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INVESTIGATOR'S REPORT

Department of Ecology – Water Resources Program
Water Right Control Number CS4-02316sb8

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BACKGROUND

Description and Purpose of the Proposed Change

On August 22, 2012, Crushe LLC of Cle Elum, Washington filed Trust Water Right Application Nos. CS4-02316sb8(a1); CS4-02316sb8(b1); CS4-02316sb8(c1); and CS4-02316sb8(d1), with the Washington Department of Ecology to transfer all of Yakima River Adjudication Sub Basin 8 (Thorp) Court Claim 02316, with priority dates of January 1, 1881; June 9, 1881; January 29, 1887, and March 3, 1900, respectively, subject to existing rights, into Ecology's Trust Water Right Program for the purpose of instream flows and water banking to offset consumptive use associated with new groundwater uses in the Yakima River Basin. Trust water approved with this change will be processed through the Trust Agreement between Ecology and Yakima River Mitigation Water Services, Inc., dated September 30, 2011.

The water right applications were submitted after the court in the Yakima Superior Court matter of the *State Department of Ecology v. James J. Acquavella, et al*[1], *(Acquavella),* issued its August 9, 2012 Order Granting Motion to Substitute Parties and Divide Water Right Claim No. 02316 ("2012 Court Order"). The 2012 Court Order addressed Court Claim No. 02316 with the four priority dates of January 1, 1881; June 9, 1881; January 29, 1887, and March 3, 1900, as confirmed by the court in the Yakima Superior Court matter of *Acquavella,* within Subbasin No. 8 (Thorp).

The 2012 Court Order authorized Crushe LLC to divert 1.25 cubic feet per second (cfs) and 300 acre feet per year (afy) of water from the Yakima River to irrigate 50 acres in Thorp, Washington upon the place of use for each of the four priority dates under Claim No. 02316. The point of diversion is the same for all priority dates of the claim and is located 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE1/4SE1/4NE1/4 of Section 3, T18N., R17 E.,W.M., Kittitas County, State of Washington.

This report of examination addresses Crushe LLC's request to transfer 1.25 cubic feet per second (cfs) and 300 acre-feet per year (afy) of Claim No. 02316, to the Trust Water Right Program (TWRP) for instream flow and water banking purposes to mitigate for new withdrawals of groundwater in accordance with WAC 173-539A or otherwise.

The right confirmed by the court is to be used for irrigation from April 1 through October 31 of each calendar year within the place of use for each priority date under the claim. In accordance with the 2012 Court Order, Crushe LLC is authorized to divert water under each priority date of the claim with the following attributes:

[1] Yakima County Superior Court Cause No. 77-2-01484-5

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- Priority Date January 1, 1881: Diversion of 0.325 cfs and 78 afy from the Yakima River for the irrigation of 13 acres from April 1 through October 31 of each year.
- Priority Date June 9, 1881: Diversion of 0.5 afy for stockwater and 0.5625 cfs and 135 afy from the Yakima River for the irrigation of 22.5 acres from April 1 through October 31 of each year.
- Priority Date January 29, 1887: Diversion of 0.1625 cfs and 39 afy from the Yakima River for the irrigation of 6.5 acres from April 1 through October 31 of each year.
- Priority Date March 3, 1900: Diversion of 0.20 cfs and 48 afy from the Yakima River for the irrigation of 8.0 acres from April 1 through October 31 of each year

The historical place of use is in Kittitas County and is in the unincorporated town of Thorp. The physical address of the property is 70 North 2nd Street, Thorp, Washington. Upon approval of the requested change, the subject water right will no longer be used on the identified place of use and an appropriate area in the place of use will be fallow upon approval of this change request. The fallow area will be an equivalent amount of acreage for consumptive water use at a rate of 3.378 acre-feet per acre.

Attributes of the Existing Water Right and Proposed Change by Priority Date

Attributes	Existing Right	Proposed Change
Right Holder's Name	Crushe LLC	Trust Water Right Program
Applicant	Yakima River Mitigation Water Services, Inc.	
Priority Date	January 1, 1881	Same
Source	Yakima River	Yakima River
Purpose of Use	Irrigation supply sprinkler for 13 acres	Instream flow & water banking to offset the consumptive use associated with new groundwater uses
Instantaneous Quantity	0.325 cubic feet per second (cfs))	Primary Reach: 0.325 cfs Secondary Reach (cfs): May -0.005 June 0.013 July –0.018 August -0.014 September –0.008 October-0.001
Annual Quantity	78 afy	78 afy to be placed in trust (44 afy Cu)
Period of Use	April 1 - October 31	Year round domestic
Place of Use	See Attachment C-1 to the WNR Group's Technical Memorandum	The primary reach begins at the historic point of diversion

	dated November 26, 2012 for the legal description	located 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE1/4SE1/4NE1/4 of Section 3, T18N., R17 E., W.M., Kittitas County, State of Washington, and ends at the confluence with the Yakima River at approximately RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M. The secondary reach begins at approximately Yakima RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M., and continues down the Yakima River past its confluence with the Columbia River, and ends at a point located at the confluence of the Columbia River and Pacific Ocean at River Mile 0 in Section 18, Township 9 North, Range 11 West, W.M., Pacific County, Washington.
Attributes	**Existing Right**	**Proposed Change**
Right Holder's Name	Crushe LLC	Trust Water Right Program
Applicant	Yakima River Mitigation Water Services, Inc.	
Priority Date	June 9, 1881	Same
Source	Yakima River	Yakima River
Purpose of Use	Irrigate 22.5 acres	Instream flow & water banking to offset the consumptive use associated with new groundwater uses
Instantaneous Quantity	0.5625 cubic feet per second (cfs))	Primary Reach: 0.5625 cfs Secondary Reach (cfs): May -0.009 June 0.022 July –0.030 August -0.024

