

FAX COVER SHEET

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From: Jill Stevenson
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Date: 09/13/11 05:06:56 PM
Fax Number: 2082876700
Pages (Including cover): 25

Re: Motion for Reconsideration or for Permissive Review, Memorandum ISO Motion
for Reconsideration or for Permissive Review, Affidavit of Robert Hardgrove and
Certificate of Service (GP File No. 9955-2) [IWOV-GPDMS.FID496223]

Notes:

TO: Director of IDWR

FROM: Michael C. Creamer and Michael P. Lawrence (Givens Pursley LLP)

RE: SUBCASE NOS. 37-296A, 37-717, and 37-1216

Please find attached the *Motion for Reconsideration or for Permissive Review*, Memorandum in Support, Affidavit of Robert R. Hardgrove and a Certificate of Service, all dated September 13, 2011.

Should you have any questions please do not hesitate to contact me. Thank you.

Jill Stevenson

Assistant to Christopher H. Meyer, Michael C. Creamer,
and Elizabeth M. Donick

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Attorneys for Claimant City of Hailey

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

In Re SRBA

Case No. 39576

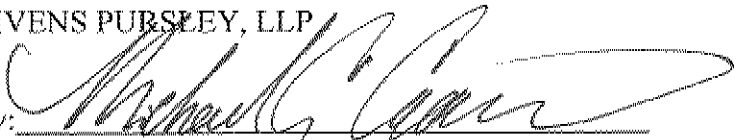
SUBCASE NOS. 37-296A, 37-717, and
37-1216

**MOTION FOR RECONSIDERATION
OR FOR PERMISSIVE REVIEW**

Claimant City of Hailey ("Hailey"), by and through its attorneys of record, Givens Pursley LLP, moves the Court for an order granting reconsideration of its August 30, 2011 *Order on Motion to Strike and Motion for Summary Judgment* ("Order") entered in the above-captioned subcases to I.R.C.P. 11(a)(2)(B) or, in the alternative, for an order granting permissive review of the Order pursuant to SRBA AO1 § 9.e and I.A.R. 12. This motion is supported by Hailey's *Memorandum in Support of Motion for Reconsideration or for Permissive Review* filed contemporaneously herewith.

DATED this 13th day of September, 2011.

GIVENS PURSLEY, LLP

By: 

Michael C. Creamer
Attorneys for City of Hailey

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Attorneys for Claimant City of Hailey

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

In Re SRBA

Case No. 39576

SUBCASE NOS. 37-296A, 37-717, and
37-1216

**MEMORANDUM IN SUPPORT OF
MOTION FOR RECONSIDERATION
OR FOR PERMISSIVE REVIEW**

Claimant City of Hailey ("Hailey"), through its attorneys Givens Pursley LLP, files this memorandum in support of its *Motion for Reconsideration or for Permissive Review* ("Motion") filed contemporaneously herewith. Hailey seeks reconsideration under I.R.C.P. 11(a)(2)(B) and review under SRBA Administrative Order 1 ("AO1") § 9.e and I.A.R. 12 of the Special Master's August 30, 2011 *Order on Motion to Strike and Motion for Summary Judgment* ("Order"). Hailey respectfully requests the Special Master reconsider the Order's findings and conclusions, or recommend and forward this matter to the SRBA Presiding Judge for his determination, on the following grounds:

1. The *Frost Decree* expressly and unambiguously adopted and confirmed, and did not "supersede" or alter, the *Tucker Decree*;

2. Right no. 37-1216 was decreed for year-round use in the *Tucker Decree*;

**MEMORANDUM IN SUPPORT OF MOTION FOR
RECONSIDERATION OR FOR PERMISSIVE REVIEW – 1**

3. The difference in the amount of flow through Alturas Water Company's ("Alturas") historical seven inch and ten inch diameter pipes (i.e. the amount decreed under right no. 37-717 in the *Frost Decree*) is about 3.2 cfs; and

4. The 1983 Agreement did not, and did not need to, address all the parties' water rights.

STANDARDS OF REVIEW

1. Standard for Motions for Reconsideration

When the court is presented with a motion for reconsideration of an interlocutory order pursuant to I.R.C.P. 11(a)(2)(B), "the trial court should take into account any new facts presented by the moving party that bear on the correctness of the interlocutory order. The burden is on the moving party to bring the trial court's attention to the new facts." *Coeur d'Alene Mining Co. v. First Nat. Bank of North Idaho*, 118 Idaho 812, 823, 800 P.2d 1026, 1037 (1990). However, "the absence of new evidence accompanying [a] motion for reconsideration d[oes] not, standing alone, require that the motion be denied." *Johnson v. Lambros*, 143 Idaho 468, 473, 147 P.3d 100, 105 (2006). This is because:

a rule requiring new evidence on a motion for reconsideration would be a cause for concern. . . [because i]t would prevent a party from drawing the trial court's attention to errors of law or fact in the initial decision, precluding correction of even flagrant errors except through an appeal.

