

135 FERC ¶ 61,045
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Marc Spitzer, Philip D. Moeller,
John R. Norris, and Cheryl A. LaFleur.

City of Spearfish, South Dakota

Project No. 12775-001

ORDER ISSUING ORIGINAL LICENSE
(MAJOR PROJECT)

(Issued April 21, 2011)

Introduction

1. On September 10, 2008, the City of Spearfish, South Dakota (City) filed, pursuant to sections 4(e) and 15 of the Federal Power Act (FPA),¹ an application for an original license to operate and maintain the existing, unlicensed 4.0-megawatt (MW) Spearfish Hydroelectric Project No. 12775. The project is located on Spearfish Creek, in Lawrence County, South Dakota, and occupies 57.23 acres of federal lands within the Black Hills National Forest managed by the U.S. Department of Agriculture, Forest Service (Forest Service).² As discussed below, we are issuing a license for the project.

Background

2. The Spearfish Project, formerly known as Spearfish Hydroelectric Plant No. 1, was constructed by the Homestake Mining Company (Homestake) and has been in operation since 1912. The project initially operated pursuant to a right-of-way grant issued by the U.S. Department of the Interior (Interior) in 1909.³ In a series of orders

¹ 16 U.S.C. §§ 797(e) and 808 (2006).

² Pursuant to section 23(b)(1) of the FPA, 16 U.S.C. § 817(1) (2006), the project is required to be licensed because it occupies federal land.

³ Section 23(b)(1) of the FPA, 16 U.S.C. § 817(1) (2006), exempts from mandatory licensing projects operating “under and in accordance with the terms of a permit or valid existing right-of-way granted prior to June 10, 1920....”

issued in 2001 and 2002, the Commission found that the 1909 right-of-way grant expired upon Homestake's cessation of its mining operations in Lead, South Dakota.⁴

Accordingly, the Commission held that the project was required to be licensed pursuant to section 24 of the FPA and directed Homestake or its successor-in-interest to file semi-annual reports indicating its progress toward preparing a license or exemption application, and file an application by September 15, 2008, if the project was to continue to operate. In 2003 the company ceased operation of the mine and in 2004 conveyed ownership of the project to the City, which continues to operate the project. On September 10, 2008, the City filed its application.

3. The Commission issued public notice of the City's license application on February 2, 2009. The Forest Service, South Dakota Department of Game, Fish, and Parks (South Dakota DGF&P), and South Dakota Department of Environmental and Natural Resources (South Dakota DENR) filed timely notices of intervention.⁵ ACTion for the Environment (ACTion) (a citizens group), Spearfish Canyon Society, Spearfish Canyon Owners Association, Trout Unlimited, and American Rivers filed timely motions to intervene.⁶ ACTion opposes granting the City's application.

4. On May 18, 2009, the Commission issued public notice that the project was ready for environmental analysis and solicited comments, recommendations, terms and conditions, and prescriptions. In response, comments and recommendations were filed by Interior, the Forest Service, South Dakota DENR, and ACTion.

5. On May 13, 2010, the Commission issued, for public comment, a draft Environmental Assessment (EA) evaluating the impacts of the proposed project. Comments on the draft EA were filed by the City, Interior's Bureau of Reclamation (Reclamation), the Forest Service, South Dakota DENR, Mr. Jerry Boyer, Black Hills Flyfishers, Lawrence Conservation District, Spearfish Canyon Owners Association, Spearfish Canyon Society, and ACTion.

⁴ See *Homestake Mining Company*, 96 FERC ¶ 62,118 (2001), *order denying reconsideration*, 97 FERC ¶ 61,180 (2001), *order granting reh'g and denying late intervention*, 98 FERC ¶ 61,236 (2002), *order denying rehearing and intervention and granting extension of filing requirements*, 101 FERC ¶ 61,159 (2002).

⁵ Under Rule 214(a)(2) of the Commission's Rules of Practice and Procedure, the Forest Service, South Dakota DGF&P, and South Dakota DENR became parties to the proceeding upon timely filing of their notices of intervention. 18 C.F.R. § 385.214(a) (2010).

⁶ 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) (2010).

6. On November 8, 2010, the Commission staff issued a final EA finding that the project, if licensed with Commission staff's recommendations, would not have a significant impact on the human environment. ACTION filed comments on the final EA.

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

Project Description

A. Project Area

8. Spearfish Creek originates in the upper elevations of the Black Hills National Forest. The creek flows in a generally northern direction through coniferous/mixed forest before entering the 20-mile-long Spearfish Canyon. The Spearfish Project is located at the lower end of the canyon. Downstream of the project tailrace, Spearfish Creek flows through the City of Spearfish for two miles, surrounded by residential developments and city parks, and then enters a primarily flat agricultural region of dry plains before converging with the Redwater River about eight miles further downstream. Water from Spearfish Creek and its tributaries is used as a domestic water source for the communities of Deadwood, Lead, and Spearfish; for hydropower generation by the City at the project; for irrigation downstream of the city of Spearfish; and for fish hatchery operations by the Fish and Wildlife Service (FWS) at the D.C. Booth Historic National Fish Hatchery, located in the city of Spearfish.

B. Project Facilities

9. The Spearfish Project consists of the 130.1-foot-long, 4-foot-high concrete Maurice Dam, which impounds a 0.32-acre reservoir with a crest elevation of 4,381 feet United States Geological Survey mean sea level. The dam has a concrete sill section, two stop-log sections, a trashrack, and an intake structure that leads to an approximately 24,000-foot-long, 6.6-foot-wide, and 9-foot-high underground concrete aqueduct, which empties into a forebay pond. Flows exit the forebay pond through two 1,200-foot-long, 4-foot-diameter, wood stave pipelines that lead to four 3-foot-diameter, 54-foot-high surge towers. From the surge towers, flow continues to the powerhouse through two 2.5- to 2.8-foot-diameter, 5,267-foot-long steel penstocks. The powerhouse contains two 2-MW Pelton turbine-generator units and associated generating equipment. Project flows are discharged from the powerhouse through a 106-foot-long tailrace channel, which returns diverted flow to Spearfish Creek just upstream of the city of Spearfish. The two turbines have a combined maximum hydraulic capacity of 120 cfs. The bypassed reach of Spearfish Creek is approximately 7.3 miles long. Project transmission facilities at the powerhouse include a 5-megavolt-ampere generator lead and a 2.4/69-kilovolt step-up transformer with a direct connection to a distribution line. The project does not have any transmission lines.

C. Project Boundary

10. The proposed project boundary encloses all the facilities described above, including the dam, reservoir, forebay, surge towers, powerhouse, and land 75 feet on either side of the underground aqueduct, pipelines, and penstocks. The southern portion of the project boundary, including the dam and more than half of the aqueduct, occupies 57.23 acres of land managed by the Forest Service within the Black Hills National Forest.

D. Current Project Operation

11. Currently, the applicant operates the project in a run-of-river mode and diverts all flows from Spearfish Creek for power production, up to the project's 120-cfs maximum hydraulic capacity.⁷ Water in excess of 120 cfs flows over the dam or through the dam's stop log section into Spearfish Creek directly downstream of the dam.

E. Proposed Project Operation and Environmental Measures

12. The City proposes to operate the project in a run-of-river mode and release a minimum flow of 6 cfs into the bypassed reach from October 1 through April 30 (the non-irrigation season) and to release stepped-down minimum flows of 4 cfs to 1 cfs from May 1 through September 30 (the irrigation season). Beginning on the first Monday following May 1, the City will determine the initial stepped down minimum flow release by comparing the average powerhouse outflow for the previous week (Monday through Sunday) to a set of established minimum flow release triggers. Every Monday thereafter during the irrigation season, the City will compare the previous week's average powerhouse flow to the set of triggers. When the average powerhouse outflow reaches a lower step-down level, the City will adjust the minimum flow release downward accordingly. Once stepped down, the minimum flow will not be raised until October 1.

13. The City proposes protection, mitigation, and enhancement measures to avoid, minimize, or offset the project's environmental effects. Measures proposed by the City include: (1) developing and implementing a minimum flow release structure plan for construction of a system to release minimum flows from the dam; (2) developing and implementing a flow release monitoring plan for the construction of a system to monitor minimum flow releases and powerhouse discharge; (3) preparing a one-year minimum flow progress report, in consultation with resource agencies, which would assess the effects of the City's proposed minimum flows; (4) entering into an agreement with the South Dakota DGF&P to remove and relocate fish that are entrained into the forebay; and (5) implementing an historic properties management plan (HPMP), which provides for

⁷ Due to the lack of any appreciable storage in the project's 0.32-acre reservoir, the City is incapable of operating the project in any way but a run-of-river mode of operation.

the consideration, management, and protection of both known and newly discovered historic properties during the operation, and maintenance of the project.

Summary of License Requirements

14. As summarized below, this license, which authorizes 4.0 MW of renewable energy, requires a number of measures, recommended by participants in the proceeding and by Commission staff, to protect and enhance fish, wildlife, cultural, and aesthetic resources at the project.

15. To protect water quality and aquatic resources in Spearfish Creek, this license requires the City to release minimum flows of between 1 and 6 cfs into the project's bypassed reach, depending on the time of year and the average powerhouse outflows.

16. To provide a means to release minimum flows, this license requires the City to develop and implement a minimum flow release structure plan with provisions to construct a minimum flow release structure and to develop and implement a flow release monitoring plan.