		September –0.013 October-0.002
Annual Quantity	135 afy 0.5 afy for stock water	135 afy to be placed in trust (76 afy Cu)
Period of Use	April 1 - October 31	Year round domestic
Place of Use	See Attachment C-2 to the WNR Group's Technical Memorandum dated November 26, 2012 for the legal description	The primary reach begins at the historic point of diversion located 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE1/4SE1/4NE1/4 of Section 3, T18N., R17 E., W.M., Kittitas County, State of Washington, and ends at the confluence with the Yakima River at approximately RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M. The secondary reach begins at approximately Yakima RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M., and continues down the Yakima River past its confluence with the Columbia River, and ends at a point located at the confluence of the Columbia River and Pacific Ocean at River Mile 0 in Section 18, Township 9 North, Range 11 West, W.M., Pacific County, Washington.
Attributes	**Existing Right**	**Proposed Change**
Right Holder's Name	Crushe LLC	Trust Water Right Program
Applicant	Yakima River Mitigation Water Services, Inc.	
Priority Date	January 29, 1887	Same
Source	Yakima River	Yakima River
Purpose of Use	Irrigate 6.5 acres	Instream flow & water banking to offset the consumptive use associated with new

		groundwater uses
Instantaneous Quantity	0.1625 cubic feet per second (cfs))	Primary Reach: 0.1625 cfs Secondary Reach (cfs): May -0.003 June 0.007 July –0.009 August -0.007 September –0.004 October-0.001
Annual Quantity	39 afy	39 afy to be placed in trust (21.96 afy Cu)
Period of Use	April 1 - October 31	Year round domestic use
Place of Use	See Attachment C-3 to the WNR Group's Technical Memorandum dated November 26, 2012 for the legal description	The primary reach begins at the historic point of diversion located 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE1/4SE1/4NE1/4 of Section 3, T18N., R17 E., W.M., Kittitas County, State of Washington, and ends at the confluence with the Yakima River at approximately RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M. The secondary reach begins at approximately Yakima RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M., and continues down the Yakima River past its confluence with the Columbia River, and ends at a point located at the confluence of the Columbia River and Pacific Ocean at River Mile 0 in Section 18, Township 9 North, Range 11 West, W.M., Pacific County, Washington.
Attributes	**Existing Right** to the WNR Group's Technical Memorandum	**Proposed Change**

	dated November 26, 2012 for the legal description	
Right Holder's Name	Crushe LLC	Trust Water Right Program
Applicant	Yakima River Mitigation Water Services, Inc.	
Priority Date	March 3, 1900	Same
Source	Yakima River	Yakima River
Purpose of Use	Irrigate 8.0 acres	Instream flow & water banking to offset the consumptive use associated with new groundwater uses
Instantaneous Quantity	0.20 cubic feet per second (cfs))	Primary Reach: 0.2 cfs Secondary Reach (cfs): May -0.004 June 0.009 July –0.012 August -0.010 September –0.005 October-0.001
Annual Quantity	39 afy	39 afy to be placed in trust (27 afy Cu)
Period of Use	April 1 - October 31	Year round domestic use
Place of Use	See Attachment C-4 to the WNR Group's Technical Memorandum dated November 26, 2012 for the legal description	The primary reach begins at the historic point of diversion located 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE1/4SE1/4NE1/4 of Section 3, T18N., R17 E., W.M., Kittitas County, State of Washington, and ends at the confluence with the Yakima River at approximately RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M. The secondary reach begins at approximately Yakima RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M., and continues down the Yakima River past its confluence with the Columbia River, and ends at

		a point located at the confluence of the Columbia River and Pacific Ocean at River Mile 0 in Section 18, Township 9 North, Range 11 West, W.M., Pacific County, Washington.

Legal Requirements for the Proposed Change

RCW 90.03.380(1) states that a water right that has been put to beneficial use may be changed. The point of diversion, place of use, and purpose of use may be changed if it would not result in harm or injury to other water rights.

A transfer to instream flows in the Yakima Basin is governed by RCW 90.38. RCW 90.38.040(1) states that all trust water rights acquired by the Department of Ecology shall be placed in the Yakima River Basin Trust Water Right Program to be managed by Ecology. Ecology shall issue a Certificate of Water Right in the name of the state of Washington for each trust water right it acquires.

The Washington State Supreme Court held that Ecology must make a tentative determination of the extent and validity of the right to be changed (R. D. Merrill v. PCHB and Okanagan Wilderness League v. Town of Twisp).

This application qualifies for priority processing under WAC 173-152-050(2)(c) whereby water right change applications may be processed prior to applications submitted at an earlier date when the proposed water use, if approved, would substantially enhance or protect the quality of the natural environment.

