



WATER-RIGHT DOCKET

Badlands National Park

Docket No: 3

SOUTH UNIT WELL.

Preliminary Docket Information

00-00-0000: water right record

WATER RIGHT RECORD

Park: BADL

Docket Number:

Federal #3

IDENTIFICATION NO: BADL, W, 1 9, 4 1, 4 3, A F, 0 3,

DITCH/WATER SYSTEM: South Unit Well

SOURCE OF SUPPLY: Well

LOCATION:

WATER RIGHT:

Appropriator: United States of America, National Park Service

Application/Permit Number:

Certificate Record Number:

Date of Priority:

Quantity of Water:

Purpose: Municipal

Irrigated Land Description:

SUMMARY OF STATUS: This is a Federal Water right consisting of a 56' well.

SOUTH DAKOTA STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER TESTING DATA AND REPORT FORM

RESULTS OF TESTING (DO NOT WRITE IN THIS SPACE)

Date of report: 7/19/76

☒ Bacteriologically Satisfactory at the time of sampling.
☐ Unsafe for drinking or for washing of uncooked foods.
☐ Unsafe for swimming.
☐ Send recheck samples immediately. Bottles are being forwarded.

☐ Nitrate content not of concern.
☐ High Nitrate. Do not use for infants up to 6 months age.

FILL IN NAME AND ADDRESS OF PERSON TO RECEIVE REPORT

Name: Bidwade Well Improvement
 Street or RFD: PO Box 6
 City: Interior Zip Code: 57750
 PENNINGTON COUNTY
 HEALTH DEPARTMENT PLEASE PRINT CLEARLY
 510 East Monroe
 Rapid City, SD 57701

WATER SUPPLIES ONLY

City: _____

Name of Water Supply: _____

Sample Collector: _____ Date: 9/9/76

Type of Supply: Municipal Private Other (Explain below)

Source: Lake Stream Cistern Well Spring Gallery

Type of Well: Drilled Dug Driven Bored

Depth of Well: 36' Diameter of Well: 36"

Location of Sampling Top: _____

Purpose of Sample: Routine

Recheck of Unsafe Sample Other (Explain below)

Remarks: _____

SWIMMING POOL OR BEACH ONLY

City: _____

Name of Pool or Beach: _____

Sample Collector: _____

Date: _____

Pl. of Collection: _____

Time of Collection: _____

No. Swimmers present: _____

Chlorine residual: _____ ppm.

