



Death Valley National Park

Docket Number: 32

FURNACE CREEK TEST WELL

Preliminary Docket Information

DOCKET INFORMATION FORM

Compiled by: Alexa Kreiling Date: 2/25/2025
 Initial Docket Information Form ☒ Amendment # (1,2,3 ...)
 Includes Confidential Content ☐

Park Unit: DEVA Docket #: 032 Docket Title Furnace Creek Test Well

Docket Type:

Select all applicable: ☐ PC/V (pre-code/vested) ☐ APP (appropriative) ☐ RIP (riparian)
☐ FRR (federal reserved right) ☐ PWR (public water reserve) ☐ ACQ (acquired)
☒ GW (groundwater) ☐ Own (ownership) ☐ Other

Region:

☐ NER & NCR ☐ IMR
☐ SER ☐ MWR
☐ IMR ☒ PWR
☐ AKR

Source:

☒ Groundwater ☐ Spring (When recognized by the State as separate from groundwater and surface water)
☐ Surface Water
☐ Direct Diversion ☐ Diversion to Storage ☐ Instream Flow
 Name: Furnace Creek Test Well

State: CACounty: Inyo

Owner: US National Park Service (As listed by the State)

Application #: Date:

Permit #: Date Issued:

License / Certificate #: Priority Date:

Ruling/Order/Decree #: Date Issued:

Quantity: Rate: Duty:
 Units: ☐ cfs ☐ gpm ☐ afy ☐ other Units: ☐ cfs ☐ gpm ☐ afy ☐ other

Use(s): ☐ Domestic ☐ Livestock ☐ Irrigation ☐ Municipal ☐ Industrial/Commercial ☐ Wildlife ☐ Instream ☒ other Test Well

POD Name / Location: ☐ Multiple PODs (see water right)

Qtr: SE Qtr: SE Sec: 16 T: 27 N R: 1 E PM:

Latitude: Longitude:

UTM , Datum:

POU Name / Location: ☐ Multiple POU's (see water right)

Qtr: Qtr: Sec: T: R: PM:

Latitude: Longitude:

UTM , Datum:

Narrative / Remarks: Enter short narrative in the space below, attach additional page(s) as needed.

See Water Right/Source Docket Information dated May 7, 1979 in the preliminary section for narrative.

Test well. Water non-potable, non-irrigable. Used for observation but current status unknown.

DATE: May 7, 1979

DOCKET (FILE) TITLE _____

REGION Western AREA Death Valley National Monument

SITE Furnace Creek Test Well

STATE California COUNTY Inyo DOCKET NO WR #32

LOCATION SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 16 T27N R1E

REGIONAL BASIN _____ LOCAL BASIN _____

ACQUIRED BY _____

APPLICATION _____ PERMIT _____ CERTIFICATE _____

ACTION DUE _____ PRIORITY _____ RESERVATION _____

QUANTITY _____ USE _____

STATUS _____ SOURCE Ground Water - Well

REMARKS Hydrologic Unit #18090203

NARRATIVE:

In 1964 a test well was dug near Furnace Creek Ranch, on property owned by Fred Harvey, Inc. It was drilled solely for exploratory purposes and the water from the well was found to be not potable and too high in sodium content to be used for irrigation. It was decided that the well would be used as an observation well and its present status is unknown.

Compiled by T. Kern

Approved by _____

06 DATA

Death Valley National Park

FURNACE CREEK TEST WELL

Supporting Hydrologic Data

QUINTUPLICATE

RETAIN THIS COPY

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

Do Not Fill In
No 89710

State Well No.

Other Well No.

(1) OWNER:

Name **National Park Service**Address **Death Valley National Monument**
Death Valley, California(2) LOCATION OF WELL: **USGS#27N/1E-16R1**County **Inyo**

Owner's number, if any—

R. F. D. or Street No.

300 feet west of Visitor Center and 100
feet north of airport road

(3) TYPE OF WORK (check):

New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐Irrigation ☐ Test Well ☒ Other ☐

(5) EQUIPMENT:

Rotary ☐Cable ☒Dug Well ☐

(6) CASING INSTALLED:

SINGLE ☒ DOUBLE ☐From **0** ft. to **200** ft. **6"** Diam.Gage
or
Wall

If gravel packed

Diameter
of Borefrom
ft.to
ft.

Type and size of shoe or well ring

Describe joint **welded**

Size of gravel:

(7) PERFORATIONS:

Type of perforator used **cut**Size of perforations **4** in., length, by **1/4** in.From **160** ft. to **200** ft. **5** Perf. per row **2** Rows per ft.

(8) CONSTRUCTION:

Was a surface sanitary seal provided? ☒ Yes ☐ No To what depth **10** ft.Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata

From _____ ft. to _____ ft.

