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DISTRICT COURT-SRBA
TWIN FALLS CO., IDAHO
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REPORT REGARDING CLAIM TO WATER RIGHT NO. 36-00092

In Re SRBA

Twin Falls County Civil Case No. 39576

Sub-Case No. 36-00092

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 CLAIM TO WATER RIGHT NO. 36-00092

The Director of the Idaho Department of Water Resources (IDWR) submits this report regarding claim to water right no. 36-00092 in response to the request of Special Master Haemmerle, pursuant to Idaho Code §42-1412(4) and the court's Order Re: Contested Claims for Amounts Claimed in Excess of .02 CFS. This report was prepared under the supervision of Karl J. Dreher, Director, David B. Shaw, Adjudication Bureau Chief, and David R. Tuthill Jr., Acting Adjudication Bureau Chief for IDWR. The following persons assisted in the preparation of the following portions of this report:

David B. Shaw, Adjudication Bureau Chief, reviewed and verified this Report Regarding Claim to Water Right No. 36-00092. Mr. Shaw reviewed and verified IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights, which is incorporated by reference herein. The Affidavit of David B. Shaw describes Mr. Shaw's education and work experience, and is incorporated by reference herein. Mr. Shaw also reviewed IDWR's Report Regarding Evaluation of Irrigation Diversion Rates, described below.

Jeff Peppersack, Adjudication Engineer, prepared and verified IDWR's Report Regarding Evaluation of Irrigation Diversion Rates, which is incorporated by reference herein. The Affidavit of Jeff Peppersack describes Mr. Peppersack's education and work experience, and is incorporated by reference herein. Mr. Peppersack also reviewed IDWR's Report Regarding Consumptive Use for Irrigation in the Hagerman Area, described below.

David R. Tuthill Jr., Acting Adjudication Bureau Chief, prepared IDWR's Report Regarding Consumptive Use for Irrigation in the Hagerman Area, which is incorporated by reference herein. Mr. Tuthill also reviewed this Report Regarding Claim To Water Right No. 36-00092. The Affidavit of David R. Tuthill Jr. describes Mr. Tuthill's education and work experience, and is incorporated by reference herein.

Marci S. Sterling, Adjudication Engineer, prepared and verified Appendix B, which describes the application of IDWR's methodology for evaluation of irrigation diversion rates to claim no. 36-00092. Appendix B is attached hereto and incorporated by reference herein. The Affidavit of Marci S. Sterling describes Ms. Sterling's education and work experience, and is incorporated by reference herein.

Steven C. Clelland, Senior Water Resource Agent, investigated and prepared the preliminary recommendation for claim no. 36-00092, and prepared Appendix C, which is attached hereto and incorporated herein by reference. The Affidavit of Steven C. Clelland describes Mr. Clelland's education and work experience, and is incorporated by reference herein. The affidavit also includes a general description of

his investigation of claims in the Hagerman area. The Affidavit of Steven C. Clelland Regarding Claim No. 36-00092 describes Mr. Clelland's investigation of the quantity and place of use of this water right; it is attached hereto and incorporated by reference herein.

Helen L. Harrington-Thornton, formerly Senior Water Resource Agent and currently Hydrogeologist, participated in the field examination for claim no. 36-00092. The Affidavit of Helen L. Harrington-Thornton describes Ms. Thornton's education and work experience, and is incorporated by reference herein. The Affidavit of Helen L. Harrington-Thornton Regarding Claim No. 36-00092 describes her investigation of the quantity and place of use of this water right, and is attached hereto and incorporated by reference herein.

I. INVESTIGATION AND RECOMMENDATION OF CLAIMS GENERALLY

IDWR's general methodology for the investigation and recommendation of claims is described in Appendix A, which is incorporated herein by reference.

II. WATER RIGHT NO. 36-00092

A. Basis of Claim

Claim no. 36-00092 was filed with IDWR by Frank C and Peggy Erwin on July 22, 1988.¹ The claim is to a right decreed to Mr. and Mrs. Walter Rawlings in the *New International Mortgage* decree, entered in 1932.² The water right decreed to the Rawlings is numbered in IDWR's files as water right no. 36-00092. This right, along with numerous others, was decreed for "irrigation, domestic, power and other purposes."

B. Name and Address of Claimant

The name and address of the claimant set forth in the claimant's motion for summary judgment is the same as recommended in the director's report.

¹ The original notice of claim is currently located in the files of the SRBA District Court, attached to IDWR's response to the claimant's objection.

² *New International Mortgage Bank v. Idaho Power Co., et al.*, Equity No. 1602 (D.S.Id. 1932), at pp. 3-4.

C. Source of Water

The source of water set forth in the claimant's motion for summary judgment is Florence Livestock Spring. The source of water is described in the director's report as Florence Livestock Spring tributary to Billingsley Creek.

The director's report includes the body of water to which the source of the right is tributary for each water right in the director's report, except for rights to ground water. IDWR adopted this standard for the description of the source of water rights because there are so many instances, sometimes in the same administrative basin, where different surface water sources bear the same name.³

D. Date of Priority

The priority date set forth in the claimant's motion for summary judgment is the same as recommended in the director's report.

E. Point of Diversion

The point of diversion set forth in the claimant's motion for summary judgment is the same as recommended in the director's report.

F. Purpose of Use

The purposes of use stated on the notice of claim were irrigation, domestic, and livestock (stockwater). The purposes of use recommended in the director's report include all three of the claimed purposes of use. The objection does not contest the purpose of use. The claimant's motion for summary judgment now seeks to add wildlife, recreation, aesthetics, and "diversion system maintenance."⁴

³ IDWR relied upon the following in reaching its conclusion: Idaho Code §42-1411(2) (which provides that the director shall determine the source of the right to the extent the director deems appropriate and proper to define and administer water rights acquired under state law.)

⁴ The filing fee for claims other than small domestic and stockwater claims consists of a flat \$50.00 fee, plus a variable fee of \$1.00 per acre for any claimed irrigation use, plus a per cfs variable fee for other claimed purposes of use. The filing fee for small domestic and stockwater claims is \$25.00; no filing fee is required for portions of rights for small domestic and stockwater uses. The filing fee paid for this claim was limited to the purposes of use claimed in the notice of claim, and no filing fee was paid for the domestic and stockwater portions of the claim. Filing fees are set forth in Idaho Code §42-1414 and IDWR's Adjudication Rules, IDAPA 37.03.01 *et seq.*

The description of the purposes of use of this right in the decree is ambiguous in that it describes the purposes of use for this right and others in the same list collectively as "irrigation, domestic, power and other purposes," rather than specifically identifying each purpose of use for each right.⁵ IDWR's investigation confirmed the use of water for irrigation, stockwater and domestic purposes, as further described below in the sections addressing quantity and place of use. Neither the claimant nor IDWR's investigation has yielded information that would confirm the beneficial use of water for the other purposes listed in the motion, either pursuant to the right as originally appropriated or as currently used.⁶ Such information is necessary not only to confirm the use but to quantify the amount of water beneficially used for that purpose.

G. Quantity of Water Used

The notice of claim states a quantity of 0.60 cfs for irrigation, 0.02 cfs for stockwater, 0.12 cfs for domestic, and a total quantity of 0.60 cfs. The quantity recommended in the director's report is 0.20 cfs for irrigation, 0.02 cfs for stockwater, 0.08 cfs for domestic, with a total of 0.20 cfs. The objection does not state the quantity claimed. The claimant's motion for summary judgment states a total quantity of 0.60 cfs, but does not state a quantity for each purpose of use.

The quantity decreed for right no. 36-00092 in the *New International Mortgage* decree is 0.60 cfs, for use on 15.45 acres. The claimant's lands as described in the deed are the same as described in the decree.

1. Necessity for quantity for each purpose of use

The director's report includes a quantity for each purpose of use in addition to the total quantity. This information is necessary to indicate whether and to what

⁵ IDWR relied upon the following in reaching its conclusion: *Morgan v. Udy*, 58 Idaho 670, 79 P.2d 295 (1938) (a water right decree that omitted the description of the point of diversion necessarily determined the point of diversion but was ambiguous as to its location).

