STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 721
Denver, Colorado 80203
Phone: (303) 866-3441
Fax: (303) 866-4474
www.cwcb.state.co.us

TO: Colorado Water Conservation Board Members

FROM: Linda J. Bassi, Chief
Kaylea White
Stream and Lake Protection Section

DATE: May 5, 2011

SUBJECT: **Agenda Item 20, May 17-18, 2011 Board Meeting**
Stream and Lake Protection Section – Injury with Mitigation – Case No. 5-07CW074; Application of John and Charlene Simcox

Introduction

This agenda item addresses a proposed pretrial resolution under ISF Rule 8i. (3) Injury Accepted with Mitigation, ("IWM"). Rule 8i.(3) requires the Board to consider an injury with mitigation proposal using a two-meeting process. This is the first meeting of the process. This proposal is to mitigate impacts of domestic wells and pond evaporation that cannot be replaced under the applicant's augmentation plan in a location at or upstream of the depletions. The wells are part of a planned development and the pond is an irrigation and augmentation pond adjacent to Crooked Creek, tributary to the Fraser River.

The proposal would allow some injury to the Crooked Creek instream flow ("ISF") water right along approximately ½ mile (2500 feet) of the reach during the non-irrigation season. The mitigation proposal is to dryup irrigation land and relinquish senior water rights to the stream during the irrigation season over a three-mile reach, which will provide sufficient mitigation to enable the CWCB to continue to preserve the natural environment to a reasonable degree on Crooked Creek. Applicant's formal request to the Board for approval of this proposal is attached to this memo as Exhibit 1.

Staff Recommendation

Staff recommends that the Board:

1) Make a preliminary determination that the natural environment of Crooked Creek could be preserved to a reasonable degree with the proposed injury if the Applicant provides the proposed mitigation, and

2) Provide comments to Staff on the proposal and identify any issues that the Applicant and Staff should address before bringing the proposal to the Board for final approval.

Procedural Background

CWCB's water court appeal seeking confirmation of its authority to accept an injury with mitigation in the Division 5 Water Court was granted in December, 2010. During the appeal process, which took more than a year, CWCB halted all work on injury with mitigation proposals, including this case. Now with the court's confirmation of CWCB's authority, Staff is moving forward with this case for the Board's consideration.

Case Background

Applicant has requested conditional groundwater rights for eight domestic wells that are tributary to Crooked Creek, which is tributary to the Fraser River in Grand County. Applicant also seeks a change of irrigation water rights decreed to the Crooked Creek Ditch No. 1 for augmentation and storage in Simcox Reservoir for non-irrigation season augmentation use. Total consumptive use for the wells and evaporation from the reservoir is expected to be 0.9 acre-feet per year.

In July 2007, the Board ratified the statement of opposition to this application because the change of water rights and augmentation with exchange could injure the Board's ISF water right on Crooked Creek. CWCB became a party in this case with the intent of negotiating terms and conditions to fully protect the Board's ISF water rights. Staff has been unable to secure full protection, and is therefore recommending this injury with mitigation proposal to include in a stipulation and final decree. The exercise of the proposed rights could adversely impact the Board's ISF water rights listed below.

CWCB Case No.	Stream/Lake	Amount (cfs)	Approp. Date	Watershed	County
5-90CW298	Crooked Creek	4.5/1.0	11/27/90	Fraser River	Grand
5-90CW301	Crooked Creek	6.0/1.5	11/27/90	Fraser River	Grand

(See map attached to this memo). The Crooked Creek ISF water right decreed in 90CW298 extends through Applicant's property, approximately 3 miles west of Fraser, Colorado. Depletions associated with the wells and pond evaporation will occur within this Crooked Creek ISF reach. Applicant has agreed to protect the Crooked Creek ISF rights by relinquishing senior irrigation ditch rights in Crooked Creek No. 1 Ditch to the creek by drying up an extra one acre of its 8 acres of irrigated land along the Creek, described more fully below.

Mitigation on Crooked Creek

Under the mitigation proposal, the Applicant would provide additional senior water rights in the stream during the irrigation season at times when (1) the ISF may not be met and (2) the CWCB cannot call out any senior diverters on the stream. The additional senior water rights would come from the dry-up of irrigated acreage in addition to that required for the augmentation plan. Applicant agrees to relinquish diversions for two acres of dry-up to the stream during irrigation season (0.028 of the most senior priority on Crooked Creek, and 0.025 cfs of the second priority on Crooked Creek). Applicant will re-divert a portion of their consumptive use credits into Simcox Reservoir for augmentation of non-irrigation season diversions (0.36 acre-feet per year) at its downstream location. Therefore, Applicant would dedicate ¼ of its irrigation rights for its original 8 irrigated acres to augmentation and mitigation.

The dry-up of irrigated acreage frequently results in delayed historical irrigation return flows that must be maintained. However, delayed return flows are not an issue here

because the irrigated acreage is immediately adjacent to Crooked Creek and thus returned to the stream within at least 30 days. Therefore, maintenance of historical irrigation return flow is not necessary in this case.

It is anticipated that the proposed mitigation will increase the flows on Crooked Creek at times when the ISF is not met and the ISF cannot call out this and other senior diversion rights. The senior rights offered for mitigation will bring the stream flows closer to the decreed ISF amount.

Extent of proposed injury

Applicant plans to construct 8 domestic wells for indoor use only, 6 of which deplete the stream upstream of the point of replacement on Crooked Creek. Total consumptive use for the wells and evaporation from the on-site reservoir is expected to be 0.9 acre-feet per year. Under its augmentation plan, Applicant will fully replace the 0.9 acre-feet per year; however, the non-irrigation season depletions of 0.36 acre-feet per year will not be replaced at the point of depletion, but rather at a point downstream of the point of depletion, at the Simcox Reservoir outlet. Injury to the CWCB's ISF consists of the non-irrigation season depletions.

