

Department of Natural Resources and Conservation

WELL LOG REPORT

White-Department
Yellow-Department
Pink-Well Owner
Gold-Driller

State law requires that this form be filed by the water well driller within 60 days after completion of the well, and Form 602, Notice of Completion of Groundwater Development, be filed by the well owner within 60 days after the water has been put to beneficial use.

1. WELL OWNER
Name W. S. Secor Company
Aluminum Division

2. CURRENT MAILING ADDRESS
Box 929
Columbia Falls, Montana 59912

3. PROPOSED USE _____ domestic (includes lawn and garden); _____ stock; _____ municipal; _____ industrial;
_____ irrigation; _____ other (specify) 2

4. WELL LOCATION

| | | | | | |
|--|--|----|--|----|--|
| | | | | | |
| | | NW | | NE | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | SW | | SE | |

Starting at the corner of Section 3 and proceeding south 90° along the line of Section 3 for 235 ft. then 90° west for 237 ft. to the location of two 4" diameter water wells.

T. 30N R. 20W
N or S E or W
OR, Lot _____ Block _____
Subdivision _____
City _____ County _____
Elevation _____ Accuracy: _____ ±10'; _____ ±50'; _____ ±100';

5. DRILLING METHOD _____ cable, _____ bored, _____ forward rotary, _____ reverse rotary, _____ jetted, _____ other (specify) _____

6. WELL CONSTRUCTION AND COMPLETION

| Size of drilled hole | Size and weight of casing | From (feet) | | To (feet) | | Perforations _____ and/or Screen _____ | |
|----------------------|---------------------------|--------------|------|-------------|-----------|--|-----------|
| | | Kind | Size | From (feet) | To (feet) | From (feet) | To (feet) |
| 4" | 1.5 lb. per ft. | above ground | 20" | | | | |

Was casing left open end? _____ Yes, _____ No
Was a packer or seal used? _____ Yes, _____ No
If so, what material _____
Was the well gravel packed? _____ Yes, _____ No
Was the well grouted? _____ Yes, _____ No
To what depth? _____
Material used in grouting _____
Well head completion: Pitless adapter _____
12 in. above grade _____ other _____
(if other, specify) _____
Pump horsepower _____, pump type _____
Pump intake level _____ feet below land surface
Power (electric, diesel, etc.) _____

7. WATER LEVEL
Static water level _____ feet below land surface
If flowing, closed-in pressure _____ psi
_____ gpm flow through _____ inch pipe
Controlled by: _____ valve, _____ reducers, _____ other
(if other, specify) _____

8. WELL TEST DATA _____ pump _____ bailer _____ other
(if other, specify) _____
Pumping level below land surface:
_____ ft. after _____ hrs. pumping _____ gpm
_____ ft. after _____ hrs. pumping _____ gpm

9. WAS WELL PLUGGED OR ABANDONED? _____ Yes _____ No
If yes, how? _____

10. DATE STARTED _____ DATE COMPLETED _____

11. WELL LOG

| Depth (ft.) | From | To | Formation |
|-------------|------|----|-----------------------------|
| | 0 | 20 | clay - coarse gravel |
| | 20 | 30 | Sand & Gravel, 10 gpm water |

(Use separate sheet if necessary)

12. DRILLER'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge. _____
Date _____
_____ Drilling Co.
P.O. Box 929
Columbia Falls, Montana 59912
Signature _____ Date _____
Licensed No. _____

Test Well #2 WB

Department of Natural Resources and Conservation

WELL LOG REPORT

White-Department
Yellow-Department
Pink-Well Owner
Gold-Driller

State law requires that this form be filed by the water well driller within 60 days after completion of the well, and Form 602, Notice of Completion of Groundwater Development, be filed by the well owner within 60 days after the water has been put to beneficial use.

| <p>1. WELL OWNER Name _____ Aluminum Division</p> | <p>2. CURRENT MAILING ADDRESS _____ Columbia Falls, Montana</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|---------------------------|--------------------------------------|-----------|-----------------------------------|-----------|-----------------------------------|------|-------------|-------------|----|---------------------|--------------|-----|--------------------------------------|---------------|-----|----|-----------------------------|----|----|---------------------------|----|----|----------|--|----|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <p>3. PROPOSED USE _____ domestic (includes lawn and garden); _____ stock; _____ municipal; _____ industrial; _____ irrigation; _____ other (specify) _____ 3</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4. WELL LOCATION</p> <table border="1" style="width:100%; height: 100px; text-align: center;"> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>NW</td><td></td><td>NE</td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>SW</td><td></td><td>SE</td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>Starting at the northeast corner of Sec. 34 and proceeding west along section line 910 ft turn 90° south. Mark _____ by this line 210 ft. to _____ 6" well casing. $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 34</p> <p>T. _____ S. _____ R. _____ E or W</p> <p>OR, Lot _____ Block _____ Subdivision _____ City _____ County _____ Elevation _____ Accuracy: _____ ±10'; _____ ±50'; _____ ±100'</p> | | | | | | | | NW | | NE | | | | | | | | | | | | | | | | | | SW | | SE | | | | | | | | | | | | | | | | <p>8. WELL TEST DATA _____ pump _____ bailer _____ other (if other, specify) _____ Pumping level below land surface: _____ ft. after _____ hrs. pumping _____ gpm _____ ft. after _____ hrs. pumping _____ gpm</p> <p>9. WAS WELL PLUGGED OR ABANDONED? _____ Yes _____ No If yes, how? _____</p> <p>10. DATE STARTED _____ DATE COMPLETED _____</p> |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | NW | | NE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | SW | | SE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>6. WELL CONSTRUCTION AND COMPLETION</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Size of drilled hole</th> <th rowspan="2">Size and weight of casing</th> <th rowspan="2">From (feet)</th> <th rowspan="2">To (feet)</th> <th colspan="3">Perforations _____ and/or Screens</th> </tr> <tr> <th>Kind</th> <th>From (feet)</th> <th>To (feet)</th> </tr> </thead> <tbody> <tr> <td>6"</td> <td>6" 100 lbs. per ft.</td> <td>1</td> <td>100</td> <td>slots 4 per interval 3/8" x 3"</td> <td>91</td> <td>102</td> </tr> </tbody> </table> <p>Was casing left open end? _____ Yes, _____ No Was a packer or seal used? _____ Yes, _____ No If so, what material _____ Was the well gravel packed? _____ Yes, _____ No Was the well grouted? _____ Yes, _____ No To what depth? _____ Material used in grouting _____ Well head completion: Pitless adapter _____ 12 in. above grade _____ other _____ (if other, specify) _____ Pump horsepower _____, pump type _____ Pump intake level _____ feet below land surface Power (electric, diesel, etc.) _____</p> | | Size of drilled hole | Size and weight of casing | From (feet) | To (feet) | Perforations _____ and/or Screens | | | Kind | From (feet) | To (feet) | 6" | 6" 100 lbs. per ft. | 1 | 100 | slots 4 per interval 3/8" x 3" | 91 | 102 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Size of drilled hole | Size and weight of casing | | | | | From (feet) | To (feet) | Perforations _____ and/or Screens | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Kind | From (feet) | To (feet) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6" | 6" 100 lbs. per ft. | 1 | 100 | slots 4 per interval 3/8" x 3" | 91 | 102 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>7. WATER LEVEL Static water level _____ feet below land surface If flowing, closed-in pressure _____ psi _____ gpm flow through _____ inch pipe Controlled by: _____ valve, _____ reducers, _____ other (if other, specify) _____</p> | | <p>11. WELL LOG Depth (ft.)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>From</th> <th>To</th> <th>Formation</th> </tr> </thead> <tbody> <tr><td>0</td><td>10</td><td>loam & clay</td></tr> <tr><td>10</td><td>20</td><td>loam & silt</td></tr> <tr><td>20</td><td>30</td><td>clay & water</td></tr> <tr><td>30</td><td>40</td><td>clay & gravel</td></tr> <tr><td>40</td><td>50</td><td>hard gravel, water 40 gpm +</td></tr> <tr><td>50</td><td>60</td><td>yellow clay & some gravel</td></tr> <tr><td>60</td><td>70</td><td>red clay</td></tr> </tbody> </table> <p>(use separate sheet if necessary)</p> <p>12. DRILLER'S CERTIFICATION This well was drilled under my jurisdiction and this report is true to the best of my knowledge. _____ Date _____ Columbia Drilling Co. P.O. Box 929 Columbia Falls, Montana 59112 Signature _____ License No. 101</p> | From | To | Formation | 0 | 10 | loam & clay | 10 | 20 | loam & silt | 20 | 30 | clay & water | 30 | 40 | clay & gravel | 40 | 50 | hard gravel, water 40 gpm + | 50 | 60 | yellow clay & some gravel | 60 | 70 | red clay | | | | | | | | | | | | | | | | | | | | |
| From | To | Formation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 10 | loam & clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 20 | loam & silt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 30 | clay & water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 40 | clay & gravel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 50 | hard gravel, water 40 gpm + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 60 | yellow clay & some gravel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 70 | red clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

49 Test Well #4

TW8

Form No. 603 (Rev. 7/76)

STATE OF MONTANA

File No.