Id. As discussed below, there are errors of law and fact warranting reconsideration in this case.

2. Standard for Motion for Permissive Review

According to SRBA AO1 1 § 9.e:

any party to the subcase may seek permissive review by the Presiding Judge of the Special Master's interlocutory determination which involves a controlling question of law as to which there are substantial grounds for difference of opinion and on which immediate consideration of the determination may advance the orderly resolution of the litigation following the procedures set forth in I.A.R. 12.

The issues from the Order addressed below present controlling questions of law as to which there are obvious differences of opinion. Immediate consideration by the Presiding Judge and a ruling in favor of Hailey would advance the orderly resolution of this case by avoiding the need for a trial on those issues.

DISCUSSION

1. The *Frost Decree* expressly adopted and confirmed, and did not supersede or alter, the rights awarded in the *Tucker Decree*.

As noted in the Order, the rights claimed in these subcases originated in two prior decrees: the 1900 *Tucker Decree* and the 1909 *Frost Decree*. Order at 4.¹ However, by its own text, the *Frost Decree* did not “supersede[.]” Order at 4, or change the rights awarded in the *Tucker Decree*. Rather, the *Frost* Court expressly adopted and confirmed—unaltered—the *Tucker Decree* rights (37-296A and 37-1216)² and awarded Alturas a new water right (no. 37-717).

In Finding of Fact No. 8 of the *Frost Findings and Conclusions*, the Court addressed the prior water right decrees between and among the parties to the *Frost* case:

That certain of the claimants to the right to the use of the waters of the Malad or Big Wood River and its tributaries, have at various times litigated the right to the use of certain tributaries of the said river, in the following described actions, and that the decrees of the said District Court, awarding the following amounts of water, at the respective dates, to the various claimants thereto, have been entered and filed in such actions as follows, to-wit:

¹ The *Tucker Decree* was issued in *Caldwell and Alturas Water Co. v. Tucker, et al.* (4th Jud. Dist., Blaine County, Dec. 24, 1900), and the *Frost Decree* was issued in *S.C. Frost v. Alturas Water Co., et al.* (4th Jud. Dist., Blaine County, Dec. 13, 1909). A copy of the *Tucker Decree* was included as Attachment F to IDWR’s Dec. 17, 2010 Supplemental Director’s Report, while copies of some, but not all, pages from the *Frost Decree* and the *Frost Court’s Findings of Fact and Conclusions of Law* (“*Frost Findings and Conclusions*”) cited in this memorandum were included in Attachment J.

² The Order at 10 states that the *Tucker Decree* gave “Nancy Tucker a right during the irrigation season and Alturas Water two rights during the non-irrigation season.” (Emphasis added.) Hailey finds only one right decreed to Alturas in the *Tucker Decree* and, as discussed in the text, understands it to be a year-round right.

Frost Findings and Conclusions at 86-87. In the list of decreed rights that followed, the *Frost* Court restated verbatim the *Tucker Decree's* language defining the respective rights awarded in the *Tucker* case:

That the defendant, Nancy M. Tucker, is the owner and entitled to the possession and use of all the waters of Indian Creek, a stream flowing into the Easterly side of Wood River Valley two miles above the town of Hailey, in Blaine County, Idaho. That neither of the plaintiffs has any right, title or interest in and to said water or any part of. EXCEPT AND PROVIDED, however, that the Alturas Water Company has the right and is entitled to use, during that part of the year when said waters are not necessarily and properly used and in use for the purpose of irrigation on the lands of said Nancy. M. Tucker and the lands lying along said creek above the reservoir of said water company, of as much of said water as its pipe line will now convey from its said reservoir delivered through its system of mains and service connections to the town of Hailey Which is hereby adjudged and decreed to it, to be used by it in said quantity and at the time stated.

Frost Findings and Conclusions at 95 (compare to *Tucker Decree* at 1-2).

Later, in the Conclusions of Law, the *Frost* Court confirmed without alteration the rights awarded in the prior decrees listed in Finding of Fact No. 8:

AS CONCLUSIONS OF LAW from the above facts, the court finds: . . .

That the various parties, plaintiffs and defendants, in the actions in which decrees were entered and filed, as set forth in the said Findings, and their successors in interest, are entitled to the use of the waters so awarded in the said decrees.

Frost Findings and Conclusions at 108-09. Similarly, in the *Frost Decree*, the Court ordered:

that the respective parties, plaintiffs and defendants, in the various actions named in the findings, to-wit: . . . they and their successors in interest, be and they are hereby awarded the right to the use of the waters of the Big Wood River and its tributaries, and the various dry streams in said decrees, to the extent they are respectively awarded such use in the various actions and decrees to which they are parties, respectively

Frost Decree at 30-31.

