



WATER-RIGHT DOCKET

Theodore Roosevelt National Park

Docket No: 2

MEDORA HEADQUARTERS, SOUTH UNIT

Preliminary Docket Information

00-00-0000: water right record: id no. thro,w,26,140,102,a,f,02; medora headquarters, south unit

WATER RIGHT RECORD

Park: THRO

Docket Number:
Federal #2

IDENTIFICATION NO: THRO, W, 26, 140, 102, A, F, 02

DITCH/WATER SYSTEM: Medora Headquarters, South Unit

SOURCE OF SUPPLY: Well

LOCATION: NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26, T140N, R102W

WATER RIGHT:

Appropriator: United States of America, National Park Service

Application/Permit Number: 1198

Certificate Record Number:

Date of Priority: June 19, 1964

Quantity of Water: 13.4 acre-feet, .009 c.f.s Domestic
.0625 c.f.s. Irrigation

Purpose: Domestic, fire protection and irrigation

Irrigated Land Description:

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

Application to Appropriate Water was filed June 19, 1964. Approved July 23, 1964.

Office of State Engineer
STATE OF NORTH DAKOTAWater License No. 1198

Permit No. 1198 Priority Date June 19, 1964
 Name of Permit Holder National Park Service, United States of America, Department of the Interior
 Address Medora, North Dakota
 Source of Water Ground Water Supplies (Medora Headquarters Well)
 Quantity of Water Approved in Permit 13.4 acre-feet Nature of Use Domestic, Fire protection,
& Irrigation
 Date Application Approved and Permit Issued July 23, 1964
 Date Certificate of Completion Issued October 19, 1964 Date Water Beneficially Used 964

This is to certify that the holder(s) of the permit to divert and appropriate water as indicated above has... completed construction of the works as set forth therein and evidenced by the Certificate of Completion issued by me on October 19, 1964, and that the holder(s) of said permit did, on the 31st day of July, 1964, submit proof of the application to beneficial use of 13.4 acre feet of water for the following purpose

Domestic, Fire protection and Irrigation

Now, therefore, by virtue of the authority vested in me by the laws of the State of North Dakota, I hereby grant and confirm to the National Park Service of Medora, North Dakota holder of said Permit No. 1198, a right dating from June 19, 1964 to appropriate and divert from a point located in the NW 1/4 Sec. 26, Twp. 140N, Rge. 102W, a quantity of water limited to the amount that can be beneficially used herein, but not to exceed 13.4 acre feet annually for Domestic, Fire (purpose) protection and Irrigation and if purpose is irrigation, water is to be applied to the following lands to which this water right is appurtenant:

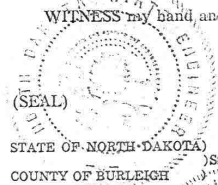
Sec.	Twp.	Rge.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Total
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
26	140	102							2 1/2										2.5
27	140	102	2 1/2																2.5
TOTAL																			5.0

Estimated return flow to stream

This water right is subject to the limitation on the use of water as set forth in the laws of this State and to the rights of prior claimants recognized under the laws of North Dakota, and to the following additional limitations...

The right to use water for irrigation set forth herein is limited to the above described lands and is subject to cancellation for nonuse.

WITNESS my hand and seal at Bismarck, North Dakota, this 30th day of November, 1964.



Milo W. Hoisveen
 State Engineer
 State of North Dakota

On this 30th day of November, 1964, before me a notary public, personally appeared Milo W. Hoisveen, known to me to be the same person who executed the Water License and acknowledged to me that he executed the same.

Arnold J. Indring
 Notary Public

BOOK 43 PAGE 536

Doc. Number /
Grantor /
Grantee /
Indexed /
Compared

62539

OFFICE OF REGISTER OF DEEDS
BILLINGS COUNTY, N. D.

I hereby certify that the within instrument was
filed in my office for record this 15th day of
April A.D. 1964 at 6:35
o'clock A.M., and was recorded in Book 43
of 535
Matthew A. Ryan
REGISTER OF DEEDS
By Deputy

9.50

OFFICE OF STATE ENGINEER
STATE OF NORTH DAKOTA

CERTIFICATE OF COMPLETION

Permit No.: 1198

Name of Permit Holder: National Park Service, United States of America-Department of the Interior

Address: Medora, North Dakota

Priority Date: June 19, 1964

Date Application Approved: July 23, 1964

Source of Water: Ground water supplies (Medora Headquarters Well)

Points of Diversion: NE1/4, Section 26, Township 140 North, Range 102 West

Quantity Allowed in Permit: 13.4 acre-feet

Nature of Use of Water: Domestic use, fire protection and irrigation

This is to certify that the holder of the permit indicated above has fully complied with the provisions of the laws of the State of North Dakota relating to the proof of completion of works to divert water for beneficial use as set out and described in said permit and related application, and that said works have been constructed or installed and are adequate to store, divert and convey water to the place of intended use in accordance with the application, plans maps and permit indicated above on file in the office of the State Engineer, with the following exceptions _____

/s/ Milo W. Holmsten
State Engineer
State of North Dakota

(SEAL AFFIXED)

RECORD OF WELL

Locate well on plat
of section ----->

MEDORA HEADQUARTERS

6		
	26	

- Location: State North Dakota County Billings
Nearest P.O. Medora, N. Dak. Direction from P.O. NE
Distance from P.O. _____ miles; NE $\frac{1}{4}$ sec 26 T 140N R 102W
If in city, give street and number 2nd Ave.
- Owner: National Park Service, US of America Address Medora, North Dakota
Driller: Hewett Well & Pipe Co. Address P.O. Box 305, Mandan, North Dakota
- Situation: Is well on upland, in valley, or on hillside: Valley Floor
- Elevation of top of well: 2265 ft. Above the level of Sea
(above or below) (Sea, depot, lake or stream)
- Type of well: Drilled; kind of drilling rig used Jetting
(dug, driven, bored or drilled) (solid tool, jetting, rotary)
- Depth of well: 1042 ft., year in which well was finished 1957 - Repaired 1964
Does well enter rock? No; if so, at what depth? _____ ft.; kind of rock _____
- Diameter: At top 8 inches; at bottom 4 inches.
- Principal water bed: Sand (Log of well attached to back of this sheet)
(Gravel, sand, clay or rock. If rock, state kind)
Depth to principal water bed 1040 ft.; thickness of bed _____ ft.
If other water supplies were found, give depth to each _____
- Casings: Kind _____ size _____; length _____ ft.; between depths of _____ & _____ ft.
Kind Galvanized size 8"; length 478.6 ft.; between depths of 0 & 478 ft.
Kind Galvanized size 4"; length 1040 ft.; between depths of 0 & 1040 ft.
Packers (if any); Depth at which packers were used 371; Kind Canvas
Screen or Strainer; Was well finished with screen? _____ Kind of screen _____
length of screen _____ ft.; diameter _____ inches; size of openings _____
- Head: Does well at present overflow without pumping? Yes; did it overflow when new? Yes
if flowing, give pressure _____ lb. per sq. inch; or height water will rise in a pipe
_____ ft. above surface; original pressure or head 127.4; if not flowing, give water
level in well _____ ft. below surface.
- Pump: Is the well pumped? No; kind of pump _____
size of capacity of pump _____; kind of power _____
- Yield: Natural flow at present (if any) 80 gallons per min.; original flow _____ gal.
per min. - well has been pumped at _____ gallons per minute continuously for
_____ hours; quantity of water ordinarily obtained from well _____ gal. per day.
- Use: For what purpose is the water used? Domestic Use, Fire Protection and Irrigation
- Quality of the water: Artesian - Soft; is there an analysis? Yes
(hard, soft, fresh or salty, etc)
- Cost of well, not including pump: Unknown Temperature of water 51 OF

Name of person filling blank Einar L. Johnson
District Park RangerDate October 20, 1964 Address Medora, North Dakota

On the back of this sheet give the record of the beds through which the well passes.