Department of Natural Resources and Conservation

WELL LOG REPORT

White-Department
Yellow-Department
Pink-Well Owner
Gold-Driller

State law requires that this form be filed by the water well driller within 60 days after completion of the well, and Form 602, Notice of Completion of Groundwater Development, be filed by the well owner within 60 days after the water has been put to beneficial use.

1. WELL OWNER
Name The Anaconda Company
Alumina Division

2. CURRENT MAILING ADDRESS
P. O. Box 10
Columbia Falls, Montana 59012

3. PROPOSED USE domestic (includes lawn and garden); irrigation; other (specify) _____ stock; _____ municipal; _____ industrial;

4. WELL LOCATION

| | | | | | |
|--|--|----|--|----|--|
| | | | | | |
| | | | | | |
| | | NW | | NE | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | SW | | SE | |
| | | | | | |
| | | | | | |

_____ % SE _____ % NE _____ % SW _____ % Section _____
T. _____ R. _____
N or S _____ E or W _____
OR, Lot _____ Block _____
Subdivision _____
City _____ County Flathead
Elevation _____ Accuracy: ±10'; ±50'; ±100';

5. DRILLING METHOD _____ cable, _____ bored, _____ forward rotary, _____ reverse rotary, _____ jetted, _____ other (specify) _____

6. WELL CONSTRUCTION AND COMPLETION

| Size of drilled hole | Size and weight of casing | From (feet) | To (feet) | Perforations <u>_____</u> and/or | | |
|----------------------|---------------------------|---------------------|------------|----------------------------------|-------------|------------|
| | | | | Screen | From (feet) | To (feet) |
| | <u>6 1/2" I.D.</u> | <u>1</u> | <u>130</u> | | <u>113</u> | <u>118</u> |
| | <u>17 lbs. per ft.</u> | <u>above ground</u> | | <u>6 per interval</u> | | |
| | | | | <u>1" intervals</u> | | |
| | | | | <u>3/8" x 3"</u> | | |

Was casing left open end? X Yes, _____ No
Was a packer or seal used? _____ Yes, X No
If so, what material _____
Was the well gravel packed? _____ Yes, X No
Was the well grouted? X Yes, _____ No
To what depth? 15 ft.
Material used in grouting bentonite
Well head completion: Pitless adapter
12 in. above grade X other _____
(if other, specify) _____
Pump horsepower: _____, pump type _____
Pump intake level _____ feet below land surface
Power (electric, diesel, etc.) _____

7. WATER LEVEL
Static water level 105 feet below land surface
If flowing, closed-in pressure _____ psi
_____ gpm flow through _____ inch pipe
Controlled by: _____ valve, _____ reducers, _____ other (if other, specify) _____

8. WELL TEST DATA _____ pump X bailer _____ other (if other, specify) _____
Pumping level below land surface:
105 ft. after 2 hrs. pumping 26 gpm
_____ ft. after _____ hrs. pumping _____ gpm

9. WAS WELL PLUGGED OR ABANDONED? _____ Yes X No
If yes, how? _____

10. DATE STARTED December 17, 1979
DATE COMPLETED December 28, 1979

11. WELL LOG
Depth (ft.)
From To Formation

| | | |
|-----|-----|-------------------------------|
| 0 | 100 | Gravel & dirt |
| 100 | 110 | Coarsely clay & gravel |
| 110 | 118 | Water bearing sand & gravel |
| | | 26 gpm |
| 118 | 122 | Coarsely clay & gravel |
| 122 | 126 | Sand & fine gravel |
| 126 | 135 | Coarsely clay & yellow gravel |
| 135 | 140 | Clay & some gravel |

12. DRILLER'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge. 1/23/30
Date _____
Weber Drilling Co.
P.O. Box 929
Columbia Falls, Montana 59012

Signature _____ License No. 131

Test Well #11

P.O. # 31-93962

EDR 20614

LOG

6" .25 wall elec pipe TWHT

0-40 CARBON, CATHODE MATERIAL
SOME JUNIC @ 35-38 drilled
hard. Dry No cathodic reaction.

40-41 Gravel clayey topsoil
Set pipe to 40' clean hole. Gravel
in bottom. Get + negative carbon & rebar.

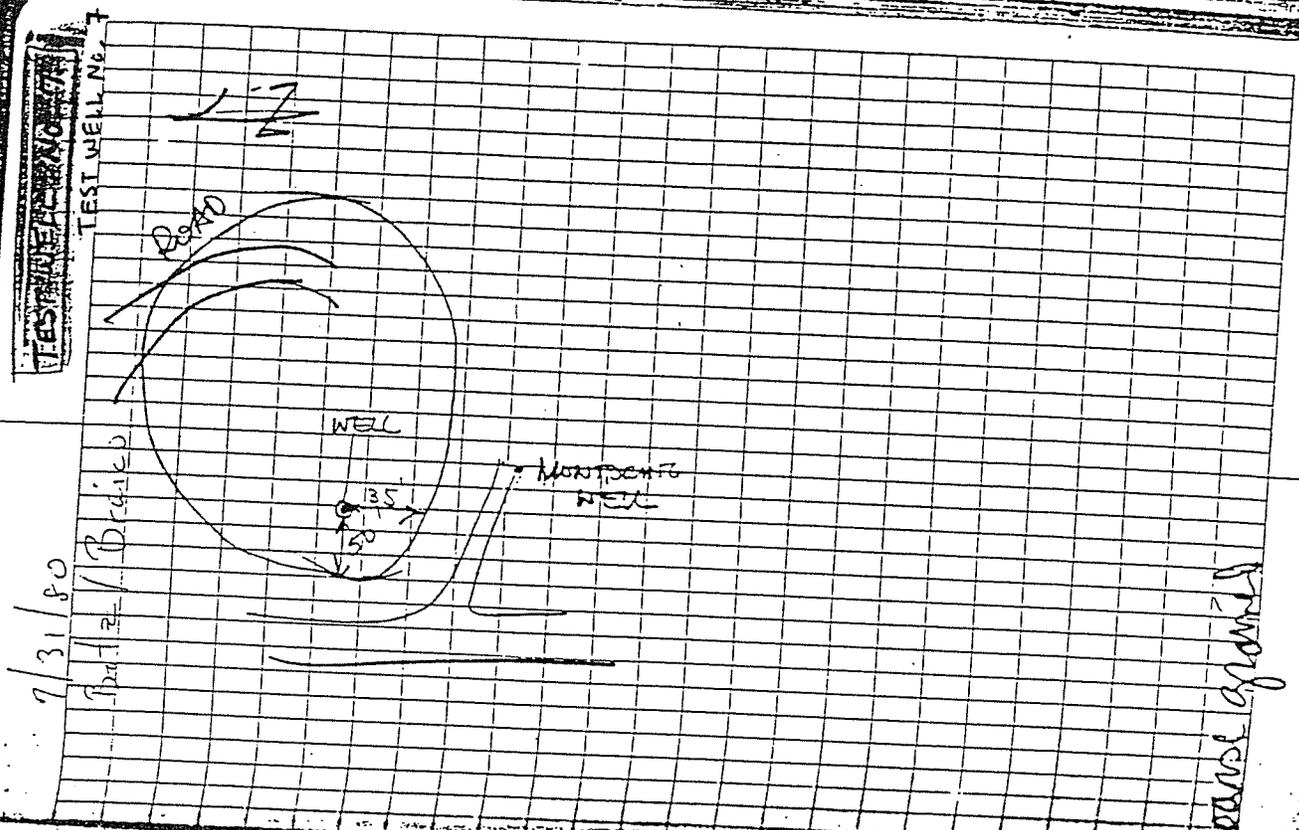
41-52 Gravel angular green and red
slightly silty. Clean
but rounded to round - small
fine to medium size gravel