Total injury to a ½ mile segment of the ISF reach is expected to be 0.36 acre-feet per year, distributed monthly as follows:

Jan	0.03
Feb	0.05
March	0.06
April	0.08
October	0.05
November	0.05
December	0.04
Total	0.36

Benefits of mitigation

At the Board meeting, Mr. Jim Pearce of Canyon Water Resources, LLC, Applicant's consulting water resources engineer, will provide comments on: (1) the potential injury to Crooked Creek ISF water rights resulting from Applicant's plan for augmentation, and (2) benefits to the natural environment resulting from Applicant's proposal to relinquish senior ditch rights to the Creek.

The CWCB obtained flow data from an upstream gage that shows the flows in Crooked Creek drop below the decreed ISF amount during the irrigation season in some years. A CWCB call during this time period would not benefit the stream because diversions by senior irrigation rights causing the low flows cannot be curtailed by CWCB's 1990 ISF water right. Applicant's relinquishment of some of its senior irrigation water to the stream at the ditch headgate will increase flow conditions, thus bringing the stream flow closer to the decreed ISF amount during a time that the ISF water right cannot call out such irrigation rights.

Under this plan, another water user who is senior to the ISF could divert the water out of the stream below the point of relinquishment. The water commissioner, Neal Misbach, confirmed that the next senior diversion location on the stream is approximately three miles downstream of the Crooked Creek No. 1 Ditch headgate. Therefore, the water will remain in the stream and will benefit the environment for approximately three miles of Crooked Creek down to the next senior diversion point.

As an alternative to the plan, Applicant has offered to donate the senior irrigation water rights in question to the CWCB for instream flow use. If CWCB accepted this offer, and changed the water use to instream flow purposes, it could protect the consumptive use of the donated flows under their original senior appropriation date through the ISF reaches down to the confluence with the Fraser River (approximately five miles). However, in this case it appears that relying on administration of the relinquished water rights could provide more water than a donation because the entire diversion amount would remain in the creek beyond the historical return flow location down to the next senior diverter on the stream. Staff recommends that CWCB rely on administration of the relinquished water to the stream rather than accepting a donation of the water.

Alternatives

Applicant has explored the following alternatives to the injury with mitigation proposal described herein:

1. Applicant considered locating their augmentation sources upstream of all 8 wells; however, that is not feasible due to limitations resulting from the subject land's topography and ownership issues.
2. Applicant considered locating the water supply wells for the Lots 1, 2, 3, 4, 5, and 10 downstream of the outlet of the augmentation pond. This alternative is feasible from the standpoint of engineering design; however, economic infeasibility of drilling six wells and individually piping the supplies thousands of feet to the building site makes this alternative impractical.
3. Applicant considered the feasibility of installing a pipeline and pump station to provide replacement supplies to Crooked Creek upstream of the depletions from the 6 wells. Applicant does not own the land between the wells and the Creek, and would need to obtain an easement across the property to place the facilities. Due to the fore-mentioned complications, this alternative is not economically feasible.

Because none of these alternatives is practical, the Applicant has submitted this injury with mitigation proposal.

Colorado Division of Wildlife Evaluation of Proposal

CWCB and Colorado Division of Wildlife ("CDOW") staff members have conducted a site visit and have met with Applicant's representatives to discuss this proposal. The CDOW's review of the proposal was generally positive. The CDOW staff's analysis and recommendation will be presented at the Board meeting.

Terms and Conditions

Staff, the Attorney General's Office and representatives of the Applicant have discussed proposed terms and conditions related to the injury with mitigation proposal. Some terms and conditions are yet to be negotiated, but injury with mitigation terms and conditions in the final decree should include the following:

1. Measuring Devices. Applicant will install and pay operation and maintenance costs of (or commit to pay operation and maintenance costs if the CWCB installs) any measuring device deemed necessary by the Division Engineer to administer terms of the stipulation and decree implementing the injury with mitigation.

2. Retained jurisdiction. Applicant will include in any final decree a retained jurisdiction provision allowing the water court to enforce the provisions of the injury with mitigation stipulation as a water matter.

Staff anticipates that the parties will work to refine the above-listed terms and conditions and incorporate them into a stipulation and the resulting water court decree, along with standard protective terms and conditions.

Based upon a review of the report prepared by Jim Pearce, and upon staff's and CDOW's discussions with the Applicant's representatives, it appears that the Applicant's mitigation proposal on Crooked Creek supports the conclusion that the natural environment of Crooked Creek can continue to be preserved to a reasonable degree under the conditions described herein as a result of the mitigation provided by the Applicant. Staff and the Attorney General's Office are in the process of consulting with the Division Engineer on the administration of this IWM proposal.

