Log of Well

Depth, feet From	Depth, feet To	Description of Material Drilled
0	24	hard gumbo
24	41	gravel with water

27

T. 16 R. 55

County Dawson

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

RECEIVED FEB 17 1961 STATE ENGINEER

WATER WELL LOG

well-

Owner Franklin Peterson Address Glendive, Montana

Driller Robert W. Haggerty Address Box 73 Glendive, Mont.

Date Started Aug. 18, 1960 Date Completed Aug. 22, 1960

Location: Sec. 27 T. 16 R. 55 ¼ sec. Jefferson School Addition Lot 1 Block 2

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

Water use: Domestic [X] Municipal [ ] Stock [ ] Irrigation [ ]

Industrial [ ] Drainage [ ] Other:

Casing: 0 ft. to 97 ft. Type Steel Size 4"

Casing: ft. to ft. Type Size

Casing: ft. to ft. Type Size

Perforated or Screened: Ft. to ft. Ft. to ft.

Type of screen or perforations

Static Water level, for non-flowing well: 93' feet.

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

Pumping water level 98' feet at 15 gal. per min.

How tested: Bailed 2 hrs at 15 gal. per minute

Length of test 2 days pumped at 8 gal. per minute.

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

Water shut off at 60 ft.

Casing drove through water.

(over)

Log of Well

Depth, feet From	Depth, feet To	Description of Material Drilled
0	12	Yellow Clay
12	23	Gravel
23	55	Sand 2 gal. per min.
55	98	Gray Clay
98	117	Sand rock. 15 gal. per min.

27

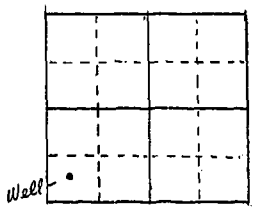
Form No. 18
8-60

T. 16 R. 55

County DAWSON

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Franklin Peterson Address Glendive, Montana

Driller Robert W. Haggerty Address Box 73 Glendive, Mont.

Date Started August 18, 1960 Date Completed Aug. 22, 1960

Location: Sec. 27 T. 16 R. 55 ¼ sec. Jefferson School Add. Lot 1 Block 2

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

Water use: Domestic [X] Municipal [ ] Stock [ ] Irrigation [ ]

Industrial [ ] Drainage [ ] Other

Casing: 0 ft. to 97 ft. Type Steel Size 4"

Casing: ft. to ft. Type Size

Casing: ft. to ft. Type Size

Perforated or Screened: Ft. to ft. . Ft. to ft.

Type of screen or perforations

Static Water level, for non-flowing well: 93' feet.

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

Pumping water level 98' feet at 15 gal. per min.

How tested: Bailed 2 hours at 15 gal. per minute.

Length of test 2 days pumped at 8 gal. per minute.

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

Water shut off at 60 ft.

Casing drove through water.

(over)

Log of Well

Depth, feet		Description of Material Drilled
From	To	
0	12	Yellow clay
12	23	Gravel
23	55	Sand 2 gal. per min.
55	98	Gray clay
98	117	Sand rock. 15 gal. per min.

GW

Approved Stock Form—State Publishing Co., Helena, Montana—41921

27

File No.....

T. 16 N R. 55 E

DUPLICATE

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
DEC 18 1963
STATE ENGINEER

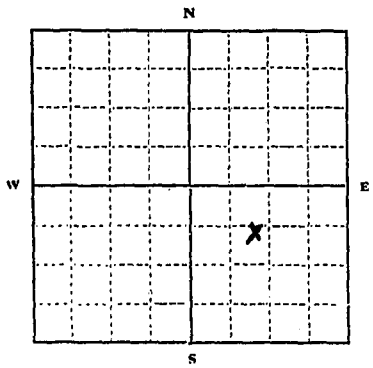
Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Donald L Pulse (Name of Appropriator), of West Glendive Mont (Address) (Town)

County of Dawson State of Montana

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



SE¼ Sec 27 T. 16 R. 55

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 House hold use Lawn and Garden watering

3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1956 Use has been Continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 5 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 Jet Pump

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1956

8. The depth of water table 45 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 Drilled well 100 feet deep with 6" casing

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

11. The log of formations encountered in the drilling of each well if available Unknown

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 Don L Pulse

Date 12-16-63

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.

9803

286296

STATE OF MONTANA
County of Dawson

Filed for record this 16th day of
December A. D. 19 63, at
11:30 o'clock A M.

Gordon W. Russell
County Clerk and Recorder.

By_____ Deputy.

GW 2

Approved Stock Form—State Publishing Co., Helena, Montana—42329

STATE WATER CONSERVATION BOARD

FEB 8 1967

File No.....

DUPLICATE

T. 16N R. 55E 27

County Dawson

Bile..... McDermott.....
Butzerin..... McNulty..... STATE OF MONTANA
Coyle..... Mori ADMINISTRATOR OF GROUNDWATER CODE
Darlinton..... Sullivan..... OFFICE OF STATE ENGINEER
Dickert.....

LOG

Top of Ground
Gravel
(Elev. above sea level.....)

0	
12	
12	> grey shale
88	
88	> water sand
100	

Show exact depth of bottom.

Notice of Completion of Groundwater Appropriation by Means of Well

DEVELOPED AFTER JANUARY 1, 1962

(Under Chapter 237, Montana Session Laws, 1961)

Owner George Parks Inc. Address Glendive Mont.

Driller C. H. Starr Address Box 1183 - Glendive

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

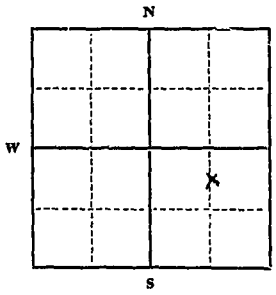
Date well started Jan 26 Date completed Feb 2

Type of well driven (Dug, Driven, bored or drilled) Equipment used Churn (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)
3 5/8	4" 11# per ft.	0	88			



NE 1/4 SE Sec. 27 T. 16 R. 55
Indicate location of well and place of use, if possible. Each small square represents 40 acres.

Static Water Level for non-flowing well 50 feet.

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

Pumping Water Level 70 feet at 8 gal gal. per minute.

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

How Tested Bailer

Length of Test 1 hr

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

.....(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).

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.

168
Driller's License Number

C H Starr
Driller's Signature

41703

298318

STATE OF MONTANA
County of Dawson
Filed for record this 7th day of
[illegible] A.D. 19 [illegible]
11:10 o'clock a M.
Gordon H Russell
County Clerk & Recorder
By Patricia Petersen

Approved Stock Form—State Publishing Co., Helena, Montana—39089 27

File No.....

