

126 FERC ¶ 62,105
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

PPL Montana, LLC

Project No. 1869-048

ORDER APPROVING CONSTRUCTION AND OPERATION OF FISH PASSAGE
FACILITIES

(Issued February 12, 2009)

On April 7, 2008 PPL Montana, LLC (licensee) filed a Biological Evaluation (BE) for the Thompson Falls Project and 90-percent construction drawings for upstream fish passage at the Thompson Falls Dam. The BE discussed impacts of project operation and possible impacts of proposed upstream fish passage on federally listed as threatened bull trout (*Salvelinus confluentus*). The Thompson Falls Project is located on the Clark Fork River in Sanders County, Montana.

BACKGROUND AND CONSULTATION

On July 6, 2001 the Commission received a letter from the U.S. Fish and Wildlife Service (FWS) stating it believes that some of the activities related to the Thompson Falls Project may be incidentally taking federally listed as threatened bull trout. In the July 6 letter the FWS recommended that the Commission prepare a Biological Assessment (BA) to evaluate the effects of project operation on bull trout and other federally listed threatened and endangered species, and to determine if formal consultation under Section 7 of the Endangered Species Act (ESA) was necessary. The Commission received another letter from the FWS, pertaining to threatened bull trout at the Thompson Falls Project, on January 30, 2002. The letter stated that studies 50 miles downstream of the Thompson Falls Dam at the Clark Fork Project (FERC No. 2058) showed adverse impacts occurring to bull trout from habitat degradation behind the Noxon Reservoir Dam as well as incidental take due to fish passage barriers. The FWS also stated that it believes similar impacts are likely occurring at the Thompson Falls Project. Additionally, the FWS stated that non-native northern pike (*Esox lucius*) likely prey on juvenile bull trout in the impoundment created by the Thompson Falls Dam.

In a response dated March 13, 2002, to the FWS, the Commission stated that a definitive federal action is needed to trigger ESA consultation and it believed that there was no federal nexus to begin consultation. However, in a letter dated March 13, 2002,

the Commission asked the licensee to respond to the FWS's letters. In the Commission's letter to the licensee, the FWS's recommendation to prepare a BA because the Thompson Falls Project operation may affect threatened bull trout was discussed. The Commission stated that it is their position to investigate the situation to determine what effects to bull trout if any, may be occurring, and what changes, if any, should be considered to avoid or mitigate those effects or to benefit the species. Additionally, the Commission also stated that if changes are necessary the Commission can institute a reopener proceeding to require changes or can entertain a voluntary amendment application from the licensee.

The licensee responded to the Commission's March 13, 2002 letter in a letter dated April 1, 2002. The licensee stated that it was their understanding that there was no federal action at the Thompson Falls Project that would require Section 7 consultation pursuant to the ESA. However, the licensee also stated that in the spirit of cooperation and under the guidelines of the Interagency Task Force Report (ITFR)¹ they requested to be designated as the Commission's non-federal representative for the purposes of initiating informal consultation on the potential effects of project operation on bull trout. In a letter dated May 3, 2002, the Commission designated the licensee as its non-federal representative for the purpose of conducting informal consultation with the FWS.

The licensee filed a BE for threatened and endangered species with the Commission on April 7, 2003. The Commission adopted the licensee's BE without modification and submitted it to the FWS as a final BA on May 5, 2003. In the May 5 letter, based on our analysis and the BE's findings, we concluded that operation of the Thompson Falls project likely adversely affects bull trout. Consequently, the Commission requested initiation of formal consultation with the FWS. The FWS responded to the Commission's BA in a letter dated March 8, 2004. The FWS stated they agreed to proceed as recommended in the ITFR. The FWS also stated that data gaps needed addressed in order to move forward with the process. Consequently, FWS stated it would work collaboratively with the licensee and other members of the Technical Advisory Committee (TAC)^{2,3} to develop and conduct studies needed to gather the

¹ Interagency Task Force Report on Improving Coordination of ESA Section 7 Consultation with the FERC Licensing Process, December 12, 2000. The report can be found on the Commission website (http://www.ferc.gov/industries/hydropower/indus-act/itf/esa_final.pdf).

² The Interagency TAC was formed in 2003 to clarify regulatory issues, plan research activities, and develop conservation measures to address bull trout issues at the Thompson Falls Project. The committee consists of PPL Montana, U.S. Fish and Wildlife Service (FWS), Montana Fish Wildlife and Parks (FWP), Avista Corporation, Montana Department of Environmental Quality (DEQ) and Confederated Salish and Kootenai Tribes (CSKT).

³ The January 15, 2008 Memorandum of Understanding created a new TAC and outlined its responsibilities. The new TAC consists of: PPL Montana, U.S. Forest Service, FWP, DEQ, and CSKT.

necessary data. The FWS stated that they would proceed with formal consultation once the necessary data was attained.