17. To provide evidence of compliance with the project's minimum flow requirement, this license requires the City to maintain records and documentation of minimum flows in the bypassed reach, as well as report on an annual basis the minimum flow records of the previous year with the South Dakota DENR.

18. To maintain and protect the fishery upstream of the project, this license requires the City to develop, in consultation with South Dakota DGF&P, the Forest Service, and FWS, a plan to remove and relocate fish that are entrained in the project forebay.

19. To protect water quality and aquatic resources in Spearfish Creek, this license requires the City to prepare and implement an erosion control plan prior to any ground-disturbing activities.

20. To control the spread and abundance of invasive and nuisance species at the project, this license requires the City to prepare and implement a noxious weed management plan.

21. To help increase the project area population of the American dipper⁸ and protect rare and sensitive species at the project, this license requires the City to install and maintain nest boxes for the American dipper at suitable sites at the project and prepare

⁸ The American dipper is a small, stocky, medium-sized bird that is found around clear mountain creeks throughout the American West.

and implement a plan to protect threatened, endangered, sensitive species, and species of local concern prior to any activity that could affect such species.

22. To protect cultural resources, this license requires the City to implement the February 22, 2011 Programmatic Agreement and HPMP for the project. The HPMP will provide for the consideration, management, and protection of both known and newly discovered historic properties during the operation, and maintenance of the project.

Water Quality Certification

23. Under section 401(a)(1) of the Clean Water Act (CWA),⁹ the Commission may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency either has issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.¹⁰

24. On July 23, 2010, the City submitted its application for Section 401 Water Quality Certification (WQC), which was received by South Dakota DNR on the same day. On November 24, 2010, the South Dakota DENR issued WQC for the Spearfish Project that includes four conditions, which are set forth in Appendix A to this order and incorporated into the license (*see* Ordering Paragraph (D)). The certification includes requirements to: (1) develop and construct a minimum release structure and release through it the City's proposed minimum flows; (2) develop and implement a minimum flow release and instream flow measurement plan; (3) maintain records of minimum flow releases to the bypassed reach; and (4) submit a report of the minimum flow records to the South Dakota DENR on an annual basis.

Section 4(e) Findings and Conditions

25. Section 4(e) of the FPA¹¹ provides that the Commission can issue a license for a project located within any reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired. As noted, the Spearfish Project occupies 57.23 acres of federal land within the Black Hills National Forest, under the supervision of the Forest Service.

⁹ 33 U.S.C. § 1341(a)(1) (2006).

¹⁰ 33 U.S.C. § 1341(d) (2006).

¹¹ 16 U.S.C. § 797(e) (2006).

26. We have reviewed the Organic Administration Act of 1897,¹² which established the purposes for forest reservations (water flow and timber supply), and the presidential proclamation that created the Black Hills National Forest.¹³ There is no evidence or allegation in this proceeding to indicate that licensing of the Spearfish Project would interfere with the purposes of the Black Hills National Forest within which the project is located. Therefore, we find that this license, as conditioned, will not interfere or be inconsistent with the purposes for which the Black Hills National Forest was created.

27. FPA section 4(e) further requires that Commission licenses for projects located within federal reservations must include conditions that 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, a portion of the Spearfish Project is located in the Black Hills National Forest, which is under the Forest Service's supervision.

28. The Forest Service timely filed its final section 4(e) conditions on August 25, 2010. Forest Service final terms and conditions are set forth in Appendix B to this order and incorporated into this license (*see* Ordering Paragraph (E)), and summarized below.

29. The Forest Service 4(e) conditions require the City to: (1) obtain Forest Service special use authorization for occupancy and use of National Forest Service Lands added to the project during the term of the license; (2) obtain prior written approval of the Forest Service for all final designs; (3) obtain written approval from the Forest Service prior to making any changes to project features or facilities; (4) annually consult with the Forest Service each year during the 60-day period preceding the anniversary date of license issuance with regard to needed environmental measures in the project area; (5) restore National Forest System lands to a condition satisfactory to the Forest Service prior to any surrender of this license; (6) develop and implement an Erosion Control Measures Plan approved by the Forest Service; (7) maintain all "improvements" and premises on Forest Service lands to the satisfaction of the Forest Service; (8) consult with Forest Service prior to erecting signs related to safety issues and obtain Forest Service approval of any other signs or advertising devices on Forest Service lands; (9) develop and obtain Forest Service approval of a safety plan for any ground-disturbing activity related to new construction on Forest Service lands; (10) develop and implement a plan approved by the Forest Service to control invasive and noxious weeds and aquatic

¹² 16 U.S.C. § 476 *et seq.* (2006).

¹³ President Grover Cleveland, Proclamation No. 392, February 22, 1897. The proclamation established the Black Hill Forest Reserve which in 1907 was renamed the Black Hill National Forest.

nuisance species; (11) develop and implement a Forest Service-approved plan to protect species that are threatened, endangered, proposed for listing, or sensitive, as well as species of local concern, prior to undertaking activities that could affect these species or their habitat; (12) release specified minimum flows and develop and implement a plan approved by the Forest Service for the construction of a system to release the minimum flows; and (13) develop and implement a plan approved by the Forest Service for the construction of a system to monitor the minimum flow releases.

30. The Forest Service 4(e) conditions also require: (1) reservation of the Forest Service's right to modify the conditions; (2) the indemnification of the United States for any acts or omissions by the licensee; and (3) reservation of the right of the United States to use roads and to permit the use and access of any National Forest System lands within the project, and restrict vehicle use to project roads or designated access routes.

Section 18 Fishway Prescriptions

31. Section 18 of the FPA¹⁴ 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. No fishway prescriptions or reservations of authority were filed.

Threatened and Endangered Species

32. Section 7(a)(2) of the Endangered Species Act of 1973¹⁵ 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.

33. By letter filed June 2, 2009, FWS stated that there are no federally listed plants or wildlife species known to occur within the project area, and there is no designated critical habitat for listed species in the project area. Commission staff found in the EA that the proposed action would have no effect on listed species or designated critical habitat.¹⁶

¹⁴ 16 U.S.C. § 811 (2006).

¹⁵ 16 U.S.C. §1536(a) (2006).

¹⁶ See EA at 7.

National Historic Preservation Act

34. Under section 106 of the National Historic Preservation Act (NHPA),¹⁷ and its implementing regulations,¹⁸ federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. 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.

35. To satisfy these responsibilities, the Commission executed a Programmatic Agreement (PA) with the South Dakota SHPO on February 22, 2011, and invited the Forest Service, South Dakota DGF&P, Oglala Sioux and Standing Rock Sioux tribes,¹⁹ and the licensee to concur with the stipulations of the PA. The City, Forest Service, and South Dakota DGF&P concurred, and the tribes made no comments. The PA, implementation of which is required by license Article 404, requires the licensee to implement an HPMP²⁰ for the term of any license issued for this project. Execution and implementation of the PA demonstrates the Commission's compliance with section 106 of the NHPA.

Recommendations of State and Federal Fish and Wildlife Agencies Pursuant to Section 10(j) of the FPA

36. Section 10(j) of the FPA²¹ requires the Commission, when issuing a license, to include conditions based on recommendations by federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act,²² to “adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)” affected by the project.

¹⁷ 16 U.S.C. § 470 *et seq.* (2006).

¹⁸ 36 C.F.R. Part 800 (2010).

¹⁹ The Spearfish Project lies within an area of ancestral tribal lands important to the federally recognized Oglala Sioux and Standing Rock Sioux tribes. *See* EA at 82.

²⁰ The HPMP is an attachment to the PA.

²¹ 16 U.S.C. § 803(j)(1) (2006).

²² 16 U.S.C. § 661 *et seq.* (2006).

37. Neither the FWS nor South Dakota DGF&P filed 10(j) recommendations for the Spearfish Project.

Project Retirement

38. ACTion contends that the Spearfish Project should not be licensed, but rather be decommissioned because the project adversely affects fish and wildlife, as well as scenic and recreational uses in the Spearfish Creek area, and other sources of power are available to meet the needs of the City.²³

39. Commission staff concluded in the EA that licensing the Spearfish Project as recommended would have no significant impacts on the environment²⁴ and that the only unavoidable adverse impact of the project would be “some possible” mortality of fish entrained in the project’s forebay, although staff-recommended measures requiring fish to be relocated would help minimize these effects.²⁵ Staff also found that the project would be an economically beneficial and dependable source of renewable energy.

40. Staff concluded in the EA that an estimated average of 24 to 33 cfs would be lost to seepage in the losing section of the bypassed reach if the project were retired and water were no longer routed downstream via the project’s existing underground aqueduct around the losing section. Staff concluded further that such a loss could negatively affect downstream water users who are partly dependant on the water for irrigation and could also affect aquatic habitat, fishery resources, aesthetics, and recreation in Spearfish Creek downstream of the project.²⁶ Thus, the project’s overall environmental impacts are beneficial.

41. We also reject ACTion’s assertion that the project should be decommissioned because the availability of other sources of power makes licensing of the City’s proposed project unnecessary.²⁷ Demand for power and system loads in the region where the project is located are expected to grow.²⁸

²³See ACTion’s Motion to Intervene and Letters to the Commission filed on March 19, 2009, June 11, 2010, and December 28, 2010.

²⁴ See EA at 119.

²⁵ *Id.* at 117.

²⁶ *Id.* at 18 and 30-31.

