

172 FERC ¶ 61,063
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Richard Glick, Bernard L. McNamee,
and James P. Danly.

City and County of Denver, Colorado

Project No. 2035-099

ORDER AMENDING LICENSE AND EXTENDING LICENSE TERM

(Issued July 16, 2020)

1. On November 25, 2016, as supplemented on March 24, 2017, the City and County of Denver, Colorado, acting by and through its Board of Water Commissioners (Denver Water or licensee),¹ filed an application to amend its license for the Gross Reservoir Hydroelectric Project No. 2035 (Gross Reservoir Project or project) to raise the project's dam and enlarge the project's reservoir. Denver Water also proposes to delete and amend certain license articles and to extend the license term by 10 years. The project is located on South Boulder Creek in Boulder County, Colorado and occupies land within the Roosevelt National Forest administered by the U.S. Forest Service (Forest Service). As discussed below, this order approves the proposed amendment with certain revisions and extends the license term as requested by Denver Water.

I. Background

2. On March 16, 2001, the Commission issued a new license to Denver Water to operate and maintain the Gross Reservoir Project for a period of 40 years, and to construct a powerhouse with an installed capacity of five megawatts (MW).² On October 1, 2004, the Commission issued an order amending license to authorize an increase in installed capacity to 7.598 MW and a new powerhouse design.³

¹ Denver Water is a municipal corporation that provides water to the City and County of Denver, Colorado, and surrounding suburbs.

² *City and County of Denver, Colorado*, 94 FERC ¶ 61,313, *on reh'g*, 95 FERC ¶ 61,222 (2001) (2001 License Order).

³ *City and County of Denver, Colorado*, 109 FERC ¶ 62,002 (2004).

3. The project consists of: (1) a 340-foot-high, 1,050-foot-long concrete gravity dam that includes a spillway with a crest elevation of 7,280 feet mean sea level (msl) and two-foot-high flashboards; (2) a reservoir with a surface area of 418 acres and a storage capacity of 41,811 acre-feet; (3) auxiliary outlet works passing through the right side of the dam, consisting of an intake, a 48-inch-diameter, 72-foot-long pipeline, and two 42-inch-diameter ball valves within a structure affixed to the downstream face of the dam; (4) primary outlet works passing through the left abutment, consisting of an intake tower and a series of tunnels and pipelines leading to a valve house; (5) a powerhouse located downstream of the valve house that includes two 3,799-kilowatt (kW) horizontal Francis turbines for a total of 7,598 kW, connected to two 4,050-kW synchronous generators; (6) a switchyard located between the dam and the powerhouse; (7) a 25-kilovolt, mile-long primary transmission line; and (8) appurtenant facilities.

4. The Gross Reservoir Project is a component of the Moffat Collection System, a municipal water supply system that provides water for the City of Denver and the surrounding area and is the only part of that system that is licensed by the Commission. The Moffat Collection System transports water from west of the Continental Divide through the 6.1-mile-long Moffat Tunnel⁴ to the eastern slope of the Rocky Mountains. Approximately three miles below its headwaters, South Boulder Creek passes the Moffat Tunnel's east portal where South Boulder Creek receives West Slope water directly from the Moffat Collection System. South Boulder Creek then travels another 16 miles east to the project reservoir. Gross Reservoir is primarily used to store water from the West Slope diversions, native flows entering South Boulder Creek, and flows from Winiger Gulch and Forsythe Canyon, the reservoir's smaller tributaries.

5. Denver Water regulates releases from Gross Reservoir based on customer demand and reservoir levels. Water released from Gross Reservoir flows into South Boulder Creek below the dam, where it is partially diverted to the South Boulder Diversion Canal for delivery to Ralston Reservoir, raw water customers, and the Moffat Water Treatment Plant.⁵ The balance of the water remains in South Boulder Creek and eventually flows into the South Platte River, helping to fulfill Denver Water's obligations under the Platte River Recovery Implementation Program.⁶

⁴ The Moffat Tunnel is not a feature of the licensed Gross Reservoir Project.

⁵ Denver Water diverts about 60% of the water it releases from Gross Reservoir to the Moffat Water Treatment Plant.

⁶ The Platte River Recovery Implementation Program supports and protects four threatened and endangered species that inhabit areas of the Central and Lower Platte rivers in Nebraska and is managed by a governance committee composed of representatives from Colorado, Nebraska, and Wyoming, water users, environmental

6. Every year before spring runoff, Denver Water typically draws Gross Reservoir down to approximately 15,000 to 20,000 acre-feet of storage. Gross Reservoir refills in May, June, and July, and typically reaches its peak capacity of 41,811 acre-feet by early- to mid-July each year. As municipal demands increase and supplies decrease during July and August, reservoir levels begin to drop. The reservoir is drawn down throughout the fall and winter until runoff begins again the following spring.

7. The Gross Reservoir Project only generates electricity when water is released from the project reservoir to meet municipal water supply needs. Water enters the outlet works through a submerged intake tower, which includes trashracks and a slide gate trashrack structure located approximately 200 feet north of the dam, then flows into an 8-foot-diameter, 500-foot-long tunnel passing under the reservoir and through the left dam abutment. At the exit of the tunnel, water enters a valve vault consisting of an inlet manifold; four 48-inch-diameter, 20-foot-long pipelines; four 42-inch-diameter ball valves locked in the open position, and four 42- to 54-inch-diameter, 40-foot-long pipelines combining into a 72-inch-diameter steel pipe. Water then travels approximately 200 feet through this pipeline before encountering a wye joint where a 72-inch-diameter penstock branches off from the pipeline. The pipeline continues for another 80 feet before entering the valve house, fitted with five ball valves ranging in diameter from 14 to 54 inches, through which flows are discharged into South Boulder Creek below the dam. The penstock immediately reduces to a diameter of 66 inches after the wye and then travels another 130 feet to a 66-inch-diameter butterfly valve. After passing through the butterfly valve, water travels 120 feet through the penstock which bifurcates into two, 48-inch diameter, 20-foot-long pipes feeding into each turbine-generator unit within the powerhouse. These units have a minimum combined hydraulic capacity of 50 cubic feet per second (cfs) and a maximum hydraulic capacity of 315 cfs. Water exiting the powerhouse flows into South Boulder Creek about 440 feet below the valve house and 800 feet below the dam. Aside from the intake tower, valve house, and powerhouse, all features of the outlet works are underground.

8. Denver Water generates an annual average of 26,657 megawatt-hours of electricity, the majority of which is produced during the six-month period from April through September, when approximately 77% of annual flow releases take place, as dictated by water supply requirements. Some of the power generated at the project is used to supply the project powerhouse, the project valve house, and the caretakers' residences and facilities. The remaining power is sold to Xcel Energy.

groups, and the Department of the Interior's Bureau of Reclamation and U.S. Fish & Wildlife Service.

II. Proposed Action

A. Project Facilities

9. To meet future water supply needs,⁷ Denver Water proposed the Moffat Collection System Project (Moffat Project), a water development project that would include an enlargement of Gross Reservoir.⁸ On November 25, 2016, Denver Water filed an application with the Commission, seeking to amend the project license to increase the storage capacity of Gross Reservoir by lengthening the dam crest by approximately 890 feet, raising Gross Dam by 131 feet, raising the spillway crest by 126 feet, and heightening the normal maximum reservoir elevation by 124 feet.⁹ This would increase the normal maximum elevation of the reservoir from 7,282 to 7,406 feet msl, increase its normal maximum surface area from 418 to 842 acres, and expand its maximum storage volume from 41,811 to 119,000 acre-feet. In order to support the raised dam, Denver Water would extend the downstream face of the dam by approximately 80 feet, requiring it to elongate the pipeline for the auxiliary outlet works by an equal amount and construct a new concrete valve house on the dam to accommodate a 24-inch-diameter fixed-cone discharge valve. Denver Water estimates that the proposed project would increase the project's annual generation by approximately 4.4 gigawatt-hours (GWh), an increase of 16.5%.¹⁰

10. To prevent the raised reservoir from draining through a topographic low point about one mile south of Gross Dam, Denver Water intends to construct a saddle dam with

⁷ In its 1997 Integrated Resources Plan Denver Water analyzed existing and future water supplies and customer demands. According to Denver Water, that plan identified several issues in the Moffat Collect System relating to water reliability, vulnerability, flexibility, and firm yield. To address these concerns, Denver Water proposed the Moffat Collection System Project to enlarge Gross Reservoir.

⁸ As discussed below, the Moffat Project includes facilities outside the project boundary and features not within the unit of development.

⁹ Denver Water would stop using 2-foot-high flashboards after the dam raise.

¹⁰ Denver Water's March 24, 2017 response to the Commission's February 1, 2017 Additional Information request.

a roller-compacted concrete trapezoidal core and grout curtain, covered with rockfill to minimize its visual effects.¹¹

11. Denver Water says the hydraulic head at the project would increase to the point where the authorized installed capacity, currently limited by the existing turbines at 7,598 kW, would increase to the capacity of the generators, or 8,100 kW. Because the amendment would significantly raise the head on the turbines, Denver Water proposes to replace the existing butterfly valve within the penstock with a pressure reduction valve to prevent damage to existing equipment.¹² Denver Water proposes no changes to project operation.

12. Finally, as discussed below, Denver Water proposes to delete and amend certain license articles and asks the Commission to extend the license term by 10 years¹³ to amortize the cost of the proposed dam raise, facility upgrades, and environmental mitigation measures.

B. Project Boundary

13. Under Denver Water's proposal, enlarging Gross Reservoir would inundate 281.1 acres of Forest Service land, 280 acres of which are already within the existing project boundary. To address the outstanding 1.1 acres of inundated Forest Service land outside the project boundary, accommodate relocated recreation facilities displaced by the expanded reservoir, and include the expanded reservoir, Denver Water proposes to expand the existing project boundary to include an additional 3 acres of federal land, 12 acres of privately-owned land, which it will obtain through agreement with the landowner, and 40 acres of land it currently owns, all for project purposes.¹⁴

14. In addition, Denver Water has identified lands within the project boundary that are not needed for project purposes. Consequently, Denver Water proposes to remove

¹¹ Stantec Consulting Services Inc., 30% design drawings dated December 20, 2018, submitted to the Commission's San Francisco Regional Office on behalf of Denver Water.

¹² Denver Water also says that it plans to consult with the turbine manufacturer to assess the feasibility of modifying the turbines to accommodate the full head of the amended project. However, these modifications are not part of the current application and the Commission would review any such changes under a future, separate proceeding.

¹³ The license is currently set to expire February 28, 2041.

¹⁴ Denver Water owns or has obtained easements for most of the land that would be inundated for the expanded reservoir and will submit to the Commission documents demonstrating resolution of any outstanding land issues with the private landowner within one year of this order's issuance.

68 acres of land that it owns and 327 acres of Forest Service land from the boundary. Following these changes, the project boundary would occupy approximately 688 acres of Forest Service land and 738 acres of Denver Water land.

III. Consultation

15. Prior to filing its amendment application with the Commission, Denver Water consulted with the Forest Service, U.S. Fish and Wildlife Service (FWS), U.S. Environmental Protection Agency, U.S. Bureau of Indian Affairs, U.S. Bureau of Reclamation, U.S. Bureau of Land Management (BLM), Colorado Water Conservation Board, Colorado Department of Public Works, Colorado Division of Water Resources, Colorado State Office of Archaeology and Historic Preservation, multiple tribal organizations, and more than 150 public interest groups. Denver Water prepared and distributed an initial consultation document in June 2008, and then hosted a site visit and held three public meetings in July 2008.

16. On October 30, 2009, Denver Water filed a draft amendment application with the Commission. The Forest Service, local agencies, environmental groups, and individual citizens filed comments on the draft application. Denver Water's responses to all comments received on its draft application are contained in its final application.

IV. National Environmental Policy Act

17. On October 19, 2009, Denver Water sought authorization from the U.S. Army Corps of Engineers (Corps) for a permit pursuant to Section 404 of the Clean Water Act for its proposed Moffat Project.¹⁵ Pursuant to the National Environmental Policy Act (NEPA), the Corps issued a Draft Environmental Impact Statement (Draft EIS) in October 2009 and a Final Environmental Impact Statement (Final EIS) on April 25, 2014. The Corps then issued its Record of Decision (ROD) on July 6, 2017. A Clean Water Act section 404 permit was issued to Denver Water by the Corps on September 8, 2017.¹⁶

¹⁵ 33 U.S.C. §1344 (2018). Raising the height of the dam requires expanding the base of the dam to support the higher structure. This involves placing concrete on the downstream slope of the dam (i.e., fill material) that would result in direct impacts to jurisdictional waters of the United States. Therefore, this action required a section 404 permit from the Corps under the Clean Water Act.

¹⁶ In December 2018, six environmental groups filed a federal lawsuit against the Corps and other federal agencies seeking, in part, to set aside the Corps' Final EIS, ROD, and CWA Section 404 permit.

18. Commission staff signed an agreement with the Corps to participate as a cooperating agency in the Corps' preparation of the NEPA documents.¹⁷

19. Although the Final EIS issued by the Corps includes an analysis of the effects of the proposed action on the environment surrounding the Gross Reservoir Project, not all aspects of Denver Water's plans for enlarging Gross Reservoir had been finalized at the time the Final EIS was produced. As a result, Commission staff issued a Supplemental Environmental Assessment (EA) on February 6, 2018, that examined the effects of the portions of the action that were before the Commission, to the extent that those effects that were not addressed in the Final EIS.¹⁸ On February 8, 2019, Commission staff issued a Final Supplemental EA. Together, along with the Draft and Final EIS, these documents provide a complete record of analysis of the environmental effects of Denver Water's proposal to amend the license for the Gross Reservoir Project.¹⁹

V. Public Notice

20. On February 1, 2017, the Commission issued a public notice that Denver Water's amendment application was accepted for filing, that the project was ready for environmental analysis, and that interventions, comments, motions to intervene, protests, recommendations, terms and conditions, and fishway prescriptions were due by April 2, 2017.²⁰ In response, the Forest Service filed a notice of intervention on March 21, 2017,²¹ and preliminary

¹⁷ See cooperating agency agreement filed December 4, 2003. In general, a cooperating agency is a federal agency, other than the lead agency (in this case, the Corps), that has jurisdiction or special expertise regarding the environmental impacts of a proposed action and/or its alternatives.

¹⁸ The Final Supplemental EA examined revisions to construction activities including relocating the on-site quarry, replacement of auxiliary spillway with a saddle dam, tree clearing resulting from a new inundation level, ramping rates, changes to license articles, and other statutory requirements.

¹⁹ The Corps received over 2,700 comment letters/submissions on the Draft EIS. Commission staff received many comments on the Supplemental EA, including several comments that expressed support for Denver Water's proposal.

²⁰ 82 Fed. Reg. 9566 (Feb. 7, 2017).

²¹ Under Rule 214(a)(2) of the Commission's Rules of Practice and Procedure, the Forest Service, as an agency of the U.S. Department of Agriculture, became a party to the proceeding upon the timely filing of its notice of intervention. 18 C.F.R. § 385.214(a)(2) (2019).

conditions pursuant to section 4(e) of the Federal Power Act (FPA)²² on March 27, 2017. On March 24, 2017, the Department of the Interior (Interior) filed a reservation of authority to prescribe fishways pursuant to FPA section 18. On March 24, 2017, the Boulder County Board of Commissioners filed a timely, unopposed motion to intervene.²³ On March 26, 2018, Save the Colorado filed an out-of-time motion to intervene, which was denied by Secretary's notice on August 1, 2018.²⁴

21. The Commission received timely comments from individuals, private entities, municipalities, water districts, environmental groups, and agencies, including Interior (on behalf of the BLM), FWS, and the Colorado Department of Natural Resources. The comments raised issues related to the need for the proposed expansion of the Gross Reservoir and specific environmental impacts associated with the proposal. Several commenters filed in support of the proposed expansion in order to protect the water supply for current and future water users, while other commenters stated that Denver Water had failed to sufficiently demonstrate a need for the project.

22. As mentioned above, on February 6, 2018, Commission staff issued a Supplemental EA and a public notice soliciting comments by March 8, 2018. On February 27, 2018, the Commission extended the comment period to April 9, 2018. Denver Water, Boulder County, environmental groups, and individuals filed comments on the Supplemental EA. On February 8, 2019, the Commission issued a Final Supplemental EA that summarized and addressed all comments.²⁵

²² 16 U.S.C. § 797(e) (2018).

²³ Timely, unopposed motions to intervene are granted by operation of Rule 214(c) of the Commission's Rules of Practice and Procedure. 18 C.F.R. § 385.214(c) (2019).

²⁴ The Commission denied Save the Colorado's request for rehearing of the Secretary's notice. *City and County of Denver, Colorado*, 165 FERC ¶ 61,120 (2018).

²⁵ See Appendix C of the Final Supplemental EA. The topics raised in the comments that were addressed in the Supplemental EA, involve effects to: (1) geology and seismicity; (2) water quality; (3) wetlands; (4) tree loss and wildlife habitat; (5) recreation; (6) aesthetics and land use; and (7) construction effects to traffic and roads. The Supplemental EA did not address issues raised related to the Corps' Final EIS, the need for Denver Water's proposed expansion of the Moffat Collection System, or environmental issues associated with the expansion of the Moffatt Collection System that do not pertain directly to the FERC license for the Gross Reservoir Hydroelectric Project. These issues were appropriately addressed in the 2014 Corps Final EIS for expansion of the Moffat Collection System.

23. The interventions, comments, and recommendations filed in this proceeding have been fully considered in determining whether, and under what conditions, to issue this license amendment.

