## Groundwater Index

**County**: Roseau  
**Twp**: 12  
**Rge**: 43  
**East**:  

<table>
<thead>
<tr>
<th>Sec.</th>
<th>Name of Appropriator</th>
<th>Type of Form</th>
<th>County File No.</th>
<th>Remarks</th>
</tr>
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STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

Warren E. Ronning, of Rock Springs
(Name of Appropriator) (Address) (Town)

County of Rosebud State of Montana

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

1. W. Sec. 1, T. 12N., R. 43

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 Water

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

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

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. N/A

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal. Conventional pump, 1/2 horse electric

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

8. The depth of water table. (120 FT Deep) (water 40 FT from surface)

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, Cased.

10. The estimated amount of groundwater withdrawn each year. 100-120 COWS-RENTE DOWONED

11. The log of formations encountered in the drilling of each well if available. Knute Johnson, Terry

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. Unknown

Signature of Owner: Warren E. Ronning

Date: Dec. 26, 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.

27563
County of Montana

Frank H. Rosebud

Deed Book No. 11 Page 7

Received the sum of $1,200.00 for the above described premises.

Received this day of November, 19

Deed No. 2

County Clerk of Records

[Signature]

Deed Book #2, p. 7
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights
(Under Chapter 237, Montana Session Laws, 1953)

1. Henry J. Sarpell (Name of Appropriate)
   (Address)

   County of Rosebud
   State of Montana

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

2. The beneficial use on which the claim is based: ________________
   Stock Water

3. Date or approximate date of earliest beneficial use; and how continuous the use has been: 1950 and on.

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

5. If used for irrigation, give the acreage and description of the land 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: Engine and pump jack.

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater: Before 1950.

8. The depth of water table: 25 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: ________________

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: ________________

Signature of Owner: Henry J. Sarpell
Date: Dec 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 Appropirator.
STATE OF MONTANA, COUNTY OF ROSEBUD SS. FILED JAN. 17th, 1964, AT 8 P.M., CO. CLERK
2nd Fl. Howard Joll
Notice of Completion of Groundwater Appropriation Without Well
(Under Chapter 237 Montana Session Laws, 1961)

Date of Appropriation of Groundwater: Dec 1, 1934
Owner: W. H. Miller
Address: Loma, Mont.
Contractor (if any): 
Address of Contractor: 
Date Started: Date Completed:

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

Natural Process:
Water supply originates in bottom of creek and runs water for half mile down creek.

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: ques long

1500 gal daily

Signature of Owner: W. H. Miller
Date: Dec 30, 1962

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.
STATE OF MONTANA, COUNTY OF ROSEBUD SS. FILED DEC. 30, 1963, AT 6:52 P.M., CO. CLERK

[Signature]

[Signature]
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

JAN 10 1964

STATE ENGINEER

W. H. Miller
(Owner)

1. W. H. Miller
(Name of Appropriator)

Angela
(Town)

Rosebud
County

Montana
State

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

2. The beneficial use on which the claim is based:
   Livestock Water Supply

3. Date or approximate date of earliest beneficial use; and how continuous the use has been:
   1923 July

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

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:
   Electrically powered jet pump

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater:
   July 1923

8. The depth of water table:
   20 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:
   Borehole cased with 8 inch black plastic pipe of 90 PSI to 120 PSI, 120 ft.

10. The estimated amount of groundwater withdrawn each year:
   152,500 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:

Signature of Owner:

W. H. Miller

Date:
Jan 4, 1964

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.

8343
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

W. H. Miller of Angeles
County of Rosebud State of Mont.
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:

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: 1950

4. The amount of groundwater claimed (in miner's inches or gallons per minute): 5.9 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

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal: Electrically Powered Pump Jack with 2" Inch Brass Cylinder

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater: 1930

8. The depth of water table: 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: Drilled Hole 104 ft:

    127 ft with 2" in Black Iron casing & 127 ft total depth

    2" in Brass cylinder 2.4.1 galvanized pipe. Pump Head and Pump Sack

10. The estimated amount of groundwater withdrawn each year: 76,000 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:

