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WATER RESOURCES
WESTERN REGION

Transfer No. 73952

Should questions arise during the processing of this application please contact:
Dana L. Hofstetter (208) 424-7800

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

(Amended) APPLICATION FOR TRANSFER OF WATER RIGHT
PART 1

Name of applicant Greg Obendorf

Phone 208-722-6451

Post Office address 26496 Deb Lane, Parma, Idaho 83660

A. Purpose of Transfer

- ☐ Change point of diversion ☐ Add diversion point(s) ☒ Change place of use
☒ Change nature of use ☒ Change period of use ☒ Other Split
- Describe the reason for the proposed changes A part of an irrigated farm is being converted to wildlife habitat to benefit waterfowl. The use of parts of the low-temperature geothermal water rights now used for irrigation of this farm will be changed to provide a source of water for a wildfowl habitat project.

B. DESCRIPTION OF RIGHT(S) OR PORTION THEREOF, AFTER THE REQUESTED CHANGE

- | 1. Right Number | Priority | Amount (cfs/ac-ft) | Nature of Use | Period of Use |
|-----------------|------------------|--------------------------|-------------------------|------------------------|
| <u>51-2174</u> | <u>3/28/1963</u> | <u>1.29 cfs*</u> | <u>Div. To Storage</u> | <u>Oct 1 to May 31</u> |
| | | <u>138 af**</u> | <u>Wildlife Storage</u> | <u>Jan 1 to Dec 31</u> |
| | | <u>1.29 cfs/305.8***</u> | <u>Wildlife</u> | <u>Oct 1 to May 31</u> |
| <u>51-7104</u> | <u>1/15/1976</u> | <u>0.10 cfs*</u> | <u>Div. to Storage</u> | <u>Oct 1 to May 31</u> |
| | | <u>21 af**</u> | <u>Wildlife Storage</u> | <u>Jan 1 to Dec 31</u> |
| | | <u>0.10 cfs/21afy***</u> | <u>Wildlife</u> | <u>Oct 1 to May 31</u> |

(For an explanation of the *,** and *** superscripts, see the "Remarks" section.)

- Total amount of water being transferred 1.39 cubic feet per second and/or 326.8 acre-feet per annum.
- Source of water Ground Water tributary to --
- Point(s) of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion											
	SW	SE	SE	12	7S	4E	Owyhee	Mather Well											
	SE	NE	SE	12	"	"	"	Point of Injection into unnamed drain											
(3)	SW	NW	SW	7	"	5E	"	Point of Rediversion											
Lands irrigated or place of use:																			
Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	N ½ W ½	SW ¼	SE ¼	NE ¼	NW ¼	SW¼	SE ¼	NE ¼	NW¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	
7S	5E	7								W	W	W	W						
										L2			L3						

unnamed drain is known locally as Mitchell Drain

PART 1

6. General Information:

a. Description of diversion system Existing deep well, pump and mainline to one or more ponds with open ditches connecting a series of ponds that will cover up to 80 acres of surface area and contain up to 138 af when full. The average depth of the ponds will be 1.72 feet. In addition to the volume of water needed to fill the storage volume of the ponds, water will be diverted into the ponds to maintain water levels, water quality and temperature.

b. Are the lands from which you propose to transfer the water right subject to any liens, deeds of trust, mortgages, or contracts? Yes X No _____. If yes, provide a notarized statement from the holder of the lien, deed of trust, mortgage or contract agreeing to the proposed changes.

c. Describe the affect on the land now irrigated if the place of use is changed pursuant to this transfer: Irrigation of 78 acres will be terminated under these rights with a portion of the previously irrigated land contained within the area used for ponds.

d. Remarks: The parameters listed in Section B on Page 1 are further described as follows:
* "Diversion to Storage" is water diverted under these rights for storage in the pond system. It includes water to initially fill the ponds beginning in October of each year and water to replace evaporation while the ponds are in operation from October 1 to May 31 each year.
** "Wildlife storage" is the maximum volume of the pond system within which warm ground water will be stored under these rights. The total combined volume of wildlife storage under Right Nos. 51-2174 and 51-7104 is limited to 138 af.
*** "Wildlife" is water diverted through the ponds each year to replace water lost to seepage and released through the surface outlet(s) to maintain water quality in the pond system. The quantity listed is the full annual diversion volume authorized under the parts of Right Nos. 51-2174 and 51-7104 changed under this application to allow their full use.

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Transfer of Water Rights No. _____
And said application is hereby _____, subject to the following limitations and conditions:

my hand this _____ day of _____, 20 _____

Witness

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR TRANSFER OF WATER RIGHT
PART 2
(Attach one copy for each right)

A. DESCRIPTION OF RIGHT AS RECORDED

1. Right evidenced by:

a. Decree No. 51-02174 Decreed to John A Mather
 in the Snake River Basin Adjudication, Case No. 39576, partial decree
 dated November 30, 2000 in Fifth District Court in the county of Twin Falls.

b. License No. _____ issued by the Idaho Department of Water Resources.

c. Claim No. _____ on file with the Idaho Department of Water Resources.

d. Transfer No. _____ which produced this right.

2. Attach a copy of last year's tax notice for the property to which the water right is appurtenant or other documents which show ownership. Label document as attachment A. Check appropriate box below:

☐ Tax Notice

☒ Warranty Deed

☐ Other _____

3. Source of water (See attached copy of SRBA Partial Decree for Right No. 51-02174) tributary to _____

4. Date of priority _____

5. Water is used for the following purpose:

Amount _____ for _____ purposes from _____ to _____
 (cfs/ac-ft)

Amount _____ for _____ purposes from _____ to _____
 (cfs/ac-ft)

Amount _____ for _____ purposes from _____ to _____
 (cfs/ac-ft)

6. Total amount of water under right _____ cubic feet per second and/or _____ acre-feet per annum.

7. Point(s) of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion

8. Lands irrigated or place of use:

Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	

Total acres _____

9. Describe any other water rights used for the same purpose as described above 51-07104

PART 2

10. To your knowledge, has any portion of this water right undergone a period of five or more consecutive years of non-use?
NO If yes, describe _____

B. DESCRIPTION OF PORTION OF RIGHT BEING TRANSFERRED

(If the entire right is to be changed by the applicant, omit part B and C.)

1. Amount **1.29 cfs/305.8 afy****for **Irrigation** purposes from **March 15** to **November 15**
 (cfs/ac-ft)
 Amount _____ for _____ purposes from _____ to _____
 (cfs/ac-ft)

2. Points of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion
--	SW	SE	SE	12	7S	4E	Owyhee	Mather Well

3. Lands irrigated or place of use:

Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	
7S	5E	7							35			38							73
									L2			L3							

Total acres **73**

C. DESCRIPTION OF UNCHANGED PORTION OF RIGHT (omit if there is no change)

1. Amount **2.51 cfs/594.9 afy****for **Irrigation** purposes from **March 15** to **November 15**
 (cfs/ac-ft)
 Amount _____ for _____ purposes from _____ to _____
 (cfs/ac-ft)
 Amount _____ for _____ purposes from _____ to _____
 (cfs/ac-ft)

****combined with 51-7104**

2. Points of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion
--	SW	SE	SE	12	7S	4E	Owyhee	Mather Well

3. Lands irrigated or place of use:

Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	
7S	4E	12			40	38									40			24	142

Total acres **142**

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR TRANSFER OF WATER RIGHT
PART 2
(Attach one copy for each right)

A. DESCRIPTION OF RIGHT AS RECORDED

1. Right evidenced by:

a. Decree No. 51-07104 Decreed to John A. Mather
 in the Snake River Basin Adjudication, Case No. 39576, partial decree
 dated November 30, 2000 in the Fifth District Court in the county of Twin Falls.

b. License No. _____ issued by the Idaho Department of Water Resources.

c. Claim No. _____ on file with the Idaho Department of Water Resources.

d. Transfer No. _____ which produced this right.

2. Attach a copy of last year's tax notice for the property to which the water right is appurtenant or other documents which show ownership. Label document as attachment A. Check appropriate box below:

☐ Tax Notice ☒ Warranty Deed ☐ Other _____

3. Source of water (See attached copy of SRBA Partial Decree for Right No. 51-07104) tributary to _____

4. Date of priority _____

5. Water is used for the following purpose:

Amount _____ for _____ purposes from _____ to _____

(cfs/ac-ft)

Amount _____ for _____ purposes from _____ to _____

(cfs/ac-ft)

Amount _____ for _____ purposes from _____ to _____

(cfs/ac-ft)

6. Total amount of water under right _____ cubic feet per second and/or _____ acre-feet per annum.

7. Point(s) of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion

8. Lands irrigated or place of use:

Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	

Total acres _____

9. Describe any other water rights used for the same purpose as described above 51-02174

10. To your knowledge, has any portion of this water right undergone a period of five or more consecutive years of non-use?

NO If yes, describe _____

B. DESCRIPTION OF PORTION OF RIGHT BEING TRANSFERRED

(If the entire right is to be changed by the applicant, omit part B and C.)