VI. Water Quality Certification

24. Under section 401(a) of the Clean Water Act (CWA),²⁶ the Commission may not authorize construction or operation of a hydroelectric project that may result in a discharge into the navigable waters of the United States unless the state water quality certifying agency either has issued water quality certification for the project or has waived certification. Section 401(d) of the CWA²⁷ provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.

25. On April 29, 2015, Denver Water applied to the Colorado Division of Public Health and Environment (Colorado DPHE) for a section 401 water quality certification for enlargement of the Moffat Collection System, including enlargement of the Gross Reservoir Project. Colorado DPHE issued a water quality certification with 16 conditions on June 23, 2016.

26. In the Final Supplemental EA, Commission staff reviewed the conditions contained in the water quality certification and determined that certain of the conditions (1 through 5 and 7 through 11) did not have a nexus to the Gross Reservoir Project or to Denver Water's proposed amendment application. Nevertheless, because these conditions are mandatory, all 16 conditions are set forth in Appendix B of this order which is incorporated into the license by ordering paragraph (I).

VII. Endangered Species Act

27. Section 7(a)(2) of the Endangered Species Act of 1973²⁸ requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of their designated critical habitat.

28. As the agency responsible for the review of Denver Water's application for a section 404 permit to expand the Moffat Collection System, the Corps consulted with FWS under section 7 of the ESA. This consultation concluded with FWS' issuance of three Biological Opinions (BO) to the Corps. In a BO issued December 6, 2013, FWS

²⁶ 33 U.S.C. § 1341(a) (2018).

²⁷ 33 U.S.C. § 1341(d) (2018).

²⁸ 16 U.S.C. § 1536(a) (2018).

addressed effects to listed species associated with flow depletions on the Colorado and Platte Rivers. On January 29, 2016, FWS issued a BO that reviewed effects from a proposed 5,000-acre-foot environmental pool (dedicated storage within the enlarged Gross Reservoir) on listed species in the Platte River in Nebraska. Finally, on June 17, 2016, FWS issued a BO that reviewed the effects of stream diversions in the upper Colorado River system to listed greenback cutthroat trout.

29. The Preble's meadow jumping mouse is the only federally-listed species that could potentially occur in the project area. The Corps concluded, and the FWS concurred, that the proposed action may affect but is not likely to adversely affect the Preble's meadow jumping mouse because, although the mouse has the potential to occur in the project area, it is not known or expected to be present. In Commission staff's February 6, 2018 Supplemental EA, staff concluded that the proposed license amendment would not alter the Corps' determination.²⁹ By letter dated February 7, 2018, Commission staff requested FWS' concurrence with staff's determination. FWS concurred by letter filed April 10, 2018.

30. In the June 17, 2016 BO, FWS reviewed the effects of the Moffat Project's increased stream diversions on federally-listed threatened greenback cutthroat trout. Denver Water's proposed expansion of the Moffat Collection System would increase diversions through its extensive water collection facilities, located on the West Slope of the Rocky Mountains in the upper Colorado River system, which flow into Gross Reservoir. The BO clarified that, due to stocking of hybrid trout in Gross Reservoir in 2002 and 2004, any greenback cutthroat trout population present in Gross Reservoir is not considered protected under the ESA. Therefore, because no federally protected greenback cutthroat trout are affected by the proposed action no further consultation was needed.

31. On October 3, 2019, the Corps requested re-initiation of ESA section 7 consultation for the listed greenback cutthroat trout in order to consider additional information regarding entrainment monitoring in Denver Water's stream diversions in the

²⁹ Supplemental EA at 38.

Moffat Project's West Slopes.³⁰ Despite the fact that there are no trout populations within the project area, Commission staff requested to join the section 7 consultation.³¹

32. On April 17, 2020, the FWS issued a letter withdrawing the June 17, 2016 BO and incidental take statement that was prepared for Denver Water's Moffat Collection System Project and denying the Corp's and Commission staff's requests to reinstate consultation. FWS determined that the species located in the project area was the green lineage cutthroat trout, which is not a listed species, rather than the listed greenback cutthroat trout, and that recent studies have determined that the green lineage cutthroat trout are a distinct species and are not members of the protected greenback cutthroat trout species. Given this distinction, the FWS determined that it could no longer consider the green lineage cutthroat trout protected under the listing for the greenback cutthroat trout and that consultation on this species is no longer warranted.³²

³⁰ In the 2016 BO, FWS considered the amount of water diverted from a given stream to be a reasonable proxy of the number of fish lost in that stream due to entrainment. As FWS explained, water diversions can entrain fish that are proximate to diversion structures.

³¹ Commission staff December 4, 2019 letter. Commission staff explained that it requested to join the consultation as a result of a Revised Interagency Final Rule issued by the FWS and the National Marine Fisheries Service on September 26, 2019, which revised portions of the regulations that implement section 7's procedures concerning interagency cooperation. 84 Fed. Reg. 44,976 (Aug. 27, 2019) (revising 50 C.F.R. § 402.02). Specifically, in this new rule, the Services state that they "decline to limit the 'effects of the action' to only those effects or activities over which the Federal agency exerts legal authority or control." Although the listed greenback cutthroat trout does not occur within the hydroelectric project area, Commission staff explained that should the Commission approve Denver Water's request to raise the elevation of its reservoir, such action would allow increased flows in the non-jurisdictional West Slope facilities to be stored in the reservoir. These increased flows could affect the trout in areas upstream of the Gross Reservoir Project.

³² April 17, 2020 letter from FWS regarding the BO on the green lineage cutthroat trout, at 2.

VIII. National Historic Preservation Act

33. Section 106 of the National Historic Preservation Act,³³ and its implementing regulations,³⁴ (NHPA) require that federal agencies take into account the effects of any proposed undertaking on historic properties and afford the Advisory Council on Historic Preservation (Advisory Council) a reasonable opportunity to comment on the undertaking.³⁵ Historic properties are those that are listed or eligible for listing on the National Register of Historic Places (National Register). This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

34. The proposed action would adversely affect two historic properties that are eligible for listing on the National Register: the dam and reservoir (Site 5BL10210) and a property known as the Resumption Flume (Site 5BL7019.1), which was originally used in placer mining, circa 1880s, and is located within the project boundary.

35. To address these effects, on April 26, 2018, Commission staff sent a draft Memorandum of Agreement (MOA) to the Colorado SHPO, the Forest Service, and the Corps for review and comment. The Forest Service and the Colorado SHPO filed comments on the draft MOA with the Commission on May 8 and June 22, 2018, respectively. Commission staff incorporated the agencies' comments and changed the format of the agreement document from a MOA to a Programmatic Agreement (PA), as recommended by the Colorado SHPO. Pursuant to section 106, on July 12, 2018, staff notified the Advisory Council of the proposed action's adverse effects, provided a copy of a draft PA memorializing the agreed-upon mitigation measures, and asked the Advisory Council if it wished to comment or participate in the undertaking. The Advisory Council did not respond.

36. On September 13 and 28, 2018, respectively, Commission staff and the Colorado SHPO executed the PA memorializing the agreed-upon mitigation measures. The Forest Service signed the PA as a concurring party on September 20, 2018. The PA requires

³³ 54 U.S.C. § 306108 (2018).

³⁴ 36 C.F.R. pt. 800 (2019).

³⁵ An undertaking means “a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval.” 36 C.F.R. § 800.16(y). Here, the undertaking is the approval of an amendment to the license for the Gross Reservoir Project.

Denver Water to develop a Historic Properties Management Plan (HPMP) for Commission approval that considers and manages effects to historic properties of constructing, operating, and maintaining the project for the term of the license. The PA also requires Denver Water to develop Historic American Engineering Record (HAER) documentation of the project dam, reservoir, and the Resumption Flume. The HPMP would be prepared in accordance with the Commission's and the Advisory Council's guidance and would contain measures to avoid, protect, or resolve any adverse effects on historic properties within the project's area of potential effect. Execution of the Programmatic Agreement demonstrates the Commission's compliance with section 106 of the NHPA.

37. Article 415 of the license currently requires Denver Water to develop a site-specific plan in the event of an unanticipated discovery of archeological or historic sites during recreation development, installation of wood power poles, any future project modifications or construction, or project operation and maintenance. Because the proposed action would adversely affect two historic properties, this order revises Article 415.

38. The revised Article 415 requires Denver Water to implement the PA, including filing documentation that the final HAER documentation has been approved by the National Park Service, within 30 days of such approval, and filing an HPMP for Commission approval within one year of the date of this order. The HPMP must include an updated, unanticipated discovery provision for the amended project. Denver Water cannot begin construction of the amended project until the HPMP has been approved by the Commission. Revised Article 415 is required by ordering paragraph (M) of this order.

IX. Section 18 Fishway Prescriptions

39. Section 18 of the FPA³⁶ provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. By letter filed March 24, 2017, the Secretary of the Interior asked the Commission to reserve authority to prescribe fishways in the future. Consistent with Commission policy, Article 421 reserves the Commission's authority to require fishways that may be prescribed by the Secretary of the Interior for the Gross Reservoir Project.

³⁶ 16 U.S.C. § 811 (2018).

X. Section 4(e) Finding and Conditions

40. Section 4(e) of the FPA³⁷ provides that the Commission may issue a license for a project within a federal reservation only if it finds that the license would not interfere or be inconsistent with the purpose for which the reservation was created or acquired. In addition, section 4(e) requires that any license for which we make this finding must include conditions prescribed by the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. As noted above, the Gross Reservoir Project occupies federal land within the Roosevelt National Forest administered by the Forest Service.

41. Commission staff has reviewed the Organic Administration Act of 1897,³⁸ which established the purposes for forest reservations, and the presidential proclamations and executive order that created the Roosevelt National Forest.³⁹ There is no evidence or allegation in this proceeding to indicate that the proposed license amendment will interfere with the purposes of the Roosevelt National Forest within which the project is located. Therefore, we find that this amended license, as conditioned, will not interfere or be inconsistent with the purposes for which the Roosevelt National Forest was created.

42. On March 27, 2017, the Forest Service filed 30 preliminary section 4(e) conditions for the proposed amendment, which replace the 11 section 4(e) conditions included in the existing license.⁴⁰ On September 26, 2018, the Forest Service notified the Commission that the preliminary 4(e) conditions should be considered final conditions. The Forest Service's final terms and conditions are set forth in Appendix A of this order and are incorporated into the license by ordering paragraph (H).

³⁷ 16 U.S.C. § 797(e) (2018).

³⁸ 16 U.S.C. § 473 et seq.

³⁹ The Roosevelt National Forest, originally part of the Medicine Bow National Forest, was created by presidential proclamation issued May 22, 1902 (32 Stat. 2003). The forest was separated from the Medicine Bow National Forest and renamed the Colorado National Forest by presidential proclamation on July 1, 1910, (36 Stat 2720) and was renamed the Roosevelt National Forest by executive order on March 28, 1932 (EO 5826). At that time, the Organic Administration Act of 1897, 16 U.S.C. § 475 (2018), stipulated that all national forest lands were established and administered only for watershed protection and timber production.

⁴⁰ Forest Service 4(e) conditions 101 to 111 are included in Appendix A of the 2001 License.

43. The Forest Service requires that certain plans be developed in consultation with the Forest Service and other agencies and in some cases, be approved by the Forest Service within certain time periods. Pursuant to these conditions, some of these plans must also be filed for Commission approval. Article 422, which is being added to the license, requires certain plans to be filed for Commission approval. The licensee's compliance with these conditions will help ensure the protection of National Forest lands and resources.

XI. Other Issues

A. License Articles to be Amended

1. Article 403

44. License Article 403 requires Denver Water to maintain ramping rates for flow releases from the project into South Boulder Creek for the protection of aquatic resources. The Article allows for temporary modifications to the ramping rates under certain circumstances and requires the licensee to notify the Commission no later than 10 days after an incident occurs.

45. In its amendment application, Denver Water proposes to amend Article 403 to authorize a ramping rate tolerance of 5 cfs per hour. The Supplemental EA interpreted Denver Water's proposal as a request to modify the ramping rates, effectively changing the downramping and upramping rates by 5 cfs per hour. The Supplemental EA indicated that this proposed modification would not affect water quantity or cause flows in the project area to exceed the levels determined in the Final EIS.

46. In response to the Supplemental EA, Denver Water filed a clarification on October 11, 2018 stating that it does not intend to modify the current ramping rates. Rather, Denver Water's proposed Article 403 amendment seeks a 5 cfs per hour reporting-requirement margin of error for disclosing flow deviations that do not impact the overall flow regime. Under the proposed Article 403 amendment, Denver Water would only have to submit a report if the change in flow surpasses the applicable ramping rate limit by 5 cfs per hour. In the event Denver Water exceeds its ramping rate by any amount, Denver Water states that it will make the necessary change to come back into compliance with the existing ramping rate as soon as possible.

47. After reviewing Denver Water's compliance history under Article 403, we discovered six ramping rate deviation reports filed with the Commission since 2010, describing 10 individual deviation incidents. These events involved unexpected shutdowns of the generating units for various reasons, followed by a malfunction of the automatic bypass valve due to operator error, incorrect adjustment, or equipment failure. Although these events were not considered violations of the project licensee, in two instances Commission staff directed Denver Water to reevaluate its project operation with regard to

the ramping rates and stated that future, similar incidents may be violations of the license.⁴¹ The purpose of Article 403's reporting requirement is to ensure that the Commission has timely information about deviations in order to ensure that aquatic resources are adequately protected. We see no reason to revise these reporting requirements, especially since Denver Water commits to making any necessary changes to comply with the ramping rates should modifications be necessary. Based on Denver Water's compliance history and Article 403's relatively small administrative burden, we will keep the project's current ramping rate rules intact; therefore, Article 403 remains unmodified.

2. Article 416

48. Article 416 requires Denver Water to file a Recreation Management Plan for Commission approval. Denver Water filed a plan on December 17, 2002, which was approved by the Commission on May 14, 2004.⁴²

49. In its amendment application, Denver Water proposes to add an Addendum to the Recreation Management Plan to address changes to recreation facilities affected by the expansion.⁴³ With two exceptions,⁴⁴ all recreation sites and facilities under the approved plan would be wholly or partially inundated by the new higher reservoir level. Inundation would require relocating all the facilities at the Peninsula Recreation Area, Dam Recreation Area, and Haul Road Recreation Area. Inundation would require relocating some of the facilities at the Winiger Gulch Inlet, Winiger Ridge Access and Recreation Area, and South Boulder Creek Inlet.⁴⁵ Denver Water proposes to construct two new recreation sites called the Scenic Ridge Trail and Upper Viewshed Trail.

⁴¹ In one of these cases, operators increased releases from the project so the water could be diverted downstream. However, after being informed the downstream facility could not accept the additional flow, project operators abruptly curtailed releases, causing a down-ramping rate of 92 cfs per hour. In the other instance, an automatic valve opened in response to the generator unexpectedly shutting down, but releases fell by 52 cfs in approximately 15 minutes.

⁴² *City and County of Denver Colorado*, 107 FERC ¶ 62,145 (2004).

⁴³ Exhibit A-1 of the amendment application.

⁴⁴ The North Shore Recreation Area and the South Boulder Creek Outlet would not be affected by the proposed expansion.

⁴⁵ In order to accommodate higher water levels, recreation facilities would be moved above elevation 7,410 feet for an additional buffer.

Although there would be two new recreation sites, the number of recreation sites at Gross Reservoir would remain the same as under the approved Recreation Management Plan.

50. Commission staff reviewed the proposed changes to the above recreation facilities in the Final Supplemental EA and found that Denver Water's implementation of the measures in its Addendum, and the measures required by Forest Service 4(e) condition 24,⁴⁶ would minimize effects to recreation during construction and reservoir refilling, and would help ensure recreation opportunities at the project are similarly provided after construction is completed. In this order, we require Denver Water to file a Revised Recreation Management Plan that incorporates the elements in the Addendum as well as applicable provisions in Forest Service 4(e) condition 24 (i.e., we are requiring Denver Water to update the entire plan). In addition, Denver Water is required to include in the updated plan a revised recreation facilities table listing the name of each recreation site and all facilities existing and/or to be constructed and a single location point (latitude and longitude) for each recreation site. Paragraph (N) of this order requires the licensee to file an updated recreation management plan for Commission approval developed in consultation with the Forest Service, FWS, Colorado Division of Wildlife, Colorado State Parks, and Boulder County.

3. Article 417

51. Article 417 required Denver Water to file a Recreation Monitoring Plan for Commission approval. Denver Water filed a plan on December 17, 2002, that was approved by the Commission in an order issued June 8, 2004.⁴⁷ The plan requires Denver Water to annually monitor recreation use at the project and file a report on recreation use that includes public and agency consultation every six years in conjunction with the FERC Form 80.⁴⁸ While the licensee is no longer obligated to file the Form 80 report, the requirement for recreation monitoring remains unchanged.

⁴⁶ Forest Service 4(e) condition 24 requires implementation of the addendum to the project's approved Recreation Management Plan, as well as managing activities to minimize bear/human interactions, monitoring recreation use, conducting a pre-construction inventory of all social trails and roads at Winiger Ridge Access and Recreation Area (and developing a Recreation Adaptive Management Plan for the Winiger Ridge, if necessary), and providing fishing line receptacles.

⁴⁷ *City and County of Denver, Colorado*, 107 FERC ¶ 62,214 (2004).

⁴⁸ The FERC Form 80 refers to the Licensed Hydropower Development Recreation Report, which required licensees to monitor and report on overall recreation use of project lands and waters to the Commission every six years. This requirement was eliminated in December 2018: *Elimination of Form 80 and Revision of Regulations on*

52. In the Final Supplemental EA, Commission staff recommended modifying the approved Recreation Monitoring Plan to require reports every three years for the first 12 years after completion of construction (after that, reports would again be due every six years). This change ensures that any effects to recreation caused by reservoir enlargement are identified and addressed early; the change would also address an element of Forest Service 4(e) condition 24.⁴⁹ Paragraph (O) of this order requires the licensee to file a revised Recreation Monitoring Plan.

