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

JOHN V. EVANS
Governor

A. KENNETH DUNN
Director

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

ADMINISTRATOR'S MEMORANDUM

Amendment to Transfer Processing No. 7

TO: Regional Offices and Water Allocation Section

FROM: Norman C. Young NCY

DATE: October 29, 1984

RE: Sample Calculations for Change in Nature of Use.

The purpose of this memorandum is to amend the original version of the memorandum dated September 24, 1982, by replacing the table of data for consumptive irrigation requirements.

The original memorandum included a copy of Table 6 from "Consumptive Irrigation Requirements of Crops in Idaho," by R.J. Sutter and G.L. Corey, University Of Idaho Bulletin 516, July 1970, p.8. Recently a report has been released entitled "Estimating Consumptive Irrigation Requirements for Crops in Idaho," by R.G. Allen and C.E. Brockway, published by the University of Idaho Water and Energy Resources Research Institute, August, 1983. Information contained in this report has been utilized by Bill Ondrechen to prepare Table A, attached, which describes the Seasonal Crop Water Use Statistics for Alfalfa Hay. This table, which includes Consumptive Use (CU) and Consumptive Irrigation Requirement (CIR) data, should replace Table 6 in the above-referenced Administrator's Memorandum.

The column of data that should be utilized in the analysis of a change in nature of use transfer from irrigation to another use is the third column, Mean CIR.

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September 11, 1984

MEMO

TO: DAVE TUTHILL, WATER ALLOCATION SECTION DRT

FROM: BILL ONDRECHEN, HYDROLOGY SECTION WO

SUBJECT: NOTES ON DETERMINATION OF CONSUMPTIVE IRRIGATION REQUIREMENT AND CONSUMPTIVE USE

GENERAL

The consumptive irrigation requirement (CIR) and consumptive use (CU) (same as evapotranspiration or ET) data used in this update of Department procedures are described in the publication "Estimating Consumptive Irrigation Requirements for Crops in Idaho" by R.G. Allen and C.E. Brockway, August 1983. The document, published by the University of Idaho Water and Energy Resources Research Institute, is the completion report for the research project. Allen and Brockway selected the FAO-Blaney-Criddle method for use, as it required the least adjustment to match measured values of consumptive use. The letters FAO derive from the United Nations Food and Agriculture Organization, the entity which helped develop it.

Using information in the report as well as Appendix E supplied by the authors, values of mean consumptive irrigation requirement were plotted on a map. Regions of similar irrigation requirement were delineated on the map, with boundaries generally following those of the "Climatic Areas" of U. of Idaho Bulletin 516, by Sutter and Corey. In addition to using a different method for determining consumptive use than that used in Bulletin 516, Allen and Brockway used data from a larger number of climatic stations. Consumptive use and consumptive irrigation requirement data are now available for several areas which were undefined in Bulletin 516. These areas are: Idaho City - Centerville, Anderson Dam - Prarie, and Stanley - Sawtooth Valley. Table A lists the mean or average consumptive use for alfalfa hay, the 80th percentile consumptive use, mean consumptive irrigation requirement, and 80th percentile irrigation requirement for 98 weather stations in the state. With the exception of Table A which is an attachment to this document, all references to tables and figures are to those in Allen and Brockway 1983.

TABLE A
SEASONAL CROP WATER USE STATISTICS FOR ALFALFA HAY
(Acre Inches/Acre/Season)

Station	Mean CU	80th PCTL. CU	Mean CIR	80th PCTL. CIR
Aberdeen Exp. Sta.	37.5	40.4	33.6	38.4
American Falls 1SW	38.2	40.5	33.2	37.7
Anderson Dam	33.5	35.4	29.5	33.0
Arbon 2NW	33.0	34.6	27.6	31.6
Arco 3SW	31.6	33.8	28.0	32.9
Ashton	33.1	35.5	25.9	31.0
Bayview Model Basin	29.4	31.1	21.5	26.7
Blackfoot 2SSW	37.4	40.2	32.5	37.6
Bliss	41.1	43.4	38.1	42.2
Boise WSO AP	40.2	42.3	35.4	39.0
Bonners Ferry 1SW	31.5	33.4	24.3	28.6
Bruneau	39.8	42.0	36.5	40.8
Burley FAA AP	36.5	38.4	32.6	36.3
Cabinet Gorge	30.9	32.8	21.4	26.6
Caldwell	40.4	43.2	36.9	41.1
Cambridge	37.5	40.4	32.4	37.7
Cascade 1NW	28.6	30.3	23.1	26.7
Castleford 2N	40.6	42.5	36.4	40.4
Challis	34.7	37.1	30.7	34.4
Chilly Barton Flat	29.9	32.9	25.2	30.3
Coeur d'Alene 1E	32.5	34.4	24.6	29.8
Cottonwood	31.1	33.5	22.2	28.1
Council	37.5	39.5	30.4	35.8
Deer Flat Dam	40.8	42.4	37.2	40.5
Driggs	28.3	30.0	22.3	27.1
Dubois Exp. Sta.	30.5	32.8	25.2	30.1
Emmett 2E	40.7	43.2	36.7	41.1
Fairfield Ranger Sta.	29.4	31.0	26.3	29.9
Fort Hall	38.2	40.4	33.3	37.8
Garden Valley RS	35.3	37.3	29.2	33.9
Glenns Ferry	38.4	40.9	35.6	39.0
Grace	34.8	37.3	28.0	33.2
Grandview 2W	40.2	42.8	37.5	42.0
Grangeville	30.5	33.0	20.1	27.1
Hailey Ranger Sta.	29.0	31.1	25.6	30.1
Hamer 4NW	34.1	35.9	29.9	33.5
Hazelton	38.7	41.9	35.1	39.5
Hill City	28.8	30.7	26.1	29.7
Hollister	35.6	38.5	31.3	36.2
Howe	34.3	36.6	29.6	33.9
Idaho City	30.2	32.4	25.6	30.8
Idaho Falls 2ESE	36.8	39.0	31.6	36.0

