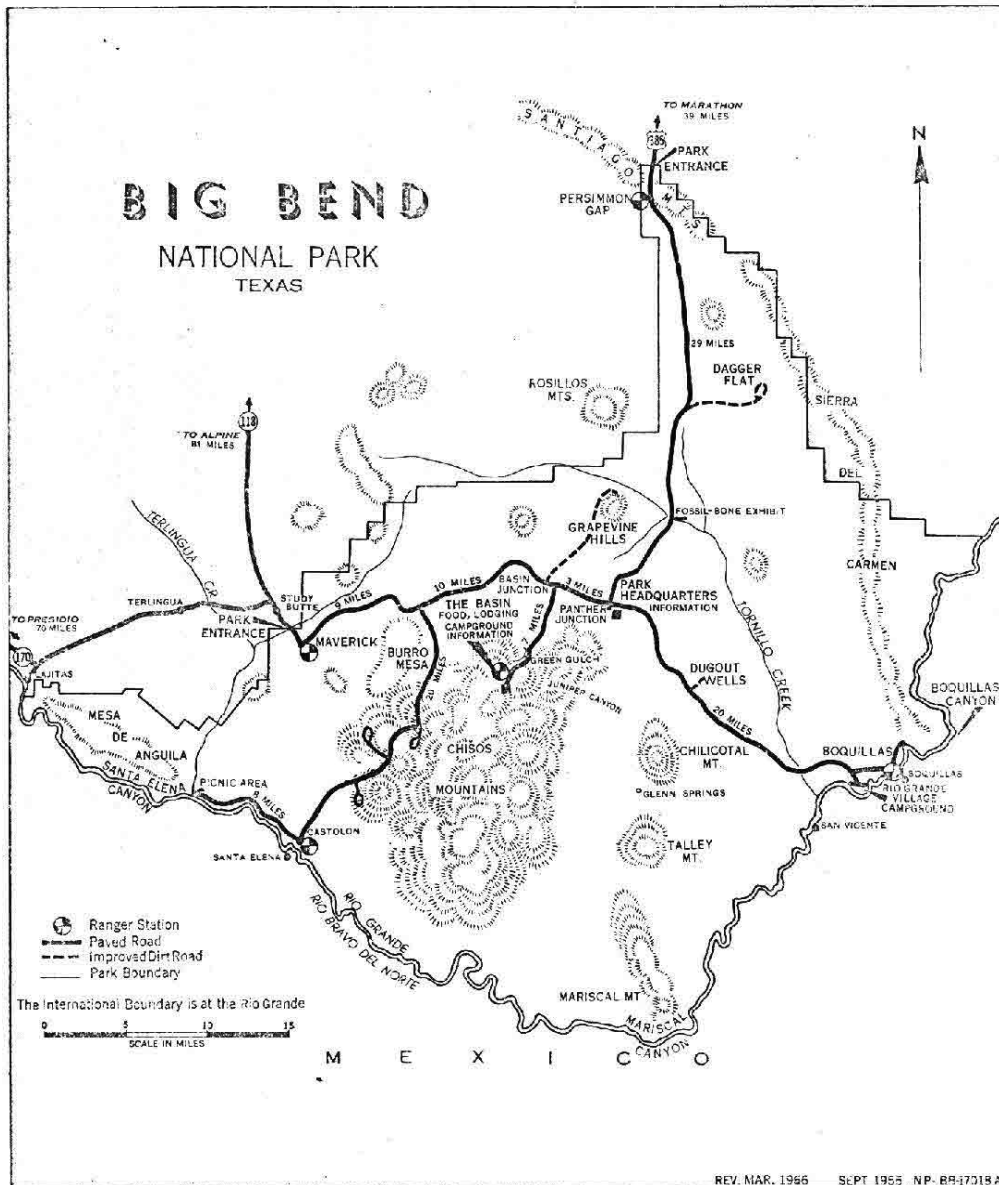
J. E. Sturrock

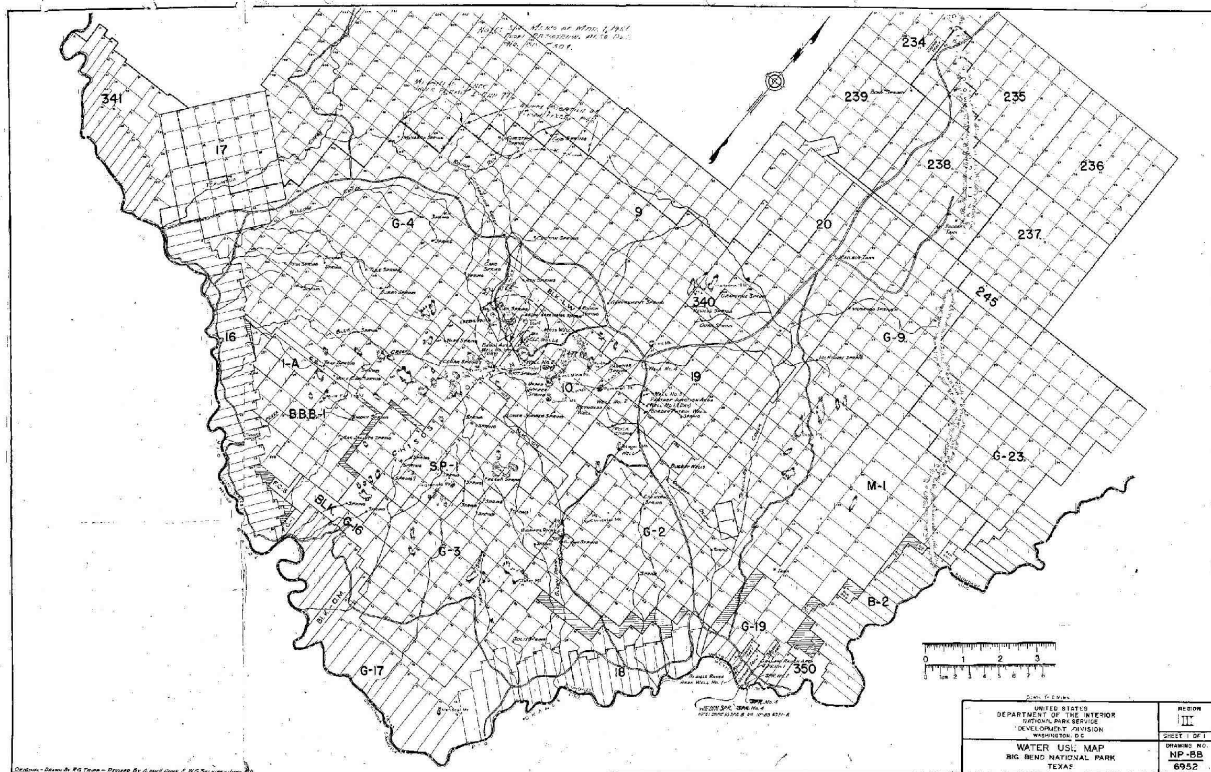
J. E. Sturrock
State Board of Water Engineers

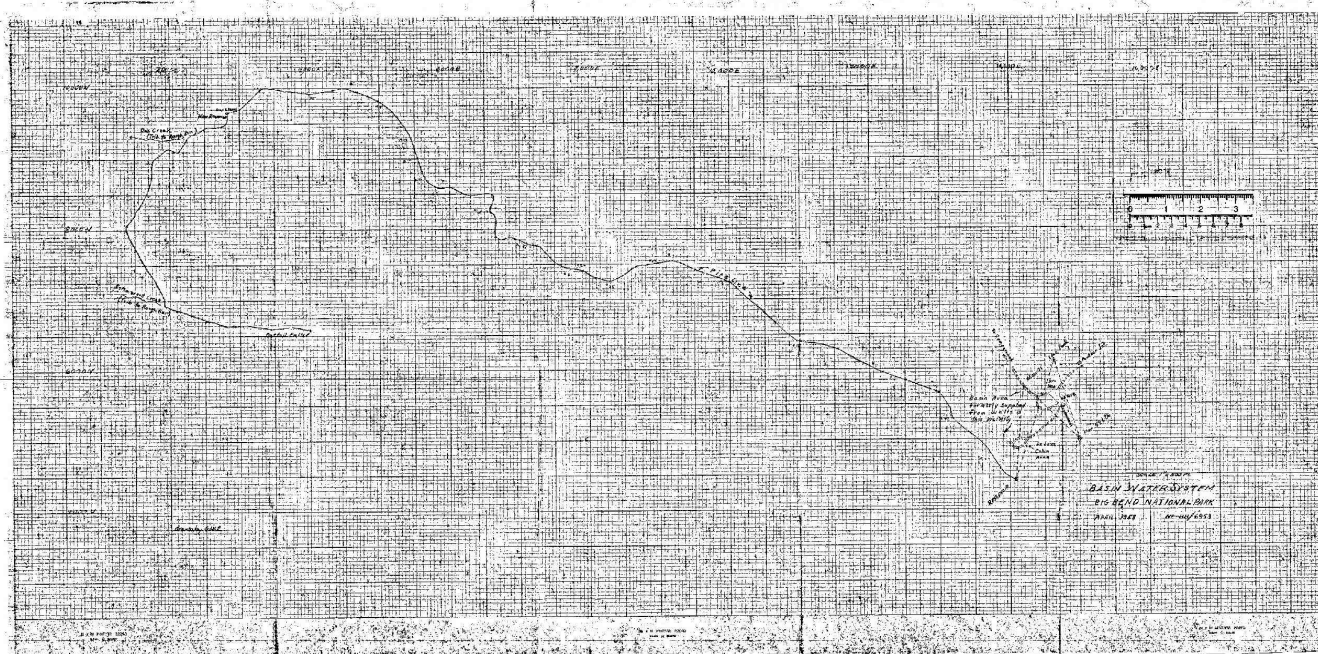
JES:jm

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Maps and Miscellaneous Information







Docket Information

Number of Documents in Docket 89

Documents Dated from 6/17/1940 to 4/23/1971

Docket Compiled: 4/12/2011