

1996 JUL -1 PM 3:14
DISTRICT COURT-SRBA
TWIN FALLS CO., IDAHO
FILED _____

**REPORT REGARDING QUANTIFICATION OF SMALL
DOMESTIC AND STOCKWATER USES**

In Re SRBA
Twin Falls County Civil Case No. 39576
Sub-Case Nos.: See Attachment A

36-3A
etal

Report to the SRBA District Court

Prepared by the Idaho Department of Water Resources
Karl J. Dreher, Director
David B. Shaw, Adjudication Bureau Chief
David R. Tuthill, Jr., Acting Adjudication Bureau Chief

July 1, 1996

COPY

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

The Director of the Idaho Department of Water Resources submits this report regarding quantification of domestic and stockwater uses in conjunction with its reports regarding the claims to water rights listed in Attachment A.

A. DIVERSION RATE VS. DIVERSION VOLUME

The difference between diversion rate and diversion volume is perhaps best conceptualized by the images of a faucet and a bucket. Assume that you turned your garden faucet half open, let it run for one minute, and filled one ten-gallon bucket with water. The diversion rate, or the measure of the flow of water from the faucet, is ten gallons per minute. The diversion volume is the amount of water in the bucket, which is ten gallons. If you wanted twenty gallons of water, you would have these options. You could double the diversion rate, by turning the faucet wide open, and produce the twenty gallons in the same time of one minute. Or, you could keep the same diversion rate, by leaving the faucet turned half open, and double the time you leave the faucet running, producing the twenty gallons in two minutes.

IDWR, as well as the corresponding agencies from other states, use the terms "cubic feet per second" (cfs) and/or "acre feet per year" (afy) to quantify water rights.¹ CFS represents diversion rate, also known as "instantaneous diversion rate." AFY represents annual diversion volume, sometimes simply referred to as "diversion volume" or just "volume."

Both cfs and afy are measurements of the amount of water diverted. They are similar in the sense that both are a unit of volume (cubic foot and acre foot) per unit of time (second and year). Since both are based on a unit of volume, they could both be considered volume measurements;² since both are based on a unit of time, they could both be considered measurements of a rate of flow. There are differences in these measures, however, that are significant for both the quantification of water rights and the distribution of water pursuant to those water rights.

Historically, water rights have been quantified in terms of diversion rate (cfs) because, historically, water right development occurred primarily from streams, and water right administration occurred primarily to resolve conflicts over the distribution of water from streams. Since the flow of water in the stream will likely change the next month, week, or day, the flow of water must be divided among the water users

¹ See Idaho Code §42-102, 42-1409(1)(c), 42-1411(2)(c).

² One acre foot is the volume of water necessary to cover 1 acre of land to a depth of one foot, and equals 43,560 cubic feet.

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

based on what is available "at that instant." Although a second is not "instantaneous" for some purposes, it is a sufficiently short period of time to be considered instantaneous for purposes of distribution of water from a public source.

Historically, most water rights have not been quantified in terms of annual diversion volume, because historically, quantification by diversion rate has been sufficient to resolve most conflicts over the distribution of water. Since measurement of annual diversion volume requires measurement over a substantial period of time, effective measurement can generally be accomplished only with the use of continuous recording meters, which require significant financial investment.³ As long as quantification by diversion rate was sufficient to resolve conflicts over the distribution of water, there was no incentive for the investment in the cost and effort required to quantify water rights and distribute water by annual diversion volume.

Annual diversion volume can nonetheless be an important measurement, for several reasons. First, water supply in Idaho is dependent on an annual cycle, in which winter precipitation provides a large share of both surface water flows and ground water recharge. Water demand is also dependent on an annual cycle, since irrigation is the largest consumptive use of water resources.

The need for quantification of water rights by annual diversion volume occurred initially with the development of surface water storage. Generally, surface water storage development sought to address the divergence between the annual water supply cycle and the annual water demand cycle. Since water supply was highest in the spring, but demand was highest in mid to late summer, surface water storage allowed the excess spring flows to be held for use later in the year. Quantification by diversion volume was needed to administer storage rights, since the amount of water stored is a volume, like the bucket in the illustration above. Quantification by annual diversion volume is needed since storage of water and its subsequent use is generally based on an annual cycle.