⁶ IDWR relies upon the following in reaching this conclusion: Idaho Code §42-1427 (which allows an ambiguity in a prior decree or license to be resolved based on current beneficial use); the statement of the Presiding Judge that this section "cannot change or exceed the previously decreed or recorded element of the decreed or licensed right" nor "be used to claim an expansion of use beyond the beneficial use existing at the time the right was originally memorialized in a decree or license," Revised Memorandum Decision and Order on Basin-Wide Issue 4, dated May 17, 1995, at page 9; and the statement of the Presiding Judge that, "the purpose of use is defined by the intentional application of water to an intended beneficial use of water," Memorandum Decision and Order Re: Basin-Wide Issue 5, dated April 26, 1996, at page 8.

extent the total quantity or any portion of the total quantity is used for multiple purposes, or whether and to what extent the total quantity is allocated among the listed purposes of use. For example, if a claimant diverted one cfs through a hydropower facility and then used that same water for irrigation, the amount for each purpose of use would be 1 cfs, with a total diversion rate of 1 cfs. If a claimant diverted one cfs, but used one-half in a hydropower facility and the other half for irrigation, the amount for each purpose of use would be 0.5 cfs, with a total diversion rate of 1 cfs.

Omission of a quantity for each purpose of use would result in ambiguities in the definition of the right that could result in enlargements in use that would result in expansion of the right and injury to other water users. In the example above, assume the claimant who used one-half of a 1 cfs right in a hydropower facility and the other half for irrigation decided to start using the full cfs in a hydropower facility, followed by use of the full cfs for irrigation. If the hydropower use were a year-round use, then the use of the irrigation half outside the irrigation season for hydropower use would result in injury to junior water users outside the irrigation season who were previously subject to a prior use of one-half cfs who are now subject to a prior use of 1 cfs. In addition, if the half cfs formerly used only for hydropower were also used for irrigation, junior water users during the irrigation season would be injured by the use of this half cfs for a more consumptive purpose.⁷

2. Quantity for irrigation

As noted above, the director's report recommended a quantity of 0.20 cfs for irrigation, or 0.02 cfs per acre for the irrigation of ten acres. IDWR has conducted further analysis of the quantity for irrigation due to further information IDWR received subsequent to its original analysis. IDWR's recommendation as to the quantity for irrigation has not changed as a result of that analysis.

IDWR's methodology for investigating and recommending claims to water for irrigation in excess of 0.02 cfs per acre is described in IDWR's Report Regarding

⁷ This further quantification is provided pursuant to Idaho Code §42-1411(2) (which provides for IDWR to determine the quantity of water used to the extent the director deems appropriate to define and administer the water right).

Evaluation of Irrigation Diversion Rates.⁸ The application of that methodology to this claim is described in Appendix B.

As described in Appendix B, IDWR's analysis considers both the on-farm requirement (the amount of water needed at the place of use) and conveyance losses (an additional amount needed at the point of diversion to deliver the amount needed at the place of use). IDWR's analysis shows that the amount of water reasonably required at the place of use (the on-farm requirement) is 0.019 cfs per acre. Because water is delivered to the place of use through a pipeline, conveyance losses are insignificant. Thus, neither the claimant nor IDWR's investigation has yielded information which would confirm beneficial use of quantity for irrigation greater than the statutory standard of 0.02 cfs per acre recommended by IDWR.

3. Quantity for stockwater

As noted above, IDWR recommended 0.02 cfs for stockwater. In addition, the recommendation includes a further description of non-irrigation uses, which states: STOCKWATER, 10 RANGE [CATTLE].

This right was claimed for 0.02 cfs for stockwater for 10 head of range cattle. IDWR recommended 0.02 cfs based on the claim and its guidelines for quantity for stockwater use. 0.02 cfs is the standard for 0-50 head of range cattle. The guidelines for quantity for stockwater use are described in IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights. Neither the claimant nor IDWR's investigation has yielded information which would confirm beneficial use of a greater quantity for stockwater.

As noted above, the director's report includes a further description of non-irrigation uses by number and type of head, which is not contested and is not included in the claimant's motion for summary judgment. The further description of non-irrigation uses is based in part on the notice of claim. Additional information as to the basis for the further description of non-irrigation uses is described in IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights. As part of Basin Wide Issue 12, however, IDWR has proposed that the further description of non-irrigation uses be rephrased as: THE QUANTITY FOR NON-IRRIGATION USE IS LIMITED TO THE AMOUNT OF WATER BENEFICIALLY USED FOR: STOCKWATER,

⁸ IDWR relied upon the following in reaching its conclusions: Idaho Code §42-220 (which provides that no license or decree will be issued confirming a right to more than 0.02 cfs per acre for irrigation unless it can be shown that a greater amount is necessary) and Idaho Code §42-1402 (which limits the amount of water allotted by a decree to the amount of water beneficially used).

10 RANGE CATTLE. The basis for this rephrasing is also described in IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights.⁹

4. Quantity for domestic

As noted above, IDWR recommended 0.08 cfs for domestic. In addition, the recommendation includes a further description of non-irrigation uses, which states: DOMESTIC: 3 HOMES.

This right was claimed for 0.12 cfs for domestic use in 3 homes. IDWR recommended 0.08 cfs based on the claim and its guidelines for quantity for domestic use. 0.08 cfs is the standard for 3 homes. The guidelines for quantity for domestic use are described in IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights. Neither the claimant nor IDWR's investigation has yielded information which would confirm beneficial use of a greater quantity for domestic.

As noted above, the director's report includes a further description of non-irrigation uses by number of homes, which is not contested and is not included in the claimant's motion for summary judgment. The further description of non-irrigation uses is based in part on the notice of claim. Additional information as to the basis for the further description of non-irrigation uses is set forth in IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights. As part of Basin Wide Issue 12, however, IDWR has proposed that the further description of non-irrigation uses be rephrased as: THE QUANTITY FOR NON-IRRIGATION USE IS LIMITED TO THE AMOUNT OF WATER BENEFICIALLY USED FOR: DOMESTIC: 3 HOMES. The basis for this rephrasing is also described in IDWR's Report Regarding Quantification of Small Domestic and Stockwater Rights.

5. Quantity for other purposes

As to the quantity for other purposes of use stated in the claimant's motion for summary judgment, neither the claimant nor IDWR's investigation has yielded information that would confirm the beneficial use of water for other purposes, as noted in section F above. Therefore, IDWR does not have information that would confirm the quantity used for the other purposes.

⁹ Special Master Haemmerle has issued his recommendation regarding Basin Wide Issue 12; a motion by the United States for reconsideration is pending.

6. Other rights delivered through same ditch

Water rights from Florence Livestock Springs are all delivered through the same pipeline, which limits the total quantity of water used pursuant to all rights from the springs. For this reason, IDWR previously proposed that contested water rights in the Hagerman area be grouped by diversion system for scheduling purposes to facilitate resolution of quantity issues for those rights. Appendix C is a schematic which shows the water rights delivered from Florence Livestock Springs, and which includes a variety of information as to the water rights listed.

7. Total quantity

As noted above, the director's report recommends 0.20 cfs for irrigation, 0.02 cfs for stockwater, and 0.08 cfs for domestic, for a total quantity of 0.20 cfs. As these numbers demonstrate, the quantities for each purpose of use are not additive; in other words, of the total amount recommended, all may be used for irrigation, or a portion may be used for irrigation and a portion may be used for domestic and/or stockwater. This is consistent with the manner in which water rights are used, where domestic and stockwater is provided from the irrigation system; it is also the manner in which this water right was claimed.

H. Period of Year Water is Used for Each Purpose of Use

1. Irrigation

Both the notice of claim and director's report state a period of use of 3/15 to 11/15 for irrigation. The claimant's objection states a period of use of 1/1 to 12/31. The claimant's motion for summary judgment states the period of use as "the irrigation season." The *New International Mortgage* decree does not state a period of use for irrigation.

The recommended season of use is consistent with season of use standards for irrigation developed by IDWR for various climatic regions throughout the state, which are based on a 75% chance of a 24 degree Fahrenheit frost. In addition, the director's report included general provision 12b, which allowed use of water for irrigation outside the season of use stated in the description of the individual right subject to certain conditions. In the Memorandum Decision and Order Re: Basin-Wide Issue 5, the Presiding Judge concluded that general provision 12 is not necessary and would not be decreed. This decision further provided that "all decrees for irrigation in the SRBA shall set the period of use as the "irrigation season." Order, pp. 15-16. The district court denied a subsequent motion for permission to appeal the

decision. Pending any further proceedings on the decision, any further statement of the basis for IDWR's recommendation as to the season of use for irrigation appears to be unnecessary.