After five years of studies the licensee filed a new BE discussing the effects of the Thompson Falls Project on bull trout and proposed conservation measures with the Commission on April 7, 2008. The licensee's BE identified several factors directly related to project operation that negatively impact bull trout in the Clark Fork River. Inhibition of upstream migration and access to spawning habitat by the Thompson Falls Dam was identified as a major concern. Consequently, the licensee proposed to install a full height fishway at the project and filed 90-percent drawings for the structure on April 7, 2008 as well. The licensee's April 7 filing also contained a Memorandum of Understanding (MOU) signed by PPL Montana, the Confederated Salish and Kootenai Tribes of the Flathead Nation (CSKT), Montana Department of Fish Wildlife and Parks (FWP) and FWS.⁴ Based on our review and findings in the BE we concluded that the Thompson Falls Project is adversely affecting bull trout and the proposed conservation measures will reduce but not totally eliminate the Project's adverse effects on bull trout. The BE was adopted as the Commission's final Biological Assessment (BA) and submitted to the U.S. Fish and Wildlife Service on May 1, 2008. At this time the Commission requested initiation of formal consultation under Section 7 of the ESA.

On November 4, 2008 the FWS filed, with the Commission, a Biological Opinion (BO) and associated Incidental Take Statement (Appendix A), which includes reasonable and prudent measures and terms and conditions to minimize incidental take. The FWS stated that the BO is primarily based on the licensee's April 7, 2008 BE, which was adopted as the Commission's BA. The BO describes the effects of the Project on threatened bull trout and its designated critical habitat. Additionally, the BO also evaluates the effects of the licensee's proposed conservation measures. The FWS concluded in its BO that the Thompson Falls Project is currently adversely affecting bull trout and the licensee's proposed conservation measures will reduce, but not totally eliminate, adverse impacts of the Project.

LICENSEE'S PLAN

The Thompson Falls Project is a migratory barrier for bull trout in the Clark Fork River. In order to provide bull trout access to important habitat upstream of the Project the licensee proposes to build, operate, and maintain upstream fish passage. The licensee

⁴ Facilitation and Funding of FERC License based Consultation Process and Implementation of Minimization Measures for Bull Trout. Signed January 15, 2008. The MOU provides terms and conditions regarding the collaboration between the licensee and the FWS, MFWP, and CSKT and the implementation of minimization measures for bull trout.

plans to construct a full height pool and weir fishway on the right abutment of the main dam, as shown in the design drawings. The proposed design incorporates a sequence of 48 concrete pools. The proposed pools would be 6-feet long by 5-feet wide by 4-feet deep and consist of a 2-foot wide notch that would pass approximately 6 cubic feet per second (cfs). There would be the option to convert the notches to orifices if this would benefit upstream fish passage. The licensee proposes to install an auxiliary water system (AWS) to increase flow in the downstream ladder pools and create a total discharge of 60 cfs at the entrance pool. Additionally, the licensee's plans include a 20 cfs high velocity attraction jet AWS to assist in attracting fish to the ladder entrance. The licensee proposes to operate the fishway during non-spill periods (flows < 23,000 cfs), approximately from July 1 to May 15 annually. The licensee also proposes that any fishway dewatering or maintenance would occur from December 1 to February 28 because bull trout are not typically migrating in the mainstem of the Clark Fork River at this time.

The licensee proposes to install a sampling loop at the upstream end of the fish ladder. The fish sampling plans include a fish trapping mechanism, fish holding pool, fish crowder, fish lock, fish sorting table, anesthetic tank, recovery tank, fish return flume to the ladder, and fish return pipe to the tailwater (to prevent upstream escape of non-intended fish i.e. invasive species). The licensee proposes to collect and record species, numbers, condition, and other pertinent data for fish passed at the Project. Additionally, the licensee plans to tag all collected bull trout with passive integrated transponders (PIT tags) to gather project passage data.

The licensee proposes to begin construction of the facility in spring 2009 and complete construction by fall 2010.