Ground water development has furthered the need to quantify water rights by annual diversion volume. Since ground water exhibits some of the properties of both surface streams (flow) and reservoirs (storage/volume), the modern trend throughout the western states is to quantify ground water rights by both diversion rate (cfs) and annual diversion volume (afy). In addition, increasing competition for water and improvements in the technology available to measure or estimate diversion volume

³ Measurement can be made less effectively with repeated "instantaneous" measurements, which are labor intensive and require assumptions as to the diversion rate between measurements. There are also some methods to estimate annual diversion volume instead of measuring it.

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

has created greater incentive for the quantification and administration of water rights in terms of annual diversion volume as well as diversion rate.

Diversion rates can be "converted" to diversion volumes by using simple formulas. For example, one cfs of water will produce about 1.984 acre feet of water in 24 hours. Generally, however, the recommended diversion volume for a water right is less than the full volume that can be produced by continuous diversion of the recommended diversion rate throughout the recommended season of use, because most systems are not operated at full capacity all of the time.

For example, a lawn sprinkler system is generally designed with a diversion rate sufficient to irrigate the entire lawn in a few hours. If such a system were operated 24 hours a day every day, it would produce a volume far greater than required to adequately water the lawn. As another example, household plumbing is designed with a diversion rate sufficiently high that showers, washing machines, sinks, etc. can be used at the same time with reasonable water pressure. Domestic uses, however, do not require the full diversion volume that the domestic diversion rate can produce, because people do not run all their showers, washing machines, sinks, etc. for 24 hours every day.

Representative numbers can be used to further illustrate these examples. A typical domestic well is designed to produce a diversion rate of about 18 gallons per minute, or 0.04 cfs. Continuous diversion would produce about 25,920 gallons per day, or about 28.97 af per year. But the average diversion volume required for a typical single-family domestic use, including lawn and garden, is about 1100 gallons per day, or about 1.2 afy.

B. QUANTIFICATION OF DIVERSION RATE

IDWR's recommendation of each right includes a diversion rate in cfs for each purpose of use as well as a total diversion rate, except for certain types of storage, which are quantified only by annual diversion volume in afy. IDWR quantifies water rights in this manner pursuant to Idaho Code 42-1411(2), which provides for the director's report of water rights acquired under state law to include a determination of the quantity of water used, describing the rate of diversion in cfs and/or the annual volume of diversion in afy as the director deems appropriate to define and administer the water rights.

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

Water rights acquired under state law are limited to the amount of water beneficially used.⁴ Generally, the diversion rate for a water right is determined by either measuring the actual diversion rate, or by applying standards as to the diversion rate required for a particular type of use, or some combination of both.

For example, a standard diversion rate of 0.02 cfs per acre for irrigation has been set by statute.⁵ Where more than 0.02 cfs per acre is claimed, IDWR will examine conveyance losses between the point of diversion and place of use, the method of irrigation, and field conditions to determine if a greater amount is actually used and reasonably necessary due to those conditions.

IDWR also has guidelines for diversion rates for domestic and stockwater uses. The typical diversion rate for a single-family domestic use is 0.04 cfs, which includes irrigation of up to one-half acre of land. This is a typical diversion rate for a single-family domestic use because it is generally sufficient to meet the instantaneous demand of typical residential plumbing systems. IDWR also has guidelines for multiple unit dwellings. A copy of the guidelines for multiple unit dwellings is included in Appendix IV, which is an appendix to IDWR's Idaho Water Law Handbook, a true and accurate copy of which is attached hereto.⁶ A copy of the typical diversion rates for various types of stock is also included in Appendix IV, which are based on the daily volume requirements for different types of stock. These guidelines are simply that - guidelines. They represent typical diversion rates for these types of uses; higher diversion rates are common and reasonable for some small domestic and stockwater systems. Generally, with respect to small domestic and stockwater claims, IDWR will recommend the diversion rate claimed where it is consistent with the claimed uses and/or common delivery systems for the claimed uses.

C. QUANTIFICATION OF DIVERSION VOLUME

As noted above, water rights are limited to the amount of water beneficially used. Generally, the diversion volume for a water right is determined by either measuring the actual diversion volume, or by applying standards as to the diversion volume required for a particular type of use, or some combination of both. As noted

⁴ Idaho Code §42-104, §42-1402.

⁵ Idaho Code §§42-202, 42-220.

⁶ These guidelines include up to one-half acre of irrigation per water right; irrigation in excess of one-half acre is recommended in the director's report as a separate purpose of use for irrigation. The guidelines for multiple domestic units are from J. Ameen, *Community Water Systems Source Book* (Technical Proceedings, North Carolina, 1977).

