



WATER-RIGHT DOCKET

Dinosaur National Monument

Docket No: 8

HARDING HOLE WELL

Preliminary Docket Information

00-00-0000: water right record park: dino docket number: federal #8

WATER RIGHT RECORD

Park: DINO

Docket Number:
Federal #8

IDENTIFICATION NO: DINO W 2 2 0 6 1 0 2 A F 0 8

DITCH/WATER SYSTEM: Harding Hole Campground

SOURCE OF SUPPLY: Well

LOCATION: NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 22, T6N, R102W, 6PM

WATER RIGHT:

Appropriator: United States of America, National Park Service

Application/Permit Number: 12225

Certificate Record Number:

Date of Priority: July 17, 1962

Quantity of Water: 7 gpm

Purpose: Domestic

Irrigated Land Description:

SUMMARY OF STATUS: This is a Federal water right.

Well started August 6, 1962, completed August 15, 1962.

This well was filed with the State of Colorado as a reserved water right
In the Matter of the Application for Water Rights of the United States of
America in the District Court in and for Water Division No. 6 W-85 & W-86

State Water Rights Documentation

Form E (Rev.)
5-62

STATE OF COLORADO
DIVISION OF WATER RESOURCES
OFFICE OF THE STATE ENGINEER
GROUND WATER SECTION

Index No.
 IDWD
 Use
 Registered

LOG AND HISTORY OF WELLPERMIT NO. 12225

Driller Frederickson's Inc. Lic. No. 430
 Owner National Park Service
 Street 91 West Main City Vernal, Utah
 Tenant _____
 Use of Water Domestic
 On or By _____ No. _____
 (description of site or land) Acres _____
 Date Started August 6, 19 62
 Date Completed August 13, 19 62
 Yield 4 GPM or _____ CFS

WELL DESCRIPTION:

Depth to Water 9'-8" ft. Total Depth 30 ft.
 (measured from ground surface)
 Hole Diameter { from 0 ft. to 21'-2" ft., 6 1/4 in.
 from 21'-2" ft. to 30' ft., 3 7/8 in.
 from _____ ft. to _____ ft., _____ in.

TEST DATA:

How Tested X Pump or _____ Bailed
 Date Tested Aug. 14, 19 62 Length 7 hrs.
 Rate 4 GPM Drawn Down 3.4 ft.

PUMP DATA:

Pump Type Hand Outlet Size 1 1/4 in.
 Driven by _____ HP _____

CASING RECORD:**Plain Casing**

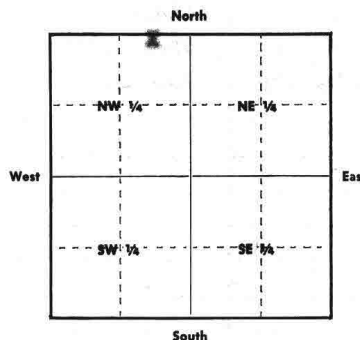
Size 4 1/2 OD, Kind black from 0 ft. to 18'-2" ft.
 Size _____, Kind _____ from _____ ft. to _____ ft.
 Size _____, Kind _____ from _____ ft. to _____ ft.

Perforated Casing

Size _____, Kind _____ from _____ ft. to _____ ft.
 Size _____, Kind _____ from _____ ft. to _____ ft.
 Size _____, Kind _____ from _____ ft. to _____ ft.

WELL LOCATION

Hoffet County
NE 1/4 of NW 1/4 of Sect. 22
 Twp. 6N, Rge. 102W, 6 PM



ABOVE DIAGRAM REPRESENTS ONE FULL SECTION. LOCATE WELL ACCURATELY IN SMALL SQUARE REPRESENTING 40 ACRES.

or

If the above is not applicable fill in:

Harding Hole along Yampa River
 No. _____ Street _____
Dinosaur National Monument-Colorado
 City or Town _____

or

Lot _____, Block _____
 _____ Subdivision
 (include filing or number)

TO BE MADE OUT IN QUADRUPLICATE:

Original Blue and Duplicate Green Copy must be filed with the State Engineer within 30 days after well is completed. White copy is for the Owner and Yellow copy for the Driller.

FOR WELL LOG USE REVERSE SIDE

WELL LOG

Form D (Rev.)
1/58STATE OF COLORADO
DIVISION OF WATER RESOURCES
OFFICE OF THE STATE ENGINEER, GROUND WATER SECTION

PERMIT TO USE GROUND WATER

This permit is issued to the applicant of the address shown below authorizing the use of ground water in the amount, for the use as indicated on/at the location given in the application, and as of the initiation date shown.