The *Frost* Court decreed two water rights to Alturas: (1) right no. 37-28 concerning Big Wood River water delivered through the Riley ditch (which is not at issue in these subcases); and (2) right no. 37-717. In addition to awarding these new rights, the *Frost* Court recognized and

confirmed unaltered Alturas's *Tucker Decree* water right no. 37-1216 (and Nancy Tucker's right no. 37-296). Rather than superseding the *Tucker Decree* as stated in the Order, the *Frost* Court quoted it, adopted it, and confirmed the rights awarded therein without alteration.

The *Frost* Court's statements addressing *Tucker Decree* water rights, including Alturas's (now Hailey's) right no. 37-1216, were made for the purpose of describing right no. 37-717—the Indian Creek right actually litigated and awarded to Altruas by the *Frost* Court—and not to alter the rights awarded in the *Tucker Decree*. Right no. 37-717 was decreed for the additional water Alturas diverted during winter months after it increased its pipeline from seven to ten inches in diameter in 1907. Order at 7; *Frost Decree* at 30. To properly distinguish this right from Alturas's earlier priority *Tucker Decree* water right (no. 37-1216), it was necessary for the *Frost* Court to specifically describe the amount of water associated with the earlier priority date.³ Thus, the *Frost* Court awarded right no. 37-717 as follows:

That the Alturas Water Company be and it is hereby awarded the right to the use of a certain amount of the waters of Indian Creek, sufficient to fill its water pipes of their present ten inches in diameter capacity . . . and that the increased amount above the 45 inches awarded to it in the [Tucker Decree] shall date from the first day of August, 1907.

Frost Decree at 30.

Similarly, in Finding of Fact No. 12, the *Frost* Court mentioned Alturas's *Tucker Decree* water right in describing the findings of fact underlying right no. 37-717, which the Court found to be used by Alturas

³ One can imagine the continuing controversy that might have resulted had the *Frost* Court awarded Alturas a 1907 water right "sufficient to fill its water pipes of their present ten inches in diameter capacity" and, instead of specifically quantifying the earlier right, stated "that the increased amount above the [seven-inch diameter amount] awarded to it in the [Tucker Decree] shall date from the first day of August, 1907." By specifically describing the earlier right, the *Frost* Court provided a means to discern how much water Alturas was entitled to under each priority date (i.e. Alturas was entitled to 45 inches with a 1884 priority under 37-1216, and entitled to fill the rest of its ten inch pipe—however much that was—based on its 1907 priority date).

during the Winter season . . . to fill its pipes to the capacity of said pipes, when the same was not needed or required by the parties to whom it was decreed in the [*Tucker Decree*] . . . ; and that said pipes were increased from 7 inches to ten inches in diameter in the year 1907.

Frost Findings and Conclusions at 98 ¶ 12.⁴ The *Frost* Court's reference to the *Tucker Decree* in Finding of Fact No. 12 was made to describe right no. 37-717 awarded by the *Frost* Court, not to redefine or further describe right no. 37-1216. In sum, it is clear that the *Frost* Court awarded Alturas a "Winter season" right (i.e. no. 37-717), but it is equally clear that it did not alter the *Tucker Decree*'s determination that Alturas could divert Indian Creek water under right no. 37-1216 whenever the water was not being used by Nancy Tucker.

2. The *Tucker Decree* awarded Alturas a year-round water right.

Pursuant to the *Tucker Decree*—which was unaltered by the *Frost Decree*—Alturas and its successors have

the right and [are] entitled to use, during that part of the year when said waters [of Indian Creek] are not necessarily and properly used and in use for the purpose of irrigation on the lands of said Nancy. M. Tucker and the lands lying along said creek above the reservoir of said water company, of as much of said water as its pipe line will now convey from its said reservoir delivered through its system of mains and service connections to the town of Hailey."

Tucker Decree at 1-2; *Frost Findings and Conclusions* at 95 (emphasis added). Based on this language, Alturas's *Tucker Decree* water right (no. 37-1216) is not limited to the non-irrigation or "Winter" season.

While the *Tucker Decree* did not specifically determine Alturas's period of use or the precise amount of water (in miner's inches or cfs) that Alturas was entitled to divert from Indian Creek under right no. 37-1216, it did provide sufficient information for water users, a water master, and later courts to ascertain those elements. As to the amount of water, the *Frost* Court

⁴ In the first clause of Finding of Fact No. 12, the *Frost* Court described the findings of fact underlying the other *Frost* Decree water right awarded to Alturas—right no. 37-28 concerning Big Wood River water delivered through the Riley ditch (which is not at issue in these subcases).

found that Alturas's "pipes were increased from 7 inches to ten inches in diameter in the year 1907," *Frost Findings and Conclusions* at 98 ¶ 12, and that the amount awarded to Alturas in the *Tucker Decree* was 45 inches (0.9 cfs). *Frost Decree* at 30. The Order correctly recognizes this.