B. License Articles to be Deleted

53. In its amendment application, Denver Water proposes to remove 14 articles from the license because the requirements in these articles have been satisfied and/or would not be applicable to the project, once amended. The proposed articles to be removed include Articles 202, 203, 301, 304, 401, 402, 405, 406, 408, 409, 411, 412, 413, and 420.⁵⁰

Recreational Opportunities and Development at Licensed Hydropower Projects, Order No. 852, 165 FERC ¶ 61,256 (2018).

⁴⁹ Forest Service 4(e) condition 24 requires the licensee to submit recreation use monitoring data spreadsheets to the Forest Service by February 28 for the first three years after the expanded Gross Reservoir is full. At the end of three years, the licensee shall submit a recreation use monitoring report to the Forest Service using the data from the previous three years. Thereafter, the Licensee shall provide the recreation use monitoring report to the Forest Service every three years. Condition 24 notes that on the sixth year the report will include the Form 80 report; however, as noted, the Form 80 is no longer required.

⁵⁰ Article 202 required a revised Exhibit G showing certain lands within the project boundary; Article 203 required approved drawings to be filed in aperture cards format; Article 301 set the original construction start and end dates; Article 304 required approved cofferdam and deep excavation designs; Article 401 required an erosion control plan; Article 402 required a plan to monitor dissolved oxygen and temperatures in South Boulder Creek; Article 405 required a plan to rehabilitate and restore lands disturbed by unmanaged recreation; Article 406 required a weed management plan; Article 408 required the transmission line to be designed and built in a manner that protects raptors; Article 409 required gates and signs to close the Winiger Ridge Recreation Area during elk wintering times; Article 411 required a one-time payment to benefit fish under the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin; Article 412 required a plan to participate in the Platte River Basin Endangered Species Recovery Implementation Program; Article 413 required notice of any failure of the Cooperative Agreement for Platte River Research and Other Efforts

54. Although many of the above articles have been satisfied and/or would be superseded by new conditions being added by this amendment, the Commission generally does not remove articles from a license simply because they have been satisfied. Documentation that an article has been satisfied generally resides on the Commission's eLibrary system and within Commission staff's compliance tracking systems. In this case, a review of the proposed articles proposed for deletion found that there is no need to remove the articles because they do not conflict with the proposed changes and/or the new environmental measures being considered in the amendment. Therefore, we will not remove these 14 articles from the license.

C. License Articles to be Added

55. In the February 8, 2019 Final Supplemental EA, Commission staff found that Denver Water's amendment application would not cause environmental effects beyond those identified in the 2014 Final EIS and would, in fact, reduce the level of some effects through implementation of Denver Water's proposed mitigation plans contained in the amendment application; specific protection and mitigation measures required by the Forest Service's 4(e) conditions and by the Colorado DPHE's water quality certification; and staff-recommended measures, including three new license articles.

56. As discussed in the Final Supplemental EA,⁵¹ this order requires three new license articles to further protect the public and environmental resources affected by the amended project: (1) Article 423 requires additional logging-related traffic control measures to be added to the Tree Removal Plan required by Forest Service 4(e) condition 27; (2) Article 424 requires the licensee to refile its Quarry Operation Plan and its Quarry Reclamation Plan with additional measures to address quarry development, operation, reclamation, and mitigation; and (3) Article 425 requires the licensee to file a Traffic Control Plan with details for minimizing the effects of truck traffic, addressing road damage, meeting county road regulations, reducing disruptions to local traffic and transportation, and minimizing traffic-related noise, light, and obnoxious odors. The Traffic Control Plan must be consistent with traffic control measures required by Forest Service 4(e) conditions 10, 26, and 27 (Road Maintenance Plan, Pit Development and Reclamation Plan, and Tree Removal Plan, respectively).

Relating to Endangered Species Habitats Along the Central Platte River, Nebraska; and Article 420 required permanent public access to the Winiger Gulch Inlet Recreation Area.

⁵¹ Section 8.0, Conclusions and Recommendations.

XII. Comprehensive Plans

57. Section 10(a)(2)(A)⁵² of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving waterways affected by the project.⁵³ Under section 10(a)(2)(A), federal and state agencies filed 18 comprehensive plans that address various resources in Colorado. Of these, staff identified and reviewed four comprehensive plans that are applicable to the project.⁵⁴ No inconsistencies were found.

XIII. Applicant's Plans

A. Conservation Efforts

58. Section 10(a)(2)(C) of the FPA requires the Commission to consider the electricity consumption improvement program of the applicant, including its plans, performance, and capabilities for encouraging or assisting its customers to conserve electricity cost effectively, taking into account the published policies, restrictions, and requirements of state regulatory authorities.

59. Denver Water is not an electric utility and has no electricity customers to promote the efficient use and conservation of electricity. Denver Water plans to sell the additional power it would produce from the proposed expanded facilities on the wholesale market or use this power in its own water supply operation.

B. Safe Management, Operation, and Maintenance of the Project

60. Commission staff has reviewed the licensee's management, operation, and maintenance of the Gross Reservoir Project pursuant to the requirements of 18 C.F.R. Part 12 of the Commission's regulations and the Commission's Engineering Guidelines and periodic Independent Consultant Safety Inspection Reports. Staff concludes that the proposed project works would be safe and that there is no reason to believe that the

⁵² 16 U.S.C. § 803(a)(2)(A) (2018).

⁵³ Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2019).

⁵⁴ These four plans include: *Colorado State Parks*. Colorado Statewide Comprehensive Outdoor Recreation Plan: 2008-2012; *Corps*. Final environmental impact statement for metropolitan Denver water supply (Two Forks Dam and Reservoir; William Fork gravity collection system) (1988); *Forest Service*. Arapaho and Roosevelt National Forests, Pawnee National Grassland revised land and resource management plan (1997); *FWS*. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service (no date). See Commission staff's Final Supplemental EA for full citations.

licensee cannot continue to safely manage, operate, and maintain these facilities under an amended license.

XIV. Comprehensive Development

61. Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to power development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment would be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to issue this license amendment, and the terms and conditions included herein, reflect such consideration.

62. The Exhibit E in the licensee's amendment application, the Draft and Final EIS, and Commission staff's Supplemental EA and Final Supplemental EA contain background information, analysis of impacts, and support for related license articles. The project would be safe if operated and maintained in accordance with the requirements of the amended license.

63. Based on Commission staff's independent review, evaluation of the project, and mandatory conditions (section 4(e) and water quality certification conditions), we have selected the licensee's proposal, with some additional staff-recommended measures and the mandatory conditions, as the preferred alternative and find that this alternative is best adapted to a comprehensive plan for improving or developing South Boulder Creek.

64. We selected this alternative because: (1) the amendment would enable Denver Water to increase its municipal water supply to better serve its customers, (2) the amendment, by providing approximately 4.4 GWh of additional hydropower generation annually, would eliminate the need for an equivalent amount of fossil-fuel produced energy which helps conserve these nonrenewable resources and decreases atmospheric pollution; and (3) the proposed environmental measures, mandatory conditions, and staff-recommended measures would protect environmental resources.

XV. Administrative Provisions

A. Project Description

65. Denver Water's March 24, 2017 supplemental filing includes a revised Exhibit A that describes the project with the proposed changes. The revised Exhibit A conforms to the Commission's regulations and is approved in ordering paragraph (D) below.

B. Annual Charges

66. The Commission charges licensees for administration of the FPA. The licensee's proposal would increase the project's authorized installed capacity from 7,598 to 8,100 kW. Therefore, Article 201(a) of the license must be revised accordingly. In accordance with section 11.1(d)(6) of the Commission's regulations, the assessment of annual charges starts on the date the licensee commences operation of the additional capacity.⁵⁵ As such, we will not revise the project's annual charges in this order but instead, will include ordering paragraph (J) to require Denver Water to notify the Commission of the date when it commences operation so the Commission can revise the project's annual charges.

67. The Commission charges licensees for their use and occupancy of land managed by the United States. According to the Commission's records, the project currently occupies 1,012.3 acres of Forest Service land. As a result of the project boundary revisions, the project would occupy 688.46 acres of Forest Service land. Article 201 is revised to reflect this change.

C. Exhibit Drawings

68. In its amendment application, Denver Water included nine Exhibit F drawings and one Exhibit G drawing for approval. One of the drawings is a cover sheet, including a drawing index and several maps for reference, and does not serve the Commission's purposes of Exhibit F drawings. However, the eight other drawings, labeled C-1 through C-5 and M-1 through M-3, adequately show the modified project features and fulfill the purposes of these exhibits, and are approved. We also found that the Exhibit G drawing conforms to the Commission's regulations and is approved. Ordering paragraph (G) requires the licensee to file the approved Exhibit F and G drawings in electronic format.

69. Due to the amended facilities, many previously approved Exhibit F drawings for the project would no longer apply as a result of Denver Water's modifications, even if not directly superseded by a new drawing. However, removing these drawings would lead to incongruities and gaps within the record of the existing drawings that are not being deleted. Therefore, in ordering paragraph (E), we are deleting the drawings that are made irrelevant and/or are superseded, and we are revising the exhibit numbers for all remaining existing drawings to condense and organize the record. The licensee does not need to file the renumbered drawings in electronic format.

⁵⁵ See 18 C.F.R. § 11.1(d)(6) (2019). Because Denver Water is not proposing to change the project's turbines or generators, we will consider the first use of the units following installation of the pressure reduction valve to be the operational commencement start date.

D. Start of Construction

70. When amending a license to permit the construction of new facilities, the Commission normally requires licensees to commence construction within two years and to complete construction within four or five years, depending upon the breadth of the proposed activity. However, in this case, Denver Water, in its April 3, 2018 comments, has requested additional time to complete its construction activities due to the scope and size of the undertaking. We agree with Denver Water that more time is needed. Therefore, ordering paragraph (K) requires the licensee to start and complete the activities authorized in this order within two and seven years, respectively, from the issuance date of this order.

E. Review of Final Plans and Specifications

71. Article 205 requires the licensee to provide the Commission's Division of Dam Safety and Inspections (D2SI)–San Francisco Regional Engineer with final contract drawings and specifications – together with a supporting design report consistent with the Commission's engineering guidelines. Article 206 requires the licensee to provide the Commission's D2SI–San Francisco Regional Engineer with approved contractor-designed cofferdam and deep excavation construction drawings, if necessary.

72. The obligations set forth under the license articles, including the requirement that the licensee consult with the Commission's D2SI–San Francisco Regional Engineer, are applicable to this amendment. The licensee may not begin construction until the D2SI–San Francisco Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and has authorized start of construction.

XVI. License Term

73. In its amendment application, Denver Water requests a 10-year extension to its license term. The current 40-year term for the project expires on March 1, 2041. Denver Water seeks a 10-year extension so that its term expires on March 1, 2051. Denver Water cites the cost associated with project construction and related environmental measures as justification for the extended term. In its amendment application, Denver Water estimates that the costs of construction and mitigation measures will exceed \$380 million.

74. The Commission can grant an extension of the license term, up to the maximum 50-year period, where the licensee has proposed substantial new improvements or significant redevelopment of the project.⁵⁶ Extending the license term provides

⁵⁶ *Montana Power Company*, 47 FERC ¶ 61,277 (1989).

additional years over which the licensee can amortize the cost of such improvements. Further, the FPA directs the Commission, when considering a license for a hydroelectric project, to require the licensee to undertake appropriate measures on behalf of both developmental and non-developmental public interest uses, including water supply.⁵⁷ Given Denver Water's substantial new improvements, which include raising the dam 131 feet, new environmental measures to mitigate its proposed construction, and additional mandatory conditions, we find that Denver Water's request for a 10-year extension is reasonable. Ordering paragraph (B) extends the license term by 10 years; the expiration date of the license is extended to March 1, 2051.

The Commission orders:

(A) The City and County of Denver Colorado's application to amend the license filed November 25, 2016, as supplemented, for the Gross Reservoir Project No. 2035, is approved as provided by this order, effective the day this order is issued.

(B) The license term for the Gross Reservoir Project is extended to March 1, 2051.

(C) Ordering paragraph (B)(2) of the license is revised, in part, to read as follows:

Project works consisting of: (1) a 471-foot-high, curved roller compacted concrete gravity dam with a crest length of 1,940 feet, including a primary uncontrolled ogee-crested spillway section at elevation 7,406 feet above mean sea level (msl); (2) a roller compacted concrete saddle dam in a topographic low spot about one mile south of Gross Reservoir dam; (3) an approximately 842-acre reservoir with a storage capacity of 119,000 acre-feet at full pool; (4) low-level outlet works with an inlet elevation at 6,990 feet msl consisting of a 25-foot by 25-foot concrete box intake structure with trash-rack, an 8-foot-diameter concrete-lined tunnel transitioning in a valve vault to a 6-foot-diameter steel pipe conduit that branches into five smaller pipes before entering an existing 56-foot by 27-foot concrete outlet works and primary valve house below the dam; (5) an auxiliary outlet works with an inlet elevation of 7,150 feet msl and consisting of a 48-inch-diameter pipe and a 24-inch-diameter fixed cone valve (discharge valve) located on the right side of the dam; (6) a powerhouse located 440 feet downstream from the primary valve house and containing two 3,799-kilowatt (kW), for a total of 7,598 kW, horizontal Francis turbines connected to two 4,050-kW, for a total of 8,100 kW, synchronous generators; (7) a 580-foot-long by 66-inch-diameter buried penstock; (8) a tailrace structure integral with the powerhouse outlet works building; (9) a switchyard

⁵⁷ 16 U.S.C. § 803(a)(1) (2018).

containing project transformers; (10) a 1-mile-long, 25-kilovolt project transmission line; and (11) other appurtenant facilities.

(D) The Exhibit A, filed March 27, 2017, superseding the previous Exhibit A, is approved and made part of the license.

(E) The exhibit drawings with the drawing nos. P-2035-1003 through P-2035-1014, P-2035-1025 through P-2035-1028, P-2035-1041, P-2035-1043, P-2035-1044, P-2035-1047, and P-2035-1048 are removed from the license. The remaining drawings are renumbered, as shown below. The exhibit numbers for the recreation facility drawings (drawing nos. P-2035-1049 through P-2035-1057), will not be changed.

NEW EXHIBIT	OLD EXHIBIT	FERC DRAWING No.	FERC DRAWING TITLE
F-1	F-17	2035-1015	Plan of Power Conduit and Valve House
F-2	F-18	2035-1016	Power Conduit Valve House Section
F-3	F-19	2035-1017	Power Conduit Valve House Crane Beam and Column Details
F-4	F-20	2035-1018	Power Conduit Trash Rack
F-5	F-21	2035-1019	Valve Vault and Tunnel Plan
F-6	F-22	2035-1020	Valve Vault and Appurtenances
F-7	F-23	2035-1021	10-Ton Crane Carrying Beam Details
F-8	F-24	2035-1022	Tunnel, Box Flume, Slab Bridge Reinforcing Steel
F-9	F-25	2035-1023	Tunnel Trashrack
F-10	F-26	2035-1024	Details of Meehanite Castings
F-11	F-31	2035-1029	Outlet Works Building Elevations
F-12	F-32	2035-1030	Outlet Works Operating Floor Plan
F-13	F-33	2035-1031	Outlet Works Concrete Retaining Wall and Details
F-14	F-34	2035-1032	Outlet Works Valve Vault Plans
F-15	F-35	2035-1033	Outlet Works Valve Vault Sections

NEW EXHIBIT	OLD EXHIBIT	FERC DRAWING No.	FERC DRAWING TITLE
F-16	F-36	2035-1034	Outlet Works Tunnel Plan/Profile
F-17	F-37	2035-1035	Outlet Works Yard Piping Plan
F-18	F-42	2035-1042	Transmission Line Details
F-19	F-45	2035-1045	Mechanical Equipment Plan
F-20	F-46	2035-1046	Mechanical Equipment Plan Section

(F) The following exhibit drawings filed on November 25, 2016, conform to the Commission's rules and regulations and are approved and made part of the license, as labeled and numbered below.

EXHIBIT	FERC DRAWING No.	FERC DRAWING TITLE	DRAWING FILE NAME⁵⁸
G-1	P-2035-1058	Project Boundary Map	Project Boundary Map
F-21	P-2035-1059	Site Layout	Site Layout
F-22	P-2035-1060	Enlarged Dam Plan	Enlarged Dam Plan
F-23	P-2035-1061	Dam Centerline Profile	Dam Centerline Profile
F-24	P-2035-1062	Dam Section	Dam Section
F-25	P-2035-1063	Outlet Works Plan	Outlet Works Plan
F-26	P-2035-1064	Hydraulic Piping Plan, Profile, and Sections	Piping Sections
F-27	P-2035-1065	Hydraulic Piping Plan and Profile	Piping Plan and Profile
F-28	P-2035-1066	Hydraulic Piping Plan, Profile, and Data Graph	Piping and Data Graph

(G) Within 45 days of the date of issuance of this order, as directed below, the licensee must file the exhibit drawings approved in ordering paragraph (F) of this order, Form FERC-587, and geographic information system (GIS) data in electronic file format.

⁵⁸ These exact drawing titles must be used in the filename when filing the electronic file format drawings required in ordering paragraph (G). Commission staff shortened the drawing titles due to filename character limits. There is no need to modify the title as it appears on the drawing itself.

a) The licensee must prepare digital images of the approved exhibit drawings in electronic format. Prior to preparing each digital image, the licensee must show the FERC Project-Drawing Number (i.e., P-2035-1058, etc.) in the margin below the title block of the approved drawing. The licensee must segregate Exhibit F drawings from other project exhibits, and **label and file them as Critical Energy Infrastructure Information (CEII) material under 18 C.F.R. § 388.113**. (The submission should consist of: 1) a public portion consisting of a cover letter, the Exhibit G drawing, Form FERC-587, and GIS data; and 2) a CEII portion containing only the Exhibit F drawings). Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit Number, Drawing File Name, date of this order, and file extension in the following format [P-2035-1058, G-1, Project Boundary Map, MM-DD-YYYY.TIF].