MIDWEST WELL AND PIPE CO.
WATER WELL DRILLING
 Industrial - Commercial - Residential
 P. O. Box 305
 MANEIAN, NORTH DAKOTA

Log of water well for Medora Headquarters,
 Theodore Roosevelt National Memorial Park

0-3	feet, surface soil	614.6-617	gray clay
3-14	gray clay	617-670	scapstone, hard
14-18	Yellow clay	670-686	quicksand
18-33	sand gravel	686-689	stone, hard
33-34	yellow clay	689-715	fine sand
34-34.6	coal	715-717	coal
34.6-38	white sand	717-726	scapstone
38-40	sandstone, hard	726-730	coal
40-51	white clay	730-740	blue clay
51-52	coal	740-744	coal
52-54	carb. shale	744-770	dark clay
54-140	gray sand	770-774	coal
140-148	sandy clay	774-804	blue clay
148-152	dark clay	804-809	coal
152-182	coal, hard	809-814	blue clay
182-208	white scapstone	814-822	coal
208-219	dark clay	822-860	scapstone, hard
219-219.6	stone, hard	860-864	coal
219.6-238	light gray clay	864-880	dark shale, hard
238-238.6	stone	880-890	coal
238.6-294	blue clay	890-940	dark clay, hard
294-320	blue loose fine sand	940-949	fine sand
320-330	fine sandy clay, silty	949-949.6	sandstone
330-335	clay	949.6-951	fine sand
335-350	sandy clay	951-962	sandstone
350-361	blue clay	962-967	blue clay
361-386.6	sandy clay	967-975	brown shale, carb.
386.6-387	sandstone	975-977	coal
387-402	blue clay	977-1018	soft shale
402-403.6	sandstone, hard	1018-1040	hard shale
403.6-445	blue clay	1040-1109	soft, fine silty sand.
445-456	sandy blue clay		water flow started.
456-474	blue clay, hard		
474-478	sandy clay		
478-480.4	sandstone	4" casing set at 1040'	
480.4-490	white sandy clay, fine	8" casing set at 478.6'	
490-521	fine sand, very silty		
521-523	blue clay		
523-530	dark clay, hard		
530-538	scapstone		
538-540	coal		
540-571	fine sand, hard		
571-606	fine sandy clay		
606-613	coal		
613-614.6	sandstone		

LEGAL NOTICES

NOTICE OF HEARING ON PETITION FOR APPROPRIATION OF WATER FROM GROUND-WATER SOURCES
(Peaceful Valley Picnic Well)

TAKE NOTICE, That National Park Service, United States of America, Department of the Interior, Medora, North Dakota, has made application to the State Engineer of North Dakota for a permit to divert and appropriate water from the ground-water sources (Peaceful Valley Pienle Well).

The petition prays for a permit to divert and appropriate water from a point on the ground-water sources in the NE1/4 Sec. 11, Township 140 North, Range 103 West, the average approximate amount of .00111 cubic feet of water per second of time during the operating season, for each year said permit may remain in force, with an annual diversion of .8 acre-feet, for domestic use and wildlife in Billings County, North Dakota, and as shown on the map accompanying the application.

TAKE NOTICE, further that the State Engineer will consider said application in his office in the State Capitol Building, North Dakota, on the 15th day of July, 1964, at the hour of 9:30 o'clock a.m. on that date, at which time and place all persons interested may present their views in person or in writing.

Dated at Bismarck, North Dakota this 5th day of June 1964.

John W. Holverson,
State Engineer
Bismarck, North Dakota

NOTICE OF HEARING ON PETITION FOR APPROPRIATION OF WATER FROM GROUND-WATER SOURCES (Cottonwood Campground)

TAKE NOTICE, That National Park Service, United States of America, Department of the Interior, Major, North Dakota has made application to the State of North Dakota for a permit to divert and appropriate water from the Missouri River and its tributaries.

The petition prays for a permit to divert and appropriate water from a point on the ground-water across the boundary of the State of North Dakota, Ship 140 North, Range 108 West, the average approximate amount of 2000 acre feet of water per second of time during the operating season, and each year said permit may remain in force, with an annual diversion of six feet, to be used for fire protection in Billings County, North Dakota, and as shown on the attached map.

may accompany him for the application.
TAKE NOTICE further that the
State Engineer will consider said
application in his office in the State
Capitol, Bismarck, North Dakota, on
the 13th day of July, 1964, at the
hour of 9:30 o'clock a.m. on that date,
at which time and place, all persons
interested may express their views in
person or in writing.
Dated at Bismarck, North Dakota
this 26th day of June, 1964.
Milo W. Moatsen,
State Engineer
1801 Capitol Building
Bismarck, North Dakota
(July 2-9)

NOTICE OF HEARING ON PETITION FOR APPROPRIATION OF WATER FROM GROUND-WATER SOURCES
(Madona Headwaters Well)

TAKE NOTICE, That National Park Service, United States of America, Department of the Interior, Medora, North Dakota, has made application to the State Engineer of North Dakota for a permit to divert and appropriate water from ground-

water sources (Medora Headquarters Well). The petition prays for a permit to divert and appropriate water from a point on the ground-water sources in the NW1/4NW1/4 Section 30, Township 10N, Range 10E, County of DeWitt, Minnesota, an average approximate amount for irrigation of .0032 cubic feet per second of water and .009 cubic feet per second of water for domestic use during the growing season. The permit is said permit may remain in force, with an annual diversion of 13.4 acre-feet, for domestic use, fire-protection and irrigation, a total of 6.2 acres for irrigation in Section 30, Township 10N, Range 10E, County of DeWitt, Minnesota, and as shown on the map accompanying the application.

TAKE NOTICE, further that the State Engineer will consider said application in his office in the State Capitol, Bismarck, North Dakota, on the 13th day of July, 1964, at the hour of 9:30 o'clock a.m. on that date, at which time and place all persons interested may present their views in person or in writing.

Dated at Bismarck, North Dakota this 26th day of June 1964.

Milo W. Houtsveen,
State Engineer
1301 Capitol Building
Bismarck, North Dakota
(July 3-6)

NOTICE OF HEARING ON PETITION FOR APPROPRIATION OF WATER FROM GROUND-WATER SOURCES (Wellday Well)

TAKE NOTICE, That National Park Service, United States of America, Department of the Interior, Medora, North Dakota, has made application to the State Engineer of North Dakota for a permit to divert and appropriate water from the ground-sources (Holiday Well).

The petition prays for a permit to divert and appropriate water from one point on the ground-water surface in the SWANEY National Wildlife Refuge, ship-140 North, Range 6 West, Sec. 36, Twp. 38N., R. 6W., to another point at an average approximate amount of .00011 cubic feet of water per second of time during the operating season, for each year said permit may remain in force, with an annual diversion of 1 acre-foot, for fire protection, aesthetic and wildlife purposes in said county, north Colorado, and as shown on the map attached hereto and incorporated by reference.

Application.

TAKE NOTICE further that the State Engineer will consider and application in his office in the State Capitol, Bismarck, North Dakota, on the 13th day of July, 1904, at the hour of 9:30 o'clock a.m. on that date, at which time and place all persons interested may present their views in person or in writing.

Witness my hand at Bismarck, North Dakota, this 20th day of June 1904.

John W. Stevenson,
State Engineer.

1301 Capitol Building
Bismarck, North Dakota
(July 3-9)

NOTICE OF HEARING ON PETITION FOR APPROPRIATION OF WATER FROM GROUND-WATER SOURCES
(Rasmussen Well)

TAKE NOTICE, That National Park Service, United States of America, Department of the Interior, Medora, North Dakota, has made application to the State Engineer of North Dakota for a permit to divert

[illegible]

and appropriate water from the ground-water sources (Reamussen, 1984).

