

PROOF OF PUBLICATION

STATE OF IDAHO, County of Owyhee, s.s.

I, RODNEY A. HAWES, being first duly sworn, on oath says that he is the Publisher of the OWYHEE NUGGET, a newspaper of general circulation, published weekly by Rodney A. Hawes, publisher and printer thereof, at Marsing, County of Owyhee, State of Idaho;

That the annexed notice was published in said newspaper once a week and every week for 2 consecutive weeks, the first publication being on the 10 day of April, 1980, and the last publication being on the 17 day of April, 1980;

That the said newspaper has been published continuously and uninterruptedly in said county during a period of more than seventy - eight consecutive weeks prior to the first publication of the attached notice.

Rodney A. Hawes
PUBLISHER

Subscribed and sworn to before me this 17 day of

April, 1980

Rodney A. Hawes
NOTARY PUBLIC

My commission expires 9-10-80

(SEAL)

NOTICE OF APPLICATION FOR WATER RIGHT

Notice is hereby given that the following application(s) have been submitted for permit to appropriate the public waters of the State of Idaho:

51 - 7146

SELLMAN, CHESTER W.
& / or CATHERINE R.
STAR RT. B, BOX 169A,
BRUNEAU, ID 83604
Source: UNNAMED DRAIN
DITCH tributary to JACKS
CREEK

Date Filed: 03/18/1980
Amount: 0.80 CFS
Diversion Point: SWNE Sec
07 T 07S R 05E, OWYHEE
Co.

Use: IRRIGATION (0.80
CFS) from 03/01 to 10/30
Place of Use: SENE NESE
NWSE Sec. 07 T 07S R 05E FOR
40 ACRES

Diversion Means: REGULA-
TORY PIT W/STORAGE,
PUMP SUMP, MOTOR & BUR-
IED MAINLINE

51 - 7147

CANTRELL, IVAN E.
3392 MAZE AVE., BOISE,
ID 83706

Source: GROUNDWATER
Date Filed: 03/21/1980
Amount: 6.40 CFS
Diversion Point: NESE
NWSE Sec 02 T 07S R 04E,
OWYHEE Co.

Use: IRRIGATION (6.40
CFS) from 03/15 to 11/15
STOCKWATER (0.05 CFS)
from 01/01 to 12/31

DOMESTIC (0.04 CFS) from
01/01 to 12/31
Place of Use: NESE SESE
Sec 35 T 06S R 04E LOT .01
(NENE) SWNE SENE NESE
NWSE Sec 02 T 07S R 04E
NWSW Sec. 01 T 07S R 04E
FOR 320 ACRES

Diversion Means: WELL,
PUMP, MOTOR & SPRINK-
LERS

55 - 7128

OWYHEE COUNTY MINING,
INC.
4153 MOUNTAIN VIEW
DRIVE, BOISE, ID 83704

Source: JORDAN CREEK
Date Filed: 03/21/1980
Amount: 0.04 CFS
Diversion Point: NENW
NWNW Sec. 01 T 06S R 05W,
OWYHEE Co.

Use: MINING (0.04 CFS)
from 01/01 to 12/31
Place of Use: NWNW NENW
Sec 01 T 06S R 05W

Diversion Means: PUMP &
PIPELINE

55 - 7129

ASTON, PAUL
MATHER, DICK
Source: JORDAN CREEK
tributary to OWYHEE RIVER
Date Filed: 03/26/1980

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 51-7147

1. Owner: WILBUR MASTRE OR BARBARA MASTRE Phone No. 834-2376

Current Address: H.C. 85 Box 154-13 BRUNEAU ID. 83604

2. Accompanied by: SAME EXAM. DATE: 6/22/88

Address: _____ Phone No. _____

Relationship to Permit Holder: OWNER

3. Source: GROUND WATER tributary to _____

B. OVERLAP REVIEW

1. Other water rights with same place of use: NONE

☐ Copies Attached

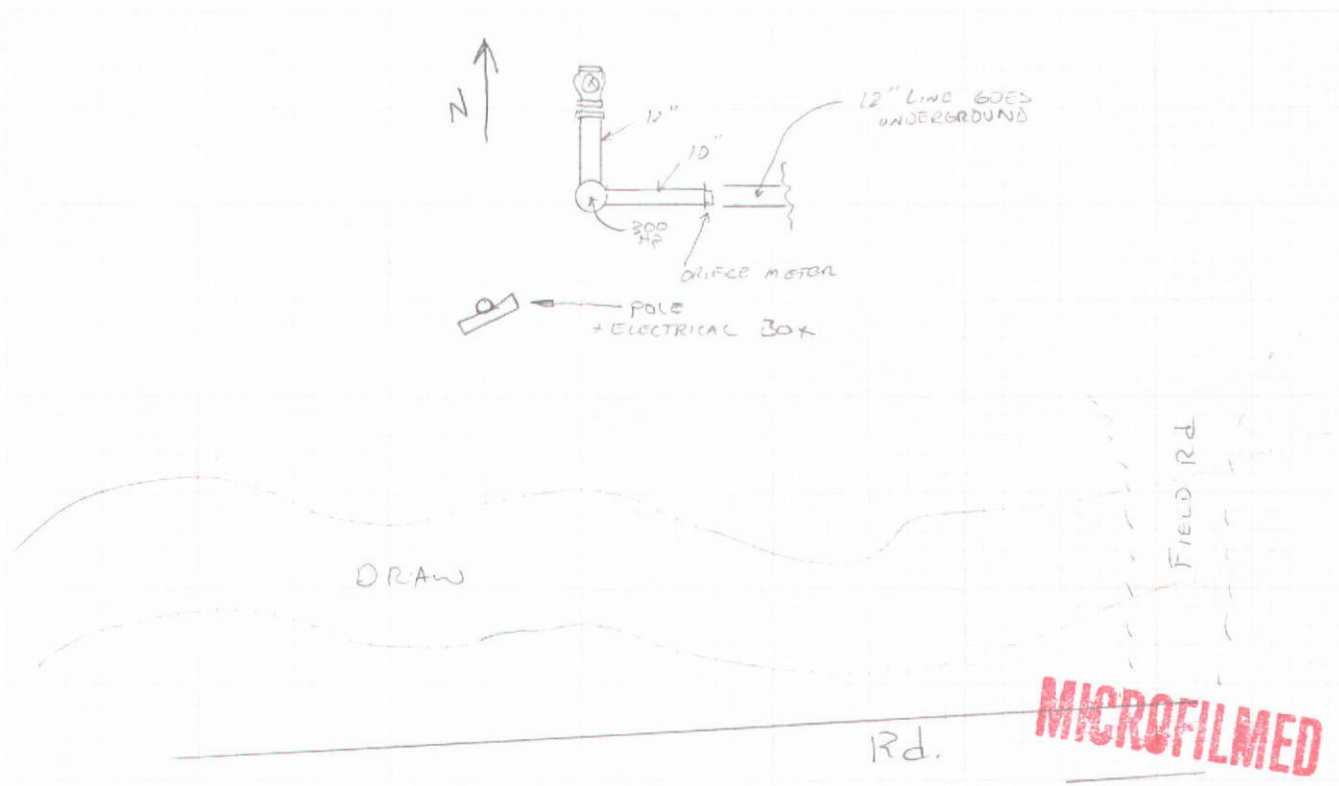
2. Other water rights with same point of diversion: NONE

☐ Copies Attached

☐ Copies of Field Exam's Attached

C. SYSTEM DESCRIPTION

1. **Diversion System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable. ☐ Alternative diagram attached



Scale: 1" = NO SCALE

2. ☒ Copy of U.S.G.S. Quadrangle Attached
Showing location(s) of point(s) of diversion and
place(s) of use (required).