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points (i.e., latitude and longitude coordinates or state plane coordinates). The points must be in a triangular arrangement for GIS georeferencing the project boundary drawing to the polygon data, and based on a standard map coordinate system. The licensee must identify the spatial reference for the drawing (i.e., map projection, map datum, and units of measurement) on the drawing and label each reference point. In addition, a registered land surveyor must stamp each project boundary drawing. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY:	black & white raster file
FILE TYPE:	Tagged Image File Format, (TIFF) CCITT Group 4 (also known as T.6 coding scheme)
RESOLUTION:	300 dots per inch (dpi) desired, (200 dpi minimum)
SIZE FORMAT:	22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE:	less than 1 megabyte desired

The licensee must file a third set (Exhibit G only) and a copy of Form FERC-587 with the Bureau of Land Management office at the following address:

ATTN: FERC Withdrawal Recordation
BLM Colorado State Office
U.S. Bureau of Land Management
2850 Youngfield St.
Lakewood, CO 80215-7076

Form FERC-587 is available through the Commission's website at the following URL: <https://www.ferc.gov/docs-filing/forms/form-587/form-587.pdf>. A hard copy of the Form FERC-587 is available by mailing a request to the Secretary of the Commission in the event the form cannot be downloaded from the internet.

b) Project boundary GIS data must be in a georeferenced electronic file format (such as ArcGIS shapefiles, GeoMedia files, MapInfo files, or a similar GIS format). The filing must include both polygon data and all reference points shown on the individual project boundary drawings. Each project development must have an electronic boundary polygon data file(s). Depending on the electronic file format, the polygon and point data can be included in single files with multiple layers. The georeferenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-2035, boundary polygon or point data, MM-DD-YYYY.SHP]. A separate text file describing the spatial reference for the georeferenced data: map projection used (i.e., UTM, State Plane, Decimal Degrees, etc.), the map datum (i.e., North American 27, North American 83, etc.), and the units of measurement (i.e., feet, meters, miles, etc.) must accompany the filing. The text file name must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-2035, project boundary metadata, MM-DD-YYYY.TXT].

In addition, for those projects that occupy federal lands, a separate georeferenced polygon file(s) that identifies transmission line acreage and non-transmission line acreage affecting federal lands for the purpose of meeting the requirements of 18 C.F.R. § 11.2 must accompany the filing. The file(s) must also identify each federal owner (e.g., Bureau of Land Management, U.S. Forest Service, U.S. Army Corps of Engineers, etc.), land identification (e.g., forest name, FPA section 24 lands, national park name, etc.), and federal acreage affected by the project boundary. Depending on the georeferenced electronic file format, a single file with multiple layers may include the polygon, point, and federal lands data.

(H) The license is subject to the conditions submitted by the U.S. Forest Service (Forest Service) filed on March 27, 2017, under section 4(e) of the Federal Power Act, as those conditions are set forth in Appendix A to this order. These conditions replace the 11 Forest Service section 4(e) conditions set forth in Appendix A of the 2001 License Order, which are deleted from the license.

(I) The license is subject to the Section 401 Water Quality Certification conditions submitted by the Colorado Department of Public Health and Environment, filed on July 1, 2016, under Section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1) (2018), as those conditions are set forth in Appendix B to this order.

(J) The licensee must notify the Commission within 15 days of operating the turbine-generator units following installation of the pressure reduction valve. This

notification will be used by the Commission to modify Article 201(a) for annual charge purposes and to revise the project description.

(K) The licensee must start construction of the amended project as authorized in this order within two years and must complete construction within seven years of the issuance date of this order.

(L) Article 201 of the license is amended to read as follows:

Article 201. The licensee must pay the United States the following annual charges:

(a) For the purpose of reimbursing the United States for the cost of administering Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time, effective March 1, 2001. The authorized installed capacity for that purpose is 8,100 kilowatts.

(b) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 688.46 acres of its lands, a reasonable amount as determined in accordance with the provisions of the Commission's regulations, in effect from time to time, effective the issuance date of this order.

(M) Article 415 of the license is amended to read as follows:

Article 415. Programmatic Agreement. The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the Colorado State Historic Preservation Officer Regarding Enlargement of the Reservoir at the Gross Reservoir Hydroelectric Project (FERC No. 2035-099)," (Programmatic Agreement) executed on September 28, 2018, including but not limited to development of Historic American Engineering Record (HAER) documentation of the project dam, reservoir, and Resumption Flume and development of a Historic Properties Management Plan (HPMP) for the project. The licensee must submit a copy of the draft HAER documentation to the National Park Service and the Colorado State Historic Preservation Officer (Colorado SHPO) for review prior to transmitting the final HAER documentation. The Colorado SHPO will review and comment on the draft HAER documentation within 30 days of receipt. The licensee must notify the Programmatic Agreement parties, including the Colorado SHPO, U.S. Forest Service (Forest Service), U.S. Army Corps of Engineers, and the Commission, when the final HAER documentation has been accepted by the National Park Service within 30 days of acceptance. The licensee must ensure that copies of the final HAER documentation are made available to the Boulder County Historic Preservation Advisory Board, Forest Service, and appropriate local archives designated by the Colorado SHPO.

Pursuant to the requirements of the Programmatic Agreement, the licensee must also file, for Commission approval, a final HPMP within one year of the date of this order. The HPMP must include an updated, unanticipated discovery provision for the amended project. The licensee must obtain approval of the HPMP from the Commission and from the Colorado SHPO before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effect. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

(N) Within one year of the date of this order, the licensee must file, for Commission approval, a revised Recreation Management Plan that includes: (1) the elements identified in the "Addendum to Recreation Management Plan," Attachment A-1 of Denver Water's November 25, 2016 amendment application; (2) a revised recreation facilities table listing the name of each recreation site and all facilities existing and/or to be constructed at the project; and (3) a single location point (latitude and longitude) for each recreation site. The revised Recreation Management Plan must clearly describe how it addresses the requirements of U.S. Forest Service (Forest Service) 4(e) condition 24 and must also describe any required changes to the operation and maintenance of recreation resources and provide a schedule for implementing the revised plan.

The revised Recreation Management Plan must be prepared in consultation with the Forest Service, U.S. Fish and Wildlife Service, Colorado Division of Wildlife, Colorado State Parks, and Boulder County. The plan must include copies of any comments and recommendations received from these entities and must include the licensee's explanations of how any comments and recommendations received are accommodated in the plan. The licensee must allow a minimum of 30 days for the agencies to provide comments and recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information. The plan must include documentation of approval by the Forest Service regarding elements intended to satisfy Forest Service 4(e) condition 24.

(O) Within one year of the date of this order, the licensee must file, for Commission approval, a revised Recreation Monitoring Plan that increases the frequency of filing reports on recreation monitoring with the Commission from every six years to every three years, for 12 years beginning the first recreation season after completion of construction (then reports would be due every six years). The revised Recreation Monitoring Plan must address any effects on recreation caused by reservoir enlargement. The revised Recreation Monitoring Plan must clearly describe how the monitoring requirements of U.S. Forest Service 4(e) condition 24 would be addressed by the revised plan, and how it relates to the revised Recreation Management Plan, required by paragraph (O) above.

(P) The license is subject to the following additional articles:

Article 205. Contract Plans and Specifications. At least 60 days prior to the start of construction, the licensee must submit one copy of its plans and specifications and supporting design document to the Commission's Division of Dam Safety and Inspections (D2SI)–San Francisco Regional Engineer and two copies to the Commission (one of these must be a courtesy copy to the Director, D2SI). The submittal must also include as part of preconstruction requirements a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan. The licensee may not begin construction until the D2SI–San Francisco Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

Article 206. Cofferdam and Deep Excavation Construction Drawings. Should construction require cofferdams or deep excavations, the licensee must: (1) have a Professional Engineer who is independent from the construction contractor, review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction, and (2) ensure that the construction of cofferdams and deep excavations is consistent with the approved designs. At least 30 days before starting construction of any cofferdams or deep excavations, the licensee must submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI)-San Francisco Regional Engineer and two copies to the Commission (one of these copies must be a courtesy copy to the Commission's Director, D2SI), of the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval.

Article 421. Reservation of Authority to Prescribe Fishways. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of such fishways as may be prescribed by the U.S. Department of the Interior, including measures to determine, ensure, or improve the effectiveness of such prescribed fishways, pursuant to section 18 of the Federal Power Act, as amended, during the term of the project license.

Article 422. Commission Approval, Reports, and Filing of Amendments.

(a) Requirement to File Plans for Commission Approval

The U.S. Forest Service's (Forest Service) section 4(e) conditions (Appendix A) and the Colorado Division of Public Health and Environment's (Colorado DPHE) water quality certification (WQC) (Appendix B) require the licensee to prepare plans in consultation with other entities for approval by the Forest Service or Colorado DPHE or for submittal to the Commission, and implement specific measures without prior

Commission approval. The following plans must also be submitted to the Commission for approval by the deadlines specified below:

Forest Service 4(e) Condition No.	Colorado DPHE WQC Condition No.	Plan Name	Commission Due Date
	12	Sampling Analysis Plan	90 days before construction
	12	Category 4b Plan for Aquatic Life	Within 2 years of notification by Colorado DPHE that this plan is required
	15	Category 4b Plan for Water Quality	Within 2 years of notification by Colorado DPHE that this plan is required
10		Road Maintenance Plan	Within the earlier of 2 years from the date of this order or 90 days before ground-disturbing activities
11		Spill Prevention and Cleanup Plan	90 days before storage of hazardous substances
17		Aquatic Invasive Species Plan	Within the earlier of 1 year from the date of this order or 90 days before ground-disturbing activities
17		Invasive Plant and Noxious Weed Species Management Plan	Within the earlier of 1 year from the date of this order or 90 days before ground-disturbing activities

18		Biological Evaluation for Special Status Species	90 days before undertaking any activity that might affect special species
19		Erosion Control and Reclamation Plan	Within the earlier of 2 years from the date of this order or 90 days before ground-disturbing activities
19		Erosion Control and Reclamation Plan for New/Non-routine Construction	90 days before ground-disturbing activities
20		Fire Management and Response Plan	Within the earlier of 2 years of the date of this order or 90 days before ground-disturbing activities
22		Special Status Plant Relocation Plan	Within 2 years of the date of this order
23		Visual Resource Protection Plan	90 days before ground-disturbing activities
24		Recreation Adaptive Management Plan for Winiger Ridge	Within 90 days of notification by the Forest Service that this plan is required
25		South Boulder Creek Channel Stability and Monitoring Plan	One year prior to the initial refilling of the reservoir
26		Pit Development and Reclamation Plan	90 days before ground-disturbing activities

29		Public Safety and Law Enforcement Plan	Within 90 days of notification by the Forest Service that this plan is required
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With each plan filed with the Commission, the licensee must include documentation that it developed the plan in consultation with the Forest Service or Colorado DPHE, as appropriate, and must provide copies of any comments received, as well as its response to each comment. The Commission reserves the right to require changes to any plan filed. Upon Commission approval, the plan becomes a requirement of the license, and the licensee must implement the plan, including any changes required by the Commission. Any changes in the above schedule or plans require approval by the Commission before implementing the proposed change.

(b) Requirements to File Reports

Certain conditions in the Forest Service 4(e) conditions (Appendix A) and Colorado DPHE’s WQC (Appendix B) require the licensee to file reports with other entities. Because these reports concern compliance with the requirements of the amended license, each such report must also be submitted to the Commission. These reports are listed in the following table:

Forest Service 4(e) Condition No.	Colorado WQC Condition No.	Report Name	Commission Due Date
	6	Continuous stream temperature data	By April 1 following a monitoring year
	12	Aquatic health report	By June 1 following a monitoring year
	13	Fish tissue mercury report	By April 1 following a monitoring year
	14	Recoverable metals, dissolved metals, and hardness report (for South Boulder Creek only)	By April 1 following a monitoring year

	15	Water quality report	Within 1 year of notification by Colorado DPHE that this report is required
	16	Water quality data	By April 1 following a monitoring year
13		Annual Forest Service consultation report	Within 60 days of meeting with the Forest Service
24		Recreational use monitoring reports	By February 28 for the first three years and then every 3 years

With each report filed with the Commission, the licensee must include documentation of consultation with the agencies specified in the conditions noted above and provide copies of any comments received, as well as its response to each comment. The Commission reserves the right to require changes to project operations or facilities based on the information contained in the report and any other available information.

(c) Requirement to File Amendment Applications.

Certain Forest Service conditions in Appendix A contemplate unspecified long-term changes to project operations or facilities for the purpose of mitigating environmental impacts (e.g., condition 14 – Approval of Changes). These changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license. In any amendment request, the licensee must identify related project requirements and request corresponding amendments or extensions of time as needed to maintain consistency among requirements.

Forest Service 4(e) Condition No.	Colorado WQC Condition No.	License requirement
14		Forest Service Approval of Changes
17		Forest Service Review, Update, or Revision of Aquatic Invasive Species Plan

17		Forest Service Review, Update, or Revision of Invasive Plant and Noxious Weed Species Management Plan
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Article 423. Tree Removal Plan. Within one year from the date of this order, the Tree Removal Plan required by U.S. Forest Service (Forest Service) 4(e) condition 27 must be filed for Commission approval and must include, in addition to the requirements in 4(e) condition 27, the following additional provisions: (1) measures to limit travel speeds on logging roads; (2) measures to prevent public use of logging roads during logging operations; (3) measures to limit log removal traffic to daylight hours; (4) measures to ensure logging trucks are appropriately equipped with mufflers to minimize noise; (5) measures to minimize fugitive dust; (6) measures to minimize soil erosion and effects to water quality; and (7) measures to minimize odors and nighttime lighting.

The licensee must prepare the plan after consultation with the Forest Service, Colorado State Forest Service, Boulder County, Jefferson County, and Gilpin County. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies and specific descriptions of how agency comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee’s reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 424. Quarry Operation and Reclamation Plans. Within one year of the date of this order, the licensee must file, for Commission approval, a Quarry Operation Plan and a Quarry Reclamation Plan that addresses quarry development, operation, and reclamation activities, and mitigation measures. If determined necessary and appropriate, and with the agreement of the agencies listed below, the licensee may file only the Quarry Operation Plan, to include a schedule for filing a separate Quarry Reclamation Plan at a later time.

The Quarry Operation and Reclamation Plans must include: (1) details of quarry design, including quarry-related work areas, access areas, and details of grading; (2) measures to control erosion during quarry operation and reclamation; (3) measures to ensure quarry features do not create isolated areas that could cause fish stranding during normal reservoir operations; (4) measures to ensure the safety of recreational boaters at

normal reservoir operations, and (5) measures to reduce the visual impacts of quarry features during normal reservoir operations. The plans must be consistent with quarry operation and reclamation measures needed to comply with U.S. Forest Service (Forest Service) section 4(e) conditions 23 and 26, as applicable.

The licensee must prepare the plan after consultation with the Forest Service; Colorado Division of Reclamation, Mining, and Safety; Boulder County; and the U.S. Army Corps of Engineers. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies and specific descriptions of how agency comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 425. Traffic Management Plan. Within one year of the date of this order, the licensee must file, for Commission approval, a Traffic Management Plan that includes measures to minimize the impacts of construction-related traffic on local traffic, residents, and visitors to the project area.

The Traffic Management Plan must include: (1) measures to minimize the number of truck trips needed for project construction; (2) measures to minimize the effects of construction-related traffic on local traffic patterns, residents, and visitors; (3) measures to minimize noise, dust, and exhaust; (4) measures to encourage and/or require the use of carpools for construction workers; (5) proposed construction traffic routes, time-of-use, traffic control measures, and other restrictions; (6) measures to minimize and repair any road damage; and (7) procedures for complying with county road regulations. The plan must be consistent with traffic control measures needed to comply with Forest Service 4(e) conditions 10, 26, and 27, as appropriate.

The licensee must prepare the plan after consultation with the U.S. Forest Service, Colorado Department of Transportation, Boulder County, Jefferson County, and Gilpin County. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies and specific descriptions of how agency comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the

Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

(Q) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 8251 (2018), and the Commission's regulations at 18 C.F.R. § 385.713 (2019). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

Appendix A

Section 4(e) Conditions for Amendment of the Gross Reservoir Project License

U.S. Department of Agriculture, Forest Service

Filed March 27, 2017

PART I: STANDARD ADMINISTRATIVE CONDITIONS

Condition No. 1 - Revision of Forest Service Conditions (REPLACES CONDITION NO. 111)

Forest Service reserves the right, after notice and opportunity for comment, to revise these Section 4(e) conditions in order to provide for the protection and utilization of NFS land and resources. Situations in which revision of or addition to 4(e) conditions might be wanted include, but are not limited to, when new resource information becomes available or when the United States Fish and Wildlife Service issues a Final Biological Opinion for this Project or the Water Quality Control Division of the Colorado Department of Public Health and Environment issues a Clean Water Act Section 401 Certification for this Project, and any subsequent modification or amendment of the Federal Energy Regulatory Commission ("FERC or Commission") license.