Method of Sealing **concrete grout**

(9) WATER LEVELS:

Depth at which water was first found **38** ft.Standing level before perforating **38** ft.Standing level after perforating **38** ft.

(10) WELL TESTS:

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: _____ gal./min. with _____ ft. draw down after _____ hrs.

Temperature of water _____ Was a chemical analysis made? ☒ Yes ☐ No

(11) WELL LOG:

Total depth **200** ft. Depth of completed well **200** ft.

Formation: Describe by color, character, size of material, and structure.

ft. to

ft.

0	2	no record
2	8	sand, silt and clay
8	10	hardpan
10	13	sand, silt and clay
13	14	clay, silt
14-42	40	clay with gravel lenses
40	60	fine brown sand
60	82	fine sand, gravel lenses
82	93	gravelly sand
93	100	sand and clay
100	109	sandy clay
109	113	gravelly sand
113	115	sandy clay
115	126	gravelly sand
126	128	sand
128	145	gravelly sand
145	148	sand and clay
148	200	gravelly sand

Work started **1/15** 19 **64**, Completed **1/24** 19 **64**

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME **John A. Aubuchon, Superintendent**

(Person, firm, or corporation)

(Typed or printed)

Address **Death Valley National Monument, California**

[SIGNED] _____

xxxxxx, Superintendent

License No. _____

Dated **March 19, 1964**, 19

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Ground Water Branch

RESULTS OF DRILLING TEST WELL 27N/1E-16R1
NEAR FURNACE CREEK RANCH IN
DEATH VALLEY NATIONAL MONUMENT, CALIFORNIA

Sacramento, California
1964

RESULTS OF DRILLING TEST WELL 27N/1E-16R1 NEAR FURNACE CREEK RANCH
IN DEATH VALLEY NATIONAL MONUMENT, CALIFORNIA

By M. G. Croft

Well 27N/1E-16R1 is about 300 feet west of the Visitor Center, adjacent to the road leading to the airport in Death Valley National Monument, California. The well was drilled to determine the quality of the water and the permeability of the aquifer. Drilling began January 15, 1964, and continued until January 24. A log of the well is shown on figure 1. The original specifications stipulated that the well was to be 100 feet in depth and that a pumping test was to be made upon completion of the well. However, after the well was completed to a depth of 100 feet, electrical conductivity ^{1/} tests indicated that the water probably was not potable but that the quality of the water had been improving with depth. Therefore, the Park Service decided to expend the remaining funds to deepen the well in a search for potable water and not conduct a pumping test.

1. Electrical conductivity is used to estimate the approximate salinity of water.

The well was constructed with a 6-inch casing, the lower 40 feet of which was perforated to admit water. As the casing was driven down the hole coincident with drilling, water samples were collected at several horizons. The conductivity of the water was measured at the site with a portable bridge (fig. 1). In addition, detailed laboratory analyses were made on three water samples (table 1). The laboratory results differ slightly from the results obtained with the portable bridge. For example, the portable bridge gave a reading of 3,100 micromhos for a water sample collected from the interval 40 to 80 feet below land surface. The laboratory result (No. 45502) for the same sample was a specific conductance (conductivity) of 3,220 micromhos.

The three detailed chemical analyses and the results obtained with the portable bridge indicate that, within the range of the test drilling, the quality of the water improved with depth. According to drinking-water standards of the U.S. Public Health Service (1962, p. 8, 25, and 32), dissolved solids should not exceed 500 ppm (parts per million); sulfate should not exceed 250 ppm; arsenic should not exceed 0.05 ppm; and in a hot, arid area such as Death Valley, fluoride should not exceed 0.8 ppm. Because these limits are exceeded (table 1), the water is not considered potable. Also, according to published tables (U.S. Dept. Agriculture, 1954, p. 80-81), water sample 45502 is classified as very high salinity and very high sodium water. Water sample 45503 is classified as very high salinity and high-sodium water. Therefore, this water generally cannot be considered suitable for irrigation. Water sample 45501 is classified as high salinity and medium-sodium water and is suitable for salt-tolerant crops on well-drained soils. The quality of the water below 200 feet is not known.

When the well drilling reached a depth of 65 feet, a bail test was conducted. At this depth, the driller bailed about 30 gallons of water per minute from the well. After 15 minutes of bailing, the drawdown of the water level in the well was about 2 feet, indicating a rate of yield of 15 gallons per minute per foot of drawdown.

