



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director/State Engineer

Alan C. Martellaro, P.E.
Division Engineer

June 6, 2013

Ms. Linda J. Bassi
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Re: Temporary Loan of Water Rights for Colorado Water Conservation Board for Instream Flow
Pursuant to Section 37-83-105, C.R.S.
Section 34, T 1 S, R 76 W, Section 19, T 1 S, R 75 W, Section 1, T 1 S, R 76 W, Section 36, 1 N, R 76 W, and Section 25, T 2 N, R 77 W, 6TH P.M.
Water Division 5, Water District 51, Grand County

Approval Period: June 6, 2013 through December 31, 2022
Contact Phone Number for Ms. Linda J. Bassi: 303-866-3441

Dear Ms. Bassi:

We have reviewed your letter dated May 17, 2013 in which you request approval of a temporary loan of water pursuant to Section 37-83-105, C.R.S., for the Colorado Water Conservation Board ("CWCB" or "Applicant") for instream flow ("ISF") use. As required by § 37-83-105(2)(b)(II), C.R.S., written notice of the request for approval of a temporary loan of water was provided on May 17, 2013 to all parties who have subscribed to the Division 5 Substitute Water Supply Plan ("SWSP") Notification List. The Division of Water Resources ("DWR") received comments from Stanley W. Cazier with Cazier, McGowan & Walker on behalf of Grand County Water and Sanitation District No. 1 and Winter Park Water and Sanitation District, Norm Carlson on behalf of Denver Water, and Ramsey L. Kropf on behalf of Byers Peak Properties during the statutory 15-day comment period and DWR has considered those comments. The statutory \$100 filing fee (receipt no. 36600581) was submitted with this request.

Statement of Duration and Description

CWCB is seeking approval of a temporary loan for water rights leased from Winter Park Ranch Water & Sanitation District ("WPR") via the Colorado Water Trust ("CWT") for ISF use. The water right leased from WPR was identified as the Hammond No. 2 Ditch and Tyron Ditch, which divert water from St. Louis Creek, just above its confluence with the Fraser River. The term of the temporary water lease agreement ("Agreement") is for the period of January 1, 2013 through December 31, 2022. Although

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the term of the Agreement is for a 10-year period, pursuant to § 37-83-105, C.R.S. the leased water may only be used for ISF for three of those ten years. In addition for each year CWCB seeks to implement the Agreement, the leased water may only be used for ISF for up to 120 days in that calendar year. CWCB shall notify the Division Engineer of its intention to implement the Agreement prior to using the Hammond No. 2 Ditch and Tyron Ditch water for ISF use.

CWCB currently holds ISF water rights on St. Louis Creek and the Fraser River decreed in Case Nos. 90CW308, 90CW315, and 90CW316 which are more specifically described in the table below:

Case Number	Upstream Terminus	Downstream Terminus	ISF decreed amounts (cfs)	Appropriation Date
90CW308 Upper Segment (Fraser River)	NW1/4 NE1/4, Sec. 1, T 1 S, R 76 W, 6 th P.M	NW1/4 SE1/4, Sec. 36, T 1 N, R 76 W, 6 th P.M.	17 (May 15-September 15) 11 (September 16-May 14)	Nov 27, 1990
90CW308 Lower Segment (Fraser River)	NW1/4 SE1/4, Sec. 36, T 1 N, R 76 W, 6 th P.M.	SW1/4 SW1/4, Sec. 25, T 2 N, R 77 W, 6 th P.M.	30 (May 15-September 15) 19 (September 16-May 14)	Nov 27, 1990
90CW315 (Fraser River)	NE1/4 NE1/4, Sec. 19, T 1 S, R 75 W, 6 th P.M.	NW1/4 NE1/4, Sec. 1, T 1 S, R 76 W, 6 th P.M	17 (May 15-September 15) 11 (September 16-May 14)	Nov 27, 1990
90CW316 (St. Louis Creek)	NW1/4 SE1/4, Sec. 34, T 1 S, R 76 W, 6 th P.M.	NW1/4 NE1/4, Sec. 19, T 1 S, R 75 W, 6 th P.M.	6 (May 15-September 15) 3.5 (September 16-May 14)	Nov 27, 1990

