



WATER-RIGHT DOCKET

Badlands National Park

Docket No: 2

PINNACLE RANGER STATION - NORTH ENTRANCE WELLS.

Preliminary Docket Information

00-00-0000: water right record

WATER RIGHT RECORD

Park: BADL

Docket Number:
Federal #2

IDENTIFICATION NO: BADL WQ 70216 AF 02

DITCH/WATER SYSTEM: Pinnacle Ranger Station-North Entrance

SOURCE OF SUPPLY: Pinnacle Wells

LOCATION: Sec. 7, T2S, R16E

WATER RIGHT:

Appropriator: United States of America, National Park Service

Application/Permit Number: No appropriation necessary-well drilled
within boudaries of Federal property.

Certificate Record Number:

Date of Priority: Since the well was non-existent prior to Federal
acquisition of the land, there could be no prior rights.

Quantity of Water:

Purpose: Municipal

Irrigated Land Description:

SUMMARY OF STATUS:

Shallow well apparently dug in 1941. The deep well was drilled in 1963, but
never used due to poor quality of water.

I. WELL DATA

1. Location Map NM-BL 7019.
2. September 1963: Well Data Drawing
3. September 11, 1963: Pumping Test
4. September 14, 1963: Pumping Test Report
5. September 18, 1963: Water Analysis Report



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
FEDERAL CENTER, DENVER, COLORADO 80226
Water Resources Division

IN REPLY REFER TO:

June 9, 1966

Your reference:
L54-SSC (LW)

Memorandum

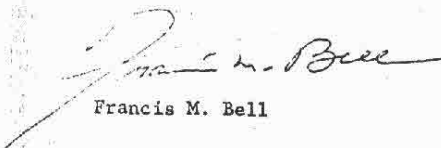
To: Manuel Morris, Supervisory Hydraulic Engineer
National Park Service, San Francisco, California

From: Acting Area Hydrologist, Water Resources Division
Rocky Mountain Area

Subject: Assistance with test wells at White River, Badlands
National Monument

Your memorandum of May 27, 1966, addressed to Mr. Delbert W. Brown, District Geologist, Bismarck, North Dakota, requests that the Geological Survey furnish assistance in connection with locating and developing a ground-water source for the headquarters area at Badlands National Monument, South Dakota. Our Bismarck office will do the work and will bill you on a reimbursable basis in an amount not to exceed \$1,125.

This work is in addition to the test drilling and well-development activities at Badlands National Monument requested by Mr. Baggley's letter of January 26, 1966. Although the cost of this work was originally estimated as \$400, it is our understanding that your Omaha office orally authorized an expenditure of \$640. Total work requested at Badlands National Monument during the 1966 fiscal year should not exceed \$1,765.


Francis M. Bell

Supporting Hydro Data

John
Hart

ENGINEERING & MINING EXPERIMENT STATION
of the
SOUTH DAKOTA SCHOOL OF MINES & TECHNOLOGY

REPORT OF ANALYSIS

Rapid City, S. D. September 18, 1963

Mr. Frank Hjort, Supt., Badlands National Monument

Interior, South Dakota

The sample of well water received from you has
been analyzed and the results obtained are as follows:

Certificate No. 634-138

Your sample No. Finnacle Well (North Entrance) From Dakota-Lakota Formation
3340' - 3571'

SUBSTANCE	PPM	SUBSTANCE	PPM
Total Solids, 105°C <i>(500)</i>	1910	Dicarbonate as CaCO ₃	450
Total Dissolved Solids, 105°C	1768	Carbonate as CaCO ₃	20
Suspended Solids	142	Hydroxide as CaCO ₃	0
Total Hardness as CaCO ₃	50	Chloride as Cl	15.5
Carbonate Hardness as CaCO ₃	50	Fluoride as F <i>(0.6-1.7)</i>	4.5
Non Carbonate Hardness	0	Silica as SiO ₂	23.2
Calcium as Ca	16	Sulfate as SO ₄ <i>(250)</i>	810
Magnesium as Mg	2.4	Turbidity - 74 Units	
Sodium as Na	535	pH = 8.35	
Potassium as K	10		
Total Iron as Fe <i>(0.3)</i>	2.9		
Dissolved Iron as Fe	0.09		
Manganese as Mn <i>(0.05)</i>	< 0.06		
Alkalinity-Phenolphthalein	10		
Alkalinity-Methyl Orange	470		

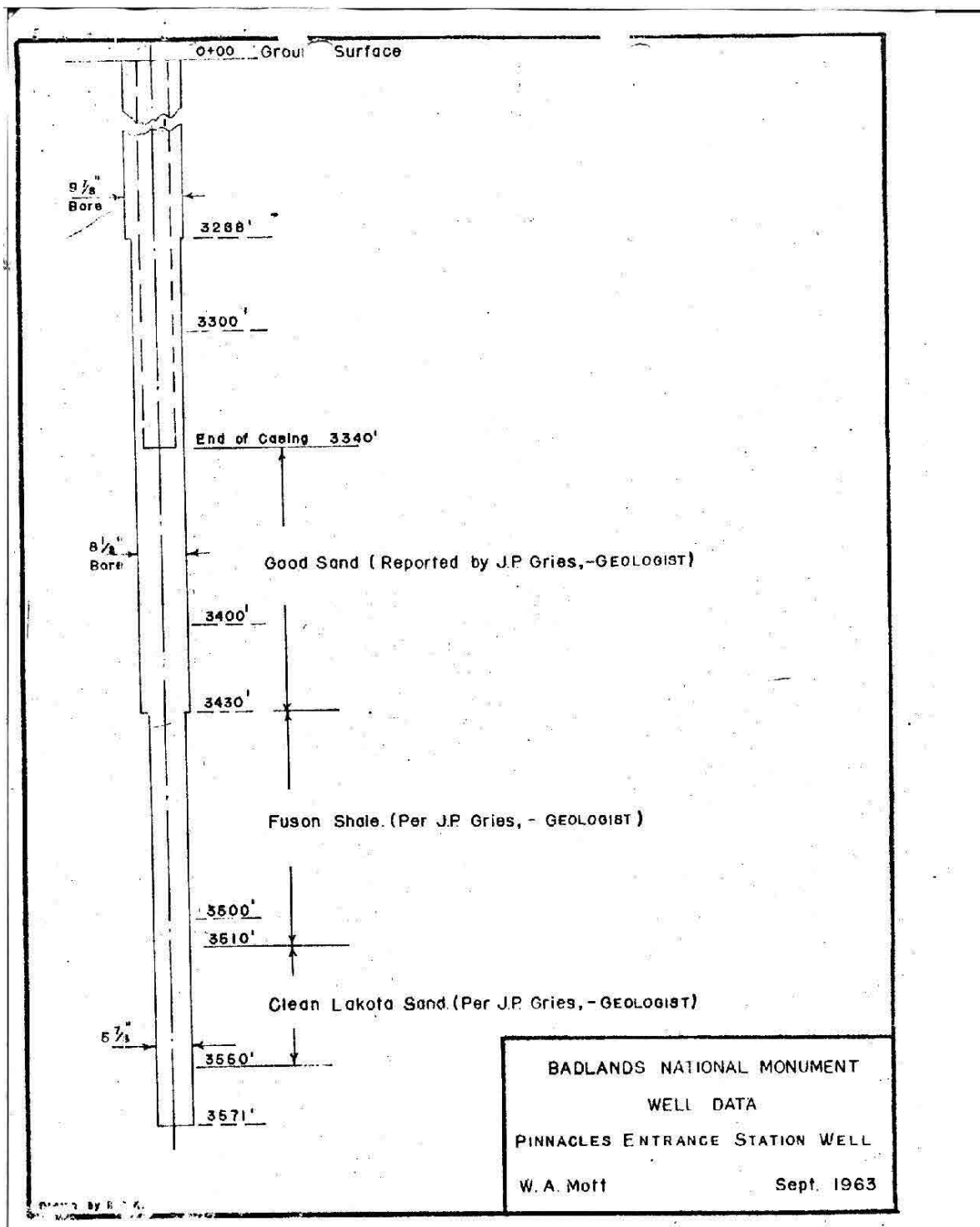
REMARKS: *(USPHS maximum allowable ppm)*

