

# Project Description

## 2.1 Provide a brief narrative explaining the general nature and intent of the proposed water use.

This application is to provide a source of mitigation water in the Ahtanum Basin for residential and other land uses which require potable water and will rely on exempt wells. A report prepared by John Vaccaro for Yakima County indicates that wells drilled to the 3<sup>rd</sup> Grande Ronde aquifer can be expected to have no effect on streamflow in the Ahtanum Basin, in most of the private lands in the Ahtanum Basin, this depth is over 700 feet below ground surface. Due to the nature of the surface water rights in the Ahtanum Basin, even a minor impact on flows in Ahtanum Creek would affect both the Yakama Nation's Time Immemorial and Irrigation water rights if said impact occurred after July 10 in most years. Because drilling wells to this depth would be cost prohibitive, currently estimated at over \$170K per well, and Vaccaro's report recommends in basin mitigation in addition to well depth requirements, Yakima County is proposing a deep well in the most downstream portion of the basin to mitigate for downstream effects of increased consumptive water use.

The consumptive use impact of new water withdrawals in the Ahtanum basin are expected to be most severe at the location of the proposed well. Upstream, the alluvial aquifer is very coarse in the valley bottoms and alluvial fan, making the majority of the mainstem Ahtanum Creek a losing reach. Near the proposed well, there are lacustrine clays mixed with the alluvial cobble, forming a plug in the water gap that causes groundwater to come to the surface, and flow into the creek at this location. The location of the proposed well will feed water into this same surface water feature.

Pre-1905 water rights for this new use are currently held in Trust at Ecology and will be permanently donated as mitigation for new water uses in the Ahtanum Creek drainage.

Yakima County proposes:

1. To drill a well to a depth of approximately 730 feet, 3<sup>rd</sup> Grande Ronde Aquifer.
2. Construct a pump house and small (3000 gal) tank.
3. Supply water through an easement to a small tributary to the creek, after July 10 in any year until the end of irrigation season. This ensures that the mitigation water will not be intercepted for irrigation purposes.
4. Initial water quantity will be 2 acre feet per year, and will be increased annually as building permits are issued at a rate of 0.11 acre feet per new YCWRS connection. All wells constructed for YCWRS will be metered and require that well access at least the second Grande Ronde aquifer, generally 300 to 450 feet in the Ahtanum Valley and Slavin Road areas, and 250 feet plus in the upper NF and SF areas. No wells will be finished in the Frenchman Hills aquifer with directly feeds the creek, nor in the alluvial aquifer in upstream areas.
5. In addition, the existing White Water Right (S4-84812-J) will be retired and allowed to drain toward Ahtanum Creek year round. In partial compensation for the utility lot and the existing right to be retired, Whites will also be provided a new well and two acre feet of senior water for 5 potential residences and existing stock water use on 4 parcels. White will control future diversions from this well.

**2.2 If the proposed water use will include a diversion from a new or permitted reservoir, list any associated water rights, and the means of withdrawal.**

NA

**2.3 Attach a copy of any SEPA checklists or environmental analyses related to this project with this application.**

There has been no specific SEPA or environmental analysis for this project. This project restores this area of the County to be available for uses consistent with the Yakima County Comprehensive Plan and Unified Development Code. This proposed use will remain below the SEPA thresholds for new water rights in perpetuity.

**2.4 Describe how you will measure and control the rate and volume of your diversion or withdrawal.**

Discharge and measurement will be controlled remotely. Yakima County Utilities has an existing system for monitoring water flow in real time and can also remotely set rates of discharge. We anticipate that discharge rates will not change during a given calendar year.

**3.1 thru 3.7**

NA

**3.8 For other uses, describe your use in detail.**

The intended use here is to discharge water to Ahtanum Creek as mitigation for new water uses (largely domestic) in the watershed upstream of this point. Hydrologic conditions at the proposed location have the water table associated with Ahtanum Creek at or near the surface for most of the year, this project discharges to that water table immediately adjacent to natural spring channels. The quantity of mitigation water is likely well above the cumulative effect of new development on streamflow in upper Ahtanum as all new wells will be required to be finished in the Grand Ronde basalts, likely in the second aquifer, which is not directly connected to the creek. These new wells have an estimated effect of 26% consumptive use, based on Vaccaro's modeling which includes some outside landscape use and the effect of interception of groundwater, bringing it to the surface, and discharging that non consumptive use to a surficial aquifer, and part of that water lost do evapotranspiration as it returns to the stream. The with the non-consumptive use then contributing to flow in Ahtanum Creek. This well is mitigating another effect which is expected to occur in a tributary, which is a lowering of pressure in the aquifer where the water is withdrawn, which in turn lowers the contribution of groundwater to the stream from the interconnected groundwater/surface water system. This project is located at a position in the groundwater/surface water system where this effect would be most severe, a known zone of groundwater discharge to the stream.

