

BEFORE THE U.S. DEPARTMENT OF AGRICULTURE

BEFORE THE SECRETARY OF AGRICULTURE

In re:) EPAct Docket No. 09-0055
)
Public Service Company of Colorado)
d/b/a Xcel Energy)
Tacoma Hydroelectric Project)
FERC No. 12589-001)
)

Decision and Order

In this decision, which is the first issued by the United States Department of Agriculture (USDA) under the FERC Hydropower Licensing Provisions of the Federal Power Act, I find that Petitioner Public Service of Colorado (“PSCo”) d/b/a Xcel Energy did not meet their burden of persuasion on six of the seven contested issues of material fact that were the subject of this proceeding. I find in favor of PSCo on the 7th contested issue in that there was not a determination that the construction of the stream flow device required by Condition 18 made the project economically viable.

Procedural Background

This matter arises out of a process whereby the USDA’s Forest Service may impose mandatory conditions on licenses to operate hydropower facilities which have an impact on lands under the jurisdiction of the Forest Service. PSCo, the current license holder for the facility in question, applied on June 25, 2008, for a new license to continue operation of the facility. On October 29, 2008, the Forest Service imposed a number of preliminary conditions to the issuance of the license. On December 3, 2008, PSCo filed a request for

a trial-type hearing under Section 4(E) of the Federal Power Act, identifying eight issues of material fact which it alleged were in dispute. All eight issues were related to two of the conditions (17 and 18) imposed by the Forest Service.

On January 28, 2009, this matter was referred by the Forest Service to the United States Department of Agriculture's Office of Administrative Law Judges. Under the Rules of Procedure governing hydroelectric matters, 7 CFR §1.601 et seq., these cases are handled in a particularly expeditious manner, with discovery, an on-the-record hearing, and a written decision by the administrative law judge all to be accomplished within 90 days of referral.

On February 2, 2009, I entered a Docketing Order in which I set a prehearing telephone conference for February 17, 2009. The parties entered into a pre-trial Stipulation on February 15, agreeing on a number of procedural matters, such as the utilization of electronic filing, the agreement that the appropriate hearing site would be at the Forest Service's Regional Office in Golden Colorado, and that the hearing would be conducted during the week of March 30, 2009. The parties also agreed that PSCo would have the burden of proof in this case,¹ and that PSCo witnesses would testify before Forest Service witnesses.

On February 17, 2009, I conducted a pre-trial conference related to discovery issues and issued a Summary of the Pre-Hearing conference on February 20, 2009. On March 18, 2009, the parties entered into a Joint Stipulation related to Discovery matters.

The Forest Service filed motions to dismiss all eight of the issues proposed by PSCo.

¹ This would be consistent with my ruling in Idaho Power Company, 65 Ag. Dec. 278 (2006), as well as with the rulings in Avista Corporation v. U.S. BIA, FERC Docket 2545, 12606, and Klamath Hydroelectric Project, FERC Docket 2082.

On February 27, 2009, I dismissed the sixth numbered issue², and denied the motions with respect to the remaining seven issues. I also ordered that all discovery be completed by March 16, 2009.³

On March 23, 2009, the parties filed written direct testimony⁴ as required by the rules of procedure. The rules in these hydroelectric cases require that all witnesses present their testimony in writing within five days after the close of discovery, and that any witness submitting such written testimony must be presented in person at the hearing to be available for cross examination. The written testimony must be authenticated via affidavit or declaration. PSCo presented the written testimony of five witnesses, while the Forest Service presented the written testimony of eight witnesses. Each witness indicated the exhibits he or she was proposing to be introduced into evidence.

I conducted a hearing in Golden, Colorado on March 31-April 1, 2009. Donald H. Clarke, Esq. and Rekha Rao, Esq. represented PSCo, while the Forest Service was represented by Lois G. Witte, Esq. and Randy Bramer, Esq. Each of the thirteen witnesses who submitted written testimony was made available for cross examination. In addition, after the Forest Service objected to the admission of an affidavit⁵ by Jon Ickes, an individual who was not slated to testify, I allowed PSCo to present Mr. Ickes to validate his affidavit and to be subject to cross examination.

² “PSCo’s development and operation of the project has established existing conditions in the bypass reach that are inconsistent with those goals established by the USFS in the Forest Service plan.”

³ There was some confusion as to whether the interrogatory responses were due earlier than March 16 pursuant to Rule 1.643(c), which resulted in the Forest Service submitting their responses several days earlier than PSCo, but I determined that PSCo was entitled to rely on my order, and that no prejudice resulted in any event.

⁴ Exhibits are styled as follows: Forest Service as FS Ex., Public Service of Colorado as CX, Joint Stipulation as JS, Joint Exhibit as JS Ex., Transcript as Tr.

⁵ CX 17.

At the start of the hearing, the Forest Service moved that PSCo be sanctioned for failure to fully comply with discovery, in that thousands of pages of emails and other documents were turned over to the Forest Service in the days immediately before the hearing. The Forest Service contended that they did not have the time to review the documents, particularly as they would apply to the cross examination of John Devine. I declined to impose sanctions, but indicated, repeating what I had stated in an earlier telephone conference concerning discovery, that I would continue the hearing for a few days if necessary. When Mr. Devine was presented for cross-examination on March 31, the Forest Service declined to cross-examine him, requesting that I continue the hearing until Tuesday, April 7, 2009 so that they could cross-examine Mr. Devine through audio-visual means. I indicated that I would reluctantly grant this request, even though it would not change the due dates for briefing and the issuance of my decision.

At the conclusion of the cross-examination of the Forest Service witnesses on April 1, the Forest Service indicated that they were able to review all the documents submitted by PSCo, and that they would waive their right to cross-examine Mr. Devine. Accordingly, I closed the hearing at that point.

On April 13, 2009, the parties submitted their post-hearing briefs and proposed findings of fact.

In these proceedings, the administrative law judge plays a more limited role than in traditional adversarial proceedings. Rather than make findings of fact and conclusions of law, I am only allowed to make “findings of fact on all disputed issues of material fact.” Rule 1.671(b)(1)(i). I may only make “[c]onclusions of law necessary to make the findings of fact (such as rulings on materiality and on the admissibility of evidence).”

Rule 1.671(b)(1)(ii). I cannot make any conclusions on the ultimate issues—whether conditions should be adopted, modified or rejected. Rule 1.671(b)(3).

Statutory and Regulatory Background

The Energy Policy Act of 2005 ("EPAAct") amended Section 4(e) of the Federal Power Act ("FPA") to include the following language:

The license applicant and any party to the proceeding shall be entitled to a determination on the record, after opportunity for an agency trial-type hearing of no more than 90 days, on any disputed issues of material fact with respect to such conditions. All disputed issues of material fact raised by any party shall be determined in a single trial-type hearing to be conducted by the relevant resource agency in accordance with the regulations promulgated under this subsection and within the time frame established by the Commission for each license proceeding.

See Pub. L. No. 109-58, Title II, § 241, 119 Stat. 675 (Aug. 8, 2005) (codified at 16 U.S.C. §797(e)).

In response to this legislative direction, the USFS issued interim procedural regulations implementing the changes set forth by the EPAAct, effective November 17, 2005 (codified at 7 C.F.R. Part 1). These interim regulations remain in effect.

The interim regulations, at 7 C.F.R. § 1.621, provide that a license applicant or other license party may submit a request for a trial-type hearing on disputed issues of material fact to the Deputy Chief, National Forest Systems, USFS. Any such hearing request must be filed within 30 days after the deadline for the agencies to file preliminary conditions with FERC.

This expedited trial-type proceeding arises under Section 241 of the Energy Policy Act of 2005, Pub. L. No. 109-58, § 241, 119 Stat. 594, 674-75 (Aug. 8, 2005) ("EPAAct"), codified at 16 USC § 797(e). Section 241 amends sections 4(e) and 18 of the Federal Power Act ("FPA"), amended and codified at 16 USC. §§ 791-823d. Those sections

provide certain federal agencies authority to include conditions and/or fishway prescriptions in any hydroelectric license issued or re-issued by FERC. See 16 USC § 797(e). The EPAct creates a new administrative hearing procedure, within the FERC application review process, to resolve disputed issues of fact material to those proposed conditions.

