WATER-RIGHT DOCKET

Zion National Park

Docket No: 6

EAST ENTRANCE WELL

Preliminary Docket Information

00-00-0000: water right record

586-2369

WATER RIGHT RECORD

Park: ZION

Docket Number:
Federal 6

ID NO: ZION W 2 8 4 1 0 9 A F 0 6

DITCH/WATER SYSTEM:

SOURCE OF SUPPLY: East Entrance Well

LOCATION: S75°54'20"W, 6382 Ft. from N¼ cor., Sec. 21, T41S, R9W, SLM

WATER RIGHT:

Appropriator: United States of America, National Park Service

Application/Permit Number: 34269

Certificate Record Number:

Date of Priority: May 3, 1962

Quantity of Water: 0.0223

Purpose: Domestic

Irrigated Land Description:

SUMMARY OF STATUS: This is a Federal water right consisting of a well, pumphouse, 25,000 gallon storage tank and 600 ft. of conveyance pipe.

State Water Rights Documentation

United States Department of the Interior

NATIONAL PARK SERVICE
Water Resources Division
1201 Oakridge Drive, Suite 250
Fort Collins, Colorado 80525-5596

IN REPLY REFER TO:

May 09, 2002

L54 (2380)
ZION/Water Rights

Mr. Jerry D. Olds, P.E.
State Engineer
Department of Natural Resources
1594 West North Temple, Suite 220
P.O. Box 146300
Salt Lake City, Utah 84114-6300

Re: Withdrawal of State Appropriative Water Rights at Zion National Park

Dear Jerry:

Please withdraw our water rights applications and/or certificates for the East Entrance (WUC No. 81-514; A34269; a10851; Cert. 10754) and Taylor Creek (WUC No. 81-662; A36782) wells as required in the Zion Water Rights Settlement Agreement in Article III.K. As described in Article III.K of the Agreement, the State will now recognize these wells as reserved water rights with priority dates of June 13, 1930, and January 22, 1937, respectively. Please let us know if we need to do anything else to complete this action.

If you have any questions please contact Bill Hansen, of my staff, at (970) 225-3532.

Sincerely,

Chuck W. Pettee
Chief, Water Rights Branch

cc: ZION – Ott, Sharrow
IMRO - Reber
SOL - Karkut
2380 (email) – Pettee, McGlothlin
ZION-0006 and 0007 Dockets
Virgin River Adjudication Files

Form 23

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

EARL M. STAKER
DEPUTY

200 EMPIRE BUILDING
231 EAST 400 SOUTH
SALT LAKE CITY, UTAH 84111
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN
ROBERT L. MORGAN

United States of America, National Park Service
Regional Office
Box 25287
Denver, Colorado 80225

CERTIFICATE ISSUED: February 25, 1980

APPLICATION NUMBER: 34269, a-10851 (81-514)

Enclosed is Certificate No. 10754 issued by the State Engineer as the final step in completing the appropriation relating to the above Application Number.

Under the law this Certificate must be recorded in the office of the County Recorder in the County where the water is diverted, within thirty (30) days from the receipt hereof. You should attend to this matter at once.

Yours very truly,

Dee. C. Hansen

ADDRESS ALL COMMUNICATIONS TO:

Dee. C. Hansen
STATE ENGINEER
231 East 400 South
Suite 200
Salt Lake City, Utah 84111

SW

Form 1 1971

CERTIFICATE OF APPROPRIATION OF WATER

STATE OF UTAH

Water User's Claim No. 81-514 Application No. a-10851 34269 Certificate No. 10754

1. Name and address of appropriator: United States of America, National Park Service

Regional Office Box 25287 Denver, Colorado 80225

Whereas, it has been made to appear to the satisfaction of the undersigned that the appropriation of water has been perfected under the above numbered application in accordance with the Laws of Utah; Therefore, Be it known that the State Engineer hereby certifies that said appropriator is entitled to the use of water subject to prior rights, if any, as follows:

2. Period and nature of use:

Irrigation	from March 1	to November 30
Domestic	from January 1	to December 31
Stockwatering	from January 1	to December 31
Municipal	from	to
Other	from January 1	to December 31

3. Source of supply: Underground Water, Well

4. Drainage area: Colorado River

5. Quantity of water: 0.0223 cfs.

6. Priority of right: May 3, 1962

7. Point of diversion: S. 75°54'20" W., 6382 ft. from the N¼ cor. Sec. 21, T41S, R9W, SLBM.

Kane County, Utah

8. Method of diversion: 8 inch diameter well, 924 ft. and 6 inches deep

9. Place and/or extent of use:

IRRIGATION: 0.02 ac. SE¼NW¼, Sec. 20, T41S, R9W, SLBM

DOMESTIC: 1 family and 3 seasonal employees

STOCKWATERING: 6 horses

OTHER: Water provided for public use, including a facility to fill water tanks in recreational vehicles for park visitors.

1/2 unit → 0.08 Irrig + 0.788 (domestic: 1 family all year, 1 family 9 mo) + 0.168 (horses: 4/cow x 2.8)
+ 8.96 AF (RV water tanks) ≈ 10.0 AF
↳ projected use

10. Other rights appurtenant: None

The works employed in this appropriation are to be operated and maintained in such a manner and condition as will prevent waste of water. This certificate entitles the holder to use only sufficient water from all rights combined to constitute an economic duty without waste.

The right evidenced by this certificate is subject to review by the courts in any adjudication proceeding.

In Witness Whereof, I have hereunto set my hand and affixed the seal of my office this 25th day of February 19 80.

Dee C. Hansen
State Engineer
Dee C. Hansen

In the event the right evidenced by this certificate is transferred, a copy of such transfer should be furnished the State Engineer by the party acquiring the right.

Form 31-A

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

EARL M. STAKER
DEPUTY

200 EMPIRE BUILDING
231 EAST 400 SOUTH
SALT LAKE CITY, UTAH 84111
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN
ROBERT L. MORGAN

December 21, 1979

United States of America
National Park Service
Regional Office
P.O. Box 25287
Denver, Colorado 80225

AMENDATORY

Gentlemen: RE: Change Appl. No. a-10851 (81-514)

Enclsoed is Change Application No.a-10851 (81-514) which has been approved. The approved change application is amendatory and serves only to affect a correction to Application No. 34269 , on which proof has been submitted.

A certificate of appropriation is being prepared and will be issued to you at an early date.

Yours truly,

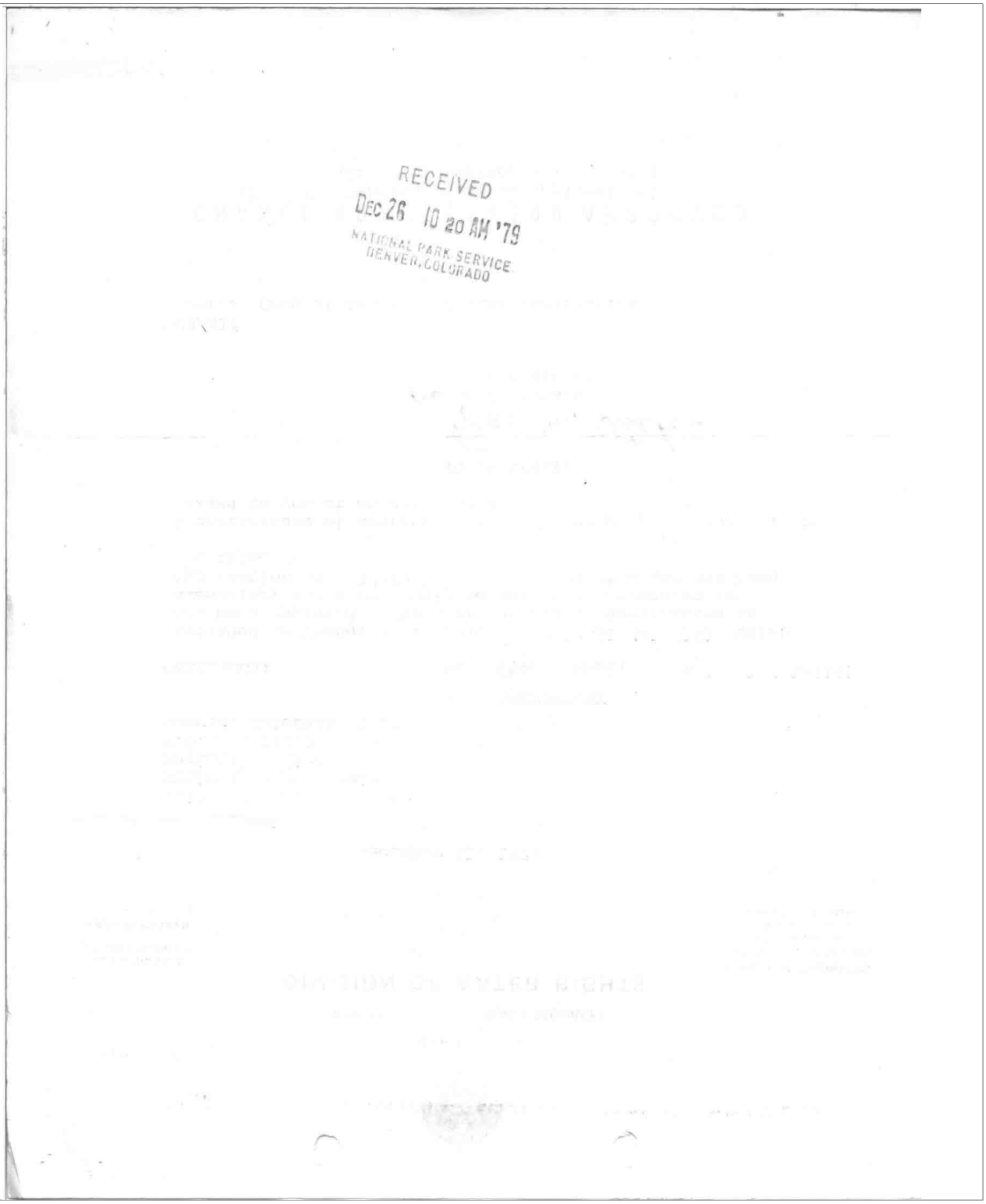
Earl M. Staker

FOR Dee C. Hansen
State Engineer

DCH/slf
Encl.: Copy of Approved Change Application

CHANGE APPLICATION APPROVED
(Form for Pending Original Application)
(Proof of Appropriation filed)

12-26-1979: received stamp - nps



00-00-1979: application for permanent change of point of diversion place and nature of use of water; a-10851

Form No. 107-3-66

RECEIVED
SEP 14 1979
State Engineer
CEDAR CITY

AMENDATORY CHANGE APPLICATION NO. a-10851

Application for Permanent Change of Point of Diversion Place and Nature of Use of Water

STATE OF UTAH

81-514

Please clearly and correctly complete the information requested below which defines the right or rights being changed. (Type or clearly print.)

For the purpose of obtaining permission to permanently change: the point of diversion ☐, place ☐, or nature of use ☒ of water rights acquired by Application No. 34269 (81-514) proof filed.
(Give Number of Application, certificate of appropriation, title and date of Decree or other identification of right.)

If the right described has been amended by a previous approved change application, give the number of such change application. No.....

1. The name of the applicant is United States of America, National Park Service Regional Office
2. The post-office address of the applicant is P. O. Box 25287, Denver, Colo. 80225
3. The flow of water which has been or was to have been used in second-feet is 0.0223
4. The quantity of water which has been or was to have been used in acre-feet is .....
5. The water has been or was to have been used for and during periods as follows:

Domestic (purpose)	from	January 1 (month)	(day)	to	December 31 (month)	(day)	incl.
Irrigation (purpose)	from	March 1 (month)	(day)	to	November 30 (month)	(day)	incl.
and stored each year (if stored)	from	(month)	(day)	to	(month)	(day)	incl.

6. The direct source of supply is underground well in Kane County.
(well, spring, stream, drain, river; if other explain)
7. The point or points of diversion
S. 74 Deg. 54'20" W., 6382 ft. from the N¼ Cor. Sec. 21, T41S, R9W, SLB&M.

(Must be the same as that of right being changed unless a previous change has been filed and approved. Then use the point or points approved in the previous change.)

8. Diversion works:
If a well give diameter and depth 8 inch well, 924 ft & 6 in. deep, distribution system
If a dam and reservoir give height, capacity, and area inundated .....
If other give type of diversion facility .....
9. The water involved has been or was to have been used for the following purposes in the following described legal subdivisions: (If used for irrigation, state sole or supplemental supply, and describe other supplemental rights.)
Irrigation within the NW¼SE¼NW¼ Sec. 20, T41S, R9W, SLB&M.
Total acres to be irrigated 4.0
Stockwatering (number and kind) .....
Domestic (number of families and/or persons, etc.) 4 families, park visitors and fire
Other protection in Zion National Park
10. The point at which water has been or was to have been returned to the stream channel is situated as follows: (Please describe method of return.) .....

Note: Paragraph 10 is to be completed only when all or part of the water is returned to the natural stream or channel.

The Following Changes Are Proposed

11. The flow of water to be changed in cubic feet per second is 0.0223
12. The quantity of water to be changed in acre-feet is .....

13. The water will be used each year for:

Use from Jan. 1 to Dec. 31 incl.
Domestic, Stockwater & Park Visitor (purpose) (month) (day) (month) (day)

Irrigation from March 1 to November 30 incl.
(purpose) (month) (day) (month) (day)

and stored each year (if stored) from ..... to ..... incl.
(month) (day) (month) (day)

14. It is now proposed to divert the water from a well
(i.e., spring, spring area, stream, river, drain, well, etc.)

at a point(s) as follows:
S. 75 Deg. 54'20" W., 6382 ft. from the N¼ Cor. Sec. 21, T41S, R9W, SLB&M.

NOTE: The "point of diversion," or "point of return," must be located by course and distance or by rectangular distances with reference to some regularly established United States land corner or United States mineral monument if within a distance of six miles of either, or if a greater distance to some prominent and permanent natural object. A spring area must also be described by metes and bounds.

15. The proposed diverting and conveying works will consist of: (if a well, state diameter and depth thereof)
8 inch well, 924 ft. & 6 in. deep, distribution system

16. If water is to be stored, give capacity of reservoir in acre-feet ..... height of dam .....
area inundated in acres ..... legal subdivisions of area inundated .....

17. The water is to be used for the following purposes in the following described legal subdivisions: (if used for irrigation, state sole or supplemental supply, and describe other supplemental rights.)
Irrigation within the NW¼SE¼NW¼ Sec. 20, T41S, R9W, SLB&M.

Total acres to be irrigated 0.02
but limited to the sole irrigation supply of 0.02 acres.
Stockwatering (number and kind) 6 horses
Domestic (number of families and/or persons, etc.) one family -year round res. & 3 seasonal employees in mobile home. Water for public use, including a facility to fill water tanks in recreational vehicles for park visitors.
Other

18. If paragraphs 11 and 12 designate that only part of the right described in paragraphs 1 to 10 inclusive is to be changed, designate the status of the water so affected by this change as to its being abandoned or used as heretofore.

EXPLANATORY

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

Amendatory change required to correct the nature of use.

AMENDATORY

The undersigned hereby acknowledges that even though he may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the State Engineer's Office, all responsibility for the accuracy of the information contained therein, at the time of filing, rests with the applicant.

Walter L. Mahler
Signature of Applicant

RECEIVED
JUL 19 1979
WATER RIGHTS

(This page not to be filled in by applicant)

STATE ENGINEER'S ENDORSEMENTS

1. July 13, 1979 Change Application received ~~over counter~~ by mail in State Engineer's office by [illegible]
2. _____ Priority of right to make change brought down to, on account of _____
3. July 18, 1979 Fee for filing Application $15.00, received by [illegible], Receipt No. 04358
4. _____ Application microfilmed by _____ Roll No. _____ and indexed by [illegible]
5. _____ Application platted by [illegible] (C 41-9) 21 ccd
6. July 12, 1979 Application examined by [illegible]
7. _____ Application returned, with letter, to _____ for correction
8. _____ Corrected application resubmitted over counter by mail to State Engineer's office _____
9. July 18, 1979 Application approved for advertisement by [illegible]
10. SEP 14 1979 Notice to water users prepared by [illegible]
11. SEP 20 1979 Publication began, was completed OCT 4 1979 Southern Utah News
12. 9/25/79 Proof slips checked by dg. co
13. _____ Change Application protested by _____
14. 10/17/79 Publisher paid MEV No. 631181
15. _____ Field Examined by _____
16. 11-9-79 Application designated for ~~rejection~~ approval by [illegible] SG.
17. 12/21/79 Change Application copied slf proofread by _____
18. 12/21/79 Change Application ~~rejected~~ approved and returned to applicant _____

This application is approved on the following conditions:

1. Actual construction work necessitated by proposed change shall be diligently prosecuted to completion.
2. Proof of change shall be submitted to the State Engineer's office by _____ Under 34269
3. This change is subject to all conditions imposed on the approval of the original application or right

AMENDATORY

Earl M. Staker
FOR Dee C. Hansen, *State Engineer*

19. _____ Time for making proof of change extended to _____
20. _____ Proof of change submitted.
21. _____ Certificate of change No. _____, issued.

I hereby certify that the foregoing is a true copy of the Application by _____ to change the point of diversion, place and nature of use of water as shown, with endorsements thereon, on the records of my office on the date given below.

Salt Lake City, Utah _____, 19____ _____
State Engineer

Change Application No. A-10851 81-514

11-29-1978: proof of appropriation of water; application no. 34269

RECEIVED

NOV 29 1978

WATER RIGHTS

FORM 49

STATE OF UTAH

PROOF OF APPROPRIATION OF WATER

Do not fill out this blank until you have read carefully the Instructions in the body and on the back hereof.

Application No. 34269 (81-514)

1. Irrigation ☒ Domestic ☒ Stockwatering ☒ Municipal ☐ Power ☐ Mining ☐ Other Uses ☒
2. The name of the appropriator is United States of America, National Park Service
3. The post-office address of the appropriator is Zion National Park, Springdale, Utah
4. The quantity of water appropriated is 0.0223 second-feet or ..... acre-feet
5. The water is used each year for Domestic use from January 1 to December 31
   other use period Irrigation from March 1 to November 30
   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—When diverted from underground sources list as "underground water" and show the means by which it is diverted such as well, underground drain, or tunnel. If the water is to be taken from a stream, spring, spring area, or surface drain, so indicate, giving its name, and the stream channels to which it is tributary.

8. The point of diversion from ~~stream, spring, spring area, drain~~, well (~~flowing or~~ pump), ~~tunnel~~, or (STRIKE WORDS NOT NEEDED)
   ..... is in Kane county, situated at a point*
   S 75°54'20"W 6382' from the north ¼ corner of Section 21, T41S, R9W, SLBM

*NOTE—Locate the point at which water is first diverted from its source or channel with reference to the same tie corner used in the approved application. In case of storage on the natural channel, or diversion by means of dam, describe the point of intersection of stream bed with the center line of the impounding or diverting dam. If a spring area, describe the point at which water is collected and diverted therefrom, and under General Remarks give a description of closed traverse by metes and bounds of said area.

9. The diverting and carrying works consist of an 8 inch diameter well, 600 feet of distribution pipe, a 30,000 gallon storage tank and a pumphouse. Total depth of well 926'
10. If water is used for irrigation purposes, give legal subdivisions of land irrigated .02 acres in the NW ¼, Se ¼, NW ¼ of Section 20, T41S, R9W, SLBM. (This includes app. 800 square feet of lawn and trees and shrubs continues to residence and kiosk.)

    Total area irrigated is .02 acres.
11. If water is used for power purposes, describe the type of power plant used N/A
12. If water is used for mining purposes, give the name of the mine, the mining district, and the uses made of the water N/A
13. If water is used for stockwatering purposes, give the number and kind of stock watered 2-6 horses
14. If water is used for domestic purposes, give number of families served one family year around*
15. If water is used for municipal purposes (a) give name of municipality ..... (b) If municipality serves areas outside of corporate limits, describe legal subdivision served and uses made of water N/A
16. If water is used for other purposes, give a general description of such uses water for park visitors. A facility is provided at the entrance gate to fill water tanks on campers and recreation vehicles and public use water.
17. Give place of use by legal subdivisions for all uses described in paragraphs 11 to 16 inclusive NW ¼, SE ¼, NW ¼ of Section 20, T41S, R9W, SLBM.
18. The point where the water is returned to the natural channel, if returned, is situated .....
19. The water is used supplementally to the following rights .....
20. Construction of works was commenced* June 7 19 62, and completed August 19 66
    *Date of first work subsequent to aproval of application.
*21. Works were first used to convey water April, 19 66
22. Water was measured by ** Date ....., 19 .....
    (NAME OF HYDROGRAPHER)
23. Water was measured by vessel, weir, reservoir capacity, or by‡ tank capacity
    (STRIKE WORDS NOT NEEDED)

‡(Give sufficient data under "General Remarks" to enable State Engineer to check the water measurements. It is necessary that the results of a series of such measurements be given.)

GENERAL REMARKS

(See Instructions on page 4)

* One family is maintained at this location on a year around basis. From appr. mid May until Sept. 1 (during the heavy visitor season) an additional 2-3 seasonal employees are stationed at this location.

** Water pumping is under the general supervision of Devar Pollack, Chief of Maintenance, Zion National Park.

Estimated Water Consumption.

Domestic/culinary water

250 gpd x 365 days = 91,250 gallons

150 gpd x $\frac{120}{90}$ days = 18,000 gallons

Public use water

100 gpd x 105 days = 10,500 gallons

Stock water (1-6 horses)

48 gpd x 90 days = 4,320 gallons

Irrigation

500 gpd x 90 days = 45,000 gallons

169,070 gallons

Submission of proof attested by:

Applicant or his agent: National Park Service, Wm. L. Mekeel, agent **Date** November 17, 1978

Engineer: Ronald E. Cotten **Date** November 17,1978

P. O. Address of Engineer: National Park Service, Regional Office, 655 Parfet Street
P.O. Box 25287, Denver, Colorado 80225

(Fill in blank spaces but do not sign until proof has been submitted to the State Engineer and accepted as sufficient.)

CERTIFICATE OF APPROPRIATOR

STATE OF UTAH)
COUNTY OF) ss.

William L. Mekeel being first duly sworn, certifies that he is the person, assignee, or Agent of U.S.A., National Park Service who made an application to appropriate water from Underground water (well) in Kane County; that said application is filed in the State Engineer's office as No. 34269 (81-514); that he, as appropriator, employed National Park Service employees to compile information for the purpose of completion of proof of appropriation and that I or said ..... hereby accept and submit this written proof together with maps consisting of 1 sheet, No. 116/80040 to ..... incl. and when combined with sheets No. ..... to ..... incl. on file as proof of appropriation under Application No. ..... together with sheets No. ..... to ..... consisting of ..... on file in the office of the State Engineer, that said facts and maps are herewith submitted, and that each and all items contained therein are true to the best of his knowledge and belief.

William L. Mekeel
APPLICANT OR HIS AGENT

Subscribed and sworn to before me this 9th day of July, 1979
(Seal)

My commission expires 11/16/80, 1980.

Mary E. Greendall
NOTARY PUBLIC

CERTIFICATE OF PROOF ENGINEER

Colorado
STATE OF ~~UTAH~~)
COUNTY OF Larimer) ss.

Ronald E. Cotten for the United States of America being first duly sworn, certifies that he was employed to prepare proof of appropriation under Application No. 34269 (81-514), that the accompanying tracings were prepared from field notes of a survey made ~~by him~~ under his direction between the 3rd day of November, 1976, and the 5th day of November, 19 76; that these tracings, when combined with sheets No. ..... to ..... incl. on file as proof under Application No. 34269 (81-514) together with sheets No. ..... to ..... consisting of ..... on file in the office of the State Engineer; and when combined with the written proof fully describe the method and extent of beneficial use of the water and that each and ~~all~~ of the items contained herein are true to the best of his knowledge.

Ronald E. Cotten
PROOF ENGINEER

Subscribed and sworn to before me this 17TH day of NOVEMBER, 1978
(Seal)

My commission expires OCTOBER 19, 1978.

Mary M. Douglas
NOTARY PUBLIC

STATE ENGINEER'S ENDORSEMENTS

Dates

May 3, 1962 Application received in State Engineer's office; Approved Sept 18, 1962
11-30-78 Proof of Appropriation due in State Engineer's office.
11-29-78 Written proof and maps received in State Engineer's office by .....
6-11-1979 Written proof and maps returned for correction by SR
..... Corrected written proof and maps resubmitted, received by .....
5-30-79 Field checked by .....
..... Corrected written proof and maps examined and Certificate written by .....
..... Certificate of Appropriation issued (No. .....)
11-29-78 Maps profiles, and drawings are filed. in drawer

This written proof and the maps, profiles, and drawings pertaining thereto, are found to comply with the requirements of the Laws of Utah, and the same are hereby approved.