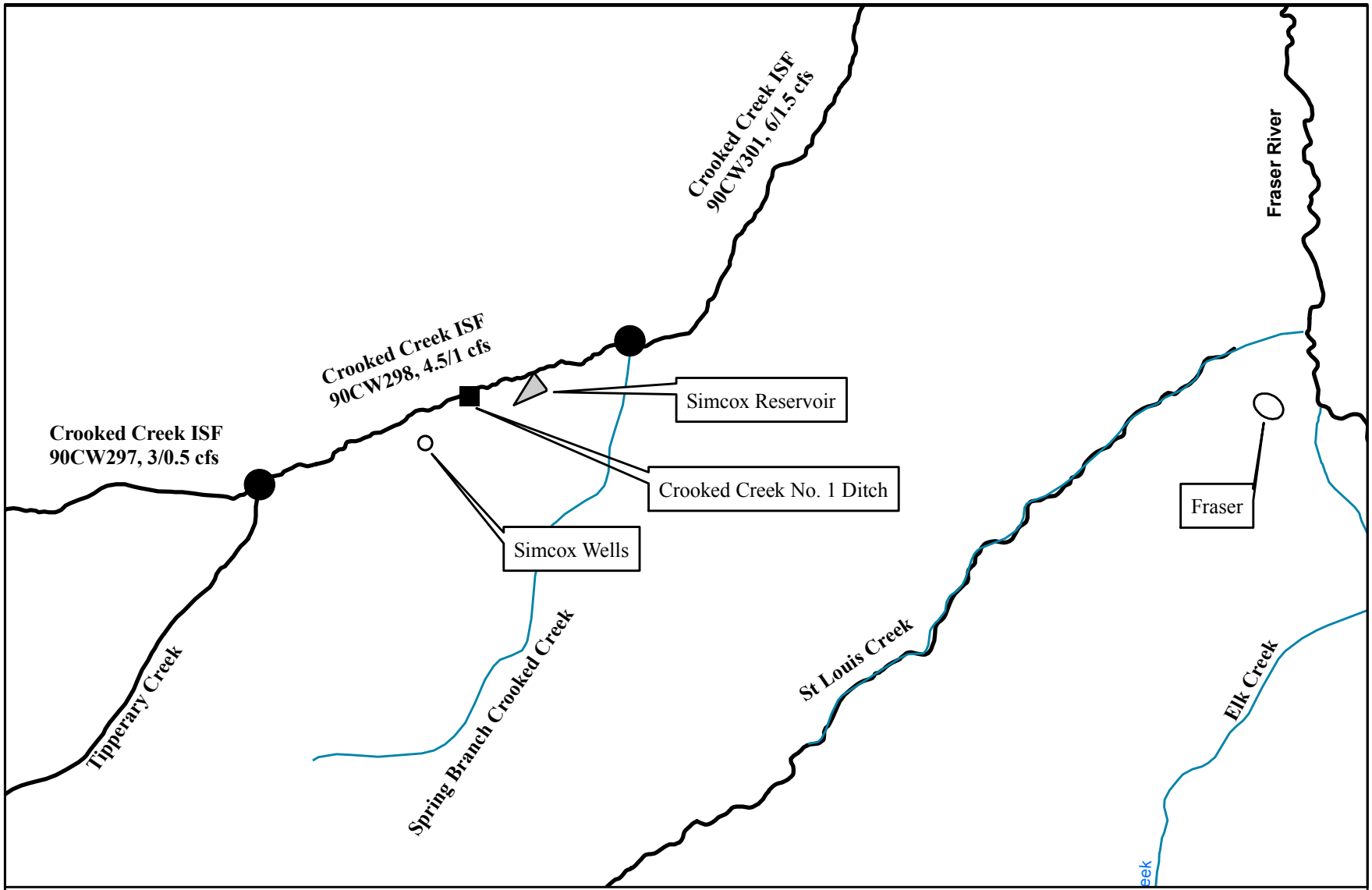
Staff Recommendation

As stated above, injury with mitigation is a two-meeting process. At the first meeting, the Board may "conduct a preliminary review of the pretrial resolution during any regularly scheduled meeting to determine whether the natural environment could be preserved to a reasonable degree with the proposed injury or interference if applicant provided mitigation." At a subsequent meeting, the Board may "take final action to ratify, refuse to ratify or ratify with additional conditions."

Staff recommends that the Board:

1. Make the preliminary determination that the natural environment of Crooked Creek could be preserved to a reasonable degree with the proposed injury if Applicant provides the proposed mitigation; and
2. Provide comments to Staff on the proposal and identify any issues that Applicant and Staff should address before bringing the proposal to the Board for final approval.

Attachments


Crooked Creek ISF
90CW301, 6/1.5 cfs
Fraser River
Crooked Creek ISF
90CW298, 4.5/1 cfs
Simcox Reservoir
Crooked Creek ISF
90CW297, 3/0.5 cfs
Crooked Creek No. 1 Ditch
Fraser
Simcox Wells
Tipperary Creek
Spring Branch Crooked Creek
St Louis Creek
Elk Creek
May 17-18, 2011 Board Meeting
Agenda Item 20; Injury with Mitigation
Case No. 5-07CW074; John & Charlene Simcox
0
0.5
1
2
Miles
N

685 Canyon Creek Drive
Glenwood Springs, CO 81601

July 13, 2009

Colorado Water Conservation Board
Instream Flow Protection Program
1313 Sherman Street
Room 721
Denver, Colorado 80203
Attention: Kaylea White

Re: Simcox Crooked Creek Request for Approval of Injury with Mitigation
Case No. 07CW074, Division 5

Dear Members of the Board:

On behalf of John and Charlene Simcox, owners of the Dusty Diamond Ranch near Fraser Colorado, we respectfully request consideration by the CWCB Board of an Injury with Mitigation (IWM) plan pursuant to ISF Rule 8.i.3 as resolution of Case No. 07CW074 in the Division 5 Water Court. The IWM plan provides senior water supplies on Crooked Creek to continue to "preserve the environment to a reasonable degree."

Discussion

The Dusty Diamond Ranch is approximately 40 acres in area and located near Crooked Creek (tributary to the Fraser River) in Grand County (Figure 1). The Ranch includes land on both the north and south banks of Crooked Creek and is approximately 4 miles upstream of the confluence of the Fraser River. Along with the land, the Simcox's own 1.4% of Priorities 69 and 107 in the Crooked Creek No. 1 Ditch[1].