Under section 4(e), the Secretary of the Department of the Agriculture – Forestry Service ("FS"), may establish conditions deemed necessary for the protection of national forests:

and public lands to be included in a hydroelectric license. See 16 USC § 797(e). Pursuant to section 241 of the EPAct, "[t]he license applicant and any party to the proceeding shall be entitled to a determination on the record, after opportunity for an agency trial-type hearing of no more than 90 days, on any disputed issues of material fact with respect to such conditions." 16 USC. § 797(e).

Factual Background

A. Project Description

PSCo filed an application for a new license for the continued operation of the Project on June 25, 2008.⁶ The Commission issued a Notice of Application Ready for Environmental Analysis on September 4, 2008.⁷ On October 29, 2008, USFS submitted its preliminary Section 4(e) conditions.⁸

The Project is located approximately 20 miles north of Durango, Colorado, on a high

⁶ *Public Service Company of Colorado*, Application for License, FERC Docket No. 12589 (June 25, 2008), <http://elibrary.ferc.gov/idmws/searehl/intermediate.asp?linkfile=yes&doclist=13624685>.

⁷ *Public Service Company of Colorado*, Notice of Application Accepted for Filing, Soliciting Motions to Intervene and Protests, Ready for Environmental Analysis, and Soliciting Comments, Recommendations, Preliminary Terms and Conditions, and Preliminary Fishway Prescriptions, FERC Docket No. 12589 (Sept. 4, 2008), <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11794507>.

⁸ *USDA Forest Service*, Comments, Preliminary Terms, Conditions, Recommendations, and Summary of Evidence by the USDA Forest Service, Rocky Mountain Region, FERC Docket No. 12589 (Oct. 29, 2008), <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11840863>.

intermountain plateau west of the Animas River in La Plata and San Juan Counties. Water used by the Tacoma Project for generation purposes originates in three drainage basins: Cascade Creek, Little Cascade Creek, and Elbert Creek. The primary water storage reservoir is Electra Lake. The Cascade Creek diversion dam and conveyance facilities provide the primary water supply for the Project. These diversion facilities consist of a diversion dam on Cascade Creek. The Cascade Creek diversion dam is located approximately 4,400 feet upstream of where U.S. Highway 550 crosses Cascade Creek and 3.2 miles upstream of the confluence of Cascade Creek and Lime Creek at Purgatory Flats. The diversion dam is approximately 30 feet long and 10 feet high.

The Project has been in existence for over a century. It has been resold and expanded a number of times and has been licensed under the Federal Power Act since 1936. The current license expires on June 30, 2010. Public Service Company of Colorado (PSCo) acquired the Project in 1992. FERC transferred the license to PSCo by order dated April 15, 1992.

The annual operation of the Project is significantly affected by the hydrology of Cascade Creek, especially the annual snow pack and its rate of runoff, the severe winter conditions experienced at the site, and the remote location of certain project facilities. The general arrangement of the Project facilities is shown in Figure B-1 of Exhibit CX-47. Given the altitude and the climate, Cascade Creek unsurprisingly has greatly reduced flow during the winter.

Water diverted from Cascade Creek flows through Little Cascade Creek, and eventually to PSCo's plant for hydraulic conversion to electricity. The water is stored in Electra Lake so as to balance variations in seasonal stream flows. The waters diverted

from Cascade Creek are such that the full flow of the Creek is captured by the diversion dam approximately 95% of the time and transported via an open flume and pipe to Little Cascade Creek. J.S. ¶ 1. The bypassed water continuing on as Cascade Creek plus accretions into Cascade Creek flow without controls (run of stream) to the hydroelectric facility downstream. PSCo also owns substantial water rights and trades or sells water to the Durango Mountain Resort, primarily for use in snow making.

The diversion dam, and the 6.6 miles of Cascade Creek impacted by the flow loss until the confluence of the Creek and the Animas River, is located on National Forest System lands, and is part of the San Juan National Forest (SJNF). The Tacoma Project currently operates under FERC license No. 400, which will expire on June 30, 2010. JS ¶1. The SJNF operates under a comprehensive plan filed with FERC which documents how waterways affected by hydroelectric projects will be improved or developed for beneficial public uses, including the protection of fish and wildlife. JS ¶ 1. This plan was last amended in 1992.

B. The Delphi study

As part of the relicensing process, the Forest Service requested that PSCo conduct an Instream Flow Incremental Methodology (IFIM) using the Physical Habitat Simulation (PHABSIM) model to evaluate the effects of flow on aquatic habitat. This study would be for the purpose of determining whether the SJNF plan's standard that "Habitat for each species on the forest will be maintained at least at 40% or more of potential" is met. FS Ex. 151, p. 13, FS Ex. 95, p. III-26. The PHABSIM is considered a precise quantitative tool, but can be costly and time-consuming. In fact, PSCo was concerned about the expense of a PHABSIM and countered with a proposal that a "Delphi-type"

assessment be used. FS Ex. 151, p. 25. The Forest Service agreed to the Delphi study. A study team was chosen to identify site specific management objectives and carry out the study. The Delphi Study team consisted of four biologists with voting authority, and one facilitator, who did not have a vote. The facilitator, Stephen Arnold, was employed by Devine Tarbell & Associates, Inc. (DTA),⁹ a consultant firm hired by PSCo. The voting members of the Delphi team were Andrew Scott, also of DTA, Mark Uppendahl of the Colorado Division of Wildlife (CDOW), and David Gerhardt and Justin Jiminez of the Forest Service.

The purpose of a Delphi-type study is to utilize a team of experts using their collective best professional judgment (“BPJ”) to resolve quantitative issues where absolute answers may not be possible via a consensus method. The philosophy behind it is essentially that a consensus of experts attempting to resolve complex technical questions can come up with a more accurate answer than the opinion of a single expert. FS Ex. 192, p. 2. The primary purpose of the Delphi Team was to develop biologically based flow recommendations based on changes to fish habitat from various released flows. FS Ex. 16, p. 3. The team crafted management objectives and underlying attainment criteria with the notion of examining what flows would be needed to achieve the 40% minimum habitat standard required by the SJNF Forest Plan. FS Ex. 31, pp. 7-9.

While several aspects of the Delphi study will be discussed in the context of the specific disputed material facts, several general points apply across the board. First, the study was undertaken at the behest of PSCo after they decided the PHABSIM study would be too costly and time consuming. Second, the study was agreed to by the Forest

⁹ By the time of the hearing, the name of DTA had been changed to HDR, but DTA was the name used throughout the hearing, and in all pertinent documents. Tr. 123.

Service and approved by FERC. Third, there was no evidence of absence of consensus on any aspect of the study; in fact, it is clear that Mr. Scott kept his boss, John Devine, and PSCo, informed of all issues and decisions of the Delphi team. Tr. 173-174. Fourth, after the Delphi team had issued its initial conclusions, Mr. Devine issued clear instructions to Mr. Scott, Devin Malkin and Alfred Hughes in an email on April 24, 2008, that “we”—presumably DTA on behalf of PSCo—“are going to need to construct a well-conceived and technically sound approach to disprove the need for, and merit of, the likely bypass flow to be recommended by the USFS.” FS Ex. 188. While Mr. Scott testified that he was never issued the hydrology assignment, designed to question the flows recommended by the Delphi team, he also testified that Mr. Devine did not have any problem with the assumptions of the Delphi team, and that part of his job, which he accomplished, was to keep Devine informed. Thus, even though the Delphi study was proposed by PSCo, actively participated in and adopted by all members of the Delphi team, and that DTA and PSCo knew of the recommendations of the study team, there was an 11th hour decision made to attempt to overturn the key recommendation that the study was set up for in the first place.

The Delphi Report, FS Ex. 16, was issued in July 2007. However, a final report was resubmitted to FERC by PSCo in December 2007. CX 67. While the two reports remained substantially the same, the December submission contained, as an attachment, a hydrology study prepared by PSCo. The study was not made a part of the actual Delphi team’s recommendations because the team members were unable to reach consensus on its applicability or usefulness. The Delphi report clearly started with the premise that the “Project’s diversion of flow from Cascade Creek has affected downstream aquatic and

riparian resources and has altered the natural conditions related to aquatic habitats, fish populations, macroinvertebrates, water quality, and riparian vegetation communities downstream of the diversion dam. Many of the present physical and biological attributes of the stream system are the product of the altered flow regime.” FS Ex. 16, p. 1, CX 67, p. 7 (p. 1 of the Delphi Report). The target species of the study included brook, brown, rainbow and cutthroat trout.

