

**POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON**

CENTER FOR ENVIRONMENTAL LAW
AND POLICY; AMERICAN
WHITEWATER; COLUMBIA RIVER
BIOREGIONAL EDUCATION PROJECT;
NORTH CASCADES CONSERVATION
COUNSEL; SIERRA CLUB,

Appellants,

v.

WASHINGTON STATE, DEPARTMENT
OF ECOLOGY; PUBLIC UTILITY
DISTRICT NO. 1 OF OKANOGAN
COUNTY, WA,

Respondents.

PCHB No. 12-082

FINDINGS OF FACT, CONCLUSIONS OF
LAW AND FINAL ORDER (AS
AMENDED UPON RECONSIDERATION)

Appellants Center For Environmental Law and Policy; American Whitewater; Columbia River Bioregional Education Project; North Cascades Conservation Counsel; and Sierra Club (collectively “CELP”) filed an appeal with the Pollution Control Hearings Board (Board) on August 10, 2012, challenging the Department of Ecology’s (Ecology) Section 401 Water Quality Certification issued to the Public Utility District No. 1 of Okanogan County (PUD), Order No. 9007 (§401 Certification) for the licensing of the Enloe Dam Hydroelectric Project on the Similkameen River, FERC No. 12569 (Project).

Six issues were identified in the Prehearing Order. The Appellants withdrew three of the issues, and in a Second Amended Prehearing Order the Board identified the following remaining issues in the appeal:

FINDINGS OF FACT, CONCLUSIONS OF LAW AND
FINAL ORDER (AS AMENDED UPON RECONSIDERATION)
PCHB No. 12-082

- 1 1. Whether the 401 Certification fails to provide reasonable assurance that the Project
2 will comply with § 401 of the Clean Water Act, applicable state water quality
3 standards and any other appropriate requirements of state law set forth in the 401
4 Certification, such that in issuing the 401 Certification Ecology acted unlawfully;
5 specifically:
6 a. Does the 10/30 cfs in-stream flow regime required in the 401 Certification
7 provide reasonable assurance of compliance with Clean Water Act section 401,
8 state water quality standards, and other appropriate requirements of state law set
9 forth in the 401 Certification, regarding temperature, aesthetics, recreation and
10 salmonid spawning, rearing and migration?
11 b. Does the 10/30 cfs in-stream flow regime required in the 401 Certification
12 provide reasonable assurance of protecting the beneficial uses of the
13 Similkameen River, regarding aesthetic, primary contact recreation and salmonid
14 spawning, rearing and migration?
15 c. Does the 10/30 cfs in-stream flow regime required in the 401 Certification
16 provide reasonable assurance of compliance with the anti-degradation
17 requirement that the existing beneficial uses regarding aesthetics, primary
18 contact recreation, and salmonid spawning, rearing and migration be maintained
19 and protected?
20 2. What authority does Ecology have, if any, to impose aesthetic requirements in a
21 Section 401 Certification beyond prohibiting the impairment of aesthetic values by
the presence of materials or their effects, excluding those of natural origin, which
offend the sense of sight, smell, touch, or taste?¹

On April 30, 2013, the Board issued an Order on Motions for Summary Judgment that partially dismissed several of the remaining issues. The Board made the following findings, which are pertinent to the findings and conclusions in this final Order:

1. Aesthetic values are a designated and beneficial use under State water quality laws, and may be protected by requiring minimum stream flows in the bypass reach. A Section 401 Certification is not limited to only prohibiting the impairment of aesthetic values by the presence of materials or their effects, excluding those of natural origin,

¹ The Respondent PUD raised this issue and had the burden of proof regarding the issue.

1 which offend the sense of sight, smell, touch, or taste. Based on this finding, Issue
2 No. 2 was dismissed.

3 2. While Enloe Dam is not a natural feature, it has created an aesthetic feature on the
4 Similkameen River for many decades, and minimum flows over Enloe Dam as well
5 as Similkameen Falls should be considered in determining whether the §401
6 Certification properly provides reasonable assurance that operation of the Project will
7 not violate the state water quality standards regarding aesthetics. The non-contact
8 water recreational activities such as hiking, camping and other activities are relevant
9 to the issue of aesthetics.

10 3. The §401 Certification provides reasonable assurance that the Project will comply
11 with §401 of the Clean Water Act and state water quality standards in regard to
12 temperature, recreation and salmonid spawning, rearing and migration. Based on this
13 finding, issue 1 was dismissed with the exception of aesthetics.

14 Therefore, the remaining issue for hearing was whether the 401 Certification fails to
15 provide reasonable assurance that the Project will comply with § 401 of the Clean Water Act,
16 applicable state water quality standards, and any other appropriate requirements of state law set
17 forth in the 401 Certification such that in issuing the 401 Certification Ecology acted unlawfully.

18 The Board held the hearing over 6 days, April 16, 17, 18, and 19 and May 15 and 16.
19 The Board members were Tom McDonald, presiding, Kathleen Mix, Board Chair, and William
20
21

1 H. Lynch, member.² Upon consideration of the testimony of the witnesses, documents admitted
2 into evidence, and argument of counsel, the Board makes the following Findings of Fact,
3 Conclusions of Law, and Final Order.

4 **FINDINGS OF FACT**

5 **Enloe Dam and the Similkameen River Flow Conditions**

6 1.

7 Enloe Dam is on the Similkameen River near the town of Oroville in Okanogan County.
8 It was built in 1920. It is 315 feet long and 54 feet high, and it backs up the Similkameen River
9 for 1.5 miles to form a 77 acre reservoir. The Dam had been used from 1922 to 1958 to divert up
10 to 1,000 cubic feet per second (cfs) of the River to produce power from a 3.2 mega-watt (MW)
11 power house that discharged the water back into Similkameen Creek over 800 feet downstream
12 from the Dam. *Id.*

13 2.

14 Approximately 350 feet downstream from the Dam there is a 20 foot natural falls known
15 as the “Similkameen Falls” (Falls). *Exs. R-2; R-92; Caldwell Testimony.* Since 1958 the entire
16 flow of the Similkameen River has flowed over the Dam and the Falls. *Id.* Natural flows in the
17 Similkameen over the Dam have a monthly median range from 500 to 7,000 cfs. Typical median
18 flows in the Spring (May-June) are in excess of 6,000 cfs. Typical median flows in the dry
19 season (July through October) range from 514 cfs in September to 764 cfs in August. *Ex. R-2 at*
20

21 ² William Lynch is no longer a member of the Board as of May 27, 2013, and is therefore not participating in this Order.

1 E.2-1. On September 14, 2006 a low flow was estimated at 236 cfs in the by-pass reach. *Id*;
2 Reub Testimony; *Ex. R-43*.

