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**Also Licensed in Utah & Colorado

February 2, 2007

RECEIVED

FEB 05 2007

DEPARTMENT OF
WATER RESOURCES

Dave Tuthill, Interim Director
Idaho Department of Water Resources
PO Box 83720
Boise, ID 83720-0098

RE: Request to Amend License of Water Right No. 22-7397

Dear Mr. Tuthill:

We represent Mr. Layne Harris of Newdale, Idaho, on various water rights matters and discovered what we believe to have been an error in the licensing of Water Right No. 22-7397. With the following explanation, we respectfully request that you amend Water Right License No. 22-7397, to show a diversion rate of 3.16 cfs instead of 1.97 cfs. The reasoning and rationale for our request are set forth below.

Layne Harris filed an Application for Permit on May 20, 1982. Mr. Harris requested the right to appropriate 3.2 cfs of groundwater for the irrigation of approximately 160 acres located in the NE¼ of Section 10, T6N., R41E. Based on a beneficial use exam performed in 1987 by Samuel Filetti, Mr. Filetti recommended that the license for this water right be issued for 3.16 cfs. We believe this recommendation was correct.

Unfortunately, it appears that Tim Luke of your office decided to reduce the diversion rate to 1.97 cfs. In a memorandum dated December 29, 2005, written by Kristin Moore and Harold Jones of the Eastern Region office of IDWR, both Ms. Moore and Mr. Jones concluded that in their view, the diversion rate was also incorrect. We have enclosed a copy of this memorandum, along with all of its accompanying documents. We believe the memorandum is self explanatory as to what occurred with the water right and with the acres Mr. Harris was irrigating. There is an enclosed map which is attached to the memorandum, and as you can see, there is approximately 100 acres Mr. Harris began to illegally irrigate with his water right beginning in approximately 1988. However, Mr. Harris did not file any amended application for permit or any other document indicating his

David Tuthill
Idaho Department of Water Resources
February 2, 2007
Page 2 of 2

desire to amend his original application. Mr. Harris ceased the illegal irrigation in 1990 at approximately the same time the water right was licensed. The last Mr. Harris heard from the Department concerning the licensing of his water right was that it was to be licensed just as the beneficial use examiner had measured in his field exam in 1987. In Mr. Harris's mind, the issued license was a mere formality. Unfortunately, the issued license did indicate a diversion rate of 1.97 cfs, which Mr. Harris failed to notice upon receiving the issued license. As we have researched Mr. Harris's files and the Department's files however, we have not found any letter explaining the reduction in the diversion rate and/or providing any procedure whereby Mr. Harris could appeal or ask for reconsideration. Mr. Harris discovered this error upon receiving his recommendations in the Snake River Basin Adjudication. For purposes of the adjudication, the Department has only recommended the 1.97 cfs as the water right is currently licensed. Because we believe this is an error, we have filed an objection to the SRBA recommendation, and believe now is the time to amend the license.

If we may provide any additional information or assistance, please feel free to call upon us. Because SRBA objections for Basin 22 must be filed before July of this year, we would appreciate your prompt attention to this matter.

Yours very truly,



Kent W. Foster

Enclosures

To: Kay Walker File 22-7397
From: Kristin Moore and Harold Jones
Re: Clarification and Correction of License 22-7397

RECEIVED
JAN 09 2006
DEPARTMENT OF
WATER RESOURCES

Date: December 29, 2005

Our review of SRBA claim for 22-7397 exposed what we believe to be an error in the licensing of this water right. We are asking Allocations to consider issuing a new license based on the permit and the findings of the investigation conducted by Samuel Filetti in 1987. The narrative below explains the circumstances leading to the error.

Prior to 1982, the NE1/4 of Sec 10, T06N, R41E was covered by license 22-2186 and owned by Walz Enterprises. However, a conversation with representatives of Walz Enterprises suggests Layne Harris purchased the ground in Sec 10 without a water right. Since Mr. Harris intended to continue irrigating the NE1/4 of Sec 10, T06N, R41E in May 1982 he filed permit application 22-7397 seeking to drill a new well for irrigation of the land in question.