DISCUSSION AND CONCLUSION

Despite the loss of connectivity and bull trout habitat the Clark Fork River Basin still has the potential for recovery. Although low in numbers compared to historical populations bull trout are still widely distributed throughout the watershed. Additionally, the FWS has designated 1,136 miles of stream and 49,755 acres of bull trout critical habitat in the Clark Fork Basin, indicating that a substantial amount of quality habitat still exists.⁵ Reestablishing bull trout access to spawning grounds is also increasing in the basin. As part of its new license for the Cabinet Gorge and Noxon Rapids hydroelectric

⁵ See: Department of the Interior, Fish and Wildlife Service. September 26, 2005. 50 CFR Part 17. Endangered and Threatened Wildlife Plants; Designation of Critical Habitat for the Bull Trout; Final Rule.

developments⁶ (located downstream of Thompson Falls) Avista Corporation implemented a trap and transport program for passing bull trout. Depending on the results of genetic testing to determine the captured fishes' natal streams, the fish are released either above Cabinet Gorge Dam, Noxon Rapids Dam, or Thompson Falls Dam. Additionally, the removal of Milltown Dam, located 157 miles upstream from the Thompson Falls Dam, began in 2008. Upon completion of the dam removal bull trout will have access to 274 miles of the Clark Fork River upstream of the Thompson Falls Dam.

Although implementing effective fish passage at Thompson Falls will not eliminate the impacts of dams, hydroelectric project operation, and habitat degradation it would be a vital part of the cumulative effort to restore connectivity in the Clark River Basin and meet the recovery goals. Combined with the trap and transport program at Cabinet Gorge and Noxon Rapids dams and removal of Milltown Dam, fish passage at Thompson Falls would provide migratory bull trout access to critical habitat that has been restricted for nearly 100 years. Construction of the Thompson Falls Dam eliminated access for bull trout in the lower Clark Fork River and Lake Pend Oreille to 90 percent of the Clark Fork watershed. Reconnecting waterways in the basin will increase access to spawning grounds, thermal refugia, and complex habitat necessary for all bull trout life stages, and also facilitate flow of genetic material between populations.

In order to gather more data concerning bull trout biology and their migratory behavior the licensee proposes to incorporate a sampling loop in the passage facility. The sampling loop would provide a means for safely collecting data to increase the knowledge of bull trout. Passage of bull trout is a relatively new endeavor and the sampling effort may provide data to enhance conservation measures for the species.

The FWS's incidental take statement concluded that some take of bull trout is anticipated due to construction of the proposed fishway. However, the construction related take would likely be non-lethal and be considered harassment under the ESA. The incidental take statement also concluded that some take is likely due to sampling efforts, but except in rare cases it is expected to be non-lethal. Additionally, the licensee is taking the appropriate precautions to prevent sedimentation and erosion stemming from construction. As a result, impacts to downstream water quality and habitat should be minor and temporary. Although some take will likely occur, the proposed action will be a net benefit for bull trout and other aquatic organisms in the Clark Fork system and should be approved.

⁶ Order Issuing New License. Issued February 23, 2000. 90 FERC ¶ 61,167. The Cabinet Gorge and Noxon Rapids Developments are part of Avista Corporations' Clark Fork Project (FERC No. 2058).

In order for the Commission to ensure compliance with the Terms and Conditions of the Incidental Take Statement filed by the FWS and attached to this order as Appendix A, the licensee should file with the Commission, for approval, study and operational plans referenced in the FWS's Terms and Conditions numbers 1 through 7, after development and approval by the FWS and Technical Advisory Committee. In addition, the results of studies referenced, including the 5 and 10-year comprehensive reports referred to in the FWS's Terms and Conditions, should also be filed with the Commission at the same time that they are submitted to the FWS and TAC. Any proposed structural or operational modifications or additional conservation measures that are deemed necessary after scientific review of the referenced studies should be filed for Commission approval.

The licensee must follow the FWS's Terms and Conditions numbers 1 through 7 in order to be exempt from the take prohibitions of Section 9 of the ESA. In order for the Commission to ensure compliance with the FWS's Terms and Conditions the licensee should file with the Commission, by April 1 of each year through the remainder of the license, the annual report referenced in 7a of the FWS's Terms and Conditions. In addition to the requirements stipulated in 7a the report should also address the licensee's compliance with the FWS's Terms and Conditions. The Commission reserves the right to extend the expiration date for report filing.

In addition to the mandatory Terms and Conditions the FWS also filed conservation recommendations in its BO. These recommendations are meant to further the purposes of the ESA by carrying out conservation measures for the benefit of threatened and endangered species. To further minimize or avoid adverse effects of the Thompson Falls Project the licensee should continue to cooperate with FWP, CSKT, Avista Corporation and other entities to promote recovery of bull trout and to survey and monitor bull trout populations and habitat in the lower Clark Fork River core area and the greater Clark Fork basin. Additionally, during the fishway construction, the licensee should retrieve and remove all loose steel beams and other trash from the stilling basin that can be reasonably accessed from the construction roadway. The conservation recommendations are reasonable actions that will help protect bull trout and therefore, should be implemented by the licensee.