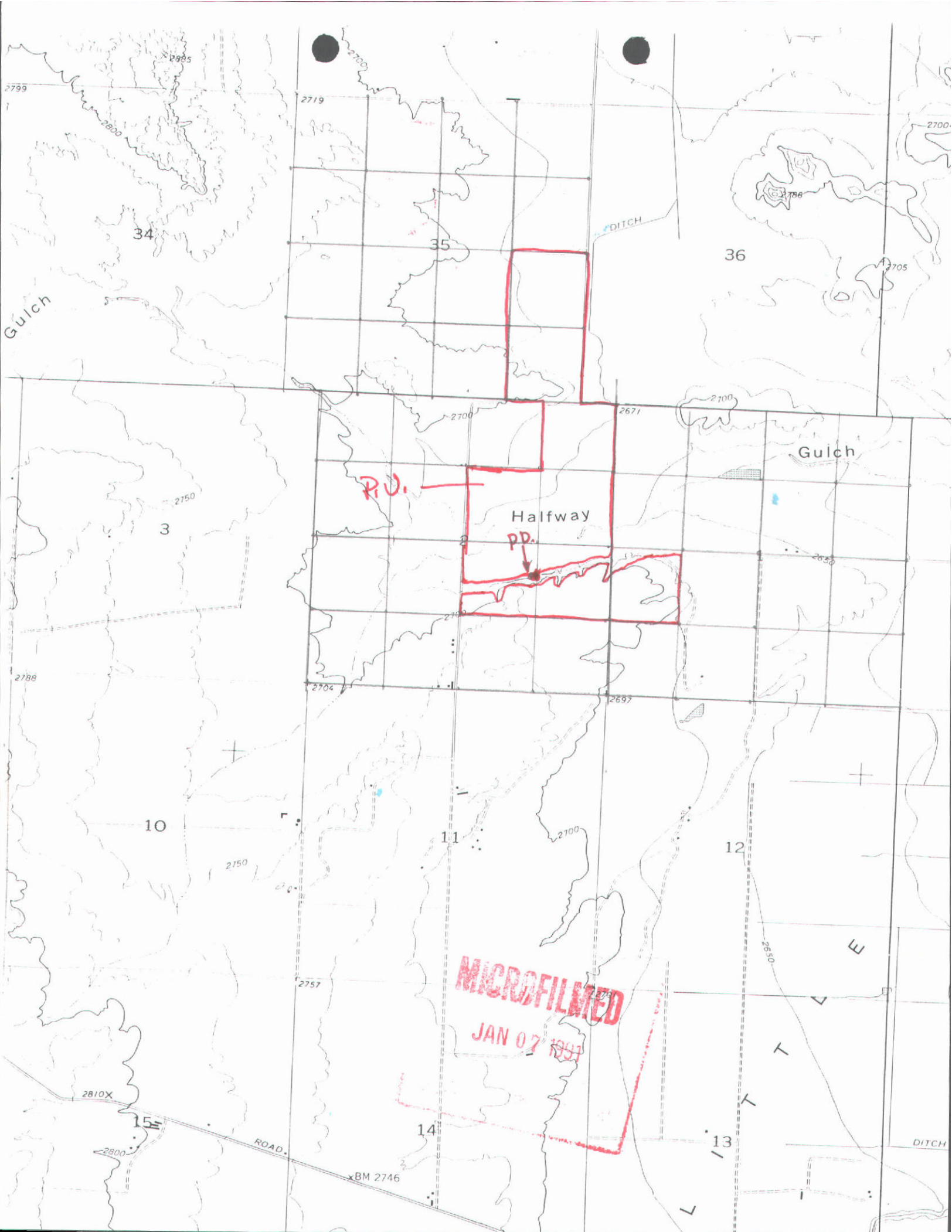
☒ Photo of Diversion and System Attached

(required for all but single household domestic groundwater, and stockwater.

☒ Aerial Photo Attached
(required for irrigation of 10 acres or more).

MICROFILMED

JAN 07 1991



P.O.

Halfway

pd.

MICROFILMED

JAN 07 1991

C

b

B

a

1

81.04

80.06

S. 89° 55' E

16 SOUTH

21.65

21.33

	4	3	2	1	4	3	2	1
71	38.84	39.03	39.23	39.42	39.55	39.61	39.67	39.73

80

80

80

80

Sec. 2.

Sec. 1.

636.52

638.56

W. N. 0° 2' W.
79.37N. 0° 1' W.
79.76

79.88

N. 89° 51' W.

N. 89° 56' W.

80.47

79.68

JAN 07 1991

RECORDED

C420
2026
T793

E13
78.4

A
37.1

A1
77.0

G15
15.4

35 36

MICROFILMED

JAN 07 1991

29.7

39

77.1

25.1

153

P.O.

3
55.3

1600

P.O.

45.0

7.5

103
35.1

V2
5.3

5
72.8

F.V.C.
mainline

C100
236
T629

(12)

is not exactly equal to the ambient pressure, a correction factor C may be added leading to

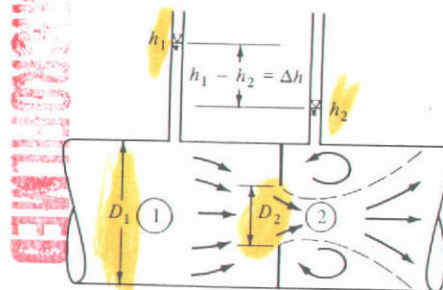
$$V = C\sqrt{2\Delta p/\rho} \quad (6-28)$$

Typical values of C are included on Fig. 6-15 for the different types of Pitot tubes, but high accuracy requires individual calibration. In addition to the conventional Pitot tube shown in Fig. 6-15a, part b contains a simpler *stagnation tube* in which the static or ambient pressure is obtained separately at the side of the pressure conduit. The advantage herein is that the stagnation tube can be made with a smaller diameter, thereby yielding a reading that more closely represents a point measurement. Part c, called a *Cole pitometer*, is designed for easy insertion into the pipe, whereupon one tube can be rotated so as to point in the downstream direction.

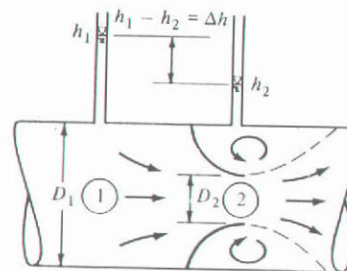
If the pipe discharge is of primary interest, the velocity may be measured at selected points across the conduit section and the discharge computed by graphic integration. If somewhat lower accuracy is acceptable, a single velocity measurement at the pipe centerline can be correlated with the discharge.

Discharge Measurement

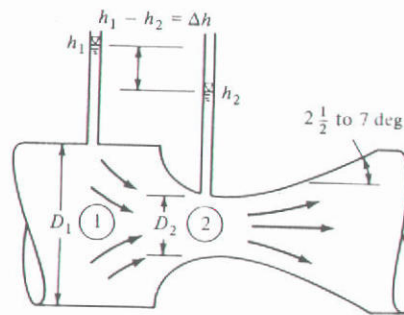
Discharge in a pipe is most commonly measured using some form of differential head meter, such as the three included in Fig. 6-16. In each case the governing



(a) Orifice meter



(b) Flow nozzle



(c) Venturi meter

Figure 6-16 Pipe flow meters.

Equations may be obtained by judicious application of equations. For details refer to any textbook on fluid mechanics expressed as a function of the pressure or piezometric head. With respect to the latter, the discharge is

$$Q = C_D A_2 \sqrt{2g(h_1 - h_2)}$$

Regardless of meter type, the area A_2 is the minimum opening coefficient. The piezometric heads h_1 and h_2 are obtained using manometers (as shown) or pressure gauges.

The orifice meter is perhaps the most common meter more than an orifice (usually machined) in a plate that is flanges in a pipe. Its biggest disadvantage is a rather large head loss upon where the pressure taps are located, there may be a magnitude of the discharge coefficient. An in-place calibration is recommended, in fact, for all meters when high accuracy is required. For a sharp-edged orifice, typical orifice meter coefficients

The flow nozzle reduces the head loss in exchange for a larger head loss. On the other hand, the venturi meter almost eliminates head loss, but is the most expensive. If the angle of divergence (Fig. 6-16c) is too large, the flow will be unable to follow the diverging boundary and a low head loss will not be achieved. If actual calculation is possible, then the venturi meter will usually provide the most accurate measurement.

Both the flow nozzle and the venturi meter may be used for flow analysis, whereupon the discharge coefficient is determined

$$C_D = \frac{1}{[1 - (A_2/A_1)^2]^{1/2}}$$

On the average, Eq. 6-29, when used with Eq. 6-30, overestimates the discharge by about 2 percent since friction through the meter is ignored.

Some care is required in the installation and operation of these meters. There should be a stretch of 10 diameters of straight pipe ahead of the meter.

Table 6-5 ORIFICE METER COEFFICIENT C_D

Orifice/pipe diameter ratio D_2/D_1	C_D
0.2	0.60
0.3	0.605
0.4	0.61
0.5	0.62
0.6	0.65
0.7	0.70
0.8	0.77

Books:

FUNDAMENTALS OF
HYDRAULIC ENGINEERING

ALAN L. PRASUHN

51-7147

51-7147



P.D.
+ P.U.
LOOKING
NORTH WEST



P.D.
+
P.U.
LOOKING
NORTH

WIDE FILMED

JAN 17 1991

51-7147

SAME PICTURES



P.D.



P.D.
P.D.

REPRODUCED

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 51-07147

Priority: March 29, 1980

Maximum Diversion Rate: 4.57 CFS
Maximum Diversion Volume:¹ 1430.0 AF

This is to certify, that WILBUR MASTRE
BARBARA MASTRE

RT 1 BOX 474 AB
BONNERS FERRY, ID 83805

has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated March 21, 1980; and has submitted Proof of Beneficial Use on April 11, 1985. An examination indicates that the works have a diversion capacity of 4.570 cfs of water from a GROUNDWATER source, and a water right has been established as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/15 to 11/15	4.57 CFS	1430.0 AF

LOCATION OF POINT(S) OF DIVERSION:

NWSE , Sec. 2, Township 07S, Range 04E
NESE , Sec. 2, Township 07S, Range 04E
OWYHEE County

PLACE OF USE: IRRIGATION

<u>TWN</u>	<u>RGE</u>	<u>SEC</u>	<u>ACRES</u>	<u>ACRES</u>	<u>ACRES</u>	<u>TOTAL</u>
06S	04E	35	NESE 39	SESE 39		78
07S	04E	1	NWSW 37			37
		2	LOT 1(NENE) 37	SANE 39	SENE 37	171
			NESE 28	NWSE 30		

Total number of acres irrigated: 286

CONDITIONS/REMARKS:

1. The maximum diversion volume is defined as the maximum allowable volume of water that may be diverted annually from the source under this right. The use of water confirmed by this right is limited to the amount which can actually be beneficially used. The maximum diversion volume may be adjusted to more accurately describe the beneficial use or to implement accepted standards of diversion and use efficiency.
2. This water right is appurtenant to the described place of use.
3. This right is subject to all prior water rights and may be forfeited by five years of non-use.
4. Modifications to or variance from this license must be made within the limits of Section 42-222, Idaho Code, or the applicable Idaho law.
5. This right when combined with all other rights shall provide no more than .02 cfs per acre nor more than 5.0 afa per acre for the lands above.

