



WATER-RIGHT DOCKET

Ozark National Scenic Riverways

Docket No: 8

CEDER GROVE WELL

Supporting Hydro Data

11-23-1971: unit price contract: contract no. 4970b11131

Form 10-194
(Rev. 9/60)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Proj. Supv., Barrett, (WSC) LWW

Ozark National Scenic Riverways
(Park)

Check One:

Monthly
Estimate



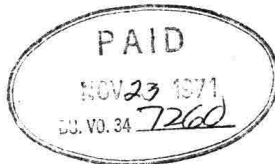
Final
Estimate



UNIT PRICE CONTRACT

ESTIMATE NO. 2	FOR (Period) September 1, 1971 - October 11, 1971	DATE November 23, 1971
CONTRACT NO. 4970B11131	COMPLETION DATE October 24, 1971	EXTENDED DATE -----
CONTRACTOR 1110 West Lakewood Drive Clark & Clark Drilling Co. Fenton, Missouri 63026		ORIGINAL CONTRACT \$13,425.00
PROJECT Drilling and Developing a Test Well		CHANGE ORDERS* \$-----
LOCATION Ozark National Scenic Riverways, Missouri		TOTAL CONTRACT \$13,425.00

ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
1.	Lump Sum	Moving equipment to and from well site	100%	100.00	100.00
3.	250	Lineal feet of bore 10 inches in diameter, surface to 250 feet	250	15.00	3,750.00
4.	250	Lineal feet of bore 6" in diameter, 250 to 500 feet	250	9.00	2,250.00
5.	250	Lineal feet, furnishing and installing 6" I.D. 19-16 (approximately) casing	250	3.50	875.00
6.	250	Lineal feet, furnishing grout and placing approximately two inches minimum grout ring around the full length of the casing	250	5.00	1,250.00
8a.	Lump Sum	Installation and removal of test pump and related equipment	100%	200.00	200.00
8b.	48	Hours, pumping test for well yield	30	25.00	750.00



RECOMMENDED (Project Supervisor)

Donald C. Barrett
Donald C. Barrett

APPROVED (Contracting Officer)

LeRoy E. Marcroft
LeRoy E. Marcroft

DATE

NOV 23 1971

SUMMARY

TOTAL TO DATE	\$ 2,175.00
LESS RETAINED AMOUNT.....	917.50
NET.....	8,257.50
LESS PREVIOUS PAYMENTS.....	3,825.00
LESS LIQUIDATED DAMAGES.....	-----
DUE THIS ESTIMATE.....	4,432.50
% COMPLETED TO DATE:	100%

*Show Breakdown on Reverse

(See Reverse for Distribution)



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

613 10-21-71
J. M. Bente

IN REPLY REFER TO:

154(WSC)LWW
OZARK NSR

October 7, 1971

CS-W

Memorandum

To: Director, Western Service Center
Through: Chief, Office of Land Acquisition & Water Resources

From: Hydrologist, WSC-LWW(Project Supervisor)

Subject: Trip report to Ozark National Scenic Riverways,
September 20-24. Contract No. 4970B11131.

1. Purpose of the trip: To meet with Contractor and Park personnel regarding contract administration, pump test and completion of the well in accordance with contract specifications. Also to consult with the U.S. Geological Survey regarding hydrology and technical aspects of test results.

2. Itinerary: On September 20, left San Francisco about 9:30 AM enroute to Rolla, Missouri by air to St. Louis and automobile to Rolla. Arrived Rolla about 8:00 PM. September 21: On duty in Rolla. Drove to Ozark Scenic Riverways arriving about 12:00 PM. From September 21 to 23: On duty at Ozark NSR. In the late PM of September 23, I returned to Rolla. September 24: On duty in Rolla in the AM and returned to St. Louis in the afternoon.

3. Companions: None

4. Accomplishments: On 9/21, I had discussions with N. Harvey, Supervisory Hydrologist for the U.S. Geological Survey at Rolla, Missouri who gave me an up date on the status of the test preparations. I arrived at the Cedargrove site about 1:00 PM. The USGS field representatives informed me the step test had been done that morning and from it they decided to run the long draw down test at about 60 GPM. Due to mechanical problems with the pump this test was delayed for 24 hours until 9/22. The test was begun about 2:00 PM and lasted for 24 hours. At the conclusion of the pumping test a 30-minute recovery record was taken. I returned to Rolla, about 6:00 PM on 9/23. Before leaving the site, I talked to the Ranger-in-Charge at Cedargrove site and asked him to make a clean up inspection of the site with the contractors before the driller left the site. I also discussed with the contractor matters regarding the as-built dimensions of the well, site clean up and the computation of the payments for the work done.

