



WATER-RIGHT DOCKET

Dinosaur National Monument

Docket No: 4

SPLIT MOUNTAIN GORGE WELL #1.

Preliminary Docket Information

00-00-0000: water right record park: dino docket number: federal#4

WATER RIGHT RECORD

Park: DINO

Docket Number:
Federal #4

IDENTIFICATION NO: DINO, W, 3 0, 0 4, 2 4, A, F, 0 4,

DITCH/WATER SYSTEM: Split Mountain Gorge Water System

SOURCE OF SUPPLY: Well #1 *To be abandon*

LOCATION: N19°E 3500 ft. from the $\frac{1}{2}$ Cor. Common to Sec. 30-31, T4S,
R24E, SLB&M

WATER RIGHT:

Appropriator: United States of America, National Park Service

Application/Permit Number: 26523 *39208*

Certificate Record Number:

Date of Priority: December 10, 1954

Quantity of Water: 0.015 c.f.s. *(6.73 GPM)*

Purpose: Domestic

Irrigated Land Description:

SUMMARY OF STATUS: This is a Federal water right consisting of a well and hand pump.

Application approved June 28, 1955. Well completed in 1956.

Information on well #2, Cert. #26635, is found in Docket #21.

Three test wells dug in this area in March, 1960.

This well is presently not in use. Water no good.

Docket No. 4

DINOSAUR

Table of Contents

1. Photostat left half of Drawing NM-DIN-3108-A.
2. Record of Well.
3. Map with Completion Report.
4. Completion Report on Well.
5. File Map. (to be supplied)
6. Application. (to be prepared)

State Water Rights Documentation



THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY
August 10, 1955
APPLICATION APPROVED

U. S. Dept. of the Interior
Dinosaur Nat'l Monument
Box 621
Vernal, Utah

Gentlemen:

Re: Application No. 26635

Enclosed find above numbered application which has been approved. This is your authority to proceed with actual construction work, which, under the Laws of Utah must be diligently prosecuted to completion and the water applied to beneficial use before August 10, 1957, otherwise the application will lapse.

If your well has already been drilled under a temporary permit and the driller has not already placed the number on your well, a copper band containing the number will be mailed to you. If the well has not been drilled this band must be placed on the well by the driller as soon as it is finished.

Failure on your part to comply with these requirements may result in forfeiture of your application.

Yours truly,

Joseph M. Tracy
STATE ENGINEER
STATE CAPITOL
SALT LAKE CITY, UTAH

ADDRESS ALL COMMUNICATIONS TO:

1c
Encl: Approved Application

NO PROOF REQUIRED
Account Application for not more than 0.015 S. F.

Form 34
5-55 124

THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY
June 28, 1955
APPLICATION APPROVED

U. S. Department of the Interior
Dinosaur National Monument
National Park Service
Box 621
Vernal, Utah

Gentlemen:

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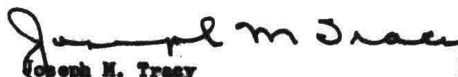
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Joseph M. Tracy
STATE ENGINEER
STATE CAPITOL
SALT LAKE CITY, UTAH

NO PROOF REQUIRED
Account Application for not more than 0.015 S. F.

Application No. 26625

Application to Appropriate Water for Domestic Purposes

Split into 2 pamphlets

STATE OF UTAH

Do not fill out this blank until you have read carefully and thoroughly understand the Rules and Regulations on the back hereof, also in the pamphlet prepared by State Engineer and all the notes in this form.

For the purpose of acquiring the right to use a portion of the unappropriated water of the State of Utah, for domestic purposes, Application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of the Laws of Utah.

NOTE.—The information given in the following blanks should be free from explanatory matter, but when necessary a complete supplementary statement should be made on the following page under the heading "Explanatory."

1. The name of the applicant is U.S. Dept. of the Interior, National Park Service
2. The post-office address of the applicant is Box 621, Vernal, Utah
3. The quantity of water to be appropriated is 0.015 second-feet or acre-feet
(See note on page 4)
4. The water is to be used each year from Jan. 1 to Dec. 31 incl.,
(Month) (Day) (Month) (Day)
and stored each year (if stored) from not stored to incl.,
(Month) (Day) (Month) (Day)
5. The drainage area to which the direct source of supply belongs is GREEN RIVER
(Leave blank)
6. The direct source of supply is underground water
(Name of stream or other source)
which is tributary to , tributary to

†NOTE.—Where water is to be diverted from a well or tunnel, the source should be designated as "Underground Water" in the first space and the remaining spaces should be left blank. If the source is a stream, a spring, a spring area, a tunnel, or a drain, so indicate in the first space, giving its name, if named, and in the remaining spaces, designate the stream channels to which it is tributary, even though the water may sink, evaporate, or be diverted before reaching said channels. If water from a spring flows in a natural surface channel before being diverted, the direct source should be designated as a stream and not a spring.

7. The point of diversion from ~~SPRING SPRING SPRING~~ ONE well (flowing ~~upward~~ downward)
(Strike words not needed)
or is in Vintah County county, situated at a point*
N 57° 45' E., 1950 ft. from the 1/4 corner common to sections 30-31, Township
4 S/ Range 24 E., S. 4. M.

*NOTE.—The point of diversion must be located definitely by course and distance or by rectangular distances, with reference to some United States land survey corner or United States mineral monument, if within a distance of six miles of either, or if at a greater distance, to some prominent and permanent natural object. (Also see note, page 4.)

No Application will be received in which the point of diversion is not described definitely. Any change made in this description after Application is received and before approved will bring down the priority of Application to the date when the amendment is made of record in the State Engineer's office. If the point of diversion is described improperly it may result in the necessity for readvertising, or for filing a change application to correct the improper tie before certificate of appropriation can be issued.

8. The diverting and carrying works will consist of a drilled or driven well and hand
operated pumps depth 40 ft. minimum, 150 ft. maximum, 6-8 inches diameter.
9. The cross section of the diverting channel will be about 
(Strike cross not needed)
10. The diverting works and diverting channel will be constructed of wood, concrete, iron, or steel.
(Strike words not needed)
11. The length of the diverting channel, exclusive of laterals, will be no diverting channel feet
12. The top width of the diverting channel will be (if a ditch) not applicable feet
13. The bottom width of the diverting channel will be (if a ditch) not applicable feet
14. The depth of water in the diverting channel will be (if a ditch) not applicable feet
15. The width of the diverting channel will be (if a flume) not applicable feet
16. The depth of water in the diverting channel will be (if a flume) not applicable feet
17. The diameter of the diverting channel will be (if a pipe) no diverting channel inches
18. The grade of the diverting channel will be vertical and horizontal feet per thousand

19. Number of families to be served for household purposes 800-1600 families
20. General description of proposed household uses This water will be used for culinary purposes by transit campers visiting Split Mountain Gorge public campground in Dinosaur National Monument.
21. Place of use by Section, Township and Range In the area N 57° 45' E. 1950 ft. from the 1/4 corner common to sections 30-31, Township 4S., Range 24 E. S.L.M.

EXPLANATORY

The following additional facts are set forth in order to define more clearly the full purpose of the proposed appropriation:

The water used for any incidental purpose including Irrigation or Stock Watering will be limited to an amount less than that used for Domestic (Household) purposes.

The water of this well will be used for culinary purposes by transit campers visiting the Split Mountain Gorge public campground in Dinosaur National Monument. It is estimated that from 2500 to 5,000 people per year will use this water for at least one day and the number of people using this campground is increasing.

The National Park Service proposes to dig, drill, or drive a shallow well at this location not expected to exceed 50 ft. in depth and install hand operated pumps in accordance with plans supplied by U.S. Public Health Service to provide a supply of drinking and culinary water for the public using this campground. See attached plat of well location.

The quantity of water sought to be appropriated is limited to that which can be beneficially used for the purposes herein described.

U.S. Dept. of the Interior, National Park Service, Dinosaur National Monument

by John H. Lombard Superintendent

Signature of Applicant*

*If applicant is a corporation or other organization, signature must be in the name of such corporation or organization by its proper officer. If a corporation, the affidavit below need not be filled in. If there are more than one applicant, a power of attorney, authorizing one to act for all should accompany the Application.

STATE OF UTAH,

County of Uintah

ss.

On the 24th day of January, 1955, personally appeared before me, a notary public for the State of Utah, the above applicant who, on oath, declared that he is a citizen of the United States.

My commission expires 2-6-57

(SEAL)

Notary Public

(This page is not to be filled in by applicant)

STATE ENGINEER'S ENDORSEMENTS

- 9:30 a.m. 24.1955
1. Application received ~~over counter~~ by mail in State Engineer's office by E.C.
 2. Priority of Application brought down to, on account of
 3. No fee required Fee for filing Application, \$....., received by..... Rec. No.....
 4. Feb. 4, 1955 Application copied in book 257, page 294, and indexed by mm
 5. Jan. 26, 1955 Application plotted by SP-4-24 add 1 Band Meter Table
 6. May 8, 1955 Application examined by James
 7. Application returned, with letter, to..... for correction
 8. Corrected Application resubmitted ~~over counter~~ by mail to State Engineer's office.
 9. No Adv. No. publishing notice requested.
 10. Fee for publishing notice, \$....., received by..... Rec. No.....
 11. Application approved for advertisement by.....
 12. Notice to water users prepared by.....
 13. Publication began; was completed.....
 14. Notice published in.....
 15. Proof slips checked by.....
 16. JUNE 28, 1955 Application designated for approval ~~rejection~~ by F.T.M. Jr.
 17. No fee required Fee for approving Application requested.....
 18. Aug. 10, 1955 Fee for approving Application, \$2.50, received by..... Rec. No.....
 19. Aug. 10, 1955 Application proofread by Ed. J.
 20. Aug. 10, 1955 Application ~~approved~~ rejected and returned to applicant.....
- This Application is approved, subject to prior rights, if any, on the following conditions:
1. Actual construction work shall be diligently prosecuted to completion, and the water applied to beneficial use on or before August 10, 1957, otherwise the application will lapse.
 2. Proof of Appropriation shall be submitted to the State Engineer's office by.....
 3. **NO PROOF REQUIRED**
ACCOUNT APPLICATION IS FOR NOT MORE THAN 0.015 S. F.
- Joseph M. Tracy
Joseph M. Tracy, State Engineer.
21. Time for making Proof of Appropriation extended to.....
 22. Proof of Appropriation submitted.
 23. Fee for filing Proof of Appropriation, \$1, rec'd by..... Rec. No.....
 24. Fee for Exam. maps, profiles and drawings, \$5, rec'd by..... Rec. No.....
 25. Fee for issuing Cert. of Appropriation, \$1, rec'd by..... Rec. No.....
 26. Certificate of Appropriation, No....., issued

I Hereby Certify that the foregoing is a true copy of the Application by.....
to appropriate water and of the endorsements therein as shown by the records of my office on the date given below.

Salt Lake City, Utah, ...

19.....

State Engineer

Application No. 26635.....

NOTICE TO APPLICANT

The approval of this Application is not a Certificate of Appropriation. It is merely your authority to begin construction work, which must be prosecuted diligently to completion. To secure a Certificate of Appropriation under this Application, Proof of Appropriation must be submitted within the time limit allowed by the State Engineer. The amount of water for which Certificate will be issued will depend upon the amount of water actually put to a beneficial use, not to exceed, however, the amount of water specified in this Application. Proof of Appropriation must be made in accordance with the requirements of the law. For further information write the State Engineer.

NOTE—The second space provided in Paragraph 3 on page 1 must not be used except in cases in which storage is contemplated; in such case Paragraph 4 (first line) should indicate the time in each year during which the water will be released and used. The lands to be inundated by the reservoir shall be described under "explanatory" as nearly as may be and by government subdivisions if upon surveyed land, and the area of the reservoir when at full stage shall be given in acres.

If the Reservoir is Located on the Channel of the Source from which the water is to be appropriated, it shall be so stated under "explanatory," and—

1. The intersection of center line of stream bed and longitudinal axis of impounding dam shall be described in Paragraph 7.
2. The point where the released storage will be rediverted from the natural stream shall be described under "explanatory" in accordance with the note under Paragraph 7. If a diversion dam is involved, the point of rediversion is intersection of center line of stream bed and longitudinal axis of dam.

When Water is not Stored in the Natural Channel of the Source from which it is to be appropriated, it shall be so stated under "explanatory," and—

1. The point of diversion from the supplying source shall be described in Paragraph 7.
2. The intersection of center line of stream bed and longitudinal axis of impounding dam and the point where the released storage will be rediverted from a natural channel shall be described under "explanatory" in accordance with the note under Paragraph 7. If a diversion dam is involved the point of rediversion is intersection center line of stream bed and longitudinal axis of dam.

In all cases Paragraphs 8 to 18 inclusive, shall describe the entire diverting works, exclusive of natural channels and laterals, even if already constructed in whole or in part.

If Application is Made for the Water of a Number of Springs, or other sources collected at a common point, said point shall be described as the point of diversion in Paragraph 7 and the point of diversion from each source shall also be described under "explanatory," in accordance with the note under Paragraph 7. The quantity of water sought from each source shall be indicated under "explanatory," the total equaling the quantity specified in Paragraph 3. Where the source of supply is in reality a spring area, the point of diversion is the point where the water is collected within the area, the point of collection being described in Paragraph 7; in such case the exterior boundary of the spring area shall be described under "explanatory" by metes and bounds and located as outlined by the note under Paragraph 7.

Rules and Regulations

If a dam is not required across the natural channel of the stream or outlet of the lake comprising the supplying source to divert water into the diverting channel, the point of diversion or rediversion shall be the intersection of the axis of the first tangent in the diverting channel and the high water line on the adjacent side of the natural channel or body of water of the supplying source.

All waters in this state, whether above or under the ground, are the property of the public, subject to all existing rights to the use thereof. No appropriation of the unappropriated public water may be made and no rights to the use thereof shall be recognized except Application for such appropriation first be made to the State Engineer.

The Application must be signed by the applicant at the bottom of page 2 and the affidavit relating to citizenship acknowledged before a Notary Public before the Application be received by the State Engineer.

An Application shall not be made for more than one purpose, except where the secondary purpose is a necessary incident to the primary one; as for instance, an Application for irrigation purposes may specify domestic purposes as a necessary incident.

An Application made to appropriate water for use in a single system with one or more points of diversion or sources of supply, or both, if the water is commingled, may be accepted if made by one person or by a corporation, if and when the points of diversion be in close proximity or located in contiguous sections by government survey; provided, however, that the quantity of water sought, also tie to a U. S. land survey corner, be given for each point of diversion, and the point of commingling given by tie to a U. S. land survey corner.

In case a material error is made in the description of the point of diversion, or in case any error is made the correction of which would enlarge the rights sought in an Application after its receipt in the State Engineer's office, then such error may be corrected before advertising, but the priority date of the Application will be changed to the time when the corrected Application is resubmitted (received) in the State Engineer's office; and, if the notice to water users has been published, the State Engineer may in his discretion before approval cause a revised notice to be published at the expense of the applicant.

When there are two or more coapplicants the Application must be accompanied by a power of attorney, authorizing one to act for all.

The applicant's permanent address should be given in Paragraph 2, and the State Engineer notified promptly of any change in address; otherwise applicant may lose rights initiated by Application by failing to receive notices sent from the State Engineer's office.

No Application or other paper (requiring a fee) pertaining to an Application will be marked received unless accompanied with the required filing fee.

Applications accepted and numbered by the State Engineer, when returned to applicant for correction or additions, must be amended with red ink. Erasures must not be made, but any matter may be eliminated by running a red line through it in such manner that the stricken matter may still be read. Corrected Applications must be resubmitted to the State Engineer's office, within sixty days from the date of State Engineer's letter returning Application for correction; otherwise the Application will lapse.

Applicants will be informed by the State Engineer's office when cost of publishing notice of application is due, and must advance cost within sixty days after date of notice, otherwise Application will lapse.

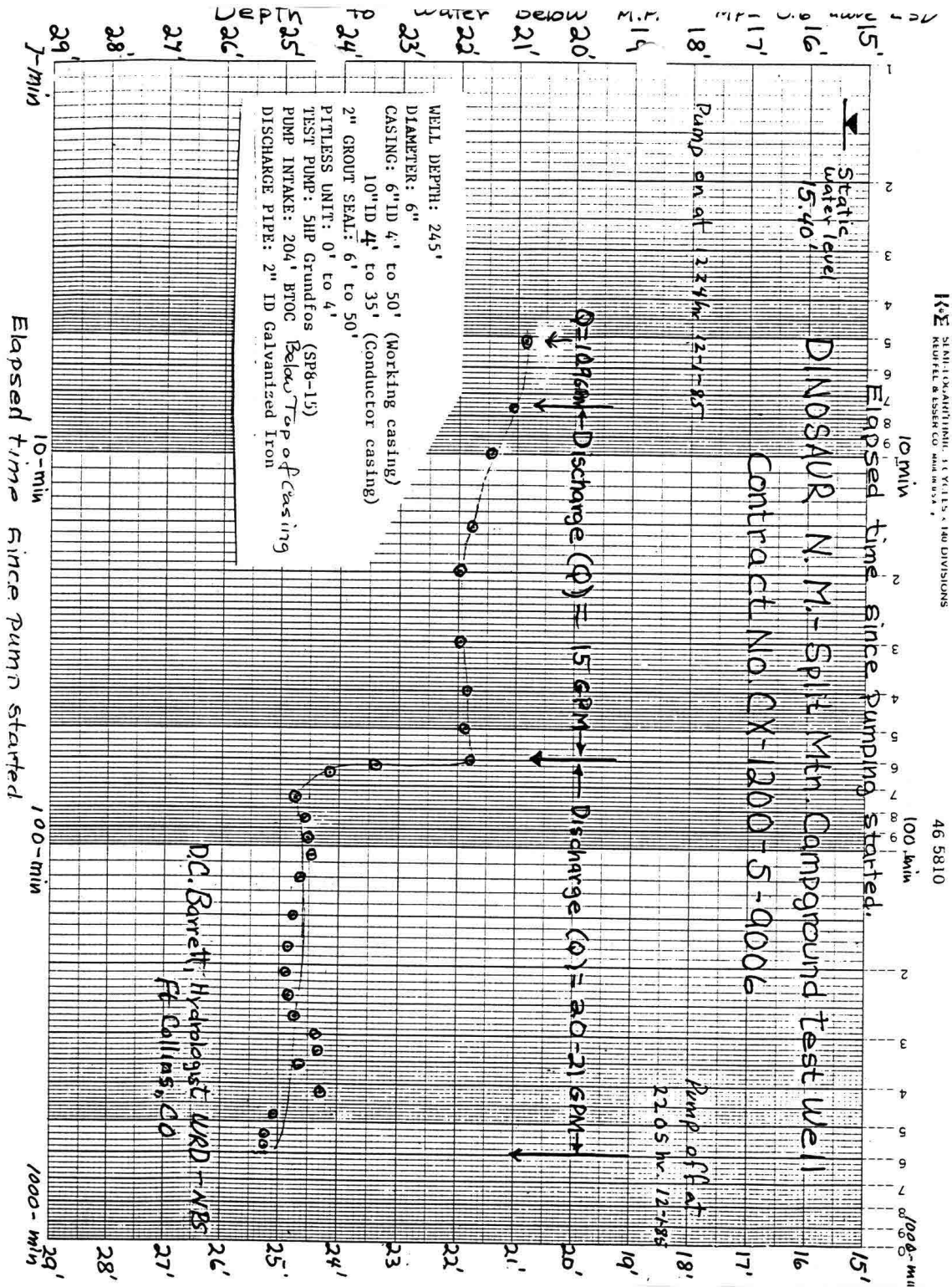
FEES REQUIRED BY LAW PAYABLE TO STATE ENGINEERS

For filing Application to appropriate 10 second-feet of water or less	\$2.50
and additionally, \$1.00 for each second-foot above 10.	
For filing Application to appropriate 500 acre-feet of water or less	2.50
and additionally, 2 cents for each acre-foot above 500.	
When the filing fee on any application to appropriate water shall exceed \$1,000.00, the balance of the fee in excess of \$1,000.00 may, at the option of the applicant, be paid at the time the Proof of Appropriation is submitted.	
For approving and recording completed Application	2.50
For filing written Proof of Appropriation	1.00
For examining map, profile and drawings that are part of the Proof of Appropriation	5.00
For issuing Certificate of Appropriation	1.00

NOTE—Applicants will save time and expense by familiarizing themselves with the law before making Application.