MICROFILMED

JAN 07 1991

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 51-07147

CONDITIONS/REMARKS:

6. 1 point of diversion located on quarter-quarter line.

This license is issued pursuant to the provisions of Section 42-219, Idaho Code.
Witness the seal and signature of the Director, affixed at Boise, this 18th
day of December, 1990.

Acting for

R. Keith Higginson, Director

MICROFILMED

JAN 07 1991

WATER RIGHT SPLIT

SUMMARY

ACTION	RIGHT #	NAME	AMOUNT C.F.S.
~~App. for Permit~~	~~51-7147~~	~~Ivan E. Cantrell~~	~~6.4~~
Assignment	51-7147	Wilbur or Barbara Mastre	6.4

MICROFILMED

State of Idaho
Department of Water Resources
ASSIGNMENT OF PERMIT

RECEIVED

APR 2 1981

I, IUAN E. CANTRELL, hereby assign to Wilbur or Barbara Maste Department of Water Resources
of Star Route B - Box 154-B - Brunen, Idaho 83604 Western Regional Office
Address

CHECK ONE



All my right, title, and interest in and to Permit No. 51-7147
to appropriate the public waters of the State of Idaho.



The following described portion of my right, title, and interest in and to Permit
No. _____ to appropriate the public waters of the State of Idaho.

(Describe that portion of the permit being assigned by listing the acreage within
each 40 acre subdivision, the point of diversion and the amount of water in cubic
feet per second for direct diversion, or acre feet for storage)

Made this 14th day of February, 1981.

Iuan & Roberta Cantrell by
Permit Holder

John M. Smith, their
attorney-in-fact
Spouse of Permit Holder

State of Idaho)
County of ADA) ss.

On this 19th day of February, 1981, personally
appeared before me the signer(s) of the above instrument, who duly acknowledged to me
that he (she) (they) executed the same.

seal

Jay R. Friedly
Notary Public residing at
Mo. Lane, Id.

My commission expires:

for life

MICROFILMED

ASSIGNED TO:

Wilbur or Barbara Mastre
Star Route B-Box 154-B
Bruneau, Idaho 83604
Permit #51-7147

Ident. No. 51-7147

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

APPROVED

To appropriate the public waters of the State of Idaho

1. Name of applicant Ivan E. Cantrell Phone 343-4401

Post office address 3392 Maze Ave., Boise, ID 83706

2. Source of water supply Groundwater which is a tributary of _____

3. Location of point of diversion is NE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 2 Township 7S

Range 4E B.M. Owyhee County, additional points of diversion if any: _____

NW $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 2, Twp. 7S, Rge. 4E, B.M.

4. Water will be used for the following purposes:

Amount 6.4 for Irrigation purposes from Mar. 15 to Nov. 15 (both dates inclusive)
(cfs or acre-feet per annum)

Amount 0.05 for Stockwater purposes from Jan. 1 to Dec. 31 (both dates inclusive)
(cfs or acre-feet per annum)

Amount 0.04 for Domestic purposes from Jan. 1 to Dec. 31 (both dates inclusive)
(cfs or acre-feet per annum)

Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)

5. Total quantity to be appropriated:

a. 6.4 cubic feet per second and/or b. _____ acre-feet per annum.

6. Proposed diverting works:

a. Description of ditches, flumes, pumps, headgates, etc. well, pump, motor, sprinklers

b. Height of storage dam _____ feet, active reservoir capacity _____ acre-feet; total reservoir capacity _____ acre-feet, materials used in storage dam: _____

Period of year when water will be diverted to storage _____ to _____ inclusive.
(Month/Day) (Month/Day)

c. Proposed well diameter is 16 inches; proposed depth of well is 1800 feet.

7. Time required for the completion of the works and application of the water to the proposed beneficial use is 5 years (minimum 1 year - maximum 5 years).

8. Description of proposed uses:

a. If water is not for irrigation:

(1) Give the place of use of water: NW $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 2 Township 7S

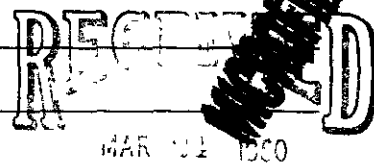
Range 4E B.M., for domestic; stockwater place of use same as 8b.

(2) Amount of power to be generated: _____ horsepower under _____ feet of head.

(3) List number of each kind of livestock to be watered approx. 200 head cattle.

(4) Name of municipality to be served _____, or number of families to be supplied with domestic water one.

(5) If water is to be used for other purposes describe: _____



TOTAL 80

Total number of acres to be irrigated	320
--	------------

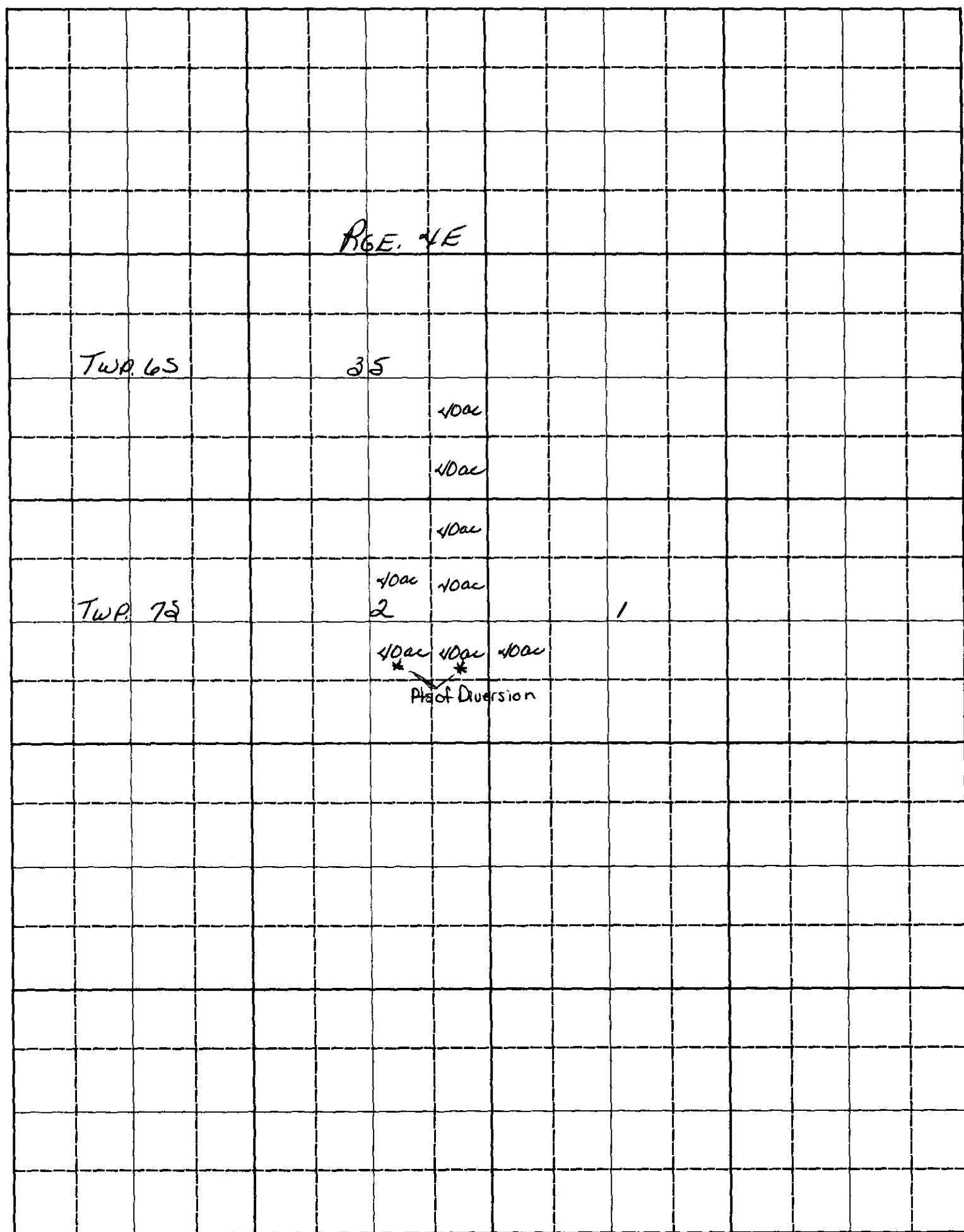
None

b. Who owns the land to be irrigated or place of use Applicant

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing

10. Remarks

11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

John F. Cantrell
(Applicant)

Proposed Priority 3/21/80 ³⁻²⁴⁻⁸⁰ ^{3.00 p.m.}
Received by JG Date 3/21/80 Time 3:30 p.m.
Preliminary check by CWB Fee \$ 95.00 # 16213
Received by KK Date 3/25/80
Publication prepared by KK Date 3/27/80
Published in Owyhee Nugget
Publication dates 4/3-4/10/80 4/10 & 4/17/80
Publication approved HWH Date 4/23/8
Protests filed by: _____

Copies of protests forwarded by _____
Hearing held by _____ Date _____
Recommended for approval denial by DBS jin

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. 51-7147, and said application is hereby approved.

1. Approval of said application is subject to the following limitations and conditions:

- a. SUBJECT TO ALL PRIOR WATER RIGHTS.
- b. Proof of construction of works and application of water to beneficial use shall be submitted on or before May 1, 19 85.
- c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.
- d. Other: (1) An access port or other device as specified by the Department
shall be installed by the permit holder to provide for the installation of
measuring equipment and the determination of the rate of diversion by the
Department.