TABLE A cont.

Station	Mean CU	80th PCTL. CU	Mean CIR	80th PCTL. CIR
Idaho Falls 16SE	33.7	35.5	26.9	30.9
Idaho Falls FAA AP	35.7	38.1	31.2	35.5
Idaho Falls 46W	32.8	35.0	28.6	32.8
Island Park Dam	24.8	26.5	18.1	24.9
Jerome	39.5	41.9	36.2	40.2
Kellogg	32.1	34.1	22.5	28.1
Kilgore	24.5	25.6	17.8	23.3
Kooskia	35.2	37.3	23.3	29.5
Kuna 2NNE	41.7	44.4	37.2	41.4
Lewiston WSO AP	37.3	39.6	30.9	35.3
Lifton Pumping Station	27.5	29.0	23.9	27.4
Mackay RS	33.7	36.3	29.1	33.6
Malad	35.4	37.8	29.2	34.5
Malad City	34.4	36.5	28.5	33.6
Malta 2E	36.4	37.9	30.9	35.0
May	28.9	31.1	24.8	28.0
McCall	27.8	29.9	21.1	25.6
Minidoka Dam	38.5	40.6	34.6	39.1
Montpelier	26.6	28.7	22.4	26.2
Moscow - U of I	33.7	36.0	25.0	30.2
Mountain Home	38.0	40.3	34.6	38.8
New Meadows RS	28.6	30.1	22.6	26.9
Nez Perce	30.6	32.3	21.1	25.3
Oakley	36.4	38.7	30.9	35.6
Ola 4S	36.5	38.3	30.9	35.1
Orofino	37.6	39.8	27.5	32.4
Palisades Dam	33.5	35.6	25.0	29.4
Parma Exp. Sta.	40.4	43.0	36.7	41.6
Paul 1ENE	38.0	40.6	34.0	38.4
Payette	41.0	43.0	37.4	40.9
Picabo	29.9	31.9	26.8	31.2
Pocatello WSO AP	37.0	39.3	32.4	36.9
Porthill	30.2	31.7	23.1	27.8
Potlatch	32.4	35.6	23.2	28.1
Preston	34.7	37.1	27.8	33.2
Reynolds	30.0	31.7	26.2	29.7
Richfield	37.0	39.3	33.7	37.9
Riggins	39.1	41.4	30.4	35.3
Rupert	38.8	41.5	35.7	39.3
St. Anthony 1WNW	29.6	31.4	25.2	28.3
Saint Maries	32.5	34.7	22.5	28.0
Salmon	32.2	33.9	27.2	30.6
Sandpoint Exp. Sta.	30.3	32.1	21.0	26.0
Shoshone 1WNW	39.1	42.0	35.9	40.3
Stanley *	22.7	23.6	18.8	21.9
Strevell	32.8	35.4	27.6	32.7

* Values are for irrigated pasture, not alfalfa hay

TABLE A cont.

Station	Mean CU	80th PCTL. CU	Mean CIR	80th PCTL. CIR
Swan Falls	42.3	44.4	38.9	42.5
Swan Valley	32.2	33.8	23.9	28.0
Tensed	31.1	32.7	22.4	27.0
Tetonia Exp. Sta.	28.2	29.8	22.3	26.9
Three Creek	26.5	28.3	22.5	26.6
Twin Falls 2NNE	39.1	41.4	35.6	39.8
Twin Falls 3SE	39.2	41.6	35.6	40.1
Weiser	39.2	41.7	35.8	39.9

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Ashton	33.1	35.5	25.9	31.0
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Bliss	41.1	43.4	38.1	42.2
Boise WSO AP	40.2	42.3	35.4	39.0
Bonners Ferry 1SW	31.5	33.4	24.3	28.6
Bruneau	39.8	42.0	36.5	40.8
Burley FAA AP	36.5	38.4	32.6	36.3
Cabinet Gorge	30.9	32.8	21.4	26.6
Caldwell	40.4	43.2	36.9	41.1
Cambridge	37.5	40.4	32.4	37.7
Cascade 1NW	28.6	30.3	23.1	26.7
Castleford 2N	40.6	42.5	36.4	40.4
Challis	34.7	37.1	30.7	34.4
Chilly Barton Flat	29.9	32.9	25.2	30.3
Coeur d'Alene 1E	32.5	34.4	24.6	29.8
Cottonwood	31.1	33.5	22.2	28.1
Council	37.5	39.5	30.4	35.8
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Driggs	28.3	30.0	22.3	27.1
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Grandview 2W	40.2	42.8	37.5	42.0
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Hazelton	38.7	41.9	35.1	39.5
Hill City	28.8	30.7	26.1	29.7
Hollister	35.6	38.5	31.3	36.2
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1 acre x

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ADMINISTRATOR'S MEMORANDUM

TO: Regional Offices and Water Allocation Section

FROM: Norman C. Young NCY

Transfer Processing No. 7

DATE: September 24, 1982

RE: Sample Calculations for Change in Nature of Use.