Supporting Hydro Data



Rocket no f

DINOSAUR NATIONAL MONUMENT

TEST WELL DRILLING

William A. Mott, Hydraulic Engineer, Region Two Office, arrived at Quarry Area on March 21, 1960.

Driller, the Uintah Basin Drilling Company, Roosevelt, Utah, started drilling after lunch on March 21, 1960, at Test Well No. 1 Site. Lower 19'-10" of pipe was perforated with 4 slots (2" long) per foot. Row staggered.

Test Well No. 1 - 26 feet total depth - 19'-10" perforated.
Test Well No. 2 - 31 feet total depth - 15'-0" perforated.

March 24, 1960

Started step testing Test Well No. 2 about 2:20 PM.
Step testing ended at 6:45 PM.
Started 30 hour continuous pump-testing at 7:00 PM.
Pump was operated at full capacity of approximately 33 gpm.

March 25, 1960

Pump-testing continued.

March 26, 1960 - Saturday

Test
Pump-testing at full capacity continued on Well No. 2 until 12:30 A.M. Then the quantity was reduced to check rating curve for the lower discharges. Stopped pumping at 1:00 A.M.

Reset the rig at morning at Test Well No. 1, and pump-tested at the step method. Began pumping at 11:40 A.M. at full capacity to flush out the well. Finished at 3:30 PM.

Test
Driller moved to Well No. 1 in Split Mountain Gorge Campground and cleaned the well by bailing.

Driller then welded steel caps on Test Wells No. 1 and No. 2 to protect them from molestation by the public.

Moved the drilling rig to maintenance garage at 6:00 PM.

March 28, 1960 - Monday

Driller set up at Test Well No. 3 (upstream), about 1,000 feet from Supply Well No. 3, near bank of Green River. Started drilling at 10:30 A.M.

Bailed the well from 3:40 PM to 4:20 PM.

Total well depth 34 feet (18 feet perforated). Water raised to 12'-6" from ground surface. Struck water at 20 feet below ground surface.

Water was bailed down to 22 feet at the rate of about 22 gal. in .43 minutes.
Recovery to static level was in about 9 minutes.

Total hardness - 2600-2700 p.p.m.

SUMMARY DATA - Checked with Drilling Operator

	<u>TEST WELLS</u>		
	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3 Bank, Green River</u>
Depth of Well below ground surface	25'	32'	28'
Length of casing	27'-11"	34'-0"	32'-0"
Drive shoe	1 each	1 each	1 each
Pump testing	4 hrs.	34½ hrs.	0
Bailing	2 hrs.	1/2 hr.	2 hrs.
Setting Pump	2 hrs.	4 hrs.	
Cleaning Well No. 1 in Campground, and capping Test Wells No. 1 and No. 2	Total of 2½ hours		
Temperatures	53° F.	50° F.	52° F.

PUMP-TESTING TEST WELL NO. 2, SPLIT MOUNTAIN CAMPGROUND

Bucket capacity - 5.245 gals. March 24, 1960, at 10:30 A.M. motor in
submersible pump would not start the pump.

Top of casing is reference for water surface readings.
" " " " 10" above ground surface.

<u>TIME</u>	<u>ELEVATION of WATER SURFACE</u>	<u>GPM QUANTITY</u>	<u>REMARKS</u>
2:30 PM	8'-2"		
2:43 PM	8'-9½"	5	
2:52 PM	8'-9½"	5	
3:00 PM	10'-4-3/8"	10	
3:07 PM	10'-4-5/8"	10	
3:21 PM	10'-5½"	10	
3:50 PM	10'-3-7/8"	10	
4:10 PM	10'-5"	10	
4:33 PM	11'-3-3/4"	15	
4:45 PM	11'-2"	21 ?	
5:00 PM	10'-1"	14.3	Cut quantity down to near 15 gpm.
5:13 PM	9'-11½"	13.3	
5:19	10'-7-3/4"	17.75	.30 min by stop watch
5:40 PM	10'-6½"	17.5	
5:47 PM	12'-3¼"	26.2	.20 " " " "

TIME	elevation of WATER SURFACE	GPM QUANTITY	REMARKS
6:00 PM	12'-3-3/4"	26.2	
6:05 PM	13'-6-1/8"	32.8	
6:20 PM	13'-7-3/8"	33.7	
6:35 PM	13'-7-1/8"	32.8	
7:19 PM	13'-8"	32.8	Started 30 hour test.
10:05 PM	13'-11-1/8"	32.8	
11:00 PM	13'-10-5/8"	33.5	
12:08 AM	13'-11-5/8"	33.7	
1:00 AM	14'-0"	32.7	
1:45 AM	14'-1"	32.8	.16
2:50 AM	14'-1"	32.8	.16
3:25 AM	14'-1-3/4"	32.8	.16
4:07 AM	14'-1-1/2"	32.8	.16
5:03 AM	14'-1"	31.8	.165
6:06 AM	14'-3/4"	32.8	.16
7:00 AM	13'-6-5/8"	29.2	.18
7:30 AM	13'-9-3/8"	30.8	.17
8:00 AM	13'-11-1/2"	32.8	.16
8:30 AM	13'-11-1/2"	32.8	.16
9:00 AM	13'-11"	37.4	.14
10:00 AM	13'-11"	35.0	.15
11:00 AM	13'-11"	32.8	.16
12:00 noon	13'-11"	32.8	.16
1:00 PM	13'-11"	30.8	.17
2:00 PM	13'-11"	34.3	.1525
3:00 PM	14'-0"	30.8	.17
4:00 PM	14'-0"	30.8	.17
5:00 PM	13'-11"	32.8	.16
6:00 PM	14'-0"	31.8	.165
7:00 PM	13'-11"	31.8	.165
8:00 PM	13'-11-1/2"	32.8	.16
9:08 PM	13'-11-1/2"	32.4	.162
10:05 PM	13'-11-1/2"	31.8	.165
11:05 PM	13'-11-1/2"	31.8	.165
12:20 PM	13'-10-1/2"		.168
12:27 AM	11'-11"		.24
12:50 AM	11'-9-1/2"		.26
12:52 AM	12'-9-5/8"		.20

Test Well No. 1 - Split Mountain Campground - struck water at 12 feet below surface.

Test Well No. 2 - Split Mountain Campground - struck water at 20 feet below surface.

Test Well No. 3 - Right Bank of Green River - struck water at 20 feet below surface.

SPLIT MOUNTAIN GORGE CAMPGROUNDTEST WELL NO. 1STEP TEST DATA - March 26, 1960

1. Static Water Surface 12'-11 $\frac{1}{2}$ " below top of casing.
2. Casing extends 2'-0" above ground surface.
3. Depth of well below top of casing 27'-9"/capacity of bucket 5.245 gal.
4. Started pumping at 11:40 A.M. at full throttle to flush out the well.

TIME hour	WATER SURFACE READING	TIME Minutes	QUANTITY gpm
11:52 AM	16' - 11"	.145	36.0
12:08 PM	17' - 2"	.140	37.5
12:22 PM	14' - 1 $\frac{1}{2}$ "	1.37	3.88
12:30 PM	13' - 11-3/8"	.90	5.82
12:35 PM	13' - 11-1/4"	.915	5.73
12:39 PM	14' - 2-3/8"	.53	9.9
12:50 PM	14' - 2-5/8"	.58	9.1
12:58 PM	14' - 10 $\frac{1}{2}$ "	.33	15.9
1:16 PM	15' - 0"	.335	15.7
1:30 PM	16' - 3-1/4"	.195	26.8
1:55 PM	16' - 2-5/8"	.20	26.2
2:02 PM	17' - 1/8"	.14	37.5
2:16 PM	17' - 4-3/4"	.145	36.2
2:30 PM	17' - 7-3/4"	.150	35.0
2:45 PM	17' - 8"	.145	36.0
3:13 PM	17' - 9-3/4"	.1475	35.5

CHEMICAL ANALYSIS OF WATER

Park, Monument or Memorial Dinosaur National MonumentDate March 22, 1960Source of Water River Flow @ Split Mt'n Gorge L.G. Sample No. 1

Depth of Well (feet) _____ Taste _____

Temperature of Water _____ Odor _____

	Page No.	Method	Maxi. Limit P.P.M.	Concen- tration P.P.M.	REMARKS
Alkalinity		Tit.	120.		<i>Analysis made with "Hach Chemical Kit" by W.A. Mott.</i>
Carbon Dioxide		Tit.	.05		
Chloride ($CaCl_2$)		Tit.	250.		
Chlorine		Color		.00	
Chromate (Chromium)		Color	.05	.02	
Flouride		Color	1.5	.30	
Total Hardness		Tit.	500. to 1000	210.	
Calcium Hardness		Tit.	15.	1.4	
Hydrogen Sulfide		(Test Paper)			
Iron		Color	0.3	.12	
Manganese		Color			
Nitrate		Color			
Nitrite		Color		.00	
Ph		Color		7.60	
Phosphate, Ortho		Color			
Phosphate, Meta (Poly)		Color			
Silica		Color			
Sulfate		Color	250.		
Turbidity (no filter)		Color			
Dissolved Oxygen		Color			

CHEMICAL ANALYSIS OF WATERPark, Monument or Memorial Dinosaur National MonumentDate March 22, 1960Source of Water Test Well #1 - Split Mtn Gorge C.G. Sample No. 1Depth of Well (feet) 25 - 0 Taste GoodTemperature of Water _____ Odor None

	Page No.	Method	Maxi. Limit P.P.M.	Concen- tration P.P.M.	REMARKS
Alkalinity		Tit.	120.		Analysis made with "Hach Chemical Kit" by W.A. Mott.
Carbon Dioxide		Tit.	.05		
Chloride		Tit.	250.		
Chlorine		Color			
Chromate (Chromium)		Color	.05		
Flouride		Color	1.5		
Total Hardness		Tit.	500. to 1000.	290.	
Calcium Hardness		Tit.	15.		
Hydrogen Sulfide		(Test Paper)			
Iron		Color	.3		
Manganese		Color			
Nitrate		Color			
Nitrite		Color		.03	
Ph		Color			
Phosphate, Ortho		Color			
Phosphate, Meta (Poly)		Color			
Silica		Color			
Sulfate		Color	250.		
Turbidity (no filter)		Color			
Dissolved Oxygen		Color			

CHEMICAL ANALYSIS OF WATERPark, Monument or Memorial Dinosaur National MonumentDate March 21, 1960Source of Water Test Well #2 - Split Mtn Gorge C.G. Sample No. 1Depth of Well (feet) 31 feet Taste _____

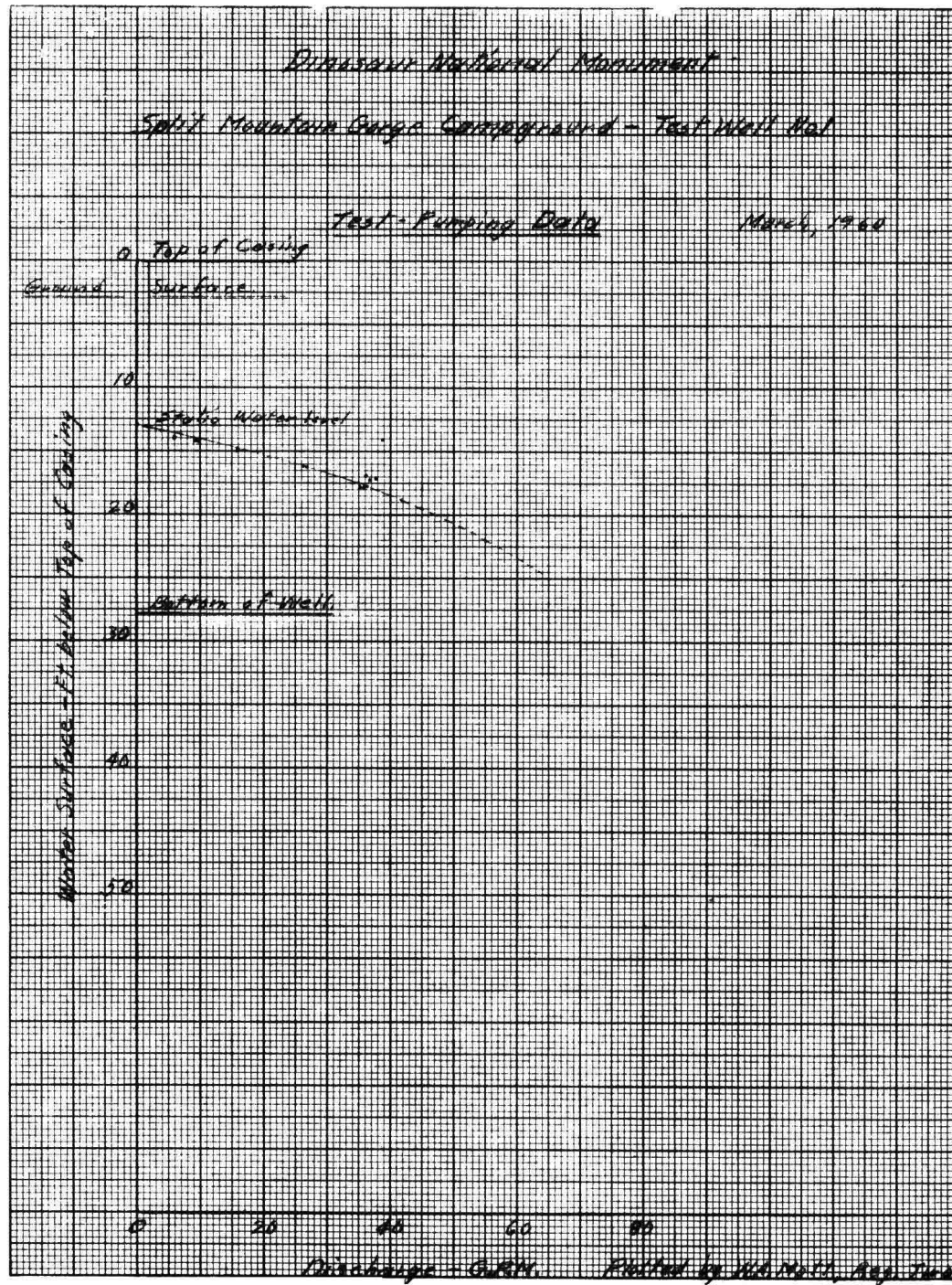
Temperature of Water _____ Odor _____

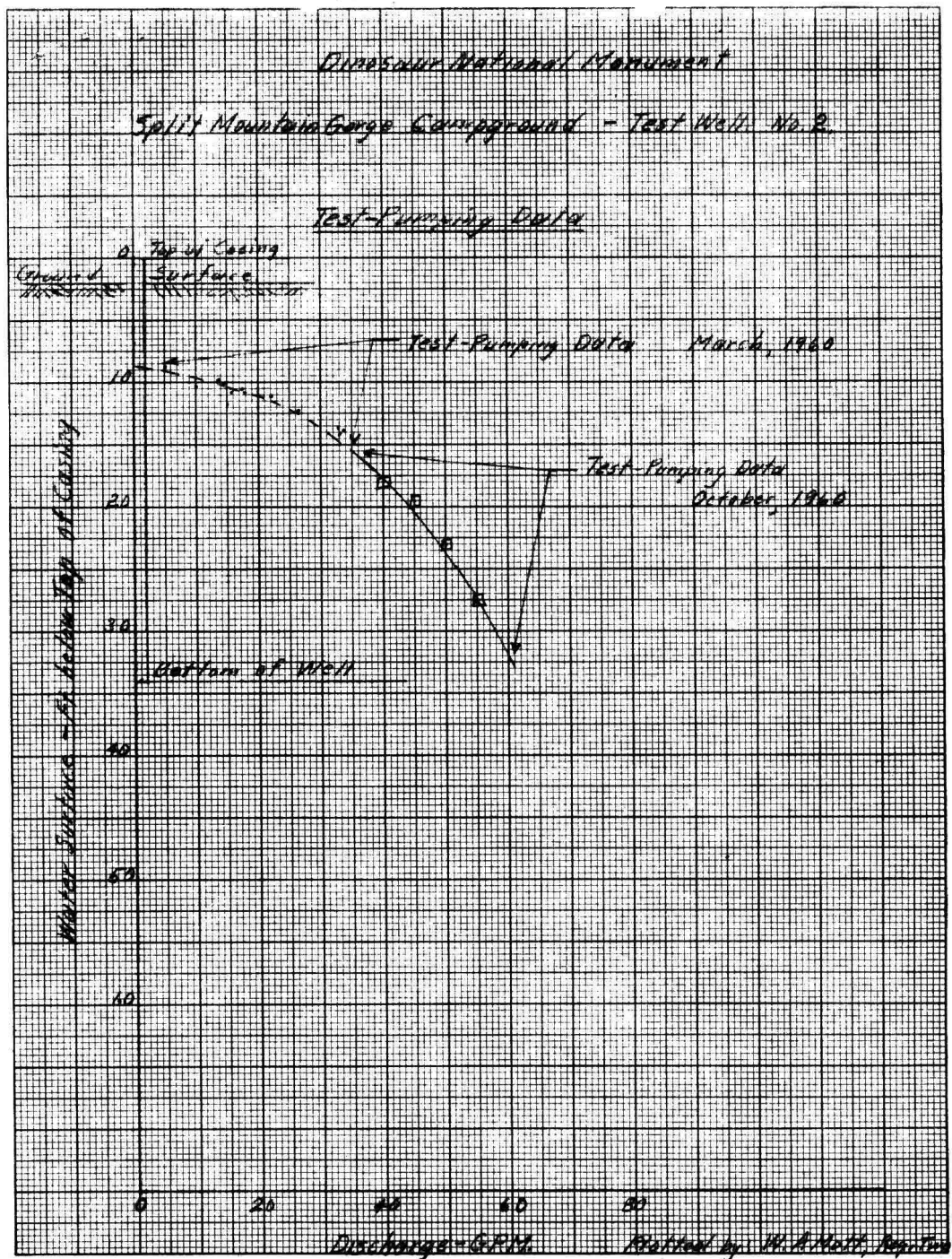
	Page No.	Method	Maxi. Limit P.P.M.	Concentration P.P.M.	REMARKS
Alkalinity		Tit.	120.		Analysis made with "Hach Chemical Kit" by W.A. Mott.
Carbon Dioxide		Tit.	.05		
Chloride (CaCl_2)		Tit.	250.		
Chlorine		Color			
Chromate (Chromium)		Color	.05		
Flouride		Color	1.5		
Total Hardness		Tit.	500 to 1000	104.	
Calcium Hardness		Tit.	15.		
Hydrogen Sulfide		(Test Paper)		.18	
Iron		Color	.3		
Manganese		Color			
Nitrate		Color		0.00	
Nitrite		Color		.03	
Ph		Color			
Phosphate, Ortho		Color		.52	
Phosphate, Meta (Poly)		Color			
Silica		Color			
Sulfate		Color	250.		
Turbidity (no filter)		Color			
Dissolved Oxygen		Color			