The petition prays for a permit to divert and appropriate water from a point on the ground-water sources in the SW 1/4, Section 10, Township 140 North, Range 102 West, the average approximate amount of 0.0111 cubic feet of water per second of time during the operating season, for each year said permit may remain in force, with an annual diversion of a borehole, for domestic use in Billings County, North Dakota, and as shown on the map accompanying the application.

application.
TAKES NOTICE, further, that the
State Engineer will consider said
application in his office in the State
Capitol, Bismarck, North Dakota, on
the 13th day of July, 1964, at the
hour of 9:30 o'clock a.m. on that date,
at which time and place, all persons
interested may present their views in
person or in writing.
Dated at Bismarck, North Dakota
this 25th day of June 1964.
Milo W. Holverson,
State Engineer
1301 Capitol Building
Bismarck, North Dakota
(July 2-9)

**NOTICE OF HEARING ON PETITION FOR APPROPRIATION OF WATER FROM GROUND-WATER SOURCES
(Peaceful Valley Ranch Well)**

TAKE NOTICE, That National Park Service, United States of America, Department of the Interior, Medora, North Dakota has made application to the State Engineer of North Dakota for a permit to divert and appropriate water from ground-water sources (Peaceful Valley Ranch Well).

The petition prays for a permit to divert and appropriate water from a point on ground-water sources in the SW1/4NW1/4, Section 12, Township 140 North, Range 102 West, the average approximate amount of 0.0058 cubic feet of water per second of time during the operating season, for each year said permit may remain in force, with an annual diversion of 4 acre-feet, for domestic use and fire protection in Billings County, North Dakota, and as shown on the

map accompanying the application.
TAKES NOTICE further that the State Engineer will consider said application in his office at the State Capitol, Bismarck, North Dakota, on the 12th day of July, 1964, at the hour of 9:30 o'clock a.m. on that date, at which time and place, all persons interested may present their views in person or by proxy.
Dated at Bismarck, North Dakota this 2nd day of June 1964.
Milo W. Holtsveen,
State Engineer
1501 Capitol Building
Bismarck, North Dakota
(July 2-9)

Name of Paper Bellingham Courier
Where Published Bellingham, W. A.
Date of Issue 7/2/64
Sent By Superintendent
Location Theodore Roosevelt RMP
How Sent Air Mail Yes ☐ No ☒

NOTICE OF HEARING ON PETITION
FOR APPROPRIATION OF WATER FROM

GROUND - WATER SOURCES

Medora Headquarters Well

TAKE NOTICE, That National Park Service, United States of America
Department of the Interior, Medora, N. Dak. has made application to the State
Engineer of North Dakota for a permit to divert and appropriate water from the
ground-water sources (Medora Headquarters Well).

The petition prays for a permit to divert and appropriate water from a
point on the ground-water sources
in the NE 1/4 Section 26, Township 140 North, Range 102 West
the average approximate amount for irrigation of .0625 cubic feet per second of water
and .009 cubic feet per second of water for domestic use.
of time during the operating season, for each year said permit may remain in
force, with an annual diversion of 13.4 acre-feet, for
domestic use, fire protection and irrigation, a total of 5 acres for irrigation
in Billings County, North Dakota, and as shown on the map
accompanying the application.

TAKE NOTICE, further that the State Engineer will consider said applica-
tion in his office in the State Capitol, Bismarck, North Dakota, on the 13th
day of July, 19 64, at the hour of 9:30 o'clock a. m.
on that date, at which time and place, all persons interested may present their
views in person or in writing.

Dated at Bismarck, North Dakota this 26th day of June 1964.

/s/ Milo W. Hoisveen, State Engineer
1301 Capitol Building
Bismarck, North Dakota

Permit No. 1198

Application for a Permit to Divert and Appropriate the Water of the State of North Dakota

Date received and filed in State Engineer's office. National Park Service -

United States of America - Department of the Interior, whose post office
(Name of Applicant)
address is Medora, State of North Dakota, hereby applies
for a permit to divert and appropriate water of the State of North Dakota as stated herein, subject to exist-
ing rights.

1. Source of proposed appropriation Ground water supplies - Medora Headquarters Well
which is tributary to.....
2. A. Amount of water requested Irrigation 13.4 acre-feet annually
B. Proposed rate of withdrawal of water Domestic 0635 cubic feet per second
or 33.0 gallons per minute.
3. Points of Diversion:
A. (1) NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26 Twp. 140N Rge. 102W
(2) $\frac{1}{4}$ $\frac{1}{4}$ Sec. Twp. Rge.
(3) $\frac{1}{4}$ $\frac{1}{4}$ Sec. Twp. Rge.
B. If water is to be delivered from storage reservoir complete the following:
and file NDSWCC Form 110 or 111:
Location of dam $\frac{1}{4}$ $\frac{1}{4}$ Sec. Twp. Rge.
Height embankment above stream bed Ft.
Capacity of Reservoir Domestic 60,000 gal. acre-feet. Area of water surface acres.
C. If water is to be obtained from well complete the following:
Proposed depth well 1042 Depth to top of Aquifer
Proposed size well or well casing 8" Depth to Bottom of Aquifer
Has pump test been performed NO, if so, by whom
Computed capacity of well 80 g.p.m. free flowing
4. Purpose Domestic use, fire protection, and irrigation
A. If purpose is irrigation: Irrigation of landscaping
Type of irrigation system by garden hose Dates of use 05/15 - 09/01
Estimate of time required for completion of system Completed in 1957
5. Has the quality of water analysis been made? Yes Class water C S X
Date Sample taken November 1963
6. Description of land to be irrigated (show lot numbers where applicable):

Sec.	Twp.	Rge.	NE $\frac{1}{4}$				NW $\frac{1}{4}$				SW $\frac{1}{4}$				SE $\frac{1}{4}$				Total
			NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	
<u>26</u>	<u>140</u>	<u>102</u>																	<u>2.5</u>
<u>27</u>	<u>140</u>	<u>102</u>	<u>2 1/2</u>																<u>2.5</u>
																			<u>5.0</u>

Total number of acres to be irrigated

Located in Billings County, North Dakota.
Estimated quantity of water that will be returned to the approximate source from which diverted:.....

STATE OF NORTH DAKOTA } ss. Warren D. Hotchkiss
COUNTY OF Billings } (Applicant's Signature)

On this 19th day of June, 19 64, before me a Notary Public personally appeared
Warren D. Hotchkiss, known to me to be the same person who executed the foregoing
application for a water right permit and acknowledged to me that he executed the same.

My Commission Expires 16 December 1964 Notary Public Billings County, N. Dak.

NOTE: Above application is merely a declaration of intention to create a water
right, approval does not create such right. Water right will be created only if and
when water is beneficially used.

DO NOT COMPLETE THIS SIDE OF FORM — THIS SIDE FOR USE OF STATE ENGINEER

PERMIT

This is to certify that I have examined the foregoing application and hereby approve the same subject to prior water rights; rate of withdrawal not to exceed 33 gallons per minute. ~~Acres-feet and rate of withdrawal subject to modification by State Engineer. Failure to comply with any order of the State Engineer may result in forfeiture of water right.~~

The amount of water to be appropriated shall be limited to the amount that can be used beneficially, not to exceed 13.4 acre feet each year.

1. Date of priority June 19, 1964
2. Date of hearing on application July 13, 1964
3. Date of approval by State Water Conservation Commission July 23, 1964
4. Construction to be initiated on or before July 1, 1965
5. Construction to be completed on or before July 1, 1967
6. Water shall be beneficially used on or before July 1, 1969

WITNESS my hand and seal this 29th day of July, 1964.