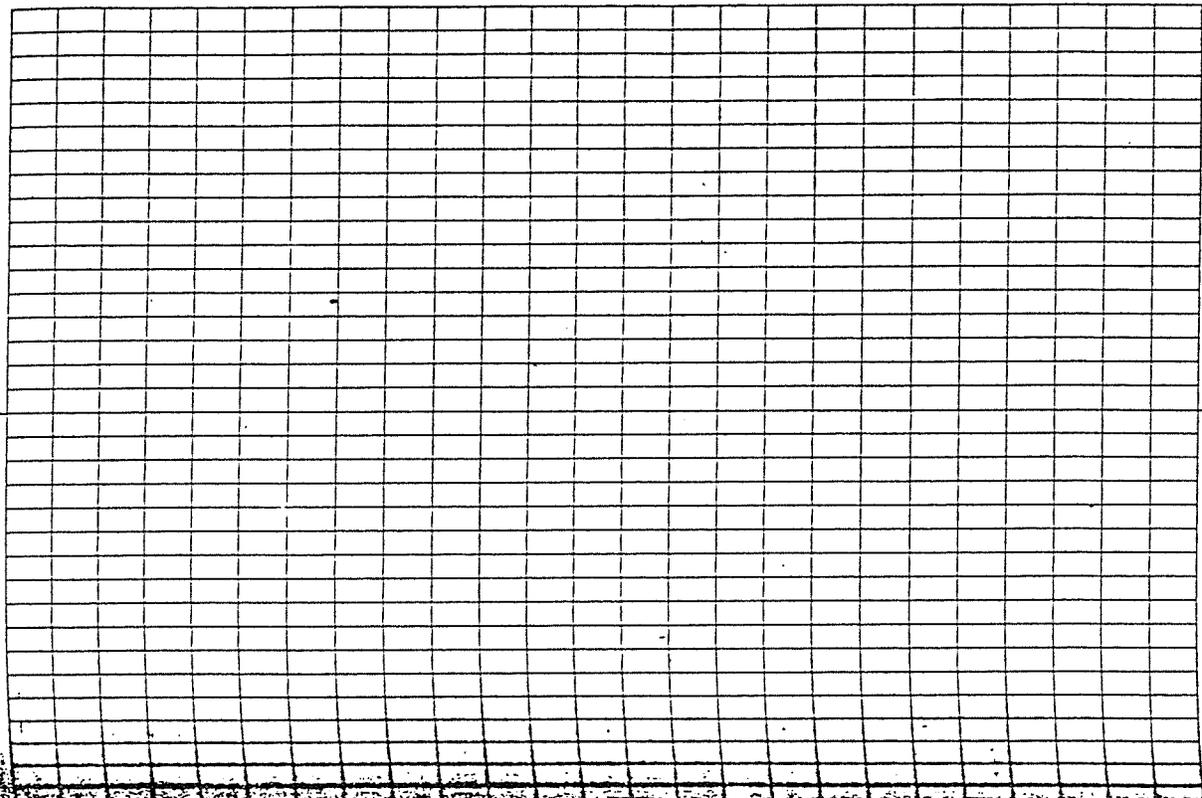
52-61 Gravel silty clayey
medium

61-67 Gravel silty clayey some
siltstone - slight dark chert
Mosaic

67-69 Gravel silty clayey - clean
the 61-69

69 Gravel silty clayey
poor returns
clean. Rounded - fine to coarse gravel





21
86
leaving air
Caving clear gravel

94-104
Sand, gravelly, silty
sand S → 2 mostly medium
fair well sorted
become poorly sorted and
coarser ~ 90

104-124
Gravel sandy some poorly
sorted v. little silty clay
drill easily. some very
sandy lenses.

124-135
Sand gravelly, silty
drill easy

135
Gravel sandy silty
clean @ 139
making some water below
135 - 3-4 ft

Liberty continued drilling
8/1/86.

LIBERTY DRILLING COMPANY

LICENSED, BONDED AND INSURED

3850 Highway 93 South
Ph. (406) 755-5644
Kalispell, Montana 59901111 North Higgins
Glacier Building
Ph. (406) 549-2121
Missoula, Montana 59801Box 407
Ph. (208) 879-2252
Challis, Idaho 83226Hydro-Metric
1300 Cedar Street
Helena, MT 59601

August 11, 1980

SYNOPSIS OF ACTIVITIES - INVOICE #0686

Re: Test Hole Drilling on Cathode Carbon Pile at Anaconda Aluminum Reduction Plant at Columbia Falls, Montana

7/30/80

Moved Chicago-Pneumatic Model 673W with Model #1262 Tigre Tierra Hammer, water truck and pipe truck with drill pipe and 200' of 6 5/8" x .250 Wall New Steel Well Casing to jobsite. Directed by Don Ryan of A.A.C. Drill site not selected yet.

7/31/80

Picked up Max Botts and Bob Braico at Glacier International Airport. At jobsite at 8:20 a.m. Three man drill crew arrived at 8:35 a.m. Warmed up rigs and moved onto drill location selected by Max Botts. Rigged up and ready to drill at 9:40 a.m. Drilled open six inch hole to 43'. No returns from drill hole after eight feet of penetration into carbon pile. Drill string ran rough and sporadic through carbon pile with some voids suspected. Out of carbon and into sandy gravels at 40'. Pulled drill steel and found native material on bit. Drove 40' of 6 5/8" x .250 wall casing with regular drive shoe welded on. Bottom four feet of casing was perforated. Casing drove sporadically through the carbon pile. Changed drill steel that had drilled carbon and washed down sub and bit to eliminate carbon contamination of native soil samples. Drilled ahead one to three feet to collect samples and drove casing. Silty sands and gravel from 40' to 92'. Coarse sand with gravels from 92' to 138'. Small seep of water from 138' to 141'. Drilled and drove casing to 143'. Shut down at 6:30 p.m. Instructed to drill and drive one more twenty foot length in the morning.

8/01/80

Rig warmed and running at 8:00 a.m. Drilled and drove casing in 3/4 gravels from 143' to 151'. No water returned to surface. No pressure changes in air system indicating water. Pulled bit five feet up in casing, waited five minutes, checked amount of water that entered hole during interval, found none. Drilled and drove from 151' to 164' in clay bound gravels. Driller radioed for instructions. Telephone to report to Max Botts. Instructed to drill and drive ahead to 200' unless we encounter water zone prior to 200'. Drilled to 203' and drove casing to 200' in clay bound gravels. Reported to Max Botts. Instructed to pull casing back to 141', if possible, or perforate casing from 138' to 141' if unable to pull casing. Rigged up Tigre Tierra Hammer to knock casing back. Knocked back one 20'

length. Hauled load of water and dumped in hole to check for transmissibility. Shut down at 5:00 p.m.

8/04/80

Rig warmed and running at 8:00 a.m. Knocked casing back to 154'. Casing very tight knocked back 5" in 25 minutes. Drove casing down and knocked back to loosen. Pulled back to 141'. Perforations at 137' to 141'. Water level at 132'. Rigged up to run bailer. Broke hydraulic hose at 2:30. Brought water truck and casing truck to Kalispell yard. Picked up new hose to install tomorrow morning.

8/05/80

Repaired hydraulic hose. Ready to run 9:00 a.m. Water level at 132'. Bailed for one hour until 10:00 a.m. Bailed at rate of 5 GPM water level remains at 132'. Water quality has clayey cloudy appearance, but no silts or sands in sample. Measured water level in adjacent well, downslope to south from carbon pile. Water level at 92'. Pump in the well and unable to get indicator beyond 126', may be top of pump. Unable to measure total depth. Rigged down and moved to Kalispell yard. Left site at 10:30 a.m.

cc (Ballinaty) 1W16
Cousinway
Ryan

September 30, 1968

Engineering Department
Anaconda Aluminum Co.
Columbia Falls, Montana

Re: Order No. C.F. - 5746
EDR - A - 10630
Water Well # 8

WELL LOG

Location: East of New Rod Mill.

Formations Log:

0 - 17 Loose fill. Gravel, cobblestones and boulders.
17 - 29 Concrete, boulders and steel.
29 - 34 Loose gravel, cobblestones and boulders.
34 - 59 Coarse gravel and cobblestones mixed in tan silt.
59 - 78 Fine brown silty sand.
78 - 81 Fine brown sand mixed with fine to coarse gravel.
81 - 87 Fine to coarse brown silty sand.
87 - 131 Fine brown sand mixed in tan silt.
131 - 169 Fine gray sand and tan sandy clay in thin alternate layers.
169 - 221 Fine gray muddy sand.
221 - 246 Tan clay.
246 - 263 Tan sandy clay with a few scattered gravels mixed in.
263 - 268 Gravel, cobblestones and boulders imbedded in tan clay.
268 - 276 Cobblestones and boulders mixed in fine tan and gray sand.
Some water 2 to 3 gallons per minute.
276 - 284 Fine gray muddy sand.
284 - 304 Gray sandy clay.
304 - 305 Fine to coarse brown sand and fine to coarse gravel.
Some water. Raised to 74 feet from surface.
305 - 316 Tan clay with some gravel and broken rock mixed in.
316 - 338 Coarse blue-gray gravel, some sand, thin seams of tan clay.
Water raises to 99 feet from surface. Bailed well clean every two feet as we drilled through this strata. Pumped eight inch test hole at 270 gallons per minute at 335 feet.
338 - 341 Cobblestones and boulders imbedded in gray clay.
341 - 352 Gravel imbedded in tan clay.

Casing Log:

Well cased from two feet above surface to 310 feet with 18 inch
CD by
CD by .375 Wall Black Steel Water Well Casing. A forged steel drive

RECEIVED
FEB 27 1980
PUMMING DIV.
ADDER

Engineering Department:

shoe is welded to the bottom of the eighteen inch casing.

Screening Log:

An eighteen inch Telescope Size, Extra Strength, Stainless Steel Johnson Well Screen is set from 318 feet to 338 feet with 150/1000 slot opening from 322 feet to 338 feet and 100/1000 slot opening from 318 feet to 322 feet. A tail pipe welded to screen extends from 338 feet to 346 feet, a forged steel drive shoe 16 inch OD by 13 3/8 inch ID by one foot long is welded to the tail pipe and extends from 346 feet to 347 feet. A 16 inch OD flush tube extension is welded to the top of the screen and extends from 318 feet to 303 feet. The top of the flush tube extension is solidly swaged to the inside of the eighteen inch casing at 303 feet.