T. 16 N R. 55 E

DUPLICATE

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
JUN 26 1963
STATE ENGINEER

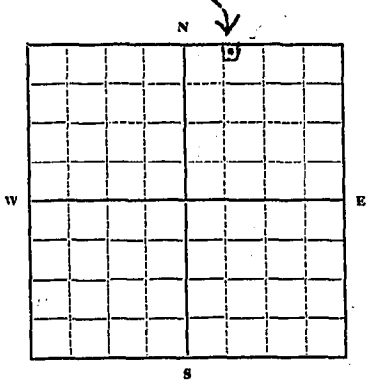
Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Walter A. & Margaret E. Reinert, of 1022½ N. Warren St. Helena
(Name of Appropriator) (Address) (Town)

County of Lewis & Clark State of Montana

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



NW¼ NE¼ Sec. 27 T. 16 R. 55

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
House hold use & irrigation

3. Date or approximate date of earliest beneficial use; and how continuous the use has been. May 1954

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 20 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
2 acres NW¼ NE¼ Sec 27 T 16 R 55
Owner is Walter A & Margaret E. Reinert

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

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater. May 1954

8. The depth of water table. 50 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. Drilled well with 6 inch casing. Drilled to depth of 140 feet

10. The estimated amount of groundwater withdrawn each year. 200000 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. Not available

Signature of Owner Margaret E. Reinert
Walter A. Reinert

Date June 15, 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.

4782

284071

STATE OF MONTANA
County of Dawson

Filed for record this 25th day of June A. D. 1963, at 9:00 o'clock A. M.

Gordon W. Russell
County Clerk and Recorder.

By Alice Austby Deputy.

Fee pd. $2.00

RECEIVED
DEC 2 1957
STATE ENGINEER

T. 16 R. 55 27

County Dawson

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG

Owner: School District #1 Address: Glendive, Montana

Driller: Ira C. Bond Address: Terry, Montana

Date Started: May 29, 1957 Date Completed: June 19, 1957

Location: Sec. 27 T. 16 R. 55 ¼ sec.

Type of well: drilled (Dug, driven, bored, or drilled) Equipment used: Cable and Rotary (Churn drill, rotary, other)

Water use: Domestic ☐ Municipal ☐ Stock ☐ Irrigation ☐

Industrial ☐ Drainage ☐ Other: Public School

Casing: top of gro and 53' ft. to ft. Type: Steel Size: 10" casing

Casing: top of ground 208' ft. to ft. Type: Steel PSC Size: 8" casing

Casing: ft. to ft. Type: Size:

Perforated or ~~Screened~~ Ft. 145' to ft. 208' Ft. to ft.

Type of ~~screen~~ or perforations: one inch slots 3/16

Static Water level, for non-flowing well: 125 feet.

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

Pumping water level: 155 feet feet at 75 gal. per min.

How tested: Dubette Byron Jackson pump

Length of test: 2 weeks

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

Set 10 inch surface casing grouted with bentonite and clay, to shut off surface water and gravel

(over)

Log of Well

Depth, feet From	Depth, feet To	Description of Material Drilled
0	12	gumbo
12	50	gravel
50	85	gumbo
85	97	sandy clay
97	104	gumbo
104	144	dry sand
144	145	coal
145	164	sand a little water
164	168	very hard rock
168	207	water sand
207	208	gumbo bottom of hole

3W4

27

File No. _____ T. 16N R. 55E

Original County DAWSON

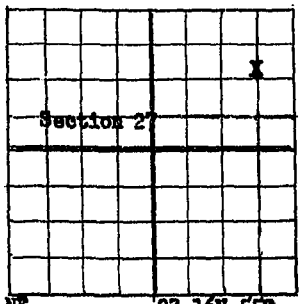
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
FEB 13 1962
STATE ENGINEER

DECLARATION OF VESTED GROUNDWATER RIGHTS
(Under Chapter 237, Montana Sessions Laws 1961)

1. Shell Oil Company of P. O. Box 2547 Billings
(Name of Appropriator) (Address) (Town)

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



NE 1/4 Sec 27 T 16N R 55E

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 Industrial & Domestic

3. Date of approximate date of earliest beneficial use; and how continuous the use has been May 17, 1956

4. The amount of groundwater claimed (in miner's inches or gallons per minute) No gauge

5. If used for irrigation give the acreage and description of the lands to which water has been applied and name of owner thereof Not applicable

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

7. The date of commencement and completion of the construction of the well, wells or other works for withdrawal of ground water Started May 14, 1956 Comp. May 17, 1956

8. The depth of water table 30' +

9. So far as it may be available, the type, size and depth of each well or the general specification of any other works for the withdrawal of groundwater TD 137 5-1/2" csg at 137 Perfs 97-117

10. The estimated amount of groundwater withdrawn each year * No Est. Made.

11. The log of formations encountered in the drilling of each well if available 0-33 gravel 33-37 wet gravel 37-62 Shale 62-117 Shale gumbo to bottom

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

Signature of Owner A T Jesse
Shell Oil Company

Date February 2, 1962

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 School of Mines and Quadruplicate for the Appropriator.

1421

STATE OF MONTANA
} ss
County of Yellowstone

having first been duly sworn, depose and say A. Thatreson he of lawful age and the appropriator and claimant of the order and water right mentioned in the foregoing declaration of vested groundwater rights and the person whose name subscribed thereto, as the appropriate and claimant is, that he know the contents of said foregoing notice and that the matters and things therein stated as true.

Subscribed and sworn to before me, this 2nd day of February 19 62

Margaret W Haag
Notary Public for the State of Montana

Residing at Billings, Montana

My Commission expires March 30 19 62

278344

STATE OF MONTANA
County of Dawson

Filed for record this 9th day of Feb. A. D. 19 62, at 9:00 o'clock A.M.

Gordon W. Russell
County Clerk and Recorder.

By Alice Austby Deputy.

Fee pd. $2.00

27

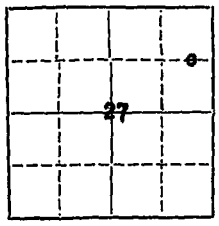
RECEIVED
SEP 17 1959
STATE ENGINEER

T. 16 N R. 55 E

County Dawson

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner SHELL OIL COMPANY Address P. O. Box 2547 Billings, Montana

Driller Ira Bond Address

Date Started May 14, 1956 Date Completed May 17, 1956

Location: Sec. 27 T. 16 N R. 55 E ¼ sec. Northeast

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

Water use: Domestic [x] Municipal [ ] Stock [ ] Irrigation [ ]

Industrial [ ] Drainage [ ] Other:

Casing: 0 ft. to 137 ft. Type Size 5-1/2"

Casing: ft. to ft. Type Size

Casing: ft. to ft. Type Size

Perforated or Screened: Ft. 97 to ft. 117 Ft. to ft.

Type of screen or perforations Torch perforated

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

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

Pumping water level feet at gal. per min.