This project also includes the retirement of the existing White surface water right, and provision of a new, groundwater right to White with the same uses and place of use as that current right, resulting in increased surface water flow from the Spring to Ahtanum Creek year-round. Whites will be provided

with a new groundwater well, drilled and cased to the second Grand Ronde Aquifer, which will be the point of diversion for a new right.

**7.1 List any other water rights (applications, permits, certificates, or claims) related to this application. Include any rights that overlap the place of use.**

A portion of S4-83689-J(A) will be used as mitigation for this proposed right, dedicated permanently to mitigation in the Ecology Trust Water Right Program.

The existing White Water right, S4-84812-J, for 0.03 cfs, 2 acre ft per year for domestic and stock water will be retired. This is a surface right from a spring that flows to Ahtanum Creek year round.

**7.2 Explain how the water rights listed above have been exercised.**

S4-83689-J(A) went through extent and validity analysis in 2017, upon completion of that analysis it was placed in trust as instream flow and mitigation. Subsequently, in a contract recorded on July 11, 2018. 111 acre feet of that right was deeded to Yakima County.

S4-84812-J has been continuously in use since 1890, and was confirmed in the Yakima Basin Adjudication. It is a surface water source which is less than ideal for domestic use. This project will replace that surface water source with a ground water source and water right for the same uses as the current White water right.

**8.1 and 8.2 Provide a description of the proposed water supply system from the point of diversion or withdrawal to the proposed place of use. Provide preliminary design plans and specifications for the proposed use, including diversion or withdrawal and conveyance facilities, if applicable, and the proposed flow rate and volume design capacity.**

For the mitigation project - This would be a standard well, drilled and cased to the third Grand Ronde aquifer, with a standard pump. There would be a 2000 gallon storage tank, the system would be powered by electricity. The storage tank would discharge to a pipe and that pipe would either directly discharge to the surface or to a very shallow infiltration system over the Frenchman Hills basalt which is at the surface at this location. Discharge capacity would be up to 20 gallons per minute, but we do not anticipate that discharge level to be reached for at least the next 50 years. Over the next decade we expect the discharge to be approximately 6 gallons per minute.

For the White system, the new well would be in the second Grande Ronde Aquifer approximately 430 feet deep. The well would be connected to existing stock water tanks and the existing house and septic system. We anticipate that up to 5 houses may be constructed and served by this well, but the need for a group B permit would not occur for several years in the future and would be the responsibility of the Whites.

**8.3 Provide the projected system efficiency**

For the mitigation project - System should be near 100 percent efficiency, entire system will be piped, discharge will occur over a restrictive layer in groundwater discharge zone. Season of discharge is designed to maximize efficiency as local water table may be drawn down by other local surface water pump diversions prior to July 10 in any given year.

For the White right – the efficiency would be similar to other for domestic use, there is not anticipated to be any irrigation from this right, so near 90%. Stock water currently is provide to troughs, with consumptive use currently near 100% for consumption by livestock and evaporation from the troughs, we expect this consumptive use to remain.

**8.5 Provide a general timeline (development schedule) that includes the steps needed to begin the project, complete the project, and put the water to full beneficial use.**

Once a permit for the new water right is issued, the project can be completed within several months – ie. the time required to contract for well construction and actually construct the well, storage tank and infiltration facility. Most of the time to construct the project is related to securing the new, mitigated water right. The mitigation right will be a municipal right, and not subject to relinquishment, discharge will be a function of the number of building permits issued in the watershed above this point. We anticipate the current right will suffice for the next 50 years.

**8.6 Identify and discuss other land-use or environmental permits required and the timeline to obtain those permits.**

The County currently holds a purchase and sale agreement for the well site that can be transferred to Yakima County from the Whites when a permit for their new well right is issued and they receive payment for their current right. That process includes the creation of a new legal lot, since it is a utility lot it can be created outside the normal subdivision process, and really created in the space of a couple of weeks, including the closing process. We do not anticipate any other environmental type permits for this project given its scale and that it is part of an existing County owned and operated utility.