pH: _____

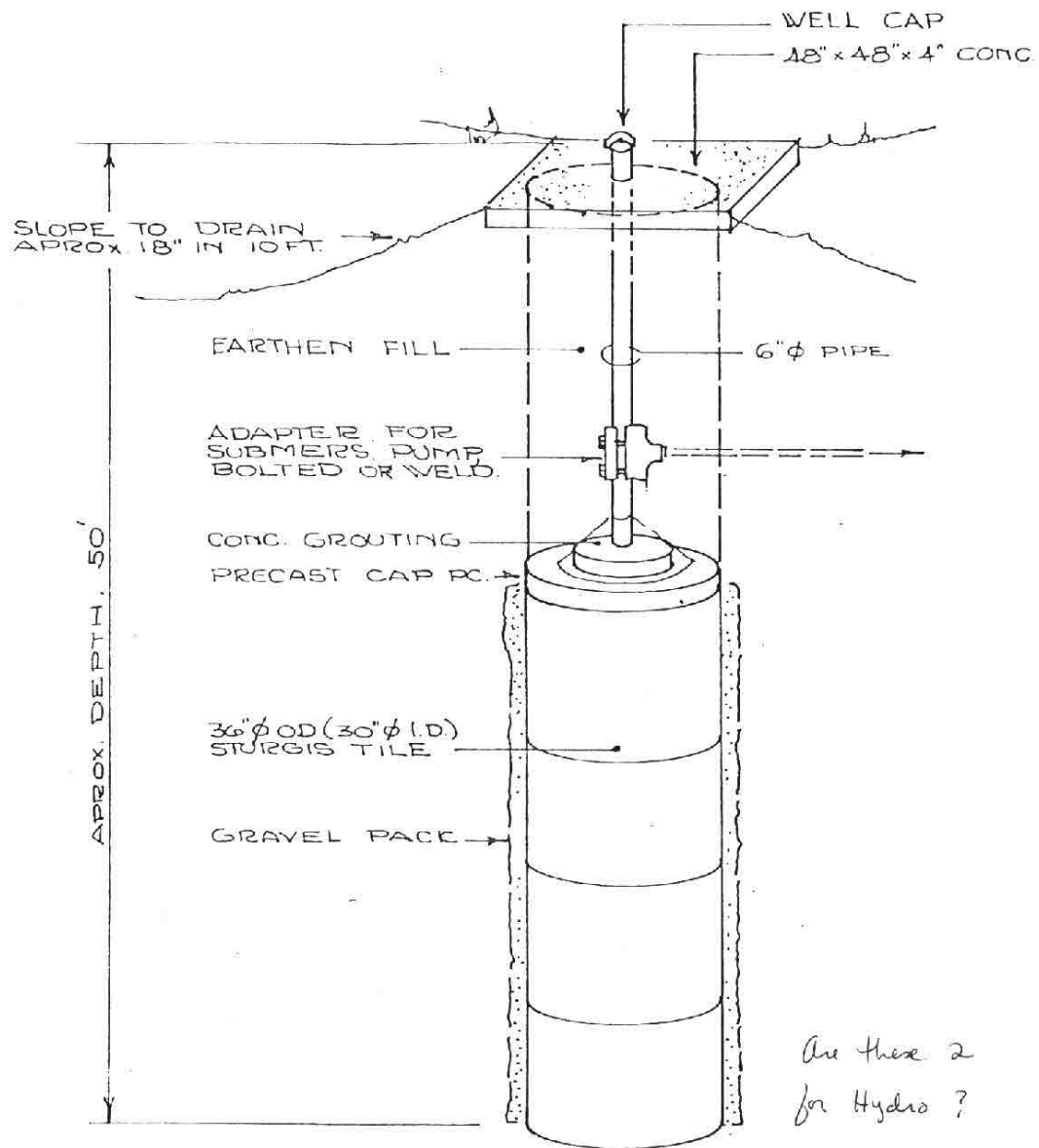
Nitrate _____ ppm. Hardness: _____ ppm. or _____ gpg. Iron: _____ ppm.

Fluoride _____ ppm.						MPN	Membrane Filter	
MPN	Number of tubes	Incubation	Incubation	Incubation	Incubation		Bacteria	Count
(1)	24 hours	18 hours	24 hours	48 hours			<u>Total Coliform</u>	<u><1 per 100</u>
							Bacteria	
							Count	