The Fraser River and St. Louis Creek ISF water rights were decreed to preserve the natural environment to a reasonable degree. The temporary loan of water leased from WPR will be for ISF use within the same segments of the Fraser River and St. Louis Creek as identified in Case Nos. 90CW308, 90CW315, and 90CW316 and shown on the attached map, except that the loan water will enter the St. Louis Creek ISF at the point of diversion for the Hammond No. 2 Ditch (in the NE1/4 of the NW1/4 of Section 19, Township 1 South, Range 75 West, of the 6th P.M.), which is near the downstream terminus for the ISF on St. Louis Creek. CWCB seeks to use the historical monthly diversion rate of the Hammond No. 2 Ditch in the approximately 50-yard segment for ISF use from the point of diversion of Hammond Ditch from St. Louis Creek to the downstream terminus of the ISF right on St. Louis Creek, which point is also known as the diversion point of Tyron Ditch, as shown on the attached map as Reach 1a. In addition CWCB seeks to use the historical monthly diversion rate of the Hammond No. 2 and Tyron Ditches for a one mile segment on the Fraser River between its confluence with St. Louis Creek to the point of return flows located in the SE1/4 of the SE1/4 of Section 7, Township 1 South, Range 75 West of the 6th P.M., which represents the portion of the ISF reach that historically did not show accretions of return flows from irrigation, as shown on the attached map as Reach 1b.

Downstream of the historical return flow location, CWCB seeks to use the historical net stream depletions of the Hammond No. 2 and Tyron Ditches to benefit the ISF water rights in a 17 mile segment of the Fraser River between the point of return flow and the confluence with the Colorado River, as shown on the attached map as Reach 2. The ground water return flow from the historically irrigated parcels with the Hammond No. 2 and Tyron Ditches water rights will be maintained under this temporary loan approval. The loan water from the Hammond No. 2 and Tyron Ditches to CWCB for ISF

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use will be limited during the historical irrigation season from May through October. The loan water is expected to increase stream depth and wetted perimeter and to lower water temperature for the fish.

Proponent's legal right to use the loaned water right

CWCB and the CWT have entered into a Temporary Water Lease Agreement ("Agreement") with Winter Park Ranch Water and Sanitation District ("WPR"). Under the Agreement, WPR will make water available to CWCB for ISF use, 0.685 cfs of its ownership in the Hammond No. 2 Ditch water right and 0.349 cfs in the Tyron Ditch water rights when conditions permit. A copy of the Agreement was provided to DWR with this request and is attached to this letter. WPR ownership in the Hammond No. 2 and Tyron Ditches was evidenced by the decree in case no. W-2264-74 and a 2007 court order granting the name change, that were provided to DWR with this request and copies are attached to this letter. Based on its ownership in the Hammond No. 2 and Tyron Ditches, WPR has the right to the water right in the Hammond No. 2 and Tyron Ditches, and, therefore the right to loan the water pursuant to the conditions set forth in Section 37-83-105 (2), C.R.S., and in Rule 6(k) of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program.

The CWCB existing ISF water rights decreed in Case Nos. 90CW308, 90CW315, and 90CW316 were identified as being more junior than the existing water rights on the segments of St. Louis Creek and the Fraser River and may be out of priority during much of the irrigation season. Consistent with the terms and condition of the Agreement, CWCB shall notify the Division Engineer when the Hammond No. 2 and Tyron Ditches water rights are being used for ISF purposes. WPR agrees that it may not irrigate with the water rights in the Hammond No. 2 and Tyron Ditches while the water right is being used by CWCB for ISF use. Any year that water is used for ISF use WPR cannot irrigated with the Hammond No. 2 and Tyron Ditches water rights.

Historical Use and Estimate of the Consumptive Use of the loaned water right

The Hammond No. 2 Ditch and Tyron Ditch water rights that are subject of the Agreement, along with WPR's ownership are summarized in the table below:

Water Right Name	Priority Number	Decreed Amount (cfs)	Case Number	Appropriation Date	Adjudication Date	WPR Ownership (cfs)
Hammond No. 2 Ditch	19	8.0	CA112 and CA182	08/31/1883	08/11/1906	0.685
	151	3.0	CA183	08/01/1883	08/03/1911	0
Tyron Ditch	85	4.0	CA112	11/30/1890	08/11/1906	0
	192	2.0	CA183	11/30/1890	08/03/1911	0.349

The water rights for the Hammond No. 2 and Tyron Ditches are also the subject of an augmentation plan decreed on February 28, 1975 for WPR in case no. W-2264-74. WPR currently supplies municipal water to Winter Park Ranch Development through a central water supply system. The source of the water for the central supply system will be through Winter Park West Wells 1 through 6. In order to provide water service through its central supply system during times of the year when the wells will be out of priority, WPR may use said wells as alternate points of diversions to the decreed headgate of Hammond No. 1, Hammond No. 2 and Tyron Ditches. In addition, as stated in the decree in case no. W-2264-74, WPR may continue to irrigate the historically irrigated lands until and to the

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extent the water rights in the Hammond No. 1, Hammond No. 2 and Tyron Ditches are required to be used in the augmentation plan.