Water Log:

Well will produce approximately 140,000 gallons of water at pumping rates of 350 to 400 gallons per minute. Then water drops off to a constant flow of 205 gallons per minute with a total draw-down of 287 feet from surface. After well is pumped down (8 to 12 hours pumping at these rates), it recovers very slowly taking sixty hours to come back to full static level. This indicates a limited aquifer or an aquifer with a negative boundry. Static water level of well in rested condition is 99 feet from surface.

HYDROMETRICS

TEST HOLE LOG

w7
Helena, Mt

| | | | |
|--|--|--|---|
| State: Montana | County: Flathead | Project: Columbia Falls Aluminum Plant | Hole Name: TW-19 w7 |
| Legal Location: T 30N R 20W Sec. 2 Tract NW, SW | | Descriptive Location: Southeast of BPA substation near fence | |
| Recorded By: John Ruth | Date Hole Started: 07/21/93 | Date Hole Completed: 07/22/93 | Driller: Frosty Groves Drilling Company: Western Water Works |
| Drill Method: Air Rotary | Drilling Fluids Used: Air | Pilot Hole Diameter: 6" | Reamed Hole Diameter: 6" |
| Total Depth Drilled: 114' | Total Depth Reamed: -- | Total Depth Cased Below G.S.: 113' | Diameter and Type of Casing: 6" steel |
| Weight or Gage of Casing: 6" steel .025 wall | | Interval Perforated or Screened Below G.S.: 100 - 111' | |
| Target Aquifer: 1st water | | Packer Type and Depth Below G.S.: -- | |
| | YES NO | Method Perforated or Screened | |
| Well Developed? | <input checked="" type="checkbox"/> <input type="checkbox"/> | ___ No Casing in Hole ___ Open Bottom Only | |
| Well Test Pumped? | <input checked="" type="checkbox"/> <input type="checkbox"/> | ___ Slotted with Mill's Knife ___ Slotted with a Torch | |
| Water Samples Taken? | <input checked="" type="checkbox"/> <input type="checkbox"/> | ___ Screened by Pulling Casing ___ Saw Cut | |
| Material Samples Taken? | <input checked="" type="checkbox"/> For logging only | <input checked="" type="checkbox"/> Other (specify) Starwheel perforator | |
| E - Logs? | <input type="checkbox"/> <input checked="" type="checkbox"/> | | |
| Static Water Level: 92.25' | | Date: 07/22/93 | |
| Measuring Point Description-Elevation: Top of steel casing 3118.92' | | MP Height Above (+/-) or Below G.S.: +2.0 | |
| Well Annulus Completion Description: Steel casing to 113'. Bentonite placed around outside of casing. | | | |
| Remarks: Drill 8-3/4" hole to 10' for reservoir for adding bentonite. Drive 6" casing and drill out inside of casing. Drive casing to 113'. Perforate steel casing and develop by air surging. | | | |

| From | To | DRILLING LOG Geological, Drilling, Water Conditions and Sampling |
|------|----|--|
| 0 | 5 | SAND - Brown, fine to coarse grained, poorly sorted, subangular to subrounded, unconsolidated, trace clay, trace fine gravel, moist. |
| 5 | 10 | SAND AND GRAVEL - Sand as above, 50% gravel, red, green, gray, black 1/4 to 2' subrounded, unconsolidated, gravel is composed of argillite and quartzite. |
| 10 | 20 | SAND AND GRAVEL - As above, very silty, dry, gravel 1/4 to 1'. |
| 20 | 25 | SAND AND GRAVEL - Sand, brown, fine - coarse grained, silty, poorly sorted, subangular to subrounded, unconsolidated clayey in part, very moist, gravel green, red, black, subrounded 1/4 to 1-1/2" clasts, possibly a little perched water in this clayey zone. |
| 25 | 30 | SAND AND GRAVEL - As above, slightly moist. |
| 36 | 40 | SAND - Brown, fine-grained, 15% medium grained, silty, trace clay, well sorted, unconsolidated, 10% small subrounded gravel, gravel clasts are 1/4 - 1/2" in size, dry |
| 40 | 60 | SAND - Gray brown, fine to medium grained, very silty, moderately sorted, 10% coarse grained, 10% small gravel, subrounded, unconsolidated, dry, hit large cobbles at 50', cuttings from cobbles are green and red argillite. |

TW22



HYDROMETRICS INC.

Consulting Scientists and Engineers
2727 Airport Rd. Helena Mt, 59601

WELL LOG AND CONSTRUCTION DIAGRAM

Hole Name: W-10

| | | | |
|---|------------------------|-----------------------------|------------------------------|
| State: Montana | County: Flathead | Date Hole Started: 09/07/94 | Date Hole Finished: 09/08/94 |
| Project: Columbia Falls Aluminum Co. | | | |
| Legal Description: | | | |
| Descriptive Location: Southwest of Northwest Percolation Pond | | | |
| Recorded By: WR Wilson | | | |
| Drilling Company: Western Water Work | | | |
| Driller: Frosty | | | |
| Drilling Method: Air Rotary | | | |
| Drilling Fluids Used: None | | | |
| Pilot Hole Dia: 6-inch | Reamed Hole Dia: NA | | |
| Total Depth Drilled: 60.00 | Total Depth Reamed: NA | | |
| Purpose of Hole: Install Monitoring Well | | | |
| Purpose of Well: Sample Water Quality | | | |
| Target Aquifer: Shallow Alluvial | | | |

| | Y/N | TYPE-DESCRIPTION |
|-----------------------|-----|-------------------------|
| Well Installed? | Y | 6-inch perforated Steel |
| Surface Casing Used? | N | |
| Casing Perforated? | Y | Star Wheel Perforator |
| Screen Used? | N | |
| Well Developed? | Y | Air lift |
| Well Yield Tested? | N | |
| Water Samples Taken? | Y | Water Quality |
| Boring Samples Taken? | N | |

Static Water Level: 29.45 Date: 09/08/94

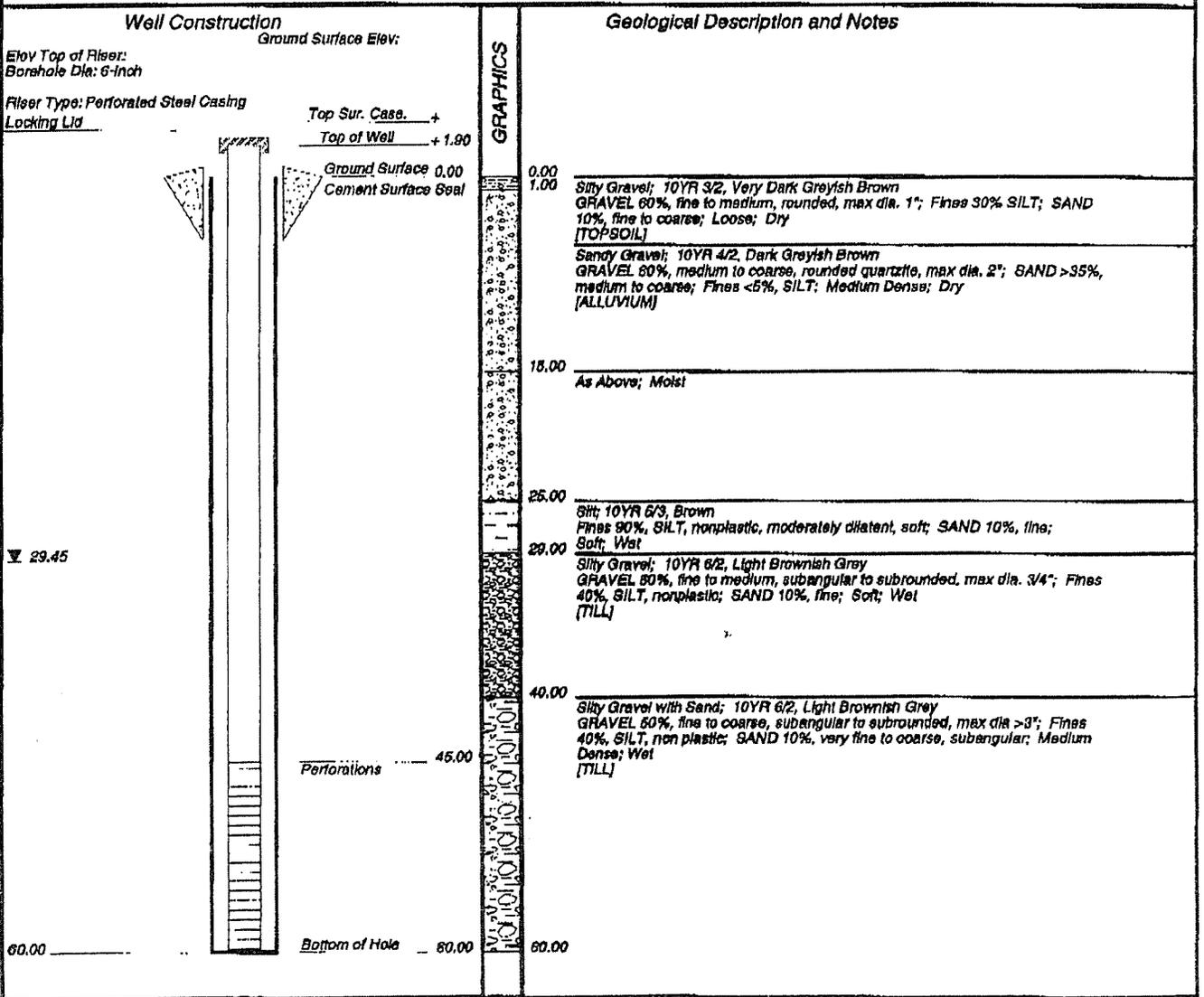
Well Seal Description: Medium Bentonite Chips

MP Description: Top of Steel Measuring Point (MP) Elevation:

MP Height Above or Below Ground? (+/-) : +1.00

Remarks: Color notation (10YR 5/4) from Munsell Color System; Material size fraction percentages based on field visual estimates

Well seal materials: 4 bags medium bentonite chips driven down with steel casing



HYDROMETRICS INC.