The intent of these sample calculations is to provide general guidelines for regional and state office staffs for quantitative evaluation of requested changes in nature of use. To comply with the intent of Section 42-222, Idaho Code, Department personnel must insure that a transfer of a water right does not result in an expansion of use.

An expansion could occur if any one of the following three parameters is increased under the new use: (1) rate of flow, (2) volume or (3) consumptive use. Each of the three parameters must be computed and checked since depending on the specific situation any one of the parameters might be "controlling". The "controlling" parameter determines how much water may be transferred without injury to other rights. The sample situation below demonstrates that depending on the situation any one of the three parameters can be "controlling".

The methodology shown makes many assumptions, and is intended to be used when the portion of the water right to be changed was previously applied to 640 acres or less. For larger acreages the applicant will be required to provide an evaluation by a qualified professional. Note also that the methodology does not take into account possible injury due to change in season of use. This factor must be evaluated on a case by case basis.

Sample Situation:
A wateruser desires to change the nature of use of part of a water right from irrigation to industrial for use in an ethanol production plant. The water is currently licensed for irrigation near Mackay. The water user desires to maintain irrigation with any water not needed for industrial use. The rates of flow needed for the industrial use are 0.10 cfs for washing machinery and 0.20 cfs for the mash. The total is 0.30 cfs, since occassionally both rates of flow must be satisfied simultaneously. Assume a seven day per week operation. The volume needed for the industrial use is computed as follows:

Volume: Washing: $.10 \text{ cfs} \times \frac{1.98 \text{ AF}}{\text{CFS DAY}} \times \frac{4 \text{ HRS.}}{\text{DAY}} \times \frac{1 \text{ DAY}}{24 \text{ HRS.}} \times \frac{365 \text{ DAYS}}{\text{YEAR}} = \frac{12.0 \text{ AF}}{\text{YEAR}}$

Mash: $.20 \text{ CFS} \times \frac{1.98 \text{ AF}}{\text{CFS DAY}} \times \frac{6 \text{ HRS.}}{\text{DAY}} \times \frac{1 \text{ DAY}}{24 \text{ HRS.}} \times \frac{365 \text{ DAYS}}{\text{YEAR}} = \frac{36.1 \text{ AF}}{\text{YEAR}}$

Total: $12.0 + 36.1 = 48.1 \frac{\text{AF}}{\text{YEAR}}$

The consumptive use for the industrial purposes is computed as follows:

Consumptive Use:

Washing: 1.2 AF/YEAR (assume that 10% is consumptively used)
Mash: 36.1 AF/YEAR (assume that all is consumptively used)
Total: 37.3 AF/YEAR

Case 1: Rate of Flow Controlling

Given:
- Irrigation right is licensed at 0.80 cfs for 80 acres.
- Volume diverted for irrigation purposes is 3.5 AF/acre (From Water User's Handbook, IDWR p. 11. This assumes alfalfa* and 60% irrigation efficiency.)
- Number of days in the irrigation season is 215. (From Water User's Handbook, IDWR, p. 17.)
- Irrigation consumptive use is 16.3 inches = 1.4 AF/acre (From Sutter, R. J. and G. L. Corey, "Consumptive Irrigation Requirements of Crops in Idaho", University of Idaho Bulletin 516, July 1970 Table 6, page 8, copy attached. This is the average seasonal consumptive irrigation requirement for alfalfa near Mackay. Note that the attached map of Idaho shows the climatic areas.

Find: Rate of flow, volume and consumptive use for irrigation use and industrial use after change.

Analysis:
- Total rate 0.80 cfs
- Total volume diverted 3.5 (80) = 280 AF/YEAR
- Total consumptive use (C. U.) 1.4 (80) = 112 AF/YEAR

Solution: a. New use check

RATE	VOLUME	C. U.
0.80 cfs	280.0 AF	112.0 AF
-0.30 cfs	-48.1 AF	-37.3 AF
0.50 cfs	231.9 AF	74.7 AF

All values are positive. Therefore, the original right is large enough to provide for the new use.

b. Number of acres calculation.