According to the information provided by the CWT, Winter Park Ranch Development is currently at 60 percent of build-out, and the out-of-priority depletions under the augmentation plan last year totaled 14.505 acre-feet. Case W-2264-74 decreed 114 acre-feet of consumptive use to Hammond No. 1, Hammond No. 2, Tyron and Joy Ditches. According to WPR representatives, the Hammond No. 2 and Tyron Ditches have not yet been used under that decree in case no. W-2264-74, therefore the water is available for the temporary ISF purpose.

Although the decree in case no. W-2264-74 changed the Applicant's portion of the Hammond No. 2 and Tyron Ditches water rights and includes an estimate of the historical consumptive use for these water rights, a separate analysis was completed for this temporary loan because the decree did not specify a monthly allocation of the historical consumptive use and did not specify the quantity and timing of the historical irrigation and non-irrigation return flows. In addition, the determination of the historical consumptive use in the decree of 0.9 acre-feet per acre was based on a long-term average consumptive irrigation requirement ("CIR"), however the temporary loan of these water rights is proposed for a dry year due to the extremely low snowpack in 2013 and therefore low stream flow. Therefore the consumptive use was estimated for both average year and dry year scenarios.

The average year consumptive use analysis was quantified by Bishop-Brogden Associates, Inc. ("BBA") based on the average monthly diversion for the period 1989 through 2011. The dry year consumptive use was estimated by BBA to be equal to the diversions for 2002, the driest year on record. The Modified Blaney-Criddle Method within the IDSCU program with crop coefficients calibrated for high altitude based upon the SPDSS Task 59.1 Final Memorandum from March 18, 2005 was used for both the dry-year and average year analysis. The WPR water rights in the Hammond No. 2 and Tyron Ditches have been historically used for flood irrigation of pasture grass. The decree in case no. W-2264-74 identifies a total of 93 acres irrigated acreage for Hammond No. 1, Hammond No. 2 and Tyron Ditches. However since the entry of the decree in case no. W-2264-74, 29.6 acres under the Hammond No. 1, Hammond No. 2 and Tyron Ditches were required to be dried up and diversions reduced proportionately. Using GIS information BBA determined that approximately 59 acres were irrigated by Hammond No.2 and Tyron Ditches during the period of 1989 through 2011. Monthly temperature and precipitation data were taken from published records (NOAA 1950-2004) for the Fraser weather station. The ditch loss from the headgate to the irrigated fields was assumed to be 10 percent and an irrigation efficiency of 50 percent was used. The water not stored in the soil root zone or consumed by the crop was distributed as 75 percent to tail water and 25 percent to deep percolation. Water in excess of the irrigation requirement was added to the soil moisture bank, which was assumed to be 2 feet deep with a water holding capacity of 0.9 inches per foot. The dry-year historical stream depletion from the water rights in the Hammond No. 2 and Tyron Ditches is estimated to be about 40.60 acre-feet or 0.69 acre-feet per acre (Table 1) and the average annual historical stream depletion from the water rights in the Hammond No. 2 and Tyron Ditches is estimated to be about 21.11 acre-feet (Table 2).

As shown on attached Table 1 for a dry year scenario, Hammond No. 2 Ditch diverted water from April through October of 2002. The pro-rata amount attributable to the WPR water rights is equal to 184.70 acre-feet. Tyron Ditch diverted water from May through August of 2002 and it appears that it did not divert water under the Priority 192. Therefore the pro-rata amount attributable to the WPR water rights is zero. The attached Table 2 shows that under the average year scenario, Hammond No. 2 Ditch diverted an average of 52.21 acre-feet from April through October and the Tyron Ditch Priority 192 diverted an average of 11.31 acre-feet from May through October. The dry year CIR for the 59 acres

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equals 57.74 acre-feet or 0.98 acre-feet per acre and the average year CIR equals 49.89 acre-feet or 0.85 acre-feet per acre. The dry year and average year values for the CIR determined in this analysis are approximately 8 percent greater and 6 percent less, respectively than the CIR determined in case no. W-2264-74.