Pursuant to paragraphs 12.4, 12.11, and 12.40 of the Commission's regulations, a plans and specifications package and a quality control and inspection program should be submitted to the Regional Engineer at least 60 days prior to any construction of upstream fish passage facilities. Authorization to start construction activities will be given by the Regional Engineer after all preconstruction requirements are satisfied. In order to insure that the required facilities are constructed the licensee should file within 90 days of completion of the upstream fish passage facilities, for Commission approval, revised

exhibit F drawings describing and showing the facilities, as built. Additionally, the Commission reserves the right to require changes to project structures, fish passage facilities, or operation, based on the studies and reports required by this order, to ensure effective passage of threatened bull trout.

The Director Orders:

(A) PPL Montana's (licensee), Upstream Fish Passage Design and Construction Plans, for the Thompson Falls Project, as proposed in its April 7, 2008 Biological Evaluation, are approved and shall be implemented pursuant to the approved schedules.

(B) The licensee shall comply with the Terms and Conditions numbers 1 through 7 included in the U.S. Fish and Wildlife Service's November 4, 2008 Incidental Take Statement, and attached to this order as Appendix A.

(C) Study and operational plans referenced in the U.S. Fish and Wildlife Service's (FWS) Terms and Conditions numbers 1 through 7, after development and approval by the FWS and Technical Advisory Committee (TAC), shall be filed with the Commission, for approval, and shall summarize the status of any extensions that may be necessary. In addition, the results of studies referenced, including the five and ten-year comprehensive reports referred to in the FWS's Terms and Conditions, shall also be filed with the Commission at the same time that they are submitted to the FWS and TAC. Any proposed structural or operational modifications or additional conservation measures that are deemed necessary after scientific review of the referenced studies shall be filed for Commission approval.

(D) In order for the Commission to ensure compliance with the U.S. Fish and Wildlife Service's (FWS) Terms and Conditions the licensee shall file with the Commission, by April 1 of each year through the remainder of the license, the annual report referenced in 7a of the FWS's Terms and Conditions. In addition to the requirements stipulated in 7a the report shall also address the licensee's compliance with the FWS's Terms and Conditions. The Commission reserves the right to extend the expiration date for report filing.

(E) To further minimize or avoid adverse effects of the Thompson Falls Project the licensee shall continue to cooperate with U.S. Fish and Wildlife Service, Confederated Salish and Kootenai Tribes, Avista Corporation and other entities to promote recovery of bull trout and to survey and monitor bull trout populations and habitat in the lower Clark Fork River core area and the greater Clark Fork basin. Additionally, during the fishway construction, the licensee should retrieve and remove all loose steel beams and other trash that may be hazardous to bull trout.

(F) Pursuant to paragraphs 12.4, 12.11, and 12.40 of the Commission's regulations, a plans and specifications package and a quality control and inspection program shall be submitted to the Regional Engineer at least 60 days prior to any construction of upstream fish passage facilities. Authorization to start construction activities will be given by the Regional Engineer after all preconstruction requirements are satisfied.

(G) Within 90 days of completion of the upstream fish passage facilities the licensee shall file, for Commission approval, revised exhibit F drawings describing and showing the facilities, as built.

(H) The Commission reserves the right to require changes to project structures, fish passage facilities, or operation, based on the studies and reports required by this order, to ensure effective passage of threatened bull trout.

(I) This order constitutes final agency action. Request for rehearing by the Commission may be filed within 30 days from the date of the issuance of this order, pursuant to 18 CFR § 385.713.

George H. Taylor
Chief, Biological Resources Branch
Division of Hydropower Administration
and Compliance

Appendix A

Reasonable and Prudent Measures,

Terms and Conditions,

and

Conservation Recommendations from the

Biological Opinion filed November 4, 2008

by the U.S. Fish and Wildlife Service

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take:

1. PROVIDE SAFE AND EFFECTIVE UPSTREAM FISH PASSAGE: Identify adult bull trout attempting to travel upstream of Thompson Falls Dam from Lake Pend Oreille, Cabinet Gorge Reservoir, or Noxon Reservoir and in a timely manner, agreed to by the Service and coordinated with the Avista projects, facilitate upstream fish passage, operated in accordance with an approved Operational Plan, to enhance spawning migrations. Successful upstream passage will reduce or eliminate incidental take from blockage of migrants by the dam, including delayed/deferred spawning, restriction of access to thermal refugia, and migratory delay or interruption.

2. PROVIDE SAFE AND EFFECTIVE DOWNSTREAM FISH PASSAGE: Identify juvenile bull trout attempting to travel downstream from Thompson River, Flathead River, and upstream core areas and provide safe, timely and efficient downstream fish passage to facilitate bull trout migration to Noxon Rapids and Cabinet Gorge Reservoirs or Lake Pend Oreille. Successful downstream passage will reduce or minimize incidental take related to dam effects on juvenile fish, including intermittent effects from any gas supersaturation and chronic effects from blocked access to thermal refugia and migratory delay or interruption.

