

Edl, Michele*To File : Pristine Springs Summary*

From: Yenter, Cindy
Sent: Wednesday, April 23, 2008 12:35 PM
To: Edl, Michele
Cc: Scheidt, Nicholas
Subject: RE: which Pristine WRs?
Attachments: Pristine 2002.pdf

Source?

Michelle -

So, you're going to be able to come along? That's great.

Our goal is to try and evaluate the flow from the sunnybrook springs complex which arises in the middle of the Pristine compound. To do this we must first determine total flow through the facility. (Will explain that more fully tomorrow.) This exercise is for the dual benefit of 1) licensing permit 36-8414 from Sunnybrook springs and permit 36-15959 which is for the power plant at the end of the system; and 2) determining the development potential of that spring under the new City of Twin Falls application 36-16592.

You might also review 36-200, 36-2603D and 36-15378 which are decreed rights associated with Sunnybrook springs or Warm Creek.

Just for your edification, attached is a water right analysis and sketch I made of the system back in 2002. Not much has changed since then except for the new application, and this may give you a decent overview of what we are faced with down there. Can't recall if I've sent you this before; I intended to so if I have, sorry for the repeat. But Nick might get something out of it.

See you tomorrow..
 cindy

From: Edl, Michele
Sent: Wednesday, April 23, 2008 11:48 AM
To: Yenter, Cindy; Scheidt, Nicholas
Subject: which Pristine WRs?

Nick, Cindy,
 I am trying to bring myself up to speed on the Pristine Springs water rights by reviewing the scanned backfile documents. Because there are quite a few water rights, could you tell me which we might be concentrating on tomorrow?
 Thanks
 Michele

4/24/2008

**PRISTINE SPRINGS DESCRIPTION OF DIVERSION WORKS
AND SUMMARY OF WATER RIGHT OVERLAPS
October 23, 2002**

Cindy Yenter, Sr. Water Resource Agent, Watermaster Water District 130

Partial licensing examinations have been conducted for permit nos. 36-8094, 36-8573, 36-7757 and 36-8414. This summary has been prepared to supplement the eventual license recommendations and also to aid in the processing of an application for transfer filed pursuant to water right no. 36-7130.

Facility Overview

Pristine Springs Inc operates an aquaculture facility and a hydropower generation plant in the Snake River Canyon in Jerome County. Both trout and warm-water tilapia are raised. Power generated is used at the Sunnybrook Hatchery and sold back to Idaho Power under terms of Pristine's FERC license. The sources of water are Alpheus Creek, Warm Creek, Sunnybrook Springs, geothermal ground water from an on-site well, and waste water from their facility and from Blue Lakes Trout, immediately upstream on Alpheus Creek. A land application system is used to spread solid waste from raceways.

Diversion Works and Measuring Devices (Current Configuration)

There are two primary diversions into the upper end of the facility. The first diversion is a pipeline which conveys first-priority Alpheus Creek water from the Blue Lakes Trout (BLT) pipeline directly into the Pristine ABC raceways. The Blue Lakes Trout facility is situated directly above Pristine Springs on the Alpheus drainage. Total flows in the pipeline are measured at the BLT diversion point over a 14-foot broad-crested weir. Flows to Pristine, amounting to 25.3 cfs under 36-3603C, are rediverted to a 6" pipeline just above the BLT raceways. Rediverted flows are measured through a submerged orifice installed in the 6" pipeline. Discharge from the ABC raceways is also measured over a 16' rectangular weir.

The second and largest upper diversion is a canal which captures tailwater from BLT. Flows in the canal are entirely derived from Alpheus Creek waters which have been diverted and used by BLT. A portion of the canal flow is taken into the Pristine Big C raceways, and the balance is diverted around the raceways in a 42" bypass pipeline. The Big C raceway discharge is measured over a 20' rectangular contracted weir. A weir at the head of the bypass pipeline is not functional due to submergence. Bypassed flows return to an exit canal below the Big C weir, joining discharges from the ABC raceways.

Note: Total flows measured over the BLT weir include both the Pristine first-priority and the BLT second-priority rights from Alpheus Creek. The Pristine first-priority amount is subtracted from the total to determine the BLT net diversion, which is also the amount delivered to the Pristine main canal. Total flows in the canal below the ABC discharge should equal the initial flow measured over the BLT weir.

The exit canal conveys all discharged and bypassed flows from the upper raceways to a point just above the Sunnybrook Hatchery, at the confluence with the old Warm Creek channel, where flows are again split. A portion of flows are diverted into a small impoundment on the Warm Creek drainage, below the Sunnybrook Hatchery. The remainder are placed in a 42"

pipeline and sent to lower raceways. There are no measuring devices at this divergence, although there is a control gate.

Cold water from the canal pipeline is mixed with hot water from the geothermal well and used at the DEFG raceways, situated south of the Warm Creek channel. Flows from the well are conveyed in a 21" pipeline to the main mixing box. The mixing box serves raceways DEFG, a hatch house and spawning ponds. It also receives recirculated warm water from below the raceways and is used to balance and maintain accurate temperature in the warm water raceways. The balance of the cold water goes to cold-water raceways in the same block. At present, 2 raceway runs are used for cold-water rearing, and 8 runs are used for warm-water rearing. Recycled flows are returned to the mixing box with 3, 20hp and 1, 10hp turbine pumps located at the end of the warm raceways and below the spawning ponds. All discharged flows from DEFG are sent to an upper settling pond (above and to the south of the Warm Creek channel), then into a lower settling pond on Warm Creek, and finally into the Snake River. There are no measuring devices at the DEFG raceways.