CHEMICAL ANALYSIS OF WATER

Park, Monument or Memorial Dinosaur National MonumentDate March 24, 1960Source of Water Test Well #2 - Split Mtn Gorge C.G. Sample No. 2Depth of Well (feet) 31 feet Taste GoodTemperature of Water _____ Odor None

	Page No.	Method	Maxi. Limit P.P.M.	Concentration P.P.M.	REMARKS
Alkalinity		Tit.	120.		Analysis made with "Hach Chemical Kit" by W.A. Matt.
Carbon Dioxide		Tit.	.05		
Chloride		Tit.	250.	30.	
Chlorine		Color		0.00	
Chromate (Chromium)		Color	.05		
Flouride		Color	1.5		
Total Hardness		Tit.	500. to 1000.	230.	
Calcium Hardness		Tit.	15.	1.65	
Hydrogen Sulfide		(Test Paper)			
Iron		Color	.3	.05	
Manganese		Color		.01	
Nitrate		Color		.00	
Nitrite		Color		.00	
Ph		Color		6.70	
Phosphate, Ortho		Color		.14	
Phosphate, Meta (Poly)		Color			
Silica		Color		11.2	
Sulfate		Color	250.	156.	
Turbidity (no filter)		Color		0.00	
Dissolved Oxygen		Color			





D5039

DINOSAUR NATIONAL MONUMENT
BOX 621, VERNAL, UTAH

April 11, 1960

Memorandum

To: Superintendent, Dinosaur National Monument
From: Assistant Park Naturalist, Dinosaur National Monument
Subject: Analysis of Drill Samples, Test Wells 1, 2, and 3

As requested by Hydraulic Engineer William Mott, analyses were made of the samples of drill cuttings produced from the three test wells, drilled by cable tool on March 21 to 30, 1960. In general, the first two were drilled into the Recent river deposits near the mouth of Split Mountain Gorge, and the third through a veneer of Recent river deposits into the Mancos shale.

Analyses of the bags of drill cuttings collected by Mr. Mott were made with the aid of a hand lens and millimeter scale to determine the approximate particle size in each sample. Wentworth's Particle Size Classification was used and the descriptive terms taken from it. The Assistant Naturalist and the Museum Geologist conferred to make the following analyses:

Test Well No. 1

1 to 15 feet	Very fine compact sand
15 " 20 "	Shale composed of very fine sand
20 " 25 "	Loose coarse sand, with high porosity and permeability

Fine sand was removed from the pump when testing the well for volume of water. The sand most pervious to water flow is the loose coarse sand at 20 to 25 feet.

Test Well No. 2

0 to 12 feet	Medium pebble mixed with coarse silt
10 to 15 "	Small pebble mixed with fine silt
15 to 20 "	Large pebble mixed with very fine sand
20 to 25 "	Loose small pebble mixed with medium sand
25 to 30 "	Loose fine and coarse sand, with high porosity and permeability
31 to 34 "	Granules mixed with fine silt

Mr. Mott's notation on the 25 to 30 feet sample bag is "Hit shale at thirty one feet". The cuttings below 31 feet are soft and did not preserve the shale character in the sample bag. The sand most pervious to water flow is between 20 and 30 feet. The water in both wells 1 & 2 apparently filters through these river deposits from the adjacent Green River at a constant and relatively high rate.

Test Well No. 3

1 to 10 feet	Fine clay
10 to 15 "	Fine clay mixed with fine sand
15 to 20 "	Coarse silt mixed with fine sand
20 to 25 "	Coarse silt with some coarse sand
25 to 32 "	Mostly fine-grained shale with some salt incrustation. Some coarse sand.
Bottom	Very fine sand

There are no layers in this hole that have high porosity or permeability, the most permeable being between 15 and 20 feet. At 25 feet the drill apparently penetrated the Mancos shale.

R. Alan Mebane
Assistant Park Naturalist

In duplicate

RAM:rk



UNITED STATES
DEPARTMENT OF THE INTERIOR
REGION TWO OFFICE

NATIONAL PARK SERVICE

Dinosaur National Monument
91 West Main, Vernal, Utah

IN REPLY REFER TO:

D-5039

NATIONAL PARK SERVICE
OMAHA, NEBRASKA

November 14, 1960

REG. DIRECTOR
ASST. REG. DIRECTOR
CHF. DIV. OF ADMIN.
CHF. DIV. OF OPERATIONS
CHF. DIV. OF INTER.
CHF. REC. RES. PLANNING
CHF. RANGER ACTIVITIES
FIELD SOLICITOR
ACTION TAKEN
FILE

Memorandum

To: Regional Director, Region Two

From: Superintendent, Dinosaur

Subject: Pump test results of Well No 2, Split Mountain Campground

Attached is a copy of Maintenance Supervisor Jeffery's memorandum to the Superintendent dated Nov. 1, which is believed to be self-explanatory.

I am sure that Hydraulic Engineer Mott will be interested in the contents of this report, a portion of which he received in a telephone conversation with Acting Superintendent Paul Webb while I was visiting in the Regional Office recently.

For your information also, we will submit a narrative report to be included in the completion report for contract No. 14-10-0232-436 with Uintah Basin Drilling Company dated July 12, 1960, as soon as possible.

Earl M. Semingsen
Earl M. Semingsen
Superintendent

In duplicate

C. C. MAILED TO:	
<i>X</i>	
BY	DATE



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DINOSAUR NATIONAL MONUMENT
91 WEST MAIN, VERNAL, UTAH

November 1, 1960

D5039

Memorandum

To: Superintendent, Dinosaur
From: Maintenance Supervisor, Dinosaur
Subject: Test Well #2, Split Mountain Campground

The Uintah Basin Drilling Company tested the well on October 31, 1960, with their 80 G.P.M., 20 H.P. submersible pump, using a 2" gate valve restriction on the line to control the volume.

Before pumping, the water level was 23' (Fig. #1) in the 33' casing. There was a very small deposit of sand, about 4-5 inches, in the bottom of the casing. This was bailed out.

The pump was attached to 20' 5" of 3" pipe and lowered to within eighteen inches of the bottom of the casing, leaving the screen intake (Fig. #3) 5' above the bottom of the well.

The pump was started at 1:05 p.m. and ran at 15-16 G.P.M. to flush out the sand and check the operation.

Following are some figures on the test run:

<u>Time</u>	<u>Discharge</u>	<u>Draw Down</u>	<u>Remarks</u>
1:20 pm	36 G.P.M.	16'-6"	Some sand coming in through the casing perforations
1:35 "	50 "	23'-0"	Some sand
1:45 "	40 "	18'-0"	5' recovery at this volume
1:55 "	55 "	27'-6"	The pump picked up air through screen intake (See Fig. #3)
2:00 "	50 "	22'-23"	Top bowls of pump above water
2:20 "	45 "	19'-6"	This seems to hold very well
2:35 "	45 "	19'-6"	Holding head
3:10 "	50 "	22'-23"	Top bowls of pump above water
3:40 "	45 "	19'-6"	Holding head and the pump bowls just under the water level
4:15 "	45 "	19'-6"	Holding fine to end of run

File with other well info.

plan

See the attached sketch. It seems that the (green) block is the static head at 45-47 G.P.M. that would supply a continuous flow.

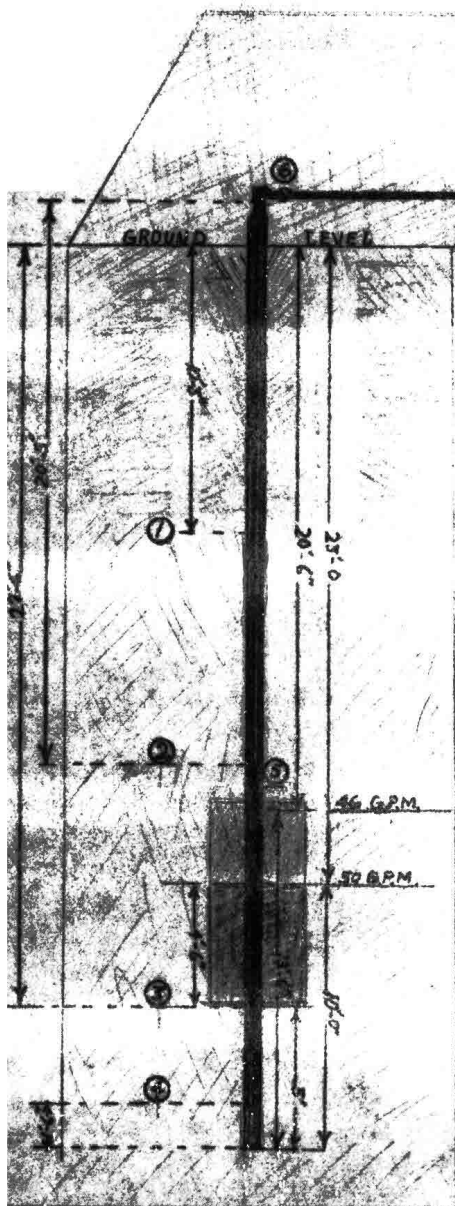
Fifty G.P.M. at the top of the orange block is about the ver maximum with the pump we used. Any G.P.M. over 50, drops the water 4"-5" very rapidly and the pump sucks air.

/s/ Robert D. Jeffery

Robert D. Jeffery
Maintenance Supervisor

Attached sketch

cc: Reg.Dir.Reg.Two
Attn: Wm. Mott



1. Water level before pumping
2. 20'-5\"
3. Pump screen intake
4. Bottom of pump setting
5. Top of perforations in 6\"
6. Controll valve on pump line

Robert D Jaffers
11-1-60

Form 10-174
(Rev. 1/56)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE9SP1
REPORT ~~10-174~~

COMPLETION REPORT OF CONSTRUCTION PROJECT

REGION Two	AREA Dinosaur National Monument	COUNTY Uintah-Utah Moffat-Colo.	STATE Utah and Colorado
PROJECT OR JOB TITLE Water Wells - Various Campgrounds		PCP NO. U-16	
LOCATION IN AREA Pat's Hole - Lodore - Split Mountain Gorge		BUILDING NO. None Assigned	
WORKING DRAWING NO. AND TITLE NM-DIN-2032 - Water Wells and Hand Pumps		ACCOUNT NO. 332.3	
APPROPRIATION TITLE AND SYMBOL 14X1035 Construction		DATE WORK STARTED July 1954	DATE WORK COMPLETED 3/5/58 <i>✓</i>
CONTRACT NO. None - Accomplished by Day Labor		ADDRESS None	
NAME OF CONTRACTOR None			

COST ANALYSIS

CONSTRUCTION ITEMS	QTY	UNIT COST IN PLACE	TOTAL COST IN PLACE
Wells Drilled: Three each with a depth of from twenty to fifty feet. Wells are located at Lodore, Pat's Hole and Split Mountain Gorge, as shown on attached map. An ample, useable supply of water was obtained. Pumps installed were of the manually-operated suction type.			
TOTAL			1,751.71

COST AGREES WITH FFO RECORDS
C. D. VAN KIRK, SUPERVISORY ACCT.
REGION TWO OFFICE FFO
DATE - APR 16 1958

SUMMARY OF EXPENDITURES

PERSONAL SERVICES 920.24	EQUIPMENT	MATERIALS AND SUPPLIES 714.51
OTHER 116.96		

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

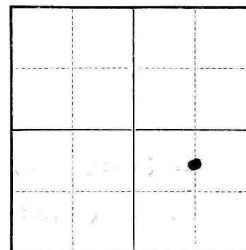
SUBMITTED BY (Name and title) <i>Jess H. Lombard</i> Jess H. Lombard, Superintendent	DATE 4/29/58
APPROVED BY (Name and title) Jess H. Lombard, Superintendent	DATE 4/29/58

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

9-255
(Jan. 1927)UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

RECORD OF WELL

Split Mtn. Gorge



Locate well on plat of section.

1. Location: State Utah County Uintah
 Nearest P. O. Jensen, Utah Direction from P. O. NE
 Distance from P. O. 9 miles; SE $\frac{1}{4}$ sec. 30, T. 4S, R. 23E
 If in city, give street and number _____
2. Owner: National Park Service Address Dinosaur National Monument, Vernal, Ut.
 Driller: Birchell Address Roosevelt, Utah
3. Situation: Is well on upland, in valley, or on hillside? valley
4. Elevation of top of well: 4820 ft. above the level of sea level
(Above or below) (Sea, depot, lake, or stream)
5. Type of well: drilled; kind of drilling rig used rotary
(Dug, driven, bored, or drilled) (Solid tool, jetting, rotary, etc.)
6. Depth of well: 50 ft.; year in which well was finished 1956
 Does well enter rock? yes; if so, at what depth? 18 ft.; kind of rock limestone
7. Diameter: At top 8 inches; at bottom 8 inches.
8. Principal water bed: gravel
(Gravel, sand, clay, or rock. If rock, state kind)
 Depth to principal water bed 40 ft.; thickness of bed 10 ft.
 If other water supplies were found, give depth to each _____
9. Casings: Kind perforated galv. pipe; size 8; length 50 ft.; between depths of 0 and 50 ft.
 Kind w/sandpoint; size _____; length _____ ft.; between depths of _____ and _____ ft.
 Kind _____; size _____; length _____ ft.; between depths of _____ and _____ ft.
- Packers (if any): Depth at which packers were used none; kind _____
- Screen or Strainer: Was well finished with screen? no; kind of screen _____
 length of screen _____ ft.; diameter _____ inches; size of openings _____
10. Head: Does well at present overflow without pumping? no; did it overflow when new? no
 if flowing, give pressure _____ lb. per sq. inch; or height water will rise in a pipe _____ ft. above surface;
 original pressure or head _____; if not flowing, give water level in well _____ ft. below surface.
11. Pump: Is the well pumped? yes; kind of pump hand
 size or capacity of pump 20 gal. per min; kind of power manual
12. Yield: Natural flow at present (if any) _____ gallons per minute; original flow _____ gallons per minute;
 well has been pumped at 20 gal. per min gallons per minute continuously for 4 hours;
 quantity of water ordinarily obtained from well 100 gallons per day. (average)
13. Use: For what purpose is the water used? domestic
14. Quality of the water: med. soft; is there an analysis? yes
(Hard or soft, fresh or salty, etc.)
15. Cost of well, not including pump: \$150.00 plus \$150.00 Temperature of water 50° F.
 Name of person filling blank Luddy M. Cackrell & John B. Carmack
 Date July 2, 1958 Address Dinosaur National Monument, Vernal, Utah

On the back of this sheet give the record of the beds through which the well passes and any other facts not given above.

5-9642

LOG OF WELL

[illegible]

Other Supporting Information



IN REPLY REFER TO:

United States Department of the Interior
NATIONAL PARK SERVICE
DENVER SERVICE CENTER
755 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

MR. Don Barrett

D5039 (DSC-TCE)

JAN 23 1986

Mr. Kent L. Jones, P.E.
Directing Distribution Engineer
State of Utah Natural Resources
Water Rights
1636 West North Temple Suite 220
Salt Lake City, Utah 84116-3156

Dear Mr. Jones:

Reference: Dinosaur National Monument, Contract No. CX-1200-5-9006, Split
Mountain Gorge Campground, Drill a Test Water Well, RFP-DINO-141R

Subject: Application to Appropriate Water

Reference is made to your letter dated January 14 with regard to the request by the National Park Service to drill a test water well located at a point within SE4 SE4 NE4, Section 30, T4S, R24E, SLB&M.

Enclosed is a copy of the letter and the application to appropriate water directed to the Division of Water Rights in Vernal, Utah. The request was originated by the Superintendent, Dinosaur National Monument on December 17, 1985. Also enclosed is a copy each of the drillers well log; results of the pump test; and the water quality analysis including Gross Alpha, Gross Beta, Radium-226 and Radium-228.

As denoted in the drillers well log, the well was constructed with a 10-3/4-inch diameter casing to a depth measured from ground surface of 37.75 feet driven into bedrock. A 6-inch diameter casing installed within the 10-3/4-inch diameter casing was driven further into bedrock to a depth measured from ground surface of 50.00 feet. The annulus space between the 6-inch and 10-3/4-inch diameter casings, and the annulus space between the 10-3/4 inch diameter casing and the bore hole was sealed with cement grout. The purpose of this seal was to eliminate the upper layers of water from penetrating the water bearing formations at depths between 50 feet and 245 feet measured from ground surface, which is an open bore hole.

As denoted in the results of the water quality analysis, it appears that the water conforms to the limits of the National Interim Primary Drinking Water Standards as established by the Environmental Protection Agency. Water use at the campground is transient.

Note that the well was constructed to replace the existing well, Application No. 26635, which will remain as a back-up. Total water consumption at the campground will not change.

Following completion of the drilling and testing of the well on December 3, 1985, a watertight cap was installed. Presently, the National Park Service is not utilizing water from this well.

Sincerely,

for *Thomas Dall*
John W. Bright, FASLA
Assistant Manager
Central Team

Enclosure

cc:

Mr. Allen Nielson, w/encl.
Division of Water Rights
State and County Building
152 East 100 North
Vernal, Utah 84078

Mr. Gayle J. Smith, w/encl.
Executive Secretary
State of Utah

Department of Health
560 South, 300 East
Salt Lake City, Utah 84111

Reg. Dir., Rocky Mountain Region, w/encl.