How tested:

Length of test

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

Baker basket at 62'

(over)

Log of Well

Depth, feet		Description of Material Drilled
From	To	
0	33	Dry gravel
33	37	Wet gravel
37	62	Shale
62	117	Water sand
117	137	Gumbo

27

GW 2 ~~Ervin Hustari~~ Approved Stock Form—State Publishing Co., Helena, Montana—46805 3

File No.................... RECEIVED T. 16 R. 55

DUPLICATE JUL 17 1972 County Dawson

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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 Gene Sullivan Address Box 211 Glendive Mont

Driller C H Starr Address Box 1183 - Gl.

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

Date well started 9-29 Date completed 10-6-69

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 ☐

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.

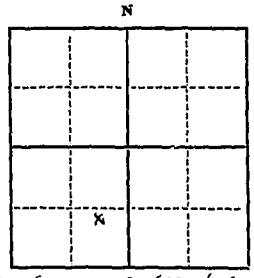
LOG

Top of Ground (Elev. above sea level..............)

0 8	dk clay
8 31	gravel
31 68	grey shale
68 73	water sand. 3½ gals min.
73 137	shale
137 152	dk water sand

152 Show exact depth of bottom.

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS		
				Kind Size	From (Feet)	To (Feet)
5½" to 105' 4" from 105' to 152'	4" 11# ft	0	137'			



Lot 21 Block 9 Jeff 1st Add N. E. R.D.D.

SE¼SW¼ ¼ Sec. 27 T. 16 R. 55

Indicate location of well and place of use, if possible. Each small square represents 40 acres.

Doc. No. 316423
Filed for record
this 14th day of July
A. D. 1972, at 2:50
o'clock P. M.

Static Water Level for non-flowing well 69 feet.

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

Pumping Water Level 125 feet at 12 gal. per minute.

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

How Tested Bailer

Length of Test 1 hr

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

..............(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).

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.

168
Driller's License Number

C H Starr
Driller's Signature.

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

59925

316423

STATE OF MONTANA
County of Dawson
Filed for record this 14th day of
July A.D. 19 72 at
2:50 o'clock P. M.
Barton H. Russell
County Clerk & Recorder
By Madelyn Ruffin Deputy

Witness my hand and Official Seal,
this _____ day of _____
_____ 19 _____

_____
Clerk and Recorder

By _____
Deputy

GW.

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

27

File No.....

T 16 R 55

County Dawson

DUPLICATE

STATE OF MONTANA

ADMINISTRATOR OF GROUNDWATER CODE

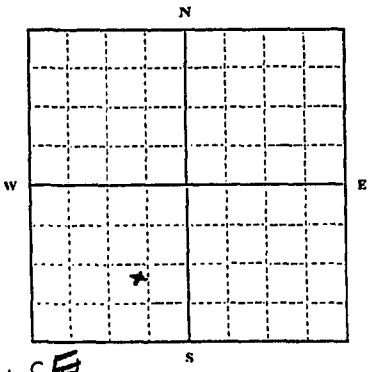
OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. THOMAS G THOMPSON, of HIGHLAND PARK ROAD GLENDIVE
(Name of Appropriator) (Address) (Town)

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



NW SE ¼ SW Sec. 27 T. 16 R. 55

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

Lots 22 & 23 of Block 9
First Jefferson School Addn.

2. The beneficial use on which the claim is based HOME AND LAWN USE AND GARDEN AND TREES

3. Date or approximate date of earliest beneficial use; and how continuous the use has been AUGUST 31, 1960 CONTINUES SINCE AUGUST 31, 1960

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 40 GAL PER MINUET

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 PUMP IN THE BASEMENT

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater AUGUST 25, 1960 TO AUGUST 31, 1960

8. The depth of water table 57 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 WELL IS 70' DEEP

10. The estimated amount of groundwater withdrawn each year 50,000 GAL

11. The log of formations encountered in the drilling of each well if available 0-12' GUMBO 12-28' GRAVEL 28-57' CLAY 57-70' 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 none

Signature of Owner Thomas G. Thompson

Date Dec. 10, 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.

8840

286180

STATE OF MONTANA
County of Dawson

Filed for record this 10th day of December A. D. 19 63, at 9:30 o'clock a M.

Gordon H. Russell
County Clerk and Recorder.

By Faye Schieffer Deputy.

Fee Pd $2.00

GW 2

Approved Stock Form—State Publishing Co., Helena, Montana—45642

File No.....

MONTANA WATER RESOURCES BOARD
RECEIVED
JUL 24 1968

S W¼ Sec 27 T 16N R 35E 55E

County Dawson

DUPLICATE

LOG

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

Top of Ground

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

0-15 Humbo
15-39 Gravel
39-53 Humbo

Notice of Completion of Groundwater Appropriation by Means of Well

DEVELOPED AFTER JANUARY 1, 1962

(Under Chapter 23, Montana Session Laws, 1961)

Owner Lawrence Wirtzfeld Address Glendive

Driller Joe Johnson Drlg Address Terry, Mont

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

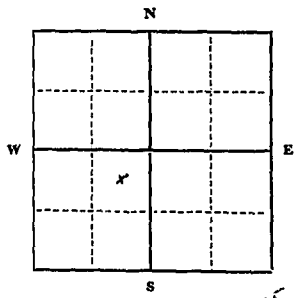
Date well started July 18, 68 Date completed July 22, 68

Type of well Drilled (Dug, driven, bored or drilled) Equipment used Rotary (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"	6" ID 19.18#/Ft	0	42	Holes 3/8"	30	42
5 5/8"	4" ID 11#/Ft	40	53	Slots 1/4 x 6"	40	53



Static Water Level for non-flowing well 35 feet.

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

Pumping Water Level 40 feet at 5 gal. per minute.

Discharge in gal. per min. of flowing well

How Tested Bailer

Length of Test 1 hr

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

SW ¼ Sec 27 T 16N R 35E 55

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).

Lawrence Wirtzfeld

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

44,338

STATE OF MONTANA
County of Dawson
Filed for record this 22nd day of
July A. D. 19 68 at
3:10 o'clock P. M.
Gordon W. Duell
County Clerk & Recorder
By _____ Deputy

GW

Approved Stock Form—State Publishing Co., Helena, Montana—42234

27

File No.....

T. 16 R. 55

DUPLICATE

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
JAN 14 1964
STATE ENGINEER

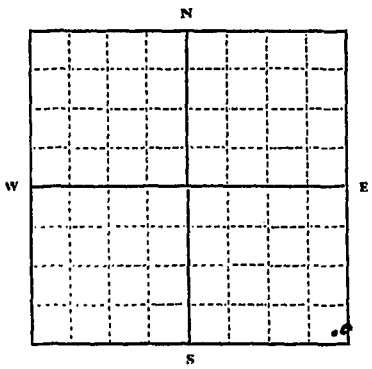
Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Helen Botch (Name of Appropriator), of B.F. Rt (Address) Glendive (Town)

County of Dawson State of Montana

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



E. 1/2 ..... E1/4 ..... Sec. 27 T. 16 R. 55

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 Household use and stock water

3. Date or approximate date of earliest beneficial use; and how continuous the use has been well was drilled in approximatly 1941 and has been used continuly since.