Condition No. 2 - Surrender of License or Transfer of Ownership (NEW CONDITION)

Prior to any surrender of this license, Licensee shall provide assurance acceptable to the Forest Service that Licensee shall restore any project area directly affecting NFS land to a condition satisfactory to the Forest Service upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee shall prepare a restoration plan for Forest Service review and approval, which shall identify the measures to be taken to restore such NFS land and shall include adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the Project, Licensee shall assure that, in a manner satisfactory to Forest Service, Licensee or transferee shall provide for the costs of surrender and restoration. If deemed necessary by the Forest Service to assist it in evaluating Licensee's proposal, Licensee shall conduct an analysis, using experts approved by the Forest Service, to estimate the potential costs associated with surrender and restoration of any project area directly affecting NFS land to Forest Service specifications. In addition, the Forest Service may require Licensee to pay for an independent audit of the transferee to assist the Forest Service in determining whether the

transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 3 - Requirement to Obtain a Short-Term Forest Service Special Use Authorization (REPLACES CONDITION NO. 101)

During the term of the license, if the Licensee proposes to perform any construction work not authorized under the license amendment, the Licensee shall obtain a short-term special use authorization prior to beginning any ground-disturbing activities on NFS land. Licensee shall be responsible for the costs the Forest Service incurs processing the special use authorization application per Cost Recovery regulations in 36 CFR 251.58, as revised and amended, or per federal law or regulations in effect at the time, unless the Forest Service agrees to a waiver of costs.

Licensee may commence ground-disturbing activities authorized by the short-term special use authorization no sooner than 60 days following the date Licensee files the Forest Service short-term special use authorization with the Commission, unless the Commission prescribes a different commencement schedule. In the event there is a conflict between any provisions of the license and any such Forest Service short-term special use authorization, the special use authorization shall prevail to the extent that the Forest Service, in consultation with the Commission, deems the terms of the special use authorization necessary to protect and utilize NFS resources.

A short-term special use authorization will not be required by the Forest Service for the construction and ground-disturbing activities and routine operations and maintenance for the Project authorized under the license amendment. Subsequent ground-disturbing activities, non-routine maintenance and any additional new construction for the remainder term of the license shall be subject to this condition, as determined necessary by the Forest Service authorizing officer.

Condition No. 4 - Forest Service Approval of Final Design Plans (REPLACES CONDITION NO. 101)

Before any construction occurs on NFS land, Licensee shall obtain prior written approval from the Forest Service for all final design plans for Project components, which Forest Service determines could affect or potentially affect NFS resources. As part of such prior written approval, the Forest Service may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the Project is compatible with on-the-ground conditions. Should such adjustments be deemed by the Forest Service, the Commission, or the Licensee to be a substantial change, the Licensee shall follow the procedures of Article 2 of the License. Changes to the license made pursuant to Article 2 or Article 3, shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.

Condition No. 5 - Compliance with Regulations (NEW CONDITION)

Licensee shall comply with all applicable laws, regulations, and directives of the U.S. Department of Agriculture for activities on NFS land, and all applicable Federal laws, ordinances, regulations, and directives in regard to the area or operations on or directly affecting NFS land. Licensee shall comply with all applicable State, county, and municipal laws, ordinances, and/or regulations in regards to the area or operations on or directly affecting NFS land, to the extent those State, county, and municipal laws, ordinances or regulations are not preempted by Federal law.

Condition No. 6 - Protection of United States Property (NEW CONDITION)

Licensee, including any agents or employees of Licensee acting within the scope of their employment, shall protect the land, property, and interests of the United States from damage arising from activities authorized by the license, including but not limited to the Licensee's construction, maintenance, or operation of the Project works or the works appurtenant or accessory thereto under the license. The Licensee shall be liable for all injury, loss, or damage, including fire suppression, or other costs in connection with rehabilitation or restoration of natural resources associated with the activities authorized under this license. Licensee's liability for fire and other damages to NFS land shall be determined in accordance with the Federal Power Act and standard Form L-1 Articles 22 and 24.

As part of the occupancy and use of NFS land, Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting NFS land that could affect the improvements, resources, or pose a risk of injury to individuals. Licensee shall abate those conditions, except those caused by third parties or not related to the occupancy and use authorized by the license. Any non-emergency actions to abate such hazards on NFS land shall be performed after consultation with the Forest Service. In emergency situations, Licensee shall notify Forest Service of its actions as soon as possible, but not more than 48 hours after such actions have been taken. Whether or not Forest Service is notified or provides consultation, Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Licensee shall maintain all its improvements and premises on NFS land to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the Forest Service. Licensee shall comply with all applicable Federal, State, and local laws, regulations, and directives, including but not limited to, the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., the Resources Conservation and Recovery Act, 42 U.S.C. 6901 et seq., the Comprehensive Environmental Response, Control, and Liability Act, 42 U.S.C. 9601 et seq., and other relevant environmental laws, as well as public health and safety

laws and other laws relating to the siting, construction, operation, and maintenance of any facility, improvement, or equipment. If on NFS land, disposal of all materials shall be at an approved location, except as otherwise agreed by Forest Service.

Condition No. 7 - Existing Claims (NEW CONDITION)

License shall be subject to all valid claims and existing rights of third parties. The United States is not liable to Licensee for the exercise of any such right or claim.

Condition No. 8 - Indemnification (NEW CONDITION)

[Reserved: Indemnification not a part of the Settlement Agreement]

Condition No. 9 - Access within the License Area (NEW CONDITION)

The United States shall have unrestricted use of any part of the licensed area on NFS land for any purpose, including permitting uses by third parties or members of the public, provided such use does not interfere with the rights and privileges authorized by the license.

Condition No. 10 - Use of Roads on National Forest System Land (NEW CONDITION)

Roads inside FERC Project Boundary

The Licensee shall develop a Road Maintenance Plan for use, maintenance, reconstruction and relocation of roads used for Project purposes on NFS land within the FERC Project Boundary. This plan shall be developed in consultation with the Forest Service and is subject to Forest Service approval. The Plan shall be filed by Licensee with the Commission within two years of the effective date of the amended license. The Plan shall address costs for maintenance, reconstruction and relocation of National Forest System Roads ("NFSRs"). Licensee shall be responsible for a proportional share of the costs of maintenance, reconstruction, and relocation of NFS roads within the FERC Project boundary commensurate with use of NFS roads for Project operations, Project-related public recreation and other Project-related activities as a percentage of the total use of NFSRs within the FERC project boundary. The Plan shall also address road maintenance for non-NFSRs that are used or maintained by the Licensee for Project purposes on NFS land within the FERC Project Boundary. The non-NFSR Plan shall specify road maintenance and management standards that provide for traffic safety, minimize erosion, and minimize damage to natural resources. It shall also include Best Management Practices ("BMPs") as approved by the Forest Service. The Road Maintenance Plan filed with the Commission shall be updated as determined necessary by the Forest Service. All updates are subject to Forest Service review and approval.

Suitable authorization for NFSRs needed for specific construction activities authorized under this license amendment will be provided under Conditions 24, 26 and 27.

In the event a road requires maintenance, restoration, or reconstruction to accommodate Licensee's needs and that work is not identified in the approved Road Maintenance Plan or cost share agreement, Licensee shall perform such work at its own expense after obtaining prior approval and/or authorization from the Forest Service.

The road maintenance plan shall also include the following:

- a. Current condition survey.
- b. Map(s) at a scale to allow identification of specific routes or segments.
- c. Forest Service assigned road numbers for NFSRs and Project road references for non-NFSRs used for reference on the maps, tables, and in the field.
- d. GIS compatible files of GPS alignments of all roads used for Project access to be provided to the Forest Service.
- e. Adequate signage, to be installed and maintained by Licensee at each road or route, identifying the NFSRs by Forest Service road number.

Licensee shall confine all vehicles being used for Project purposes on NFS land, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Road Maintenance Plan described above. The Forest Service reserves the right to close any and all such routes on NFS land where resource damage is occurring or to require reconstruction/construction by Licensee to the extent needed to accommodate Licensee's use. The Forest Service understands the importance of access to the dam and agrees to provide advance notice of 30 days to Licensee prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Licensee shall maintain suitable crossings as required by the Forest Service for all roads and trails that intersect the right-of-way occupied by linear Project facilities (power line, penstock, ditch, and pipeline).

For roads on the west side of Gross Reservoir listed in Condition 30, a road maintenance plan shall only be required if the Licensee performs road maintenance in lieu of paying the Forest Service for Licensee's share of maintenance costs as required under Condition 30. Licensee shall continue to maintain the portions of Gross Dam Access Road and Miramonte Access Road that cross NFS land in Parcels 62 and 64 and provide access to the dam and Project-related facilities on the east side of Gross Reservoir, which the Licensee currently performs under the current license. This maintenance shall be covered in the Road Maintenance Plan as described above.

Roads outside FERC Project Boundary

For use of NFSRs or non-NFSR project access roads used or maintained by the Licensee on NFS land outside the FERC Project Boundary, Licensee shall obtain suitable road use authorizations from the Forest Service. Such authorizations shall require cost sharing for road maintenance and reconstruction commensurate with Licensee's use and project-related use of NFSRs. It shall also address road maintenance for non-NFSR project access roads. The authorizations shall specify road maintenance and management standards acceptable to the Forest Service that provide for traffic safety, minimize erosion, and minimize damage to natural resources.

Condition No. 11- Hazardous Substances Plan (REPLACES CONDITION NO. 109)

Hazardous substances may not be stored on NFS land without prior approval of the Forest Service. Licensee shall submit a Spill Prevention and Cleanup Plan for prior review and approval by Forest Service as part of any request to store hazardous substances. The plan shall show evidence of consultation with Colorado Department of Public Health and Environment. The plan shall be filed with the Commission at least 90 days prior to storage of oil and hazardous substances on NFS land.

At a minimum, the plan must: (1) outline the Licensee's procedures for reporting and responding to releases of hazardous substances, including names and phone numbers of all emergency response personnel and their assigned responsibilities; (2) maintain within the FERC Project Boundary a cache of spill cleanup equipment suitable to contain any spill from the Project; (3) include a schedule to periodically inform the Forest Service of the location of the spill cleanup equipment on NFS land and of the location, type, and quantity of oil and hazardous substances stored in the FERC Project Boundary; and (4) include a requirement to inform the Forest Service immediately of the magnitude, nature, time, date, location, and action taken for any spill on NFS land. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall require a written report on a schedule approved by the Forest Service during construction documenting the results of the monitoring.

Condition No. 12 - Pesticide-Use Restrictions on NFS Land (REPLACES CONDITION N0.108)

Pesticides may not be used on NFS land or in areas affecting NFS land to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, non-native fish, etc. without the prior written approval of the Forest Service. Any request by Licensee to use pesticides shall be accompanied by the following:

- a. Explanation of the need for use of pesticides; A determination as to whether pesticide applications are essential for use on NFS land;
- b. Specific locations of use;

- c. Specific pesticides for proposed for use;
- d. Application rates;
- e. Dose and exposure rates; and
- f. Safety risk and timeframes for application.

Exceptions to this schedule may be allowed by the Forest Service only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted by the Licensee. In such an instance, an emergency request and approval may be made by the Licensee.

On NFS land, Licensee shall only use those materials registered by the U.S. Environmental Protection Agency, and use must be consistent with Forest Service use for similar applications and approved by the Forest Service. Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess pesticides, materials, containers and other materials and equipment used in storage, transportation, or application. Licensee shall also submit Pesticide Use Proposal(s) with accompanying risk assessment and other Forest Service required documents to use pesticides on a regular basis. Submission of this plan will not relieve Licensee of the responsibility of annual notification and review.

Condition No. 13 - Consultation (REPLACES CONDITION NO. 103)

Licensee shall annually consult with the Forest Service on Project-related activities on or directly affecting NFS land. The date of the consultation meeting will be mutually agreed to by Licensee and Forest Service but in general should be held by April 15. In its discretion, the Forest Service may invite other interested stakeholders and appropriate agencies, confirming the meeting location, time, and agenda with the Licensee. Licensee shall attempt to coordinate the meeting so interested agencies and other stakeholders may attend. Licensee shall make the following Project-related information available to Forest Service and other meeting participants at least 30 days prior to the meeting, unless otherwise agreed upon by the Forest Service:

- a. An operations plan for the year in which the meeting occurs, including planned outages.
- b. A description of planned maintenance projects for the year in which the meeting occurs.
- c. The hydrology record for the previous year, if available, including any variances.
- d. Results of any monitoring conducted the previous year.
- e. Safety reports, including geologic and seismic reports.
- f. A document that tracks the status of the Section 4(e) conditions that require action in the year in which the meeting occurs.

Consultation shall include, but not be limited to the following, unless otherwise agreed upon by the Forest Service:

- a. A status report regarding implementation of license conditions.
- b. Results of Project monitoring studies performed over the previous year in formats agreed to by the Forest Service and Licensee during development of implementation plans.
- c. Review of any planned Project maintenance.
- d. Discussion of any foreseeable changes to Project facilities or features.
- e. Discussion of any necessary revisions or modifications to implementation plans approved as part of this license.
- f. Discussion of needed protection measures for sensitive areas, including but not limited to wetlands and other water bodies, riparian areas, areas with erosion concerns, and habitats for special status species.
- g. Discussion of: 1) additional protection measures for special status species potentially affected by the Project that may be needed for newly listed as threatened, endangered, Forest Service sensitive, Forest Service Species of Conservation Concern, Management Indicator Species, Focal Species, or species of local concern; 2) changes to existing management plans that may be needed due to the delisting of species; and 3) changes that may be needed to incorporate new knowledge about a species requiring protection on NFS land.
- h. Discussion of needed protection measures for newly discovered cultural resource sites.
- i. Discussion of elements of current year maintenance plans, *e.g.* road and trail maintenance.
- j. Discussion of any planned pesticide use.

A record of the meeting shall be kept by Licensee and shall include any recommendations made by the Forest Service for the protection of NFS land and resources. Licensee shall file the meeting record, with the Commission no later than 60 days following the meeting.

Condition No. 14 - Approval of Changes (REPLACES CONDITION NO. 102)

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect NFS land, Licensee shall obtain written approval from the Forest Service prior to making any changes to any constructed Project features or facilities or use of Project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and a minimum of 60 days prior to initiating any such changes, Licensee shall file a report with the Commission describing the changes and the reasons for the changes and shall include any protection measures determined necessary by the Forest Service for such changes. Licensee shall file an exact copy of this report with the Forest Service at

the same time it is filed with the Commission. This condition does not relieve Licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Condition No. 15 - Surveys, Land Corners (NEW CONDITION)

Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers on NFS land. In the event that any such land markers or monuments on NFS land are destroyed by an act or omission of Licensee, in collection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of Forest Service. Further, Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 16 - Signs (NEW CONDITION)

Licensee shall consult with the Forest Service prior to erecting signs related to safety issues on NFS land. Prior to Licensee erecting any other signs or advertising devices on NFS land, Licensee must obtain the approval of the Forest Service as to location, design, size, color, and message. Licensee shall be responsible for maintaining all signs erected by the Licensee on NFS land to standards acceptable to the Forest Service.

PART II: STANDARD RESOURCE CONDITIONS

Condition No. 17 - Invasive Species Management (REPLACES CONDITION NO. 107)

Aquatic Invasive Species Management and Monitoring Plan

Within one year of the effective date of the amended license and at least 90 days before ground-disturbing or construction activities authorized by license amendment, Licensee shall file with the Commission an Aquatic Invasive Species ("AIS") Plan developed in consultation with Forest Service, U.S. Fish and Wildlife Service, and Colorado Parks and Wildlife and subject to prior review and approval by the Forest Service. This plan shall meet applicable State and Federal laws, regulations, and guidance. The applicable State and Federal resource agencies shall be responsible for making the determination as to whether the AIS Plan complies with the State or Federal regulations of their respective agencies. The AIS Plan shall only address Project-related waterbodies. Upon Commission approval, Licensee shall implement the Plan.

Public Education Program

The AIS Plan shall include a public education program, including appropriate signage and information pamphlets at designated public boat accesses or up to five fishing access points. This program and these access points are subject to prior review and approval by the Forest Service. The following shall be addressed in the education program, unless otherwise agreed to with the Forest Service:

- a. Avoiding the release of plants and animals into a waterbody unless they originally came from that waterbody.
- b. Cleaning and drying boats and fishing equipment using accepted protocols for the prevention of all AIS before entering any waterbody area.
- c. Removing visible plants, animals and mud from boat before leaving waterbody.
- d. Disposing of unwanted bait in trash, including earthworms.
- e. Draining water from boat, motor, bilge, live well, and bait containers before leaving a water access site.

AIS information shall be included on Project websites that provide public information on Project facilities. The public information website will also include information on the amphibian chytrid fungus.

Best Management Practices (BMPs)

Licensee shall develop BMPs to prevent the spread of AIS for individual Project operations and maintenance activities performed by Licensee and/or its contractors and Project activities which have the potential to introduce AIS into Gross Reservoir. These BMPs shall be submitted to the Forest Service and Colorado Parks and Wildlife for their respective review and approval. The BMPs shall be submitted for review at the Annual Consultation Meeting required in the FERC license. Development of BMPs for Project activities shall include but not be limited to the following:

- a. List of AIS with potential to be introduced.
- b. Control or preventive measures for AIS.
- c. Identification of critical control points in the Project activity sequence at which to prevent the introduction of AIS.
- d. Any necessary implementation monitoring for potential AIS to ensure BMPs are followed.
- e. Actions that will be taken if an introduction of AIS is found.

If AIS are detected within any Project-related water body, Licensee shall consult with the Forest Service and appropriate agencies on an appropriate plan of action, and shall implement the appropriate action pursuant to Forest Service requirements after obtaining prior Forest Service approval.