Witness my hand this 1st day of May, 19 80.

L. Glen Saxton
Chief Clerk, Bureau

[illegible]

December 19, 1990

WILBUR MASTRE
BARBARA MASTRE
RT 1 BOX 474 AB
BONNERS FERRY, ID 83805

RE: WATER RIGHT NO. 51-07147

Dear Water Right Holder(s):

Enclosed herewith is a copy of the Water Right License issued on the above referenced permit.

Sincerely,

JIM JOHNSON
Water Rights Supervisor

JJ:blm

Enclosure

MICROFILMED

JAN 67 1991

October 12, 1990

WILBUR MASTRE
BARBARA MASTRE
RT 1 BOX 474 AB
BONNERS FERRY, ID 83805

RE: PERMIT NO. 51-07147

Dear Permit Holder(s):

Enclosed is a draft copy of the license proposed to be issued on the above referenced water right.

This right is currently being reviewed by this office for licensing. The enclosed preliminary copy is subject to change upon further administrative review.

We ask that you review the proposed license and if you do not concur with the information, please let us know within 10 days.

Sincerely,

JIM JOHNSON
Water Rights Supervisor

JJ:blm

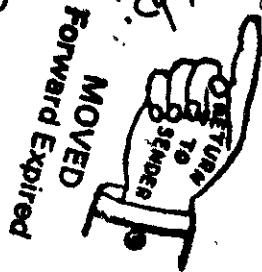
Enclosure

MICROFILMED

JAN 07 1991

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street
Boise, Idaho 83706-2237

Sub b.
Rt 1 Box 474 AB
Bonners Ferry, ID
83805



RECEIVED
JAN 07 1991

POSTED
FIRST CLASS



RECEIVED
SEP 21 1990

Department of Water Resources

September 17, 1990

WILBUR MASTRE
BARBARA MASTRE
HC 85 BOX 154-B
BRUNEAU, ID 83604

RE: PERMIT NO. 51-07147

Dear Permit Holder(s):

Enclosed is a draft copy of the license proposed to be issued on the above referenced water right.

This right is currently being reviewed by this office for licensing. The enclosed preliminary copy is subject to change upon further administrative review.

Please note that the date of priority of this right has been advanced due to late submittal of the examination fee &/or exam fee information sheet.

We ask that you review the proposed license and if you do not concur with the information, please let us know within 10 days.

Sincerely,

JIM JOHNSON
Water Rights Supervisor

JJ:sc

Enclosure

MICROFILMED

JAN 07 1991

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 51-7147

1. Owner: WILBUR MASTRE OR BARBARA MASTRE Phone No. 834-2376

Current Address: H.C. 85 Box 154-13 BRUNEAU ID. 83604

2. Accompanied by: SAME EXAM. DATE: 6/22/88

Address: _____ Phone No. _____

Relationship to Permit Holder: OWNER

3. Source: GROUND WATER tributary to _____

B. OVERLAP REVIEW

1. Other water rights with same place of use. NONE

☐ Copies Attached

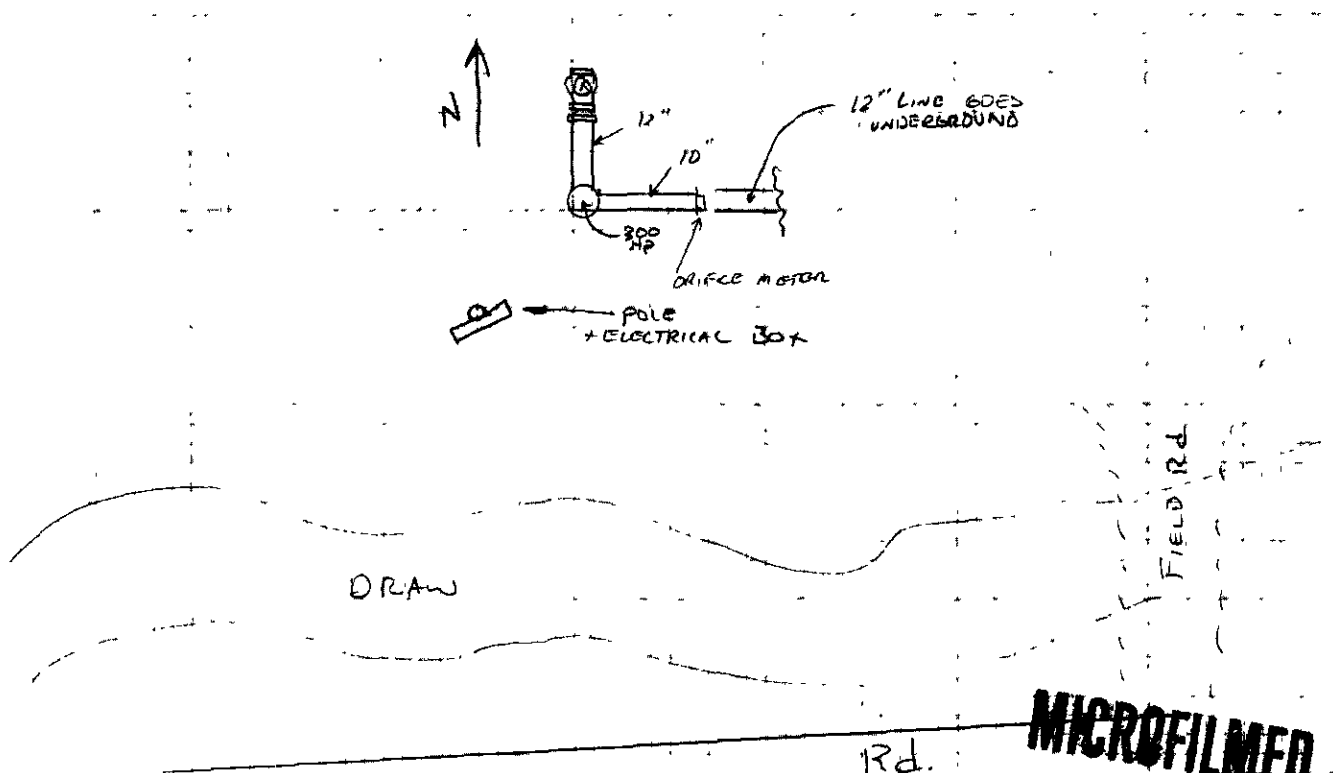
2. Other water rights with same point of diversion: NONE

☐ Copies Attached

☐ Copies of Field Exam's Attached

C. SYSTEM DESCRIPTION

1. **Diversion System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable. ☐ Alternative diagram attached



Scale: 1" = No Scale

2. ☒ Copy of U.S.G.S. Quadrangle Attached
Showing location(s) of point(s) of diversion and
place(s) of use (required).

☒ Photo of Diversion and System Attached
(required for all but single household domestic groundwater, and stockwater).

☒ Aerial Photo Attached
(required for irrigation of 10 acres or more).

MICROFILMED

JAN 07 1991

System Description (continued)

3. Narrative: Description (As operating at time of measurement. Indicate pressure, number of sprinklers, etc.)

SYSTEM CONSISTS OF 16" CASED WELL 1800 FT DEED WITH A 300 HP TURBINE PUMP. DISCHARGE LINE IS A 10" EXPANDING TO A 12" THEN GOING UNDERGROUND TO 12" P.U.C. MAINLINE. AT THE TIME OF THE EXAM THE LAND WAS IN C.R.P. SO NO SPRINKLER SYSTEM WAS SET UP, SO A OPEN DISCHARGE MEASUREMENT WAS DONE USING A ORIFICE.

☐ See Remarks on page 4 for continuation

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
	GENERAL	300	EM J526119	JOHNSTON	5149 (10")
	ELECTRIC				

*Code to correspond with No. on map and aerial photo

5. Point(s) of Diversion:

ONE POINT ON 1/4 LINE

Ident. No.	Gov't. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
			NE	SE	2	75	4E	DWYHEE	USGS QUAD + AERIAL PHOTO
			NW	SE	"	"	"	"	"

6. Place(s) of Use:

Indicate Method of Determination

Twp.	Rge.	Sec.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Totals
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
65	4E	35													39			39	78 ac
75	4E	2													28	30			171
"	"	1									37								37
																			Σ = 286

Do not use this space

MICROFILMED

JAN 07 1991

Do not use this space

D. FLOW MEASUREMENTS

☒ Additional Data Sheets Attached

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
ORIFICE						
METER						

2 Measurements:

54-56 IN RISE IN TUBE 8" ORIFICE
10" PIPE
WATER LEVEL ? (BORING OFF ON PROBE)
* SEE ATTACHED SHEET FOR CALCULATION

E. FLOW CALCULATIONS

☐ Additional Computation Sheets Attached

1. Measured Method: ORIFICE = 4.57 cfs

$$286 \text{ ac} \times 0.02 \text{ cfs/ac} = 5.72 \text{ cfs} \\ \text{PAID FOR 5 cfs}$$

2. Alternate Method for Checking Purposes:

THEORETICAL = $\frac{300 \text{ HP} \times 88 \times .8}{(2.31 \times 2) + (350)} = 5.95 \text{ cfs} > 4.57 \text{ cfs}$ O.K.
ESTIMATE

F. PUMP EFFICIENCY DATA (Optional)

LAND IN CIP (DEMAND NOT KICKED IN)

Discharge Pressure: _____ psi x 2.31 = _____ ft (1); Dynamic pumping level: _____ ft (2)

Total Head: (1) + (2) = _____ (3)

: Flow rate: _____ cfs (4)

