



WATER-RIGHT DOCKET

Dinosaur National Monument

Docket No: 20

ECHO PARK WELL #3.

Preliminary Docket Information

00-00-0000: water right record echo park campsite

WATER RIGHT RECORD	
	Park: DINO
	Docket Number: Federal #20
IDENTIFICATION NO:	<u>DINO</u> <u>W 3 2 0 7 1 0 3 A F 2 0</u>
DITCH/WATER SYSTEM:	Echo Park Campsite
SOURCE OF SUPPLY:	Well #3
LOCATION:	NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 32, T7N, R103W, 6th Principal Base Line and Meridian.
WATER RIGHT:	
Appropriator:	United States of America, National Park Service
Application/Permit Number:	
Certificate Record Number:	
Date of Priority:	
Quantity of Water:	
Purpose:	
Irrigated Land Description:	
SUMMARY OF STATUS: This is a Federal water right consisting of a well. Completion date, July 23, 1970. 300 ft. depth.	

DOCKET INFORMATION SHEET

Docket Identity	D11M01W13210711031A E 20
Region	ROCKY MOUNTAIN
Area	DINOSAUR NATIONAL MONUMENT
Site	ECOTO PARK CAMP SITE
State	COLORADO
County	MOFFAT
Docket	DIND WATER RIGHT DOCKET 20
Location	T1N R103W SEC 32 NW 1/4 SE 1/4 NE 1/4
Acquired by	APPROPRIATION
Application	
Permit	
Certificate	
Priority	
Reservation	OCT 4 1915
Status	ACTIVE FEDERAL
Source	GROUND WATER
Use	
Quantity	
Hydrologic Unit	14060001
Remarks	

Other Supporting Information

Form 10-194
(Rev. 9/60)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

WSC, Land + Water

Check One:

Monthly
Estimate ☐Final
Estimate ☒Dinosaur National Monument
(Park)

UNIT PRICE CONTRACT

ESTIMATE NO. <u>1</u>	FOR (Period) <u>June 10, 1970 - July 23, 1970</u>	DATE <u>August 26, 1970</u>
CONTRACT NO. <u>4970F00322</u>	COMPLETION DATE <u>July 23, 1970</u>	EXTENDED DATE
CONTRACTOR <u>J. S. Lee & Sons Drilling Co. 4091 South State Street Salt Lake City, Utah 84107</u>		ORIGINAL CONTRACT \$ <u>10,262.50</u>
PROJECT <u>Drilling of Test Well(s)</u>		CHANGE ORDERS* \$ <u>1,363.82</u>
LOCATION <u>Echo Park Campsite, Dinosaur National Monument, Colorado</u>		TOTAL CONTRACT \$ <u>11,626.32</u>

ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
1.	Lump Sum	Moving equipment to and from well site	100%	500.00	500.00
2.	Lump Sum	Moving equipment from site to site	None	200.00	None
3.	300	Lineal feet of bore 8 inches in diameter, surface to 300 feet	300	20.00	6,000.00
4.	165	Lineal feet, furnishing and installing 6 inches I.D. steel casing	165	3.50	577.50
5.	135	Lineal feet, furnishing and installing 6 inches I.D. perforated steel casing	135	4.75	641.25
6.	6	Cubic yards, furnishing and placing select gravel for packing between bore and casing	None	12.50	None
7.	10	Lineal feet, furnishing and installing with fittings; a wire wound continuous slot stainless steel well 6" in diameter	None	45.00	None
8.	20	Hours developing well	7	20.00	140.00
9.	8	Hours bailing test	None	20.00	None
10.	48	Hours pumping test for well yield	8	30.00	240.00

RECOMMENDED (Project Supervisor)

Donald C. Barrett
Donald C. Barrett

PAID

SEP 1970

800034 2298

DATE

9/23/70

SUMMARY

TOTAL TO DATE	\$ <u>2,456.32</u>
LESS RETAINED AMOUNT.....	<u>9,456.32</u>
NET	<u>9,456.32</u>
LESS PREVIOUS PAYMENTS.....	
LESS LIQUIDATED DAMAGES.....	
DUE THIS ESTIMATE	<u>9,456.32</u>
% COMPLETED TO DATE:	100%