..... 19 .....
State Engineer.

Proof of Appropriation
on Application No. 34269

Form No. 107 3-66

AMENDATORY CHANGE APPLICATION NO. .....

Application for Permanent Change of Point of Diversion Place and Nature of Use of Water

STATE OF UTAH

Please clearly and correctly complete the information requested below which defines the right or rights being changed. (Type or clearly print.)

For the purpose of obtaining permission to permanently change: the point of diversion ☐, place ☐, or nature of use ☒ of water rights acquired by Application No. 34269 (81-514) proof filed.
(Give Number of Application, certificate of appropriation, title and date of Decree or other identification of right.)

If the right described has been amended by a previous approved change application, give the number of such change application. No. .....

1. The name of the applicant is United States of America, National Park Service Regional Office
2. The post-office address of the applicant is P. O. Box 25287, Denver, Colo. 80225
3. The flow of water which has been or was to have been used in second-feet is 0.0223
4. The quantity of water which has been or was to have been used in acre-feet is .....
5. The water has been or was to have been used for and during periods as follows:

Domestic (purpose)	from	January 1 (month) (day)	to	December 31 (month) (day)	incl.	
Irrigation (purpose)	from	March 1 (month) (day)	to	November 30 (month) (day)	incl.	
and stored each year (if stored)	from	(month) (day)	to	(month) (day)	incl.	

6. The direct source of supply is underground well (well, spring, stream, drain, river; if other explain) in Kane County.
7. The point or points of diversion S. 74 Deg. 54'20" W., 6382 ft. from the N¼ Cor. Sec. 21, T41S, R9W, SLB&M.

(Must be the same as that of right being changed unless a previous change has been filed and approved. Then use the point or points approved in the previous change.)

8. Diversion works:
   If a well give diameter and depth 8 inch well, 924 ft & 6 in. deep, distribution system
   If a dam and reservoir give height, capacity, and area inundated .....
   If other give type of diversion facility .....
9. The water involved has been or was to have been used for the following purposes in the following described legal subdivisions: (If used for irrigation, state sole or supplemental supply, and describe other supplemental rights.)
   Irrigation within the NW¼SE¼NW¼ Sec. 20, T41S, R9W, SLB&M.
   Total acres to be irrigated 4.0
   Stockwatering (number and kind) .....
   Domestic (number of families and/or persons, etc.) 4 families, park visitors and fire protection in Zion National Park
   Other .....
10. The point at which water has been or was to have been returned to the stream channel is situated as follows: (Please describe method of return.) .....

Note: Paragraph 10 is to be completed only when all or part of the water is returned to the natural stream or channel.

The Following Changes Are Proposed

11. The flow of water to be changed in cubic feet per second is 0.0223
12. The quantity of water to be changed in acre-feet is .....

13. The water will be used each year for:

Use from Jan. 1 to Dec. 31 incl.
Domestic, Stockwater & Park Visitor (purpose) (month) (day) (month) (day)

Irrigation from March 1 to November 30 incl.
(purpose) (month) (day) (month) (day)

and stored each year (if stored) from ..... to ..... incl.
(month) (day) (month) (day)

14. It is now proposed to divert the water from a well
(i.e., spring, spring area, stream, river, drain, well, etc.)

at a point(s) as follows:
S. 75 Deg. 54'20" W., 6382 ft. from the N¼ Cor. Sec. 21, T41S, R9W, SLB&M.

NOTE: The "point of diversion," or "point of return," must be located by course and distance or by rectangular distances with reference to some regularly established United States land corner or United States mineral monument if within a distance of six miles of either, or if a greater distance to some prominent and permanent natural object. A spring area must also be described by metes and bounds.

15. The proposed diverting and conveying works will consist of: (if a well, state diameter and depth thereof)
8 inch well, 924 ft. & 6 in. deep, distribution system

16. If water is to be stored, give capacity of reservoir in acre-feet ..... height of dam .....
area inundated in acres ..... legal subdivisions of area inundated .....

17. The water is to be used for the following purposes in the following described legal subdivisions: (if used for irrigation, state sole or supplemental supply, and describe other supplemental rights.)
Irrigation within the NW¼SE¼NW¼ Sec. 20, T41S, R9W, SLB&M.

Total acres to be irrigated 0.02

but limited to the sole irrigation supply of 0.02 acres.

Stockwatering (number and kind) 6 horses

Domestic (number of families and/or persons, etc.) one family -year round res. & 3 seasonal employees in mobile home. Water for public use, including a facility to fill water tanks in recreational vehicles for park visitors.

Other

18. If paragraphs 11 and 12 designate that only part of the right described in paragraphs 1 to 10 inclusive is to be changed, designate the status of the water so affected by this change as to its being abandoned or used as heretofore.

EXPLANATORY

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

Amendatory change required to correct the nature of use.

AMENDATORY

The undersigned hereby acknowledges that even though he may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the State Engineer's Office, all responsibility for the accuracy of the information contained therein, at the time of filing, rests with the applicant.

/s/ WILLIAM MEKEEL
Signature of Applicant

06-11-1979: letter to the nps from an engineering technician regarding application no. 34269

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

GERALD W. STOKER
AREA ENGINEER

P.O. BOX 506
CEDAR CITY, UTAH 84720
586-4231

June 11, 1979

National Park Service
Regional Office
P. O. Box 25287
Denver, Colo. 80225

Attention: Mr. William L. Mekeel, Chief
Division of Water Resources

RE: Application No. 34269 (81-514)
Zion National Park

Dear Mr. Mekeel:

The proof of appropriation on the above numbered application has been field examined by a representative of the State Engineer and is being returned to you for the following:

Item 5, The period of use applied for on irrigation use was March 1 to November 30. You may wish to amend your proof to this period.

Item 9, Include the total depth of this well. 926'

Item 15, The original application did not apply for a stockwater use. You must either delet this use from the proof or file an amendatory change application to include the stockwater use. We have prepared the enclosed application for your review and execution of you want to establish this use from the well. The filing fee for the change will be $15.00.

After you have amended the proof as outlined please have the Certificate of the Appropriator executed by the proper party before a Notary Public. You are allowed to and including July 11, 1979 within which to return the completed proof and the amendatory change application with filing fee to this office in Cedar City, Utah,

Sincerely,

Sandra McCall

Sandra McCall
Engineering Technician

sm

Enc: Written proof & Form 107

East Entrance
L54
FORM 40

RECEIVED
ZION NATIONAL PARK
JAN 08 1979

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER
JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

January 4, 1979

Seq		Init	Date
	Supt		
	Sec		
	Admin Off		
	Fee		
	DIRECTING ENGINEERS		
	HAROLD D. DONALDSON		
	Proj RONALD C. NORSETH		
	Fiscal Off STANLEY GREEN		
	Fi		
	PISP		
	CE&R		

United States of America
National Park Service
Zion National Park
Springdale, Utah 84767

RE: Application No. 34269 (81-514)

Dear Applicant:

Your proof for the above application was received from your engineer Mr. Ronald E. Cotten on November 29, 1978 It will be checked in the field by a representative of this office as part of routine processing. It will then be reviewed and returned to your engineer for any necessary corrections and signatures. The primary responsibility for its form and its accuracy lies with your engineer; however, you will receive copies of the letter or review and any other correspondence related to your proof.

Proofs are normally reviewed as groups from the various areas; therefore, they may be in our possession for several months before being checked and reviewed. During this time, no further action is required on the part of you or your engineer unless notified by this office.

Sincerely,

Nancy Hewitt
PROOF DEPARTMENT

nh

FORM 49

STATE OF UTAH

PROOF OF APPROPRIATION OF WATER

Do not fill out this blank until you have read carefully the Instructions in the body and on the back hereof.

Application No. 34269 (81-514)

1. Irrigation ☒ Domestic ☒ Stockwatering ☒ Municipal ☐ Power ☐ Mining ☐ Other Uses ☒
2. The name of the appropriator is United States of America, National Park Service
3. The post-office address of the appropriator is Zion National Park, Springdale, Utah
4. The quantity of water appropriated is 0.0223 second-feet or ..... acre-feet
5. The water is used each year for Domestic use from January 1 to December 31
   other use period Irrigation from May 1 to October 1
   and stored each year (if stored) ..... from ..... (MONTH/DAY) to ..... (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—When diverted from underground sources list as "underground water" and show the means by which it is diverted such as well, underground drain, or tunnel. If the water is to be taken from a stream, spring, spring area, or surface drain, so indicate, giving its name, and the stream channels to which it is tributary.

8. The point of diversion from ~~stream, spring, spring area, drain~~, well (~~flowing or~~ pump), ~~tunnel,~~ or (STRIKE WORDS NOT NEEDED)
   ..... is in Kane county, situated at a point*
   S 75°54'20"W 6382' from the north ¼ corner of Section 21, T41S, R9W, SLBM

*NOTE—Locate the point at which water is first diverted from its source or channel with reference to the same tie corner used in the approved application. In case of storage on the natural channel, or diversion by means of dam, describe the point of intersection of stream bed with the center line of the impounding or diverting dam. If a spring area, describe the point at which water is collected and diverted therefrom, and under General Remarks give a description of closed traverse by metes and bounds of said area.

9. The diverting and carrying works consist of an 8 inch diameter well, 600 feet of distribution pipe, a 30,000 gallon storage tank and a pumphouse.
10. If water is used for irrigation purposes, give legal subdivisions of land irrigated .02 acres in the NW ¼, Se ¼, NW ¼ of Section 20, T41S, R9W, SLBM. (This includes app. 800 square feet of lawn and trees and shrubs continues to residence and kiosk.)

    Total area irrigated is .02 acres.
11. If water is used for power purposes, describe the type of power plant used N/A
12. If water is used for mining purposes, give the name of the mine, the mining district, and the uses made of the water N/A
13. If water is used for stockwatering purposes, give the number and kind of stock watered 2-6 horses
14. If water is used for domestic purposes, give number of families served one family year around*
15. If water is used for municipal purposes (a) give name of municipality ..... (b) If municipality serves areas outside of corporate limits, describe legal subdivision served and uses made of water N/A
16. If water is used for other purposes, give a general description of such uses water for park visitors. A facility is provided at the entrance gate to fill water tanks on campers and recreation vehicles and public use water.
17. Give place of use by legal subdivisions for all uses described in paragraphs 11 to 16 inclusive NW ¼, SE ¼, NW ¼ of Section 20, T41S, R9W, SLBM.
18. The point where the water is returned to the natural channel, if returned, is situated .....
19. The water is used supplementally to the following rights .....
20. Construction of works was commenced* June 7 19 62, and completed August 19 66
    *Date of first work subsequent to aproval of application.
*21. Works were first used to convey water April, 19 66
22. Water was measured by ** (NAME OF HYDROGRAPHER) Date ....., 19.....
23. Water was measured by vessel, weir, reservoir capacity, or by‡ tank capacity (STRIKE WORDS NOT NEEDED)

‡(Give sufficient data under "General Remarks" to enable State Engineer to check the water measurements. It is necessary that the results of a series of such measurements be given.)

GENERAL REMARKS

(See Instructions on page 4)

* One family is maintained at this location on a year around basis. From appr. mid May until Sept. 1 (during the heavy visitor season) an additional 2-3 seasonal employees are stationed at this location.

** Water pumping is under the general supervision of Devar Pollack, Chief of Maintenance, Zion National Park.

Estimated Water Consumption.

Domestic/culinary water

250 gpd x 365 days = 91,250 gallons

150 gpd x 120 90 days = 18,000 gallons

Public use water

100 gpd x 105 days = 10,500 gallons

Stock water (1-6 horses)

48 gpd x 90 days = 4,320 gallons

Irrigation

500 gpd x 90 days = 45,000 gallons

169,070 gallons

Submission of proof attested by:

Applicant or his agent: National Park Service, Wm. L. Mekeel, agent **Date** November 17, 197

Engineer: Ronald E. Cotten **Date** November 17, 1978

P. O. Address of Engineer: National Park Service, Regional Office, 655 Parfet Street P.O. Box 25287, Denver, Colorado 80225

(Fill in blank spaces but do not sign until proof has been submitted to the State Engineer and accepted as sufficient.)

CERTIFICATE OF APPROPRIATOR

STATE OF UTAH)
COUNTY OF .....) ss.

William L. Mekeel being first duly sworn, certifies that he is the person, assignee, or Agent of U.S.A., National Park Service who made an application to appropriate water from Underground water (well) in Kane County; that said application is filed in the State Engineer's office as No. 34269 (81-514); that he, as appropriator, employed National Park Service employees to compile information for the purpose of completion of proof of appropriation and that I or said ..... hereby accept and submit this written proof together with maps consisting of 1 sheet, No. 116/80040 to ..... incl. and when combined with sheets No. ..... to ..... incl. on file as proof of appropriation under Application No. ..... together with sheets No. ..... to ..... consisting of .....on file in the office of the State Engineer, that said facts and maps are herewith submitted, and that each and all items contained therein are true to the best of his knowledge and belief.

.....
APPLICANT OR HIS AGENT

.....

Subscribed and sworn to before me this ..... day of ....., 19.....
(Seal)

My commission expires ....., 19.....

.....
NOTARY PUBLIC

CERTIFICATE OF PROOF ENGINEER

Colorado
STATE OF ~~UTAH~~)
COUNTY OF Larimer) ss.

Ronald E. Cotten for the United States of America being first duly sworn, certifies that he was employed to prepare proof of appropriation under Application No. 34269 (81-514), that the accompanying tracings were prepared from field notes of a survey made ~~by him~~ under his direction between the 3rd day of November, 1976., and the 5th day of November, 19 76.; that these tracings, when combined with sheets No. ..... to ..... incl. on file as proof under Application No. 34269 (81-514) together with sheets No. ..... to ..... consisting of ..... on file in the office of the State Engineer; and when combined with the written proof fully describe the method and extent of beneficial use of the water and that each and ~~all~~ of the items contained herein are true to the best of his knowledge.

x Ronald E. Cotten
PROOF ENGINEER

Subscribed and sworn to before me this 17TH day of NOVEMBER, 1978
(Seal)

My commission expires OCTOBER 19, 1978.

Mary M. Douglas
NOTARY PUBLIC

STATE ENGINEER'S ENDORSEMENTS

Dates

..... Application received in State Engineer's office; Approved .....
..... Proof of Appropriation due in State Engineer's office.
..... Written proof and maps received in State Engineer's office by .....
..... Written proof and maps returned for correction by .....
..... Corrected written proof and maps resubmitted, received by .....
..... Field checked by .....
..... Corrected written proof and maps examined and Certificate written by .....
..... Certificate of Appropriation issued (No. .....)
..... Maps profiles, and drawings are filed. .....

This written proof and the maps, profiles, and drawings pertaining thereto, are found to comply with the requirements of the Laws of Utah, and the same are hereby approved.

..... 19 .....
State Engineer.

Proof of Appropriation
on Application No. .....

FORM 11

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN

November 16, 1978

National Park Service
Rocky Mountain Regional Office
P. O. Box 25287
Denver, Colorado 80225

Dear Applicant:

RE: Appl. No. 34269 (81-514)

It is noted from our files that you have only fourteen more days in which to submit proof before the lapsing of your application.

This letter is sent to remind you to have your proof or request for extension of time filed in this office before the proof-due date of your application which is November 30, 1978.

Enclosed is a request for extension of time form in case you have misplaced the one previously sent to you.

Yours truly,

Dee C. Hansen

Dee C. Hansen
State Engineer

nh

Enc.: Request Form

FORM 18

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER
JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN

September 29, 1978

National Park Service
Rocky Mountain Regional Office
P. O. Box 25287
Denver, Colorado 80225

Dear Applicant: RE: Application No. 34269 (81-514)

To appropriate water in Utah you must receive approval of an application, complete the intended development work and submit proof that the water had been put to beneficial use. Upon submission of satisfactory proof, a certificate will be issued, which is your evidence of a water right. Our records indicate that you have not made proof of appropriation or change on your application. This is due November 30, 1978.

Proof must be prepared by a registered engineer or land surveyor and must be filed in this office on or before the above proof-due date. Failure to make proof by this due date shall cause the application to lapse. Blank forms for submitting proof will be sent upon request.

If proof cannot be submitted at this time, an extension of time may be requested by completing the enclosed form and submitting the request in affidavit form on or before the proof-due date. Since fourteen years or more have elapsed since approval of your application, your request for extension of time can only be granted after publication of notice of such request and a hearing before the State Engineer. The fee for filing this request is $37.50. Submission of a request for an extension of time in no way guarantees that it will be granted. An extension can be granted only after the applicant has made a showing of diligence at the hearing before the State Engineer.

Yours truly,

Dee C. Hansen
State Engineer

nh

Enc.: Form 30
Certified Mail

PROOF DUE - ADVERTISING REQUIRED

Rocky Mountain
Regional Office

AUG 31 '77

8-31-77

Regional Director
Deputy Reg. Director
Administration
Park Operations
Plan. & Resource Pres.
Denver Archeo. Ctr.
Executive Assistant
Communications & P.A.
EEO
Action Taken

FORM 19 A

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

ENGINEERS
HAROLD B. DONALDSON
DONALD A. NORSETH
STANLEY GREEN

August 26, 1977

National Park Service
Rocky Mountain Regional Office
P.O. Box 25287
Denver, CO 80225

Dear Applicant: RE: Appl. No. 34269 (81-514)

Request for extension of time in which to submit Proof of Appropriation or Proof of Change contemplated by the above-numbered application has been considered and the time for receiving Proof of Appropriation is hereby extended from November 30, 1976 to November 30, 1978 inclusive.

This extension is granted in accordance with the law which states: "The construction of the works and the application of water to beneficial use shall be diligently prosecuted to completion within the time fixed by the state engineer. Extensions of time ... may be granted by the state engineer on proper showing of diligence or reasonable cause for delay .... In the consideration of an application to extend the time in which to place the water to beneficial use under an approved application, ... the state engineer shall deny such extension and declare the application lapsed, unless the applicant affirmatively shows that he has exercised or is exercising reasonable and due diligence in working toward completion of the appropriation."

The attached memorandum decision states the conditions for granting this extension of time. The future status of this application will depend upon compliance with these conditions.

I earnestly recommend that you complete your development and submit Proof of Appropriation at the earliest possible date.

Yours truly,

Dee C. Hansen
State Engineer

Enclosure: Memorandum Decision

DCH: cl

EXTENSION GRANTED

08-31-1977: received stamp - nps

RECEIVED
AUG 31 8 45 AM '77
NATIONAL PARK SERVICE
DENVER, COLORADO



BEFORE THE STATE ENGINEER OF THE STATE OF UTAH

IN THE MATTER OF APPLICATION)
) MEMORANDUM DECISION
NUMBER 34269 (81-514))

Application No. 34269 (81-514) was filed by the United States of America,National Park Service to appropriate 0.0223 cfs. of water from a well for the irrigation of four acres of land and the domestic use of four families in Zion National Park, Kane County, Utah. The application was approved September 18, 1962, and the proof of appropriation was last due November 30, 1976, (or September 18, 1976, the end of the 14-year period). The applicant has requested an additional extension of time in which they state, "We have constructed an 8-inch well, 913 feet deep, cased with a 6-inch casing throughout at a cost of $9,513.62. We have installed 600 feet of distribution pipe, a 30,000 gallon storage tank and a pumphouse at an estimated cost of $25,000.00. Full beneficial use of this water has not yet been realized as the Park Service plans to construct additional living quarters and public restroom facilities. This has not been accomplished due to lack of appropriated funds." The request was advertised in the Southern Utah News, Kanab, Utah from July 26, 1962 to August 9, 1962. A hearing regarding this request was scheduled for April 13, 1977, in the Kane County Courthouse. The applicant was not represented.

It is the opinion of the State Engineer that the 14 years that have been allowed under this application should have been sufficient time to complete a project of this nature and it is questioned whether the applicant has complied with the provisions of Section 73-3-12, Utah Code Annotated, 1953, which allows the State Engineer to grant extensions of time to applicants "on proper showing of diligence or reasonable cause for delay." However, we believe that notice of our policy and intentions must be given to each applicant before denial of a request for an extension of time.

It is, therefore, ordered and an extension of time is hereby GRANTED on Application No. 34269 (81-514) to and including November 30, 1978, but with the notation that request for further extension of time on this application will be critically reviewed and unless there is physical evidence of additional development on this project the request may be denied.

This decision is subject to the provisions of Section 73-3-14, Utah Code Annotated, 1953, which provides for plenary review by the filing of a civil action in the appropriate district court within sixty days from the date hereof.

Dated this 26th day of August, 1977.

Dee C. Hansen

Dee C. Hansen, State Engineer

DCH:GWS:cl

12-02-1976: letter to the nps from the state engineer regarding order no. px 1200 7 0163

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN

Dec. 2, 1976

National Park Service
Rocky Mountain Regional Office
655 Parfet St., P.O. Box 25287
Attn: William L. Mekeel X2764
Denver, Colorado 80225

Gentlemen: RE: ORDER NO. PX 1200 7 0163

Accounting Classification 1242-414 (2500N)

ITEM NO.	ARTICLE	AMOUNT
1	Request for Extension of Time for Water Application No. 34269 (81-514) ZION NATIONAL PARK	$37.50

Very truly yours,

Dee C. Hansen

Dee C. Hansen, State Engineer

RECEIVED
Dec 6 10 42 AM '76

I N V O I C E

DEC 1976
RECEIVED
FINANCE

Form 30

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF UTAH
REQUEST FOR REINSTATEMENT AND EXTENSION OF TIME
(After Fourteen Years)

APPLICATION NO. 34269 (81-514)
STATE OF UTAH)
COUNTY OF Kane)

Applicant's Present Address
As shown below

William L. Mekeel, being first duly sworn says that he is the (agent of the) owner of the above-numbered application; that he knows of his own knowledge of the construction of works completed to date.

Describe briefly the type and extent of construction completed to date; cost of this construction, and the estimated cost of any remaining construction to be done for completion of project and to submit proof of appropriation. Give reasons why the work could not be completed and water put to beneficial use within time heretofore allowed.

We have constructed an 8" well, 913 feet deep, cased with a 6" casing throughout at a cost of $9,513.62. We have installed 600' of distribution pipe, a 30,000 gallon storage tank and a pumphouse at an estimated cost of $25,000.00. Full beneficial use of this water has not yet been realized, as the Park Service plans to construct additional living quarters and public restroom facilities. This has not been accomplished due to the lack of appropriated funds.

Request is made for reinstatement and extension of time for filing proof

from November 30, 19 76, to November 30, 19 81.

Affiant understands he will be notified of a hearing date, at which time he or his representative must attend, be able to defend data given above, and answer any protests thereon; and affiant upon oath states that the information given above is to the best of his knowledge true and correct. ~~$25.00~~ 37.50 is tendered herewith for publishing notice to water users.

William L. Mekeel, Chief, Division of Water Resources, Rocky Mountain Regional Office, National Park Service, P.O. Box 25287, Denver, CO 80225

William L. Mekeel
APPLICANT
(If a corporation, give title of officer signing)

Subscribed and sworn to before me this 24th day of November, 1976.

Mary E. Shewmake
NOTARY PUBLIC

****

FOR OFFICE USE ONLY

REQUEST RECEIVED _____ ADV. FEE ~~$25.00~~ 37.50 RECD. _____ by _____

RECEIPT NO. _____ NOTICE PUBLISHED WEEKLY IN _____

BEGINNING _____ AND ENDING _____

PROOF DUE DATE _____ 14 YEAR PERIOD ENDS _____

HEARING _____

APPLICANT DID APPEAR _____ APPLICANT DID NOT APPEAR _____

APPLICANT REPRESENTED BY _____

REMARKS _____

RECOMMENDED DISPOSITION: _____

FORM 11

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN

November 16, 1976

National Park Service
Rocky Mountain Regional Office
P. O. Box 25287
Denver, Colorado 80225

Attention: William L. MeKeel

Gentlemen: RE: Appl. No. 34269 (81-514)

It is noted from our files that you have only fourteen more days in which to submit proof before the lapsing of your application.

This letter is sent to remind you to have your proof or request for extension of time filed in this office before the proof-due date of your application which is November 30, 1976.