3. REDUCE EFFECTS OF GAS SUPERSATURATION ON BULL TROUT IN PROJECT AREA: Further evaluate the mechanism and impacts of dissolved gas supersaturation on bull trout at Thompson Falls Dam; first establishing the degree to

which the Thompson Falls Project contributes to the systemic problem and secondly with an objective of participating in control, mitigation, and monitoring programs to reduce incidental take of bull trout by effects of gas bubble disease at the Thompson Falls Project.

4. DEVELOP IMPLEMENTATION STRATEGIES FOR THE MOU AND TAC: Implement provisions of the Thompson Falls Project MOU under the guidance of an interagency Technical Advisory Committee (TAC) that call for enhancing, acquiring or protecting sensitive upstream habitat that is used by migratory bull trout for spawning or rearing.

5. REDUCE OR MITIGATE ADVERSE EFFECTS TO BULL TROUT FROM OPERATIONS OF THOMPSON FALLS RESERVOIR: Initiate a comprehensive evaluation of bull trout use of Thompson Falls Reservoir and determine the primary migratory pathway through the reservoir and interaction of bull trout with predatory and competing nonnative species in Thompson Falls Reservoir. These investigations should be carried out over a 10-year period as a prelude to further evaluation of downstream passage concerns associated with future relicensing discussions.

6. PROVIDE PERIODIC MONITORING AND EVALUATION ACROSS THE CORE AREA: Contribute to coordinated genetic assessment and monitoring of bull trout populations in the Lower Clark Fork Core Area and, to a lesser extent, connected upstream core areas as related to impacts of Thompson Falls Dam.

7. REPORTING: Implement reporting and consultation requirements as outlined in the terms and conditions in order to minimize take of bull trout related to implementation of the Plan and other fisheries monitoring activities.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the FERC must comply with the following terms and conditions which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

It is the intent of Service and the FERC, as agreed to with the licensee, that implementation of fish passage at Thompson Falls will occur in systematic phased steps:

Phase 1 – Fishway Preconstruction and Construction Phase; (through 2010) includes the planned development and construction of a full-height fishway.

Phase 2 – Fishway Post-Construction Monitoring and Evaluation; (mid-2010 through 2020) includes a comprehensive assessment and iterative enhancement of the safe, timely and efficient passage of bull trout (and other species) both upstream and downstream through the facility as well as examination of other bull trout limiting factors in the Project action area.

Phase 3 - Pre-Licensing and Ongoing Fishway Operations; (2021 and beyond) is currently not described, but will involve optimal operation of the fishway and become preparatory to FERC relicensing of the Thompson Falls Dam, scheduled to be in process up to five years before the license expires at the end of 2025.

TC1. The following terms and conditions are established to implement reasonable and prudent measure #1. UPSTREAM PASSAGE:

- a. During 2009 and 2010, PPL Montana will construct a fish passage facility (permanent fishway) to provide timely and efficient upstream passage at the right abutment of the main dam, as agreed to by the Service and through oversight of the TAC (as provided for in the interagency Thompson Falls MOU).
- b. During construction and cleanup, PPL Montana will follow permit procedures as required by the Service, the State of Montana, and U.S. Army Corps of Engineers so that minimal impacts to downstream aquatic resources occur during construction.
- c. PPL Montana will determine operational procedures for the passage facility and develop a written operation and procedure manual (SOP) by the end of 2010, with input from the TAC and approval by the Service, updated as needed.
- d. For the remaining term of the license (expiring December 31, 2025), PPL

Montana will ensure that operation of the fish passage facility is adequately funded and conducted in compliance with the approved SOP; including activities such as biological studies, transport of bull trout (as needed), and assessment of ladder efficiency.

e. During the Phase 2 evaluation period (2010 through 2020), PPL Montana will provide adequate funding for genetic testing to determine the likely natal tributary of origin of all adult bull trout which ascend the fishway and enter the sample loop, as well as those otherwise captured at the base of Thompson Falls Dam. In order to positively identify natal origin of bull trout at the project, PPL Montana will institute a permanent fish tagging system for all bull trout handled during monitoring and for other fisheries investigation activities in the Project area.

f. During the Phase 2 evaluation period (2010 through 2020), PPL Montana will make a fish transport vehicle available, and provide staff to transport any adult bull trout that is captured at Thompson Falls Dam and determined by the SOP to require transport to upstream waters.