2. Stockwater and domestic

Both the notice of claim and the director's report state a period of use 1/1 to 12/31 for domestic and stockwater. The claimant's motion for summary judgment states the period of use as year-round, which is for all intents and purposes the same as recommended in the director's report.

3. Other purposes

As to the season of use for other purposes of use stated in the claimant's motion for summary judgment, neither the claimant nor IDWR's investigation has yielded information that would confirm the beneficial use of water for other purposes, as noted in section F above. Therefore, IDWR does not have information that would confirm the season of use for the other purposes.

I. Legal Description of the Place of Use

1. Irrigation

The legal description under item 8 in the claimant's motion for summary judgment is the same as the legal description of the place of use for irrigation recommended in the director's report. The number of acres following the legal description is different than the number of irrigated acres per 40-acre subdivision recommended in the director's report. The notice of claim states 16 acres. The report lists 10 acres, and the objection does not contest the place of use. The claimant's motion for summary judgment states 15.45 acres.

The irrigation of not more than ten acres was confirmed by IDWR Senior Water Resource Agents Steve Clelland and Helen Thornton, by personal observation and aerial photography. The ten acres recommended in the director's report are in the northern portion of the claimant's lands; the remaining acres consist of a graveled construction yard in the southern portion of the claimant's lands. The examination of the place of use for this claim is described in the Affidavit of Steven C. Clelland Regarding Claim No. 36-00092 and the Affidavit of Helen L. Harrington Thornton Regarding Claim No. 36-00092.

2. Stockwater and domestic

The legal description of the place of use for stockwater and domestic recommended in the director's report is the same quarter-quarter section (40-acre tract) as the place of use for irrigation. The recommended place of use is the same as the claimed place of use, and the claimant did not object to the recommended place of use for domestic and stockwater. In the claimant's motion for summary judgment, the claimant asserts that domestic and stockwater is used in the same quarter section where there are irrigated acres. Neither the claimant nor IDWR's investigation has yielded information that would confirm the beneficial use of water for domestic or stockwater purposes pursuant to this right on the other three quarter-quarter sections within the quarter section.

3. Other purposes

As to the legal description of the place of use for other purposes of use stated in the claimant's motion for summary judgment, neither the claimant nor IDWR's investigation has yielded information that would confirm the beneficial use of water for other purposes, as noted in section F above. Therefore, IDWR does not have information that would confirm the place of use for the other purposes.

J. Annual Volume of Consumptive Use

The notice of claim states an annual volume of consumptive use of 48 AFY, or 3.0 AFY per irrigated acre. The annual volume of consumptive use recommended in the director's report is 30 AFY, or 3.0 AFY per irrigated acre. The claimant's objection contests the recommended consumptive use, but does not state an amount. The claimant's motion for summary judgment states an amount of 69.53 AFY, or 4.5 AFY per acre. The Affidavit of Charles E. Brockway, submitted by the claimant in support of the motion for summary judgment, states "that 3.75 acre feet per acre per annum is the amount of consumptive use that is reasonable [in the Hagerman area] based upon a yield of ten tons [of alfalfa] per acre." Applying this standard, the total annual consumptive use volume would be 57.94 AFY for the 15.45 acres stated in the claimant's motion for summary judgment, or 37.50 AFY for the 10 recommended acres.

IDWR developed standards for annual volume of consumptive use for the various climatic areas throughout the state. The standard for the area in which the claimant's place of use is located is 3.0 AFY. IDWR's recommendation is based on this standard. The development of IDWR's standards for annual volume of consumptive use is described in IDWR's Report Regarding Evaluation of Irrigation

Diversion Rates. IDWR has conducted further analysis of the annual volume of consumptive use based on further information IDWR received subsequent to its original analysis. The further analysis is described in IDWR's Report Regarding Consumptive Use for Irrigation in the Hagerman Area. Based on this further analysis, IDWR recommends an annual volume of consumptive use of 3.5 AFY per acre, for a total of 35 AFY for the ten recommended acres.

In response to the request of the Presiding Judge, the director filed an Amended Director's Report for Reporting Area 3 (Basin 36), which substantially reduced the number of general provisions in the director's report. Attachment 2 to the amended report explains the changes made to the general provisions, and further explains the changes to the list of recommended rights necessitated by the changes to the general provisions. The amended report deleted General Provision 14, which established that the recommended consumptive use is for the irrigation portion of the right only. As a result, the description of the annual volume of consumptive use for this right should contain the following language:

THE CONSUMPTIVE USE VOLUME IS ONLY FOR THE IRRIGATION PORTION OF THIS RIGHT.¹⁰

K. Conditions on the Exercise of the Right and Other Necessary Matters

The recommendation of this right in the director's report includes the following remarks:

THE FOLLOWING RIGHTS ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE: 36-00049, 36-00050A, 36-00050C, 36-00050D, 36-02169, 36-08294 & 36-10047.

The claimant's objection does not contest the remark. The claimant's motion for summary judgment seeks deletion of the remark.

In response to the request of the Presiding Judge, IDWR submitted IDWR's Report for September 19, 1995 Status Conference. In this report, IDWR indicated that it had reviewed its use of remarks in the description of the individual water right, both to address concerns identified by the court, and to separate explanatory material from material the Director recommends be included in the decree of water rights

¹⁰ IDWR relied upon the following in reaching its conclusion: Idaho Code §42-1401A (Supp. 1996) (which provides that the determination of the annual volume of consumptive use for all uses of water other than irrigation need not be decreed unless reported in the director's report).

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pursuant to the 1994 amendments to the adjudication statute.¹¹ The remark is explanatory material.

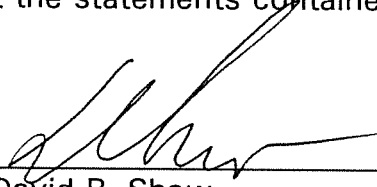
¹¹ See Idaho Code §42-1411 (which addresses the form and content of director's reports).

REPORT REGARDING CLAIM TO WATER RIGHT NO. 36-00092

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, 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

Subscribed and sworn to before me this 15th day of July, 1996.

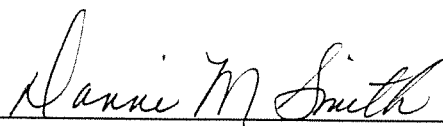


Notary Public for Idaho
Residing at: Boise ID
My commission expires: 11-14-1998

Certificate of Service

I certify that on the 1st day of July, 1996, I hand-delivered copies of the foregoing document, including all attachments, to the following:

Patrick D. Brown
133 Shoshone St North
Twin Falls, ID 83303



Person mailing document(s)

APPENDIX A

A. INVESTIGATION AND RECOMMENDATION OF CLAIMS GENERALLY

To promote the accuracy and consistency of water right decrees, and to minimize the burden on the court and the claimants in a water right adjudication, the state has made the specialized expertise of IDWR available through IDWR's investigation and reporting function.¹

The resources the state has made available for this function, however, are limited. IDWR has the duty to conduct a reasonable investigation within the spending authority granted by legislative appropriation. Those resources are not sufficient for IDWR to exhaustively investigate each and every potentially relevant fact regarding each and every claim and to make a conclusive determination of the water right. Rather, IDWR reviews the claim and the information already available to IDWR, and conducts such further investigation as is reasonable to determine whether there is sufficient information to support recommendation of the water right to be decreed.

To make the most efficient use of the available resources, IDWR must make determinations as to what is a reasonable level of investigation for various classes of claims prior to making a recommendation to the court regarding any particular claim. IDWR has employed two primary mechanisms to identify a reasonable level of investigation. First, the statutes set criteria and IDWR has developed standards for various types of uses, requiring less information to support a claim to water within those standards and more information to support a claim outside those standards. Second, IDWR has adopted a "tier" approach, identifying classes of claims which for various reasons merit further investigation.

Generally, with claims based on beneficial use², IDWR conducts a "licensing type" field exam, which includes confirmation of the source, point(s) of diversion, purpose(s) of use, place(s) of use, and an examination of the water delivery system and the quantity of water beneficially used. IDWR also contacts the claimant to obtain information supporting the priority date claimed. This level of examination is conducted because there has been no prior administrative or judicial

¹ Idaho Code §§ 42-1410 and 42-1411.