Copies to: Dr. J. P. Gries, S.D.S.M.T.
William A. Mott, National Park Service
1709 Jackson St., Omaha 2, Nebraska

The Engineering and Mining Experiment Station
assumes no responsibility as to the source of the above
samples.

M. G. Willigman

Analyst



BADLANDS NATIONAL MONUMENT

PINNACLES WELL

September 14, 1963

(First Setting of Test Pump)

Intake 907.85 ft. below deck - (Deck = 7.5' above Ground); Bucket Q = 5.54 gals.

End Air Line 900.55 ft. below deck

Time	Drawdown Data				Discharge Q - gpm Data			REMARKS
	Air Line Pressure (Lbs.)	Static Head (Ft.)	Draw-down (Ft.)	W.S. Below Gr. Surf. (Ft.)	Time- (Min.)	Disch. Q - (Gpm)	Head on Orifice (Ins.)	
6:00 PM	117	270	0.00	623	.52	10.6		Started Pumping
6:30	114	264	6.	629	.52	10.6		
6:45	114	264	6.0	629	.465	11.9		
7:15	114	264	6.0	629	.423	13.1		
7:45	114	264	6.0	629	.438	12.6		
8:15	114	264	6.0	629	.420	13.2		
8:45	115	266	4.0	627	.590	9.38		Flushed, Set @ 13.2 gpm
9:15	115	266	4.0	627	.536	10.3		Flushed, Set @ 11.3
9:45	115	266	4.0	627	.320	17.3		Flushed, Set @ 17.3
10:15	115	266	4.0	627	.490	11.3		
11:50	115	266	4.0	627	.360	15.4		
12:01 AM	115	266	4.0	627	.415	13.3	5	Set @ 19.6
12:30	116	268	2.0	625		19.	5	
1:00	116	268	2.0	625		19.	5	
1:30	116	268	2.0	625		19.	5	
2:00	116	268	2.0	625		19	5	
3:00	116	268	2.0	625		19	5	Set @ 29.4
3:30	115	266	4.0	627		29.5	12	
4:00	115	266	4.0	627		29	12	
4:30	116	268	2.0	625		29	12	
5:30	116	268	2.0	625		29	11.5	Set @ 31.4
6:00	116	268	2.0	625		31.4	14	
7:15	116	268	2.0	625		32	14.5	
8:30	116	268	2.0	625		31.4	14	Stopped Pump 8:35
9:20 AM	120	277	-7.0	616				Measured with Bailer

(Second Setting of Test Pump)

Intake 756.55 ft. below Rig Deck - End Air Line 749.25 below Rig Deck

Time	Air Line Pressure (Lbs.)	Static Head (Ft.)	Draw-down (Ft.)	W.S. Below Gr. Surf. (Ft.)	Water Temperature	Disch. Q gpm	Head on Orifice (Ins.)	REMARKS
Off	55	127		615				Pump not running
✓ 2:55 PM						55.5	43	
3:00	48	111	16	631		55.38	42.75	
3:30	49	113	14	629		54.86	41.3	Generator Varied
4:00	49	113	14	629		55.5	43	Generator Varied
4:40	49	113	14	629		55.5	43	
- 5:05	50	115	12	627		55.25	42.5	Much increase in turbidity
5:30	50	115	12	627		55.05	42.1	
7:15	50	115	12	627	121	54.8	41.0	
7:30	50	115	12	627	121	54.8	41.0	
7:45	50	115	12	627	121	54.8	41.0	
8:00 PM	50	115	12	627	121	54.2	40.75	Stopped Pumping

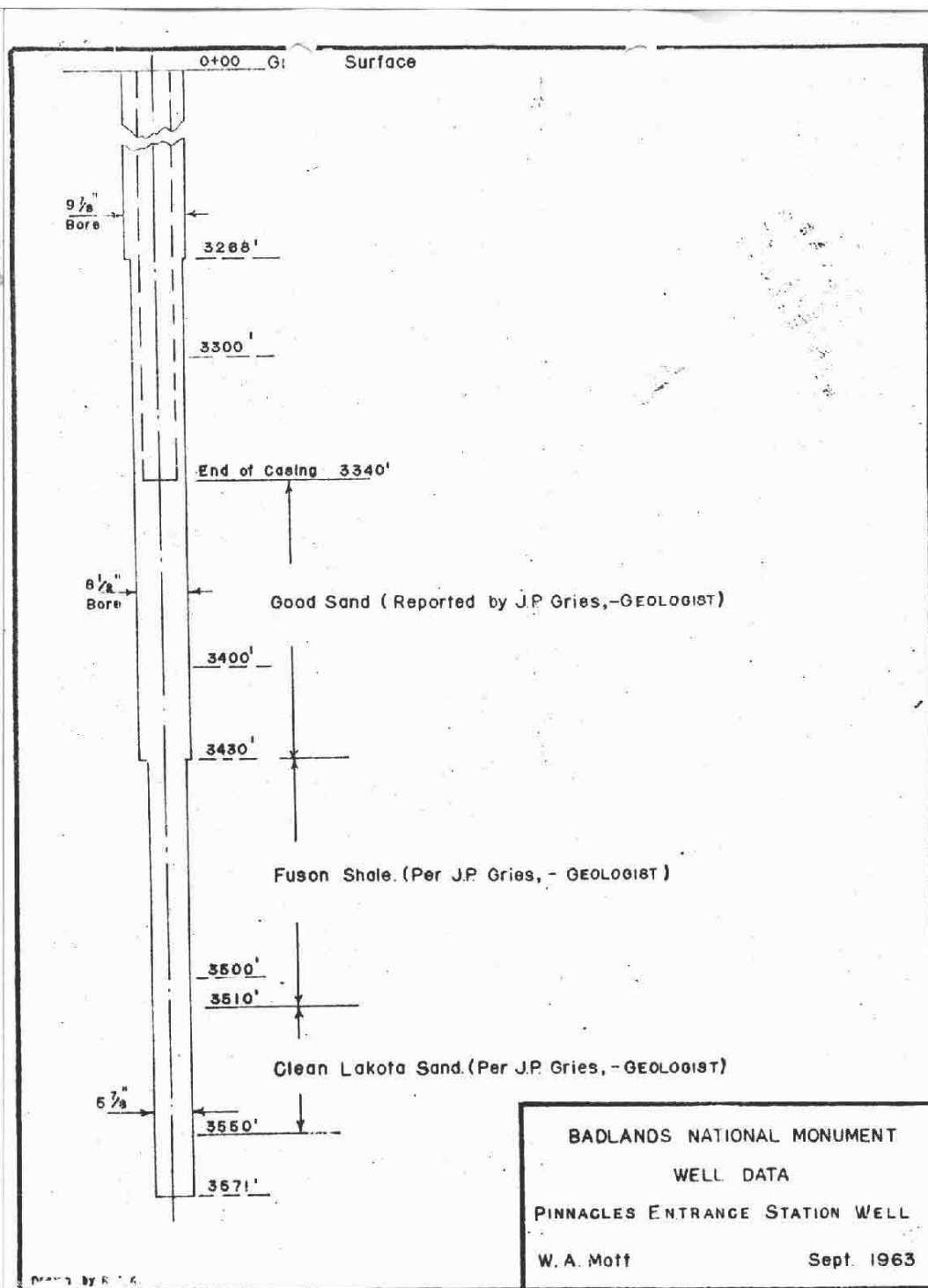
Water Surface Recovery to normal static head (55# Air Line Pressure in 12 Minutes)