Simcox's Case 07CW074, Division 5, seeks adjudication for a change in use of a portion of the Crooked Creek Ditch No. 1 water rights and an augmentation plan for new uses from 8 tributary wells. The wells will serve <u>in-house only</u> uses for development of 8 lots. The new consumptive uses will be replaced by water supplies derived from dry-up of historically irrigated land under the Crooked Creek Ditch No. 1.

Because outside uses will not be allowed, the amount of new consumptive use is small. In addition, the monthly use amount is practically constant as is the timing of depletions to Crooked Creek (Table 1). For all 8 wells, engineering estimates show that consumptive uses are only 0.03[2] acre-feet per month or (af/month). In more familiar

[1] Crooked Creek Ditch No. 1 (CA0112), Priority No. 69, 8.0 cfs, (Admin. No. 14380.00000) and Priority No. 107, 7.5 cfs (Admin. No. 16930.00000). Appropriated May 15, 1889 and adjudicated August 11, 1906. These priorities are the first and second most senior water rights on Crooked Creek.
[2] 350 gpd per dwelling and 10% consumptive use

units, the in-house depletions associated with the augmentation plan are approximately 0.25 gallons per minute.

In the augmentation plan, depletions from the new uses (in-house consumptive use plus pond evaporation) will be completely replaced by water supplies derived from dry-up of historically irrigated land under the Crooked Creek Ditch No. 1. The Simcox's share of the Ditch irrigates 8 acres and their 1.4% represents approximately 28 acre-feet per year of diversions in the Crooked Creek Ditch No. 1 (Table 2). The irrigation water requirement for pasture grass in this area is approximately 1 acre-foot per acre (total of 8 acre-feet for the Simcox's pasture). So, accounting for irrigation efficiency and ditch losses, the full irrigation water demand was historically met and 1 acre of dry-up represents approximately 1 acre-foot of consumptive use.

Dry-up of 1 acre of the Simcox's grass pasture land will replace 100% of the new consumptive uses. When the Crooked Creek Ditch No. 1 is diverting, the consumptive use credits will be stored in Simcox Reservoir to serve as replacement water supplies when the Ditch is not diverting.

The consumptive uses associated with 6 of the 8 wells may deplete Crooked Creek above the location where Simcox can feasibly augment Crooked Creek. The area's topography and ownership limit Simcox's ability to locate the augmentation sources upstream of all 8 wells. Consequently, during the non-irrigation season, about 6/8th of the depletions (0.18 gallons per minute) occur in the approximately 2,500 foot reach from the pond outlet to the upstream end of the Simcox property.

The Crooked Creek instream flow right[3] in the reach of the Simcox augmentation plan is 4.5 cubic feet per second (cfs) in the summer and 1 cfs in the winter. Most days of the year, the stream flow is greater that the instream flow amount. However, during the irrigation season senior diversions, including the Crooked Creek Ditch No. 1, may reduce flows below the instream flow amount.

This IWM proposal will mitigate the potential injury to the instream flow right by providing senior water supplies to supplement stream flows. The water supplies would come from Simcox's senior priorities in the Crooked Creek Ditch No. 1. The plan would provide the additional senior water supplies to Crooked Creek during the irrigation season when the instream flow may not be met. The flows will benefit the environment from the Crooked Creek Ditch No. 1 headgate to the next downstream senior water right (approximately 3 miles).

Simcox proposes drying-up an additional 1 acre of grass pasture and dedicating the water supplies to the instream flow (for a total of 2 acre-feet of dry-up). Under the plan, one quarter of the Simcox's pro-rata diversions would essentially "by-pass" the Crooked Creek Ditch No. 1 headgate. The water supplies would stay in the stream to benefit the instream flows.

[3] 90CW298, Division 5

Information Required under Rule 8.i.(3)e.

i. Location of injury to ISF water right(s) (stream(s) affected, length of affected reach(es)

The general area of the augmentation plan in Case Number 07CW074 is shown on Figure 1. Crooked Creek enters the Fraser River near Tabernash, Colorado. The Simcox property is adjacent Crooked Creek approximately 4 miles upstream of the confluence and immediately upstream of where Spring Branch enters Crooked Creek. The CWCB holds several in-stream flow rights along Crooked Creek (Figure 2).

Figure 2 illustrates the features of the Simcox augmentation plan. The potentially impacted reach of Crooked Creek lies upstream of the outlet of Simcox Reservoir approximately 2,200 feet between Spring Branch and Tipperary Creek. The in-stream flow water right is this reach is shown below:

Name	Adjudication Date	Case No.	Rate (cfs)	action_comment
MIN FLOW				APR15 THRU AUG14 FROM CONFL WITH TIPPERARY CR TO SPRING BRANCH;
CROOKED CR MID1	1990-12-31	90CW0298	4.5/1	AUG15 THRU APR14 FROM CONFL WITH TIPPERARY CR TO SPRING BRANCH;

ii. Quantification of injury (amount, timing and frequency);

The locations of the wells in the Simcox augmentation plan are shown on Figure 2. Six of the eight new wells[4] are located upstream of the outlet of the augmentation water supply (Simcox Reservoir). Of the six, four wells are located above the outlet and above the headgate to Crooked Creek Ditch No. 1. Consequently, estimating the depletions from the wells upstream of the outlet quantifies the potential injury.