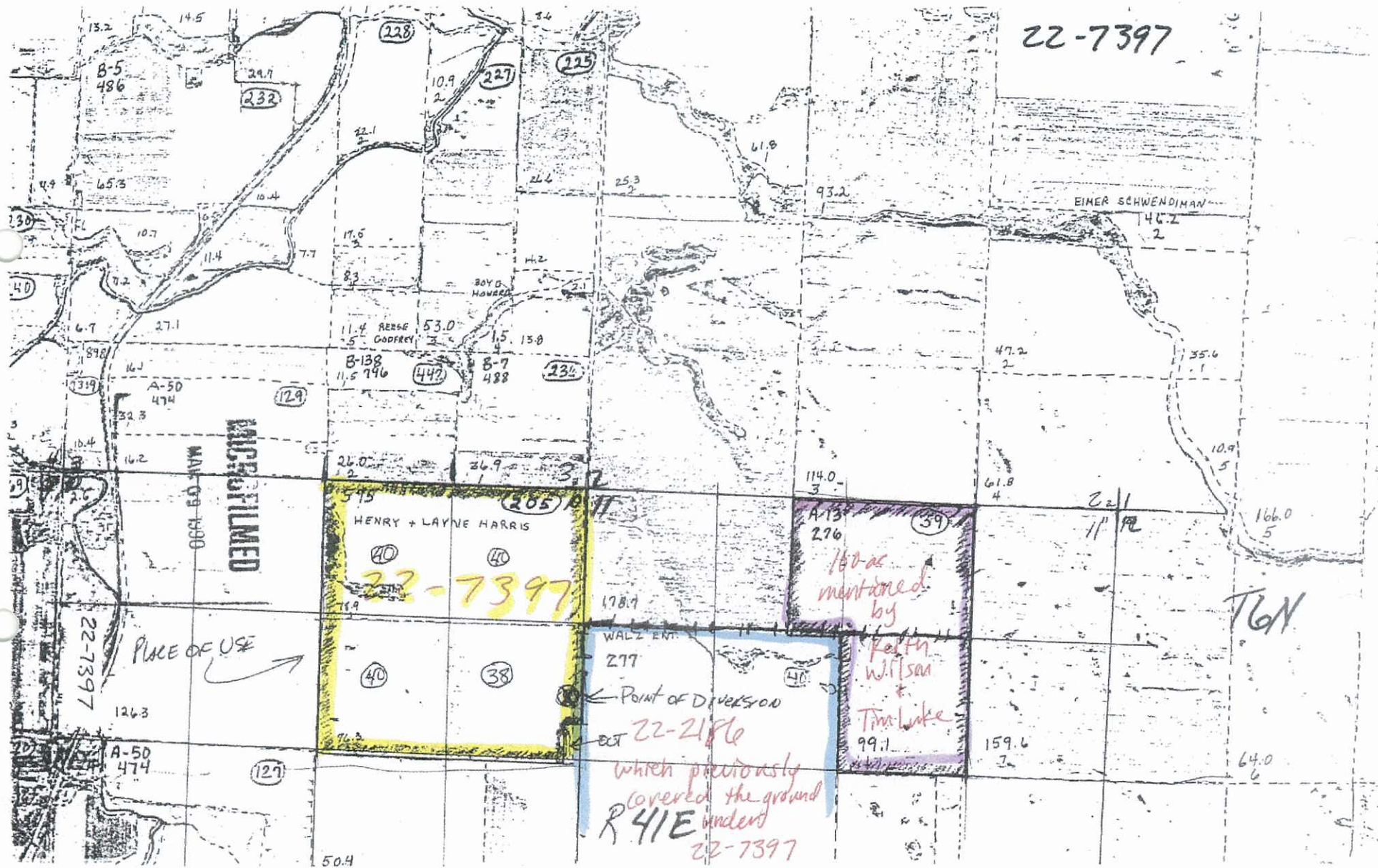
The licensing field exam for permit 22-7397, performed in summer of 1987 by Samuel Filetti (summer field examiner), shows he found 158 acres in the NE1/4 of Sec 10 being irrigated by a well in SENE of Sec 10. Mr. Filetti's report indicates he found nine 1/4 mile hand lines and recommended the license be issued for 3.16 cfs (0.02 cfs/ac). But prior to forwarding the licensing field exam to Boise, Keith Wilson, Senior Water Resource Agent, reviewed Mr. Filetti's report and appears to have added a remark in the overlap review analysis section of the field exam stating additional land (approx. 100 acres) in Sec 11 T6N R41E was being irrigated from Mr. Harris' well. He also wrote that water rights 22-2196, 22-2257, 22-2271B, and 22-7234 were appurtenant to the same 100 acres in Sec 11. We believe these notes by Keith Wilson subsequently led to an analysis by Department staff that incorrectly reduced the diversion rate for license 22-7397. Enclosed, Map 1 from the Department's records shows a mainline from the Harris to the 100 acres mentioned in Mr. Wilson's notes. However, transfer 2728 filed in 1982 by Val Schwendiman and approved in 1983 included 80 of the 100 acres in Sec 11 in a 2053-acre place of use to be irrigated by 22-2196, 22-2257, 22-2271B, and 22-7234.