²⁷ See ACTion’s Motion to Intervene filed on March 3, 2009 at 2.

²⁸ See EA at 4.

42. Based on the above discussed findings, we conclude that decommissioning the Spearfish Project is unwarranted.

Section 10(a) of the FPA

43. Section 10(a) of the FPA²⁹ requires that any project for which the Commission issues a license shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

A. Minimum Flow in the Bypassed Reach

44. ACTION suggests that if the project is not decommissioned, the Commission should require a minimum flow release of 10 to 20 cfs into the bypassed reach's upper section to enhance aquatic and recreational resources.³⁰ Further, ACTION recommends that the City construct a weir and pipeline at the head of the bypassed reach's lower section to convey the released flow to the City downstream of the powerhouse, and thereby avoid loss of the flow through absorption into the lower section's river bed. The City proposes a minimum flow release of 1 to 6 cfs, depending on the season of the year and river flow conditions as determined by powerhouse outflows.³¹ Similarly, in their comments on the draft EA, the Spearfish Canyon Society and the Black Hills Flyfishers supported an earlier Forest Service 4(e) condition for a minimum flow release of 6 cfs year-round with a provision to lower the flow release under certain low flow conditions.³² The Lawrence Conservation District and Spearfish Canyon Owners Association stated that it supports the City's efforts to balance minimum bypassed reach flow releases with water needed to enhance downstream fisheries and provide sufficient flows for supporting downstream water rights.³³ Reclamation stated that it has general

²⁹ 16 U.S.C. § 803(a)(1) (2006).

³⁰ See ACTION's Motion to Intervene and Letters to the Commission filed on March 19, 2009, June 11, 2010, and December 28, 2010.

³¹ The applicant's proposed minimum flows are consistent with those stipulated by South Carolina DENR's WQC condition 1 (Appendix A to this order) and the Forest Service's 4(e) condition 1 (Appendix B to this order).

³² See Letters filed on June 25, 2010, and June 24, 2010, respectively.

³³ See draft EA Comment Letter filed on June 28, 2010.

concerns regarding the effects of minimum flow releases on the availability of water at its downstream Belle Fourche Project.³⁴

45. The EA analyzed the costs and benefits of providing various minimum flows to the project's bypassed reach and the effects of minimum flow losses through recharge of the aquifer underneath the bypassed reach on downstream aquatic resources and water users.³⁵

46. The Spearfish Project currently diverts flows up to 120 cfs from Spearfish Creek into the project's 24,000-foot-long underground aqueduct, which conveys flows past the bypassed reach of the stream to the project forebay. This diversion leaves the first several hundred feet of the bypassed reach dry year-round, except when flows are above 120 cfs and spill occurs at the dam. The first 3.3 miles of the project's 7.3-mile-long bypassed reach receives between 2 and 20 cfs from groundwater and tributary inflows, depending on precipitation, is thus considered the gaining section of the reach. The remaining 4 miles of the bypassed reach constitutes the losing section of the bypassed reach, because it contains extremely porous rock formations that absorb surface flows.³⁶ In other words, water flows tend to naturally increase in the first portion of the reach, while decreasing in the second section.

47. Staff concluded in the EA that an estimated average of 24 to 33 cfs would be lost to seepage in the losing section of the bypassed reach if the project were retired and water were no longer routed downstream via the project's existing underground aqueduct.³⁷ Thus, passing flows through the project's relatively water-tight existing aqueduct would result in more water being available below the bypassed reach than if water flowed through the porous losing portion of the bypassed reach.

48. ACTION argues that staff's finding on the likely amount of seepage into the aquifer is based on too short a measurement period to be definitive.³⁸ ACTION contends that releasing flows into the bypassed reach would not result in any adverse impacts on downstream water users because any released flows that seep into the bypassed reach's

³⁴ See draft EA Comment Letter filed on June 29, 2010.

³⁵ See EA at 110.

³⁶ See the EA's Executive Summary at page x.

³⁷ See EA at 18 and 30-31.

³⁸ See ACTION's Comments on the EA filed December 28, 2010.

underlying aquifer would eventually make their way to downstream users via subterranean groundwater flow.³⁹

49. ACTion's assertions questioning the validity of staff's findings on seepage are speculative. Groundwater flow within the aquifer appears to be variable both in terms of direction and magnitude. The best available studies on stream flow losses in the project area⁴⁰ analyzed data collected from observations taken upstream and downstream of the losing section of the bypassed reach in May 1994, June 1995, and June 1996.⁴¹ The study results led staff to conclude that it is highly unlikely that all of the seepage into the aquifer from flows lost in the losing portion of the reach would eventually make its way underground back into Spearfish Creek downstream.⁴² The data collected exhibited high repeatability over the three study years, thus providing no reason to question the validity of the data or staff's analysis. We therefore concur with staff's conclusions regarding seepage into the aquifer.

50. The EA concluded that ACTion's suggested alternative would benefit aquatic resources in the upper, gaining section of the bypassed reach, but would have no benefits to resources in the lower, losing section due to conveyance of the flow downstream around that section.⁴³ The capital cost to construct the weir and pipeline to avoid losses of the minimum flow to river bed absorption would be \$2,148,000, and release of the recommended minimum flows would reduce the project's annual generation by about 4,814 megawatt-hours (MWh). The total levelized annual cost of ACTion's minimum flow alternative would be \$396,150. Staff concluded in the EA that the cost of ACTion's

³⁹ A similar comment was filed by Keith and Dianna L. Williamson on February 4, 2009.

⁴⁰ See Hortness, J.E. and D.G. Driscoll. 1998. *Streamflow losses in the Black Hills of Western South Dakota, U.S. Geological Survey Scientific Investigations Report 98-4116*, cited in the EA at 40 and 45.

⁴¹ May and June are periods when flows in excess of the hydraulic capacity of the project are usually highest due to snowmelt and therefore most likely to occur in the bypassed reach.

⁴² See EA at 31 and 41.

⁴³ See EA at 43.

recommended minimum flow alternative would not justify its benefits, and instead recommended the City's proposed minimum flows.⁴⁴

51. Mr. Jerry Boyer, a property owner who lives adjacent to Spearfish Creek downstream of the project powerhouse, recommends that the project release 20 cfs into the project's bypassed reach during times of "ice build-up" to help prevent downstream flooding,⁴⁵ such as occurred in December of 2008 when extreme cold temperatures caused ice to form and accumulate in Spearfish Creek which then overflowed its banks and flooded Mr. Boyer's property.⁴⁶ Mr. Boyer contends that the released water would be absorbed into the streambed of the losing section, thereby lessening the probability of ice jam formation downstream and reducing the magnitude of any flooding of his property.

52. Staff in the draft EA concluded that water released to the bypassed reach during extreme cold periods as recommended by Mr. Boyer could freeze in the cracks, fissures, and sinkholes within the losing section's streambed, which ultimately would prevent

⁴⁴ The City's proposed project with its lower minimum flows would sufficiently benefit aquatic, terrestrial, recreation, and aesthetic resources in the bypassed reach while limiting adverse effects to downstream water quality and water uses. These benefits would only reduce the project's annual generation from the project's current capacity by about 1,243 MWh, which would cost an estimated \$60,610 annually. *See* EA at 110-112.

With regard to other ACTION criticisms of the EA, the EA at page 80 states that the presence of ACTION's suggested pipeline in the losing section of the bypassed reach would alter the aesthetic view of the creek from its current condition. The statement is not, as ACTION in its comments suggests, equivalent to an assertion that ACTION's suggested minimum flow scheme would have a negative impact on project area aesthetic values. Nor does the EA, as ACTION contends, fail to address ACTION's assertion that flow losses from the project's existing penstock are 7.91 cfs rather than 2 cfs as estimated by staff. Staff explains how the 2 cfs leakage estimate is supported by the record at page B-2 of the EA. The EA does, however, as ACTION suggests, incorrectly state with regard to cumulative impacts that there are irrigation diversions upstream of the City of Spearfish. This minor error does not affect the validity of the EA's overall analysis.

⁴⁵ *See* Final EA at 51 and Commission staff's May 18, 2009 Scoping Document 2 containing summary of public comments made at public meetings on the scope of environmental issues to be addressed in the proceeding held in the City of Spearfish on January 13 and 14, 2009.

⁴⁶ Such winter ice formation and flooding is very rare in the project area; it has been reported to occur only once since 1976. *See* Final EA at 51.

absorption and negate any flood control benefit. Staff also concluded that the freezing in the losing section could cause ice jams to form there, which could shift the downstream flooding upstream to properties located adjacent to the bypassed reach. In consideration of the probable lack of any flood control benefit, an annualized cost to release the flow of \$4,050, and the potential for additional flooding to occur to properties located adjacent to the bypassed reach, staff declined to recommend a 20-cfs minimum flow release.⁴⁷

53. In comments on the draft EA filed on June 25, 2010, Mr. Boyer argued that staff erred in rejecting his recommendation, stating that USGS staff had informed him in a telephone communication that water absorption in the bypassed reach would occur in winter similar to the way such absorption occurs in summer. He therefore contends that the entire recommended 20-cfs release would be absorbed into the bypassed reach streambed before reaching any downstream residential properties.