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

above, however, measurement of diversion volume is more difficult than measurement of diversion rate. Generally, there are few water rights (other than storage rights) for which historic diversion volume measurement data is available.

For example, IDWR has developed standards for annual diversion volume for irrigation for the various regions throughout the state based on climatic and other data, which are expressed in afy per acre. To determine the annual diversion volume for a water right or a portion of a water right used for irrigation, the total number of irrigated acres is multiplied by the standard. Where a diversion rate of more than 0.02 cfs per acre is recommended (due to conveyance losses, method of irrigation, or field conditions), IDWR generally increases the per acre diversion volume proportionately.

IDWR's recommendations of water rights appropriated under state law include diversion volumes for certain types of water rights. IDWR quantifies water rights in this manner pursuant to Idaho Code 42-1411(2), which provides for the director's report of water rights acquired under state law to include a determination of the quantity of water used, describing the rate of diversion in cfs and/or the annual volume of diversion in afy as the director deems appropriate to define and administer the water rights.

Diversion volume is generally stated for rights to ground water. An exception is that diversion volume is generally not stated for domestic and stockwater rights unless the right is based on a license or decree that previously determined the diversion volume of the right. Diversion volume is generally not stated for rights to water from surface sources, unless a) the use is for storage, b) diversion volume was previously determined by a decree, license, or order approving an application for change in use, or c) a diversion volume limit is necessary to prevent injury from an accomplished transfer.

IDWR generally does not include diversion volumes on domestic and stockwater rights because the determination of diversion volume for these rights is not reasonably necessary for the distribution of water in accordance with water rights. Since the individual and cumulative impact of such water rights is minimal in comparison to the total water supply, the limited resources available for the regulation of water rights is appropriately spent on the water rights that place substantial demands on the public waters of the state and/or that give rise to disputes among water users. In addition, quantification of the actual diversion volume for domestic and stockwater rights would be time-consuming and costly. For example, although 1.2 afy is typical for a single-family domestic use, the actual annual diversion volume will vary depending on such minute factors as the number and type of household

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

plumbing fixtures, the number of people in the house, and the usual activities of the occupants. The cost and effort required to determine this element for the multitude of domestic and stockwater claims is unwarranted.⁷

D. FURTHER INFORMATION AS TO QUANTIFICATION OF STOCKWATER USES

IDWR bases its quantification of water requirements for stockwater use on the gallon per day per head standards published by the United States Environmental Protection Agency.⁸ The standard for range cattle, for example, is 12 gallons per day per head. But in both the notices of claims and the director's recommendations, diversion rate is required to be stated in cfs, not gpd.⁹ The diversion rate in cfs for stockwater rights is not properly determined by a simple conversion to the lowest diversion rate that is capable of producing 12 gallons per day per head. A higher diversion rate is generally required, due to the following factors.

a. A reasonable diversion rate is one that allows delivery of the required volume in a reasonable period of time. Delivery systems vary from appropriator to appropriator, with the result that the diversion rate and/or the period of time each day that water is "on" will also vary. For example, one appropriator may pump groundwater to stock troughs, diverting water at full capacity to fill the troughs in a short period. Another appropriator might divert water continuously, at the lowest rate necessary to keep water in the troughs. Other appropriators use "demand systems;" water comes on automatically when a float in the trough drops and shuts off automatically when the float rises. In any event, the system must meet the needs of the livestock by providing the volume needed at the time it is needed, and cattle do not obtain their volume requirement by drinking continuously 24 hours a day.

b. A reasonable diversion rate includes reasonable conveyance losses in the delivery of water from the source to the cattle. Conveyance losses will also vary from appropriator to appropriator depending on the water delivery system.

⁷ For example, there are approximately 92,000 claims which include stockwater as a purpose of use. If IDWR were to determine the actual diversion volume (daily or annual) the cost for senior agent review time alone would be approximately \$35,000 per minute; if each claim could be reviewed and diversion volume determined in as little as 15 minutes per claim, the cost would be approximately \$500,000.

⁸ ENVIRONMENTAL PROTECTION AGENCY, U.S. DEPARTMENT OF INTERIOR, PUB. NO. epa-570/9-82-004, MANUAL OF INDIVIDUAL WATER SUPPLY SYSTEMS 485-487 (1982).

⁹ Idaho Code §§ 42-1409(1)(c) and 42-1411(2)(c).