**9.1 and 9.2 Hydrogeologic Setting**

See the attached report by John Vaccaro for the County. Generally, there are 4 groundwater bodies,

- 1) Wanapum Aquifer – this is separated from the Grande Ronde basalts by an impermeable interbed between the two formations, there is a layer of permeable Thorp Gravels which overlie the Wanapum flow. On both sides of the valley this interbed slopes toward the creek and provides groundwater input to the creek in the project area and downstream. Because of the contribution of this aquifer to the creek, this formation should not have any new residential wells finished in it, all wells will be cased through it. This aquifer does have many existing wells finished in it at midslope to the north and some upstream areas.
- 2) First Grande Ronde Aquifer – Approximately 200 feet below ground surface. This is the aquifer most existing wells are finished in. This aquifer likely connected to Ahtanum Creek in the vicinity of the proposed well.
- 3) Second Grande Ronde Aquifer – Approximately 520 feet below ground surface, shallower at higher elevations in the watershed. Vaccaro recommended that new wells could be finished in this unit if there was a small amount of in-basin mitigation water available. Future domestic wells would be finished in this or the deeper aquifer. Well logs in the alluvium downstream from “The Narrows” show a similar depth through the basalts to the second aquifer in the Grande Ronde where most of the large irrigation wells are finished. The depth of the proposed well should minimize the risk of impairment to those rights.

- 4) Third Grande Ronde Aquifer – Generally 700-760 feet below ground surface. This is the proposed source for the mitigation well. This aquifer would have only minimal connection to surface water in the Ahtanum, effects here are to the regional aquifer system and the Yakima River, where Yakima County has existing senior mitigation rights.

The related natural surface water body is Ahtanum Creek, which is the surface water body the mitigation water will be discharged to. In the vicinity of the proposed well, the alluvium is very coarse, with the interstitial spaces filled with lacustrine clays, creating a very strong “water gap” which brings the creek and water table to the surface at this location, just upstream of “the Narrows”. The effects of water withdrawal from the Thorp Gravels, Wanapum basalt and interbed, and the first Grande Ronde aquifers likely propagate to this near the proposed well site at this water gap, affecting flow quantity, and elevation of the water table, this includes effects on instream flow at the upper AID and WIP diversions downstream.

The other water body in the area is return flows from the Lesh ditch, as well as some return flows from the main canal and other distributaries of the JohnCox ditch. that flow through the canyon which also contains Slavin Road. All of these return flows flow together through a single culvert under Ahtanum Road through the White Family Investment properties on either side of the road. This flow generally stops several days after the end of surface water irrigation season, July 10 on the north side of Ahtanum Creek.

**10.1 Describe the aquatic uses of any related surface water bodies (i.e., fish and wildlife, recreation and aesthetic, water quality, etc.).**

Ahtanum Creek which is used for fish and wildlife and is significantly related to cultural resources of the Yakama Nation, including supporting traditional subsistence resources. Ahtanum Creek at this location also figures prominently in the history of the basin, and this is just upstream from the Ahtanum Mission, and just downstream from Kamiakin’s Garden, the first true irrigated agriculture in the Yakima Basin. The water rights in Ahtanum Creek have been in dispute since the beginning of the basin adjudication and remain in dispute to some extent to this day. This is due to the unique nature of the Ahtanum Irrigation District and its history, and the fact that the Creek acts as the boundary for the Yakama Nation reservation. Currently, the water rights for irrigation for all surface waters in the basin after July 10 in any year are held by the Yakama Nation, with a priority date of time immemorial. The primary goal of this project is to mitigate the effects of future domestic withdrawal on flows in the creek, and to perform this mitigation at a location and in a quantity that provides some mitigation for the effects of past domestic groundwater use on surface water flows.