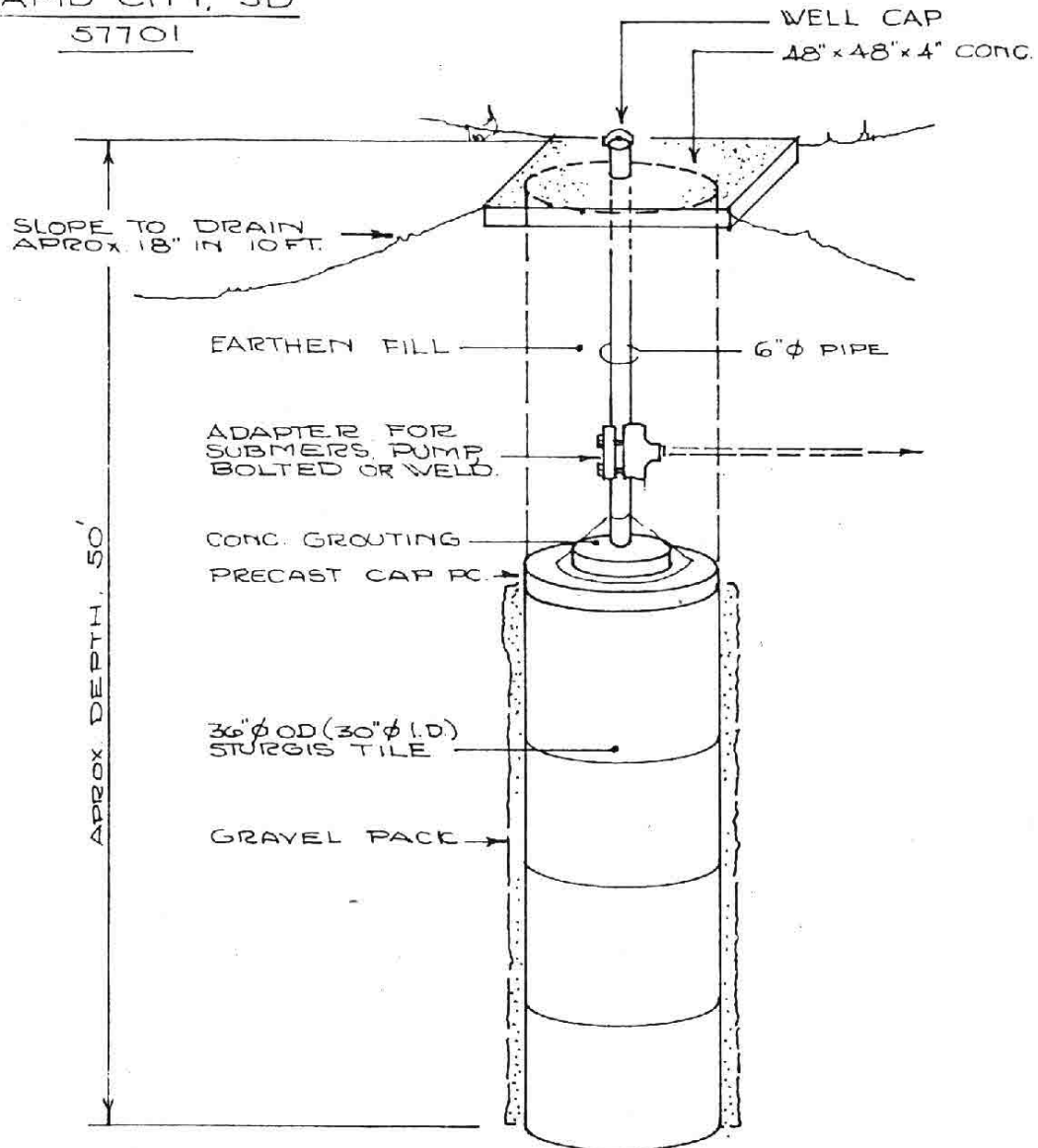
Excessive amounts of non-coliform bacteria present

Lab. No. 1577 Date Received 7/9/76

Hydro?



BICE DRILLING
RT. 4, BOX 1103
RAPID CITY, SD
57701



BICE DRILLING
 4 1/2" x 11" x 1/2"

Other Supporting Information

D5039 (RMR)PP

31 JAN 1977

Memorandum

To: Associate Regional Director, Park System Management, RMR
From: Associate Regional Director, Professional Support, RMR
Subject: Domestic Water Supply - South Unit, Badlands National Monument

This office is well aware of the chemical analysis of the shallow drilled well at the South Unit, Badlands National Monument. The matter was discussed with Mr. McLane of Maintenance early in September 1976. Mr. McLane suggested that reverse osmosis would be an effective means of treating the water and that he would look into the matter. It was assumed that the matter would be pursued by the Division of Maintenance. With this misunderstanding now revealed, the matter may proceed to be corrected.

All previous chemical analyses of test wells in this area have been high in sulfate and sodium concentrates. Deep wells in this area have also produced high concentrates of sulfate, chloride, fluoride, iron, and manganese ions. The additional cost of drilling a new well, that in all probability would produce the same quality and quantity of water, is not recommended.

The treatment of the now established water system is recommended. The total water source should be introduced to an ion exchange material to reduce the hardness.