/s/ Milo W. Hoisveen
State Engineer
Secretary, State Water Conservation Commission

PERMIT NO. 1198

Application for a Permit to Divert and Appropriate the Water of the State of North Dakota

Applicant National Park Service
Address Medora, North Dakota
Point of Diversion in NW 1/4 NW 1/4 of Section 26
Township 140 N, Range 102 W.
Source ground water
Acres to be irrigated domestic use, fire protection and irrigation

The State of North Dakota
State Engineer's Office

This instrument was received and filed for record on the 19th
day of June A. D. 1964 at 2:00 o'clock P. M.
/s/ Milo W. Hoisveen
(State Engineer)

"BUY NORTH DAKOTA PRODUCTS"

EW
9/5

LS4-OLW

AUG 5 1967

Memorandum

To: Regional Director, Midwest Region
From: Assistant Director, Operations
Subject: Cooperative Agreement - water connection - Medora Village Board, Theodore Roosevelt

We have reviewed Acting Assistant Regional Director Nutt's memorandum of June 13 on the above subject. This office has no objection to the agreement providing the changes noted on the enclosed draft are made. One or two are minor; the others are for the purpose of encouraging rapid accomplishment of repairs and discouraging dependence of the other party for its water supply. A charge should be made for water at current rates.

Approval of the cross-connection by the U. S. Public Health Service should be secured as a condition of the agreement.

(Sgd) Edward A. Hummel

Enclosure

cc:
Superintendent, Theodore Roosevelt, w/enc.
Chief, SSC (Lands), w/c of inc. and previous correspondence and enc.
SOL, Mr. Meyer, w/c of inc. and previous correspondence and enc.
Mr. Reed, OLW, w/c of inc. and previous correspondence and enc.
OLW, Mr. Morris

ENReed:ljc 7-7-67
Rewritten:ENReed:ljc 8-9-67
Rewritten:MMorris:bjq 8-28-67



UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
MIDWEST REGION
1709 Jackson Street
Omaha, Nebraska 68102

JUN

JUN 13 1967

IN REPLY REFER TO:
L54-OLW
MwR (OM)
xA44

Memorandum

To: The Director
From: ^{Acting} Assistant Regional Director
Subject: Cooperative Agreement - water connections-
Medora Village Board, Theodore Roosevelt

We are forwarding to your Office, as requested in Deputy Assistant Director Leslie P. Arnberger's memorandum of May 17, 1967, a copy of the approval memorandum for the Cooperative Agreement, Medora Village Board and Theodore Roosevelt National Memorial Park, received from the Regional Solicitor, Denver, Colorado.

Mr. Kepford, for the Regional Solicitor, in his letter and redraft of the agreement offers the option of charging either party using the water in the event of a well or pump failure. It is the consensus in this office and in the Park that water charges to either party do not, in this particular case, best serve the interests of the Service, and therefore we recommend they not be included.

The Park Superintendent has informed this office that approval of the cross connection by the USPHS will be obtained prior to the consummation of the agreement. We are informed that the water and supply system of Medora Village is first quality and can foresee no difficulty in obtaining approval.

Your comments and approval as soon as possible regarding Mr. Kepford's enclosed redraft of the agreement, and our recommendation concerning the no charges clause will be appreciated.

Donna S. Curtis
Acting Assistant Regional Director

Enclosure *X*

cc:
Supt., Theodore Roosevelt, w/encl.



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR

DENVER REGIONAL OFFICE
ROOM 1400, BUILDING 67
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

AIRMAIL

JUN 6 1967

Memorandum

To: Regional Director, National Park Service, Midwest Region
From: Regional Solicitor, Denver, Colorado
Subject: Cooperative Agreement - Madera Village Board

As requested in your memorandum of May 5, 1967, I have reviewed the contract forwarded therewith. It was my opinion that certain standard terminology should be inserted in that contract and that the entire contract should be a little more formal in nature. Therefore, I have redrafted a contract which I believe should be adequate for your needs.

I was not sure relative to the installation of a meter upon which could be based water charges. I have, therefore, drafted two proposed provisions, either one of which may be inserted under the general heading "Service Charges."

You will also note that the draft of contract provides for water service in other than emergency conditions, but under emergency conditions does not require payment for water delivered. It may be that if a meter is to be installed, you will desire to remove the provision relative to no charges for emergency delivery of water and insert a provision under which there will be a charge made for water deliveries regardless of the conditions or use. These provisions relative to charges undoubtedly are outside of any basis upon which negotiation has so far progressed.

(SIGNED)

Bryan L. Kepford
For the Regional Solicitor

Enclosure

L54-OLW

MAY 17 1967

Memorandum

To: Regional Director, Midwest Region
From: ^{ASSISTANT} ~~DEPUTY~~ Director
Subject: Cooperative Agreement, Medora Village Board, Theodore Roosevelt

The copy of your memorandum of May 5 on the above subject has been received, and we shall be interested in learning the Regional Solicitor's opinion of the proposed agreement. By copy of this memorandum, we are informing the Solicitor's Office here of the proposal.

It may be advisable to limit the amount of water to be exchanged without charge so that either party, in the event of a major breakdown, such as failure of the well, would not delay repairs unduly. It is suggested, also, that the proposal be discussed with the Public Health Service consultant and possibly with the State Department of Health. Many areas have strict regulations concerning cross connections, and, although we assume the village of Medora is supplied from a well similar to that of the park and the waters can be mixed without trouble, it would be well to check this.

(SGD) LESLIE P. ARNBERGER

cc:
Chief, Office of Land and Water Rights, SSC, w/c ^{of} inc.
Superintendent, Theodore Roosevelt *NMP*

L 54
MM-MMR (CM)

MAY 5 1967

Memorandum

To: Regional Solicitor, U. S. Department of the Interior,
Building 67, Room 1400, Denver Federal Center, Denver

From: Regional Director, National Park Service, Midwest Region

Subject: Cooperative Agreement - Medora Village Board

Enclosed is a copy of a memorandum from the Superintendent, Theodore Roosevelt National Memorial Park, dated April 25, together with a draft of a proposed agreement between the Village of Medora, North Dakota and the National Park Service, by which the water systems of the Village and the Park Service would be connected for emergency use.

I have discussed this with my staff and believe the idea has considerable merit. However, we have found that in 1961 a proposal was made for the Park Service to supply the Village with water and sewage disposal systems. Legislation was passed, Public Law 87-193, on August 31, 1961, approving this proposed construction but setting forth certain fiscal limitations and stipulating fees. Subsequent to the passage of this bill the Village chose to construct its own water and sewage systems. Our question is, if we should go into a joint venture with the Village for the construction of this line, due to the bill passed or for other reasons you may deem wise, should the matter of exchange of funds for water used be written into the agreement or other limitations stipulated?

We would appreciate very much your early consideration of the proposal so we may inform the Superintendent whether he should consummate the agreement with the Village Board.

(Sgd) Fred C. Fagurgren

Fred C. Fagurgren
Regional Director

Enclosure

cc:

The Director, w/c incoming and enclosure
Supt., Theodore Roosevelt



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

IN REPLY REFER TO:

Theodore Roosevelt National Memorial Park
Medora, N. D. 58645

A44

April 25, 1967

INITIAL AND DATE	
Reg. Director	
Mrs. Howe	
Operations	
Administration	
Pub. Aff., F&SA	
S. C. Liaison	
Arch. Res.	
RES. MGMT.	
PLANNING	
Action Taken	
Date	

Memorandum

To: Regional Director

From: Superintendent, Theodore Roosevelt

Subject: Cooperative Agreement - Medora Village Board

As you no doubt know, the Village of Medora and the Theodore Roosevelt Park Headquarters area are served by two separate water systems. Occasionally one of the systems will suffer a breakdown leaving the village or the park without water. When this has occurred in the past, we alleviated the situation by running a fire hose from a park hydrant to a town hydrant. However, we feel a temporary innovation of this type is unsatisfactory and unworkable during periods of severe and prolonged freezing spells which are common in this area.