Where the Order errs, however, is in concluding that 37-1216 is only for non-irrigation season use. It is not correct that "[b]oth the *Tucker Decree* and the *Frost Decree* . . . described the Alturas Water rights as 'during the winter season'" or that "[b]oth past decrees describe . . . the Alturas Water rights as winter season rights." Order at 10. The word "winter" is not used anywhere in the *Tucker Decree*.

What the *Tucker Decree* does say is that Alturas was entitled to divert the capacity of its pipeline whenever Nancy Tucker was "not necessarily and properly" using Indian Creek water to irrigate, and whenever such water was not actually "in use" by Nancy Tucker. Common experience is that no one necessarily or properly diverts all of an irrigation water right to irrigation during the entirety of the irrigation season. Early- and late-season requirements typically are much less than during mid- and late-summer. Diversions also often are shut off when crops such as the hay along Indian Creek are being cut and stacked. The *Tucker Decree* does not limit the use of 37-1216 to the non-irrigation season or to the "winter." It is only limited by the needs of Nancy Tucker's superior right. Based on the *Tucker Decree*, it is reasonable to conclude that Alturas was entitled to divert water into its pipeline at *any* time during the year that did not interfere with Nancy Tucker's prior right to take the water for irrigation, not just in the winter as determined in the Order. Given this Court's experience and knowledge of irrigation practices, it would be reasonable for the Court to conclude there is at

least a genuine issue of fact as to whether Alturas did divert water during the irrigation season when Nancy Tucker was not actually diverting all the water from Indian Creek.

The *Frost* Court also did not describe Alturas's use of its *Tucker Decree* water right (i.e. 37-1216) as being limited to the winter season. The *Frost* Court's statements concerning the "Winter season" can be attributed only to right no. 37-717—the right actually awarded to Alturas in the *Frost Decree*. Right no. 37-717 is the water right awarded to Alturas by the *Frost* Court as a consequence of Alturas increasing its pipeline diameter from seven to ten inches in 1907. The *Frost* Court's descriptions of Alturas's water use were made in the context of describing right no. 37-717, and that right's limitation to the "Winter season" does not mean that 37-1216 is similarly limited. The *Frost* Court decreed 37-717; it did not decree or in any way alter 37-1216, which was awarded in the *Tucker Decree* and is entitled to protection from attack under the doctrines of res judicata and collateral estoppel.

Concluding that the *Frost* Court's "Winter season" language in Finding of Fact No. 12 (discussed above) to describe Alturas's right no. 37-1216 would mean that Nancy Tucker's right no. 37-296 also would be a winter season right—a result that would be contrary to the Special Master's conclusion that "the *Tucker Decree* language grants Nancy Tucker a right during the irrigation season." Order at 10. This is because Finding of Fact No. 12 describes right 37-717 as being used "during the Winter season" when Indian Creek water "was not needed or required by the parties to whom it was decreed in the [*Tucker Decree*]." *Frost Findings and Conclusions* at 98 ¶ 12. The parties awarded rights in the *Tucker Decree* were Nancy Tucker and Alturas. The *Frost Court* in Finding of Fact No. 12 did not distinguish between whose *Tucker Decree* right was not needed or required during the winter season. Thus, if the *Frost* Court's "Winter season"

language describes one of the *Tucker Decree* rights (which it does not), then it must describe both. Such a result would not be consistent with history, the record, or the Order.

3. Right no. 37-717 should be decreed for at least 3.2 cfs, which represents the difference between 0.9 cfs and the computed capacity of a ten-inch diameter wooden pipe.

The Order concludes that Hailey, as successor in interest to Alturas in water right claim nos. 37-717 and 37-1216, is entitled to decrees authorizing a total combined diversion rate of 2.62 cfs for these water rights (1.72 cfs and 0.9 cfs, respectively). Order at 10-11. This quantification is incorrect because it arbitrarily and incorrectly assumes that 2.62 cfs was the capacity of Alturas's ten inch pipeline. Alturas's historical water pipeline—the capacity of which served as the upper limit for Alturas's water rights—could have carried a maximum flow of 4.1 cfs.

The *Frost Decree* determined that Alturas's *Tucker Decree* water right (no. 37-1216) was for 0.90 cfs, which was the capacity of Alturas's seven inch diameter pipeline, and that Alturas was entitled to a 1907 water right (no. 37-717) for the increase in diversion rate that resulted from Alturas increasing its pipeline to ten inches in 1907. *Frost Decree* at 30; *Frost Findings and Conclusions* at 98 ¶ 12. The question of how much water Alturas was decreed under right no. 37-717 can be answered by determining the maximum flow capacity of its ten-inch diameter pipeline, and subtracting 0.90 cfs.