² Water rights based on beneficial use are sometimes referred to as constitutional rights or grandfather rights.

confirmation of the existence and extent of a water right based on beneficial use.³

Generally, for water rights that have been previously confirmed by license or decree, IDWR begins its examination by comparing the claim to information already available to IDWR. Other information includes, for example, IDWR's decree files; license, permit and transfer files; remotely sensed data, including Landsat imagery of irrigated acres and aerial photography; watermaster reports; applicable laws and IDWR's interpretation of those laws in light of the water resource policies of the state; etc. If there are discrepancies between the claim and information already available to IDWR, IDWR conducts further investigation to resolve the discrepancy, which generally includes a field exam and/or contacting the claimant for further information. Thus, where there has been a prior judicial or administrative confirmation of the existence and extent of a water right, IDWR uses information already available to IDWR to limit its review to issues identified by its discrepancy analysis.

Finally, IDWR uses both the court-ordered notice of error process⁴ and the statutory objection process to identify claims which merit further review. If this further review yields new information that supports a different description of the water right, then IDWR will revise its recommendation (in the case of a notice of error) or submit a supplemental director's report or offer a standard form 5 (in the case of an objection), consistent with the new information.⁵

Further information as to IDWR's standards and procedures for the investigation and recommendation is set forth in IDWR's Claim Investigation Manual, Field Examiner's Handbook, Administrative Memorandums, and

³ IDWR conducts a more summary investigation of beneficial use claims limited to domestic and/or stockwater use up to 0.24 cfs.

⁴ The notice of error process, as originally conceived and implemented, was limited to disagreements between the claimant and IDWR as to fairly straight-forward "errors", such as clerical errors or other readily verifiable matters. Based on its experience in the test basins, IDWR has subsequently recommended that the notice of error process be expanded to address any type of perceived error, as well as to address disagreements between claimants.

⁵ This "tiered" approach to determining a reasonable level of investigation is embodied in the statutory framework for water right adjudications. See §42-1410 (which provides for the discretion of the director in determining the level of IDWR's investigation, and allows but does not require the agency to conduct hearings), and §42-1412 (which authorizes IDWR to submit supplemental reports, and authorizes the court or the parties to request further investigation by IDWR in contested subcases). The tiered approach embodied in the statutory framework promotes efficiency and minimizes the burden on the court and the claimants by providing a report/objection process to identify disputed matters, and reserving the highest level of investigation for disputed matters.

B. METHODOLOGY TO DETERMINE IRRIGATED ACREAGE

The area of irrigated acreage can be determined by information obtained from scaled and non-scaled photographs of the place of use supplied by one of several U.S. government agencies. The use of aerial photography by the U.S. government dates back to 1937, when the U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service (ASCS, now known as the Farm Service Agency, or FSA) began photographing selected counties of the United States on a repetitive basis. This coverage continues today and aerial photos are used by the ASCS (FSA) to figure acreage planted on farms for purposes of managing farm programs. Photos used by IDWR typically include: ASCS photos and 35 mm color slides⁷; NAPP photos⁸; ortho-photoquads⁹; and U2

⁶ These documents set forth general standards and procedures and do not address all possible exceptions to the general standards and procedures. In addition, as a result of its experience in the test basins, statutory changes, judicial decisions, etc., IDWR has identified refinements and revisions to its standards and procedures for the investigation and recommendation of claims that have not yet been included in these documents.

⁷ Both the photos and slides are high oblique and vertical aerial photography. The ASCS photos are scaled and have selected features, such as roads, section lines, ditches, and field acreage superimposed on them by the ASCS. The color slides are simply color slides frequently taken with hand-held 35mm equipment. IDWR staff typically obtain copies (which are not scaled) of maps for lands claimed as the place of use during the investigation of the claims, either from the claimant or from the local ASCS office. Color slides may also be checked-out from the local ASCS office as needed; IDWR sometimes obtains the color slides as they are discarded by the local ASCS office.

⁸ NAPP (National Aerial Photography Program) photos are all color-infrared aerial photography. IDWR obtained coverage for most of the Snake River Basin, including all of the test basins; the photos are primarily from flights during 1987 and 1988, though some are from 1986 or 1989. The date of the flight is shown on the photo. NAPP photography is available from the U.S. Geological Survey Earth Resources Observation Systems (EROS) data center in Sioux Falls, South Dakota.

⁹ The full name for an ortho-photoquad is "orthographic photograph quadrangle." These are black and white photoimages prepared from aerial photographs that have been rectified to eliminate image displacement due to terrain relief that cover a systematically subdivided area of latitude and longitude. IDWR obtained coverage for most of the Snake River Basin, including all the test basins; the photos are primarily from flights during the 1970's. The date of the flight is shown on the quad sheet. Most of the orthophotos were obtained from the U.S. Geological Survey National Cartographic Information Center (NCIC) in Menlo Park, California. In some areas, maps were not available from U.S.G.S. but were available from other agencies, such as the United States Department of Agriculture, Forest Service.

aerial photos¹⁰.

A photographic "scale," like a map scale, is an expression that states that one unit of distance on a photograph represents a specific number of units of actual ground distance.

$$S = \text{Photo scale} = \frac{\text{Photo distance}}{\text{Ground distance}} = \frac{d}{D}$$

The scale may be expressed as unit equivalents, representative fractions, or ratios. For example, if 1 mm on a photo represents 25 m on the ground, the scale of the photo can be expressed as 1 mm = 25 m (unit equivalents), or 1/25,000 (representative fraction), or 1:25,000 (ratio).

The photo(s) used by IDWR personnel have varying scales. The ASCS photographs have map features drawn in by the ASCS. These photos are stated to be "not to scale," but do include the field acreage as determined by ASCS written on the places of use. NAPP photography is at a nominal scale of 1:40,000; U2 aerial photography is at a nominal scale of 1:120,000; and ortho-photoquads have a scale of 1:24,000.

To determine the area used, IDWR staff employed various transparent overlays, known as grid templates. These templates are available at most blueprint supply stores. One type consists of lines forming rectangles or squares of known area in the same scale that is utilized in the scaled photograph. The grid is placed over a scaled photograph and the area of a ground unit is estimated by counting grid units that fall within the unit to be measured.

Another commonly used grid is the dot grid, which is composed of uniformly spaced dots on a transparent overlay. The grid is placed over the photograph and the dots falling within the region to be measured are counted. The value assigned to each dot is dependent on the scale of the photograph. First, the number of acres per centimeter (or other measuring unit) is computed. This figure is then divided by the number of dots per measuring unit on the grid to obtain the acreage represented by each dot. For instance, a square 3.4 cm on each side containing 640 dots will cover 160 acres on a photo with a nominal

¹⁰ These photos are color-infrared aerial photography obtained by the National Aeronautics and Space Administration (NASA) Airborne Instrumentation Research Project, and available from EROS. IDWR obtained coverage of most of the southern portion of the Snake River Basin, most of which was flown in 1977. In addition, because the State of Idaho was part of an ongoing project with NASA to photograph selected areas, photography from various areas in various years is also available. The date of the flight is shown on the photo.

scale of 1:24000; 640 dots divided by 160 acres equals 4 dots to the acre, thus 1 dot equals 0.25 acres.

Because of its simplicity, the grid system is a practical method to determine the size of irrigated areas; it nonetheless requires some training and experience to be used effectively.

For non-scaled photos, such as the ASCS 35 mm photos, IDWR did not directly make acreage determinations. Instead, these photos were used to confirm whether the place of use and amount of irrigated acreage had changed for that year according to common landmarks visible in the photographs.

APPENDIX B

EVALUATION OF IRRIGATION DIVERSION RATE

WATER RIGHT NUMBER: 36-00092

INTRODUCTION

This water right was recommended in the Director's Report with a total diversion rate of 0.20 cfs; this amount was recognized as the on-farm diversion requirement. Based on IDWR's methodology to evaluate irrigation diversion rates, the quantity required on-farm was recommended at a rate of 0.02 cfs per acre for 10 acres, with no additional amount recommended for conveyance losses, since a pipeline is used for delivery of the right.

Because IDWR has received new information and has refined the methodology since the time of the original analysis of irrigation diversion requirement, a revised analysis has been completed. The revised analysis is based upon information already contained in the claim file and the new information detailed in this report. An expanded explanation of the methodology used is contained in the report entitled Report Regarding Evaluation of Irrigation Diversion Rates, dated July, 1996. Hereinafter, that report will be referred to as IDWR's Methodology Report.

