

Page        of       

County PRAIRIE Twp. 15N Rge. 4SE

[illegible]

94302

County Pratt

RECEIVED

DRILLER'S LOG

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
MONTANA WATER RESOURCES BOARD

DEC 14 1972

NOTICE OF COMPLETION OF GROUNDWATER  
APPROPRIATION BY MEANS OF WELL

Developed after January 1, 1962

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

Indicate the character, color, thickness of strata such as soil, clay, sand, gravel, shale, sandstone, etc. Show depth at which water is found and height to which water rises in well.

(Under Chapter 237 Montana Session Laws, 1961, as amended)

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, last copy to be retained by driller. Please answer all questions. If not applicable, so state, otherwise the form may be returned.

Appel Well

Owner Bureau of Land Management

Address Miles City, Montana

Date well started 9/28/72

completed 9/29/72

Type of well Drilled

Equipment used Air Rotary

Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐

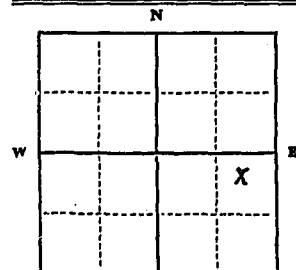
Industrial ☐ Drainage ☐ Other ☐\* Garden/Lawn ☐

\*Describe

USE: If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e. Lot, Block and Addition).

ESTIMATED ANNUAL WITHDRAWAL

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
8						
7 7/8"	6" 30 18.97#	+1	177	Slots 1/8" X 6"	125	165



ne 1/4 sec. 11  
T. 15 N. R. 45 E. S. 4

Static water level 79 ft.\*  
Pumping water level 105 ft.\*  
at 20 gallons per minute,  
measured 120 minutes after pumping began.

\*Measured from ground level.

Well developed by Air  
for 4 hours.

Power          Pump          HP

Remarks: (Gravel packing, cementing, packers, type of shut-off)

Packer set at 110'. No gravel pack.

INDICATE LOCATION OF WELL AND PLACE OF USE, IF POSSIBLE. EACH SMALL SQUARE REPRESENTS 40 ACRES.

Driller's Signature Jose Lee Johnson

Driller's Address 100 JOHNSON DRILLING, TERRI, MONTANA

LICENSE NO. 154

Top of Ground

(Elev. above sea level)

From (Feet)	To (Feet)	
0	10	Brown Sand
10	20	Gray Clay
20	85	Brown & Gray Clay with streaks of Coal
85	90	Gray sand with streaks of Coal
90	95	Coal
95	108	Coal
108	113	Clay
113	165	Sandstone
165	177	Gray Clay

177 Show exact depth of bottom

52,016

94302

State Will Log  
Bureau of Land Management  
to  
The Public

FILED

at 9:35 o'clock P.M.

6 13 1972

*John D. Smith*  
County Clerk  
*William S. Smith*  
Deputy

VERIFICATION BY RECORD OF SALE  
BUREAU OF LAND MANAGEMENT  
DEPARTMENT OF THE INTERIOR  
WASHINGTON, D.C.



NOTARY PUBLIC  
STATE OF MONTANA  
My Comm. Expires 12/31/72  
JAMES H. SMITH  
Notary Public

File No. ....

DUPLICATE

T. 15 N. R. 45 E.

County Prairie

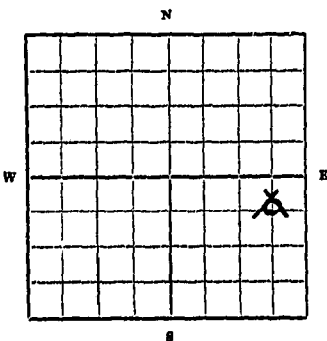
STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

**Declaration of Vested Groundwater Rights**  
(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED  
FEB 18 1963

STATE ENGINEER

1. Bureau of Land Management of Box 960, Miles City  
(Name of Appropriator) (Address) (Town)  
County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



NE 1/4 Sec. 12, T. 15 N. R. 45 E.

Indicate point of appropriation  
and place of use, if possible.  
Each small square represents 10  
acres.

2. The beneficial use on which the claim is based livestock water

3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1945 - continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.

5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - NE 1/4 Sec. 12

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1945

8. The depth of water table 187'

9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well - 187' deep, 27' tower & 8' head.

10. The estimated amount of groundwater withdrawn each year 1,500,000 gal.

11. The log of formations encountered in the drilling of each well if available Not available

12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record

District Manager

*Arthur J. Zimmerman*

Date 1-22-63

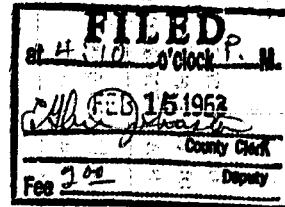
Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

3686

84308



File No. ....

NOV 1 1965

T 15 N E 4 S

DUPLICATE

Bill \_\_\_\_\_ McDermott \_\_\_\_\_  
 Butzerin \_\_\_\_\_ McNulty \_\_\_\_\_  
 Coyle \_\_\_\_\_ Morton \_\_\_\_\_  
 Darlington \_\_\_\_\_ Sullivan \_\_\_\_\_  
 Dickert \_\_\_\_\_

County Prairie

STATE OF MONTANA  
 ADMINISTRATOR OF GROUNDWATER CODE  
 OFFICE OF STATE ENGINEER

Top of Ground

(Elev. above sea level)

2714 3/4 Notice of Completion of Groundwater  
 Appropriation by Means of Well

(Under Chapter 237, Montana Session Laws, 1961)

0-25 y. flow sandy shale  
 25-35 light gray sand  
 35-54 1/2' coal + shale

Owner McMullen Bros. Address Brookway, MontDriller Joe Johnson Wate. Dr. Address 372, Terry,

Date of Notice of Appropriation of Groundwater .....

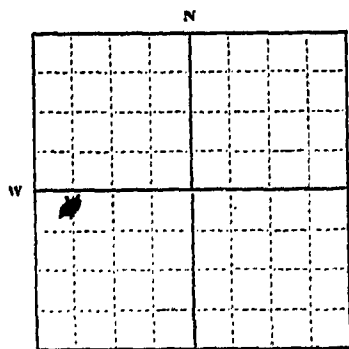
Date well started Oct. 22, 1965 Date Completed Oct. 23, 1965

Type of well Drilled Equipment Used Spudder  
 (dug, driven, bored or (Churn, drill, rotary or  
 drilled) other)

Water Use: Domestic ☐ Municipal ☐ Other ☐ Irrigation ☐  
 Industrial ☐ Drainage ☐ Stock ☒

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
6 1/2"	4" I.D. 9 1/2" W.T.	0	54 1/2"	Holes + 5 1/2" 3 1/2" + 1/8"	40	54



NW 1/4 Sec 14 T15 R45  
 Indicate location of well and place of use, if possible. Each small square represents 10 acres.

Show exact depth of bottom.

Static Water Level for non-flowing Well 33 feet.

Shut-in Pressure for Flowing Well .....

Pumping Water Level 39 feet at 45 gal. per minute.

Discharge in gal. per min. of flowing well .....

How Tested Baler Length of Test 10 min. 7 min.

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of acres irrigated, if used for irrigation).....

Well is gravel packed  
from 5' to bottom.

Driller's License Number 154Driller's Signature Joe Z Johnson

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

39741

87391

<b>FILED</b>	
at 10-10 o'clock <u>A</u> M.	
OCT 29 1965	
<u>Alvin J. Hamilton</u> County Clerk	
Fee <u>2.00</u> Pd.	Deputy

File No. \_\_\_\_\_

T-15N R-45E

DUPLICATE

County Prairie

LOG

**Constock Well**  
Top of Ground

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
STATE WATER CONSERVATION BOARD

**Notice of Completion of Groundwater  
Appropriation by Means of Well**  
DEVELOPED AFTER JANUARY 1, 1962

(Under Chapter 237 Montana Session Laws, 1961, as amended)

(Elev. above sea level \_\_\_\_\_)

- 0 - 40 Lt. Brn. Sandy Clay
- 40 - 50 Clay & Coal
- 50 - 90 Gray Clay
- 90 - 110 Dk. Brn. Clay & Coal
- 110 - 160 Gray Soapstone
- 160 - 170 Dk. Brn. Sandstone
- 170 - 240 Gray Soapstone
- 240 - 290 Gray Clay
- 290 - 315 Brn. Sand

Owner Bureau of Land Management, Miles City, Mt.

Driller Joe Johnson Drig. Address Terry, Mt.