Signature of Owner: W. H. Miller
Date: Jan 4, 1964

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.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

1. W. H. Miller
   Name of Appropriator
   Address
   County of Rosebud
   State of Montana
   have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:

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

3. Date or approximate date of earliest beneficial use, and how continuous the use has been: 1948 intermittent.

4. The amount of groundwater claimed (in inches or gallons per minute): 3927 per minute.

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

6. The method 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: 1948.

8. The depth of water table: 10.

9. So far as it may be available, the type of well, the depth of the well, or the general specifications of any other works for the withdrawal of groundwater:
   - Well cased with 4 inch black iron casing, 8 inch pipe, steel pump box and pump head.

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

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

W. H. Miller
Signature of Owner
Jan. 3, 1964

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 Apprpiator.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

Name of Appropriator: W. F. Miller
Address: Cripple

County of: Rocheleau
State of: Montana

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

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: NOV. 1950
INTERMITTENT USE

4. The amount of groundwater claimed (in miner's inches or gallons per minute): 39.81 PER MIN.

5. If used for irrigation, give the arrange 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 + JET

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater: NOV. 1950

8. The depth of water table: 40 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:
Cased with iron, Block Iron Pipe, 13 inches
10 ft. deep, Steel pumped, Pump Heat

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

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

W. F. Miller
Signature of Owner

Date: Jan. 4, 1967

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, etc. - be 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.
Declaration of Vested Groundwater Rights
(Under Chapter 237, Montana Session Laws, 1961)

W. H. Miller
(Name of Appropriator)

Angela
(Address)

Rosebud
(Town)

Mont
(State)

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

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: 1936 - Continuous

4. The amount of groundwater claimed (in minute inches or gallons per minute): 9.0 gpm

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

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

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater: 1920

8. The depth of water table: 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: Cement Drilled Well, Casing 2¼" Brass Cylinder, Steel Pump Rod, 1½" Inch Pipe, Total Depth 134 Ft

10. The estimated amount of groundwater withdrawn each year: 15,000

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

W. H. Miller
(Signature of Owner)

Jan 4, 1964
(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.
Declaration of Vested Groundwater Rights
(Under Chapter 237, Montana Session Laws, 1961)

1. Name of Appropriator: W. H. Miller
2. Address: Angeles
3. Town: Rosebud
4. County: Rosebud
5. State: Montana

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

<table>
<thead>
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2. The beneficial use on which the claim is based: Livestock Water

3. Date of earliest beneficial use: Nov 1960 - Continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute): 5.981 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: Over Flow Irrigates 2 Acre Acres of grassland and adjacent for Hay

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal: Natural Flowing Well

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

8. The depth of water table: Water originates 110 below surface

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: Fresh drilled. Steel core, 100 ft. Total depth 120 ft. Top 10 ft. using cemented 10 inch concrete pipe

10. The estimated amount of groundwater withdrawn each year: 2,628,000 g

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

12. Any 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:

Signature of Owner: W. H. Miller
Date: Jan 4, 1964

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.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

W. H. Miller
(Signature of Appropriator)

County of Rosebud
(State of Mont.)

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

2. The beneficial use on which the claim is based: Farmstead + Livestock Water Supply

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): 591 per 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: Pump

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater: 1916

8. The depth of water table: 5 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:

10. The estimated amount of groundwater withdrawn each year: 7,000 Gal

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

Signature of Owner: W. H. Miller
Date: 4-19-1967

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.
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<th>Ser.</th>
<th>Name of Appropriator</th>
<th>Type of Form</th>
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STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

<table>
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<tr>
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<th>(Address)</th>
<th>(Town)</th>
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<tbody>
<tr>
<td>County of</td>
<td></td>
<td>State of</td>
<td>Montana</td>
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</table>

I have appropriated groundwater according to the Montana laws in effect prior to January 1, 1963, as follows:

2. The beneficial use on which the claim is based

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

4. The amount of groundwater claimed (in miner's inches or 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

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

8. The depth of water table

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

10. The estimated amount of groundwater withdrawn each year

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

Signature of Owner: Josef K. Hrusch
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.
STATE OF MONTANA, COUNTY OF ROSEBUD, FILED DEC. 30, 1963, AT 11:10 AM, CO. CLERK
by