**10.2 Indicate whether the related surface water is fish-bearing, including whether it is inhabited by salmonids. List species and the times of year they are present.**

Salmonscape shows this reach of Ahtanum Creek as potential habitat for Steelhead, Spring Chinook, Coho and as habitat for ESA listed Bull Trout. I believe Salmonscape is incorrect as this reach of Ahtanum Creek does support ESA listed Steelhead. The major limiting factor for salmonids here is streamflow, largely flow blockages that develop downstream in the summer, as well as the upper

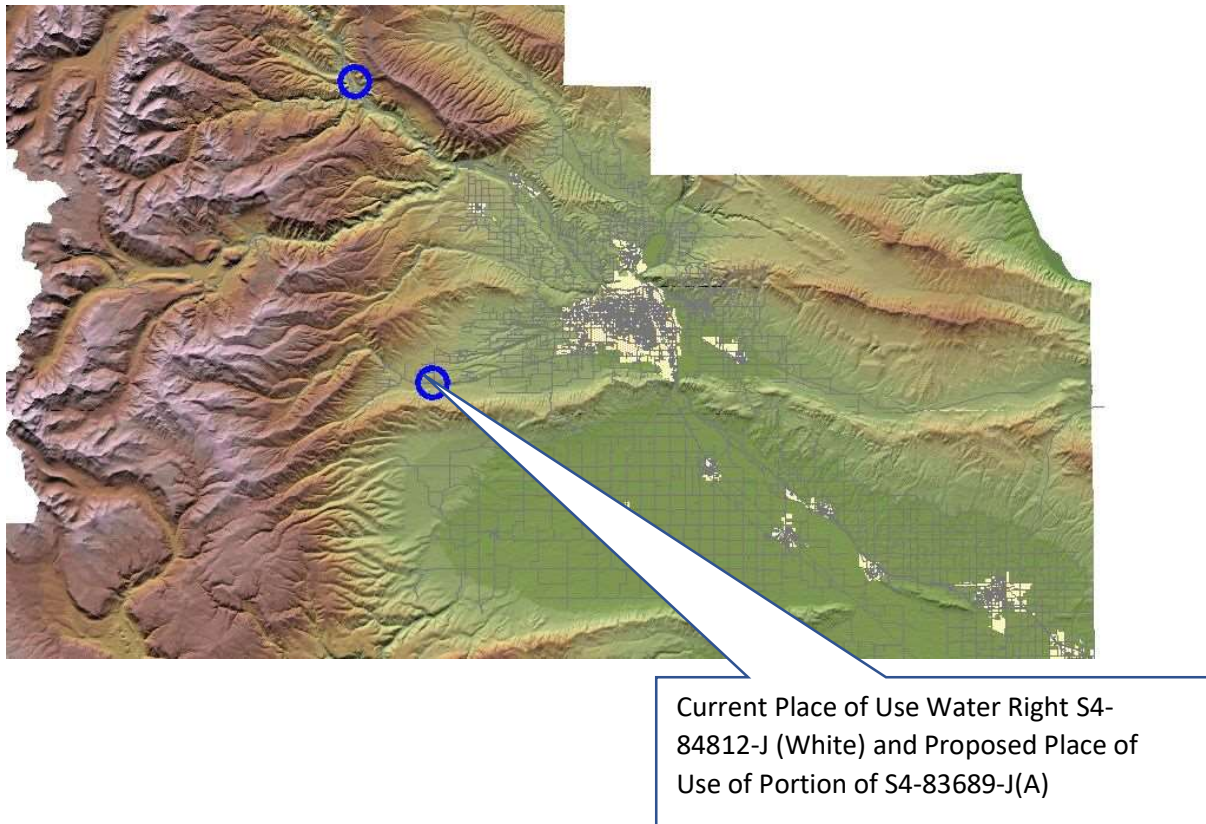
Wapato Irrigation Project diversion which is a partial barrier to rearing salmonids such as Spring Chinook and Coho who have been observed up to that point, just below this project area. It is thought that the ESA Threatened Bull Trout formerly were a fluvial population which foraged in the mainstem Yakima and migrated back into Ahtanum Creek in the late summer and early fall. Currently fall flows and related high temperatures prevent migration into or out of the creek, and the current severely low population of Bull Trout in the Ahtanum is a resident population dependent on the relatively unproductive upper reaches of the Creek as that population's prey base. Steelhead do migrate into the Ahtanum in the spring during peak flows and can rear in the project area for that first year, with the majority migrating out the next spring.

### 11 - Driving Directions

From Ecology Regional Office go west on Ahtanum Road for 15 miles, until the intersection with Slavin Road. Proposed well site is on south side of road at the intersection. White parcels are on south side of Ahtanum, with additional parcels on North side of Ahtanum Road on either side of Slavin.