54. Mr. Boyer's contention that winter absorption would always mirror summer absorption, which is to say that there never would be streambed freezing during the winter months, contradicts the observation noted in the final EA that streambed freezing, ice jam formation, and associated flooding occurred in Spearfish Creek during an extremely cold (and rare) event in December 2008. We therefore agree with staff that should 20 cfs be released to the bypassed reach during an extremely cold event similar to what had occurred in December 2008 for the purpose of preventing ice jam formation and associated flooding, the result would be streambed freezing in the losing section and potentially additional ice jam formation and flooding in the project area, mainly to properties located adjacent to the bypassed reach. We therefore also agree with staff that Mr. Boyer's recommended flow release is unwarranted.

B. Minimum Flow Progress Report

55. The City proposes to develop a one-year minimum flow progress report, in consultation with the resource agencies, to assess the effects of the minimum flow releases. In the EA, Commission staff determined that because the effects of the City's proposed minimum flows on aquatic habitat are well known from data collected during the development of its license application, the proposed progress report and associated minimum flow assessment would provide little, if any, benefit.⁴⁸ Therefore, this license does not require that the City prepare the one-year minimum flow progress report.

⁴⁷ See Final EA at 115.

⁴⁸ *Id.* at 50 and 113.

C. Fish Salvage Plan

56. Fish that enter the project's intake structure at the Maurice dam travel downstream through the 4.5-mile-long underground aqueduct that leads to the project's forebay pond. These fish are likely unable to return to Spearfish Creek upstream of the dam due to the high water velocities in the underground aqueduct, and therefore, are effectively removed from the upstream population. To address this problem, the City proposes to develop and implement a Fish Salvage Plan whereby fish would be removed from the forebay and released upstream of the dam every 5 years and upon request from the South Dakota DGF&P after high flow events. The EA concluded that this measure would help protect and maintain the self-reproducing population of rainbow trout that exists upstream of the project's dam, and that this benefit would be worth the cost.⁴⁹ Article 402 of the license requires the City to develop and implement a Fish Salvage Plan.

D. American Dipper Nest Box Installation and Maintenance Plan

57. On August 25, 2010, the Forest Service, pursuant to section 10(a), recommended that the applicant install nest boxes for the American dipper,⁵⁰ at suitable sites in the project area, noting that the American dipper has nested in the vicinity of the project's dam upstream of the intake for several years, but has not successfully fledged any young, and therefore installing nest boxes could encourage American dipper to nest in more suitable locations and could potentially increase the successful reproduction of this bird. In the EA staff agreed that placing nest boxes in suitable locations could increase nesting success at the project⁵¹ and that installing nest boxes in conjunction with increased foraging habitat resulting from staff-recommended minimum flows could increase nesting success as well.⁵² Therefore, Article 403 of the license requires the development and implementation of a plan for placement and maintenance of American dipper nest boxes at suitable sites within the project boundary.

⁴⁹ *Id.* at 54 and 114.

⁵⁰ The American dipper is a state-listed threatened species and Forest Service species of local concern.

⁵¹ *See* EA at 65, 66, and 114.

⁵² *Id.*

Administrative Provisions

A. Annual Charges

58. The Commission collects annual charges from licensees for administration of the FPA. Article 201 provides for the collection of funds for administration of the FPA and use and occupancy of U.S. lands.

B. Exhibit F and G Drawings

59. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. Article 202 requires the filing of these drawings.

C. Headwater Benefits

60. Some projects directly benefit from headwater improvements that were constructed by other licensees, the United States, or permittees. Article 203 requires the licensee to reimburse such entities for these benefits.

D. Use and Occupancy of Project Lands and Waters

61. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore Article 405 allows the licensee to grant permission, without prior Commission approval, for the use and occupancy of project lands for such minor activities as landscape planting. Such uses must be consistent with the purposes of protecting and enhancing the scenic, recreational, and environmental values of the project.

E. Review of Final Plans and Specifications

62. The license authorizes a minor amount of construction associated with the installation of a flow release structure at the project's dam. Article 301 requires the licensee to provide the Commission's Division of Dam Safety and Inspection (D2SI) Chicago Regional Engineer with final contract drawings and specifications, a quality control and inspection program, a temporary construction emergency action plan, and a supporting design report consistent with the Commission's engineering guidelines.

63. Article 302 requires the licensee to provide the Commission's D2SI-Chicago Regional Engineer with cofferdam construction drawings.

64. Where new construction or modifications to the project are involved, the Commission requires licensees to file revised drawings of project features as-built. Article 303 provides for the filing of these drawings.

65. Because the project's wooden penstocks have a total length of 2,400 feet, are of advanced age, are buried, operate under high pressure, and have not been formally inspected by Commission staff, we are including Article 304 in the license. Article 304 requires the licensee to conduct an inspection of the penstocks and submit a report on the condition of the penstocks to the Commission's D2SI-Chicago Regional Engineer within one year of license issuance.

F. Approval of Resource Plans, Notification, and Filing of Amendments

66. In Appendix B, there are certain FPA section 4(e) conditions that either do not require the licensee to file plans with the Commission or do not provide for consultation with the appropriate agencies during plan development. Article 401 requires the licensee to consult with the other agencies during plan development and to file the plans with the Commission for approval.

State and Federal Comprehensive Plans

67. Section 10(a)(2)(A) of the FPA,⁵³ requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.⁵⁴ Under section 10(a)(2)(A), federal and state agencies filed nine comprehensive plans that address various resources in South Dakota. Of these, the staff identified and reviewed two comprehensive plans that are relevant to this project.⁵⁵ No conflicts were found.

Applicant's Plans and Capabilities

68. Commission staff evaluated the City as a licensee for these areas: (1) conservation efforts; (2) safe management, operation, and maintenance of the project; (3) ability to provide efficient and reliable electric service; (4) need for power; (5) transmission services; (6) cost effectiveness of plans; and (7) actions affecting the public. We accept the staff's findings in each of the following areas.

A. Conservation Efforts

69. 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-

⁵³ 16 U.S.C. § 803(a)(2)(A) (2006).

⁵⁴ Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2010).

⁵⁵ The list of applicable plans can be found in section 5.5 of the EA for the project.

effectively, taking into account the published policies, restrictions, and requirements of state regulatory authorities. The City sells the project's energy to the Black Hills Power Company (Black Hills), a utility. Black Hills promotes conservation of electricity use by its customers. Staff concludes that the City complies with section 10(a)(2)(C) of the FPA.

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

70. Commission staff has reviewed the City's management, operation, and maintenance of the Spearfish Project pursuant to the requirements of 18 C.F.R. Part 12 and the Commission's Engineering Guidelines. Staff concludes that the dam and project works meet the Commission's Engineering Guidelines and criteria and there is no reason to believe that the City cannot continue to safely manage, operate, and maintain these facilities in accordance with the Commission's standards and oversight.

C. Ability to Provide Efficient and Reliable Electric Service

71. We have reviewed the City's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. Our review indicates that the City regularly inspects the project turbine generator units to ensure they continue to perform in an optimal manner, schedules maintenance to minimize effects on energy production, and since the project has been in operation, has undertaken several initiatives to ensure the project is able to operate reliably into the future. Staff concludes that the City is capable of operating the project to provide efficient and reliable electric service in the future.

D. Need for Power

72. To assess the need for power, we looked at the needs in the operating region in which the project is located. The project is located in the Midwest Reliability Organization-U.S. subregion of the Midwest Reliability Organization of the North American Electric Reliability Corporation (NERC). NERC annually forecasts electrical supply and demand in the nation and the region for a 10-year period. NERC's most recent report on annual supply and demand projections indicates that, for the period 2010-2019, total summer demand is projected to increase from 42,240 MW to 46,990 MW, and winter demand from 35,722 MW to 40,207 MW. The project, as licensed, will continue to supply about 4 MW of this demand. Staff concludes that the project's power, low cost, and contribution to the region's diversified generation mix will help meet a need for power in the region.

E. Transmission Services

73. The project does not include a transmission line, but connects to the grid at the powerhouse. The City is proposing no changes that would affect its own or other

transmission services in the region. The project is an important element in providing power and voltage control to local Lawrence County communities and the region.

F. Cost Effectiveness of Plans

74. The City plans to make facility and operational modifications to enhance environmental resources affected by the project. Based on plans as presented by the City, staff concludes that these plans are likely to be carried out in a cost-effective manner.

G. Actions Affecting the Public

75. The City provided extensive opportunity for public involvement in the development of its application for a license for the Spearfish Project. The City uses the project to help meet local power needs, provides employment opportunities within the community, and attracts recreational usage at the project reservoir.

Project Economics

76. In determining whether to issue a license for an existing hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*,⁵⁶ the Commission uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and of reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

77. In applying this analysis to the Spearfish Project, we have considered two options: the City's proposal and the project as licensed herein. As proposed by the City, the levelized annual cost of operating the Spearfish Project is \$525,710, or \$31.22/MWh. The proposed project would generate an estimated average of 16,841 MWh of energy annually. When we multiply our estimate of average generation by the alternative power cost of \$48.76/MWh,⁵⁷ we get a total value of the project's power of \$821,170 in 2010

⁵⁶ *Mead Corp., Publishing Paper Division*, 72 FERC ¶ 61,027 (1995) (*Mead Corp.*).

⁵⁷ This power value is based on the average price of electricity in the Midwest ISO region for the period September 2007 to September 2008, as reported by the City in its January 6, 2009 filing.

dollars. To determine whether the proposed project is currently economically beneficial, staff subtracts the project's cost from the value of the project's power.⁵⁸ Therefore, in the first year of operation, the project would cost \$295,460 (\$17.54/MWh) less than the likely alternative cost of power.