Enclosed is a request for extension of time form in case you have misplaced the one previously sent to you.

Yours truly,

Dee C. Hansen

Dee C. Hansen
State Engineer

lt

Enc.: Request Form

09-30-1976: letter to the nps from the state engineer regarding application no. 34269

Regional Office

OCT 6 '76

Director	
Deputy Director	
NPS Mgmt.	
Administration	
Professional Svcs	
Coop. Activities	
Operations Eval.	
Public Affairs	
EEO	
~~Stanley Green~~	
Action Taken	

DIRECTING ENGINEERS
HAROLD D. DONALDSON
~~DONALD C. NORSETH~~

FORM 18

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 533-6071

September 30, 1976

National Park Service
Rocky Mountain Regional Office
P. O. Box 25287
Denver, Colorado 80225

Attention: William L. MeKeel

Gentlemen: RE: Appl. No. 34269 (81-514)

To appropriate water in Utah you must receive approval of an application, complete the intended development work and submit proof that the water has been put to beneficial use. Upon submission of satisfactory proof, a certificate will be issued, which is your evidence of a water right. Our records indicate that you have not made proof of appropriation or change on your application. This is due November 30, 1976.

Proof must be prepared by a registered engineer or land surveyor and must be filed in this office on or before the above proof-due date. Failure to make proof by this due date shall cause the application to lapse. Blank forms for submitting proof will be sent upon request.

If proof cannot be submitted at this time, an extension of time may be requested by completing the enclosed form and submitting the request in affidavit form on or before the proof-due date. Since fourteen years or more have elapsed since approval of your application, your request for extension of time can only be granted after publication of notice of such request and a hearing before the State Engineer. The fee for filing this request is 37.50 ~~$25.~~ Submission of a request for an extension of time in no way guarantees that it will be granted. An extension can be granted only after the applicant has made a showing of diligence at the hearing before the State Engineer.

Requests should not be made for unreasonable periods of time beyond that needed to complete the appropriation and proof.

Yours truly,

Dee C. Hansen

Dee C. Hansen
State Engineer

lt

Enc.: Form 30
Certified Mail

PROOF DUE - ADVERTISING REQUIRED

Zion WR 16

file from file & 3 cert and copy wm

FORM 19

L54

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 328-6071

Rocky Mountain Regional Office
DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD G. NORSETH
STANLEY GREEN

DEC 30 74

December 27, 1974

Director	
Deputy Director	
NPS Agent	
Administration	
Professional Svcs	wm
Dep. Activities	
Operations Eval.	
Public Affairs	
EEO	
Action Taken	

National Park Service
Rocky Mountain Regional Office
P. O. Box 25287
Denver, Colorado 80225

ATTENTION: William L. MeKeel

Gentlemen:

RE: Appl. No. 34269 (81-514)

Request for extension of time in which to submit Proof of Appropriation or Proof of Change contemplated by the above-numbered application has been considered and the time for receiving Proof of Appropriation is hereby extended from November 30, 1974 to November 30, 1976 inclusive.

Although this extension is granted in accordance with the provisions of the law, I earnestly recommend that you proceed to prepare and submit proof at the earliest possible date. One cannot foresee what the circumstances may be in the future and the possession of your established water right may be of great importance to you.

Yours truly,

Dee C. Hansen

Dee C. Hansen
State Engineer

jb

EXTENSION GRANTED

FORM 29

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF UTAH
REQUEST FOR REINSTATEMENT AND EXTENSION OF TIME
(Before Fourteen Years)

APPLICATION NO. 34269 (81-514)
STATE OF UTAH
COUNTY OF Kane

William L. Mekeel, being first duly sworn that he is the (agent of the) owner of the above-numbered application; that he knows of his own knowledge of the construction of works completed to date.

Describe briefly the type and extent of construction completed to date; cost of this construction, and the estimated cost of any remaining construction to be done for completion of project and to submit Proof of Appropriation. Give reasons why the work could not be completed and water put to beneficial use within time heretofore allowed.

We have constructed an 8" well, 913 feet deep, cased with a 6" casing throughout at a cost of $9,513.62. We have installed 600' of distribution pipe, a ~~25,000~~ 30,000 gallon storage tank and a pumphouse at an estimated cost of $25,000.00. Full beneficial use of this water has not yet been realized, as the Park Service plans to construct additional living quarters and public restroom facilities.*

Request is made for reinstatement and extension of time for filing proof

from November 30, , 1974, to November 30, , 1976

Affiant understands he will be notified of a hearing date, at which time he or his representative must attend, be able to defend data given; and affiant upon oath states that the information given above is to the best of his knowledge true and correct. William L. Mekeel, ~~Legal Assistant~~, Chief, Div. of Water Rights, Rocky Mountain Regional Office, National Park Service, P.O. Box 25287, Denver, CO 80225

William L. Mekeel
APPLICANT
(If a corporation, give title of officer signing)

Subscribed and sworn to before me this Eighteenth day of November, 1974

Mary E. Greenwald
NOTARY PUBLIC
My Commission expires August 11, 1976

****

FOR OFFICE USE ONLY

PROOF DUE DATE _____ 14 YEAR PERIOD ENDS _____

HEARING _____

APPLICANT DID APPEAR _____ APPLICANT DID NOT APPEAR _____

APPLICANT REPRESENTED BY _____

REMARKS _____

RECOMMENDED DISPOSITION: _____

09-30-1974: letter to the nps from the state engineer regarding application no. 34269

FORM 21

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

JOHN BENE
DEPUTY

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
(801) 328-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
~~XXXXXXXXXXXX~~
Rocky Mountain
~~Stanley Green~~ Regional Office

NR #6

September 30, 1974

OCT 2 '74

Director	
Deputy Director	
NPS Mgmt.	
Administration	
Professional Svcs	WM 10/2
Coop. Activities	
Public Affairs	
FSO	
Action Taken	

National Park Service
Rocky Mountain REgional Office
P. O. Box 25287
Denver, Colorado 80225
ATTENTION: William Mekeel
Gentlemen:

RE: Application No. 34269 (81-514)

To appropriate water in Utah you must receive approval of an application, complete the intended development and submit proof that the water has been put to beneficial use. Upon submission of satisfactory proof, a certificate will be issued, which is your evidence of a water right.

Our records indicate that you have not made proof of appropriation or ~~proof~~ of change on your application. This is due November 30, 1974.

Proof must be prepared by a registered engineer or land surveyor and must be received in this office on or before the above proof-due date. Failure to make proof by the above date shall cause the application to lapse. Blank forms for submitting proof will be sent upon request.

If proof cannot be submitted at this time, an extension of time may be requested by completing the enclosed form and submitting the request in affidavit form on or before the proof-due date. Submission of a request for an extension of time in no way guarantees that it will be granted. An extension will generally be granted only after an applicant has made a showing of diligence before a meeting with the State Engineer. Requests should not be made for unreasonable periods of time beyond that needed to complete the appropriation and proof.

Yours truly,

Dee C. Hansen

Dee C. Hansen
State Engineer

jb

Enc.: Form 29

Certified Mail

PROOF DUE

Form 19

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114

DIVISION OF
WATER RIGHTS

HUBERT C. LAMBERT
STATE ENGINEER

December 6, 1972

INITIAL AND DATE
Director, MWR
Director's Secretary
Assoc. Dir., Mgmt.
Asst. Dir., Prf. Sup.
Park Operations
Coop. Activities
Operations Eval.
Prog. & Budgeting
Finance & Control
Org. Dev. & Man.
Action taken & date

ZION WR 6
454

National Park Service
1709 Jackson Street
Omaha, Nebraska 68102

Gentlemen:

RE: APPLICATION NO. 34269 (81-514)

Request for extension of time in which to submit Proof of Appropriation or Proof of Change contemplated by the above application has been considered and the time for receiving proof is hereby extended from November 30, 1972 to November 30, 1974 inclusive.

Yours truly,

Hubert C. Lambert

ADDRESS ALL COMMUNICATIONS TO: Hubert C. Lambert
STATE ENGINEER
442 State Capitol
Salt Lake City, Utah 84114

jh

EXTENSION GRANTED

P.S. Although this extension is granted in accordance with the provisions of the law, I earnestly recommend that you proceed to prepare and submit proof at the earliest possible date. One cannot foresee what contingencies might arise in the future: the present possession of your certificate might stand you in good stead.

FORM 29

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF UTAH
REQUEST FOR REINSTATEMENT AND EXTENSION OF TIME
(Before Fourteen Years)

APPLICATION NO. 34269 (81-514)
STATE OF UTAH
COUNTY OF Kane

Richard W. Ketcham, being first duly sworn that he is the (agent of the) owner of the above-numbered application; that he knows of his own knowledge of the construction of works completed to date.

Describe briefly the type and extent of construction completed to date; cost of this construction, and the estimated cost of any remaining construction to be done for completion of project and to submit Proof of Appropriation. Give reasons why the work could not be completed and water put to beneficial use within time heretofore allowed.

We have constructed an 8" well, 913 feet deep, cased with a 6" casing throughout at a cost of $9,513.62. We have installed 600' of distribution pipe, a 25,000 gallon storage tank and a pumphouse at an estimated cost of $25,000.00. Full beneficial use of this water has not yet been realized, as the Park Service plans to construct additional living quarters and public restroom facilities.

Request is made for reinstatement and extension of time for filing proof

from November 30, 19 72, to November 30, 19 74

Affiant understands he will be notified of a hearing date, at which time he or his representative must attend, be able to defend data given; and affiant upon oath states that the information given above is to the best of his knowledge true and correct.

Richard W. Ketcham, Supervisory Hydraulic Engineer, Midwest Regional Office, National Park Service, 1709 Jackson St.
Omaha, Nebraska 68102

Richard W. Ketcham
APPLICANT
(If a corporation, give title of officer signing)

Subscribed and sworn to before me this 16th day of Nov, 19 72

NOTARY PUBLIC

* * * * * * * * * * * * * *

FOR OFFICE USE ONLY

PROOF DUE DATE _____ 14 YEAR PERIOD ENDS _____

HEARING _____

APPLICANT DID APPEAR _____ APPLICANT DID NOT APPEAR _____

APPLICANT REPRESENTED BY _____

REMARKS _____

RECOMMENDED DISPOSITION: _____

11-16-1972: letter to the state engineer from an applicant regarding application 34269

Form 151

DATE November 16, 1972

State Engineer
State Capitol
Salt Lake City, Utah

RE: APPLICATION NO. 31269 (81-514)

Dear Sir:

I hereby request WITHDRAWAL of the Election to File Statement of Water User Claim which I submitted on the above numbered application.

I understand this will automatically reinstate the last proof due date by which time I must either submit Proof, Election Form, or Request for Extension of Time.

Yours very truly,

Richard W. Ketcham
APPLICANT

11-08-1972: letter to the nps from directing appropriations engineer regarding application no. 34269

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS
442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114
November 8, 1972

National Park Service
1709 Jackson Street
Omaha, Nebraska 68102

ATTENTION: Richard W. Ketchem

RE: Appl. No. 34269 (81-514)

Gentlemen:

Reference is made to your letter of November 1, 1972 concerning Proof of Appropriation on the above-mentioned application to appropriate water.

The election form you submitted cannot be accepted on filings in this area. Therefore, I am enclosing a withdrawal form to withdraw the election and also, I am enclosing an extension of time blank for you to complete and return to this office before November 30, 1972 to keep the application in good standing.

To complete the proof, you will be required to have a registered engineer or land surveyor compile the information and submit it to this office on the forms we provide.

If you have any questions, please feel free to call or write.

Yours truly,

Earl M. Staker

Earl M. Staker
Directing Appropriations Engineer

EMS:jh

Encs.

A T T E N T I O N

THIS FORM IS TO BE USED ONLY WHEN WATER HAS BEEN PLACED TO FULL BENEFICIAL USE

Form 152

BEFORE THE STATE ENGINEER OF THE STATE OF UTAH

ELECTION TO FILE WATER USER'S CLAIM

APPLICATION NO. 34269 (81-514)

STATE OF UTAH)
) ss.
COUNTY OF KANE)

Richard W. Ketcham, United States of America, being first duly sworn,
Supervisory Hydraulic Engineer
says that he is the owner of the above application; that the development contemplated under this application has been completed and the water placed to beneficial use.

In lieu of submitting "Proof of Appropriation" or "Certificate of Change", the applicant hereby elects to file a "Statement of Water User's Claim" or an "Amended Statement of Water User's Claim" in the pending GENERAL DETERMINATION OF WATER RIGHTS; and that the applicant requests that said statement be prepared by the State Engineer and submitted for execution at an early date.

Richard W. Ketcham
APPLICANT

Subscribed and sworn to before me this 1 day of Nov, 1972.

SEAL

Reuben H. Werblow
NOTARY PUBLIC

Reuben H Werblow
commission Expires July 14,1973
Douglas County, Nebraska

Form 19

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RIGHTS

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114

HUBERT C. LAMBERT
STATE ENGINEER

December 23, 1970

RECEIVED
WATER
DEC 28 1970

ACT. INFO.	INITIALS	DATE
WITUCKI, G.		
CHAVEZ, D.		
FILE		
REMARKS		

U. S. National Park Service
Western Service Center
450 Golden Gate Ave.
Box 36025
San Francisco, California 94102

Gentlemen: RE: APPLICATION NO. 34269 (81-514)
L54 (WSC) LWW ZION
(WR Docket No. 6)

Request for extension of time in which to submit Proof of Appropriation or Proof of Change contemplated by the above application has been considered and the time for receiving proof is hereby extended from November 30, 1970 to November 30, 1972 inclusive.

Yours truly,

Hubert C. Lambert

ADDRESS ALL COMMUNICATIONS TO:
STATE ENGINEER
442 State Capitol
Salt Lake City, Utah 84114

jl

EXTENSION GRANTED

P.S. Although this extension is granted in accordance with the provisions of the law, I earnestly recommend that you proceed to prepare and submit proof at the earliest possible date. One cannot foresee what contingencies might arise in the future; the present possession of your certificate might stand you in good stead.

FORM 29

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF UTAH
REQUEST FOR REINSTATEMENT AND EXTENSION OF TIME
(Before Fourteen Year

APPLICATION NO. 34269 (81-514)
STATE OF UTAH
COUNTY OF Kane

Gerard S. Witucki, being first duly sworn that he is the (agent of the) owner of the above-numbered application; that he knows of his own knowledge of the construction of works completed to date.

Describe briefly the type and extent of construction completed to date; cost of this construction, and the estimated cost of any remaining construction to be done for completion of project and to submit Proof of Appropriation. Give reasons why the work could not be completed and water put to beneficial use within time heretofore allowed. We have constructed an 8" well, 913 feet deep, cased with a 6" casing throughout at a cost of $9,513.62. We have installed 600' of distribution pipe, a 25,000 gallon storage tank and a pumphouse at an estimated cost of $25,000.00. Full beneficial use of this water has not yet been realized, as the Park Service plans to construct additional living quarters and public restroom facilities.

Request is made for reinstatement and extension of time for filing proof

from November 30, 19 70, to November 30, 19 73

Affiant understands he will be notified of a hearing date, at which time he or his representative must attend, be able to defend data given; and affiant upon oath states that the information given above is to the best of his knowledge true and correct. Gerard S. Witucki, Chief Water Resources Section, Office of Land Acquisition and Water Resources, Western Service Center, National Park Service 450 Golden Gate Ave, San Francisco, Calif. 94102

Gerard S. Witucki
APPLICANT
(If a corporation, give title of officer signing)

Subscribed and sworn to before me this 4th day of November, 19 70

L. Douglas
DEPUTY CLERK U.S. DISTRICT COURT
NORTHERN DISTRICT NOTARY PUBLIC

* * * * * * * * * * * * * *

FOR OFFICE USE ONLY

PROOF DUE DATE _____ 14 YEAR PERIOD ENDS _____

HEARING _____

APPLICANT DID APPEAR _____ APPLICANT DID NOT APPEAR _____

APPLICANT REPRESENTED BY _____

REMARKS _____

RECOMMENDED DISPOSITION: _____

Form 21

STATE OF UTAH

DEPARTMENT OF NATURAL RESOURCES

442 STATE CAPITOL
SALT LAKE CITY, UTAH 84114

September 30, 1970

DIVISION OF WATER RIGHTS
HUBERT C. LAMBERT
STATE ENGINEER

USA National Park Service
P. O. Box 1728
Santa Fe, New Mexico 87501

Gentlemen: Re: Application No. 34269 (81-514)

To appropriate water in Utah you must receive approval of an application, complete the intended development work, and submit proof that the water has been put to beneficial use. Upon submission of satisfactory proof, a certificate will be issued which is your evidence of a water right.

Our records indicate that you have not made proof of appropriation or proof of change on your application. This is due November 30, 1970.

Proof must be prepared by a registered engineer or land surveyor and must be received in this office on or before the above proof-due date. Failure to make proof by the above date shall cause the application to lapse. Blank forms for submitting proof will be sent upon request.

If proof cannot be submitted at this time, an extension of time may be requested by completing the enclosed form and submitting the request in affidavit form on or before the proof-due date. Submission of a request for an extension of time in no way guarantees that it will be granted. An extension will generally be granted only after an applicant has made a showing of diligence before a meeting with the State Engineer. Requests should not be made for unreasonable periods of time beyond that needed to complete the appropriation and proof.

Yours truly,

Hubert C. Lambert

Hubert C. Lambert
State Engineer

jh

Enc. Form 29

Registered Mail

PROOF DUE

RECEIVED
OCT 2 1970
ZION NATIONAL PARK

04-15-1965: letter to the nps from the acting state engineer regarding application no. 34269 - extension granted

Form 19

THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY

April 15, 1965

STATE ENGINEER
RECEIVED
NPS SOUTHWEST REGIONAL OFI
APR 19 1965

	Surname
Regional Director	
Operations	
Administration	
Coop. Activities	
Development	
Resource Studies	
1- Lands	
Files	

USA National Park Service
P. O. Box #1728
Santa Fe, New Mexico

Gentlemen: RE: APPLICATION NO. 34269 (81-514)

Request for extension of time in which to submit Proof of Appropriation or Proof of Change contemplated by the above application has been considered and the time for receiving proof is hereby extended from November 30, 1964, to November 30, 1970, inclusive.

Yours truly,

Hubert C. Lambert

ACTING
STATE ENGINEER

ADDRESS ALL COMMUNICATIONS TO: STATE ENGINEER
442 State Capitol
Salt Lake City 14,
Utah

sjz

EXTENSION GRANTED

P. S. Although this extension is granted in accordance with the provisions of the law, I earnestly recommend that you proceed to prepare and submit proof at the earliest possible date. One cannot foresee what contingencies might arise in the future; the present possession of your certificate might stand you in good stead.

THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY

WAYNE D. CRIDDLE
STATE ENGINEER

Form No. 25

March 9, 1965

RECEIVED
NPS SOUTHWEST REGIONAL OFFICE
MAR 11 1965

	Surname	Date
Regional Director		
Operations		
Administration		
Coop. Activities		
Development		
Resource Studies		
[illegible]		
[illegible]		
Files		

3/11

USA National Park Service
P. O. Box #1728
Santa Fe, New Mexico

Gentlemen:

RE: APPLICATION NO. 34269

This is to notify you of a meeting to be held on the above application at 9:00 a.m., Wednesday, March 24, 1965, County Courthouse, Kanab, Utah.

The applicant or his representative must attend this meeting, be prepared to show what work has been completed to date, justify the extension requested, and answer any protests. Please calendar this date for your future attention.

Yours truly,

Donald G. Stewart

Donald G. Stewart
APPROPRIATIONS ENGINEER

DGS:~~ff~~ sjz

154

THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY

WAYNE D. CRIDDLE
STATE ENGINEER

November 3, 1964

Form 27

RECEIVED
NPS SOUTHWEST REGIONAL OFFICE
NOV 15 1964

	Surname	Date
Regional Director		
Operations		
Administration		
Coop. Activities		
Development		
Resource Studies		
1-Lewis		
1-15146		
Files		

USA National Park Service
P. O. Box #1728
Santa Fe, New Mexico

Gentlemen: RE: APPLICATION NO. 34269

Your request for an extension of time in connection with the above application has been received.

It is the policy of this office to meet with each applicant requesting an extension of time at the courthouse of the county in which the point of diversion is located. The applicant or his representative must attend this meeting, answer any protests and be prepared to show the extent of work accomplished to date and a need for further time.

Until your particular county is scheduled for hearing, your request for an extension will be attached to the file; and the application will be in good standing. You will be notified of the date and time of the hearing.

Yours truly,

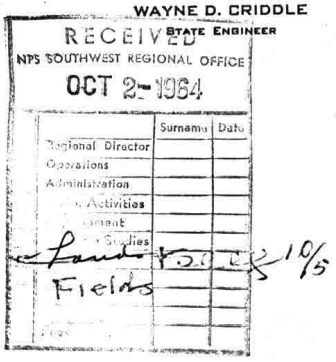
Donald G. Stewart
APPROPRIATIONS ENGINEER

DGS:fs

09-30-1964: letter to the nps from the state engineer regarding application no. 34269 - proof due

THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY

WAYNE D. CRIDDLE
STATE ENGINEER



September 30, 1964

Form No. 21

U. S. A. National Park Service
P. O. Box #1728
Santa Fe, New Mexico

Gentlemen: RE: APPLICATION NO. 34269

To appropriate water in Utah you must receive approval of an application, complete the intended development work and submit proof that the water has been put to beneficial use. Upon submission of satisfactory proof, a certificate will be issued which is your evidence of a water right.

Our records indicate that you have not made proof of appropriation or of change on your application. This is due November 30, 1964.

Proof must be prepared by a registered engineer or land surveyor and received in this office on or before the above proof due date.

Failure to make proof by the above date shall cause the application to lapse. Blank forms for submitting proof will be sent upon request.

If proof cannot be submitted at this time, an extension of time may be requested by completing the enclosed form and submitting the request, in affidavit form, on or before the proof due date. Submission of a request for an extension of time in no way guarantees that it will be granted. An extension will generally be granted only after an applicant has made a showing of diligence before a meeting with the State Engineer.

Requests should not be made for unreasonable periods of time beyond that needed to complete the appropriation and proof.

Yours truly,
Wayne D. Criddle

Wayne D. Criddle
STATE ENGINEER
442 State Capitol
Salt Lake City 14, Utah

rf
Enc.

PROOF DUE

Form 29

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF UTAH
REQUEST FOR REINSTATEMENT AND EXTENSION OF TIME
(Before Fourteen Years)

Application No. 34269
STATE OF UTAH
County of Kane

Daniel B. Beard, being first duly sworn says that he is the ~~(owner)~~ (agent) of the above numbered application; that he knows of his own knowledge that the construction of works as contemplated by the application has been prosecuted with diligence.

Describe briefly the type and extent of construction completed to date; cost of this construction, and the estimated cost of any remaining construction to be done for completion of project and to submit proof of appropriation.

We have constructed an 8" well, 913' deep, cased with a 6" casing throughout at a cost of $9,513.62. We will install 600' of distribution pipe, a 25,000 gallon storage tank, and a pumphouse at an estimated cost of $25,000.

Request is made for reinstatement and extension of time for filing proof from November 30, 19 64 to November 30, 19 67.

Affiant understands he will be notified of a hearing date, at which time he or his representative must attend, be able to defend data given above and answer any protest thereon.

Affiant upon oath states he, or the owner of the application whom he represents, has a bonafide intention and the financial ability to complete the works and to apply the water to the beneficial use as provided in the application.

United States of America
National Park Service, Southwest Regional Off
Daniel B. Beard
APPLICANT
Daniel B. Beard, Regional Director
(If a corporation, give title of officer and affix corporate seal)

State of New Mexico
County of Santa Fe
Subscribed and sworn to before me this 16th day of October 19 64

Esther H. Humes
NOTARY PUBLIC Esther H. Humes

MY COMMISSION EXPIRES JUNE 23, 1966

FOR OFFICE USE ONLY

REQUEST DUE _____ REQUEST RECEIVED _____

FOURTEEN YEAR PERIOD ENDS _____

FORM 33

THE STATE OF UTAH
OFFICE OF STATE ENGINEER
SALT LAKE CITY

WAYNE D. CRIDDLE
STATE ENGINEER

September 18, 1962

RECEIVED
SEP 20 1962

	Surname	Date
Regional Director		
Cons. Interp. & Use		
Administrative Asst.		
Proj. Plan. Branch		
Operations		
Conservation		
Natural History		
Hist & Archaeology		
Ranger Services		
Files		

USA National Park Service
P. O. Box 1728
Santa Fe, New Mexico

& Fields

Gentlemen:

RE: APPROVED APPLICATION NO. 34269

Enclosed find Approved Application No. 34269. This is your authority to proceed with actual construction work which, under Sections 73-3-10 and 73-3-12, Utah Code Annotated, 1953, as amended must be diligently prosecuted to completion. The water shall be put to beneficial use and proof of appropriation made to the State Engineer on or before ----------November 30, 1964------otherwise the application will lapse.