On 9/23, I had additional discussions with the USGS in Rolla. We discussed the raw test data and recommendations for pump setting and safe yield.

5. Conclusions and observations: The following is a tabulation of the as-built design of the well.

Boring Diameters and Depths

10 inch from surface to 250'
6 inch from 250' to 500'

Casing Schedule

Type: Steel, 19.40 Ga with threaded couplings.
Diameter: 6 inch I.D.
Depth: 250'. Casing extends 1-1/2' above the ground.
Below 250' the well is an open hole in dolomite and limestone.
Solution cavities or cracks were noted @ 285', 335' and @ 397'

Hydrologic Data

After 21 hours, pumping level stabilized at 205' with a 60 GPM pumping rate. The original static level was 29.6'. Recovery to 32.4' took 30-minutes.

Water Quality

Based on electric conductance the water meets USPHS water quality standards. The SP conductance was: 500 Micromhos/cm. The water was reported to be clear with no indication of suspended solids. Estimated dissolved solids: 325 PPM.

6. Proposals and Recommendations: The well as completed has an estimated useful or safe yield of about 60 GPM. The pump setting should be at 250' or as close to the bottom of the casing as practical.

Donald C. Barrett

Cleared for Distribution

(SGD) GLENN O. HENDRIX OCT 14 1971

Director, WSC Date

cc:

MW-WASO

Director, Midwest Region
Supt., Rocky Mountain NP

WELL DRILLER'S REPORT

NATIONAL PARK SERVICE - LWSSC

Permit No. _____

1 WELL OWNER PARK OZARK NSR
 Name NAT. PARK SERVICE
 Address _____ Owners Well No. NPS
No 7 C Cedar Grove Local Site Name Cedar Grove

2 LOCATION OF WELL STATE Missouri
 County Shannon Ground Water Basin _____
 N/S _____ Ft., E/W _____ Ft. From _____ Corner
 of Sec. 4, T. 31 N/S, R. 6 E/W, NE, NW, SW
 Distance from cities, roads, railroads etc. 1.6 miles
South South West / Salem, Mo.

3 TYPE OF WORK (check) New Test Well ☒
 Replacement Well ☐ Deepening ☐ Repair ☐
 Destroying ☐ If destroying, describe material & procedure _____

4 NATURE OF USE (check) Testwell ☒
 Domestic ☒ Industrial ☐ Municipal ☐
 Stockwater ☐ Irrigation ☐ Mining ☐
 Others ☒ to be converted to domestic use

5 DRILLING METHOD (check)
 Rotary ☐ Cable Tool ☒ Other ☐

6 BORE DIAMETER & DEPTHS
10 in. from Surface ft. to 250 ft.
6 " " 250 " " 500 "
 " " " " " "
 " " " " " "

7 CASING SCHEDULE None ☐
 Steel ☐ Welded ☐ Threaded ☐
 Other ☐ New ☐ Used ☐
6 in. I.D. from 1.5 ft. to 250 ft. Gage 19.45
 " " " " " "
 " " " " " "
 " " " " " "
 " " " " " "
 Casing extends above ground level 15 approx ft.

8 PERFORATIONS Perforated? Yes ☐ No ☒
 Type of perforator used _____
 Size of perforations _____ in. by _____ in.
 Perforation per row _____ Rows per ft. _____
 _____ perforations from _____ ft. to _____ ft.
 " " " " " "
 " " " " " "
 " " " " " "

9 SCREENS Well screen installed? Yes ☐ No ☐
 Mfr's name _____
 Type _____ Model No. _____
 Diam.(in.) Slot size(in. x in.) Placed from (ft.) To (ft.)
 _____ x _____ to _____
 _____ x _____ to _____
 _____ x _____ to _____

10 CONSTRUCTION Gravel Packed? Yes ☐ No ☒
 Washed gravel? Yes ☐ No ☐ Gravel Size _____ in.
 Gravel placed from _____ ft. To _____ ft.
 " " " " " "
 " " " " " "
 Surface seal provided? Yes ☐ No ☐ Casing Seal? Yes ☒ No ☐
 To what depth? 250 ft. Size or Diam. 10" Boring to 250'
 Seal material Neat Cement (Hub bag)
 Did any strata contain unpotable water? Yes ☐ No ☒
 Type of contam. _____ Strata depth _____
 Sealing method HALLIBURTON

