



2918 N. El Rancho Place, Boise ID 83704
Office: (208) 378-1513 Cell: (208) 870-0345 Fax: (888) 538-7703
www.idahowaterengineering.com info@idahowaterengineering.com

MEMORANDUM

TO: Director Gary Spackman, Idaho Department of Water Resources
FROM: Dave Tuthill and Hal Anderson
DATE: November 17, 2020
RE: Supplemental Disclosures under Rule 40.05
IN THE MATTER OF APPLICATIONS FOR PERMIT NOS. 63-34403, 63-34652, 63-34897
AND 63-34900 IN THE NAME OF CAT CREEK ENERGY, LLC

The memorandum provides additional information under Water Appropriation Rule 40.05 pursuant to the ORDER RE: SBAR RANCH, LLC AND THE DISTRICT AT PARKCENTER, LLC'S RENEWED MOTION FOR RULE 40.05.b; ORDER FOR APPLICANT TO SUBMIT COMPLETE RULE 40.05 INFORMATION issued by the Director of IDWR dated October 20, 2020.

Rule 40.05.c Effect on Existing Water Rights

Cat Creek shall submit documents analyzing and discussing how water diversions, releases, storage retention, and losses will be measured. Cat Creek should also analyze and discuss how data will be gathered, downloaded, and transmitted, including the employment of telemetry. Finally, Cat Creek should evaluate the possibility of remote control over pumps, gates, release valves, and the like, in order to ensure the watermaster can control and regulate diversion and release of water in real time.

The pumped storage hydro (PSH) system proposed by CCE consists of an inlet pipe to a manifold with six turbines, each with its own penstock running up the slope to the storage reservoir. It is neither practical nor necessary to install flow meters on the penstocks. Rather, as with other large storage reservoirs in Basin 63, the amount of water diverted to and released from Cat Creek Reservoir will be calculated daily based on the change in storage in Cat Creek Reservoir. Watermaster regulation will likewise occur on a daily basis.

The Water District 63 Watermaster will be involved in regulating (1) the diversion of natural flow from the South Fork of the Boise River via the turbines to fill Cat Creek Reservoir (CCR), and (2) the distribut of storage water released to downstream uses. During these times the flows in individual penstocks are not important. Rather, flows and volumes are integrated by a measurement of the change in storage of CCR. Reservoir storage is computed by inputting the surface elevation in a storage rating table. CCE will measure the reservoir level continuously using a calibrated pressure transducer and will report this information as well as the resulting storage computation on a website. The rate at which water is diverted into and released from the reservoir is a function of the change in volume. CCE will thus provide to the Water District 63 Watermaster real-time monitoring of fills and releases from CCR, including (1) rate of fill or discharge, and (2) total storage. As with other diversions within Water District 63, the granularity of this control is daily.

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Most of the time CCE will be operating the reservoir as a battery storage system, releasing storage for electrical power production and pumping to store excess and intermittent energy produced by Variable Renewable Energy generators. The operation of Cat Creek Reservoir when only stored water is being moved between the two reservoirs will be governed by a Lease of Power Privilege with the Bureau of Reclamation. These operations will not involve the diversion of the natural flow from the South Fork Boise River or the release of storage for delivery to downstream users; therefore, the Water District 63 Watermaster will not regulate such operations.

The Water District 63 Watermaster does not presently control the diversion of water at any of the major diversions by physically opening or closing headgates or turning pumps on or off. For liability, logistical, and other reasons, it is not feasible for the operators of large reservoirs to turn over control of their mechanical diversion systems to the Water District 63 Watermaster. Instead, the Watermaster monitors records of diversions and instructs water users who operate the diversion systems to either (1) continue to divert (using either natural flow or storage), or (2) cease diverting. Regulation of CCE's diversions of natural flow and releases of storage to downstream users will occur in the same manner. As with other operators of storage reservoirs on the Boise River System, CCE does not anticipate being able to give the Watermaster remote control over the mechanical systems used to divert water into and release water from Cat Creek Reservoir. Should that become necessary and feasible, CCE will accommodate it.

As CCR will be fully lined, loss will be limited to evaporation. Evaporation will be calculated the same as it is for other reservoirs throughout the state, using evapotranspiration data for "Open Water – Deep Systems" for the Anderson Dam measuring station in Elmore County, Idaho, published by the University of Idaho on its ET Idaho website (<http://data.kimberly.uidaho.edu/ETIdaho/>). Evaporation loss is a function of surface water area and weather conditions, and typically is computed annually although CCE will be open to more granular computations. Evaporative losses will either (a) be replaced by diversions of natural flow when available in priority under CCE's water rights, (b) be replaced with storage water rented from the Water District 63 Rental Pool or through a private lease, or (c) temporarily deplete water stored in Cat Creek Reservoir.

Rule 40.05.d Sufficiency of Water Supply

Cat Creek shall submit documents containing specific information about how much water will be daily pumped to the reservoir and stored to generate power, and the timing of the pumping and subsequent releases of water for power generation.

As described above, throughout most of the year, CCE will be operating the system using its own storage water, functioning as an energy storage battery, under a Lease of Power Privilege with the Bureau of Reclamation. These operations have no impact on the amount of flow in the South Fork Boise River entering into and being released from Anderson Ranch Reservoir. The amount of storage utilized to generate power will be dependent upon (a) the volume of storage water available to generate power under CCE's hydropower water right (63-34403), and (b) energy demand. The timing during which storage will be utilized to generate hydropower will also be dependent upon energy demand. CCE cannot prospectively document the volume and timing of water that will be daily pumped and released to generate power because this is dependent on power prices and contract obligations, and can vary from hour to hour and day to day. As stated above, however, this operation does not impact other water rights in the Boise River basin as it depends on movement of stored water between Cat Creek Reservoir and Anderson Ranch Reservoir.

Water right application 63-34403 proposes the diversion of up to 9,996 cfs for power storage. Thus, the maximum rate at which water may be pumped into CCR is 9,996 cfs. CCE cannot prospectively document specific information about the rate at which water will be daily pumped and released to generate power, again due to factors including supply and demand for power, and contractual obligations.

An analysis performed by IWE of the IDWR water right accounting data revealed that if the next 20 year water supply is similar to the previous 20 year period, CCE could expect that water would be available to fill the CCE 100,000 acre-foot reservoir between 40 and 50 percent of years and some amount of water would be able to be diverted between 60 and 70 percent of years.