As set forth in the *Affidavit of Robert Hardgrove*, filed contemporaneously herewith, Alturas's ten-inch pipeline in 1907 could have carried approximately 4.1 cfs. Thus, Alturas's *Frost Decree* water right no. 37-717 should be quantified for at least 3.2 cfs (i.e. 4.1 cfs minus the 0.90 cfs decreed to Alturas in the *Tucker Decree*).⁵

⁵ Hailey does not dispute that 37-717 is properly designated a non-irrigation season right based on the *Frost Decree's* finding that the right was for that "certain amount of the waters of Indian Creek, sufficient to fill its water pipes of their present ten inches in diameter capacity . . . during the Winter season . . ." *Frost Decree* at 30.

4. The 1983 Agreement did not address all of the parties' Indian Creek water rights.

The Order implicitly, and incorrectly, determines that the 1983 Agreement, *Supplemental Director's Report* Att. R, between Hailey and Indian Creek Ranch Owners Association ("Homeowners") addressed all of the Indian Creek water rights held by the two parties. It did not—it addressed only the parties' respective rights to Nancy Tucker's *Tucker Decree* water right (i.e. parent right no. 37-296).

Right no. 37-296 was decreed to Nancy Tucker as the superior right on Indian Creek, entitling her to "the possession and use of all the waters of Indian Creek." *Tucker Decree* at 1. The right was split in 1913, when the Idaho State Life Insurance Co. deeded 37-296 to David Devine and reserved 131 miner's inches as a "prior and paramount" right. *Supplemental Director's Report* Att. L. This resulted in two rights that were entitled to divert the entirety of Indian Creek for irrigation, the 131 inch right (later enumerated 37-296A) being the senior right of the two.⁶ The 1983 Agreement needed to address only the rights derived from 37-296 because those rights accounted for the entire flow of Indian Creek.

The 1983 Agreement did not need to address other Indian Creek rights (including Homeowners' claimed right nos. 37-19740 and 37-21412, or Hailey's 37-717 and 37-1216) because those rights are junior to rights derived from 37-296 and of no consequence to Hailey's and Homeowners' task of dividing Indian Creek's waters between themselves given the fact that the 37-296 rights account for Indian Creek's entire flow. In other words, because Hailey and Homeowners were entitled to the entire flow of Indian Creek between them by virtue of their respective portions of right no. 37-296, there was no need to address other Indian Creek rights in

⁶ No other water users or rights were implicated by Hailey's and Homeowners' 1983 Agreement because they were the only users of Indian Creek water, which was decreed a separate stream by the *Frost* Court. *Supplemental Directors Report* at 3 ("[t]he City and Homeowners are the only users on Indian Creek, which was decreed a separate source by the [*Frost* Court])."

the 1983 Agreement. Accordingly, it is inappropriate to conclude that, because the 1983 Agreement did not discuss any other rights, Hailey is entitled to only 131 inches of Indian Creek water.

CONCLUSION

Based on the foregoing, Hailey requests the Special Master reconsider the Order and grant Hailey summary judgment determining the water rights claimed in the above-captioned subcases with the following elements:

- 37-1216: 0.9 cfs with a priority date of April 1, 1884 and a year-round season of use.
- 37-717: 3.2 cfs with a priority date of August 1, 1907 and a non-irrigation season period of use.
- 37-296A: 2.62 cfs with a priority date of April 1, 1880 and an irrigation season period of use.

There should be no combined limitation on the above diversion rates. In the alternative, Hailey requests the Special Master forward the matter to the Presiding Judge for his determination based on the Special Master's recommendation and findings as to whether Hailey's motion should be granted or denied.

DATED this 13th day of September, 2011.

GIVENS PURSLEY, LLP

By: 

Michael C. Creamer
Attorneys for City of Hailey

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Attorneys for Claimant City of Hailey

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
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In Re SRBA

Case No. 39576

SUBCASE NOS. 37-296A, 37-717, and
 37-1216

**AFFIDAVIT OF ROBERT R.
 HARDGROVE**

STATE OF IDAHO)
 : SS
 COUNTY OF ADA)

My name is Robert R. Hardgrove, and I make this affidavit based on my personal knowledge.