Public Notice

A public notice of the application must be published in a local newspaper once a week for two consecutive weeks (RCW 90.03.280). Public notice of the subject application was published in the Ellensburg *Daily Record* on October 19, 2012 and October 26, 2012.

State Environmental Policy Act (SEPA)

A water right application is subject to a SEPA threshold determination (i.e., an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions are met.

(1) It is a surface water right application for more than 1 cubic feet per second, unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cubic feet per second, so long as that irrigation project will not receive public subsidies.
(2) It is a groundwater right application for more than 2,250 gallons per minute.

(3) It is an application that, in combination with other water right applications for the same project, collectively exceeds the amounts above.
(4) It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA).
(5) It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under WAC 197-11-305.

Because this application does not meet any of these conditions, it is categorically exempt from SEPA and a threshold determination is not required.

INVESTIGATION

In considering this application, the investigation included, but was not limited to, research and/or review of:

- Yakima County Superior Court in *Acquavella* , Report of Referee Subbasin No. 8 (Thorp), May 1997
- Yakima County Superior Court in *Acquavella,* Supplemental Report of Referee Subbasin No. 8 (Thorp), May 4, 1997
- Yakima County Superior Court in *Acquavella,* Report of Proceedings, July 24, 1997
- Yakima County Superior Court in *Acquavella,* Memorandum of Opinion and Order re: Exceptions to Supplemental Report of Referee Subbasin No. 8 (Thorp), December 2, 1999
- Yakima County Superior Court in *Acquavella* , Memorandum of Opinion and Order re: Exceptions to Supplemental Report of Referee Subbasin No. 8 (Thorp), August 3, 2000
- Yakima County Superior Court in *Acquavella,* Conditional Final Order Subbasin No. 8 (Thorp), October 9, 2003
- Affidavit of Derald E. Martin, dated January 14, 2011
- Trust Water Agreement between Ecology and Yakima River Mitigation Water Services LLC, September 30, 2011
- Yakima County Superior Court in *Acquavella* , Motion to Substitute Parties and Divide Water Right Re: Claim No. 02316, June 18, 2012
- Yakima County Superior Court in *Acquavella* , Motion to Correct Exhibits and Typographical Errors in Motion to Substitute Parties and Divide Water Right Re: Claim No. 02316, June 22, 2012
- Yakima County Superior Court in *Acquavella* , Second Motion to Correct Motion to Substitute Parties and Divide Water Right Re: Claim No. 02316, July 18, 2012
- Yakima County Superior Court in *Acquavella* , Ecology's Response to Motion to Substitute Parties and Divide Water Right Re: Claim No. 02316, July 18, 2012
- Yakima County Superior Court in *Acquavella* , Order Granting Motion to Substitute Parties and Divide Water Right Re: Claim No. 02316, August 9, 2012
- Water Right Change Application No. CS4-02316sb8a, CS4-02316sb8b, CS4-02316sb8c, CS4-02316sb8d, and associated documents, August 22, 2012
- Technical Memorandum on Beneficial Use and Consumptive Use Calculations, Water and Natural Resource Group, April 19, 2011

- Technical Memorandum on Beneficial Use and Consumptive Use Calculations-Addendum, Water and Natural Resource Group, November 26, 2012
- Dated Aerial Photos (2001, 2003, 2004, 2005, 2006, 2009)
- Kittitas County Assessor's Tax Parcel Records
- Miscellaneous Ecology Records
- Meter records
- Soils Map
- Deeds
- Photos of the irrigation delivery system and appurtenant property
- Correspondence and personal communication with previous water right holder and property owner, Derald E. Martin, and Ecology staff
- State Water Code, administrative rules, regulations and policies

History of Water Use

The initial claimants of Claim No. 02316 in the *Acquavella* proceedings were Harold E. and Sherry A. Chamberlin. Claim No. 02316 contains four distinctive priority dates covering four described places of use, with defined instantaneous and annual quantities. For this evaluation, the four distinctive portions of Claim No. 02316 will be defined as Claim PD-A (priority date 1/1/1881); Claim PD-B (priority date 6/9/1881); Claim PD-C (priority date 1/29/1887); and Claim PD-D (priority date 3/3/1900). All four priority dates document the same point of diversion and the same irrigation season, but have distinctive places of use and irrigable acres.

Yakima County Superior Court Judge in the matter of *Acquavella* confirmed the four priority dates for Claim No. 02316 to the initial claimants, Harold E. & Sherry A. Chamberlin as documented in the Report of Proceedings (July 24, 1997, pp. 38-46); Supplemental Report of Referee and further amended in the Conditional Final Order ("CFO") issued by the Court on October 9, 2003 (pp. 109, 110, 117, and 128).

Claim No. 02316, Claim PD-A through PD-D, as confirmed to Harold E. and Sherry A. Chamberlin, allows for the total diversion of 2.5 cfs, 601 acre-feet (600 AF irrigation, 1 AF stockwatering) from a diversion point located at 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE¼ SE¼ NE¼ of Section 3, T.18N, R17E.W., with the following attributes:

- Claim PD-A: Priority Date January 1, 1881: Diversion of 0.65 cfs and 156 afy from the Yakima River for the irrigation of 26 acres from April 1 through October 31 of each year.
- Claim PD-B: Priority Date June 9, 1881: Diversion of 1.0 afy for stockwater and 1.125 cfs and 270 afy from the Yakima River for the irrigation of 45 acres from April 1 through October 31 of each year.
- Claim PD-C: Priority Date January 29, 1887: Diversion of 0.325 cfs and 78 afy from the Yakima River for the irrigation of 13 acres from April 1 through October 31 of each year
- Claim PD-D: Priority Date March 3, 1900: Diversion of 0.40 cfs and 96 afy from the Yakima River for the irrigation of 16 acres from April 1 through October 31 of each year.