Date of Notice of appropriation of groundwater \_\_\_\_\_

Date well started 5/18/70 Date completed 5/21/70

Type of well Drilled Equipment used Air Rotary  
(Dug, driven, bored or drilled) (Churn drill, rotary or other)

Water use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
7 7/8"	6" ID 18.97#	+1	317	Holes & Slots 3/8"	244	317
				1/8" x 6"		

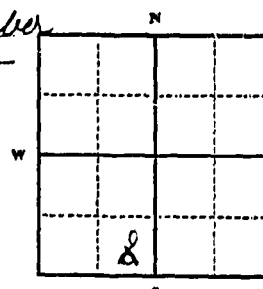
Doc. No. 02358

Filed for record

this 11 day of September

A. D. 19 71, at 12:00

o'clock P.M.



Static Water Level for non-flowing well 225 feet.

Shut-in Pressure for Flowing Well \_\_\_\_\_

Pumping Water Level 228 feet

at 12 gal. per minute.

Discharge in gal. per min. of flowing well \_\_\_\_\_

How Tested Bailer & Air Lift

Length of Test 10 hrs.

Remarks: (Gravel packing, cementing, pack-

ers, type of shutoff) Well Gravel

Packed, Pump & Pump Pipe

installed & pumping 7+ GPM

SE 1/4 SW 22, T15N R.45E  
Indicate location of well and place of use, if possible. Each small square represents 40 acres.

(Continue on reverse side)

USE—If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e.: Lot, Block and Addition).

Stockwatering

Show exact depth of bottom.

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, tissue copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

154  
Driller's License Number

Joe Johnson  
Driller's Signature.  
47501



File No. \_\_\_\_\_

T. 15N R. 45E

TRIPLICATE

County Prairie

## LOG

Comstock Well  
Top of Ground

(Elev. above sea level \_\_\_\_\_)

0 - 40 Lt. Brn. Sandy  
Clay  
40 - 50 Clay & Coal  
50 - 90 Gray Clay  
90 - 110 Dk. Brn. Clay  
& Coal  
110 - 140 Gray Soapstone  
140 - 170 Dk. Brn.  
Sandstone  
170 - 240 Gray Soapstone  
240 - 290 Gray Clay  
290 - 315 Brn. Sand

T.D. 317

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
STATE WATER CONSERVATION BOARD

Notice of Completion of Groundwater  
Appropriation by Means of Well

DEVELOPED AFTER JANUARY 1, 1962

(Under Chapter 237 Montana Session Laws, 1961, as amended)

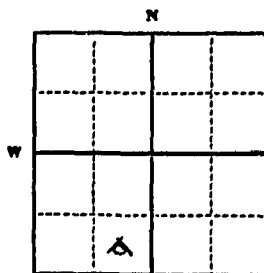
Owner Bureau of Land Management, Miles City, MT.Driller Joe Johnson Drilling Address Terry, MT.

Date of Notice of appropriation of groundwater \_\_\_\_\_

Date well started 5/18/70 Date completed 5/21/70Type of well Drilled Equipment used Air Rotary  
(Dug, driven, bored or drilled) (Churn drill, rotary or other)Water use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
7 7/8"	6" ID 18.97#	+1	317	Holes & Slots 3/8"	244	317
				1/8" x 6"		

Static Water Level for non-flowing well 295 feet.

Shut-in Pressure for Flowing Well \_\_\_\_\_

Pumping Water Level 285 feetat 12 gal. per minute.

Discharge in gal. per min. of flowing well \_\_\_\_\_

How Tested Ballier & Air LiftLength of Test 10 hrs.

Remarks: (Gravel packing, cementing, pack-

ers, type of shutoff) Well GravelPacked, Pump & Pump PipeInstalled & pumping 7" GPM

SN. 1/4 Sec. 22, T. 15N R. 45E  
Indicate location of well and place of use, if possible. Each small square represents 40 acres.

(Continue on reverse side)

USE—If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e.: Lot, Block and Addition).

Stockwatering

Show exact depth of bottom.

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, tissue copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

154  
Driller's License Number

Driller's Signature

File No. \_\_\_\_\_

DUPLICATE

T. 15 N. R. 45 E.

County Franklin

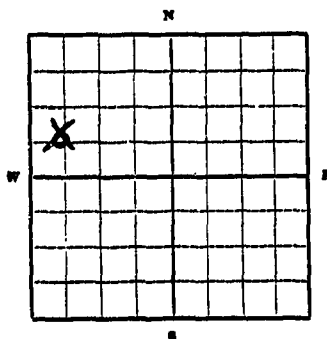
STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights  
(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED  
FEB 18 1963

STATE ENGINEER

1. Bureau of Land Management, of Box 940, Miles City  
(Name of Appropriator) (Address) (Town)  
County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SW 1/4 NW Sec 23 T15N R45E

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based Livestock water
3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1949 - continuous
4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof \_\_\_\_\_
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - SW 1/4 of Sec. 23
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1949
8. The depth of water table 145'
9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well - 145' deep
10. The estimated amount of groundwater withdrawn each year 1,500,000 gal.
11. The log of formations encountered in the drilling of each well if available Not Available
12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record \_\_\_\_\_

District Manager  
Signature

Date 1-22-63

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

368.5

84307

<b>FILED</b>	
at 4:10	o'clock P. M.
FEB 15 1963	
S. H. [Signature]	
County Clerk	
For 2	Deputy

File No. ....

MONTANA WATER RESOURCES BOARD

T. .... R. ....

DUPLICATE

**RECEIVED**County Prairie

NOV 15 1967

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

Top of Ground

(Elev. above sea level .....

**Notice of Completion of Groundwater  
Appropriation by Means of Well**

Under Chapter 237, Montana Session Laws, 1961)

0-3 Top soil

3-40 yellow very sandy shale

40-50 streaks of coal  
+ Black shale

50-75 yellow sandy shale

75-83 Blue clay

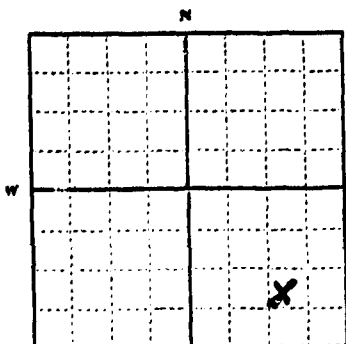
Owner McMullin Bros. Address Brockway, Mont.  
Driller Joe Johnson Redg. Terry, Mont.

Date of Notice of Appropriation of Groundwater .....

Date well started Nov. 1, 1967 Date Completed Nov. 2, 1967Type of well drilled Equipment Used Spudder  
(aug, driven, bored or (Churn, drill, rotary or  
drilled) other)Water Use: Domestic ☐ Municipal ☐ Other ☐ Irrigation ☐  
Industrial ☐ Drainage ☐ Stock ☒

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
6 1/4"	4" I.D. + 1 11 1/2"	83		slots	41	83

SE 1/4 Sec 25 T15N R45E  
Indicate location of well and place of use, if possible. Each small square represents 10 acres.

Show exact depth of bottom.

83'

Static Water Level for non-flowing Well 55 feet.

Shut-in Pressure for Flowing Well .....

Pumping Water Level 55 feet at 4 gal. per minute.

Discharge in gal. per min. of flowing well .....

How Tested Bailer Length of Test 2 Hr.

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of

acres irrigated, if used for irrigation) .....

Well is gravel packed with buckshot gravel154  
Driller's License NumberJoe Leon Johnson  
Driller's Signature

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

42,533

27 11/17 1967

89324

101 83

11/17

X

89324

<b>FILED</b>	
at 2:30	5'clock P.M.
NOV 14 1967	
<i>[Signature]</i>	
County Clerk	
Fee 200	Deputy 1

RECEIVED

NOV 23 1967

## Page of

County PRAIRIE Twp. 15N Rge. 46E

[illegible]

GW2

Redwater Well  
M2-R-1157

File No. ....

T. 15 N. R. 46 E.

DUPLICATE

County PrairieSTATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEERRECEIVED  
FEB 10 1964Notice of Completion of Groundwater  
Appropriation by Means of ~~WELL~~ ENGINEER

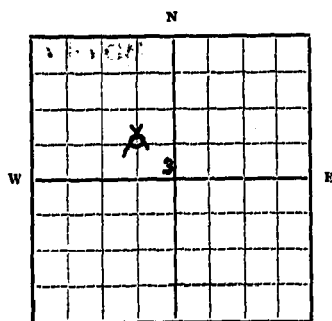
(Under Chapter 237, Montana Session Laws, 1961)

Silty loam - yellow  
Top of Ground  
(Elev. above sea level. 2850 .....)  
Silty, loam - Light yellow  
20'  
Silty, loam - Yellow  
30'  
Sandstone & shale  
Clay - gray  
50'  
Sandy coal & mica  
8 g.p.m.  
68' Bottom of hole

Owner Bureau of Land Management Address Box 960, Miles City, Mont.Driller Henry Johnson Address Box 716, Terry, MontanaDate of Notice of Appropriation of Groundwater N/ADate well started 10/16/63 Date Completed 10/18/63Type of well Drilled Equipment Used Cable tool  
(dug, driven, bored or (Churn, drill, rotary or  
drilled) other)Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
5 5/8"	4" I.D. 11 lb/ft.	+ 14"	65'	Holes 3/8"	28	65



SE 1/4 NW Sec. 3 T15N R. 46E

Indicate location of well and place of use, if possible. Each small square represents 10 acres.