Supt., Dinosaur NM, w/encl.

Mr. Don Barrett, w/encl.
National Park Service
Water Resources Division
301 S. Howes Street Room 343
Fort Collins, Colorado 80521



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Dinosaur National Monument

P.O. Box 210

Dinosaur, Colorado 81610



DENVER
SERVICE
CENTER

D52

December 17, 1985

Division of Water Rights
State and County Building
Attn. Mr. Allen Nielsen
152 East 100 North
Vernal, UT 84078

Dear Mr. Nielsen,

Reference: Dinosaur National Monument, Contract No. CX-1200-5-9006,
Split Mountain Gorge Campground, Drill a Test Water Well, RFP-DINO-
141R

Subject: Application to Appropriate Water

Enclosed is the application to appropriate water and a purchase order of \$15.00 for the application fee. The well drillers log and the results of the pump test will be submitted to your office upon availability.

If there are any questions, please notify Mr. Cal Myers, Facility Manager at 303-374-2216.

Sincerely,

Joe L. Kennedy
Superintendent

cc: Regional Director, RMR

attn: Ron Hernandez,

Assistant Manager, RMR

APPLICATION TO APPROPRIATE WATER
STATE OF UTAH

NOTE:—The information given in the following blanks should be free from explanatory matter, but when necessary, a complete supplementary statement should be made on the following page under the heading "Explanatory."

For the purpose of acquiring the right to use a portion of the unappropriated water of the State of Utah, for uses indicated by (X) in the proper box or boxes, application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of the Laws of Utah.

1. Irrigation ☐ Domestic ☒ Stockwatering ☐ Municipal ☐ Power ☐ Mining ☐ Other Uses ☐
2. The name of the applicant is Dinosaur National Monument
3. The Post Office address of the applicant is P.O. Box 210, Dinosaur, CO 81610
4. The quantity of water to be appropriated 0.015 second-feet and/or --- acre-feet
5. The water is to be used for domestic from April 1 to October 31
(Major Purpose) (Month) (Day) (Month) (Day)
- other use period --- from --- to ---
(Minor Purpose) (Month) (Day) (Month) (Day)
- and stored each year (if stored) from --- to ---
(Month) (Day) (Month) (Day)
6. The drainage area to which the direct source of supply belongs is _____
(Leave Blank)
7. The direct source of supply is* Underground water (Well)
(Name of stream or other source)

which is tributary to _____, tributary to _____
*Note.—Where water is to be diverted from a well, a tunnel, or drain, the source should be designated as "Underground Water" in the first space and the remaining spaces should be left blank. If the source is a stream, a spring, a spring area, or a drain, so indicate in the first space, giving its name, if named, and in the remaining spaces, designate the stream channels to which it is tributary, even though the water may sink, evaporate, or be diverted before reaching said channels. If water from a spring flows in a natural surface channel before being diverted, the direct source should be designated as a stream and not a spring.

8. The point of diversion from the source is in Uintah County, situated at a point*
N 3240 Feet and E 4700 Feet from the SW Cor. Sec 30, T4S, R24E, S1B & M

*Note.—The point of diversion must be located definitely by course and distance or by giving the distances north or south, and east or west with reference to a United States land survey corner or United States mineral monument, if within a distance of six miles of either, or if at a greater distance, to some prominent and permanent natural object. No application will be received for filing in which the point of diversion is not defined definitely.

9. The diverting and carrying works will consist of 6 inch case well to a depth of approx
50 feet and uncased to a depth of 245 feet
10. If water is to be stored, give capacity of reservoir ~~xx xxxxxx~~ 10,000 gal. tank ~~xxxxxx~~ ---
area inundated in acres --- legal subdivision of area inundated ---

11. If application is for irrigation purposes, the legal subdivisions of the area irrigated are as follows:
---/a---

Total _____ Acres

12. Is the land owned by the applicant? Yes xx No --- If "No," explain on page 2.
13. Is this water to be used supplementally with other water rights? Yes --- No xx
If "yes," identify other water rights on page 2.
14. If application is for power purposes, describe type of plant, size and rated capacity. ---
15. If application is for mining, the water will be used in --- Mining District at
the _____ mine, where the following ores are mined ---
16. If application is for stockwatering purposes, number and kind of stock watered ---
17. If application is for domestic purposes, number of persons --- or families 32
18. If application is for municipal purposes, name of municipality ---
19. If application is for other uses, include general description of proposed uses ---

20. Give place of use by legal subdivision of the United States Land Survey for all uses described in paragraphs 14 to 19, incl. SENE and NESE, Sec 30, T4S, R24E, S1B & M

21. The use of water as set forth in this application will consume 0.015 second-feet and/or acre-feet of water and --- second feet and/ or acre feet will be returned to the natural stream or source at a point described as follows: ---

1985

Page No. 2

EXPLANATORY

The following additional facts are set forth in order to define more clearly the full purpose of the proposed application:

No additional water is being diverted. This well is being constructed in place of the existing well, Application No. 26635 approved on August 10, 1955, which will remain as a back-up. Total water consumption will not change.

(Use page 4 if additional explanatory is needed.)

The quantity of water sought to be appropriated is limited to that which can be beneficially used for the purpose herein described

Signature of Applicant* Superintendent

*If applicant is a corporation or other organization, signature must be the name of such corporation or organization by its proper officer, or in the name of the partnership by one of the partners, and the names of the other partners shall be listed. If a corporation or partnership, the affidavit below need not be filled in. If there is more than one applicant, a power of attorney, authorizing one to act for all, should accompany the Application.

DECLARATION OF CITIZENSHIP

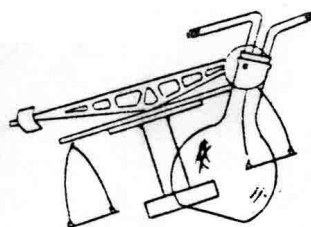
STATE OF UTAH, }
County of..... } ss

On the day of 19....., personally appeared before me, a notary public for the State of Utah, the above applicant who, on oath, declared that he is a citizen of the United States, or has declared his intention to become such a citizen.

My commission expires:

(SEAL)

Notary Public



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
 SALT LAKE CITY, UTAH 84115

PHONE 466-8761

DATE: 12/17/85

CERTIFICATE OF ANALYSIS

*NATL. PARK SERVICE
 BSCD-TMW-CONSTRUCT.
 P.O. BOX 25267
 DENVER, CO 80225

85-002478

SAMPLE: SPLIT MT. GORGE C.V. CULINARY WATER SAMPLE COLLECTED 12-1-85
 AT 2:45 P.M. BY DON BARRETT RECEIVED 12-3-85 FOR ANALYSIS
 UNDER P.O. #PX2000&D001.

RESULTS

=====

Alkalinity, CaCO ₃ mg/l SM403	166
Ammonia, NH ₃ -N mg/l SM417F	<.01
Arsenic, As mg/l SM304	<.001
Barium, Ba mg/l SM303D	.03
Bicarbonate, HCO ₃ mg/l SM403	203.00
Boron as B mg/l SM 404A	.03
Cadmium, Cd mg/l SM304	<.001
Calcium, Ca mg/l SM303A	66.40
Carbon Dioxide as CO ₂ mg/l	<.01
Carbonate as CO ₃ mg/l SM403	<.01
Chloride, Cl mg/l SM407A	20.6
Chromium as Cr Hex. mg/l SM312	<.005
Chromium, Cr mg/l SM303A	<.001

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or, extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
 40 WEST LOUISE AVENUE
 SALT LAKE CITY, UTAH 84115
 PHONE 466-8761

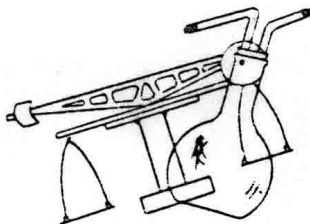
PAGE: 2

CERTIFICATE OF ANALYSIS
 83-002478

RESULTS

Conductivity umhos/cm SM205	566
Copper, Cu mg/l SM303A	.02
Fluoride, F mg/l SM418B	.53
Hardness, CaCO ₃ mg/l SM314B	292
Hydroxide as OH mg/l SM 403	<.01
Iron, Fe (Dis) mg/l SM303A	.20
Iron, Fe (Tot) mg/l SM303A	.04
Lead, Pb mg/l SM303A	<.001
Magnesium, Mg mg/l SM303A	30.20
Manganese, Mn mg/l SM303A	.08
Mercury, Hg mg/l SM320A	<.0002
Nickel, Ni mg/l SM303A	.02
Nitrate, NO ₃ -N mg/l SM418C	.18
Nitrite as NO ₂ -N mg/l SM419	<.01
Phosphate PO ₄ -P Ortho mg/l	<.01
Potassium, K mg/l SM303A	5.12
Selenium, Se mg/l SM304	<.001

A. reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or, extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

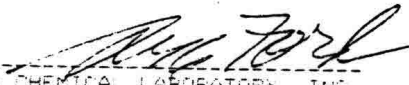
PAGE: 3

CERTIFICATE OF ANALYSIS
85-002478

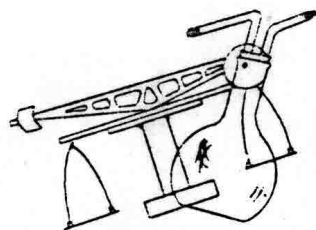
RESULTS

=====

Silica SiO ₂ (D18) mg/l SM415A	10.39
Silver, Ag mg/l SM303A	<.001
Sodium, Na mg/l SM303A	11.10
Sulfate, SO ₄ mg/l SM426D	116
Surfactants ppm SM512B	<.05
Total Dis. Solids mg/l SM203B	355
Turbidity NTU	1.57
Zinc, Zn mg/l SM303A	.091
pH Units SM413	7.80


FORD CHEMICAL LABORATORY, INC.

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.



Ford Chemical

LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 465-8761

DATE: 12/17/85

CERTIFICATE OF ANALYSIS

85-002478-01

FORD CHEMICAL LABORATORIES

BALANCE SHEET FOR SAMPLE: (1) RESULTS

CATIONS	me/l	meq/l
Calcium, Ca me/l SM303A	66.400	3.313
Magnesium, Mg me/l SM303A	30.200	2.484
Iron, Fe (Dis) me/l SM303A	.200	.007
Sodium, Na me/l SM303A	11.100	.483
Potassium, K me/l SM303A	5.120	.131
ANIONS	me/l	meq/l
Carbonate as CO ₃ me/l SM403	.000	.000
Bicarbonate, HCO ₃ me/l SM403	203.000	3.329
Sulfate, SO ₄ me/l SM426D	116.000	2.415
Chloride, Cl me/l SM407A	20.600	.581
Nitrate, NO ₃ -N me/l SM418C	.180	.003
Hydroxide as OH me/l SM 403	.000	.000

BALANCE INFORMATION

CATIONS: 6.413
ANIONS: 6.328
TOTAL: 12.746
DIFFERENCE: .080
SIGMA: .007

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 01/13/86

CERTIFICATE OF ANALYSIS

*NATL. PARK SERVICES
BSCD-TMW-CONSTRUCT.
P.O. BOX 25287
DENVER, CO 80225

86-002482

SAMPLE: SPLIT MT. GORGE C.G. CULINARY WATER SAMPLE COLLECTED 12-1-85
AT 2:45 P.M. BY DON BARRETT RECEIVED 12-3-85 FOR ANALYSIS
UNDER P.O. #PX20006D001.

RESULTS

=====

2, 4, D us/l	<.1
2,4,5 -TP (Silvex) us/l	<.1
Endrin us/l	<.1
Gross Alpha pCi/l	<2.0
Gross Beta pCi/l	<3.0
Lindane us/l	<.1
Methoxychlor us/l	<.1
Radium 226 pCi/l	<.6
Radium 228 pCi/l	<1.0
Toxaphene us/l	<.1


FORD CHEMICAL LABORATORY, INC.

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or, extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.



Controls for Environmental Pollution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502

PAGE 2

REPORT OF ANALYSIS

IN STATE LABORATORY
OUT OF STATE 800/545-2188

LAB # 85-12-26

SAMPLE IDENTIFICATION

#2482

DATE COLLECTED

not specified

TYPE OF ANALYSIS

Gross Alpha
Gross Beta
Radium-226
Radium-228

PCl/liter

<2
<3
<0.6
<1



IN REPLY REFER TO:

United States Department of the Interior
NATIONAL PARK SERVICE
WATER RESOURCES DIVISION
301 SOUTH HOWES ST., ROOM 343
FT. COLLINS, COLORADO 80521

December 24, 1985

L54 (479)
DINO/DSC

Memorandum

To: Jack Wendelton, P.E., Chief Civil Eng. Section, Br. of Design, TWM
Through: Leida C, Gutierrez, Project Supervisor
Contract No. CX-1200-5-9006
From: Donald C. Barrett, Project Inspector, Hydrologist WRD
Subject: Pump Test - Split Mountain Campground Test Well, DINO

The subject well test was completed December 1, 1985 in accordance with the provisions of the contract. The pumping time on Dec.1 was 9.5 hours. Maximum discharge (Q) was 21 gpm. On the following day the well was pumped for 1.5 hours at near pump capacity (Q=40 to 66 gpm) to clean out the suspended solids in the well. One hour of this time was charged to development.

On December 1, 1985, the contractor set a 5 HP Grundfos SP8-15 submersible pump in the test well with the intake at 204 feet below land surface. The pump was attached to a 2" galvanized iron drop pipe which was equipped with a 2" turbine drive water meter and gate valve at the surface. Water levels in the well were measured through a 3/4" pvc line attached to the drop pipe and extending to the top of the pump. The measurements were made with an electric probe. Discharge was measured directly in a 6-gallon bucket and by the water meter.

Before the test began, a reading on the static water level was made. Using a hand level, I also measured the elevation of the well head measure point (MP) above the elevation of the adjacent Green River. The river elevation was about 15.75' below the MP vs 15.40' for the static water level. This indicates that the well is not artesian as had been originally anticipated but rather is in hydrologic continuity with the regional water table and/or bank storage from the river.

A two stage pump test was run. The first stage with Q=15 gpm started at 1224 hr and lasted about an hour. The pumping water level stabilizing 15 minutes after the Q was stabilized, (20 minutes after the pump started). The second stage was run at approximately Q=20 gpm for the remainder of the test period, 8.5 hours. The water level again stabilized about 15 minutes after the Q was changed. The pump was shut off at 2205 hr.

Minor variations in water level which occurred during the last stage of the pump test may be attributed to equipment fluctuations. They do not appear to represent fundamental hydrologic changes.

During the 20 to 21 gpm discharge stage of the test, the water level stabilized at about 25' below land surface datum (BLSD) with a maximum drawdown of 9.85'. In the recovery phase the water level returned to 97.76% of the original static level 1/2 hour after the pump was shut off.

Water temperature was measured at 59 to 60 degrees F. (16 degrees C) during second stage of the pump test. The pH was also measured at 8.0. A field test for dissolved iron using a Hach DR-100 kit showed less than 0.1 total iron.

On December 2 water levels were not recorded while the well was pumped at 40 to 66 gpm, the maximum pump capacity, because the discharge was too erratic. The purpose of this pumping was to purge the well of fine sand and silt. The water was reported to be clear after 1.5 hours of pumping. A hydrogen sulfide odor which was noted during the drilling of the well and during the first and second stage pumping was still present when the well was pumped at the higher discharge rates of 40-66 gpm.

Enclosed with this report are two time-drawdown graphs showing water level performance plotted on semi-log paper. These response graphs show the results of the pump test and the recovery phase.

The State of Utah Public Drinking Water Regulations require a six hour, minimum, pump test after the water level has stabilized. In this test, the second stage at 20 to 21 gpm lasted 8.5 hours. The drawdown was essentially stable for the last 8.25 hours of the test thus satisfying the state requirements for a public drinking water well. The allowable safe yield is ~~two~~ thirds the maximum Q after the water level stabilizes or in this case about 14 gpm.

The actual "safe" yield is probably more in the neighborhood of 45 gpm. This is an estimate based on measured discharge during the drilling of the well when the discharge of the well was being used to remove cuttings by air lift. Air pumping is less accurate than conventional pumping so this estimate may be off by + or -10 gallons/min.



Donald C. Barrett

Attachments (2)

L-54

APR 26 1961

Memorandum

To: Chief, Western Office, Division of Design and Construction
From: Acting Regional Chief of Operations
Subject: Test-pumping Data, Test Wells No. 1 and No. 2,
Split Mountain Gorge Campground, Dinosaur National Monument

During March 1960 the subject test wells were drilled and pump-tested, using a submersible pump which was operated at its full capacity and only delivered a portion of the available water supply. Subsequently in November 1960 we had Test Well No. 2 pump-tested again, using equipment of larger capacity that had been employed on the deep well at the Quarry Headquarters area. Test Well No. 1 is located near the bluff line and by the campfire circle; Test Well No. 2 is near the river bank and downstream of Supply Well No. 2. Attached are copies of all the test-pumping data on both of the subject wells.

Also attached is copy of geological logs of subject wells, and Test Well No. 3 (abandoned) which was located on the right bank of the Green River about 1145 feet upstream from the River Well at Quarry Headquarters area. These geological logs were prepared by R. Alan Mebane, Assistant Park Naturalist, Dinosaur National Monument.

Both of the subject wells seem to derive their supply chiefly from the Green River through a river deposit of sand and gravels.

We recommend the development of Test Well No. 1 inasmuch as it would be less conspicuous from the surrounding areas and it has the higher specific yield of the two wells.

We are placing this material in a temporary folder until the necessary water filings/and we can set up a docket file.
are effected

(sgd) John F. Aiton

John F. Aiton
Acting Regional Chief of Operations

In duplicate
Attachments (in dup.)
Copy to: The Director, w/attachments (in dup.)
Supt., Dinosaur National Monument, w/attachments (in set)

WAMott/etb

RC's Dino apr 18, 1961 - Lemington
" Nov. 14, 1960 - "
" Nov. 4, 1960 - Paul Webb

Mott 4/25/61
Mebane 4/25
John 4/26
me
aiton 4/26

Reg. Two file attachments in Temporary folder - Test well data
L-54 Dinosaur



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

IN REPLY REFER TO: **Apr 21 2 50 PM '61** Dinosaur National Monument
91 West Main, Vernal, Utah

April 18, 1961

Memorandum

To: Regional Director, Region Two
From: Superintendent, Dinosaur
Subject: Split Mountain Gorge Campground - Water, sewer line PCP Nos.
U-20 U-57

It is requested that Mr. Mott furnish WODC information as to which of the two test wells in the south end of the Split Mountain Gorge Campground is recommended for development. Also, the drillers report for both wells are needed by WODC. This request was made by Neil Grunigan from WODC, who visited our office on April 17.