A review by Tim Luke on January 24, 1990 (memorandum included) includes the 100 acres in Sec 11 in the analysis for licensing 22-7397. The memorandum is self explanatory in that Mr. Luke prorated the 3.16 cfs recommended in the field exam over 258 acres rather than the 158 acres for which it was intended. We think that Mr. Luke should have approached this differently, licensing 22-7397 as Mr. Filetti recommended rather than basing the licensed quantity on a prorated share that included the 100 acres in Sec 11, 80 of which were already covered by water rights under transfer 2728. Today the land in Sec 11 is still being irrigated as reflected by transfer 2728. Additionally, Mr. Harris has never asserted any possessory interest to the land in Sec 11. Even if water from his well was going to land in Section 11 prior to licensing he did not seek a water right for that use and his well is not connected to the irrigation system providing water to that land.

Basin 22 is one of last to be reported in Eastern Region. We are diligently moving forward with recommendations and would appreciate a prompt response.

Thank you.

Enclosed Map # 1



MEMORANDUM

TO: FILE/PERMIT NO. 22-7397

FROM: TIM LUKE *old gun*

RE: CLARIFICATION & CORRECTION OF FIELD EXAMINATION

DATE: 1-24-90

Staff review of the field examination for this permit revealed that the rate of diversion appeared to be too high. The permit is for irrigation of 160 acres. The examiner found 158 acres which could be licensed.

In conducting the examination, the examiner was looking at a system that included more than the 158 permitted acres. He had noted that there were nine, quarter mile handlines. This is generally an excessive number of handlines for only 160 acres. In the overlap review, the examiner noted that the system examined irrigated an additional 100 acres in an adjacent section. The total system therefore includes 258 acres and nine quarter mile handlines. Nine lines on 258 acres is indeed a more acceptable or realistic system.

The examiner measured 3.21 cfs as a diversion rate for the entire system. Rather than spread this rate proportionately over the entire 258 acres, the examiner assigned a rate of 0.02 cfs per acre, or a total of 3.16 cfs for the 158 acres. Had the measured rate been assigned proportionately, the rate per acre and total diversion rate for the 158 acres would be as follows:

$3.21\text{cfs}/258 \text{ acres} = 0.0124 \text{ cfs/acre} \times 158 \text{ acres} = 1.9658 \text{ or } 1.97\text{cfs}$

It is recommended that the licensed diversion rate be 1.97 cfs.

RECORDED

MAR 09 1990

Transfer No. 2728
22-7167
 Water Right No. 22-7234
22-7016
22-2271
22-2257
22-2196
22-7052

APPROVED

STATE OF IDAHO
 DEPARTMENT OF WATER RESOURCES

APPLICATION FOR TRANSFER OF WATER RIGHT

To Change the Point of Diversion and/or the Place of Use

Name of applicant Val E. Schwendiman Phone 458-4261Post Office address Newdale, Idaho 83436**A. DESCRIPTION OF RIGHT AS RECORDED****1. Right evidenced by:**

- a. Decree No. _____ Decreed to _____ (Name)
 in case of _____ vs _____
 dated in _____ in _____ county of _____
 (Name of court)
- b. License No. 22-7234 issued by the Idaho Department of Water Resources
- c. Claim No. _____ on file with the Idaho Department of Water Resources

2. If applicant is not the original holder of this right, explain how it was acquired and attach a copy of the deed or other evidence of ownership of the land to which the right is appurtenant3. Source of water Groundwater tributary to _____4. Date of priority 5-6-1977**5. Water is used for the following purposes:**

amount 7.0cfs for Irrigation purposes from 4-1 to 10-31
 amount _____ for _____ purposes from _____ to _____
 amount _____ for _____ purposes from _____ to _____
 (month/day — both dates inclusive)

6. Total amount of water under right: a. 7.00 cubic feet per second
 &/or
 b. _____ acre feet per annum

7. Location of original point of diversion is SE $\frac{1}{4}$ of NE $\frac{1}{4}$ of Section 1
 Township 6N Range 41E, B.M., in Madison County
 Additional points of diversion, if any _____

8. Lands irrigated or place of use:

TWP.	RANGE	SEC.	NE $\frac{1}{4}$				NW $\frac{1}{4}$				SW $\frac{1}{4}$				SE $\frac{1}{4}$				TOTALS
			NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	
6N	41E	1			40	39	39	39	40	40	40	40	39	40	32	40	15		483
		2	39	33	38	36	17			17	17			17	38	40	40	40	372
		11	40	40	40	40									40			40	240
		12					39	39	40	40	40	40	40	40					318
7N		36									15	37	20						72