Water HP: (3) x (4) ÷ 8.8 = _____ (5)

Meter Input KW: 3.6 x 2.4 KH x _____ CTR or 80 MULT x _____ PTR x _____ N/ _____ T = _____ (6)

Meter Input HP: (6) x 1.34 = _____ (7)

Panel Input KW: _____ Ave PF x _____ Ave Volts x _____ Ave Amps x .001732 = _____ (6)

Panel Input HP: (6) x 1.34 = _____ (7) Efficiency: (5)/(7) x 100 = _____ %

G. VOLUME CALCULATIONS

1 Volume Calculations for Irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 286 \text{ ac} \times 5.0 \text{ cfs/ac} = 1,430 \text{ cfs}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 4.57 \text{ cfs} \times 245 \text{ days} \times 1.9835 = 2,220.8 \text{ cfs}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 1,430 \text{ cfs}$$

2. Volume Calculations for Other Uses:

MICROFILMED

JAN 07 1991

H. REMARKS AND OVERLAP REVIEW ANALYSIS

I. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
IRRIGATION.	3/15	11/15	4.57 cfs	1,430 afa
Totals:			4.57 cfs	1,430 afa

2. Recommended Amendments

- ☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

J. AUTHENTICATION

Field Examiner's Name QUENTIN NESBITT
Signature Quentin Nesbitt
Certification Date _____
Field Report Preparation Date 8-22-88

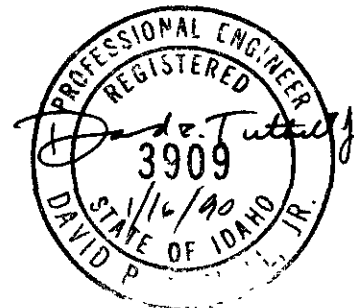
CE 1-8-90

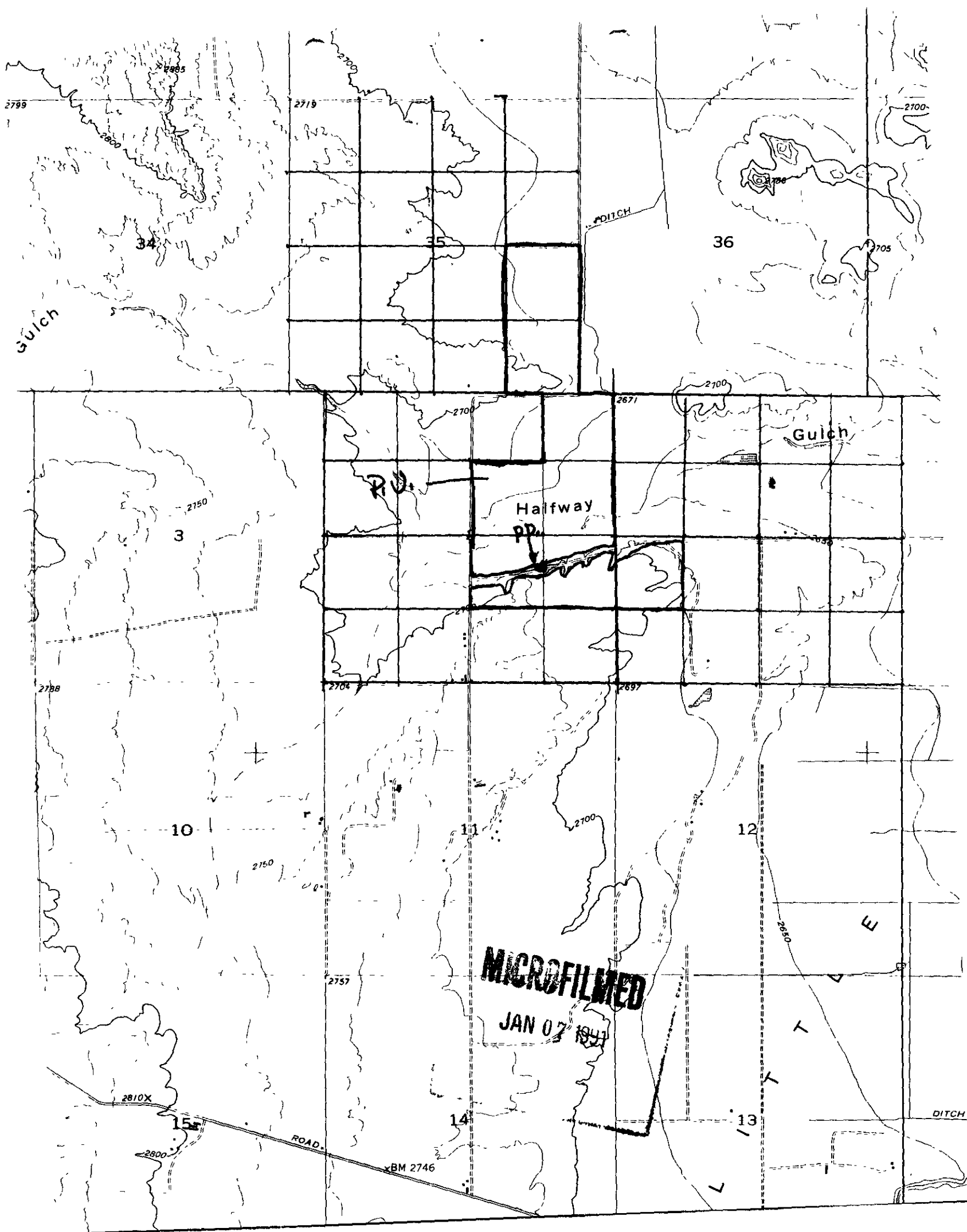
CONSULTANT SEAL

K. Licensing recommendation shall be prepared by an Idaho Department of Water Resources employee on a computer printout attached hereto.

MICROFILMED

JAN 17 1991





C' b B "

16 SOUTH

81.04

21.65

80.05

0.89°55'E
21.33

4	3	2	1	2	1
38.84	39.03	39.29	39.42	39.55	39.67
39.13	39.51	39.67	39.73		

80

80

80

80

Sir. 2.

Sir. 1.

636.52

638.56

79.87

79.76

79.88

N. 0.2° W.

N. 1.0° W.

N. 89° 51' W.

N. 89° 56' W.

MICROFILMED

JAN 07 1991

0.47

79.68

30

0420

2026

7793

A

371

A1

77.0

MICROFILMED

30

2447

56.1

15.13

450

42

5.3

0100

238

7629

leading to

$$V = C\sqrt{2\Delta p/\rho}$$

Typical values of C are included on Fig 6-15 for the different types of Pitot tubes, but high accuracy requires individual calibration. In addition to the conventional Pitot tube shown in Fig 6-15a, part b contains a simpler *stagnation tube* in which the static or ambient pressure is obtained separately at the side of the pressure conduit. The advantage herein is that the stagnation tube can be made with a smaller diameter, thereby yielding a reading that more closely represents a point measurement. Part c, called a *Cole pitometer*, is designed for easy insertion into the pipe, whereupon one tube can be rotated so as to point in the downstream direction.

If the pipe discharge is of primary interest, the velocity may be measured at selected points across the conduit section and the discharge computed by graphic integration. If somewhat lower accuracy is acceptable, a single velocity measurement at the pipe centerline can be correlated with the discharge.

Discharge Measurement

Discharge in a pipe is most commonly measured using some form of differential head meter, such as the three included in Fig 6-16. In each case the governing

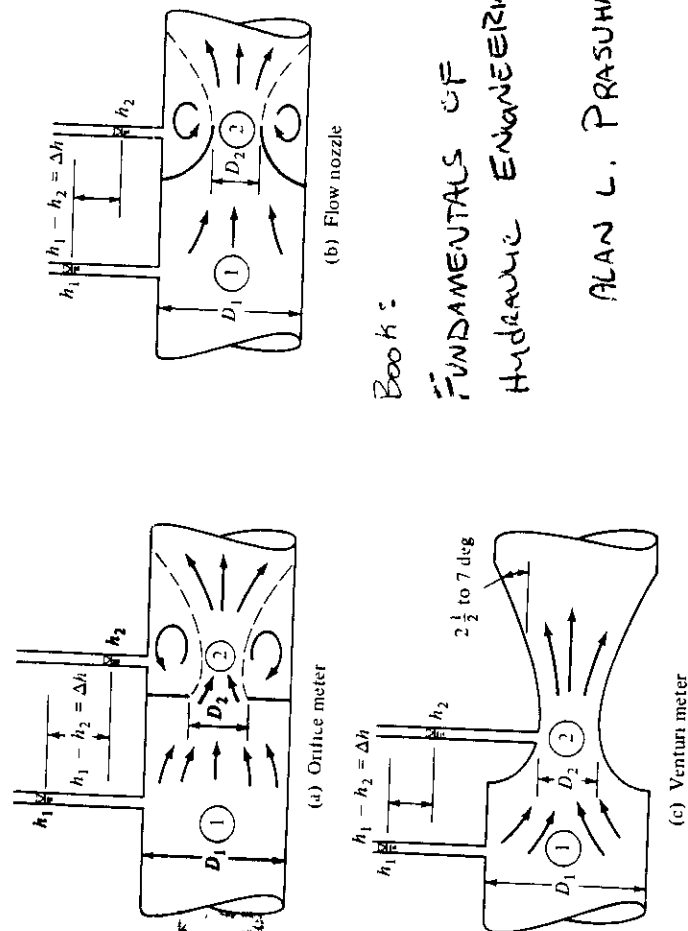


Figure 6-16 Pipe flow meters

Book:
FUNDAMENTALS OF
HYDRAULIC ENGINEERING
ALAN L. PRASUN

meter. With respect to the latter, the discharge is

$$Q = C_D A_2 \sqrt{2g(h_1 - h_2)}$$

Regardless of meter type, the area A_2 is the minimum orifice coefficient. The piezometric heads h_1 and h_2 are obtained using manometers (as shown) or pressure gauges.