REFERENCES CITED

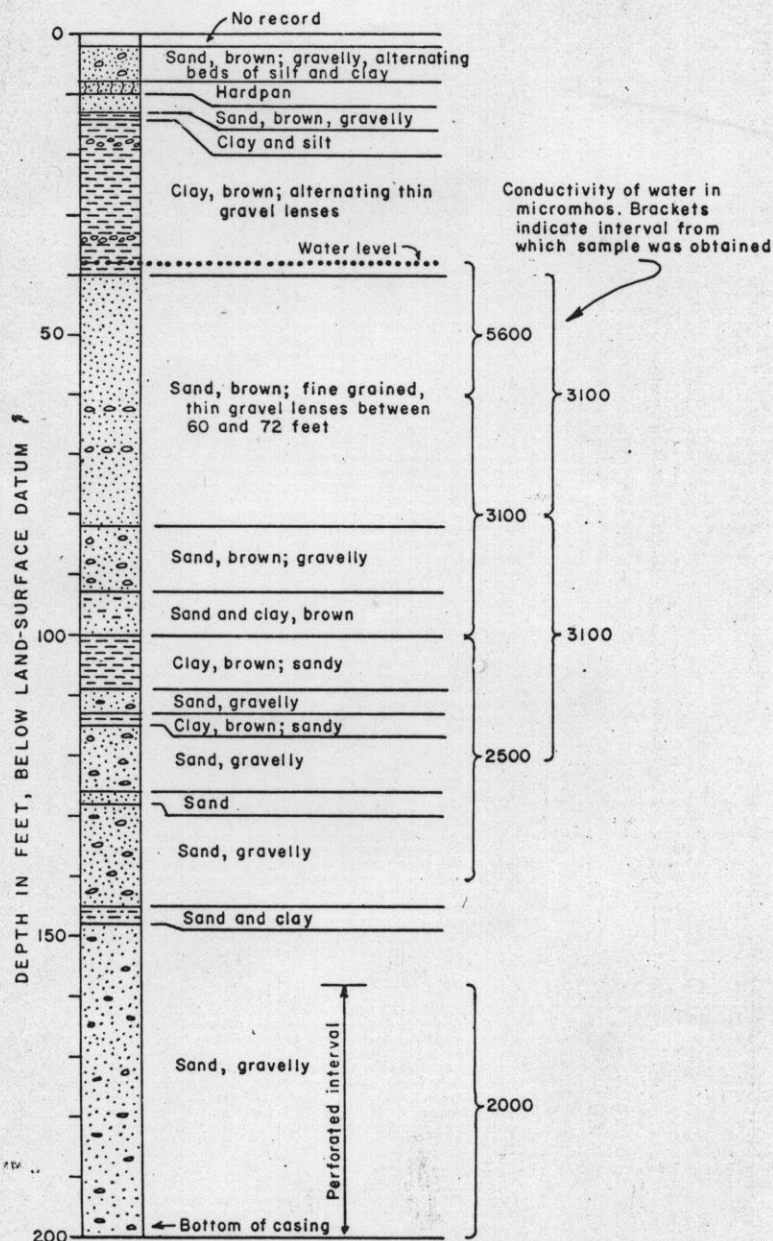
U.S. Public Health Service, 1962, Drinking water standards: Pub. no. 956, 61 p.

U.S. Salinity Laboratory Staff, 1954, Diagnosis and improvement of saline and alkali soils: U.S. Dept. Agriculture Handb. 60, 160 p.

U.S. GEOLOGICAL SURVEY

FIGURE 1

National Park Service test well. About 300 feet west of the Visitors Center, about 100 feet north of road to the airport. Cable-tool drilled by Effinger Well Drilling Co., Las Vegas, Nevada, January 15-24, 1964. 6-inch casing perforated, 160 to 200 feet. Log by Mack G. Croft, U. S. Geological Survey.



LOG OF WELL 27N/1E-16R1, DEATH VALLEY, CALIFORNIA

Table 1.--Chemical analyses of water from well 27N/1E-16R1, Death Valley National Monument, California

Date of collection	Perforated interval of well (feet)	Temperature (°F)	Results in parts										per million										
			Silica (SiO ₂)	Arsenic (As)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate(HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids		Hardness as CaCO ₃	Noncarbonate hardness as CaCO ₃	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Laboratory number
															Calculated (Sum of determined constituents)	Residue at 180°C							
1-16-64	40-80	80	67	0.05	15	25	740	42	1,300	0	522	98	5.5	0.8	2,160	2,120	139	0	89	27.2	3,220	8.2	45502
1-21-64	100-140	72	43	.00	48	60	438	28	675	0	595	135	6.0	5.6	1,700	1,610	368	0	70	9.9	2,540	8.0	45503
1-24-64	160-200	74	28	.00	58	69	332	28	610	0	462	126	2.8	.9	1,410	1,320	430	0	61	6.9	2,090	7.9	45501

07 OTHER

Death Valley National Park

FURNACE CREEK TEST WELL

Other Supporting Information

NARRATIVE STATEMENT

This project was contracted to Effinger Drilling and Pump Service Company, P.O. Box 579, Las Vegas, Nevada, on January 6, 1964, contract No. 14-10-0434-1248.

The contractor moved his cable tool drilling rig to location and began drilling on January 15. The completion date was January 24, 1964.