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

For example, an appropriator who pumps water directly from a well to stock troughs will have virtually no conveyance losses. Another appropriator whose stock drink from a ditch a quarter-mile in length may have substantial conveyance losses, and may require continuous diversion at a higher rate to maintain a flow of water in the ditch.

To allow for these differences and to meet the actual water demand for the livestock, IDWR has developed a method for the determining the maximum reasonable diversion rate for a given number of stock, commonly referred to as the "two-hour method." Based on this method, a diversion rate that will produce the daily volume requirement in a two-hour period is considered a reasonable rate of diversion for small domestic and stockwater rights. This method is consistent with the design of small water systems generally, and is reasonable to provide the water user with the flexibility to meet actual historical water demands so long as the use of the right is limited to the actual historical use (in this case, the type and number of livestock).

A sample calculation using this method to determine the diversion rate for 350 head of range cattle is shown below:

$$\frac{350 \text{ HEAD} \times 12 \text{ GPD/HEAD}}{2 \text{ HRS} \times 60 \text{ MIN/HR} \times 450 \text{ GPM/CFS}} = 0.08 \text{ CFS}$$

IDWR has prepared a chart showing diversion rates for range and dairy cattle, based on the number of head and the two-hour method, which shows the diversion rate rounded up to the nearest one-hundredth cfs. A copy of the chart is included in Appendix IV, which is an appendix to IDWR's Idaho Water Law Handbook and is attached hereto.

As noted above, this formula establishes a standard for determining a maximum reasonable diversion rate in cfs for a given number of stock. If the claimed diversion rate is within the maximum for the claimed use, then IDWR does not require further information to show the reasonableness of the diversion rate claimed. IDWR applies these same standards to instream stockwater rights based upon the premise that, if the diversion rate provides a reasonable flow of water for cattle to drink from a ditch or other structure, the same amount provides a reasonable flow of water for cattle to drink from a stream. As noted in the previous section, IDWR generally does not include an annual diversion volume for domestic and stockwater rights up to 0.24 cfs (small D&S). Instead, IDWR further describes the use by identifying the number and type of stock.

E. FURTHER DESCRIPTION OF NON-IRRIGATION USES IN DIRECTOR'S REPORTS

This section (E) sets forth the basis for the further description of non-irrigation uses in the director's reports. As a result of Basin-Wide Issue 12, IDWR developed alternative methods to achieve a similar result, which are described further in section (G) below.

Rather than determine annual diversion volume in afy for small D&S rights, IDWR included a further description of non-irrigation uses in the director's report. For domestic rights, this included the number of dwellings; for stockwater rights, it included the type of stock and number of head. IDWR relies upon the following in reaching its conclusion: Idaho Code §42-1411(2), which provides for IDWR to determine the quantity and purpose(s) of use of a water right to the extent the director deems appropriate and proper to define and administer the water right, and Idaho Code §42-1412(6), which provides that the decree shall contain or incorporate a statement of each element of a water right as stated in section 42-1411, as contrasted with language later in section 42-1412 providing for the inclusion of general provisions to the extent necessary to define and administer water rights.

The further description of non-irrigation uses defines the water right by describing the purpose of use with sufficient specificity to prevent future expansions in use that would enlarge the water right and cause injury to other water rights. This is particularly true with respect to water rights for which no diversion volume is specified.

For example, the standard rate of diversion for 500 head of range cattle is 0.12 cfs. A diversion rate of 0.12 cfs, diverted continuously, is sufficient to provide a daily diversion volume of about 77,760 gallons per day. The daily diversion volume reasonably required for 500 range cattle, under standards published by the United States Environmental Protection Agency, is 6000 gallons per day. Quantification solely by diversion rate is insufficient because it could allow an increase in use more than 12 times the claimed and recommended use without exceeding the diversion rate of the water right.

Specifying the number of dwellings or the number and type of stock is a more convenient means to quantify diversion volume of domestic and stockwater uses, both for purposes of adjudication of water rights and distribution of water. It is generally much easier to measure the number of dwellings and the number and type of stock than to try to measure or estimate diversion volume in afy for these uses.

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

For the preparation of director's reports in water rights adjudications, the director of IDWR has, pursuant to Idaho Code §42-1411, deemed the further description of small stockwater rights by type and number of head appropriate and necessary to define and administer water rights, for the reasons summarized below and more fully explained in the preceding sections.