Form C (Rev.)
3-62 5M
STATE OF COLORADO
APPLICATION FOR USE OF GROUND WATER
(Use Indelible Pencil or Typewriter)Applicant National Park ServiceP.O. Address 91 West Main, Vernal, UtahQuantity applied for _____ gpm or
_____ AF StorageUsed for Domestic Purposes
Hardings noteon/at Dinosaur National Monument
(legal description of land site)

Total acreage irrigated and other rts.

ESTIMATED DATA OF WELL

Hole size: 4 in. to 50 ft.
_____ in. to _____ ft.Casing Plain 4 in. from 30 to 40 ft.

_____ in. from _____ to _____ ft.

Open or Perf. 4 in. from 10 to 20 ft.

_____ in. from _____ to _____ ft.

PUMP _____ Outlet

DATA: Type Hand HP 0 Size 1"Use initiation date _____ 19____
(Use Supplemental pages for additional data)

THIS APPLICATION APPROVED

PERMIT NO. 12225
ISSUED:
DATE JUL 17 1962 19____

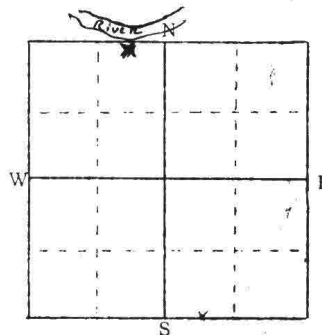
SEAL

LOCATION OF WELL

County MoffatNE of NW of Sect. 22, Twp. 6N,Rge. 102 W. 6 P.M. OR ✓

Street Address or Lot & Block No. _____

Town or Subdivision _____



Locate
well in
40 acre
(small)
square
as near
as possible.
Large square
is one section.

\$25.00 fee required for uses other
than Domestic or Livestock.

Applicant _____

Agent or _____

Driller _____ No. _____

Address _____

NOTE — SATISFACTORY COMPLETION REQUIRED FOR APPROVAL OF APPLICATION

THE ABOVE APPLICATION, BEING A PART OF THIS PERMIT, IS APPROVED AS ---
INDICATED.

J. B. Whitten
STATE ENGINEER

By

John W. Holburn
Authorized Agent

Supporting Hydro Data

Form 10-174
(Rev. 8-56)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION	AREA	COUNTY	STATE
Midwest	Dinosaur National Monument	Moffat	Colorado
PROJECT OR JOB TITLE			PCP NO.
Water Test Wells along the Yampa River Campsites			M-31 (Refer to)
LOCATION IN AREA	MASTER PLAN NO.		BUILDING NO.
Anderson Hole, Harding Hole, Box Elder			
WORKING DRAWING NO. AND TITLE			
APPROPRIATION TITLE AND SYMBOL			WORK ORDER NO.
14x1035 (0343) Construction			Dino 2-WR-63B (1st Rev
CONTRACT NO.		DATE WORK STARTED	DATE WORK COMPLETED
14-10-0232-700		August 2, 1962	September 21, 1962
NAME OF CONTRACTOR		ADDRESS	
Frederickson's Inc., & G. B. Frederickson		Hutchinson, Minnesota	

COST ANALYSIS

CONSTRUCTION ITEMS	QTY.	UNIT COST IN PLACE	TOTAL COST IN PLACE
Anderson Hole Well			
Contract Costs		2,129.00	2,139.93
Misc. Costs		10.93	
Harding Hole Well ✓			
Contract Costs		2,667.00	2,677.93
Misc. Costs		10.93	
Echo Park Well			
Contract Costs		4,124.00	4,134.93
Misc. Costs		10.93	
Box Elder Well			
Contract Costs		3,039.00	3,049.92
Misc. Costs		10.92	
Deer Lodge Park Well			
Contract Costs		1,495.00	
Test Pump		122.48	
(Detail continued on reverse side)			
		TOTAL	

SUMMARY OF EXPENDITURES

PERSONAL SERVICES	EQUIPMENT	MATERIALS AND SUPPLIES
OTHER		

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)	DATE
(Sgd) Verne R. Bertsch Verne R. Bertsch, Ch. Pk. Rgr.	November 30, 1962
APPROVED BY (Name and title)	DATE
(Sgd) Earl M. Semingsen Earl M. Semingsen, Supt.	December 3, 1962

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

Deer Lodge Park Well (Continued)

Misc. Costs

10.92

1,628.40

Total Cost

13,631.11

ANALYSES BY GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR
(parts per million)