### 12 Maps

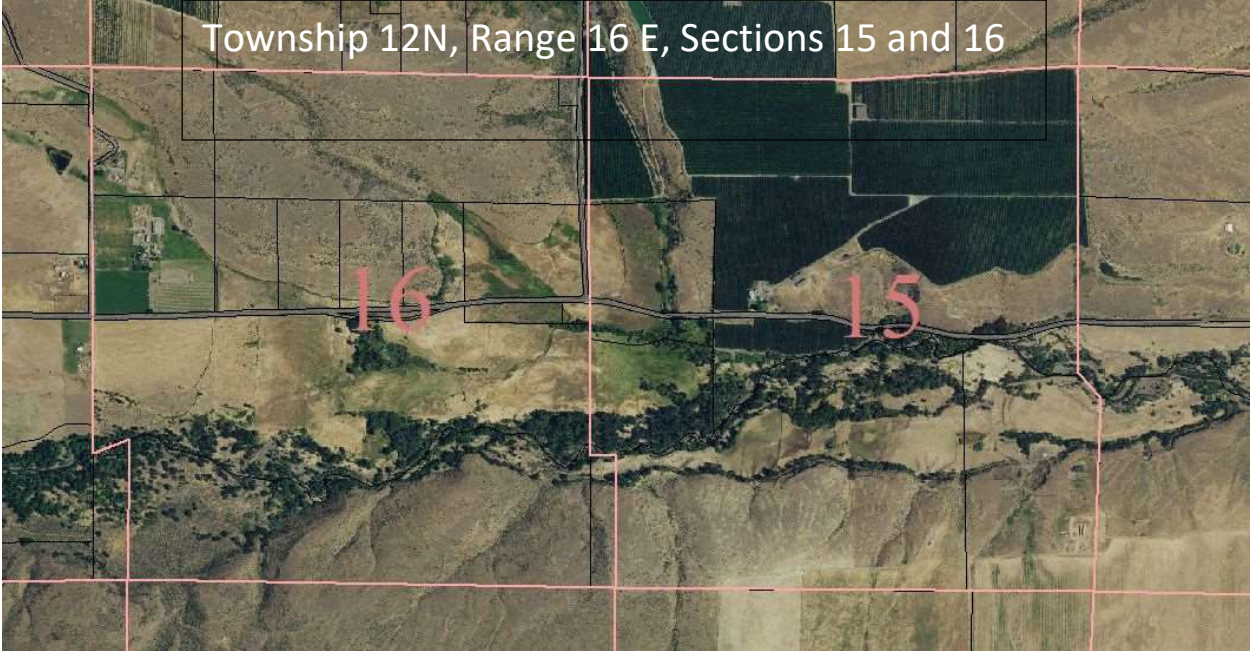
Map 1 – Vicinity Map, Yakima County



Map 2 – White Water Right POU and PODs



Map 3 – Township, Range, Section





Map 5 – Structural elements of proposal



## Attachment B: Mitigation Plan

**B1** Identify any water rights (including permits, certificates, claims, instream flows, or legal permit-exempt wells), you expect to be impaired and identify the expected nature of that impairment.

Using the definition of impairment for groundwater, we expect no impairment of other water rights. This is only a minor fraction of water when compared to adjacent agricultural uses, we expect this use will not result in change to any current economic uses of groundwater in the basin.

**B2** Identify the source of supply for the proposed mitigation water.

The portion of Water Right S4-83689-J(A) held by Yakima County, and currently in the trust program with a use of Mitigation. We plan on dedicating a portion of that right permanently, and making future donations (along with other mitigation responsibilities from YCWRS) over time in conformance with a Trust Water Right Agreement that can be developed concurrently with this application.

**B3** Describe how this mitigation water source will offset the impacts of the proposed change. This should specifically address how the change in the amount of water in Section A4 will be offset by the source identified in Section A5.

The proposed change is for mitigation of consumptive use effects on Surface Waters related to new exempt well uses in the upper Ahtanum. There will be a direct relationship between future groundwater withdrawals in the Ahtanum and discharges of water to Ahtanum Creek from this mitigation facility as all future withdrawals will be metered. The long term effect of this action should be to improve flow in Ahtanum Creek over the long term.

**B4** Estimate the change in consumptive quantity that would be available for the use being impaired. Describe the methodology used to support your estimate.

NA, no impairment is expected.

**B5** Describe actions that will be taken to ensure mitigation will be maintained for the duration of the water right change authorization.