Overall, the team concluded “that project diversions limit the quantity and quality of fish habitat within the bypass reach during much of the year. The project diverts the majority of natural flow with the exception of leakage at the dam and accretion downstream of the diversion dam. As a result, wetted perimeter and overall stream depth on Cascade Creek is decreased, as well as pool frequency, residual pool depth, and overall pool quality, which results in a reduction of over-wintering habitat quality and year-round cover features.” CX 67, p. 18. After evaluating three different flows, the team came to a consensus that the 9 cfs would be the minimum necessary to safeguard the habitat at the standard required by the SJNF plan.

The Delphi Team consensus on biologically-based minimum instream flows and proposed flow sharing plan are as follows:

- When inflow to the diversion dam equals or exceeds 9 cfs, the minimum flow at the diversion dam to Cascade Creek (as measured immediately below the dam) is recommended to be 7 cfs, plus accretion downstream of that point, and the minimum flow diverted to the flume to Little Cascade Creek (as measured at the point of diversion) will be 2 cfs plus any additional inflow above 9 cfs.

■ When inflow to the diversion dam is less than 9 cfs, the minimum flow diversion to the flume will remain at 2 cfs, and the flow to Cascade Creek will be equal to inflow minus 2 cfs. This accomplishes two goals: (1) two cfs diverted into the flume will prevent winter freezing and subsequent failure of the flow line; and (2) it allows for the diversion structure to be set at 2 and 7 cfs before the winter season begins without concern for constant monitoring, at this inaccessible location, based on variable stream flows.

■ This proposal is based on the assumption that the 2 cfs flow diverted to the flume is for the primary purpose of preventing ice damage to the flow line flume and pipe, which could threaten the long term operation and viability of the Tacoma Project.

■ This proposal also assumes that natural flows and accretions to Little Cascade Creek will equal or exceed 2.5 cfs where, in combination with the 2 cfs diversion from Cascade Creek, it will achieve the biologically-recommended minimum flow of 4.5 cfs at the spawning site.

There were two reasons for this assumption: (1) modeled hydrology predicts that 2 cfs is always available in Cascade Creek to be diverted into the flume to prevent winter freezing and subsequent failure of the flow line; and (2) accretion flows were assumed to be locally enhanced due to the presence of Columbine Lake and its potential influence on local groundwater.

List of Factual Issues in Dispute

Each of the remaining seven disputed issues relates to two conditions imposed by the

Forest Service. Condition Number 17¹⁰ required that PSCo provide year round continuous minimum flows to the bypass reach in Cascade Creek of 9 cubic feet per second (cfs), of which 2 cfs would be directed to the Project flume. Where the flows upstream of the diversion are less than 9 cfs, the first 2 cfs would be directed to the flume, to prevent damage from freezing. Condition 18¹¹ required that PSCo construct, operate and maintain a device that would guarantee the stream flows required by Condition 17 and also construct means to measure and record compliance with the stream flow requirements.

Disputed Issue #1: There is a direct relationship between Project operations and reduced ecosystem sustainability in Cascade Creek.

Disputed Issue #2: The mandatory condition requiring instream flows below Cascade Creek (USFS Condition #17) is consistent with the results of the Delphi Study.

Disputed Issue #3: The mandatory condition requiring instream flows below Cascade Creek (USFS Condition #17) is required to comply with the USFS' quantitative "standard", set forth in the Forest-Wide Direction, Wildlife and Fish Resource Management, of maintaining habitat for each species on the forest at 40 percent or more

¹⁰ **Condition No. 17— Instream Flow Requirements**

The Licensee shall provide year-round continuous minimum flows in the bypass reach in Cascade Creek as follows:

- When flows upstream of the diversion dam equal or exceed 9 cubic feet per second (cfs), the Licensee shall release an instantaneous instream flow of 7 cfs downstream into Cascade Creek (as measured approximately 100 yards below the dam). This will allow a minimum of 2 cfs to be maintained in the Project flume.
- When flows upstream of the diversion dam are less than 9 cfs, the Licensee shall release an instream flow downstream of the dam in Cascade Creek equal to inflow less 2 cfs; said 2 cfs shall be diverted to the Project flume. JS Ex. 18 at 84

¹¹ **Condition No. 18— Guaranteed Priority Flow Bypass Device and Gaging**

In order to ensure that the instream flows required are released, the Licensee shall construct, operate, and maintain a guaranteed priority streamflow device, approved by the US Forest Service, as part of the diversion/intake structure. Minimum flows required by the instream flow condition shall be automatically released through this device. At least 60 days prior to beginning construction of the diversion structure, the Licensee shall file for Commission approval functional design drawings and an implementation schedule for the guaranteed priority streamflow device. JS Ex. 18 at 85

of potential.

Disputed Issue #4: PSCo's water diversion on Cascade Creek degrades aquatic habitats and has diminished the aquatic ecosystem from the Cascade Creek diversion dam to the Animas River.

Disputed Issue #5: Only "minor flow accretions" occur between the diversion dam and Mill Creek and therefore the dewatering of Cascade Creek diminishes public uses of the aquatic resources in the bypass reach.

Disputed Issue #7: The USFS requirement in Condition No. 18 that PSCo construct and operate a stream flow device to deliver the flows required by Condition No. 17 is based on a collaborative determination with utility representatives and allows PSCo to maintain an economically viable project.

Disputed Issue #8: The Delphi Team made a technical assessment of the storage capacity of Columbine Lake, its contribution to local groundwater sources, the amount of local groundwater flows to Little Cascade Creek, and the resulting impacts of the Delphi Team recommendation on the aquatic resources of Little Cascade Creek.

Findings of Fact

Findings 1 through 28 have been stipulated to by the parties.

1. The Tacoma Hydroelectric Project ("Project") is located approximately 20 miles north of Durango, on a high intermountain plateau west of the Animas River in Las Plata and San Juan Counties. It is owned by Public Service Company of Colorado (PSCo). Water used by the Tacoma Project for power generation purposes originates in three drainage basins; Cascade Creek, Little Cascade Creek, and Elbert Creek. The primary water source for the Project comes from the watershed of Cascade Creek. "Except for

leakage at the diversion facilities, the Cascade Creek diversion dam captures the full flow of Cascade Creek approximately 95 percent of the time." JS Ex.1; FERC Accession No. 20050523- 0021. The primary storage reservoir is Electra Lake.

2. The Cascade Creek diversion dam and conveyance facility provides the primary water supply for the Project. These diversion facilities consist of a diversion dam on Cascade Creek has a current hydraulic capacity of approximately 250 cfs.

3. The Cascade Creek diversion dam is located approximately 4,400 feet upstream of the U.S. Highway 550 crossing of Cascade Creek. The Project's inverted siphon crosses over Cascade Creek immediately upstream of U.S. Highway 550. Mill Creek enters Cascade Creek less than 0.5 miles downstream of U.S. Highway 550. Approximately 3 miles downstream from the Cascade Creek diversion structure is a stream reach referred to as Purgatory Flats. Lime Creek flows into Cascade Creek at Purgatory Flats.

4. Portions of the Project, in particular the diversion structure located on Cascade Creek, are located on National Forest System ("NFS") lands, specifically on the San Juan National Forest ("SJNF")

5. There are no gages on Cascade Creek which record the flow of Cascade Creek.

6. The water diverted from Cascade Creek is transported through the Project's conveyance facilities, and then released into Little Cascade Creek. A gaging station used by the Colorado Division of Water Resources ("CDWR") for recording diverted flows exiting the Cascade Creek diversion pipe is located at the outlet of the pipe where the diverted flow enters the channel of Little Cascade Creek. Little Cascade Creek conveys water to Aspaas Lake which then diverts water into Electra Lake. Water stored in Electra Lake is conveyed to the Tacoma powerhouse.