Show exact depth of bottom.

Static Water Level for non-flowing Well 28 feet.Shut-in Pressure for Flowing Well N/APumping Water Level 57 feet at 8 gal. per minute.Discharge in gal. per min. of flowing well N/AHow Tested Running Length of Test 1 Hr.

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of

acres irrigated, if used for irrigation) .....

3" x 10" stroke cylinder - 8' Aeromotor

Montana #22

Driller's License Number

  
Driller's Signature

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

34867

158 10 1964  
 Division of Investigation of Department of Justice  
 Registration by State ENGINEER

1. Name of applicant: [illegible]  
 2. Address: [illegible]  
 3. City: [illegible]  
 4. State: [illegible]  
 5. Date of birth: [illegible]  
 6. Date of registration: [illegible]  
 7. Signature: [illegible]  
 8. Title: [illegible]

9. Description of work: [illegible]  
 10. Date of completion: [illegible]

Item	Description	Amount
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	[illegible]	[illegible]
6	[illegible]	[illegible]
7	[illegible]	[illegible]
8	[illegible]	[illegible]
9	[illegible]	[illegible]
10	[illegible]	[illegible]

11. Remarks: [illegible]  
 12. Date of filing: [illegible]  
 13. Signature: [illegible]  
 14. Title: [illegible]

15. Name of applicant: [illegible]  
 16. Address: [illegible]  
 17. City: [illegible]  
 18. State: [illegible]  
 19. Date of birth: [illegible]  
 20. Date of registration: [illegible]  
 21. Signature: [illegible]  
 22. Title: [illegible]

23. Description of work: [illegible]  
 24. Date of completion: [illegible]

Item	Description	Amount
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	[illegible]	[illegible]
6	[illegible]	[illegible]
7	[illegible]	[illegible]
8	[illegible]	[illegible]
9	[illegible]	[illegible]
10	[illegible]	[illegible]

25. Remarks: [illegible]  
 26. Date of filing: [illegible]  
 27. Signature: [illegible]  
 28. Title: [illegible]

**FILED**  
 at 10:30 o'clock AM.  
 FEB - 6 1964  
 [Signature]  
 County Clerk  
 Deputy  
 Fee \$2.00



GW 2

File No. ....

DUPLICATE

T. 15 N. R. 46 E.

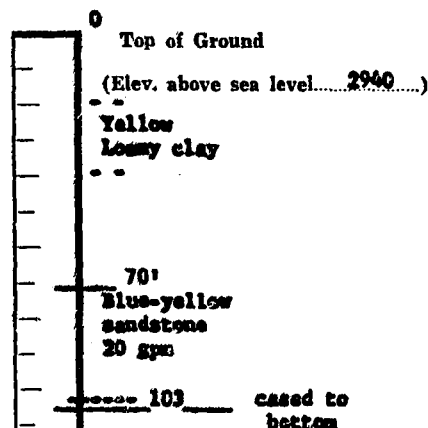
County Pringle

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

FEB 10 1964

Notice of Completion of Groundwater  
Appropriation by Means of Well

(Under Chapter 237, Montana Session Laws, 1961)

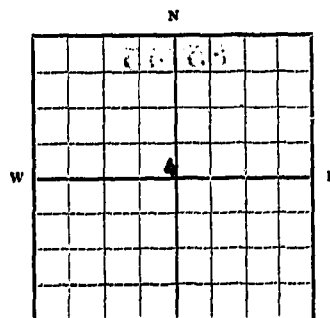
Owner Bureau of Land Management Address Box 960, Miles City, MontanaDriller Henry Johnson Address Box 716, Terry, Montana

Date of Notice of Appropriation of Groundwater .....

Date well started 1/7/64 Date Completed 1/8/64Type of well Drilled Equipment Used Cable tool  
(dug, driven, bored or (Churn, drill, rotary or  
drilled) other)Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
5 5/8"	4 I.D. 11 lb/ft.	+ 14"	103	Holes 3/8"	80'	103'



SE 1/4 NW Sec. 4 T. 15 N. R. 46 E

Indicate location of well and place of use, if possible. Each small square represents 10 acres.

Show exact depth of bottom.

Static Water Level for non-flowing Well.....52.....feet.

Shut-in Pressure for Flowing Well .....N/A.....

Pumping Water Level.....74.....feet at.....20.....gal. per minute.

Discharge in gal. per min. of flowing well .....N/A.....

How Tested Bailing Length of Test 1 hr.

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of

acres irrigated, if used for irrigation)

stroke

3" x 10"/cylinder, 4 8' Aeromotor mill

6' x 6' concrete platform

Montana #26

Driller's License Number

Henry Johnson  
Driller's Signature

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

34865

4201 01 837

44-38861-2107

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Figure 1. A schematic diagram of the experimental setup. The subject is seated in a chair and views the target through a video screen. The target is a light source that is visible through a video screen. The target is a light source that is visible through a video screen.

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

<input type="checkbox"/> <b>Interpret:</b> ( ) <b>Interpret:</b>	<input checked="" type="checkbox"/> <b>NA check:</b> ( ) <b>NA check:</b>	<input type="checkbox"/> <b>Interpret:</b> ( ) <b>Interpret:</b>	<input type="checkbox"/> <b>Interpret:</b> ( ) <b>Interpret:</b>
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It is noted that the above information was obtained from a confidential source who has provided reliable information in the past. It is noted that the above information was obtained from a confidential source who has provided reliable information in the past.

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AMERICAN ASSOCIATION OF UNIVERSITY PROFESSORS

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• 341 •

and Ontario to meet with representatives of the Ontario and Quebec governments. He has been in contact with the Ontario and Quebec governments for some time. He has been in contact with the Ontario and Quebec governments for some time. He has been in contact with the Ontario and Quebec governments for some time.

11b. *Phragmites* *communis* L.

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85745

**FILED**

at 10:30 o'clock A.M.

FEB - 6 1964

FEB - 6 1904  
 J. Glen Johnston  
 County Clerk  
 Thomas C. Falkenstein  
 Attorney

Fee 2.00

GW2

Headwater Well  
M3-2-1158

File No. ....

T. 15 N. R. 46 W.

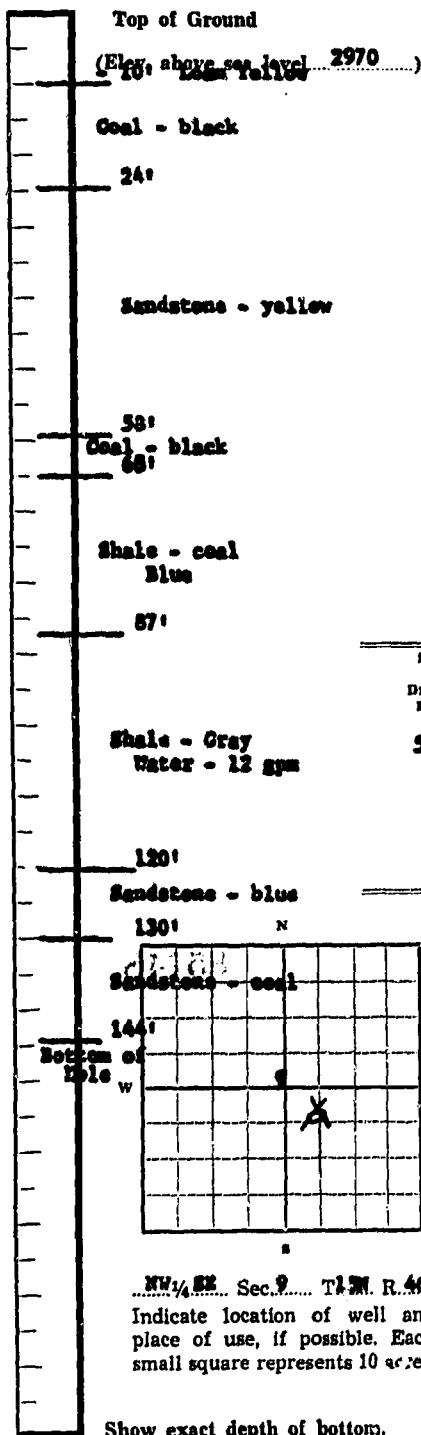
DUPLICATE

County PrairieSTATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER  
OFFICE OF STATE ENGINEERRECEIVED  
FEB 10 1964Notice of Completion of Groundwater  
Appropriation by Means of Well ENGINEER

(Under Chapter 237, Montana Session Laws, 1961)

Owner Bureau of Land Management Address Box 960, Miles City, Mont.Driller Reary Johnson Address Box 716, Terry, MontanaDate of Notice of Appropriation of Groundwater N/ADate well started 11/4/63 Date Completed 11/5/63Type of well Drilled Equipment Used Cable tool  
(dug, driven, bored or drilled) (Churn, drill, rotary or other)Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

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				Kind Size	From (Feet)	To (Feet)
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Static Water Level for non-flowing Well 120 feet.Shut-in Pressure for Flowing Well N/APumping Water Level 130 feet at 12 gal. per minute.Discharge in gal. per min. of flowing well N/AHow Tested Bailing Length of Test 1 hr.