The augmentation plan assumed 350 gallons per day per dwelling and a 10% consumptive use factor for depletions (i.e., 35 gallons per day per dwelling depletions). Since the uses are in-house only, the monthly depletions are practically constant. The well depletions are 0.03 gallons per minute for each well.

The depletions occur at a constant rate year-around. The Simcox Crooked Creek Ditch No. 1 water right is in-priority May through October (during the irrigation season). When the right is in priority, depletions would be augmented at the heagate of Crooked Creek Ditch No. 1. Since four of the wells are upstream of the headgate, presumably there would be 4 x 0.03 gpm = 0.12 gpm depletions upstream of the replacement source. In the non-irrigation season depletions would be

[4] Wells 1, 2, 3, 4 (4a and 4b are alternate points for well 4), 5, and 10.

augmented at the outlet of Simcox Pond. There are six wells located upstream of the outlet, so depletions in this case would be 0.18 gpm.

Neither the United States Geological Survey (USGS) nor the State Department of Natural Resources gage the Crooked Creek stream flow. There is not a long-term record of flow for the stream. Consequently, there is no reliable way to determine how often the flow of Crooked Creek may fall below the in-stream flow right.

iii. Type of water use that would cause the injury

The water use from the Simcox wells is domestic in-house only.

iv. Analysis showing why full ISF protection is not possible

Wells 1, 2, 3, 4 (4a and 4b are alternate points for well 4), 5, and 10 deplete Crooked Creek upstream of the outlet to Simcox Reservoir (Figure 3). Full protection from the depletions is possible downstream of the outlet.

The area's topography and ownership limit Simcox's ability to locate the augmentation sources upstream of all 8 wells. Simcox Reservoir is an existing structure. It is located as far as possible upstream on Simcox property where the facility can be practically filled and drained.

v. Detailed description of the proposed mitigation, including all measures taken to reduce or minimize the injury

The proposed mitigation is to provide senior water supplies to supplement Crooked Creek during the irrigation season when the junior in-stream flow is not in priority and flows are less than the instream flow amount.

Simcox proposes to double the amount of estimated replacement water supply required for augmentation. The total amount of replace water supplies required by Simcox is approximately 1 acre-foot (in-house consumptive use plus reservoir evaporation). Simcox would agree to dry-up an additional 1 acre. Since the consumptive use per acre is approximately 1 acre-foot, the IWM plan would provide approximately 1 acre-foot water supply for instream flow mitigation.

The injury is reduced and minimized by:

- Requiring in-house only uses for the new wells,
- To the extent practicable, locating wells downstream of the augmentation sources, and

- Providing augmentation and mitigation water supplies at the Crooked Creek Ditch No. 1 headgate during the irrigation seaon.

vi. Detailed description of how the proposed mitigation will enable the Board continue to preserve or improve the natural environment of the affected stream to a reasonable degree despite the injury.

The Crooked Creek Ditch No. 1 includes the most senior 15.5 cfs on Crooked Creek. During the irrigation season, the Ditch may command nearly the entire flow of Crooked Creek. The IWM plan will allow by-pass of senior water supplies at the Ditch headgate. These flows will benefit the stream when junior instream flow right is not in priority.

Information requirements vii, and viii are addressed together:

vii. Identification and feasibility analysis of all other alternatives considered, including discussion of environmental and economic benefits and consequences of each alternative; and

viii. A discussion of the reasonableness of each alternative considered.

This section will discuss these two Information Requirements together because they relate to the feasibility of alternatives. The alternatives we considered included:

- Locating the water supply wells for the Lots 1, 2, 3, 4, 5, and 10 downstream of the outlet of the augmentation pond and

- A pipeline and pump station to provide replacement supplies to Crooked Creek upstream of the depletions from the 6 wells.

The feasibility of the alternatives depends on the engineering design and economics associated with the options. Either alternative is feasible from the standpoint of engineering design. Economics would generally indicate that constructing one pipeline and pump station preferable over multiple installations. So, the alternative of drilling six wells and individually piping the supplies thousands of feet to the building sites drops away first.

Six lots could be served with a community well located downstream of the outlet. However, Simcox has determined that a community well is a significantly higher cost[5] option compared to individual household wells. So, economics also moves this option down the list.

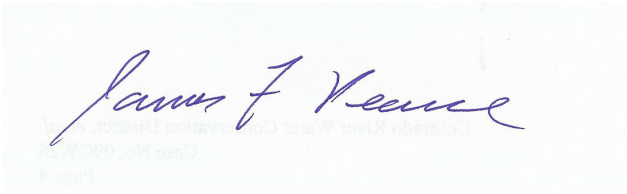
[5] This option would require additional infrastructure (e.e., treatment systems, piping pumping) and possibly permitting costs.

Constructing a pipeline and pump station to convey raw water replacement supplies to the upper end of the 2,200 foot reach is also not reasonably feasible because Simcox does not own property adjacent to Crooked Creek at the upstream point. For the Simcox's property there is not access for Simcox to deliver the replacement supplies to Crooked Creek.

Conclusion

On behalf on the Simcox's we request that the CWCB approve this proposed IWM plan. We greatly appreciate the time and effort that the CWCB staff and Division of Wildlife have made on our behalf. This plan will allow Simcox to develop water supplies in a manner consistent with the CWCB instream flow program.