g. In consultation with the TAC, PPL Montana will prepare by January 1, 2011, for Service approval, an action plan for Phase 2 of the evaluation period (2010 through 2020) to evaluate efficiency of the upstream passage facility. The goal will be to assess how effective the ladder is at passing bull trout, the potential length of any delay, the amount of fallback, and the optimal operational procedures to achieve the highest efficiency. During this Phase 2 evaluation period (2010 through 2020) a routine feedback loop will be established and used, as agreed to by the Service, to fine tune operations and will be combined with a variety of experimental and evaluative studies. It may be necessary to conduct research on surrogate species (e.g., rainbow trout) at the discretion of the TAC, in order to facilitate certain of these evaluations. At a minimum, for the remaining term of the license (through 2025), PPL Montana will support a sampling method to annually estimate the total numbers of all species passing through the ladder and adequately characterize the timing of such movements.

h. During the entire Phase 2 evaluation period (2010-2020), the TAC, subject to approval of the Service and with PPL Montana support, will provide adequate oversight of scientific aspects, surveys, studies, and protocols associated with the fish passage aspects of the Project. At the end of the Phase 2 evaluation period (2010-2020), and upon completion and adequate distribution and consideration of a comprehensive ten-year report (due December 31, 2020), PPL Montana will convene a structured scientific review of the project, guided by the TAC. This scientific review will be completed by April 1, 2021 and will develop a set of

recommendations to be submitted to the Service for evaluation, modification, and approval; including specific conclusions as to whether the fishway is functioning as intended and whether major operational or structural modifications of the fishway are needed. The review process will culminate, by December 31, 2021, in a revised operating plan for the fishway during the remainder of the existing term of the FERC license (2022 through 2025).

TC2. The following terms and conditions are established to implement reasonable and prudent measure #2. **DOWNSTREAM PASSAGE:**

a. PPL Montana will provide annual funding to the TAC, as approved by the Service and specified in the Thompson Falls MOU, to conduct offsite habitat restoration or acquisition in important upstream bull trout spawning and rearing tributaries. The purpose is to boost recruitment of juvenile bull trout. This funding is provided to partially mitigate for incidental take of bull trout caused by downstream passage through the turbines and spillways. The annual \$100,000 contribution specified for the first term of the MOU (2009-2013) is subject to renegotiation during succeeding terms of the MOU to run from 2014-2020.

TC3. The following terms and conditions are established to implement reasonable and prudent measure #3. **GAS SUPERSATURATION:**

a. For the remainder of the license (through 2025), in consultation with the TAC and subject to Service approval, PPL Montana will develop and implement operational procedures to reduce or minimize the total dissolved gas production at Thompson Falls Dams during periods of spill. Future modifications to prescribed operations may be determined from ongoing evaluations, as necessary and determined appropriate by Montana Department of Environmental Quality.

b. For the remainder of the license (through 2025), in consultation with the TAC and subject to Service approval, PPL Montana will continue to collaborate with MDEQ, Avista, MFWP, and other entities toward reducing the overall systemic gas supersaturation levels in the Clark Fork River, occurring from a point downstream of Thompson Falls Dam to below Albeni Falls Dam.

c. For the remainder of the license (through 2025), all bull trout detained through the sampling loop at the Thompson Falls Fish Ladder will routinely be examined for signs of gas bubble trauma; with results of such observations permanently recorded. Should GBT symptoms be discovered, then PPL Montana will consult the TAC on the need for immediate corrective actions and subsequently implement any new studies or potential operational changes (to the ladder or the

dam) which may be required by the Service and DEQ, in order to mitigate GBT concerns.

TC4. The following term and condition is established to implement reasonable and prudent measure #4. MOU and TAC:

a. Upon completion of construction of the Thompson Falls Fish Ladder (currently scheduled for 2010) and concurrent with initiation of the Phase 2 review period (mid-2010 through 2020) PPL Montana will review the Thompson Falls MOU and collaborate with the signatory agencies as to the need to revise and restructure the MOU. Any such revision should be developed around the 2010-2020 Phase 2 evaluation period and may include appropriate changes to the TAC and its operation. Subsequent revision may occur again in 2021, or as needed based on adaptive principles and subject to approval of the Service and PPL Montana.