From Surface ft. To 250 ft.
 " " " " " "

11 WATER LEVELS First sufficient to develop at 25' (feet below ground surface)
 Depth water first found 25' (scoop) ft. date _____
 Static water level before pumping 27.9 " " 9/21
 " " " after 27.6 " " 9/22/71
 " " " " developing " " "

12 FLOWING WELL (check) No control ☐ No!
 Controlled by? Valve ☐ Cap ☐ Plug ☐
 Does well leak around casing? Yes ☐ No ☐
 Artesian pressure _____ ft. above ground surface,
 Artesian flow _____ g.p.m., date _____

13 WELL TESTS Dd - Drawdown is the distance in feet the water level is lowered below the static level
 Developed? Yes ☒ No ☐
 Bailed 1/2 hrs., rate _____ gpm
 Pumped _____ " " " "
 Surged No hrs. method _____ rate _____
 Pump test? Yes ☒ No ☐ By whom? Clark & Clark
 Pump type Submersible P. 30 Outlet size 3
 Depth pumped from 336 ft., date 9/22 to 9/23
 Yield 60 gpm w/ 193 ft. Dd., after 1 hrs
 " 80 " " add 52' " " add 1 1/2 "
 " 80 " " 245 " " 2 1/2 "
 Bailer test " " " " " "
 Recovery 173 ft. in 30 min (Time)
 Electric log? Yes ☐ No ☒ Chemical analysis? Yes ☐ No ☒
 Water temp. _____ °F Quality 500 micro-particles 325 ppm

14 PUMP Installed? Yes ☐ No ☐
 Mfr's name _____ Cap. _____
 Type _____ H.P. _____ Model No. _____
 Outlet size _____ in. Driven by _____
 Depth to pump or bowels _____ ft. date _____

15 WELL DRILLER'S STATEMENT
 Date started _____ Date completed 9/22
 State log filed? Yes ☒ No ☐

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.
 Co. Name CLARK & CLARK by 17073
 Name George Clark Sr. Shannon-Mo.
 Address Fenton Mo
 License No. Name Reg. Date _____

(16) WELL LOG

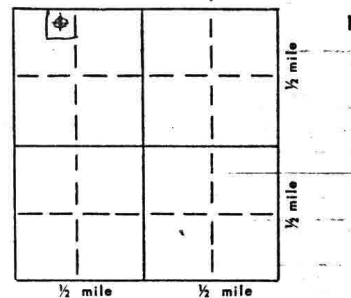
Well diam. 6" in.Depth drilled 250 ft., Completed Well depth 250 ft.

Ground surface elev. _____ ft. M.S.L.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, ease of drilling, loss of etc., of material encountered in each depth interval. Use additional sheet if needed.

Thickness	Depth		Material							Remarks
	From	To	clay	silt	gravel	cobbles	bedrock	Other	water	
10	0	10								Mud Below 10'
55	10	65								See 25' - enough water to drill the hole
50	65	115								Water at 75'
	115	240								Water @ 240'
	240	285								Reduced boring to @ 250' to 6"
	285	330								Small cracks
	330	365								Crack @ 335' more water
	365	375								Brown limestone
	375	461								6" opening @ 397'
	461	490								Hard rolling cotton fine
	490	500								cuttings were more
										T.V. 500.7 (measured)
										But expect more than 75 GPM

(17) WELL LOCATION SKETCH

North boundary of Section 4

____ 1/4 of ____ 1/4 of

Section 4Township 31 (NYS Range 6 E/W)