7. The Tacoma Project operates primarily as a peaking facility.
8. The SJNF Land and Resource Management Plan, as amended in 1992 (SJNF Forest Plan) is filed with the Federal Energy Regulatory Commission ("FERC") pursuant to FERC requirements as a comprehensive plan that documents how the waterways affected by hydroelectric projects will be improved or developed for all beneficial public uses, including the protection of fish and wildlife and other beneficial public uses. See SJNF LAND AND RESOURCE MANAGEMENT PLAN, AS AMENDED IN 1992 (SJNF Forest Plan) JS Ex. 2; PSCo Hearing Request Ex.4.
9. The Tacoma Project currently operates pursuant to FERC license No. 400 (Tacoma-Ames Project). This license will expire on June 30, 2010.
10. FERC established new rules, including the establishment of a new Integrated Licensing Process (ILP) for licensing of hydropower projects, on July 23, 2003 (Final Rule and Tribal Policy Statement). Although FERC did not require license applicants to use the ILP as the default licensing process until July 23, 2005, PSCo chose to use the ILP and commenced informal meetings of interested stakeholders, which included establishment of Resource Working Groups (RWG) in 2004.
11. The ILP is a well-defined process with both short time frames and strict time lines; the intent of the informal meetings proposed by PSCo was to provide opportunity for stakeholders to work closely together prior to formal commencement of the proceeding to identify resource issues, review existing studies and data, identify information needs, and review study plans.
12. On May 20, 2005, PSCo filed a Notice of Intent to File License Application for a New License (NOI) and a Pre-Application Document (PAD) [JS Ex. 3; FERC Accession

No. 20050523-0020].

13. In response to the NOI and PAD, FERC issued Scoping Document 1 (SDI) on July 12, 2005 [JS Ex. 4; FERC Accession No. 20050712-3009]. The public scoping process is done to "ensure that all pertinent issues are identified and analyzed and that the Environmental Assessment is thorough and balanced" [JS Ex. 4; FERC Accession No. 20050712-3009, page 2]. Because PSCo intends to seek separate licenses for the Tacoma and Ames Projects, SDI also established a new project number for the Tacoma license proceeding, P-12589.

14. FERC subsequently commenced the proceeding, starting the relicensing process through recognition of the PSCo NOI filing, and solicited comments on the PAD, SDI, and study requests on July 21, 2005 [JS Ex. 5; FERC Accession No. 20050721-3065].

15. The U.S. Forest Service (USFS) filed comments on the PAD and SDI, on September 16, 2005 which included Forest Service comments on PSCo's proposed studies. [JS Ex. 6 (Answer FS Ex. 13); FERC Accession No. 20050916-5020]. The USFS noted that the PAD did not disclose resource impacts from the Cascade Creek diversion, including effects to "water quantity, fish and aquatic resources, and wildlife" and that "diverting all flows from a stream 95% of the time is likely to affect resources" [JS Ex. 6 (Answer 3 FS Ex. 13); FERC Accession No. 20050916-5020, page 4]. Additionally, the USFS formally requested a study based on the Water RWG issue assessment "Instream Flows below Cascade Creek Diversion Dam" [JS Ex. 6 (Answer FS Ex. 13); FERC Accession No. 20050916-5020, page 8].

16. PSCo informed the RWG that it was concerned about the costs of a PHABSIM study and suggested as an alternative, the use of a "Delphi-type assessment" in their

comments to FERC on stakeholder study requests and in their Proposed Study Plan package dated November 1, 2005 [JS Ex. 7 (Answer FS Ex. 24); FERC Accession No. 200511015038, pages 4, 7-24].

17. The USFS committed to working with PSCo to make the Delphi process work. USFS informed PSCo that it would fallback to using the PHABSIM assessment unless the management objectives and attainment criteria met FS information needs [JS Ex. 8 (Answer FS Ex. 23); FERC Accession No. 20051220-5016, pages 1-4].

18. On January 26, 2006, the USFS provided comments to PSCo's draft Delphi-type study plan. [JS Ex. 9; FERC Accession No. 20060127-5049]

19. PSCo filed their revised Study Plan with FERC on March 1, 2006. PSCo proposed the Delphi Study Plan. [JS Ex. 10 (PSCo Hearing Request Ex. 11; FERC Accession No. 20060301-5047).

20. The USFS filed comments on PSCo's revised Study Plan on March 9, 2006. JS Ex. 11 FERC Accession No. 20060309-5130.

21. PSCo filed the final Delphi Report. This report was based upon, and reviewed by, a technical study conducted by a technical team which included the USFS, Devine Tarbell and Associates, and Colorado Division of Wildlife, on July 9, 2007 [JS Ex. 12 (FS Answer Ex. 16); FERC Accession No. 20070709-5029].

22. The USFS filed comments with FERC (dated July 26, 2007) on the final Delphi Report on July 27, 2007 [JS Ex. 13 (FS Answer Ex. 14); FERC Accession No. 200707275023].

23. PSCo filed with FERC the Response to Comments on the Initial Draft Study Reports and Study Report Meeting Summary on July 20, 2007 (JS Ex. 14; FERC

Accession No. 20070720-5065)

24. The USFS filed with FERC a request for an economic study for the Project on May 24, 2007 [JS Ex. 15 (FS Answer Ex. 18); FERC Accession No. 20070524-5075].

25. FERC staff denied the study request by letter dated July 30, 2007. [JS Ex. 16 FERC Accession No. 20070730-3003]

26. The USFS filed comments on the Final Study Reports and Preliminary Licensing Proposal on March 10, 2008 [JS Ex. 17 (FS Answer Ex. 6); FERC Accession No. 200803105006].

27. The USFS filed comments on the License Application on October 29, 2008 [JS Ex. 18 (FS Answer Ex. 2); FERC Accession No. 20081029-5072].

28. PSCo filed another final Delphi Study Report dated November 2007 with FERC on December 14, 2007, with the addition of the Hydrology Study. [JS Ex. 19; FERC Accession No. 20071214-5133].

Ultimate Finding 1-- There is a direct relationship between Project operations and reduced ecosystem sustainability in Cascade Creek.

Ultimate Finding 4-- PSCo's water diversion on Cascade Creek degrades aquatic habitats and has diminished the aquatic ecosystem from the Cascade Creek diversion dam to the Animas River.

After review of the record, I have decided that Disputed Issues 1 and 4 are essentially the same issue stated differently. The parties seem to have recognized this as well in their proposed findings and supporting argument.

1-1. The Forestry Plan requires the attainment of 40% of habitat potential for viable populations of all existing vertebrate wildlife species. "Habitat for each species on the

forest will be maintained at least at 40 percent or more of potential.” FS Ex. 95, III-26, Joint Stipulation (“JS”) ¶ 8.

1-2. The Delphi Study team evaluated the degree of attainment of management objective goals¹² for Cascade Creek at a nominal water bypass [thru to Cascade Creek] rates of 3 CFS (Q3), 7 CFS (Q7), and 12 CFS (Q12)¹³ and using agreed measuring criteria - determined that the nominal 7 CFS and higher did meet the 40% quality standard required in the Forestry Plan, but the nominal 3 CFS did not. FS Ex. 16, p. 12, Table 2-5.

1-3. It is not unreasonable to conclude that diverting nearly 100% of Cascade Creek’s flow over 95% of the time would have an adverse effect on aquatic habitat.

1-4. The concept of “reduced ecosystem sustainability” was not contained in any of the studies that are part of this record. It is not mentioned in either condition 17 or 18, but is only contained in a cover letter. There was no formal study of “ecosystem sustainability.” Practically speaking, the ultimate finding by the Forest Service was that a certain minimum flow was necessary to sustain the 40% quality standard required in the Forestry Plan.

1-5. The Forest Service proposed a PHABSIM study to develop flow-habitat relationships over a range of flows for resident trout in Cascade Creek. FS Ex. 26, p. 11. Such a study would be consistent with agency recommendations in other FERC licensing proceedings. FS Ex. 154, p. 12.

1-6. PSCo proposed to use the Delphi study as an alternative habitat based assessment,

¹² “The primary purpose of the Delphi Team was to develop biologically based flow recommendations based on changes to fish habitat from various released flows.” FS Ex. 16 , p. 3.