Table 1 show that the total dry-year surface return flow equals 94.23 acre-feet and Table 2 shows that the total average year return flow equals 27.11 acre-feet. The remaining 25 percent of the total return flow was determined to return to the Fraser River as ground water return flows. The timing of the ground water return flows was lagged to the Fraser River using the Analytical Stream Depletion method as applied in the IDS AWAS software with the following aquifer parameters: $X = 855$ feet, $W = 4,255$ feet, $S=0.000582$, and $T = 730$ gpd/ft (per BBA the aquifer parameters were determined based upon observation of a well pumping test in Grand County tributary the Fraser River). Based upon AWAS modeling, it was determined that 96.5 percent of ground water return flow affect the river within 4 month (including the month of irrigation). The remaining 3.5 percent tail is lagged over several following months but is wrapped into the first four months for this analysis. Under the dry-year scenario, a return flow of 2.25 acre-feet from November through January will be required to be replaced to the Fraser River and under the average year scenario, a return flow of 0.76 acre-feet from October through January will be required to be replaced to the Fraser River.

During the irrigation season, return flows will be maintained by leaving the diversion amounts in the river. During the non-irrigation season lagged ground water return flows will be replaced to the Fraser River with water released from the Village Lake at Winter Park Ranch. The Village Lake consists of two interconnected cells known as the Village Pond Nos. 1 and 2, which were decreed in consolidated case nos. W-3653 and W-3697 and consolidated case nos. 93CW123 and 93CW225 for a total of 38.26 acre-feet and the water is decreed for augmentation purposes. The Village Pond Nos. 1 and 2 are located approximately half mile upstream from the confluence of the Fraser River with St. Louis Creek and Village Pond No. 2 is equipped with an outlet that is capable of controlling releases from the pond.

A monthly dry year summary of diversions available for ISF use for Reach 1a and 1b is shown on attached Table 3a. Also Table 3a shows the monthly dry year summary of the historic stream depletions available for ISF use below the point of return flow. For the average year a monthly summary of diversions available for ISF use for Reach 1a and 1b and monthly summary of the historic stream depletions available for ISF use below the point of return flow are shown on attached Table 3b.

Due to low snowpack and expected low stream flow in 2013, the amount of water claimed for ISF is based upon dry year yields for the Hammond No. 2 and Tyron Ditches. As mentioned above the diversions used in this analysis to estimate dry year consumptive use are assumed to be equal to the diversion in 2002, which according to the Surface Water Supply Index ('SWSI')(Figure 1) experienced similar drought conditions. The SWSI developed by DWR and the U.S.D.A. Natural Resources Conservation Service ("NRCS") is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on snowpack, reservoir storage, and precipitation for the winter period of November through April. For the operation of this plan, a dry-year scenario shall be based on a SWSI value for the Colorado River of November through April of the current water year that is equal to or less than the 2002 value, or otherwise determined by the Division Engineer. When the lease water is proposed to be used for ISF use, CWCB shall notify DWR if the lease is exercised based on the dry year scenario or the average year scenario. In addition, CWCB has agreed to notify Grand County Water and Sanitation District No. 1 and Winter Park Water and Sanitation District if the lease is exercised based on the dry year scenario or the average year scenario.

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The Division Engineer has reviewed the loan allowing the new time, place and use of this water right and determined, as required by 37-83-105(2)(a) and (2)(b), that it will not injure the existing water rights of others and will not affect Colorado's compact entitlements.

Conditions of Approval

This temporary loan of water is hereby approved pursuant to Section 37-83-105, C.R.S., subject to the conditions below:

1. This approval applies to diversions/releases beginning June 6, 2013 through December 31, 2022.
2. When CWCB seeks to implement the Agreement, CWCB shall notify the Division Engineer of its intention prior to using Hammond No. 2 Ditch and Tyron Ditch water for ISF use and CWT, WPR and CWCB sign the implementation agreement.
3. Approval of this temporary loan of water is for the purposes stated herein, specifically for temporary lease of WPR ownership in the Hammond No. 2 and Tyron Ditches water rights for CWCB ISF use on the Fraser River and St. Louis Creek reaches as identified in Case Nos. 90CW308, 90CW315, and 90CW316.
4. According to paragraph 12 of the decree in case no. W-2264-74, WPR waived its right to place a call on the upstream rights on the Fraser River, therefore CWCB waives its right to place a call on the upstream rights on the Fraser River when the water from Hammond No. 2 and Tyron Ditches is being used for ISF use.
5. The diversion period of the subject Hammons No. 2 and Tyron Ditches approved under this temporary loan of water is May 1 through October 31.
6. For the operation of this plan, a dry-year scenario shall be based on a SWSI value for the Colorado River of November through April of the current water year that is equal to or less than the 2002 value, or otherwise determined by the Division Engineer. When the lease water is proposed to be used for ISF use, CWCB shall notify DWR if the lease is exercised based on the dry year scenario or the average year scenario. In addition, CWCB has agreed to notify Grand County Water and Sanitation District No. 1 and Winter Park Water and Sanitation District if the lease is exercised based on the dry year scenario or the average year scenario.
7. The Applicant must provide the name, address and phone number of the person who will be responsible for the operation of this temporary loan of water to the SEO, the Division Engineer (Alan Martellaro, P.O. Box 396, Glenwood Springs, CO 81602, telephone 970-945-5665), and the water commissioner (Neal Misbach, P.O. Box 396, Glenwood Springs, CO 81602, 970-531-1159) within 20 days of the receipt of this approval.
8. All instream flow shall be measured in a manner acceptable to the Division Engineer. The Applicant shall install and maintain measuring devices as required by the Division Engineer for operation of this temporary loan.
9. The Applicant shall perform verification for all parcels of dried up land used to generate credits during the term of this plan. The Applicant shall provide an affidavit and a map to the water commissioner and division engineer that identifies and confirms the lands that are dried up during this irrigation season. If the Agreement is implemented for the second-year term or third-year term, then the Applicant shall provide a written notification to the Water