Failure on your part to comply with the requirements of the statutes may result in forfeiture of this application.

Yours truly,

Wayne D. Criddle

ADDRESS ALL COMMUNICATIONS TO:

Wayne D. Criddle
STATE ENGINEER
STATE CAPITOL BUILDING
SALT LAKE CITY, UTAH

DS
Enc: Copy of Approved Appl.

APPLICATION APPROVED

THE STATE OF UTAH
OFFICE OF STATE ENGINEER

WAYNE D. CRIDDLE
STATE ENGINEER

SALT LAKE CITY
May 31, 1962

REFER TO:
L54 ZION

United States of America
National Park Service
P. O.Box 1728
Santa Fe, NewMexico

Issue Date: May 31, 1962
Expiration Date: Nov. 30, 1962

Dear Sirs:

RE: APPLICATION NO. 34269

This will acknowledge receipt of the above-numbered application to appropriate water, together with the statutory filing fee of $10. Under this application you propose to divert .0223 sec.-ft. of water from an 8-inch well, between 100 and 400 feet deep, located at a point S. 75°54'20" W. 6382 ft. from the N¼ Cor. Sec. 21, T41S, R9W, SLB&M, for domestic purposes of four families and visitors to Zion National Park and for irrigation of shrubbery,

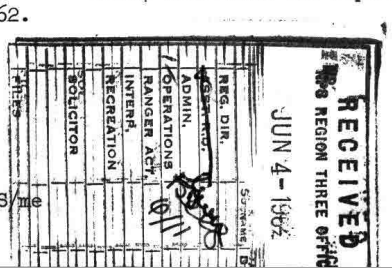
You have requested permission to proceed immediately with the drilling of this well. This letter grants you that privilege with the understanding that all risks as regards water rights are being assumed by you, and with the assumption that there may be unappropriated water in this area and no likelihood of serious interference with other water rights. You may proceed to drill this well before receiving official approval of the application. However, this action in no way grants any right to the use of water from said well. Such right of use may be granted only if and when your application is completed according to the laws controlling the appropriation of water and, of course, subject to existing rights.

If other than new standard casing is to be used in this well such casing must be inspected and approved by a representative from this office. All wells must be so constructed and finished that they may be readily controlled at all times, in order to prevent waste of underground water. Wells must be drilled and cased in such a manner that will prevent the infiltration of contaminated water into them.

The driller must be bonded and have a current permit from the State Engineer. Before commencing, he must give this office notice as to the day he will begin drilling. Also, within 30 days after the well has been completed or abandoned, he must file a well driller's report. This report is to contain accurate and complete information regarding the work done, and become part of the files in this office pertaining to Application No. 34269.

This is permission for a licensed driller to begin drilling your well.

Please note that the expiration date of this letter is November 30, 1962.



Yours very truly,

Wayne D. Criddle by

Wayne D. Criddle,
STATE ENGINEER.

DGS/me

L 54 Zion

Form 97 10M 6-60

Application No. 34269

6

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 United States of America, National Park Service
3. The Post Office address of the applicant is P. O. Box 1728, Santa Fe, New Mexico
4. The quantity of water to be appropriated is 0.0223 second-feet or ..... acre-feet
5. The water is to be used for ~~Municipal Use~~ Domestic (Major Purpose) from January 1 (Month) (Day) to December 31 (Month) (Day)
   other use period Irrigation (Minor Purpose) from March 1 (Month) (Day) to November 30 (Month) (Day)
   and stored each year (if stored) from ..... (Month) (Day) to ..... (Month) (Day)
6. The drainage area to to which the direct source of supply belongs is Colorado River (Leave Blank)
7. 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, 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 Kane County, situated at a point* S. 75°54'20" W., 6382 feet from north ¼ corner of Section 21, T. 41 S., R. 9 W., SLM.

*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 an 8" diameter well between 100 and 400 feet deep and 500 feet of conveyance pipe to place of use.
10. If water is to be stored, give capacity of reservoir in acre-feet - height of dam -
    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:
    NW¼SE¼NW¼ Section 20, T. 41 S., R. 9 W., SLM.
    Total 4 Acres
12. Is the land owned by the applicant? Yes X No .....
13. Is this water to be used supplementally with other water rights? Yes ..... No X
    If "yes," identify other water rights under explanatory.
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 families to be served - 4
18. If application is for municipal purposes, name of municipality Zion National Park
19. If application is for other uses, include general description of proposed uses -
    See explanatory
20. Give place of use by legal subdivision of the United States Land Survey for all uses described in paragraphs 14 to 19, incl. NW¼SE¼NW¼ Section 20, T. 41 S., R. 9 W., SLM.
21. The use of water as set forth in this application will consume - .0223 second-feet of water and - second feet will be returned to the natural stream or source at a point described as follows:

Page No. 2

EXPLANATORY

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

We will drill an eight-inch diameter well at a point S.75°54'20"W., 6382 feet from the N¼ corner of Section 21, T. 41 S., R. 9 W., SLM. From this well we will pipe water to the use area in the NW¼SE¼NW¼ Section 20, T. 41 S., R. 9 W., SLM. We propose to build three residences in addition to the residence which is there and we will have at least one trailer house in addition. If water of suitable quality and quantity is encountered then 0.0223 cubic feet per second will be pumped to the use area and used for domestic purposes for four families, for visitors, for irrigation of lawn and trees around the living area and for fire protection. It is proposed to build a pumphouse, 25,000-gallon storage tank, and 600 feet of conveyance pipe to pipe the water to the residences and place of use. NOTHING HEREIN SHALL CONSTITUTE A WAIVER OF ANY OTHER RIGHTS WHICH THE UNITED STATES MAY HAVE TO THE SAME WATER.

(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.

The United States of America
National Park Service, Department of the Interior

By Thomas J. Allen

Signature of Applicant*

Thomas J. Allen, Regional Director

*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

Page No. 3

FEES FOR APPLICATIONS TO APPROPRIATE WATER IN UTAH

Flow rate — c.f.s.			Cost	
0.0	to	0.1	$ 10.00	
over 0.1	to	0.5	20.00	
over 0.5	to	1.0	30.00	
over 1.0	to	15.0	30.00	plus $5 for each cfs above the first cubic foot per second.
over 15.0			100.00	
Storage — acre-feet				
0	to	20	15.00	
over 20	to	500	30.00	
over 500	to	7500	30.00	plus $5 for each 500 a.f. above the first 500 acre feet.
over 7500			100.00	

RECEIVED MAY 3 1962 STATE ENGINEER'S OFFICE

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

STATE ENGINEER'S ENDORSEMENTS

1. May 3, 1962 Application received by mail ~~over counter~~ in State Engineer's office by Eca
2. ..... Priority of Application brought down to, on account of.....
3. May 3, 1962 Application fee, $10.00, received by Eca Rec. No. 04463
4. 5/7/62 Application ~~copied~~ in book M-42, page 297, and indexed by ...
5. May 4 1962 Application platted by (C41-9)20dd
6. 5-11-62 Application examined by JAB
7. ..... Application returned, ... or corrected by office.....
8. ..... Corrected Application resubmitted over counter / by mail to State Engineer's office.
9. May 9, 1962 Application approved for advertisement by .....
10. July 12, 1962 Notice to water users prepared by DOSL
11. July 26, 1962 Publication began; was completed Aug. 9, 1962
Notice published in Southern Utah News, Kanab, Ut
12. July 30, 1962 Proof slips checked by DOSL DJS
13. ..... Application protested by.....
14. Aug 28, 1962 Publisher paid by M.E.V. No. 2-1229
15. ..... Hearing held by.....
16. ..... Field examination by.....
17. Sept 11 1962 Application designated for approval / ~~rejection~~ RJB RHA
18. Sept. 18, 1962 Application copied or photostated by bs proofread by.....
19. Sept 18, 1962 Application approved / ~~rejected~~
20. **Conditions:**

This Application is approved, subject to prior rights, as follows:

a. Actual construction work shall be diligently prosecuted to completion.

b. Proof of Appropriation shall be submitted to the State Engineer's office by Nov. 30, 1964

c. .....

Wayne D. Criddle
Wayne D. Criddle, State Engineer.

21. ..... Time for making Proof of Appropriation extended to.....
22. ..... Proof of Appropriation submitted.
23. ..... Certificate of Appropriation, No. ....., issued

Application No. 34269

Supporting Hydro Data

06-15-1964: memorandum to the superintendent from the groundwater branch regarding the final report on the investigation to the

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED COPY
IN REPLY REFER TO:
JUN 21 1963
Natural History
Hist & Archaeology
Ranger Service
Misc

June 15, 1964

Memorandum

To: Superintendent, Zion National Park, Springdale, Utah

From: Joseph S. Gates, Ground Water Branch, Salt Lake City, Utah

Subject: Final report on the investigation at the east entrance, Zion National Park and an evaluation of the aquifer test

Enclosed is a copy of the report "Ground water in the Navajo Sandstone at the east entrance, Zion National Park." This report is of a general nature and includes information obtained during the investigation at the east entrance in September 1963 and information from the driller's report of the well and from the aquifer test made July 30, 1962. The report has been prepared for Geological Survey publication because it describes ground-water conditions in an area in which little hydrologic data is available and because it describes ground water in the Navajo Sandstone, a potentially important aquifer in southern and eastern Utah.

A detailed evaluation of the aquifer-test data was not considered appropriate for inclusion in the report because of its local significance and tentative nature, so I will include it in this memorandum.

Transmissibility is the rate of flow of water in gallons per day through a vertical strip of the aquifer one foot wide extending the full saturated thickness of the aquifer, assuming a hydraulic gradient of 100 percent. The measurements of water-level recovery after the bailing test indicated a transmissibility of about 7,000. As the measurements were made at a great depth, they were subject to considerable error and the transmissibility was estimated two other ways. Assuming a specific capacity for the well of 5 to 10 gallons per foot of drawdown (the driller reported no drawdown at 10 gpm, but I suspect it was 1-2 feet) and a storage coefficient of 0.1 (the storage coefficient is the volume of water released per unit surface area of the aquifer per unit change in the head normal to that surface), the transmissibility is about 6,000 to 12,000. In addition, I examined samples from the water-bearing zone and roughly determined the distribution of the grain sizes. Matching this distribution with others of known permeability gave the estimate of 3,000 to 6,000 for the transmissibility. The value of 3,000 from the bailing test, then, appears to be a reasonable estimate.

Using minimum and maximum values of 3,000 and 12,000, a range of long-term drawdown can be calculated. If T is 3,000, after 10,000 days (27 years) of pumping 10 gpm continuously, the total drawdown would be

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254 ft

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3 to 4 feet. Because it was not possible to pump the well at different rates and measure the effect, the estimates are only good at 10 gpm. At some point as the rate of pumping is increased, the water moves into the well by turbulent flow instead of laminar flow and the drawdown is greatly increased. The rate of pumping at which this would happen in the NPS well at the east entrance is not known. I am fairly sure, however, that the well could be pumped at 20 gpm and perhaps more. At the end of 10,000 days of pumping 20 gpm, the total drawdown would be from 5 to 16 feet.

Since your well probably will not be pumped continuously, the actual drawdown would be less than that calculated. The maximum drawdown of 16 feet is not excessive, and, therefore, I believe that the well can safely be pumped at 20 gpm.

These calculations are based on several estimates, and if after a pump is installed, measurements of the water level by air-line gage indicate that this evaluation is incorrect, further evaluation can be done.

Joseph S. Gates
Geologist

cc:
Regional Director, National Park Service, Santa Fe, New Mex.

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06-19-1963: memorandum to the branch area chief from the district geologist regarding a publications report

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June 19, 1963

Memorandum

To: Branch Area Chief, GW, Denver, Colorado

From: District Geologist, GW, Salt Lake City, Utah

Subject: PUBLICATIONS - Report, "Ground water in the Navajo Sandstone at the east entrance, Zion National Park, Utah," by Joseph S. Gates (UT-39, final)

Project UT-39 included supervision of a well at the east entrance, Zion National Park. Data from this work and from an earlier study of the potential sources of water for the area, mostly included in an administrative report (UT-29), were combined in this report. The total cost of both projects was $2,400.

I believe this report is suitable for publication as a chapter in Water-Supply Paper 1475, "Hydrology of the Public Domain." A brief report on the earlier work (UT-29) was prepared for the 1961 Annual Review, but was not included because it was not of a research nature. The illustrations, however, were prepared by HFI, are included in this manuscript, and should be suitable for publication in a water-supply paper. I request that the report be approved for release to the open file, so that it will be available for public inspection prior to publication.

This report is significant because it describes ground-water conditions in an area in which little is known about the hydrology, and because it contains data on ground water in the Navajo Sandstone a potentially important aquifer in southern and eastern Utah, which in this area has not been extensively studied.

Copies of the report, for administrative use only, have been furnished to the National Park Service.

The report contains geologic names.

Enclosed are the original and one copy of the manuscript, the originals and two copies of the illustrations, two copies of a press notice, two copies of the long list of illustrations, four copies of a note for the ML list, and two copies of progress chart (A).

FOR THE DISTRICT GEOLOGIST

Joseph S. Gates
Geologist

Enclosures
cc:
Publications Section, WRD - 4003 0001

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UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey

GROUND WATER IN THE NAVAJO SANDSTONE AT THE EAST ENTRANCE, ZION NATIONAL PARK, UTAH

By

Joseph S. Gates

Prepared in cooperation with the National Park Service

ADMINISTRATIVE REPORT

Salt Lake City, Utah

1963

Unpublished records
subject to revision

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GROUND WATER IN THE NAVAJO SANDSTONE AT THE EAST ENTRANCE, ZION NATIONAL PARK, UTAH

By

Joseph S. Gates

ABSTRACT

The Navajo Sandstone is the most reliable source of water near the east entrance of Zion National Park; local streams and alluvium are not sources of supply. The Navajo in the vicinity of the east entrance is about 2,000 feet thick, and about 600 feet of the formation is exposed. The maximum dip of the strata is 3°ENE. and ground water, at least near the land surface, moves mostly through joints.

The Navajo Sandstone contains water in small discontinuous perched bodies in its upper 300 feet and below a regional water table at a depth of about 865 feet. The deeper water is probably the best source of supply. Springs near the east entrance yield water from the perched zones, but they stop flowing during dry years. Test holes and two wells drilled 2½ miles east of the east entrance penetrated at least two discontinuous zones of perched water. Data from one well indicate a specific capacity of 0.5 gallon per minute per foot for the deeper perched-water zone.

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The National Park Service well at the east entrance penetrated what probably is the regional water table 865 feet below the land surface, and the well can yield at least 10 gallons per minute with a specific capacity of 5-10 gallons per minute per foot. The transmissibility of that part of the Navajo Sandstone penetrated by the well is about 8,000 gallons per day per foot and, except for a high iron content, the well yields water of chemical quality suitable for public supply.

The Navajo Sandstone probably will yield water to wells in much of eastern Utah, although the specific ground-water conditions at the east entrance of Zion National Park may not be widespread.

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INTRODUCTION

In the summer of 1960 the National Park Service requested the U.S. Geological Survey to investigate sources of water supply at the east entrance of Zion National Park (fig. 1) because the east entrance had no

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Figure 1.--Index maps of Utah, showing the location of Zion National Park and the area covered by figure 2.

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local source of water and proposed expanded facilities would require at least 5 gpm (gallons per minute). The Geological Survey later was requested to supervise the drilling and testing of a well which was drilled at the east entrance during June and July 1962.

A geologic reconnaissance was made in the area in September 1960, and all springs were visited. A geologic map of the east entrance area (fig. 2) was prepared both from field data and by adapting geology from the geologic map of the Zion Park region (Gregory, 1950, pl. 2) to the topographic map of the park. Data on the occurence of ground water in the Navajo Sandstone in the Zion Park region were obtained from records of the J. Ray McDermott and Company oil test about 9 miles south of Mount Carmel Junction (fig. 1), from oral reports of test holes drilled 2½ miles east of the east entrance (fig. 1), and from logs of two wells drilled in 1961 in the same area as the test holes.

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Additional data were collected during the drilling of the Park Service well at the east entrance. Samples were collected of the material penetrated by the well, a short bailing test was made after the well was completed, and the water was analyzed for chemical content.

This report was prepared for the use of the National Park Service and also to make available information about an area for which little was known about ground water.

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GEOLOGY

Zion National Park is at the eroded southern edge of a series of northeastward-tilted plateaus which rise in steps to the north. The east entrance area is at the confluence of Clear and Co-op Creeks (fig. 1) and includes the southern edge of the Kolob Terrace, the lowest of the series of plateaus. The Kolob Terrace is an extensive topographic surface above the cliffs of Navajo Sandstone that are the chief attraction of the park. In the east entrance area the intermittent streams have cut into the Kolob Terrace through formations of Middle Jurassic and younger age, exposing the upper part of the Navajo Sandstone of Triassic (?) and Jurassic age (fig. 2).

Figure 2.--Generalized geologic map of the east entrance area, Zion National Park, Utah.

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Stratigraphy

The Navajo Sandstone is the only formation that is important as a source of water at the east entrance and is the major aquifer in the Zion Park region. The Navajo overlies the Kayenta Formation of Triassic(?) age and underlies the Carmel Formation of Middle and Late Jurassic age and is a massive cliff-forming cross-bedded fine-grained quartz sandstone commonly cemented by calcium carbonate. In the east entrance area about 600 feet of this formation is exposed.

Gregory (1950, p. 89) divided the Navajo Sandstone into two parts: a lower massive bed of sandstone and the upper Temple Cap Member, containing sandstone, shale, and some limestone. Along the Zion-Mount Carmel Junction highway the lower part of the Temple Cap Member, 6 to 30 feet thick, consists of lenticular sandstone; and the upper part, 70 to 180 feet thick, is massive cross-bedded sandstone.

The greatest measured thickness of the Navajo Sandstone is 2,280 feet at the Temple of Sinawava (Gregory, 1950, p. 83), about 7 miles northeast of Springdale. Gregory (1950, p. 119) estimated that the Navajo is about 2,000 feet thick at the West Temple, 2 miles northwest of Springdale, and he gave various lesser thicknesses in his report, probably based on measurements made near Kanab, Utah, about 30 miles southest of the park. The McDermott oil test penetrated about 2,000 feet of Navajo, and it is assumed that the sandstone is about 2,000 feet thick in the east entrance area.

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The Kayenta Formation, which underlies the Navajo Sandstone, consists of sandstone with lesser amounts of limestone, conglomerate, and shale, and has a maximum thickness of 200 feet in the Zion Park region (Gregory, 1950, p. 51, 80). The Carmel Formation, which overlies the Navajo, consists of limestone with some shale and averages about 200 feet in thickness in the Zion Park region (Gregory, 1950, p. 94).

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Structure

In the east entrance area, the strata are almost flat-lying, with a maximum dip of 3°ENE. The only local structures that influence ground-water movement are the many joints common in the strata of the area. Jointing has commonly controlled the alignment of stream channels, as shown on the Zion Park topographic map by prominent parrallelism of drainage. Gregory (1950, p. 152) noted short, irregularly spaced tight cracks and many open cracks that extend for miles.

Water probably moves through the Navajo Sandstone mostly in the open joints, and the latter may also form reservoirs of considerable capacity. At depth, however, joints may not be open, and more water may move through intergranular spaces than in joints.

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GROUND WATER IN THE NAVAJO SANDSTONE

The Navajo Sandstone is an aquifer in a large part of the Colorado Plateaus. Gregory (1916, p. 138) stated that the Navajo is one of the chief water-bearing formations of the Navajo Indian Reservation and that springs issuing from this sandstone produce water of excellent quality. Loss of circulation, while drilling through the Navajo, is common in oil tests, according to R. J. Hite, of the U. S. Geological Survey (oral communication, 1960). The losses indicate that the formation is permeable and could yield water to wells in a large part of Utah.

The Navajo Sandstone is the only reliable source of water in the east entrance area. The local streams are intermittent and cannot be depended upon for water supply. The stream channels have no perennial underflow and the streams, when they do contain water, are influent; consequently, the thin alluvial deposits in the channels contain water infrequently. The Navajo contains water in discontinuous perched bodies and below the regional water table.

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Perched water

Three springs (1, 2, and 3 on fig. 2) near the east entrance flow from bodies of perched water in the Navajo Sandstone. These springs, and a similar spring about a mile northeast of the east entrance checking station,are from about 100 to 300 feet below the top of the Navajo. The lower massive part of the Navajo locally contains lenses of shale, and the lower part of the Temple Cap Member is commonly a series of shaly sandstones or in places consists of sandy shale (Gregory, 1950, p. 84, 89). The springs probably are perched on these shaly beds which have low permeability and impede the downward movement of water.

Recharge for the perched water bodies in the east entrance area is from local precipitation. The Park Service reported that the three springs shown in figure 2 were flowing early in 1959 but were dry in the fall. In September 1960 only the spring in Cave Canyon (2 on fig. 2) was flowing, and it was yielding less than 5 gpm (gallons per minute). During years of below-normal precipitation, such as 1959 and 1960 (72 and 84 percent of normal at Zion Natinnal Park), the perched-water bodies evidently do not receive enough recharge to maintain perennial springs. The springs, therefore, are not dependable sources of water for the east entrance.

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Several test holes and wells have penetrated small discontinuous perched-water bodies in the Navajo Sandstone. Test holes (fig. 1) were drilled about 2½ miles east of the east entrance checking station by an oil company in about 1953, apparently for use in seismic exploration. Although records of the test holes are not available, C. H. Esplin, the owner of hthe land, supplied some data from memory. Eleven test holes were drilled, one 900 feet deep and the others ranging from 51 to 300 feet in depth. Six of the holes probably penetrated the Navajo, and three penetrated water-bearing zones, Water levels in two of the holes were about 80 feet below the land surface, and the water level in the other hole was at about 200 feet. Of the eight holes that did not reach water, six were deeper than 80 feet and two were deeper than 200 feet. As the altitudes of the land surface at the test holes areabout the same and the test holes are all within an area of less than a quarter of a square mile, the area apparently contains several small discontinuous bodies of perched ground water.

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Two wells were drilled by Mr. Esplin for water in the fall of 1961 within the area containing the test holes. Records of these wells confirmed the few data from the test holes. The first well was drilled to a depth of 338 feet, the bottom 158 feet of which was probably in the Navajo Sandstone, and did not reach water. The second well, only 700 feet from the first, was drilled to a depth of 231 feet and reached water; the water level in December 1961 was 203 feet below the land surface. This well was pumped at 10 gpm with a drawdown of 20 feet, and therefore has a specific capacity-/ of 0.5 gpm per foot of drawdown.

_/ The specific capacity of a well is its rate of yield per unit of drawdown, expressed here in gpm per foot.

The precise position of the top of the Navajo Sandstone in the area of the test holes and wells is not known, but the water-bearing zones in the three test holes and one well are estimated to be about 40 to 160 feet below the top of the Navajo. The water-bearing zones, therefore, are in about the same part of the formation as the springs near the east entrance. These water-bearing zones, although probably not continuous with similar zones near the east entrance, probably are also bodies of perched water overlying shaly lenses having low permeability.

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Water below the regional water table

Before the Park Service drilled the well at the east entrance (fig. 2) in 1962, little was known about water in the Navajo Sandstone below the main water table in the Zion Park region. Gregory (1950, p. 196-198) mentioned the zone of springs at the base of the Navajo which supplies water for the Zion Park headquarters area about 2 miles north of Springdale. This spring zone probably marks the intersection of the regional water table with the walls of Zion Canyon, and the springs discharge water which is moving laterally through the Navajo because further downward movement is impeded by the underlying less permeable Kayenta Formation.

An oil test was drilled in 1959 about 13 miles southeast of the east entrance (fig. 1) by J. Ray McDermott and Company. The well log indicates that beds from the land surface to a depth of about 2,400 feet are water-bearing throughout. The well log and the radioactivity log of the well indicate that from the land surface to a depth of about 1,900 feet the well penetrated Navajo Sandstone. The Navajo probably has either open joints or zones of high permeability at considerable depth at the well site because circulation was lost during drilling at several depths below 1,000 feet. Mr. W. E. West of J. Ray McDermott and Company stated (oral communication, 1961) that two oil tests previously had been drilled several miles north of the 1959 test site. Both wells penetrated water-bearing zones and one was later developed successfully as a water well.