1. Rate parameter check

$$\frac{0.30}{0.80}\ (80) = 30 \text{ acres out}$$

2. Volume parameter check

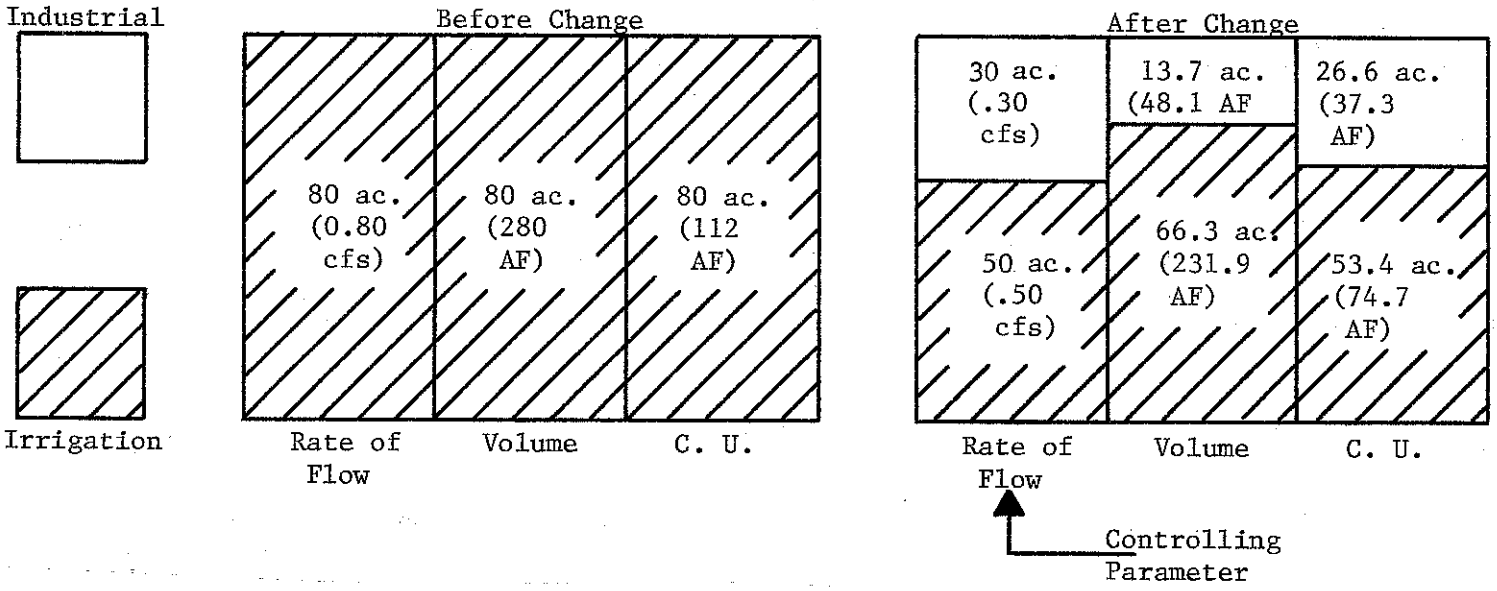
$$\frac{48.1}{3.5} = 13.7 \text{ acres out}$$

3. C. U. parameter check

$$\frac{37.3}{1.4} = 26.6 \text{ acres out}$$

*An "alfalfa standard" will be used for any consumptive use computation for irrigation. This means that regardless of the historical crop uses, the crop used in the water requirement computations is alfalfa.

c. Graphical representation of the solution:



d. Evaluation of water right after the change. As demonstrated above, the original irrigation right is large enough to provide for the requirements of the industrial use and to provide for continued irrigation of a portion of the lands. The computation of the number of acres that can be irrigated after the change is based on maximum utilization of remaining water supplies. In this case, the rate of flow appears to limit the irrigated acreage to 50 acres, so rate of flow appears to be the "controlling" parameter.

However, when rate of flow is initially found to be "controlling" one further check should be made. If the remaining irrigation rate of flow (0.50 cfs) can provide enough water to irrigate more than the proportionate number of acres (50), then the acreage irrigated for the rate of flow parameter can be increased.

Generally, the minimum rate of flow per acre is based on the maximum irrigation demand. Since the demand is based on a number of factors including soil type, soil depth and irrigation system in addition to the factors already mentioned, this computation must be made by a qualified irrigation expert (e.g. Verl King). After the maximum number of acres is found for rate of flow when it is the controlling factor the other parameters should be checked to make sure they are not exceeded by the new maximum.

As an example, assume that the maximum number of acres that can be irrigated by 0.50 cfs is computed by an expert to be 52.0 acres. Then the right after the change would be as follows:

Right after change

USE	ACRES	RATE	VOLUME	C. U.
Irr.	52	0.50	52 X 3.5 = 182	52 X 1.4 = 72.8
Ind.	N.A.	0.30	48.1	37.3
		0.80 cfs	230.1 AF	110.1 AF

Case 2: Volume Controlling

- Irrigation right is licensed at 0.80 cfs for 80 acres.
- Volume diverted for irrigation purposes is 3.5 AF/ acre.
- Consumptive use for irrigation is 1.4 AF/acre.
- Water used to wash machinery is used 24 hours/day and only 1.67% is consumptively used.

Find: Rate of flow, volume and consumptive use for irrigation and industrial use after change.