Monitoring and Reporting

The AIS Plan shall include a specific monitoring program that addresses all designated public fishing and boat launches on Gross Reservoir, South Boulder Creek upstream of Gross reservoir to the Moffat Tunnel, and areas identified as having boating or fishing access, and that follows State and/or Federal laws, regulations, and policies. Mapping and monitoring results shall be provided to the Forest Service and Colorado Parks and Wildlife.

Plan Revisions

Licensee, in consultation with the Forest Service and Colorado Parks and Wildlife, shall review, update, and/or revise the AIS Plan, as determined necessary by the Forest Service and in consultation with Colorado Parks and Wildlife, subject to prior review and approval by the Forest Service, when substantial changes in the existing conditions occur. Changes or revisions to the plan would be expected if AIS conditions change as a result of: 1) unforeseen effects from new or existing Project-related activities, 2) the potential for new AIS to occur, 3) changed conditions as a result of natural events such as fire or flood, or 4) establishment of other regulatory or legal requirements for AIS. Additional monitoring may be required as part of any plan revisions. Licensee shall include all relevant documentation of coordination/consultation with the updated plan filed with the Commission.

Invasive Plant and Noxious Weed Species Management Plan (REPLACES CONDITION 108; Complements Article 406)

Within one year of the effective date of the amended license and at least 90 days before ground-disturbing or construction activities authorized by license amendment, Licensee shall complete, in consultation with the Forest Service, and subject to prior review and approval of the Forest Service, an Invasive Plant and Noxious Weed Species Management Plan (Plan) for NFS land potentially affected by the Project. Invasive plant and noxious weed species will be those species defined by the Forest Service and Colorado Department of Agriculture's Noxious Weed List. Upon Commission approval, Licensee shall implement the Plan.

Notwithstanding weed management under Condition 30, the Plan shall address terrestrial invasive plant and noxious weed species management within the FERC Project Boundary. In areas where noxious weed populations that the Forest Service determines to be Project-related extend outside the FERC Project boundary, treatments would extend up to 1/4 mile beyond the FERC Project Boundary. If noxious weed populations extend more than 1/4 mile from the FERC Project Boundary, and are determined to be Project-related, Licensee will consult with the Forest Service to determine if the populations should be treated and, if so, the appropriate treatment methods.

Minimum components of the Plan shall include, but may not be limited to:

- Invasive plant and noxious weed species management: frequency of surveys, guidelines for prevention, treatment, internal education, monitoring, reporting, guidelines for conducting weed risk assessment for new Project feature development, including an adaptive management element for invasive plant and noxious weed species management as necessary.
- Methods that ensure early detection and treatment of invasive plant and noxious weed species.
- Guidelines for conducting Licensee's inspections of construction-related or ground-disturbing equipment and vehicles for the presence of invasive plant and noxious weed species.
- List of target invasive plant and noxious weed species agreed to and approved by the Forest Service.
- Annual reporting guidelines for the Annual Meeting.

Licensee, in consultation with the Forest Service, shall review, update, and/or revise the Plans as determined necessary by the Forest Service, if changes in invasive plant and noxious weed species management occur on NFS land. Changes or revisions to the Plan would be expected if invasive plant and noxious weeds conditions change as a result of 1) unforeseen effects from new or existing Project-related activities, 2) the potential for new invasive plants and noxious weeds occurs or changes, 3) changed conditions due to natural events such as fire or flood, or 4) establishment of other regulatory or legal requirements. Changes to the Plan may be required if monitoring feedback indicates that resource objectives are not being met.

Any updates to the Plan shall be prepared in coordination and consultation with the Forest Service and require Forest Service review and approval. Licensee shall include all relevant documentation of coordination/consultation with the updated Plan filed with the Commission.

Condition No. 18 - Special Status Species and Sensitive Areas (NEW CONDITION)

Biological Evaluations

Licensee shall prepare and submit a Biological Evaluation (BE) to the Forest Service for review and approval when the Forest Service determines that proposed actions may affect Forest Service special status species or their habitat on NFS land. Special status species include threatened, endangered, Forest Service sensitive, Forest Service Species of Conservation Concern, Management Indicator Species, Focal Species, or species of local concern. The BE shall evaluate the potential impact of the action on the species or its habitat. Licensee shall comply with mitigation measures required by the Forest Service for Forest Service special status species.

The BE shall:

- Include procedures to minimize or avoid adverse effects to special status species.
- Ensure Project-related activities meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.
- As determined necessary by the Forest Service, include procedures to minimize or avoid adverse effects to sensitive areas and develop implementation and effectiveness monitoring of measures to reduce effects to sensitive areas, which include, but are not limited to wetlands and other water bodies, riparian areas, areas with erosion concerns and habitats for special status species.

A BE will not be required by the Forest Service for the construction and ground-disturbing activities for the Project authorized under the license amendment. Subsequent ground-disturbing activities and any additional new construction for the remainder term of the License shall be subject to this condition, as determined necessary by the Forest Service authorizing officer.

Condition No. 19- Erosion Control and Reclamation (NEW CONDITION REPLACES No. 104; Complements Article 401)

Erosion Control and Reclamation Plan for Existing Project-Affected Areas

Within two years of the effective date of the amended license and at least 90 days before ground-disturbing or construction activities authorized by license amendment, Licensee shall file with the Commission an Erosion Control and Reclamation Plan ("Plan") developed in consultation with Forest Service and other interested parties and subject to prior review and approval by Forest Service. The Plan shall provide direction for treating erosion, controlling sedimentation, and reclaiming disturbed sites upon Project-affected NFS land during the remaining term of license. Upon Commission approval, Licensee shall implement the Plan.

The Plan shall include, but not be limited to, the following minimum components, unless otherwise agreed to by the Forest Service during Plan finalization:

- Methods for initial and periodic inventory and monitoring of the Project-affected NFS land to identify erosion sites and sites needing reclamation caused by Project facilities and operations and assessment of site conditions for each such erosion site. Periodic monitoring and inventory will include recording effectiveness of erosion and reclamation treatment measures, including revegetation, and identification of new erosion and reclamation sites for the term of the license.

- Criteria for ranking and treating erosion and reclamation sites shall include a risk rating and hazard assessment for scheduling erosion treatment measures and monitoring at each site.
- Erosion control and reclamation measures shall incorporate current standards, follow Forest Service regulations and guidance (e.g. Forest Plan, Road Management Objectives, BMPs) and shall be customized to site-specific conditions.
- Development and implementation of a schedule for treatment (e.g. repair, mitigate, monitor) of erosion and reclamation sites, including a list of sites requiring immediate mitigation and a schedule for their immediate implementation.
- Effectiveness monitoring of completed erosion control and reclamation treatment measures after treatment in order to determine if further measures are needed. If erosion control or reclamation measures are not effective, Licensee shall implement additional measures subject to prior approval by Forest Service and continue monitoring until the site has stabilized and reclamation goals are achieved to the satisfaction of the Forest Service.
- Protocols for emergency erosion and sediment control and disturbed site reclamation.
- Process for documenting and reporting inventory and monitoring results including periodic plan review and revision. Documentation shall include Forest Service compatible GIS geodatabase or shapefiles for maps keyed to a narrative description of detailed, site-specific, erosion and reclamation treatment measures and sediment monitoring results.

Erosion Control and Reclamation Plan Measures for New Construction or Non-Routine Maintenance

At least 90 days before ground disturbance commences, Licensee shall develop site-specific temporary erosion control measures and long-term reclamation measures for each new construction or non-routine maintenance project. These measures are subject to prior review and approval by the Forest Service. The temporary measures shall be designed to prevent erosion, stream sedimentation, dust, and soil mass movement during the period of ground disturbance until replaced by permanent reclamation measures on NFS land.

For the construction and ground-disturbing activities for the Project authorized under the license amendment, all site-specific erosion control and reclamation measures shall be included as part of the appropriate plan(s) required under the license.

Condition No. 20 - Fire Management and Response Plan (NEW CONDITION; Complements existing Article 407)

Within two years of the effective date of the amended license and at least 90 days before ground-disturbing or construction activities authorized by license amendment, Licensee shall complete, in consultation with Forest Service, Colorado State Forest Service, and Colorado Department of Fire Prevention and Control, a Fire Management and Response Plan (FMRP). The FMRP is subject to prior review and approval by Forest Service. The FMRP shall set forth in detail Licensee's responsibility for the prevention (including fuels treatment), reporting, emergency response, and investigation of fires on NFS land related to Project operations. Upon Commission approval, Licensee shall implement the FMRP.

Minimum components of the FMRP shall include, but may not be limited to:

- Fuels Treatment/Vegetation Management: Identify fire hazard reduction measures and reoccurring maintenance measures necessary to prevent the escape of Project-induced fires.
- Fire Prevention and Patrol: Address fire danger and public safety associated with Project-induced recreation, including but not limited to fire danger associated with dispersed camping, existing and proposed developed recreation sites, trails, and vehicle access. Identify water drafting sites and other fire suppression resources.
- Emergency Response Preparedness: Analyze fire response needs including equipment and personnel availability.
- Reporting: A requirement that the Licensee report any Project-related fires as soon as practicable, but no later than 24 hours after ignition, to Forest Service.
- Fire Control/Extinguishing: Provide Forest Service a list of the locations of available fire suppression equipment and the location and availability of fire suppression personnel.

Part III. PROJECT-SPECIFIC CONDITIONS

Condition No. 21 - Raptor Protection Measures (REPLACES CONDITION 104)

The Licensee shall implement the following Raptor Protection Measures:

Osprey Nest Platform Relocation. Licensee shall replace the two existing osprey nest platforms that are located in the inundation area of Gross Reservoir, either on top of suitable trees or on poles. After license amendment issuance, Licensee shall consult with

the Forest Service and Colorado Parks and Wildlife on design, suitable locations, and timing for construction of the new platforms and shall obtain Forest Service approval for design, locations, and timing of construction at least 60 days prior to implementation. Osprey nest platform relocation shall be completed prior to reservoir inundation.

Pre-construction Raptor Surveys. Unless prior written approval is obtained from the Forest Service, any tree cutting or removal authorized by the Forest Service shall be conducted prior to March 1 or after July 31 to prevent raptors (and other birds) from nesting on site during tree clearing and to avoid destruction of or disturbance to active nests during the breeding season. Timing of tree cutting or removal may be altered from above with prior written Forest Service approval and subject to appropriate mitigation measures.

If tree cutting or removal begins between March 1 and July 31, Licensee shall conduct surveys on NFS land for raptor nests, including hawks, falcons, and owls, prior to the start of land disturbing activities or any tree removal in all areas which will be affected by construction activities, including access routes and other associated disturbance areas. Survey areas and timing shall be developed in consultation with the Forest Service and Colorado Parks and Wildlife, based on species biology and the nature and timing of disturbance, and is subject to Forest Service approval.

If active raptor nests are found, Licensee shall alter tree cutting or removal timing until chicks have fledged and shall consult with and obtain approval from the Forest Service regarding appropriate buffer zones around nest sites. Licensee shall implement appropriate buffer zones as determined necessary by Forest Service during project activities. Licensee shall monitor nest success and fledging dates of the active raptor nests during Project construction at a frequency specified or approved by the Forest Service, and shall report monitoring data to the Forest Service.

Condition No. 22 - Special Status Plants Relocation Plan (NEW CONDITION, Complements existing Article 410)

Within two years of the effective date of the amended license and at least two years before tree removal for inundation authorized by the license amendment begins, Licensee shall file with the Commission, a Special Status Plants Relocation Plan (Plan) for addressing impacts to special status plants on NFS land. This Plan shall be developed in consultation with the Forest Service and is subject to Forest Service approval. Upon Commission approval, Licensee shall implement the Plan. Special status plants include threatened, endangered, Forest Service sensitive, Forest Service Species of Conservation Concern, Management Indicator Species, Focal Species, or plant species of local concern.

The Plan shall detail how Forest Service special status plant species found on NFS land within the new inundation area and new areas to be disturbed for the relocated recreation facilities will be collected and transplanted. This new Plan will supplement, and

supersede where appropriate, the *Rare and Sensitive Species Plan* approved by the Commission on January 15, 2004 under Article 410. The Plan shall include but not be limited to: locations of all suitable sites for transplanting species, seed collection and transplant timing, quantities of seeds and transplants, and timing of voucher collecting. Locations of all suitable sites for transplanting species discussed below shall be developed in consultation with the Forest Service and shall be subject to Forest Service approval.

The Plan shall include the following components:

1. Prior to ground-disturbing operations, locations of Forest Service special status plants, based on the most recent listing provided by the Forest Service, plus additional surveys if determined necessary by the Forest Service, will be marked in the field with a buffer zone of at least 10 feet. Ground-disturbing activities will be minimized to the extent practicable within the marked populations or buffer zones.
2. Wild sarsaparilla (*Aralia nudicaulis*). Transplant 200 individuals from affected sites to suitable nearby sites that would not be affected by inundation or, if the Forest Service determines that seed is an effective translocation method, collect and distribute seed from affected sites
3. Dewey sedge (*Carex deweyana*). Transplant all affected individuals to suitable nearby sites.
4. Sprengel's sedge (*Carex sprengelii*). Transplant all affected individuals to suitable nearby sites.
5. Enchantress's nightshade (*Circaea alpina*). Collect and distribute seed to suitable nearby sites. Alternately, surveys may be used to document additional locations that would not be affected.
6. Tall blue lettuce (*Lactuca biennis*). Collect seed from affected plants for two years and spread seed in suitable nearby unaffected habitat.
7. Maryland sanicle (*Sanicula marilandica*). Collect seed from affected plants and spread seed in suitable nearby unaffected habitat. Alternately, surveys may be used to document additional individuals that would not be affected upstream of the known location.
8. False melic (*Schizachne purpurascens*). Collect seed from affected plants and spread seed in suitable nearby unaffected habitat.

9. All sensitive and local concern plant species: Collect herbarium voucher specimens from affected populations, and provide them to Forest Service for distribution to herbaria. Ten specimen sheets should be collected for each species, to document their pre-disturbance occurrence.

Condition No. 23 - Visual Resource Protection Plan (REPLACES CONDITION 105; complements Article 414)

At least 90 days before ground-disturbing or construction activities on NFS land authorized by license amendment, Licensee shall file with the Commission an addendum to the current Visual Resource Protection Plan (Plan) (approved by FERC on May 22, 2003), developed in consultation with the Forest Service and subject to prior review and approval by the Forest Service. Upon Commission approval, Licensee shall implement the Plan.

The Plan addendum shall address, but not be limited to the following:

- Measures for mitigating visual impacts from Project-related construction activities on NFS land, including reclamation treatments for the quarry, and relocation and/or reconstruction of roads, trails and recreation facilities.
- Measures for reshaping and revegetation of disturbed areas to blend with surrounding visual characteristics on NFS land.
- Schedule of ongoing facility maintenance and replacement that will incorporate the design considerations listed on pages 48 and 49 of the current Visual Resource Protection Plan on NFS land.

The Plan addendum shall adhere to applicable Forest Service scenery management guidance included in current Forest Plan direction and USDA Forest Service Agricultural Handbook Number 701, "Landscape Aesthetics: A Handbook for Scenery Management," December 1995.

Condition No. 24-Recreation Management (REPLACES CONDITION 106; Complements existing Article 416)

Licensee shall implement the Addendum to the existing Recreation Management Plan under Article 416, submitted with the Final License Amendment Application. The Licensee shall also implement the following recreation management measures:

Human/Bear Interaction Management-Beginning on the effective date of the amended license, Licensee shall manage activities to minimize the potential for bear/human interactions as needed within the FERC Project Boundary on NFS land. If unwanted bear/human interactions are reported, Licensee shall consult with the Forest Service and

Colorado Parks and Wildlife and implement appropriate mitigation measures. These measures are subject to Forest Service approval. Potential measures could include, but are not limited to, activities such as trash management, signing to inform workers and visitors on bear activity, and proper behavior to reduce potential for attracting bears.

Recreation Use Monitoring - For the first three years after the expanded Gross Reservoir is full, Licensee shall annually submit recreation use monitoring data spreadsheets to the Forest Service by February 28. At the end of the first three years, the Licensee shall submit a recreation use monitoring report to the Forest Service using the data from the previous three years. Thereafter, the Licensee shall provide the recreation use monitoring report to the Forest Service every three years. On the sixth year the report will include the Form 80 report, which is also submitted to FERC. The recreation use monitoring report shall provide a summary of annual monitoring conducted by year, a summary of the annual data collected, and a tabulation and summary of the data and monitoring practices required in the approved Recreation Monitoring Plan (FERC Order issued June 8, 2004).

In addition to the above, for NFS land in the Winiger Ridge area within the FERC Project Boundary, the recreation use monitoring report shall include those items specified or required by the Forest Service, which include but are not limited to, Frissell condition class of dispersed campsites, documentation of any reported social use conflicts, and any environmental damage caused by dispersed recreation. This information will be used to determine patterns in dispersed recreation use after reservoir inundation and to evaluate the need for additional recreation mitigation measures.

The Forest Service monitoring requirements described above can be changed upon mutual agreement of the Forest Service and Licensee. If the Forest Service and Licensee agree to change the monitoring requirements, the Licensee shall submit an update to the requirements with the Commission.

Costs for recreation use monitoring conducted by the Forest Service in the Winiger Ridge area outside the FERC Project Boundary is included in the Collection Agreement under Condition 30.

Dispersed Recreation Management at Winiger Ridge- Beginning on the effective date of the amended license, Licensee shall conduct a pre-construction inventory of all social trails and roads at Winiger Ridge within the FERC Project Boundary as specified or approved by the Forest Service. Within three years after the expanded Gross Reservoir is full, and, at minimum, every three years thereafter, the Licensee shall consult with the Forest Service and the Forest Service will determine if there is a need to implement additional recreation management measures to meet Forest Plan direction.