TC5. The following terms and conditions are established to implement reasonable and prudent measure #5. THOMPSON FALLS RESERVOIR:

a. During the first five years of the Phase 2 evaluation (2010 through 2015) PPL Montana, with TAC involvement and Service approval, will conduct a prioritized 5-year evaluation of factors contributing to the potential loss or enhancement of migratory bull trout passage through Thompson Falls Reservoir. Goals and objectives for this assessment and scientifically-based methodology will be developed through the TAC and approved by the Service no later than the end of 2010 and will focus at a minimum on better understanding temperature and water current gradients through the reservoir; travel time, residence time, and pathways that juvenile and subadult bull trout select in moving through the reservoir; and an assessment of impacts of predatory nonnative fish species on juvenile and subadult bull trout residing in or passing through the reservoir. The initial findings will be summarized and supported with scientifically based conclusions, no later than the end of 2015, with a goal of adaptively improving survival of juvenile bull trout in Thompson Falls Reservoir as they pass downstream or reside in the system. A second, more comprehensive summary of conclusions and recommendations regarding reservoir impacts will be submitted as part of the scientific review package by the end of 2020 (see TC1h).

b. Based on the interim Thompson Falls Reservoir Assessment (a., above), a timely evaluation of the site specific need for a nonnative species control program in Thompson Falls Reservoir will be conducted by PPL Montana, in collaboration with the TAC agencies (see TC7b., below), no later than the end of 2015, with final recommendations to be approved by the Service.

TC6. The following terms and conditions are established to implement reasonable and prudent measure #6 SYSTEMWIDE MONITORING:

a. For the remainder of the license (through 2025), PPL Montana will ensure that actions at the Thompson Falls Fish Ladder, including tagging, transport, and any tracking of fish movement, are adequately funded and fully coordinated with the Avista project and the management agencies MFWP, CSKT, and the Service. This coordination will include routine communications through the TAC and may require participation in special meetings or discussions to ensure that there is a single seamless fish passage effort for the lower Clark Fork projects.

b. For the remainder of the license (through 2025) PPL Montana will contribute a proportional amount of funding to ensure that fish sampled at the Thompson Falls Fish Passage Facility are processed, analyzed, and integrated into annual updates of the systemwide Clark Fork River genetic database.

c. In consultation with the TAC and with approval of the Service, for the remainder of the license (through 2025), PPL Montana will fund the technology required to track transmittered fish that pass the project as they move through the system. This may include an integrated PIT-Tag scanner at the fishway, mobile PIT-Tag scanning capabilities (wand(s) for use in the field), and radio implantation and tracking of bull trout that move through the sample loop in the ladder. Obligations for tracking transmittered fish by PPL Montana will include at a minimum the portions of the Lower Clark Fork Core Area upstream of Thompson Falls Dam (i.e., mainstem Clark Fork River from Thompson Falls Dam to the confluence of the Flathead River, including tributaries such as the Thompson River) Note: in the lower Flathead River, Jocko River, and other Flathead Reservation waters primary responsibility for tracking is assumed by the CSKT, but close coordination with the Tribes will be maintained by PPL Montana. Broader tracking needs upstream will be determined through cooperation with other entities in the basin (as in TC6a., above).

TC7. The following terms and conditions are established to implement reasonable and prudent measure #7 REPORTING:

a. Annually, by April 1 of each year for the remainder of the license (expires 2025), PPL Montana will prepare and submit to the Service for approval a report of the previous years activities, fish passage totals, and next year's proposed activities and other fisheries monitoring that may result in intentional as well as incidental take of bull trout. The report will quantify the number of bull trout

proposed to be incidentally taken by each activity and summarize the cumulative extent of incidental take from all previous year activities.

b. By December 31, 2015, after the first five years of the Phase 2 evaluation period (as described per TC1g., above), PPL Montana will present to the TAC and the Service a comprehensive written assessment of the first five years of fishway operation. This report is partially for the purpose of assessing the need for major mid-Phase 2 modifications to the facility and its operations as well as for consideration of the need for supporting additional bull trout passage or transport above the dam.

c. Annually, by April 1 of each year beginning in 2010 and for the remainder of the license (expires 2025), PPL Montana will archive electronic versions of all biological progress reports (described in TC 1 through TC 7 and dating back to 2005) generated through the Thompson Falls Project. PPL Montana will provide to TAC agencies at no cost, upon request, updated CDs or web-based access to those reports

d. For the remainder of the license (expires 2025), upon locating dead, injured, or sick bull trout, or upon observing destruction of redds, notification must be made within 24 hours to the Service's Division of Law Enforcement Special Agent (Richard Branzell, P.O. Box 7488, Missoula, MT, 59807-7488; (406) 329-3000). Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Dead, injured, or sick bull trout should also be reported to the Service's Kalispell Field Office (406-758-6882).

e. For the remainder of the license (expires 2025), during project implementation the FERC or applicant shall promptly notify the Service of any emergency or unanticipated situations arising that may be detrimental for bull trout relative to the proposed activity.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures the Service believes that the likelihood of incidental take will be minimized. If, during the course of the action, the level of incidental take is exceeded, such incidental take represents new information requiring review of the reasonable and prudent measures provided. The FERC must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

For convenience, these Terms and Conditions are summarized in Table 12. Refer

to the wording of the Terms and Conditions (above) for more specificity and fuller guidance.