atic After bailing 32 hrs. 623.25 ft. from top of rotary table

FREDERICKSON'S, INC.
Hutchinson, Minnesota

Time	Time in Minutes	Pumping Level	Drawdown	GPM
2:05 AM	5	623.25		
2:15	10	623.30		
2:30	15	623.85		
2:45	15	623.85		
1:00	15	624.10		
1:15	15	624.40		
1:30	15	624.65		
1:45	15	624.65		
2:00	15	624.90		
2:30	30	625.18		
3:00	30	625.00		
3:30	30	625.70		
4:00	30	625.90		
4:30	30	626.10		
5:00	30	626.30		
5:30	30	626.25		
6:00	30	626.65		
6:30	30	626.80		
7:00	30	626.90		
7:30	30	627.10		
8:00	30	627.20		
8:05	Pulled swaub by lowering bailer to approximately 1500 ft.			
9:15	15	625.40		

[illegible]



JOHN PAUL GRIES

Consulting Geologist
238 ST. CHARLES STREET
RAPID CITY, SOUTH DAKOTA

September 20, 1962

204 North
Mr. William A. Mott
Midwest Region, National Park Service
307 Federal Office Building
106 South 15th Street
Omaha 2, Nebraska

Reg. Director
Admin. Asst.
Asst. Dir.
Cons. Int. Use
Res. Planning
Prog. Coord.
Info. & Publs.
Field Solic.
Action taken
File

Dear Mr. Mott:

As you know from Mr. John Jay's memorandum of September 10th, I visited the proposed north entrance development area of the Badlands National Monument with him on September 9th. Since that time I have assembled and studied all available logs and records of the wells at Wall and at Quinn on the north, and at the Horton and Heuther ranches on the south. It is unusual in that area to be so completely surrounded by good records.

You are virtually assured of an adequate supply of potable water from the Fall River sandstone, anywhere within your area of interest. I see no reason for a test hole, and suggest that funds be applied toward a final well. An estimated log of formations to be encountered in such a hole is attached to this report.

At the proposed residential area, with an estimated elevation of 3085 feet, you may expect the top of the Fall River sandstone at 3365 feet. 100 feet of additional drilling should take you through the Fall River, and 200 should take you through both the Fall River and Lakota sandstones. Static level will be about 650 feet below the surface, or at a sea level datum of 42435 feet.

Adjacent to the existing reservoir, at approximate elevation of 3200 feet, the Fall River may be expected at 3480 feet, and the total depth one or two hundred more. Assuming the same reservoir pressure, the static level will be 765 feet below the surface.

A well near the present shallow well west of the highway will be similar, or a few feet shallower than at the residential area.

The water from the Fall River sandstone at Wall is particularly soft, with the following partial analysis reported by the State Board of Health:

iron	.55	ppm
hardness	13	ppm
solids	671	ppm
chloride	8	ppm
pH	8.5	

C.C. MAILED TO
BY _____ DATE _____

- 2 -

I have favorable reports, but no analyses, from the Quinn, Heuther and Horton wells into the same aquifer.

The real problem in the Pinnacles area is the very low static level, and the unpredictable drawdown. On the basis of information from W. F. Rogers, I have calculated the following specific yields:

Well #1	1.72	gallons per foot of drawdown
Heuther	.28	" " " " "
Horton	2.4	" " " " "

Since you are tentatively planning a small diameter well, I would suggest that you use the specific yield of the Heuther well in planning the casing and pump setting programs. Thus if you want 25 gpm, the drawdown could be as much as 88 feet.

With the deep pump settings indicated, I would recommend at least a 6-inch ID casing to a point 100 to 150 feet below the anticipated static level, the reduce to say 3 or 4-inch to the top of the Fall River sandstone. I'd be tempted to complete the well through the sandstone with open hole, with the idea that if necessary later, a small diameter screen could be introduced through the smaller casing and extended to bottom.

Mr. Rogers has called your attention to the lost circulation problem he has encountered in the Greenhorn limestone. Because of the higher ground, and consequently longer mud column, the problem may be somewhat worse at the Pinnacles area than it was at the Heuther Ranch. Drillers often encounter lost circulation in the Miobrara as well, though Rogers apparently did not find it so locally.

The 6-inch ID surface casing will permit the use of a 5 13/16-inch diameter submersible pump. This is about the minimum size which will pump from the predicted levels, whether you pump directly into the reservoir or whether you pump against line pressure from a lower elevation. A brief investigation suggests that a 15 or 20 HP, 440 volt motor may be desirable. Because this expected pumping level is about the maximum range of many of the less expensive pumps, you may wish to consider pumping the water to the surface at the lower elevation, and using a separate pump to introduce the water into the system.

The location of the well is not primarily a geological problem. Both the top of the aquifer and the pressure surface of the artesian water are essentially horizontal throughout the area of interest. The differences in depth, and in left of the water, then, merely reflect the difference in surface elevation of about 115 feet. The problem of the lift, and the proximity to existing water distribution and power lines would seem to govern the most desirable location for the well.