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of acres irrigated, if used for irrigation)

2 1/2" x 10" stake cylinder - 8' Aerometer MillMontana #22  
Driller's License Number

Driller's Signature

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

34868

STATE ENGINEER  
FEB 10 1964

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85748

**FILED**  
at 10:30 o'clock A.M.  
FEB - 6 1964  
*Alvin Johnston*  
County Clerk  
*Thomas E. Johnston*  
Deputy  
Fee 2.00

File No. \_\_\_\_\_

DUPLICATE

T. 15 N. R. 46 E.

County. Prairie

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

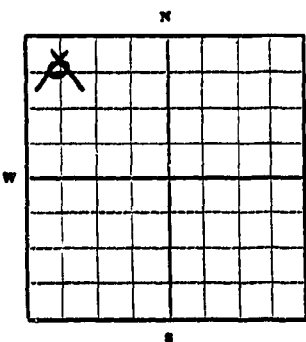
**Declaration of Vested Groundwater Rights**

(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED

STATE ENGINEER

1. Bureau of Land Management of Box 940, Miles City  
(Name of Appropriator) (Address) (Town)  
County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



NW 1/4, NW Sec. 11, T. 15N. R. 46E

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based livestock water

3. Date or approximate date of earliest beneficial use; and how continuous the use has been Sept. 1948 - continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.

5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal windmill - NW 1/4 of Sec. 11

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater Started 8/1/48 and completed 8/12/48

8. The depth of water table 168'

9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well, 168' deep with 35' Monitor tower.

10. The estimated amount of groundwater withdrawn each year 1,500,000 gal.

11. The log of formations encountered in the drilling of each well if available  
1-41' light soil; 41-45' yellow shale; 45-53' coal & water; 53-67' gray shale; 67-85' light gray shale; 85-95' gray clay; 95-120' gray sandstone; 120-127' gray shale; 127-140' sticky gray clay; 140-148' gray sandstone; 148-168' light blue coarse sandstone.

12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record

District Manager  
Arthur J. Zimmerman

Date 1-2-2-63

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

84281

<b>FILED</b>	
at 4:10	o'clock P. M.
JAN 15 1953	
County Clerk	
Fee 2 <sup>00</sup>	Deputy

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
MONTANA WATER RESOURCES BOARD

# NOTICE OF COMPLETION OF GROUNDWATER APPROPRIATION BY MEANS OF WELL

Developed after January 1, 1962

(Under Chapter 237 Montana Session Laws, 1961, as amended)

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, last copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form may be returned.

**U.S. Bureau of Land Management**

Owner

Address Miles City, Montana

**For Administrator's Use**

File 7250

3.4-70

Date well started 12-19-70

**LGW :**

completed **12-27-90**

Type of well .....drilled

DR. driven, hand or drilled

Equipment used cable tool

(Chain drill, rotary or other)

Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐

Industrial ☐ Drainage ☐ Other ☐\* Garden/Lawn ☐

**\*Describe**

USE: If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e. Lot, Block

and Addition).

ESTIMATED ANNUAL WITHDRAWAL ..... 200,000 gal.

Size of Drilled Hole	Size and Weight of Cast	From (Feet)	To (Feet)	PERFORATIONS		
				Kind and	From (Feet)	To (Feet)
8"	6 5/8 18.97	+ 16"	<del>18.14</del> 181	torch cut exp. sh.	125	137

Timber wolf N


Static water level ..... 42 ..... ft.\*  
Pumping water level ..... 76 ..... ft.\*  
at ..... 20 ..... gallons per minute,  
measured ..... 120 ..... minutes after pumping  
began.

\*Measured from ground level.  
Well developed by beller  
for 4 hours.

Power..... Pump..... HP.....  
Remarks: (Gravel packing, cementing,  
packers, type of shutoff) .....

packers above & below perforations  
Cement grout from surface  
to 1 ft. below.

EW ¼ NW ¼ Sec. 12

T. 150 N R. 46E

3

W

INDICATE LOCATION OF WELL AND PLACE OF USE, IF POSSIBLE.  
EACH SMALL SQUARE REPRESENTS 40 ACRES.

Driller's Signature Briggs Drilling Contractor

Printer's Address Box 1083, Dillon, Montana 59725

LICENSE NO. 148

### DRILLER'S LOG

Indicate the character, color, thickness of strata such as soil, clay, sand, gravel, shale, sandstone, etc. Show depth at which water is found and height to which water rises in well.

### Top of Ground

**Q13v, shows the levels**

[illegible]

181 Show exact depth of bottom

48200

92801

Water Wheel Log  
B. T. M.  
to  
The Public

FILED

11:30 o'clock P.M.

Jan 4 - 1971  
John B. Hartley  
B. T. M. Hartley  
200 jls

REPRODUCTION BY MEANS OF ANY  
MACHINE OR BY ANY MEANS OF  
REPRODUCTION OF ANY KIND  
IS PROHIBITED  
STATE OF MONTANA



File No. \_\_\_\_\_

DUPLICATE

T 15 N. R 46 E.

County Prairie

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

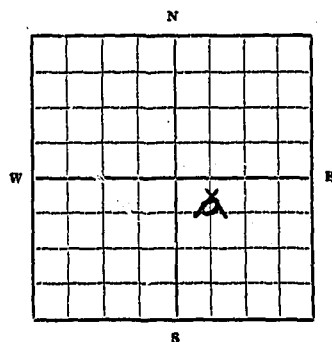
**Declaration of Vested Groundwater Rights**

(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED  
FEB 18 1963

STATE ENGINEER

1. Bureau of Land Management of Box 960, Miles City  
(Name of Appropriator) (Address) (Town)  
County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



NW 1/4 Sec. 15 T. 15 N. R. 46 E.

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based Livestock water
3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1946 - continuous
4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof \_\_\_\_\_
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - NW 1/4 Sec. 15
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1946
8. The depth of water table Unknown
9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well
10. The estimated amount of groundwater withdrawn each year 1,500,000 gal.
11. The log of formations encountered in the drilling of each well if available Not available
12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record \_\_\_\_\_

District Manager  
Signature

Date \_\_\_\_\_

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

3687

84309

<b>FILED</b>	
at 4:10	o'clock P. M.
FEB 15 1963	
County Clerk	
Fee 2.00	Deputy

File No. \_\_\_\_\_

DUPLICATE

T. 15N R. 46

County Prine

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

**Notice of Completion of Groundwater  
Appropriation by Means of Well**

(Under Chapter 237, Montana Session Laws, 1961)

JUL 13 1964  
STATE ENGINEER

Top of Ground

(Elev. above sea level.....)

0-65 Yellow Loam

65-70 light blue sand

70-85 Yellow Loam

85-115 Blue limestone

115-120 Coal

120-125 Blue sand

125-175 Blue limestone

175-190 Indeterminate

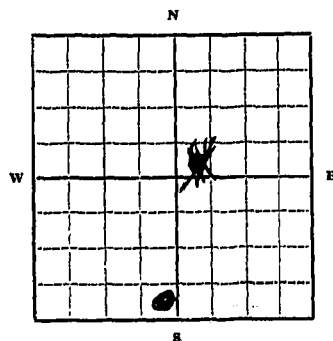
190-198 Blue limestone

198 Bottom

Owner PC. Design District Address 700 7thDriller Long John Address " "Date of Notice of Appropriation of Groundwater N.A.Date well started JUN 7 '64 Date Completed JUN 11 '64Type of well DRILLED Equipment Used COBLE Tool  
(dug, driven, bored or drilled) (Churn, drill, rotary or other)Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
5 7/8	4" 10 9.5 lb	0	178	3/8 Hole	90	110
					175	178



SFS 10 1/4 Sec. 16 T. 15 R. 46

Indicate location of well and place of use, if possible. Each small square represents 10 acres.