78. As licensed herein with the mandatory conditions and staff measures, the levelized annual cost of operating the project would be about \$527,180, or \$31.30/MWh. Based on an estimated average generation of 16,841 MWh as licensed, the project would produce power valued at \$821,170 when multiplied by the \$48.76/MWh value of the project's power. Therefore, in the first year of operation, project power would cost \$293,990 (\$17.46/MWh) less than the likely cost of alternative power.

79. In considering public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary service benefits). These benefits include their ability to help maintain the stability of a power system, such as by quickly adjusting power output to respond to rapid changes in system load; and to respond rapidly to a major utility system or regional blackout by providing a source of power to help restart fossil-fuel based generating stations and put them back on line.

Comprehensive Development

80. Section 4(e) and 10(a)(1) of the FPA⁵⁹ require the Commission to give equal consideration to the 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 will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

81. The EA for the project contains background information, analysis of effects, and support for related license articles. We conclude based on the record of this proceeding, including the EA and the comments thereon, that licensing the Spearfish Project as described in this order would not constitute a major federal action significantly affecting the quality of the human environment. The project will be safe if operated and maintained in accordance with the requirements of this license.

⁵⁸ Details of staff's economic analysis for the project as licensed herein and for various alternatives are included in the final EA issued November 2010.

⁵⁹ 16 U.S.C. §§ 797(e) and 803(a)(1) (2006).

82. Based on our independent review and evaluation of the Spearfish Project, recommendations from the resource agencies and other stakeholders, and the no-action alternative, as documented in the EA, we have selected the proposed Spearfish Project, with the staff-recommended measures, and find that it is best adapted to a comprehensive plan for improving or developing Spearfish Creek.

83. We selected this alternative because: (1) issuance of an original license will serve to provide a beneficial, dependable, and an inexpensive source of electrical energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreational resources, and historic properties; and (3) the 4 MW of electric capacity available comes from a renewable resource thereby reducing atmospheric pollution.

License Term

84. Section 6 of the FPA⁶⁰ provides that original licenses for hydropower projects shall be issued for a term not exceeding 50 years. The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental mitigation and enhancement measures; 40-year terms for projects with a moderate amount of such activities; and 50-year terms for projects with extensive measures.⁶¹ This license authorizes no new capacity, and only a minor amount of construction and environmental mitigation measures. Consequently, a 30-year license term for the project is appropriate.

The Commission orders:

(A) This license is issued to the City of Spearfish, South Dakota (licensee), for a period of 30 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Spearfish Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by exhibit G filed November 9, 2010:

⁶⁰ 16 U.S.C. § 799 (2006).

⁶¹ See *City of Danville, Virginia*, 58 FERC ¶ 61,318, at 62,020 (1992).

<u>Exhibit G Drawing</u>	<u>FERC No. 12775-</u>	<u>Description</u>
Sheet G-1	9	Project Boundary (Key Map)
Sheet G-2	10	Project Boundary (Reservoir Intake and Aqueduct)
Sheet G-3	11	Project Boundary (Aqueduct)
Sheet G-4	12	Project Boundary (Penstock and Powerhouse)

(2) Project works consisting of: (a) a 130.1-foot-long, 4-foot-high concrete dam, with a crest elevation of 4,381 feet United States Geological Survey mean sea level, containing (i) an 11-foot-long stop-log section and an 11.6-foot-long stop-log section and (ii) a 22-foot-long, 5-foot-wide intake structure with a trashrack over the intake; (b) a 0.32-acre reservoir; (c) an approximately 24,000-foot-long, 6.6-foot-wide, 9-foot-high underground concrete aqueduct; (d) a 36.5-foot-long, 76.5-foot-wide forebay pond; (e) two 1,200-foot-long, 4-foot-diameter, wood stave pipelines; (f) four, 3-foot-diameter, 54-foot-high surge towers; (g) two 5,267-foot-long, 2.5- to 2.8-foot-diameter steel penstocks; (h) a powerhouse with two Pelton turbine-generator units, each with a rated capacity of 2 MW, a minimum hydraulic capacity of 6 cfs and a maximum hydraulic capacity of 120 cfs operating at an average gross head of 695 feet; (i) a 106-foot-long, 35-foot-wide tailrace channel; (j) a 5-megavolt-ampere generator lead and a 2.4/69-kilovolt step-up transformer with a direct connection to a distribution line; and (k) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F shown below:

Exhibit A: The following sections of exhibit A filed on September 10, 2008:

Introduction section, page A-1; Section A.1.1 through A.1.7.1, pages A-3 through A-6; and Sections A.1.8 through A.1.8.7, pages A-24 through A-27, describing the mechanical, electrical and transmission equipment within the application for the license.

Exhibit F: The following exhibit F drawings filed on January 6, 2009:

<u>Exhibit F Drawing</u>	<u>FERC No. 12775-</u>	<u>Description</u>
Exhibit F-1	1	Reservoir and intake plan and sections
Exhibit F-2	2	Intake plan and section
Exhibit F-3	3	Forebay plan and section
Exhibit F-4	4	Standpipes tower plan and elevation
Exhibit F-5	5	Penstock elevation plan and bifurcation plan
Exhibit F-6	6	Penstock elevation plan
Exhibit F-7	7	Powerhouse plan
Exhibit F-8	8	Powerhouse elevation

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibits A, F, and G described above are approved and made part of the license.

(D) This license is subject to the conditions submitted by the South Dakota Department of Environment and Natural Resources under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1) (2006), as those conditions are set forth in Appendix A to this order.

(E) This license is subject to the conditions submitted by the U.S. Forest Service under section 4(e) of the FPA, as those conditions are set forth in Appendix B to this order.

(F) This license is also subject to the articles set forth in Form L-1 (Oct. 1975), entitled, "Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States" (*see* 54 FPC 1799 *et seq.*), as set forth in this order, including the following additional articles:

Article 201. Administrative Annual Charges. The licensee shall pay the United States annual charges, effective the first day of the month in which the license is issued,

and as determined in accordance with provisions of the Commission's regulations in effect from time to time, for the purposes of:

- (1) reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 4,000 kilowatts; and
- (2) recompensing the United States for the use, occupancy and enjoyment of 57.23 acres of its lands (other than for transmission line right-of-way).

Article 202. Exhibit Drawings. Within 45 days of the date of issuance of the license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

(a) Four sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-12775-1 through P-12775-12) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1, G-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards along with form FERC-587 shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections Chicago Regional Office. The remaining set of aperture cards (Exhibit G only) and a copy of Form FERC-587 shall be filed with the Bureau of Land Management office at the following address:

Bureau of Land Management
Branch of Land Resources (MT-932)
5001 Southgate Drive
Billings, MT 59101-4669
ATTN: FERC Withdrawal Recordation

(b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections Chicago Regional Office. Exhibit F drawings must be segregated from other project exhibits and identified as Critical Energy Infrastructure Information (CEII) material under 18 CFR § 388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file

extension in the following format [P-12775-9, G-1, Project Boundary, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file
FILE TYPE – Tagged Image File Format (TIFF), CCITT Group 4
RESOLUTION – 300 dpi desired (200 dpi min)
DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)
FILE SIZE – less than 1 MB desired

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 arranged in a triangular format for GIS geo-referencing the project boundary drawing to the polygon data, and must be based on a standard map coordinate system. The spatial reference for the drawing (i.e., map projection, map datum, and units of measurement) must be identified on the drawing and each reference point must be labeled. In addition, each project boundary drawing must be stamped by a registered land surveyor.

(c) The licensee shall file two separate sets of the project boundary data in a geo-referenced electronic file format (such as ArcView shape files, GeoMedia files, MapInfo files, or a similar GIS format) with the Secretary of the Commission, ATTN: OEP/DHAC. The filing shall include both polygon data and all reference points shown on the individual project boundary drawings. A single electronic boundary polygon data file is required for the project boundary. The geo-referenced 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) shall include: FERC Project Number, data description, date of this license, and file extension in the following format [P-12775, boundary polygon/or point data, MM-DD-YYYY.SHP]. The filing must be accompanied by a separate text file describing the spatial reference for the geo-referenced 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.). The text file name shall include: FERC Project Number, data description, date of this license, and file extension in the following format [P-12775, project boundary metadata, MM-DD-YYYY.TXT].

In addition, for those projects that occupy federal lands, a separate geo-referenced polygon file(s) is required that identifies transmission line acreage and non-transmission line acreage affecting federal lands for the purpose of meeting the requirements of 18 CFR § 11.2. The file(s) must also identify each federal owner and federal acreage affected by the project boundary. Depending on the geo-referenced electronic file format, the polygon, point, and federal lands data can be included in a single file with multiple layers.

Article 203. *Headwater Benefits.* If the licensee's project is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed. The benefits will be assessed in accordance with Subpart B of the Commission's regulations.

Article 301. *Contract Plans and Specifications.* At least 60 days prior to the start of any construction, the licensee shall submit one copy of its plans and specifications and supporting design document to the Division Dam Safety and Inspections (D2SI)-Chicago Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal to the D2SI-Chicago Regional Engineer 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-Chicago 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 302. *Cofferdam Construction Drawings.* Before starting construction, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations, and shall make sure construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of the cofferdam, the licensee shall submit one copy to the Division of Dam Safety and Inspections (D2SI) - Chicago Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI), of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 303. *As-built Drawings.* Within 90 days of completion of construction, the licensee shall file, for Commission approval, revised exhibits A, F, and G, as applicable, to describe and show those project facilities as built. A courtesy copy shall be filed with the Commission's Division of Dam Safety and Inspections (D2SI)- Chicago Regional Engineer, the Director, D2SI; and the Director, Division of Hydropower Administration and Compliance.