Total number of acres to be irrigated 1485

Describe any other water rights used for the same purpose as described above _____

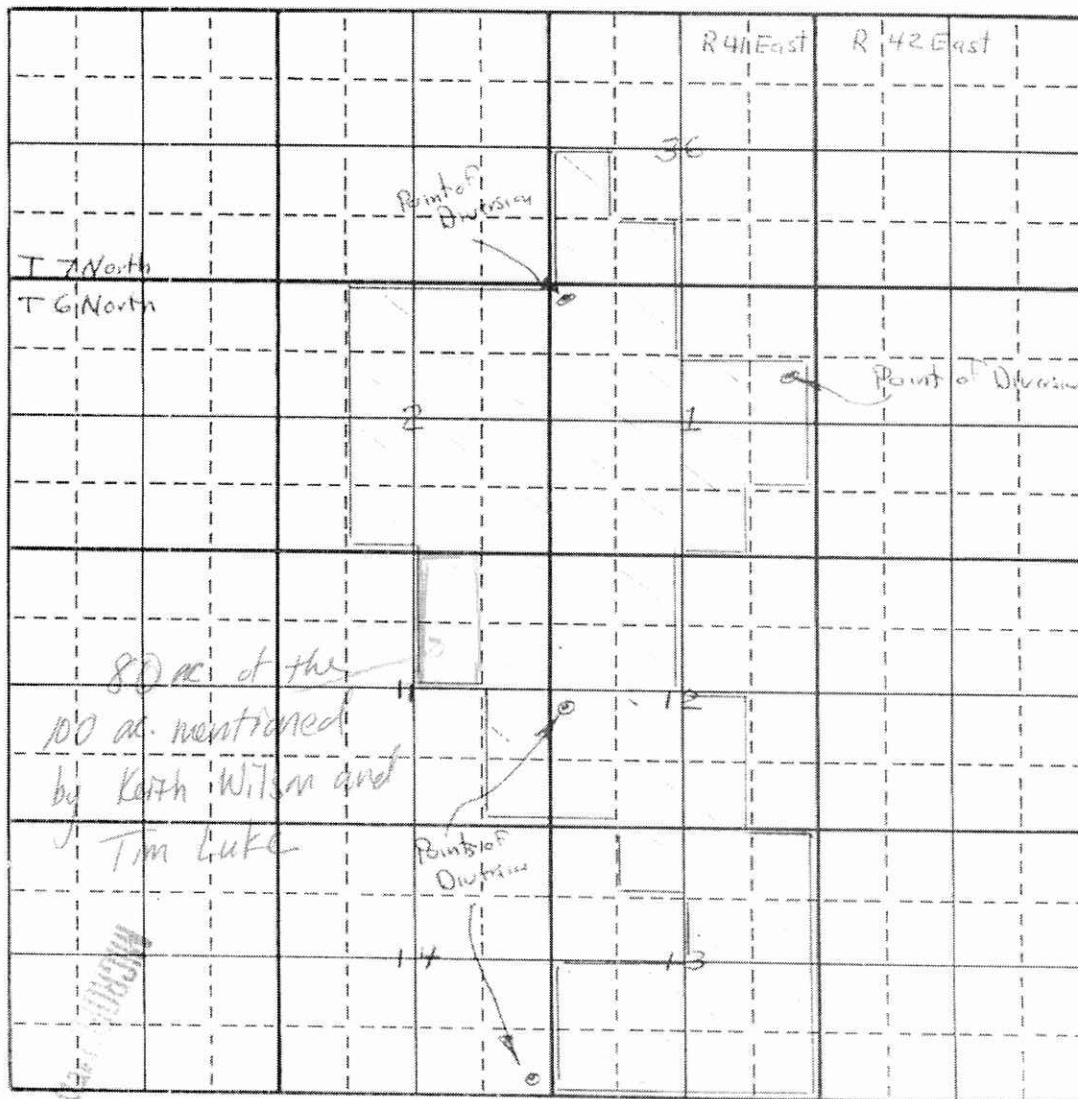
10. To your knowledge, has any portion of this water right undergone a period of five or more consecutive years of nonuse? No If yes, describe in item D, REMARKS.

c. Describe the place of use to which the right will be transferred

TWP	RANGE	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	
6N	41E	1			40	39	39	39	40	40	40	40	39	40	32	40	15		483
		2	39	38	39	36	17			17	17			17	38	40	40	40	378
		11	40	40	40	40									40			40	240
		12					39	39	40	40	40	40	40	40		40	40		398
		13	39	37.5	37.5	40	38				32	39	39	32	40	40	40	28	482
7N	41E	36										15	37	20					72

Total number of acres to be irrigated 2053

4. Describe any other water rights used for the same purpose as described above. None
5. Draw a map indicating the new point(s) of diversion and/or the new land to be irrigated. Show clearly the land involved by section, township and range number.