Sincerely,



James F. Pearce
Manger, Canyon Water Resources, LLC

Figure 1: Location Map for Division 5, 07CW074

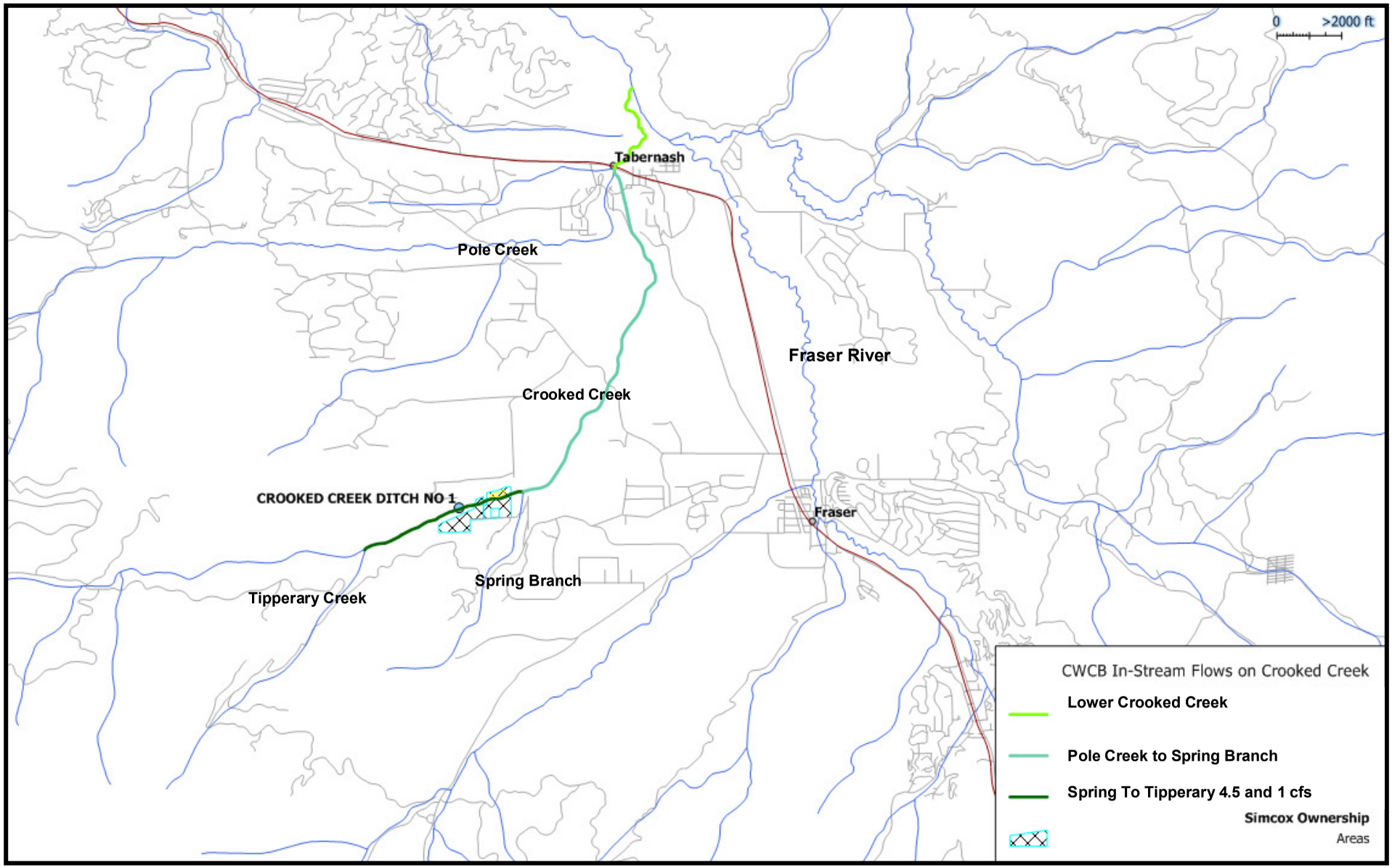


Figure 2: Simcox and IWM Plan Area

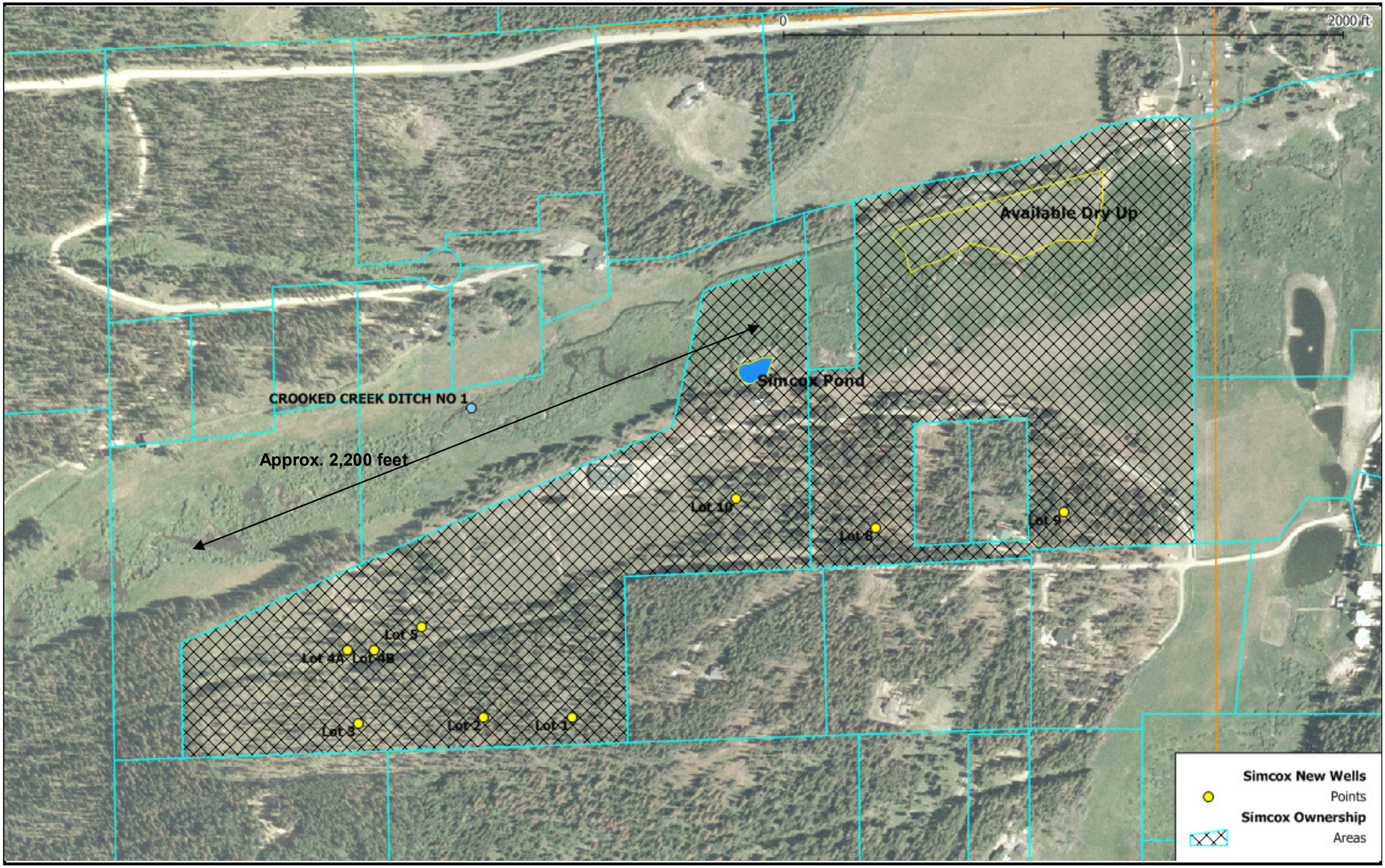


Table 1 - Dusty Diamond Subdivision, New Consumptive Uses

6/28/2008

Number of dwellings units	8	
In house diversion per unit	350	gallon per day
In-house consumptive use	10%	of in-house diversion
Annual pond evaporation Granby area	2.46	feet per year
Augmentation pond average water surface area	0.22	acres

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	In House Diversion per Unit (AF)	In House C.U. per Unit (AF)	Irrigation Diversion (ft)	Irrigation C.U. (ft)	In House Diversion (AF)	In house C.U. (AF)	Livestock Diversion & C.U. (AF)	Simcox New Wells Total C.U. (AF)	Lagged Well C.U. (AF)	Monthly Evaporation as a Percent of the Annual Total	Monthly Evaporation (ft)	Evaporation C.U. at Simcox Pond (AF)	Total C.U. (AF)	Total C.U. (cfs)	Total C.U. (gpm)
JAN	0.033	0.0033			0.264	0.0264		0.0264	0.03	1.0%	0.02	0	0.03	0.0005	0.22
FEB	0.031	0.0031			0.248	0.0248		0.0248	0.03	3.0%	0.07	0.02	0.05	0.0009	0.4
MAR	0.033	0.0033			0.264	0.0264		0.0264	0.03	6.0%	0.15	0.03	0.06	0.001	0.45
APR	0.032	0.0032			0.256	0.0256		0.0256	0.03	9.0%	0.22	0.05	0.08	0.0013	0.58
MAY	0.033	0.0033			0.264	0.0264		0.0264	0.03	12.5%	0.31	0.07	0.1	0.0016	0.72