Yours sincerely,

J. P. Gries
J. P. Gries

*this much would
be covered by reducing
hole diam. to 6 inch
all the way through
pump down
without screen
etc*

Anticipated log of a well at the North EntranceBadlands National Monument, South Dakota

White River Formation light colored clays (badlands formations)	0 - 520
Pierre Formation dark colored marine shales; red and orange zone at top; some limestone concretions	520 - 2020
Niobrara Formation medium gray chalky shale; some possibility of lost circulation	2020 - 2155
Carlile Formation medium gray shale, with some concretions, sandy near top	2155 - 2485
Greenhorn Formation dark gray shale with stringers of limestone; some likelihood of lost circulation	2485 - 2585
Belle Fourche Formation dark gray shale	2585 - 2975
Dakota Formation sandstone and light colored clay; carrying water, probably of an inferior quality	2975 - 3205
Skull Creek Formation dark gray shale	3205 - 3365
Fall River-Lakota formations sandstones and light colored clays, water- bearing	3365 - 3565
Morrison Formation soft greenish gray shales	

OIL PRODUCER

GEOLOGIST

DRILLING CONTRACTOR

PHONE
634-0886

W. F. ROGERS
1208 FOURTH AVENUE
SCOTTSBLUFF, NEBRASKA

September 14, 1962

Mr. John W. Jay
Superintendent
Badlands National Monument
Interior, South Dakota

Dear Sir:

Brady Engineering of Spearfish were the engineers on the two wells at Wall and I believe they have the extra copies of the logs that were run on those wells. Please contact them and if for any reason, they do not have any that they can spare, I will be glad to loan you the ones that I have.

Both wells produced an adequate amount of water. Although the actual capacity of the well were not tested, one of the wells was cleaned by pumping at the rate of 160 gallons per minute and the other at a rate of 235 gallons per minute. In both wells, the sand has very good characteristics from an aquifer standpoint and I sure will produce good water for a long time. The surface elevation at Wall is 2820 and the static water level in each well stands at approximately 350'. The Horton well, with which you are familiar, tested 60 gallons per minute with a 25' drawdown during a swab test. The static water level in this well stood at 250' and we estimated the surface elevation to be 2650'. Mr. Horton did not require a large amount of water and the casing string was designed as follows: 502' of 5½" 14# casing swedged onto 2488' of 3½" 13.3# used drill pipe. The bottom of the casing and the top of the casing were cemented in using the pressure cementing technique and the well cleaned out to bottom and produced without screen. The aquifer in the Horton well which is the same one as at Wall and the Huether has excellent yielding characteristics and this accounts for the small drawdown during the swabbing test. The formation tops on the Horton well are the Newcastle - Dakota at 2491'. Skull Creek at 2834', Fall River at 2973', total depth 3080'.

Mr. John W. Ja.

-2-

September 14, 1962

The Huether well has an estimated elevation of 2567'. The static water level stands at 150'. It has a drawdown of 140' at 40 gallons per minute. The total depth of this well is 2717' with the Fall River being encountered at 2630'.

7" casing was set in this well to 300' and 4½" casing swedged onto the bottom to a depth of 2640'. The casing was cemented bottom and top with a cementing pressure technique and the well cleaned out to bottom and produced to a submersible pump.

The Huether well is not nearly as good a well as the Horton and the Wall wells. Much lost circulation difficulty was encountered in the Huether well requiring finally the cementing off of the entire Green Horn formation and redrilling. Lost circulation to a lesser extent was also encountered in both Wall wells. I am very certain that you can anticipate lost circulation difficulty to a considerable degree in your Pinnacle well. This should be taken into consideration in asking for bids because a situation of this kind could very well cause a contractor to lose money if he went into it innocently.

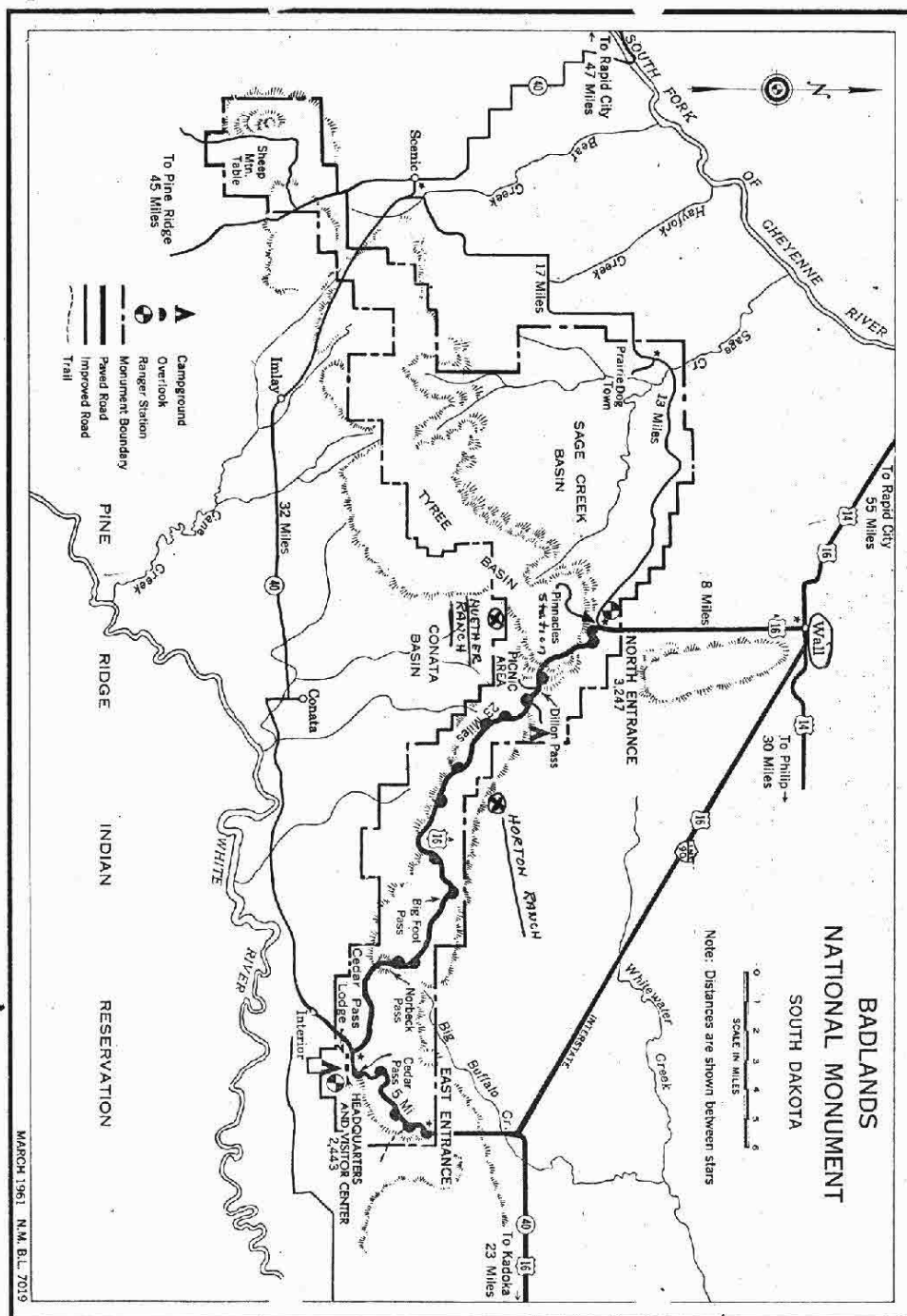
If there is anything further that I can assist you with, please do not hesitate to let me know.

Paul Gries of the South Dakota School of Mines has considerable knowledge of these wells and will be in a position to assist you to a great degree.