¹³ The target flow rates were set at the diversion dam to be 3 cfs, 7 cfs, and 12 cfs. The field measured flow was actually 4.49 cfs, 10.89 cfs, and 13.75 cfs, respectively which were thereafter identified as Q3, Q7, and Q12. FS Ex. 16 at Table 2-2.

generally because of its lower cost.

1-7. Both the Forest Service and FERC agreed to the Delphi Study, which is the only FERC approved habitat based assessment for this license proceeding. FS Ex. 156.

1-8. The Delphi Study was an appropriate alternative approach to the PHABSIM study. The Delphi Study involved the participation of PSCo, through its contractor DTA, which included one of the four voting members of the team, Andrew Scott, as well as the facilitator of the study, Stephen Arnold. The CDOW was represented on the team by Mark Uppendahl, and the Forest Service was represented by David Gerhardt and Justin Jiminez.

1-9. The Delphi team devised management objectives and underlying attainment criteria to principally evaluate what flows would be necessary to maintain the 40% habitat of potential standard. The team conducted a number of meetings in which all members participated, as well as a field study participated in by all voting team members but which facilitator Arnold did not attend.

1-10. The study team agreed to evaluate three different flow rates to determine what minimum stream flows would meet or exceed the minimum standard for aquatic habitat. They selected specific observation sites, and evaluated flow releases of 3, 7 and 12 cfs during their field assessment conducted from September 11-14, 2006. The team members each rated these flows according to the degree that they met the attainment criteria cited in the management objectives for the study.

1-11. The Delphi Team met on December 6-7, 2006 and came up with a team consensus for the appropriate flows. They found that the nominal 7 cfs (Q7) was the appropriate flow objective.

1-12. Over the winter months, trout generally prefer deeper, slower habitat. Pool depth generally increases with increasing flow to the benefit of resident trout.

1-13. There is no basis to find that an increase in winter flow as prescribed in Condition 17 will have any harmful effect on fish or fish habitat.

1-14. The initial “final” Delphi Report was filed with the FERC on July 9, 2007. FS Ex. 16. PSCo filed a second Final Delphi Study Report with FERC on December 14, 2007. CX 67. The body of the report was the same, but the December filing contained, as an attachment, an estimated hydrology study. The Delphi team could not reach consensus on the contents of the hydrology report, but it did reach consensus to include it as an attachment. PSCo CX 67, p. 119 thru 155.

1-15. The Forest Service flow recommendation in Condition 17 is totally consistent with the consensual minimum instream flow recommendation that was developed through the Delphi process.

1-16. On April 24, 2008, John Devine, on behalf of PSCO, sent a communication to Alfred Hughes, the manager of the Tacoma Project, DTA employee and Delphi Team member Andrew Scott, and DTA employee and botanist Devin Malkin. This communication was to craft ways to “[d]isprove the need for, and the merit of, the likely bypass flow to be recommended by the USFS.” This communication clearly delineates a strategy to overturn expected recommendations of the USFS derived from the very Delphi study that PSCo suggested be used as an alternative to the PHABSIM recommended by the Forest Service.

1-17. To further the strategy discussed in the April 24, 2008 memo, PSCo and DTA attempted to conduct several other studies and analyses. I find that the PSCo’s analysis

of CDOW's fish studies does not support their conclusion that fish habitat below the diversion dam is healthy or robust; I find that the Proper Functioning Condition (PFC) assessment was not conducted according to protocol or for the purposes for which such a study is designed, and that the conclusions from the macroinvertebrate assessment conducted by PSCo are not supported by the evidence submitted.

A. The CDOW fish data

(i) The historic fish data is not reliable for making comparative analysis of fish densities above or below the diversion structure.

(ii) Andrew Scott testified that he recommended that the entire reference section to fish data be removed from the Delphi Study, and the Delphi team agreed that the use of such data was not appropriate for comparison purposes. Mr. Scott's testimony on cross examination indicated that he had much doubt about how to use this data, including how to deal with issues such as statistical reliability, sampling protocol, etc.

(iii) On the other hand, Michael Japhet, the former Senior Aquatic Biologist for CDOW, testified that the CDOW data on fish population does not support the conclusion that the fish population below the dam was superior to that above the dam, and that there was no factual evidence that the Project enhances the ecology of Cascade Creek. He stated that a true and valid comparison study would involve multiple samplings and locations over time, that the electrofishing sampling relied on by PSCo was the product of improper methodologies, including utilizing sampling reaches of too small a size, and that the studies were not comparable sampling events. FS Ex. 107.

(iv) All-in-all, the CDOW fish data were not sufficient to show by a preponderance of the evidence, that the fish population below the dam was equal to or superior to that

above the dam.

B. The PFC Study

(i) The studies necessary to determine channel and riparian conditions in this case have not been conducted by PSCo. FS Ex. 99, pp. 3-4, 9-10.

(ii) The PFC conducted by PSCo was not objective, and was not appropriate for the type of use urged by PSCo. FS Ex. 99, p. 4.

(iii) A PFC study is designed to assess livestock impacts to streams and is not an assessment tool that can be used to ascertain whether the bypass reach of Cascade Creek was degraded. FS Ex. 99, p. 11, Tr. 337-340.

(iv) The fact that the PFC study as used in this case was conducted solely by DTA personnel acting under instructions to "disprove" the recommendations generated by the Delphi study and the fact that it was used for a purpose outside the normal scope of PFC use renders it untrustworthy.

C. The macroinvertebrate assessment

(i) The Macroinvertebrate *Assessment* conducted by PSCo in 2008 was not sufficient to conclude that that the macroinvertebrate populations above and below the diversion are equally robust. Roper Direct FS Ex. 122, p. 7:21-23.

(ii) PSCo's assessment was flawed because PSCo relied on a large scale index rather than finer scale evaluation in order to determine if communities differed in the reaches just above and below the Tacoma Diversion. Roper Direct FS Ex. 122, pp. 10-11.

(iii) PSCo failed to build an appropriate Index of Biological Integrity. FS Ex. 112, pp. 33-34; FS Ex. 50, p. 887; FS Ex. 141, Abstract; FS Ex. 179, p. 3; FS Ex. 180A

(iv) When properly analyzed the macroinvertebrate studies provides evidence that the

downstream of the diversion has been degraded. Roper Direct FS Ex. 122, p. 35-36

1-18. The fish abundance or biomass studies done by DTA does not overcome the presumption of correctness of the Delphi Study that the [current] reduced flow volume from “. . . project diversions . . . results in reduction of over-wintering habitat quality and year-round cover features.” FS Ex. 16, p. 12.

Ultimate Finding 2-- The mandatory condition requiring instream flows below Cascade Creek (USFS Condition #17) is consistent with the results of the Delphi Study.

2-1. The consensus of the Delphi team was that a biologically-based minimum flow at the diversion dam to Cascade Creek should be 7 cfs. FS Ex. 16, p. 13.

2-2. Andrew Hughes, the manager of the Tacoma Project, addressed the Delphi team at one of its meetings on December 6-7, 2006, and emphasized that the team should not only consider the needs of the fish, but should take measures to assure that enough water was diverted to Little Cascade creek in the winter so that the flow in the flume would not freeze. CX 15, p. 8.

2-3. Mr. Hughes stated that there had never been a freeze as described above and that the flow had been as little as 2 cfs “so that is as good an estimate as any.” CX 15, p. 8.

2-4. While Mr. Hughes testified that he had not been quoted accurately in the notes of the meeting, Tr. 252, he had been copied with a variety of documents which reflected those same meeting notes and never asked the team or FERC to correct his statement. Tr. 252-257.

2-5. PSCo’s consultant Scott testified that John Devine and PSCo’s representative Hughes was aware of the Delphi Team instream flow recommendation, including the

assumptions relied upon by the Delphi Team in reaching that flow recommendation and that he was never informed either by PSCo or by his employer that he was without authority to make these assumptions as their representative on the Delphi Team. Tr. 174-175, 183-184.

2-6. In its FERC Application, PSCo asserts it has always maintained 3 to 4 cfs into the flume and siphon and that this has been sufficient to keep the pipeline from freezing. CX 47, p. B-6.