1. I have a bachelors degree in civil engineering received in 1992 from Montana State University.
2. I am a registered Professional Engineer in the States of Idaho and Utah.
3. I have been employed by SPF Water Engineers as a Project Manager since 2007, and in that capacity have worked on the design and development of numerous public water systems, and water pumping, pipeline and delivery systems.
4. In connection with the above-captioned subcases, I have been asked by counsel for the City of Hailey to estimate the maximum flow capacity of a ten inch wooden pipeline that

AFFIDAVIT OF ROBERT R. HARDGROVE

was installed in 1907 to deliver water from Indian Creek to the City of Hailey. To understand the physical characteristics of the pipeline I was provided with copies of relevant portions of the 1909 decree in the case of Frost v. Alturas Water Company, and notes incorporated as part of a November 1907 fire insurance map published by the Sanborn Map Company describing the water system serving the City of Hailey at that time. However, I also was required to make certain assumptions concerning the pipeline to complete my analysis.

5. The basis for the assumptions I have made, and my conclusions concerning the estimated maximum flow capacity of the historical pipeline, are set out in the attached memorandum that I have prepared summarizing my analysis.

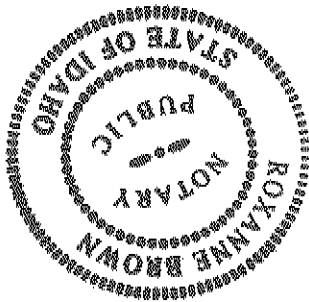
6. The data from engineering tables, manuals and handbooks and the Hazen-Williams methodology cited in the attached memorandum, and used by me for my analysis are of the type reasonably relied upon and used by engineers working with water pipelines and water delivery systems.

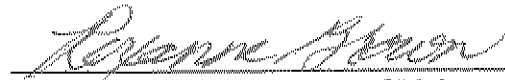
7. My conclusion as set forth in the attached memorandum is that a new, ten inch, wood stave pipeline serving the City of Hailey in 1907 could have had a maximum flow capacity of 4.1 cubic feet per second. This capacity could have been somewhat higher or lower depending certain assumptions employed in the analysis. The assumptions I have made as part of my analysis are reasonable based on my experience, and are consistent with the information I have reviewed describing the pipeline.

Dated this 13th day of September, 2011.


Robert R. Hardgrove

Subscribed and sworn to before me this 13th day of September, 2011.

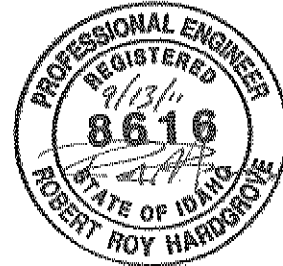



Notary Public for the State of Idaho
Residing at: Boise, ID
My Commission Expires: 5/16/2014

Attachment
to
Affidavit of Robert R. Hardgrove
(5 pages)

**SPF WATER**
ENGINEERING**TECHNICAL MEMORANDUM**

DATE: September 13, 2011
TO: Michael Creamer, Givens Pursley LLP
FROM: Bob Hardgrove
CC: Roxanne Brown; File
RE: Indian Creek to Hailey Pipeline Flow Calculations
JOB NO.: SPF 330.0120



The purpose of this memorandum is to present the work SPF performed to quantify the maximum flow capacity of the 10-inch wood stave gravity pipeline that fed the City of Hailey from the Indian Creek earth reservoir in 1907. The information presented is based on the assumptions and available data described below. Any new information that becomes available could influence the calculated results.

REFERENCES

The calculations were based on limited data regarding the historical conditions of the system in 1907. The following sources and technical references were used:

1. 1907 Sanborn Map Company Water Facility Notes for the City of Hailey (Attached)
2. 1909 Frost Decree – This stated the historical delivery system consisted of a 10-inch diameter wood stave pipeline
3. Several on-line engineering sources to determine the Wood Stave Friction Factor Coefficient, including CEcalc.com
4. *Hydraulic Tables: The Elements of Gaging and the Friction of Water Flowing in Pipes, Aqueducts, Sewers, Etc. Third Edition*, Gardner S. Williams and Allen Hazen
5. Google Earth – Helped substantiate elevations, distances, and potential pipeline configuration
6. *Civil Engineering Reference Manual, Sixth Edition*, Michael R. Lindenburg, P.E.
7. *Piping Handbook, Sixth Edition*, Mohinder L. Nayyar

ASSUMPTIONS

Several assumptions were made in order to calculate the maximum flow capacity of the historical pipeline. Some of these assumptions are supported, at least in part, by the documents listed above. The key assumptions utilized are as follows with their applicable reference:

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1. Historical piping is 10-inch wood stave with an inside diameter of 10.00 inches (1909 Frost Decree).
2. Hazen-Williams coefficient of friction (C) for wood stave pipe range from C=110 to C=145 (CEcalc.com and *Hydraulic Tables...Third Edition*).
3. The actual number of vertical and horizontal fittings within the alignment is unknown; however, the following are deemed reasonable assumptions (Google Earth):
 - a. Two (2) 90-degree Elbows, and
 - b. Four (4) 45-degree Elbows
4. The overall length of the pipeline is 1.33 miles (1907 Sanborn Map Water Facility Notes).
5. The difference in elevation between the earthen reservoir and the Hailey delivery point is 110 feet (1907 Sanborn Map Water Facility Notes).