Last week's storm brought full awareness of the undependability of the present system. A foot of heavy, wet snow left us without power for more than a day and because our standby generator malfunctioned, we were totally without water. A fire would have been disastrous.

To correct this situation, we are proposing the installation of a permanent line connecting the park water system to the village system. We have discussed this matter with Village Officials and they are agreeable to the proposed Cooperative Agreement, a draft of which is attached.

We would appreciate Regional review of the attached draft and invite your comments as to adequacy, legality, etc.

C.C. HANDED TO	
BY.....	DATE.....

If we are to do this work, it is imperative that it be accomplished in the immediate future as the village streets are about to be paved with five inches of bituminous surfacing. To excavate after the streets are paved would be far more costly.

Also, the Village of Medora will be able to obtain the necessary materials at a savings if ordered within the week by consolidating their order with that of another community.

Art. L. Sullivan

Arthur L. Sullivan

Attachments

CONTRACT FOR EMERGENCY WATER SERVICE

This Contract, made this _____ day of _____, 1967, between the United States of America, acting by and through the National Park Service, Department of the Interior pursuant to the provisions of P. L. 228, August 8, 1953 (67 Stat. ⁴⁹⁵ ~~xxx~~), hereinafter termed the Service, and the Village of Medora, a municipal corporation organized under the laws of the State of North Dakota, hereinafter termed Medora.

Witnesseth:

Whereas, the Service owns and operates a water system in conjunction with Theodore Roosevelt National Memorial Park; and

Whereas, Medora owns and operates a water system within its corporate limits and adjacent to the abovesaid park; and

Whereas, it is recognized that the water system of either party hereto may for unforeseen reasons temporarily become inoperative; and

Whereas, it has been mutually determined advantageous to both parties to interconnect the two water systems and thus assure emergency water service to the parties should either water system fail.

Now, Therefore:

In consideration of the foregoing premises and of the covenants and conditions hereinafter contained the parties hereto do contract and agree as follows:

Installation

1) At its sole cost and expense Medora shall obtain and supply for installation by the Service sufficient 6" diameter water pipe, water meter ~~water meter~~ valves, ~~water meter~~ and other fittings, all ~~xxx~~ conforming to industry standards ~~xxx~~, to connect the water system of Medora to the water system of the Service along the alignment as shown on the attached drawing, designated Exhibit A, attached hereto and made a part hereof.

2) At its sole cost and expense the Service shall excavate
for and ~~XXXXXXXXXXXXXXXXXXXX~~ install the ~~xxx~~ water ~~xxxxx~~^{lines} required
to connect the two water systems together, as shown on Exhibit A.
The installation shall be so valued that the two water systems ~~xxx~~ will normally
be closed, one from the other, ~~xxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxx~~
~~xxxxxxxxxxxx by the open back boxes.~~ Meters shall be installed with appropriate
Maintenance valves to prevent reversal of flow.

The Service shall maintain and keep in good repair the connecting water line constructed under the provisions of this contract and the cost of such maintenance, repair or replacement of said water line shall be borne equally by the parties hereto. One half the cost of such maintenance, repair or replacement expense shall be billed by the Service to Modora as such costs are incurred and the Service shall furnish to Modora copies of invoices and time records supporting such billings.

Cooperation

1) The connecting water line shall be xxxxxxxxxxxx used^{as is}~~xxxxxx~~ supplies or
when one of the water/systems of the parties xxxxxxxxxxxx partially
or wholly inoperable or in case of xxxxxxxxxxxx fire within the
Medora Village or the Park area. When these conditions occur,
xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx
Medora and the Service together shall
xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx
- valves their respective
systems. Shortages of water due to increased demand for any reason
except fire suppression shall not be a basis for furnishing water
under this agreement; nor shall water be made available to either
party beyond what required for reasonable time to make repairs, but
in no case, xxxxxxxxxxxx longer than seven days.

[illegible]

Service Charges

When water is made available under this
agreement, the party receiving the water shall pay for the water at
a rate of _____ cents per thousand gallons.
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Public Health

This agreement is contingent on the approval of the cross-connection arrangement by the U. S. Public Health Service. Failure to maintain sanitary requirements for public water supplies during the period of cross connection shall result in immediate closing of the valves by either party.

Termination

This contract shall remain in full force and effect until terminated by either party upon 30 days written notice mailed by regular mail.

Non Participation

No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this contract or to any benefit that may arise herefrom, but this restriction shall not be construed to extend to this contract if made with a corporation or company for its general benefit.

Contingent on Appropriation

Where the operations of this contract extend beyond the current fiscal year, it is understood that the contract is made contingent upon Congress making the necessary appropriation for expenditures thereunder after such current year has expired. In case such appropriation as may be necessary to carry out this contract is not made, the Village of Medora hereby releases the United States from all liability due to the failure of Congress to make such appropriation.

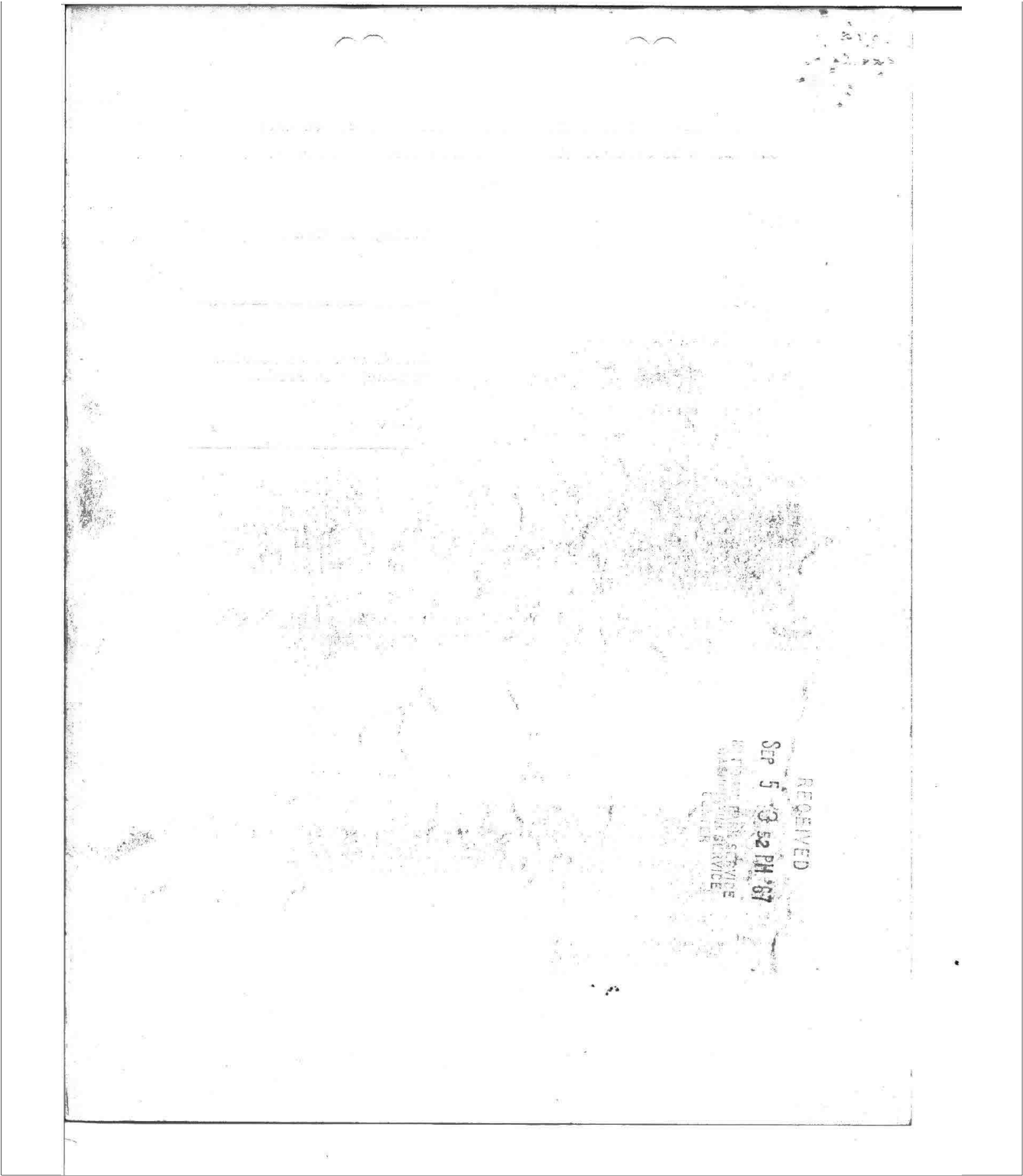
In Witness Whereof the parties hereto have caused this
contract to be executed the day and date first above written.