Consulting Scientists and Engineers

2727 Airport Rd. Helena Mt, 59601

WELL LOG AND CONSTRUCTION DIAGRAM

Hole Name: W-10 (TW22)

State: Montana

County: Flathead

Date Hole Started: 09/07/94

Date Hole Finished: 09/08/94

Project: Columbia Falls Aluminum Co.

Legal Description: South Half, NE, NW, SEC. 3, T30N, R20W

Descriptive Location: Southwest of Northwest Percolation Pond

Recorded By: WR Wilson

Drilling Company: Western Water Works

Driller: Frosty

Drilling Method: Air Rotary

Drilling Fluids Used: None

Pilot Hole Dia: 6-Inch

Reamed Hole Dia: 6-Inch

Total Depth Drilled: 60.00

Total Depth Reamed: NA

Purpose of Hole: Install Monitoring Well

Purpose of Well: Sample Water Quality

Target Aquifer: Shallow Alluvium

| | Y/N | TYPE-DESCRIPTION |
|-----------------------|-----|-------------------------|
| Well Installed? | Y | Perforated Steel Casing |
| Surface Casing Used? | N | |
| Casing Perforated? | Y | Star Wheel Perforator |
| Screen Used? | N | |
| Well Developed? | Y | Air lift |
| Well Yield Tested? | N | |
| Water Samples Taken? | Y | Water Quality |
| Boring Samples Taken? | N | |

Static Water Level: 29.45

Date: 09/08/94

Well Seal Description: Medium Bentonite Chips

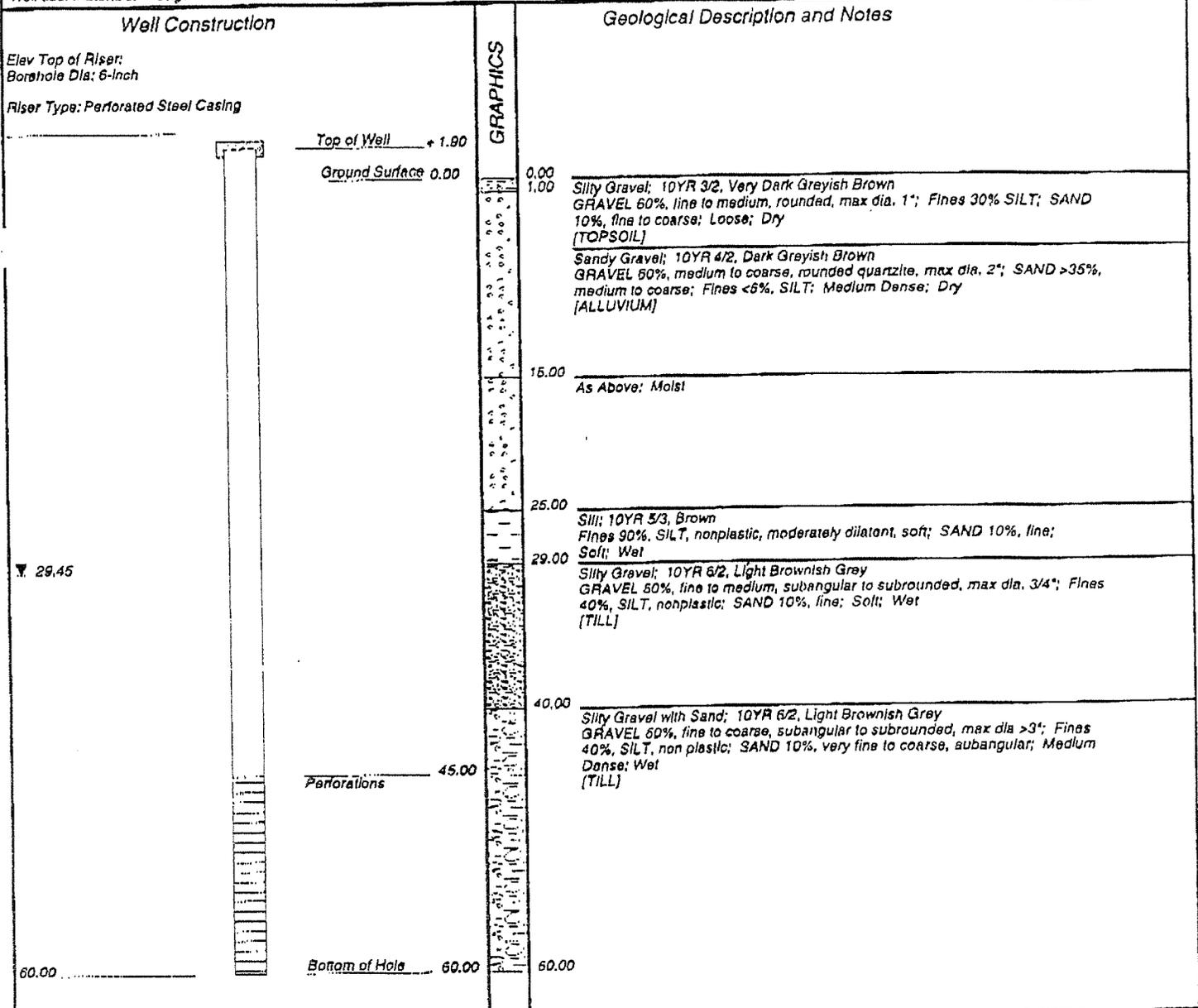
MP Description: Top of Steel

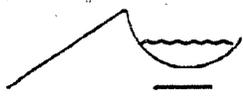
Measuring Point (MP) Elevation:

MP Height Above or Below Ground? (+/-): +1.90

Remarks: Color notation (10YR 5/4) from Munsell Color System; Material size fraction percentages based on field visual estimates

Well seal materials: 4 bags medium bentonite chips driven down with steel casing





HYDROMETRICS INC.

Consulting Scientists and Engineers
2727 Airport Rd. Helena Mt, 59601

W10

WELL LOG AND CONSTRUCTION DIAGRAM

Hole Name: TW-23

W10

State: Montana

County: Flathead

Date Hole Started: 05/11/95

Date Hole Finished: 05/11/95

Project: Columbia Falls Aluminum

Legal Description: T30N, R20W, Sec 3, South Half NE NW

Descriptive Location: Southwest of Northwest Percolation Pond

Recorded By: WR Wilson

Drilling Company: Billmeyer's Inc.

Driller: John Schwartz

Drilling Method: Hollow Stem Auger

Drilling Fluids Used: None

Pilot Hole Dia: 6-7/8 inch

Reamed Hole Dia: 6-7/8 inch

Total Depth Drilled: 24.50

Total Depth Reamed: 24.50

Purpose of Hole: Install Monitoring Well

Purpose of Well: Monitor Groundwater Quality

Target Aquifer: Shallow Alluvium Above Silt Layer

| | Y/N | TYPE-DESCRIPTION |
|-----------------------|-----|---|
| Well Installed? | Y | 2-inch, Sch 40, Flush Threaded, PVC |
| Surface Casing Used? | Y | 4-inch Steel |
| Casing Perforated? | N | |
| Screen Used? | Y | 0.020-inch slot, Sch 40, Flush Threaded |
| Well Developed? | Y | Bailed; approximately 5 gallons |
| Well Yield Tested? | N | |
| Water Samples Taken? | Y | Water Quality |
| Boring Samples Taken? | N | |

Static Water Level: 25.00 (as measured from MP)

Date: 05/11/95

MP Description: Top of PVC

Measuring Point (MP) Elevation:

MP Height Above or Below Ground? (+/-): + 1.5'

Remarks: Notation 10YR 5/2 is based on Munsell Color System; Grain size distribution based on field visual observations;