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 5 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

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

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

8. The depth of water table approximatly 50 Ft

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 well has 6 in casing and is approximatly 60 Ft Deep

10. The estimated amount of groundwater withdrawn each year 55000 Gallons

11. The log of formations encountered in the drilling of each well if available None

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 Helen Botch

Date 12/30/63

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.

32020

286915

STATE OF MONTANA
County of Dawson

Filed for record this 31st day of December A. D. 19 63, at 4:30 o'clock P. M.

Gordon W. Russell
County Clerk and Recorder.

By ..... Deputy.

GW 2

Approved Stock Form—State Publishing Co., Helena, Montana—40472

File No. .....

DUPLICATE

T 16-N R 53-E

County Dawson

JAN 16 1964
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)

Top of Ground

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

0-3 Sandy soil
3-32 Gravel & sand
~~32-35 Sandy clay~~
35-69 Blue shale
69-74 Sandy clay
74-85 Shale
85-87 Sandy clay
87-106 - fine sand
106-112 Brown clay

Owner Willard Kent Address Glendive

Driller Allison Water Well Drilling Address Glendive

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

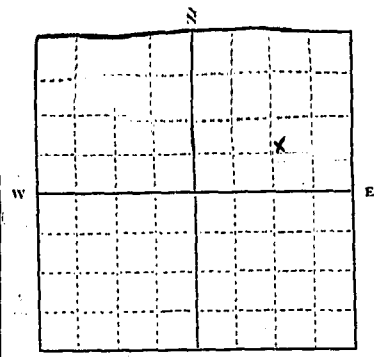
Date well started 2-14-62 Date Completed 2-15-62

Type of well drilled (dug, driven, bored or drilled) Equipment Used Rotary (Churn, drill, rotary or 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"	4½ X 11#	0	110	torch slots	96	110



NE ¼ Sec 27 T 16-N R 53-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 64 feet.

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

Pumping Water Level 70 feet at 20 gal. per minute.

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

How Tested Bailed Length of Test 2 Hrs

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).....

Willard Kent

61
Driller's License Number

Elton Allison
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.

33220

287180

STATE OF MONTANA
County of Dawson

Filed for record this 14th day of January A. D. 1964, at 2:30 o'clock P. M.

Gordon H. Russell
County Clerk and Recorder.

By Faye Scheithis Deputy.

GW 2

File No. STATE WATER CONSERVATION BOARD

AUG 3 1966

DUPLICATE

Approved Stock Form—State Publishing Co., Helena, Montana—40472

T. 16 R. 55 27

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

Bill McDermott
Butcher McNally
Coyle Marson
Dickert Sullivan

Top of Ground
(Elev. above sea level.....)

Notice of Completion of Groundwater Appropriation by Means of Well

(Under Chapter 237, Montana Session Laws, 1961)

Owner Oscar Mastrelten Address Box 754 Glendive Mont.

Driller C. H. Starr Address Box 1183 Glendive Mont.

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

Date well started June 1st 66 Date Completed June 4 - 66

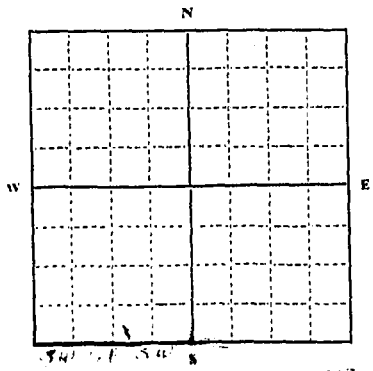
Type of well Drilled (dug, driven, bored or drilled) Equipment Used Churn (Churn, drill, rotary or other)

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.

0	dark clay
7	
7	sandy
11	
11	gravel
31	
31	grey sand water
46	
46	dark clay
58	
58	grey clay
75	
75	sandy clay formation
94	
94	water sand water
110	

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS Kind Size	From (Feet)	To (Feet)
4"	4" 11# per ft.	0	110			



.....¼..... Sec. 27 T. 16 R. 55

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

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

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

Pumping Water Level 85 feet at 8 gal. per minute.

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

How Tested Bailer 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).....

Oscar Mastrelten

Show exact depth of bottom.

Driller's License Number

C. H. Starr
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.

41272

296665

STATE OF MONTANA
County of Dawson
Filed for record this 2nd day of
August A. D. 19 66 at
1:45 o'clock P M.
Gordon H. Russell
County Clerk & Recorder
By Patricia Peterson Deputy

Fee Pd $2.00

T.16N-R.55E

County Daniels 27

GW 2 Revised 1969
13—3M—10/69

MONTANA WATER RESOURCES BOARD
RECEIVED
JUN 23 1971

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.

Owner Richard Michael

Address Ellendale, Mont.

Date well started May 28, 1971

completed June 11, 1971

Type of well Drilled (Dug, driven, bored or drilled)

Equipment used Cable Tool (Churn drill, rotary or other)

For Administrator's Use
File 312783 June 21, 1971 4:45 PM
GW 1

Water Use: Domestic ☒ Municipal ☐ Stock ☐ Irrigation ☐

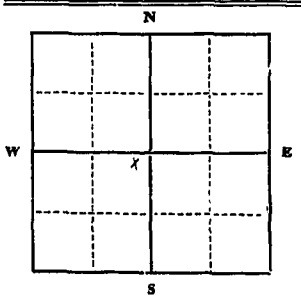
Industrial ☐ Drainage ☐ Other ☐* Garden/Lawn ☐

*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 15 gal per min

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS Kind Size	From (Feet)	To (Feet)
5 1/2	4	Top				
		68'		none		
				gravel Sand		



Static water level 36 ft.*

Pumping water level 50 ft.*

at 30 gal. gallons per minute, measured 30 minutes after pumping began.

*Measured from ground level.

Well developed by Driller

for 1 hour hours.

Power..... Pump..... HP

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

SE ¼ SW ¼ Sec. 27

T. 16 (N) R. 55 (E)

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

Driller's Signature [illegible]

Driller's Address Bloomfield, Mont.

LICENSE NO. 107

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	13'	Sandy Clay
13'	33'	Dry Sand & Gravel
33'	62'	Sandy Clay
62'	68'	Water & Sand. Poor Water.
68'	79'	Sand & Gravel
79'	81'	Water 30 gal per min

81' Show exact depth of bottom

48644

312783

312783

STATE OF MONTANA
County of Dawson
Filed for record this 21st day of
June A.D. 19 71
4:45 o'clock P M.
Gordon W. Russell
County Clerk & Recorder
By Dorothy M. Wagner Deputy

fee pd

V 2 Revised 1969
NG COMPANY

RECEIVED
AUG 7 1972
MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

County Dawson 27

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.