Show exact depth of bottom.

Static Water Level for non-flowing Well 85 feet.

Shut-in Pressure for Flowing Well \_\_\_\_\_

Pumping Water Level 175 feet at 15 gal. per minute.Discharge in gal. per min. of flowing well N.A.How Tested BAILER Length of Test 1/2 Hour

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of acres irrigated, if used for irrigation)

Driller's License Number 22Driller's Signature Long John

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

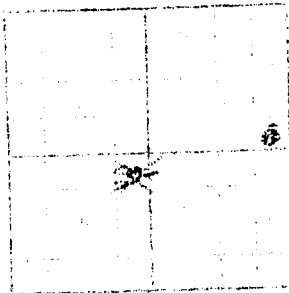
Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

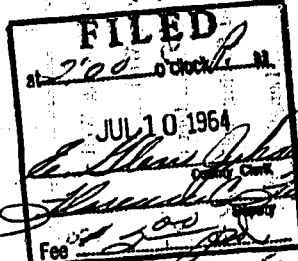
38285

# Journal of the American Medical Association

1972 12 14



86202/



DATE: 11/11/11  
BY: [Signature]  
PAGE: 44

24

140-48 at 140-48  
132-160 at 132-160  
132-132 at 132-132  
130-132 at 130-132  
12-120 at 12-120  
82-112 at 82-112  
10-32 at 10-32  
10-30 at 10-30  
0-32 at 0-32

172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098 1099 1100 1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 11

[illegible]

File No. \_\_\_\_\_

STATE WATER CONSERVATION BOARD

T. 15 N. R. 46 E. 17

DUPLICATE

JUN 29 1967

County Prairie

LOG

BIRCH

BIRCH

CUT

DICKER

SULLIVAN

McDermott

McNelly

McNelly

Sullivan

STATE OF MONTANA

ADMINISTRATOR OF GROUNDWATER CODE

OFFICE OF STATE ENGINEER

Top of Ground

(Elev. above sea level 2860)**Notice of Completion of Groundwater  
Appropriation by Means of Well****0 - 45 Shale, Lt. Yellow Static Water Level DEVELOPED AFTER JANUARY 1, 1962**

(Under Chapter 237, Montana Session Laws, 1961)

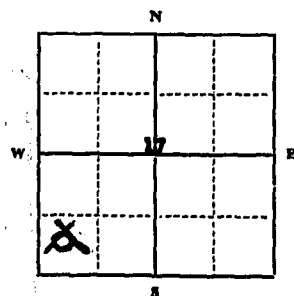
**45-50 Shale, Lt. Yellow****50-55 Coal, Black****55-65 Shale, Blue****65-115 Sandstone, Gray****115-200 Shale, Gray**Owner Bureau of Land Management Address Miles City, MontanaDriller Joe Johnson Drilling Address Terry, Montana

Date of Notice of appropriation of groundwater \_\_\_\_\_

Date well started 5/16/67 Date completed 5/17/67Type of well Drilled Equipment used Cable tool  
(Dug, driven, bored or drilled) (Churn drill, rotary or other)Water use: Domestic ☐ Municipal ☐ Stock ☐ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
8"	6" I.D. 19/16 lb/ft	+ 1	122	Slots 1/4"x6"	55	122

Static Water Level for non-flowing well 45 feet.Shut-in Pressure for Flowing Well N/APumping Water Level 70 feetat 8.5 gal. per minute.Discharge in gal. per min. of flowing well N/AHow Tested ReilingLength of Test 2 hrs

Remarks: (Gravel packing, cementing, packers, type of shutoff) \_\_\_\_\_

PackersNW 1/4 Sec 17, T15N, R46E.  
Indicate location of well and place of use, if possible. Each small square represents 40 acres.

(Continue on reverse side)

USE—If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e.: Lot, Block and Addition).

N/A

Show exact depth of bottom.

**McMullin Bros. Well (M2-R-1852)**

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, tissue copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

154  
Driller's License Number

Driller's Signature

42.096



81936

19

T. \_\_\_\_\_ R. \_\_\_\_\_

~~Section~~County PrarieMONTANA BUREAU OF MINES AND GEOLOGY  
Butte, MontanaRECEIVED  
MAR 24 1961

## WATER WELL LOG

STATE ENGINEER


Owner McCallia Brothers Address Brookway, Mont.Driller Harry I. Johnson Address Harry I. JohnsonDate Started May 10, 1959 Date Completed May 14, 1959Location: Sec. 19 T. 15 R. 46 1/4 sec. 34Type of well Drilled Equipment used Cable Tool  
(Dug, driven, bored, or drilled) (Churn drill, rotary, other)Water use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐Industrial ☐ Drainage ☐ Other: \_\_\_\_\_Casing: 0 ft. to 138 ft. Type Std. Size 4"

Casing: \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Type \_\_\_\_\_ Size \_\_\_\_\_

Casing: \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Type \_\_\_\_\_ Size \_\_\_\_\_

Perforated or Screened: Ft. 68 to ft. 80 Ft. 120 to ft. 138Type of screen or perforations HolesStatic Water level, for non-flowing well: 58 feet.

Shut-in pressure, for flowing well: \_\_\_\_\_ lb./sq. in. on: \_\_\_\_\_ (date)

Pumping water level 80 feet at 4 gal. per min.How tested: FailedLength of test 1 hr.

Remarks: (Gravel packing, cementing, packers, type of shut-off, depth of shut-off)

(over)

### Log of Well

[illegible]



File No. \_\_\_\_\_

DUPLICATE

T. 15 N. R. 46 E.

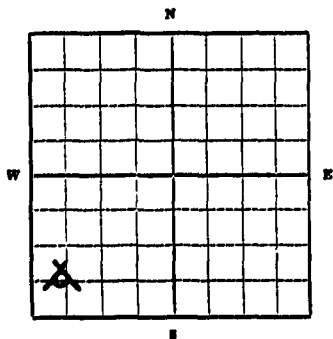
County Prairie

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

**Declaration of Vested Groundwater Rights**  
(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED  
STATE ENGINEER

1. Bureau of Land Management, of Box 960, Miles City  
(Name of Appropriator) (Address) (Town)  
County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SW 1/4 Sec 20 T15N. R.46E

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based Livestock water
3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1937 - continuous
4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof \_\_\_\_\_
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - SW 1/4 of Sec. 20
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1937
8. The depth of water table 192'
9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well 1937 deep - standard 4" casing.
10. The estimated amount of groundwater withdrawn each year 1,500,000 gal.
11. The log of formations encountered in the drilling of each well if available Not available
12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record \_\_\_\_\_

District Engineer Arthur J. Brumby

Date 1-25-63

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

84280

<b>FILED</b>	
at 4 <i>10</i>	o'clock <i>P.</i> M.
<i>[Signature]</i> 152963	
County Clerk	
Fee <i>2.00</i>	Deputy

File No. \_\_\_\_\_

DUPLICATE

T. 13 N. R. 46 E.

County Prairie

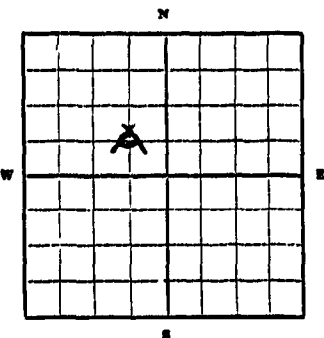
STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights  
(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED  
FEB 18 1963  
STATE ENGINEER

1. Bureau of Land Management of Box 260, Miles City, Montana  
(Name of Appropriator) (Address) (Town)

County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SE 1/4 NW Sec 22 T. 13 N. R. 46 E.

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based Livestock water

3. Date or approximate date of earliest beneficial use; and how continuous the use has been 6/22/43 - continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.

5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - SE 1/4 NW Sec. 22

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater Started 6/22/43 and completed 6/22/43

8. The depth of water table 132'

9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well - 132' deep, 34" of water in hole, standard 4" casing.

10. The estimated amount of groundwater withdrawn each year 1,300,000 gal.

11. The log of formations encountered in the drilling of each well if available Water in coarse sand

12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record.

District Manager  
[Signature]

Date 1-22-63

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

84310

<b>FILED</b>	
at 4:00	of clock P. M.
FEB 15 1963	
<i>[Signature]</i>	
For 27	Deputy

County.....Prairie

**265-273 Shale, Gray**

42 100

SECRET

303

Exposed to 60%

RECEIVED  
JAN 11 1961  
U.S. AIR FORCE  
WASHINGTON, D.C.