Several factors must be considered when determining the necessity of an irrigation diversion rate greater than 0.02 cfs per acre. Those factors are crop types, irrigated acres, types of irrigation systems used, evapotranspiration estimates, field application efficiencies, and conveyance loss. These items are discussed in the following paragraphs, along with the results of the analysis.

IRRIGATED ACRES/CROPS

The property described on the claim as the place of use was found to have 10 acres of irrigated land. The 10 irrigated acres are planted in vegetables. As shown in Figure 1 of the Attachments, the 10 acres of vegetables consists of four rectangular shaped fields bounded on the west by a road and on the south by the Hagerman Cemetery and a construction yard. Field 1 is a small field on the west edge of the property. Fields 2, 3, and 4 are all east of Field 1 and are approximately equal in size. The field boundaries were determined based on information provided by the

claimant¹ and available aerial photography². All four fields are irrigated using a furrow irrigation system.

EVAPOTRANSPIRATION

Evapotranspiration is the amount of water evaporated from the soil plus the amount used by a crop during crop growth. IDWR's estimate used for evapotranspiration (ET) for the Hagerman area has been refined since the original analysis of required diversion rate was completed. Originally, the monthly consumptive irrigation requirements for the Bliss weather station were used, based on consumptive irrigation data estimated by Allen and Brockway³. IDWR has since obtained information allowing adjustments to the values that more accurately represent conditions in the Hagerman area. This process is outlined in the section of IDWR's Methodology Report titled EVAPOTRANSPIRATION (CROP CONSUMPTIVE USE) and the resulting ET values are summarized in Table 1 of the Attachments.

The ET values used in calculations for vegetables are shown under the column titled VEGES in the table. For each month of the irrigation season, the values in the row titled 80PCT ET are used. This represents the 80th percentile value for ET. The reasoning behind the use of these particular ET numbers is further explained in the EVAPOTRANSPIRATION section of IDWR's Methodology Report.

FIELD APPLICATION EFFICIENCY

In order to calculate the field application efficiency, several elements must first be considered. Among these elements are the slope, approximate furrow lengths, furrow spacings, and set time for each field. Additionally, the soil information described below is necessary.

¹Information as to crop types and irrigation method was verbally provided by Mr. Frank Erwin, the claimant, to IDWR Senior Agent Steve Clelland on August 5, 1992. The types of vegetables grown were not specified by the claimant. Irrigation method confirmed by Steve Clelland on June 28, 1996.

²Photos used are all color-infrared aerial photography. They were obtained through projects coordinated by the federal government, including the National Aerial Photography Program (NAPP) and the National Aeronautics and Space Administration (NASA) Airborne Instrumentation Research Project.

NAPP photos used are: Photo No. 439-43, dated 8/1/1988; Photo No. 419-59, dated 6/25/1987; and Photo No. 419-61, dated 6/25/1987.

NASA photos used are: Photo No. 6134, Flight No. 75-131, FSR 706, dated 6/8/1975; Photo No. 2471, Flight No. 77-134, FSR 1049, dated 10/8/1977; Photo No. 3472, Flight No. 80-152, FSR 1462, dated 9/17/1980; and Photo No. 2314, Flight No. 83-095, FSR 1760, dated 6/7/1983.

³Allen, R.G. and C.E. Brockway, Appendix E (unpublished)

Soil Information

Some data unique to each soil type are required for the analysis, including the management allowed deficit (MAD) and intake family. The MAD is based on the maximum soil moisture deficit which will not cause the crop to exceed its stress point. Intake family is a classification of soils with similar water intake rate characteristics. The Natural Resources Conservation Service (NRCS), formerly Soil Conservation Service (SCS), compiles soil surveys describing the various soil types within the state and the locations where those soils may be found. The procedure used to determine the value of MAD and intake family using SCS data is described in the sections of IDWR's Methodology Report titled NET IRRIGATION APPLICATION and IRRIGATION APPLICATION SYSTEMS. In order to use the correct values for MAD and intake family, it is necessary to determine the worst-case significant soil for each field if more than one soil type is present in that field.

Although there are three different soil types on the property described as the place of use for this water right, over 90% of the soil is of one type: Kecko Fine Sandy Loam (KOB). Because KOB is the only significant soil present, the values used in this analysis for MAD and intake family were based on KOB.

Because the precise type of vegetables grown was unknown, the MAD was based on an average value. First, the MAD value was calculated for several different types of vegetables, based on information found in the table following page 8 of the Hubble Report workbook.⁴ These MAD calculations were made using a spreadsheet developed by IDWR to simplify calculations for determining MAD and intake family. The values calculated for the various categories of vegetables were then averaged, producing an average vegetable MAD of 1.88 inches. The MAD values are provided in Table 2 of the Attachments, which is output from the spreadsheet described above.

There are two procedures described in the section of IDWR's Methodology Report entitled IRRIGATION APPLICATION SYSTEMS for determining intake family. The alternative procedure is considered a refinement for some soil conditions and is used where available. The furrow intake family for KOB was found to be 0.55 using either procedure; this value was used. The intake family is also shown in Table 2.

Field Slope

Field slopes were determined based on USGS topographic maps. An estimate of the average slope from top end to bottom end of furrows was calculated for each field. To calculate these slopes, it was necessary to make a determination as to the direction of furrows. Those determinations were based on the available aerial photography and information in the claim file, where available. The field slope for

⁴The Hubble Report is a common name given to a pair of reports developed for IDWR in July, 1990 by Hubble Engineering, Inc. and Associated Earth Sciences, Inc. entitled "Guidelines for the Evaluation of Irrigation Diversion Rates" and "Evaluation Workbook for Irrigation Diversion Rates".

Field 1 was estimated to be 5 percent; the slopes of Fields 2, 3, and 4 were estimated at 2.0 percent.

Furrow Lengths

The furrow lengths were determined using the same topographic maps and aerial photography. The fields appeared to have a rectangular shape, indicative of a consistent furrow length throughout each field. The furrow length of Field 1 was scaled from the map to be approximately 150 feet. The furrow lengths in Fields 2, 3, and 4 were scaled to be approximately 390 feet each.

Use of cross-ditches or gated pipe to reduce the furrow length is an alternative irrigation practice which will improve the efficiencies of fields with high intake rate soils if set times and inflow rates are adjusted appropriately. This alternative is not considered reasonable if it would result in furrow lengths less than 300 feet. A length of 300 feet is considered by IDWR to be a minimum practical length for farm cultivation practices.

Furrow Spacing/Set Times

When the system efficiencies were estimated, 36 inch furrow spacings were used. In addition, both 8 hour and 12 hour set times were analyzed and compared.⁵ Although the actual practice for these fields is to use 12 hour set times, 8 hour set times were also examined to determine whether that change would significantly increase the overall efficiency of the system. Eight hour set times are considered acceptable irrigation practices which can be used during the peak water use period to improve application efficiencies.

Results

Field application efficiencies are calculated using a computer program developed by SCS for use with furrow irrigation and provided with the Hubble Report. Efficiencies less than 15 percent or greater than 70 percent are outside the practical limits of the program. In cases where efficiency is calculated to be greater than 70 percent, an efficiency of 70 percent is used. In addition, the program does not recognize erosive flows or furrow carrying capacities. The limiting erosive flow is dependent on the slope of a particular field and must be calculated for each field. In this case, the limiting erosive flow for Field 1 would be 2 gpm and the limiting erosive flow for Fields 2, 3, and 4 would be 5 gpm. The practical carrying capacity limit of furrows is 50 gpm. The term identified in the program as design application is equivalent to the MAD, as determined above. Refer to the section FIELD APPLICATION EFFICIENCY in IDWR's Methodology Report for more information regarding the methodology used in determining field application efficiency.

⁵These furrow spacings and set times were based on information provided in a 1992 telephone conversation with Mr. Erwin, at which time he stated that the furrow spacings were 36 inches and the set times were 12 hours.

The furrows in each of the four fields are less than 600 feet in length. Splitting the fields for analysis purposes would result in furrow lengths less than 300 feet. Therefore, the full furrow length was considered for each field.