Table 12. Terms and Conditions for Implementing the Reasonable and Prudent Measures Described in the Bull Trout Consultation for the Thompson Falls Hydroelectric Project.

| T&C | Phase 1 2008 - 2010 Fishway Preconstruction and Construction | Phase 2 Late 2010 - 2020 Fishway Post-Construction Monitoring & Eval. | Phase 3 2021 - 2025 Pre-Licensing and Ongoing Fishway Operations |
|----------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1a | Construct Fishway | | |
| 1b | Comply with Construction Permits | | |
| 1c | | Develop Fishway Operations Manual (SOP) by 12/31/10 | |
| 1d | | Oversee and Fund Fishway Operations | Oversee and Fund Fishway Operations |
| 1e | | Conduct Bull Trout Genetic Testing and Permanent Tagging | |
| 1f | | Transport Tank, Staff As Needed | |
| 1g | Plan Efficiency Studies | Passage Efficiency Action Plan by 1/1/11; Implement Action Plan and Generate Annual Passage Estimates | Implement Action Plan and Generate Annual Passage Estimates |
| 1h | | Support Scientific Oversight by TAC; Comprehensive Phase 2 Scientific Report by end of 2020; Begin Development of Revised 5-year Fishway Operations Plan; | Conduct Scientific Review by 4/1/2021; Adopt and Implement Revised 5-Year Fishway Operations Plan 2021- 2025; |

| T&C | Phase 1 2008 - 2010 | Phase 2 Late 2010 - 2020 | Phase 3 2021 - 2025 |
|----------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| | Fishway Preconstruction and Construction | Fishway Post-Construction Monitoring & Eval. | Pre-Licensing and Ongoing Fishway Operations |
| 2a | Implement and Fund Adaptive Management Funding Account (AMFA) | Continue Annual AMFA and Conduct Upstream Offsite Mitigation thru 2013; Renegotiate MOU and Renew AMFA for 2014-2020 | |
| 3a | Implement TDG Minimization Measures | Implement TDG Minimization Measures | Implement TDG Minimization Measures |
| 3b | Collaborate With Systemwide Gas Abatement Effort | Collaborate With Systemwide Gas Abatement Effort | Collaborate With Systemwide Gas Abatement Effort |
| 3c. | | Systematic GBT Exam; Corrective Measures as Required | Systematic GBT Exam; Corrective Measures as Required |
| 4a. | | Revise MOU and TAC, as Needed (2010) | Revise MOU and TAC, as Needed (2021) |
| 5a. | Develop goals, objectives, and methodology for T Falls reservoir Assessment by end of 2010. | Implement T Falls Reservoir Assessment and Submit Interim Report by 12/31/2015; Submit Final T Falls Reservoir Assessment for TC1h Science Review | |
| 5b. | | Recommendation on Need For T Falls Reservoir Predator Control by 12/31/2015 | |
| 6a. | Participate in Seamless Systemwide Fish Passage Coordination | Participate in Seamless Systemwide Fish Passage Coordination | Participate in Seamless Systemwide Fish Passage Coordination |
| 6b. | Contribute Proportionally to Genetic Database | Contribute Proportionally to Genetic Database | Contribute Proportionally to Genetic Database |
| 6c. | Support Tracking of Transmitted Bull Trout Through Lower Clark Fork Core Area | Support Tracking of Transmitted Bull Trout Through Lower Clark Fork Core Area | Support Tracking of Transmitted Bull Trout Through Lower Clark Fork Core Area |

| T&C | Phase 1 2008 - 2010 | Phase 2 Late 2010 - 2020 | Phase 3 2021 - 2025 |
|----------------|-----------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|
| | Fishway Preconstruction and Construction | Fishway Post-Construction Monitoring & Eval. | Pre-Licensing and Ongoing Fishway Operations |
| 7a. | Annual Activity, Fish Passage and Take Report by March 1. | Annual Activity, Fish Passage and Take Report by March 1. | Annual Activity, Fish Passage and Take Report by March 1. |
| 7b. | | 5-year ladder assessment report due 12/31/2015 | |
| 7c. | | Annually, by April 1, Update Archived Reports | Annually, by April 1, Update Archived Reports |
| 7d. | Report Dead or Injured Bull Trout | Report Dead or Injured Bull Trout | Report Dead or Injured Bull Trout |
| 7e. | Notification of Emergencies | Notification of Emergencies | Notification of Emergencies |

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Continue to cooperate with MFWP, CSKT, Avista and other entities to promote recovery of bull trout, and to survey and monitor bull trout populations and habitat in the lower Clark Fork River core area and the greater Clark Fork basin.

During the fishway construction, retrieve and remove all loose steel beams and other “junk” from the stilling basin that can be reasonably accessed from the construction roadway.