2501 1 YSAUMIAI SINTA GREGORIO

Large, open, rocky hillside with scattered shrubs and trees.

CONFIDENTIAL - THIS IS A UNCLASSIFIED COPY

[illegible]

10/1/42	10/1/42	10/1/42	10/1/42
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(b)(6) as written with (b)(7)(C) removed

☐ Information ☒ Book ☐ Information ☐ General ☐ General

[illegible][illegible]

*Offshore* - principal place of business outside U.S.

... ..

**Abstract** *hsp70* and *hsp90* are members of the heat shock protein family. They are induced by a variety of stresses, including heat, oxidative stress, and heavy metal exposure. In this study, we investigated the effect of cadmium (Cd) on the expression of *hsp70* and *hsp90* in human liver cells. The results showed that Cd treatment significantly increased the expression of both *hsp70* and *hsp90* in a dose-dependent manner. This suggests that Cd exposure may activate the heat shock response in liver cells, leading to the upregulation of these proteins. The findings are consistent with previous studies showing that Cd induces oxidative stress and DNA damage in liver cells, which may trigger the heat shock response as a protective mechanism.

1960 50¢ General Electric Company's

[illegible]

flow regime is also not an independent

211

\_\_\_\_\_ (Print Name) \_\_\_\_\_

အသံအသွယ် နှစ်ဦးစီ ပေါ်ရောက်ကြသည်။

1. *General*      2. *General*      3. *General*      4. *General*      5. *General*      6. *General*      7. *General*      8. *General*      9. *General*      10. *General*

the  $\beta$  phase of the polymer. The  $\beta$  phase is the most stable phase of the polymer and is the phase that is observed in the bulk of the polymer. The  $\beta$  phase is the phase that is observed in the bulk of the polymer.

As a result, the *asplund* is


 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1

Also given in the exhibit is a

1. *Staphylococcus aureus* (Staph aureus)

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

[illegible]

**FILED**  
at 9:40 o'clock A.M.  
JUN 28 1967  
*E. J. Galt*  
County Clerk  
*E. J. Galt*  
Deputy  
Fee \$2.00

(10-1-73) 11:00 AM to 12:00 PM

File No. ....

T. 15 N. R. 46 E. 24

DUPLICATE

County PrairieSTATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER  
OFFICE OF STATE ENGINEERRECEIVED  
MAY 27 1965**Notice of Completion of Groundwater  
Appropriation by Means of Well ENGINEER**

(Under Chapter 237, Montana Session Laws, 1961)

Top of Ground  
Sand  
(Elev. above sea level. 3270)  
Clay

Clay  
Clay & Sand, hard

Clay &amp; sand

Owner Bureau of Land Management Address Miles City, MontanaDriller Sando & Singer Address Billings, MontanaDate of Notice of Appropriation of Groundwater May 12, 1965Date well started 5/3/65 Date Completed 5/12/65Type of well Drilled Equipment Used Churn cable  
(dug, driven, bored or drilled) (Churn, drill, rotary or other)Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
7 7/8	6 5/8 O.D.	0	318			
5	4 I.D.	299	380	1/8" 4 rows	360	375

Static Water Level for non-flowing Well 310 feet.

Shut-in Pressure for Flowing Well .....

Pumping Water Level 330 feet at 5 gal. per minute.

Discharge in gal. per min. of flowing well .....

How Tested Bailing Length of Test 1 hour

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of

acres irrigated, if used for irrigation) .....

Stockwater. Water sand at 293 ft., too fine to hold. Cased off with 6 7/8" casing.

Sando & Singer #2  
Driller's License Number

/s/ Roy Singer  
Driller's Signature

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

39160

87080

RECEIVED

Office of Registration of Professional Engineers  
State of California  
Department of Industrial Relations

FILED  
at 1:15 o'clock P.M.  
MAY 26 1965  
L. M. Johnston  
County Clerk  
J. Johnston  
Deputy  
Fee \$2.00

Top of Ground  
Base  
(Elevations on level)

Close  
Wet & Sand, etc.

Wet & Sand, etc.

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File No. \_\_\_\_\_

DUPLICATE

T. 15 N. R. 46 E.

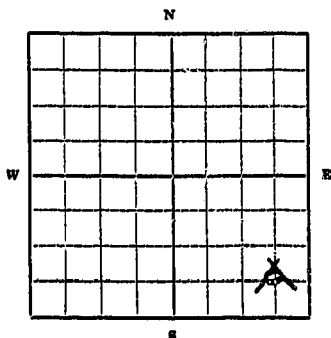
County Prairie

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER  
**Declaration of Vested Groundwater Rights**  
(Under Chapter 237, Montana Session Laws, 1961)

RECEIVED  
FEB 18 1963  
STATE ENGINEER

1. Bureau of Land Management, of Box 960, Miles City  
(Name of Appropriator) (Address) (Town)

County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



Sec. 27 T. 15 N. R. 46 E.

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based Livestock water
3. Date or approximate date of earliest beneficial use; and how continuous the use has been August 17, 1961 - continuous
4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof \_\_\_\_\_
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - SE 1/4 of Sec. 27

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater Started 8/10/61 completed 8/16/61

8. The depth of water table 233'

9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well - 233' deep, standard 4" casing.

10. The estimated amount of groundwater withdrawn each year 3,500,000 gal.

11. The log of formations encountered in the drilling of each well if available 0-47' yellow clay; 47-75' coarse sand (0-1 gal/min); 75-130' gray gumbo clay; 130-131' coal; 131-204' gray gumbo clay; 204-206' hard rock; 206-233' fine sand (10 gal/min); 233-236' gray gumbo clay.

12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record \_\_\_\_\_

District Manager  
Thurman

Date 1-22-62

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

84314

<b>FILED</b>	
at 4:10	o'clock P. M.
FEB 15 1963	
<i>Ellen J. [Signature]</i>	
County Clerk	
Fee 2.00	Deputy

File No. \_\_\_\_\_

DUPLICATE

T. 15 N. R. 46 E.

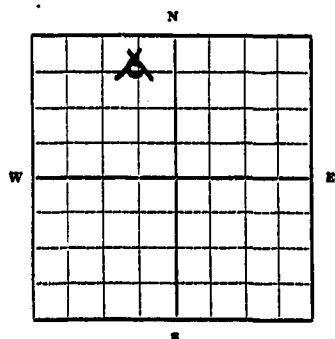
County Prairie

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

RECEIVED  
JAN 18 1962  
STATE ENGINEER

Declaration of Vested Groundwater Rights  
(Under Chapter 237, Montana Session Laws, 1961)

1. Bureau of Land Management, of Box 960, Miles City  
(Name of Appropriator) (Address) (Town)  
County of Custer State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



NE 1/4 NW Sec. 33 T. 15 N. R. 46 E

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based Livestock water
3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1948 - continuous
4. The amount of groundwater claimed (in miner's inches or gallons per minute) 3 gal/min.
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal Windmill - NE 1/4 NW of Sec. 33
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1948
8. The depth of water table 220'
9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater Drilled well 220' deep - standard 4" casing
10. The estimated amount of groundwater withdrawn each year 1,500,000 gal.
11. The log of formations encountered in the drilling of each well if available Not available
12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record.

District Manager  
~~Signature~~

Date 1-22-62

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology and Quadruplicate for the Appropriator.

84279

<b>FILED</b>	
at 4:10	o'clock P. M.
FEB 15 1963	
County Clerk	
FEB 27 1963	Deputy

## Page \_\_\_\_ of \_\_\_\_

County PAIRIE

Twp. 15N Rge. 47E

Sec.	Name of Appropriator	Type of Form	County File No.	Remarks
2	Chapman, Lee	GW-2	94805	
1	NORTHERN PACIFIC RAILWAY CO.	GW-4	85297	
1	WELAND, HANS	WATERWELL LOG	82811	
5	BUREAU OF LAND MANAGEMENT	GW-2	86874	
6	BUREAU OF LAND MANAGEMENT	GW-2	92800	
6	BUREAU OF LAND MANAGEMENT	GW-2		SAME WELL AS ABOVE
7	BUREAU OF LAND MANAGEMENT	GW-2	93445	
9	WELAND, FRANK H.	GW-4	85480	
11	WELAND, HANS C.	GW-4	85612	
14	BUREAU OF LAND MANAGEMENT	GW-4	84313	
17	BUREAU OF LAND MANAGEMENT	GW-2	87083	
22	HUBING, LEE	GW-4	85607	
23	HUBING, LEE	GW-4	85606	
24	BUREAU OF LAND MANAGEMENT	GW-2	87082	
2	Lee Chapman	GW-2	94805	

RECEIVED

File No. ....