Earl M. Semingsen
Earl M. Semingsen
Superintendent

In duplicate

Reg. Director
Asst. Reg. Director
Chf. Div. of Admin.
Chf. Div. of Operations
Chf. Div. of Interp.
Chf. Rec. Res. Planning
Chf. Ranger Activities
Field Solicitor
<i>Prognosis</i>
<i>X Mott OK 4/25</i>
<i>WODC - by the WODC Supt</i>
<i>File</i>

C.C. MAILED TO	
.....	
BY.....	DATE.....



UNITED STATES
DEPARTMENT OF THE INTERIOR

RECEIVED
REGION TWO OFFICE
NATIONAL PARK SERVICE
Dinosaur National Monument
91 West Main, Vernal, Utah

IN REPLY REFER TO:

D 5039 *Dino*

1960 NOV 7 AM 10:40
November 4, 1960

NATIONAL PARK SERVICE
OMAHA, NEBRASKA

REG. DIRECTOR	
ASST. REG. DIRECTOR	
CHF. DIV. OF ADMIN.	
CHF. DIV. OF OPERATIONS	
CHF. DIV. OF INTER.	
CHF. REC. RES. PLANNING	
CHF. RANGER ACTIVITIES	
FIELD SOLICITOR	
X <i>Mott</i> <i>W.A. Mott</i>	
ACTION TAKEN <i>H. L. Webb</i>	
FILE <i>WDC - as to Wess & Supt.</i>	

Memorandum

To: Regional Director, Region
Attention: William A. Mott

From: Acting Superintendent, Dinosaur

Subject: Water Test Well No. 2, Split Mountain Campground

Attached is a copy of data assembled during pump testing of well No. 2 at the Split Mountain Campground as compiled by Maintenance Supervisor Robert D. Jeffery.

Paul L. Webb
Paul L. Webb
Acting Superintendent

Attachment

p.m.

DINOSAUR NATIONAL MONUMENT
91 WEST MAIN, VERNAL, UTAH

November 1, 1960

D5039

Memorandum

To: Superintendent, Dinosaur
From: Maintenance Supervisor, Dinosaur
Subject: Test Well #2, Split Mountain Campground

The Uintah Basin Drilling Company tested the well on October 31, 1960, with their 80 G.P.M., 20 H.P. submersible pump, using a 2" gate valve restriction on the line to control the volume.

Before pumping, the water level was ^{16'-3"}23' (Fig. #1) in the 33' casing. There was a very small deposit of sand, about 4-5 inches, in the bottom of the casing. This was bailed out.

The pump was attached to 20' 5" of 3" pipe and lowered to within eighteen inches of the bottom of the casing, leaving the screen intake (Fig. #3) 5' above the bottom of the well.

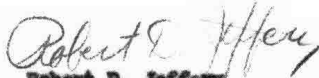
The pump was started at 1:05 p.m. and run at 15-16 G.P.M. to flush out the sand and check the operation.

Following are some figures on the test run:

<u>Time</u>	<u>Discharge</u>	<u>Draw Down</u>	<u>Remarks</u>
1:20 pm	36 G.P.M.	16'-6"	Some sand coming in through the casing perforations
1:35 "	50 "	23'-0"	Some sand
1:45 "	40 "	18'-0"	5' recovery at this volume
1:55 "	55 "	27'-6"	The pump picked up air through screen intake (See Fig.#3)
2:00 "	50 "	22'-23"	Top bowls of pump above water
2:20 "	45 "	19'-6"	This seems to hold very well
2:35 "	45 "	19'-6"	Holding head
3:10 "	50 "	22'-23"	Top bowls of pump above water
3:40 "	45 "	19'-6"	Holding head and the pump bowls just under the water level
4:15 "	45 "	19'-6"	Holding fine to end of run

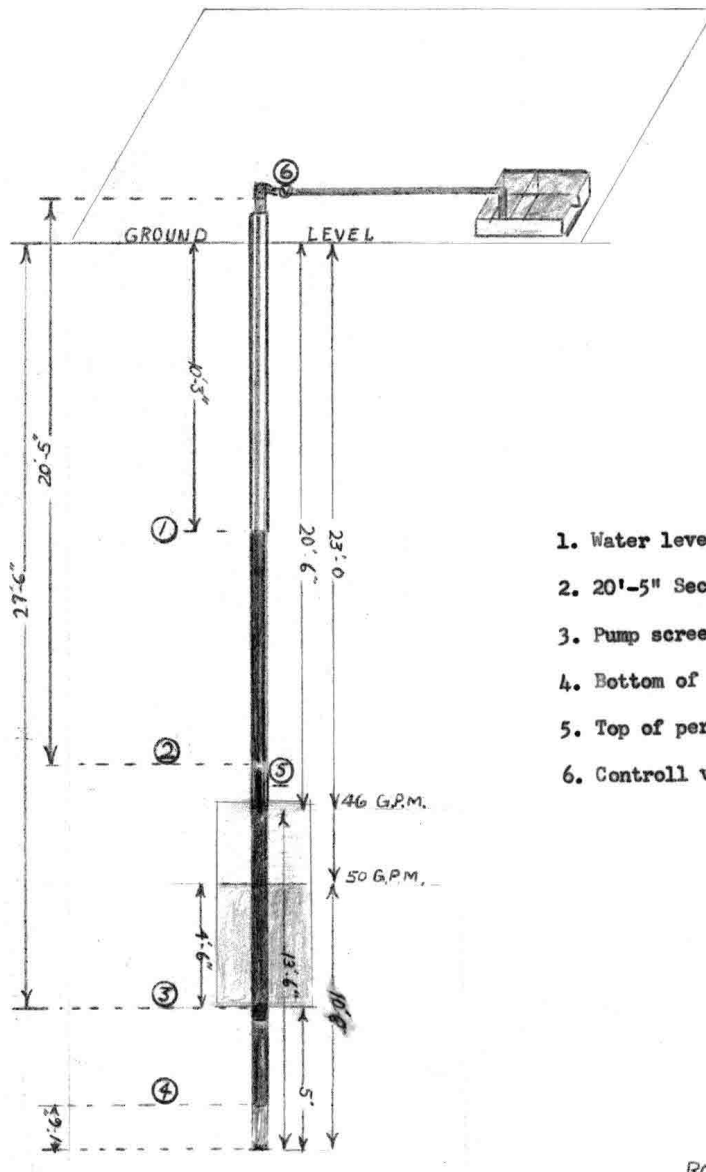
See the attached sketch. It seems that the (green) block is the static head at 45-47 G.P.M. that would supply a continuous flow.

Fifty G.P.M. at the top of the orange block is about the very maximum with the pump we used. Any G.P.M. over 50, drops the water 4'-5' very rapidly and the pump sucks air.


Robert D. Jeffery
Maintenance Supervisor

Attached sketch

cc: Regional Director, Region Two
Wm. Mott, Region Two Office



1. Water level before pumping
2. 20'-5" Section of 3" pipe
3. Pump screen intake
4. Bottom of pump setting
5. Top of perforations in 6" casing
6. Controll valve on pump line

Robert D Jaffar
11-1-60

Superintendent, Dinosaur NM

April 29, 1960

Hydraulic Engineer, Region .Two

Drilling Shallow Test Wells, Split Mountain Gorge Campground,
and Quarry Area, Dinosaur NM

The data as requested in your office memorandum of April 26 is as follows:

Of the three shallow test wells drilled in March of this year by Mr. Campbell, well driller, the one drilled in the Quarry Area should be abandoned because of its poor quality, having a very high hardness content. The two test wells drilled in Split Mountain Gorge Campground are of suitable quality and may be developed.

The location of the three test wells are as follows:

Test Well No. 1 (Split Mountain Gorge Campground, near toe of bluff line) bears $N58^{\circ}06'28''W$, 1272.50 feet from S.E. Corner of Sec. 30 T. 4 S, R 24 E, S.L.M.

Test Well No. 2 (Split Mountain Gorge Campground, near bank of Green River) bears $N50^{\circ}45'10''W$, 1152.89 feet from S.E. Corner of Sec. 30 T. 4 S., R. 24 E., S.L.M.

Test Well MAX (Approximately 1200 feet upstream from Quarry Supply Well) bears $S50^{\circ}54'20''E$ 2143.39 feet from N.W. Corner T. 4 S., R. 23 E., S.L.M.

Specification for drilling to deepen Test Well No. 2 in Spring Gulch is in draft form and should soon be completed and mailed to your office for use in soliciting bids on the work.

When you issue the invitation for bids on the drilling at Test Well No. 2, you might solicit a bid from the Layne-Western Company, 8301 East Iliff, Denver, Colorado. Mr. Paul Haswell is the manager. His telephone number is - Office - Plaza 5 - 1281; Residence - Skyline 6-9214.

W. A. Mott



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

May 21, 1959

Memorandum

To: Regional Director, Region Two
From: Chief, Water Resources Section
Subject: Water Right Applications 26523 and 26635, Split Mountain
Gorge Campground, Docket 4, Dinosaur

We are filing one copy of the memorandum of May 11 to you from Mr. Dick, and Mr. Mott's memorandum of May 15, in Docket 4, above the table of contents in order to show it is a subsequent addition.

I have not looked up Drawing 3135, but Master Plan Drawing 3127, and the left half of 3108-A in the docket seem to be in surprisingly close agreement. I believe that the SE corner of Section 30 has been incorrectly located, and caused some error in the locations of the wells as described in the applications.

Whether my conclusions are correct or not, Mr. Dick indicates that the two water rights are in excellent standing. Such minor errors in ties do not invalidate the rights, and can be corrected.

I suggest that an attempt be made to recover part of the metes and bounds traverse of the river, and tie the two wells to that, when the next survey is made. Meantime, accept the rights as they stand.

From Mr. Dick's memorandum, I gather that a third well is not yet contemplated very definitely, and Mr. Mott indicates that it will not be given further consideration until after the Geological Survey report is received. I recommend that no application for any third well be filed with the State until the plans for development are approved, and the water right features are cleared with this office.

A. van V. Dunn
A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WODC (2)

IN REPLY REFER TO:
L54-OBL

REG. DIRECTOR
ASST. REG. DIRECTOR
CHIEF, DIV. OF ADMIN.
CHIEF, DIV. OF OPERATIONS
CHIEF, DIV. OF INTERP.
CHIEF, REG. RES. PLANNING
CHIEF, RANGER ACTIVITIES
FIELD SOLICITOR
<i>Dick Mott</i>
ACTION TAKEN <i>File</i>
FILE <i>6/26/59</i>

L 54

MAY 15 1959

RECEIVED

Mr. Dicks 4

Memorandum

To: Director

From: Hydraulic Engineer, Region Two

Subject: Water Right Applications 26523 and 26635, Split Mountain Gorge Campground, Dinosaur National Monument

We are attaching two copies of Mr. Dick's memorandum of May 11, 1959 clarifying some questions about the subject water supplies. Drawing No. NM-DIN-3127, Split Mountain Gorge Campground, part of the Master Plan, dated Nov. 1957, shows the location of the wells (without ties), the campground facilities, an area traverse and topography on 2-foot contours. The drawing is related to an arbitrary grid that we are unable to correlate to land surveys.

We expect a preliminary report by June 1 on the water investigation at Dinosaur conducted last October by Mr. Smith, Geological Survey Geologist, according to a memorandum just received from Mr. Waite, U. S. Geological Survey, Salt Lake City, Utah.

Signed

William A. Mott
Hydraulic Engineer

In duplicate

Attachment

Copy to: Chief, WODE (2)

WESTERN OFFICE	
DESIGN & CONSTRUCTION	
MAY 21 1959 A.M.	
CHIEF	
ADMIN. ASSIST.	
PERSONNEL	
PLANS & PROG.	
SAFETY	
ARCHITECT	
ENGINEER	
LAND. ARCH.	
ACTION TAKEN - DATE	
5/20/59	
4. Mott	



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Dinosaur National Monument
Box 621 - Vernal, Utah

May 11, 1959

IN REPLY REFER TO:

L54-OBL

REG. DIRECTOR	
ASST. REG. DIRECTOR	
CHIEF, DIV. OF ADMIN.	
CHIEF, DIV. OF OPERATIONS	
CHIEF, DIV. OF INTERP.	
CHIEF, REC. & PLANNING	
CHIEF, RANGER ACTIVITIES	
FIELD SOLICITOR	
ACTION TAKEN 5/15/59	
to Waso-cy 1000	

Memorandum

To: Regional Director, Region Two
From: Superintendent, Dinosaur National Monument
Subject: Water Right Applications 26523 and 26635, Split Mountain Gorge Campground, Dinosaur

Reference is made to Mr. A. van V. Dunn's memorandum to you dated April 20 of which we have a copy. The following may assist in answering the three questions framed by Mr. Dunn:

1. Wells were drilled at the approximate site designated in Applications 26523 and 26635. Well No. 26523 was drilled in 1956, well No. 26635 in 1958. Both wells produce good potable water and are equipped with hand-operated pumps according to Public Health Service standards. One well (26523) tested unsatisfactory on several occasions; however, the pump was not a sealed unit and was subject to contamination by priming with dirty water. A new sealed unit pump has been installed and so far all tests have been satisfactory.
2. A third well has not been drilled approximately half way between sites designated in Applications 26523 and 26635.
3. We have no plans to drill a third well. Several proposals have been made to complete a pressurized water system in the campground including flush toilets and water distribution lines and storage tank. We feel that further development of one or both existing wells would provide adequate water supplies if the above proposal is finalized.

Drawing No. NM-DIN-3135, Split Mountain Gorge Campground and Geological Cross Section Trail, dated February, 1958, references the two wells as drilled and now in use.

C. C. MAILED TO:

Director

BY Matt DATE 5/15/59
In dupl.

cc: Chief, WODC in dupl.

Oscar T. Dick
Oscar T. Dick
Acting Superintendent



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

April 20, 1959

IN REPLY REFER TO:
154-OBL

REG. DIRECTOR
ASST. REG. DIRECTOR
CHIEF, DIV. OF ADMIN.
CHIEF, DIV. OF OPERATIONS
CHIEF, DIV. OF INTERP.
CHIEF, REG. RES. PLANNING
CHIEF, BANNER ACTIVITIES
FIELD SOLICITOR
ACTION TAKEN
FILE

Handwritten: E 8/3/60

Memorandum

To: Regional Director, Region Two

From: Chief, Water Resources Section

Subject: Water Right Applications 26523 and 26635, Split Mountain
Gorge Campground, Dinosaur National Monument

Mr. Lombard's memorandum of April 9 to the Hydraulic
Engineer is not surprising, but the correspondence might be
largely clarified if we know:

1. Were wells drilled approximately at sites
designated in Applications 26523 and 26635?
2. Has a third well been drilled yet, approximately
half way between the sites designated in Applications
26523 and 26635?
3. When is the third well to be drilled, if it is
still only proposed? //

The further water right procedure could be determined
from answers to these questions. Moreover, no further filings
should be made until we have the answers.

Handwritten signature: A. van V. Dunn
A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WODC



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

April 10, 1959

✓
IN REPLY REFER TO:
154-OEL

REG. DIRECTOR
ASST. REG. DIRECTOR
CHF. DIV. OF ADMIN.
CHF. DIV. OF OPERATIONS
CHF. DIV. OF INTERP.
CHF. REC. RES. PLANNING
CHF. RANGER ACTIVITIES
FIELD SOLICITOR
<i>Mott</i> <i>4/12/59</i>
ACTION TAKEN <i>0</i>
FILE <i>✓</i> <i>4/12/59</i>

Memorandum

To: Regional Director, Region Two
From: Chief, Water Resources Section
Subject: Water Right Applications 26523 and 26635, Split Mountain Gorge Campground, Dinosaur National Monument

Mr. Mott's memorandum of March 23 to the Superintendent refers to the photostat negative I sent to you with my additions. I am not sure that the Superintendent has print with my notations, which would be helpful in locating well sites 1, 2 and 3. I seem to recall that I showed more on the negative than I did on the print in Docket 4.

Although Mr. Mott properly asks for confirmation of whether wells 1 and 2 were dug, I assume the answer will be no. However, wells 1 and 2 have legal status through the water right applications (with no proof needed). I think the best water right procedure will be to treat them as established wells, and consider well 3 as a replacement. Proof will be needed on an application and permit for wells if the yield and use is equal to the sum of claims for wells 1 and 2, but we will not have to prove construction or use of wells 1 and 2.

A. van V. Dunn
A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WODC



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Dinosaur National Monument
Box 621 - Vernal, Utah

April 9, 1959

IN REPLY REFER TO:

REG. DIRECTOR	LS4
ASST. REG. DIRECTOR	
CHF. DIV. OF ADMIN.	
CHF. DIV. OF OPERATIONS	
CHF. DIV. OF INTERP.	
CHF. REG. RES. PLANNING	
CHF. RANGERS	
FIELD STATION	
ACTION TAKEN	
FILE	

Memorandum

To: Hydraulic Engineer, Region Two

From: Superintendent, Dinosaur National Monument

Subject: Water Right Applications 26523 and 26635, Split Mountain Gorge Campground, Dinosaur National Monument

In reference to your memorandum of March 23, subject, we are simply confused on the issue of well sites, completion dates and Water Rights Dockets and by the volume of paper work dealing with water in Dinosaur National Monument. Much of the correspondence in our files is based upon assumptions, projected survey lines and other questionable data.

We would like to suggest that you or your representative visit this area and assist us in bringing our water rights file up to date and securing such data as needed by you to complete your files.

If you do not agree to our proposal, we will attempt to provide you, to the best of our ability, with the information requested.

Jess H. Lombard
Jess H. Lombard
Superintendent

cc: Director in dupl.
Chief, WODC in tripl.

L 54

MAR 23 1959

Memorandum

To: Superintendent, Dinosaur National Monument

From: Hydraulic Engineer, Region Two

Subject: Water Right Applications 26523 and 26635, Split Mountain Gorge Campground, Dinosaur National Monument

Mr. Dunn sent to this office a negative photostat-copy of Drawing 3108-A in his memorandum of January 16, 1959. Upon this drawing he located Well Site No. 3, by scaling from the plat on the Record of Well. The location is approximately midway between Well Site No. 1 and Well Site No. 2.

Please prepare a narrative statement of each well, in the Quarry Headquarters and Split Mountain Gorge campground areas, identifying each well as follows:

1. Well Number, or Well Site location.
2. Date the drilling was completed.
3. Whether Well was used, or abandoned.

Our Water Right Docket No. 1 file contains Part III • Well 3. It is believed this well is located by the river and that it supplies the Quarry Headquarters.

Please let us have also the correct figure for the number of wells drilled in the Split Mountain Gorge campground area. It is our understanding that only two wells have been drilled in this area.