Village of Medora

By _____

United States of America
National Park Service

By _____



DRAFT

Cooperative Agreement Of _____ Between The National
(Date)
Park Service And The Village Of Medora, North Dakota, Relating
To Installation, Maintenance And Operation Of Connecting Water
Line.

This COOPERATIVE AGREEMENT made and entered into by and between
the United States of America, acting in this behalf through the
National Park Service, hereinafter referred to as the "Service"
and the Village of Medora, North Dakota, acting in this behalf
through its Village Board, hereinafter referred to as the
"Board".

WITNESSETH:

THAT WHEREAS, the Service owns, maintains and operates a water
system serving Park Headquarters, maintenance and residential
areas adjacent to the Village of Medora; and

WHEREAS, the Board owns, maintains and operates a water system
serving the Village of Medora adjacent to Park Headquarters,
maintenance and residential areas; and

WHEREAS, it is recognized both systems are subject to failure
due to loss of electrical power, mechanical failure, line
breaks, and clogged wells; and

WHEREAS, it is further recognized it would be to the mutual
advantage of the Board and the Service for fire-fighting
purposes and public safety and convenience were arrangements

made whereby one system could serve both the Board and the

Service in the event the other system failed;

NOW THEREFORE, it is hereby mutually agreed:

INSTALLATION

1. The Board will provide all necessary fittings, valves and six inch pipe required for the installation.
2. The Service will install the line complete as indicated on the attached drawing.

MAINTENANCE

1. The Service will maintain the connecting water line and bill the Board for fifty per cent of all maintenance costs.

OPERATION

1. It is mutually agreed the connecting water line will be used only for emergencies.
2. In the event the Service water system fails the Park Superintendent or his representative will request the Board to open the valve effecting the link-up with the Board system.
3. In the event the Board water system fails a member of the Board will request the Park Superintendent or his representative to open the valve effecting the link-up with the Service system.

4. In the event of a fire requiring additional water supply the Board or the Service may immediately effect the opening of the mutual supply and contact the other party as soon as possible.
5. There shall not be any charge by the Board or the Service for water furnished to the Board or the Service.

This agreement shall become effecting as soon as signed by the parties hereto and continue in force in perpetuity.

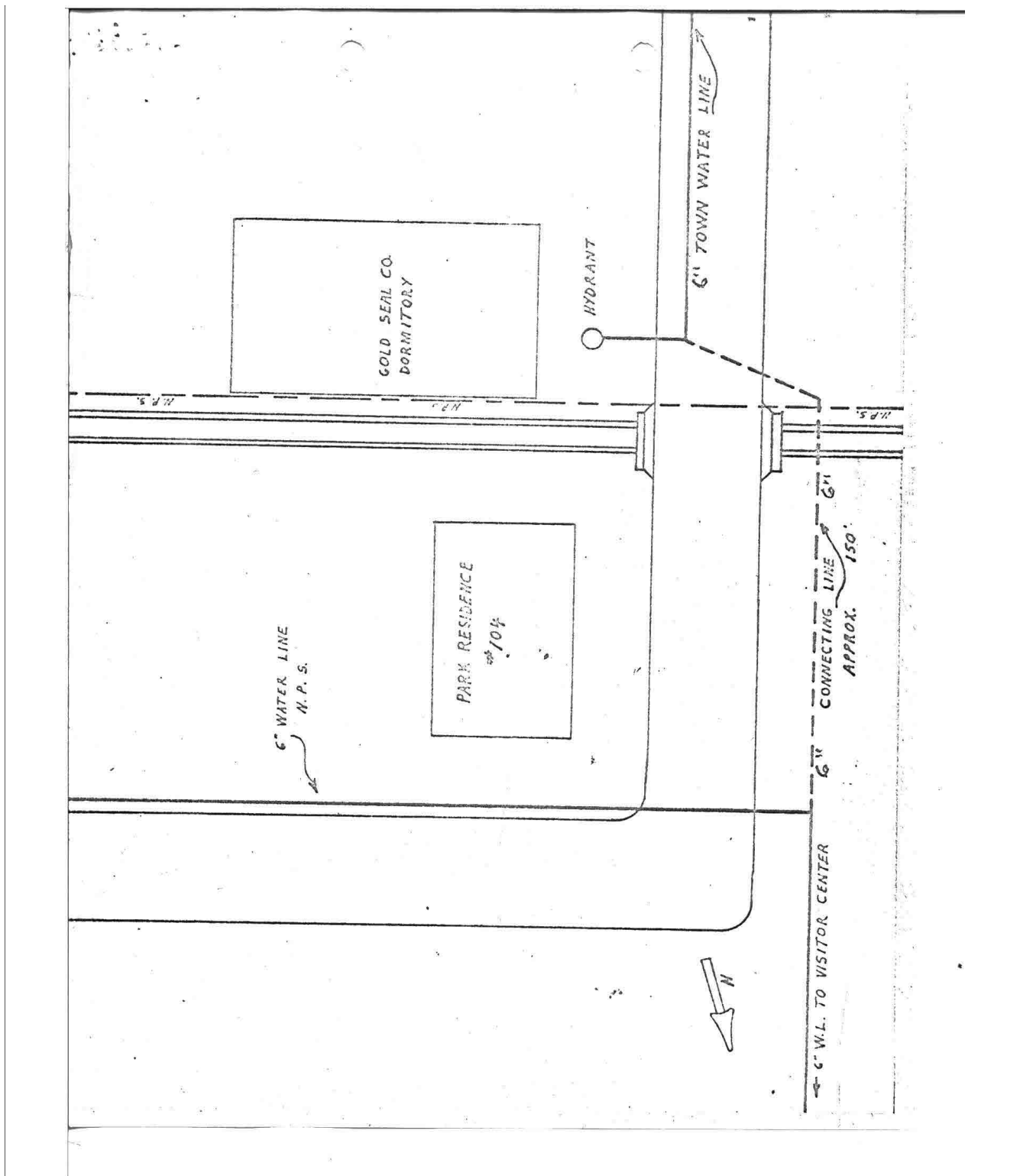
IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed.

NATIONAL PARK SERVICE

DATE _____

MEDORA VILLAGE BOARD

DATE _____



Supporting Hydro Data

NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Division of Laboratories
Bismarck, North Dakota

County Billings

CHEMICAL ANALYSIS OF WATER

Sample Number 63-1322 Date Received 11-7-63 Date Reported 11-19-63

Medora Headquarters Well
Source 1042' x 6" Drilled Section 26 Township 140N Range 102W

Submitted By E. L. Robinson Address Acting Supt., Medora, N. Dak.