Very truly yours,

W. F. Rogers

WFR:s



Superintendent

August 27, 1961

Ranger Bucknall

Water Conditions, Sage Creek Basin

A careful check of all the reservoirs, dams and water tanks in the Sage Creek area within the boundaries of the Monument was made recently by Seasonal Park Ranger Donald Decht and myself. The results of our investigations are herewith furnished. See the attached map.

	Location	Condition
A. Roberts Dam	SW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 10, T2S, R15E	Dry
B. Kalkbrenner Dam	SE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 20, T2S, R15E	Dry
C. " Dam	SE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 20, T2S, R15E	Dry
D. " Dam	SE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 21, T2S, R15E	Dry
E. Larsen Dam	NW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 2, T3S, R14E	Dry
F. Larsen Dam	SE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 2, T3S, R14E	10,000 Gallons
G. " Dam	NE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 11, T3S, R14E	100,000 Gallons
H. " Dam	NE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 12, T3S, R14E	20,000 Gallons
I. " Dam	SE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 12, T3S, R14E	Dry
J. " Dam	SW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 7, T3S, R15E	Dry
K. Kocher Tank	NW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 13, T3S, R14E	Dry.

Both forks of Sage Creek are practically dry, except for a few very small and muddy potholes on the east fork and the southern portion of the south fork.

It is certain that at this time there is less than 150,000 gallons of free water in the entire basin.

Ted
Edmund J. Bucknall
Park Ranger

Other Supporting Information

AK
AUGHENBAUGH
VB
BARRETT
JS
WITCKI

L54-MW
(WSC)LWW
BADL-WR#2

July 7, 1971

Memorandum

To: Director, National Park Service
Attention: Chief, Division of Water Resources

From: Chief, Water Resources Section, Office of Land Acquisition
and Water Resources, WSC

Subject: Water Right Docket No. 2, Pinnacles Well - Badlands

In reply to your memorandum of May 12, 1971, on the subject docket, the attached Drawing No. NM-BL-5337-B and sheets 1, 2, and 3 of Drawing No. NM-BL-3236-A are enclosed for your information as requested. These drawings show the location and layout of the existing water system at Pinnacles checking station. Notations made in red on the drawings show the location of the 2-inch galvanized steel water supply line from the shallow dug well to the reservoir and the 6-inch asbestos cement waterline from the reservoir to the Ranger Station.

The 3,232 feet deep (6-inch cased) drilled well, constructed by Contract No. 14-10-0232-795 in 1963 and shown near the northeast corner of the Ranger Station on Drawing No. NM-BL-3236-A, is not being used due to the poor quality of the water.

Also attached is a copy of the water analysis report dated September 18, 1963, taken during the pump test. As noted, the water contains excess chemical concentrations of flourides (4.5 ppm), sulfates (810 ppm), iron (2.9 ppm), and total dissolved solids (1,768 ppm), which can be corrected by the installation of a desalination plant. This well is the only deep well in the immediate area. Enclosed is the pumping test and well data on the reference well reported by W. A. Moot.

Two privately owned deep wells are located at the Horton Ranch, approximately 7 miles to the southeast, but north of the park boundary line and at the Huether Ranch, approximately 3-1/2 miles to the south, just south of the park boundary line. See W. R. Roger's letter, dated September 14, 1962, a copy of which is enclosed, for a description of these two wells. Also noted in Mr. Roger's letter are two wells located at Wall, South Dakota, 8 miles to the north; however, little information is known on these wells. Reference is made to Drawing No. NM-BL-7019, a copy of which is enclosed, for general location of these wells.

In addition to the shallow dug well being used for the present water supply and the deep well drilled near the Ranger Station, the only other known well in the area is the abandoned concessioner's dug well located approximately 1,000 feet south-southeast of the existing park shallow well. Information on the well, as verbally reported by the Park Maintenance Supervisor, Ray Davis, is a rock-lined dug well approximately 5-feet in diameter, 40 to 50 feet deep and is covered with a manhole cover. No information on the well is available in this office concerning the capacity, chemical and biological characteristics, and former history of the well. When this information is received and confirmed, it will be included in the Water Right docket.

(Sgd)

Gerard S. Witucki

Enclosures

cc:
Director, Midwest Region
Superintendent, Badlands

FNP:DMAUGHENBAUGH:mlk 7/8/71

BADLANDS NATIONAL MONUMENT

Water Right #2

Pinnacles Well

The N.P.S. drilled a well at Pinnacles Ranger Station,
at the North Entrance to Badlands, N. M.

Since this well was drilled within the boundaries of
federal property, under the rule of Winters versus U. S.,
207 U.S. 564 (1908), the U. S. water right is protected
without the U. S. having to comply with state appropriation
laws.

Since the well was non-existent prior to federal
acquisition of the land, there could be no prior rights to
the well water, of course.

Excerpts from Badlands land files indicate that this
well is a substandard source of water (see correspondence
side of this docket). A letter from W. F. Rogers to
John W. Jay, in the correspondence side, compares the
water production of the Pinnacles well with that of wells
on the nearby privately owned Horton and Huether properties
(see docket map).

By William Cruzen
LWSSC
December 1966

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

FACE SHEET FOR COMPLETION REPORT

Work Order No.
BADL B-20Fund Symbol
14X1035

Park Badlands National Monument	Region Midwest	Year Programmed 1965
Location in Park Pinnacles Entrance	State(s) South Dakota	PCP No. U-44-3
	County or Counties Pennington	Master Plan No. NM-BL-3236-A
☒ Contract and/or ☐ Day Labor		Master Plan Corrected By
Work Order Title Utility System (Water Distribution System) Pinnacles		As Built Drawings By
		Date Started 6-30-64
		Date Completed 12-4-64 /

DESCRIPTION OF FIXED ASSETS
(For completion by employee in charge of project)TOTAL COSTS
(For completion by FFO)Water System

- 100.8.1 Utility System
- 4041 lin. ft. 6" Class 150 Asbestos Cement Pipe
 - 305 lin. ft. 2" Rigid Plastic Pipe
 - 21 lin. ft. 3/4" Rigid Plastic Pipe
 - 3 ea. 2" Gate valve
 - 1 ea. Fire hydrant
 - 1 ea. Hose house
 - 4126 lin. ft. Electric control cable
 - 1 ea. Water proof fleet switch
 - 1 ea. Transistor type sensitive relay and motor starter
 - 1 ea. Valve and Piping at well

Cost \$16,296.40
 2,607.42
 \$18,903.82

18,903.82

TOTAL

\$ 18,903.82

DISTRIBUTION	THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES		
No.	To		
	Submitted	Title:	Date:
	By: <i>W. L. Loe</i>	Project Supervisor	APR 9 1965
	Approved	Title:	Date:
	By: <i>Frank A. Hoff</i>	Superintendent	APR 9 1965
	COSTS VERIFIED	Title:	Date:
	BY <i>Erwin F. Galt</i>	Accounting Officer	MAY 21 1965

11360

COMPLETION REPORT NARRATIVE

Work Order BADL B-20

Water Distribution System, Pinnacles Entrance Development

The plans and specifications for Water System, Pinnacles Entrance, Badlands National Monument, South Dakota were prepared by the Western Office, Design and Construction.

This project included drilling a well, installation of the pump and controls and installation of a six inch water main to the existing reservoir. The well was dug and the pump installed under a previous contract.