1. Amount **0.10 cfs/21 afy** **for **Irrigation** purposes from **April 1** to **October 31**

(cfs/ac-ft)

Amount _____ for _____ purposes from _____ to _____

(cfs/ac-ft)

2. Points of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion
--	SW	SE	SE	12	7S	4E	Owyhee	Mather Well

3. Lands irrigated or place of use:

Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	
7S	5E	7							4			1							5
									L2			L3							

Total acres 5

C. DESCRIPTION OF UNCHANGED PORTION OF RIGHT (omit if there is no change)

1. Amount **1.94 cfs/406.3 afy** **for **Irrigation** purposes from **April 1** to **October 31**

(cfs/ac-ft)

Amount **0.07 cfs** for **Stockwater** purposes from **Jan 1** to **December 31**

(cfs/ac-ft)

Amount _____ for _____ purposes from _____ to _____

(cfs/ac-ft)

**** Combined with 51-2174**

2. Points of Diversion:

Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Local name for diversion
--	SW	SE	SE	12	7S	4E	Owyhee	Mather Well

3. Lands irrigated or place of use:

Twp.	Rge.	Sec.	NE ¼				NW ¼				SW ¼				SE ¼				Totals
			NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	NE ¼	NW ¼	SW ¼	SE ¼	
7S	4E	12				2										40	40	15	97
7S	4E	12				S										S	S	S	
7S	5E	7							S			S							

Total acres 97

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR TRANSFER OF WATER RIGHT
PART 3

Draw a map or attach a USGS map indicating the new point(s) of diversion and/or the new place of use for rights described in part 1. Clearly depict the land by section, township and range number.

SCALE: 2 inches equals 1 mile. Draw plan in ink.

Page 8 of 11

NESE

T7S R5E S7 NWSW

P/RED

P/INJ

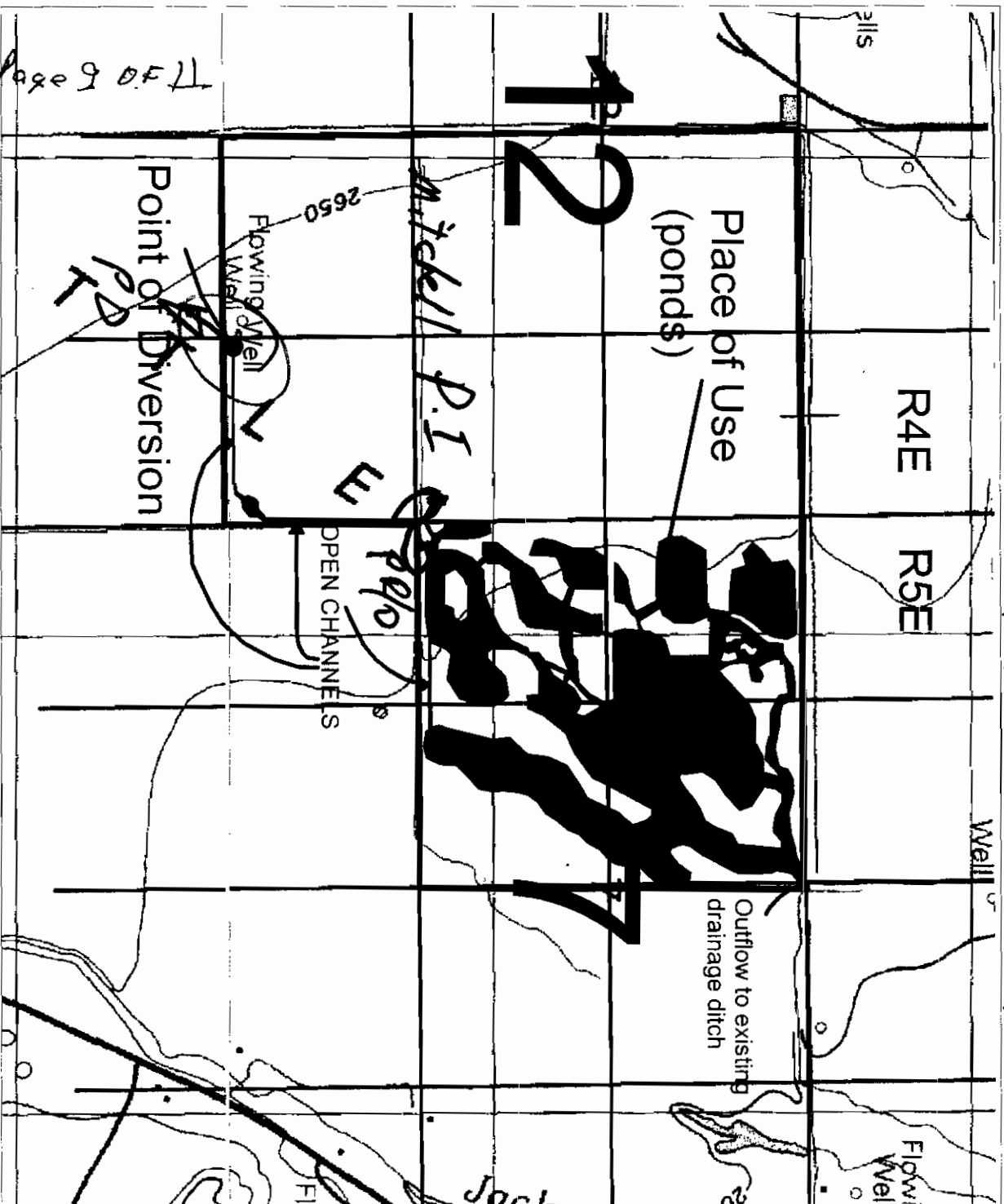
T7S R4E S12

SESE

P/D

020

Obendorf Wildlife Ponds (T7S, R4E sec 12 and R5E sec 7)



Typical Pond Cross Section



- POD - SWSSE Sec 12
- Ponds - 80 ac maximum surface area
- Obendorf Property
- Townships
- Sections
- N 00

239 acres of irrigation in section 12 unchanged under rights nos. 51-2174 and 51-7104

NOTE:

78 acres previously irrigated in sec 7 under right nos. 51-2174 and 51-7104 will no longer be irrigated.

Handwritten signature/initials

PART 3

B. CHANGES IN NATURE OF USE

- | 1. | New Nature of Use | Amount
(cfs/ac-ft) | Hours/days/year | Period of Use |
|----|---|-----------------------|-----------------|------------------------|
| | <u>Wildlife Storage</u> | <u>138 af</u> | <u>Variable</u> | <u>Jan 1 to Dec 31</u> |
| | <u>Diversion to Storage</u> | <u>1.39 cfs</u> | <u>Variable</u> | <u>Oct 1 to May 31</u> |
| | <u>Wildlife</u> | <u>1.39 cfs</u> | <u>Variable</u> | <u>Oct 1 to May 31</u> |
| 2. | Quantity and quality of return flows and location of discharge: <u>The series of interconnected ponds will discharge into an existing waste way/drainage channel in the SENW Section 7, T7S, R5E.</u> | | | |
| 3. | Describe effects on other water uses resulting from the proposed change:
<u>See the information accompanying this application.</u> | | | |

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.

(Signature of Applicant)

Subscribed and sworn before me this _____ day of _____, 20_____.

(Notary Public)

My commission expires _____

FOR DEPARTMENT USE ONLY

Transfer contains _____ pages and _____ attachments

Received by	Date	Protest filed by
-------------	------	------------------

Prelim. check by	Fee

Received by _____ Date _____

Published in _____ Copies of protest forwarded by _____

Pub. Dates	Hearing held by	Date
------------	-----------------	------

Watermaster recommendation requested on _____ Recommended for ☐ approval ☐ denial

rec'd. by

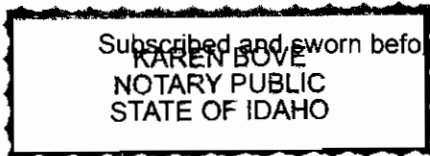
Copy of transfer sent to lien holder

PART 3

B. CHANGES IN NATURE OF USE

1. New Nature of Use Amount (cfs/ac-ft) Hours/days/year Period of Use
Wildlife Storage 138 af Variable Jan 1 to Dec 31
Diversion to Storage 1.39 cfs Variable Oct 1 to May 31
Wildlife 1.39 cfs Variable Oct 1 to May 31
2. Quantity and quality of return flows and location of discharge: The series of interconnected ponds will discharge into an existing waste way/drainage channel in the SENW Section 7, T7S, R5E.
3. Describe effects on other water uses resulting from the proposed change:
See the information accompanying this application.

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.