Owned By Theodore Roosevelt at Park Address Medora, N. Dak.
National Park Service

ANALYSIS

TOTAL DISSOLVED SOLIDS	☐ Low ☐ Fairly Low	☐ Satisfactory ☒ Average	☐ High ☐ Very High	1270	mg/l
TOTAL ALKALINITY (as CaCO ₃)	☐ Low ☐ Fairly Low	☐ Satisfactory ☐ Average	☒ High ☐ Very High	615	mg/l
TOTAL HARDNESS (as CaCO ₃)	☒ Low ☐ Fairly Low	☐ Satisfactory ☐ Average	☐ High ☐ Very High	25	mg/l
IRON (Fe)					mg/l
MANGANESE (Mn)					mg/l
pH					
CALCIUM (Ca)					mg/l
MAGNESIUM (Mg)					mg/l
SODIUM (Na)	☐ Low ☐ Fairly Low	☐ Satisfactory ☐ Average	☐ High ☒ Very High	354	mg/l
FLUORIDE (F)					mg/l
CHLORIDE (Cl)	☐ Low ☐ Fairly Low	☐ Satisfactory ☐ Average	☐ High ☐ Very High		mg/l
SULPHATE (SO ₄)	☐ Low ☐ Fairly Low	☐ Satisfactory ☐ Average	☐ High ☐ Very High		mg/l
BICARBONATE (HCO ₃)				604	mg/l
CARBONATE (CO ₃)				72	mg/l
NITRATE (NO ₃)				11	mg/l
CONDUCTIVITY				630	ohms
TOTAL HARDNESS				0.1	Grains/Gallon

This water would be: ☐ Excellent ☐ Good ☒ Satisfactory ☐ Usable, but not desirable ☐ Undesirable
For a: ☒ Private Domestic Supply ☐ Municipal Supply

This water would be: ☐ Excellent for most plants under most conditions.
☐ Good for irrigation but its effect on the soil, over a period of years, may prove harmful to the more sensitive plants.
☒ May be injurious for irrigation and its effect on the soil, over a period of years, may prove harmful to all but the most tolerant plant life.
☐ A water which would be unsatisfactory for irrigation and its effect on the soil would prove harmful to all but the most tolerant of plants.

This water: ☐ Would cause staining of laundry and plumbing fixtures due to its high iron or manganese content.
☒ May prove harmful to individuals on salt-free diets. Please consult your family doctor.
☐ May exert a laxative effect upon persons unaccustomed to its high sulphate content.

Statement: This analysis includes chemical content only, and does not determine the bacterial quality of the water.

For any further information, write to the
State Health Department, Bismarck, N. Dak.

Per Alto M. Johnson Chemist

Other Supporting Information

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

FACE SHEET FOR COMPLETION REPORT

Park Theodore Roosevelt National Memorial Park	Region Midwest	Work Order No. 2-WR-65B
Location in Park At various locations within the North and South Units of Theodore Roosevelt National Memorial Park	State(s) North Dakota	Fund Symbol 14-1035 (0343)
☐ Contract and/or ☒ Day Labor	County or Counties Billings & McKenzie	Year Programmed 1963
Work Order Title Filings for water rights with State Water Commission, carry-over from 1963 F.Y.		PCP No.
		Master Plan No.
		Master Plan Corrected By
		As Built Drawings By
		Date Started August, 1962
		Date Completed October, 1964

DESCRIPTION OF FIXED ASSETS
(For completion by employee in charge of project)100.8 Utilities: Sewer Systems and Water Systems:

Water rights filing for 8 water wells located within Theodore Roosevelt National Memorial Park (6 wells in the South Unit and 2 wells in the North Unit).

Surveyor Fee	\$ 36.00
Application Fee	~~184.00~~ 160.00
Notary Fee	12.00
Advertising Fee	20.70
Filing Fee	24.00
	~~\$276.70~~
	252.70

Filings For Wells:

Peaceful Valley Picnic Area Well	Prorated Cost for Each Well:
North Unit Headquarters Well	
Halliday Well	\$31.60
Rasmussen Well	
Squaw Creek Campground Well	
Medora Headquarters Well	
Cottonwood Campground Well	
Peaceful Valley Headquarters Well or Peaceful Valley Ranch Well	

McKenzie

TOTAL

\$

252.70

~~276.70~~

DISTRIBUTION	THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES		
No.	To	By:	Title:
2	WASO	<i>Warren D. Hotchkiss</i>	Superintendent
2	MRO		
1	Area		
		Approved By:	Title:
		COSTS VERIFIED	Title:
		BY (Sgd) Ervine F. Elert	Regional Accounting Officer
			Date:
			DEC 14 1964

11360

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

COMPOSITION OF COST FOR COMPLETION REPORT

Work Order Number

2-WR-65B

Fund Symbol

14X1035 (0343)

Year Programmed

1963

Park

Theodore Roosevelt National Memorial Park

Region

Midwest

Location in Park

At various locations within the North and South Units of Theodore Roosevelt NMP

Work Order Title

Filings for water rights with State Water Commission; carry-over from 1963 F.Y.

COMPOSITION OF COST

COSTS CHARGED TO FUNDS ALLOTTED TO FIELD FINANCE OFFICE

(1) Personal Services.....	\$	
(2) Travel.....		
(3) Contract Work.....		
(4) Supplies and Materials.....		
(5) Other Direct Expenses.....	252.70	
(6) Operation of Equipment.....	~~276.70~~	
(7) Depreciation of Equipment.....		
(8) Purchase of Construction Equipment.....		
(9) Purchase of Other Accountable Equipment.....		
(10) Other Costs:		252.70
(11) TOTAL COST CHARGED TO FFO FUNDS.....	XXXXXXXXXX	\$ ~~276.70~~

OTHER COSTS:

(12) PS&S, AP, and/or Facilitating Services @ _____ %.....	\$	
(13) Inventory and Other Non-Fund Costs		
(14) GROSS WORK ORDER COSTS	XXXXXXXXXX	\$
LESS:		
(15) Residual Value of Construction Equipment on Line 8.....	\$	
(16) Other Credits		
(17) NET COST OF FIXED ASSETS	XXXXXXXXXX	252.70 \$ ~~276.70~~

Identify other costs and other credits by line item entry, on an attached schedule, or explain in narrative.

Page 1

NARRATIVE PORTION OF COMPLETION REPORT
ON
WATER RIGHTS FILINGS
IN
THEODORE ROOSEVELT NATIONAL MEMORIAL PARK

Much of the information required to complete the eight (8) "Record of Well" forms attached is unavailable. An inspection was conducted of records in the Billings County Court House with no success. Evidently, water sources developed before the Park was established, ~~and~~ was accomplished without keeping a written record of progress.

From checking the files at Park Headquarters, it is noted that there was an interest in 1948 to obtain water rights for wells located within the Park. However, due to the lack of funds, this project did not get underway until 1962.

The completion costs of most of the wells could not be determined because the cost of the drilling operation had been included with the installation of water lines and other utilities.

REHABILITATION OF WATER WELL AT MEDORA
THEODORE ROOSEVELT NATIONAL MEMORIAL PARK

Normally the well provides a flowing artesian supply of water, but last year it plugged up and stopped flowing, requiring a driller to clean the well, and again this year it offered the same difficulty.

Mr. K. D. Thompson, a well driller from Dickinson, North Dakota, was issued a purchase order for \$1,350 to investigate the existing condition of the well, and as a remedy, to avoid further clogging of the well with particles of lignite and shale, to install 2" galvanized pipe to near the bottom of the well bore, perforating an adequate amount of pipe to permit the entire flow to discharge through the 2" pipe, if the flow up the 8" casing is restricted.