*Show Breakdown on Reverse

(See Reverse for Distribution)

APPROVED (Contracting Officer)

Leroy A. Marcroft
Leroy A. Marcroft

Form 10-194a
(12/61)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

UNIT PRICE CONTRACT CONTINUATION SHEET

Contract No. 4970P00322		Contractor J.S. Lee & Sons Drilling Co.			
ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
11.	25	Lineal feet, plugging of abandoned exploratory bore	None	4.00	None
12a.	70	Lineal feet reaming hole to 1 1/4 inches from 0 to 70 feet and placing concrete seal around casing	70	10.00	700.00
13.	5	Days standby time for evaluation of well data	None	50.00	None
14.	63	Lineal feet, furnish and install 1 1/4-inch O.D. steel conductor casing	63	7.48	471.24
15.	Lump Sum	Furnish and install a 1 1/2 inch gate valve with fittings- fittings included are: 2-1/4" nipples, 1-1/4" threaded couplings, 1-6" threaded couplings	100%	186.33	186.33



IN REPLY REFER TO:
D52(WSC)APOG

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WESTERN SERVICE CENTER
450 GOLDEN GATE AVENUE, BOX 36025
SAN FRANCISCO, CALIFORNIA 94102

September 29, 1970

RECEIVED	
NATIONAL PARK SERVICE San Francisco Service Center Land Acquisition & Water Resources	
SEP 30 1970	
ACT. INFO.	INITIALS/DATE
CHIEF	
ASST. CHIEF	
A.D.S. TEL.	
APPROPRIATES	
CONF. ROOM	
DOCKET	
EXCHANGE	
INCLUSIONS	
Water Resources	
FILE	

Memorandum

To: Chief, Division of Financial Services, WSC

From: Chief, Division of Procurement and Contract Administration, WSC

Subject: Contract No. 4970P00322, Contractor Payrolls-
Drilling of Test Well(s)- Echo Park Campsite-
Dinosaur National Monument

The work on the subject contract was completed on July 23, 1970
and final payment has been made.

In accordance with the Design and Construction Operations Manual,
Part 170, Chapter 2, Section 6, Page 2, in which it is indicated
that the Contractor payrolls are to be retained in the audit file of
the field finance office, the payrolls are enclosed herewith.

(Sgd) Donald S. Marley

For

LeRoy E. Marcroft

Enclosures

cc: Without Enclosures
Assoc. Dir., Prof. Svs., WASO (2)
Director, Midwest Region (2)
Supt., Dinosaur
Proj. Supv., Barrett (WSC) LW
WSC, LW
WSC, Procurement
File, Reading



United States Department of the Interior

GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
8002 Federal Building
Salt Lake City, Utah 84111

RECEIVED	
WATER	
JUL 27 1970	
ACT. INFO.	INITIALS DATE
WITNESS, G.	
CHIEF, D.	
REMARKS	
FILE	

July 23, 1970

Memorandum

To: Chief, Water Resources Section, Office of Land Acquisition and Water Resources, SSC, National Park Service, San Francisco, California

From: District Chief, WRD, Salt Lake City, Utah

Subject: DINOSAUR NATIONAL MONUMENT - Completion of Echo Park Well 3

Recommendations for drilling a well at Echo Park in Dinosaur National Monument were presented in a memorandum to the National Park Service on September 19, 1967. The well site at Echo Park is located in NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 7 N., R. 103 W., 6th Principal Base Line and Meridian. Altitude of the well site interpolated from the U. S. Geological Survey topographic map of the area is about 5,090 feet (fig. 1). The site area is underlain by alluvium and fractured Weber Sandstone.