For Field 1, set times of 8 and 12 hours were considered, with appropriate inflow rates. Eight hour set times resulted in a furrow inflow rate that exceeded the limiting erosive inflow rate for the furrows, so this efficiency estimate was discarded. The irrigation method using 12 hour set times provided an efficiency of 73 percent, according to the SCS program computations. Therefore, an efficiency of 70 percent was used. The results of these calculations are shown in Table 3 of the Attachments, which is computer output generated by the SCS program.

Fields 2, 3, and 4 have approximately the same slopes and furrow lengths, and the furrow spacings and set times are equivalent. For this reason, a single analysis of irrigation efficiency was done for these fields. Efficiency estimates were made for set times of both 8 hours and 12 hours with appropriate inflow rates. Again, eight hour set times resulted in a furrow inflow rate that exceeded the limiting erosive inflow rate for the furrows, so this efficiency estimate was discarded. Twelve hour set times resulted in a 76 percent efficiency for these fields, so an efficiency of 70 percent was used. See Table 3 for results.

ON-FARM IRRIGATION DIVERSION REQUIREMENT

The on-farm irrigation diversion requirement is the amount of water needed on the farm itself to provide adequate water to the crop(s) being grown. The procedure used to determine that amount is described in detail in the section of IDWR's Methodology Report titled ON-FARM IRRIGATION REQUIREMENT. The results of that procedure are provided in Table 4 of the Attachments. Table 4 was created using a spreadsheet developed by IDWR which utilizes the information detailed above and calculates the irrigation diversion requirement. The resulting maximum diversion rate requirement for the entire 10 acres was determined to be 0.19 cfs, or 0.019 cfs per acre.

IRRIGATION DIVERSION REQUIREMENT

The total irrigation diversion requirement is the sum of the on-farm irrigation diversion requirement and the conveyance loss. Since there is no conveyance loss amount associated with this right, the total diversion requirement is 0.19 cfs.

REFERENCES

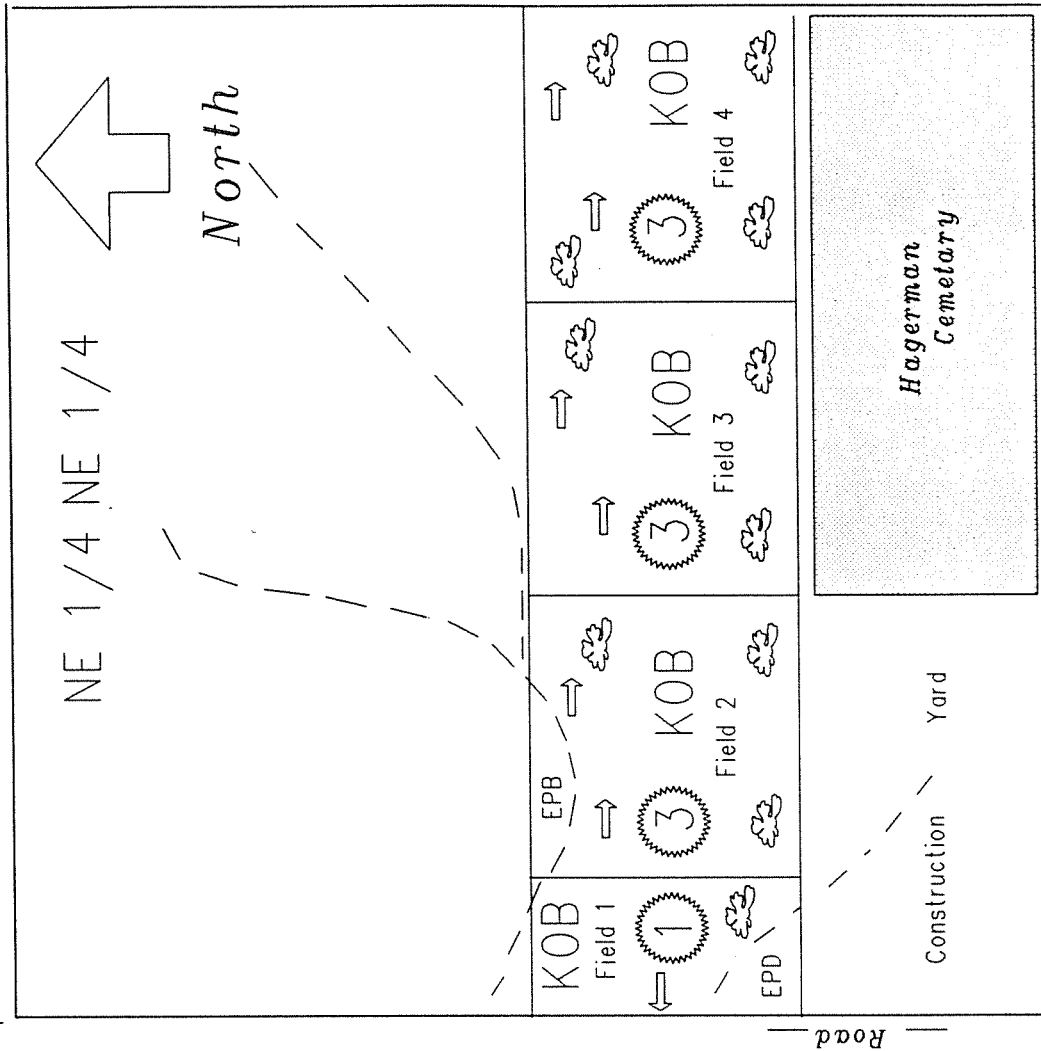
- Allen, R.G., and C.E. Brockway, 1983, Estimating Consumptive Irrigation Requirements for Crops in Idaho, Idaho Water and Energy Resources Research Institute, University of Idaho, Appendix E (unpublished).
- Hubble Engineering, Inc. and Associated Earth Sciences, Inc., 1991, Guidelines for the Evaluation of Irrigation Diversion Rates, Idaho Department of Water Resources.
- Hubble Engineering, Inc. and Associated Earth Sciences, Inc., 1991, Evaluation Workbook for Irrigation Diversion Rates, Idaho Department of Water Resources.
- Idaho Department of Water Resources, 1996, Report Regarding Evaluation of Irrigation Diversion Rates, also referred to as IDWR's Methodology Report.
- National Aerial Photography Program, Color-infrared aerial photography, Flight dates June 25, 1987, August 1, 1988.
- Soil Conservation Service (now Natural Resources Conservation Service) - Gooding, Idaho office, 1992, Unpublished soil survey data.

ATTACHMENTS

T.7 S., R.13 E.
 Section 14
 Gooding County

FIGURE 1

1/4 MILE



Legend:

- ⇌ Furrow Direction
- KOB Soil Type
- - - Soil Type Division Line
- 1/4 1/4 Line
- ④ Irrigated Acres
- 🌿 Vegetables

Water Right No. 36-00092

Table 1

80th Percentile values of monthly ET estimated for
the Hagerman Valley adjusted from the Bliss Station
(mm/day)