3 3.

4 The Similkameen River has a minimum flow established by rule. WAC 173-549-020(2).
5 These flows were established in 1976 and vary through the year, with a minimum of 400 cfs in
6 the fall and winter, to 3,400 cfs in May and June. From July 15 through September 15, the
7 minimum flows decrease from 1,900 cfs to 400 cfs. While hydroelectric facilities are considered
8 to be consuming water in a bypass reach, the rule provides that the hydro projects will be subject
9 to only those minimum flows specified by Ecology. “These flows may be those established in
10 WAC 173-549-020 or, when appropriate, may be flows specifically tailored to that particular
11 project and stream reach. When studies are required to determine such reach- and project-
12 specific flow requirements, the department may require the project proponent to conduct such
13 studies.” WAC 173-549-020(5).

14 4.

15 Steelhead use the Similkameen River as a thermal refuge. Reub Testimony. The summer
16 chinook salmon also swim into the area by the Falls for thermal refuge. The sockeye salmon will
17 come up into the Similkameen River to use that as a thermal refuge until the Okanogan River
18 cools down to a level that allows the salmon to swim above Lake Osoyoos to lay their eggs. *Id*.
19 *Ex. R-2* at E.2-1.

20 5.

21 Temperature is probably the most critical limiting factor for fisheries in Similkameen

1 River basin. Total Dissolved Gas (TDG) is also a concern and occurs when water goes over the
2 Falls, plunges into a pool, and the gasses become entrained in the water. Dissolved oxygen (DO)
3 may also be a concern. As temperatures increase, the ability of the water to hold oxygen goes
4 down. With less oxygen in the water it is more difficult for fish to breathe, causing stress on the
5 fish. *Id.*

6 6.

7 The water quality numeric criteria for temperature for salmonid spawning, rearing and
8 migration is a highest 7-DADMax of 17.5° Celsius. WAC 173-201A-200(1)(c). If the
9 Similkameen River exceeds that temperature due to natural conditions, a project cannot cause the
10 7-DADMax temperature to increase more than 0.3° Celsius. WAC 173-201A-200(1)(c)(i).

11 7.

12 A water temperature monitoring study was conducted during the late spring through early
13 fall of 2006. *Ex. R-171*. Temperature recorders were deployed in eight locations beginning in
14 May and ending in October. *Id.* at 6. The monitoring showed that temperatures in the
15 Similkameen River exceeded the water quality criterion 17.5°C both upstream and downstream
16 of the Project. *Id.* at 24. However, water temperatures did not increase through the Project area
17 by more than 0.3°C at any time during the monitoring. The 7-DADMax³ temperatures decrease
18 through the Project area after August 4, at times by more than 1.6°C. *Id.*; Good Testimony. The
19

20 ³ The 7-DADMax is the seven-day average of the daily maximum temperature measurements. It is the arithmetic
21 mean of seven consecutive measurements of the daily maximum temperatures. For each day, the 7-DADMax was
determined by the average of the daily maximum temperature for that day and the three days before and after the
date. *Ex. R-171* at 24, n. 1.

1 data from 2006 to 2010 shows that the mean water temperature from June to September ranged
2 from 16.0°C in 2010 to 17.7°C in 2006. Reub Testimony; *Ex. R-41, Table 1.*

3 8.

4 DO profile measurements were conducted on September 14 and 15. Under natural flow
5 conditions, the DO concentrations in the vicinity of the Dam were above the 8.0 mg/L water
6 quality standard for salmonid spawning, rearing, and migration. These measurements were
7 conducted when average daily river flows above the Dam, at Nighthawk gauge, were 236 and
8 255 cfs. *Id.* at 40.

9 9.

10 TDG concentrations were measured between May 26 and 30, 2006. TDG remained
11 within water quality criterion of a 110 saturation level in the reservoir and over the Dam to the
12 Falls. Water flows over the Falls has caused the TDG to substantially increase, exceeding a 110
13 saturation level. *Id.* at 40-41. Based on historical evidence, the TDG saturation level was likely
14 above the 110 saturation level in natural flow conditions even before the Dam was built. *Id.*

15 10.

16 Between the Dam and the Falls, the fish habitat is poor because of the bedrock substrate
17 and the high velocity of flows. The river bed between the Dam and the Falls is not uniform,
18 primarily consisting of a large pool with bedrock substrate some cobbles and boulders. The
19 water flows from the Dam and over the Falls through incised channels including one man made
20 channel resulting from operation of a past hydro facility. However, fish are present in this area
21 likely as a result of being swept over the top of the Dam. Caldwell Testimony; Reub Testimony.

**The 2008 Section 401 Application and Development
of the 10/30 Minimum Flow Regime**

11.

On August 22, 2008, the PUD filed with the Federal Energy Regulatory Commission (FERC) an application for a license for the purpose of operating a hydroelectric project at the existing Enloe Dam. The application is referenced as FERC No. 12569 (2008Application). *Ex. R-2.*

12.

The PUD’s 2008 Application for the Project proposed a facility that would be of greater benefit to the fish resources as compared to the operation of the old facility. The primary difference in facilities is the length and impact of the bypass reach. The Project will construct a power house and tail race that would discharge the water back into the River at the base of the Falls, which is 460 feet upstream from the old power house and tail race discharge point. *Ex. R-2.*

13.

The 2008 Application proposed to not provide any flow of water in the bypass reach when natural flows did not exceed the quantity of water diverted into the facility, up to 1,600 cfs. *Ex. R-2.* This lack of flow was also expected to be a benefit to the fishery resource downstream of the Project because during the critical warm summer months the temperature of the water flowing over the face of the Dam and to the Falls increases, whereas the flows diverted through the turbines and discharged at the base of the Falls would not increase in temperature. Based on the current high temperature conditions of the River, any increase in temperature will increase

1 the risk of fish mortality. Further, with no water flows through the bypass reach, there will be a
2 reduction in the TDG normally caused by the water plunging over the Falls. Reub Testimony;
3 Good Testimony.

4 14.

5 In 2008 Ecology raised the issue of minimum flows in the bypass reach. In 2010, after
6 many discussions internally within Ecology and with the PUD and the Department of Fish and
7 Wildlife (DF&W), Ecology determined that the bypass reach must have a minimum flow of
8 water. Caldwell Testimony.

9 15.