Edward E. Fend
Sheriff, Rosebud Co.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

1. Warren F. Rummel of Rock Springs
   (Name of Appropriate) —
   (Address) —
   (Town) —

   County of Rosebud —
   State of Montana —

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

2. The beneficial use on which the claim is based.
   ____________
   ____________
   ____________
   ____________

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

4. The amount of groundwater claimed (in miner's inches or 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.
   ____________
   ____________

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

8. The depth of water table.
   ____________
   ____________

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.
   ____________
   ____________
   ____________

10. The estimated amount of groundwater withdrawn each year.
    ____________
        ____________
        ____________

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

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

Signature of Owner: ____________
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 Appropriate.
Declaration of Vested Groundwater Rights
(Under Chapter 237, Montana Session Laws, 1961)

1. Warren E. Rinning, of Rock Springs
   (Name of Appropriator)
   (Address)
   (Town)
   County of Rosebud
   State of Montana
   have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:

2. The beneficial use on which the claim is based. Stock and Home

3. Date or approximate date of earliest beneficial use; and how continuous the use has been. Stock Continuous since April 1929. House Use 1925-1929. Home Use 1929-1948.

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

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.
   a. Conventional Pump House
   b. Conventional Pump Horse

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater. Im use by O 1948. O Apr 1929. O 1958

8. The depth of water table. Undetermined (40 ft. from surface)

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.
   a. Single casing 0 120 ft. 0 165 ft. 0 130 ft.

10. The estimated amount of groundwater withdrawn each year. Undetermined/100 to 1300 gals.

11. The log of formations encountered in the drilling of each well is available.
   a. Knife Johnson Terry
   b. Unknown
   c. Seismicograph Crew

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.
   Undetermined

Signature of Owner

Date: Dec 20. 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.
STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER  

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

1. Emil T. Hirsch  
   of Rock Springs  
   (Name of Appropriator) (Address) (Town)

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

   - Stock Water

   2. The beneficial use on which the claim is based

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

   1927

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

   - 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

   Stock Water

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

   Pump Jack & Engine

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

   1927

   8. The depth of water table

   165 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

   Not available

   10. The estimated amount of groundwater withdrawn each year

   40,000 gals

   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

   Signature of Owner: Emil T. Hirsch
   Date: Dec. 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.
STATE OF MONTANA, COUNTY OF ROSEBUD SS. FILED JAN. 6th, 1964, AT 8 P.M., CO. CLERK 2025 P. T.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

1. Emil T. Hirsch
   of: Rock Springs,
   (Name of Appropriator) (Address)

County of: Rosedale
   State of: Montana

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

2. The beneficial use on which the claim is based:
   Stock Water

3. Date or approximate date of earliest beneficial use; and how continuous the use has been:
   1935

4. The amount of groundwater claimed (in miner's inches or gallons per minute):
   16 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:
   Pump Jack & Engine

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater:
   1935

8. The depth of water table:
   300 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:

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:

Signature of Owner:
Emil T. Hirsch
Date: Dec. 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.

27542
STATE OF MONTANA, COUNTY OF ROSEBUD SS. FILED JAN. 6th, 1964, AT 8 p.m., CO. CLERK.

202 P2 Howard Jick
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

Declaration of

J. C. Herick  
of  

of  

County of  

State of  

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

1. 

2. The beneficial use on which the claim is based  

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

4. The amount of groundwater claimed (in miner's inches or 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  

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

8. The depth of water table  

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  

10. The estimated amount of groundwater withdrawn each year  

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

Signature of Owner: J. C. Herick  
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.
STATE OF MONTANA, COUNTY OF ROSSBOURG SS. FILLED DEC. 30, 1962, AT 4:05PM, CO. CLERK

[Signature]

[Signature]
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

Joe C. Hirsh, of Angola
County of Franklin
State of Montana

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

1. Name of Appropriator
2. The beneficial use on which the claim is based
3. Date or approximate date of earliest beneficial use; and how continuous the use has been
4. The amount of groundwater claimed (in miner's inches or 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
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater
8. The depth of water table
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
10. The estimated amount of groundwater withdrawn each year
11. The log of formations encountered in the drilling of each well if 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