At the Sunnybrook Hatchery, the flows of Sunnybrook Spring are diverted via pipeline directly into the hatchery building. Discharge from the hatchery building is measured over an 8' rectangular weir and into the impoundment on Warm Creek, joining the waste flows from the upper hatchery. Also collected here are seeps and overflow from Sunnybrook springs which are not used in the hatchery. Flows below Sunnybrook are diverted into a canal leading to the IJK raceways situated north of the Warm Creek channel. Discharges from the IJK raceways occur at three locations into lower Warm Creek, where they flow into the lower settling pond and then into the Snake River. There are no measuring devices at the IJK raceways or in the diversion canal.

The geothermal flowing well at Pristine is equipped with an impeller-type Aquamaster in-line flowmeter, installed in the 12" discharge line from the well. The flowmeter was calibrated by IDWR on 11-14-2001 and found to be operating within $\pm 5\%$ of a standard polysonic meter. Geothermal flows are sent through a horizontal turbine generator prior to being used for fish propagation.

Solid waste from all raceways is pumped to one of two on-site sludge processing stations, situated below the Big C raceways, and below the DEFG raceways. A small amount of tailwater also flows through the sludge stations to help convey the waste to holding sites. During the irrigation season, solid waste is mixed with waste water and land-applied to pasture lands owned by Pristine. Land-applied flows are delivered using a 50hp turbine pump (at upper station) and 60hp turbine pump (at lower station) through pressurized mainline to solid-set or hand line sprinklers.

Water Right Overlap Analysis and Licensing Recommendations

Alpheus Creek

36-2603C is decreed for 25.3 cfs. This is the first-priority diversion on Alpheus Creek used directly in the ABC raceways in Lot 14 (SWNE) Sec 29. It may be measured in two locations: at the bypass orifice at BLT and at the ABC discharge weir. Historically, discharges appear to have been made directly to Warm Creek and were picked up below Sunnybrook under other rights (see below). This is still occurring, except discharges are now commingled with later in time flows, and first travel down a canal before reaching Warm Creek at the Sunnybrook facility. On the day of the exam, the discharge weir indicated a flow of 27.1 cfs.

Permit 36-7757 authorizes diversions of up to 215 cfs which are limited to the diversion of tailwater from Blue Lakes Trout. Diversions may be measured at the BLT weir (total flow minus first-priority bypass). It has been requested that the BLT weir be used as the primary measuring device for this right, and that should be acceptable provided that all of the diversions at Blue Lakes Trout are entirely from Alpheus Creek. POU under this right is shown at Big C raceways in Lot 14, and also in Lot 11. Secondary uses below Big C are actually at DEFG raceways, or in return flows to Warm Creek. There can be no specific use attributed to IJK raceways because the contribution to Warm Creek is not quantified. There is no use in Lot 11. The DEFG raceways are not included in the place of use of this permit and will be recommended to be added through licensing amendment. The highest recorded flow through the BLT raceways in 2000 was 209 cfs. Data from 2001 are incomplete because the measuring device was under reconstruction.

Sunnybrook Springs and Warm Creek

Warm Creek is a dry channel which only flows below Sunnybrook springs due to the influx from the springs, and return flows from the Pristine Canal.

Decreed right 36-2603D, 1.9 cfs, is diverted directly from Sunnybrook Springs and is used in the Sunnybrook hatchery building. The original location of this hatchery may have been in Lot 11. Its present location is in Lot 9 (NENW) Section 29.

Decreed right 36-200, 40 cfs, lists springs and Warm Creek as a source. Its POU is listed and shown as the Sunnybrook hatchery in Lot 9, raceways IJK in Lot 10 (NWNW) Sec 29 and Lot 4 (SWSW) Sec 20, and raceways DEFG in Lot 8 (NENE) Section 30, although flows from this source do not reach the DEFG block.

Permit 36-8414, 20 cfs, from Sunnybrook Springs, includes places of use for Sunnybrook Hatchery and IJK raceways. Flows from Sunnybrook Springs are not diverted directly to IJK. Rather, flows tributary to Warm Creek, including Sunnybrook Springs and the returned flows from Alpheus Ck, are diverted to IJK. Flows under this right are not really needed in the Sunnybrook hatchery, as the maximum reported flows over the Sunnybrook weir are around 8 or 9 cfs, and the earlier rights cover that amount. However, they may be needed to cover maximum diversions at IJK. Possible licensing amendments may include modifying the water source to Warm Creek.

Recommended right 36-15378, 748 acre-feet. This right is for the impounded flows in the settling pond on lower Warm Creek.

Flows from this complex are measured only over the Sunnybrook hatchery weir. Incoming return flows from the Alpheus canal are not measured. There is no device on the canal to IJK raceways. On the day of the exam, the Sunnybrook weir indicated a flow of 9.44 cfs.

Ground Water

Decreed right 36-7130, 4.5 cfs for fish propagation. POD and POU shown in Lot 14 (SWNE) Sec 29, also the location of the Big C raceways. Historical use of this right was in an earthen pond also in this location (see *Affidavit of Wendell Stark, attached*). However, present use is only in the DEFG raceways in Lot 10 (NENE) Sec 30. A transfer is pending to add Lot 10 as a place of use under this right.

Permit 36-8094, 7.0 cfs for power production. A condition of use on this permit limits diversions for power to the amount which may be beneficially used for the heat value of the water. POD and POU are incorrectly shown on permit as in NWNE Sec 29 and must be amended.

Claim 36-15218 for aesthetic storage was disallowed.

Waste Water

Permit 36-8573, 4.0 cfs for water quality improvement, through land application of fish waste. A license exam has not been conducted for this permit.

Claim 36-15336 was disallowed.