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In June and July 1962 the Park Service drilled a test well at the east entrance which produced enough good-quality water to meet the needs of the entrance facilities. The well, drilled by the cable-tool method, penetrated the Navajo Sandstone from a depth of 5 feet to the total depth of 925 feet. The well penetrated gray, yellow, red, and white sandstone and reached a water-bearing zone at about 870 feet. Samples of the material penetrated were collected during drilling, and samples of the water-bearing zone were examined. The Navajo in the water-bearing zone is a tan to orange fine- to medium-grained subrounded to rounded quartz sandstone probably loosely cemented by iron oxide. The sandstone in this zone may be coarser and less cemented than the typical Navajo described by Gregory (1950, p. 83) as fine grained and cemented by calcium carbonate. After a preliminary bailing test indicated that the well could produce at least 10 gpm, the hole was reamed and 6-inch casing, perforated from 880 to 920 feet, was installed in the well and the annular space filled with gravel. The static water levelwas 865 feet below the land surface at an altitude of about 4,830 feet above mean sea level.

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After the Park Service well was cased and gravel-packed, it was bailed for 183 minutes at an average and nearly steady rate of 9.4 gpm. Following bailing, the water level was measured at regular intervals to determine its rate of recovery. Extrapolation of the measurements made during the recovery test indicate that the drawdown during bailing was less than 2 feet. Seven depth-to-water measurements taken from 57 to 110 minutes after bailing defined a straight line when plotted against the logarithm of time on semilogrithmic paper. Using the Theis recovery formula (Ferris and others, 1962, p. 100-101) and these data, a transmissibility_/ of

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_/ The coefficient of transmissibility of an aquifer is the rate of flow, at the prevailing water temperature, in gallons per day, through a vertical strip of the aquifer 1 foot wide extending the full saturated height of the aquifer under a hydraulic gradient of 100 percent.

8,000 gallons per day per foot was indicated. The Theis recovery formula was derived assuming radial flow of water into the well; and, therefore, the formula is usually not applicable for use with data obtained from short pumping tests of unconfined aquifers because the lines of flow into the well have vertical components (Ferris and others, 1962, p. 102). The value of transmissibility indicated by the recovery data is probably of the correct order of magnitude. It may even be a good estimate because the drawdown was small in relation to the saturated thickness and, therefore, most of the water was moving into the well along radial flow lines.

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The average permeability_/ of the Navajo Sandstone is calculated from

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_/ The field coefficient of permeability is the rate of flow of water, in gallons per day, through a cross-sectional area of 1 square foot under a hydraulic gradient of/~~1 foot per foot~~ 100 percent and at the prevailing water temperature. The coefficient of transmissibility equals the field coefficient of permeability multiplied by the saturated thickness of the aquifer.

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the recovery-test data to be about 130 gallons per day per foot, using 60 feet as the saturated thickness. Wenzel (1942, p. 13) gives representative permeabilities for various materials and fine to medium sand has a permeability in the order of 45 to 100, which is the same order of magnitude as the value determined from the recovery-test data. The value obtained from the recovery-test data might be expected to be higher than the values listed by Wenzel, however, because the sand of the drilling samples is more uniform in size than Wenzel's samples. Wenzel's data are for unconsolidated material; however, the sandstone penetrated by the well was loosely consolidated and is assumed to have hydraulic characteristics not differing greatly from unconsolidated material.

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The coefficient of transmissibility also was estimated from specific capacity using a method developed by Theis and other (written communication, 1954). The specific capacity of the Park Service well is assumed to be from 5 to 10 gpm per foot of drawdown while yielding about 10 gpm. This value is assumed because the drawdown in the well was less than 2 feet while the well was bailed at a rate of 9.4 gpm. This specific capacity after 3 hours of pumping from a 6-inch well, assuming a storage coefficient /

/ The coefficient of storage of an aquifer is the volume of water released or taken into storage per unit surface area of the aquifer per unit change in the component of head normal to that surface.

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of 0.1, which should be a reasonable value for the Navajo Sandstone, corresponds to an approximate transmissibility of from 6,000 to 12,000. A coefficient of transmissibility of about 8,000, therefore, probably is a reasonable estimate for the saturated part of the Navajo Sandstone that is penetrated by the well. The entire saturated thickness of the formation, estimated to be about 500 feet at the east entrance, would have a higher transmissibility.

Theis (1952) prepared a chart that can be used to compute drawdowns in the vicinity of a pumping well. Using a storage coefficient of 0.1, a coefficient of transmissibility of 8,000, and a discharge of 20 gpm, the chart indicates that the drawdown adjacent of the Park Service well after 10,000 days of pumping would be less than 10 feet. A yield of up to 20 gpm, therefore, will cause little long-term depletion of the ground-water reservoir.

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QUALITY OF WATER

Ground water in the Navajo Sandstone should contain only small amounts of dissolved material because the formation is composed mostly of relatively insoluble quartz. Water from eight springs in the Navajo, along the North Fork of the Virgin River 2 to 7 miles north of Springdale, contains from 83 to 242 ppm (parts per million) of dissolved solids (Connor, Mitchell, and others, 1958, p. 171). The water from these springs is of excellent quality, except that it contains from 0.4 to 1.8 ppm of iron, which is more than the maximum of 0.3 ppm recommended by the U. S. Public Health Service (1962, p. ~~2154~~ 7) for public supply. A water sample was collected from the east entrance well by the driller before the casing was installed. The chemical analysis is as follows:

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Constituent	ppm
silica	12
iron_/	1.3
calcium	34
magnesium	12
sodium	8.4
potassium	4.5
carbonate	0
bicarbonate	132
sulfate	39
chloride	8.5
fluoride	.2
nitrate	2.0
boron	.04
Hardness as $CaCO_3$	
Total	136
Noncarbonate	28
Dissolved solids (residue at 180°C)	182
Specific conductance (Micromhos/cm at 25°C)	308
pH	8.1

_/ In solution at time of analysis

Except for high iron content, this water is suitable for public supply in accordance with the recommendations of the U. S. Public Health Service (1962, p. ~~2154~~ 7). During the second bailing test the temperature of the water was 68°F.

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CONCLUSIONS

The Navajo Sandstone is the only dependable source of water in the east entrance area because local streams and alluvium contain water only periodically. The water below the main water table in the Navajo is probably a more reliable source than the perched bodies of water in the formation.

The bodies of perched water are from about 40 to 300 feet below the top of the Navajo Sandstone in the east entrance area and probably are small. Springs discharging from these perched-water bodies often stop flowing in dry years and are not reliable water supplies. Only one well is known to tap a perched-water body; data from this well indicate that it has a specific capacity of 0.5 gpm per foot.

The Navajo Sandstone at the east entrance has a much higher specific capacity below the main water table than it has higher up where water is perched. Wells penetrating below the water table should yield 10 gpm or more with little long-term depletion of the reservoir. The chemical quality of the water is suitable for public supply except for a high iron content.

In large parts of eastern Utah the Navajo Sandstone probably is capable of yielding water of good quality to wells. Ground-water conditions are probably not everywhere similar to those at the east entrance, however, in that perched bodies of water may not be widespread.

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REFERENCES CITED

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Gregory, H. E., 1916, The Navajo country, a geographic and hydrographic reconnaissance of parts of Arizona, New Mexico, and Utah: U. S. Geol. Survey Water-Supply Paper 380, 219 p.

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Wenzel, L. K., 1942, Methods for determining permeability of water-bearing materials: U. S. Geol. Survey Water-Supply Paper 887, 192 p.

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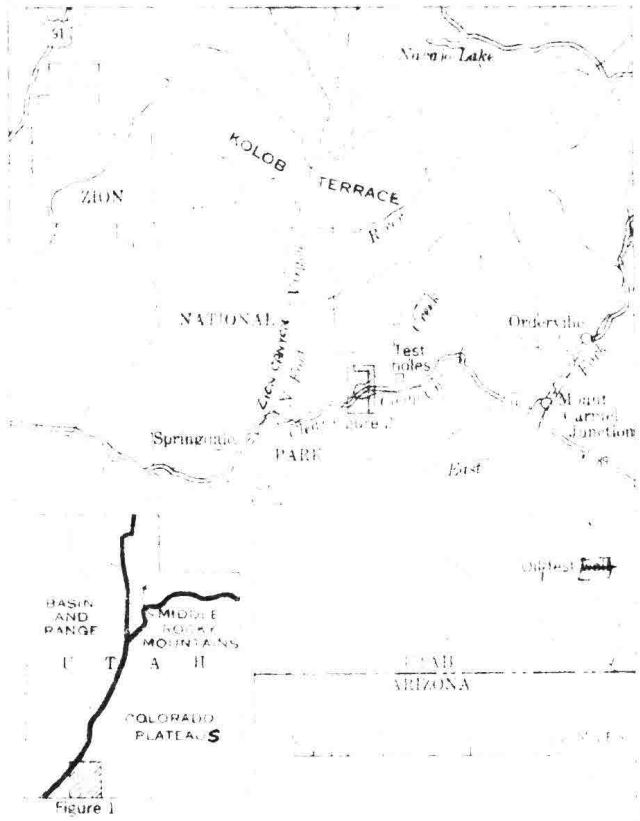


Figure 1. -- Index maps of Utah, showing the location of Zion National Park and the area covered by figure 2.

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[redacted] [redacted]

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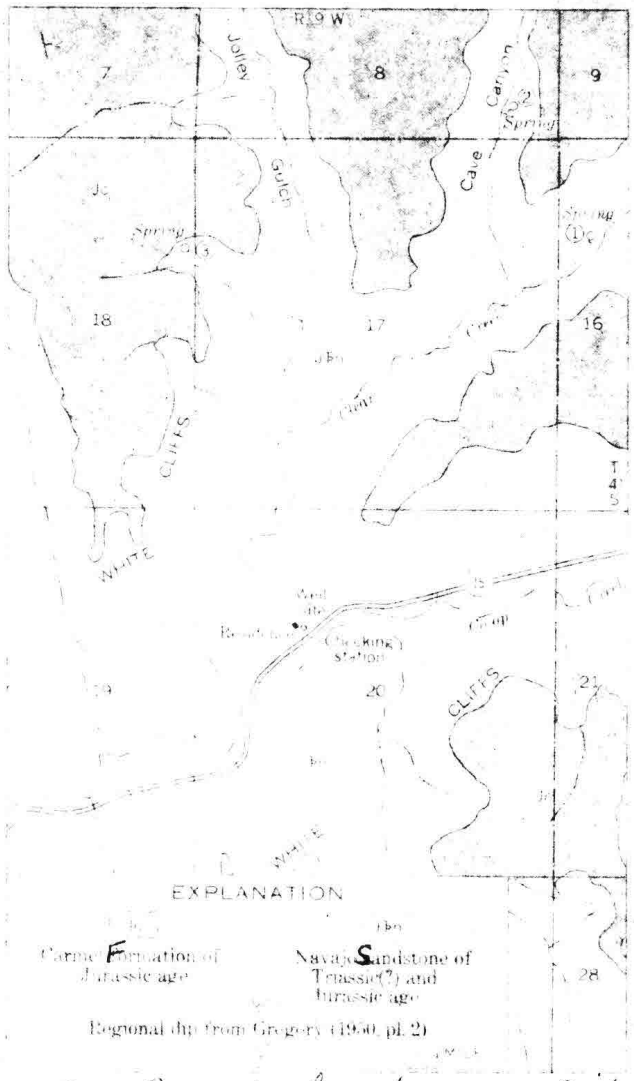


Figure 2.-- Generalized geologic map of the east entrance area, Zion National Park, Utah

COPY

COMPLETION REPORT
CONTRACT NO. 14-10-0345-25
TEST WELLS AND DEVELOP ON WATER WELL
EAST ENTRANCE - ZION NATIONAL PARK

Funds for the drilling of test wells were provided by the Southwest Regional Office. Park Engineer McCabe surveyed the location of the well site following recommendations by the U. S. Geological Survey. Under date of May 31, 1962, permission was received from the State Engineer of Utah, to begin drilling under Applicatin No. 34269. Bid opening was May 29, 1962, and the contract was awarded to the sole bidder, Mr. Preston G. Bradshaw, Hurricane, Utah, License No. 114. Contract amount was $5,122.50. Notice to proceed was acknowledged on June 6, 1962 and drilling commenced on June 7th. The 6" bore reached Navajo sandstone a few feet below the surface and this formation continued to the final depth.

On June 14, 1962 permission was granted the driller to abandon the initial hole at a depth of 130 feet, and to move a few feet. This was occasioned by the angle of the sandstone which caused the drill bit to lead off from the horizontal. A new hole was started and the following day the bore was down to a depth of 145' with the bore remaining plumb to the finished depth. On June 19th, the bore hole was down to approximately 400' and dry. The Park Superintendent discussed this matter with Regional Chief of Lands Kell, and it was decided to authorize the driller to proceed with drilling beyond the 400' depth originally specified. Change Order No. 1 was issued authorizing an additional 600' of drilling. On July 5, 1962 water was struck at a depth of 870' and at the close of the day the well was at a depth of 913' with about 60' of water in the bore. Some further drilling was done and on July 9, 1962 the well was bailed for one hour and fifteen minutes at the rate of 10 gallons per minute with no appreciable evidence of drawdown. A water sample was taken at the time of bailing and submitted to the U. S. Geological Survey for analysis. Preliminary tests indicated that the water would be of good quality.

Authority was given the driller to ream the hole to 8' diameter and to install 6" I.D. steel casing. Reaming proceeded to a depth of 850' when some difficulty was experienced in getting the bailer to follow the drill. Dynamite was used at this stage and the reaming completed. On July 26, 1962 the casing of the well was started, and completed on July 30th. Geologist Gates, U.S.G.S. arrived on the evening of the 30th and made preliminary measurements. Coarse, clean, crushed rock was placed around the casing for the entire depth of the well.

Change Order No. 2 authorized additional 6" steel casing and perforation. A lump sum item for placing gravel around the casing was added to the contract. In view of the initial bailing test and in consideration of the high cost of test pumping, it was decided to delete the item of test pumping from the contract.

On July 31, 1962 a bailing test was made with the following results:

Depth of well	926.5'
Starting water level	865.82'
Length of bailing period	183 minutes
Gallons bailed per minute	9.4
Water level 14 minutes after bailing test	865.76'
Water level after 110 minutes of recovery	865.5
The two hour sample - specific conductivity	300 micromhos
Total parts per million total dissolved solids	160-165
Preliminary estimate of production - Gpm	10 - 20

A detailed analysis of the data collected by Mr. Gates will be made and a report submitted at a later date.

The steel casing was welded at the joints with 40' of torch perforated casing installed. Casing was extended two feet above ground level and a steel cap welded in place. Concrete collar has been placed by Park employees.

Final inspection made on July 31, 1962 and well accepted. Final contract amount was $7,813.62.

Submitted by: Charles E. Humberger
Charles E. Humberger
Acting Superintendent

06-00-1962: photo - well drilling operation



Well Drilling Operation at the East Entrance, Zion National Park. June 1962. Driller - Preston C. Bradshaw, License No. 114. Well drilled under Application No. 34269. Completed on July 31, 1962.

Form 113—Sbd—12-60

Examined .....
Recorded: B. C. ..... T. B. .....
Inspection Sheet .....
Copied .....

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. 34269
Claim No. .....
Coordinate No. .....

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name U. S. National Park Service
Address Springdale, Utah.

(2) LOCATION OF WELL:
County Wash. Ground Water Basin ..... (leave blank) 6382
~~North~~ 750 feet, ~~East~~ South 54' 20" feet, West from NW Corner
of Section 21, T. 41 ~~N~~ S, R 9 ~~E~~ W, ~~Dem~~ SLBM (strike out words not needed)

(3) NATURE OF WORK (check): New Well X
Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure: .....

(4) NATURE OF USE (check):
Domestic X Industrial ☐ Municipal ☐ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary ☐ Dug ☐ Jetted ☐
Cable X Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded X
6" O.D." Diam. from 0 feet to 924'6" feet Gage .....
" Diam. from ..... feet to ..... feet Gage .....
" Diam. from ..... feet to ..... feet Gage .....
New ☐ Reject ☐ Used ☐

(7) PERFORATIONS: Perforated? Yes X No ☐
Type of perforator used Torch
Size of perforations ¼ inches by ⅛ inches
4 holes to the ft. perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet
..... perforations from ..... feet to ..... feet

(8) SCREENS: Well screen installed? Yes ☐ No ☐
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... Set from ..... ft. to .....
Diam. ..... Slot size ..... Set from ..... ft. to .....

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☐ Size of gravel: .....
Gravel placed from ..... feet to ..... feet
Was a surface seal provided? Yes ☐ No ☐
To what depth? ..... feet
Material used in seal: .....
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: ..... Depth of strata .....
Method of sealing strata off: .....

Was surface casing used? Yes ☐ No ☐
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:
Static level 865 feet below land surface Date .....
Artesian pressure ..... feet above land surface Date .....

LOG RECEIVED:

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☐ No ☐ If so, by whom? .....
Yield: ..... gal./min. with ..... feet drawdown after ..... hours
" ..... " ..... " ..... "
" ..... " ..... " ..... "
Bailer test ..... gal./min. with ..... feet drawdown after ..... hours
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? No ☐ Yes ☐

(13) WELL LOG: Diameter of well ~~6~~ 8" inches
Depth drilled 924'6" feet. Depth of completed well 924'6" feet.

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

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	5			X								
5	30										X	gray sand rock
30	45											yellow " "
45	105											gray " "
105	253											red " "
253	275											gray " "
275	383											red " "
383	410											light yellow sand rock
410	870											red sand rock
870	880					Water						light red sand rock
880	924'6"					Water						white sand rock

Work started June 7, 1962 Completed July 9, 1962

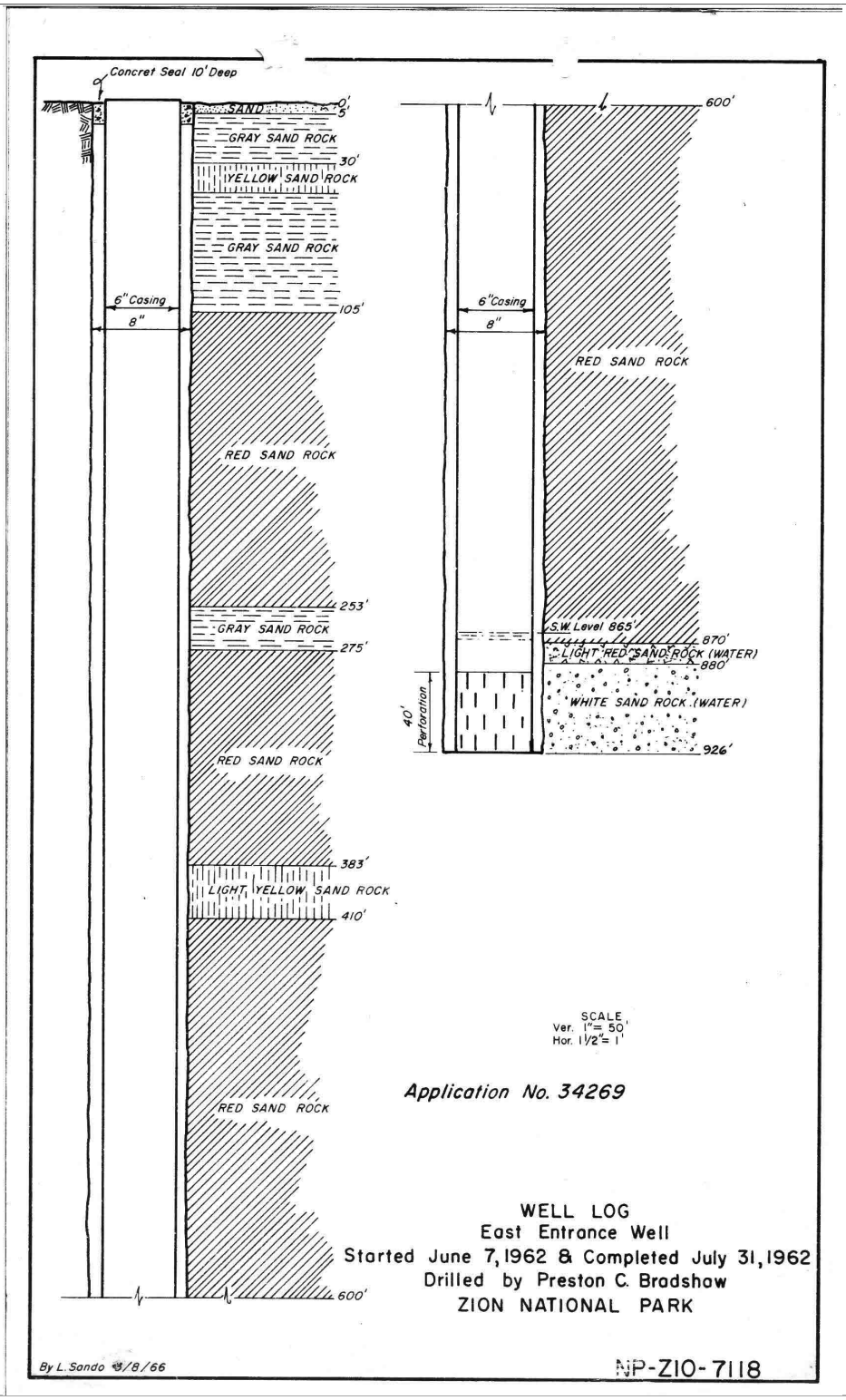
(14) PUMP:
Manufacturer's Name .....
Type: ..... H. P. .....
Depth to pump or bowles ..... feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name ..... (Person, firm, or corporation) (Type or print)
Address .....
(Signed) Preston C. Bradshaw (Well Driller)
License No. 114 Date ....., 19....

USE OTHER SIDE FOR ADDITIONAL REMARKS

06-00-1962: well log



Other Supporting Information

Owen Williams

July 25, 1988

L54 (479)
RMR/ZION Water Rights

Memorandum

To: Superintendent, Zion National Park

From: Chief, Water Resources Division

Subject: Feasibility of providing water for expanded visitor facilities at the East Entrance, Zion National Park

Attached please find a scoping report on the feasibility of providing water for expanded visitor facilities at the East Entrance, Zion National Park. Based on this report, the existing water rights and water supply at the East Entrance cannot — without the addition of substantial storage capacity — provide for increased water demands associated with expanded facilities.

There do appear to be some options available to provide both the water supply and the water rights to meet increased demands without a substantial increase in storage. The production of the East Entrance Well could be improved and water rights could transferred. This would require that pump tests be performed and applications be made to the State to change the point of diversion, place, and nature of use of the water rights which would be transferred to the East Entrance.

Attachment

FNP:OWilliams:skp:221-5341:07/25/88:592

Scoping Report

The Feasibility of Providing Water for Expanded Visitor Facilities East Entrance, Zion National Park

July 22, 1988

Introduction

This report is intended to serve as a management tool for scoping the feasibility of providing water for expanded visitor facilities at the East Entrance, Zion National Park. The calculations and alternatives presented are preliminary in nature. If it is determined through the scoping process that expanded facilities will be provided, a more thorough and exhaustive analysis will be undertaken.

Presented below are the following:

- water demand
- water supply
- water rights
- summary

Not presented are any potential impacts to Park water-related resource attributes. This would be beyond the scope of this report.

Water Demand

An estimate of water demand was made by approximating the existing water demand at the East Entrance and adding to it the additional water demand for increased visitor use at expanded facilities. The total water demand was estimated for a peak-day rate of use in July, when both visitor use and irrigation water demands would be high.

Existing Water Demand

The existing water right at the East Entrance is for supplying water to 1 family and 3 seasonal employees; 6 horses; irrigation of .02 acres, and water for public use, including a facility to fill water tanks in recreational vehicles for park visitors.
Existing uses may vary somewhat from those listed in the East Entrance water right certificate (attached). For the purposes of estimating water demand at a peak-day rate, the uses described in the water right certificate will be considered the existing uses.
Existing peak-day water demand, assuming the above uses, is approximately 2900 gal/day (TABLE 1). Calculations are provided in Appendix A.

TABLE 1. Existing peak-day water demand at the East Entrance, Zion National Park.