Owner Al Chick

Address Highland Park road Glendive

Date well started 6-9-72

completed 6-13-72

Type of well drilled (Dug, driven, bored or drilled)

Equipment used rotary (Churn drill, rotary or other)

Water Use: Domestic ☒ Municipal ☐ Stock ☐ Irrigation ☐

Industrial ☐ Drainage ☐ Other ☐* Garden/Lawn ☐

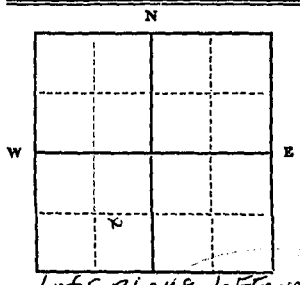
*Describe

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

For Administrator's Use	
File	316661
	August 4, 1972 3:30 p.m.
GW 1	

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS Kind Size	From (Feet)	To (Feet)
7 7/8"	21# 6 5/8"	0	150	Slotted	109	150



Static water level 55 ft.*
Pumping water level 70' ft.*
at 20 gallons per minute,
measured 90 minutes after pumping began.
*Measured from ground level.
Well developed by bailing
for 3 hours.
Power 5 Pump 1/2 HP
Remarks: (Gravel packing, cementing, packers, type of shutoff) Gravel Pack

Lot 5 Block 9 Jefferson 1st Add

¼ ¼ Sec. 27

T. 16 N/S R. 57 E/W

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

Driller's Signature M. E. Woelich

Driller's Address 916 So. Taylor Glendive Montana LICENSE NO. 223

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)	NATURE OF MATERIAL
0	15	Soil
15	31	Gravel
31	45	Clay, blue
45	48	Shale, brown
48	58	Clay, blue
58	59	Sandy silt blue
110	121	Shale brown
121	145	Sand
145	150	Clay blue

150 Show exact depth of bottom

59,093

316661

316661

STATE OF MONTANA
County of Dawson
Filed for record this 4th day of
August A. D. 19 73 at
3:30 o'clock P M.
Gordon W. Russell
County Clerk & Recorder
By Catherine Peterson Deputy

GW-4

File No.....

DUPLICATE

T 16N R 55E

County DAWSON

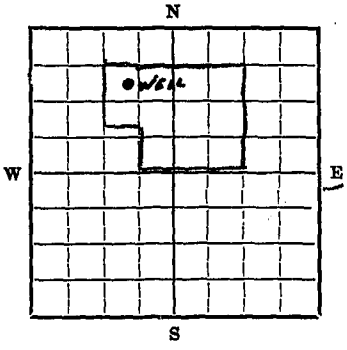
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
OCT 15 1962
STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. CLARENCE ALBRECHT, of DRYCREEK DRIVE, GLENDIVE
(Name of Appropriator) (Address) (Town)
County of DAWSON State of MONTANA
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



NW¼ Sec. 28 T 16N R 55E

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 DOMESTIC and LIVESTOCK USE.

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

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 8 gallon

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 AND ELECTRIC MOTOR

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater NOT KNOWN

8. The depth of water table 75 FT.

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 4 IN STEEL CASING 75 FT DEEP

10. The estimated amount of groundwater withdrawn each year 60,000 GALLON

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

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
A70-60

Signature of Owner Clarence Albrecht

Date Oct 11, 1962

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 School of Mines and Quadruplicate for the Appropriator.

2236

280867

STATE OF MONTANA
County of Dawson

Filed for record this 11th day of Oct. A. D. 19 62, at 2:00 o'clock P. M.

Gordon W. Russell
County Clerk and Recorder.

By Alice Austhy Deputy.

Fee pd. $2.00

GW 2

Approved Stock Form—State Publishing Co., Helena, Montana—40472

28

File No.....

DUPLICATE

STATE WATER CONSERVATION BOARD

DEC 19 1966

Bille
Butzerin
Coyle
Darlinton
Dickert

T. 16 R. 55

County Dawson

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)

Owner Mike S. Boesflug Address Box 264 Glendive, Mont.

Driller C. H. Starr Address Glendive Mont

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

Date well started 8-12-66 Date Completed 8-12-66

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

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

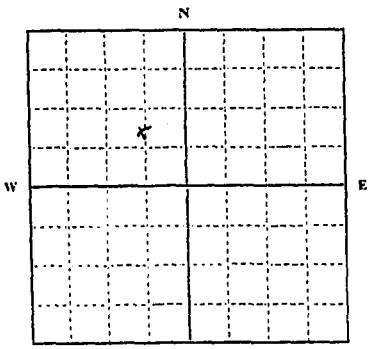
Indicate on the diagram the character and thickness of the different strata met with in drilling, such as soil, clay, shale, gravel, rock or sand, etc. Show depth at which water is encountered, thickness and character of water-bearing strata and height to which water rises in the well.

Top of Ground

(Elev. above sea level.....

0 > Gravel
2
2 > Sandy Clay
15
15 > Gravel
20
20 > Coal & Sand
32
32 > Clay
80
80 > Clay & Sandy
90
90 > Water Sand
111

Size of Drilled Hole	Size and Weight of Casing	From (Feet)	To (Feet)	PERFORATIONS Kind Size	From (Feet)	To (Feet)
5"	4"	0	111			



SE 1/4 NW Sec. 28 T. 16 R. 55

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 75 feet at 12 gal. per minute.

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

How Tested Bailer 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).....

Mike S. Boesflug

Driller's License Number

C. H. Starr

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.

41,443

297830

STATE OF MONTANA
County of Dawson
Filed for record this 15th day of
Dec A. D. 1966 at
10:00 o'clock a M.
Gordon D. Russell
County Clerk & Recorder
By Patricia Peterson Deputy

Fee Pd $2.00

GW 2

File No.....

DUPLICATE

T. 16N R. 55E

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
OCT 5 1962
STATE ENGINEER

Notice of Completion of Groundwater Appropriation by Means of Well

(Under Chapter 237, Montana Session Laws, 1961)

Top of Ground

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

0-40 dill hole
40-50 gravel & sand
50-90 Clay w/trace Coal
@ 68'
90-94 Sandy Clay
94-99 Clay
99-108 Sand
108-111 Clay

Owner Pat Boyd Address Glendive, Mont.