Following the decision of the National Park Service to drill the well at this site, the driller was directed to the precise location on June 19, 1970. Using a cable-tool rig, a hole to accommodate 14-inch diameter casing was completed by the driller through 58 ft of alluvium and the 14-inch well casing firmly seated in 5.5 ft of sandstone, thus sealing unconfined ground water from the well. The static water level in the well representing the unconfined water table in alluvium was 10 ft below lsd (land-surface datum). Land-surface datum is the first joint of the 14-inch diameter casing as shown in figure 2. The well was then drilled below the 63.5-ft depth of the 14-inch casing as an 8 $\frac{1}{2}$ -inch open hole to its total of 300 ft below lsd. The drilling rate was approximately 3 to 4 ft per hour. Fractures were intersected by the drilled open hole throughout the sandstone penetrated, and ground water under artesian pressure in the fractures began to flow from the well when it was about 97 ft in depth. Artesian flow from the well increased as it was deepened, becoming nearly 150 gpm (gallons per minute) from the 14-inch casing when the well was 220 ft in depth. The well was flowing 150 gpm when drilling was completed at a total depth of 300 ft, and 6-inch diameter casing perforated from 165 to 300 ft was then installed in the well. The casing is perforated through the interval where the driller reportedly found the greatest ground-water yield from the well while it was drilled. The 6-inch diameter casing extends 2.50 ft above lsd and has connected to it a valved 4-inch diameter horizontal discharge pipe, the lower inside edge of which is 1.70 ft above lsd (fig. 2). A ring seal was seated about the 6-inch casing at the 70-ft depth and the space surrounding the 6-inch casing grouted from the ring seal to lsd with cement. About 72 hours

after the perforated casing was installed, artesian flow from the horizontal discharge pipe was 35.3 gpm and the water level in the 6-inch casing was 2.02 ft above lsd.

To test the well, the valve on the discharge pipe was closed at 2:30 p.m., July 7, 1970, and the rise of water level in the 6-inch casing was measured and recorded. After 17:20 hours the water level was 2.43 ft above lsd (fig. 3). Rise of the water level was nearly imperceptible at this time, and it was believed to be near static level. The valve on the discharge pipe then was opened and the well allowed to flow, reaching 35.3 gpm within 2 minutes.

A 4-cycle gasoline-powered centrifugal pump rated at $3\frac{1}{2}$ hp and 192 gpm was connected to the well through the open top of the 6-inch casing and test pumping began at 7:50 a.m., July 8, 1970. The initial pumping rate was 64 gpm, enough to lower the water level within 2 minutes to 1.67 ft above lsd, thus causing the well to cease flowing through the 4-inch horizontal discharge pipe. At this pumping rate drawdown was 0.76 ft and specific capacity of the well 84 gpm/ft. This pumping rate was maintained for more than 1 hour without further perceptible change in the water level (fig. 4).

At 9:00 a.m. the pumping rate was increased to 100 gpm, lowering the water level to 1.21 ft above lsd within 2 minutes. This pumping rate was maintained for 3 hours, during which time the water level declined 0.10 ft. Near the end of this 3-hour period there was no further noticeable change in the water level. Drawdown was 1.32 ft and specific capacity 76 gpm/ft (fig. 4).

At 12:00 noon the pumping rate was increased to 130 gpm, lowering the water level to 0.60 ft above lsd within 2 minutes. This pumping rate was maintained for nearly 4 hours. During the first part of this time the water level declined 0.13 ft; there was no perceptible change in water level for the final 2 hours of pumping. At this pumping rate drawdown was 1.96 ft and specific capacity 66 gpm/ft. At 3:55 p.m. pumping ceased and the valve on the discharge pipe was closed. The total pumping period was 8:05 hours.

Recovery of the water level to 2.03 ft above lsd was nearly instantaneous, following a period of a few seconds during which the water level oscillated. The discharge valve was opened and artesian flow resumed at 30.0 gpm from 2.01 ft above lsd. The relationship of discharge to water level in Echo Park Well 3 is shown in figure 5. Flow from the well increased from 30.0 gpm at 2.01 ft above lsd to 37.5 gpm at 2.04 ft above lsd in the 23:35 hours following cessation of pumping (fig. 6). This increase is interpreted as an indication that artesian flow from this well will probably be sustained. While the well flows at the present rate, no pump and power source are required, and a storage tank is not needed. The rate of flow and water level will fluctuate slightly with seasonal changes in the artesian pressure within the aquifer, hence the flow and water level should be measured and recorded at least monthly in order to define the range of

fluctuations. It is recommended that the well be allowed to flow freely at the rate sufficient to supply campground requirements. During freezing weather, the flow should be sufficient to prevent damage to the discharge pipe and valve by freezing. This will not interfere with any other water supply or source of water in the area.