USE OF WATER	UNIT	GAL/UNIT/DAY	#UNITS	GAL/DAY
family	persons	75	4	300
seasonals	persons	75	3	225
horses	horses	12	6	72
irrigation	acres	10,046	0.02	201
ORV tanks	vehicles	65	32	2,080
				2,878
TOTAL EXISTING DEMAND			(approximately	2,900)

Water Demand for Increased Visitor Use

Water demand for increased visitor use at expanded facilities was estimated by assuming each visitor uses 10 gal/day. This is a standard use figure for facilities similar to visitor centers (Appendix A). With visitation equaling 2000 people/day water demand for visitation would be approximately 20,000 gal/day. Note that this figure represents only the peak-day water demand for 2,000 visitors at a facility like a visitor center or contact station. It does not include additional water for irrigation, filling water tanks in recreational vehicles, or other uses which might be associated with expanded facilities.

Total Water Demand

Total peak-day water demand -- composed of existing uses and that for 2000 visitors at a visitor center, would be approximately 23,000 gal/day. Without the addition of substantial storage capacity, this demand could not be sustained for long at the pumping rate of 10 gal/min (that provided by the existing water right at the East Entrance well). As explanation, a pump operating for 16 hours (2/3 of a day) at a rate of 10 gal/min yields 9,600 gallons, which is 13,400 gallons short of the demand on a peak day. (For the purposes of this scoping report I am assuming that the pump would be operational for a total of 16 hours per day). Nine thousand six hundred gallons would only provide water for existing uses and for approximately 670 visitors. The demand, however, could be met on a sustained basis if the East Entrance well could deliver 24 gal/min. At this flow rate, 23,000 gallons of storage could be replenished in 16 hours, providing adequate water for visitors at a peak-day demand rate.

One must also consider the availability of water for fire protection. Because water for this purpose could be held in an auxiliary storage tank which is filled during low demand times, an additional increase in the flow rate would not be necessary.

Water Supply

Gates (1963) assessed the potential water supply in the vicinity of the East Entrance. He concluded that the only reliable supply of water in the area would be from a well that taps the regional aquifer in the Navajo Sandstone, as does the existing East Entrance well. In his opinion, the East Entrance well would yield 10 gal/min safely and a flow rate of up to 20 gal/min would probably not cause excessive drawdown. (Note that at a flow rate of 20 gal/min, and a period of 16 hours during which the pump is in operation, water could be provided for existing uses and 1600 visitors/day). He concluded that the springs and seeps in the area were unreliable water sources because they tap perched aquifers susceptible to periodic drying. For the same reason, shallow wells which tap perched water sources, would, in his opinion, also be unreliable.

Thus, the most probable water source for expanded facilities is the present East Entrance source. At this time, it is not certain whether the well, in its existing state, could supply a flow rate exceeding 10 gal/min. Well tests need to be performed to verify that an increased pumping rate will not cause excessive drawdown. If excessive drawdown does occur, it is possible that the well can be deepened to increase the flow rate.

Another possibility would be to decrease the existing uses of water at the East Entrance. Usually irrigation is the most demanding use of water. However, in this instance, it is a small portion of the total. (A maximum of about 200 gallons of water is required to irrigate the existing .02 acres on a peak day). The most substantial existing use of water is for filling tanks of recreational vehicles. The water provided for this use could be used instead to provide for an additional 208 visitors per day.
Before pursuing these options, however, it would be prudent to explore the water right opportunities for supplying additional water from the East Entrance well.

Water Rights

When considering the water right opportunities, both the existing water right at the East Entrance and additional water rights must be examined.

As previously mentioned, the NPS has an existing appropriative water right for the use of water from the East Entrance well. The right, certificate No. 10754, with a priority date of May 3, 1962, is for 10 gal/min. This right can be used to partially meet the projected water demand.

Because the uses documented in the certificate, include "...OTHER: Water provided for public use, including a facility to fill water tanks in recreational vehicles for park visitors....", it may not be necessary to

change the type of use associated with this existing water right. However, this is uncertain. If a change of use is required, the type of use could fairly readily be changed to provide for visitor uses at expanded facilities. This would involve application to the State for a permanent change in the existing right which would not affect its priority date. The only risk in changing an existing right is that others have the opportunity to protest the change, and if they can prove the change to be injurious, the State can disallow the change or, as a condition of approval, require that the injured party be compensated. It is very unlikely that a change of this type would prove injurious to others because the point of diversion is not changing. However, this change could not, under State law, expand the amount of water to which the NPS is entitled.

To obtain water to supplement that provided by the existing right, additional water rights are required. Because of the on-going adjudication, the option of applying for new water rights at this time is ruled out. Thus, all alternatives presented below are for employing water rights which have previously been decreed or rights for which claims have been made to the Court by the NPS.

1) Use Federal reserved water rights.

The United States, NPS, has filed for consumptive Federal reserved water rights at Zion National Park for both present and future needs. A small quantity of the consumptive portion of the reserved rights claim could be applied to the East Entrance well. In so doing, however, the NPS runs the risk that -- if the Court does not decree the consumptive portion of the reserved water rights as claimed -- the expanded use of the East Entrance well would be in violation of State law.

2) Transfer a portion of the water rights used in Zion Canyon.

A portion of the existing appropriative water rights in Zion Canyon could be transferred to the East Entrance area. However, the transferred portion would then not be available for increased visitor use in the Zion Canyon area. This may not be a problem, if the consumptive portion of the Federal reserved rights claim is decreed; but, as described above, this is an uncertainty. A transfer of this type would require a change application to the State, as was described for the existing right at the East Entrance well. In this instance, the point of diversion, the place, and the type of use would need to be changed. A change of this type is more likely to be protested by others, although it is unlikely that injury could be proved. Based upon a review of the State's water right tabulations for T40S R9W and T41S 9W, SLB&M, no wells in the vicinity of the East Entrance well are deeper than 350 feet and most are less than 200 feet as compared to 925 feet, the approximate depth of the East Entrance well. This implies that the shallower wells in the vicinity probably tap perched aquifers, whereas the East Entrance well is thought to tap the regional aquifer.

3) Expand the "municipal boundaries" within ZION to include the East Entrance area and transfer a portion of the water rights in Zion Canyon.

The NPS has appropriative water rights in Zion Canyon for municipal uses. To obtain municipal uses, the State required a legal description of the municipality served. This did not include the East Entrance area. Based upon a conversation with an official from the State Division of Water Rights, municipal water rights convey certain advantages, which may include the ability to obtain water rights for future needs, preference to municipal uses between rights of equal priority in times of shortage, and flexibility in describing the place(s) of use. It would be advisable to change the municipal boundary associated with ZION to include the entire Park area. If the State allowed the change, all the NPS's appropriative water rights within the Park could be reclassified as municipal. Then, the point of diversion associated with a portion of the water rights in Zion Canyon could be changed to the East Entrance well, but the type of use (municipal) would not change. This change has about the same risk of being protested as that described under 2), above.

4) Purchase water rights from elsewhere and transfer them to the East Entrance well.

This option would require the expenditure of funds to purchase rights. The cost and availability of rights is not known. It would appear that there is some opportunity to pursue this option, as evidenced by the numerous notices published in the St. George paper for transfer of small portions of water from Kolob Reservoir to various wells. As described above, a change application would need to be filed with the State.

Summary

Without the addition of substantial storage capacity, the existing water rights and water supply at the East Entrance area cannot provide for existing uses and an additional 2,000 visitors/day at a sustained peak-day rate of demand. To provide for a sustained peak-day demand rate, the production of the East Entrance well could probably be increased from the existing 10 gal/min to an estimated 24 gal/min. At this pumping level, 23,000 gallons of storage (the estimated water requirement in a peak day) would be replenished in 2/3 of a day. It appears that improving the production of East Entrance well through, for example, deepening the well, is the logical choice for increasing the water supply to the East Entrance. There is a possibility that the present well could provide more than 10 gal/min without excessive drawdown. However, pump tests would be required to ascertain whether this is the case. Other sources of water in the East Entrance area, including springs or shallow wells, would tap perched aquifers and thus be unreliable. Water rights will be required to provide for expanded facilities. The existing East Entrance well water right can be used, with some changes, to partially meet the projected water requirement. Additional water can be provided by using a portion of the NPS's Federal reserved water right or by transferring a portion of an existing water right to the East Entrance area. Applications to the State Engineer are required for water right changes and transfers.

APPENDIX A

Calculations

Existing water demand, East Entrance, Zion National Park

TABLE 1. Existing peak-day water demand at the East Entrance, Zion National Park.

USE OF WATER	UNIT	GAL/UNIT/DAY	#UNITS	GAL/DAY
family*	persons	75	4	300
seasonals*	persons	75	3	225
horses*	horses	12	6	72
irrigation**	acres	10,046	0.02	201
ORV tanks***	vehicles	65	32	2,080
				2,878
TOTAL EXISTING DEMAND			(approximately	2,900)

*Water use value taken from EPA Manual of Individual Water Supply Systems, 1982. (EPA-570/9-82-004), Part 1 Selection of a Water Source, TABLE 1, page 15 (See also page 3 of this appendix).

**Water use value calculated using Irrigation Water Requirements, Technical Release No. 21, U.S. Dept. of Agriculture, Soil Conservation Service, Engineering Division, 1970. A peak period average daily consumptive use rate was estimated for the month of July, using TABLE 5, page 23. This table provides the peak daily rate for a given monthly rate and net irrigation application, in inches. The net irrigation application is assumed to be the minimum of 1 inch. With an estimated monthly consumptive use rate of 9 inches (At the ZION NP HQ weather station, the July consumptive use rate was calculated to be 9.27 inches. Due to its higher elevation the East Entrance rate will be somewhat less, and is assumed to be 9 inches) the peak period average consumptive use rate is 0.37 inches. For the .02 acre area irrigated, this equates to 201 (approximately 200) gallons.

***According to Jerry of Jerry's RV center Fort Collins (Telephone communications, 7/18/88) the holding tank on an RV varies from 30 to 100 gallons depending on the RV. A value of 65 gallons for the volume refilled per RV, will be assumed.

Increased Water Demand, East Entrance, Zion National Park

TABLE 2. Increased peak-day water demand at the East Entrance, Zion National Park.

USE OF WATER	UNIT	GAL/UNIT/DAY	#UNITS	GAL/DAY
visitors*	persons	10	2,000	20,000

*Water use value taken from EPA Manual of Individual Water Supply Systems, 1982. (EPA-570/9-82-004), Part 1 Selection of a Water Source, TABLE 1, page 15 (See also page 3 of this appendix).

EPA Manual of Individual Water Supply Systems

Office of Drinking Water
EPA-570/9-82-004
October 1982
Washington DC 20460

Part I

Selection of a Water Source TABLE 1, page 15

TABLE 1. —*Planning guide for water use*

Types of establishments	Gallons per day
Airports (per passenger)	3-5
Apartments, multiple family (per resident)	60
Bath houses (per bather)	10
Camps:	
Construction, semipermanent (per worker)	50
Day with no meals served (per camper)	15
Luxury (per camper)	100-150
Resorts, day and night, with limited plumbing (per camper)	50
Tourist with central bath and toilet facilities (per person)	35
Cottages with seasonal occupancy (per resident)	50
Courts, tourist with individual bath units (per person)	50
Clubs:	
Country (per resident member)	100
Country (per nonresident member present)	25
Dwellings:	
Boardinghouses (per boarder)	50
Additional kitchen requirements for nonresident boarders	10
Luxury (per person)	100-150
Multiple-family apartments (per resident)	40
Rooming houses (per resident)	60
Single family (per resident)	50-75
Estates (per resident)	100-150
Factories (gallons per person per shift)	15-35
Highway rest area (per person)	5
Hotels with private baths (2 persons per room)	60
Hotels without private baths (per person)	50
Institutions other than hospitals (per person)	75-125
Hospitals (per bed)	250-400
Laundries, self-serviced (gallons per washing, i.e., per customer)	50
Livestock (per animal):	
Cattle (drinking)	12
Dairy (drinking and servicing)	35
Goat (drinking)	2
Hog (drinking)	4
Horse (drinking)	12
Mule (drinking)	12
Sheep (drinking)	2
Steer (drinking)	12
Motels with bath, toilet, and kitchen facilities (per bed space)	50
With bed and toilet (per bed space)	40
Parks:	
Overnight with flush toilets (per camper)	25
Trailers with individual bath units, no sewer connection (per trailer)	25
Trailers with individual baths, connected to sewer (per person)	50
Picnic:	
With bathhouses, showers, and flush toilets (per picnicker)	20
With toilet facilities only (gallons per picnicker)	10
Poultry:	
Chickens (per 100)	5-10
Turkeys (per 100)	10-18
Restaurants with toilet facilities (per patron)	7-10
Without toilet facilities (per patron)	2½-3
With bars and cocktail lounge (additional quantity per patron)	2
Schools:	
Boarding (per pupil)	75-100
Day with cafeteria, gymnasiums, and showers (per pupil)	25
Day with cafeteria but no gymnasiums or showers (per pupil)	20
Day without cafeteria, gymnasiums, or showers (per pupil)	15
Service stations (per vehicle)	10
Stores (per toilet room)	400
Swimming pools (per swimmer)	10
Theaters:	
Drive-in (per car space)	5
Movie (per auditorium seat)	5
Workers:	
Construction (per person per shift)	50
Day (school or offices per person per shift)	15

Form 1 1971

CERTIFICATE OF APPROPRIATION OF WATER

STATE OF UTAH

Water User's Claim No. 81-514 Application No. a-10851 34269 Certificate No. 10754

1. Name and address of appropriator: United States of America, National Park Service Regional Office Box 25287 Denver, Colorado 80225

Whereas, it has been made to appear to the satisfaction of the undersigned that the appropriation of water has been perfected under the above numbered application in accordance with the Laws of Utah; Therefore, Be it known that the State Engineer hereby certifies that said appropriator is entitled to the use of water subject to prior rights, if any, as follows:

2. Period and nature of use:

Irrigation	from March 1	to November 30
Domestic	from January 1	to December 31
Stockwatering	from January 1	to December 31
Municipal	from	to
Other	from January 1	to December 31

3. Source of supply: Underground Water, Well

4. Drainage area: Colorado River

5. Quantity of water: 0.0223 cfs.

6. Priority of right: May 3, 1962

7. Point of diversion: S. 75°54'20" W., 6382 ft. from the N¼ cor. Sec. 21, T41S, R9W, SLBM, Kane County, Utah

8. Method of diversion: 8 inch diameter well, 924 ft. and 6 inches deep

9. Place and/or extent of use:

IRRIGATION: 0.02 ac. SE¼NW¼, Sec. 20, T41S, R9W, SLBM

DOMESTIC: 1 family and 3 seasonal employees

STOCKWATERING: 6 horses

OTHER: Water provided for public use, including a facility to fill water tanks in recreational vehicles for park visitors.

10. Other rights appurtenant: None

The works employed in this appropriation are to be operated and maintained in such a manner and condition as will prevent waste of water. This certificate entitles the holder to use only sufficient water from all rights combined to constitute an economic duty without waste.

The right evidenced by this certificate is subject to review by the courts in any adjudication proceeding.

In Witness Whereof, I have hereunto set my hand and affixed the seal of my office this 25th day of February, 19 80.

Dee C. Hansen
State Engineer
Dee C. Hansen

In the event the right evidenced by this certificate is transferred, a copy of such transfer should be furnished the State Engineer by the party acquiring the right.

02-25-1980: memorandum to j. lancaster from b. mekeel regarding perfected water right, east entrance well

UNITED STATES GOVERNMENT

memorandum

DATE: FEBRUARY 28,1980

REPLY TO ATTN OF: BILL MEKEEL

SUBJECT: PERFECTED WATER RIGHT – EAST ENTRANCE WELL – ZION

TO: JOHN LANCASTER

ENCLOSED HEREWITH IS THE FINAL CERTIFICATE OF APPROPRIATION FOR YOUR EAST ENTRANCE WELL. YOU WILL NOTE IT SHOULD BE RECORDED IN KANE COUNTY WITHIN 30 DAYS FROM FEBRUARY 25th. AFTER THE CERTIFICATE IS RECORDED IT SHOULD BE FILED IN YOUR DOCKET NO. 6. WE HAVE MADE COPIES FOR OUR DOCKET AND SENT ONE TO WASO FOR THEIR RECORDS.

THANKS, JOHN, IF YOU HAVE ANY QUESTIONS GIVE ME A CALL.

Bill
BILL MEKEEL



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-111

L54 (RMR)MW

JUL 9 1979

State of Utah
Department of Natural Resources
Division of Water Right
P.O. Box 506
Cedar City, Utah 84720
Attention: Sandra McCall
Engineering Technician

Re: Application No. 34269 (81-514)
Zion National Park

Dear Ms. McCall:

Attached hereto please find the above numbered application for our East Entrance well at Zion National Park. We have made the changes you suggested and appreciate your pointing them out.

Additionally, we have elected to file the amendment to include the stockwater use. Our purchase order in the amount of $15.00 is also included. Normally, the procedure calls for an invoice to be submitted to effect payment by the National Park Service, however, with this type of transaction an invoice is not necessary and you should receive a check within a few days.

We certainly appreciate the fine service your office gives on these matters.

Sincerely yours,

/s/ WILLIAM MEKEEL

William L. Mekeel
Chief, Division of Water Resources

cc:
Supt., Zion National Park
RMR-MW

11-17-1978: memorandum to b. mckeel from d. pollock regarding plumber's notes

UNITED STATES GOVERNMENT

memorandum

DATE: 11-17-78

REPLY TO ATTN OF: Devar Pollock

SUBJECT: Plumber's Notes

TO: Bill McKeel

Here are the plumber's notes from the East Entrance water use.

I failed to tell you that we have a mobile home at the East Entrance which is occupied by three Seasonal Rangers May 15 thru Sept 15 each year.

I hope this information will help. Sorry we didn't have better records.

Devar Pollock



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

☆ U.S. GPO:1977-0-261-647/3253

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-111

00-00-0000: water use at the east entrance - plumber's notes

WATER USE AT THE EAST ENTRANCE OF ZION NATIONAL PARK

Data taken from daily calendar of Donald E. Heaton, Plumber, at Zion National Park

DATA	GALLONS PUMPED
May 4, 1976	30,000
May 25, 1976	25,000
June 22, 1976	25,000
June 30, 1976	Tank drained and cleaned
Deduct	15,000 drained
June 30, 1976	30,000 tank filled
July 13, 1976	15,000
August 16, 1976	30,000
September 2, 1976	15,000
September 16, 1976	15,000
October 5, 1976	15,000

11-26-1976: purchase order; request for an extension of time for water right appl. 34269

FORM 10-131
(APRIL 1964)

PURCHASE ORDER

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Rocky Mountain Regional Office
655 Parfet St., P.O. Box 25287
Denver, CO 80225
(303) 234-2792
(ISSUING OFFICE)

REQUISITION NO.: Mekeel/Supply-RMR-PN
THIS NUMBER MUST APPEAR ON ALL PACKAGES AND PAPERS RELATING TO THIS ORDER
DATE OF ORDER: 11-26-76
ORDER NUMBER: PX 1200 7 0163
ACCOUNTING CLASSIFICATION: 1242-414(2500N)

VENDOR'S NAME AND ADDRESS:
State of Utah
Dept. of Natural Resources, Water Rights Div.
442 State Capitol
Salt Lake City, UT 84114

SHIP TO: (Consignee and Address;)
NPS-RMR-PN
655 Parfet St., P.O. Box 25287
Denver, CO 80225

CONTRACT NO.	DISCOUNT TERMS	SHIP VIA
Open Market	Net	--

DELIVERY; F.O.B.	TIME FOR DELIVERY	GOVT. B/L NO.
XXXXXXXXX Destination	ASAP	

ITEM NO.	ARTICLES OR SERVICES	QUANTITY ORDERED	UNIT	UNIT PRICE	AMOUNT
1.	Request for extension of time for water right application #34269, Zion National Park				37.50
				TOTAL	37.50

SIGNATURE

NAME AND TITLE: Joseph Gernat, Jr.
Purchasing Agent
PURCHASING OFFICER

6. MEMORANDUM COPY

11-20-1974: letter to the state engineer from a legal assistant regarding application # 34269, extension of time

L54(RMR)PN
ZION/WR#6

November 20, 1974

File in ZION WATER RIGHT Docket FOR Appl. 34269

Dee C. Hansen
State Engineer
442 State Capitol
Salt Lake City, Utah 84114

Dear Mr. Hansen:

In reply to your letter of September 30, 1974, enclosed is your form No. 29 requesting an extension of time for Application No. 34269 (81-514).

Sincerely yours,

/s/ WILLIAM MEKEEL

William L. Mekeel
Legal Assistant

Enclosure

cc:
Supt., ZION w/enc
WASO-MN, Mr. Berte' w/enc

11-16-1972: letter to the directing appropriations engineer from the supervisory hydraulic engineer regarding application 34269

596 11/30/72

L. Reed 11/22

L. Boyle

L54(MWR)PSW
ZION/WR#6

November 16, 1972

PN-W

Earl M. Staker
Directing Appropriations Engineer
442 State Capitol
Salt Lake City, Utah 84114

Dear Mr. Staker:

In reply to your letter of November 8, 1972, enclosed is your form No. 151 requesting withdrawl of the Election to File Statement of Water User Claim and No. 29, Request for Reinstatement and Extension of Time for Application No. 34269 (81-514).

Sincerely yours,

(Sgd.) Richard W. Ketcham

Richard W. Ketcham
Supervisory Hydraulic Engineer

Enclosures

cc:
WASO-PN w/enc*
Supt., ZION w/enc*
Utah State Director

*Please file in Water Right
Docket #6, ZION

11-04-1970: letter to the state engineer's office from the chief, water resources section regarding extension of time; application 342

L54(WSC)LWW NOV 4 1970
ZION (WR Docket No. 6)

AIRMAIL

State Engineer's Office
Division of Water Rights
Department of Natural Resources
442 State Capitol
Salt Lake City, Utah 84114

Gentlemen:

In reply to your September 30, 1970, letter, enclosed is a request for extension of time for Application No. 34269 (81-514) for a well at Zion National Park. A check for $25.00 from the U.S. Treasury Department for the publication of "Notice to Water Users" will be forwarded under separate cover.

Sincerely yours,

(SGD) GERARD S. WITUCKI
Gerard S. Witucki
Chief, Water Resources Section
Office of Land Acquisition and
Water Resources

Enclosure

cc:
Chief, MW-WASO
Director, Southwest Region
Superintendent, Zion

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Zion National Park
Springdale, Utah 84767

WESTERN SERVICE CENTER
OCT 7 1970
DIRECTOR, WSC
CHIEF, PL&P
CHIEF, ADM. SVC.
CHIEF, CSRM
CHIEF, LAND & WATER RIGHTS
CHIEF, PLNG. & HIST. ARCHITEC.
CHIEF, PRGMS. MANAGEMENT

IN REPLY REFER TO:
L54-Zion

October 2, 1970

Memorandum

To: Director, Western Service Center
Through: General Superintendent, Southern Utah Group (later)

From: Superintendent, Zion

Subject: Proof of Appropriation, Application No. 34269 (81-514), East Entrance Well

The enclosed letter from the State of Utah, Department of Natural Resources, is self-explanatory.

At the present time we have not made complete beneficial use of this water. Plans are still pending for additional quarters and a restroom at the east entrance where this well is located. We are using the well to furnish water to the seasonal residence from about June 1 to September 15.

We would appreciate it if your office could complete the necessary forms and request an extension of time on this appropriation.

Robert I. Kerr

Enclosure

cc:
Director, SW Region

Assistant Regional Director, Operations — March 30, 1965

Hydraulic Engineer

Hearing at Kanab, Utah, Water Right Application No. 34269 and Water Problems at Zion

When I was at Panguitch, Utah, word was relayed to me that Sid Ellis at Zion National Park was trying to contact me so enroute to Kanab, Utah for the hearing on the East Entrance Well I stopped by Zion and contacted Mr. Ellis. He had opened the bids on the Taylor Creek well and since he could not contact Ray Martinez by telephone he wanted to talk to me about it. Bids had been opened and the low bidder was Effinger Drilling Company of Las Vegas, Nevada. Total contract bid was $4,788 which was some $1,200 below my estimate. I authorized Mr. Ellis to proceed with the letting of the contract in the usual manner and to give Notice to Proceed after the drilling company has been checked as to financial responsibility. I then drove to Kanab, Utah.