Analysis:
- Total rate 0.80 cfs
- Total volume 3.5 (80) = 280 AF/YEAR
- Total C. U. 1.4 (80) = 112 AF/YEAR
- Volume for industrial use recalculated as follows:

Washing: $.10 \text{ cfs} \times 1.98 \frac{\text{AF}}{\text{cfs DAY}} \times \frac{24 \text{ HRS.}}{\text{DAY}} \times \frac{1 \text{ DAY}}{24 \text{ HRS.}} \times$

$$\frac{365 \text{ DAYS}}{\text{YEAR}} = 72.3 \frac{\text{AF}}{\text{YR.}}$$

Mash: No change (36.1 AF/YEAR)

Total Vol. = 72.3 + 36.1 = 108.4 AF/YEAR

- C. U. for industrial use recalculated as follows:

Washing: 1.67% of 72.3 = 1.2 AF/YEAR
Mash: 36.1 AF/YEAR
Total C. U.: 1.2 + 36.1 = 37.3 AF/YEAR (no change)

Solution: a. New use check

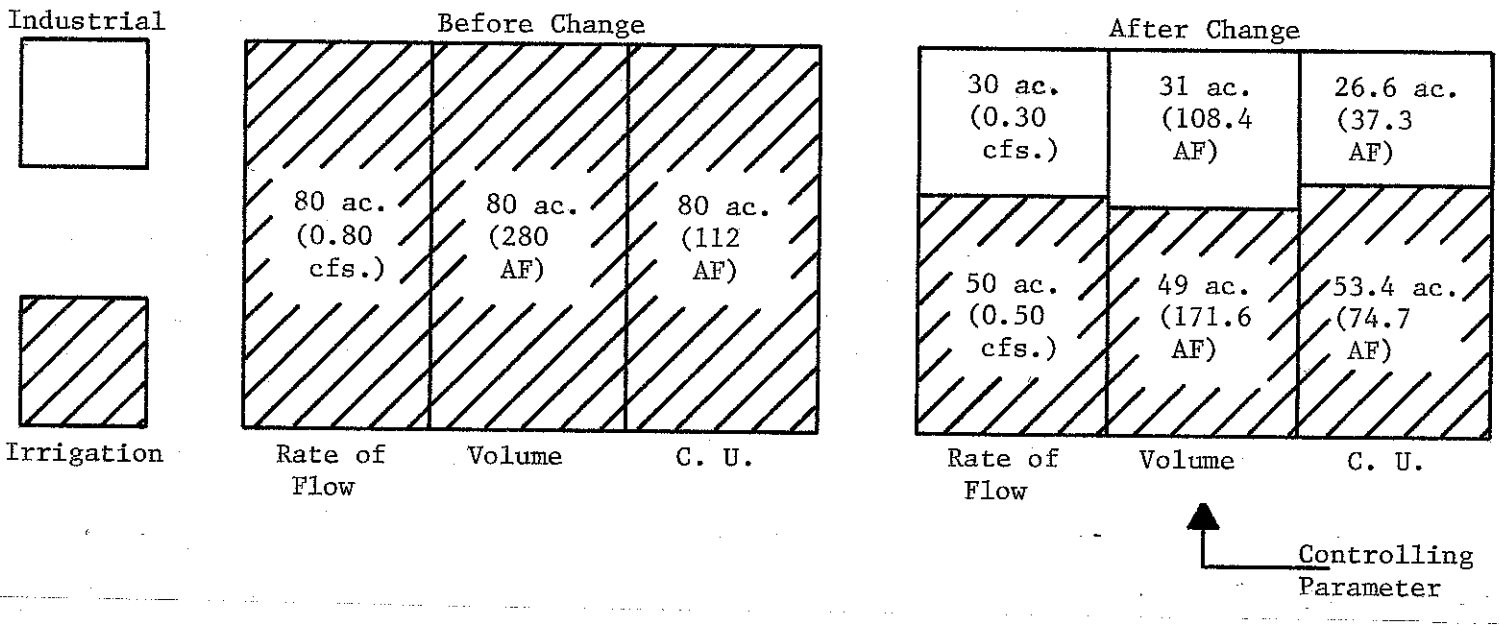
RATE	VOLUME	C. U.
0.80	280.0	112.0
-0.30	-108.4	-37.3
0.50 cfs	171.6 AF	74.7 AF

All values are positive. Therefore, the original right is large enough to provide for the new use.

b. Number of acres calculation.

1. Rate parameter check
   $\frac{0.30}{0.80}$ (80) = 30 acres out
2. Volume parameter check
   $\frac{108.4}{3.5}$ = 31 acres out
3. C. U. parameter check
   $\frac{37.3}{1.4}$ = 26.6 acres out

c. Graphical Solution



d. Evaluation of water right after the change. As shown in the graphical solution, volume is the "controlling" parameter, which limits irrigation after the change to 49 acres.

Right after change

USE	ACRES	RATE	VOLUME	C. U.
Irr.	49	0.50	171.6	49 (1.4) = 68.6
Ind.	N.A.	0.30	108.4	37.3
		0.80 cfs	280.0 AF	105.9

Case 3: Consumptive Use Controlling

Given:
- Irrigation right is licensed for 1.60 cfs for 80 acres.
- Volume diverted for irrigation purposes is 3.5 AFA/acre.
- Consumptive use for irrigation is 1.4 AF/acre.

Find: Rate of flow, volume and consumptive use for irrigation use and industrial use after change.