- a. Water rights are limited to the amount of water beneficially used. The quantity of water beneficially used is the amount that is both actually used and is reasonably required for the purpose for which water is appropriated. Determination of the quantity reasonably required for stockwater use depends on the type and number of stock; determination of the quantity reasonably required for domestic use depends on the number of households.
- b. To make the most effective and efficient use of the resources available for the investigation of claims, IDWR generally does not conduct a field examination to verify the actual diversion rate or annual diversion volume of claims for D&S use up to 0.24 cfs.
- c. A reasonable diversion rate for stockwater or domestic use, if diverted continuously, is capable of producing an annual diversion volume that is significantly greater than the annual diversion volume reasonably required for that use. Quantification by diversion rate alone could therefore allow enlargements in use that would significantly increase annual diversion volume, resulting in expansion of the right and injury to other water users.
- d. Description of small stockwater rights by the type and number of head and description of small domestic rights by the number of households is the most convenient and effective means to define and administer water rights with sufficient specificity to prevent future expansions in use that would enlarge the water right and cause injury to other water rights.

F. SMALL DOMESTIC AND STOCKWATER RIGHTS AND PORTIONS OF RIGHTS FOR SMALL DOMESTIC AND STOCKWATER USES

Small domestic rights are defined¹⁰ as follows:

The use of water for homes, organization camps, public campgrounds, livestock, and for any other purpose in connection therewith, including

¹⁰ Idaho Code §42-111A & B.

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

irrigation of up to 1/2 acre of land, if the total use is not in excess of 13,000 gallons per day, **OR**

Any other uses, if the total use does not exceed a diversion rate of 0.04 cfs and a diversion volume of 2500 gallons per day.

Small stockwater rights are defined¹¹ as follows:

The use of water solely for livestock or wildlife where the total diversion is not in excess of 13,000 gallons per day.

One issue IDWR has wrestled with is how to determine whether a particular claim is within the statutory definition of small domestic or stock, when the definition provides a daily diversion volume but the adjudication statute requires both the claim and the report to state a diversion rate in cfs. Continuous diversion at a rate of 0.02 cfs will produce 13,000 gallons in 24 hours, but, as noted above, domestic diversion systems are designed to produce the volume of water needed in a reasonable period of time, with the result that a reasonable domestic use may have a higher diversion rate without exceeding the statutory daily diversion volume. In addition, the alternative definition of domestic is capped with a diversion rate of 0.04 cfs and a daily diversion volume of 2500 gallons, even though a diversion rate of 0.04 cfs diverted continuously is capable of producing 26,000 gallons. IDWR addressed this problem by using the 2-hour formula and the further description of non-irrigation uses. Thus, a water right could be claimed as a small domestic and stockwater right so long as the diversion rate did not exceed a diversion rate of 0.24 cfs, and so long as the further description of non-irrigation uses was consistent with the statutory definition and the daily diversion volume limit. For example, a claim to 1000 head of range cattle, which would require a daily diversion volume of 12,000 gallons, would be consistent.

The definition of small domestic and stockwater use is relevant to the adjudication primarily for four purposes. First, IDWR used the definition to identify a large class of small claims for which a more summary review process would be employed. Secondly, the definition identifies a class of small rights, the adjudication of which may be deferred. Third, it identifies a class of small rights to ground water for which a permit to appropriate is not required. Fourth, it identifies a class of small claims to which the \$25.00 filing fee applies. Other rights are subject to a \$50.00

¹¹ Idaho Code §42-1401A(12). Stockwater rights within the definition of 42-1401A(12) may also be within the definition of domestic in 42-111.

flat fee plus a variable fee of \$1.00 per acre for any claimed irrigation use plus a variable per cfs fee for any other claimed purposes of use.

IDWR uses the criteria above not only for the investigation and recommendation of small domestic and stockwater claims, but also for portions of claims that meet the definition of small domestic and stockwater use. In addition, no filing fee is required for portions of claims that meet the definition. The claims or portions of claims for stockwater and/or domestic use listed in Attachment A were all claimed as small domestic and/or stockwater uses.

4. Effect of Basin-Wide Issue 12 on IDWR's Recommendations for Domestic and Stockwater Rights

a. Refinement Proposed in Basin Wide Issue 12

The following subsection (a) describes a refinement to the further description of non-irrigation uses for stockwater rights that IDWR recommended as part of the proceedings in Basin-Wide Issue 12. Since that time, Special Master Haemmerle has issued the Special Master's Recommendation Re: Basin-Wide Issue 12. IDWR's recommendation for implementing the special master's recommendation in this subcase is described in subsection (b) below.