Mr. K. D. Thompson set his rig into position of the well on June 24 ready to investigate the stoppage of flow. On June 25 the drill bit was lowered into the well and entered the 4" casing at a depth of 475'-2". According to the contract payments when the well was constructed there were 480 lineal feet of 8" casing paid for; therefore, there is approximately 5' lap between the 4" and 8" casings. As the drill bit was lowered into the 4" casing to a depth of 923'-5" below the top of the 8" casing, it encountered a restriction which required a slight amount of rotation of the bit to permit passage. Mr. Thompson has consistently believed this restriction was formed by dropping the 4" casing into position and it is at the lower end of the 4" casing; however, construction costs records show that 560' of 4" casing were installed which would place the bottom end of the 4" casing at an elevation approximately of 1040'.

As the drill bit proceeded below this point of restriction, a soft plug was encountered between depths of 966' and 970' through which the mud pump was started and the bit was jetted through the soft plug without rotation. Below the 970' level, the bit lowered without jetting to a depth of 1076' at which point another soft plug was encountered. Again the mud pump was started and the bit rotated and the bore was drilled out to a depth of 1088' which seemed to be parent formation, or bottom of the bore. The bit was lifted a little above the 1088' level and the flow through the drill stem was cloudy as well as the water coming up over the edge of the 8" casing at the top of the well. Approximately 50' of drill stem was removed which set the bit just above the 1040' level (supposed to be the bottom of the 4" casing when constructed) and the water flowing through the drill stem cleared up.

From previous work on the well last year, Mr. Thompson believed that we could remove approximately 90' of the drill stem raising the bit a depth of 945'-4" and the water flowing through the drill stem would remain clear. This was accomplished and the water did remain clear. Previously when the drill bit was lifted to within the vicinity of the

restriction (923' - 925') the water would again become cloudy. We removed approximately 20' more of drill stem and the discharge from the drill stem remained clear while the flow over the top of the 8" casing was cloudy. The following day the drill stem was lowered again into the well to determine if any amount of sediment had settled into the bottom of the bore. There was very little sediment found in the bottom of the bore, detectable with the drill stem. The well was let set for a while to determine if both the flow from the drill stem and that over the top of the 8" casing would clear up, which it finally did by Friday noon.

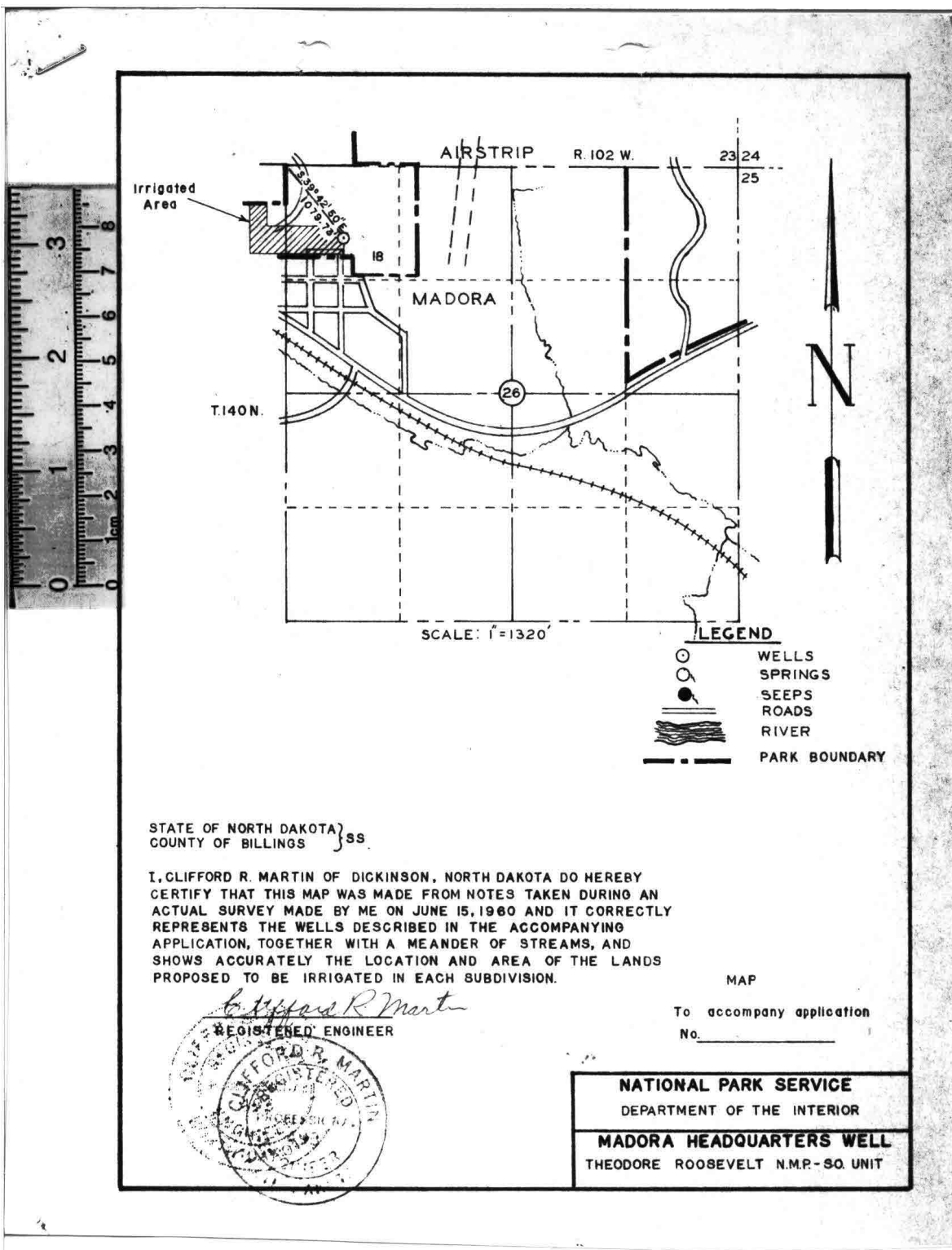
It was decided to install 2" galvanized pipe to the bottom of the well bore and perforate the pipe, opposite the aquifers which are believed to supply the water. Mr. Thompson believes the water supply comes from a zone of fine sand and sandstone formations at depths between 940' and 962'. The lower end of the 2" pipe was slotted with a torch and the ends crimped to seal the open end of the 2" pipe preventing any large particles from entering the pipe. All lengths of the 2" galvanized pipes were so near to 21' in length, we regarded their lengths as 21'. The lower three sections of 2" pipe were slotted, on opposite sides, by burning slots approximately 7" to 8" in length and spacing approximately 15 to 16 slots per length of pipe. We next installed three plain sections of pipe, then one perforated section of pipe, the remainder were plain sections of pipe to ground surface. As the pipe was lowered into position a burlap or canvas packer was bound about the 2" pipe at the coupling at the top of the upper perforated section. This burlap packing fit the 4" casing sufficiently tight to permit grouting between the 2" pipe and 4" casing with neat cement. A left-handed brass coupling was installed at a position 371' below the ground surface to facilitate the removal of the 2" pipe in the event the flow diminished and it was necessary to set a pump inside of the 8" casing. After the 2" pipe had been installed, a well seal was placed in the top of the 8" casing. This seal was constructed of two rubber rings placed between two metal plates which when compressed together by four bolts expanded the rubber against the 8" casing.

The flow quickly cleared up and the flow was turned into the reservoir over the weekend and it was requested that the flow be shut down Sunday evening to see if the flow became cloudy when the well was opened up Monday morning. Monday the flow was found to be clear and it was decided that the seal at the top of the 8" casing prevented any appreciable flow at the outside of the 4" casing and confined the entire discharge of the well to the 2" pipe. Therefore, no cement grout was placed between the 2" pipe and the 4" casing.

In the event any further work is required on the well, it is possible the 2" casing may be withdrawn from the well bore and further work as necessary can be accomplished inside the 4" casing.

(Sgd) William A. Mott

JUL 10 1964

Docket Information

Number of Documents in Docket 33

Documents Dated from 11/7/1963 to 8/5/1967

Docket Compiled: 6/21/2011