The working drawing Water and Sewer System, Pinnacles Area, Badlands National Monument, Drawing No. NM-BL-3236-A (5 sheets) was signed by C. E. Krueger, Acting Chief, WODC on May 30, 1964. This project was packaged with the campground roads and parking, barriers, utility systems, comfort stations; Pinnacles sewer system, road and parking areas, and ranger station, and Invitations to Bid were advertised under the construction contract; Construction of Roads, Buildings, and Utilities, at Cedar Pass Campground and Pinnacles Area, Badlands National Monument, South Dakota. The Invitation for Bid was advertised on May 27, 1964 and solicited bids from small business concerns only. Invitations were sent 18 dealers and were posted in public places. Addendum No. 1 was issued on June 2, 1964. This addendum added a greater range of alternates to Bid Schedule V and made certain corrections to the building drawings and specifications. Also added was Drawing SK-1 which shoed additional sidewalk to be bid.

Five bids were received by bid opening time, 2:00 p.m., June 25, 1964. As the buildings could be bid separately from the roads and utilities; one bidder did not bid the buildings, one bidder bid only the buildings and the remaining three bidders bid the entire contract. After analysis of the bids it was determined that the Garland Construction Company of Rapid City, South Dakota was low bidder on Schedules I through IV and that the Van Vleck Lumber Company of Wall, South Dakota was low bidder on the buildings section of the contract, Schedule V. The low bid for the roads and utilities section of the contract was \$108,865, the engineer's estimate was \$118,954.25; the high bid was \$172,480. The low bid for the buildings section of the contract, Schedule V, was \$49,144 plus an additional \$1,566 for the alternates; the architect's estimate was \$50,496 plus \$1,150 for the alternates; the high bid was \$77,480 with no bid made on the alternates. Bids for the water system were as follows: \$16,277.50; \$30,227; \$30,297.50 and \$34,515. The engineer's estimate was \$28,149.50.

Frank A. Hjort, Monument Superintendent, issued a limited Notice to Proceed on July 20, 1964. The notice was signed by the contractor on July 27, 1964. A Notice of Beginning Date was then issued to the

contractor not that the contract would start on July 28, 1964, and would expire on November 24, 1964. However, as it was not possible to let the contractor start work on certain portions of the project until after September 1, 1964 it was noted that a time extension would be granted for a reasonable amount of time to cover this delay. Heavy tourist use of the Cedar Pass Campground necessitated this delay.

The Preconstruction Conference was held on July 30, 1964. The conference was attended by members of the Contractor's staff, the Monument staff and the WODC project team. Mr. Budwin Grover was appointed as the contractor's representative. Construction supervision was provided by Hal Look, Civil Engineer and John Ronsavage, Landscape Architect, both of WODC. The contractor awarded contracts to the following subcontractors for various phases of the work:

Taylor Brothers Ditching, Rapid City, all work in connection with the water and sewer systems except the septic tank and the electrical work.

Northwestern Engineering Co., Rapid City - all road and sidewalk work except the sidewalk header

Manley's Electric Shop, Rapid City installed all electrical wiring and controls

All other work items were accomplished by the prime contractor. On September 1, 1964, Mr. Grover was replaced by LeRoy Lang as the contractor's representative.

Change Order No. 1 was prepared on October 14, 1964 and included the following items: During construction of the roads and parking areas, certain sections were found which were very soft due to water intrusion. It was necessary to excavate and waste this material and replace it with suitable fill material. To properly control the water produced from the Pinnacles well and to allow water to be pumped to an area other than the main reservoir, it was necessary to change the piping diagram for the connections and valving at the wellhead. It was necessary to change the alignment of the intermediate drain in the 3" water main at Cedar Pass Campground to lay out the drain within a reasonable distance. This change required that the drain line pass under a sewer main and necessitated placing a reinforced casing around the sewer line to protect the waterline. During construction, a sewer line was found that was not shown on the contract drawings. It was necessary to raise the 3" water main which, in itself, did not change the contract price. However, raising the line increased the elevation at which it entered the valve chamber. Therefore, it was necessary to revise the piping diagram for the connections within the valve chamber. The last item of Change Order No. 1 was a correction to the minimum wage rates, which had been transcribed into the contract specifications incorrectly. The

L1425

REPORT ON TELEPHONE CALL - MAY 7, 1964

From: John F. Aiton

To: Superintendent, Badlands

Subject: Congressional Inquiry, Nichols, 7.18 acres, Badlands

Read Congressman E. Y. Berry's letter of April 28, 1964, addressed to the Director, concerning the subject property. Asked Frank whether he informed the prospective buyer that the land would be condemned if the buyer bought and developed it as a tourist attraction.

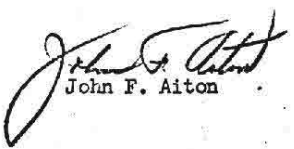
Frank advised me he had told the prospective buyer that we couldn't interfere with the sale of the land but that we would prefer not to have a commercial development along the main road in the Monument. The prospective buyer was not informed that if he bought it we would condemn it.

The present owner of the property is a Mr. Richardson. Mr. Nichols has an option on it. Mr. Nichols is a real estate broker.

Mr. Nichols, in turn, tried to sell the property to a Mr. Vidal. Mr. Vidal was the man making inquiry as to whether we would condemn the property if he bought it for development.

Frank advised that Mr. Nichols had discussed the water situation and Frank told him that if he drilled a well on the property, he might get hot water, as we did at Pinnacles, which wouldn't pass the health standards; further, that he might have to go better than 3,000' for it.

Nichols then suggested that he might get the water from the Horton ranch situated outside the Park boundary. This would entail about a half mile of Park Service land. Frank told him we would be reluctant to give permission to cross the Monument lands as this would interfere.


John F. Aiton

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

FACE SHEET FOR COMPLETION REPORT

Park Badlands National Monument	Region Midwest	Work Order No. B-16 BADL
Location in Park Pinnacles Entrance	State(s) South Dakota	Fund Symbol 14X1035
	County or Counties Pennington	Year Programmed 1964
☒ Contract and/or ☐ Day Labor		PCP No. U-44-3
Work Order Title Drilling of a water well and construction of a pump plant		Master Plan No. NM-BL-2034-E
		Master Plan Corrected By
		As Built Drawings By
		Date Started July 19, 1963
		Date Completed November 1, 1963 ✓
DESCRIPTION OF FIXED ASSETS (For completion by employee in charge of project)		TOTAL COSTS (For completion by FFO)

100.8 Utilities: Water System (100.8.1)

Drilled well 3432 ft. deep with 6" casing to 3342 feet. Contains 90' of 6", 0.008 slot screen. Supplied with Reda 15 HP submersible pump. Pitless type well head with sanitary seal.

Contract 14-10-0232-795, Fredericksons, Inc.