<table>
<thead>
<tr>
<th>N</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Quarter Section 7 1/2 3

Signature of Owner

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.
STATE OF MONTANA, COUNTY OF ROSEBUD SS. FILED DEC. 30, 1963, AT 10 A.M., CO. CLERK

[Signature]

[Seal]
STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

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

[Name: Jacob C. Hirsch]  
(Address: Angola)  
(Town: [Address])  
County of: Richland  
State of Montana

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

1. [Name: Jacob C. Hirsch]  
2. The beneficial use on which the claim is based .................................................................
3. Date or approximate date of earliest beneficial use; and how continuous the use has been .................................................................
4. The amount of groundwater claimed (in miner's inches or gallons per minute) .................................................................
5. If used for irrigation, give the acres 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 .................................................................
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater .................................................................
8. The depth of water table .................................................................
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 .................................................................
10. The estimated amount of groundwater withdrawn each year .................................................................
11. The log of formations encountered in the drilling of each well if 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 .................................................................

Signature of Owner: Jacob C. Hirsch  
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.
STATE OF MONTANA, COUNTY OF ROSEBUD SS. FILED DEC. 30, 1963, AT 1:45 PM, CO. CLERK

Edward L. Stutz

Daniel J. Kelleher Jr.
Notice of Completion of Groundwater Appropriation Without Well

(Under Chapter 237 Montana Session Laws, 1961)

Date of Appropriation of Groundwater
Owner
Contractor (if any)
Address of Contractor
Date Started
Date Completed
Describe means of obtaining groundwater without a well "as by sub-irrigation and other natural processes" include depth to water when applicable.

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.

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

Signature of Owner
Date

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.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

Notice of Completion of Groundwater Appropriation
Without Well
(Under Chapter 237 Montana Session Laws, 1981)

Date of Appropriation of Groundwater:__________________________

Owner: __________________________
Address: __________________________

Contractor (If any):__________________________
Address of Contractor:__________________________

Date Started:__________________________ Date Completed:__________________________

Describe means of obtaining groundwater without a well, as by sub-irrigation and other natural processes. Include digital to water when applicable:__________________________

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

5 4 W Sec 35 T 12 R 41 E

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:__________________________

Signature of Owner: __________________________

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 Appropiator.

21140
## GROUNDWATER INDEX

<table>
<thead>
<tr>
<th>Sec.</th>
<th>Name of Appropriator</th>
<th>Type of Form</th>
<th>County File No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Honolulu Oil Co.</td>
<td>well fed.</td>
<td>172574</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Honolulu Oil Co.</td>
<td>water well</td>
<td>172574</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Pan American Pet Co.</td>
<td>water well</td>
<td>174134</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Pan American</td>
<td>NW-2</td>
<td>174547</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Pan American Pet Co.</td>
<td>SW-1</td>
<td>174194</td>
<td></td>
</tr>
</tbody>
</table>
WATER WELL LOG

Owner: Honolulu Oil Corporation
Address: P. O. Box 1697
Hillings, Montana

Driller: Brinkerhoff Drilling Company
Address: Denver Club Building
Denver, Colorado

Date Started: April 21, 1961
Date Completed: May 9, 1961

Location: Sec. 11 T. 11 N. R. 31 E \( \frac{1}{4} \) sec. NW SE SE

Type of well Drilled
Equipment used Rotary

Water use: Domestic [ ] Municipal [ ] Stock [ ] Irrigation [ ]
Industrial [ ] Drainage [ ] Other [ ] Oil Field Water Flood [ ]


Casing: 1854 ft. to 350 ft. Type: 12.0 sq. ft. Size: 8-5/8"

Casing: 350 ft. to 3187 ft. Type: 12.0 sq. ft. Size: 8-5/8"

Perforated or Screened: 1251 ft. to 1288 ft. 4 ft. to ft.