The orifice meter is perhaps the most common meter more than an orifice (usually machined) in a plate that is flanges in a pipe. Its biggest disadvantage is a rather large magnitude of the discharge coefficient. An in-place calibration and is recommended in fact, for all meters when h

For a sharp-edged orifice, typical orifice meter coefficients. The flow nozzle reduces the head loss in exchange other hand, the venturi meter almost eliminates head most expensive. If the angle of divergence (Fig 6-16c) deg, the flow will be unable to follow the diverging boundary and a low head loss will not be achieved. If actual possible, then the venturi meter will usually provide the in

Both the flow nozzle and the venturi meter may be analysis, whereupon the discharge coefficient is determined

$$C_D = \frac{1}{[1 - (A_2/A_1)^2]^{1/2}}$$

On the average, Eq. 6-29, when used with Eq. 6-30, or by about 2 percent since friction through the meter is ignored.

Some care is required in the installation and operation should be a stretch of 10 diameters of straight pipe ab

Table 6-5 ORIFICE

METER	COEFFICIENT C_D
Orifice/pipe diameter ratio D_2/D_1	C_D
0.2	0.60
0.3	0.605
0.4	0.61
0.5	0.62
0.6	0.65
0.7	0.70
0.8	0.77

$$Q = C_D A_2 \sqrt{2g(h-h_2)}$$

$$C_D = \frac{8}{10} = .77$$

$$A_2 = \frac{\pi D^2}{4} = \frac{\pi (8/2)^2}{4} = .349 \text{ ft}^2$$

$$g = 32.2 \text{ ft/sec}^2$$

$$h_1 = 54 \text{ in} = 4.5 \text{ FT}$$

$$h_2 = 0$$

$$Q = .77(.349 \text{ ft}^2) \sqrt{2(32.2 \text{ ft/sec}^2)(4.5 \text{ FT} - 0)} = 4.57 \text{ cfs}$$

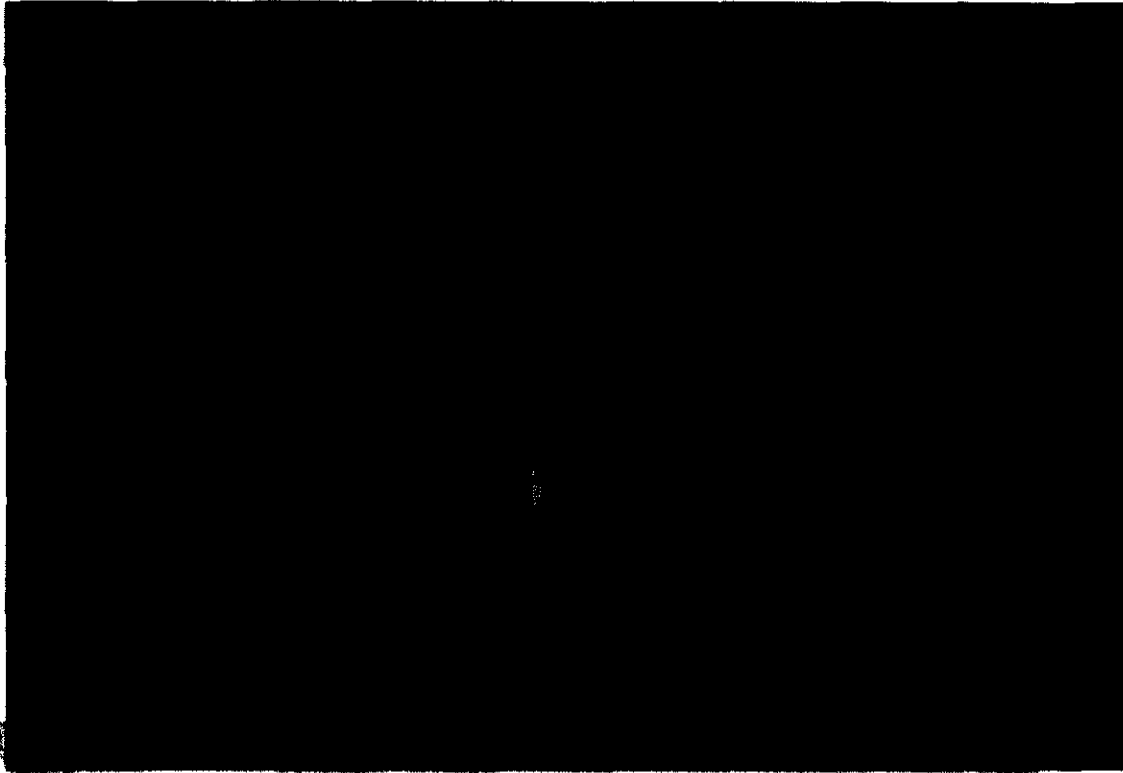
$$228.74 \text{ in}^3/\text{H}$$

$$2,053.14 \text{ G.P.M.}$$

1001

1001

51-7147



P.D.
+ P.U.
L. K. G.
P. T. + W. T.



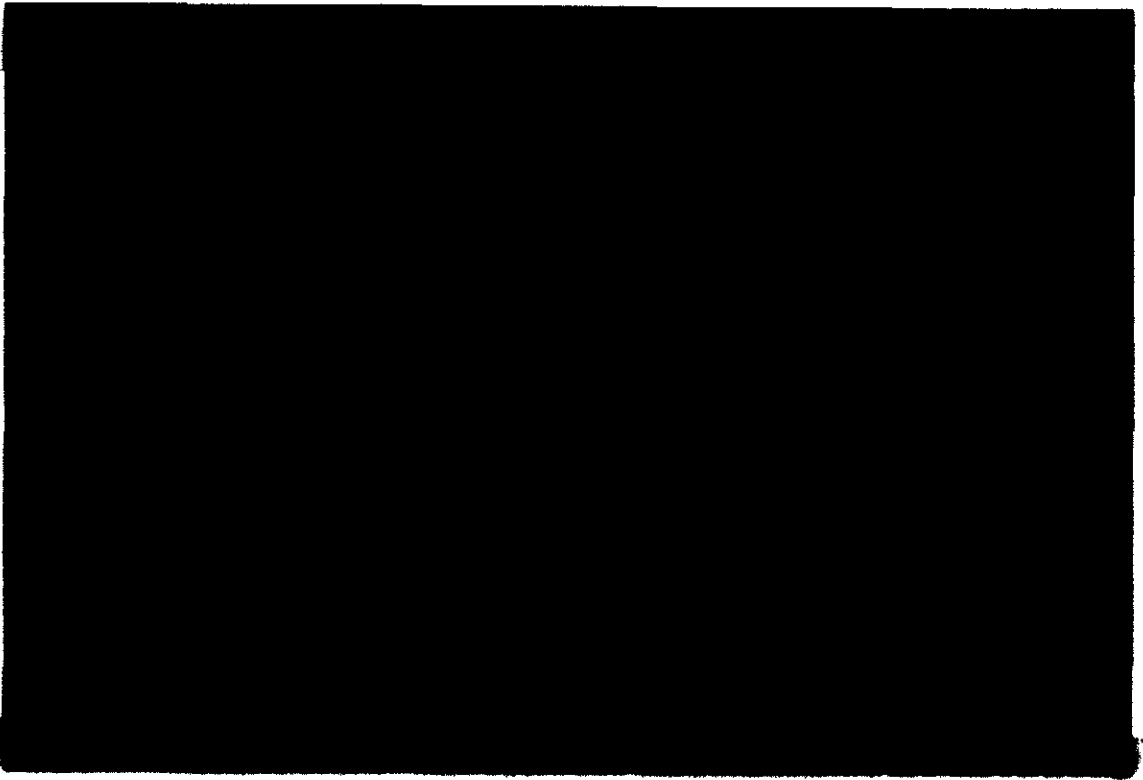
P.D.
+
P.U.
L. K. G.
N. T. H.