The purpose for going to Kanab was to attend a meeting on Application No. 34269 which is application to appropriate water for the East Entrance well. We had been required to make Proof of Beneficial Use but because the water system had not been completed no use has been made. An Extension of Time was requested by this office and this meeting was called so that we could show what work had been completed, justification of the extension request and answer any protests.

The hearing was held in the Kane County Courthouse and the representative of the State Engineer's office who had been in Panguitch was present at this meeting.

I gave them the cost figures on work which had been completed to date and also the estimated cost of anticipated work. Mr. Higginson stated that he would recommend an Extension of Time until November 30, 1970.

I left Kanab at 1o:15 P.M. enroute to Canyonlands to look at the Squaw Flats well. This trip will be the subject of another report.

William E. Fields

cc: Acting ARD, Adm.
ARD, Coop-Act.
Dr. Erik K. Reed

WEFIELDS:jfd
3/30/65

L 54
Zion

10-13-1964: letter to the state engineer from the acting assistant regional director regarding request for an extension of time; appl.

559-16-30: 64

Southwest Region
Santa Fe, New Mexico

OCT 1 7 1964

OCT 1 9 1964

Mr. Wayne D. Criddle
State Engineer, Utah
403 State Capitol
Salt Lake City 14, Utah

Dear Sir:

We have enclosed a request for an extension of time under Application No. 34269 for a water right located at the East Entrance of Zion National Park. It has been signed by the Regional Director, as agent, and notarized.

We have completed a producing well under this application but have not completed the distribution system. We request that consideration be given in extending the time necessary for complete beneficial use in this area.

Sincerely yours,

(SIGNED)
Thomas J. Williams
Acting Assistant Regional Director

Enclosure

cc: Director (2), w/o enc.
Chief, WODC (2), w/o enc.
Superintendent, Zion, w/o enc.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
L54-SLW

May 27, 1964

RECEIVED
NPS SOUTHWEST REGIONAL OFFICE
MAY 28 1964

	Surname	Date
Regional Director		
Operations		
Administration		
Coop. Activities		
Development		
Resource Studies		
Lands		
Fields		
Files		

Memorandum

To: Regional Director, Southwest Region

From: Chief, Branch of Water Resources

Subject: Map for Docket No. 6, Zion

Since there has never been a map in the subject docket a portion of Master Plan NP-Z10/3340A has been reprinted (copy enclosed), on which we have located the only 1/16 corner which falls within the limits of the paper, but which is the N.W. corner of the 10 acre tract described as the place of use on the docket 6 permit. This tract is outlined in blue. This will act as a guide in future campground expansion regarding the permitted space or the need to apply for more.

The accuracy of plotting is limited by the graphic plotting method used, employing the tangents of bearing angles. That of the tie described on the permit as from the well to the north $\frac{1}{4}$ corner of the adjacent section (21) was used to locate the well on a copy of preliminary Springdale N.E. quadrangle, copy enclosed for your review. By reverse process the 1/16 corner was plotted on the portion of the master plan.

By copy of this memorandum copies of the docket map are transmitted to the Park and WODC to place at the bottom of their dockets.

E. W. Reed

E. W. Reed

Enclosures 2

cc:
Superintendent, Zion, w/c docket map only
Chief, WODC (2), w/c docket map only

L54 Zion

10-22-1962: memorandum to the regional director from the acting chief, branch of water resources regarding final payment data, e



October 22, 1962

L54-RL

Memorandum

To: Regional Director, Southwest Region

From: Acting Chief, Branch of Water Resources

Subject: Final Payment Data, East Entrance Well, Zion

Mr. Carpenter's memorandum of September 28 reports on the receipt of the well drillers statement in the amount of $7,813.62 for the subject well.

Your current work order 3-WR-63B reinstates $9,322.50 as the total project cost. Included in this amount is $1,200.00 for U. S. Geological Survey participation.

The following is a breakout of total project cost:

Personal Services	$ 300.00	per 3-WR-62B
Travel	200.00	per 3-WR-62B
Equipment and deprec.	40.00	per 3-WR-62B
Other direct expenses	150.00	per 3-WR-62B
U.S.G.S.	1200.00	per 3-WR-62B
Contract test well	7813.62	per Mr. Carpenter's memo 10-28-62
Total	$9703.62	
Total	9322.50	per 3-WR-63B and Table I
	$ 381.12	difference

We have taken the time to recap the expenses connected with the subject project since it appears that B&U reimbursement of the Water Rights Acquisition account is in order.

Mr. Dunn and I, during our visit to your office, would appreciate the scheduling of a discussion on the subject of reimbursements in general.

SIGNED

E. W. Reed

cc:
Superintendent, Zion
Chief, WODC (2)

10-11-1962: memorandum to the superintendent from a geologist regarding the analyses of water from the east entrance well and

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
GROUND WATER BRANCH
231 E. 4th So., RM. 125
Salt Lake City 11, Utah

COPY

October 11, 1962

To: Superintendent, Zion National Park, Springdale, Utah
Attention: Mr. Joseph McCabe

From: Joseph S. Gates, Geologist, Salt Lake City, Utah

Subject: Analyses of water from the well at the East Entrance, Zion National Park, and an estimate of well yield

Enclosed are copies of the analyses of a water sample collected by Preston Bradshaw during a short bailing test done prior to installing casing in the well, and of a sample I collected after 3 hours of the bailing test done subsequent to the installation of casing and gravel-pack in the well. The water, other than being hard and containing considerable iron, has no chemical characteristics that would make it unusable and is, in general, of excellent quality. The sample collected by the driller contains 1.3 ppm (parts per million) iron and, since iron precipitates from the water if the sample is not acidified immediately after collection, the iron content of the well water is probably greater than 1.3ppm. Although this iron content is several times the maximum recommended by the Public Health Service, I don't believe it is a serious problem. The chief objections to a high iron content are that it will cause staining of fixtures and perhaps an objectionable taste, and does not mean that such water is harmful to health. I would guess that much of the iron in the water would precipitate in the storage tank and, other than perhaps making it necessary to clean the tank at intervals, will cause little harm. The water used in the Park Headquarters area contains comparable amounts of iron, and I do not recall hearing that it causes any problems.

The sample taken during the second bailing test is higher in dissolved solids, and specifically in calcium, bicarbonate, and sulfate, than the sample collected by Mr. Bradshaw. This was probably caused by the water dissolving soluble material that was associated with the gravel placed around the casing. Evidence for this conclusion is that the specific conductivity (which is proportional to the total dissolved solids) of the samples collected after 15 minutes, 1 hour, 2 hours, and 3 hours of bailing was 623, 461, 399, and 421 micrombos, respectively, showing a generally progressive decrease. I would expect that the eventual compositon of the water will be close to that of the sample collected by Mr. Bradshaw.

COP

COPY

Preliminary analysis of the water-level data collected during the bailing test indicates that the well will yield 20 gpm for an indefinite time without excessive lowering of the water level.

Before I can make a formal report on the well, I must have a copy of the driller's report, including the drilling log and the results of the first short bailing test. In addition, if a pump and airline gage have been installed on the well, any data you have collected on the effects of pumping on the water level will also be useful to me.

/s/ Joseph S. Gates

Joseph S. Gates
Geologist

Enclosures

COPY

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Location coordinates
(C-41-9)20bdb-1

WATER ANALYSIS

Location East Entrance, Zion National Park County Kane
Source Drilled well - cable tool Depth (ft.) 924'3" Diam. (in.) 6
Cased to (ft.) 924 Date drilled June-July 1962 Point of coll. Bailer after 3 hrs of bailing
Owner National Park Service
Treatment Use Public supply
WBF Navajo Sandstone 865-924 WL 865½ below land surface Yield 9.4 gpm by bailer
Temp (°F) 68 Appear. when coll. Reddish-turbid
Collected July 31, 1962 By J. S. Gates
Remarks

	ppm	epm		ppm	epm
Silica (SiO_2)	11		Bicarbonate (HCO_3)	186	
Aluminum (Al)			Carbonate (CO_3)	0	
Iron (Fe) in solution at time of analysis	.00				
Iron (Fe)			Sulfate (SO_4)	56	
			Chloride (Cl)	10	
			Fluoride (F)	.3	
Calcium (Ca)	63				
Magnesium (Mg)	9.5				
			Nitrate (NO_3)	.3	
Sodium (Na) + Potassium (K)	13				
Total cations			Total anions		

		ppm		
Dissolved Solids:	Sum	254	Specific conductance (micromhos at 25° C)	421
	Residue on evap. (180° C)	244	pH	7.5
Suspended solids			Color	
Hardness as $CaCO_3$:	Calcium, magnesium	197	% Sodium	13
	Noncarbonate	44	Sodium-adsorption ratio	0.4
Alkalinity as $CaCO_3$		153		

Lab. No. SLC —251X79 Field No. Project

GW - 1956
Unpublished records, subject to revision

08-02-1962: memorandum to a district geologist from the regional director regarding request for assistance, east entrance, test we

Southwest Region
Santa Fe, New Mexico

AUG 2 - 1962

Memorandum

To: District Geologist, Ground Water Branch, 231 East Fourth South, Salt Lake City 11, Utah

From: Regional Director, National Park Service, Southwest Region, P. O. Box 1728, Santa Fe, New Mexico

Subject: Request for Assistance, East Entrance, Test Well, Zion National Park

In connection with the test well being drilled at the east entrance, Zion National Park, this office would like the assistance of the U. S. Geological Survey in measuring drawdown and recovery, and analysis of the water, and such other assistance as may be necessary. This is in accordance with our request of July 2 and your reply of July 9.

The well is 8 inches in diameter and has been completed to a depth of 313 feet. It is planned to torch perforate 40 feet of casing and the contractor will place a 6" I.D. casing in the well and expects to do a bail test before setting the casing. Because of the expense involved in setting a pump at this depth and pump testing (estimate was $3,000 plus $12.00 per hour) this item will be eliminated from the contract. In place of the pump test we plan to conduct a bail test and would like your representative to be present to measure the static level of the well and also to determine the drawdown and recovery during the bail test.

Funds in the amount of $1,000, your estimate of July 9, are available and when your portion of the work is completed we should receive Standard Form 1081 covering your participation in the project. The billing can be charged to Account 14X1035.

This office should have six copies of the completed report and after a review of the information contained in the report authorization will be given to release the information to your "open file report".

The Superintendent has been requested to advise your office by telephone well in advance of the start of the bail test in order that your representative can be present the night before the test to measure the static level of the water. We have advised the Superintendent that it will take your representative about one full day to reach the site.

(SIGNED)

Thomas J. Allen
Regional Director

In duplicate

Copy to: Director (2)
Supt., Zion
R. Giles w/copy incoming

JEKell:ew 8/1/62

Zion National Park
Springdale, Utah

L54

August 1, 1962

OCT 1962
RETURNED
CENTRAL FILES
NATIONAL PARK SERVICE
REGION THREE
OFFICE

Memorandum

To: Regional Director, Southwest Region

From: Acting Superintendent, Zion

Subject: Development Program - East Entrance

The latest tentative 1965 F.Y. Development Program includes a package of projects to complete the development at the East Entrance. To date the development and proposed construction has been contingent upon the availability of water. We now have a well with an adequate supply of water. The well is useless until we have a pump, storage reservoir, distribution system and electrical power to operate the pump.

For many years water has been hauled from headquarters to the East Entrance. This is time consuming and costly, averaging about $2,000.00 per year.

The development of the Water System, U-28-1, is dependent upon the Power Generating and Distribution System, U-30-1, since the generators now in use do not have capacity to power the pump that will be required. You may already be considering placing the above projects in an earlier program. With a good source of water on hand, we believe that these two projects should receive top priority, and will appreciate your consideration and assistance toward this end.

CHARLES E. HUMBERGER

Charles E. Humberger
Acting Superintendent

In duplicate

orig ⊙ D22 zion

L54 zion

08-01-1962: letter to a well driller from the acting superintendent regarding final well inspection

Zion National Park
Springdale, Utah

L54 August 1,1962

Mr. Preston Bradshaw
Well Driller
Hurricane, Utah

Dear Mr. Bradshaw:

In accordance with the specifications for Contract No. 14-10-0345-25 for the drilling of Water Well, a final inspection was made on July 31, 1962. This inspection revealed that the work was completed in accordance with the plans and specifications and is entirely acceptable.

Sincerely yours,

CHARLES E. HUMBERGER

Charles E. Humberger
Acting Superintendent

07-11-1962: memorandum to the superintendent from the assistant regional director regarding the completion of the east entrance

Kelly

Southwest Region
Santa Fe, New Mexico

16A
ZION

JUL 11 1962

Memorandum

To: Superintendent, Zion

From: Assistant Regional Director, Administration

Subject: Completion, East Entrance Test Well, Zion National Park

On July 10 Regional Chief of Lands Hall telephoned District Geologist Ted C. Arnow in Salt Lake City regarding assistance in testing the drawdown and recovery of the well at the East Entrance, Zion National Park.

Mr. Arnow reports that he has received the gallon of water for test purposes and the complete analysis will take a week or more. He reports the specific conductance is 308 and this generally indicates a good quality of water.

Mr. Arnow was advised that we plan to perforate 40 feet of casing and the contractor has been instructed to order the casing. Mr. Arnow recommends that an airline be installed to check drawdown and recovery even though it is expected that a representative of the U. S. Geological Survey will use an electric probe to determine drawdown and recovery during the course of the pump test.

Mr. Hall advised Mr. Arnow that you would report to this office when the pipe ordered by the contractor had arrived. This will enable us to anticipate the probable time the contractor will have the pump installed in the well with the airline and is ready to conduct the pump test. The USGS needs to be advised in sufficient time so that they can have a representative on the ground to check the static water level prior to the time the actual pumping operation is started.

Mr. Hall will be out of the office July 15 through July 23. He will be at Capitol Reef and may be able to return to Santa Fe by way of Zion if the driller has the pump installed and ready to test.

It will be satisfactory for you to write or telephone the USGS direct if you wish. Mr. Arnow's telephone number in Salt Lake City is Davis 8-2911.

(SIGNED)

James E. Carpenter
Assistant Regional Director

Copy to: Chief, WSDC (2)

JEKell:ew 7/11/62

L54
Zion

07-09-1962: letter to the acting regional director from the district geologist regarding east entrance test well, geological survey help

GW

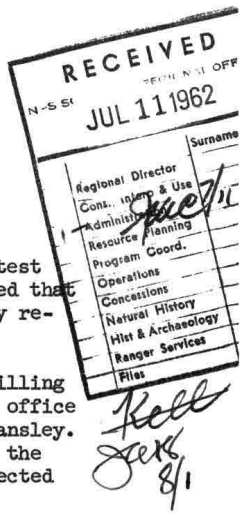
IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GROUND WATER BRANCH
231 E. 4TH SO., RM. 125
SALT LAKE CITY 11, UTAH

July 9, 1962

L54
ZION



Mr. George W. Miller
Acting Regional Director
Region Three, National Park Service
P. O. Box 1728
Santa Fe, New Mexico

Dear Mr. Miller:

It is unfortunate about the misunderstanding concerning your test well at the East Entrance of Zion National Park, but be assured that the Geological Survey will provide whatever assistance you may require during the completion of this well in FY 1963.

Prior to talking to Mr. Kell on June 19, I had visited the drilling site; and during the week of June 25, Mr. J. S. Gates of this office also visited the site and conferred with Superintendent Oberhansley. Mr. Gates made the site investigation in 1961, and he will be the Geological Survey representative for any additional work connected with the test well.

We estimate that the cost to the National Park Service for the remaining support of the Geological Survey in FY 1963 will be $1,000. This will include all chemical analyses necessary and the preparation of a report.

If you wish to proceed on this basis, we will request formal permission from Mr. S. K. Jackson, our Division Hydrologist, to do the work. We will need for Mr. Jackson a letter containing the following information:

a. A brief description of the project.

b. Estimated cost of the work.

c. A statement that funds are available for the work.

d. Designation of the appropriation to be charged.

e. An authorization to release data and reports to the public.

Ted Arnow

Ted Arnow
District Geologist

L54 Zion

EW

Zion National Park
Springdale, Utah

L54
ZION

July 6, 1962

RECEIVED
NPS SOUTHWEST REGIONAL OFFICE
JUL 9 - 1962

	Surname	Date
Regional Director		
Cons., Interp & Use		
Administration		7/14
Resource Planning		
Program Coord.		
Operations		
Concessions		
Natural History		
Hist & Archaeology		
Ranger Services		
Files		

Memorandum

To: District Geologist, Ground Water Division, U. S. Geological Survey, 231 East Fourth South, Room 125 Salt Lake City 11, Utah

~~Fields~~ Seed 7/14
~~Fields~~ WDT 7/16

From: Superintendent, Zion

Subject: Request for analysis of water sample from Test Well, East Entrance, Zion National Park

We are mailing you by parcel post a one gallon sample of water obtained from the test well being drilled at the East Entrance at Zion National Park. This sample was taken on July 6, 1962, by Preston Bradshaw, who is drilling the well.

We would appreciate receiving a chemical analysis of this sample at your earliest convenience. Water temperature will be supplied following bailing tests.

Frank R. Oberhansley

Frank R. Oberhansley
Superintendent

In duplicate

Copy to: Regional Director, Southwest Region ✓

Copy to go with water sample shipment.

L54 Zion

07-02-1962: memorandum to the district geologist from the acting regional director regarding usgs survey assistance

Region Three
Santa Fe, New Mexico

L54
ZION

JUL 2 - 1962

Memorandum

To: District Geologist, Ground Water Division, U. S. Geological Survey, 231 East Fourth South, Room 129, Salt Lake City 11, Utah

From: Acting Regional Director, Region Three, National Park Service, P. O. Box 1728, Santa Fe, New Mexico

Subject: U. S. Geological Survey Assistance, Test Well, East Entrance, Zion National Park

Mr. Kell has explained to me the results of the conversation with you on June 19 regarding assistance withthe test well at the East Entrance, Zion National Park.

It appears that a formal apology is in order since our Service did not make a formal request to you for assistance and obtain a formal acknowledgement that you would participate in the work from Division Hydrologist S. K. Jackson, Water Resources Branch, Denver.

Mr. Kell had assured you that funds for participation were available and that every effort would be exerted to prepare the contract, award the bids and initiate the project prior to June 30, 1962. We adjusted our program from $1200 to $1500 for this anticipated participation and you were assured by Mr. Kell when he was in Salt Lake City February 26-28 that the funds were available.

Superintendent Oberhansley has assured us that the Park Engineer is supervising the drilling of the well and that the required samples are being obtained. He was aware that some representative of the USGS was in the area of the well site during the course of the drilling but since you or your representative did not call on the Superintendent prior to Mr. Kell's conversation with you on June 19 Superintendent Oberhansley had no way of knowing if the representative was connected with your office or not.

We were advised by Superintendent Oberhansley that the drilling is continuing and as of June 28 the depth was 640 feet and no water had yet been encountered.

L54 Zion

If you are willing to accept Mr. Hall's apology this memorandum will serve as a formal request to be submitted through your necessary channels asking if you will be able to give any assistance to our Service after July 1, especially in connection with measurements of drawdown and recovery in the event water is encountered. We would like to have your current estimates of costs so that they can be programmed even though you were unable to accept any of the programmed funds prior to June 30. We are assuming, since the drilling has progressed to a depth of approximately 700 feet by July 1 that you will not now need the full amount of $1500 programmed for the original project.

(SIGNED)
George W. Hill
Acting Regional Director

Copy to: Director (2)
Supt., Zion

R. Giles

JEKell:ew 7/2/62

06-11-1962: memorandum to the regional director from the superintendent regarding well drilling project, east entrance

EW

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Zion National Park
Springdale, Utah

IN REPLY REFER TO:
L54

June 11, 1962

RECEIVED
NPS REGION THREE OFFICE
JUN 15 1962
SURNAME | DATE
REG. DIR.
ASST. R.D.
1 ADMIN.
2 OPERATIONS
RANGER ACT.
INTERP.
RECREATION
SOLICITOR
FILES

Memorandum

To: Regional Director, Region Three

From: Superintendent, Zion

Subject: Well Drilling Project - East Entrance - Zion National Park

Work started on June 8, 1962. At 2:00 p.m., June 11, the hole was down 105 feet with no evidence of water. Licensed driller is taking samples every 10 feet. Change in formations will be noted by driller.

Frank R. Oberhansley
Superintendent

In duplicate

Copy to: U. S. Geological Survey
Ground Water Branch
231 East 4th South
Salt Lake City, Utah

FEB 1966
RETURNED
CENTRAL FILES
NATIONAL PARK SERVICE
REGION THREE
OFFICE

L54 Zion

06-04-1962: letter to a well driller from the superintendent regarding starting work on the east entrance well

RECEIVED
NPS REGION THREE OFFICE
JUN 7 - 1962
DIR.
ASST. DIR.
OFFICE
RANGER
INTERP.
RECREATION
Rocker
SOLICITOR
Martinez
FILES
DATE
6/7/62
K-6-8

W-14

Zion National Park
Springdale, Utah

June 4, 1962

Mr. Preston C. Bradshaw
Hurricane, Utah

Dear Sir:

After checking and correcting the extensions of cost figures for well drilling operations under our Bid Invitation 45-4 (62), contract award has been made to you today in the amount of $5,182.50 for all items. Contract number 14-10-0345-25 has been assigned to this contract.

As a result of the bid and award, payment bond and performance bond forms are attached in triplicate. Please have these executed promptly and return two signed copies to this office. Upon receipt of these completed bonds a Start Work Order will be issued, and a signed copy of the executed contract provided you.

Your prompt attention to the above will be appreciated as we desire to have this project started at a date as soon as possible.

Sincerely yours

Frank R. Oberhansley

Frank R. Oberhansley
Superintendent

Enclosures

Copy to: Director
Regional Director, Region Three
Chief, WODC (2)
Park Engineer
GAO Contract file

D5039

Application
34269

Receipt 04963

Region Three
Santa Fe, New Mexico

L58
Z100

MAY 1 - 1962

CERTIFIED MAIL

Mr. Wayne D. Criddle
State Engineer
State of Utah
Salt Lake City 14, Utah

Dear Sir:

Enclosed in duplicate is Form 9-1 1GH 6-60, which is an Application to Appropriate Water in the State of Utah for the purpose of drilling a water well near the east entrance of Zion National Park. The exact location of the well is shown on the application. This well is to be drilled in accordance with a report made during the summer of 1961 by Geologist Joseph S. Gates, U. S. Geological Survey, entitled Water-Resources Investigations at the East Entrance of Zion National Park and of Springs at Cedar Breaks National Monument, Utah.

Proof and license for municipal use have been established on Zion National Park through Applications a-1657, a-1658, a-1659 and a-1660. We also have Certificates of Municipal Use a-221, a-222, a-223 and a-224. Therefore the application has been made for municipal as well as irrigation use.

Specifications for drilling this well have been completed in draft form and we are extremely anxious to start the project as soon as the specifications can be completed and the contract awarded. This we hope to accomplish prior to July 1. Therefore our Service would like to have immediate permission to proceed with drilling the well prior to formal approval of the application.

It is understood that cost of advertising must be borne by this office and that your office will send us the bill on completion of the necessary newspaper publication. Upon receipt of this bill we will transmit a purchase order and voucher for you to sign to reimburse your office.

The application fee of $10.00 is enclosed in cash along with a receipt (Standard Form 1165) which you need to sign and return to this office. It is necessary that the full name of the person

signing the receipt be shown rather than initials.

If this application meets with your approval we would like to have one copy signed and returned to this office.

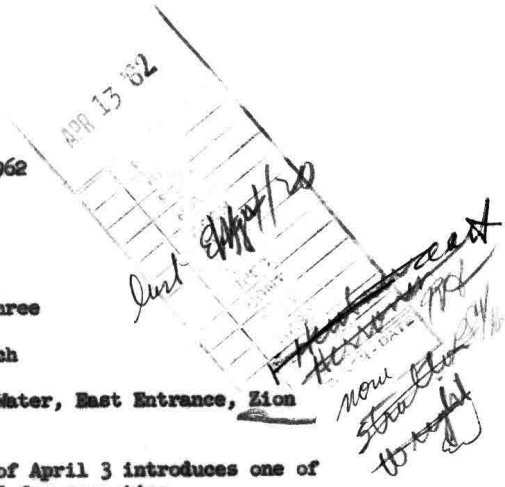
Sincerely yours,

(SIGNED)
Thomas [illegible]
Regional Director

Enclosures

Copy to: Director (2) w/o enclosures
Supt., Zion w/o enclosures

WEFields:am 4/27/62



April 10, 1962

L54-

Memorandum

To: Regional Director, Region Three

From: Chief, Water Resources Branch

Subject: Application to Appropriate Water, East Entrance, Zion National Park

The application with your memorandum of April 3 introduces one of two questions which I have anticipated for some time.