Driller Adkison water well Drilling Address Glendive

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

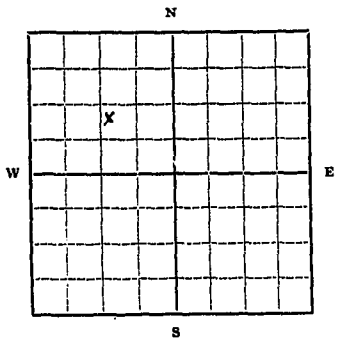
Date well started 9-28-62 Date Completed 9-29-62

Type of well Drilled (dug, driven, bored or drilled) Equipment Used Rotary (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"	4½" 11	-1	107	torch slots 3/8-7/8	92	107



NW ¼ ¼ Sec. 16 T. 55 R.....

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

Static Water Level for non-flowing Well 84 feet.

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

Pumping Water Level 92 feet at 10 gal. per minute.

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

How Tested Bailed Length of Test 1½ hrs.

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) .....

Show exact depth of bottom.

61
Driller's License Number

Elton Adkison
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.

2194.

280802

STATE OF MONTANA
County of Dawson

Filed for record this 4th day of Oct A. D. 1962, at 3:30 o'clock P M.

Gordon W. Russell
County Clerk and Recorder.

By Alice Austin Deputy.

Fee pd. $2.00

GW 2

Approved Stock Form—State Publishing Co., Helena, Montana—42329

File No. ..... STATE WATER CONSERVATION BOARD

T. 16 R. 55

DUPLICATE

NOV 9 1966

County Dawson

LOG

Billie ..... McDermott .....
Butzerin ..... McNally .....
Coyle ..... Morton .....
Darlinton ..... Sullivan .....
Dickert .....

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

Notice of Completion of Groundwater Appropriation by Means of Well

DEVELOPED AFTER JANUARY 1, 1962

(Under Chapter 237, Montana Session Laws, 1961)

Top of Ground

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

0-15 Grey Cl.
15-26 Gravel
26-36 Blue Cl.
36-44 Quicksand
44-50 Blue Cl
50-51 Hard coal
51-64 Blk. clay
64-67 fine sand (small amount water)
67-91 Blue Cl.
91-96 Sandy clay
96-110 med. fine dark sand
110-112 Sandy brown clay
112-116 - light blue Cl.

Show exact depth of bottom.

Owner Ed Carpenter Address Glendive

Driller Alton water well Drlg Address "

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

Date well started 4-23-66 Date completed 4-25-66

Type of well Drilled (Dug, Driven, bored or drilled) Equipment used Rotary (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"	4" x 9.5#	0	116	Mech Slot	96	116

N
W X E
S

NE 1/4 SW 1/4 Sec 28 T. 16 R. 55

Indicate location of well and place of use, if possible. Each small square represents 40 acres.

Static Water Level for non-flowing well ..... feet.

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

ping Water Level 90 feet at 12 gal. per minute.

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

How Tested Pumped

Length of Test 4 hrs.

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

(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).

Mrs Ed Carpenter

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.

61
Driller's License Number

Alton Allison
Driller's Signature

41,591

297429

STATE OF MONTANA
County of Dawson

Filed for record this 7th day of November A. D. 19 66 at 1:45 o'clock p M.

Gordon H. Russell
County Clark & Recorder

By Patricia Torres Deputy

GV Helena Independent Record

File No. .....

DUPLICATE

T. 16 R. 55

County Dawson

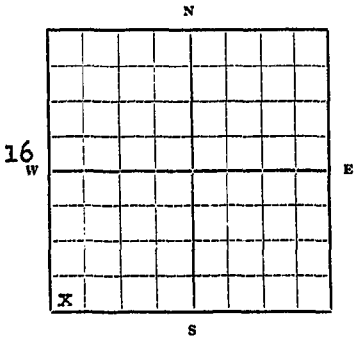
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
DEC 30 1963
STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. M.N. Graff Farms Inc., of Glendive
(Name of Appropriator) (Address) (Town)
County of Dawson State of Montana
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SW½SW¼ Sec. 28 T. 16 R. 55

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

3. Date or approximate date of earliest beneficial use; and how continuous the use has been 1958

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 100 miner's inches

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 not so used at recent time

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

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater 1958

8. The depth of water table 135 ft.

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 150 ft with 4" and 1¼" casing

10. The estimated amount of groundwater withdrawn each year not known

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

M.N. GRAFF FARMS INC.
By
Signature of Owner Michael N. Graff, President
Date 12/24/63

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 School of Mines and Quadruplicate for the Appropriator.

14235

286503

STATE OF MONTANA
County of Dawson

Filed for record this 26th day of December A. D. 1963, at 1:00 o'clock P. M.

Gordon W Russell
County Clerk and Recorder.

By _____ Deputy.

Geo Pd $2.00

28

Form No. 18
8-60

T. 16 R. 55

County Dawson

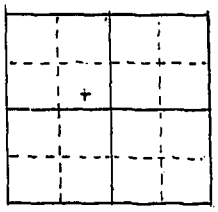
MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

RECEIVED JAN 4 1962 STATE ENGINEER

DEC 29 1961

10:30 A.M.

WATER WELL LOG



Owner Robert E Hostetler Address Glendive Montana

Driller Harold Gavin Address Lindsay Montana

Date Started Sept.15 1961 Date Completed Sept.25 1961

Location: Sec. 28 T. 16 R. 55 ¼ sec. N.W.

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

Water use: Domestic [X] Municipal [ ] Stock [ ] Irrigation [ ]
Industrial [ ] Drainage [ ] Other

Casing: 0 ft. to 99 ft. Type steel Size 4 inch

Casing: ft. to ft. Type Size

Casing: ft. to ft. Type Size

Perforated or Screened: Ft. 79 to ft. 99, Ft. to ft.

Type of screen or perforations slots cut in casing

Static Water level, for non-flowing well: 40 feet.

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

Pumping water level 80 feet at 5 gal. per min.

How tested: slush test

Length of test 8 hour

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

(over)

Log of Well

Depth, feet From	Depth, feet To	Description of Material Drilled
0	30	mixture of clay and sand
30	65	clay
65	99	sand

GY

Approved Stock Form—State Publishing Co. [redacted] 41921

28

File No. .....

T. 16 R. 55

DUPLICATE

County Dawson

STATE OF MONTANA

ADMINISTRATOR OF GROUNDWATER CODE

OFFICE OF STATE ENGINEER

RECEIVED JAN 14 1964 STATE ENGINEER

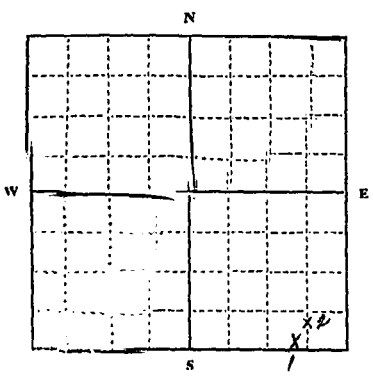
Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

I: Bartley Schlicht (Name of Appropriator), of Glendive (Address) (Town)

County of Dawson State of Montana

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



.....¼..... Sec. 28 T. 16 R. 55

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 #1, domestic; #2, domestic

3. Date or approximate date of earliest beneficial use; and how continuous the use has been #1, 1960 continuous; #2, 1930, continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute) #1, 10 gallons per minute, #2, 10 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 #1, electric motor, centrifigal; #2, electric motor, centrifigal

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater #1, 1960; #2, 1930

8. The depth of water table #1, 76'; #2, 76'

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 #1, drilled, 4" casing, 126' deep; #2, drilled, 4" casing, 116' deep

10. The estimated amount of groundwater withdrawn each year #1, 2,592,000 gallons; #2, 2,592,000 gal.

11. The log of formations encountered in the drilling of each well if available None

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 Bartley Schlicht

Date December 30, 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.