During the drilling operation, Mr. M.G. Croft, U.S.G.S. Consultant and the Contracting Officer's representative supervised the work.

On January 21 Change Order No. 1 extended the depth of bore, complete with casing, from 101 feet to 150 feet inclusive at a cost of \$8.00/l.f.

On January 23, Change Order No. 2 extended the depth of bore, complete with casing, from 151 feet to 200 feet inclusive at a cost of \$10.00/l.f.

Inasmuch as this contract called for the construction of a test well with the intent of making a subsurface ground exploration relative to the availability of water, it was agreed that two extensions of 50 feet each in depth should be made as it was found that water quality, as determined with a conductivity bridge, improved with well depth. The original contract amount was 100 feet.

Funds were available for this work by virtue of savings made in reducing either in part or totally, the following listed items of the contract:

<u>Item</u>	<u>Description</u>
3	Hours, development and experimental work
4	Furnish and set test pump and equipment
5	Test pumping of well
6	Perforated casing

Day labor forces were required to restore the area to its original condition.



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
January 26, 1965

IN REPLY REFER TO:

D2621

Memorandum

To: Hydraulic Engineer, W.R.O.
From: Park Engineer, Death Valley
Subject: Completion report for test well

Enclosed please find subject for fiscal clearance and final distribution. Please return a complete set for our files.

National Water Well Association application blank is enclosed.

Garland Moore
Garland Moore

In duplicate

Enclosure

RECEIVED		
NPS Western Regional Office		
JAN 29 '65		
	Surname	Date
Reg. Dir.		
Asst. R.D. (AD)		
Asst. R.D. (CP)		
Asst. R.D. (CA)		
Asst. to R.D. (PA)		
Sp. Asst. (Dev)		
Sp. Asst. to R.D.		
R. S. Advisor		

Morris

Form 10-174
(June 1962)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

FACE SHEET FOR COMPLETION REPORT

Park Death Valley National Monument	Region Western	Work Order No. 143.2.1
Location in Park Furnace Creek	State(s) California	Fund Symbol 1441033
☒ Contract and/or ☒ Day Labor	County or Counties Inyo	Year Programmed 1964
		PCP No. --
Work Order Title Test Well, Furnace Creek Area, Death Valley		Master Plan No. --
		Master Plan Corrected By --
		As Built Drawings By --
		Date Started Jan. 15, 1964
		Date Completed Jan. 24, 1964
DESCRIPTION OF FIXED ASSETS (For completion by employee in charge of project)		TOTAL COSTS (For completion by FFO)

Test well near Visitor Center includes

40' perforated 6" pipe
160' standard 6" pipe

TOTAL

\$

DISTRIBUTION		THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES		
No.	To	Submitted	Title:	Date:
1	DCC	By: <i>Garland Moore</i>	Park Engineer	Nov. 23, '64
1	WODC	Approved: <i>Garland Moore</i>	Title:	Date:
1	Reg. Dir.	By: <i>John A. Aubuchon</i>	Superintendent	Nov. 23, 1964
1	FFO			
1	DEVA			
		COSTS VERIFIED	Title:	Date:
		BY		

Form 10-174A
(June 1962)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

COMPOSITION OF COST FOR COMPLETION REPORT

Order Number

143.2.1

Fund Symbol

1441033

Park

Death Valley National Monument

Region

Western

Year Programmed

1964

Location in Park

Furnace Creek

Work Order Title

Test Well, Furnace Creek Area, Death Valley

COMPOSITION OF COST

COSTS CHARGED TO FUNDS ALLOTTED TO FIELD FINANCE OFFICE

(1) Personal Services.....	\$ 334.24	
(2) Travel.....	-	
(3) Contract Work	3355.00	
(4) Supplies and Materials.....	350.69	
(5) Other Direct Expenses.....	16.12	
(6) Operation of Equipment.....		
(7) Depreciation of Equipment.....		
(8) Purchase of Construction Equipment.....		
(9) Purchase of Other Accountable Equipment		
(10) Other Costs:	65.15	
(11) TOTAL COST CHARGED TO FFO FUNDS	xxxxxxxxxx	\$ 4121.20

OTHER COSTS:

(12) PS&S, AP, and/or Facilitating Services @ _____ %.....	\$	
(13) Inventory and Other Non-Fund Costs		
(14) GROSS WORK ORDER COSTS	xxxxxxxxxx	\$
LESS:		
(15) Residual Value of Construction Equipment on Line 8	\$	
(16) Other Credits		
(17) NET COST OF FIXED ASSETS	xxxxxxxxxx	\$

Identify other costs and other credits by line item entry, on an attached schedule, or explain in narrative.

Docket Information

Number of Documents in Docket : 13

Documents Dated from : 03-19-1964 to 02-25-2025

Docket Compiled: 6/18/2025