On December 18, 1995, IDWR submitted an Amended Director's Report for Reporting Area 2, which amended the preamble to the director's report for Basin 57. The purpose of the amended report was to address concerns expressed by the court and claimants as to general provisions. The Amended Report included an Attachment 2, which described the changes to the preamble, and which noted that certain changes, particularly changes to the general provisions, would also require changes to the description of individual water rights recommended in the director's report. The Amended Report also included additional attachments, describing uncontested water rights recommended in the director's report, setting forth the manner in which IDWR proposed to revise the form and content of individual water rights in the director's report. IDWR's proposed revisions to the director's reports for the test basins is further described in IDWR's Report for September 19, 1995 Status Conference, which was a topic of discussion at the Global Scheduling Conferences conducted by the Presiding Judge and attended by the Director of IDWR and any interested parties.

One of the proposed revisions to the description of the individual water rights is of particular relevance to this report. Specifically, IDWR proposed to change the

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

further description of non-irrigation uses. In place of the current language, the description of the individual water right would provide:

THE QUANTITY FOR NON-IRRIGATION USE IS LIMITED TO THE AMOUNT BENEFICIALLY USED FOR: (type and number of livestock) (number of households) .

This change was proposed to address the concern raised by the United States and others that the current description of non-irrigation uses could be interpreted as limiting a water user to using the water right only for that type of stock, requiring a claimant to obtain approval from IDWR of a change in use pursuant to Idaho Code §42-222 to use the water right for a different type of stock. IDWR proposed this change to clarify that the purpose of the further description of non-irrigation uses is to limit the right to the quantity of historic beneficial use, not to dictate the type of livestock the water user could raise.

b. Implementation of Special Master's Recommendation

On June 12, 1996, Special Master Haemmerle issued the Special Master's Recommendation Re: Basin-Wide Issue 12 (Special Master's Recommendation). One of the issues addressed in BW 12 was whether the further description of stockwater uses by type and number of head was necessary to define and/or administer *de minimis* stockwater rights. The special master concluded that it was not, based in part on the concurrence of IDWR that a reasonable alternative was available. This alternative was to omit the further description of stockwater uses by type and number of head, but to include a limitation in the description of the right establishing that the right is subject to a "cap" of 13,000 gallons per day. This limitation, however, was not to constitute a determination that the actual beneficial use of a right for stockwater purposes was 13,000 gallons per day, thereby allowing uses less than 13,000 gallons per day to be enlarged up to 13,000 gallons per day. Special Master's Recommendation, p. 7.

The United States has filed a motion to reconsider. One of the issues to be addressed is the manner in which the special master's decision will be implemented. IDWR recommends that the Special Master's Recommendation be implemented by 1) deleting the further description of non-irrigation uses, and 2) providing an appropriate "cap" by including the following language in the quantity element for rights or portions of rights for *de minimis* domestic and stockwater uses:

Alternative 1:

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

THE QUANTITY OF WATER DIVERTED UNDER THIS RIGHT IS LIMITED TO THE ACTUAL HISTORICAL QUANTITY BENEFICIALLY USED AND SHALL NOT EXCEED [13,000] [2500] GALLONS PER DAY.

Alternative 2:

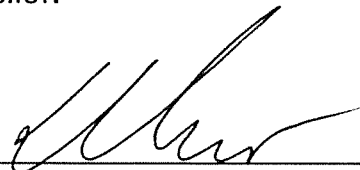
THE QUANTITY OF WATER DIVERTED FOR [STOCKWATER] [DOMESTIC] UNDER THIS RIGHT IS CAPPED AT [13,000] [2500] GALLONS PER DAY WITHOUT DETERMINING THE ACTUAL HISTORICAL BENEFICIAL USE. IF FUTURE ADMINISTRATION OF THIS WATER RIGHT REQUIRES DETERMINATION OF ACTUAL HISTORICAL BENEFICIAL USE, THE DIRECTOR OF THE DEPARTMENT OF WATER RESOURCES MAY EXERCISE SUCH AUTHORITY AS IS STATUTORILY VESTED IN THE AGENCY IN MAKING THAT DETERMINATION.

REPORT REGARDING QUANTIFICATION OF DOMESTIC AND STOCKWATER USES

State of Idaho)
) ss.
County of ADA)

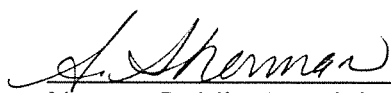
David B. Shaw, being first duly sworn, upon oath, deposes and says:

That I am the Adjudication Bureau Chief for IDWR, and that I have read the foregoing report, know its contents, and that the statements contained therein are true to the best of my knowledge and belief.