Type of screen or perforations: Four 1/2" jet perforations per foot

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

Shut-in pressure, for flowing well: 30 lb./sq. in. on: June 22, 1961
Initial flow rate: 200 barrels per day (6 UPM)

Pumping water level: 3217 feet at 82 gal. per min.

How tested: Submersible electric pump

Length of test: 22 days. Production rate declined all through test

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

13-3/8" cemented to surface. 8-5/8" cemented 350 ft. to 3187 ft. Well acidified with
500 gallons mud cleanout acid, swabbed and then fraced with 1,000 pounds sand.

All depths measured from K. B. to ground -12.0'
## Log of Well

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Description of Material Drilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1130</td>
<td>(Bearpaw) dark gray shale, clayey, calcareous, interbedded limestones.</td>
</tr>
<tr>
<td>1130 - 1400</td>
<td>(Judith River) interbedded light gray shales and sandy shales. Sandstone, gray-white, very fine grained, silt, glaenitic, calcareous, friable.</td>
</tr>
<tr>
<td>1400 - 1720</td>
<td>(Claggett) shale, dark gray, marine, some bentonite beds.</td>
</tr>
<tr>
<td>1720 - 1840</td>
<td>(Eagle sandstone, dark gray-gray buff, fine grained, glaenitic, shaly.</td>
</tr>
<tr>
<td>1840 - 2830</td>
<td>Shale, dark gray, silty, slightly fissile, traces glaenitic shale, thin beds of limestone and sandstone, upper portion of this shaly interval sometimes speckled in part.</td>
</tr>
<tr>
<td>2830 - 2920</td>
<td>(Greenhorn) thin limestones with interbedded calcareous shales. Sometimes Inoceramus urians.</td>
</tr>
<tr>
<td>2920 - 3800</td>
<td>Shale, dark gray, silty, fissile.</td>
</tr>
<tr>
<td>3800 - 3905</td>
<td>(Dakota silt) buff to light gray, silty to sandy and shaly zone.</td>
</tr>
<tr>
<td>3905 - 4015</td>
<td>(Dakota or lat Cat Creek silt) sandstone, gray-white, fine grained, hard, tight, low P&amp;P, well sorted, fairly clean, interbedded with dark shales.</td>
</tr>
<tr>
<td>4015 - 417b</td>
<td>(Kootenai) shale, much maroon, dark gray and carbonaceous, some reddish brown shale and bentonite.</td>
</tr>
<tr>
<td>417b - 4215</td>
<td>(2nd Cat Creek silt) sandstone, light gray, fine-medium, clayey, black, green and rust acc.</td>
</tr>
<tr>
<td>4215 - 4290</td>
<td>DST 1366-1120ft; TSI 30 min, Open 65 min, FSI 30 min. Weak blow. Recovered 120' watery mud, IF 2250#, TSI 1150# (inc.), IF 65#, FF 90#, FSI 1390# (inc.), FF 2265#.</td>
</tr>
<tr>
<td>4290 - 4359</td>
<td>Shale, medium to dark gray.</td>
</tr>
<tr>
<td>4359 - 4410</td>
<td>(3rd Cat Creek silt) sandstone, gray, med grained, fair P&amp;P, salt &amp; pepper, fairly clean.</td>
</tr>
<tr>
<td>4410 - 4590</td>
<td>(f.D.) Shale, dark gray, maroon, green, tan, reddish brown and carbonaceous.</td>
</tr>
</tbody>
</table>
MONTANA BUREAU OF MINES AND GEOLOGY  
Butte, Montana

WATER WELL LOG

<table>
<thead>
<tr>
<th>County: prospect</th>
<th>Location: T 11 N R 31 E Sec 15 1/4 NW SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner: Homestake Oil Corporation</td>
<td>Address: P.O. Box 1437, Billings, Montana</td>
</tr>
<tr>
<td>Driller: Brinkerhoff Drilling Company</td>
<td>Address: Denver Club Building, Denver, Colorado</td>
</tr>
<tr>
<td>Date Started: April 21, 1961</td>
<td>Date Completed: May 9, 1961</td>
</tr>
</tbody>
</table>