CALCULATIONS

Utilizing the assumptions above, system friction losses for a ten inch wood stave pipeline were calculated using the reported range of coefficients of friction and different flow rates. The Hazen-Williams method was utilized to calculate these system losses. The Hazen-Williams equation is an empirical formula commonly utilized for the design of water supply pipe systems. Equivalent lengths of pipe were utilized for the fittings, and are included as "other losses" in the hydraulic calculation tables attached to this memorandum. The Hazen-Williams method uses the following equation:

$$h_f = (10.44)(L) \frac{(Q)^{1.95}}{(C)^{1.85} (d_{\text{inches}})^{4.8695}}$$

h_f = Friction Head Loss (Feet)

L = Pipe Length (Feet)

Q = Flow in Gallons per Minute (GPM)

C = Hazen-Williams Coefficient of Friction (Unitless)

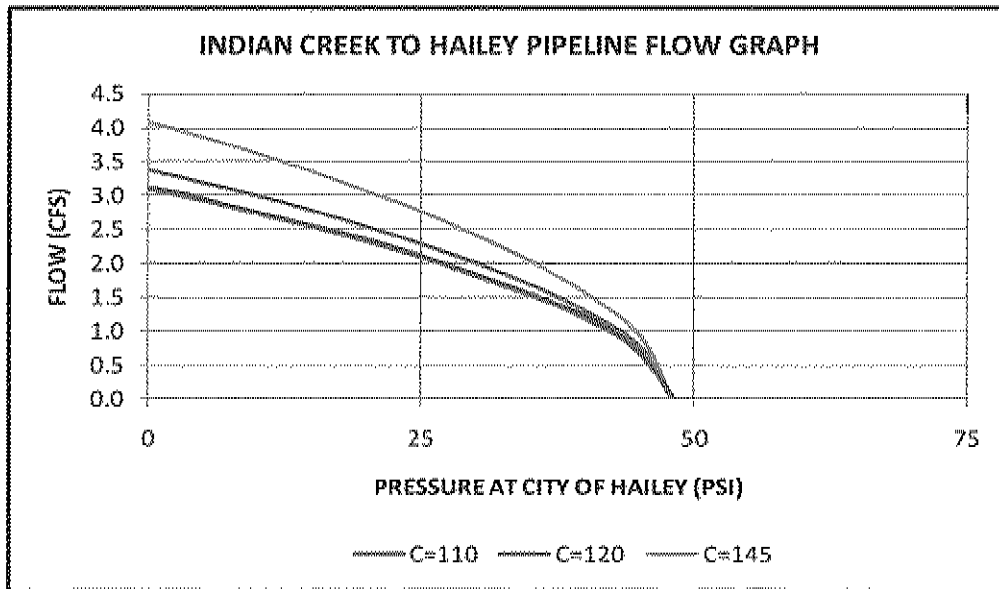
d = Pipe Diameter (Inches)

Lower flow in the pipeline results in lower friction losses and higher pressures at the Hailey delivery point. Conversely, higher flow in the pipeline results in higher friction losses and lower pressures at the Hailey delivery point. With no flow in a completely full pipeline, the static pressure at the Hailey delivery point was calculated to be 48 psi, which remains the same no matter what friction coefficient is utilized.

The different flow rates and their corresponding pressures were graphed for three different coefficients of friction, each of which is within the reported range for wood stave pipelines. For example, documented data indicates new wood stave pipe is very smooth with coefficients of friction that exceed C=150 (*Hydraulic Tables...Third Edition*, Gardner S. Williams and Allen Hazen). Based on language in the 1909 Frost Decree indicating that the pipeline was increased

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from seven to ten inches in diameter in 1907, it is reasonable to assume that new materials were used and the appropriate friction coefficient would have been towards the higher end of the range. In other words, the flow information for C=110 should be considered the worst case scenario (with the listed assumptions) for an older pipeline, and the C=145 is a reasonable scenario, based on the fact coefficients of friction exceeding C=150 are possible. The scenario with C=120 was included, as this coefficient of friction is commonly used as a conservative average value for existing (but not new) systems.



The graph demonstrates the historical 10-inch wood stave pipeline indicated by the Frost Decree to have been installed by Alturas Water Company in 1907 could have a maximum flow of approximately 4.1 cubic feet per second (CFS) with a coefficient of friction of C=145. It also shows an older pipeline with a coefficient of friction of C=110 could flow approximately 3.1 CFS. The C=120 scenario indicates a maximum flow of approximately 3.4 CFS. Three tables are attached to this memorandum detailing the calculated hydraulic information that was utilized to create these three graphs.