JUN	0.032	0.0032			0.256	0.0256		0.0256	0.03	15.5%	0.38	0.08	0.11	0.0018	0.81
JUL	0.033	0.0033			0.264	0.0264		0.0264	0.03	16.0%	0.39	0.09	0.12	0.0019	0.85
AUG	0.033	0.0033			0.264	0.0264		0.0264	0.03	13.0%	0.32	0.07	0.1	0.0016	0.72
SEP	0.032	0.0032			0.256	0.0256		0.0256	0.03	11.0%	0.27	0.06	0.09	0.0015	0.67
OCT	0.033	0.0033			0.264	0.0264		0.0264	0.03	7.5%	0.18	0.04	0.07	0.0011	0.49
NOV	0.032	0.0032			0.256	0.0256		0.0256	0.03	4.0%	0.1	0.02	0.05	0.0008	0.36
DEC	0.033	0.0033			0.264	0.0264		0.0264	0.03	1.5%	0.04	0.01	0.04	0.0006	0.27
TOTAL	0.39	0.04	0	0	3.12	0.31	0	0.31	0.36	100.0%	2.45	0.54	**0.9**		

(1) 350 gallons per day per dwelling
(2) 10% consumptive use for ISDS systems
(3) No outside irrigation
(4) "
(5) column (1) * No. of dwellings
(6) column (2) * No. of dwellings
(7) No livestock
(8) Column (6) + (7)
(9) IDS WAS Glover with: T = 5,000 gpd/ft, y = 0.2, distance from stream = 800 ft
(10) Monthly percentage of annual evaporation
(11) Annual evaporation x column 10
(12) Column (10) * pond surface area
(13) Column (9) + (11)
(14) Convert AF to cfs
(15) Convert cfs to gpm

Table 2 - Dusty Diamond Subdivision, Historical Consumptive Use 6/28/2008

Historical irrigated area	8 acres		
Simcox ownership 1886	0.1122 cfs	Total 1886	8 cfs
Simcox ownership 1896	0.10169 cfs	Total 1896	7.25 cfs