Those sources of water to be consumed by humans should be treated by reverse osmosis equipment. This would be at the kitchen sink in the residence and at the electric water cooler in the visitor center. Future growth of the area could be handled by adding another reverse osmosis unit to the visitor center's water cooler system and installing a new reverse osmosis unit within any additional residences. The cost of installing the above system would run between \$5,000 and \$6,000.

If you have any further questions or suggestions concerning this matter, please contact our office.

Vernon D. Dame

Vernon D. Dame

cc:
Supt., Badlands NM

RMR-PN, Mr. Mekeel

EFWilcox:sp 1/28/77

RMR-MG, Mr. McLane
RMR-C, Mr. Strait

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

REPORT OF ANALYSIS

Rapid City, S. D. September 9, 1976, 19

Mr. Badlands National Monument
Attn: Ray Davis
P.O. Box 6, Interior, SD 57750

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

Certificate No. 767274

Your sample No. Rocky Ford So. Unit

SUBSTANCE	mg/L	SUBSTANCE	mg/L
Total Dissolved Solids	2720	Calcium (Ca)	105
Volatile Dissolved Solids	52	Magnesium (Mg)	9.5
Total Suspended Solids		Sodium (Na)	750
Volatile Suspended Solids		Potassium (K)	27
		Iron (Fe)	0.03
Total Hardness	300	Manganese (Mn)	0.05
Carbonate Hardness	300		
Non-Carbonate Hardness	0		
		Chloride (Cl)	2.0
PH --- 7.65		Sulfate (SO ₄)	1325
Alkalinity (Phenolph'n)	0	Silica (SiO ₂)	39
Alkalinity (Met. Orange)	414	Nitrate (N)	7.5
		Orthophosphate (PO ₄)	0.34
Turbidity (J.U.) ---		Total Phosphate (PO ₄)	3.3
Spec. Conductance --- 3530			

REMARKS:

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

D. Carda

Analyst.

A. L. Lingard
A. L. Lingard, Assistant Director

total dissolved solids, sodium, sulfate, and nitrates are all higher than recommended values for good drinking water. The high sulfate content could cause some diarrhea.

Phh

Associate Regional Director, Park System Mgt., RMR

April 28, 1976

Associate Regional Director, Professional Support, RMR

Test Well at White River Interim Development - South Unit, BADL

The ground water possibilities have been examined in the vicinity of the interim development, South Unit, Badlands NM and it does not appear that additional test wells are indicated. Comparatively recent USGS studies (1971-1972) indicate four test wells from approximately 300 to 750 feet from the proposed development site.

Depth to water for all four wells was from 7.5 to 8.5 feet. One of the four test wells in the closest proximity to the interim development was pump tested June 27, 1972, at a rate of 7.5 gallons per minute for 120 minutes with a draw down of 0.80 feet and recovery to static level within one minute. This indicates a good ground water source. A 10-foot section of 4-inch steel pipe with a 6-foot section of screen was installed in the well and apparently is still in place. If this well were to be put into production it would require full development, a pump and approximately 700 to 800 feet of pipe.

Another possibility that might be considered is drilling a production well close to the developed area. There is an excellent possibility of obtaining water at 15 to 20 feet. One driller contacted in Rapid City, South Dakota, is equipped to auger a 36-inch hole and install casing for \$20.00 a foot. His quote for installing a 36-inch production well 35-feet deep including moving, drilling, casing etc. was only \$860.00. The location of a well close to the developed area would depend upon the location of the leech field which appears at this time will be necessary for the sewage system.

Chemical analysis of water from Test Well 11B, the same well which was pump tested as described above, indicates the ground water is of fair, usable quality. It exceeds recommended levels in Iron (FE), Sulfate (SO_4), Nitrate (NO_3) and is extremely hard containing 1,700 mg/l of dissolved solids.

This should be considered a preliminary interim report subject to change after the site is examined during the week of May 17.

(SGD) VERNON D. DAME

Vernon D. Dame

cc:

RMR-PP, Roy Slatkavitz

WLMekeel:sg 4/29/76

Docket Information

Number of Documents in Docket 9

Documents Dated from 4/28/1976 to 9/9/1976

Docket Compiled: 1/31/2011