Subscribed and sworn before me this

3rd day of February, 20 06

(Signature of Applicant)

Karen Bove

(Notary Public)

My commission expires 6-5-08

FOR DEPARTMENT USE ONLY

Transfer contains 11 pages and 12 attachments
 Received by DAN Date 2-3-06 Protest filed by _____
 Prelim. check by _____ Fee 1290⁰⁰ W073286
 Receipted by DAN FOR KB Date 8-15-05
 Published in _____ Copies of protest forwarded by _____
 Pub. Dates _____ Hearing held by _____ Date _____
 Watermaster recommendation requested on _____ Recommended for ☐ approval ☐ denial
 _____ rec'd. _____ by _____
 Copy of transfer sent to lien holder _____

**INFORMATION TO ACCOMPANY AN APPLICATION
FOR TRANSFER FILED BY
GREG OBENDORF
FOR WILDLIFE PONDS
NEAR BRUNEAU, IDAHO**
(Revised February 1, 2006)

DESCRIPTION OF PROJECT

Greg Obendorf plans to develop waterfowl habitat on a farm near Bruneau recently purchased from Dr. John Mather. Obendorf has successfully developed such projects in the Parma, Idaho area and now wants to convert part of his 400-acre Bruneau farm to provide waterfowl nesting, feeding and hunting opportunities. Low-temperature geothermal water (herein termed "warm ground water"), having a temperature of approximately 105 degrees Fahrenheit, is now used to irrigate 317 acres of the farm under decreed Right Nos. 51-2174 and 51-7104. A part of the water available under these rights will be used to enhance the habitat to attract and propagate waterfowl and to improve hunting conditions during freezing conditions. When the project (Attachment 1) is completed, 239 acres of the 400-acre farm will continue to be operated as irrigated cropland using warm ground water and 78 acres now irrigated using warm ground water will no longer be irrigated from this source. The warm water now used to irrigate these 78 acres will be used to supply water to a series of ponds that are to be constructed for waterfowl habitat purposes. The wildfowl project will be constructed on the eastern side of the Obendorf property in Section 7, T7S R5E. This parcel will be converted into a wildlife habitat area comprised of a matrix of small, shallow ponds surrounded by riparian habitat. The open-water surface area of the ponds and connecting streams will cover up to 80 acres. The source of water for irrigating riparian habitat around the ponds is from the drainage way crossing the eastern side of the parcel within which the ponds will be constructed. Permit No. 51-7309 authorizes use of water from this drainage way for irrigation.

The pond system will be designed, constructed and operated based upon recommendations received from Idaho Department of Fish and Game ("IDFG") and other public agencies. Warm ground water will be used to maintain water in the ponds during October through May. Water is needed in the ponds during the spring nesting period and to attract waterfowl during the fall/winter hunting seasons for the project to be successful.

WATER RIGHTS APPURTENANT TO THE PROPERTY

Decreed Right No. 51-2174. This right, represented by a partial decree issued in the Snake River Basin Adjudication ("SRBA"), has a priority date of March 28, 1963. It is diverted from a well located in the SWSESE Section 12, T7S R4E. It authorizes 3.80 cfs of warm ground water to be used for irrigation of 215 acres from 3/15 to 11/15. Copies of the water right records are included as Attachment 2.

Decreed Right No. 51-7104. This right, represented by a partial decree issued in the SRBA, has a priority date of January 15, 1976. It is diverted from the same well used to divert Right No. 51-2174. The right authorizes 2.11 cfs of warm ground water to be used for irrigation of 102 acres that do not duplicate the acres covered by Right No. 51-2174.

Used in combination, right nos. 51-2174 and 51-7104 allow irrigation from the well of 317 acres of the 320 acres in the eight western-most forty-acre subdivisions of the Obendorf property. Combined with Right Nos. 51-2174 and 51-10003, the diversion rate is limited to 4.83 cfs and an annual volume of 1331.1 af. The rights allow diversion of 4.19 af/a.

Decreed Right No. 51-10003. This right, also represented by a partial decree issued in the SRBA, has a priority date of June 15, 1956. It is diverted from the same well as the previously described rights and from a well in the SWSWNW Section 13, T7S R4E. It is included in the volume and rate limitations of the above two rights. It authorizes 1.26 cfs and 3.10 afy to be diverted for heating (9/1 to 5/1) and fish propagation (year-round). The place of use for fish propagation is in the SESE of Section 12 and the place of use for heating is in the SWNW Sec 13, T7S R4E.

Permit No. 51-7309. This is a permit for irrigation of 80 acres in the two eastern-most 40-acre subdivisions of the Obendorf farm. It allows diversion of 1.6 cfs from a wastewater source tributary to Little Jacks Creek (called Jacks Creek on the USGS topographic map) from two diversion points. The previous owner filed proof of beneficial use, but the field examination has not been completed and a license has not been issued.

TECHNICAL ASSUMPTIONS CONCERNING CONSTRUCTION AND OPERATION OF THE POND SYSTEM

1. The pond system will be constructed in an area described by United States Soil Conservation Service ("SCS" now called the "NRCS") as having predominately a soil type of Letha Loam (ref. Soil Survey of Elmore County Area, Idaho, Parts of Elmore, Owyhee, and Ada Counties, SCS-USDA, May 1991). The relevant pages from this report are included in Attachment 3. This soil type is described as being very deep (greater than 60 inches), is moderately permeable, and the depth to the water table exceeds 36 inches through out the year.
2. Construction of the ponds will not expose the water table at anytime during the year.
3. The ponds will be sealed to control seepage to the extent necessary to maintain pond levels necessary for the project.
4. Water from the warm water well will not be diverted to the ponds during June through September each year. Although applications are being made to use cold water in the ponds from certain drainage ditches in the area, for purposes of this analysis, it is conservatively assumed that warm ground water is the only source of water to the pond system and consequently the ponds completely dry up during the late summer/early fall period.

5. The maximum storage in the ponds will not exceed 138 af (i.e., 80 acres of surface area with an average depth of 1.72 feet).
6. Annual evaporation from free water surfaces in the Bruneau area averages between 40 and 45 inches (NOAA Technical Report NWS 33, "Evaporation Atlas for the Contiguous 48 United States," Washington DC, June 1982). The higher rate of 45 inches per year is used in this report for a conservatively high estimate of consumptive use from the wildlife ponds. The annual evaporation from a pan located near Twin Falls, Idaho, is 55.39 inches (i.e., April through October). Of this amount, an average of 20.11 inches was measured for the months of October, April and May, or about 36.3 percent (NOAA Technical Report NWS 34, "Mean Monthly, Seasonal and Annual Pan Evaporation for the United States," Washington DC December 1982). Relevant pages from these NOAA reports are included as Attachment 4. Assuming that evaporation is negligible during the November to March period, the evaporation pan measurements for Twin Falls indicate that approximately 36.3 percent (i.e., 16.34 inches) of the estimated 45 inches of annual evaporation from the free water surface of the pond system will occur during the October through May "winter period."
7. Evaporation (consumptive use) of warm ground water from the ponds will be:
 - a. Summer: 138 afy (June through September). This estimate assumes that evaporation will be limited to the volume of water in the ponds and that the ponds are full at the end of May with water obtained only from the warm water source. The ponds are assumed to dry up during the late summer with all of the water in the ponds lost to evaporation (i.e., none to seepage or runoff) during this period.
 - b. Winter: 108.9 afy (October through May). This estimate is based upon the prorated "winter" evaporation described in the previous paragraph (16.34 inches /12 inches per foot times 80 surface acres = 108.9 afy).
 - c. The combined summer and winter evaporation is 246.9 afy (138 plus 108.9).
8. The warm ground water associated with irrigation of the 78 acres that is not consumed by evaporation will be used to maintain water quality, keep open water areas for hunting purposes during winter periods, and maintain pond levels to offset water lost to seepage or outflow.
9. Use of warm ground water for irrigation of a total of 78 acres will be terminated. The acres to be dried up are located in the SWNW (Lot 2 - 39 acres) and the NWSW (Lot 3 - 39 acres) of Section 7, T7S R5E. The applicants report that these parcels are now, and have historically been, maintained as irrigated grasslands. The consumptive use from these acres averages 40.67 inches and the consumptive irrigation requirement averages 38.1 inches (Allen and Brockway, August 1983, Grandview 2W station). Copies of the relevant pages of this report are included as Attachment 5.

REVIEW OF APPROVAL CRITERIA FOR APPLICATION FOR TRANSFER

Section 42-222, Idaho Code, lists the criteria for reviewing and approving applications seeking to change the use of water under established water rights. The following discussion applies these criteria to the facts related to the proposed change in

use of part of the warm ground water now used for irrigation on Obendorf farm for use in the wildlife ponds:

1. Will other water rights be injured by the proposed change in use?

Other water rights will not be injured by the proposed change in use because the location of the point of diversion will not be changed, the water from the well will continue to be used in the same locality and the rate and volume of use will not be increased from that now authorized. The amount, location and timing of return flows associated with irrigation of the 78 acres that will no longer be irrigated will not be significantly changed by using the water in shallow ponds located on those lands.

Because the diversion and use of warm ground water under the proposed project will be year-round, rather than concentrated during times of greatest irrigation demand, the effects of pumping, if any, on other wells and springs may be ameliorated.