T. 15 R. 47 2

DUPLICATE

MAY 11 1973

MONTANA DEPARTMENT OF NATURAL  
RESOURCES AND CONSERVATIONCounty PrairieSTATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

Top of Ground

(Elev. above sea level.....)

0-1 top soil  
1-20 yellow clay  
20-21 rock  
21-40 sandstone  
40-52 gumbo  
52-84 sandstone  
84-89 water sand 15 gpm

Notice of Completion of Groundwater  
Appropriation by Means of Well  
DEVELOPED AFTER JANUARY 1, 1963

(Under Chapter 237, Montana Session Laws, 1961)

Owner Lee Chapman Address Terry, MontanaDriller Ira G. Bond & Sons Address Terry, Montana

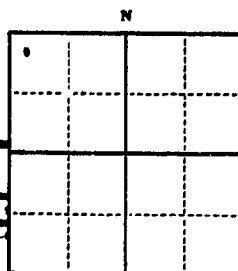
Date of Notice of appropriation of groundwater.....

Date well started 4/26/73 Date completed 4/26/73Type of well drilled Equipment used cable tool  
(Dug, driven, bored or drilled) (Churn drill, rotary or other)Water use: Domestic ☒ Municipal ☐ Stock ☐ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
6 1/2	4" plastic	0	89	3/16	69	87

Doc. No. 94805  
Filed to record  
this 10th day of May  
A. D. 1973, at 2:10  
o'clock PM.



nw 1/4 Sec. 2 T. 15 R. 47  
Indicate location of well and place of use, if possible. Each small square represents 40 acres.

Static Water Level for non-flowing well 36 feet.

Shut-in Pressure for Flowing Well.....

Pumping Water Level 72 feet  
at 1.2 gal. per minute.

Discharge in gal. per min. of flowing well.....

How Tested bailer

Length of Test.....

Remarks: (Gravel packing, cementing, packers, type of shutoff) gravel packed

(Continue on reverse side)

USE—If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e.: Lot, Block and Addition).

Show exact depth of bottom.

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, tissue copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

37  
Driller's License NumberRobert E. Bond  
Driller's Signature.

53,118

94805

State Willing  
Lee Chapman  
to  
The Public

FILED

at 8:19 o'clock P.M.

MAY 10 1973

John H. ...  
Deputy

Notice of Completion of Construction  
NEW to ansam yd nchisqinaga  
DEPT. OF REVENUE  
OFFICE OF STATE EXCHANGES  
ADMINISTRATOR OF RECORDS AND CODE  
BUREAU OF MONETARY

OK

Approved Stock Form—State Publishing Co., Helena, Montana—41338

File No. \_\_\_\_\_

T. 15N R. 47E

DUPLICATE

County. Prairie

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

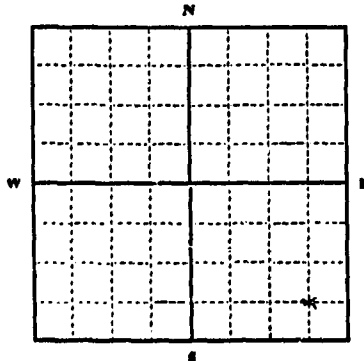
RECEIVED  
DEC 16 1963

Declaration of Vested Groundwater Rights STATE ENGINEER

(Under Chapter 237, Montana Session Laws, 1961)

1. Northern Pacific Railway Company, of N.P. Bldg. St. Paul  
(Name of Appropriator) (Address) (Town)

County of Hemlock State of Minnesota  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SE 1/4 Sec. 1 T15N R. 47E

Indicate point of appropriation  
and place of use, if possible.  
Each small square represents 10  
acres.

2. The beneficial use on which the claim is based. Furnishing water for livestock.

3. Date or approximate date of earliest beneficial use; and how continuous the use has been. Continuous since 1959.

4. The amount of groundwater claimed (in miner's inches or gallons per minute). 24 gallons per minute.

5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof. None.

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal. Pump.

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater. Well, drilled in 1959.

8. The depth of water table. Unknown.

9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater. 207 feet deep - 4-inch casing.

10. The estimated amount of groundwater withdrawn each year.

11. The log of formations encountered in the drilling of each well if available. Not available.

12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record. No other information available.

Northern Pacific Railway Company

Signature of Owner. By [Signature]

Dist. Supervisor, Graz. & Cult.

Date.

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology, and Quadruplicate for the Appropriator.

9385



CIVIL ENGINEER  
85297  
RECEIVED

FILED	
at 9:00 o'clock A.M.	
DEC 12 1963	
<i>[Signature]</i> County Clerk	
Fee 2.00	<i>[Signature]</i> Deputy

T. \_\_\_\_\_ R. \_\_\_\_\_

County Prairie

MONTANA BUREAU OF MINES AND GEOLOGY  
Butte, Montana

RECEIVED  
JAN 2 1952

WATER WELL LOG

STATE ENGINEER


Owner Hans (Ed) Land Address Terry, Mont.

Driller Henry I. Johnson Address Terry, Mont.

Date Started June 19, 1959 Date Completed June 23, 1959

Location: Sec. 1 T. 15 R. 47  $\frac{1}{4}$  sec. NW 1/4

Type of well Drilled Equipment used Cable Tool  
(Dug, driven, bored, or drilled) (Churn drill, rotary, other)

Water use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐

Industrial ☐ Drainage ☐ Other: \_\_\_\_\_

Casing: 0 ft. to 207 ft. Type Std. Pipe Size 4"

Casing: \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Type \_\_\_\_\_ Size \_\_\_\_\_

Casing: \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Type \_\_\_\_\_ Size \_\_\_\_\_

Perforated or Screened: Ft. 80 to ft. 100 Ft. 170 to ft. 193

Type of screen or perforations Soles

Static Water level, for non-flowing well: 30 feet.

Shut-in pressure, for flowing well: \_\_\_\_\_ lb./sq. in. on: \_\_\_\_\_ (date)

Pumping water level 215 feet at 12 gal. per min.

How tested: Miller

Length of test 1 hr

Remarks: (Gravel packing, cementing, packers, type of shut-off, depth of shut-off)

## Log of Well

FILED	at	5:00	o'clock	P.M.
	24 DEC 29 1964			
			County Clerk	
	Fee	1.25	Deputy	

82811

GW2

File No. ....

DUPLICATE

T. 15 N. R. 47 E.

County PrairieSTATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER**Notice of Completion of Groundwater  
Appropriation by Means of a Well ENGINEER**

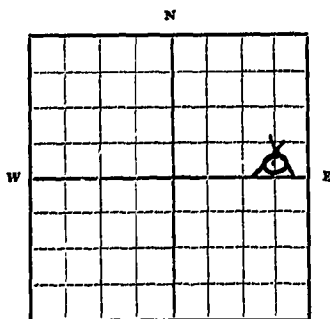
(Under Chapter 237, Montana Session Laws, 1961)

Owner Bureau of Land Management Address Box 960, Miles City, Mont.Driller Daniel G. Haggerty Address Box 173, Lindsay, MontanaDate of Notice of Appropriation of Groundwater June 17, 1964Date well started 6/17/64 Date Completed 6/22/64Type of well Drilled Equipment Used Cable tool  
(dug, driven, bored or (Churn, drill, rotary or  
drilled) other)Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐

Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which the water rises in the well.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
6"	4" I.D. 11#/ft.	+ 1	83	Slot 1/8"x14"	71	83

Top of Ground  
(Elev. above sea level 3030)  
10 Gravel & sand  
20 Yellow clay  
30  
40  
50 Blue shale  
60  
70 Sand rock  
83 Shale & Sand rock  
4 g.p.m.



SE 1/4, NE Sec. 5, T15N, R. 47E

Indicate location of well and place of use, if possible. Each small square represents 10 acres.

Show exact depth of bottom.

Static Water Level for non-flowing Well 18 feet.

Shut-in Pressure for Flowing Well .....

Pumping Water Level 30 feet at 4 gal. per minute.

Discharge in gal. per min. of flowing well .....

How Tested Bailing Length of Test 2 hr.

Remarks: (Gravel packing, cementing, packers, type of shutoff, location of place of use of groundwater if not at well, and any other similar pertinent information, including number of acres irrigated, if used for irrigation) .....

Well is gravel packedWater - fair#13  
Driller's License Number

Driller's Signature

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; duplicate to the State Engineer; Triplicate to the School of Mines and Quadruplicate for the Appropriator.

38977

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the fact that the two different but very closely related species of *Phragmites* are found in the same place, the *Phragmites* should easily be one of those "wild" plants that are common to the entire world. The possibility of a hybrid between the two species is not ruled out, but it is not probable that the two species are so closely related that they would be able to produce a hybrid.