Meridian _____

Ground Water Basin _____

City _____

County _____

State _____

N.P.S. Area name Cedar Grovecamp site well

(18) ADDITIONAL REMARKS

Other Supporting Information

Form Approved
OMB No. 158-R0116

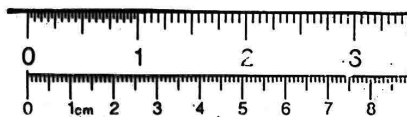
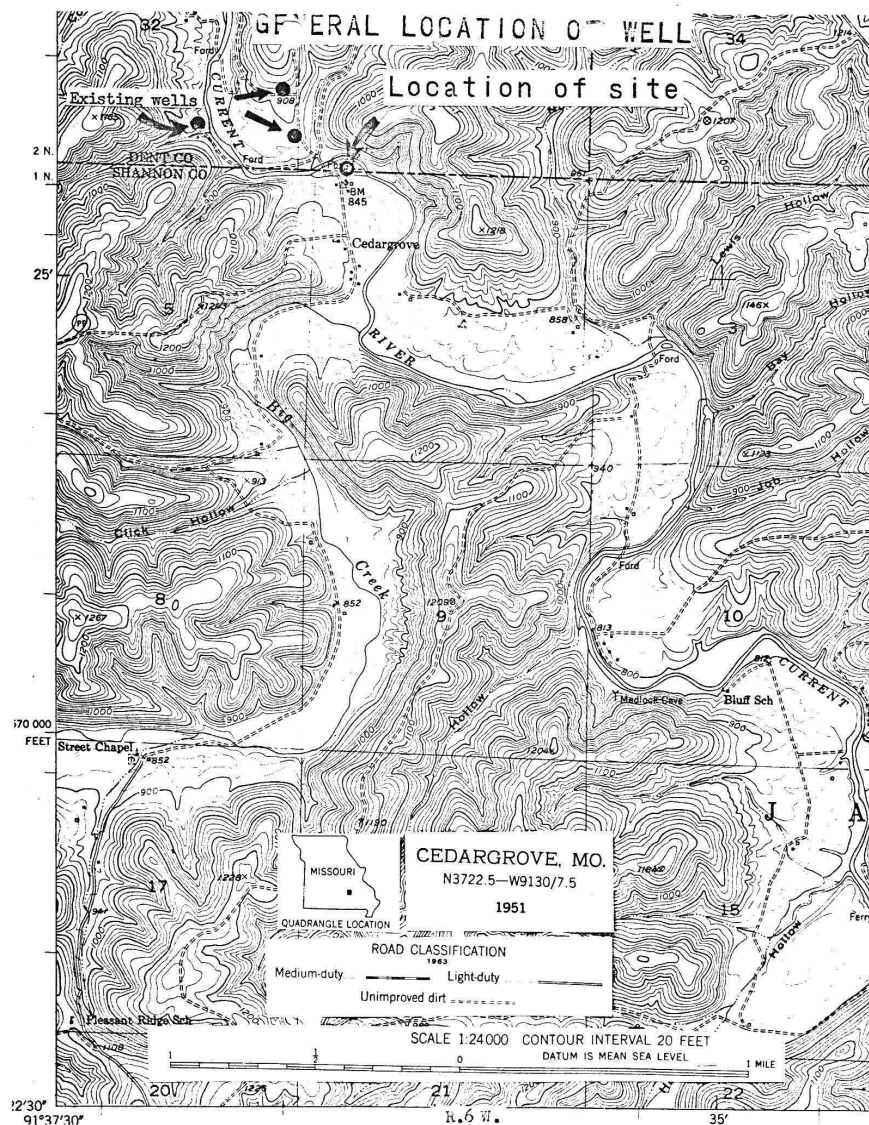
U.S. ENVIRONMENTAL PROTECTION AGENCY WATER PROGRAM OPERATIONS (WH-450) WASHINGTON, D.C. 20460		INVENTORY OF PUBLIC WATER SUPPLIES (See instructions on the reverse)		KEY IDENTIFICATION NUMBER															
NAME OF WATER UTILITY		USNPS OZARK NATL SCENIC RIVERWAY																	
ADDRESS		PO BOX 448																	
CITY		VAN BUREN																	
COUNTY		SHANNON																	
STATE		MO		ZIP		63965		PHONE AREA CODE		314		TELEPHONE NUMBER		3234236					
UTILITY OWNER (Check one) (144)																			
☐ MUNICIPALITY, DISTRICT, ETC. ☐ INVESTOR ☒ FEDERAL ☐ STATE ☐ OTHER (Specify in remarks)																			
RETAIL POPULATION SERVED																			
* 1000																			
NUMBER SERVICES																			
10																			
NUMBER METERS																			
1																			
NUMBER OF WHOLESALE CUSTOMERS																			
0																			
PREDOMINANT CHARACTERISTIC(S) OF YOUR SERVICE AREA																			
COMMUNITY COMPANY TOWN RECREATION AREA MOBILE HOME PARK INSTITUTION SCHOOL OR COLLEGE MOTEL RESTAURANT SERVICE STATION CAMPGROUND PICNIC AREA LODGE MARINA SKI RESORT BATHING AREA VISITOR CENTER HIGHWAY SAFETY REST AREA AIRPORT OTHER (Specify in remarks)																			
171 189																			
CAPACITIES																			
PRODUCTION, NORMAL OPERATION (Gal/Day)																			
110000																			
EMERGENCY POWER ONLY (Gal/Day)																			
0																			
DISTRIBUTION STORAGE, GRAVITY FLOW (Gallons)																			
0																			
PRODUCTION																			
AVERAGE DAY (Gal/Day)																			
25000																			
MAXIMUM DAY (Gal/Day)																			
40000																			
DATE FORM COMPLETED																			
7509																			
SOURCE																			
INTAKE LOCATION																			
LATITUDE																			
LONGITUDE																			
MARK (One only)																			
TREATMENT																			
LAB CONTROL																			
SURFACE																			
GROUND																			
PURCHASED																			
AERATION																			
PRECHLORINATION																			
COAGULATION																			
SEDIMENTATION																			
FILTRATION																			
CORROSION CONTROL																			
SOFTENING																			
TASTE AND ODOR CONTROL																			
IRON REMOVAL																			
AMMONIATION																			
FLUORIDE ADJUSTMENT																			
DISINFECTION																			
CHEMICAL																			
BACTERIAL																			
PHYSICAL																			
NO. NAME DEG MIN SEC																			
0 1 R WELL 37 25 15																			
0 2 R 91 36 15																			
0 3 R																			
0 4 R																			
REMARKS (Up to 50 characters) (783 - 832)																			
* INCLUDES AVERAGE DAILY SUMMER VISITATION																			
CEDARGROYE																			