2. Does the change constitute an enlargement in use of the original right?

The determination of whether the use of a water right will be enlarged as a result of a change in use is based upon whether the individual elements of the right will be expanded by the change. The elements that need to be evaluated for the change proposed by this application are: a) Diversion rate, b) Annual volume diverted, c) Annual volume consumptively used, d) Number of acres irrigated under the rights, and e) Annual period of use. The effect of the proposed change on each of these elements is discussed below.

- a) The combined rate of diversion under Right Nos. 51-2174, 51-7104 and 51-10003 will not be increased as a result of implementing the requested change in use. Because a portion of the diversion rate allowed under these rights will be changed to allow diversion during the late fall, winter and early spring, the diversion rate during most of the irrigation season will be less than now authorized.
- b) The combined annual volume of diversion under Right Nos. 51-2174, 51-7104 and 51-10003 will not be enlarged by the change. These rights authorize an annual diversion of 1331.1 afy of which 1328 afy can be used for irrigation. The requested change would reduce the volume allowed for irrigation by 326.8 afy that would then be available for use in the wildlife ponds (See Table 1). Measurement data are not available for the historic diversion and use of water from the well or for the use of warm ground water on the 78 acres to be dried up under these rights (Note: the warm ground water is the only source of water associated with irrigation of these acres.) The historic annual volume of diversion associated with these acres can be estimated based upon

supplying the average consumptive irrigation requirement of 38.1 inches, or 3.175 feet, (Allen and Brockway, August 1983 Grandview 2W station) with a typical conveyance and application efficiency of 75 percent for the closed pipe mainline and sprinkler system used for irrigation from the well. These assumptions indicate that annual volume diverted per acre is 4.2 feet, almost exactly matching the annual volume per acre authorized under the rights combined (4.19 afa).

- c) The annual volume of consumptive use will not be enlarged by the requested change in use (See Table 2). The consumptive use of warm ground water will not be greater for the changed use than that which occurred under the existing irrigation use because most of the diversion of warm ground water will occur during the non-irrigation season when evaporation rates are lower than for irrigation of the 78 acres to be dried up by this change.

The historic annual consumptive use of warm ground water on the 78 acres to be dried up under the requested change is estimated as 247.7 afy using an average consumptive irrigation requirement of 38.1 inches for irrigated grassland (Allen and Brockway, August 1983, Grandview 2W station). Based upon the assumptions for operation of the pond stated in an earlier section of this paper, the annual volume of warm ground water that will be consumptively used by operation of the pond system is 246.9 afy (See Table 3). This estimate is conservatively high because:

- a) Some of the maximum storage volume of 138 af that can be contained in the ponds when ground water diversions are stopped for the summer will have come from precipitation falling on the ponds since filling began the previous October.
- b) Some of the water in the ponds will be lost by seepage rather than evaporation unless an impermeable lining is used for the entire pond system.
- c) The evaporation estimate for October assumes the ponds are full for the entire month.

The minor amount of additional evaporation that occurs because the well water is warm has not been considered in evaluating this transfer because the extra heat energy from the well water has historically increased the evaporation from wetted surfaces when used for irrigation purposes.

- d) The irrigated area will not be enlarged by the requested change. The requested change will reduce the area allowed to be irrigated using warm ground water by 78 acres.
- e) The period of use will not be enlarged. The eight-month period of use in the requested change matches the length of the period of use for Right No. 51-2174 and is one month longer than the decreed period of use for irrigation use under Right No. 51-7104. However, because the source is ground water, a longer period of use is not an enlargement if the volume diverted is not increased (Ref. Administrator's Memorandum, Transfer Processing No. 24, p.23, dated October 30, 2002).

The above discussion evaluating water use before and after the requested change is summarized in Tables 1, 2 and 3.

Table 1. Analysis of Splitting Rights Nos. 51-2174 and 51-7104

1	2	3	4	5	6
Status	Irrigated Area	Div. Rate	Div. Volume	Cons. Use Vol.	Return flow ^{iv}
-----	Acres	Cfs	Afy	Afy	Afy
Before change	317	5.84*	1328**	317 acres x 3.175 ft*** = 1006.5	321.5
After Change:	-----	-----	-----	-----	-----
Residual Irrigation	239	4.45 ^v	1001.2 ^v	758.8	242.4
Foregone Irrigation	78	1.39 ^v	326.8 ^v	247.7	79.1
Subtotal:	317	5.84*	1328.0	1006.5	321.5
Difference	0	0	0	0	0

* When combined with Right No. 51-10003, the diversion rate of Right Nos. 51-2174 and 51-7104 is limited to 4.83 cfs. The diversion rate listed in the table does not include 0.07 cfs for stockwater purposes allowed under Right No. 51-7104.

** When combined with Right No. 51-10003, Right Nos. 51-2174 and 51-7104 authorize diversion of 1331.1 afy. However, Right No. 51-10003 allows 3.1 afy for fish propagation and heating purposes and Right Nos. 51-2174 and 51-7104 were licensed for a combined total diversion of 1328 afy.

*** Based upon the average consumptive irrigation requirement for irrigated pasture at Grandview, Allen and Brockway 1983 (Attachment #5).

^{iv} Includes seepage and surface runoff. Calculated as the difference between columns 4 and 5.

^v Prorated from drying up 78 acres of the 317 acres authorized to be irrigated under Right Nos. 51-2174 and 51-7104. See Part 2 of the application for transfer.

Table 2. Comparison of Annual Volume of Consumptive Use from Changing 78 Acres from Irrigation Uses to Wildlife Purposes.

Status	Irrigated Area	Con. Irrigation Requirement	Cons. Use by Irrigation	Wildlife Consumptive Use Volume
-----	Acres	Afy per acre	Afy	Afy
Before Change	78	38.1 inches/12 = 3.175 ft*	247.7	0
After Change	0	-----	0	Summer = 138** Winter = 108.9*** Total = 246.9
Difference	78 acres less	-----	247.7 less	246.9 more

*Based upon the average consumptive irrigation requirement for irrigated pasture at Grandview, Allen and Brockway 1983 (Attachment #5)

**The estimated volume evaporated in the summer is limited to the volume of the ponds because all ground water put into the ponds under this proposed change will be dried up before the end of summer.

***The estimated volume of evaporation from the ponds in the winter is prorated from the annual volume using evaporation pan data as described in the text.

Table 3. Enlargement Analysis of Converting 78 Acres of Irrigation to Wildlife Uses.

Status	Area Irrigated	Div. Rate	Div. Volume	Cons. Use Volume	Return Flow*	Period of Use
-----	Acres	Cfs	Afy	Afy	Afy	-----
Before Change	78	1.39**	326.8	247.7	79.1	3/15 to 11/15
After Change	0	1.39**	326.8	246.9	79.9	10/1 to 5/31
Difference	78 less	0	0	0.8 less after change***	0.8 more after change***	-----

*Includes seepage and surface runoff.

**The diversion rate when combined with that for the unchanged parts of Right Nos. 51-2174 and 51-7104 and Right No. 51-10003 is limited to 4.83 cfs.

***Thus, the consumptive use is estimated to be 0.8 afy less after the change.

Obviously, the input data do not justify this degree of precision, but the estimates support a conclusion that the change does not cause an increase in consumptive use.

3. Is the proposed use contrary to the conservation of water resources for use in Idaho?

The project will be designed, constructed and operated using guidance from IDFG and other wildlife agencies and organizations to optimize use of available water resources to provide waterfowl habitat and waterfowl hunting opportunities. Water will be retained in the storage facilities for use in Idaho. The project will increase the beneficial use made of the heat value of the warm ground water and reduce the overall consumptive use of the water.

4. Will the proposed use conflict with the local public interest?

The proposed change does not conflict with the local public interest. The proposed change in use of a part of these rights from irrigation to use within the pond will promote state policy of using the heat value, as well as the water value, of warm ground water resources. The SCS soils report for the project area indicates that the land to be converted to waterfowl habitat is only marginally suited to production of irrigated crops because of a high water table during the summer months and the accompanying salinity caused by limited leaching of salts.

5. If the location of the proposed use of water is outside of the watershed or local area where the source originates, will the proposed use adversely affect the local economy?

This criterion is not applicable because the location of the proposed use is within the watershed where the source originates.

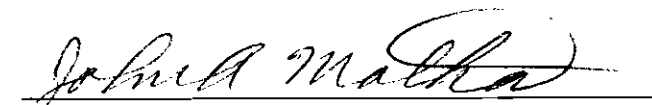
SUMMARY

The proposed change in use of Water Right Nos. 51-2174 and 51-7104 complies with the requirements of Section 42-222, Idaho Code, for approval by IDWR.

REVISED STATEMENT OF JOHN A. MATHER
REGARDING OBENDORF TRANSFER

I, John A. Mather, am a co-trustee of the John A. and Elizabeth W. Mather Trust U/T/A dated February 2, 1994. The John A. and Elizabeth W. Mather Trust has a first lien on the property associated with the Obendorf Application for Transfer concerning Water Right Nos. 51-2174 and 51-7104. I have reviewed the Application for Transfer and I consent to the proposed changes.