Signed

William A. Mott
Hydraulic Engineer

Copy to: ~~Director~~ (2)
Chief, WODC (2)

WESTERN DESIGN & CON	
MAR 26 1959	
CHIEF	
ADMIN. ASSIST.	
PERSONNEL	
PLANS & PROG.	
SAFETY	
ARCHITECT	
ENGINEER	
LAND ARCH.	
ACTION TAKEN-DATE	
None	



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

January 16, 1959

Memorandum

To: Regional Director, Region Two
From: Chief, Water Resources Section
Subject: Water Right Applications 26523 Well 1 and 26635 Well 2,
Split Mountain Gorge Campground Water System, Docket 4,
Dinosaur

IN REPLY REFER TO:	
L54-OBL	
REG. DIV.	
ASST. REG. DIV.	
CHIEF DIV. OF LAND	
CHIEF DIV. OF OPERATIONS	
CHIEF DIV. OF INTER.	
CHIEF REG. RES. PLANNING	
CHIEF RANCHER ACTIVITIES	
FIELD SOLICITOR	
Matt Hill	
ACTION TAKEN 5/23/59	
FILE 103/23/59	

We are returning the original subject water right applications and letters of approval which Mr. Mott forwarded by registered memorandum of December 3, 1958, directly to the Superintendent with registered copy of this memorandum. Photostat copies and negatives are attached. A set of the photostat copies are also being sent to WODC. I did not note that Mr. Mott proposed to duplicate and distribute until the copies were made.

In each case the instruments should be filed in Docket 4, below the copy of the Completion Report. It is noted that each application refers to an attached plat, of which copies should also be filed, but of which no copies have been sent to this office.

Also attached are the photostat negatives of the left and right halves of Drawing 3108-A which are based on Mr. Grunigen's 3108 of November 1955. The memorandum of December 4, 1958, to the Hydraulic Engineer from Mr. Dick indicates that the Monument did not have a copy of the left half, but it was included in the assembly of Docket 4, and the right half was included in Docket 3, when folders for Dockets 2, 3 and 4 were distributed with my memorandum of July 29, 1958. I gather that Mr. Dick only looked for the drawing in his map file, but you can supply another photostat positive for Docket 4, if necessary.

Two prints of Drawing 3108 were sent to the Chief, Design and Construction, with copies to the Region and Monument, with a memorandum of November 30, 1955, from Mr. Hill, reference L-54, subject - Water Right Acquisition by Appropriation, Dinosaur. Drawing 3108-A, in the two halves, was made in this office, using one of the two prints of 3108 as a base, and projecting topography, meander of the River, and section subdivisions from plats and survey notes of the Geological Survey and Bureau of Land Management. It is necessary to compare Drawing 3108 with my modified 3108-A in two halves to see how little of the data on the latter is based on correlated field surveys.

For this discussion it should be noted that Mr. Grunigen located Well sites 1 and 2 at Split Mountain Gorge Campground from the corner common to Sections 29, 30, 31 and 32, and did not show either the east or south 1/4 corners of Section 30 on Drawing 3108. I projected the section lines and 1/4 corners from BLM plats of questionable accuracy. The ties in Applications 26523 and 26635 are given to the south 1/4 corner, which does not appear to have been recovered by Mr. Grunigen. Moreover, they appear to have been made before Mr. Grunigen made his survey and Drawing 3108.

In yellow on the negative of left half of 3108-A and on my print in Docket 4, I have project Well sites 1 and 2 from Applications 26523 and 26635; and Well site 3 (as drilled), by scaling from the Record of Well in Docket 4. The two locations of Well sites 1 and 2 by applications and later Grunigen survey, respectively, should ultimately be reconciled by an extension of the Grunigen survey to the S 1/4 corner, Section 30. There will apparently still be some variation, probably due to less accurate survey which seems to have been made for the ties in the applications. //

For your information, I am sending you and WODC prints of the 10 pages of my computations of BLM surveys. These were made at home, with logs, to find errors in work, and check speed of Mr. de Chany. The latitudes and departures are as accurate as the basic survey notes. However, I had to set up my own coordinate grids because none were on Mr. Grunigen's Drawing 3108, and they will doubtless disagree with any coordinate grids which may have been adopted in the field. These traverses should be incorporated in maps of the areas, with any corrections which may be possible by NPS recovery of both section and meander corners.

The contours on 3108-A are projected by scaling from much smaller Geological Survey maps. They are subject to considerable refinement if the Park Service makes topographic maps of either area. I assume that such maps are contemplated for master plans.

Now, a well was authorized at site 1, at Split Mountain Gorge Campground, with priority of December 10, 1954, if drilled and used by June 28, 1957, in accordance with approved Application 26523. A well was authorized at site 2 with priority of January 24, 1955, if drilled and used by August 10, 1957. The Record of Well and Completion Report of April 29, 1958, indicate that a well was drilled at site 3 during 1956, and was in use by March 5, 1958. We should be supplied with the actual date in 1956 (?) when well 3 was equipped with a pump, and placed in operation. //

0.03
Applications 26523 and 26635 are each for 0.015 sec.ft., or a total of 0.03 sec.ft. (19,388 gpd or 13.46 gpm). The Record of Well indicates that Well 3 has been pumped at 20 gpm, or 148.5% of the claim under the two applications, at a date which should be supplied.

Applications 26523 and 26635 were approved with the waiver of proof because not for more than 0.015 sec.ft., each. If answers to all of above questions as to further dates are correct, I recommend that rights under the two applications be treated as established. Two actions are then possible.

1. We file an application for change in point of diversion from Well site 1 as described in the application, to Well site 3 under Application 26523 with the explanation that Well site 1 was found undesirable but not stating whether Well 1 was drilled or not, and the well was relocated at site 3 before June 28, 1957, on a date to be supplied.

2. We file an application for change in point of diversion from Well site 2 as described in the application, to Well site 3 under Application 26635 with the explanation that Well 3 produced adequate water to supply all the needs under both applications at a central location, and that the 0.03 sec.ft. has all been pumped from Well 3 since the date of the 20 gpm pump test which is to be supplied.

The resulting right to 0.03 sec.ft. under the two priorities of December 10, 1954, and January 24, 1955, will probably require proof, but we need not acknowledge that assumption until, or unless the State Engineer suggests it. However, such proof would require plan of water system, record and description of method of measuring the diverted and used water, and metes and bounds description of any irrigated areas. We seem to plan to install a power pump, reservoir and distribution system by 1966, which is logical with a centralized source. Accordingly, both applications for change in point of diversion should also be for change in method of diversion and distribution by stating that hand pump is being, or to be replaced by the proposed water system as described under "Explanatory", and that such new system will be completed in 1965 or 1966.

For the proof we shall have to show Well sites 1 and 2 as described in the applications with relation to S 1/4 Section 30, but that 1/4 corner should be properly tied to SE corner of the section on a proper map of the River. No reference need be made to the sites shown on Drawing 3108, if they are different, because those sites have not been made a matter of state record unless Drawing 3108 was sent to the

State Engineer 10 months, or more, after the second application was filed. Well 3 should be located by accurate tie to agree with site to be shown on all future maps of the area.

The State Engineer may reject the two applications for change in point of diversion and prescribe a new application, with 1959 priority for Well No. 3 when they are filed. I do not think the loss of priority would be significant, but I think it is worthwhile to attempt to retain the 1954 and 1955 priorities. //

Mr. Mott should only explain to the State Engineer that we wish to transfer the rights under Applications 26523 and 26635 to a single well half way between, to be equipped with power pump, reservoir and distribution system, and that he wishes a dozen of the proper forms. A copy of the form, Mr. Mott's suggested answers for both applications, and any comments from the State Engineer, should be referred to us before the forms are filled in. //

On the tab of our Docket 4 folder I have entered 26523 after the typed "Application", and entered 26635 on the line below. I have also deleted "#3" after the word well, and added - Well 1 - and then shown December 10, 1954, after "Priority". I have added -Well 2 - and January 24, 1955, on the line below, and - Well 3 -, with no priority shown, on the line below that. Further modifications and new folders, will doubtless be needed later.

*Completed
2/17/59
G*

A. van V. Dunn

A. van V. Dunn
Chief, Water Resources Section

Attachments

Copy to: Superintendent, Dinosaur, with attachments - REGISTERED MAIL
Chief, WOBC, w/c attachments



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WESTERN OFFICE, DESIGN AND CONSTRUCTION
1000 GEARY STREET, SAN FRANCISCO 9, CALIFORNIA

January 14, 1959

IN REPLY REFER TO:

L 54 *Dir*

REG. DIRECTOR
ASST. REG. DIRECTOR
CHF. DIV. OF ADMIN.
CHF. DIV. OF OPERATIONS
CHF. DIV. OF INTERP.
CHF. REC. RES. PLANNING
CHF. RANGER ACTIVITIES
FIELD SOLICITOR
<i>Mott</i>
ACTION TAKEN
FILE

added R.D. in Water Section

Memorandum

To: Regional Director, Region Two

From: Acting Supervisory Engineer, WODC

Subject: Land Ties for Applications 26523 and 26635 for Water Rights to Well Water, Split Mountain Gorge Campgrounds, Docket 4, Dinosaur National Monument

As requested in Mr. Mott's memorandum of January 8 to this office on the subject, there are attached three prints of Drawing No. NM-DIN-3108-A, Water Well Locations, Dinosaur National Monument. Three copies of Mr. Grunigen's field notes, copies from Page 22 of Dinosaur National Monument Field Book No. 6A, are also attached for Mr. Mott's use.

Richard T. Montgomery
Richard T. Montgomery
Acting Supervisory Engineer

In duplicate

Attachments

*Returned in Water Section
Office 8/3/60*

Copy to: Chief, D&C
Chief, Water Resources, WASO
Supt., Dinosaur NM

C. C. MAILED TO:

DATE



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Region Two Office
307 Federal Office Building
Omaha 2, Nebraska

IN REPLY REFER TO:

L 54

ADDRESS REPLY TO:
REGIONAL DIRECTOR, REGION TWO
NATIONAL PARK SERVICE

JAN 8 1959

Memorandum

To: Chief, Western Office, Division of Design and Construction

From: Hydraulic Engineer, Region Two

Subject: Land Ties for Applications 26523 and 26635 for Water Rights to Well Water, Split Mountain Gorge Campgrounds, Docket 4, Dinosaur National Monument

When I was at Dinosaur National Monument in September I was informed that Mr. Grunigen had surveyed and tied the two water wells to land corners.

Will you please forward to this office three prints of drawing based upon Mr. Grunigen's survey if it shows corrections to drawing NM-DIN-3108-A (left half), and copies of Mr. Grunigen's field notes.

Mr. Dunn's memorandum of December 17, 1958, suggests a question as to the accuracy of drawing NM-DIN-3108-A.

William A. Mott

William A. Mott
Hydraulic Engineer

In duplicate

Copy to: Director (2)
Supt., Dinosaur NM

X

100

WESTERN OFFICE	
DESIGN & CONSTRUCTION	
JAN 12 1959 A.M.	
C	CLERK
A	ASSIST.
F	FINEL
I	INSTR. & PROG.
Y	Y
E	ECT
2	Engr. R. J. Mott
	ARCH.
TAKEN DATE	
1/14/59	



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

December 17, 1958

IN REPLY REFER TO:
L54-OBL

Dino

REG. DIRECTOR
ASST. REG. DIRECTOR
CHF. DIV. OF ADMIN.
CHF. DIV. OF OPERATIONS
CHF. DIV. OF INTERP.
CHF. REG. RES. PLANNING
CHF. BANNER ACTIVITIES
FIELD STATION
<i>Not</i>
<i>WODC</i>
<i>WODC - cy & lms & lms</i>
FILE

Memorandum

To: Regional Director, Region Two

From: Chief, Water Resources Section

Subject: Applications 26523 and 26635 for Rights to Well Water,
Split Mountain Gorge Area, Docket 4, **Dinosaur**

Much of Mr. Baggle's memorandum of December 11 was answered in my memorandum of December 10 concerning Mr. Mott's earlier memorandum.

As stated, the scheduling of new or amended applications can be deferred until we complete proper plans. It does not matter which section corner is used for ties to wells, and I should leave the matter to the surveyor's choice.

You may, or may not know that the drawing in the docket was based on the traverse shown, and topography added from Geological Survey maps by my former assistant, Mr. de Chaney, who was dismissed for incompetence. I believe that traverse was also plotted in the first place by a rather inexperienced draftsman in Region Three. The drawing should be replaced if later surveys show errors.

A. van V. Dunn

A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WODC

DEC 11 1958

L 54 *Dino*

Mott 12/9/58

Aiton 12-10

Dunn 12-10

Reynolds 12/10

Baggley 12/10

Clay 12/10

Memorandum

To: Director
From: Regional Chief of Operations
Subject: Application for Water Rights at Split Mountain Gorge Well, Dinosaur National Monument

Attached is a copy of Mr. Dick's memorandum of December 4, 1958, supplying information in response to questions raised in Mr. Dunn's memorandum of November 20, 1958.

The descriptions used in Applications, Nos. 26523 and 26635, were apparently the result of a staff compass survey tied to the SE $\frac{1}{4}$ corner of Section 30, Township 4 South, Range 24 East. A survey by Mr. Grunigen in 1955, as shown in Docket No. 4 on NM-DIN-3108-A, ties these wells to the SE corner of Section 30, Township 4 South, Range 24 East. Superimposing the application description on this drawing results in a location discrepancy.

Our copy of NM-DIN-3108-A shows an undated revision of the bearings and distances of ties to the SE corner of Section 30. Apparently this map has not been distributed to the Monument. We plan to make copies for both the area and WODC.

Mr. Dick indicates revised application descriptions, if required, should be tied to the S $\frac{1}{4}$ corner Section 30 as originally filed rather than to the SE corner of Section 30 as surveyed by Mr. Grunigen.

We would appreciate any information you may have concerning the revised description of the ties shown on NM-DIN-3108-A, November, 1955. We would also like your advice concerning the need for filing correction descriptions. Should filings be made, it would seem preferable, for the sake of accuracy, to use the surveyed ties, as revised, to the SE corner of Section 30.

(Sgd) George F. Baggley

George F. Baggley
Regional Chief of Operations

In duplicate
WAMott/JFAiton/etb



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

December 10, 1958

IN REPLY REFER TO:
L54-OEL

REG. DIRECTOR
ASST. REG. DIRECTOR
CHF. DIV. OF ADMIN.
CHF. DIV. OF OPERATIONS
CHF. DIV. OF INTERP.
CHF. REG. RES. PLANNING
CHF. RANGER ACTIVITIES
FIELD SOLICITOR
<i>Handwritten: 8/3/60</i>
<i>Handwritten: 8/3/60</i>
ACTION TAKEN <i>Memo to</i>
FILE <i>Jan 8/1959</i>

Memorandum

To: Regional Director, Region Two

From: Chief, Water Resources Section

Subject: Water Right Applications 26523, Well 1 and 26635, Well 2,
Docket 4, Split Mountain Gorge, Dinosaur

The subject applications, as approved by the State Engineer, have been received by registered mail with the memorandum of December 3 from Mr. Mott. They will be duplicated for distribution for Docket 4 after the Christmas congestion of mail.

As Mr. Mott indicates, the well sites are shown at different points on Drawing 3108-A in the docket, and by description in the applications. However, the differences are not immediately important unless there is a private land boundary between the two sites, and I believe that there is not.

The applications, and said drawing are both for proposed wells. A variation of 200 to 300 feet in final location somewhat large but some variation might be expected. A check for accurate tie will be desirable, but other matters need more immediate attention. //

The applications were both approved without further required proof, but Well 1 was to have been completed by June 28, 1957, and Well 2 was to have been completed by August 10, 1957. Record of well in the docket indicates that only one well has been dug to 50 feet, in 1956, at site approximately half way between the two designated sites. Technically, both applications are for new wells to have been drilled on the basis of data obtained from the 1956 dug well, and both applications are subject to revocation for failure to complete drilling within the specified time, or obtain extensions of time.

It would be disastrous to request an extension of time at this time. However, it may be possible to salvage one, or both rights by amendment in connection with a claim for the ultimate water system. Each application for 0.015 sec.ft. gives a combined total potential claim to about 19,000 gallons per day. Before going further with water rights, we should have the report on the Geological Survey of this past fall, and water system development plans by WODC which give

site for the permanent well, plan of both area and water system development, and estimates of ultimate water use. We can then decide on the nature of new or amended water right application.

My major comments on the subject applications are that they were filed prematurely and the timing was not integrated with the construction schedule. I am not sure whether they are based on development plans or not, but I cannot understand why question 10 specifies 150 foot wells, and the explanatory descriptions cover 50 foot wells. There appears to have been a directive by the State Engineer which led to the reference to the 150 foot well in Application 26523 in red. This was incorporated in later application before submission. We should have copies of the exchange of correspondence concerning filing and return of the applications for correction. //

Under existing procedure the applications should have been prepared or cleared by the Water Resources Section before signing and filing in 1957. Any further applications at this time should also have such prior clearance, and should be filed only when there is a firm related construction schedule. Any new application for water in excess of 0.015 sec.ft. will also require subsequent proof.



A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WODC



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

December 5, 1958

Memorandum

To: Regional Director, Region Two
From: Chief, Water Resources Section
Subject: Applications 26523 and 26635 for Rights to the Use of
Wells at Split Mountain Gorge, Dinosaur

The memorandum of October 22 to the Hydraulic Engineer from Mr. Dick refers to the two subject applications for which we do not seem to have any records. I presume they were prepared and filed by the Superintendent.

Please supply us with the applications and copies of related correspondence for review and preparation of docket assemblies, before further action is taken on any changes.

A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WODC

IN REPLY REFER TO:
L54-081

REG. DIRECTOR
ASST. REG. DIRECTOR
CHIEF DIV. OF ADMIN.
CHIEF DIV. OF OPERATIONS
CHIEF DIV. OF INTERP.
CHIEF REG. RES. PLANNING
CHIEF RANGER ACTIVITIES
FIELD SUPERVISOR
FILE
ACTION TAKEN
FILE

See our memo to NAS
12/10/58

DEC 10 1958



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Dinosaur National Monument
Box 621 - Vernal, Utah

December 4, 1958

IN REPLY REFER TO:

L54 *Dino*

REG. DIRECTOR	
ASST. REG. DIRECTOR	
CHIEF, DIV. OF ADMIN.	
CHIEF, DIV. OF OPERATIONS	
CHIEF, DIV. OF INTER.	
CHIEF, REG. RES. PLANNING	
CHIEF, RANGER ACTIVITIES	
FIELD SOLICITOR	
ACTION TAKEN 12-10-58	
Memo to Waso	
FILE	

Memorandum

To: Hydraulic Engineer, Region Two
From: Superintendent, Dinosaur National Monument
Subject: Application for Water Rights at Split Mountain Gorge Well, Dinosaur National Monument

Reference your memorandum of November 12, 1958.

We do not have Drawing No. NM-DIN-3108-A, dated November, 1955, titled (left $\frac{1}{2}$) Water Well Location. We do have Drawing No. NM-DIN-3108-A, Revised January 3, 1956. Therefore, we cannot verify the discrepancy between well locations on the drawings you refer to. We assume the locations on Drawing No. NM-DIN-3108-A, Revised January 3, 1956, to be correct.