10 Ecology considered minimum bypass flows of 10, 30 and 100 cfs. Caldwell Testimony.
11 Flows above 100 cfs were not considered. *Id.* In 2009, Ecology recommended to DF&W a
12 minimum flow of 30 cfs. DF&W rejected this option, and based on a desk top analysis,
13 recommended a minimum flow of 465 cfs. *Id.; Exs. R-18 and R-57.* DF&W thereafter visited
14 the Project site with Ecology, analyzed the features of the river bed, and snorkeled the bypass
15 reach. Based on this additional review, DF&W and Ecology agreed that, subject to continuing
16 monitoring, a minimum flow regime in the bypass reach of 10 cfs year round and 30 cfs for mid-
17 July to mid-September otherwise known as the 10/30 flows would be acceptable for protection of
18 the fishery resource. Caldwell Testimony.

19 16.

20 DF&W approved the flows of at least the 30 cfs July to September and 10 cfs during the
21 remaining year “if water quality standards (especially temperature and dissolved oxygen) are

1 protected.” *Ex. R-96*. A monitoring program was recommended for the period of the license,
2 with a five year adaptive approach to increase flows above 10/30 for seasons when water quality
3 standards are violated and to “lock in” the flows at the level water quality standards are met. *Id.*

4 17.

5 The 10/30 flow regime was based on the determination that this would allow the Project
6 to be operated and not violate the water quality standards for the fishery resource. Caldwell
7 Testimony. Because modeling showed that the operation of the Project with 10/30 bypass flows
8 would meet water quality standards, Ecology determined it did not need to review alternative
9 flows. *Id.* Ecology desired to have the flows in the bypass reach to be a small fraction of the
10 flows diverted through the turbines, because any heating of the bypass flows would be cooled by
11 the water discharged through the tailrace at the bottom of the Falls. *Id.* The PUD also modeled
12 bypass flows from 90 to over 200 cfs, but provided only the modeling results for the 10/30 flows
13 to Ecology as requested. Pippin Testimony.

14 **Consideration of Aesthetic Impacts**

15 18.

16 Ecology’s authority to address aesthetic flows in a §401 Certification has been rarely
17 exercised. Ihrle Testimony; *Ex. R-12*; Gangemi Testimony. Aesthetic flow studies have been
18 generally isolated to higher population areas and where the proposed project affected large water
19 falls that attract a significant number of people. *Id.* By way of example, Ecology has required
20 aesthetic flows for projects in popular sites such as the Spokane River in Spokane and the
21 Snoqualmie River at Snoqualmie Falls near Seattle. *Id.* However, aesthetics may also be

1 analyzed when an interest group raises aesthetics as a use of the water that requires protection,
2 regardless of the location and number of visitors. Whittaker Testimony. Aesthetic flows have
3 also been considered to address project impacts on river segments within private lands not
4 generally accessible to the public. Gangemi Testimony.

5 19.

6 The waterfall over Enloe Dam can be considered an aesthetic feature. Whittaker
7 Testimony. *See* Orders on Motions for Summary Judgment. Ecology would have liked to
8 provide greater aesthetic flows over the Dam as well as the Falls if it would not have impaired
9 the water quality the fishery resources. Caldwell Testimony.

10 20.

11 A primary source for evaluating aesthetics is the 2005 publication *Flows and Recreation*
12 *A Guide to Studies for River Professionals*, written by and relied upon by two of the experts in
13 this case, Dr. Whittaker for Appellants and Mr. Gangemi for the PUD. *Ex. R-53*; Gangemi
14 Testimony. This publication followed the 1993 NPS pamphlet titled *Instream Flows and*
15 *Recreation: A Handbook on Concepts and Research Methods (Whittaker Handbook)*. *Ex. R-33*.

16 21.

17 In 2006 the PUD conducted recreational studies, but did not study the aesthetics of the
18 water flowing over the Dam or Falls and the impact of the operation of the Project with no flows
19 over the Dam and Falls for most of the year. Boettger Testimony. Aesthetics of the flows over
20 the Dam and Falls was not raised as a concern at that time.

1 22.

2 Beginning in 2008, the issue of aesthetic flows over the Dam and Falls was raised with
3 the PUD. Boettger Testimony, *Exs. R-9 to R-16*. Several entities and people expressed concern
4 about aesthetic flows over the Dam and Falls in either or both the FERC process and the current
5 §401 Certification process. These entities and parties included Ecology, the U.S. Department of
6 Interior on behalf of the National Park Service (NPS), Washington Department of Natural
7 Resources (DNR), the U.S. Bureau of Land Management (BLM), American Rivers, the
8 Appellants, and witness Mr. Joe Enzensperger from Oroville Washington. *Exs. A-30, A-52, A-*
9 *62, A-66, A-111 to 113, R-63; Enzensperger Testimony.*

10 23.

11 Thereafter, the PUD did conduct an analysis regarding the aesthetics of the flows. On
12 behalf of the PUD, Mr. Jeremy Bunn used an estimated physical cross section of the river at the
13 Falls to model the distribution of aesthetic flows at 20, 40, and 80 (Bunn Memo). *Ex. R-30*. This
14 is the type of modeling described in the Whittaker Handbook. Gangemi Testimony. The height
15 and the width of the river channel at the Falls were modeled to determine what sections of the
16 River would fill up with different volumes of flow. *Id.* Flows at 20 cfs, 40 cfs, and 80 cfs were
17 modeled for dry, normal, and wet water years. At all three flows, the model indicated that there
18 would be white water conditions at the top of the Falls, although the 20 and 40 cfs flows would
19 span roughly only 1/3 the width of the existing conditions of low-flow falls. *Id.* The accuracy of
20 the cross section is in doubt because actual measurements of the channel were not taken, and
21

1 therefore the Bunn memo is more an analysis based on Bunn's interpretation of the flows and
2 cannot be considered an aesthetic study. Whittaker Testimony; Gangemi Testimony.

3 24.

4 The PUD did not conduct an aesthetic flow study that analyzes actual flows because
5 flows cannot be manipulated under existing conditions. Gangemi Testimony. The alternative is
6 conducting a photomontage to simulate flow alternatives. Photo simulations can be used if the
7 channel in the bypass reach can be modeled; however collecting good data and taking accurate
8 measurements in the bypass reach for the purpose of analyzing different flow regimes over the
9 Falls would be dangerous based on the velocity of the flows. Caldwell Testimony; Reub
10 Testimony. Because of the gradient and current velocity of the flows, it is not possible to
11 measure any transects across the bypass channel for the purpose of determining with sufficient
12 certainty the physical features and geomorphology of the Falls and therefore adequately predict
13 how flows will appear through the channel. Caldwell Testimony; Reub Testimony; Gangemi
14 Testimony. If studies are done, the aesthetics flow levels can be evaluated using a scenic index
15 that rates flows developed by use of focus groups. Whittaker Testimony. Studies show that at
16 lower flows the aesthetics are less pleasing, while at some higher level aesthetics are optimal, but
17 thereafter drop off with the very high flows. *Id.*; *Exs. R-102; R-33, p. 73, Figure 55*. Simulated
18 flows should be at 100 cfs or greater to see any aesthetic differences of flow amounts. Gangemi
19 Testimony.