Article 304. *Inspection of the Penstocks.* Within one year of license issuance, the licensee shall conduct an inspection of the penstocks and submit a report on the condition of the penstocks to the Commission's Division of Dam Safety and Inspections - Chicago Regional Engineer. The Commission reserves the right to require further action depending on the findings in the report.

Article 401. *Commission Approval and Consultation.*

(a) Requirements to File Plans for Commission Approval

Various conditions of this license found in the U.S. Forest Service's (Forest Service's) final section 4(e) conditions (Appendix B to this order) require the licensee to prepare plans in consultation with other entities for approval by the Forest Service for submittal to the Commission, and implement specific measures without prior Commission approval. Each such plan listed below shall also be filed with the Commission for approval. The following table indicates the agencies that the licensee shall consult before preparing the plan along with the deadline for filing the plans with the Commission for approval.

Forest Service condition no.	Plan name	Consulting entity	Due date
7	Erosion Control Plan	Forest Service; South Dakota Department of Game, Fish, and Parks (South Dakota DGF&P); and South Dakota Department of Environment and Natural Resources (South Dakota DENR)	60 days prior to any ground-disturbing activity
10	Safety During Project Construction Plan	Forest Service	60 days prior to any ground-disturbing activity
15	Invasive Plant, Noxious Weed, and Aquatic Nuisance Species Management Plan	Forest Service, and South Dakota DGF&P	Within 6 months of license issuance
16	Plan to Protect Threatened, Endangered, Sensitive, and Species of Local Concern	Forest Service, U.S. Fish and Wildlife Service, and South Dakota DGF&P	60 days prior to any activity that may affect these species

The licensee shall submit to the Commission documentation of its consultation,

copies of comments and recommendations made in connection with each plan, and a description of how the plan accommodates the comments and recommendations. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The Commission reserves the right to make changes to each plan. Implementation of each plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 402. *Fish Salvage Plan.* Within 6 months of license issuance, the licensee shall file for Commission approval a plan to remove and relocate fish from the project forebay pond every 5 years and upon a request by the South Dakota Department of Game, Fish and Parks (South Dakota DGF&P) after high flow events. The plan shall include procedures to capture and relocate fish from the forebay and release these fish upstream of the project's dam.

The plan shall be developed after consultation with South Dakota DGF&P, U.S. Forest Service, and U.S. Fish and Wildlife Service. The licensee shall include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the agencies above, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall 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 shall include the licensee's reasons, based on project-specific reasons.

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

Article 403. *American Dipper Nest Box Installation and Maintenance Plan.* Within 6 months of license issuance, the licensee shall file for Commission approval a plan to install and maintain nest boxes for the American dipper at suitable sites in the project area for the purpose of enhancing reproduction. The plan shall describe the type, number, and location of nest boxes to be installed, and a schedule for their installation.

The plan shall be developed after consultation with the U.S. Forest Service and the South Dakota Department of Game, Fish and Parks. The licensee shall include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the agencies above, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall 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 shall include the licensee's reasons, based on project-specific reasons.

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

Article 404. Programmatic Agreement and Historic Properties Management Plan. The licensee shall implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the South Dakota State Historic Preservation Officer for Managing Historic Properties that May be Affected by the Issuance of a License to the City of Spearfish for the Operation of the Spearfish Hydroelectric Project in Lawrence County, South Dakota (FERC No. 12775-001)," executed on February 22, 2011, including but not limited to the Historic Properties Management Plan (HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

Article 405. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and

facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric

transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(G) The licensee shall serve copies of any Commission filing required by this order on any entity specified in the order to be consulted on matters relating to that filing. Proof of service on these entities must accompany the filing with the Commission.

(H) 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 FPA, 16 U.S.C. § 8251 (2006), and section 385.713 of the Commission's regulations, 18 C.F.R. § 385.713 (2010). The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any 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

Water Quality Certificate Conditions for the Spearfish Project Issued by the South Dakota Department of Environment and Natural Resources on November 24, 2010

Pursuant to Administrative Rules of South Dakota (ARSD) 74:51:01:65, DENR grants Section 401 Water Quality Certification for the Hydroelectric Project, FERC Project No. 12775, with the following conditions:

Condition 1 – Spearfish Hydroelectric Project Minimum Flow Release Schedule

- (a) The licensee shall maintain an instantaneous minimum flow release into the bypassed reach of Spearfish Creek in accordance with the schedule in Table 1:

Table 1. Spearfish Hydroelectric Project Minimum Flow Release Schedule

Season	Average Powerhouse Flow	Minimum Flow Release
Oct. 1 through Apr. 30	n/a	6 cfs
May 1 through Sep. 30	> 40 cfs	4 cfs
	> 35 cfs, but ≤ 40 cfs	3 cfs
	> 30 cfs, but ≤ 35 cfs	2 cfs
	≤ 30 cfs	1 cfs

For purposes of Table 1, the column “Minimum Flow Release” means the required instantaneous minimum flow release to be provided and measured at Maurice Dam via a bypass release structure designed, approved, and constructed in accordance with paragraph (b), below.

Also for purposes of Table 1, the column “Average Powerhouse Flow” means the average of each daily average rate of flows at the project powerhouse generating units over each seven-day period (Monday through Sunday), as measured and calculated by the licensee, from May 1 through September 30 each year.

During the May 1 through September 30 time period each year, the Minimum Flow Release shall be determined and adjusted on a weekly basis (beginning each Monday) according to the Average Powerhouse Flow in

Table 1. Reductions in the Minimum Flow Release shall only occur on the Monday after the Average Powerhouse Flow for the immediate previous seven day period has dropped to the next lower threshold value in Table 1. Once the Minimum Flow Release is reduced, it shall remain at the reduced level or lower, as per the schedule in Table 1, until September 30. Beginning October 1 each year, the Minimum Flow Release shall be raised to 6 cfs, regardless of the Average Powerhouse Flow.

(b) Within six months of the effective date of the license, the licensee shall submit for Commission approval a Minimum Flow Release structure plan that shall include a design for a bypass release structure capable of providing the Minimum Flow Releases prescribed in Table 1, Condition 1(a). The design plan shall be developed in consultation with and approved by the South Dakota Department of Environment and Natural Resources (“DENR”) and the U.S. Forest Service (“USFS”). The licensee shall allow a minimum of 30 days for the DENR and USFS to review the plan before it is filed with the Commission. The Commission reserves the right to require changes to the plan.

(c) Following the approval of the design plan by the Commission, DENR, and USFS as set forth in paragraph (b), above, the licensee shall construct the bypass release structure as approved by the Commission. The licensee shall exercise best efforts, accounting for public safety and seasonal limitations, to complete construction and operation of the bypass release structure within six months after obtaining all approvals of the design plan. The licensee’s obligations to maintain minimum flows under this Condition shall commence upon final construction, inspection, and testing of the bypass release structure at Maurice Dam.

(d) The Minimum Flow Release requirements under this Condition may be temporarily modified or suspended if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee, DENR, and USFS. If the flow is so modified, the licensee shall notify the USFS and DENR as soon as practicable, but no later than 2 business days after each such incident, and shall notify the Commission within 10 days after each incident, and shall provide the reason for the modified flow. For purposes of this paragraph (d), operating emergencies include freezing conditions in Spearfish Creek that prevent the city from providing the full Minimum Flow Release at Maurice Dam. In the event of such freezing conditions, the licensee shall take all reasonable and prudent measures, accounting for public and personnel safety and applicable water quality and other environmental regulatory requirements, to de-ice the system and reinstate flows.

Condition 2 – Minimum Flow Release and Instream Flow Measurement Plan

Within six months of the effective date of the license, the licensee shall submit for Commission approval plans for the installation, maintenance, and operation of a bypass release measurement device with continuous recording capability at the bypass release structure at Maurice Dam to demonstrate compliance with the Minimum Flow Release requirements in Condition 1. The plan shall also include provisions for continuous monitoring and recording of flows at the project powerhouse generating units, which will be used to determine the Average Powerhouse Flow values in Table 1 of Condition 1. The plan shall also include methods for calculating the seven-day Average Powerhouse Flow in Table 1 of Condition 1. The plan shall be developed in consultation with and approved by the USFS and DENR prior to approval of the measurement plan by the Commission. The licensee shall allow a minimum of 30 days for DENR and the USFS to review the plan before it is filed with the Commission. The Commission reserves the right to require changes to the plan.

Condition 3 – Maintenance of records and documentation

The licensee will maintain the Spearfish Creek flow records and documentation of when the Minimum Flow Release into the bypassed reach at Maurice Dam is reduced during the period of May 1 through September 30 each year in Spearfish City Hall and make them available to DENR upon request during normal business hours. Each record must be maintained for at least three years.

Condition 4 – Reporting of flow records to DENR

The licensee will compile the flow records and documentation of when the Minimum Flow Release into the bypassed reach at Maurice Dam is reduced during the period of May 1 through September 30 each year and submit a report with this information to DENR, Surface Water Quality Program, by January 1 of the following year.