Salt Lake City Laboratory No. 25151

Date of collection	8-15
	1962
Silica (SiO ₂)	12
Iron (Fe), dissolved*	
Iron (Fe), total	.29
Manganese (Mn), dissolved*	
Manganese (Mn), total	
Calcium (Ca)	154
Magnesium (Mg)	35
Sodium (Na)	
Potassium (K)	14
Bicarbonate (HCO ₃)	350
Carbonate (CO ₃)	0
Sulfate (SO ₄)	249
Chloride (Cl)	9.0
Fluoride (F)	.2
Nitrate (NO ₃)	.1
Boron (B)	
Dissolved solids	
Sum	
Residue on evaporation	
at 180° C	667
Hardness as CaCO ₃	528
Non-carbonate	241
Alkalinity as CaCO ₃	287
Specific conductance	
(micromhos at 25° C)	945
pH	7.4
Color	
CO ₂ (calculated)	

*In solution at time of analysis.

25151 - Harding Hole, rotary drilled, Moffat County, Colorado.
 Depth: 30' -(33). Diam: 4". WBF: Weber sandstone. WL: 12'8".
 Yield: 12 gpm. Clear. Cased to: 21'2". Drilled: Aug. 15, 1962.
 Owner: National Park Service - Dinosaur National Monument.
 Collected by: Ranger Paul Ellis. Poc: Harding Hole.

Other Supporting Information

N A R R A T I V EHARDING HOLE WELL

1. Started drilling August 6, 1962
 Finished drilling August 15, 1962

2. Total Cost for Drilling well

30 ft., 4 inch hole	\$1,300.00
21 ft., 4 inch casing	42.00
Grouting top of casing	95.00
10 hours, hauling and testing	200.00
2 hours, standby	30.00
Moving equipment	<u>1,100.00</u>
Total Cost	\$2,667.00

3. Drilling Log

Sandy shale, brown	0-9 feet
Sandstone, boulder, hard, brown	9-10 feet
Lead, soft, brown	10-10.5 feet
Coarse gravel & boulders, gray, red	10.5-11.5 feet
Limestone boulder, gray	11.5-12 feet
Sharp angular lime and sandstone cuttings, probably various size boulders, some chert, gray, red, brown and white	12-18 feet
Sandstone (spher), white, buff	18-30 feet

4. Difficulties Encountered

After drilling for five days, the drillers reached a depth of 15 feet with very slow progress. The drillers had a crooked hole; they abandoned the hole and started a new hole.

5. Physical Dimensions

Depth of hole	17 feet
Size of hole	4 inches
L.D. Black steel pipe casing	16 feet, 9 inches

6. Test Pumping Data

August 14, 1962, pumped for 7 hours at 12 GPM	
August 15, 1962, pumped for 3 hours at 4 GPM	
Static water level	9 feet, 8 inches
Water level	12 feet, 2 inches

7. Equipment Used

A small portable rotary drill was used to drill this well. The unit was operated by an air cooled Wisconsin engine. An "A" Frame of pipe was used for a mast. See attached photos.

Equipment was moved from one well site to another by rubber rafts. The move from Anderson Hole to Harding Hole took 2½ days. The water in the Yampa River had dropped considerably, which posed a problem in getting the loaded boats down river. In several places they hung up on rocks because of the low water. Had the drilling been done at an earlier date, when the water was up, there would have been no difficulty in moving from one site to another.

8. Drilling Progress Each Day

August 6 - drilled to 11 feet
 August 7 - no progress
 August 8 - drilled to 15 feet
 August 9 - no drilling
 August 10 - no progress, had creaked hole, plugged and abandoned hole
 August 11 - moved rig to new location, drilled 16 feet
 August 12 - drilled to 23 feet, reamed 6½ inch hole to 12 feet
 August 13 - reamed to 17 feet
 August 14 - reamed to 18 feet, drilled 3 7/8 inch hole to 28 feet, pumped well, only 2 GPM, so drilled to 30 feet. Pump tested well for 7 hours
 August 15 - pump tested well for 3 hours, reamed hole, set casing and grouted casing

9. Grouting

A surface seal of concrete to a depth of 8 feet and 6 inches thick was poured around the 4 inch casing.

10. Quality of Water Supply

See attached sheets as analyzed by Geological Survey, United States Department of the Interior, Ground Water Branch, Room 125, 251 West 4th South, Salt Lake City, Utah.

Refer to PDF H-51, well development. Hand pump will be used
at this well.

Submitted by:

Yours R. Borwick, Chief Park Ranger

Approved by:

Karl E. Livingston, Superintendent

Docket Information

Number of Documents in Docket 11

Documents Dated from 12/3/1962 to 12/3/1962

Docket Compiled: 3/9/2011