1 25.

2 The PUD also conducted an aesthetic resource study comprising 7 key observation points
3 of the Project area and proposed infrastructure. Gangemi Testimony. The PUD used BLM's
4 method called Visual Resource Management and the results were incorporated into an Aesthetic
5 Management Plan. *Id.*; *Ex. R-28*. However, the Aesthetic Management Plan did not address the
6 aesthetics of the flow of the River over the Dam or the Falls. The Aesthetic Management Plan
7 focused on the aesthetics of the Project facilities. The stated two goals are: identify specific
8 visually compatible colors and building material textures to be used to harmonize the facilities
9 with the existing landscape, and identify the areas where buildings will be removed and related
10 sites revegetated. The visual representations of the facilities depicted the current natural flows
11 over the Dam and the Falls. *Exs. R-28 and R-29*.

12 26.

13 At the request of FERC, the PUD also provided photo simulations of the views of the
14 Falls from the newly developed trail that will allow access to the Similkameen River for
15 recreational viewing of the bypass reach and the Falls. Gangemi Testimony. The photo
16 simulation provided to FERC showed the natural flow of the River over the Dam and the Falls,
17 and does not simulate the 10/30 flow regime. Gangemi Testimony; *Ex. R-31, Figure 1*.

18 27.

19 In July 2009, Ecology considered potential flow levels for aesthetic purposes at levels of
20 20, 40, and 100 cfs. *Ex. R-16*. The aesthetic flows above 100 cfs were not considered because
21 they would "economically challenge the project." *Id.* at 2. Ecology determined that no flows

1 over the Dam and the 10/30 flow regime over the Falls provided reasonable assurance that water
2 quality standards for aesthetic values are met. Caldwell Testimony; *Ex. R-133*. Using the 10/30
3 flow regime, Ecology's analytical approach was consistent with the protocol described in *Flows*
4 *and Recreation: A Guide to Studies for River Professionals. Ex. R-53*. Ecology conducted a
5 Level 1 and Level 2 analysis that is developed for recreational uses. Level 1 is the desktop
6 report that includes review of literature and data, findings and suggested flows for flow
7 dependent recreational opportunities, and thereafter an assessment as to whether the project
8 operations will likely have an impact on those opportunities. *Id.* at 13. Level 2 requires visiting
9 the site, observing the flows, and trying collect data such as flow depth and transects. *Id.* at 14;
10 Gangemi Testimony.

11 28.

12 Mr. Caldwell conducted several site visits and, while looking at the flows during these
13 visits, attempted to visualize where the 30 cfs would flow over the Falls. He did not have a copy
14 of the Bunn Memo at that time, but testified the Memo affirmed his opinion that the 30 cfs would
15 flow through the main incised channel or chute. However, Mr. Caldwell opined that it is
16 unknown if the 30 cfs would also wet the right side channel as the Bunn Memo states, and
17 whether the level of the flow would drop as estimated by the Bunn Memo. While visiting the
18 site at flows of 335 cfs, Mr. Caldwell incorporated a measurement method by using his small
19 "pinkie" finger and determined that a person would not see a difference between 30 cfs and 335
20 cfs. *Id.* Although Ecology may have implemented a proper protocol in reviewing the
21

1 recreational aspects of the flows, there is no credible evidence how the 10/30 flow regime will
2 appear aesthetically through the bypass reach.

3 29.

4 The viewing area from public trails is limited. While more visitors are predicted to use
5 the trails in this area in the future, it is likely few people would come specifically to visit the
6 Falls or will see the aesthetic features of water flowing over the Dam and the Falls when visiting
7 the area. Gangemi Testimony, Caldwell Testimony.

8 **Considerations in Providing Aesthetic Flows above the 10/30 Flow Regime**

9 30.

10 To provide additional flows in the bypass, consideration must be given to how changes of
11 the river hydraulics such as velocity, depth, width, wetted perimeter, and turbulence will affect
12 channel features, riparian vegetation, and the physical and chemical quality of the water.
13 Whittaker Testimony; Caldwell Testimony; Gangemi Testimony, *Ex. R-33*, p. 5. A conceptual
14 understanding of how the different flows affect all of the various river resources is required.
15 Many of these uses may be competing and have different optimum flows. *Id.* As with all
16 designated uses, the preferred flows for aesthetics become part of the trade-offs and negotiations
17 to determine flow regime that maximizes the beneficial uses of the water and provides the most
18 opportunities for the use of the water, including power production. While there is this balancing
19 of beneficial uses of water, flows for aesthetics are not necessarily a priority of use when
20 competing with flows for other beneficial uses, most importantly water quality for the protection
21 of the fisheries resource. *Id.*

1 31.

2 The volumetric flow rate as well as surface area of flow (wetted area) affects water
3 temperature. Higher flows will have lower levels of heating. At 30 cfs the water in the River is
4 flowing at a greater velocity than at 10 cfs and is functionally related to the warming of the
5 water. The higher the velocity, the less transition time in the bypass, which should result in less
6 time for the water to warm. *Id.* However, if higher flows cause the water to flow out and onto
7 the bedrock shelves in the bypass reach, there will be a greater surface area of water exposed to
8 solar radiation and the temperature of the water would increase. Reub Testimony; Pippin
9 Testimony. Intermittent flows would also cause greater increase in temperature of the water, by
10 convection heating from hot rocks. Pippin Testimony.

11 32.

12 At the 10/30 flow regime, water is expected to flow through the middle channel and
13 possibly through the other natural channel which is the River right channel, but this has not been
14 modeled. Flows in excess of 30 cfs in the bypass are expected to increase in temperature;
15 however it is not known what flow of water would spill out of the incised channels and become
16 heated on the bedrock substrate. Based on the available photographs, water is out of the
17 channels and covering the flatbed rock shelves at flows between 250 to 300 cfs. Reub
18 Testimony. The lowest observed flow in the bypass reach was in September 2006 when it was
19 determined to be 236 cfs. At this level, water was flowing through the channels and outside of
20 the channels over the rocks. *Ex. A-54.* At 339 cfs, the mean wetted width of the flow was

1 estimated to be 100 feet. *Ex. R-98.* It is not known whether 100 cfs would flow out of the
2 channels and be available as an aesthetic flow. Reub Testimony.

3 33.