D. REMARKS

* Section C reflects the cumulative total of all rights involved in
transfer

I hereby assert that no one will be injured by such change and that the change does not constitute an enlargement
in use of the original right. The information contained in this application is true to the best of my knowledge.

I understand that any willful misrepresentations made in this application may result in voiding its approval.

Joe E. Schindler
(Signature of Applicant)

Subscribed and sworn to before me this 15th day of July, 19 82

Luc B. Boyle
(Notary Public)

My commission expires Life

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

22-7167B, 22-2271B, 22-7052I
22-7234, 22-7016, 22-2257,
22-2196

This is to certify that I have examined Application for Transfer of Water Rights No. 22-7167B, 22-2271B, 22-7052I, 22-7234, 22-7016, 22-2257, 22-2196
and said application is hereby APPROVED, subject to the following limitations and conditions:

1. These water rights shall provide no more than 0.02 cfs per acre nor more than
3.5 afa per acre to the 2053 acres identified in the final land list.

Witness my hand this 10th day of March, 19 83

L. Glen Saylor
Chief, Operations Bureau

FOR DEPARTMENT USE ONLY

Received by SM Date 7-16-82 Protest filed by _____
Prelim. check by HWS Fee 50.00 _____
Received by BP Date 7-16-82 #22393 _____
Published in Standard Journal Copies of protest forwarded by _____
Pub. dates 9/9 & 9/16/82 Hearing held by _____ Date _____
Watermaster's recommendation requested on _____ Recommended for approval denial
_____ rec'd. _____ by W. J. Dyer

RECEIVED
JUL 16 1982

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 22-07397

Priority: May 20, 1982

Maximum Diversion Rate: 1.97 CFS
Maximum Diversion Volume:¹ 553.0 AF

This is to certify, that LAYNE HARRIS
P.O. BOX 63

NEWDALE, ID 83436 has complied with the terms and conditions
of the permit, issued pursuant to Application for Permit dated April 30, 1982; and
has submitted Proof of Beneficial Use on July 21, 1983. An examination indicates
that the works have a diversion capacity of 3.210 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	04/01 to 11/01	1.97 CFS	553.0 AF

LOCATION OF POINT(S) OF DIVERSION: SENE, Sec. 10, Township 06N, Range 41E
MADISON 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>
06N	41E	10	NENE 40	NWNE 40	SWNE 40	158
			SENE 38			

Total number of acres irrigated: 158

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 3.0 afa per acre for the lands above.

MICROFILMED

MAR 09 1990

PAGE 2

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE
WATER RIGHT NO. 22-07397

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 28th
day of February, 1990.

Acting for R. Keith Higginson, Director

MICROFILMED

MAR 09 1990

APPROVED

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of applicant Layne Harris Phone 458-4936

Post office address Newdale, ID. 83436

2. Source of water supply (GROUNDWATER) 6-15-82 EMC
Well which is a tributary of _____

3. Location of point of diversion is SE $\frac{1}{4}$ of NE $\frac{1}{4}$ of Section 10 Township 6N.

Range 41 E. B.M. Madison County, additional points of diversion if any: _____

4. Water will be used for the following purposes:

Amount 3.2 for Irrigation purposes from 4/1 to 11/1 (both dates inclusive)
(cfs or acre-feet per annum)

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

Amount _____ for _____ purposes from _____ to _____ (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. 3.2 cubic feet per second and/or b. _____ acre-feet per annum.

6. Proposed diverting works:

a. Description of ditches, flumes, pumps, headgates, etc. 150 hp. Turbine pump

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 12 inches; proposed depth of well is 200 feet.

7. Time required for the completion of the works and application of the water to the proposed beneficial

use is 1 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: _____ $\frac{1}{4}$ of _____ $\frac{1}{4}$ of Section _____ Township _____

Range _____ B.M.