RECEIVED FILMED

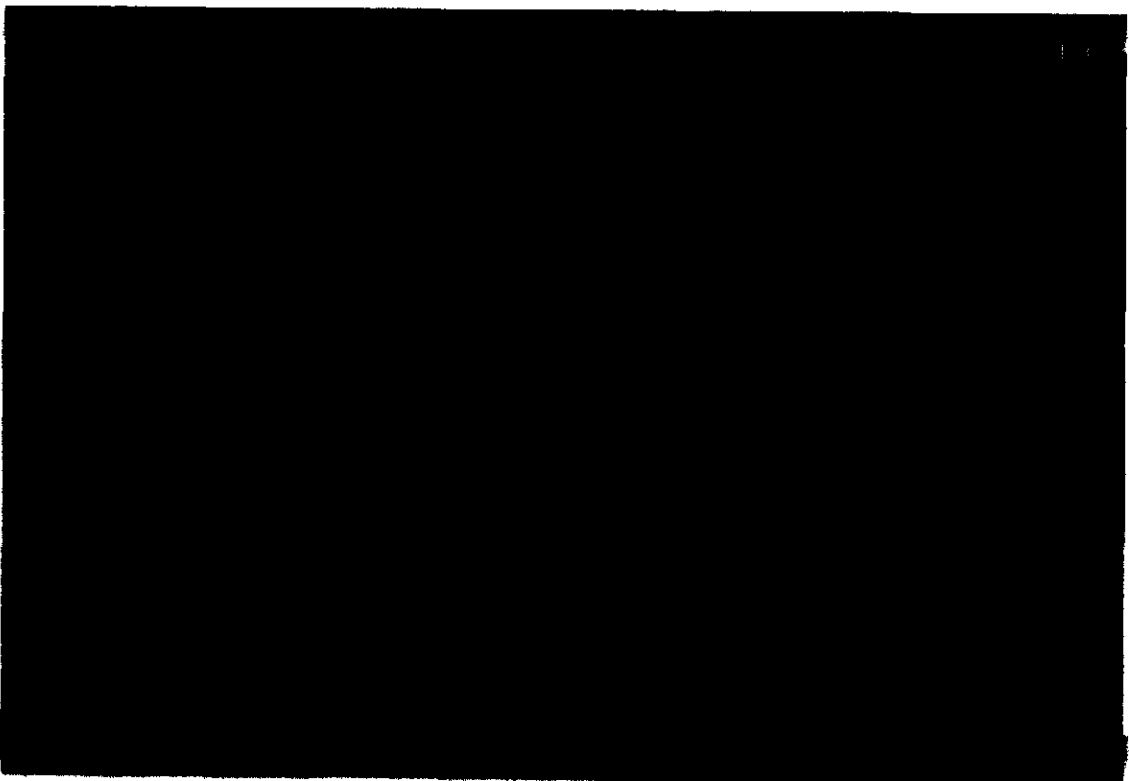
JAN - 7 1991

51-7117

SAME PICTURE



P.L.



P.L.

P.L.

FILED

BENEFICIAL USE FIELD REPORT REVIEW

TO: FILE 51-7147

FROM: ROXANNE MC CARTHY

RE: PRIORITY ADVANCE REVIEW

DATE: 28-FEB-1990

=====

This review memo is prepared to show the process for determining what elements were involved in advancement of the priority.

	<u>DATE</u>	<u>JULIAN</u>
PERMIT		
Permit priority Date:	MARCH 21 1980	80
EXAM FEE NOTICE		
Exam Fee Notice Date:	APRIL 03 1987	93
Exam Fee/Info Sheet Received Date:	JUNE 10 1987	161
Exam Fee or Info Due Date:	JUNE 02 1987	153
Days Late:		8 DAY(S)
NEW PRIORITY DATE		
Original Priority Date:	MARCH 21 1980	80
Total Days Late:		8 DAY(S)
New Priority Date:	MARCH 29 1980	88

MICROFILMED
JAN 67 1991

4/86

RECEIVED

JUL 02 1987

KEYPUNCHED

For Office Use Only
Fee Received \$ 200.00
Date 6/10/87
Receipt # 44931
Receipt by SL
Sent to S.O. 6/30/87

STATE OF IDAHO Department of Water Resources

DEPARTMENT OF WATER RESOURCES

EXAMINATION FEE INFORMATION

1. Permit No. 51-7147

ONE OF THE FOLLOWING BOXES SHOULD BE MARKED TO DESIGNATE YOUR CHOICE:

☒ I choose to have the department make the field examination of this permit; attached is the examination fee. (If this box is marked, complete items 1 thru 8.)

2. Permit Holder: Wilbur Mastre or Barbara Mastre

3. Post Office Address: HC 85 Box 154-B

Bruceau Id. Telephone No. 83604 834-2376

4. Source of Water: groundwater

5. Extent of Use:

Domestic _____ (No. of households) Stockwater _____ (No. and type of stock)

Irrigation 300 (acres) Other/Remark _____

6. Total rate &/or volume for which proof is submitted 5.0 cfs acre-feet \$200.00

7. Show the date water was first diverted and beneficially used under this permit:

April, 1980

8. Person to contact to accompany the department representative during the field examination:

Wilbur Mastre
(Name)

AS ABOVE
(Address)

(Telephone Number)

☐ I choose to have the field examination conducted by a certified water right examiner. Attached is a statement from the certified examiner I have selected verifying that he has been retained to conduct the examination. (If this box is marked, complete items 1 thru 7.)

Date 6/10/87 Signature of Permit Holder (and title, if appropriate) Wilbur C. Mastre

State of Idaho
Department of Water Resources

LICENSE EXAMINATION FEE SCHEDULE

(c.f.s. = cubic feet per second
AF = acre feet)

cfs	AF	Fee
0 - 0.04	0 - 4	\$ 0
.05 - 0.20	5 - 20	50.00
.21 - 1.0	21 - 100	100.00
1.01 - 2.0	101 - 200	125.00
2.01 - 3.0	201 - 300	150.00
3.01 - 4.0	301 - 400	175.00
4.01 - 5.0	401 - 500	200.00
5.01 - 6.0	501 - 600	225.00
6.01 - 7.0	601 - 700	250.00
7.01 - 8.0	701 - 800	275.00
8.01 - 9.0	801 - 900	300.00
9.01 - 10.0	901 - 1000	325.00
10.01 - 11.0	1001 - 1100	350.00
11.01 - 12.0	1101 - 1200	375.00
12.01 - 13.0	1201 - 1300	400.00
13.01 - 14.0	1301 - 1400	425.00
14.01 - 15.0	1401 - 1500	450.00
15.01 - 16.0	1501 - 1600	475.00
16.01 - 17.0	1601 - 1700	500.00
17.01 - 18.0	1701 - 1800	525.00
18.01 - 19.0	1801 - 1900	550.00
19.01 - 20.0	1901 - 2000	575.00
20.01 & over	2001 & over	600.00

Checks should be made payable to the
Department of Water Resources

No fee is required for single family
domestic use or stockwater use.



Cecil D. Andrus
Governor

State of Idaho
DEPARTMENT OF WATER RESOURCES
Western Region

2735 Airport Way
Boise, Idaho 83705
(208) 334-2190

51-7147
MASTRE, WILBUR
MASTRE, BARBARA
STAR ROUTE P BOX 154-B
BRUNEAU, ID 83604

138047

April 3, 1987

CERTIFIED MAIL

EXAMINATION FEE NOTICE

Dear Permit Holder:

Department records show that proof of beneficial use has been submitted for the above-referenced permit, but that a field examination has not yet been conducted to determine the extent of beneficial use of the water for licensing purposes.

House Bill 671 (effective April 4, 1986) enacted by the 1986 Idaho Legislature requires the payment of a fee before this department can conduct the field examination needed to issue a license confirming use of water under the permit. This letter is notification that the license examination fee is due within sixty (60) days of the date of this letter. The examination fee information sheet (enclosed) must be returned with the fee.

As an alternative to submitting the fee, the department will accept a field examination report completed by a certified water right examiner from the private sector. If you choose to have the examination done by a certified water right examiner, you need not submit the license examination fee to the department, but you must within sixty (60) days of the date of this letter return to the department, the examination fee information set showing appropriate information together with a statement from the certified examiner to verify that you have retained a certified examiner to conduct the field examination. If you choose this alternative, a completed field examination report must be submitted within one year of the date of this letter. You cannot later change your decision to use this alternative and submit the fee needed for the department to conduct the field examination, but you may change to another certified examiner.

MICROFILMED

JAN 17 1991

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
Western Region

Statehouse
Boise, Idaho 83720
(208) 334-2190

MAY 10, 1985

WILBUR MASTRE
HC 85 BOX 154 B
BRUNEAU ID 83604

RE: Permit No. 51-7147

Dear Permit Holder:

We acknowledge receipt of your statement submitted as proof of beneficial use for the above referenced permit.

Before a license can be issued, a field examination must be made by a representative of this department.

A field examiner will contact you to arrange to examine your system.

If you have any questions regarding the field examination, please contact this office by phone at 334-2190 or in person in the third floor State Towers Building, 450 West State Street, Boise.

Sincerely,
s/Judy Pense
Secretary

MICROFILMED

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
PROOF OF BENEFICIAL USE

RECEIVED
APR 11 1985
Department of Water Resources

The Idaho Department of Water Resources will consider this form as a statement that the permit holder(s) has completed development under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below:

Permit No. 51-7147

Name(s) of Permit Holder: Wilbur - Barbara Masthe

Post Office Address: HC 85 - Box 154-B Bruneau, Idaho

Telephone No. 208 834 2376 83604

Source of Water: Well

Extent of Use:

Domestic _____ (number of households)

Stockwater _____ (number and type of stock)

Irrigation 320 (acres)

Other/Remarks _____

Indicate the date water was first diverted and beneficially used under this permit: 1980

Measuring Device: Required? ☐ Yes ☐ No
Installed? ☒ Yes ☐ No

Flow Measurement Port. Required? ☒ Yes ☐ No
Installed? ☒ Yes ☐ No

Person to contact to accompany the Department representative during the field examination:

Wilbur C. Masthe
(Name)

HC 85 - Box 154-B Bruneau, Ida. 208-834-2376
(Address) 83604 (Telephone Number)

The above information is a true statement of the extent to which the above numbered permit has been developed.