If the Forest Service determines there is a need for additional mitigation measures due to Project-related effects to meet Forest Plan direction, based on pre-construction inventory

results, the new inundation level of the expanded Gross Reservoir, and the ongoing recreation monitoring, the Licensee shall develop a Recreation Adaptive Management Plan for Winiger Ridge. The Plan shall be developed in consultation with the Forest Service and is subject to prior Forest Service review and approval. The Licensee shall file the Recreation Adaptive Management Plan with the Commission. Upon Commission approval, the Licensee shall implement the Plan.

The Plan shall include, but not be limited to, unless otherwise agreed to by the Forest Service:

- Measures for addressing social, environmental, safety, and/or sanitation concerns that may arise from the proliferation and/or expansion of dispersed campsites at Winiger Ridge and surrounding area. These measures could include triggers for adding bathrooms, trash receptacles or other temporary or long-term mitigation measures as determined necessary by the Forest Service.
- Plans for converting obsolete roads to trails.
- Plans for formalizing social trails, including social trails for fishing.
- Measures for minimizing creation of new social trails.

Fishing Line Recycling Licensee shall provide fishing line recycling receptacles at five relocated fishing access points, as described in the Recreation Plan Addendum, for collecting used line to keep it out of the environment. Receptacles shall include labels explaining their purpose to encourage use. Licensee shall monitor and empty the receptacles as needed, and at a minimum on a monthly basis from May to November, and one time from December to April. Licensee shall periodically send line for recycling to a fishing line recycling program.

Condition No. 25 - Channel Instability and Bank Erosion (REPLACES CONDITION 110)

At least one year prior to the initial fill of the enlarged reservoir authorized by license amendment, Licensee shall file with the Commission a revised South Boulder Creek Channel Stability and Monitoring Plan (Plan), developed in consultation with the Forest Service and Colorado Parks and Wildlife, and subject to prior Forest Service review and approval. Upon Commission approval, Licensee shall implement the Plan.

The revised Plan shall include two new monitoring reaches to be selected in consultation with the Forest Service and Colorado Parks and Wildlife, and subject to prior Forest Service review and approval. The monitoring reaches shall be established during the dam construction period. Participants may include a fisheries biologist, hydrologist, and geomorphologist, and Colorado Parks and Wildlife biologists.

Monitoring at the two new reaches shall follow a Control-Impact study design, with one control reach (including both response and transport reach segments) upstream of East Portal flows, and one potential impact reach (including both response and transport reach segments) downstream of East Portal flows. Monitoring elements shall include, but not be limited to:

- a. The longitudinal profile of each reach (impact versus control) shall be surveyed and monumented.
 - i. The length of the longitudinal profile will be determined in the field depending on site characteristics, but shall be a minimum of 20 bankfull widths to capture elevational differences from degradation or aggradation and to include equivalent portions of response and transport reach segments.
- b. Within each longitudinal profile, a minimum of four channel cross-sections will be established and monumented. Cross-sectional profiles shall be evenly spaced within the longitudinal profile.
- c. The longitudinal profile shall be resurveyed in each monitoring year in order to detect bed elevation changes not captured in the cross-sections. The longitudinal profile shall include, at minimum, real coordinates for the top of the bank (right and left banks) and thalweg spatial locations and elevations. The recommended data acquisition method would be a total station or similar instrument that collects x, y, and z coordinates.
- d. Within each reach, data collected shall include at minimum, but not be limited to:
 - i. Data sufficient to perform the Rosgen Bank Erosion Hazard Index (BEHI) assessment of streambank stability.
 - ii. Physical measurement of length of eroded banks, number of slump blocks or detached banks, and/or frequency of tension cracks in the bank.
 - iii. At least four channel cross-sections in each longitudinal profile, collect data for the following metrics: bankfull height, bankfull width, maximum channel depth at bankfull flow, bankfull hydraulic depth (cross-sectional area divided by bankfull depth), and bankfull hydraulic radius (cross-sectional area divided by wetted perimeter).
 - iv. Installation of bank erosion pins to measure bank erosion directly.

v. Field and photo documentation of bank vegetation and stability for 100 feet on both right and left bank through each channel cross-section within the longitudinal profile.

Licensee shall conduct monitoring as described above once during dam construction to establish baseline conditions. During the initial fill of the enlarged reservoir, the Licensee shall conduct monitoring once a year for three years.

Once the initial fill of the enlarged reservoir is complete, the Licensee shall conduct monitoring once every three years for three monitoring cycles, unless a high delivery year occurs. High delivery years shall be defined as years when the average monthly flow conveyed down South Boulder Creek through the Moffat Tunnel in May, June, and July is 55,000 acre-feet or greater. If a high delivery year occurs earlier than the scheduled monitoring once every three years, the Licensee shall complete monitoring once during the high delivery year.

After the initial fill of the enlarged reservoir is complete and after the first three monitoring cycles have been completed, the Licensee shall conduct monitoring once every five years for an additional three monitoring cycles. If the Forest Service determines there is no longer a risk of erosion and channel instability, then monitoring requirements under this condition will have been met. The monitoring requirements can be changed upon mutual agreement of the Forest Service and Licensee. If the Forest Service and Licensee agree to change the monitoring requirements, the Licensee shall submit an update to the South Boulder Creek Channel Stability and Monitoring Plan with the Commission.

The Licensee shall submit a report summarizing the most recent data collected and any changes since the last monitoring event 30 days prior to the annual consultation meeting.

If significant channel instability, erosion, or channel alteration occurs at any time, which will be based on the monitoring data collected and evaluated according to the four questions below, the Licensee shall meet with the Forest Service to discuss if restoration is needed.

Monitoring results will be evaluated based upon answers to the following questions:

1. Do the results of the BEHI analysis indicate an increase in bank erosion has occurred in control and impact reaches? Did the erosion risk categories change by more than one level?
2. Has the percentage of channel length with eroded banks increased in the control and impact reaches?

3. Is there evidence of substantial channel widening in the response segments or downcutting in the transport segments?

4. Is there a significant net cross-section change in any cross-sectional data (e.g., cross-sectional area, bankfull parameters, channel depth at bankfull flow, etc.) in the impact reach relative to the control reach?

If the Forest Service determines restoration is needed, the Licensee shall file with the Commission a restoration plan developed in consultation with Forest Service and subject to prior Forest Service review and approval. Upon Commission approval, Licensee shall implement the plan.

Condition No. 26-Pit Development and Reclamation Plan (NEW CONDITION)

At least 90 days before ground-disturbing or construction activities associated with pit development on NFS land authorized by license amendment and a mineral materials permit, Licensee shall file with the Commission a Pit Development and Reclamation Plan (Plan) developed in consultation with the Forest Service and Colorado Division of Reclamation, Mining and Safety, and subject to prior review and approval by the Forest Service. Upon Commission approval, Licensee shall implement the Plan.

The Plan shall address, but not be limited to, the following:

- The development, construction, operation, reclamation and rehabilitation of the quarry on affected NFS land.
- The location, activity, amount of surface activity, reclamation measures, safety measures, and measures to protect and minimize impacts to natural resources.
- Transportation management during construction, describing how construction traffic will be managed to minimize disruption on NFS roads and provide for visitor safety.

The Plan shall tier to other applicable plans and conditions, including but not limited to the Visual Resource Protection Plan, Hazardous Substances Plan, Invasive Species Management, Erosion Control and Reclamation Plan, Raptor Protection Measures Condition, and Reclamation and Revegetation Seed Mixes Condition.

Licensee shall obtain a mineral materials permit or authorization as governed by 36 CFR 228 Subpart C, as amended and revised, or federal law or regulations in effect at the time, from the Forest Service for use of the materials before ground-disturbing activities occur on NFS land. If the Licensee does not proceed with developing a quarry on NFS land,

Licensee will not be required to submit a Pit Development and Reclamation Plan to the Forest Service for review and approval.

Condition No. 27 -Tree Removal Plan (NEW CONDITION)

At least 90 days prior to tree removal within the inundation area of the enlarged reservoir, Licensee shall file with the Commission a Tree Removal Plan (Plan) developed in consultation with the Forest Service and subject to prior review and approval by the Forest Service. Upon Commission approval, Licensee shall implement the Plan.

The Plan shall address the removal of trees around Gross Reservoir to maximize product utilization and minimize traffic and environmental effects. The schedule for tree removal shall be developed in consultation with the Forest Service, subject to final approval by the Forest Service, and will consider, among other items, key winter range timing for elk (December 1 through March 30) and raptor nesting season (varies depending on species).

The Plan shall address, but not be limited to, the following:

- Roads to be improved, constructed and used for tree removal activities.
- Restoring Project roads to pre-Project conditions.
- Travel management considerations such as prevention of public use of temporary roads created for tree removal.
- Transportation management during tree removal activities.
- How Project-related traffic will be managed to minimize disruption on Forest Service roads and provide for visitor safety.

The Plan shall tier to other applicable plans and conditions, including but not limited to the Hazardous Substances Plan, Invasive Species Management Plan, Erosion Control and Reclamation Plan, Raptor Protection Measures Condition, and Reclamation and Revegetation Seed Mixes Condition. Licensee shall perform a timber cruise with a Forest Service-qualified forester on NFS land as part of the Plan development. Licensee shall enter into a reimbursable Collection Agreement provided by the Forest Service to reimburse the Forest Service for its costs associated with the timber cruise. Licensee shall work closely with the Forest Service to ensure that forest clearing and revegetation on NFS land will be consistent with National Forest standards. Licensee shall pay for merchantable timber in accordance with FERC Standard Form L Article 21 of the license. The Plan shall also ensure compliance with the CDPHE-Air Quality Control Division and include BMPs for the tree removal activities.

Notwithstanding the Licensee's annual payments to the Forest Service for road maintenance described in Condition 30, during tree removal activities for the proposed Project, the Licensee shall perform additional improvements and maintenance of Forest Service roads used for tree removal activities. Once tree removal is completed, the Licensee shall restore such Forest Service roads to their existing Forest Service Maintenance Level 2 (roads open for use by high clearance vehicles) as directed by the Forest Service.

Condition No. 28 -Reclamation and Revegetation Seed Mixes and Mulch Materials (NEW CONDITION)

Licensee shall consult with the Forest Service on seed mixes and mulch materials used for all Project reclamation and revegetation activities on NFS land. Seed mixes and mulch materials used for revegetation and reclamation shall be subject to prior Forest Service review and approval.

Seed mixes shall comply with the Forest's revegetation policy and include, unless waived in writing by the Forest Service, pollinator-friendly host plants. If a species in the seed mix is not available, the Licensee shall provide written evidence from three seed vendors that the species is not available. With prior written Forest Service approval, the mix may be adjusted and a new species may be substituted.

Seed lot tags, seed, and noxious weed seed and purity exams for each species lot shall be available to the Forest Service at least 90 days prior to seeding, for review and testing that may be performed by the Forest Service. If seed cited on the weed, noxious weed, or crop analysis categories is present, or if seed of smooth brome, or cheatgrass or its allies is present, the entire seed lot may be rejected and the Licensee shall be responsible for the replacement cost of seed.

When feasible, the Forest Service will provide government-furnished seed for areas requiring seeding. The Forest Service may provide seed at no cost to Licensee, or may require Licensee to purchase seed directly from a supplier or reimburse the Forest Service for its cost.

Only non-agricultural products (e.g., wood straw, wood shred, wildlife-friendly netting) shall be used for mulch activities/erosion control unless agricultural straw is approved in writing in advance by the Forest Service and is certified weed-free. The Forest Service may perform or require inspection of the mulch. Licensee shall notify the Forest Service at least 21 days prior to purchase to provide the Forest Service time to inspect the proposed agricultural mulch.

Condition No. 29-Public Safety and Law Enforcement (NEW CONDITION; complements Article 418)

After project components are implemented, as determined necessary by the Forest Service and subject to prior Forest Service review and approval, Licensee shall file with the Commission, an update to the Public Safety and Law Enforcement Plan. Upon Commission approval, the Licensee shall implement the updated Plan.

Condition No. 30 - Cost Collection and Participating Agreements (NEW CONDITION):

Within one year of the effective date of the amended license and for the remaining term of the license, the Licensee shall enter into a Collection Agreement provided by the Forest Service to pay the Forest Service for the Project-related Forest Service costs of road and recreation facility maintenance and monitoring on NFS land, as described below. Within one year of the effective date of the amended license, the Licensee shall enter into a Participating Agreement provided by the Forest Service for Licensee to perform weed management as described below.

The term of the Collection Agreement shall be five years. Initial payment will be based on fifty percent (50%) of reference costs developed from the previous five years of Forest Service road and recreation maintenance costs. The Licensee shall renew the Collection Agreement every five years through the term of the license, unless a different time period is agreed to by the Forest Service. Prior to renewal of the Collection Agreement, the Forest Service will re-calculate the reference costs below based on the previous five years of road and recreation maintenance costs, and any changes to the reference costs will be incorporated at the time of renewal of the Collection Agreement. The amount of money the Licensee shall pay annually after the first five years shall be based on 50% of the reference costs incorporated into each subsequent Collection Agreement.

The term of the Participating Agreement shall be five years. The Licensee shall renew the Participating Agreement every five years through the term of the License, unless a different time period is agreed to by the Forest Service. The Participating Agreement will authorize the Licensee to perform weed management on NFS land as described below.

Road Maintenance

The following roads on the West side of Gross Reservoir, including inside and outside of the FERC Project Boundary, will be covered by the Collection Agreement: 1) Forest Service 359.1 (Winiger Ridge Road)- approximately 2.5 miles; 2) Various spur roads off Forest Service 359.1 - approximately 1.5 miles; and 3) Forest Service 97.1 (Lazy Z Road)- approximately 2.5 miles.

For the first five years after the license amendment, the Licensee shall pay the Forest Service \$1,000 per year for road maintenance, based on estimated annual Forest Service road maintenance costs of \$2,000 per year. The Licensee shall pay the Forest Service for annual road maintenance in accordance with the subsequent Collection Agreements for the term of the license.

Notwithstanding its annual payments to the Forest Service for maintenance described above, during tree removal activities for the Project, the Licensee will perform improvements and maintenance of NFS roads used for tree removal activities as described in Condition 27.

Recreation Maintenance

The following recreation facilities on Winiger Ridge on the west side of Gross Reservoir outside the FERC Project Boundary will be covered by the Collection Agreement: 1) Forsythe Canyon Trail - approximately 2/3-mile; 2) Forsythe Trail parking lot and toilet; and 3) Fourteen dispersed campsites.

For the first five years, the Licensee shall pay the Forest Service \$5,000 per year, based on estimated annual Forest Service recreation maintenance and monitoring costs of \$10,000 per year. The Licensee shall pay the Forest Service for annual recreation maintenance in accordance with the subsequent Collection Agreements for the term of the license.

Weed Management

Licensee shall enter into a Participating Agreement provided by the Forest Service for Licensee to conduct weed management on the west side of Gross Reservoir outside the FERC Project Boundary within 100 feet of the roads and recreation facilities identified in Road and Recreation Collection Agreement discussion above.

Appendix B

Water Quality Certification Conditions for Enlargement of Moffat Collection System, including Enlargement of Gross Reservoir

Colorado Department of Public Health and Environment

Issued June 23, 2016

Condition 1: The Applicant will obtain temperature data from three real-time monitoring locations and two data logger sites in the Fraser basin, as described below. Monitoring at these sites will begin as soon as practicable, but no later than one year after the date of issuance for the 404 permit or the FERC license, whichever is later, and will continue for not less than five years after the project becomes fully operational. The data from each calendar year and a report documenting exceedances of the temperature standard will be submitted to the Division by April 1 following each calendar year of sampling. If the USGS ceases data collection at a real-time site, or GCWIN ceases collection at a data logger site, the Applicant will be responsible for establishing and maintaining data collection at the site. The condition for the Applicant to obtain the data at a site is satisfied at that site if the benefit from bypass flows is shown to be *de minimis*.

- Fraser River below Crooked Creek near Tabernash, CO (USGS gaging station 09033300). Real-time temperature data are currently available from the USGS. If the USGS ceases data collection at this site, the Applicant will be responsible for establishing and maintaining real-time data collection at the site.
- Ranch Creek near Fraser, CO (USGS gaging station 09032000). Real-time temperature data are currently available from the USGS. The Applicant will be responsible for establishing and maintaining real-time data collection at this site. The commitment also is captured in existing agreements.
- Ranch Creek below Meadow Creek (USGS gage 09033100). Real-time temperature data are currently available from the USGS. If the USGS ceases data collection at this site, the Applicant will be responsible for establishing and maintaining real-time data collection at the site.
- Fraser River at Rendezvous Bridge (GCWIN site FR-Rendezvous). Data logger site maintained by GCWIN.

- St. Louis Creek above Fraser River confluence (GCWIN site ST-LC). Data logger site maintained by GCWIN.

Condition 2: The fixed values for temperature action levels⁵⁹ that are specified in existing agreements may or may not continue to match applicable regulatory standards, which are subject to revision. The action levels are hereby modified to correspond to the lesser of the action level in the GCMECP or the applicable standard for Cold Stream Tier 1. The Division expects that lower thresholds may be developed for triggering bypass flows as more is learned about tailoring responses to avoid exceedances.

Condition 3: The Applicant will conduct a Voluntary Pilot Project⁶⁰ (VPP) in the Fraser basin using up to 1000 AF/y of environmental water in each summer in which water supply conditions allow, beginning no later than the date of issuance for the 404 permit or FERC license amendment, whichever is later. The VPPs will be executed in the 15 July to 31 August time period that will be the focus of the temperature mitigation response defined in the FWMP. This condition applies in the Interim Period, which ends when the project “becomes operational.”⁶¹ Based on the amount of water expected to be available⁶² for the VPP, the Applicant will prepare and submit a plan to the Division by 1 June each year outlining the objectives for the VPP and describing plan components such as the target stream (Fraser River or Ranch Creek), the source(s) for bypass flows, monitoring locations, and assessment metrics. (See Appendix B⁶³ for further explanation of plan components and expectations for the VPPs in general.) The plan must be submitted by 1 June each year, and the Division will make comments and may recommend changes within 30 days. The Division recognizes that subsequent

⁵⁹ As given in the GCMECP, the temperature action levels for the Fraser basin gages are 21.2°C for the daily maximum and 17.0°C for the weekly average temperature.