Analysis:
Total rate 1.60 cfs
Total volume 3.5 (80) = 280 AF/YR.
Total C. U. 1.4 (80) = 112 AF/YR.
Volume for industrial use = 48.1 AF/YR.
C. U. for industrial use = 37.3 AF/YR.

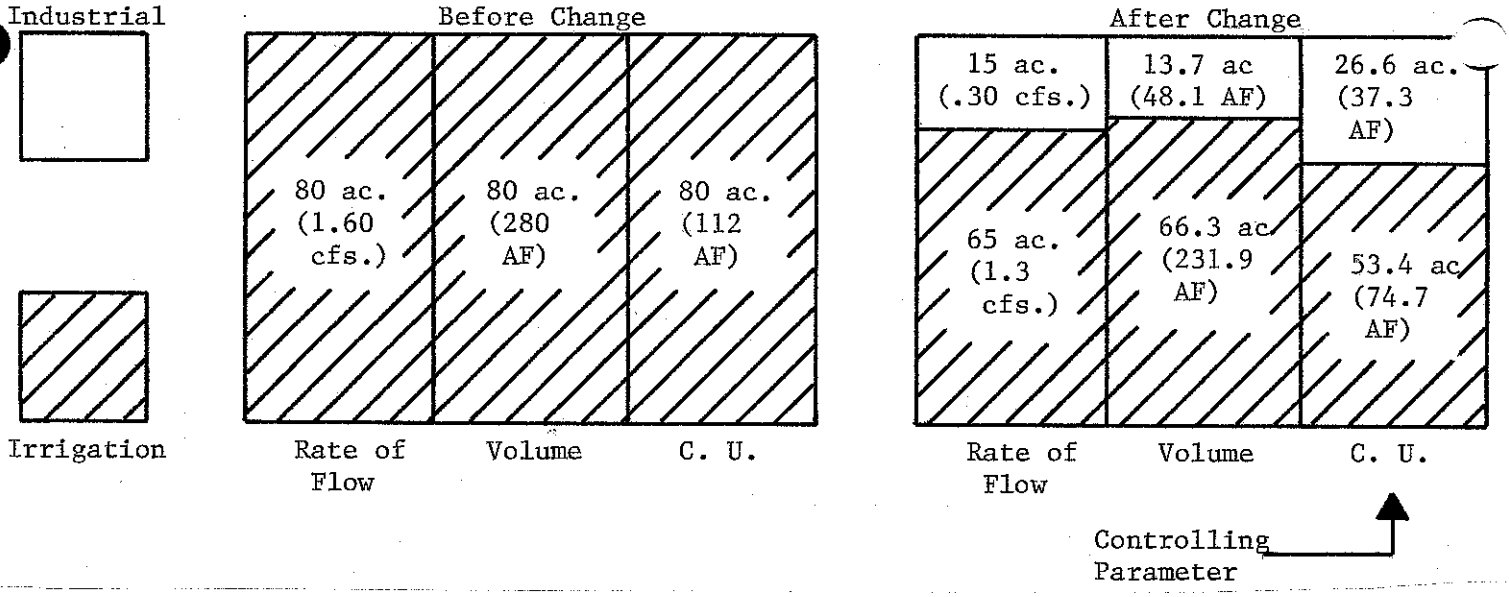
Solution: a. New use check

RATE	VOLUME	C. U.
1.60	280.0	112.0
-0.30	48.1	-37.3
1.3 cfs	231.9 AF	74.7 AF

All values are positive. Therefore, the origianl right is large enough to provide for the new use.

b. Number of acres calculation.

1. Rate parameter check
   $\frac{0.30}{1.60}$ (80) = 15 acres out
2. Volume parameter check
   $\frac{48.1}{3.5}$ = 13.7 acres out
3. C. U. parameter check
   $\frac{37.3}{1.4}$ = 26.6 acres out



d. Evaluation of water right after the change. As shown in the graphical solution, consumptive use is the "controlling" parameter, which limits irrigation after the change to 53.4 acres.