4 Under the 10/30 flow regime, the net effect of the temperature increases in the bypass
5 reach during operation of the Project are expected to be lower water temperatures than current
6 natural conditions because the water discharged into and flowing through the bypass reach will
7 be mixed directly below the Falls with cooler water discharged from the powerhouse tailrace.
8 Using a worst case scenario of 30 cfs from the bypass reach and 100 cfs discharged from the
9 tailrace during low flow periods, the water temperature at the base of the Falls will have
10 increased less than 0.1 degrees Celsius. *Ex. R-96* at 11. Under this operation, to increase water
11 temperature downstream by 0.3 degrees Celsius, the temperature of the 30 cfs in the bypass
12 reach would have to increase 4.6 to 7.0 degrees Celsius (low to high river years), and the 10 cfs
13 would have to increase 13.6 to 19 degrees Celsius. *Id.*

14 34.

15 Modeling shows that the flow of water over the entire face of the Dam would warm the
16 water by 0.5 degree Celsius at 30 cfs and 1.0 degrees Celsius at 10 cfs. However, if a gate
17 limited the surface water flow over the Dam to a 10 foot width of flow, the temperature of the
18 water as it flows over the Dam would not increase at either 10 cfs and at 30 cfs. Pippin
19 Testimony; *Exs. R-96, 134.* In a worst case scenario of hot clear mid-summer afternoons (99.2
20 degrees Fahrenheit, full sun, no shade and light wind), 30 cfs over a 10 foot width flow over the
21 Dam would not increase in temperature. The water temperature would increase by 0.1 to 0.2

1 degrees Celsius between the Dam and the Falls for flow scenarios of 50 foot width and 75 foot
2 width flows, respectively. *Id.*

3 35.

4 The Project proposes two piers on the crest of the Dam that would divide the gates into
5 three separately controlled sections, allowing for the possibility to use one section to regulate
6 instream flow releases instead of allowing flows over the entire face of the Dam. *Ex. R-96* at 19.
7 The control of the gates would, however, be susceptible to blockage from ice and floating debris,
8 which would require close monitoring and adjustments. *Id.* at 20.

9 **Final §401 Application and Approval**

10 36.

11 In January 2012, the PUD withdrew its application and reapplied as a result of the efforts
12 and discussions since the initial application filing in 2008. *Ex. R-92.* On July 13, 2012, Ecology
13 granted the §401 Certification for the Project. Ecology issued the §401 Certification under the
14 authority of the federal Clean Water Act (CWA). 33 U.S.C. §§ 1313, 1341. Ecology made
15 findings that there is “reasonable assurance that the operation of Enloe Project pursuant to the
16 proposed license will comply with state and federal water quality standards and other appropriate
17 requirements of state law. . . .” provided certain conditions are met. *Id.* at 9, ¶ 5.0.

18 37.

19 The Project as authorized in the §401 Certification will raise the Dam crest 5 feet by
20 installing new crest gates, increasing the reservoir to 88.3 acres. A new 9 MW power house and
21 a new intake structure and tailrace would be installed. The Project is authorized to divert from

1 the reservoir up to 1600 cfs as a “run of the river” operation, with water flowing around the Dam,
2 through the powerhouse and released directly below the Similkameen Falls. *Ex. R-92.* The
3 bypass reach will be approximately 340 feet between the Dam and the area directly beneath
4 Similkameen Falls. The §401 Certification requires that the Project divert water from the
5 reservoir, pipe it around the Dam and release it near the base of the Dam at a rate of 30 cfs from
6 mid-July to mid-September and 10 cfs the remainder of the year for fish species other than
7 anadromous species listed under the ESA, and for aesthetics. *Id.* at 13, ¶¶ 5.2 (8) (9); at 19, ¶ 5.8,
8 respectively. There are no required minimum flows over the Dam.

9 38.

10 A Fish Management Plan (FMP) will be implemented for the purpose of complying with
11 the requirements and conditions of the §401 Certification. *Ex. R-154.* The FMP provides
12 measures intended to prevent or mitigate impacts to aquatic life from the Project. §401
13 Certification, section 4.1 (2), p. 5. The §401 Certification contains some of the conditions that
14 are in the FMP. *Id.*, section 4.1 (3), p. 6. The FMP lists several Management Goals and
15 Objectives that are meant to prevent or mitigate the impacts to aquatic life in regard to water
16 quality, stream flow, sediment and large woody debris transport downstream, and loss of fish
17 habitat and fish mortality.

18 39.

19 As one of the Goals and Objectives of the FMP, mitigation is to be provided downstream
20 of Enloe Dam to address impacts from the Project. *Id.* at section 3.4, p. 29. Gravel
21 augmentation will be provided “related to the potential for the Enloe reservoir to capture

1 sediment that would that would normally be transported downstream.” *Id.* Also “cool water
2 refuge and fish habitat in a side channel” will be provided for steelhead and resident fish rearing
3 to address “any loss of fish habitat in the bypass and the loss of fish through turbine mortality.”
4 *Id.* These mitigation efforts are expected to have a net benefit to fish by providing the
5 enhancement channel with cool refuge water. Reub Testimony; Caldwell Testimony.

6 40.

7 If the goals and objectives of the Fish Plan are not being achieved, the management
8 measures may be modified through an adaptive management approach as outlined in the
9 Certification. *Id.*, section 4.1(3), pp. 6-7.

10 **CONCLUSIONS OF LAW**

11 1.

12 The Board has jurisdiction over the subject matter and the parties pursuant to RCW
13 43.21B.110 (1)(d). The burden of proof is on the appealing party as to the legal issues in the
14 case. WAC 371-08-485(3). The Board considers the matter *de novo*, giving deference to
15 Ecology’s expertise in administering water quality laws on technical judgments, especially where
16 they involve complex scientific issues. *Port of Seattle v. Pollution Control Hearings Board*, 151
17 Wn.2d 568, 593-94, 90 P.3d 659 (2004).

18 2.

19 Section 401 of the CWA provides that an applicant for a federal license to permit an
20 activity that may result in a discharge into navigable waters must obtain a certification from the
21 state that the activity will comply with all applicable state and federal water quality standards.

1 33 U.S.C. §1341(a)(1) and (d). As the designated agency for Washington State to issue the
2 certification, Ecology must find there is “reasonable assurance that the activity will be conducted
3 in a manner that will not violate applicable water quality standards.” 40 C.F.R. §121.2(a)(3). In
4 granting certification pursuant to §401(d), Ecology must “set forth any . . . limitations . . .
5 necessary to assure that [the applicant] will comply with any . . . limitations under [§ 303] . . .
6 and with any other appropriate requirement of State law." *PUD No. 1 of Jefferson County v.*
7 *Ecology*, 511 U.S. 700, 715 (1994) (*Elkhorn*).

8 3.