⁶⁰ GCMECP II.B.1.c.1

⁶¹ As per the CRCA: “The capacity of Gross Reservoir has been enlarged, and water has been diverted and stored in the enlarged portion of Gross Reservoir.”

⁶² Availability is determined by snowpack, system-wide reservoir storage, maintenance and operations schedules, and summer forecasts.

⁶³ Appendix B to Colorado DPHE’s water quality certification can be found using this link to the Commission’s eLibrary service:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14296730>

adjustments to the plan may be necessary during the summer in order to respond to actual stream flow conditions, or to accommodate operational or maintenance considerations.

At the conclusion of each VPP, the Applicant will prepare a report characterizing the mitigation measures employed and evaluating the effectiveness of those measures in terms of the distance over which a benefit to temperature could be detected. Each report is due by 1 February so that the conclusions will inform development of a VPP for the next year in which bypass water is available.

Condition 4: The Final Report includes a provision that defines the Applicant’s responsibilities⁶⁴ in the case where flow bypasses (released pursuant to Additional Actions for Elevated Stream Temperature) are shown to “have a *de minimis* effect in reducing stream temperature below the temperature response triggers at USGS gages 09032000, 09033300 or 09033100 when the Moffat Project is diverting....” This condition broadens the consideration of *de minimis* effect to include the GCWIN site at Rendezvous Bridge, and it requires a finding of *de minimis* effect at all four sites. Although determination of *de minimis* effect is made through the Learning by Doing process, the Division expects that results of VPPs will inform the process by casting the magnitude of effects in terms of distance from diversion points. The analysis of effects leading to a *de minimis* conclusion must be documented in a report submitted to the Division, and the Division must agree with the conclusion before the Applicant can discontinue these bypass flows.

Condition 5: If temperature monitoring indicates an impairment at any of the monitoring locations identified in Condition 1, the Applicant will perform investigations to determine what contribution operation of the project has made. The impairment investigation report and all supporting information will be submitted to the Division within 12 months after the impairment has been detected. If, after diligently working on the impairment investigation, the Applicant requires more time to finish the impairment investigation the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the one year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

If the Division concludes that operation of the project is primarily responsible for the impairment, the Division will require that the Applicant actively explore preparation of a Category 4b Plan that will define the actions necessary to bring water quality back to

⁶⁴ “Denver Water will contribute \$1 million dollars to LBD for the exclusive purpose of designing and constructing projects to address stream temperature issues in the Fraser River Basin.”

attainment of the standard. In doing so, the Applicant will be encouraged to work with other significant contributors to the impairment, if applicable.

A Category 4b Plan must ensure attainment with all applicable water quality standards through agreed upon pollution control mechanisms within a reasonable time period, must be consistent with CRS 25-8-104, and must be submitted to the Division no more than two years after the Division's determination that the plan is applicable. If it becomes apparent that a Category 4b Plan cannot ensure attainment with all applicable water quality standards through agreed upon pollution control mechanisms within a reasonable time period, or if such plan is not accepted by the Division or EPA, or is precluded by or inconsistent with the water rights provisions in section CRS 25-8-104, then the Division anticipates a 303(d) listing and, in cooperation with the Applicant, preparation of a TMDL. The Applicant, at its discretion, may agree to remedial actions to restore water quality that are inconsistent with the water rights provisions of CRS 25-8-104. If, after diligently working on the Category 4b Plan, the Applicant requires more time to finish the Category 4b Plan the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the two-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

Condition 6: The Applicant will monitor continuous stream temperature at four locations in South Boulder Creek, listed below. Monitoring at these sites will begin as soon as practicable, but no later than one year after the date of issuance for the 404 permit or the FERC license, whichever is later, and will continue for not less than five years after the project becomes fully operational. The data from each calendar year will be submitted to the Division by April 1 following each calendar year of sampling.

- South Boulder Creek at Pinecliffe (DW Station WS-RL-001)
- Gross Reservoir Outlet (FERC monitoring location)
- South Boulder Creek at a location between the reservoir outlet and the diversion point (to match the corresponding site for sampling benthic macroinvertebrates). The Applicant will submit a proposed location to the Division for approval before sampling begins.
- South Boulder Creek at Diversion Structure (DW Station WS-TL-002)

Condition 7: The Applicant will undertake a study of alternatives for the Winter Park WSD to meet the Regulation 85 nutrient limits and develop conceptual level costs

consistent with requirements for a Project Needs Assessment⁶⁵ (PNA). Developing a PNA for early implementation of the Regulation 85 limits for nutrients at the Winter Park WSD wastewater treatment plant will set the stage for decreasing nutrient loads in the Fraser River upstream of the confluence with Vasquez Creek and will assist with Winter Park WSD's efforts to fund treatment plant upgrades as needed. The plan must be prepared and submitted to the Division's Engineering Review Unit for approval within one year of the date of issuance of the 404 permit or the FERC license, whichever is later.

Condition 8: The Applicant will monitor nutrient concentrations monthly (total phosphorus and total nitrogen) at the following sites:

- Fraser River below Buck Creek at Winter Park (USGS 09023750)
- Fraser River at Winter Park (USGS 09024000)
- Fraser River below Vasquez Creek at Winter Park (USGS 09025010)
- Vasquez Creek at Winter Park (USGS 09025000)

Monitoring at these sites will begin no later than the date of issuance for the 404 permit or the FERC license, whichever is later, and will continue for not less than five years after the project becomes fully operational. The data will be submitted annually to the Division along with a report documenting exceedances of the nutrient standards; the report is due by April 1 following each calendar year of sampling.

Condition 9: If monitoring of total phosphorus or total nitrogen concentrations in the Fraser River indicates a potential impairment,⁶⁶ the Applicant will perform investigations to determine what contribution operation of the project has made. The impairment investigation report and all supporting information will be submitted to the Division within 12 months after the impairment has been detected. If, after diligently working on the impairment investigation, the Applicant requires more time to finish the impairment investigation the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the one-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

⁶⁵ A PNA is required for the sources of federal funding for which the Winter Park WSD might be eligible to upgrade the Wastewater Treatment Plant to meet the Regulation 85 nutrients limits.

⁶⁶ Data are to be assessed against the appropriate interim numeric values in the event that numeric standards have not yet been adopted for the relevant segment(s).

If the Division concludes that operation of the project is primarily responsible for the impairment, the Division will require that the Applicant actively explore preparation of a Category 4b Plan that will define the actions necessary to bring water quality back to attainment of the standard. In doing so, the Applicant will be encouraged to work with other significant contributors to the impairment, if applicable.

A Category 4b Plan must ensure attainment with all applicable water quality standards through agreed upon pollution control mechanisms within a reasonable time period, must be consistent with CRS 25-8-104, and must be submitted to the Division no more than two years after the Division’s determination that the plan is applicable. If it becomes apparent that a Category 4b Plan cannot ensure attainment with all applicable water quality standards through agreed upon pollution control mechanisms within a reasonable time period, or if such plan is not accepted by the Division or EPA, or is precluded by or inconsistent with the water rights provisions in section CRS 25-8-104, then the Division anticipates a 303(d) listing and, in cooperation with the Applicant, preparation of a TMDL. The Applicant, at its discretion, may agree to remedial actions to restore water quality that are inconsistent with the water rights provisions of CRS 25-8-104. If, after diligently working on the Category 4b Plan, the Applicant requires more time to finish the Category 4b Plan the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the two-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

Condition 10: The Applicant will monitor the health of aquatic communities at four primary sites (see table below) chosen because of existing concerns due to low MMI scores. The health of the communities will be established by sampling benthic macroinvertebrates and calculating MMI scores. The macroinvertebrate sampling will be conducted using the Division’s protocols,⁶⁷ which are described in Policy Statement 10-1 Aquatic Life Use Attainment Methodology to Determine Use Attainment for Rivers and Streams (Policy 10-1). The Applicant will develop a Sampling Analysis Plan for the collection and preservation of benthic macroinvertebrates that will be reviewed by the Division prior to the start of macroinvertebrate sampling.

GCWIN Site	Description	Latitude	Longitude
FR-abv WPSD	Fraser above Winter Park SD	39.89445	-105.76821
FR-Rendezvous	Fraser at Rendezvous Bridge	39.93412	-105.7896

⁶⁷ The Division is insistent on the prescribed methodology. Even if a different methodology is selected through the LBD process (as suggested in the GCMECP), compliance with these conditions requires use of the Division’s methodology.

GCWIN Site	Description	Latitude	Longitude
FR-CR83	Fraser at Tabernash below bridge on CR83	39.99053	-105.8299
VC-WP	Vasquez at Winter Park	39.9203	-105.78498

Sampling at the primary sites will be conducted in the fall of each year beginning after the issuance of the 404 permit or the FERC license, whichever is later, and continue for five years after the project becomes fully operational. A report assessing the data (raw data and MMI scores) and documenting any impairment of aquatic life will be submitted to the Division by June 1 following each calendar year of sampling. If there are concerns about the representativeness of conditions in a particular year (e.g., if there has been a flood or other natural disaster), alterations to the sampling may be accommodated upon prior approval by the Division.

Condition 11: If monitoring of aquatic life indicates an impairment, the Applicant will use available indices to identify the stressor, if possible. Stressor identification work will be limited to indices that have been incorporated in the Listing Methodology applicable at the time the impairment is detected. The Applicant is not responsible for development of stressor identification tools. If a stressor is identified, the Applicant also will determine what contribution operation of the project has made to the identified stressor, or, if the project is not yet operating, the Applicant will predict the potential for the project to contribute to future impairment associated with the identified stressor. The impairment investigation report and all supporting information will be submitted to the Division within 12 months after the impairment has been discovered. If, after diligently working on the impairment investigation, the Applicant requires more time to finish the impairment investigation the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the one-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

The Division, in consultation with the Applicant, will decide if the Applicant will be required to develop a Category 4b plan for the identified stressor. If such plan is required, it must be submitted to the Division within two years. If a Category 4b Plan is precluded by CRS 25-8-104, the Division anticipates a 303(d) listing and, in cooperation with the Applicant, preparation of a TMDL to bring water quality back to attainment of the standard. If, after diligently working on the Category 4b Plan, the Applicant requires more time to finish the Category 4b Plan the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the two-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

Condition 12: The Applicant will monitor the health of aquatic communities at three sites in South Boulder Creek below Gross Reservoir. The health of the communities will be established by sampling benthic macroinvertebrates and calculating MMI scores. The macroinvertebrate sampling will be conducted using the Division's protocols⁶⁸, which are described in Policy Statement 10-1 Aquatic Life Use Attainment Methodology to Determine Use Attainment for Rivers and Streams (Policy 10-1). The Applicant will develop a Sampling Analysis Plan, including specifics of the proposed sampling locations, for the collection and preservation of benthic macroinvertebrates that will be reviewed by the Division prior to the start of macroinvertebrate sampling.

- South Boulder Creek immediately below Gross Reservoir
- South Boulder Creek at a location between the reservoir outlet and the diversion point (to match the corresponding site for temperature monitoring).
- South Boulder Creek upstream of the diversion point and the lentic zone it creates.

Sampling at the primary sites will be conducted in the fall of each year beginning after the issuance of the 404 permit or the FERC license, whichever is later, and continue for five years after the project becomes fully operational. A report assessing the data (raw data and MMI scores) and documenting any impairment of aquatic life will be submitted to the Division by June 1 following each calendar year of sampling. If there are concerns about the representativeness of conditions in a particular year (e.g., if there has been a flood or other natural disaster), alterations to the sampling may be accommodated upon prior approval by the Division.

If monitoring of aquatic life demonstrates that the project is responsible for degradation of aquatic life (as indicated with the MMI), the Applicant will be required to develop a Category 4b plan. The plan must be submitted to the Division within two years. If, after diligently working on the Category 4b Plan, the Applicant requires more time to finish the Category 4b Plan the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the two-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

Condition 13: The Applicant will work with the Division and CPW to support a biennial program to monitor mercury in fish tissue in Gross Reservoir. Field work to collect the fish will be performed consistent with CPW requirements, the EPA's Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, and the goal will be to

⁶⁸ The Division is insistent on the prescribed methodology. Even if a different methodology is selected through the LBD process (as suggested in the GCMECP), compliance with these conditions requires use of the Division's methodology.

obtain adequate representation of the important species as per the Water Quality Control Commission's Section 303(d) Listing Methodology. The sampling effort for Gross Reservoir will begin in the first field season after the enlarged reservoir has filled and will continue for five more years. The Applicant will submit a brief report summarizing the sampling completed during each field season; the report is due by April 1 following each calendar year of sampling. If mercury levels fall below the level of concern for the last three years, the monitoring obligation will end. In the event that there is impairment for mercury at the end of the five-year period, the obligation for monitoring will be extended for an additional five years, at which time the monitoring obligation will end.

If fish tissue analyses show that a FCA is required, the Applicant will work with the Technical Advisory Team (TAC)⁶⁹ of the Colorado Fish Consumption Advisory Committee to provide public education including the posting of signs with associated consumption advisories. The TAC will determine the design of the signs and the information to be included. The Applicant will incur the costs of the signs and be responsible for proper posting of such signs.

Condition 14: The Applicant will monitor concentrations of total recoverable metals⁷⁰, dissolved metals⁷¹, and hardness at the following locations selected on the basis of historical data record or proximity to important hydrologic features:

- Williams Fork above bridge at Sugarloaf Campground (Site WS-WF-004)
- Vasquez Creek above Vasquez Tunnel outfall (Site WS-WF-001)
- Vasquez Creek at Winter Park (USGS 09025000)
- Fraser River below Buck Creek at Winter Park (USGS 09023750)
- Fraser River at Winter Park (USGS 09024000)
- Fraser River below Vasquez Creek (USGS 09025010)

⁶⁹ Members include representative from CPW, the Division, and the Disease Control and Environmental Epidemiology Division of the Colorado Department of Public Health and Environment.

⁷⁰ Iron, arsenic, and chromium.

⁷¹ Arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, uranium, and zinc.

- Fraser River above Ranch Creek (USGS 09027100)
- South Boulder Creek above Moffat Tunnel outfall (WS-RL-018)
- South Boulder Creek at Pinecliff (WS-RL-001)
- South Boulder Creek at Diversion Structure (WS-RL-002)

Samples will be taken monthly except where winter conditions prevent access. Monitoring at these sites will begin no later than the date of issuance for the 404 permit or the FERC license, whichever is later, and will continue for five years after the project becomes fully operational. The data will be submitted annually to the Division along with a report documenting exceedances of the nutrient standards; the report is due by April 1 following each calendar year of sampling.

Condition 15: If monitoring indicates an impairment, the Applicant will perform investigations to determine what contribution operation of the project has made. The impairment investigation report and all supporting information will be submitted to the Division within 12 months after the impairment has been detected. If, after diligently working on the impairment investigation, the Applicant requires more time to finish the impairment investigation the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the one-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

If the Division concludes that operation of the project is primarily responsible for the impairment, the Division will require that the Applicant actively explore preparation of a Category 4b Plan that will define the actions necessary to bring water quality back to attainment of the standard. In doing so, the Applicant will be encouraged to work with other significant contributors to impairment, if applicable.

A Category 4b Plan must ensure attainment with all applicable water quality standards through agreed upon pollution control mechanisms within a reasonable time period, must be consistent with CRS 25-8-104, and must be submitted to the Division no more than two years after the Division's determination that the plan is applicable. If it becomes apparent that a Category 4b Plan cannot ensure attainment with all applicable water quality standards through agreed upon pollution control mechanisms within a reasonable time period, or if such plan is not accepted by the Division or EPA, or is precluded by or inconsistent with the water rights provisions in section CRS 25-8-104, then the Division anticipates a 303(d) listing and, in cooperation with the Applicant, preparation of a TMDL to bring water quality back to attainment of the standard. The Applicant, at its discretion, may agree to remedial actions to restore water quality that are inconsistent with the water rights provisions of CRS 25-8-104. If, after diligently working on the Category 4b Plan, the Applicant requires more time to finish the Category 4b Plan

the Applicant may request an extension from the Division. The Applicant must request the extension at least two months prior to the two-year deadline and must explain the reason and need for the extension. The Division will review the request and determine whether to grant the extension.

Condition 16: The Applicant will monitor water quality in Gross Reservoir. Monitoring will begin no later than the ice-free season following issuance of the 404 permit or the FERC license, whichever is later, and will continue for not less than five years after the project becomes fully operational. The data will be submitted annually to the Division along with a report documenting any water quality impairments. The report is due by April 1 following each calendar year of sampling.

Samples will be taken monthly during the ice-free season at a site in deep water near the dam. Analysis will include general field parameters⁷², nutrients and biological collections,⁷³ major ions⁷⁴ and metals.⁷⁵

⁷² Vertical profiles of temperature, DO, conductance, pH, turbidity, and secchi depth.

⁷³ Total Kjeldahl nitrogen, ammonia-nitrogen, nitrite+nitrate-nitrogen, orthophosphorus, total phosphorus, dissolved organic carbon, and chlorophyll-a.

⁷⁴ Calcium, magnesium, chloride, potassium, sodium, and sulfate.

⁷⁵ Total recoverable form: iron, arsenic, and chromium; Dissolved form: arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, uranium, and zinc.