Right after change

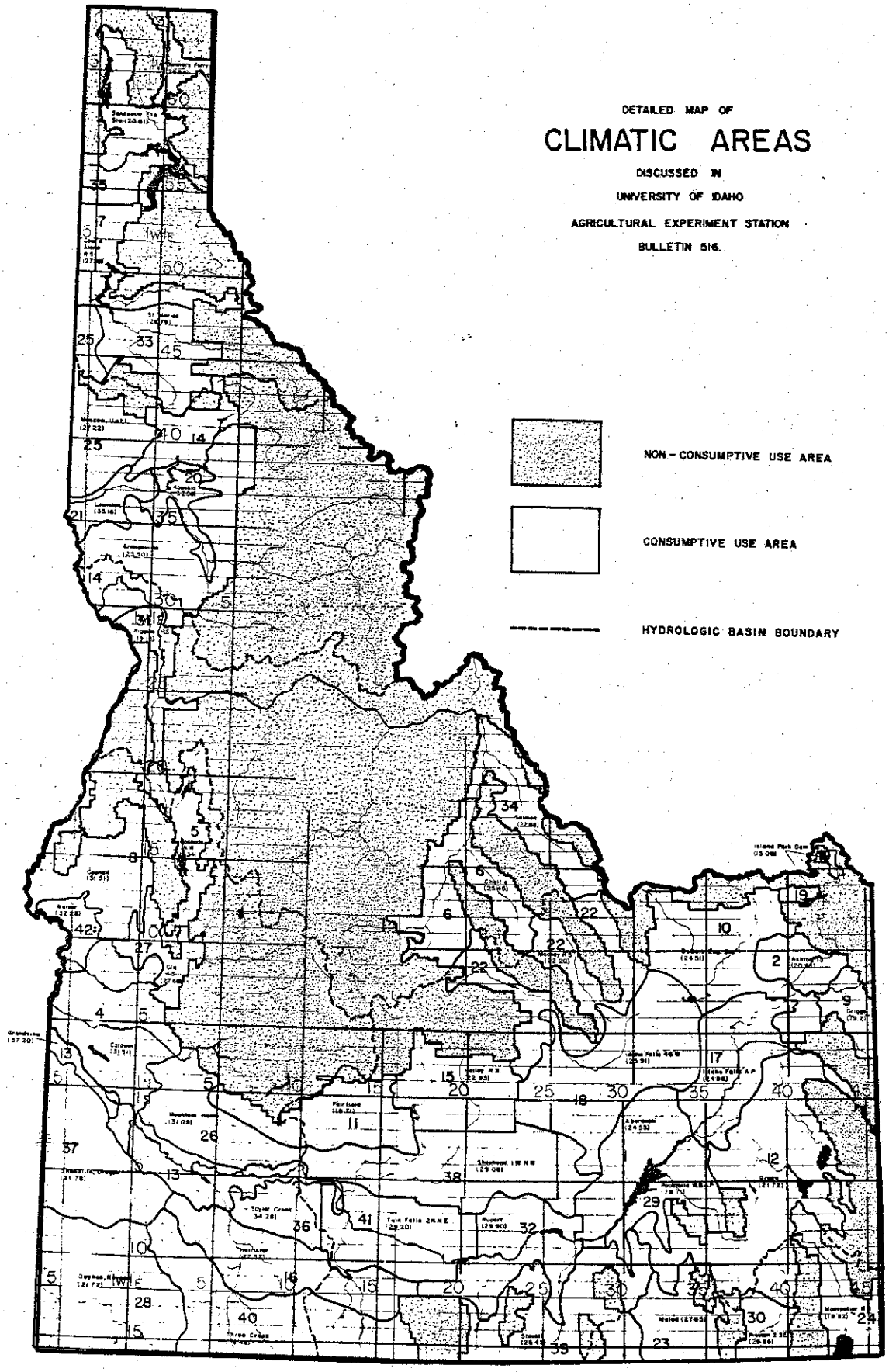
USE	ACRES	RATE	VOLUME		C. U.
Irr.	53.4	1.3	53.4 (3.5) =	186.9	74.7
Ind.	N.A.	.3		48.1	37.3
		1.6		235.0 AF	112.0 AF

When the supplemental information sheet for change in nature of use is received by the regional office, the computations of the three parameters should be completed and placed in the file. These computations will be reviewed by state office personnel during the review process.

REPLACED by Table A in attached amendment.

Table 6. Average annual consumptive irrigation requirement by crop for Idaho (inches).