9 Ecology is to impose as conditions in a §401 certification any additional site-specific
10 requirements necessary to protect designated uses:

11 (3) **Procedures for applying water quality criteria.** In applying the appropriate
12 water quality criteria for a water body, the department will use the following
procedure:

13 (a) The department will establish water quality requirements for water bodies, in
14 addition to those specifically listed in this chapter, on a case-specific basis where
determined necessary to provide full support for designated and existing uses.

15 WAC 173-201A-260(3).

16 Aesthetics is a designated use under the water quality regulations that is to be protected
17 under WAC 173-201A-600:

18 (1) All surface waters of the state not named in Table 602 are to be protected
19 for the designated uses of: Salmonid spawning, rearing, and migration; primary
20 contact recreation; domestic, industrial, and agricultural water supply; stock
watering; wildlife habitat; harvesting; commerce and navigation; boating; and
aesthetic values. (emphasis added).

1 Aesthetics is also considered a “miscellaneous” designated use under RCW 173-
2 201A-200(4):

3 (4) **Miscellaneous uses.** The miscellaneous fresh water uses are wildlife habitat,
4 harvesting, commerce and navigation, boating, and aesthetics. (emphasis added).

5 The State’s anti-degradation policy also authorizes the State to protect aesthetics as a
6 designated and beneficial use of water:

7 Existing and designated uses must be maintained and protected. No degradation
8 may be allowed that would interfere with, or become injurious to, existing or
designated uses, except as provided for in this chapter.

9 WAC 173-201A-310(1).

10 The anti-degradation policy is guided by the State’s Water Pollution Control Act, chapter
11 90.48 RCW, and the Water Resources Act of 1971, chapter 90.54 RCW. Under both these
12 statutes, aesthetics is recognized as a designated and beneficial use of the waters of the state and
13 are to be maintained and protected. The protections in RCW 90.54.020(1) and (3)(a)⁴ for
14 aesthetics is recognized as an “other appropriate requirement of state law” under the CWA §401.
15 *Ecology v. PUD No. 1 of Jefferson County*, 121 Wn.2d 179, 189-192, 849 P.2d 646 (1993), *aff’d*
16 *on other grounds, Elkhorn, supra*, 511 U.S. at 713-716.

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19
20 ⁴ “Perennial rivers and streams of the state shall be retained with base flows necessary to provide for preservation of
21 wildlife, fish, scenic, aesthetic, and other environmental values, and navigational values Withdrawals of water
which would conflict therewith shall be authorized only in those situations where it is clear that overriding
considerations of the public interest will be served.” RCW 90.54.020 (3)(a) (emphasis added).

1 4.

2 Under WAC 173-201A-260 and other applicable laws, a §401 water quality certification
3 may be conditioned with instream flows to assure compliance with the aesthetic values of state
4 water quality standards. In *Elkhorn, supra*, 511 U.S. at 713-716, the U.S. Supreme Court
5 affirmed the state's authority to look beyond water quality criteria and protect designated uses by
6 requiring minimum instream flows as a condition of a §401 Certification. The finding of
7 reasonable assurance is not limited to application of water quality criteria, and may include other
8 requirements that protect the designated uses including minimum instream flows. *Id.* at 715-719.
9 The Court also recognized the relationship of water quality and water quantity, and that lowering
10 of the water quantity in a water body could destroy the designated uses of water. *Id.* at 719.
11 Minimum instream flows to protect aesthetics will comply with the anti-degradation policy. *Id.*;
12 *PUD No. 1 of Pend Oreille County v. Ecology*, 146 Wn.2d. 778, 811-817 (2002).

13 5.

14 The Board performs an independent review, determining for itself whether there is
15 reasonable assurance that water quality standards will be met. *Port of Seattle, supra*, 151 Wn.2d
16 at 599. The Board first determines whether the §401 Certification is adequate. *Id.* at 592. The
17 Board is to add conditions to a §401 certification only if the appellant has shown, by a
18 preponderance of the evidence, that the §401 certification is inadequate in a particular respect,
19 and additional conditions are needed to reach reasonable assurance. *Id.* Ecology's interpretations
20 of water quality statutes and regulations are entitled to great weight, so long as they do not
21 conflict with the statute's plain language. *Id.* at 593.

1 6.

2 Ecology has historically implemented the aesthetic standard under its published guidance
3 manual, *Water Quality Certifications for Existing Hydropower Dams* (Guidance). *Ex. R-78*.
4 The Guidance properly requires consideration of the impact on aesthetics from a project
5 diverting water through turbines and lowering the level of the water source. Aesthetics can be
6 impaired by diverting river flows through turbines. Aesthetic enjoyment can be through sight,
7 smell, touch, and taste and is also a form of recreation. *Id.*

8 7.

9 To find reasonable assurance that the Project will be operated in a manner that does not
10 violate water quality standards for any designated use, the level of protection for the uses must
11 be balanced. The Guidance properly recognizes that flows for aesthetics must be integrated with
12 needs for fish and other values, and “accommodation among uses will likely be necessary
13 because it is unlikely that any flow can simultaneously optimize the needs of all uses.” *Id.* at
14 54. In balancing the instream flow requirements, the flows protective of aesthetic values must be
15 balanced with the requirement to assure the Project does not operate in violation of the numeric
16 water quality standards for the aquatic life use categories of salmonid spawning, rearing, and
17 migration.

18 8.

19 The existing conditions of the Similkameen River must be considered because the Dam
20 already exists and there is no evidence of the natural conditions that would generally determine
21 the impact of the Project on the designated uses. *Ex. R-171* at 5. Based on the existing

1 conditions of the River, Ecology must consider aesthetic flows over the Dam as well as the Falls
2 when determining whether there is reasonable assurance that the Project operations will meet
3 water quality standards for protected designated and beneficial uses of the River. *See* Order on
4 Motions for Summary Judgment. The water flowing over the Dam and the Falls provide
5 aesthetic values. *Id.*; Whittaker Testimony; Caldwell Testimony.

6 9.