The water rights in Court Claim No. 02316 are appurtenant to that certain real property held in fee by Harold E. Chamberlin and Sherry A. Chamberlin; and subsequently conveyed by Sherry A. Chamberlin, as her separate property, to Red Hawk Developments LLC pursuant to that certain Statutory Warranty Deed dated July 30, 2007, and recorded on August 1, 2007, under Kittitas County Auditor's File Number 200708010021. By Order Granting Motion to Substitute Parties issued on August 24, 2007 by the Yakima County Superior Court in the matter of *Acquavella*, Red Hawk Developments LLC was substituted for Harold E. Chamberlin and Sherry A. Chamberlin as the Claimant for Claim No. 02316.

By Quit Claim Deed dated December 17, 2010, and recorded on December 17, 2010 under Kittitas County Auditor's File Number 201012170045, Red Hawk Developments conveyed to Northwest Land Liquidators LLC, the water rights in Court Claim No. 02316.

By Quit Claim Deed dated December 17, 2010, and recorded on December 20, 2010 under Kittitas County Auditor's File Number 201012200072, Northwest Land Liquidators conveyed to Crushe LLC, a fifty percent interest in the water rights in Court Claim No. 02316.

Since 2010, a portion of the water rights, all but Claim No. 02316, Claim PD-A (with a priority date of January 1, 1881), are on donation to Ecology's Temporary Trust Water Rights Program for instream flows pursuant to Water Rights Change Application Numbers CS4-02316sb8b, CS4-02316sb8c, and CS4-02316sb8d, and such water is scheduled to remain in trust until 2014.

By Court Order dated August 9, 2012, the Yakima County Superior Court Judge in *Acquavella* issued an Order Granting Motion to Substitute Parties and Divide a Water Right for Claim No. 02316 ("2012 Court Order"). Pursuant to the 2012 Court Order, Crushe LLC and Northwest Land Liquidators LLC were each apportioned 50% of the water for each of the four priority dates of Claim No. 02316, for a total of 300 acre feet per year (afy) and 1.25 cubic feet per second (cfs) of water for irrigation; and 0.5 afy of stockwater to each successor claimant. All of the real property to which Claim No. 02316 is appurtenant remains owned in fee by Red Hawk Developments LLC, the claimant immediately succeeding Harold E. and Sherry A. Chamberlin.

The 2012 Court Order divided Claim No. 02316 and apportioned the right to Crushe LLC with the following attributes:

- Claim PD-A: Priority Date January 1, 1881: Diversion of 0.325 cfs and 78 afy from the Yakima River for the irrigation of 13 acres from April 1 through October 31 of each year.
- Claim PD-B: Priority Date June 9, 1881: Diversion of 0.5 afy for stockwater and 0.5625 cfs and 135 afy from the Yakima River for the irrigation of 22.5 acres from April 1 through October 31 of each year.
- Claim PD-C: Priority Date January 29, 1887: Diversion of 0.1625 cfs and 39 afy from the Yakima River for the irrigation of 6.5 acres from April 1 through October 31 of each year.
- Claim PD-D: Priority Date March 3, 1900: Diversion of 0.20 cfs and 48 afy from the Yakima River for the irrigation of 8.0 acres from April 1 through October 31 of each year.

After the 2012 Court Order was issued, Crushe LLC applied, on August 22, 2012, to place 100% of its water under Claim No. 02316 in Ecology's Temporary Trust Water Rights Program for mitigation banking pursuant to Water Rights Change Application Numbers CS4-02316sb8(a1), CS4-02316sb8(b1), CS4-02316sb8(c1)and CS4-02316sb8(d1). This change request pertains only to Crushe LLC's water under Claim No. 02316.

A review of the record and site conditions indicates that water was put to beneficial use since the 2003 CFO and no water under Claim No. 02316 has been relinquished or abandoned.

The 2012 Court Order ordered the following division of Claim No. 02316 to Crushe LLC as indicated in Table 1 below:

Table 1	**2012 COURT ORDER DIVISION OF WATER RIGHT TO CRUSHE LLC**				
	Irrigable Acres	**Acres in POU**	**Cert Qi**	**Cert Qa**	**Stock Water**
Claim PD-A Jan.1, 1881	13.0	17.27	0.325	78	None
Claim PD-B June 9,1881	22.5	47.09	0.5625	135	0.5
Claim PD-C Jan. 29, 1887	6.5	24.85	0.1625	39	None
Claim PD-D March 3, 1900	8.0	31.42	0.20 cfs	48 AF	None
Totals	50.0	120.63	1.25 cfs	300 AF	0.5 AF

Because the 2012 Court Order divided the water right, it is appropriate to review the beneficial use of the water prior to the 2012 Court Order. Prior to the 2012 Court Order, the parties retained the WNR Group to determine the estimate of water under water right Claim No. 02316 Claim PD-A through PD-D, put to beneficial use; and the crop net consumptive use which may be available for transfer.