Area	Station	Sugar beets	Dry beans	Corn silage	Field corn	Spring grain	Potatoes	Small veg.	Winter grain	Alfalfa	Pasture	Orchards
1.	Aberdeen	18.1	14.0	14.4	15.5	13.5	17.7	9.5	18.4	19.6	15.7	-----
2.	Ashton 1S	12.1	-----	9.6	-----	10.0	12.3	-----	13.7	13.5	10.1	-----
3.	Bonners Ferry 1SW	-----	-----	11.8	-----	13.0	15.1	-----	15.1	16.7	12.0	-----
4.	Caldwell	24.4	16.9	18.8	19.8	13.7	23.4	10.7	19.9	26.1	20.3	21.4
5.	Cascade 1NW	-----	-----	9.9	-----	10.3	11.4	-----	13.8	13.7	10.3	-----
6.	Challis	-----	-----	13.6	-----	15.2	15.3	-----	16.3	19.3	14.7	-----
7.	Coeur d'Alene RS	-----	-----	13.5	-----	13.9	17.2	-----	16.1	19.1	13.5	-----
8.	Council	20.4	-----	16.2	-----	13.4	20.3	-----	17.1	22.5	16.5	-----
9.	Driggs	-----	-----	9.4	-----	9.2	11.5	-----	13.5	12.7	9.5	-----
10.	Dubois Exp. Sta.	16.5	-----	12.4	-----	12.6	16.1	-----	16.0	17.5	13.5	-----
11.	Fairfield	-----	-----	11.9	-----	12.3	14.4	-----	15.6	15.6	12.1	-----
12.	Grace	12.8	-----	10.2	-----	10.5	12.4	-----	14.2	14.4	10.6	-----
13.	Grandview	18.7	18.8	22.6	22.9	16.2	26.9	13.0	21.1	31.6	24.2	26.1
14.	Grangeville	-----	-----	9.5	-----	6.4	12.7	-----	11.5	14.1	8.5	-----
15.	Hailey RS	-----	-----	12.7	-----	13.1	14.9	-----	16.3	17.5	13.7	-----
16.	Hollister	18.5	13.3	14.0	15.2	11.8	18.3	8.1	17.1	20.4	15.2	-----
17.	Idaho Falls AP	18.6	-----	13.9	-----	12.9	17.9	-----	17.1	19.4	15.5	-----
18.	Idaho Falls 46W	15.6	-----	12.9	-----	13.5	16.6	-----	16.2	17.3	13.5	-----
19.	Island Park Dam	-----	-----	5.6	-----	4.6	7.0	-----	9.3	8.2	5.7	-----
20.	Kooskia	-----	-----	13.4	-----	11.0	17.4	-----	14.6	19.2	12.0	-----
21.	Lewiston	-----	-----	18.2	-----	14.8	21.4	5.1	14.4	25.8	18.2	20.7
22.	Mackay RS	-----	-----	11.5	-----	13.3	13.2	-----	15.7	16.3	12.8	-----
23.	Malad	19.1	-----	14.8	-----	15.0	18.4	-----	16.6	20.8	15.5	-----
24.	Montpelier RS	-----	-----	10.8	-----	11.1	13.3	-----	15.1	14.5	11.2	-----
25.	Moscow U of I	-----	-----	12.8	-----	11.0	16.2	7.7	15.0	18.2	12.6	-----
26.	Mountain Home	25.1	17.0	19.1	20.7	16.6	24.1	11.9	21.5	26.7	21.1	22.1
27.	Ola 4S	18.9	-----	15.1	-----	10.0	19.4	7.6	17.6	21.2	15.7	17.1
28.	Owyhee, Nevada	-----	-----	12.6	-----	13.0	15.5	-----	16.5	17.3	13.1	-----
29.	Pocatello WB AP	21.3	14.3	16.2	-----	12.8	20.2	9.6	17.3	22.6	17.5	-----
30.	Preston 2SE	18.3	-----	14.3	-----	14.8	18.0	-----	16.8	20.1	14.8	-----
31.	Riggins RS	-----	-----	18.5	-----	14.6	22.2	-----	14.6	26.5	17.2	-----
32.	Rupert	23.3	16.2	18.1	19.2	12.7	21.9	10.2	19.1	24.9	19.5	20.5
33.	St. Maries	-----	-----	12.8	-----	13.1	16.0	8.4	15.9	17.9	12.8	-----
34.	Salmon	-----	-----	12.2	-----	13.0	16.5	-----	16.4	17.0	13.3	-----
35.	Sandpoint Exp. Sta.	-----	-----	10.2	-----	11.6	13.4	-----	14.4	14.6	10.2	-----
36.	Saylor Creek	26.9	17.5	20.5	21.9	17.8	25.3	12.1	19.3	28.7	22.2	23.7
37.	Sheaville, Oregon	-----	-----	13.9	-----	13.7	17.0	-----	17.5	18.0	14.3	-----
38.	Shoshone 1WNW	21.9	16.1	17.2	17.8	12.8	21.6	10.2	20.6	23.6	18.8	-----
39.	Strevell	16.2	-----	13.0	-----	13.5	16.6	-----	16.5	18.0	13.6	-----
40.	Three Creek	-----	-----	7.5	-----	7.5	11.5	-----	12.1	11.3	8.7	-----
41.	Twin Falls 2NNE	21.9	15.6	16.8	17.4	13.2	21.3	9.7	19.2	23.2	18.3	18.9
42.	Weiser	25.6	17.9	19.3	21.2	14.5	23.7	7.3	21.4	26.8	21.2	22.0
	State Average	20.0	16.1	13.9	19.2	12.6	17.3	9.4	16.3	19.3	14.5	21.4



DETAILED MAP OF

CLIMATIC AREAS

DISCUSSED IN

UNIVERSITY OF IDAHO

AGRICULTURAL EXPERIMENT STATION

BULLETIN 516.

NON-CONSUMPTIVE USE AREA

CONSUMPTIVE USE AREA

HYDROLOGIC BASIN BOUNDARY

NOTE: Figure in Parenthesis is 80 Percentile Seasonal Alfalfa Consumptive Use From U of I Bulletin 516

Supplement to
Form No. 222
2/82

Transfer No._____

Water Right No._____

STATE OF IDAHO

DEPARTMENT OF WATER RESOURCES

Application For Transfer of Water Right
Supplemental Information for
CHANGE IN NATURE OF USE

1. Fully complete Form 222. Type or print in ink "CHANGE IN NATURE OF USE" at the top of page 1. If no change in point of diversion or place of use is desired, so note under items C.2 and/or C.3 C.

2. Describe fully the new use to which the water is intended to be applied:

a. Nature of use:_____

b. Rate of flow:_____

c. Hours per day and days per year that the flow will be diverted:_____

d. Season of use:_____

e. Return flows from the use: (quantity and quality of return flows, and location of discharge):

3. Describe positive and negative effects on other waterusers predicted to result from the proposed change in nature of use._____