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

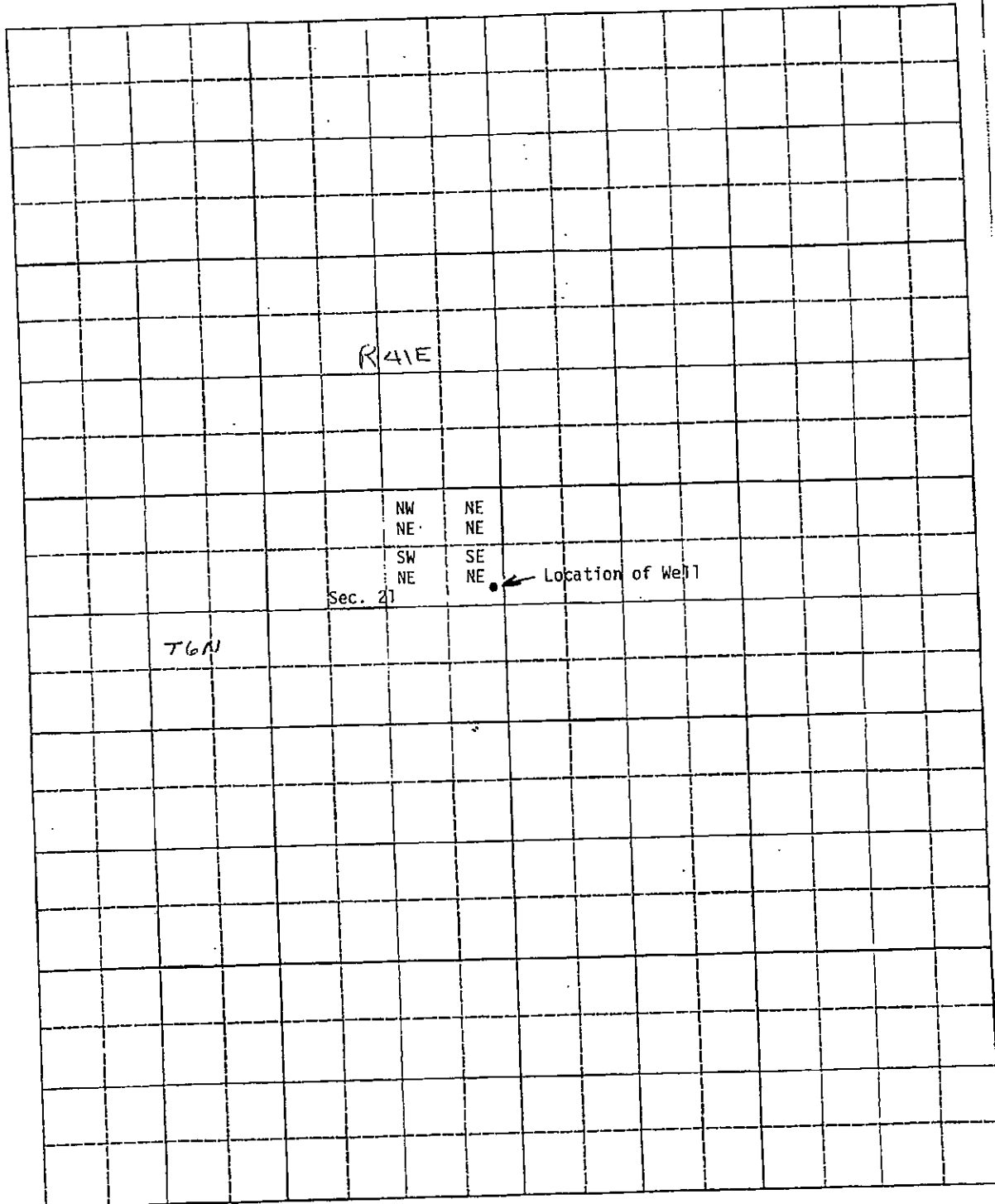
(3) List number of each kind of livestock to be watered _____

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

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

APPROVED
MAY 15 1982

11. Map of proposed project. Show clearly the proposed point of diversion. Purpose 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.

RECEIVED
JAN 11 1971

Raymond J. Jones
(Applicant)