	MO	ETR	ALFH.	BEANS	F.CRN	SILGE	S.CRN	PEAS	POTAT	SBEET	SGRAN	WGRAN	PAST.	VEGES
AVE ET	4	5.28	3.30					1.60	1.58	1.58	1.65	4.82	3.27	
TMP ADJ	4	5.68	3.55					1.72	1.70	1.70	1.77	5.18	3.52	
ALT ADJ	4	5.75	3.59					1.74	1.72	1.72	1.80	5.25	3.56	
STDD ET	4	0.47	0.29					0.14	0.14	0.14	0.15	0.43	0.29	
ADJ STDD	4	0.80	0.49					0.24	0.24	0.24	0.26	0.73	0.49	
80PCT ET	4	6.42	4.01					1.94	1.92	1.92	2.01	5.86	3.97	
AVE ET	5	6.79	6.29	2.04	2.04	2.04	2.04	3.85	2.19	2.04	5.11	6.79	5.23	2.07
TMP ADJ	5	7.18	6.65	2.16	2.16	2.16	2.16	4.07	2.31	2.16	5.40	7.18	5.53	2.19
ALT ADJ	5	7.27	6.73	2.18	2.18	2.18	2.18	4.12	2.34	2.18	5.47	7.27	5.60	2.21
STDD ET	5	0.49	0.46	0.15	0.15	0.15	0.15	0.28	0.16	0.15	0.37	0.49	0.38	0.15
ADJ STDD	5	0.80	0.75	0.25	0.25	0.25	0.25	0.46	0.26	0.25	0.61	0.80	0.62	0.25
80PCT ET	5	7.94	7.37	2.39	2.39	2.39	2.39	4.51	2.56	2.39	5.98	7.94	6.12	2.42
AVE ET	6	8.41	7.32	3.26	3.66	3.66	3.53	6.82	5.77	3.91	8.39	8.41	6.47	4.40
TMP ADJ	6	8.82	7.68	3.42	3.84	3.84	3.70	7.15	6.05	4.10	8.80	8.82	6.79	4.62
ALT ADJ	6	8.93	7.77	3.46	3.89	3.89	3.75	7.24	6.13	4.15	8.91	8.93	6.87	4.67
STDD ET	6	0.47	0.41	0.18	0.21	0.21	0.20	0.38	0.32	0.22	0.47	0.47	0.36	0.25
ADJ STDD	6	1.27	1.11	0.49	0.57	0.57	0.54	1.03	0.86	0.59	1.27	1.27	0.97	0.68
80PCT ET	6	10.00	8.71	3.87	4.36	4.36	4.20	8.11	6.85	4.65	9.98	10.00	7.69	5.24
AVE ET	7	8.54	6.94	7.37	7.68	7.68	7.47	2.99	7.17	8.14	7.05	6.80	6.57	6.57
TMP ADJ	7	8.89	7.22	7.67	7.99	7.99	7.78	3.11	7.46	8.47	7.34	7.08	6.84	6.84
ALT ADJ	7	9.00	7.31	7.77	8.09	8.09	7.87	3.15	7.56	8.58	7.43	7.17	6.92	6.92
STDD ET	7	0.26	0.21	0.23	0.24	0.24	0.23	0.09	0.22	0.25	0.22	0.21	0.20	0.20
ADJ STDD	7	0.58	0.47	0.51	0.53	0.53	0.51	0.20	0.49	0.56	0.49	0.47	0.44	0.44
80PCT ET	7	9.49	7.71	8.20	8.54	8.54	8.30	3.32	7.97	9.05	7.84	7.56	7.30	7.30
AVE ET	8	7.18	5.41	4.97	6.63	6.63	6.38		5.57	7.06	1.47	1.32	5.53	5.72
TMP ADJ	8	7.50	5.65	5.19	6.92	6.92	6.66		5.82	7.37	1.53	1.38	5.77	5.97
ALT ADJ	8	7.59	5.72	5.25	7.01	7.01	6.74		5.89	7.46	1.55	1.40	5.84	6.05
STDD ET	8	0.33	0.25	0.23	0.30	0.30	0.29		0.26	0.32	0.07	0.06	0.25	0.26
ADJ STDD	8	0.70	0.53	0.49	0.64	0.64	0.62		0.55	0.68	0.15	0.13	0.53	0.55
80PCT ET	8	8.18	6.17	5.66	7.54	7.54	7.26		6.35	8.04	1.68	1.50	6.29	6.51
AVE ET	9	5.60	3.67	0.77	4.19	4.19			3.29	4.86			4.32	3.83
TMP ADJ	9	5.90	3.87	0.81	4.42	4.42			3.47	5.12			4.55	4.04
ALT ADJ	9	5.97	3.92	0.82	4.47	4.47			3.51	5.19			4.61	4.09
STDD ET	9	0.41	0.27	0.06	0.31	0.31			0.24	0.36			0.32	0.28
ADJ STDD	9	0.66	0.43	0.10	0.50	0.50			0.39	0.58			0.52	0.45
80PCT ET	9	6.53	4.28	0.90	4.89	4.89			3.84	5.67			5.04	4.47
AVE ET	10	3.73	1.26		1.04					2.48			2.88	
TMP ADJ	10	4.02	1.36		1.12					2.67			3.10	
ALT ADJ	10	4.07	1.37		1.13					2.70			3.14	
STDD ET	10	0.35	0.12		0.10					0.24			0.27	
ADJ STDD	10	0.47	0.16		0.14					0.32			0.36	
80PCT ET	10	4.46	1.51		1.25					2.98			3.45	

ET and standard deviation data (AVE ET and STDD ET) for Bliss weather station taken from Appendix E (unpublished) of Brockway, C.E., and R.G. Allen, 1983, Estimating Consumptive Irrigation Requirements for Crops in Idaho, Idaho Water and Energy Resources Research Institute.

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Temperature adjustment (TMP ADJ) based on temperature differences between Bliss and Hagerman and temperature sensitivity of ET estimates given in Brockway, C.E., G.S. Johnson, J.L. Wright, and A.L. Coiner, 1985, Remote Sensing for Irrigated Crop Water Use - Phase 1, Water Resources Research Institute, pp. 101-107.

Altitude adjustment (ALT ADJ) based on Doorenbos, J., and W.O. Pruitt, 1977, Crop Water Requirements, Food and Agriculture Organization of the United Nations, p. 59.

80th percentile ET values (80PCT ET) calculated based on Walpole, R.E., and R.H. Meyers, 1985, third edition, PROBABILITY AND STATISTICS FOR ENGINEERS AND SCIENTISTS, New York: Macmillan Publishing Company, pp. 132-144 and 574.

Table 2

SOIL CHARACTERISTICS initials: MS date: 06/25/96

Soil Type = KOB

Source of Soils Data = SCS - Gooding

soil depth (inches)		AWC (in/in)		PH		organic (%)		soil depth (ft)	AWC (inches)	intake family	
lower	upper	lower	upper	lower	upper	lower	upper			flood	furrow
0	9	0.12	0.14	7.4	8.4	1	2	1	1.59	2	0.55
9	21	0.13	0.15					2	3.08		
21	60	0.03	0.12					3	3.98		
								4	4.87	alternate	
								5	5.77	method	
										2	0.55

Management Allowed Deficit (MAD)

crop	root depth (ft)	stress point	MAD (inches)
alfalfa (hay or seed)	5	0.5	2.89
corn (field or silage)	4	0.5	2.44
grain (winter or spring)	4	0.5	2.44
pasture (or grass hay)	3	0.5	1.99
other (enter below)			
tomatoes	5	0.5	2.89
truck 1	1	0.35	0.56
truck 2	2	0.35	1.08
truck 3	3	0.5	1.99
melon	5	0.5	2.89

} Avg. vegetable MAD : 1.88 inches

truck 1 - lettuce, radishes, onions
 truck 2 - cabbage, broccoli, cauliflower, spinach
 truck 3 - turnips, parsnips, carrots

For definition of terms, refer to the sections called NET IRRIGATION APPLICATION and IRRIGATION APPLICATION SYSTEMS of the IDWR report titled Report Regarding Evaluation of Irrigation Diversion Rates, dated July, 1996.

Table 3

	INTAKE FAMILY	DESIGN APPLIC.	FURROW SLOPE	FURROW SPACING	FURROW LENGTH	INFLOW RATE	APPROXIMATE INFLOW TIME	ADVANCE TIME	GROSS	NET	DEEP PERC.	IRRIGATION EFFICIENCY	
									IRRIGATION	IRRIGATION			
									APPLICATION	APPLICATION			RUNOFF
		Inches	Ft/Ft	Feet	Feet	Gpm	Hours	Minutes	Inches	Inches	Inches	In.	%
Field 1	0.55	1.88	.050	3.00	150	7.5 too high	8	6.4	12.83	1.89	10.94	0.02	14.65
	0.55	1.88	.050	3.00	150	1.0	12	13.7	2.57	2.10	0.45	0.23	73.25 *
Fields 2,3,4	0.55	1.88	.020	3.00	390	6.0 too high	8	27.0	3.95	1.88	2.02	0.05	47.61
	0.55	1.88	.020	3.00	390	2.5	12	62.8	2.47	2.22	0.14	0.45	76.18 *

Use of this program and input requirements are described in the FIELD APPLICATION EFFICIENCY section of the IDWR report titled Report Regarding Evaluation of Irrigation Diversion Rates, dated July, 1996.