These conditions will become part of any license issued by the Federal Energy Regulatory Commission. This certification does not authorize the above referenced activity. The activity may occur only by authorization of the Federal Energy Regulatory Commission.

This certification does not constitute a relinquishment of the DENR authority as defined in SDCL chapter 34A-2 nor does it fulfill or waive any other local, state, or federal regulations.

APPENDIX B

Conditions Filed by the U.S. Forest Service on August 25, 2010, Pursuant to Section 4(e) of the Federal Power Act, for the Original License for Project No. 12775

License articles contained in the Federal Energy Regulatory Commission's (Commission) Standard Form L-01 issued by Order No. 540, dated October 31, 1975, cover those general requirements that the Secretary of Agriculture, acting by and through the United States of America, USDA Forest Service (FS), considers necessary for adequate protection and utilization of the land and related resources of the Black Hills National Forest (BKF). Under authority of section 4(e) of the Federal Power Act (FPA, 16 U.S.C. 797(e)), the following terms and conditions are deemed necessary for adequate protection and utilization of BKF lands and resources. These terms and conditions are based on those resources and management requirements enumerated in the Organic Administration Act of 1897 (30 Stat. 11), the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215), the National Forest Management Act of 1976 (90 Stat. 2949), the Wilderness Act of 1964, the Federal Land Policy and Management Act (90 Stat. 2743), and any other law specifically establishing a unit of the National Forest System (NFS) or prescribing the management thereof (such as the Wild and Scenic Rivers Act), as such laws may be amended from time to time, and as implemented by regulations and direction, including but not limited to FS Manual direction, FS Handbook direction, and approved Land and Resource Management Plans prepared in accordance with the National Forest Management Act. Therefore, pursuant to section 4(e) of the FPA, the following conditions covering specific requirements for the Spearfish Hydroelectric Project (Project) for protection and utilization of NFS land shall also be included in any License amendment issued.

Section 10(a)(2)(B) of the Federal Power Act states that the Commission shall consider the recommendations of Federal and State agencies exercising administration over flood control, navigation, irrigation, recreation, cultural and other relevant resources of the State in which the Project is located, and the recommendations (including fish and wildlife recommendations) of Indian tribes affected by the Project. Utilizing this authority the FS is also submitting a recommendation pursuant to the authorities under section 10(a) of the Federal Power Act.

II. STANDARD US FOREST SERVICE CONDITIONS

Condition No. 1—Requirement to Obtain a US Forest Service Special Use Authorization

If during the term of the License the Commission determines that the Project involves the use of any additional National Forest Service (NFS) lands, outside the current Project boundary, the Licensee shall obtain a special use authorization from the US Forest Service for the occupancy and use of such additional NFS land. The Licensee shall obtain the executed authorization before beginning any ground disturbing activities on NFS land covered by the special use authorization, and shall file that authorization with the Commission. The Licensee shall be responsible for the costs of collecting all information directly related to the evaluation of the effects of the proposed occupancy and use that the US Forest Service needs in order to make a decision concerning issuance of a special use authorization.

If during the term of the License the Licensee proposes to perform any Project construction work, the Licensee shall obtain a construction temporary special use authorization before beginning any ground disturbing activities on NFS land. The Licensee shall be responsible for the costs of collecting all information directly related to the evaluation of the effects of the proposed construction that the US Forest Service needs in order to make a decision concerning issuance of a construction temporary special use authorization. The Licensee may commence ground disturbing activities authorized by the License and construction temporary special use authorization no sooner than 60 days following the date the Licensee files the US Forest Service temporary 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 the US Forest Service special use authorization, the special use authorization shall prevail to the extent that the US Forest Service, in consultation with the Commission, deems necessary to protect and utilize NFS resources.

Condition No. 2—US Forest Service Approval of Final Design

Before any construction of the Project occurs on NFS land, the Licensee shall obtain the prior written approval of the US Forest Service for all final design plans for Project components that the US Forest Service deems as affecting or potentially affecting NFS resources. The Licensee shall follow the schedules and procedures for design review and approval specified in the US Forest Service construction temporary special use authorization. As part of such prior written approval, the US 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 necessary adjustments be deemed by the US Forest Service, the Commission, or the Licensee to be a substantial change, the Licensee shall follow procedures of Article 2 of

the License. Any changes to the License made for any reason, 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. 3—Approval of Changes after Initial Construction

Notwithstanding any License authorization to make changes to the Project, the Licensee shall get written approval from the US Forest Service prior to making any changes in the location of any constructed Project features or facilities, or in the uses 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 US Forest Service, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the US Forest Service for such changes. The Licensee shall file an exact copy of this report with the US Forest Service at the same time it is filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this License.

Condition No. 4—Consultation

Each year during the 60 days preceding the anniversary date of the License, the Licensee shall consult with the US Forest Service with regard to measures needed to ensure protection and development of the natural resource values of the Project area. Within 60 days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the US Forest Service. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the Project and its operation that may be necessary to accomplish natural resource protection.

Condition No. 5—Surrender of License or Transfer of Ownership

Prior to any surrender of this License, the Licensee shall restore NFS land to a condition satisfactory to the US Forest Service. At least one year in advance of the proposed application for License surrender, the Licensee shall file with the Commission a restoration plan approved by the US Forest Service. The restoration plan shall identify improvements to be removed, restoration measures, and time frames for implementation and estimated restoration costs. In addition, the Licensee shall pay for an independent audit to assist the US Forest Service in determining whether the Licensee has the financial ability to fund the surrender and restoration work specified in the plan. As a condition of any transfer of the License or sale of the Project, the Licensee shall require the proposed transferee to demonstrate, in a manner satisfactory to the US Forest Service, that it has the financial ability to provide for the costs of surrender and restoration of the Project.

Condition No. 6—Modification of US Forest Service Conditions

The US Forest Service reserves the right to modify these conditions, if necessary, to incorporate changes necessitated by new laws and regulations directing changes in management of the area, additional information provided by studies which have not been

completed to date, by findings in the Project of new noxious terrestrial or aquatic biota, and to address new listings of Threatened, Endangered, and other Special Status Species in the Project.

III. OTHER US FOREST SERVICE CONDITIONS

Condition No. 7—Erosion Control Measures Plan

At least 60 days prior to any ground disturbing activity, the Licensee shall file with the Commission an Erosion Control Measures Plan that is approved by the US Forest Service. The plan shall be based on actual site conditions (geological, soil, and groundwater) and shall include:

- Descriptions of the actual site conditions
- Detailed descriptions, design drawings and specific topographic locations of all control measures
- Measures to divert runoff away from disturbed land surfaces
- Measures to collect and filter runoff over disturbed land surfaces
- Measures to revegetate disturbed areas outside of the roadbed
- Seed mixtures and application rates of seed mixes and fertilizers
- A monitoring and maintenance schedule.

The US Forest Service may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the Project area. This plan must identify requirements for construction, operation, and maintenance measures to meet US Forest Service erosion control objectives and standards. Upon approval, the Licensee shall implement the Plan.

In the event of the need for emergency repairs and use of areas other than licensed access roads arises, the Licensee shall notify the US Forest Service of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Licensee shall follow the protocol established for any ground disturbing activities as per an approved grading and restoration plan. Whether or not the US Forest Service is notified or provides consultation, the Licensee shall remain solely responsible for all abatement measures performed.

Condition No. 8—Maintenance of Improvements

The Licensee shall maintain all its improvements and premises on NFS land to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the US Forest Service. The Licensee shall comply with all applicable Federal, State, and local laws and regulations, 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.

Condition No. 9—Signs

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

Condition No. 10—Safety During Project Construction Plan

At least 60 days prior to any ground disturbing activity related to new Project construction on or affecting NFS land, the Licensee shall file with the Commission a Safety During Construction Plan approved by the US Forest Service that identifies potential hazard areas and measures necessary to protect public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities. The Licensee shall perform daily (or on a schedule otherwise agreed to by the US Forest Service in writing) inspections of Licensee's construction operations on NFS land while construction is in progress.

The Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to the US Forest Service on a schedule agreed to by the US Forest Service. The inspections must specifically include fire plan compliance, public safety, and environmental protection. The Licensee shall act immediately to correct any items found to need correction.

Condition No. 11—Indemnification, Risks and Hazards, and Damage to Lands, Property, and Interests of the United States

The Licensee shall indemnify, defend, and hold the United States harmless for any costs, damages, claims, liabilities, and judgments arising from past, present, and future acts or omissions of the Licensee in connection with the use and/or occupancy authorized by this License. This indemnification and hold harmless provision applies solely to any negligent acts and omissions of the Licensee or the Licensee's heirs, assigns, agents, employees, affiliates, subsidiaries, fiduciaries, contractors, or lessees in connection with the use and/or occupancy authorized by this License which result in: (1) violations of any laws and regulations which are now or which may in the future become applicable, and including, but not limited to environmental laws, such as the Comprehensive Environmental Response Compensation and Liability Act, Resource Conservation and Recovery Act, Oil Pollution Act, Clean Water Act, Clean Air Act; (2) judgments, claims, demands, penalties, or fees assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the

environment. The provisions of this condition do not apply to any damages, judgments, claims, or demands arising out of the negligence, recklessness, or willful misconduct of the United States or other third parties or to damages, judgments, claims, or demands arising out of any activity initially occurring outside the Project boundary or outside NFS land. The Licensee's liability hereunder shall be limited to reasonable damages, costs, claims, and judgments.