Contract	\$ 47,056.26
Day Labor	135.00
PS&S (16%)	7,550.60
Total	\$ 54,741.86

54,741.86

TOTAL

\$ 54,741.86

DISTRIBUTION		THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES	
No.	To		
1	WASO (orig.)	Submitted	Title: _____ Date: _____
1	WOPC	By: <u>Cloyd A. Kump</u>	Adm. Assistant 1-16-64
1	MW Reg.	Approved	Title: _____ Date: _____
1	MW FFO	By: <u>Barclay H. Hart</u>	Superintendent 1-16-64
1	BADL		
COSTS VERIFIED		Title: _____	Date: _____
BY <u>E</u>		Acc. Officer	DATE MAR 20 1964

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COMPLETION REPORT - NARRATIVE

Drilling of Water Well
Pinnacles Entrance
Contract No. 14-10-0232-795

This project was initiated to provide an adequate water supply for the future development of the Pinnacles Area.

The project was advertised in circular letters sent to twenty-eight dealers and by notices posted in public places. Four bids were received. The low bid was \$37,947.75 which was \$18,032.75 under the second lowest bid and \$10,206.25 under the engineer's estimate. The high bid was \$68,138.00. The low bidder was Frederickson's Inc. and they were awarded the contract.

The contractor acknowledged the Notice to Proceed on July 18, 1963 and the first calendar day of the project became July 19, 1963. The contract expiration date became November 15, 1963. The preconstruction conference was held on July 18, 1963. Equipment was moved on the job on July 20, 1963. The contractor requested permission and was granted same to work twenty-four hours a day and seven days a week.

It was determined advisable to drill and case the well at a 6" diameter for the full depth. This was necessary, according to the contractor, to provide space for the gravel pack around the screen. It was also decided that, in the interest of sanitation and to protect the casing from the highly corrosive local soil, the casing be pressure grouted from bottom to the top. To provide the above items, Change Order No. 1 was processed on August 12, 1963. The contract price was increased by \$7,914.00. There was no extension of time.

By August 31, 1963 the contractor had finished drilling the casing bore and on this day he set 3342 lineal feet of casing. On September 1, 1963 the contractor grouted the casing. The grout was placed at two levels, one at the 3340 ft. level and the other at the 1900 ft. level.

The contractor drilled 200+ ft. beyond the bottom of the casing. The well was developed and test pumped. The test was supervised by Mr. Nott of the Regional Office. The specific field was determined to be about 3.5 gpm/ft. of drawdown. The water was tested and it proved to be very high in total solids and deleterious materials. During this time a 15 HP, 3 ϕ Reda pump (No. 40D33E) was ordered.

Upon recommendation of the geologist, that the cooler less mineralized water was coming from the upper portion of the water bearing formations, it was decided that the bottom of the well should be plugged off to a level 90 feet below the bottom of the casing. There was a good possibility that the water quality would be better in this portion of the well. After this was done, there was a slight improvement in the

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over-all quality and a definite improvement in the iron content. However, the specific yield dropped to 0.1 gpm/ ft. of drawdown. A 6", 0.008 slot screen was installed, and the pump placed. To accomplish the above items, to change the well-head to a pitless sanitary well seal, and to change the pump discharge pipe; Change Order No. 2 was written On October 1, 1963. This change order increased the contract price by \$414.20 and there was no time extension.

A final inspection was held on November 1, 1963 and the work was accepted. The contractor signed the release of claims on November 12, 1963.

Badlands

*W. R. Kelly
(cc) 11/15/62
11/15/62*

L54 BADL

Memorandum

NOV 8 1962

To: Chief, WODC

From: Assistant Regional Director, Midwest Region

Subject: Letter-Report on Groundwater Conditions at Pinnacles
Entrance Station by John Paul Gries, Geologist, Badlands

Enclosed is a copy of subject report which indicates an adequate supply of potable water is virtually assured anywhere within the Pinnacles development area. Consequently, we propose the drilling of a final production well under B&U funds should be pursued instead of a test well under water resources funds. This project is presently in the 1964 fiscal year construction program for \$19,600. This amount is insufficient for the proposed work but will be increased sufficiently in the final program to adequately cover the project.

We concur with Mr. Gries' suggestion to install a 6-inch casing to a depth sufficient to accommodate the setting of a pump, then reduce to a 4-inch I.D. casing size.

A deep well drilled for the Wall, South Dakota water supply has been reported, by the local people, to be of good quality but has a temperature of about 90 degrees.

Your comments on our proposal will be appreciated.