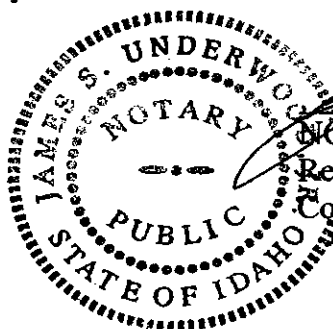
DATED this 2nd day of December, 2005.


John A. Mather

STATE OF IDAHO,)
) ss.
County of Ada.)

On this 2nd day of December, 2005, before me, the undersigned, a Notary Public in and for said County and State, personally appeared John A. Mather, known or identified to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

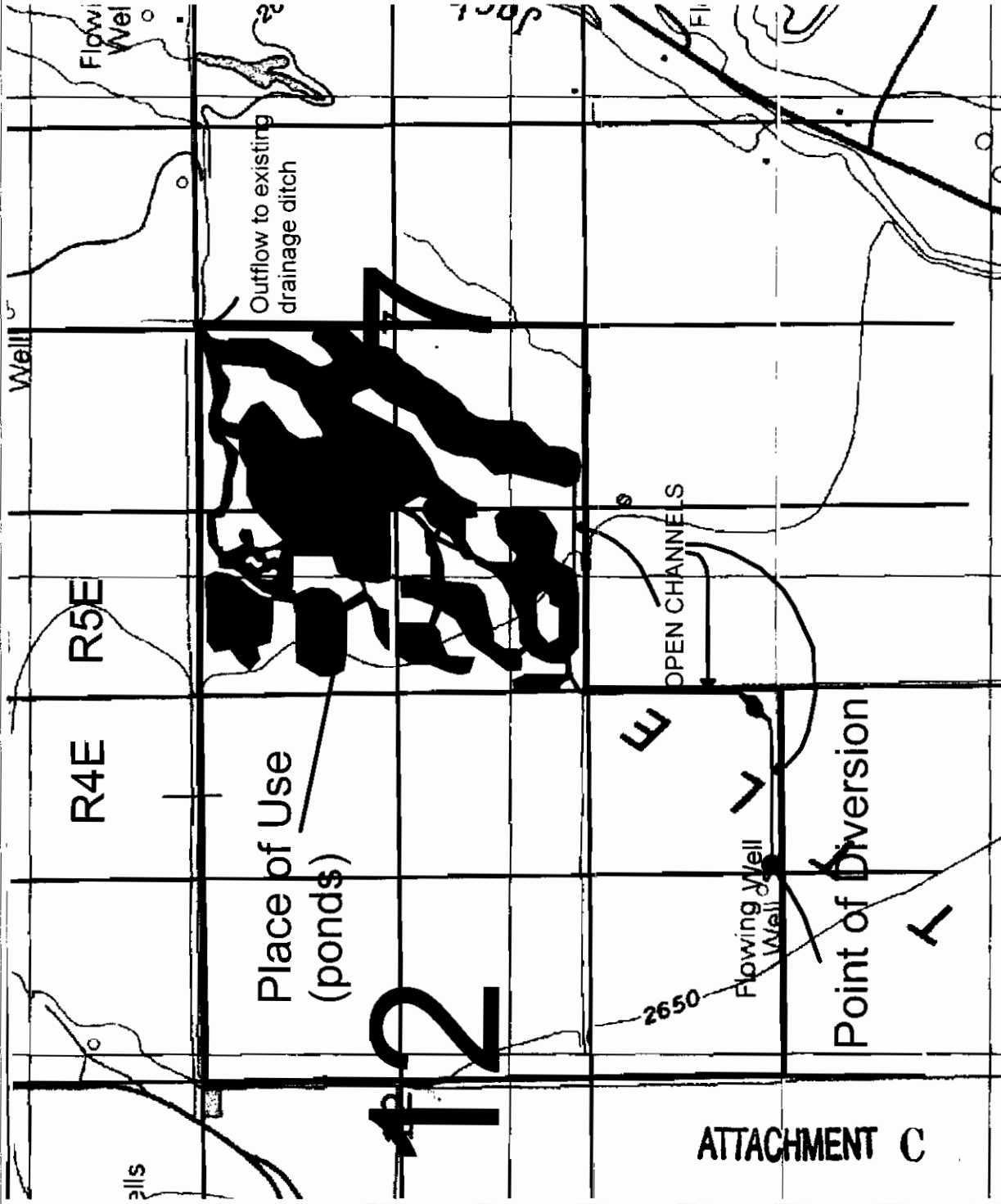

Residing at: BOISE, ID
Commission expires: 2-13-2009

ATTACHMENT B .

(T)

Obendorf Wildlife Ponds

(T7S, R4E sec 12 and R5E sec 7)



Typical Pond Cross Section



- POD - SWSESE Sec 12
- Ponds - 80 ac maximum surface area
- Obendorf Property
- Townships
- Sections
- W QQ

239 acres of irrigation in section 12 unchanged under rights nos. 51-2174 and 51-7104

NOTE:

78 acres previously irrigated in sec 7 under right nos. 51-2174 and 51-7104 will no longer be irrigated.

ATTACHMENT C

0.1 0 0.1 0.2 0.3 0.4 0.5 Miles

ATTACHMENT #2 WATER RIGHT RECORD

DISTRICT COURT - SRBA
TWIN FALLS CO., IDAHO
FILED

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA)
)
Case No. 39576)
_____)

PARTIAL DECREE PURSUANT TO
I.R.C.P. 54(b) FOR
Water Right 51-02174

NAME AND ADDRESS: JOHN A MATHER
280 HORIZON DR
BOISE, ID 83702

SOURCE: GROUNDWATER

QUANTITY: 3.80 CFS

USE OF THIS RIGHT WITH RIGHTS LISTED BELOW IS LIMITED TO A
TOTAL COMBINED DIVERSION RATE OF 4.83 CFS AND TO A TOTAL
COMBINED ANNUAL DIVERSION VOLUME OF 1331.1 AF. COMBINED RIGHT
NOS.: 51-07104 & 51-10003

PRIORITY DATE: 03/28/1963

POINT OF DIVERSION: T07S R04E S12 SWSESE Within Owyhee County

PURPOSE AND PERIOD OF USE:	PURPOSE OF USE	PERIOD OF USE	QUANTITY
	Irrigation	03-15 TO 11-15	3.80 CFS

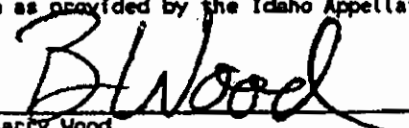
PLACE OF USE:	Irrigation	Within Owyhee County
	T07S R04E S12	SWNE 40.0 SENE 38.0 NESE 40.0 SESE 24.0
	R05E S07 LOT 02 (SWNW)35.0	LOT 03 (NWSW)38.0
	215.0 Acres Total	

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS
NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT
ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY
DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE
ENTRY OF A FINAL UNIFIED DECREE. I.C. SECTION 42-1412(6).

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.


Barry Wood
Administrative District Judge
Presiding Judge of the
Snake River Basin Adjudication

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA)
Case No. 39576)
_____)

PARTIAL DECREE PURSUANT TO
I.R.C.P. 54(b) FOR

Water Right 51-07104

NAME AND ADDRESS: JOHN A MATHER
280 HORIZON DR
BOISE, ID 83702

SOURCE: GROUNDWATER

QUANTITY: 2.11 CFS

THE QUANTITY OF WATER UNDER THIS RIGHT FOR STOCKWATER USE
SHALL NOT EXCEED 13,000 GALLONS PER DAY.
USE OF THIS RIGHT WITH RIGHTS LISTED BELOW IS LIMITED TO A
TOTAL COMBINED DIVERSION RATE OF 4.83 CFS AND TO A TOTAL
COMBINED ANNUAL DIVERSION VOLUME OF 1331.1 AF. COMBINED RIGHT
NOS.: 51-02174 & 51-10003

PRIORITY DATE: 01/15/1976

POINT OF DIVERSION: T07S R04E S12 SWSESE Within Owyhee County

PURPOSE AND PERIOD OF USE:	PURPOSE OF USE	PERIOD OF USE	QUANTITY
	Irrigation	04-01 TO 10-31	2.04 CFS
	Stockwater	01-01 TO 12-31	0.07 CFS

PLACE OF USE: Irrigation Within Owyhee County
T07S R04E S12 SENE 2.0 NWSE 40.0
SWSE 40.0 SESE 15.0
R05E S07 LOT 02 (SWNW) 4.0 LOT 03 (NWSW) 1.0
102.0 Acres Total

Stockwater Within Owyhee County
Same as Irrigation

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

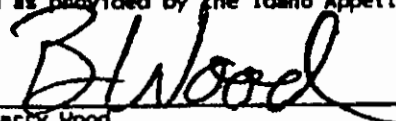
THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT FOR
STOCKWATER USE IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL
USE.

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS
NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT
ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY
DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE
ENTRY OF A FINAL UNIFIED DECREE. I.C. SECTION 42-1412(6).

ATTACHMENT E-1

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.