This will be a change in perpetuity. A related Trust Water Right agreement will be needed to ensure reporting and compliance in perpetuity.

**B6** List each water right being proposed for transfer, relinquishment, or conveyance to the Trust Water Rights Program. Provide a history of beneficial use of each water right listed above and identify whether a separate water right change application has been filed for these water rights.

Transfer – Water right S4-83689-J(A) is transferring point of Diversion to two wells and Points of Use.

Conveyance to Trust/instream flow – White Water Right S4-84812-J will be transferred in its entirety.

**B7** Provide copies of any agreements between you and other parties regarding mitigation for impacts, if applicable.

See Attachment.

**B8** Describe the benefits and costs, including environmental effects, of any water impoundment or other resource management technique that is included as a component of the application.

Resource management techniques here are related to the metering of new and mitigation uses, and the specification of well depth and casing in the watershed. In the lower portion of the project area, wells will not be allowed to be finished, and must be cased, in the Wanapum (Frenchman Hills) or interbed between the Wanapum and Grand Ronde basalts, this will ensure that the current recharge that Ahtanum Creek receives from those units (likely dominated by irrigated agriculture return flow) will continue to accrue to the creek. All wells in the alluvium and upstream of the Wanapum basalts must be cased to refusal or to the first confined aquifer in the Ahtanum. This should result in a net import of water to the surficial aquifers in the alluvium and in NF SF Ahtanum above the alluvial fans near Tampico. On the alluvial fans and in the mainstem Ahtanum we expect this increase in flow elevation of the alluvial aquifers will not improve flow conditions in the Creek until near the area of the proposed mitigation well. The mitigation well is essentially a backup that provides more mitigation water equal to the estimated 26% consumptive use calculated by Vaccarro, which could impact the creek due to inability to drive a seal casing, unknown flow connections between the aquifers, etc. The metering, specification of depth and casing, and the mitigation well are a “belt and suspenders approach” to protect existing sources of recharge to the creek, target consumptive uses in the Grand Ronde aquifers that generally would flow to the regional aquifer system connected to the mainstem, and provide mitigation water from deeper basalts that are known to flow to the regional aquifer system.

**B11** If you intend to offset your new use, describe how and when nonconsumptive water returns to ground water or surface water, and explain how this volume was estimated. Specifically describe how the quantity, timing and location of return flow would change if the proposed change is approved

Volume is estimated from calculations by Vaccarro, generally these will be over estimation as this upper portion of the valley is cooler and the high permeability of the surface soils allow faster percolation and less interception (of septic effluent) by vegetation. The discharge location of the mitigation was selected based on basin geology and hydrology and the presence of adjacent surface water diversions. The discharge timing ensures that the mitigation occurs at the lowest flow times of year and avoids interception by other diverters since the discharge is on the north side of the creek, where surface water diversion is prohibited. The only exception to this prohibition is the White water right at this location, and which will be retired and dedicated to instream flow year-round.

## **Additional Attachments**

### **Well logs**

Typical Penetration to first Grande Ronde aquifer. Next two are well log to current Evans Fruit Irrigation Well, first the original log to second Grande Ronde Aquifer, then rebore and deepening to Third Grande Ronde aquifer. That Well is located approximately a quarter mile from proposed mitigation well.

### **Purchase and Sale Agreement**

Agreement between Yakima County and White Family investments for utility lot, existing water right, and new well and water right as consideration.

### **A Draft Proposal for Groundwater Mitigation for the Wide Hollow/Ahtanum Domain**

This report is from the original development of the Yakima County Water Resource System, and for the purposes of this right, only the parts of the report that address Sector 1 are relevant here. Because this report concludes there could not be new residential development along the lines and well depths in other areas of the County which would not negatively impact instream flow and senior water rights, this area has been closed to the issuance of building permits by the County. The report recommends future mitigation for this area would need to be developed, this new water right application is that proposed mitigation. Both the mitigation well and all new domestic wells in the basin would be finished in the Grande Ronde below elevations suggested by Vaccaro, and, in addition the White surface water right is retired. In combination, these actions should result in a net increase in streamflow at the Narrows – the most likely location that groundwater depletion would have a negative effect on streamflow – and downstream reaches including the Herke, WIP, and AID diversions, year-round (from the new domestic wells and the retired White water right) and especially during the critical low flow time of year as a result of the mitigation well discharge to the water table at the Narrows.