To the best of our knowledge, the descriptions of the well locations in Applications Nos. 26523 and 26635 were obtained by staff compass and tape measure and are subject to correction. The locations were tied to the quarter corner common to Sections 30 and 31. If it is necessary to file a correction notice, the same tie should be used.

In reference to Mr. Dunn's memorandum of November 20 to Regional Director, Region Two, Application for Water Rights at Split Mountain Gorge Wells, there were no filing fees connected with the application since Federal Agencies need not pay a fee with this type of application.

If you wish to retain the approved applications submitted to you with our memorandum of October 22, please furnish copies to us on the forms enclosed. We will furnish "Record of Well" at well site #2 as soon as we receive the record from the contractor.

C. C. MAILED TO:

BY

DATE
cc: WODC

Chief, Water Resources, Waso

Oscar T. Dick
Oscar T. Dick
Acting Superintendent

DEC 8 1958

No 343879

RECEIPT FOR CERTIFIED MAIL—20¢	
SENT TO	POSTMARK OR DATE
THE DIRECTOR	DEC 3 1958
NATIONAL PARK SERVICE	
INTELLIGENCE BUILDING	
WASHINGTON 25, D. C.	
If you want a return receipt, check which ☐ 10¢ shows to whom and when delivered ☐ 35¢ shows to whom, when, and address where delivered ☐ 50¢ fee	
FEES ADDITIONAL TO 20¢ FEE	
POD Form 3800 Jul 1957	SEE OTHER SIDE

L-54
Dino

DEC 3 1958

Mott
12/3/58Registered Mail

Memorandum

To: Director

From: Hydraulic Engineer, Region Two

Subject: Application for Water Rights at Split Mountain Gorge
Campground, Dinosaur National Monument

Reference is made to memorandum, dated October 22, 1958, from Acting Superintendent of Dinosaur National Monument to this office, in which he advises that subject applications, Nos. 26523 and 26635, were filed with the State Engineer and approved June 28, 1955 and August 10, 1955, respectively, and to Mr. Smith's memorandum, November 24, 1958, to Mr. Lombard, copy to your office.

Ties superimposed on Drawing No. 3108-A, as mentioned by Mr. Smith, refer to the ties set forth in the Application being superimposed on Drawing 3108-A to check the accuracy of the Application description against the survey. The location of the wells, as evidenced on the applications, does not correspond to their respective locations shown on Drawing 3108-A in Docket #4. The Application ties are to the 1/4 corner common to Sections 30 and 31 whereas the ties shown on Drawing No. 3108-A are to the SE corner of Section 30. According to WODC, the ties shown on Drawing No. 3108-A reflect a survey by Mr. Grunigen in 1955. We have no information concerning the origin of the descriptions used in the applications.

Since the applications were filed with the State of Utah in 1955 and prior to development of the wells, it seems we should file correction notices so that the records will conform with construction. We assume this may be accomplished by letter as no forms for this purpose are provided by the State.

We are attaching single original copies of Application Nos. 26253 and 26635 for your review and comment. We would appreciate return of the applications so we may effect duplication and distribution.

Signed

In duplicate
Attachments 2Copy to: Chief, WODC (2)
Supt., Dinosaur NM
WAMott/etbWilliam A. Mott
Hydraulic Engineer

L. 94

11/24/58
Grunigen

Smith

November 24, 1958

Memorandum

To: Superintendent, Dinosaur National Monument
From: Supervisory Engineer, WODC
Subject: Application for Water Rights at Split Mountain Gorge Wells,
Dinosaur National Monument

A copy of Hydraulic Engineer Mott's memorandum of November 12, on the subject, was sent to this office.

In the third paragraph of the memorandum, Mr. Mott refers to some ties to the wells which he has superimposed on Drawing No. NM-DIN-3108-A. We have no idea what ties he refers to because to the best of our knowledge the only survey for these wells is the one made by Mr. Grunigen in 1955. These ties are shown on the Drawing NM-DIN-3108-A which was prepared in this office at the request of Mr. A. van V. Dunn.

(Sgd) P. E. Smith

P. E. Smith
Supervisory Engineer

In duplicate

Copy to: Chief, DMC
Chief, Water Resources, WASO
Reg. Dir., Region Two

Proj. Supv. Grunigen
P.E. Smith

FILE COPY



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

November 20, 1958

IN REPLY REFER TO:
154-CBL

Gino

REG. DIRECTOR
ASST. REG. DIRECTOR
CHIEF, DIV. OF ADMIN.
CHIEF, DIV. OF OPERATIONS
CHIEF, DIV. OF INTERP.
CHIEF, REC. RES. PLANNING
CHIEF, RANGER ACTIVITIES
FIELD SOLICITOR
<i>[Signature]</i>
<i>[Signature]</i>
ACTION TAKEN <i>[Signature]</i>
<i>Director 12/13/58</i>
FILE <i>12/5/58</i>

Memorandum

To: Regional Director, Region Two
From: Chief, Water Resources Section
Subject: Application for Water Rights at Split Mountain Gorge
Wells, Dinosaur National Monument

Mr. Mott's memorandum of November 12 indicates that there is considerable water right activity without following the procedure now prescribed.

Applications 26635 and 26523 should have had Washington Office clearance before filing, and copies should have been made for all docket assemblies. We should also have been advised of all action by the State Engineer, and supplied with copies of the notice as published in the paper. There is also a suggestion that the \$20.00 fee for publication may have been paid from Park funds, and it should be paid from funds under your Work Order 2-WR-59, if this year, or from your water rights allotment if last year.

A. van V. Dunn
A. van V. Dunn
Chief, Water Resources Section

Copy to: Superintendent, Dinosaur
Chief, WOBC

NOV 24 1958

NOV 12 1958

154

WESTERN OFFICE
DESIGN & CONSTRUCTION
NOV 17 1958
CHIEF
ADMINISTRATIVE
PERSONNEL
PLANS & PROG.
CITY
ARCHITECT
ENGINEER
LAND ARCH.
ACTION TAKEN
Memo to Supdt 11/14

Memorandum

To: Superintendent, Dinosaur National Monument

From: Hydraulic Engineer

Subject: Application for Water Rights at Split Mountain Gorge Wells, ' Dinosaur National Monument

Reference is made to your memorandum of October 22 relative to the status of the applications to appropriate water for the two wells at the Split Mountain Gorge campground.

In our docket file in this office we have drawing No. NM-DIN-3108-A dated November 1955, titled (Left $\frac{1}{2}$) Water Well Locations.

Upon the referred drawing we have superimposed the ties to each of the two wells and find a discrepancy of approximately 300 feet at well site #1 and approximately 180 feet at well site #2. It is believed this drawing was prepared with the topography and additional details prior to the revision of the full sized drawing No. NM-DIN-3108-A Revised in 1956.

It is believed that the quarter corner common to Section 30 and Section 31 would be more accessible to which the ties might be made than the southeast section corner of Section 30, to which the ties by bearings and distance are so indicated.

It was my understanding at the time I was in the Monument in September that Mr. Grunigen, Engineer for WODC, had tied the subject wells by survey. Please check and see if the map accompanying the application for the appropriation of water conforms with that survey by Mr. Grunigen. If so, this office would appreciate you forwarding three prints of the final survey drawing.

Regional File Docket No. 4 for Split Mountain Gorge campground water systems does not have a copy of the approved applications to appropriate water (applications #26635 and #26523).

Also, the "Record of Well" at well site #2 is missing from the Regional Office File. It would be appreciated if you would supply us with three copies of this record.

Signed

William A. Mott
Hydraulic Engineer

In duplicate

Copy to: Director (2)
Chief, WODC (2)



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Dinosaur National Monument
Box 621 - Vernal, Utah

October 22, 1958

IN REPLY REFER TO:

154-L

REG. DIRECTOR
ASST. REG. DIRECTOR
CHIEF DIV. OF AD.
CHIEF DIV. OF OPERATIONS
CHIEF DIV. OF INTERP.
CHIEF REC. RE. PLANNING
CHIEF RANGER ACTIVITIES
FIELD SOLICITOR
ACTION TAKEN
FILE

Handwritten: 10/22/58

Memorandum

To: Hydraulic Engineer, Region Two

From: Superintendent, Dinosaur National Monument *w/cy to WOOD + WOOD*

Subject: Application for Water Rights at Split Mountain Gorge Well, Dinosaur National Monument

In reference to your memorandum of August 20, we filed Application No. 26523 December 9, 1954 and Application No. 26635 January 21, 1955 for wells in Split Mountain Gorge Campground and received approval June 28, 1955 and August 10, 1955 respectively. The two wells have been drilled and are now in use equipped with hand operated pump installed according to Public Health Service specifications.

We believe Application No. 26523 refers to the same or approximately the same location described in the unnumbered Application you requested us to execute and distribute copies thereof. In reference to Drawing 3108-84 our approved Applications established the well locations at points "from the 1/4 corner common to Sections 30-31, Township 4S, Range 24E, S.L.M." Your Application establishes the location "from SE Corner, Section 30, Township 4S, Range 23E." If the courses described in the separate Applications are projected on the referenced drawing, they intersect approximately 400 feet northwest of the well location.

We believe a correction notice filed with the State of Utah in reference to Application No. 26523 will be sufficient, and the application you requested us to execute need not be submitted. Applications No. 26523 and 26635 and your unnumbered application are attached for your review and comments.

Please advise if you did or did not secure all of the data requested in the third paragraph of your August 20 memorandum since our files were made available to you during your recent visit.

C. C. MAILED TO:

BY in dupl. *now* Attachments
cc: Director in dupl.
WODC in dupl.

Oscar T. Dick
Oscar T. Dick
Acting Superintendent

154-L

September 11, 1958

Memorandum

To: H. A. Waite, District Geologist, Ground Water Branch,
Geological Survey, Salt Lake City

From: Hydraulic Engineer, Region Two, National Park Service

Subject: Investigation of Water Supplies at Split Mountain Gorge,
Pats Hole and Lodore in Dinosaur National Monument

This memorandum will supplement your phone discussion
with Mr. Aiton, or others in Region Two Office, Omaha.

We are planning campground developments at the subject
locations which will require water probably in excess of existing
developed supplies.

In the three areas we now have only wells with hand pumps
that supply a limited demand. Ultimate developments and estimated
use will require about the quantity of water which could be obtained
by 24-hour pumping of existing wells. The wells were pump tested,
manually, and yielded the following amounts:

- | | |
|-------------------------|-------------------|
| 1. Split Mountain Gorge | 20 gpm for 4 hrs. |
| 2. Pats Hole | 15 gpm for 6 hrs. |
| 3. Lodore | 5 gpm for 2 min. |

We should like to have either gravity flows that would
produce the same rate of supply, or wells which could yield the same
amount of water while pumping for about 8 hours.

We understand that there are two wells at Split Mountain
Gorge, one of which is subject to pollution, at least for a part of
the time. The wells, in case they intercept the underground flow
of the Green River, may be affected by regulated flows in the river
when Flaming Gorge Reservoir is in operation.

We request that your office make, at least, a reconnaissance
investigation for the best apparent water sources for the ultimate
supplies needed for the anticipated developments. Also, please
provide water analyses from each of the existing wells.

DESIGN & CONSTRUCTION
SEP 15 1958A
CHIEF
ADMIN. ASSIST.
PERSONNEL
PLANS & SPEC.
SAFETY
ARCHITECT
ENGINEER
1/11/58
NONE

NO COPY MADE IN MAIL ROOM

Please submit to this office an estimate of the charges for the investigation so it can be correlated to our budget.

I would like to meet the investigator at Dinosaur, if it would be possible for me to arrange my schedule. In case my schedule will not permit meeting the investigator at Dinosaur, the Superintendent can advise you of the ultimate requirements for water to comply with the MISSION 66 developments.

SALENT

William A. Mott
Hydraulic Engineer

Copy to: Regional Director, Region Two
Superintendent, Dinosaur
Chief, WODC

154-L

AUG 20 1958

WESTERN OFFICE	
DESIGN & CONSTRUCTION	
AUG 25 1958 A.M.	
CHIEF	
ADMIN. ASSIST.	
PERSONNEL	
PLANS & PROG.	
SAFETY	
ARCHITECT	
ENGINEER	1/10/58
LAND ARCH.	
ACTION TAKEN-DATE	
None	

Memorandum

To: Superintendent, Dinosaur National Monument
From: Hydraulic Engineer, Region Two
Subject: Application for Water Rights at Split Mountain Gorge Well, Dinosaur National Monument

I am attaching an application to appropriate water for the Split Mountain Gorge Well. The quantity of water to be appropriated (.00315 second feet) will accommodate 34 camp units, with an average of 4 persons, each person consuming 15 gallons per day.

Please insert in the "Explanatory" section, the cost of the present well and pump.

Referring to Mr. Dunn's letter of July 29, 1958, he requests the "Record of Well" data of each of the wells drilled during the development of the Split Mountain Gorge campground water supply. We request the data whether the drilling was for a test well, or a single well for final development. There is some question as to the identity of the point of diversion of the Split Mountain Gorge campground well (well #3?). Please advise of the proper identity, whether the well was located at or near well site #1 or well site #2 as indicated on the drawing NM-DIM-3108-A. The location indicated on the application form was taken from the referenced drawing and marked (REVIS) which was considered the final figure identifying the location by bearing and distance. Should this designation be erroneous, please correct and indicate such on the applications.

I do not have a sufficient supply of application forms to provide the necessary copies for distribution. Please execute the application and distribute copies for the four dockets.

Signed

William A. Mott
Hydraulic Engineer

Attachment (1)

Copy to: Director (2)
/ Chief, WODC (2)

AUG 12 1958

154-L

WESTERN OFFICE DESIGN & CONSTRUCTION	
AUG 15 1958 A.M.	
CHIEF	
ADMIN. ASSIST.	
PERSONNEL	
PLANS & PROG.	
SAFETY	
ARCHITECT	
ENGINEER	
LAND. ARCH.	
ACTION TAKEN - SEE	

g. Grunig

2/15/58

15

Memorandum

To: Superintendent, Dinosaur National Monument

From: Hydraulic Engineer, Region Two

Subject: Readjudication of Rights to Colorado River in Utah

Mr. Dunn's memorandum to Region Two, dated July 28, 1958, requests that this office review the water rights in Dinosaur and submit plans for future water use as effected by MISSION 66 developments.

It would be appreciated if you could forward to this office your consideration of future needs for water within your park. A narrative form should designate the points of diversion, source of supply, maximum future water use, purposes of use, probable dates of beginning and completion of construction and full beneficial use, and estimated costs of the water system.

Eventually there will be considerable work required in preparation of drawings for the water systems when such time arises that we make application for appropriation of water.

We shall review those systems that are on file in the Region Two office as to the present status of the water use within the Dinosaur National Monument.

To facilitate additional work that may be required in preparation of readjudication of water rights of the Fremont River in Utah, it would be appreciated if the above requested data could be supplied at your earliest convenience.

Signed

William A. Mott
Hydraulic Engineer

Copy to: Director (2)
✓ Chief, WODC, (2)

IN REPLY REFER TO:

L54-I

REG. DIRECTOR
ASST. REG. DIRECTOR
CHF. DIV. OF ADMIN.
CHF. DIV. OF OPERATIONS
CHF. DIV. OF INTERP.
CHF. REG. RES. PLANNING
CHF. RANGER ACTIVITIES
FIELD SOLICITOR
8/19/53
CHIEF TAKEN
Supt. CC District # 4

I have only been able to rough out a draft of the proposed application because of inadequate and conflicting data. The Drawing 3108-A showed two well sites, while the Record of Well shows a site approximately half way between. In the docket I have also designated the completed well as Well No. 3, in the event that there may have been prior bores at sites 1 and 2. We should have the "Records of Well" for

any bores at sites 1 and 2, even if dry, but if only one well has been drilled, its number should be corrected in the docket. For further explanation of the drawing, please refer to my memorandum of March 13, 1956, which does not appear to have been answered.

From the drawing I believe that the constructed well can be located with sufficient accuracy by pacing or chaining from the earlier traverse, scaling coordinates, and computing the resulting tie to SE Cor. Sec. 30. However, I seem to recall that part of Lot 7, and possibly Lot 12 may have been privately owned. The tie should be sufficiently accurate to prevent conflict with private interests, if any.

There is also some question as to the extent of development for which water should be appropriated. From the data in the attached docket, not over 10,000 or 15,000 gallons per day is now used, and there are apparently pit toilets. The draft of the application provides for a possible modernization and enlargement to use an ultimate of about 32,850 gallons per year with flush toilets. The application can be simplified if the present development is also the ultimate, but we should be sure to claim enough water for any ultimate, and Mr. Mott should give a better description of the ultimate development than I have offered, if there is to be expansion. / ?

Mr. Mott should also prepare the notices and applications for use of the Pat's Hole and Ladore Wells, but there is less need to rush the matter. We do not need to assign well numbers, because they will be identified by the numbers assigned by the Colorado Division of Water Resources. Mr. Mott should need no further assistance from here for the procedure to follow in the Colorado filings, but we should like to see the applications for use of groundwater before they are filed. send appl to WRC before filing. /

The portion of Drawing 3108-A at bottom of Docket No. 3 for the Pat's Hole Well indicates that we should indicate that the groundwater is probably the subsurface flow of the Green River. I suggest an interlinear statement to that effect, just below the quantity of water to be claimed on the Application for Use of Ground Water. I also think it will be desirable to show distance from river to well and relative elevations on the sketches on Forms for both Registration of Well and Application for Use of Ground Water. //

The table of contents for Docket No. 2, Ladore Well, calls for drawing similar to those we have prepared from 3108-A. Mr. Mott may find it sufficient to give the data on the small sketches on the state forms.

Tie to section corner, distance from river, and relative elevations of water in the well and river, are not needed for filing, but they would help in defining the nature of the claim. They will also be needed if, or when the rights are adjudicated.