The WNR Group presented its findings in a Technical Memorandum dated April 19, 2011 ("2011 Technical Memo"). The 2011 Technical Memo was an extent and validity analysis of water used under Claim No. 02316 since the 2003 CFO and prior to the 2012 Court Order, so the 2011 Technical Memo addresses 600 afy and 2.5 cfs of water for irrigation, and 1.0 afy of stockwater.

Because of the overall irrigation and delivery system on the Red Hawk Ranch property, the extent and validity analysis for Crushe LLC's Water Rights Change Application Numbers CS4-02316sb8(a1), CS4-02316sb8(b1), CS4-02316sb8(c1) and CS4-02316sb8(d1) is based on the 2011 Technical Memo with a division of the perfected quantity of water (and consumptive use) assigned to Crushe LLC in accordance with the 2012 Court Order.

On August 22, 2012, after the 2012 Court Order, Crushe LLC applied to place 100% of its water under Claim No. 02316 PD-A through PD-D in Ecology's Temporary Trust Water Rights Program for mitigation banking pursuant to Water Rights Change Application Numbers CS4-02316sb8(a1), CS4-02316sb8(b1), CS4-02316sb8(c1) and CS4-02316sb8(d1); and will fallow 100% of the 50 irrigated acres within the POU assigned to it by the 2012 Court Order.

Other Rights Appurtenant to the Existing Place of Use

A review of Ecology's Water Rights Tracking System (WRTS) database did not reveal any other rights or claims which are appurtenant to the place of use for Claim No. 02316.

Proposed Trust Water Right Place of Use

The proposed place of use for the trust water right is instream in the primary and secondary reaches. The primary reach is the portion of a water body that benefits from both the former consumptive use and return flow waters of the trust water right and is the reach between the original point of diversion and the point where the last return flows re-enter the stream or river. The secondary reach is that portion of a water body that benefits from the former consumptive portion of a trust water right because it had received return flow waters while the water right was exercised. The secondary reach is located downstream from the point where return flows from the historic use under the water right re-entered the stream or river.

Primary Reach

The primary reach begins at the historic point of diversion located 1150 feet north and 75 feet west of the east quarter corner of Section 3, being within the NE1/4SE1/4NE1/4 of Section 3, T18N., R17 E., W.M., Kittitas County, State of Washington, and ends at the confluence with the Yakima River at approximately RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M.

Secondary Reach

The secondary reach begins at approximately Yakima RM 160 in the W1/2SE1/4 of Section 12, T18N, R17E, W.M., and continues down the Yakima River past its confluence with the Columbia River, and ends at a point located at the confluence of the Columbia River and Pacific Ocean at River Mile 0 in Section 18, Township 9 North, Range 11 West, W.M., Pacific County, Washington.

Trust Water Right Calculations

In support of this change request, Gene St. Godard of the Water and Natural Resources Group, Inc. (WNR Group) reviewed available data to estimate annual estimated volumes of surface water diverted and put to beneficial use under Claim No. 02316 and completed

a Technical Memorandum of the Consumptive Use Analysis for Claim No. 02316 (2011 Technical Memo).

On September 20, 2010, Mr. St. Godard conducted a site visit and observed the historic point of diversion from the Yakima River, as well as the irrigation delivery system from the Mill Ditch; property features, and stock animal use.

The WNR Group's 2011 Technical Memo provides detailed information about the water right attributes of Claim No. 02316 prior to the 2012 Court Order; site climate, geologic and hydrogeologic conditions; and an analysis of water use and total irrigation requirements based an analysis of electrical system data and calculations based on the WIG, Ecology's GUID-1210, and the Blaney-Criddle method.

The existing irrigation system consists of both gravity flow flood irrigation and an integrated sprinkler irrigation system. The water right Claim No. 02316 allows for the diversion of 2.5 cfs from the Yakima River into the Thorp Mill Ditch located approximately ¾-mile northwest of the site. The Thorp Mill Ditch conveys water in a southeasterly direction through the Red Hawk Ranch and eventually discharges back to the Yakima River. The Red Hawk Ranch sprinkler irrigation system consists of two separate pumps which convey water throughout the property.

The main pump consists of a Baldor Super E 75-hp motor and a Cornell Pump Model 4YB-75-2. This system diverts water from the Thorp Mill Ditch at a rate of approximately 2.25 cfs (1000 gpm) and operates at approximately 70 psi. The diversion conveys water through a 6-inch mainline to an integrated irrigation system north of the Thorp Mill Ditch. The irrigation system is comprised of two Bauer Rainstar 110-350 DHT travelling Big Gun sprinkler systems, and several dozen F 3002 Rainbird sprinklers located throughout the property. During irrigation, the system can only operate two travelling Big Gun sprinklers and four rainbird sprinklers at any one time. The Big Gun sprinklers can be moved between six 4-inch steel risers located within the irrigation areas of Claim PD-B through PD-D. Within Claim area PD-A, there are two small portable Big Gun 24° Nelson Irrigation sprinklers (Model 150 series), handlines, and Rainbird sprinklers.