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Commissioner and Division Engineer identifying the lands to be dried up for that irrigation season.

The Applicant shall modify accounting to reflect that the credit from any dried up fields containing alfalfa or native grass was assessed in the following manner:

- (a) For fields deep tilled or chemically treated to successfully kill alfalfa or native grass, 100% credit will be given for consumptive use as otherwise computed under the conditions of this approval.
- (b) For fields not deep tilled or chemically treated to successfully kill alfalfa or native grass, records of monthly monitoring of depth to ground water at existing irrigation wells or existing or new monitoring wells or piezometers within ¼-mile of each alfalfa or native grass field must be maintained to the extent required by the Division Engineer. Credits will be reduced according to the following table when depth to ground water is less than the depth assumed to provide no significant contribution to native grass or alfalfa growth. Measurements taken at the start of each month will determine the necessary reduction in credit to be applied during the following month. The applicant may use another methodology upon review and approval by the Division Engineer.

Depth to Ground Water (Feet)	Percent Reduction in CU Credit ¹	
	Native Grass	Alfalfa
1	85%	100%
2	50%	90%
3	30%	75%
4	20%	50%
5	15%	35%
6	10%	20%
7	5%	15%
8	0%	10%

1. Adapted from *EVAPOTRANSPIRATION AND AGRONOMIC RESPONSES IN FORMERLY IRRIGATED MOUNTAIN MEADOWS*, South Park, Colorado, March 1, 1990; Revised September 1, 1991

10. The Applicant must submit accounting reports to the Division Engineer (Alan Martellaro, P.O. Box 396, Glenwood Springs, CO 81602, telephone 970-945-5665), and the Water Commissioner (Neal Misbach, P.O. Box 396, Glenwood Springs, CO 81602, 970-531-1159) on a daily basis or other interval acceptable to both of them. The Applicant shall also provide a report to the Division Engineer and water commissioner by November 15th, which summarizes diversions/releases made pursuant to this temporary loan of water. Accounting forms are subject to modification and approval by the Division Engineer. Flow rates shall be reported in cfs, volumes shall be reported in acre-feet.
11. This temporary loan of water may be revoked or modified at any time should it be determined that injury to other vested water rights has occurred or will occur as a result of the operation of this temporary loan of water.
12. The decision of the Division Engineer shall have no precedential or evidentiary force, shall not create any presumptions, shift the burden of proof, or serve as a defense in a water court case or any other legal action that may be initiated concerning the loan. This decision shall not bind the Division Engineer to act in a similar manner in any other applications involving other loans and shall not imply concurrence with any findings of fact or conclusions

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Ms. Linda Bassi
June 6, 2013

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of law contained herein, or with the engineering methodologies used by the Applicant. Any appeal of a decision made by the Division Engineer concerning a temporary loan of water pursuant to Section 37-83-105, C.R.S., shall be to the Division 5 Water Judge within fifteen days of the date of this decision.

Should you have any questions regarding this temporary loan of water, please contact me at (970) 945-5665.

Sincerely,



Alan Martellaro, P.E.
Division Engineer

Attachments: Map of the ISF reaches (Figures 1 and 2)
Temporary Water Lease Agreement
Tables 1, 2, 3a and 3b
SWSI Figure 1

cc: Dick Wolfe, State Engineer
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Stanley W. Cazier on behalf of Grand County Water and Sanitation District No. 1 and Winter Park Water and Sanitation District,
Norm Carlson on behalf of Denver Water
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