Type of well: Drilled  
Equipment used: (Churn drilling, rotary, other)  
Water use: Domestic □  Municipal □  Stock □  Irrigation □  Industrial □  Drainage □  Other: Oil Field Water or Flood


Static Water level, for non-flowing well:  
Shut-in pressure, for flowing well:  
Initial flow rate: 200 barrels per day (6 GPM)  
(date)  
Pumping water level: 3347 feet at 53 gal. per min.  
Submersible electric pump  
How tested: 22 days. Production rate declined all through test  
Length of test:  
Remarks: (Gravel packing, cementing, packers, type of shut-off, depth of shut-off)  
13-3/8" cemented to surface. 8-3/8" cemented 4150 ft. to 3187 ft.  Well acidized with  
1000 gallons acid cement, swabbed and then flushed with 60,000 pounds sand.  
All depths measured from K.B. K.B. to ground =12.0'

(over)
<table>
<thead>
<tr>
<th>Depth, feet</th>
<th>Description of Material Drilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1130</td>
<td>(Cearpaw) dark grey shale, clayey, calcareous interbeds.</td>
</tr>
<tr>
<td>1130 to 1400</td>
<td>(Judith River) interbedded light colored sandstone and sandy shale. Sandstone, grey-white, very fine grained, vitrinite, calcareous, friable.</td>
</tr>
<tr>
<td>1400 to 1720</td>
<td>(Claggett) shale, dark grey, marine, some bentonite beds.</td>
</tr>
<tr>
<td>1720 to 1840</td>
<td>(Eagle sandstone, dark grey-gray buff, fine grained, calcareous, shaly.</td>
</tr>
<tr>
<td>1840 to 2830</td>
<td>Shale, dark grey, silty, slightly fissile, traces calcareous shale, thin beds of limestone and sandstone, upper portion of this shale interval sometimes &quot;spotted&quot; in part.</td>
</tr>
<tr>
<td>2830 to 2920</td>
<td>(Greenhorn) thin limestones with interbedded calcareous shales. Sometimes biocerams prisms.</td>
</tr>
<tr>
<td>2920 to 3000</td>
<td>Shale, dark grey, silty, fissile.</td>
</tr>
<tr>
<td>3000 to 3908</td>
<td>(Dakota silt) buff to light grey, silty to sandy and shaly silt.</td>
</tr>
<tr>
<td>3908 to 4015</td>
<td>(Dakota or 1st Cat Creek silt) sandstone, grey-white, fine grained, hard, light, low P&amp;P, well sorted, fairly clean, interbedded with dark shales.</td>
</tr>
<tr>
<td>4015 to 4174</td>
<td>(Kootenai) shale, much maroon, dark grey and carbonaceous, some reddish brown shale and tuffs.</td>
</tr>
<tr>
<td>4174 to 4219</td>
<td>(2nd Cat Creek silt) sandstone, light grey, fine-medium, clayey, black, green and red acc.</td>
</tr>
<tr>
<td>DST 4166-4204'</td>
<td>ISI 30 min. Open 60 min. EM 30 min. Weak blow. Recovered 122' watery mud. DST 4166, 4169, 4180 (inc.), 61, 90, 909, 1390 (inc.), 446.</td>
</tr>
<tr>
<td>4219 to 4240</td>
<td>Shale, medium to dark grey.</td>
</tr>
<tr>
<td>4240 to 4290</td>
<td>(3rd Cat Creek silt) sandstone, grey, medium grained, fair P&amp;P, salt &amp; pepper, fairly clean.</td>
</tr>
<tr>
<td>4290 to 4399 (T.D.)</td>
<td>Shale, dark grey, maroon, green, tan, reddish brown and carbonaceous.</td>
</tr>
</tbody>
</table>

[Signature]
<table>
<thead>
<tr>
<th>Form No. 18</th>
<th>8-60</th>
</tr>
</thead>
</table>

**Montana Bureau of Mines and Geology**

**Butte, Montana**

**State Engineer**

**Water Well Log**

<table>
<thead>
<tr>
<th>Owner</th>
<th>Pan American Petroleum Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>P.O. Box 980 Powell, Wyoming</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driller</th>
<th>Great Northern Drilling Co Inc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Butte, Montana</td>
</tr>
</tbody>
</table>