A second diversion consist of a Model 1994 Grundfos 10-hp submersible pump rated at 225 gpm located in a 3-foot culvert sump directly across the canal from the pump house described above. This diversion supplies water to the southern part of the property southwest of the canal. The water is conveyed to numerous turf sprinklers and big gun sprinklers located around the property.

The two irrigation systems convey water to irrigate approximately 94.2 acres of land throughout the property. In addition, approximately 5.8 acres of the property in the southern portion of Claim PD-B is flood irrigated via a gravity flow diversion. This diverted water floods the 5.8 acres for pasture and timber irrigation.

Washington Irrigation Guide (WIG) Method

The Washington Irrigation Guide (USDA, 1990) is a guide to estimate historical crop use water requirements. The WIG provides technical information and procedures that can be used to plan and manage irrigation systems as well as develop quantities of crop consumptive use for various areas throughout Washington State. The WIG provides net irrigation requirements for various crops and locations throughout the state and is based on long-term average climate conditions. This data may not truly represent recent trends in decreased precipitation and higher temperatures, but can be used as an average crop requirement from long term historical precipitation and temperature records.

The WNR Group reviewed soil conditions and used several methodologies to calculate the crop irrigation requirements (CIR), and total irrigation requirement (TIR) of the property.

Climatic data near Ellensburg, Washington show a historical average of approximately 9-inches of precipitation per year, with annual mean temperatures ranging from 43.76 to 53.20 degree Fahrenheit each year. Shallow site soils at the Red Hawk Ranch typically consist of sand and gravelly loams which are moderately to well drained, moderately high to high capacity to transmit water, and none to rare frequency to ponding. Site soil conditions and the low irrigation efficiency of the gravity flow and sprinkler systems appear to require a water duty of approximately 6-feet per acre. Consumptive use values for pasture/turf in the area require approximately 3 to 3.5 feet per acre dependent upon seasonal precipitation and temperature conditions. The porous sands and gravels at the site result in increased rate of return flows to the shallow aquifer, thus requiring more water (higher water duty) to be applied to the crop in order to meet the irrigation requirements.

For the flood irrigation portion of the property (5.8 acres in Claim PD-B), the following analysis was conducted:

Cu = 2.622 ft/acre
Irrigable Area = 5.8 acres
Irrigation Efficiency = 35%
Evaporation = 5%

Estimated total irrigation requirement for the flood irrigated portion of the property is 43.44 acre-feet as shown in Ecology's Guidance 1210.

For the sprinkler irrigated portion of the property (94.2 acres), the following data was used:

Cu = 2.622 ft/acre
Irrigable Area = 94.2 acres
Irrigation Efficiency = 60%
Evaporation = 10%

Estimated total irrigation requirement for the sprinkler irrigated portion of the property is 411.6 acre-feet as shown in Ecology's Guidance 1210.

The electrical system at the site operates the two pumping systems under Puget Sound Energy electrical service no. Z003514582. Electrical records were reviewed for the years 2004 through 2010. Coupled with the flood irrigation system, an estimated calculation of the actual historical water use was done. A meter was installed for the 2010 season, in which 36.51 acre-feet was diverted from the small pump, and 486.9 acre-feet from the large pump, for a total of 523.41 acre-feet of water diverted from the pumps. In addition, an estimated 43.44 acre-feet of water was diverted to flood the 5.8 acres in the southern portion of Claim PD-B, as determined from Ecology Guidance 1210. The 2006 irrigation season exhibited the highest year of electrical usage by the irrigation system over the last five years.

Annual acre-feet diverted from years 2004 through 2009 were calculated by using the 2010 electrical reading (172,620 Kw) divided by the known metered acre-footage quantity of 2010 (523.41 AF), resulting in a value of 329.8 Kw per acre-foot of water diverted. Using this value, the annual Kw value of years 2004 through 2009 was divided by 329.8 to develop an estimated acre-footage diverted per year. It should be noted that the irrigation system is comprised of multiple components, which operate at different lengths of times and under multiple configurations (e.g. the travelling big guns did not operate at the identical hours from year to year and varying number of sprinklers operating at any one time). Therefore, the annual acre-footages are an estimate. Claim PD- B also contains 5.8 acres that are flood irrigated which are irrigated via a gravity flow diversion and is not accounted for in the electrical calculations. As such, an estimated 43.44 acre-feet of water is added to Claim PD-B to account for this area. Using this analysis, year 2006 exhibits the highest year of water diverted and put to beneficial use, approximately 583 acre-feet.

The 2011 Technical Memo reviewed water use data for the years 2004 through 2010. In 2011, the water right owners temporarily donated the water associated with Claim PD-B, PD-C, and PD-D to Ecology's Trust Water Program for instream flows in the Yakima River; and this water is scheduled to remain in Trust through the 2014 irrigation season. Water associated with Claim PD-A was not placed in Trust and continued to be used to irrigate the place of use defined for PD-A under the Claim. In 2011, according to meter readings associated with the irrigation delivery system, approximately 66.72 AF of water was put to beneficial use on the place of use for Claim PD-A.

Table 2 below summarizes the allocation of water per priority dated claim before the the 2012 Court Order was issued.