INSTRUCTIONS

1. **IDENTIFICATION NUMBER** – This is a 14 digit code number that geographically identifies the location of the utility. It will be filled in by EPA personnel.
2. **NAME OF WATER UTILITY** – This is the complete, official name of the utility.
3. **ADDRESS** – This is the mailing address of the utility (*this may be but does not necessarily have to be the physical location of the treatment plant*).
4. **CITY, COUNTY, STATE** – This is the city, county and state of the mailing address of the utility.
5. **ZIP CODE** – This is the zip code of the mailing address of the utility.
6. **IS THE UTILITY OWNED BY A MUNICIPALITY, DISTRICT, INVESTOR OWNER, STATE OR OTHER** (*specify in remarks*) – Place an **X** in the box that describes the type of ownership of the utility.
7. **RETAIL POPULATION SERVED - NUMBER SERVICES, METERS** – Fill in these boxes with the most current information available. Do Not include the population served by water utilities that purchase water from you wholesale.
8. **NUMBER OF WHOLESALE CUSTOMERS** – In cases where water is sold to wholesale customers (*customers who buy water from you for resale*) fill in the boxes with the number of this type of customer.
9. **WHAT IS THE CHARACTERISTIC(S) OF YOUR SERVICE AREA?** – Place an **X** in the boxes necessary to describe the predominant characteristic(s) of your service area.
10. **CAPACITIES** – Fill in these boxes with the most current information available. Report all storage that does not have to be pumped into the system, whether it is elevated or ground storage.
11. **PRODUCTION** – Fill in these boxes with the most current information available.
12. **DATE FORM COMPLETED** – Fill in the numeric designation of the month (01 - 12) and the last two digits of the year when the form was completed.
13. **REMARKS** – Additional information can be provided (*maximum of 50 Alpha and/or Numeric characters*).
14. **SOURCE AND TREATMENT** – Write in the spaces below Name the name of the river, lake, other utility, well field, or other source from which the supply of water is taken. Circle "R" for regular source or "A" for auxiliary source. If more than one source is used, use separate lines for each source. If more than four sources are used, then list on a second form starting with 05. Place an **X** in the block(s) for the types of treatment rendered the raw water. Mark each source separately.
15. **INTAKE LOCATION** – Latitude and Longitude of intake.
16. **LABORATORY CONTROL** – Place an **X** in the box for the type of types of laboratory analyses made at the treatment facility. Leave these blocks blank if no laboratory analyses are performed.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-625-309/72 3-1

Maps and Miscellaneous Information



Docket Information

Number of Documents in Docket 8

Documents Dated from 10/7/1971 to 11/23/1971

Docket Compiled: 6/7/2011