FIELD IRRIGATION REQUIREMENT

initials: MS Claimant = Erwin
 date: 06/28/96 Weather Station = Bliss/Hagerman

crop	acres	irrig. system (%)	eff. (%)	Monthly ET (mm/day)												AVE IR season (mm/yr)	net irrig. app. (in)	ET ratio	irrig. freq. (days)	Gross Irrigation Application (peak period ET/eff. in mm/day)												season oct (mm/yr)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Summary 10

Peak Gross Irrigation Application (mm/day) = 11.58
 On-Farm Irrigation Requirement (cfs/acre) = 0.019
 Total On-Farm Irrigation Requirement (cfs) = 0.19
 Irrigation Diversion Volume (ft/yr) = 0.00
 Total Irrigation Diversion Volume (ac-ft/yr) = 0

3.84 8.31 11.58 10.32 7.09

State of Idaho)
) ss.
County of Ada)

Marci S. Sterling, being first duly sworn, upon oath, deposes and says:

That I am an Engineer for the Adjudication Bureau of IDWR, that I prepared the foregoing appendix, know its contents, and that the statements contained therein are true to the best of my knowledge and belief.

Marci S. Sterling
Marci S. Sterling

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

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

POD

PIPELINE

BALLINLEY
CREEK

BAR S
DITCH

CURREN

DITCH

FLORENCE LIVESTOCK SPRINGS

50A. McFadden-4/1/1901.

claimed- dom.- 0.04

rec'd- dom.- 0.04

2169. McFadden-4/10/1932.

(BROWN, FERRDAY, atty)

claimed- 1/2/1891

irr.- 0.165 for 3.5 ac.

dom.- 0.040 (1 horse).

4/1/1932

irr.- 0.14 for 4.5 ac.

dom.- 0.04 (1 horse).

59C. Ellis & Myers-4/1/1901.

claimed- irr.- 0.44 for 16 ac.

stock 0.46 (200,000 poultry)

dom.- 0.06 (2 horses).

rec'd- dom.- 0.04 (2 horses).

59D. Anderson-4/1/1901.

(Brown, atty)

claimed- irr.- 0.02 for 1 ac.

stock 0.02 (2 calves or 1 horse).

dom.- 0.04 (1 horse).

rec'd- dom.- 0.04 (1 horse).

8394. Anderson-8/9/1983.

claimed- dom.- 0.02 (1 horse).

rec'd- dom.- 0.02 (1 horse).

10047. McConnell-1/1/1939.

claimed- dom.- 0.04 (1 horse).

rec'd- dom.- 0.04 (1 horse).

92. Ressler-4/1/1901.

(Brown, atty)

claimed- irr.- 0.40 for 16 ac.

stock 0.02 (10 range).

dom.- 0.12 (1 horse).

rec'd- irr.- 0.20 for 10 ac.

stock 0.02 (10 range)

dom.- 0.08 (1 horse)

* 49. McFadden-4/1/1901.

(BROWN, FERRDAY, atty)

claimed- irr.- 9.70 for 178.5 ac.

dom.- 0.06 (2 horses)

curren. 0.06 (veg. process- 1945)

(mini atill- 1977)

stock 0.07 (250 beef)

fish- 0.60 (2 ponds- 1969)

Total= 9.70

irr.- 4.04 for 175.5 ac

dom.- 0.06 (2 horses)

stock 0.07 (250 range)

(combined with 48A; limited to 4.04)

APPENDIX C

ALAN G. LANCE
Attorney General
State of Idaho

CLIVE J. STRONG
Deputy Attorney General
Chief, Natural Resources Division

BRENT KING
CHARLES L. HONSINGER
Deputy Attorneys General
Department of Water Resources
P.O. Box 83720
Boise, ID 83720-0098
Telephone: (208)327-5458
Fax: (208)327-5400

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	)	Subcase No. 36-00092
	)	
Case No. 39576	)	AFFIDAVIT OF STEVE CLELLAND
	)	REGARDING CLAIM NO. 36-00092
	)	

STATE OF IDAHO	)
	) ss.
County of Twin Falls	)

I, STEVE CLELLAND, being first duly sworn on oath, depose and state as follows:

1. I am a Senior Water Resource Agent with the Idaho Department of Water Resources (IDWR).

2. My work address is Idaho Department of Water Resources (IDWR), Southern Regional Office, 222 Shoshone St. East, Twin Falls, ID 83301-6105. I reside in Twin Falls, Idaho.

3. My educational background and work history both outside and within IDWR are detailed in my Affidavit of Steve Clelland as to the Investigation of Claims in the Hagerman Area.

4. As part of my duties as a senior water agent, I investigated the acreage claimed as irrigated pursuant to claim no. 36-00092. The pertinent details of that investigation are as follows:

A. On July 25, 1990, IDWR water agent Helen Thornton and I conducted a field examination for the purpose of determining the irrigated acreage pursuant to claim no. 36-00092.

B. During that field examination, I observed that the southern parcel of land claimed as irrigated was actually occupied by a large, graveled construction yard. I observed that this southern parcel was not irrigated. I observed that the northern portion of land claimed as irrigated was actually irrigated.

C. I observed that an orthophoto quad from 1974 in combination with the grid measuring system described in described in Appendix A to IDWR's Report Regarding Claim to Water Right No. 36-00092 showed 16 acres as irrigated by water delivered pursuant to this claim.

D. I observed that the pertinent NAPP photograph was consistent with my observations from the field examination that six acres of the 16 shown as irrigated on the orthophoto quad (that area now occupied by the construction yard) were no longer irrigated.

5. As part of my duties as a senior water rights agent, I conducted an

investigation into the quantity of water delivered pursuant to claim no. 36-00092. The pertinent details of that investigation are as follows:

A. During the field examination on July 25, 1990, I observed that water pursuant to these claims was delivered from the source to the claimed place of use entirely through a pipeline. Because of my observations, I concluded that conveyance losses to deliver water pursuant to this claim were insignificant due to the impermeable nature of the delivery system.

B. On August 5, 1992, I spoke with the claimant, Mr. Frank Erwin, by telephone. He indicated to me that he grew vegetables on the land claimed as irrigated, and that he used furrows as the method of irrigation.

DATED this 1st day of July, 1996.



STEVE CLELLAND

SUBSCRIBED AND SWORN to before me this 1st day of July, 1996.



Notary Public for the State of Idaho

Residing at: Boise

My commission expires: 12-5-2000

CLIVE J. STRONG
Deputy Attorney General
Chief, Natural Resources Division

BRENT KING
CHARLES L. HONSINGER
Deputy Attorneys General
Department of Water Resources
P.O. Box 83720
Boise, ID 83720-0098
Telephone: (208)327-5458
Fax: (208)327-5400

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	)	Subcase No. 36-00092
	)	
Case No. 39576	)	AFFIDAVIT OF HELEN THORNTON
	)	REGARDING CLAIM NO. 36-00092
	)	
STATE OF IDAHO	)	
	) ss.	
County of Ada	)	

I, HELEN THORNTON, being first duly sworn on oath, depose and state as follows:

1. I am currently a Hydrogeologist with the Idaho Department of Water Resources (IDWR). At the relevant time for purposes of this affidavit, I was employed as a Senior Water Resource Agent with IDWR.
2. My work address is Idaho Department of Water Resources (IDWR), 1301 N. Orchard, Boise, ID 83706. I reside in Boise, Idaho.
3. My educational background and work history both outside and within IDWR are detailed in my Affidavit of Helen Thornton as to the Investigation of Claims in the

Hagerman Area.

4. As part of my duties as a senior water agent, I investigated the acreage claimed as irrigated pursuant to claim no. 36-00092. The pertinent details of that investigation are as follows:

A. On July 25, 1990, IDWR water agent Steve Clelland and I conducted a field examination for the purpose of determining the irrigated acreage pursuant to claim no. 36-00092.

B. During that field examination, I observed that the southern parcel of land claimed as irrigated was actually occupied by a large, graveled construction yard. I observed that this southern parcel was not irrigated. I observed that the northern portion of land claimed as irrigated was actually irrigated.

5. As part of my duties as a senior water resource agent, I conducted an investigation into the quantity of water delivered pursuant to claim no. 36-00092. The pertinent details of that investigation are as follows:

A. During the field examination on July 25, 1990, I observed that water pursuant to these claims was delivered from the source to the claimed place of use entirely through a pipeline. Because of my observations, I concluded that conveyance losses to deliver water pursuant to this claim were insignificant due to the impermeable nature of the delivery system.

DATED this 1st day of July, 1996.

Helen L. Harrington-Thornton
HELEN L. HARRINGTON-THORNTON

SUBSCRIBED AND SWORN to before me this 1st day of July, 1996.

A. Sherman
Notary Public for the State of Idaho
Residing at: Boise ID
My commission expires: 11-14-1998