2-7. Mr. Hughes provided the only information about minimum flows to the pipeline so as to allow the Delphi Team had to make their instream flow recommendation. The Delphi Team minimum bypass flow recommendation provided for a minimum flow of 2 cfs to the Little Cascade Creek flume and the pipeline as a first priority. FS Ex. 16, p. 13.

2-8. Historic diversion practices over the past 36 years show conclusively that winter diversions into the pipeline have been 2 cfs or less. FS Ex. 119, pp. 13-14; FS Ex 126, p. 5, FS Ex. 126A, p.1.

2-9. The Forest Service had no need to balance flows between Cascade Creek and Little Cascade Creek.

2-10. While the Forest Service elected not to cross-examine John Devine, his direct testimony was not undisputed, as it was contradicted by the testimony of several other witnesses and the conclusions of the Delphi Study.

2-11. I find that the testimony of Mr. Devine regarding the minimum flows necessary to protect the flowline from freezing is less persuasive than the consensus conclusion of the Delphi team, particularly after the team received input from Mr. Hughes, the manager

of the Tacoma Project.

Ultimate Finding 3-- The mandatory condition requiring instream flows below Cascade Creek (USFS Condition #17) is required to comply with the USFS' quantitative "standard", set forth in the Forest-Wide Direction, Wildlife and Fish Resource Management, of maintaining habitat for each species on the forest at 40 percent or more of potential.

3-1. The Forestry Plan requires the attainment of 40% of habitat potential for viable populations of all existing vertebrate wildlife species. "Habitat for each species on the forest will be maintained at least at 40 percent or more of potential." FS Ex. 95, III-26, JS ¶ 8.

3-2. Delphi team member D. Gerhardt stated that the USFS management plan is 40% of bank full wetted perimeter (FS Ex. 16, Appendix B-9), however there are two additional criteria.

3-3. Using only the 40 percent bank full wetted perimeter criteria, PSCo's consultant calculated that only 0.8 cfs of bypass into Cascade Creek is required to meet the 40% requirement.¹⁴

3-4. The Cascade Creek Riffle and Pool at Observation point #1 appears to achieve a 40% wetted perimeter bank at a bypass discharge flow rate [at the diversion dam] of less than 2 cfs. FS Ex. 16, Appendix D-2 and D-4.

3-5. FS follows a more rigorous three part measurement criteria. These criteria include: 1) Average velocity of one foot-per second; 2) Fifty (50%) of bank wetted perimeter, and 3) an average water depth of 1% of bank full top width, or 0.2 ft,

¹⁴ "The flow needed to meet the 40% quantitative standard is 0.8 cfs" [Exhibit No. CX-51, p. 18, line 18].

whichever is less. FS Ex. 16 at Appendix. B-9, (Espegren, 1994, FS Ex. No. 153.).¹⁵

3-6. The FS and the State of Colorado follow standardized field and office procedures for determining initial instream flow recommendations based upon R2CROSS (a proprietary software program) output.

3-7. I find that the PSCo technique of satisfaction of the 40% criteria solely by percentage of bank wetted perimeter measurements was not scientifically rigorous. (See 3-3 above).

3-8. I find that the three criteria method prescribed by the CWCB and resolved in the prescribed software program known as R2CROSS is a more rigorous evaluation of the degree that a stream has achieved a 40% of its habitat potential.

3-9. All of Cascade Creek and parts of Little Cascade Creek are within SJNF lands and subject to the 1992 SJNF Plan. PSCo's position is that because Little Cascade Creek's water flow will be diminished under the minimum instream flow recommendations of the Delphi Study, therefore Little Cascade Creek's biological potential mandated under the SJNF Plan will not be achieved.

3-10. The Forest Service, in applying its own regulations, has resolved the potentially conflicting definitions of (a) "existing [flow] conditions," (b) "native flow conditions," (c) "baseline [flow] conditions" to mean "flow without augmentation." Thus, the pre-project stream flow of Little Cascade Creek is **zero** cfs instream flow diverted from

¹⁵ The State of Colorado invested in the Colorado Water Conservation Board ("CWCB") the power to implement a statute where the CWCB must "determine that the natural environment will be preserved to a reasonable degree by the water available for the appropriation to be made; that there is a natural environment that can be preserved to a reasonable degree with the CWCB's water right, if granted; and that such environment can exist without material injury to water rights" (§ 37-92-102(3c), C.R.S. (1990)). The CWCB makes these findings based upon a synthesis of the supporting technical data and a final instream flow recommendation prepared by the CWCB staff. **Standardized field and office procedures** (emphasis added) help to ensure that the CWCB staffs final instream flow recommendations are reasonable, necessary, and consistent. As such, standard field procedures have been established for selecting transect sites and collecting hydraulic and biologic data.

Cascade Creek.¹⁶ In performing its duties under applicable statutes and its own regulations and procedures, a government agency may interpret its own regulations.¹⁷

3-11. Under the FS interpretation, if Little Cascade Creek is augmented by the priority flow of 2 cfs (under the Delphi Study Plan), then it will always exceed its un-augmented biological potential and there is no need for further analysis.

3-12. Under the FS interpretation, if the maximum bypass of instream flow (under the Delphi Study Plan) to Cascade Creek is implemented, then it will come as close as possible to meeting its biological potential. Thus Condition 17, which diverts limited [2 cfs] priority instream flow to Little Cascade Creek, will come as close as possible to meeting the biological potential of Cascade Creek.

3-13. It is undisputed that PSCo has valid existing water rights to waters of Cascade Creek on SJNF lands¹⁸. The water rights claimed by PSCo are the antithesis of the Forest Service instream requirements for Cascade Creek. The resolution of controlling Cascade Creek water use rights are beyond the scope of my inquiry.

Ultimate Finding 5-- Only "minor flow accretions" occur between the diversion dam and Mill Creek and therefore the dewatering of Cascade Creek diminishes public uses of the aquatic resources in the bypass reach.

5-1. Except during spring run-off periods, PSCo operates the diversion dam during the majority of the year to give flow priority to the diversion to Little Cascade Creek. JS ¶ 1

¹⁶ The minimum flow recommendation for Cascade Creek is consistent with Forest Service law and policy. The decision not to impose a minimum flow recommendation on Little Cascade Creek is also consistent with Forest Service law and policy. FS Ex. 151, p.56.

¹⁷ See *Thomas Jefferson University v. Shalala*, 512 U.S. 504, 512 (1994) (holding that "agency's interpretation must be given controlling weight unless it is plainly erroneous or inconsistent with the regulation."(internal quotations and citations omitted)).

¹⁸ PSCo holds water rights that provide for the diversion of up to 400 cubic feet per second (cfs) from Cascade Creek. Currently, PSCo diverts flows up to the capacity of the wooden flume, which is reported to be 250 cfs. FS Ex. 2, p. 17.

5-2. PSCo states plant operators' estimates of flow from approximately 15 individual springs range from 0.25 to 0.75 cfs each and accumulate to roughly 1.5 to 2.5 cfs (total estimated accretion) at the US Highway 550 crossing." FS Ex. 4A, p. B-16, Section 3.2.7.1. PSCo witness Devine stated that field measurements of the full stream flow of Cascade Creek on during various seasons (after the diversion dam and before U.S. Highway 550 bridge) showed that accretions ranged from 1.3¹⁹ to 3.0 cfs²⁰. No independent validation of the 10 cfs accretions referenced by PSCo witness Devine could be found.²¹ Standard streamflow meter measurements were performed using comparison of the differential of volumes of water between the diversion dam and the bottom of the reach (U.S. Highway 550). CX 34, p. 24 at line 9 -12. The PSCo field team suggested that private cabin owners on FS lands are withdrawing waters from Cascade Creek thus absorbing some of the stream accretions. PSCo CX 34, p. 25.