TABLE 2: Allocation of Acre-Foot Per Claim Per Year 2004-2011 BEFORE 2012 COURT ORDER

Claim/Priority Date/Qa	2011	2010	2009	2008	2007	2006	2005	2004
Claim PD-A (1/1/1881) – 156AF	66.72	144.46	80.05	104.12	84.15	148.91	184.36	107.32
Claim PD-B (6/9/1881) – 270 AF	Trust	261.18	164.09	200.37	170.28	267.89	321.32	205.20
Claim PD-C (1/29/1887) – 78 AF	Trust	72.23	40.02	52.06	42.08	74.46	92.18	53.66

Claim PD-D (3/3/1900) – 96 AF	Trust	88.98	49.30	64.13	51.83	91.72	113.56	66.10
Total – 600 AF	66.72	566.85	333.47	420.67	348.33	582.98	711.42	432.28

A flow meter was installed at the site in 2010 and recorded that 523.41 acre feet was diverted from the Yakima River via the Thorp Mill Ditch, and the electrical records indicated that 172,620 Kw of power was required to divert this water. In addition, a gravity flow flood irrigation system is estimated to divert 43.44 AF of water each year to irrigate 5.8 acres. Analysis of power records over the last 5-year period of 2006 to 2010 estimated that approximately 290 AF (2009) to 540 AF (2006) of water was diverted with the pumps. Low diversion rates in 2009 were a result of the system not being operated through most of the irrigation season due to system maintenance. The low pumping value in 2007 was a result of new ownership over the property and less aggressive irrigation practices by the new owner during that first year of ownership.

The integrated irrigation sprinkler system conveys water to sprinklers in Big Guns which apply water to approximately 94.2 acres. The remaining 5.8 acres are irrigated via a flood irrigation diversion in the southern part of Claim PD-B Area. One acre-foot of water is also allotted for stockwatering under Claim PD-B. Using the electrical/power records analysis, stockwatering allotment and the flood irrigation allotment for Claim No. 02316, for year 2006, the following allocation of water was diverted to the four Priority Date Claim areas: 1) Claim PD-A – 148.91 AF, 2) Claim PD-B – 268.89 AF (includes the one AF of stockwatering and flood irrigation), 3) Claim PD-C – 74.46 AF, and 4) Claim PD-D – 91.72 AF, for a total beneficial use quantity of 582.98 AF.

Blaney-Criddle Method

In additional Blaney-Criddle analysis using recent temperature and precipitation data for the years 2005 through 2010 was also conducted to estimate the amount of water consumed by the Red Hawk Ranch Property. The Blaney-Criddle Method calculates consumptive use and TIR as the product of crop use coefficient and consumptive use factor. Calculations associated with the Blaney-Criddle Method require the following data:

- Mean monthly air temperature and mean monthly precipitation. These values were obtained from the Western Regional Climate Center web site (www.wrcc.dri.edu) for the Ellensburg, Washington station No. 452505 (updated 07/11/2012). The period of record within the data base was 1893 to 2012.
- Yearly monthly air temperature and mean monthly precipitation were also calculated for each of the individual years from 2007 to 2011.
- Percent of annual daytime hours occurring for each month, which was estimated from data presented in Jensen et. al. (1969) for northern latitudes of 46 to 49-degrees. Estimation for daytime hours at latitude 47 was used for this analysis.

- Monthly Crop Use Coefficients, which were adapted from typical coefficients for pasture/turf crops grown in Western United States, such as those presented in Schulz (1989).
- Consumptive use calculations per acre include the amount of water required for the crops plus 5% for evaporation from the flood irrigation.

The Blaney-Criddle analysis revealed that year 2009 would have the highest Cu and TIR requirements. However, in 2009 the property owners did not irrigate through most of 2009 due to maintenance on the irrigation system. The Blaney-Criddle analysis showed years 2006 through 2008 would have required between 563 and 570 acre feet of water using the documented temperature and precipitation data. Pump electrical records reveal 2006 was the highest year of diversion. Therefore, if year 2006 is used for the Blaney-Criddle method, a Cu value of 337.81 AF and TIR of 563.01 AF was calculated. An additional one acre-foot is also allocated for stockwatering.

The pump metering analysis presented in the WNR Group's 2011 Technical Memo, was used to define quantities of water diverted and put to beneficial use for the four claims and the Blaney-Criddle method was used to define the consumptive use portion. Using 2006 as the highest year of water diversion as estimated from electrical records, Crushe LLC's allocation of the amount of water put to beneficial use on each of the defined Priority Dates of Claim No. 02316 for the years 2004 through 2011 is indicated in Table 3 below as follows:

TABLE 3: ALLOCATION OF ACRE FOOT PER CLAIM PER YEAR FOR CRUSHE LLC

	Pump Meter Analysis (AF)	Blaney-Criddle Analysis(AF)
Claim PD-A	74.455	73.19
Claim PD-B	133.945	126.68
Claim PD-C	37.23	36.595
Claim PD-D	45.86	45.04
Total	291.49	281.505

Based on the WNR Group's 2011 Technical Memo as Supplemented on November 26, 2012; and the 2012 Court Order, Crushe LLC's share of the consumptive use and total irrigation requirement to irrigate 50 acres with Claim No. -2316 PD-A through PD-D is as follows in Table 4 below:

TABLE 4: CLAIM ALLOCATION OF WATER TO CRUSHE LLC BY BLANEY-CRIDDLE

	Cu (AF)	TIR @ 60% Efficiency (AF)
Claim PD-A	43.915	73.19
Claim PD-B	76.00	126.68
Claim PD-C	21.96	36.59
Claim PD-D	27.02	45.04
Total	168.89	281.5

Trust Water Right Management

The consumptive use portion of Claim No. 02316 PD-A through PD-D is being changed to instream flow for water banking purposes. As a condition of placing these water rights into the Trust Water Right Program, the water placed into trust may be available as mitigation to address the issue of, and prevent, third-party impairment with respect to new out-of-priority water rights consistent with WAC 173-539A. The details can be viewed in the Trust Water Right Agreement between Yakima River Mitigation Water Services LLC and the Washington State Department of Ecology (attached).