31908

286791

STATE OF MONTANA
County of Dawson

Filed for record this 30th day of December A D. 1963, at 2:00 o'clock P M.

Gordon W Russell
County Clerk and Recorder.

By_____Deputy.

GW

Approved Stock Form—State Printing Co., Helena, Montana—42234

File No.

DUPLICATE

T 16 N R 55 E

County Dawson

RECEIVED

STATE ENGINEER

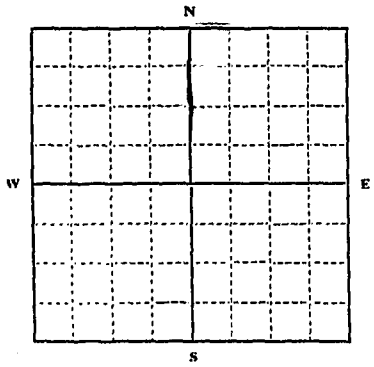
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER
OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Willis Lester Schmidt, of Dry Creek Dr. Glendive
(Name of Appropriator) (Address) (Town)

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



SE 1/4 Sec. 22 T. 16 R. 55 E M.P.M.

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 drinking water irrigation

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

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 30 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 2 acres of land lying in the Southeast 1/4 of the SE 1/4 of Section twenty-two (22) Township 16 North Range 55 East of the M.P.M. in Dawson Co., Mont.

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

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

8. The depth of water table 100 ft.

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 none available

10. The estimated amount of groundwater withdrawn each year For household use irrigation depending on rainfall

11. The log of formations encountered in the drilling of each well if available none 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 Book A 113 525

Signature of Owner Willis L. Schmidt by Mrs. Schmidt

Date DEC 31 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.

32118

287013

STATE OF MONTANA
County of Dawson

Filed for record this 31st day of December A. D. 19 63, at 4:30 o'clock P. M.

Gordon W. Russell
County Clerk and Recorder.

By _____ Deputy.

GW 2

Approved Stock Form—State Publishing Co., Helena, Montana—45642

28

File No.....

T. 16 N. R. 55 E.

County Dawson

DUPLICATE

MONTANA WATER RESOURCES BOARD
RECEIVED
APR 11 1988

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

LOG

Top of Ground
0 > sand
3 (Elev. above sea level.....)
3 > sand + gravel
14
14 > clay
18
18 > gravel
31
31 > sand + water
51
51 > grey shale
65
65 > dk shale
102
102 > grey shale
161
161 > dk water sand
183

Notice of Completion of Groundwater Appropriation by Means of Well

DEVELOPED AFTER JANUARY 1, 1962

(Under Chapter 237, Montana Session Laws, 1961)

Owner Andrew Pressman Address Box 1210 Glendive, Mont.

Driller C. H. Starr Address Box 1183 - Glendive

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

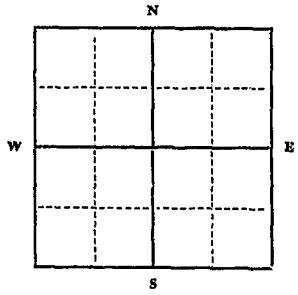
Date well started March 25 Date completed Apr 3 - 68

Type of well drilled (Dug, driven, bored or drilled) Equipment used Churn drill (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)
for 6" ~~36'~~ 31' 4"	4" 11# per ft	0	162'			



Static Water Level for non-flowing well 56 feet.

Sh... in Pressure for Flowing Well.....

Pumping Water Level 93 feet at 10 gal. per minute.

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

How Tested Bailer

Length of Test 1 hr

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

E ½ SW¼ NW 1/4 Sec. 28 T. 16 R. 55

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).

183 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.

168
Driller's License Number

C. H. Starr
Driller's Signature.

44,048

STATE OF MONTANA
County of Dawson
Filed for record this 20th day of
April A. D. 19 66 at
9:45 o'clock a M.
Gordon K. Russell
County Clerk & Recorder
By Patricia Petersen Deputy

302493

GW

Approved Stock Form—State Publishing Co., Helena, Montana—42234

File No.....

T. 16 R. 55

DUPLICATE

County Dawson

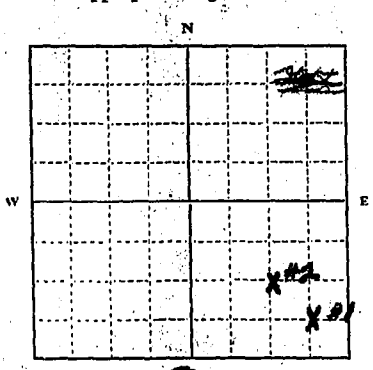
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
JAN 14 1964
STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Eugene Vogele (Name of Appropriator) of P.O. Box 756 (Address) Glendive (Town)
County of Dawson State of Montana
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SE ¼ SE ¼ Sec. 28 T. 16 R. 55

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 residential and water for livestock

3. Date or approximate date of earliest beneficial use; and how continuous the use has been Well # 1 Oct. 1950 Well # 2 April 1951 continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute) Well # 1 9 gal. per minute Well # 2 12 gal. 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 to sprinkle lawn and garden

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

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater Well # 1 Oct. 1950 Well # 2 April 1951

8. The depth of water table Well # 1 60 feet Well # 2 30 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 Well # 1 4 inch casing 103 feet deep No. "2 6 inch casing 92 feet deep

10. The estimated amount of groundwater withdrawn each year Well # 1 400,000 gallons Well #2 750,000 gallons

11. The log of formations encountered in the drilling of each well if available none

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 Eugene W. Vogele

Date 12-28-63

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.

31933

286816

STATE OF MONTANA
County of Dawson

Filed for record this 30th day of December A. D. 19 63, at 4:00 o'clock P M.

Gordon W. Russell
County Clerk and Recorder.

By _____ Deputy.

GW 2

File No.....