5-3. Forest Service spring flow measurements for 15 separate springs in this section of Cascade Creek showed accretion quantities as less than those reported by PSCo. Forest Service measured the largest spring flow as 0.02 cfs (two one hundredths of a cubic foot per second) at the source. FS Ex. 120. PSCo pointed out that the point of accretion stream measurement should be at the point of confluence with the main stream body - not the spring source as reported by the FS team. A three person FS measured the full flow of Cascade Creek as 1.12 cfs. avg. (FS Ex. 121) on two winter dates which closely matches PSCo witness Scott's observations at 1.3 cfs. (see 5-2 above). There is no credible proof that the day to day winter flow rates (in upper Cascade Creek) fluctuate significantly in

¹⁹ Accretions from these inflows provided an approximate net gain of approximately 1.3 cfs from top to bottom of the bypass reach during the monitoring period. PSCo CX-5, p. 2, CX 22, p.10.

²⁰ Total accretions actually measured during field studies averaged 3.0 cfs upstream of U.S. Highway 550. FS Ex. 4A, Section 3.2.7.1

²¹ Devine Direct Testimony PSCo CX 34, p. 7 line 5, p. 24 line 14.

the winter. FS Ex. 119, p. 10. PSCo has records showing that “Excepting minor leakage at the diversion facilities (normally less than 0.2 cfs), the Cascade Creek diversion dam captures the full flow of Cascade Creek approximately 95 percent of the time” FS Ex. 4B, p. E-23.

5-4. Even with PSCo's largest reported accretion of 3.0 cfs (using multi-source validation), the total flow of Cascade Creek is less than Q3 (FS Ex. 16) which means the upper part of the stream (Reach 1) does not meet the Forest Plan of 40% of biological aquatic potential.

5-5. All of Management Objective Criteria 1 thru 4 and 6 thru 9 relate to the spawning and growth of fish in the (upper) Cascade Creek stream habitat. FS Ex. 16, Table 2-1. None of the management objectives related to fish are met at a nominal Q3 (FS Ex. 16) flow rate. In fishery biology, it is a commonly accepted fact that trout require water to survive; more water generally produces more trout. FS Ex. 107, p. 37. I note that the cross-examination of FS witness Michael Japhet failed to overcome this simple premise.

5-6. The uncontradicted testimony of professional fishing guide Tom Knopick concurs with the Delphi Management Object findings and that of FS biologist Michael Japhet.²²

5-7. I find that current PSCo operational parameters (e.g. nearly complete diversion of instream flow over to Little Cascade Creek) causes the public uses (fishing) of aquatic resources of (upper) Cascade Creek to be diminished.

Ultimate Finding 7-- The USFS requirement in Condition No. 18 that PSCo construct and operate a stream flow device to deliver the flows required by

²² “The diversion dam removes almost all the flow from Cascade Creek most of the time. This has a tremendous negative impact on the quality of the fish habitat and on the fish population in Cascade Creek. All things being equal, more water in Cascade Creek below the diversion dam would mean more fish in the stream below the diversion.” FS Witness Knopick Ex. 110, p. 5.

Condition No. 17 was not based on a collaborative determination with utility representatives. The economic viability of the project may be adversely affected by the imposition of Conditions 17 and 18.

7-1. The Delphi study team collaborated to arrive at a biologically-based instream flow sharing plan between Little Cascade Creek and Cascade Creek. FS Ex. 16, p. 13.

7-2. The flow sharing formula specifically prioritized a minimum flow of 2 cfs to go to Little Cascade Creek so as to minimize the operational difficulties of successful continuous un-manned operation during low flow conditions in the winter season at high mountain altitudes.

7-3. The assigned flow regime for Little Cascade Creek was not based upon a detailed engineering study of the operational parameters of un-manned operation of the diversion dam, open flume, and pipeline at high mountain attitudes in winter conditions.²³

7-4. PSCo computes that the water flow diversion scheme contained in the Delphi study will result in approximately 16% annual reduction in electricity generation. PSCo CX -43.

7-5. There was no specific economic study conducted, and therefore “the Forest Service has no basis for any statement concerning the economic viability of the project.” FS Ex. 151, p. 59.

7-6. The Forest Service requested that PSCo conduct an economic study, but “PSCo refused to conduct the analysis.” FS Ex. 151, p. 59.

7-7 The decision to recommend that the first 2 cfs be diverted to Little Cascade Creek was based on a collaborative determination with PSCo, in that the Delphi Team, and the

²³ “There is no room for error or assumption because getting that number wrong could lead to the type of catastrophic failure of Project water transmission facilities described above.” CX-28, p. 3 line 19.

Forest Service, attempted to incorporate the recommendations made by Mr. Hughes at the December 6-7, 2006 Delphi Team meeting.

7-8. I find that the record does not contain evidence that the costs of the stream flow device required by Condition 18 to guarantee the flow required by Condition 17 were considered by the Forest Service; therefore the economics of the construction of the stream flow device was not the product of a collaborative effort between PSCo and the Forest Service²⁴.

Ultimate Finding 8-- The Delphi Team made an assessment of the storage capacity of Columbine Lake, its contribution to local groundwater sources, the amount of local groundwater flows to Little Cascade Creek, and the resulting impacts of the Delphi Team recommendation on the aquatic resources of Little Cascade Creek.

8-1. Although the term “technical assessment” is not formally defined in this record, I find that the Delphi team came to a consensus opinion regarding the storage capacity of Columbine Lake, and the overall aquatic resources of Little Cascade Creek without anything that can be construed as a formal “technical assessment.” This is in contrast to the type of assessment that was conducted to determine the condition and flows of Reach 1 of Cascade Creek.

8-2. In the absence of any technical information, the Delphi Team used the Delphi process and applied their best professional judgment to estimate a minimum level of naturally occurring flow in Little Cascade Creek at the spawning habitat location. FS Ex. 151, pp. 59-60.

²⁴ Whether the extra costs are justified by the benefits, and whether PSCo is at fault for not providing the requested economic study is beyond the scope of my fact-finding role in this hearing.

8-3. The 2.5 cfs that is at issue is relevant to the spawning habitat at the bottom of the Little Cascade Creek study area, and is located on private land. Tr. 132. This habitat was not a matter of big concern to the Forest Service. FS Ex. 151, p. 24. See discussion in Issue 3-11 above.

8-4. To achieve the Delphi Study biologically-recommended minimum flow in Little Cascade Creek, the Delphi Study Team assumed the existence of a year-round accretion flow of 2.5 cfs. CX-33, p. 19.

8-5. Unlike on Cascade Creek where a number of accurate accretion flow measurements were made, no measurements of accretion flows have been made on Little Cascade Creek.

8-6. The Forest Service did review the Little Cascade Creek information on accretion flows provided in PSCo's FERC application, and there was no information in that report that caused the Forest Service to change the flow recommendation in condition No. 17 or any other opinion relative to Little Cascade Creek. Tr. 399-400.

8-7. Given that the participants in the Delphi Study, conducted at PSCo's behest, determined that their analysis was sufficient to establish a consensual determination as to Columbine Lake capacity and the flows and aquatic resources of Little Cascade Creek, I find that PSCo's post hoc attempts to bring in a variety of studies to attack the recommendations of the Delphi Team do not establish, by a preponderance of the evidence, that the Delphi Team's conclusion that there was a 2.5 cfs accretion flow in Little Cascade Creek, was incorrect.

Discussion

At the heart of this case is the conflict between: (a) the desire of the licensee (PSCo) to

continue operations related to the Cascade Creek diversion dam as it has for decades, and (b) the responsible governmental agency (FS) carrying out its duties as it interprets the applicable statutes and regulations. There was no issue raised in this case as to why these particular FS regulations (and ultimately condition 17 and 18) are being applied at this license renewal and not previously. Similarly, the matter of the ownership and applicability of historical water rights held by PSCo are not for my consideration. There is no claim by PSCo that the regulations being applied by FS, which results in Condition 17 and 18, are being applied unlawfully or that PSCo is being singled out for discriminatory treatment at the hands of the regulating agency. Both parties are bound by the 1992 Amended Land and Resource Management Plan for the San Juan National Forest (SJNF) a.k.a. San Juan National Forest Plan which sets out goals and criteria for the enhancement²⁵ and protection of biological habitat and lawful uses of the SJNF. The SJNF Plan sets out duties that the agency FS are bound to follow.²⁶ On page 58 of 555 pages of the SJNF Plan are the Standards and Guidelines for fish in the SJNF. Key is

"Habitat for each species on the forest will be maintained at least at 40 percent or more of potential."