Barry Wood
Administrative District Judge
Presiding Judge of the
Snake River Basin Adjudication

ATTACHMENT E 

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA)
Case No. 39576)
PARTIAL DECREE PURSUANT TO
I.R.C.P. 54(b) FOR
Water Right 51-10003

NAME AND ADDRESS: JOHN A MATHER
280 HORIZON DR
BOISE, ID 83702

SOURCE: GROUNDWATER

QUANTITY: 1.26 CFS
3.10 AFY

USE OF THIS RIGHT WITH RIGHTS LISTED BELOW IS LIMITED TO A
TOTAL COMBINED DIVERSION RATE OF 4.83 CFS AND TO A TOTAL
COMBINED ANNUAL DIVERSION VOLUME OF 1331.1 AF. COMBINED RIGHT
NOS.: 51-02174 & 51-07104

PRIORITY DATE: 06/15/1956

POINT OF DIVERSION: T07S R04E S12 S13 SWSESE Within Owyhee County
SWSNW

PURPOSE AND PERIOD OF USE:	PURPOSE OF USE	PERIOD OF USE	QUANTITY
	Fish Propagation	01-01 TO 12-31	1.25 CFS
	Heating	09-01 TO 05-01	3.10 AFY
			0.01 CFS

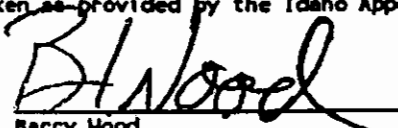
PLACE OF USE: Fish Propagation T07S R04E S12 SESE Within Owyhee County
Heating T07S R04E S13 SWNW Within Owyhee County

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS
NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT
ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY
DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE
ENTRY OF A FINAL UNIFIED DECREE. I.C. SECTION 42-1412(6).

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.


Barry Wood
Administrative District Judge
Presiding Judge of the
Snake River Basin Adjudication

IDAHO DEPARTMENT OF WATER RESOURCES

Water Permit Report 51-7309

WATER RIGHT NUMBER: 51-7309

<u>Owner Type</u>	<u>Name and Address</u>
Original Owner	JOHN A MATHER 280 HORIZON DR BOISE, ID 83702 (208)342-2428
Current Owner	GREG OBENDORF 26496 DEB LN PARMA, ID 83660 (208)722-6451

Priority Date: 05/02/1988

Basis:

Status: Active

Source

WASTE WATER

Tributary

LITTLE JACKS CREEK

<u>Beneficial Use</u>	<u>From</u> <u>To</u>	<u>Diversion Rate</u>	<u>Annual Volume</u>
IRRIGATION	4/01 to 10/31	1.600 CFS	
	<u>Total Diversion:</u>	1.600 CFS	

Location of Point(s) of Diversion

WASTE WATER	SE1/4NW1/4	Sec. 7,	Twp 07S,	Rge 05E, B.M.
OWYHEE County				
WASTE WATER	NE1/4SW1/4	Sec. 7,	Twp 07S,	Rge 05E, B.M.
OWYHEE County				

Place of Use

IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
07S	05E	7								40.0	40.0								80.0

Total Acres: 80

Conditions of Approval:

- 052 Diversion and use of water under this right is subject to an annual use fee if rules are subsequently promulgated which provide for the submittal of the fee.
- 03A The rate of diversion of water for irrigation under this right and all other water rights on the same land shall not exceed 0.02 cubic feet per second for each acre of land.
- 051 Any license issued by IDWR pursuant to the right or portion thereof for the use of trust water is subject to a term review of 20 years after the date of this approval to determine availability of water for the use and to re-evaluate the public interest at the end of the term.

ATTACHMENT G-1

IDAHO DEPARTMENT OF WATER RESOURCES

Water Permit Report 51-7309

4. This water right specifically prohibits increasing groundwater diversions to increase the supply of wastewater.
5. 26A Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which permit holder had no control.
6. 053 The Director retains jurisdiction over this right and may change, add, or remove any requirement as determined to be appropriate.

Remarks:Comments:

1. MILLER 4/15/1992 BRUNEAU GRANDVIEW GWMA

Comment: This application is located within the Bruneau Grandview Groundwater Management Area.

2. VAULT 5/9/1994 Proof of Beneficial Use Rcvd

Comment: Proof of Beneficial Use Rcvd

Dates and Other Information:

Permit Proof Due Date: 5/2/1994
 Permit Proof Made Date: 4/20/1994
 Permit Approved Date: 4/17/1992
 Permit Moratorium Expiration Date:
 Enlargement Use Priority Date:
 Enlargement Statute Priority Date:
 Field Exam Date: 8/14/1998
 Date Sent to State Office:
 Date Received at State Office:
 State or Federal:
 Owner Name Connector:
 Water District Number:
 Generic Max Rate Per Acre:
 Generic Max Volume Per Acre:
 Swan Falls Trust or Nontrust:
 Swan Falls Dismissed:
 DLE Act Number:
 Carey Act Number:
 Mitigation Plan: False

Combined Use Limits:Element Reviewed/Verified Dates:

<u>Element</u>	<u>Last Reviewed Date</u>	<u>Reviewer</u>	<u>Last Verified Date</u>	<u>Verifier</u>	<u>Status</u>
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Verification Log:

<u>Element</u>	<u>Date Time Stamp</u>	<u>Reviewer</u>	<u>Log text</u>
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Water Supply Bank:

ATTACHMENT G-2

age at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

Applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, growing green manure crops, and growing salt-tolerant crops and pasture plants reduce the content of salts.

Interpretive Groups

Land capability classification: IIs, irrigated

3—Letha loam, 0 to 2 percent slopes

Composition

Letha soil and similar inclusions—80 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Stream terraces, flood plains

Elevation: About 2,500 feet

Average annual precipitation: About 7 inches

Average annual air temperature: About 52 degrees F

Frost-free season: About 145 days

Characteristics of the Letha Soil

Typical profile:

0 to 10 inches—light gray loam

10 to 24 inches—light gray fine sandy loam

24 to 60 inches—very pale brown fine sandy loam

Depth class: Very deep

Drainage class: Somewhat poorly drained

Permeability: Moderate

Available water capacity: High

Restriction affecting rooting depth: Water table at a depth of 36 to 48 inches from May through September

Runoff: Slow

Hazard of water erosion: Slight

Hazard of wind erosion: Moderate

Depth to water table: 36 to 48 inches from May through September; more than 48 inches the rest of the year

Salinity: Slightly saline or moderately saline between depths of 6 and 60 inches

Contrasting Inclusions

Bram, Baldock, and Bramwell soils; soils that have slopes of more than 2 percent; soils that are moderately well drained

Use and Management

Major uses: Irrigated cropland, rangeland

Major management factors: Hazard of wind erosion, salinity, wetness

Rangeland

Dominant vegetation in potential natural plant community

Greasewood, inland saltgrass, basin wildrye

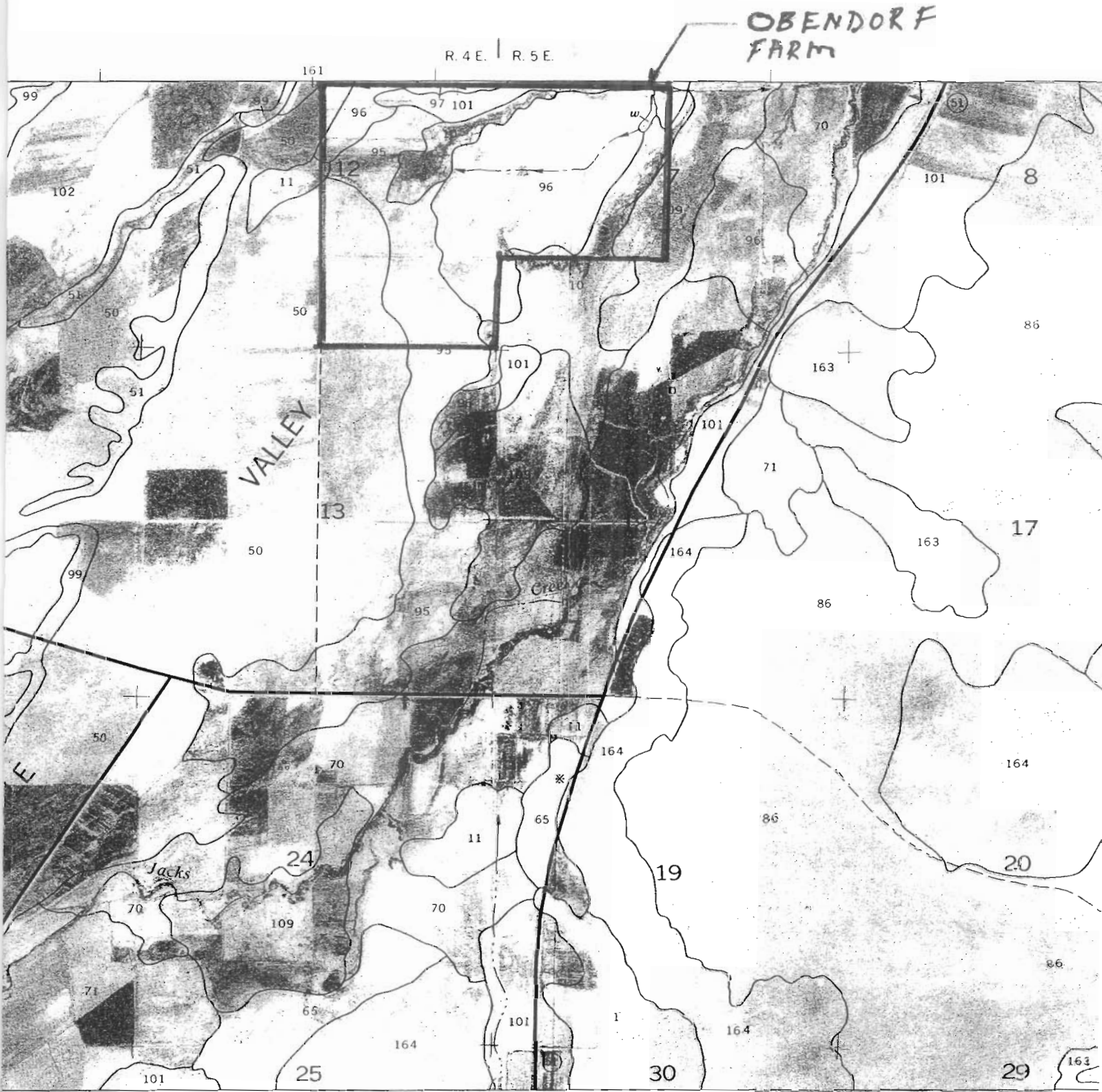
General management considerations:

- The suitability of this map unit for range seeding is fair. Seeding is limited by wetness and salinity.
- Plants that can tolerate wetness and the content of salts are suitable for seeding.
- Grazing should be delayed until the soil is adequately drained and is firm enough to withstand trampling by livestock.

Cropland

General management considerations:

- Wetness limits the choice of plants, the period of cutting or grazing, and the production of deep-rooted crops.
- Salinity limits the production of crops.
- Shallow-rooted, water-tolerant plants and salt-tolerant grasses can be grown.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed for uniform application of water.
- Providing drainage is difficult in some areas because the outlets are poor.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.
- Returning crop residue to the soil, carefully applying irrigation water, providing adequate drainage, leaching out the salts, applying sulfur or sulfuric acid, and



Hannula

Attachment # 4
"EVAPORATION DATA"

NOAA Technical Report NWS 33



Evaporation Atlas for the Contiguous 48 United States

Washington, D.C.
June 1982

ATTACHMENT J-1

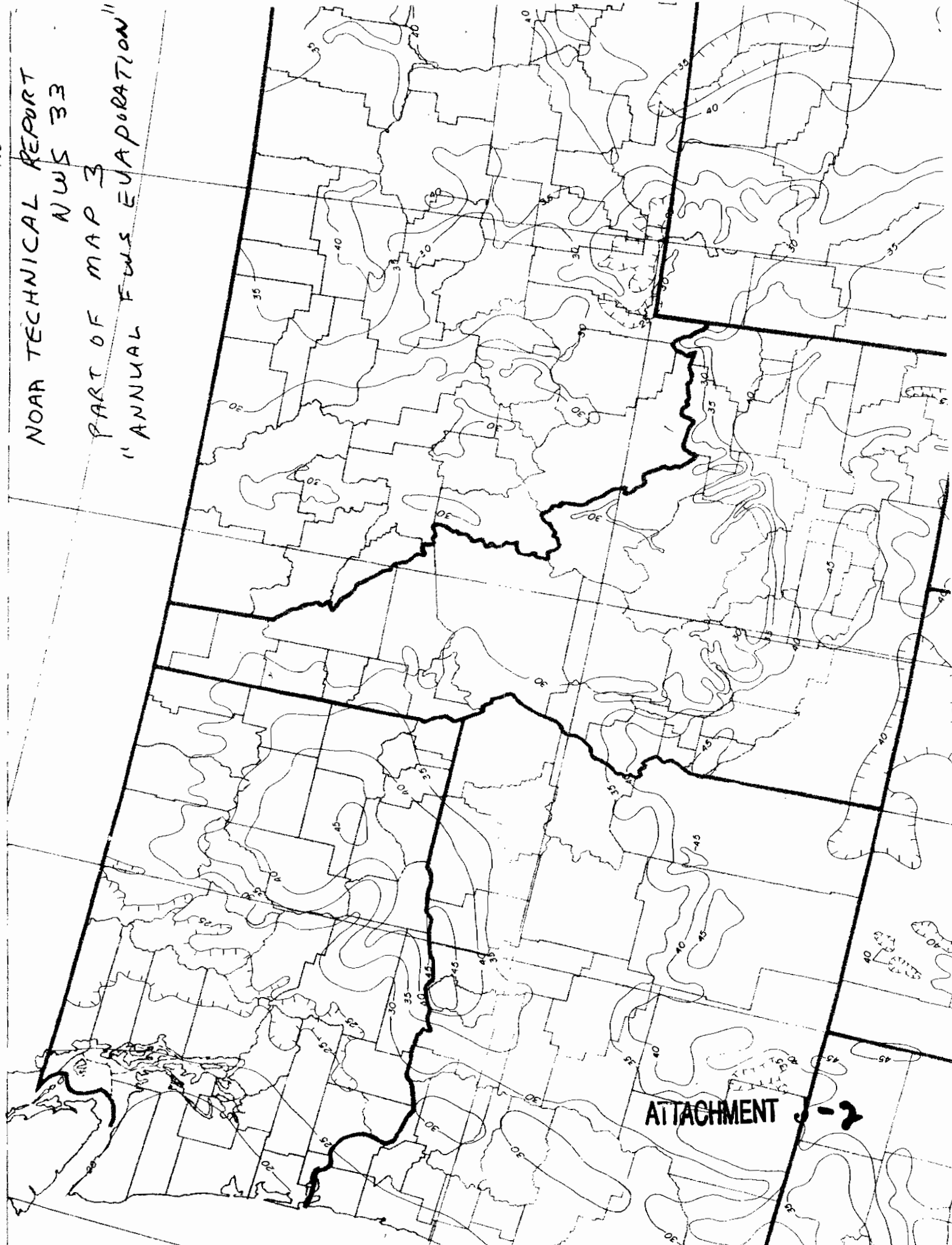
U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service

110°

115°

120°

NOAA TECHNICAL REPORT
NWS 33
PART OF MAP 3
"ANNUAL FWS EVAPORATION"