[illegible]

14-00000

**THE**

1944-1945

100

**RESEARCH IN SCIENCE EDUCATION**

86874

6874  
OFFICE OF REVENUE  
DEPARTMENT OF COMMERCE  
BUREAU OF EXCHANGE  
WASHINGTON, D. C.

FILED  
at 9:35 o'clock A.M.  
FEB 24 1965  
J. H. [Signature]  
County Clerk  
Deputy  
Fee 2.00 [Signature]

## MAR 5 19

Indicate the character, color, thickness of strata such as soil, clay, sand, gravel, shale, sandstone, etc. Show depth at which water is found and height to which water rises in well.

LICENSE NO.....148

[illegible]

201

Show exact depth of bottom

48190

Water Well Log  
B. L. M.  
to  
The Public

1130 3'clock A.M.

MAR 4 - 1971  
 John A. [Signature]  
 County  
 Deputy  
 95041

1971 - General 539 Wousters 22600 (male) 1297 - 1298

APPROPRIATION BY MEANS OF MEET  
OFFICE OF COMMISSION OF GEORGEWANTERS  
MONTANA WATTS RESOURCES BOARD  
ADMINISTRATOR OF GEORGEWANTERS CODE  
STATE OF MONTANA

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
MONTANA WATER RESOURCES BOARD

NOTICE OF COMPLETION OF GROUNDWATER  
APPROPRIATION BY MEANS OF WELL

Developed after January 1, 1962

(Under Chapter 237 Montana Session Laws, 1961, as amended)

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, 1st copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form may be returned.

Owner U.S. Bureau of Land Management  
Address Bozeman, Montana  
Date well started 11-30-70 completed 12-4-70

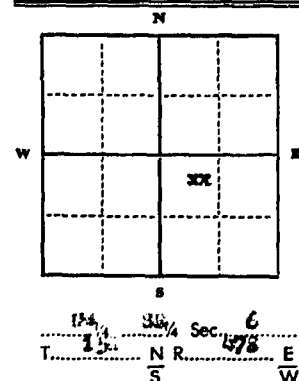
For Administrator's Use  
File \_\_\_\_\_  
GW 1 \_\_\_\_\_

Type of well drilled  
(Dug, driven, bored or drilled)  
Equipment used cable tool  
(Churn drill, rotary or other)  
Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐  
Industrial ☐ Drainage ☐ Other ☐ Garden/Lawn ☐

\*Describe  
USE: If used for irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e. Lot, Block and Addition).

ESTIMATED ANNUAL WITHDRAWAL 200,000 Gal.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS
8"	6 5/8" 48.97'	+ 18"	201	Kind Size torch out 1/4" 1/2" 3/4"
				From (Feet) To (Feet) 155 190



Static water level 140 ft.\*  
Pumping water level 190 ft.\*  
at 5 gallons per minute,  
measured 180 minutes after pumping began.  
\*Measured from ground level.  
Well developed by baller  
for \_\_\_\_\_ hours.  
Power \_\_\_\_\_ Pump \_\_\_\_\_ HP  
Remarks: (Gravel packing, cementing, packers, type of shutoff)  
water factors between aquifers and above

INDICATE LOCATION OF WELL AND PLACE OF USE, IF POSSIBLE. EACH SMALL SQUARE REPRESENTS 40 ACRES.

Driller's Signature Wiggo Drilling Contractor  
Driller's Address P.O. Box 1053, Allou, Montana 59715  
LICENSE NO. 148

DRILLER'S LOG

Indicate the character, color, thickness of strata such as soil, clay, sand, gravel, shale, sandstone, etc. Show depth at which water is found and height to which water rises in well.

Top of Ground (Elev. above sea level)		
From (Feet)	To (Feet)	
0	70	brown clay
70	73	dark blue clay
73	90	light blue clay
90	130	gray clay
130	135	blue sticky clay
135	160	coal (little water)
160	155	clay & broken rock
		water increasing
155	170	sandy clay
170	190	sandy clay more water
190	201	gray sticky clay

201

Show exact depth of bottom

48050



7

DEC 23 1971

**DRILLER'S LOG**

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
MONTANA WATER RESOURCES BOARD

# NOTICE OF COMPLETION OF GROUNDWATER APPROPRIATION BY MEANS OF WELL

**Developed after January 1, 1962**

(Under Chapter 237 Montana Session Laws, 1961, as amended)

This form to be prepared by driller, and three copies to be filed by the owner with the County Clerk and Recorder in the county in which the well is located, last copy to be retained by driller.

Please answer all questions. If not applicable, so state, otherwise the form may be returned. **CD 111**

Owner Bureau of Land Management

Address **Niles City, Montana**

For Administrator's Use

File 93445

Assembly 37 197

9:15 AM

.....

Date well started 5/24/71

GW 1 .....

completed 5/25/71

Type of well ..... **Drilled**

(Dug, driven, bored or drilled)

Equipment used Air Rotary

(Churn drill, rotary or other)

Water Use: Domestic ☐ Municipal ☐ Stock ☒ Irrigation ☐

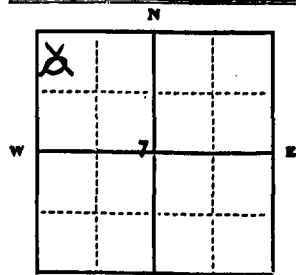
Industrial ☐ Drainage ☐ Other ☐\* Garden/Lawn ☐

**\*Describe**

**USE:** If used for Irrigation, industrial, drainage or other. Explain, state number of acres and location or other data (i.e. Lot, Block and Addition).

### ESTIMATED ANNUAL WITHDRAWAL

Size of Drilled Hole	Size and Weight of Casting	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
7 7/8"	6" ID 18.97#	+1	188	Slots 1/8 X 6"	148 98	188 110



**.NW...¼ .NW..¼ Sec...7.**

T...15.....(N) R...47.....(E)

INDICATE LOCATION OF WELL AND PLACE OF USE, IF POSSIBLE.  
EACH SMALL SQUARE REPRESENTS 40 ACRES.

Driller's Signature Scott L. Herman

Driller's Address Joe Johnson Driller, Terry, Montana

LICENSE NO. **154**

Indicate the character, color, thickness of strata such as soil, clay, sand, gravel, shale, sandstone, etc. Show depth at which water is found and height to which water rises in well.

### Top of Ground

(Elev. above sea level)

[illegible]

188 Show exact depth of bottom

496.28

93445

Water Well Log  
Bureau of Land Management  
to  
The Public

FILED

9:15 o'clock P.M.

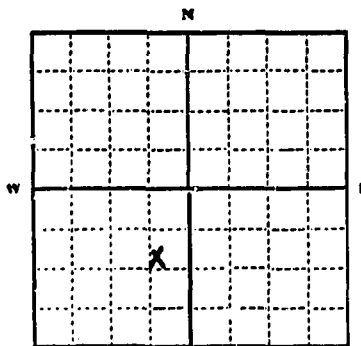
DEC 22 1971

John D. [Signature]  
Deputy  
220 p1

RECEIVED

File No. \_\_\_\_\_

DUPLICATE

T. 15 R. 47  
County PrairieSTATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEERRECEIVED  
DEC 30 1963Declaration of Vested Groundwater Rights  
(Under Chapter 237, Montana Session Laws, 1961)1. Frank H. Nelson, of Brookway  
(Name of Appropriator) (Address) (Town)  
County of Prairie State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:

SW 1/4 Sec. 9 T. 15 R. 47

Indicate point of appropriation  
and place of use, if possible. Each  
small square represents 10 acres.

2. The beneficial use on which the claim is based.  
Stock Raising
3. Date or approximate date of earliest beneficial use; and how continuous the use has been.  
1953 - continuous use.
4. The amount of groundwater claimed (in miner's inches or gallons per minute).  
7 gallons minute
5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof.  
No Irrigation
6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal.  
Pump
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater.  
Commenced & completed 1953
8. The depth of water table.  
40 feet
9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater.  
Dug - 6 inch casing - 72 feet deep
10. The estimated amount of groundwater withdrawn each year.  
1,814,400 gallons
11. The log of formations encountered in the drilling of each well if available.  
Not available
12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record.  
None

Signature of Owner

Date

Dec. 27-1963

Three copies to be filed by the owner with the County Clerk and Recorder of the county in which the well is located.

Please answer all questions. If not applicable, so state, otherwise the form will be returned.

Original to the County Clerk and Recorder; Duplicate to the State Engineer; Triplicate to the Montana Bureau of Mines and Geology, and Quadruplicate for the Appropriator.

15613

85480

**FILED**  
at 4:00 o'clock P. M.  
DEC 27 1963  
*E. H. Johnston*  
County Clerk  
Fee 2.00 Deputy