It is clear that the decision to utilize the 40% standard, and whether it should be applied against native or actual conditions, is outside the scope of my authority²⁷.

Even with the relative paucity of decisions issued under the EPAct, it is already well-established that the burden of proof in resolving issues of material fact is on the party that is challenging conditions imposed by the regulatory agency. In reviewing the material

²⁵ "Improve fish habitat on suitable streams and low elevation ponds and lakes". FS Ex. 95 at III-3

²⁶ The management requirements in the Forest Direction section set the baseline conditions that must be maintained throughout the Forest in carrying out this Forest Plan. FS Ex. 95 page III-6.

²⁷ Although the contention that native flows applied was ably supported by the testimony during cross-examination of David Gerhart, Tr. 360-362, among others.

facts at issue, I generally found that determinations made via the consensus route of the Delphi Study, which involved the participation of the Forest Service, PSCo and the CDOW, were entitled to significant weight. By definition the Delphi Study was conducted to make quantitative determinations by a team of experts. The theory behind the Delphi Study is that where such consensus is achieved after methodologies are agreed upon and executed, that the results achieved are more valuable and accurate than determinations made by individual experts. This is particularly appropriate where the studies being offered to refute the conclusions of the Delphi Team are themselves somewhat lacking in reliability and are not used for the purposes for which they are designed.

I also find it significant that the Delphi Study was proposed by PSCo as a less costly and time-consuming, if admittedly less reliable, approach than the IFIM PHABSIM study proposed by the Forest Service. For PSCo to propose this approach, and have it accepted by the Forest Service and FERC, and then to deliberately set out to nullify many of the conclusions of the Study is more than a little ironic, particularly where the facilitator and one of the team members were employees of PSCo consultant DTA. It is also noteworthy that Delphi Team Member Scott was not only part of the team's consensus, but kept his manager fully apprised of the team's flow and other recommendations, and was never told until April 2008 that DTA and PSCo management had any opposition to these consensus findings.

I also find it significant that **36 C.F.R. § 219.11 Role of science in planning**, requires that responsible officials utilize best available science in forest planning.²⁸ I generally

²⁸ (a) The Responsible Official must take into account the best available science. For purposes of this subpart, taking into account the best available science means the Responsible Official must:

find that the best available science supports the findings of the consensus driven Delphi Study rather than the after-the-fact attacks on the study by means that were not persuasive.

With respect to the specific disputed material facts, it has become evident to me after the hearing and review of evidence that there is not much of a difference between issues 1 and 4. Thus, the factual findings I have made on these two issues are combined in one section. Briefly stated, I am applying the same principle throughout this decision, namely that the Delphi Study is presumed to be the better science and that the later PSCo studies that were conducted with the specific purpose of countering the Study. The Forest Service has provided ample evidence that the methodology used by PSCo in attempting to use other studies in a manner other than their intended use, and that studies PSCo conducted without Forest Service participation were flawed in a variety of ways.

With respect to issue 2, the primary purpose of the Delphi Team was to develop biologically based flow recommendations based on changes to fish habitat from various released flows. The Delphi team started with the premise that the diversion of flow from Cascade Creek has affected downstream aquatic and riparian resources. Using their collective Best Professional Judgment they analyzed the minimum flow needed in Cascade Creek to achieve the biological potential required by the SJNF Plan. The diversion of all of Cascade Creek over to Little Cascade Creek up to 95% of the time was

(1) Document how the best available science was taken into account in the planning process within the context of the issues being considered;

(2) Evaluate and disclose substantial uncertainties in that science;

(3) Evaluate and disclose substantial risks associated with plan components based on that science; and

(4) Document that the science was appropriately interpreted and applied.

(b) To meet the requirements of paragraph (a) of this section, the Responsible Official may use independent peer review, a science advisory board, or other review methods to evaluate the consideration of science in the planning process.

contrary to their mandated responsibilities with respect to the “40% of biological potential” required in the SJNF Plan. After conducting field tests at flow levels Q3, Q5, and Q12, the Team analyzed the achievement of management objectives at each flow level at Reach 1 on Cascade Creek. The results of their collective Best Professional Judgment are expressed in Table 2-1 of FS Ex.16. The results of Table 2-1 are summarized with the Team’s **Instream Flow Recommendation** in FS Ex. 16 at 13 and it is consistent with the results of the Delphi Study.

With respect to issue 3, the mandatory standards of the SJNF Plan require the FS to work toward the achievement of 40% of biological potential (as a minimum requirement) for all species in the forest. The Delphi Study team was tasked with finding the stream flow conditions that were likely to achieve success in meeting the SJNF Plan Management Objectives. A study was designed and executed which focused on the field measurement of the parameters necessary to provide reliable data for the R2CROSS (software) stream evaluation. R2CROSS is a standardized field and office procedure to help ensure that final stream flow recommendations are reasonable. The standard methods prescribed by R2CROSS are significantly more rigorous than those relied upon by PSCo. The methods utilized by PSCo to calculate the 40% biological potential do not meet the burden of persuasion sufficient to overcome the FS prescription for stream flow rates.

As to issue 5, PSCo acknowledges that it diverts nearly all of Cascade Creek approximately 95% of the time, but counters with the argument that upper Cascade Creek (Reach #1) is biologically healthy because the accretions (ranging from 1.3 to 3.0 cfs) from minor springs and seeps coalesce with leakage around the diversion dam on upper

Cascade Creek (Reach 1) to provide adequate fish habitat until such time as lower streams of Mill Creek and Lime Creek converge with Cascade Creek. The Delphi Study team did not measure the volumes of minor springs and seeps flowing into Cascade Creek. FS employees measured the aggregated springs and seeps on two winter days and tend to agree with the lower end of the PSCo accretion estimate. PSCo witness Devine stated that accretions into the upper section of Cascade Creek ranged from 1.3 cfs to 10 cfs. The record does not indicate where the 10 cfs measurement was properly documented. Mr. Devine stands alone as the source and thus the claim of a large accretion flow rate (10 cfs) does not rise to the level sufficient to meet PSCo's burden of proof. PSCo's APPLICATION FOR LICENSE (6/25/08) filing makes reference in Section 3.2.7.1 to a measured accretion of "3.0 cfs upstream of U.S. Highway 550." Even using PSCo's highest documented accretion flow rate of 3.0 cfs added to the leakage around the diversion dam still only achieves the Q3 flow level which the Delphi Study Team determined did not meet SJNF Management Objective criteria. The only valid conclusion that can be drawn from the evidence in the record is that the biological potential of Cascade Creek remains diminished until such time as the flow rate increases to a level approaching Q7.

Issue 7 is the only issue where I feel that PSCo has met its burden of proof, at least to the extent of demonstrating that there is a lack of evidence that the Forest Service and PSCo reached a collaborative decision on the economic impact of Condition 18. While it is reasonably clear that the Delphi Team, and the Forest Service, believed they were making an economic accommodation to PSCo by assuring that the first 2 cfs would be diverted to prevent winter freeze-up situations, I could not find anything that was pointed

out to me in this record that would indicate that the construction and operation of the device mandated in condition 18 was the product of a collaborative determination. On the contrary, Mr. Devine's undisputed direct testimony indicates that there may be significant economic consequences to the construction and operation of this device that may call into question the economic viability of the project. While economics may have been a consideration for the Delphi Team and the Forest Service, I cannot find that Condition 18 was the result of a collaborative determination.

With respect to issue 8, I agree that there was far less technical consideration given by the Delphi Team to their findings in this area. The Team apparently made some decisions concerning where to focus their actual technical activities and made consensus decisions, based on some assumptions and review of a variety of documents. While I do not find that the Team made a "technical assessment" compared to what they did regarding the flow to Cascade Creek, it is clear that they made an assessment, based on their combined technical expertise and best professional judgment, which has not been refuted by PSCo.

Order

Copies of this decision shall be served upon the parties. This decision, along with the complete hearing record, shall be immediately forwarded to FERC, pursuant to Rule 1.669(c)(2).

Done at Washington, D.C.
this 28th day of April, 2009

MARC R. HILLSON
Chief Administrative Law Judge