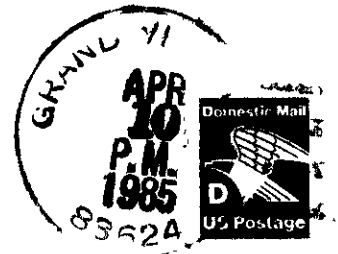
4-8-85
Date

Wilbur C. Masthe
Signature of Permit Holder (and Title, if appropriate)

MICROFILMED

Handwritten mark

H.C. 85 Wilbur C. Mastre
~~St Albans~~ - Box 154 - B
Bruneau, Idaho 83604



Idaho Department of Water Resources
Statehouse Mail
Boise, ID 83720

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

STATEHOUSE
BOISE, IDAHO 83720
(208) 334-4440
CERTIFIED MAIL

138754

MASTRE, WILBUR & BARBARA
STAR ROUTE B BOX 154-B
BRUNEAU, ID 83604

PROOF DUE NOTICE

FEBRUARY 28, 1985

DEAR PERMIT HOLDER:

ONE OF THE CONDITIONS OF APPROVAL OF YOUR WATER PERMIT NO. 51-7147 WAS THAT PROOF OF THE EXTENT OF YOUR BENEFICIAL USE MUST BE SUBMITTED TO THIS OFFICE ON OR BEFORE MAY 01, 1985. (SEE LAST PAGE OF YOUR APPROVED PERMIT OR YOUR LAST APPROVED EXTENSION REQUEST). ENCLOSED IS A FORM WHICH MAY BE USED TO SUBMIT THE REQUIRED PROOF.

IF YOU HAVE NOT FULLY COMPLETED YOUR PROJECT, AND YOU OR A PREVIOUS OWNER OF THIS PERMIT HAVE NOT RECEIVED A PRIOR EXTENSION OF TIME, YOU MAY REQUEST AN EXTENSION OF TIME IF THE DELAY IS FOR REASONABLE CAUSE AS PROVIDED IN SECTION 42-204, IDAHO CODE. IF YOU HAVE BEEN PREVENTED FROM PROCEEDING BY A GOVERNMENTAL AGENCY OR BY LITIGATION, MORE THAN ONE EXTENSION OF TIME CAN BE GRANTED. AN EXTENSION OF TIME REQUEST FORM IS ENCLOSED FOR YOUR CONVENIENCE.

EITHER THE BENEFICIAL USE FORM OR A REQUEST FOR AN EXTENSION OF TIME MUST BE RECEIVED BY THIS DEPARTMENT ON OR BEFORE THE ABOVE DESCRIBED PROOF DUE DATE. IF NEITHER IS RECEIVED, THE DEPARTMENT WILL SEND YOU A LAPSE NOTICE. WITHIN SIXTY (60) DAYS OF THE MAILING OF THE LAPSE NOTICE, THE PERMIT WILL NO LONGER BE OF ANY FORCE NOR EFFECT.

SINCERELY,

RITA FLECK
SECRETARY/RECORDS MANAGER

ENCLOSURES

MICROFILMED



State of Idaho
DEPARTMENT OF WATER RESOURCES
STATE OFFICE, 450 W. State Street, Boise, Idaho

JOHN V. EVANS
Governor

C. STEPHEN ALLRED
Director

Mailing address:
Statehouse
Boise, Idaho 83720
(208) 334-4440

April 16, 1981

Wilbur or Barbara Mastre
Star Route B-Box 154-B
Bruneseu, Idaho 83604
Permit #51-7147

Dear Mr. & Ms. Mastre:

This office acknowledges receipt of the Assignment of the above referenced permit to you.

Enclosed for your records is a copy of the permit. Be sure to note the special conditions of approval on the fourth page that identify requirements necessary for developing the permit into a licensed water right.

If you have any questions on this matter, please feel free to contact us.

Sincerely,

A handwritten signature in cursive script that reads "Jim Johnson".

JIM JOHNSON
Water Distribution Supervisor

JJ:mr

Enclosure

MICROFILMED

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

STATEHOUSE
BOISE, IDAHO 83720
(208) 334-4440

CANTRELL, IVAN E.
3392 MAZE AVE.
BOISE, ID 83706

MAY 14, 1980

RE: PERMIT NO. 51-7147

DEAR PERMIT HOLDER:

ENCLOSED IS A COPY OF YOUR APPROVED APPLICATION FOR PERMIT. WE DIRECT YOUR ATTENTION TO THE CONDITIONS OF APPROVAL ON THE FOURTH PAGE.

BE SURE TO NOTE THE SPECIAL CONDITION REQUIRING YOU TO INSTALL A MEASURING DEVICE, OR AN ACCESS PORT TO PROVIDE FOR THE INSTALLATION OF MEASURING EQUIPMENT BY THE DEPARTMENT. ENCLOSED PLEASE FIND A LIST OF MEASURING DEVICE OPTIONS, AND SPECIFICATIONS FOR THE INSTALLATION OF THE ACCESS PORT.

THE EXERCISE OF THIS PERMIT MAY ALSO BE AFFECTED BY THE COURT'S DETERMINATION OF WATER RIGHTS IN THE CASE OF IDAHO POWER COMPANY V. STATE OF IDAHO, ET AL., CIVIC NO. 62237, CURRENTLY PENDING BEFORE THE DISTRICT COURT OF ADA COUNTY. SINCE THE USE OF WATER UNDER YOUR PERMIT MAY AFFECT THE FLOWS IN THE SNAKE RIVER BETWEEN MILNER DAM AND HELLS CANYON, THE FINAL DECISION IN THIS CASE MAY DETERMINE TO WHAT EXTENT THE EXERCISE OF YOUR PERMIT IS SUBJECT TO WATER RIGHTS OF IDAHO POWER. WHILE THE ADA COUNTY COURT IS EXAMINING THIS QUESTION, IDAHO POWER COMPANY HAS NOT FILED A SPECIFIC PROTEST TO YOUR PERMIT. HOWEVER, THE DEPARTMENT OF WATER RESOURCES HAS BEEN ADVISED THAT THE POWER COMPANY IS NOT WAIVING ANY OF ITS RIGHTS TO CONTEST OR LIMIT THE EXERCISE OF YOUR PERMIT OR SUBSEQUENT LICENSE.

WE HAVE ENCLOSED A FORM ENTITLED "MAKING PROOF OF BENEFICIAL USE". PLEASE READ THE INSTRUCTIONS CAREFULLY SINCE YOU MUST TAKE FURTHER ACTION TO DEVELOP THIS PERMIT INTO A LICENSE.

SINCERELY,

DAVID R. TUTHILL, JR., P.E.
SUPERVISOR, WATER ALLOCATION SECTION

ENCLOSURE

MICROFILME

State of Idaho
Department of Water Resources

APPLICATION FOR PERMIT ANALYSIS SHEET

INITIAL REVIEW BY: CW Bryan

APPLICATION NUMBER: 51-7147
CANTRELL

CHECK:

- ☒ Source.
☒ Point of diversion.
☒ County.
☒ Description of diverting works.
☒ Time required for beneficial use of water.
☒ Place of use or acres irrigated.
☒ Map.
☒ Signature.
☒ Fee.

Field check by: _____

Date: _____

Comments: _____

- ☐ Yes ☒ No Field check required.
☐ Yes ☒ No Critical groundwater area.
☐ Yes ☒ No Request dam safety information. Sent by: _____ Date: _____
☐ Yes ☐ No* In form to receipt.

*REQUEST THE FOLLOWING ADDITIONAL INFORMATION FROM THE APPLICANT: _____

SEND COPIES TO:

- ☐ Idaho State Health Department. Copies sent by: _____ Date: _____
☐ Idaho Fish and Game Department. _____
☐ Idaho Department of Lands. _____
☐ U.S. Bureau of Land Management. _____
☐ U.S. Forest Service. _____
☐ Other _____

PROCESSING:

- ☐ Yes ☐ No Platted by: _____ Map No. _____
☒ Yes ☐ No Other rights on same place of use. 51-7096 - EXPIRED. THIS APP
IS TO REPLACE IT SINCE CANTRELL PLANS ON DEVELOPING USE.
☒ Yes ☐ No* In form for advertising.
Final date for protests: _____
☐ Yes ☒ No Protests received. If yes, record information on 4th page of application.

FINAL REGIONAL PROCESSING REVIEW:

- ☒ Affidavit of publication received. Date: 4/22/80
☐ Application published correctly. If not, record action taken: _____
☒ Fee amount, receipt date & number, recorded on application.
☒ Publication dates and paper, recorded on application.
☐ Protests, dates, withdrawal, etc., recorded on application.
☒ Recommendation & initial, recorded on application.
☐ Yes ☒ No Measuring device required.
☒ Yes ☐ No Access port required.
☐ Yes ☒ No Will water be delivered by watermaster? If yes, what district? _____
3/21/80 Date of priority recommended.
Special conditions of approval or cover letter. I.P. G.W. alone letter

By: DBS Date: 4/24/80

STATE OFFICE REVIEW:

Sand receipt w/approved app.
OIC I.P.L w/oic cond

- ☐ See attached sheet for more information.

By: [Signature] Date: 1/30/80

MICROFILMED

51-2142

CANTRELL, IVAN E.

3392 MAZE AVE., BOISE, ID 83706

Source: GROUNDWATER

Date Filed: 03/21/1980

Amount: 6.40 CFS

Diversion Point: NESE NWSE Sec 02 T 07S R 04E, OWYHEE Co.

Use: IRRIGATION	(6.40 CFS)	from 03/15 to 11/15
STOCKWATER	(0.05 CFS)	from 01/01 to 12/31
DOMESTIC	(0.04 CFS)	from 01/01 to 12/31

Place of Use: NESE SESE Sec 35 T 06S R 04E LOT 01 (NENE) SWNE SENE NESE NWSE
Sec 02 T 07S R 04E NSW Sec 01 T 07S R 04E FOR 320 ACRES

Diversion Means: WELL, PUMP, MOTOR & SPRINKLERS

MICROFILMED