When any portion of this trust water is available and not being used for water banking or other authorized purposes, those quantities will be added to the instream target flows managed by the U.S. Bureau of Reclamation at Parker and continue downstream to the Yakima River's confluence with the Columbia River. If the water is used to offset consumptive use by new water users purchasing mitigation credits from the Yakima River Mitigation Exchange, or any other new use to be mitigated by the subject right, then the trust water right will not be added to the instream target flows at Parker.

LEGAL EVALUATIONS

Impairment Considerations

Under RCW 90.38.040(5)(a), a trust water right may be exercised only if Ecology first determines that the authorization will not impair any other water right. Yakima River flows will be increased (or neutral if fully used for mitigation credits) during the irrigation season as a result of cessation of the diversion of water for the Red Hawk Ranch property, so no impairment of other rights is anticipated.

In addition, new groundwater users seeking to rely on this water right for mitigation will be required to apply for a Water Budget Neutral Determination or a mitigated Permit. This determination will include a detailed evaluation of the potential for impairment of existing rights according to WAC 173-539A-060(4)(a)-(d).

Each assignment of trust water rights accepted under the Contract will be subject to the terms of the Contract including federal consultation procedures under the Endangered Species Act (ESA) and public notice procedures. Statutory public notice procedures required under the state water code for new permits or water budget neutral decisions must also be followed.

Public Interest Considerations

Pursuant to RCW 90.42.040(4)(a) exercise of a trust water right may be authorized only if the department first determines that the public interest will not be harmed. Ecology must consider how the change in purpose and acceptance into the Trust Water Right Program will affect a variety of factors such as wildlife habitat, recreation, water quality,

and human health. These factors were taken into account during the consideration of this application, which allowed the author to reach the conclusion that this transfer will not be detrimental to the public interest.

RECOMMENDATION

Based on the above investigation and considerations, I recommend the request for change application numbers CS4-02316sb8(a1); CS4-02316sb8(b1); CS4-02316sb8(c1); and CS4-02316sb8(d1), be approved in the amounts and within the limitations listed below and subject to the appeal provisions describe herein.

Purposes of Use and Authorized Quantities

The monthly instream flows in the secondary reach were determined on a month to month basis as average cfs and total acre-feet of consumptive use. Monthly consumptive use of acre-feet for irrigation was determined by allocating the total consumptive use for

Claim No. 02316 PD-A through PD-D proportionally throughout the irrigation season based on the monthly crop requirements presented in the WIG as follows: 9% in May; 22% in June; 30% in July; 24% in August; 13% in September; and 2% in October.

The total amount of consumptive use each month was converted to cfs to obtain the average monthly instantaneous quantity used to augment instream flow along the secondary reach. This change request to place 168.9 afy of consumptive use water into the trust program for banking is based on a total consumptive use value of 3.38 afy per acre per the analysis herein. The applicant will fallow 50 acres within the place of use for Claim No. 02316 PD-A through PD-D. Therefore, instream flow and water banking to offset the consumptive use associated with new groundwater uses in the Yakima Basin, are authorized in the following quantities depicted in Table 5 below:

TABLE 5	**Summary of Instream Flow in the Secondary Reach for Claim No. 02316 PD-A through PD-D recommended to be placed into Trust**						
Priority Date	Irrigation Month						
	May	June	July	Aug.	Sept.	Oct.	Total
Claim PD-A Jan. 1, 1881							
Qa(afy)	3.960	9.680	13.200	10.560	5.720	0.880	44.000
Qi(cfs)	0.005	0.013	0.018	0.014	0.008	0.001	0.060
Claim PD-B June 9, 1881							
Qa(afy)	6.840	16.720	22.800	18.240	9.880	1.520	76.000
Qi(cfs)	0.009	0.022	0.030	0.024	0.013	0.002	0.100
Claim PD-C Jan. 29, 1887							
Qa(afy)	1.976	4.831	6.588	5.270	2.855	0.439	21.960
Qi(cfs)	0.003	0.007	0.009	0.007	0.004	0.001	0.030
Claim PD-D March 3, 1900							
Qa(afy)	2.430	5.940	8.100	6.480	3.510	0.540	27.000
Qi(cfs)	0.004	0.009	0.012	0.010	0.005	0.001	0.040
Total Qa (afy)	15.206	37.171	50.688	40.550	21.965	3.379	168.960
Total Qi(cfs)	0.021	0.051	0.069	0.055	0.030	0.005	0.230

Report by: _____

, LG, LHG

Date Licensed Hydrogeologist No.

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