**Date Started** 10-30-61  **Date Completed** 1-3-62

**Location:** Sec. 11 T. 11N R. 91W

**Type of well**

- Drilled
- Equipment used: Rotary tools

**Water use:**

- Domestic
- Municipal
- Stock
- Irrigation
- Industrial
- Drainage
- Other: Oil well water flood

**Casing:**

- Casing: Surface ft. to 1948 ft. Type J-55 Size 19-3/8
- Casing: 1948 ft. to 4250 ft. Type J-55 Size 16-1/2
- Casing: 4250 ft. to 7327 ft. Type J-55 Size 9-1/8

**Perforated or screened:** From 7201 ft. to 7327 ft. From 7327 ft. to 7400 ft.

**Type of perforations:** 2 cycles per foot

**Static water level, for non-flowing well:** feet.

**Shut-in pressure, for flowing well:** 285 lb./sq. in. on: 2-3-62 (date)

**Pumping water level:** Flowing feet at 386,080 gal. per min.

**How tested:** Flowing into test tank

**Length of test:** 24 hrs.

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

**Water not potable**

(over)
## Log of Well

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Description of Material Drilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>To</td>
</tr>
<tr>
<td>4900</td>
<td>Log Tape</td>
</tr>
<tr>
<td>5340</td>
<td>Assam</td>
</tr>
<tr>
<td>5460</td>
<td>Tyler 4&quot;</td>
</tr>
<tr>
<td>5520</td>
<td>Match</td>
</tr>
<tr>
<td>5650</td>
<td>Other</td>
</tr>
<tr>
<td>6371</td>
<td>Charles</td>
</tr>
<tr>
<td>6776</td>
<td>Elsinore Canyon</td>
</tr>
<tr>
<td>7212</td>
<td>Lodge Pole</td>
</tr>
<tr>
<td>7320</td>
<td>Total Depth</td>
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</tbody>
</table>
Notice of Completion of Groundwater Appropriation by Means of Well

Owner: Pan American
Address: Box 590, Powell, Wyoming

Driller: Great Northern Dril.
Address: Billings, Montana

Date of Notice of Appropriation of Groundwater: 2-30-61

Date well started: 10-28-61

Date completed: 1-2-62

Top of Ground

(Elev. above sea level: 2892)

File No.

County: Rosebud

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)

Type of well: Drilled

Equipment Used: Rotary

(dug, driven, bored or drilled)

Water Use: Domestic □  Municipal □  Stock □  Irrigation □ Industrial □  Drainage □  Other □  Oil Field

Water Flood

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, the nature and character of water-bearing strata, and the height to which the water rises in the well.

Constituents PPM

<table>
<thead>
<tr>
<th>Sodium</th>
<th>Calcium</th>
<th>Magnesium</th>
<th>Sulphate</th>
<th>Chloride</th>
<th>Carbonate</th>
<th>Bicarbonate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2511</td>
<td>556</td>
<td>92</td>
<td>5140</td>
<td>993</td>
<td>0</td>
<td>585</td>
</tr>
</tbody>
</table>

| Depth of | Size | Weight of | From | To |
| Drilled  | Hole | Casing   | (Feet)| (Feet)|
| Hole     | 17-1/4 | 13-3/8 | 54.50 | 0 |
| Hole     | 12-1/4 | 8-5/8 | 32.4 | 1854 |
| Hole     | 8-3/4 | 5-1/2 | 15.54 | 191 |

<table>
<thead>
<tr>
<th>PERFORATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind</td>
</tr>
<tr>
<td>1/2&quot;Jet</td>
</tr>
</tbody>
</table>

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

Flush-in Pressure for Flowing Well: ___________ gal. per minute.

Pumping Water Level: ___________ feet at 107.8 gal. per minute.

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

How Tested: Tank

Length of Test: ___________

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

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

Show exact depth of bottom.