DAVID B. SHAW
Adjudication Bureau Chief

Subscribed and sworn to before me this 1st day of July, 1996.

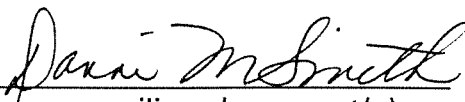


Notary Public for Idaho
Residing at: Boise ID
My commission expires: 11-14-1998

Certificate of Mailing

I certify that on the 1st day of ~~February~~ July, 1996, I mailed copies of the foregoing document, including all attachments, with sufficient first class postage, to the following:

Patrick D. Brown
P.O. Box 389
Twin Falls, ID 83303-0389



Person mailing document(s)

APPENDIX IV

TYPICAL AMOUNTS OF WATER FOR TYPICAL USES OF WATER

DOMESTIC

The following table shows diversion rates based on number of households served. The figure for one household includes domestic stockwater and irrigation of up to 1/2 acre of land. The figures for multiple households do not, and any water for irrigation or stock watering in connection therewith should be claimed in addition to the domestic use. The following table was prepared based upon the graph set forth at the end of this appendix.

Households Served	C.F.S.
1	0.04
2	0.06
3	0.08
4	0.10
5-6	0.11
7	0.12
8	0.13
9	0.14
10	0.15
15	0.18
20	0.20
30	0.25
40	0.30
50	0.33

IRRIGATION

0.02 c.f.s. per acre (See Idaho Code § 42-202.)

APPENDIX IV (cont.)

STOCK WATERING

The following table shows use in gallons per day.

Type	Gallons per day per animal*
Cattle (other than dairy)	12
Dairy cattle	35
Horse	12
Mule	12
Hog	4
Goat	2
Sheep	2
Chickens (per 100)	5-10
Turkeys (per 100)	10-18

The following table shows the diversion rate for cattle (other than dairy) and dairy cattle.

No. of Head	C.F.S. Cattle	C.F.S. Dairy Cattle
0 - 25	0.02	0.02
26 - 50	0.02	0.04
51 - 100	0.03	0.07
101 - 200	0.05	0.13
201 - 300	0.07	0.20
301 - 400	0.09	0.26
401 - 500	0.12	0.33
501 - 600	0.14	0.39
601 - 700	0.16	0.46
701 - 800	0.19	0.52
801 - 900	0.20	0.58
901 - 1000	0.23	0.65

APPENDIX IV (cont.)

OTHER USES	Gallons per day*
Camps:	
Construction, semipermanent (per worker)	50
Day, with no meals served (per camper)	15
Luxury (per camper)	100-150
Resorts, day and night, with limited plumbing (per camper)	50
Tourist with central bath and toilet facilities (per person)	35
Picnic grounds:	
With bathhouses, showers and flush toilets (per person)	20
With toilet facilities only	10
Parks:	
Overnight with flush toilets (per camper)	25
Trailers with individual bath units, no sewer connection (per trailer)	25
Trailers with individual bath units, connected to sewer (per person)	50
Highway rest area (per person)	5
Hotel - with private bath (two persons per room)	60
without private bath (per person)	50
Motel - with bath and kitchenette (per bed space)	50
with bath (per bed space)	40
Boardinghouse (per resident)	50
- additional use for nonresident boarders (per person)	10
Roominghouse (per resident)	60
Restaurants:	
With toilet facilities (per patron)	7-10
Without toilet facilities (per patron)	2 1/2-3
With bar/lounge (additional quantity per patron)	2
Schools:	
Boarding (per student)	75-100
Day with cafeteria, gym and showers (per student)	25
Day with cafeteria, without gym and showers (per student)	20
Day without cafeteria, gym or showers (per student)	15
Hospitals (per bed)	250-400
Other Institutions (per person)	75-125
Airports (per passenger)	3-5
Churches (per person)	5
Laundries, self-service (per customer)	50
Service stations (per vehicle)	10
Stores (per restroom)	400
Swimming pools (per swimmer)	10
Theatres - drive in (per car space)	5
- movie (per seat)	5

APPENDIX IV (cont.)

*CONVERSION OF GALLONS PER DAY TO C.F.S.