7 SHEETS

1

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WATER FAC.:- TWO SEPARATE SYSTEMS, THE ALTURA WATER CO. & THE CROMER WATER CO.
THE ALTURA W. CO.:- EARTH RESERVOIR, CAP. 150,000 GALS. SITUATED 1 1/2 MI. N.E. OF COUNTRY RD. AND CLEYS RD. MAIN ST. - SUPPLY OBTAINED FROM CREEK, CONVEYED TO TOWN THRU 10" & 8" MAIN & 3" & 2" BRANCHES. - 6 HYDS. AVE. PRESSURE AT HYDS. 35 LBS.
THE CROMER W. CO.:- 350,000 GAL. RESERVOIR SITUATED 2000' W. OF & ABOVE 180' MAIN ST. SUPPLIED FROM HALL RY & TRIPLE R. ELEC. PS. OF 20 & 30 PSI. RESPECTIVELY, THRU 2" PIPE & FROM RESERVOIR TO TOWN 8" & 6" MAINS & 4" BRANCHES AVE. PRESS. AT HYDS. 40 LBS. DIRECT PRESSURE OF 100 LBS. WITH 12 HYDS.
FIRE DEPT.:- VOLUNTEER CO. OF 20 MEN. - NO STEAM & NO HAND ENG. - 1 INDEP. HOSE CART 1250' HOSE (2 1/2") IN GOOD CONDITION. - HOOKS & LADDERS ON CART.
LTS: ELEC.
STREETS: LEVEL.

COH000281

C-110

[illegible]

ITEM	FLOW @ 48 PSI		FLOW @ 45 PSI		FLOW @ 40 PSI		FLOW @ 35 PSI		FLOW @ 30 PSI		FLOW @ 25 PSI		FLOW @ 20 PSI		FLOW @ 15 PSI		FLOW @ 10 PSI		FLOW @ 5 PSI		FLOW @ 0 PSI	
	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]	[CFS]	[GPM]
FRICTION LOSSES (FT)	0.0		7.1		18.4		30.0		41.4		52.7		63.9		75.6		87.0		98.1		109.2	
OTHER LOSSES (FT)	0.0		0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.9		1.0		1.1	
TOTAL LOSSES (FT)	0.0		7.1		18.6		30.2		41.8		53.2		64.5		76.3		87.9		99.1		110.3	
ELEV. DIFFERENCE (FT)	110		110		110		110		110		110		110		110		110		110		110	
PRESSURE AT HAILEY (FT)	110		103		91		80		68		57		45		34		22		11		0	
PRESSURE AT HAILEY (PSI)	48		45		40		35		30		25		20		15		10		5		0	

ITEM	FLOW @ 48 PSI	FLOW @ 45 PSI	FLOW @ 40 PSI	FLOW @ 35 PSI	FLOW @ 30 PSI	FLOW @ 25 PSI	FLOW @ 20 PSI	FLOW @ 15 PSI	FLOW @ 10 PSI	FLOW @ 5 PSI	FLOW @ 0 PSI
	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}	{CFS} {GPM}
FRICTION LOSSES (FT)	0.0	7.1	18.4	30.0	41.1	52.9	64.0	75.7	86.9	98.4	109.0
OTHER LOSSES (FT)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.1
TOTAL LOSSES (FT)	0.0	7.1	18.6	30.2	41.6	53.4	64.6	76.4	87.7	99.3	110.0
HEAD DIFFERENCE (FT)	110	110	110	110	110	110	110	110	110	110	110
PRESSURE AT HAILEY (PSI)	110	103	91	80	68	57	45	34	22	11	0
PRESSURE AT HAILEY (PSI)	48	40	30	35	40	25	20	15	10	5	0

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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 NOS. 37-296A, 37-717, and
37-1216

Case No. 39576

CERTIFICATE OF SERVICE

I hereby certify that on the 13th day of September, 2011, a true and correct copy of the *Motion for Reconsideration or For Permissive Review, Memorandum in Support of Motion for Reconsideration or For Permissive Review and Affidavit of Robert R. Hardgrove* was served upon the following individual(s) by the means indicated:

FILED

Snake River Basin Adjudication
253 3rd Avenue N.
P.O. Box 2707
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☐ U.S. Mail, postage prepaid
☐ Express Mail
☐ Hand Delivery
☒ Facsimile (208) 736-2121

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Director of IDWR
IDWR Document Depository
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Boise, ID 83720-0098

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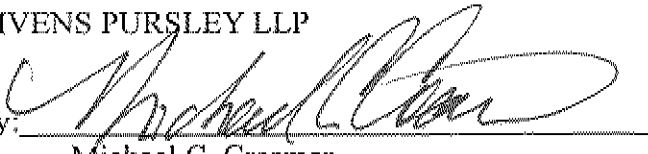
U.S. Department of Justice
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By: 
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