Well Construction

Borehole Dia: 6-7/8 inch

Locking Lid

4-inch Steel

0.00

Bentonite Chips

8.30

1000 Silica Sand

Top Sur. Case. + 2.00

Top of Well + 1.50

Ground Surface 0.00

Bottom of Surface Casing 2.00

0.020-inch slot PVC 8.50

Y

24.50

Bottom of Hole 24.50

GRAPHICS

Geological Description and Notes

0.00

Sandy Gravel; 10YR 4/2, Dark Greyish Brown
GRAVEL 60%, medium to coarse, rounded quartzite and argillite, max dia. 4";
SAND >35%, medium to coarse; SILT 5%; Medium Dense; Dry to Wet
(ALLUVIUM)

24.50

Silt layer encountered at 24.5 feet bgs
Boring Terminated

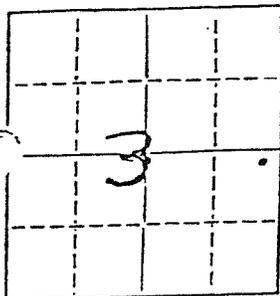
PW1

T. 30N R. 20W

County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anaconda Aluminum Company Address Columbia Falls, Mor

Driller Layne Minnesota Co. Address Billings, Montana

Date Started November, 1953 Date Completed January, 1954

Location: Sec. 3 T. 30N R. 20 W 1/4 sec. NE 1 SE 1

Type of well Dug 36" Cased 16" Equipment used Pick & Shovel
(Dug: driven, bored, or drilled) (Churn drill, rotary, other)

Water use: Domestic Municipal Stock Irrigation
Industrial Drainage Other: _____

Casing: 3105.00 ft. to 3002.66 ft. Type Steel Size 16"

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

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

Perforated or Screened: Ft. 3002.66 to ft. 2992.66 Ft. _____ to ft. _____

Type of screen or perforations Johnston 16" Screen

Static Water level, for non-flowing well: 3011.30 feet

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

Pumping water level 3006.40 feet at 555 gal. per min

How tested: By Continuous Pumping

Length of test 7 days

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

Hole No. L 1 ~~Permanent Well #1~~

PW3

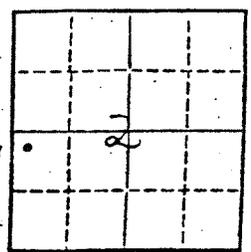
Permanent Well

2

T. 30 N R. 20 W
County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anaconda Aluminum Company Address Columbia Falls, Mont.
Driller Layne Minnesota Company Address Billings, Montana
Date Started March 11, 1954 Date Completed March 15, 1954
Location: Sec. 2 T. 30 N R. 20 W $\frac{1}{4}$ NW $\frac{1}{4}$ SW

Type of well Dug 36" Cased 16" Equipment used Pick and Shovel
(Dug, driven, bored, or drilled) (Chain drill, rotary, other)

Water use: Domestic Municipal Stock Irrigation
Industrial Drainage Other: _____

Casing: 3106.85 ft. to 2996.96 ft. Type Steel Size 16"

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

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

Perforated or Screened: Ft. 2996.96 to ft. 2986.96 Ft. _____ to ft. _____

Type of screen or perforations Johnston 16" Screen

Static Water level, for non-flowing well: 3016.36 feet.

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

Pumping water level 3000.0 feet at 242 gal. per min.

How tested: By Continuous Pumping

Length of test 11 1/2 Hr.

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

Hole No. L 10 Permanent Well 73

(over)

7.0 25
7.0 75

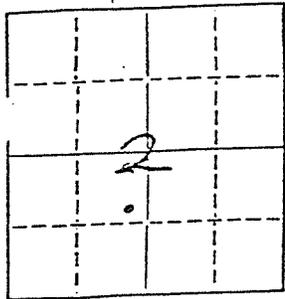
PW4

T. 30 N. R. 20 W.

County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anacanda Aluminum Company Address Columbia Falls, Mont.

Driller Layne Minnesota Co. Address Billings, Mont.

Date Started July, 1954 Date Completed Aug. 14, 1954

Location: Sec. 2 T. 30 N. R. 20 W 1/4 sec. NE 1/4 SW 1/4

Type of well Dug 36" Cased 16" Equipment used Pick & Shovel
(Dug, driven, bored, or drilled) (Churn drill, rotary, other)

Water use: Domestic Municipal Stock Irrigation

Industrial Drainage Other: _____

Casing: 3139.47 ft. to 2985.28 ft. Type Steel Size 16"

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

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

Perforated or Screened: Ft. 2985.28 to ft. 2964.49 Ft. _____ to ft. _____

Type of screen or perforations Johnston 16" Screen

Static Water level, for non-flowing well: 3017.34 (River El. 3016.0) feet.

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

Pumping water level 3012.27 feet at 1508 gal. per min.

How tested: By Continuous Pumping

Length of test 7 Days

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

Hole No. L 14 Permanent Well #4

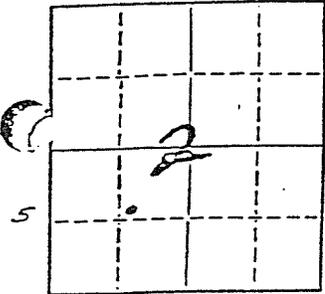
PWS

T. 30 N. R. 20 W.

County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anaconda Aluminum Company Address Columbia Falls, Mont

Driller Layne Minnesota Company Address Billings, Mont.

Date Started Aug. 1954 Date Completed Oct. 28, 1954

Location: Sec. 2 T. 30 N. R. 20 W 1/4 sec. NE 1/4 SW 1/4

Type of well Dug 36" Cased 16" Equipment used Pick & Shovel
(Dug, driven, bored, or drilled) (Churn drill, rotary, other)

Water use: Domestic Municipal Stock Irrigation
Industrial Drainage Other: _____

Casing: 3123.25 ft. to 2985.35 ft. Type Steel Size 16"

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

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

Perforated or Screened: Ft. 2985.35 to ft. 2961.18 Ft. _____ to ft. _____

Type of screen or perforations Johnston 16" Screen

Static Water level, for non-flowing well: 3017.77 feet.

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

Pumping water level 3008.57 feet at 903 gal. per min.

How tested: By Continuous Pumping

Length of test 84 Hr.

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

Hole No. L 13A Permanent Well #5

Log of Well

| Depth, feet | | Description of Material Drilled |
|-------------|--------|---------------------------------------|
| From | To | |
| 3123.2 | 3093.2 | Rock and Gravel |
| 3093.2 | 3093.2 | Sand & Small Gravel |
| 3085.2 | 3075.2 | Rock, Gravel & Sand |
| 3075.2 | 3069.2 | Gravel & Sand |
| 3069.2 | 3067.2 | Clay & Gravel |
| 3067.2 | 3063.2 | Coarse Sand and Small Gravel |
| 3063.2 | 3059.2 | Gravel & Clay |
| 3059.2 | 3053.2 | Large Rock, Gravel and Sand |
| 3053.2 | 3046.2 | Large Rock & Clay |
| 3046.2 | 3043.2 | Medium Rock, Gravel & Sand |
| 3043.2 | 3022.2 | Coarse Sand and Small Rock |
| 3022.2 | 3017.2 | Coarse Gravel |
| 3017.2 | 3011.2 | Gravel & Sand |
| 3011.2 | 2990.2 | Rock, Sand & Gravel |
| 2990.2 | 2987.2 | Rock, Gravel, Sand & Clay |
| 2987.2 | 2984.2 | Gravel & Sand |
| 2984.2 | 2983.2 | Gravel & Clay |
| 2983.2 | 2977.2 | Gravel, Sand, Rocks & Cemented Gravel |
| 2977.2 | 2976.2 | Gravel & Clay |
| 2976.2 | 2972.2 | Gravel, Sand & Cemented Gravel |
| 2972.2 | 2971.2 | Gravel & Clay |
| 2971.2 | 2964.2 | Sand & Small Gravel |
| 2964.2 | 2955.2 | Rock, Gravel & Sand |
| 2955.2 | 2952.2 | Sand & Gravel |

By: *Blanche K. Johnson*
 Date: *11/15/45*
 A. F. 1057
 R. S. Shaw
 Dept. of Geology
 U.S. Geological Survey
 Washington, D.C.

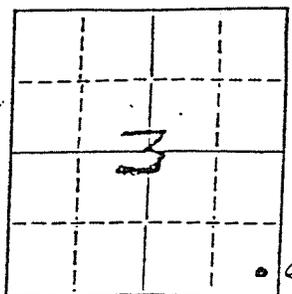
PW6

T. 30 N R. 20 W

County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anaconda Aluminum Company Address Columbia Falls, M

Driller Olsen & Justin Address Columbia Falls, M

Date Started Nov. 1, 1956 Date Completed Nov. 6, 1956

Location: Sec. 3 T. 30 N R. 20 W 1/4 sec. SE 1/4 SE 1/4

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

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

Casing: 3021.6 ft. to 2959.4 ft. Type Steel Size 18"

Casing: ft. to ft. Type Size

Casing: ft. to ft. Type Size

Perforated or Screened: Ft. 2959.4 to ft. 2951.4, Ft. to ft.