The possibility of cessation of flow through the horizontal discharge pipe due to loss of artesian pressure is considered to be remote. However, if this should occur, a siphon in the well from near land surface will provide resumption of artesian flow. If, as a further remote possibility, the artesian head should ever decline to or below land surface, sufficient water for the campground area (about 20 gpm) can be provided by means of a small centrifugal pump.

Water samples for chemical analysis were taken when the well was 220 ft in depth and after the recovery of artesian flow to 37.5 gpm following completion of the pumping test. The water is clear, 13.5°C (55.5°F) in temperature, no sediment or sand was observed in either sample, and the water has no noticeable taste. Results of these chemical analyses will be submitted when they have been completed.

For the District Chief


C. T. Sumsion
Hydrologist

Enclosures

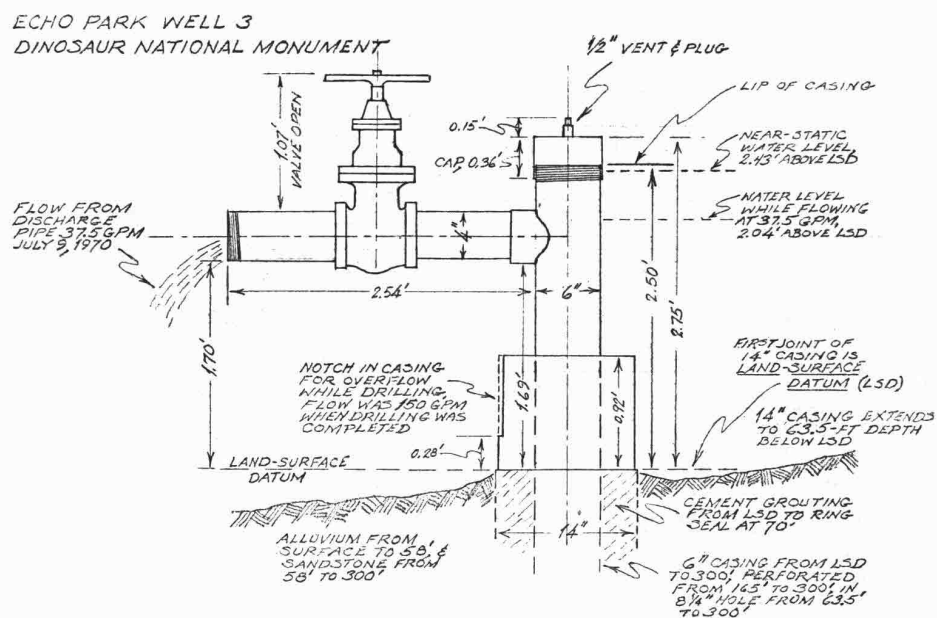


Figure 2. Discharge-pipe installation and well construction data.

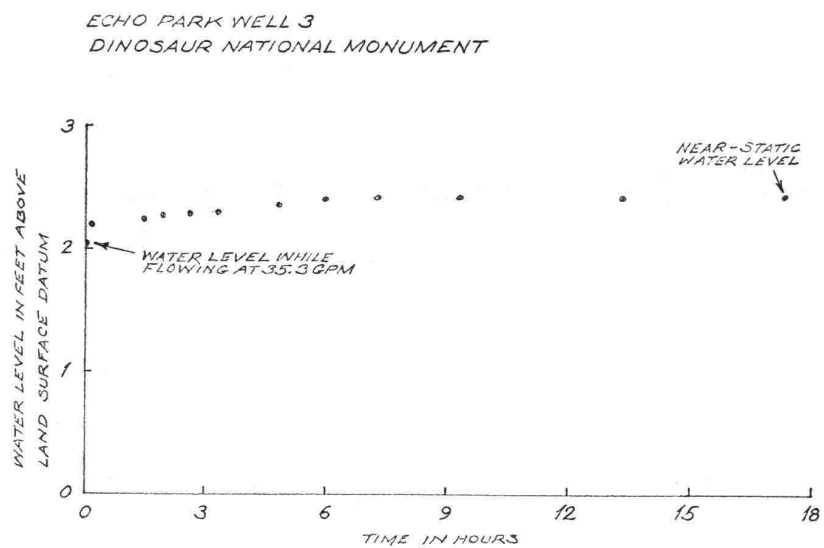


Figure 3. Rise of artesian water level in the well casing after the discharge valve was closed.