Please refer to the description of the municipality on the first page of supplemental sheets in the proofs of November 17, 1955, for the licenses of existing rights, and supporting maps, part II-B of combined Dockets 1-4. Thisappears to have established municipal status for the entire Park of that date, by the State Engineer's acceptance, and by the terms of the certificates of June 10, 1957, which are in Part II-C of the same docket.

On this basis, I think the subject application should be for the appropriation of water for municipal purposes. I note that the form 97-10M of 6-60 seems to be suitable for an application for appropriation of water for municipal as well as domestic and irrigation purposes, but we have had previous difficulty at Timpanogos in perfecting rights, partially because we used forms acceptable at one date but not at the time of use. We also learned that successive State engineers had different concepts and prescribed different forms of claim and proof.

I suggest that you and the field soliciter first decide whether to assert municipal status, which I favor if possible. The mere fact that the east entrance is not in the floor of the valley should not matter. We have similarly independent municipal water supplies in Bryce Canyon, as recorded in dockets 1 and 2 of that area. The advantage of the municipal right is that proof for certificate can be made when diversion and distribution capacities are provided, regardless of whether the water is fully used at the time or not. You apparently propose to install a 35 gpm pump and proof of measured pumping at that rate would be all you needed after the system is completed.

Incidentally, 35 gpm is equivalent to 0.07798 c.f.s., and I usually claim 0.078 c.f.s.

The second question, which does not relate to this application, stems from the fact that the old Monument area was converted to Park status, and the Park boundary was further changed in 1960. The additional land at the Springdale entrance should certainly be included in the revised municipal area, and appurtenant water rights should be converted from irrigation to municipal purposes and made interchangeable with the rights recorded in dockets 1-4. We should also consider whether to include the old Monument area in the enlarged municipality. The entire revision of the municipal area can probably be made when the first new Federal right, other than that covered by the subject application, is initiated or amended.

These comments should certainly be referred to the field solicitor. While you may wish to check with the State Engineer as to the possible obsolescence of the application forms of June 1960, I should not give him any prior opportunity to question the propriety of expanding municipal status and resulting purpose of water use which you decide to claim.

By separate memorandum of April 5, Mr. Miller submitted a draft of the specifications for drilling the well to the Superintendent. I have forgotten whether a separate permit is required to drill a well in Utah, but believe it is. The well driller will also submit his well drilling report to the State Engineer and this Service should also have copies. The question of proposed municipal purpose should be decided before any incorrect purpose is suggested in these instruments.

SIGNED
A. van V. Dunn
Chief, Water Resources Branch

Copy to: Superintendent, Zion
√ Chief, WCDC (2)

E

Region Three
Santa Fe, New Mexico

APR 5 1962

Memorandum

To: Superintendent, Zion

From: Assistant Regional Director

Subject: Specifications for Drilling a Test Well, East Entrance, Zion National Park

Enclosed is a draft of specifications for drilling an eight-inch test well at the east entrance in your area.

It is understood that you will cut the stencils for the specifications, award the contract and be the Contracting Officer for this project.

We have programmed this project under 14X1035, 3-WR-62B, 102.5, and although this is no year Construction Funds we would like to advertise and let this contract prior to July 1. Mr. Martines has advised that wage rates for the project are being requested.

(SIGNED)
George W. Miller
Assistant Regional Director

Enclosures

Copy to: ~~Director~~ (2) w/o enclosures
Chief, WODC (2) w/o enclosures

W O D C
APR - 9 '62
CHF
ADM
PERS
P & P
ARCH
ENG
L. A.
SPEC
CONT
SFTY
ACTION TAKEN
File

04-03-1962: memorandum to the director from the regional director regarding application to appropriate water

Fields
Kleeg
J. Thomas Allen

Region Three
Santa Fe, New Mexico

L54
ZION

APR 3 1962

Memorandum

To: Director

From: Regional Director

Subject: Application to Appropriate Water, East Entrance, Zion National Park

Enclosed is a thermofax copy of a proposed Application to Appropriate Water, State of Utah. This appropriation is intended for irrigation and domestic use at the east entrance of Zion National Park.

We would like Mr. Dunn, Chief of the Water Resources Branch, to review the contents of this application and let us know if there are any corrections or additions which need to be made prior to submitting it to the State Engineer's office in Utah.

(SIGNED)

Thomas J. Allen
Regional Director

In duplicate

Enclosure (1)

WEFields:ew 4/2/62

L54 Zion

03-28-1962: memorandum to the regional director from the superintendent regarding the location of well site

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Zion National Park
Springdale, Utah

IN REPLY REFER TO:
L54

March 28, 1962

RECEIVED
NPS REGION THREE OFFICE
MAR 30 1962

	Surname	Date
REG. DIR.		
ASST. R.D.		
ADMIN.		
OPERATIONS	ahr	3/30
RANGER ACT.		
INTERP.		
RECREATION		
SOLICITOR		
FILES		

Memorandum

To: Regional Director, Region Three

From: Superintendent, Zion

Subject: Location of Well Site, East Entrance - Zion

In response to Assistant Regional Director Miller's memorandum of March 9, we are enclosing a tracing prepared by Park Engineer McCabe showing the location of the proposed well.

Ten gallons yield per minute would be desirable for this well.

Frank R. Oberhansley
Superintendent

In duplicate

Enclosure

L 54 Zion

03-09-1962: memorandum to the superintendent from the assistant regional director regarding the location of a well site



154
Zion

Region Three
Santa Fe, New Mexico

MAR 9 - 1962

Memorandum

To: Superintendent, Zion

From: Assistant Regional Director

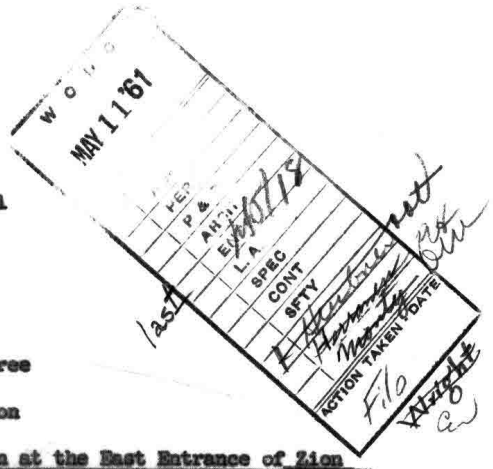
Subject: Location of Well Site, East Entrance, Zion National Park

It is anticipated that specifications to drill the test well at the East Entrance of Zion National Park will be completed within a month. Prior to the time that drilling can start we need to file an application with the State Engineer's office in Salt Lake City.

Before we can file this application we will need a well location staked on the ground and tied to a section or ¼ corner. If you could have Park Engineer McCabe stake and tie this well based on Mr. Gates' report "Water Resources Investigations at the East Entrance of Zion National Park and of Springs at Cedar Breaks National Monument, Utah" and forward the information to us we will fill out the forms and file the application with the State Engineer. It is our feeling that the location marked on "figure 2" in Mr. Gates' report between the residence and the checking station will be a satisfactory location for the test hole. This suggested location would be subject to your concurrence. We should also have information regarding the desired or estimated yield of the well for insertion in the application.

(SIGNED)
George W. Miller
Assistant Regional Director

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



L54-

May 9, 1961

Memorandum

To: Regional Director, Region Three

From: Chief, Water Resources Section

Subject: Water Resources Investigation at the East Entrance of Zion National Park and of Springs at Cedar Breaks National Monument, Utah, 1961 by Joseph S. Gates, Geologist, USGS

The subject report, which you forwarded on May 4, might have your clearance for USGS publication in its present form. However, a few modifications might be considered by you and Mr. Gates. I have selected a few passages in the following discussion, which illustrate my reaction as I reviewed the report.

The Geological Survey is supposed to be requested to provide hydrological data from which this Service can design the water systems and determine the economic justification and the water right procedure. The subject report is one of a number which have suggested that your Staff has invited consideration of details which should not be made a matter of public record except in connection with the Park Service design and the Federal application for the appropriation of water.

The last sentence, paragraph 2, page 1, states that the Park Service estimates a future demand of 5 gpm, which is equivalent to a statement of claim. The Park Service actually only wished to provide 5 gpm for the few designated structures and facilities at this time, which may or may not be all of the ultimate demand.

I also question whether the planners and designers of this Service will agree that a well yield of 5 gpm will be adequate for the proposed development. The daily supply would be 7200 gallons if the pump were operated continuously, but only 2400 gallons if the pump were operated 8 hours per day. The report should indicate that a well yield of only about 5 gpm may be expected, and your engineers or D&C should then decide whether one or more wells are needed and economically justified. This leads to the unanswered question of whether Mr. Gates thinks a well would only yield 5 gpm, or might yield 10 to 15 gpm in the Navajo formation.

5/18

In the second paragraph, page 3, I wonder whether water from below the Navajo formation is impractical, or merely assumed, at this time, to involve well costs which would be needlessly great for the immediate water demand. It might be cheaper to deepen a 1400 foot well in 10 years, than to drill another, if there is a more adequate source at 2500 feet, for use when needed.

In the last paragraph, page 13, I wonder why there need be a suggestion that the cost of hauled water might be cheaper than the well supply. The designing engineer of this Service will consider that feature.

At the bottom of first paragraph, page 16, the mud invasion is suggested as likely to reduce well yield to 5 gpm, while I am not sure whether the Park development can be satisfied by pumping 5 gpm during 8 or 10 hours. The designing engineers should know what the yield might be both with and without the mud invasion.

The last, single sentence paragraph, page 24 should be omitted. The Park Service may be assumed to know enough to determine the basis of Federal rights to any water it uses, without having a USGS report suggests that other water users may have a basis for claiming an injurious conflict.

SIGNED

A. van V. Dunn
Chief, Water Resources Section

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

L-54

Region Three
Santa Fe, New Mexico

AUG 25 1960

Memorandum

To: Acting District Geologist, Ground Water Branch, U. S. Geological Survey, 503 Federal Building, Salt Lake City, Utah

From: Assistant Regional Director, National Park Service, Region Three, P. O. Box 1728, Santa Fe, New Mexico

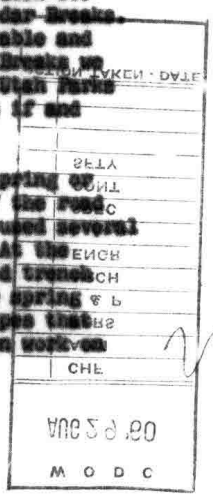
Subject: Water Resources Investigation by Geological Survey, Cedar Breaks National Monument and East Entrance Zion National Park

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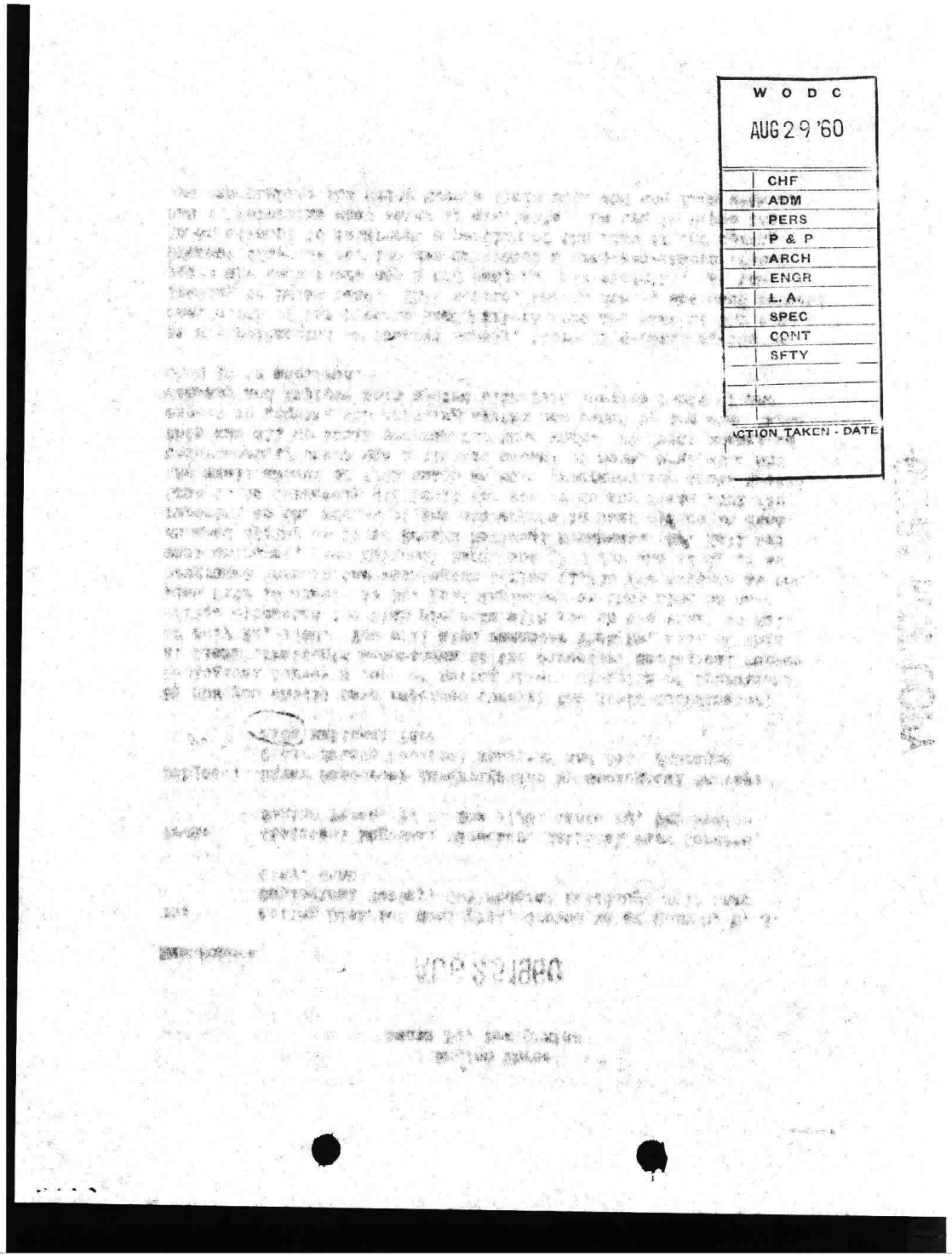
File Copy

By now you should have received through the Staff Coordinator, Geological Survey a copy of Acting Chief, Division of Operations A. Clark Stratton's memorandum to the Director, Geological Survey of July 21, 1960. You will also remember that Mr. Kell of this office discussed the Utah projects with you on his visit to Salt Lake City in June. As Mr. Kell explained at that time we have programed through the Washington Office $1,200 for studies at the east entrance, Zion National Park, and $200 for the study of an unnamed spring at Cedar Breaks National Monument. Mr. Kell has reported as the result of the conference in your office in June that it is extremely difficult for you to do any field work for the small amount of $200 which we have programed for Cedar Breaks. Unfortunately there was a limited amount of money available and this was all we could program for this work. At Cedar Breaks we expect to acquire the existing system now owned by the Utah Parks Company and improve this system with Park Service funds if and when it is acquired.

As a supplemental or reserve supply, there is a small spring or seep north of the present headquarters area and east of the road leading to Bryan head. This source, though small, was used several years ago when there was a CCC camp in this vicinity. At the present time our Service has excavated a crescent-shaped trench in an attempt to intercept a portion of the flow of the spring and to determine what water is available. We are in hopes that you can combine the Cedar Breaks field work and the Zion work on



08-29-1960: recieved stamp



the same trip, stop at the area, and make recommendations if we should do further trenching or, perhaps, a shallow well might intercept water for a stand-by supply. Cedar Breaks is administered by Superintendent Oberhansley, Zion National Park, and Management Assistant John H. Davis is at Cedar Breaks during the visitor season. He will be glad to assist your representative in any way possible and explain our proposed development.

At Zion National Park we would like your recommendation for a firm source of water to be used at the east Entrance Station. It is anticipated that we will have one permanent residence, two to three apartments, and a comfort station at the east entrance. On June 10-16 Civil Engineer Fields of this office made a reconnaissance survey and a report on the known sources of water in the vicinity of the east entrance, Zion. This report is available at Zion National Park, and we have attached a copy without photographs for your reference.

We are sending copies of this correspondence to the Superintendent, Zion and Cedar Breaks, and we would like for the work to be initiated as soon as it can be scheduled by your office.

The other projects in Utah discussed when Mr. Kell was in Salt Lake City will be the subject of separate memorandums.

(SIGNED)

George W. Miller
Assistant Regional Director

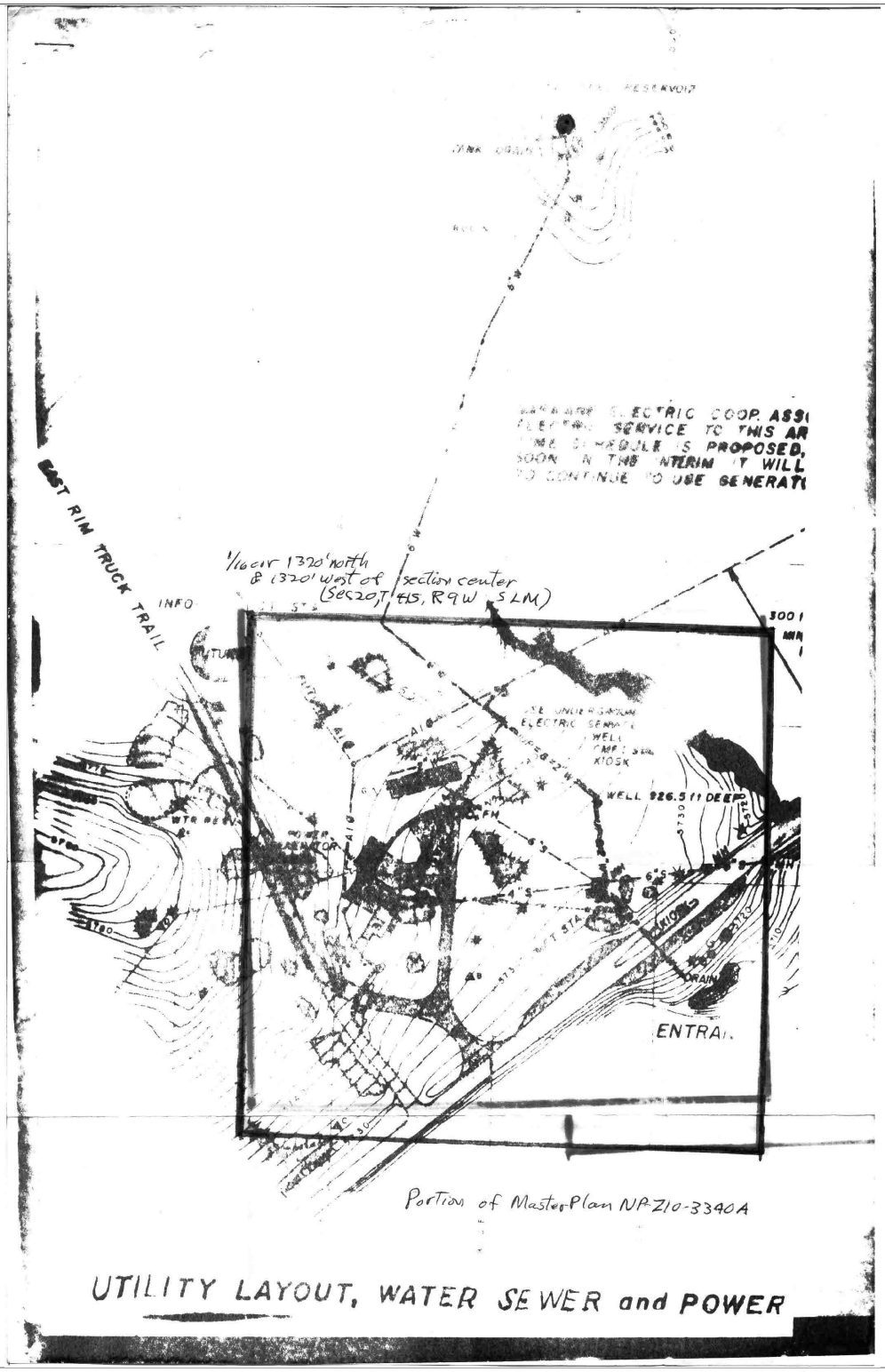
In duplicate

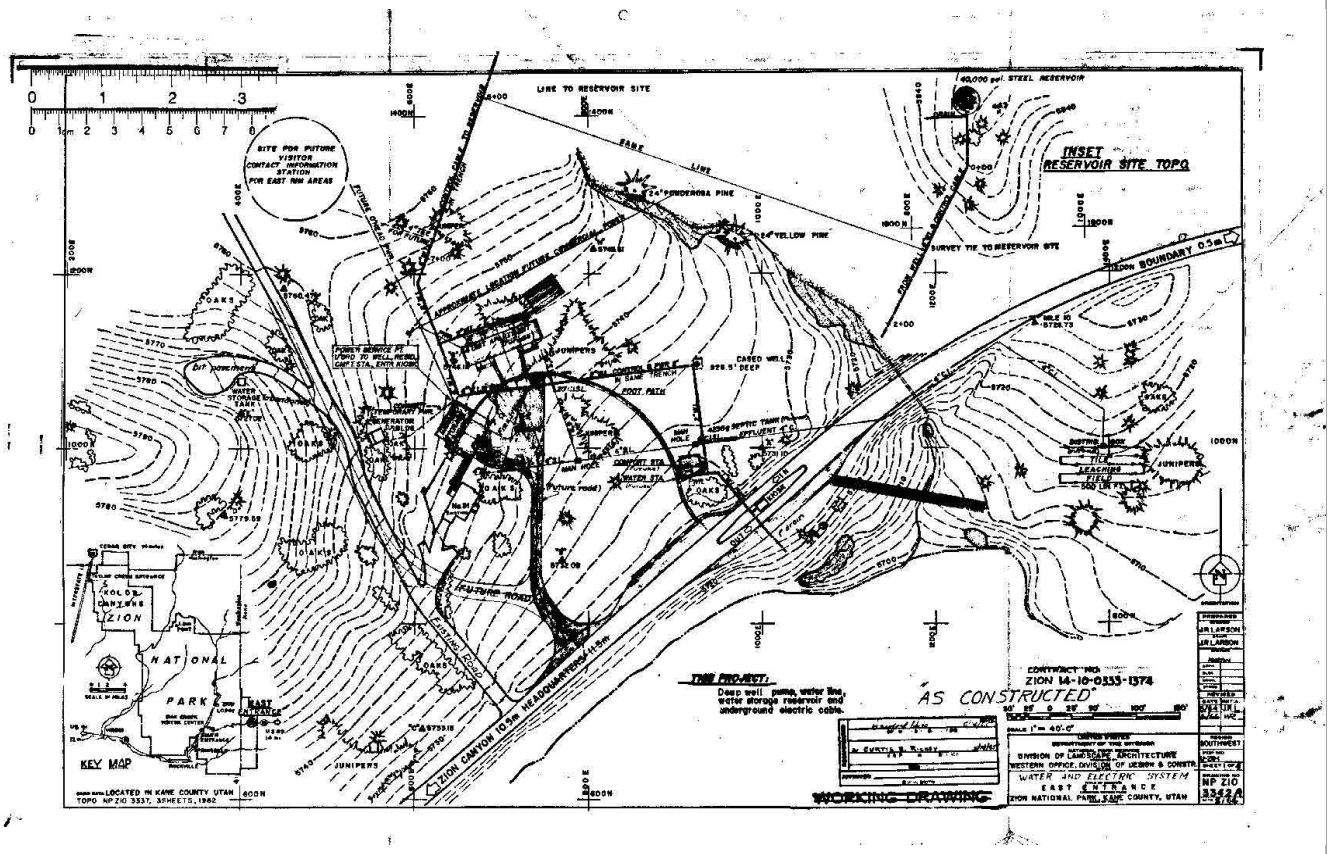
Attachment

Copy to: Director (2) w/o attachment
Supt., Zion (2) w/o attachment
Chief, WSDC (2) w/o attachment ✓

Maps and Miscellaneous Information

00-00-0000: utility layout, water sewer and power





Docket Information

Number of Documents in Docket 135

Documents Dated from 8/25/1960 to 7/25/1988

Docket Compiled: 8/3/2011