7 Because aesthetic values of the flows over the Dam and Falls was not raised until late in
8 the FERC and §401 application process, the evidence shows that the 10/30 cfs flows over the
9 Falls with no flow over the Dam was initially selected as a minimum flow without first
10 completing an analysis of whether the flows met the water quality standards for the aquatic and
11 aesthetics designated uses. Ecology was simply pleased to have an instream flow in the bypass
12 reach when the initial proposal was no flows. Caldwell Testimony. The 10/30 flow regime was
13 thereafter modeled for temperature, DO, and TDG which showed that it is expected to meet
14 water quality standards for the aquatic resources. *See* §401 Certification, p. 13, ¶ 5.2(9); p. 9, ¶
15 4.5; p. 19, ¶ 5.8, *Ex. R-92*. As a result, any analysis of minimum flows for aesthetics was
16 already defined and limited by the 10/30 cfs flow regime established for aquatic resources and
17 failed to consider Project impacts on aesthetics of the river flows based on existing conditions.⁵

18
19 ⁵The existing conditions are, as Ecology states, the decades of natural flows over the Dam. As this Board found in
20 its Order on Motions for Summary Judgment, the river has been flowing naturally over the Dam at the current rate
21 since 1958, creating an aesthetic feature on the River for many decades while there was no diversion and power
generation, and the aesthetic values of these flows should be considered as a designated and beneficial use under the
§401 Certification. To the extent the impacts from the pre-1958 operations are relevant, the Project will at a
minimum have a new impact of an additional 600 cfs diversion and loss of water through the bypass reach when
natural flows exceed 1,000 cfs.

1 Further, the evidence shows that Ecology considered the economics of the Project and
2 concluded that at an instream flow of 100 cfs or more the Project would be economically
3 challenged. *Exs. R-16, R-86.*

4 10.

5 Ecology correctly concluded that increasing the flows up to an unknown level above 30
6 cfs will cause an increase in the temperature of the water in the by-pass, and maintaining a 30 cfs
7 flow over the Dam would also cause increase in water temperature thereby impairing the
8 salmonid fish habitat. *Ex. R-134* at 4. However, this analysis is from a baseline of the 10/30
9 flow regime over the Falls only, and the evidence shows it limited the opportunity to review
10 alternative flows and Project impacts based the diversion of water under existing conditions.
11 Selection of a minimum flow in this manner results in Ecology considering the impact of the
12 aesthetic flows on the operation of the Project, rather than considering the Project's impact on
13 the aesthetic values of the flows. This is not the proper standard. The aesthetic flows must be
14 determined independently of the operation of the Project, and thereafter integrated, as Ecology's
15 Guidance provides, with needs for fish and other values.

16 11.

17 While the Board recognizes the difficulty for the PUD to address aesthetics when it
18 believed it had finished its application process, the Board cannot recognize minimum flow
19 impacts on the Project's hydropower use of water for the purposes of a §401 Certification.
20 Hydroelectric power is not a designated or beneficial use protected by Washington's
21 antidegradation policy. *Snoqualmie Indian Tribe v. FERC*, 545 F.3rd 1207 (9th Cir. 2008).

1 12.

2 The flows necessary to meet the water quality standards for the aquatic resources are
3 often acceptable as protective of the aesthetic values without further analysis. However, with
4 the manner in which Ecology selected the 10/30 flows, and the lack of evidence regarding how
5 the 10/30 flow would appear aesthetically, the Board finds that in this case there is not a
6 presumption the minimum flow for the fishery resources is also the protective flow for aesthetic
7 purposes. There is little, if any, evidence of flows above the 10/30 flow regime that, as
8 Ecology's Guideline provides, will optimize both designated uses.

9 13.

10 The several fishery projects in the Fish Plan, including the discharge of cool water in a
11 tributary downstream of the Project, are laudable efforts. As described in the FMP, these are
12 required as mitigation for Project impacts to the fisheries that are not addressed by the 10/30
13 flow regime. There is no equivalent mitigation for Project impacts to aesthetics.

14 14.

15 The record does not provide sufficient evidence to determine an instream flow level
16 below existing conditions when water in the by-pass reach would increase beyond the 0.3°C
17 water quality standard. Under existing conditions, the monitoring has shown that water
18 temperature over the Dam does not increase beyond 0.3°C. The current flow through the entire
19 Project site does not increase beyond 0.3°C, and in fact water temperatures begin to decrease in
20 early August in the reservoir. *Ex. R-171*. Under existing conditions, the median flows exceed
21 500 cfs, ranging from 514 cfs in September to 764 cfs in August. The record also does not

1 provide evidence of the level of flows above 30 cfs when the temperature will increase through
2 the by-pass reach above 0.3°C. The evidence only shows that under Project operations
3 increasing flows in the by-pass reach in the critical months from July to October will result in a
4 smaller amount of the cooler water diverted into the turbines and discharged at the bottom of
5 the Falls, thereby causing a net increase in temperature downstream from the Falls.

6 15.

7 The aesthetic studies that were completed on behalf of the PUD were not focused on the
8 aesthetic values of flows over the Dam and the Falls, but rather on the views of the Project
9 infrastructure. Nor were these studies the basis for the 10/30 flow regime. The law does not
10 require any specific aesthetic study to be completed. Under the current flow conditions of the
11 River, it is not possible to have focus groups review actual pictures of flows below the lowest
12 flow photographed of 236 cfs, and there is currently no means to control the flow over the Dam
13 to consider other flows. To model flows and know the width and height of the flows, the
14 geometry of the by-pass channel must be determined by obtaining measurements and
15 conducting transects of the channel. This information is not known or available because the
16 velocity of the River does not allow a person to take proper transects and measurements to have
17 sufficient data to develop the model. Gangemi Testimony. Mr. Caldwell stated that he would
18 actually like to see the flows at 30 cfs to know the wetted area. Caldwell Testimony.

19 16.

20 Expert opinions were not determinative on whether the 10/30 flow regime, which
21 included no flows over the Dam, was aesthetic. Dr. Whittaker opined that the flows over the

1 Dam would likely have aesthetic value, and the 10/30 flow regime would most likely not be
2 considered adequate as an aesthetic flow if a separate and independent aesthetic study or
3 analysis was completed. Dr. Whittaker explained the types of studies that can be completed
4 regarding aesthetic flows. Whittaker Testimony. Mr. Gangemi testified that the remoteness
5 and size of the Falls as compared to the Spokane Falls and Snoqualmie Falls are factors to
6 consider. Notwithstanding the remoteness of the Dam and Falls, he opined that in considering
7 the entire year of flows, including the occasional high flows between July and October, the
8 flows during Project operations would be aesthetic. Further, he opined that Ecology followed
9 proper protocols, conducted site visits, and collaborated across agencies, disciplines and
10 expertise, and made a professional judgment regarding the adequacy of the 10/30 flows for
11 aesthetics. Gangemi Testimony; *Ex. R-53*. Mr. Caldwell, who was Ecology's witness opined
12 that based on his professional judgment, the 10/30 flows would be aesthetically pleasing, but
13 there is very limited evidence to support this opinion. Caldwell Testimony.

14 17.