New consumptive (Exhibit C) 0.9 acre-feet

Dry-up area 1 acres

	(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Month	Average Monthly Diversion Crooked Creek Ditch No. 1, ID 594 (AF)	Average Monthly Diversion Crooked Creek Ditch No. 1 ID 594	(cfs)	Average Monthly Flow Rate for Crooked Creek Ditch No. 1, CA112 Priorities (cfs)	Simcox Pro-Rata Share CA112, 1889 (cfs)	Simcox Pro-Rata Share CA112, 1896 (cfs)	Total Simcox Diversions (AF)	Blaney Criddle Grass Pasture Irrigation Water Requirement (AF/acre)	Simcox 8 acres Irrigation Water Requirement (AF)	Simcox Dry-Up Area Consumptive Use Credit (AF)
Jan	6	0		0	0	0	0			
Feb	5	0		0	0	0	0			
Mar	6	0		0	0	0	0			
Apr	6	0		0	0	0	0			
May	199	3		3	0.042	0	3	0.07	0.56	0.07
Jun	773	13		10	0.1122	0.028	8	0.23	1.84	0.23
Jul	653	11		12	0.1122	0.056	10	0.3	2.4	0.3
Aug	192	3		3	0.042	0	3	0.24	1.92	0.24
Sep	136	2		2	0.028	0	2	0.14	1.12	0.14
Oct	122	2		2	0.028	0	2	0.02	0.16	0.02
Nov	7	0		0	0	0	0			
Dec	6	0		0	0	0	0			
Total	2111						28	1	8	**1**

(1) SEO Hydrobase diversion records, monthly averages (period 1975 - 2005)
(2) Convert AF units to cfs and round
(3) Subtract out diversions attributed to the junior CA1175, 10 cfs water right
(4) 1.4 percent (0.1122/8) of the 1889 priority
(5) 1.4 percent (0.10169/7.25) of the 1896 priority
(6) column 4 + column 5 and converted to AF
(7) From Blaney Criddle method and TR21 grass hay pasture coeffecients, Grand Lake climate station
(8) Total irrgated area x column 7
(9) Dry-up area x column 7

Table 3: Crooked Creek Ditch No.1 Recorded Diversions

Structure Name: CROOKED CREEK DITCH NO 1 Division: 5 51 Structure Id: 594
Location:
NE SE NW 22 1S 76W S
Q10 Q40 Q160 Section Twnshp Range PM
Distance From Section From N/S Line: From E/W Line:
Annual Water Diversion Report State of Colorado HydroBase
UTM Coordinates (NAD 83): Northing (UTM 4422197 Easting (UTM x): 424916.7 Spotted from PLSS distances from section lines
Latitude/Longitude (decimal degrees): 39.946566 -105.878918
Water District:

Irrigation

Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
1975	0	0	0	0	0	0	0	934	1,168	990	30	0	3,122 AF
1976	0	0	0	0	0	0	238	981	707	114	0	0	2,040 AF
1977	0	0	0	0	0	0	223	446	461	36	0	0	1,166 AF
1978	0	0	0	0	0	0	507	1,267	555	143	0	0	2,472 AF
1979	0	0	0	0	0	0	0	1,267	711	86	0	0	2,064 AF
1980	0	0	0	0	0	0	0	1,267	828	125	0	0	2,220 AF
1981	0	0	0	0	0	0	928	899	493	0	60	60	2,439 AF
1982	0	0	0	0	0	0	507	1,044	864	578	559	559	4,111 AF
1983	0	0	0	0	0	0	476	1,190	1,230	0	0	0	2,896 AF
1984	0	0	0	0	0	0	0	476	492	0	0	0	968 AF
1985	0	0	0	0	0	0	143	893	615	309	179	179	2,317 AF
1986	0	0	0	0	0	0	143	893	615	309	179	184	2,323 AF
1987	0	0	0	0	0	0	85	456	435	147	212	147	1,482 AF
1988	0	0	0	0	0	0	246	630	512	0	179	179	1,745 AF
1989	0	0	0	0	0	0	71	587	686	184	179	179	1,886 AF
1990	179	184	184	167	184	179	264	627	407	184	179	179	2,916 AF
1991	0	0	0	0	0	0	0	1,056	881	184	179	184	2,485 AF
1992	0	0	0	0	0	0	262	724	534	184	179	179	2,061 AF
1993	0	0	0	0	0	0	224	508	545	184	179	184	1,825 AF
1994	54	0	0	0	0	0	348	774	724	93	143	179	2,314 AF
1995	0	0	0	0	0	0	0	491	836	123	171	179	1,799 AF
1996	0	0	0	0	0	0	204	830	527	154	306	298	2,317 AF
1997	0	0	0	0	0	0	0	400	328	92	89	89	998 AF
1998	0	0	0	0	0	0	0	508	551	123	119	119	1,420 AF
1999	0	0	0	0	0	0	0	762	603	0	107	119	1,591 AF
2000	0	0	0	0	0	0	155	702	738	163	119	36	1,912 AF
2001	0	0	0	0	0	0	137	357	738	123	89	89	1,533 AF
2002	0	0	0	0	0	0	424	430	141	123	119	179	1,416 AF
2003	0	0	0	0	0	0	123	524	492	194	179	119	1,630 AF
2004	0	0	0	0	0	0	119	547	583	184	179	179	1,791 AF
2005	0	0	0	0	0	0	347	1,488	1,256	821	309	0	4,221 AF
Average	7	6	6	5	6	6	199	773	653	192	136	122	2112 AF

Report Date: 2007-02-13 Page 1 of 2 HydroBase Refresh Date: 2006-10-03