Generally, small water systems are designed with a maximum rate of flow which can produce the full peak daily requirement in two hour times. To convert gallons used per day to c.f.s. use the formula in the following example:

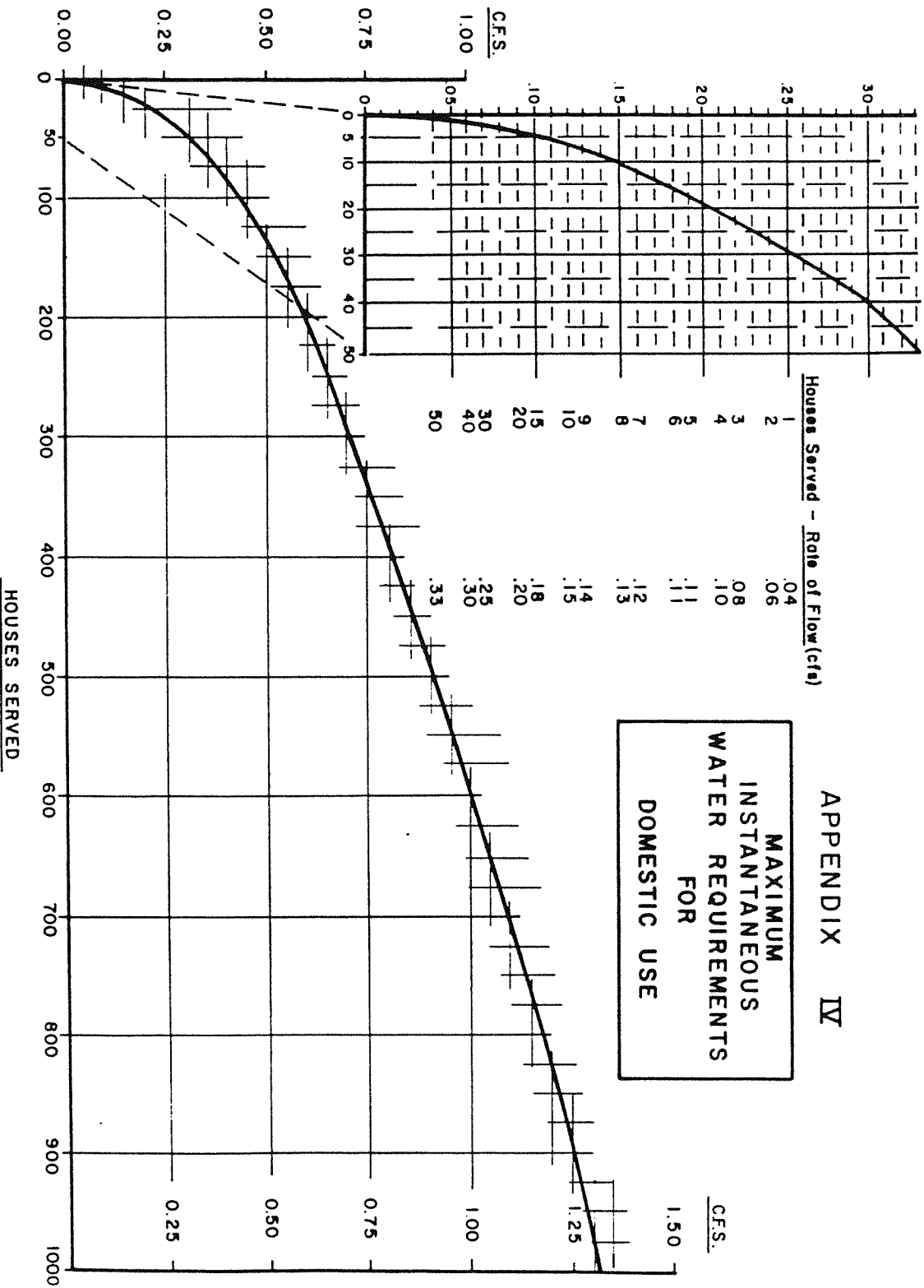
1,000 head of cattle, at 12 gallons per day per head,
use 12,000 gallons per day.

The rate of diversion necessary to produce 12,000
gallons in a 2 hour period is:

$$\frac{12,000 \text{ gallons}}{2 \text{ hrs} \times 60 \text{ min/hr} \times 450 \text{ gpm/cfs}} = 0.23 \text{ cfs}$$

APPENDIX IV

MAXIMUM
INSTANTANEOUS
WATER REQUIREMENTS
FOR
DOMESTIC USE



ATTACHMENT A

36-00003A
36-00061
36-00062
36-00063
36-00079
36-00086C
36-00092
36-10283B