DUPLICATE

T. 16 N R. 55 E

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
15 1962
STATE ENGINEER

Notice of Completion of Groundwater Appropriation by Means of Well

(Under Chapter 237, Montana Session Laws, 1961)

Top of Ground

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

0-8 Silty clay
8-34 Rotten sandy clay
34-40 Gravel & sand
40-55 Blue stick shale
55-57 Gravel
57-72 Clay
72-76 Sand & sandy clay
76-104 Clay
104-107 Firm sandy sandstone
107-113 Fine grey sand
113-120 - Shale

Owner O. R. Zumff Address Glendive

Driller Nelson Water Well Drlg Address "

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

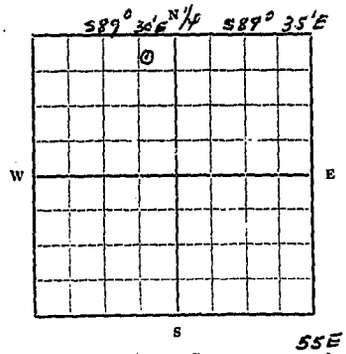
Date well started 10-3-62 Date Completed 10-4-62

Type of well Drilled (dug, driven, bored or drilled) Equipment Used Rotary (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"	4½ X 11	-1	120	Torch slots	70-80	76
					100	120



NE¼ NW¼ Sec 28 T 16N R 55E

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

Static Water Level for non-flowing Well 72 feet.

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

Pumping Water Level 105 feet at 9 gal. per minute.

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

How Tested Bailed Length of Test 2 Hrs.

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) .....

Show exact depth of bottom.

61
Driller's License Number

Elton Nelson
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.

2235

280856

STATE OF MONTANA
County of Dawson

Filed for record this 10th day of Oct. A. D. 1962, at 2:00 o'clock P. M.

Gordon W. Russell
County Clerk and Recorder.

By Alice Austby Deputy.

Fee pd. $2.00

JW 3

Approved Stock Form—State Publishing Co., Helena, Montana—42262

30

File No.

T 16 R 55

DUPLICATE

County: DAWSON

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
JAN 14 1964
STATE ENGINEER

Notice of Completion of Groundwater Appropriation Without Well

(Under Chapter 237 Montana Session Laws, 1961)

Date of Appropriation of Groundwater MAY 1st, 1947

Owner H.F. Kinney Address P.O. Box 1186 Glendive

Contractor (if any)

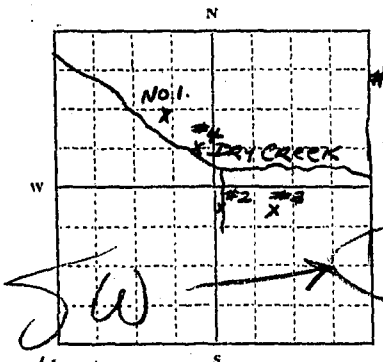
Address of Contractor

Date Started JAN. 1, 1908 Date Completed Nov. 10, 1958

Describe means of obtaining groundwater without a well "as by sub-irrigation and other natural processes". Include depth to water when applicable

#Rock curbed spring. Ten feet deep.
Electric pump
#Dry Creek - Stock use Irrigation use From natural flow as available

Quantity of water developed and used with explanation of method used to measure or estimate such amount. If use is intermittent estimate approximate lengths of periods of use Agricultural
#Domestic & Stock use
Amount used per day
App. 50 bbls. #2 #3 stock use flows approx 2 gals per minute each



NW ¼ Sec 30 T 16 R 55

Indicate point of appropriation and place of use, if possible.

Signature of Owner Horace F. Kinney

Date Dec. 31, 1963

This form to be prepared by contractor (if any), otherwise by the owner.

Three copies of this notice are to be filed with the County Clerk and Recorder of the county in which the works are 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.

32038

286973

STATE OF MONTANA
County of Dawson

Filed for record this 31st day of December A. D. 1963, at 4:30 o'clock P M.

Gordon W Russell
County Clerk and Recorder.

By _____ Deputy,

W 3

Approved Stock Form—State Publishing Co., Helena, Montana—39089

30

File No.....

T. 16 R. 55

DUPLICATE

County Dawson

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

RECEIVED
MAR 19 1963
STATE ENGINEER

Notice of Completion of Groundwater Appropriation Without Well

(Under Chapter 237 Montana Session Laws, 1961)

Date of Appropriation of Groundwater.....

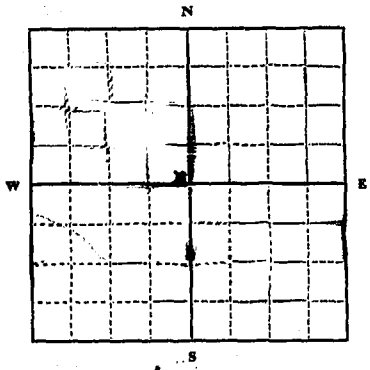
Owner H.F. Kinney Address Glendive

Contractor (if any) M. Hood

Address of Contractor Glendive, Mont

Date Started Dec '62 Date Completed Jan 1, 1963

Describe means of obtaining groundwater without a well "by sub-irrigation and other natural processes". Include depth to water when applicable. Seep Spring. Perforated orangeburg to spring box to tank. - Overflow to tank



SE ¼ NW Sec. 30 T. 16 R. 55

Indicate point of appropriation and place of use, if possible.

Quantity of water developed and used with explanation of method used to measure or estimate such amount. If use is intermittent estimate approximate lengths of periods of use. Continuous flow one gallon per minute

Signature of Owner Horace F. Kinney

Date Mar. 18, 1963

This form to be prepared by contractor (if any), otherwise by the owner.

Three copies of this notice are to be filed with the County Clerk and Recorder of the county in which the works are 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.

3946

282911

STATE OF MONTANA
County of Dawson

Filed for record this 18th day of
Mar A. D. 1963 at
11:30 o'clock a.M.

Gordon W. Russell
County Clerk and Recorder.

By Alice Austby Deputy.

Fee pd. $2.00

RECEIVED
JAN 27 1958
STATE ENGINEER

T. 16 R. 55 32

County Dawson

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG

	X		

Owner John F. Baer Address Glendive, Mont.

Driller Harold Gavin Address Lindsay, Mont.

Date Started ..... Date Completed July 17, 1957

Location: Sec. 32 T. 16 R. 55 ¼ sec. N. W.

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

Water use: Domestic ☑ Municipal ☐ Stock ☐ Irrigation ☐

Industrial ☐ Drainage ☐ Other: .....

Casing: Surface ft. to 70 ft. Type Standard black Size 4"

Casing: ..... ft. to ..... ft. Type ..... Size .....

Casing: ..... ft. to ..... ft. Type ..... Size .....

Perforated or Screened: Ft. 50 to ft. 70 Ft. ..... to ft. .....

Type of screen or perforations 3/16" X 3" slots, cut in case

Static Water level, for non-flowing well: 45' from surface feet.

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

Pumping water level 50' from surface feet at 8 gal. per min.

How tested: Slush bucket

Length of test One hour

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

(over)