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.
**Declaration of Vested Groundwater Rights**

(Under Chapter 237, Montana Session Laws, 1961)

<table>
<thead>
<tr>
<th>1. Pan American Petroleum Corporation</th>
<th>of P.O. Box 550</th>
<th>Powell</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Name of Appropriator)</td>
<td>(Address)</td>
<td>(Town)</td>
</tr>
</tbody>
</table>

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

2. The beneficial use on which the claim is based: **Waterflood for secondary recovery of oil**

3. **Approximate date of use**: April 1, 1962

4. The amount of groundwater claimed (in miner's inches or gallons per minute) **291.7 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: **Not applicable**

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal: **Flowing or subsurface pump**

7. The date of commencement and completion of construction of the well, wells, or other works for withdrawal of groundwater: **First drilled 4-21-61, and completed 5-9-61**

8. The depth of water table: **679' to 721'**

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: This well drilled to **7230'**, **5 1/2 ft** liner set in 6-5/8" casing to **7332'**.

10. The estimated amount of groundwater withdrawn each year: **153,800,000 gallons**

11. The log of formations encountered in the drilling of each well if available: **498' Amand, 5360' Tyler, 5400' Beam, 5850' Otter, 6471' Charles, 6776' Mission Canyon, 7212' Lodge Pole, 7230' FB, and 7350' TD.**

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: **This well was first drilled to 6359' and was perforated with four 1/2 jet shots per foot from 6351' to 6888'. Initial production was 6 GPM.**

Signature of Owner: [Signature]

Date: [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 School of Mines and Quadruplicate for the Appropriator.
<table>
<thead>
<tr>
<th>Sec.</th>
<th>Name of Appropriator</th>
<th>Type of Form</th>
<th>County File No.</th>
<th>Remarks</th>
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<td>George, Edward</td>
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</tbody>
</table>
STATE OF MONTANA

ADMINISTRATOR OF GROUNDWATER CODES

OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

1. Edward S. Duke

(Name of Appropriator)

of Malheur

(Address)

County of Waves

State of Montana

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

2. The beneficial use on which the claim is based____________________

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

4. The amount of groundwater desired (in miner's inches or 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____________________

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

8. The depth of water table____________________

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____________________

10. The estimated amount of groundwater withdrawn each year____________________

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

Signature of Owner____________________

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.
Datum of the application: December 27, 1963

STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

1. Edward L. Wise
   (Name of Appropriator)
   of Montana
   (Address)
   (Town)
   County of
   State of Montana

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

2. The beneficial use on which the claim is based:
   
   
3. Date or approximate date of earliest beneficial use; and how continuous the use has been since that date:
   
   
4. The amount of groundwater claimed (in minor's inches or 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:
   
   
7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater:
   
   
8. The depth of water table:
   
   
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:
   
   
10. The estimated amount of groundwater withdrawn each year:
   
   
11. The log of formations encountered in the drilling of each well if 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:
   
   
Signature of Owner: Edward L. Wise
   Date: 12-23-1963

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.
STATE OF MONTANA

ADMINISTRATOR OF GROUNDWATER CODE

OFFICE OF STATE ENGINEER

Declaration of Vested Groundwater Rights

(Under Chapter 237, Montana Session Laws, 1961)

Edward L. Back, of Missoula

County of Powell, State of Montana

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

1. Name of Appropriator

2. The beneficial use on which the claim is based

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

4. The amount of groundwater claimed (in miner's inches or 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

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

8. The depth of water table

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

10. The estimated amount of groundwater withdrawn each year

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

Signature of Owner

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.
STATE OF MONTANA
ADMINISTRATOR OF GROUNDWATER CODE
OFFICE OF STATE ENGINEER

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

1. Edward L. Huber
   (Name of Appropriator)
   Melton
   (Address)
   Town
   County of
   State of
   Have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:

2. The beneficial use of which the claim is based

3. Date or approximate date of earliest beneficial use; and how continuous the use has been
   1940

4. The amount of groundwater claimed, (in miner's inches or gallons per minute)
   3.2 to 4 gph

5. If used for irrigation, give the average 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

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater
   Jan 1940

8. The depth of water table
   280 ft

9. To 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, Case to 280 ft

10. The estimated amount of groundwater withdrawn each year
    450,000

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

Signature of Owner
Edward L. Huber

Date: 1/23/1963

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.