ECHO PARK WELL 3
DINOSAUR NATIONAL MONUMENT

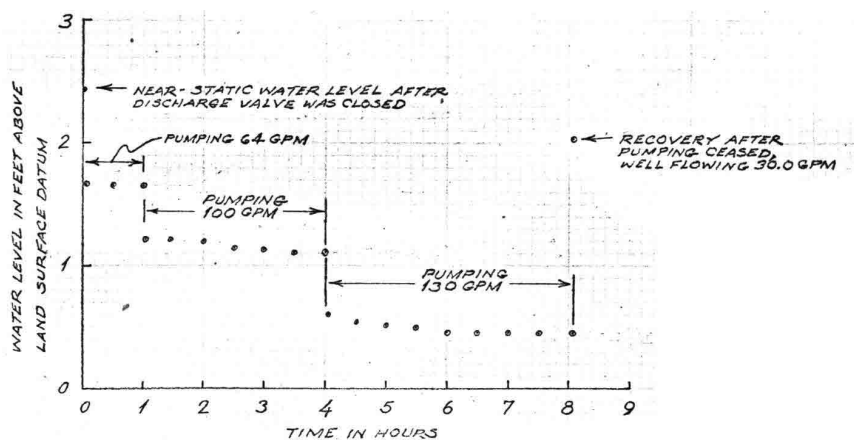


Figure 4. Drawdown while pumping, and recovery of the water level after pumping ceased.

ECHO PARK WELL 3
DINOSAUR NATIONAL MONUMENT

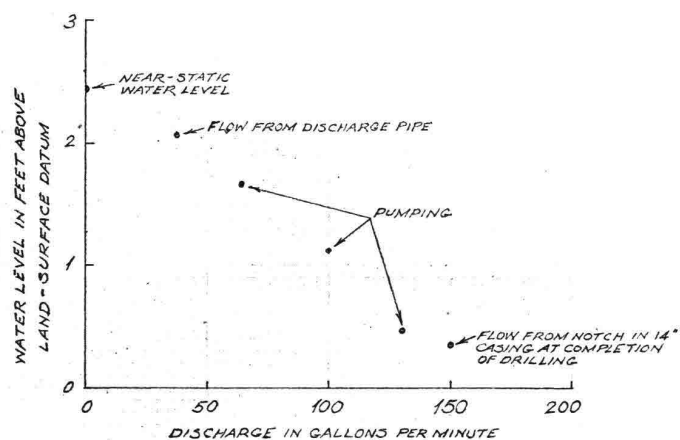


Figure 5. Relationship of discharge to water level.

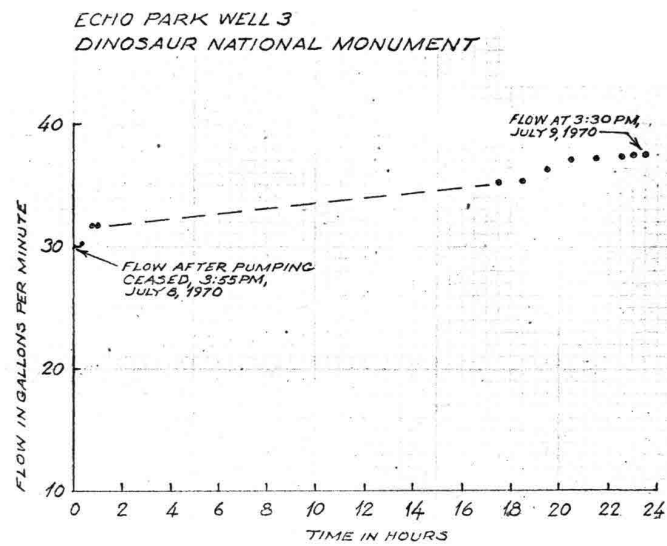


Figure 6. Increase in artesian flow after pumping ceased.