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 22-7397

1. Owner: LAYNE HARRIS Phone No. 458-4956

Current Address: BOX 63 NEWCLIFF ID 83436

2. Accompanied by: LAYNE HARRIS EXAM. DATE: 7-17-87

Address: SAME Phone No. _____

Relationship to Permit Holder: _____

3. Source: GROUNDWATER tributary to _____

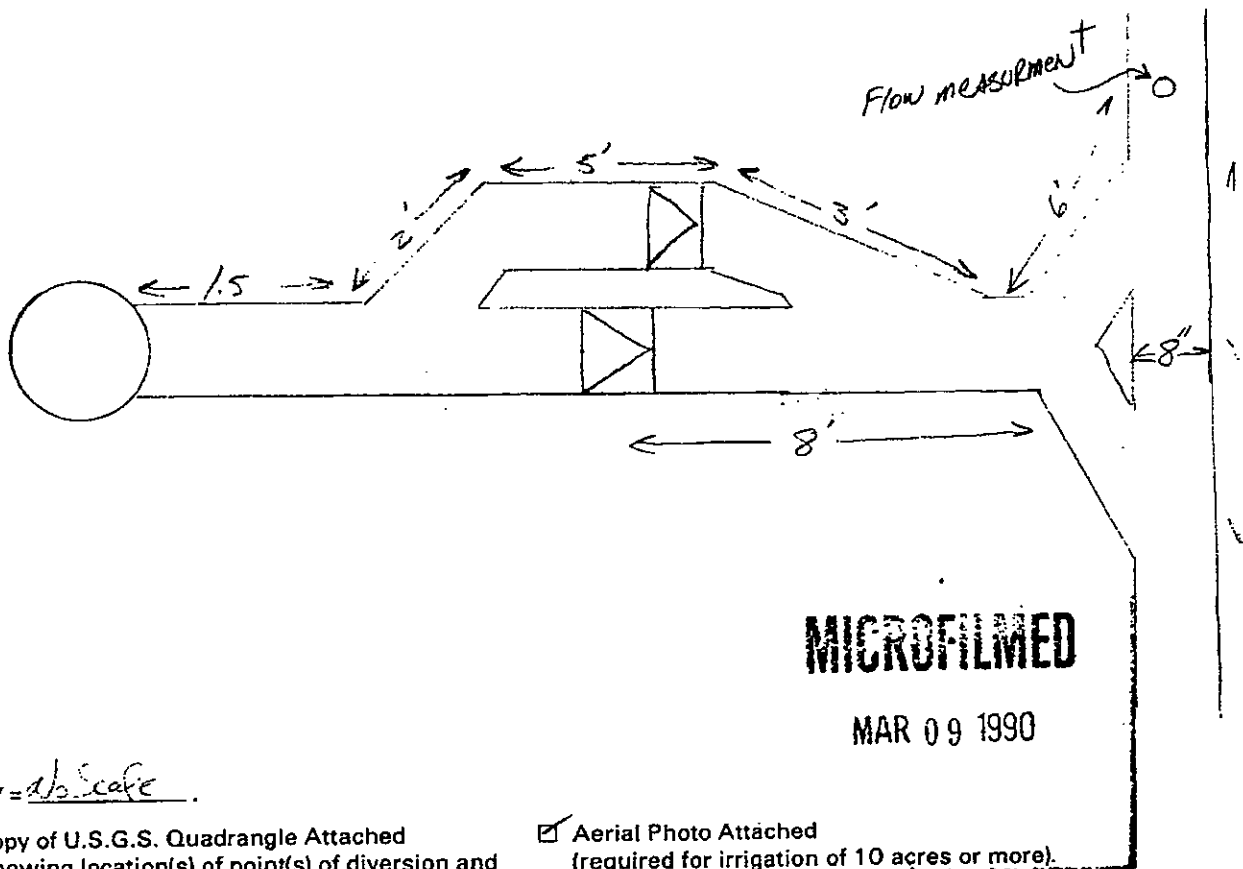
B. OVERLAP REVIEW

1. Other water rights with same place of use: NONE 22-2186 ☐ 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" = 100 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).

Do not use this space

D. FLOW MEASUREMENTS

☐ Additional Data Sheets Attached

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
MANOMETER						
ANNUBAR		Dieterich	7517316-55	091409	7.981	
Eagle Eye		Dieterich	67C	09146	10.02	

2. Measurements:

MANOMETER Reading = $41.8 - 7.7 = 34.1$

Eagle Eye Reading = 36"

Pressure = 72 psi

ID = 7.981"

STATIC H₂O Level 320'

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

1. Measured Method:

9 Lines x 32 birds x $\frac{5 \text{ gal}}{\text{min}} \div 448.9 = 3.21 \text{ cfs}$

LIMIT TO 0.02 cfs/ac
Q = 3.16 cfs

2. Alternate Method for Checking Purposes:

Theoretical $Q_{cfs} = \frac{200 \times 8.814 \times .82}{320' + (2308 \times 40)} = 3.51 \text{ cfs}$

F. PUMP EFFICIENCY DATA (Optional)

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) $\div$ 8.8 = _____ (5)

Meter Input KW: 3.6 x _____ KH x _____ CTR or _____ 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:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 158 \times 3.5 = 553$

$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 3.16 \times 214 \times 1.9835 = 1341.3$

$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 553 \text{ ac-ft}$

2. Volume Calculations for Other Uses:

MICROFILMED

MAR 09 1990

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
LICENSING REPORT

22-7397
Permit No.