The Licensee is responsible for periodically inspecting (in accordance with good utility practice) its Project site, right-of-way, and immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions. Licensee shall abate those conditions, except those caused by third parties not related to the occupancy and use authorized by the License, after securing permission from the US Forest Service, except in an emergency where there is an imminent risk of death or injury to the public or facilities, in which case the Licensee shall notify the US Forest Service of the action as soon as possible.

The extent of the Licensee's liability for fire and other damages to NFS land shall be determined in accordance with standard L-Form Articles 22 and 24 of this License and the liability standard shall be determined in Federal Court by using applicable South Dakota State Law.

Condition No. 12—Road Use by Government

The United States shall have unrestricted use of any road constructed within the Project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of NFS land or resources and shall have the right to extend rights and privileges of use of such road to states and local subdivisions thereof, as well as to other users, including members of the public, except contractors, agents, and employees of the Licensee; provided that the agency having jurisdiction shall control such use as to not unreasonably interfere with the safety or security uses, or cause the Licensee to bear a share of the costs of maintenance greater than the Licensee's use of the road.

Condition No. 13—Road Use

The Licensee shall confine all Project vehicles, including but not limited to, administrative and transportation vehicles, and construction and inspection equipment, to roads or specifically designed access routes. The US Forest Service reserves the right to close any and all such routes where damage is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use.

Condition No. 14—Access

The US Forest Service reserves the right to use or permit others to use any part of the licensed area on NFS land for any purpose, provided such use does not interfere with the rights and privileges authorized by this License or the Federal Power Act.

Condition No. 15—Invasive Plant, Noxious Weed and Aquatic Nuisance Species Management Plan

Within six months from the date of the issuance of a new License for the Project, the Licensee shall file with the Commission an Invasive Plant, Noxious Weed and Aquatic Nuisance Species Management Plan that is approved by the US Forest Service. This Plan is intended to reduce the infestation and spread of invasive plants, noxious weeds and aquatic nuisance species. At a minimum the Plan shall include the following requirements to be implemented by the Licensee:

- Identify methods for prevention and control of noxious weeds within the Project area. Treatment of existing infestations of highest priority weeds shall be initiated immediately upon approval of the plan by the Commission.
- Clean all construction equipment thoroughly before entering areas addressed by the Plan to reasonably ensure that seeds of invasive plants and noxious weeds are not introduced.
- Restrict travel to established roads and trails when possible, and avoid entering areas with existing populations of invasive plants or noxious weeds. If entering such areas is required, conduct work in uninfested areas first when possible.
- Minimize ground disturbance during Project operations and maintenance (O&M). When ground disturbance is required, dispose of any resulting spoils on-site, grading to match local contours and reseed with a mix of native species approved by the US Forest Service. If fill is required for O&M activities, use fill collected onsite whenever possible, and reseed the disturbed area as described above. All seeding should be conducted immediately following disturbance. Seeding needs to be done in conjunction with proper seedbed preparation such as harrowing or tilling the soil surface.
- Use certified weed-free straw or rice straw for all construction, erosion control, or restoration needs.
- Develop a monitoring program to evaluate the effectiveness of re-vegetation, vegetation control, and invasive plant and noxious weed control measures. Provide specific methods for monitoring and evaluation. At a minimum, surveys shall be conducted every three years.
- Develop procedures for identification of additional measures that the Licensee shall implement if monitoring reveals that re-vegetation and vegetation control is not successful or does not meet intended objectives.

- Equipment used for all activities conducted within the stream channel or reservoir, such as but not limited to stream flow measurement or the collection and transport of fish, shall be disinfected, cleaned or adequately dried to eliminate the potential introduction or spread of aquatic nuisance species, if this equipment has been used outside of the Spearfish Creek drainage.

Condition No. 16—Protection of Threatened, Endangered, Proposed for Listing, Sensitive Species and Species of Local Concern Plan

At least 60 days prior to any activity that may affect a Federally listed or proposed species and their critical habitat, or US Forest Service sensitive species or Species of Local Concern and their habitat on NFS land, the Licensee shall file with the Commission a Threatened, Endangered, Proposed for Listing, Sensitive Species, and Species of Local Concern Plan that is approved by the US Forest Service in consultation with appropriate Federal and State agencies. This Plan shall describe how the Licensee shall coordinate, consult, and prepare a biological assessment and evaluation evaluating the potential impact that any action may have on listed, proposed, sensitive species, or Species of Local Concern and their habitat. The Licensee shall implement all mitigation measures and Reasonable and Prudent Alternatives required in any Biological Opinion rendered by the US Fish and Wildlife Service or other regulatory agency.

At a minimum the Plan shall:

- Develop procedures to avoid/minimize adverse effects to listed species and other Special Status Species
- Ensure that Project-related activities shall meet restrictions included in site management plans for listed species and other Special Status Species
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to listed species and other Special Status Species
- Update the Plan as new information is obtained in consultation with the agencies and submitting the updated Plan to the Commission for approval
- Identify required elements contained within a biological assessment and evaluation

Condition No. 17—Spearfish Hydroelectric Project Minimum Flow Release Schedule

(a) The Licensee shall maintain an instantaneous minimum flow release into the bypassed reach of Spearfish Creek in accordance with the following schedule in Table 1:

Table 1. Spearfish Hydroelectric Project Minimum Flow Release Schedule

Season	Average Powerhouse Flow	Minimum Flow Release
Oct. 1 through Apr. 30	n/a	6 cfs
May 1 through Sep. 30	> 40 cfs	4 cfs
	> 35 cfs, but ≤ 40 cfs	3 cfs
	> 30 cfs, but ≤ 35 cfs	2 cfs
	≤ 30 cfs	1 cfs

For purposes of Table 1, the column “Minimum Flow Release” means the required instantaneous minimum flow release to be provided and measured at Maurice Dam via a bypass release structure designed, approved, and constructed in accordance with paragraph (b), below.

Also for purposes of Table 1, the column “Average Powerhouse Flow” means the average of each daily average rate of flows at the Project powerhouse generating units over each seven-day period (Monday through Sunday), as measured and calculated by the Licensee, from May 1 through September 30 each year.

During the May 1 through September 30 time period each year, the Minimum Flow Release shall be determined and adjusted on a weekly basis (beginning each Monday) according to the Average Powerhouse Flow in Table 1. Reductions in the Minimum Flow Release shall only occur on the Monday after the Average Powerhouse Flow for the immediate previous seven day period has dropped to the next lower threshold value in Table 1. Once the Minimum Flow Release is reduced, it shall remain at the reduced level or lower, as per the schedule in Table 1, until September 30. Beginning October 1 each year, the Minimum Flow Release shall be raised to 6 cfs, regardless of the Average Powerhouse Flow.

(b) Within six months of the effective date of the License, the Licensee shall submit for Commission approval a Minimum Flow Release structure plan that shall include a design for a bypass release structure capable of providing the Minimum Flow Releases prescribed in Table 1, Condition 17(a). The design plan shall be developed in consultation with and approved by the South Dakota Department of Environment and Natural Resources (“DENR”) and the US Forest Service (“USFS”). The Licensee shall allow a minimum of 30 days for DENR and USFS to review the plan before it is filed with the Commission. The Commission reserves the right to require changes to the plan.

(c) Following the approval of the design plan by the Commission, DENR, and USFS as set forth in paragraph (b), above, the Licensee shall construct the bypass release structure as approved by the Commission. The Licensee shall exercise best efforts, accounting for

public safety and seasonal limitations, to complete construction and operation of the bypass release structure within six months after obtaining all approvals of the design plan. The Licensee's obligations to maintain minimum flows under this Condition shall commence upon final construction, inspection, and testing of the bypass release structure at Maurice Dam.

(d) The Minimum Flow Release requirements under this Condition may be temporarily modified or suspended if required by operating emergencies beyond the control of the Licensee, and for short periods upon mutual agreement between the Licensee, DENR, and USFS. If the flow is so modified, the Licensee shall notify the USFS and DENR as soon as practicable, but no later than 2 business days after each such incident, and shall notify the Commission within 10 days after each such incident, and shall provide the reason for the modified flow. For purposes of this paragraph (d), operating emergencies include freezing conditions in Spearfish Creek that prevent the City from providing the full Minimum Flow Release at Maurice Dam. In the event of such freezing conditions, the Licensee shall take all reasonable and prudent measures, accounting for public and personnel safety and applicable water quality and other environmental regulatory requirements, to de-ice the system and reinstate flows.

Condition No. 18—Minimum Flow Release and Instream Flow Measurement Plan

Within six months of the effective date of the License, the Licensee shall submit for Commission approval plans for the installation, maintenance, and operation of a bypass release measurement device with continuous recording capability at the bypass release structure at Maurice Dam to demonstrate compliance with the Minimum Flow Release requirements in Condition 17. The plan shall also include provisions for continuous monitoring and recording of flows at the Project powerhouse generating units, which will be used to determine the Average Powerhouse Flow values in Table 1 of Condition 17. The plan shall also include methods for calculating the seven-day Average Powerhouse Flow in Table 1 of Condition 17. The plan shall be developed in consultation with and approved by the USFS and DENR prior to approval of the measurement plan by the Commission. The Licensee shall allow a minimum of 30 days for DENR and the USFS to review the plan before it is filed with the Commission. The Commission reserves the right to require changes to the plan.