15 The aesthetic flows may be determined based upon professional judgment. *See, Water*
16 *Quality Certifications for Existing Hydropower Dams, Exs. R-33, 53, 78*. However, professional
17 judgment has limitations, and must be based on some knowledge, training, or research in the
18 relevant area. In this case conclusions regarding aesthetic flows must be based on high quality
19 researchers in aesthetic flows, and the elements of the review must be explicit and documented.
20 *Ex. R-33* at 35, 73. Finally, the professional judgment of an expert should be based on evidence
21 of flows being considered – whether by viewing actual flows at site visits or simulated flows. *Id*;

1 *Ex. R-103.* With all due respect for Mr. Caldwell's expertise in instream flow analysis, his
2 experience with determining aesthetic flows under the facts of this case were limited. Mr.
3 Caldwell testified that based on several site visits when flows were at over 300 cfs, he could
4 visualize the flows at 30 and 10 cfs, and based on use of his small finger he could visualize no
5 aesthetic difference between a 30 cfs flow and flows above 300 cfs . If the complexity of the by-
6 pass reach does not allow one to create a simulation of the flows below 100 cfs, this same
7 complexity would compromise Ecology's professional judgment. The factors in this case that
8 limit simulations must also limit any "visualization" by one individual, notwithstanding one's
9 respective expertise of instream flows. Deference to Ecology's technical determination would
10 have been appropriate if Ecology's finding were based on evidence depicting the different
11 possible flow regimes. In this case there simply was not the adequate evidence presented to
12 make a finding. As Mr. Caldwell testified, he would like to see where the 30 cfs actually flowed
13 through the channels. Further, the recreation and aesthetic flow experts, Dr. Whittaker and Mr.
14 Gangemi, could not state with certainty how the 10/30 flows would appear, except that they
15 would likely be limited to the middle incised channel. Based on this record the Board finds that
16 there is not sufficient evidence to make a finding that the 10/30 flows meet the water quality
17 standards for aesthetic values even when balancing these with the protecting of the fisheries. The
18 professional judgment on aesthetic flows should be based on evidence depicting flow levels,
19 either actual or simulated.

20

21

1 18.

2 The Board finds that the number of people visiting the site is a factor and an element to
3 consider in determining the level of flows for aesthetic values. There is sufficient evidence that
4 there are and will be people who observe the flows over the Dam and Falls, albeit the number of
5 people is small. FERC's request that aesthetics be addressed regarding the infrastructure of the
6 Project is also evidence that there is a critical population that would visit the site and will be
7 potentially affected by the aesthetic views at the Project site. The designated and non-designated
8 trails in the area have provided access to the Dam and Falls, and the expansion of the trails is
9 expected to increase its use.

10 19.

11 The Board finds the Appellants met their burden that the aesthetic flow analysis was not
12 sufficiently completed to make a final determination of the flows that will be protective of the
13 aesthetic values. The evidence is not sufficient to make a finding as to the flows that would
14 protect aesthetic values without impairing the quality of the water for the fishery resource, which
15 the Board finds would occur if the Project caused shallow flows over the bedrock shelves.
16 Therefore, the §401 Certification is deficient in this regard without further conditions.

17 20.

18 The uncertainty of the aesthetic flows is no less uncertain than the flow regime will be
19 protective of fish. To address the uncertainty of the flows for the fishery resources, the §401
20 Certification is now conditioned to require monitoring and provides for an adaptive management
21 approach to assure the 10/30 flow regime is in compliance with the fishery resources specifically

1 set forth in the Fish Management Plan. A Fish Workgroup is established to address, in an
2 advisory capacity to Ecology, issues that arise with the Fish Management Plan. Ecology should
3 develop a similar monitoring program of the visual effect of the different flow levels, which can
4 be implemented as the Project commences operation and becomes capable of controlling flows
5 over the Dam and the Falls. An aesthetic flow plan should include an analysis of the flows over
6 the Dam within the proposed 10 foot width release area. The 10/30 flows may, after such
7 monitoring, be the level of flow that is protective of both the fishery resource and aesthetic
8 values. However, with the ability to view actual and simulated flows, including 10 cfs and 30 cfs
9 flows, Ecology can analyze the flows and make appropriate findings, based on either
10 professional judgment or, if Ecology determines appropriate, the advice of a group.

11 21.

12 The Board has the authority to add conditions in order to bring a §401 certification into
13 the realm of reasonable assurance. *Port of Seattle, supra*, 151 Wn.2d at 601. These conditions
14 can require monitoring and adaptive management as fundamental elements of reasonable
15 assurance. *Id.* at 606. “Monitoring and adaptive management provide a mechanism through
16 which Ecology can mitigate that inherent uncertainty.” *Id.*

17 **ORDER**

18 Based on the foregoing analysis, the Board finds and orders:

19 The §401 Certification is affirmed, subject to the additional condition that 10/30 cfs
20 minimum instream flows over the Dam and Falls for the aesthetic values shall be further
21 monitored and evaluated by Ecology during initial operation of the Project (within three years).

1 After Ecology obtains additional data and analysis of alternative flows over the Dam and the
2 Falls, the 10/30 cfs flow shall either be confirmed or revised as a condition of project operation
3 and the §401 Certification. Ecology shall develop an aesthetic flow monitoring program under
4 the following guidelines:

- 5 1. The program shall provide for management and control of alternative flows in the
6 bypass reach that will provide opportunities for review, monitoring and analysis
7 of either actual minimum flows or development and review of simulated flows.
- 8 2. Flows for aesthetic purposes as a condition of the §401 Certification shall not
9 cause an increase in water temperature above the conditions that currently exist
10 prior to operation of the Project that would violate water quality standards at any
11 location in the Project area. A shallow flow across the bedrock shelves that
12 would cause increases in the temperature should be avoided, and under no
13 circumstance should the flows cause a violation of the water quality standards for
14 salmonid spawning, rearing, and migration.
- 15 3. Ecology and the PUD may utilize a focus group and shall consult with the Fish
16 Advisory Work Group to assist and provide advice regarding the proper balance
17 between aesthetic flows and protection of water quality of the river for the fishery
18 resource.
- 19 4. The program shall be for a period of time that provides Ecology with sufficient
20 data and information to review actual flow levels or simulated flows. However,
21 the program must be completed within three years from the commencement of the
operation of the Project.

17 As a result of the monitoring program, Ecology shall make a finding of the aesthetic
18 flows that meet the water quality standards for aesthetic purposes and is consistent with this
19 Order. At the completion of the monitoring program, the Project shall operate subject to those
20 flows and the §401 Certification shall be conditioned to reflect such flows, either confirming the
21 current flow regime or revising it based on Ecology's findings.

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SO ORDERED this 30th day of August, 2013.

POLLUTION CONTROL HEARINGS BOARD

TOM MCDONALD, Chair

KATHLEEN D. MIX, Member