Type of screen or perforations Johnston 16" #80 Screen

Static Water level, for non-flowing well: 3010.6 feet

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

Pumping water level 3008.4 feet at 1400 gal. per min.

How tested: By Continuous Pumping

Length of test 4 days

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

~~Permanent Well #6~~

Ultimate Capacity of This Well is 5000 Gallon Per Minute.

3021.6
2959.4
2951.4

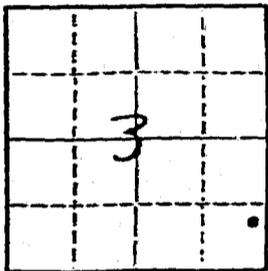
T 30 N R 20 W

3

County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anaconda Aluminum Company Address Columbia Falls, Mont.

Driller Olsen & Justis Address Columbia Falls, Mont.

Date Started Jan. 20, 1957 Date Completed Jan. 30, 1957

Location: Sec 3 T 30N R 20 W 1/4 sec SE 1/4 SE 1/4

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

Water use: Domestic Municipal Stock Irrigation
Industrial Drainage Other: _____

Casing: 3021.6 ft. to 2968.0 ft. Type Steel Size 18"

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

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

Perforated or Screened: Ft. 2968.0 to ft. 2960.0 Ft. _____ to ft. _____

Type of screen or perforations Johnston 16" #100 Screen

Static Water level, for non-flowing well: 3010.6 feet.

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

Pumping water level 3008.7 feet at 1000 gal. per min.

How tested: By Continuous Pumping

Length of test 4 Days

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

Permanent Well #7

Ultimate Capacity of This Well is 5000 Gallons Per Minute.

(over)

PWS

cc Ballensky
Cousins
Ryan

September 30, 1968

Engineering Department
Anaconda Aluminum Co.
Columbia Falls, Montana

Re: Order No. C.F. - 5746
EDR - A - 10630
Water Well # 8

WELL LOG

Location: East of New Rod Mill.

Formations Log:

- 0 - 17 Loose fill. Gravel, cobblestones and boulders.
- 17 - 29 Concrete, boulders and steel.
- 29 - 34 Loose gravel, cobblestones and boulders.
- 34 - 59 Coarse gravel and cobblestones mixed in tan silt.
- 59 - 78 Fine brown silty sand.
- 78 - 81 Fine brown sand mixed with fine to coarse gravel.
- 81 - 87 Fine to coarse brown silty sand.
- 87 - 131 Fine brown sand mixed in tan silt.
- 131 - 169 Fine gray sand and tan sandy clay in thin alternate layers.
- 169 - 221 Fine gray muddy sand.
- 221 - 246 Tan clay.
- 246 - 263 Tan sandy clay with a few scattered gravels mixed in.
- 263 - 268 Gravel, cobblestones and boulders imbedded in tan clay.
- 268 - 276 Cobblestones and boulders mixed in fine tan and gray sand.
Some water 2 to 3 gallons per minute.
- 276 - 284 Fine gray muddy sand.
- 284 - 304 Gray sandy clay.
- 304 - 305 Fine to coarse brown sand and fine to coarse gravel.
Some water. Raised to 74 feet from surface.
- 305 - 316 Tan clay with some gravel and broken rock mixed in.
- 316 - 338 Coarse blue-gray gravel, some sand, thin seams of tan clay.
Water raises to 99 feet from surface. Bailed well clean every two feet as we drilled through this strata. Pumped eight inch test hole at 270 gallons per minute at 335 feet.
- 338 - 341 Cobblestones and boulders imbedded in gray clay.
- 341 - 352 Gravel imbedded in tan clay.

Casing Log:

Well cased from two feet above surface to 310 feet with 18 inch
OD by .375 Wall Black Steel Water Well Casing. A forged steel drive

RECEIVED
FEB 27 1980
PUBLISHING
DEPT

Engineering Department:

shoe is welded to the bottom of the eighteen inch casing.

Screening Log:

An eighteen inch Telescope Size, Extra Strength, Stainless Steel Johnson Well Screen is set from 318 feet to 338 feet with 150/1000 slot opening from 322 feet to 338 feet and 100/1000 slot opening from 318 feet to 322 feet. A tail pipe welded to screen extends from 338 feet to 346 feet, a forged steel drive shoe 16 inch OD by 13 3/8 inch ID by one foot long is welded to the tail pipe and extends from 346 feet to 347 feet. A 16 inch OD flush tube extension is welded to the top of the screen and extends from 318 feet to 303 feet. The top of the flush tube extension is solidly swaged to the inside of the eighteen inch casing at 303 feet.

Water Log:

Well will produce approximately 140,000 gallons of water at pumping rates of 350 to 400 gallons per minute. Then water drops off to a constant flow of 205 gallons per minute with a total draw-down of 287 feet from surface. After well is pumped down (8 to 12 hours pumping at these rates), it recovers very slowly taking sixty hours to come back to full static level. This indicates a limited aquifer or an aquifer with a negative boundary. Static water level of well in rested condition is 99 feet from surface.

MONTANA WELL LOG REPORT

Form No. 603 R2-99

30N 20W 4 NAA

Well ID# _____

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. **This form is to be completed by the driller and filed with DNRC within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.**

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section.

1. WELL OWNER:

Name Brian Henderson
 Mailing address 1215 Dorothy Street
Columbia Falls MT 59912

2. WELL LOCATION List $\frac{1}{4}$ from smallest to largest

NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 4
 Township 30 N/S Range 20 E/W County Flathead
 Lot 21, Tract/Blk _____ Subdivision Name Fredrikson
 Well Address _____
 GPS Yes No
 Latitude 48° 23.317' Longitude 114° 09.636'
 Error as reported by GPS locator (+ feet) 22'
 Horizontal datum NAD27 WGS84

3. PROPOSED USE: Domestic Stock Irrigation
 Public water supply Monitoring Well Other:

4. TYPE OF WORK:
 New well Deepen existing well Abandon existing well
 Method: Cable Rotary Other: _____

5. WELL CONSTRUCTION DETAILS:

Borehole:
 Dia. 6 in. from 0 ft. to 283 ft.
 Dia. _____ in. from _____ ft. to _____ ft.
 Dia. _____ in. from _____ ft. to _____ ft.

Casing:
 Steel: Wall thickness .250 Threaded Welded
 Dia. 6 5/8 in. from +2 ft. to 283 ft.
 Dia. _____ in. from _____ ft. to _____ ft.

Plastic: Pressure Rating _____ lbs. Threaded Welded
 Dia. _____ in. from NA ft. to _____ ft.

Perforations/Slotted Pipe:
 Type of perforator used _____
 Size of perforations/slots NA in. by _____ in.
 _____ no. of perforations/slots from _____ ft. to _____ ft.
 _____ no. of perforations/slots from _____ ft. to _____ ft.

Screens: Yes No
 Material _____
 Dia. _____ Slot size _____ from _____ ft. to _____ ft.
 Dia. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel Packed: Yes No
 Size of gravel _____
 Gravel placed from _____ ft. to _____ ft.

Packer: Yes No
 Type _____ Depth(s) _____

Grout: Material used Bentonite
 Depth from _____ ft. to _____ ft. OR Continuous feed

6. WELL TEST DATA:

A well test is required for all wells. (See details on well log report cover.)

Static water level 113.7 ft. below top of casing or
 Closed-in artesian pressure _____ psi.

How was test flow measured:
 bucket/stopwatch, weir, flume, flowmeter, etc _____

Yellowstone Controlled Groundwater Area - Water Temperature _____ °F

AQUIFER TEST DATA FORM ATTACHED

Test - 1 hour minimum

Drawdown is the amount water level is lowered below static level.
 All depth measurements shall be from the top of the well casing.
 Time of recovery is hours/minutes since pumping stopped.

Air test*

_____ gpm with drill stem set at _____ ft. for _____ hours
 Time of recovery _____ hrs/min. Recovery water level _____ ft.

OR Bailer test*

18 gpm with 70 ft. of drawdown after 1 hours
 Time of recovery 30 hrs/min. Recovery water level 113.7 ft.

OR Pump test*

Depth pump set for test _____ ft.
 _____ gpm pump rate with _____ ft. of drawdown after _____ hrs pumping
 Time of recovery _____ hrs/min. Recovery water level _____ ft.

OR Flowing Artesian*

_____ gpm for _____ hours
 Flow controlled by _____

**During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

7. WELL LOG:

PH

| Depth, Feet | | Material: |
|-------------|-----|---|
| From | To | color/rock and type/descriptor (example: blue/shale/hard, or brown/gravel/water, or brown/sand/heaving) |
| 0 | 12 | Brown Soils: Gravels, cobbles + Sands |
| 12 | 76 | Light Tan Clay, Gravels + Brown Sands |
| 76 | 114 | Brown Sands |
| 114 | 137 | Gray Tan Silt |
| 137 | 176 | Light Gray Tan Clay, Gravels + Sands |
| 176 | 258 | Light Brown Clay, scattered small gravel + Brown sand |
| 258 | 283 | Gravels, Light Brown Clay + Brown sands |
| | | Increasing H ₂ O from 271 on down |

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OCT 30 2008

ADDITIONAL SHEETS ATTACHED

M.B.M.G.