Overlap Review

- a) Other water rights with same place of use: 22-2186
- b) Other water rights with same point of diversion: SEE BELOW
- c) Analysis:

The system examined irrigates the following additional ground:

$1\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 11, T6N, R4E;
For which -

The following groundwater rights are appurtenant

22-2196

22-2257

22-2271B

22-7234

PLACE OF USE

22-2186 $3.57 \text{ cfs} / 431 \text{ ac} = 0.0083 \text{ cfs/ac}$

CONDITION

R29

This seems
to be added
in some 5
months after the
exam was completed
in July of 1987

MICROFILMED

MAR 09 1990

216f
12-29-05

Examiner's Signature _____

Date _____

Checked in Regional Office by Keith Carlson

Date Dec 1, 1987

Approved in State Office by _____

Date _____

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
LICENSING REPORT

22-7397

Permit No.

Measurement Calculations

Field Measurement Calculations (Include theoretical capacities and system capacity)

Halls Meter: $Q = (A)(V_h)$: $A = \text{Area} = \frac{\pi d^2}{4}$ $V_h = \text{Halls Manometer Reading}$

$$Q_{\text{gpm}} = (A)(V_h) = \left[\frac{\pi d^2}{4} \right] (V_h) = \text{GPM} \div 448.8 \text{ gpm/cfs} = \text{CFS}$$

$$Q_{\text{cfs}} = \left[\frac{(3.1416) \left(\frac{\quad}{4} \right)^2}{4} \right] \times \left(\frac{\quad}{\quad} \right) \div 448.8 = \quad \text{cfs}$$

TABLE 1

CHART TO CONVERT LINEAR INCHES DIFFERENTIAL
IN THE MANOMETER TO MANOMETER READING

$V_h = \text{HALLS}$ Manometer Reading	Diff. Inches of Water	$V_h = \text{HALLS}$ Manometer Reading	Diff. Inches of Water	$V_h = \text{HALLS}$ Manometer Reading	Diff. Inches of Water
1	.140	17	12.435	33	43.950
1.5	.240	17.5	13.132	33.5	45.200
2	.350	18	13.848	34	46.500
2.5	.470	18.5	14.582	34.5	47.850
3	.600	19	15.336	35	49.200
3.5	.750	19.5	16.108	35.5	50.550
4	.903	20	16.898	36	51.900
4.5	1.080	20.5	17.707	36.5	53.250
5	1.283	21	18.534	37	54.600
5.5	1.540	21.5	19.380	37.5	56.000
6	1.803	22	20.246	38	57.35
6.5	2.094	22.5	21.129	38.5	58.7
7	2.397	23	22.031	39	60.05
7.5	2.722	23.5	22.951	39.5	61.4
8	3.066	24	23.891	40	62.75
8.5	3.428	24.5	24.849	40.5	64.1
9	3.810	25	25.825	41	65.45
9.5	4.210	25.5	26.820	41.5	66.8
10	4.627	26	27.834	42	68.15
10.5	5.063	26.5	28.866	42.5	69.5
11	5.520	27	29.917	43	70.85
11.5	5.994	27.5	30.987	43.5	72.2
12	6.486	28	32.075	44	73.55
12.5	6.997	28.5	33.181	44.5	74.9
13	7.526	29	34.307	45	76.25
13.5	8.074	29.5	35.461	45.5	77.6
14	8.642	30	36.580	46	78.95
14.5	9.228	30.5	37.750	46.5	80.3
15	9.832	31	38.960	47	81.65
15.5	10.454	31.5	40.200	47.5	83.00
16	11.096	32	41.450	48	84.35
16.5	11.756	32.5	42.800		

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Annubar:

B = Difference in inches of water

C = Annubar Factor: Model 75 = -3.85
Model 73 = 4.14

$$Q_{\text{cfs}} = \left[\frac{(C)(id)^2 \sqrt{B}}{448.8} \right] K = \text{CFS}$$

$$Q_{\text{cfs}} = \left[\frac{(3.87)(7.981)^2 \sqrt{34.1}}{448.8} \right] (1) =$$

$$Q_{\text{cfs}} = 3.21 \text{ cfs}$$

K = Flow Correction Factor
= 1 for Manometer
= # From Calibration Chart

C=Correction Factor

6"	3.75
7.98"	3.87
10"	3.94
12"	3.99
14"/16"	4.01
18"/24"	4.02
30"	4.03