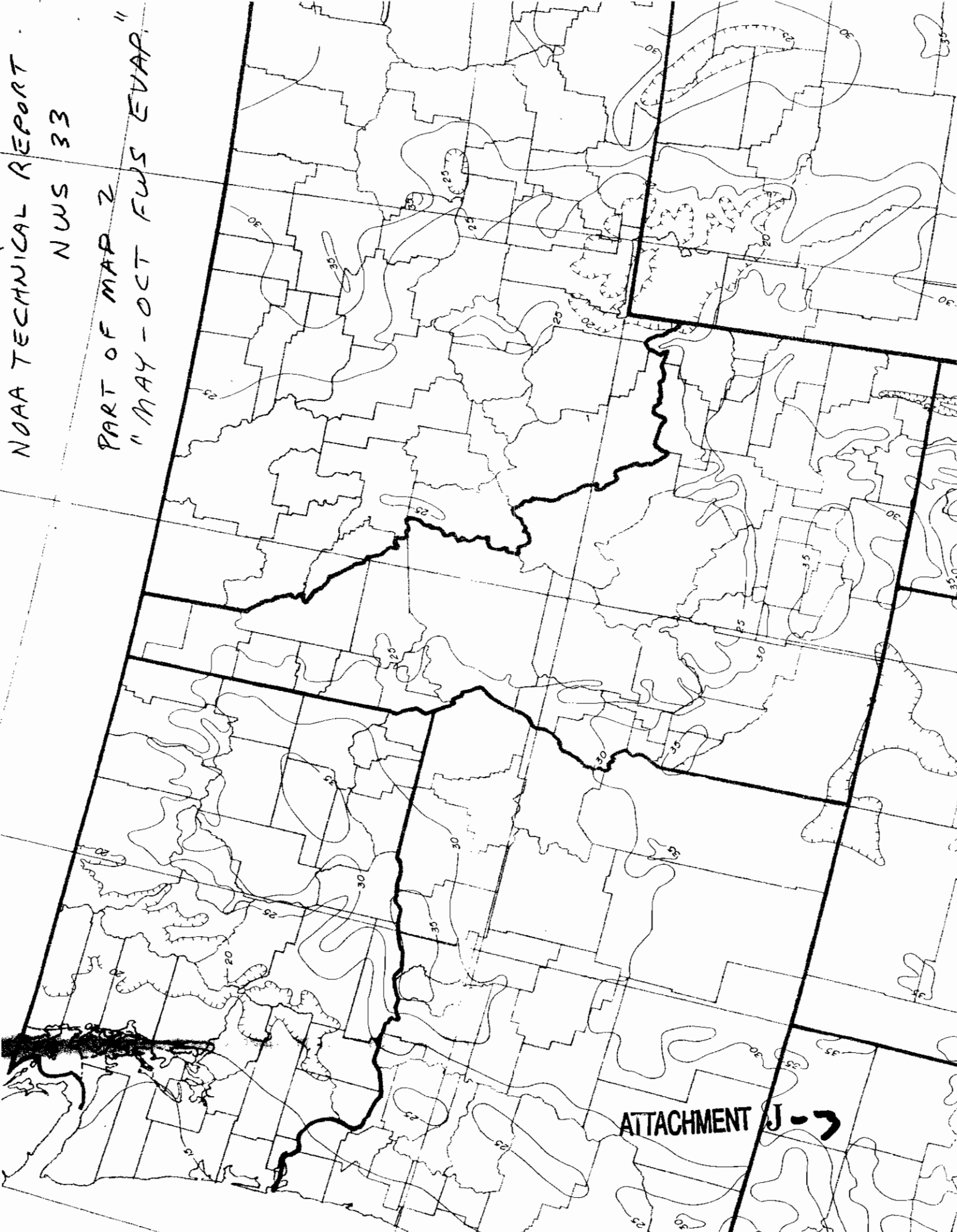
ATTACHMENT J-2

NOAA TECHNICAL REPORT

NWS 33

PART OF MAP 2

"MAY-OCT FWS EVAP."



ATTACHMENT J-7

HANNULF

NOAA Technical Report NWS 34



Mean Monthly, Seasonal, and Annual Pan Evaporation for the United States

Washington, D.C.
December 1982

ATTACHMENT K

**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service**

TABLE I -- MEAN MONTHLY, SEASONAL, AND ANNUAL CLASS A PAN EVAPORATION (INCHES)
FOR STATIONS WITH 10 YEARS OR MORE OF RECORD FOR BEST MONTH*

Station State No.	Index No.**	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	May- Oct ***	Nov- Apr ***	Other Season ***	Annual ***	Record Began Mo/Yr	Latest Data Mo/Yr
HAWAII (continued)																			
49	1918	4.73 23 15	5.14 22 11	6.80 23 14	7.50 23 11	8.57 23 9	9.03 22 8	9.66 23 7	9.84 23 9	8.60 23 9	7.54 23 9	5.82 22 15	4.97 22 13	53.24 6	34.96 9	-	88.20 6	1/56	12/78
49	5580	5.47 24 ***	5.64 23 ***	7.30 24 ***	7.92 22 ***	8.97 23 ***	9.61 23 ***	10.25 23 ***	10.04 24 ***	9.15 25 ***	7.96 25 ***	6.30 25 ***	5.53 24 ***	55.98 ***	38.16 ***	-	94.14 ***	8/55	12/79
49	noma	3.10 10 ***	3.13 11 ***	3.91 11 ***	3.75 11 ***	4.11 11 ***	4.08 11 ***	4.37 11 ***	4.36 11 ***	3.87 11 ***	3.57 10 ***	3.15 10 ***	2.99 10 ***	24.36 ***	20.03 ***	-	44.39 ***	2/20	9/30
49	7421	4.59 15 ***	4.54 15 ***	5.01 15 ***	5.41 15 ***	5.59 15 ***	5.90 14 ***	6.43 14 ***	6.33 14 ***	5.49 14 ***	5.04 14 ***	4.52 14 ***	4.60 16 ***	34.78 ***	28.67 ***	-	63.45 ***	12/30	5/45
IDABO																			
10	0010	5.19 15 ***	7.56 43 16	8.48 43 14	8.88 42 6	9.88 43 14	8.84 43 13	6.03 44 13	3.61 30 12	44.40 7	-	-	-	44.40 7	-	-	5/35	12/79	
10	5275	4.19 24 ***	6.35 40 12	7.52 45 13	9.02 45 6	7.96 45 8	5.54 44 12	3.15 33 ***	39.54 ***	-	-	-	-	39.54 ***	-	-	5/35	12/79	
10	5466	8.88 12 ***	10.65 14 ***	9.11 14 ***	6.92 10 ***	-	-	-	-	-	-	-	-	-	-	35.56	-	7/67	8/79
10	none	4.85 19 ***	6.82 19 ***	8.11 19 ***	9.47 19 ***	8.59 18 ***	5.72 18 ***	3.05 18 ***	41.76 ***	-	-	-	-	41.76 ***	-	-	4/27	7/45	
10	5980	7 8 ***	8.17 14 ***	10.82 13 ***	13.02 13 ***	11.48 13 ***	8.30 13 ***	4.79 13 ***	56.58 ***	-	-	-	-	56.58 ***	-	-	5/49	5/62	
10	6152	4.39 26 21	5.42 34 21	6.18 41 21	8.46 41 7	7.60 41 17	4.50 40 17	3.20 12 ***	35.36 ***	-	-	-	-	35.36 ***	-	-	6/39	12/79	
10	6764	5.81 21 24	7.20 25 24	9.45 26 23	8.45 26 16	5.54 26 16	4 22 ***	-	40 ***	-	-	-	-	40 ***	-	-	5/49	9/75	

* First line of data in the table for each station is mean evaporation in inches; second line is the number of years of record per month; and third line is the coefficient of variation in percent (computed only where there are 10 years or more of record during 1956-1970).

** Climatological Data (NOAA-2013)

*** Sum of monthly means.

**** Inadequate data between 1956-70 to compute the coefficient of variation.

TABLE I -- MEAN MONTHLY, SEASONAL, AND ANNUAL CLASS A PAN EVAPORATION (INCHES)
FOR STATIONS WITH 10 YEARS OR MORE OF RECORD FOR BEST MONTH*

State No.	Station Index No.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	May-Oct ***	Nov-Apr ***	Other Season ***	Annual ***	Record Began Mo/Yr	Latest Data Mo/Yr
IDAHO (continued)																			
10	9303				7 9 ****	8.62 17 ****	9.13 17 ****	10.36 17 ****	9.11 17 ****	6.68 17 ****	4.49 13 ****			48.39 ****	-	-	-	5/63	10/79
11	1290				5.57 17 ****	6.95 17 ****	8.50 17 ****	8.80 17 ****	7.24 17 ****	5.69 16 ****	4.37 15 ****			41.55 ****	-	-	-	4/63	10/79
11	4013				5 7 ****	6.98 15 ****	8.32 17 ****	8.28 15 ****	6.56 15 ****	6.21 13 ****	4 8 ****			41 ****	-	-	-	5/63	9/79
11	8179				5.50 28 16	7.12 34 16	8.41 35 17	8.95 17 16	7.42 35 15	6.21 35 17	4.55 35 16	2 7 ****		42.67 9	-	-	-	5/41	10/79
11	8740				4.62 11 ****	6.33 16 ****	7.60 16 ****	7.80 15 ****	6.29 15 ****	4.85 15 ****	3.43 16 ****			36.30 ****	-	-	-	4/63	10/79
11	8750				3.90 13 16	5.67 14 14	6.25 13 18	6.52 15 19	5.92 15 14	4.59 15 11	3.23 14 20			32.18 12	-	-	-	4/48	10/62
INDIANA																			
12	1952				6.61 12 ****	7.67 13 ****	7.38 13 ****	7.38 13 ****	6.25 12 ****	4.80 12 ****	3.23 11 ****			35.94 ****	-	-	-	6/61	11/74
12	2309				5.62 19 16	6.29 23 12	7.02 23 9	7.15 23 9	6.35 22 10	4.89 22 13	3.85 22 17	2 7 ****		35.55 6	-	-	-	9/56	10/79
12	2738				5.14 29 15	6.66 31 11	7.86 31 13	8.05 31 9	7.07 31 12	5.40 31 20	3.88 30 18	2.52 12 ****		38.92 8	-	-	-	4/49	10/79
12	4492				4.25 20 17	5.65 21 11	6.45 22 11	6.80 22 9	6.10 23 11	4.38 23 18	2.96 22 18			32.34 6	-	-	-	1/49	4/72

* First line of data in the table for each station is mean evaporation in inches; second line is the number of years of record per month; and third line is the coefficient of variation in percent (computed only where there are 10 years or more of record during 1956-1970).

** Climatological Data (NOAA-EDIS)

*** Sum of monthly means.

**** Insufficient data between 1956-70 to compute the coefficient of variation.

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Attachment # 5 "Consumptive use data"

RESEARCH TECHNICAL COMPLETION REPORT

ESTIMATING CONSUMPTIVE IRRIGATION REQUIREMENTS FOR CROPS IN IDAHO

by

R. G. Allen
C. E. Brockway

University of Idaho
College of Engineering
College of Agriculture

Submitted to

Idaho Department of Water Resources
Boise, Idaho

Idaho Water and Energy Resources Research Institute
University of Idaho
Moscow, Idaho

August 1983

ATTACHMENT M-1