8. DATE WELL COMPLETED: Jan 27, 2008

9. REMARKS: _____

10. DRILLER/CONTRACTOR'S CERTIFICATION:

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name, firm, or corporation (print) Erickson Drilling + Pump Co.

Address 329 Cougar Trail, Whitefish MT 59937

Signature Paul Erickson

Date Jan 31, 2008 License no. 478



Montana DNRC P.O. BOX 201601 HELENA, MT 59620-1601 444-6610

MBMG ID#

DEPARTMENT - BUREAU COPY

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123027

76LF

STATEMENT OF CLAIM FOR EXISTING WATER RIGHTS OTHER USES

RECEIVED

MAR 8 19

For the Water Courts of the State of Montana

MONTANA D.N.R.C.
KALISPELL FIELD OFFICE

FL-C
08-091-01-17
40-00

1. Owner of Water Right Fredrickson Subd. Water Assoc
Last _____ First _____ Middle Initial _____

Co-Owner or Other Interest Owner 1/2 Dye Last Douglass First _____ Middle Initial E.

Address Box 669
City Columbia Falls State Mont. Zip Code 59912
Home Phone No. 892-4781 Business Phone No. 892-4321

2. Person completing form Dye Last Douglass First _____ Middle Initial E.

Address Box 669
City Columbia Falls State Mont. Zip Code 59912
Home Phone No. 892-4781 Business Phone No. 892-4321

③ DNRC

- Use: (Check Only One)
- | | | |
|--|---|--|
| <input type="checkbox"/> FR Fish Raceways | <input type="checkbox"/> GE Geothermal | <input type="checkbox"/> MN Mining |
| <input type="checkbox"/> FW Fish & Wildlife | <input type="checkbox"/> NV Navigation | <input type="checkbox"/> PG Power Generation |
| <input type="checkbox"/> CM Commercial | <input type="checkbox"/> FP Fire Protection | <input type="checkbox"/> RC Recreation |
| <input type="checkbox"/> IN Industrial | <input type="checkbox"/> AS Agricultural Spraying | <input checked="" type="checkbox"/> OT Other |
| <input checked="" type="checkbox"/> MC Municipal | <input type="checkbox"/> OF Oil Well Flooding | Explain <u>Community Water Assoc.</u> |

4. Source of Water: (Check Only One)

Spring Name Well #1

Well Name _____

Stream Name _____ Tributary of _____

Lake Name _____ Stream _____

Reservoir Name _____ Stream _____

Tributary of _____

5. Point of Diversion: County Flathead

NW 1/4 SW 1/4 SE 1/4, Section 4, T 30 S, R 20 E W

Lot 19, Block _____, Subdivision Fredrickson

6. Means of Diversion:

Well

Pump Capacity 100 gpm

Headgate with ditch or pipeline

Instream use

Other Explain _____

7. Means of Conveyance:

Ditch Instream

Pipeline Other: _____

8. Place of Use: County Flathead

Instream City or Town Other: Explain Community Well System

1-22 (Fred. Subd) Lot, Block, NE 1/4 SW 1/4 SE 1/4, Section 4, T 30 N/S, R 20 E/W

3AE (Tracy's Subd) Lot, Block, NE 1/4 SW 1/4 SE 1/4, Section 4, T 30 N/S, R 20 E/W

Lot, Block, 1/4 1/4 1/4, Section, T N/S, R E/W

Lot, Block, 1/4 1/4 1/4, Section, T N/S, R E/W

Lot, Block, 1/4 1/4 1/4, Section, T N/S, R E/W

Subdivision Fredrickson (one lot included from Tracy's Alum. City Subd.)

9. Flow rate claimed: 100 cubic feet per second
 gallons per minute
 miner's inches

10. Volume claimed: 35 acre-feet per year

11. Period(s) of use: 1 / 1 to 12 / 31
Month Day Month Day

12. Check one: Decreed Water Right Priority date or date of first use
 Filed Appropriation Right 8 / 15 / 1953
 Use Water Right Hour Month Day Year

13. Attach copies of the Decree, Record of Filing or Proof of Use Right.

14. Attach copies of aerial photographs, U.S. Geological Survey maps or such other documents necessary to show point of diversion, place of use, place of storage, and conveyance facilities.

15. Notarized Statement signed by claimant.

STATE OF MONTANA)
)
) ss.
County of Flathead)

I, Douglass E. Dye, having been duly sworn, depose and say that I, being of legal age and being the claimant of this claim of existing water right, and the person whose name is signed to it as the claimant, know the contents of this claim and the matters and things stated there are true and correct.

Douglass E. Dye

Subscribed and sworn before me, this 4th day of Dec, 1981.

Charles L. Hildreth
Notary Public for the State of Montana

Residing at 101 Hill St
My Commission expires 01 27 83

1. Frederickson Irrigation Water Association, of Inc. Columbia Falls, Montana
 (Name of Appropriator) (Address) (Town)
 County of Broadwater State of Montana
 have appropriated groundwater according to the Montana laws in effect prior to January 1, 1952, as follows:

N

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| | | | |
| | | | |

W E

2. The beneficial use on which the claim is based
Household use - automatic sprinkling system

3. Date or approximate date of earliest beneficial use; and how continuous the use has been
August 1951
continuous

4. The amount of groundwater claimed (in miner's inches or gallons per minute)
100 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
Electric electric pump located on lot 12
Frederickson subdivision

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater
August 3, 1951 started. Completed August 1951, 1951

8. The depth of water table
169 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
12" steel casing, 12" depth, per foot

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

11. The log of formations encountered in the drilling of each well if available
0' to 80' gravel, 80' to 100' siltstone, 100' to 120' gravel

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
in County Record

Signature of Owner
Frederickson Irrigation Association, Inc.
 Date December 11, 1953

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.

ACKNOWLEDGEMENT OF WATER RIGHT TRANSFER
FROM
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
STATE OF MONTANA

WATER RIGHT NUMBER 76LJ-W-123027-00

WE HAVE RECEIVED AND RECORDED A TRANSFER OF WATER RIGHT OWNERSHIP IN WHICH YOU WERE NAMED AS A PARTY. THE RECORDS MAINTAINED BY THE WATER RIGHTS BUREAU HAVE BEEN CHANGED TO REFLECT THE NEW OWNERSHIP ACCORDING TO THE WATER RIGHT TRANSFER. THE ABSTRACT BELOW SHOWS THE CURRENT WATER RIGHT INFORMATION. BOTH BUYER AND SELLER HAVE BEEN SENT THIS ACKNOWLEDGEMENT.

IF YOU HAVE QUESTIONS, PLEASE CONTACT YOUR LOCAL WATER RESOURCES REGIONAL OFFICE. KALISPELL REGIONAL OFFICE, 752-2288.

*****DNRC*LOCATE** *8*RM*950622***

OWNERS: PUMP ONE WATER ASSOC INC
PO BOX 2507
COLUMBIA FALLS MT 59912

PRIORITY DATE: AUG 15, 1953

FLOW RATE: 100.00 GALLONS PER MINUTE (G)

VOLUME: 35.00 ACRE FEET PER YEAR (AF)

SOURCE: WELL

PURPOSE:

| USE | FLOW | VOLUME (AF) | ACRES | PERIOD OF USE |
|-----------|----------|-------------|-------|-----------------|
| MUNICIPAL | 100.00 G | 35.00 | | JAN 1 TO DEC 31 |

POINTS OF DIVERSION AND MEANS OF DIVERSION:

WELL:

| LOT | BLK | QTR | SEC | SEC | TWP | RGE | COUNTY |
|-----------|-----|--------|-----|-----|-----|----------|--------|
| (GOVT) 19 | | NWSWSE | 04 | 30N | 20W | FLATHEAD | |

PLACE OF USE FOR MUNICIPAL:

| ACRES | LOT | BLK | QTR | SEC | SEC | TWP | RGE | COUNTY |
|-------|------------|-----|--------|-----|-----|-----|----------|--------|
| 001 | (GOVT) 1 | | NESWSE | 04 | 30N | 20W | FLATHEAD | |
| 002 | (GOVT) 3AE | | NESWSE | 04 | 30N | 20W | FLATHEAD | |

REMARKS: ** CLARIFICATION OF LAND DESCRIPTION:
LOTS 1-22 FREDRICKSON SUBD; LOT 3AE OF TRACYS SUBD.

** TRANSFER OF OWNERSHIP:
UPON A CHANGE IN OWNERSHIP OF ALL OR ANY PORTION OF THIS CLAIM, THE PARTIES TO THE TRANSFER SHALL FILE WITH THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION A WATER RIGHT TRANSFER CERTIFICATE, FORM 608, PURSUANT TO SECTION 85-2-424, MCA.

NOTICE OF WATER RIGHT TRANSFER RECEIVED 09/15/98.