(Sgd) Chester C. Brown

Assistant Regional Director

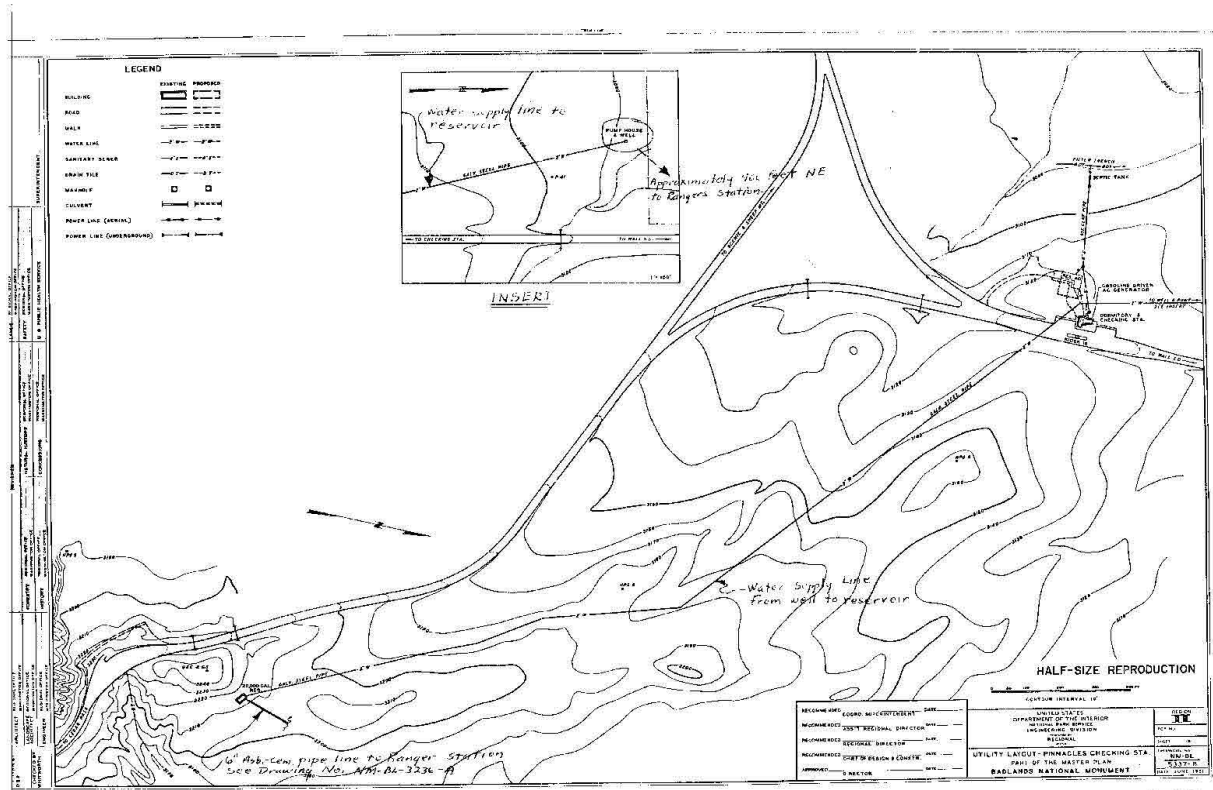
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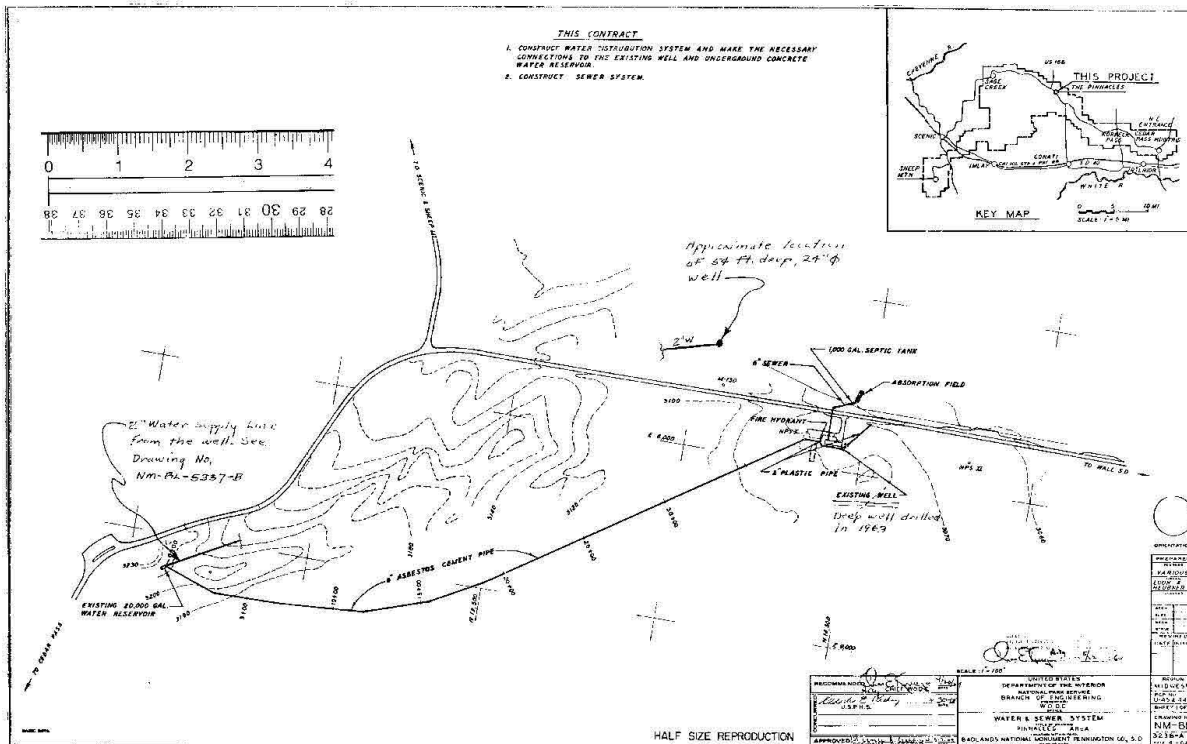
Enclosure

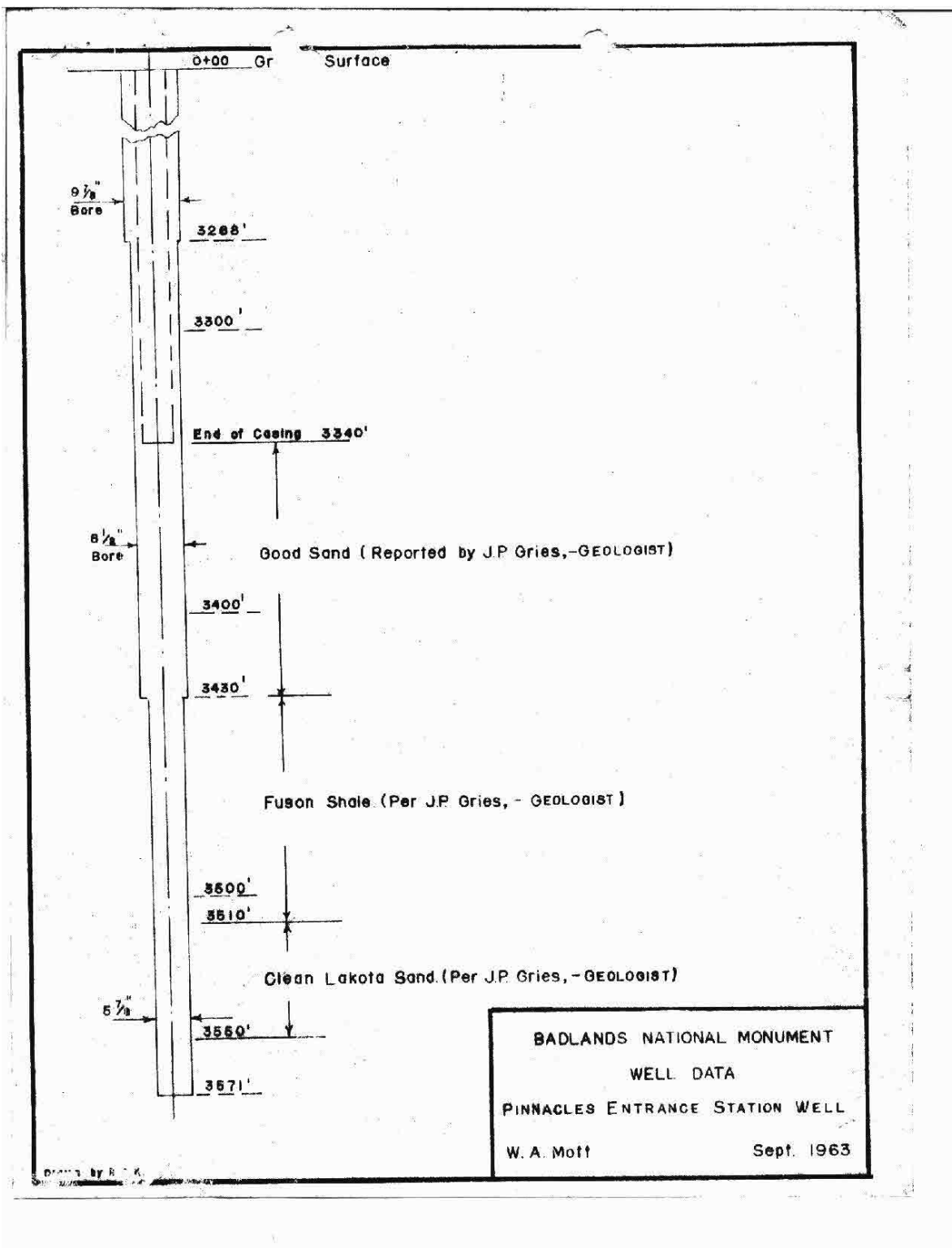
cc:

✓ The Director (2), w/enclosure
Superintendent, Badlands, w/enclosure

Maps and Miscellaneous Information







Docket Compiled: 1/31/2011