A. van V. Dunn
A. van V. Dunn
Chief, Water Resources Section

Attachments 4
Copy to: Superintendent, Dinosaur, with 3 docket folders
Chief, WODC, with 3 docket folders

Form W.R.D. No. 1

United States
Department of the Interior
National Park Service
Branch of Engineering

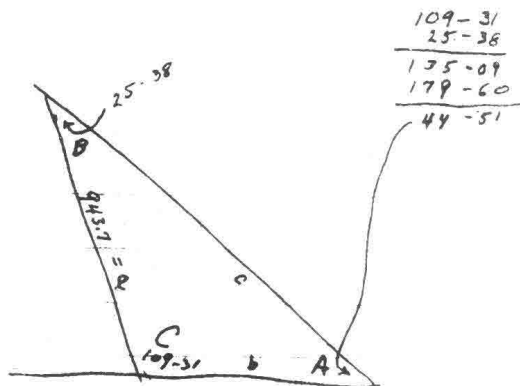
9/11/1916 (Jub.) National Park Split Mountain Scarp Area

Date Feb 1916 Field Book No. _____ Sheet No. _____

Survey By _____ Computed By Orville Danks Checked By _____

Station	Course		Cosine	Sine	Departure	Balanced		D.M.D.	Double Areas	Coordinates	
	Bearing	Distance				N	S			E	W
N 19° 18' W A A	578.00	543.94	9.91997	3.02	578.87					19,000.00	10,000.00
A C	443.70	312.17	9.91997	850.57	312.17					10,000.00	10,000.00
N 54° 57' E A A	1251.22	872.60	9.91997	872.60	872.60					10,000.00	10,000.00
N 12° 04' W	472.4	474.72	9.91997	474.72	474.72					10,000.00	10,000.00
N 18° 23' E	422.8	422.8	9.91997	422.8	422.8					10,000.00	10,000.00
N 8° 17' W	241.8	241.8	9.91997	241.8	241.8					10,000.00	10,000.00
N 2° 55' W	2357	2357	9.91997	2357	2357					10,000.00	10,000.00
N 21° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
S 20° 37' E	3438.52	3438.52	9.91997	3438.52	3438.52					10,000.00	10,000.00
From Station 1 to Station 20											
S 10° 54' E	3438.52	3438.52	9.91997	3438.52	3438.52					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
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N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
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N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
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N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
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N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
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N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
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N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000.00	10,000.00
N 89° 48' W	10207	10207	9.91997	10207	10207					10,000	

NOTES



$$\begin{array}{r} 109-31 \\ 25-38 \\ \hline 135-09 \\ 179-60 \\ \hline 44-51 \end{array}$$

Time
9:20-10:14 PM
Feb. 21, 1956

$$b = \frac{a}{\sin A} \cdot \sin B$$

$$c = \frac{a}{\sin A} \cdot \sin (A+B)$$

$$\begin{array}{l} a = 943.7 \rightarrow 2.974834 \\ \sin A (44-51) \rightarrow 9.848345 \\ \hline 3.126489 \end{array}$$

$$\sin B (25-38) \rightarrow 9.436097$$

$$b = 578.88 \leftarrow 2.762586$$

$$\begin{array}{r} 89-48 \\ 70-29 \\ \hline 19-19 \\ 25-38 \\ \hline 44-57 \end{array}$$

$$\begin{array}{r} 2.762586 \\ 7.542906 \\ \hline 0.305492 \end{array}$$

$$\begin{array}{r} 2.762586 \\ 7.994997 \\ \hline 2.762586 \\ 2.762583 \end{array}$$

$$\begin{array}{r} 2.974834 \\ 9.974836 \\ \hline 2.949670 \\ 36 \end{array}$$

$$\begin{array}{r} 2.974834 \\ 9.974836 \\ \hline 2.949670 \\ 36 \end{array}$$

$$\begin{array}{r} 3.100791 \\ 9.849864 \\ \hline 2.950655 \end{array}$$

$$\begin{array}{r} 3.100791 \\ 9.849864 \\ \hline 2.949897 \end{array}$$

$$3.126489$$

$$\sin (A+B) (70-29) \rightarrow 9.974302$$

$$c = 1254.22 \leftarrow 3.100791$$

	cos	Sin
6-04	9.997561	9.024016
477.4	<u>2.679882</u>	<u>2.679882</u>
	2.676443	1.703898
	474.73	56.57
18-23	9.977251	9.498825
482.8	<u>2.683767</u>	<u>2.683767</u>
	2.661018	2.182592
	458.16	152.26
8-17	9.995844	9.152887
216.8	<u>2.325926</u>	<u>2.325926</u>
	2.321872	1.484495
	209.59	30.51
2-56	9.999431	8.702049
235.7	<u>2.372360</u>	<u>2.372360</u>
	2.371791	1.081409
	235.39	12.06
21-48	9.967775	9.559804
1020.7	<u>3.008897</u>	<u>3.008897</u>
	2.976672	2.578701
	947.70	379.05

35
 297
 56.00
 2497

57.00 to 6:20 PM
 Feb. 22, 1956



1210.93 → 3.083119
 379.05 → 3.57617
 152.26 → 9.575502
 20-37-12

cos	Sin
9.971246	9.546780
<u>3.507617</u>	<u>3.083119</u>
3.536371	3.532329

65 63
 126 126
 3438.52 .50

Page 263 1st 194 Utah

Survey in 1916

at meander corner on Rt Bk of River between Sec's 19+30

cont. 7.59 ch

72°-20' 537-300' computed dist

thence S 45° E 5.00 ch
 S 7-45W 2.90 ch
 S 50-30 E 22.20 ch along top
 S 43-30 E 10.00 ch
 S 21-30 E 6.70 ch
 S 9-15 E 10.00 ch
 S 1-30 E 7.70 ch
 S 5-45 W 9.70 ch
 S 10-15 W 7.70 ch
 S 52-45 W 5.70 ch
 S 4-54 E 7.14 ch to meander corner between Sec's 30+31

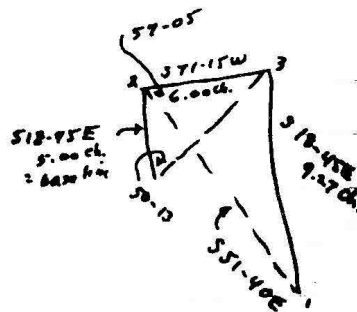


Page 267

meander of Rt Bank

from meander corner between Sec 19+30

thence S 41-45 E 13.30 ch
 S 50-00 E 12.90 ch
 S 18-45 E 9.27 ch
 S 36-45 E 5.60 ch
 S 10-30 E 8.30 ch
 S 6-45 E 22.90 ch ~~at 7 ch 20~~
 S 9-15 E 1.60 ch
 S 21-15 E 6.40 ch
 S 45-45 E 5.50 ch
 S 23-12 E 2.58 ch to meander corner between Sec's 30+31



This is copy of OLM survey notes of River
 meander, including its sketches of triangulated courses

C-5	5in	62 8164 359 028523	408 88 5264 3264 35904
	3042 2.065786 3.421104 2.487390	680062 61	86 182
7.542906 1.733358 0.19 9.276264	9.999997 1.733358 1.733358	411620 7 613	168 04 672
	372	486005 57 986062	142 568
7.542906 3.028523 3.73 6.571429	7.922137 3.028523 3.028523 1067.79	609808 21 609829	108 2.9
7.542906 3.680061 16.71 1.822967	9.999997 3.680061 3.680059 4786.91	91 860 819 410 84 76	158 165
9.999993 3.421604 2539.96 3.421597	7.742478 8.421604 1.164092 14.59	6091 3.14 276 305	159 158 769
9.999993 1.778585 60.06 1.778578	7.742478 1.778585 9.521063 0.33	54 142	
9.999993 3.411613 2579.12 3.411606 9.999993 1.639084 4856 1.639081	7.742478 3.411613 14.26 1.154091 7.742478 1.639084 0.24 9.381566	9.999997 3.486062 3.486059	
7.542906 3.486062 10.69 1.028968	3062.38		
7.542906 2.609829 1.42 0.152735	9.999997 2.609829 2.609826 7.22		

	Cos	Sin		Cos	Sin
45-00 330.00	9.849485 <u>2.518514</u> 2.367999 233.35	9.849485 <u>2.518514</u> 2.367999 233.35	4-54 471.24	9.938410 <u>2.673242</u> 2.671652 469.51	8.731896 <u>2.673892</u> 1.604786 40.26
7-45 191.40	9.996015 <u>2.281942</u> 2.277957 189.65	9.129854 <u>2.281942</u> 1.411796 25.81	957 838 119	652 639 13	904 889 15
68-30 1531.20	9.802511 <u>3.185032</u> 2.998643 973.98	9.887408 <u>3.185032</u> 3.071438 1198.79	17 17 17	125 76 49	3028 2985 43
43-30 600.00	9.860562 <u>2.819544</u> 2.680106 478.75	9.837812 <u>2.819544</u> 2.657356 454.31	293 370 43	3.7	3028 2985 43
21-30 442.20	9.948678 <u>2.645619</u> 2.614297 411.43	9.964075 <u>2.645619</u> 2.209694 162.07	179	13	285
9-15 660.00	9.994316 <u>2.819544</u> 2.813860 681.42	9.206131 <u>2.819544</u> 2.025675 106.09			
1-30 508.20	9.999851 <u>2.706035</u> 2.705886 508.03	8.417919 <u>2.706035</u> 1.123954 13.80			
5-45 640.20	9.997809 <u>2.806316</u> 2.804125 636.98	9.000816 <u>2.806316</u> 1.807132 641.40			
10-15 528.20	9.993013 <u>2.706035</u> 2.699048 500.09	9.250282 <u>2.706035</u> 1.956317 90.43			
52-45 356.40	9.781966 <u>2.557138</u> 2.333904 216.73	9.900904 <u>2.557138</u> 2.452852 283.80			

41-45 9.87272
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 18-45 9.976318
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 2.017980
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 21-15 9.969420
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 4-45 9.843725
 263.00 2.559907
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 153.30
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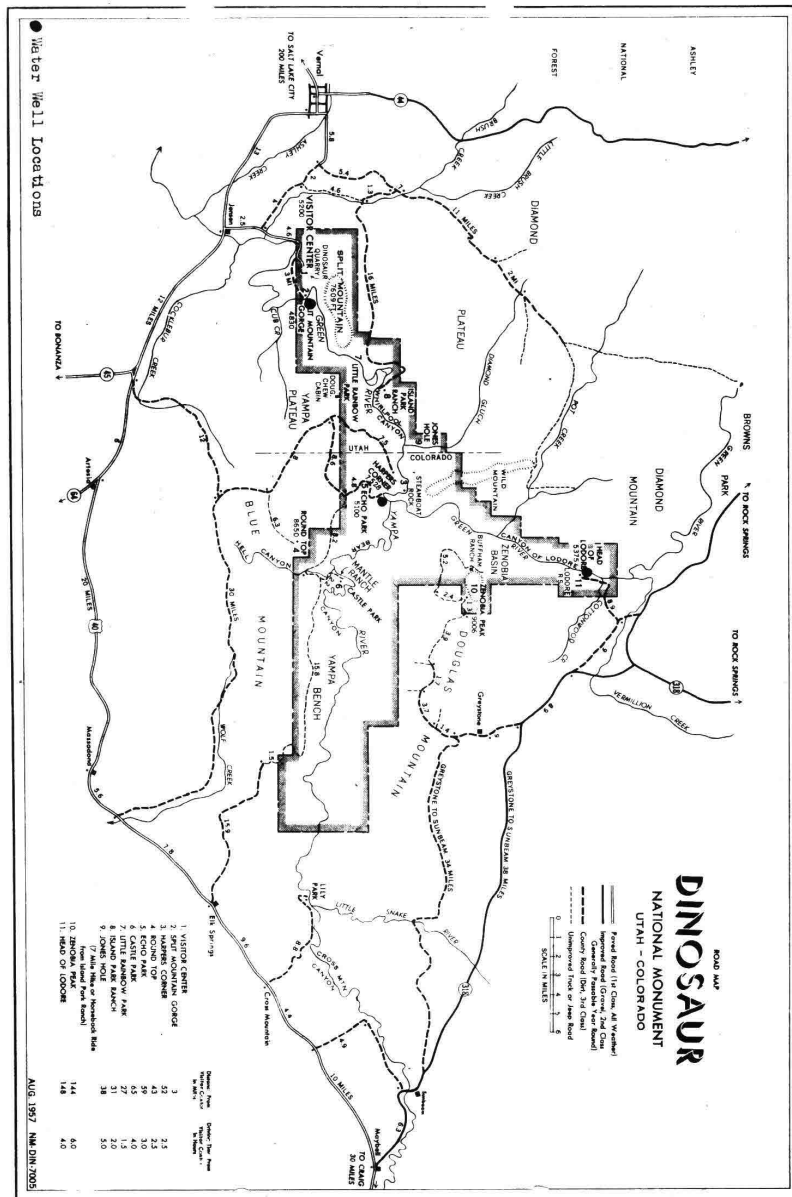
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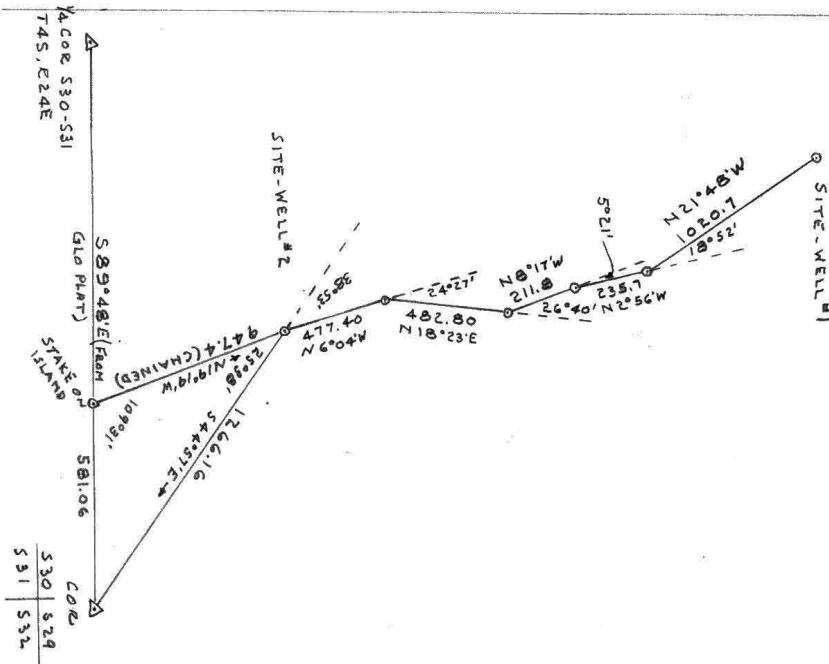
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Station	Course		Cosine	Sine	Latitude		Departure		Balanced		D.M.D.	Double Areas		Coordinates	
	Bearing	Distance			N	S	E	W	N	E		+	-	N	E
NE Cr	50-03 E	19.93	1.0000	0.016	5725.98	6.14								19,000.00	
SE Cr (32)	West	17.90	0.0000	1.0000			5780.00							4,734.62	12,000.00
SW Cr (30)	N 0-05 W	17.90	1.0000	0.016			7.66							4,734.62	4,736.12
NW Cr (10)	S 83-40-30 E	52.81	1.0000	1.0000	4.62	52.81.74								19,000.00	4,718.46
SE Cr (10)														19,000.00	12,000.00
From T.P. plat approved May 2, 1912 Completed N.E. line															

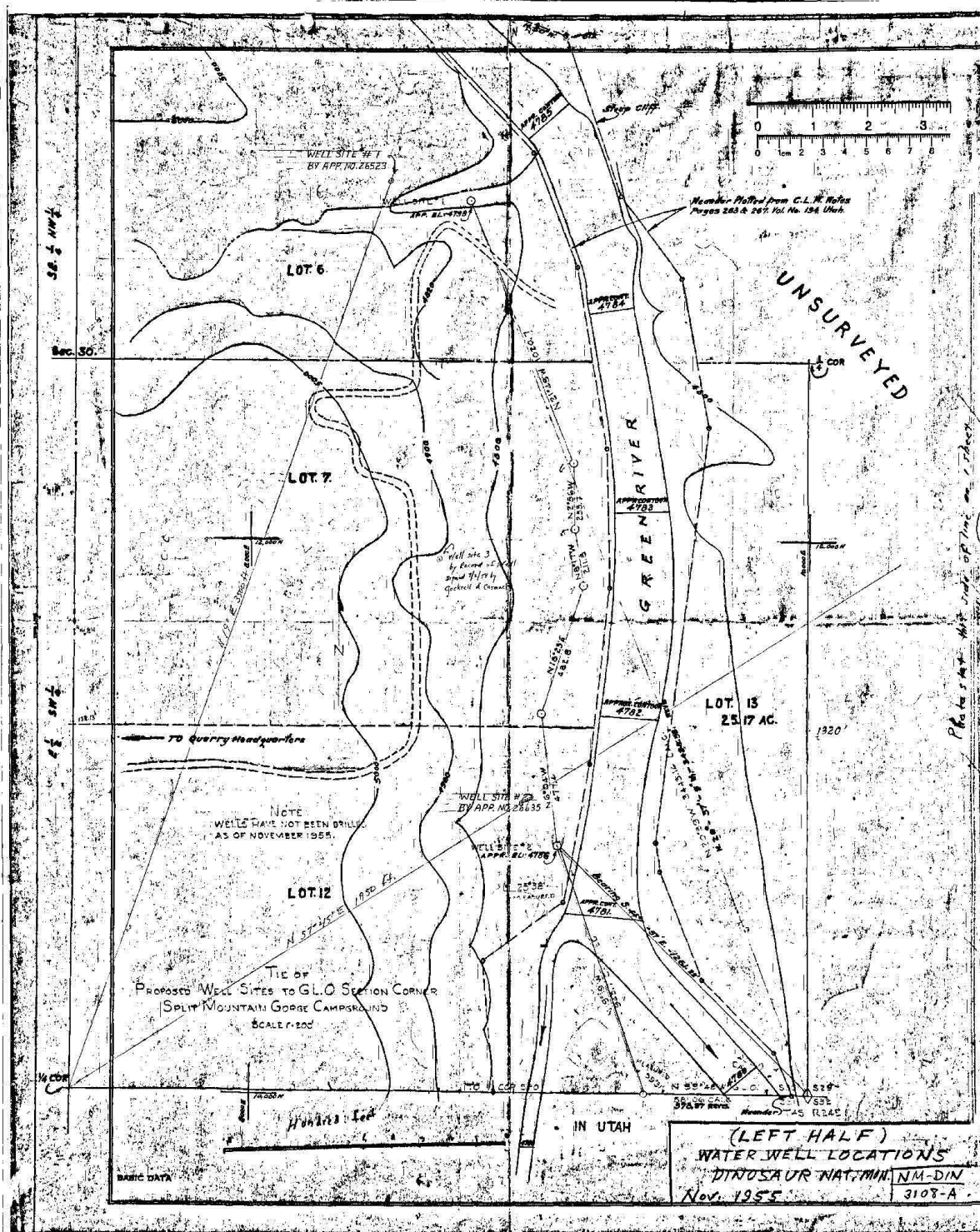


TIE OF WELL SITES IN SPLIT MT
GORGE C.G. TO GLO SECTION CORNERS

22
9/30/55
GRUNIGEN
OXBORO



(NOTE:
LEFT & RIGHT HAND PAGES (22)
OF DIMENSION N.T. FILED BOOK NO. 6-A.)



Docket Information

Number of Documents in Docket 95

Documents Dated from 6/28/1955 to 1/23/1986

Docket Compiled: 3/9/2011