UNITED STATES OF AMERICA 116 FERC ¶62,112
FEDERAL ENERGY REGULATORY COMMISSION

Grand River Dam Authority Project No. 2183-035

ORDER ISSUING NEW LICENSE

(August 9, 2006)

INTRODUCTION

1. On June 2, 2003, Grand River Dam Authority (GRDA), filed an application for a new major license pursuant to sections 4(e) and 15 of the Federal Power Act (FPA)[1] to continue operation and maintenance of the 108-megawatt (MW) Markham Ferry Hydroelectric Project No. 2183 (Markham Ferry Project). The project is located on the Grand River[2] (also known as the Neosho River) in Mayes County, Oklahoma. The project does not occupy federal land. As discussed below, I am issuing a new license for the project.

BACKGROUND

2. The Commission issued the original license for the project on June 22, 1955, and the license expired on May 31, 2005.[3] Since then, GRDA has operated the project under an annual license pending the disposition of its new license application.

3. Notice of the application was published in the Federal Register on March 3, 2004. The U.S. Department of Energy's Southwestern Power Administration filed a timely motion to intervene.[4] The intervention does not oppose the project.

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[1] U.S.C §§ 797(e) and 808 (2000).

[2] The Grand River is a navigable waterway of the United States. 14 FPC 815 (1955).

[3] 14 FPC 815 (1955).

[4] The motion was timely, unopposed, and therefore automatically granted. 18 C.F.R. § 385.214(c)(1). Edward Beattie and Walter Bailey, Jr., also intervened, jointly, in the proceeding, but they withdrew their intervention by letter filed April 22, 2005.

4. On June 20, 2005, 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 the U.S. Department of the Interior (Interior) on August 17, 2005. Interior's Fish and Wildlife Service (also referred to as Interior in this order) filed supplemental comments on January 6, 2006.

5. An Environmental Assessment (EA) was prepared by Commission staff and issued on February 17, 2006. The U.S. Geological Survey, Interior, GRDA, and the State of Oklahoma's Office of Attorney General, on behalf of the Oklahoma Department of Wildlife Conservation (Oklahoma DWC), filed comments on the EA.[5] Their substantive comments are discussed below.

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

PROJECT DESCRIPTION

7. The existing Markham Ferry Project consists of: (1) the 3,744-foot-long, 90-foot-high Kerr dam, which includes a 2,256-foot-long, 90-foot-high earthen embankment on its northern side, and a 1,388-foot-long concrete non-overflow section and spillway on its southern side. Kerr dam impounds the 15-mile-long, 10,900-acre project reservoir (Lake Hudson). The project powerhouse is integral with the dam and contains four generating units with a total installed generating capacity of 108 MW, producing an average of 257,000 megawatt-hours (MWh) annually. The project also includes the 6,200-foot-long by 45-foot-high Salina dike located about 4 miles upstream on the eastern side of Lake Hudson, which protects the Town of Salina from inundation. A more detailed project description is contained in ordering paragraph (B)(2).

8. The project boundary generally follows the 636-foot mean sea level (msl) elevation contour line, steps up to elevation 642 feet msl in the upper reaches of the reservoir, and expands to include lands around the project dam, powerhouse, dike, and other project facilities in the vicinity of the dam.

9. GRDA operates the Markham Ferry Project with Grand River flows that are available within the constraints of the Department of the Army, Corps of Engineer's

[5] On May 2, 2006, GRDA filed a response to the resource agency comments on the EA. On July 10, 2006, and July 18, 2006, Oklahoma DWC and Interior, respectively, filed reply comments on GRDA's May 2 letter.

(Corps), flood control restrictions[6] and in coordination with operation of GRDA's upstream Pensacola (FERC Project No. 1494)[7] and adjacent Salina Pumped Storage (FERC Project No. 2524)[8] projects.

10. GRDA controls operation of the Markham Ferry Project from its energy control center located at Kerr dam when the project's pool (Lake Hudson) elevation is at or below 619 feet msl, the normal pool elevation. During non-flood periods, GRDA attempts to maintain Lake Hudson water levels at or below the 619 foot elevation. The Corps directs flow releases from Lake Hudson when the pool elevation is between 619 and 636 feet msl (the top of the flood storage pool) to coordinate and control flows and water levels on the Arkansas River downstream. Although the Corps controls flow releases from Lake Hudson at elevations above 619 feet msl, the Markham Ferry Project uses the flow to generate electricity and minimize spill to the extent possible.

11. Lake Hudson also serves as the lower reservoir for the Salina Pumped Storage Project. As such, Lake Hudson water is pumped to the Salina Project during off-peak hours resulting in a reservoir drawdown of 0.5 foot. During peak hours, water is released from the Salina Project resulting in a 0.5-foot water level increase on Lake Hudson. Normal daily variations in Lake Hudson when no flood control is occurring are about 1 foot (0.5 foot on either side of elevation 619 feet msl), and can extend up to 3.6 feet (1.83 feet below to 1.75 feet above 619 feet msl) due to variations in available inflow from the Pensacola and the Salina projects, variations in power generation needs (peak and off-peak), maintenance activities, and Corps' flood control management actions.

12. Project releases are initially made through the powerhouse. During periods when high flows exceed the powerhouse's hydraulic capacity of 28,000 cfs, releases are made through both the powerhouse and the spillway. GRDA proposes to continue operating the project as described above and proposes no increased capacity or new facilities.

WATER QUALITY CERTIFICATION

13. 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

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[6] The Corps directs operations of the Pensacola, Markham Ferry, and Fort Gibson (located downstream of Markham Ferry) reservoirs for flood protection to the lower Grand (Neosho) and Arkansas River valleys. All three reservoirs were authorized by the Flood Control Act approved August 18, 1941.

[7] 59 FERC ¶62,073 (1992).

[8] 35 FPC 3 (1966).

unless the state water quality certifying agency either has issued water quality certification (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 1 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]

14. On January 6, 2003, GRDA applied to the Oklahoma Department of Environmental Quality (Oklahoma DEQ) for water quality certification for the Markham Ferry Project, which the Oklahoma DEQ received on the same date. On March 7, 2003, the Oklahoma DEQ issued certification for the Markham Ferry Project. The certification includes the following three conditions: (1) the certification does not authorize the discharge or dredging of soil materials in or into Lake Hudson; (2) the operation or "power pool level" of Lake Hudson, shall not be maintained above the elevation 621-foot-msl contour;[11] and (3) emergency and routine maintenance shall be permitted under the appropriate Corps permit. The conditions of the certification are set forth in Appendix A of this order and incorporated into the license by ordering paragraph D.

SECTION 18 FISHWAY PRESCRIPTION

15. Section 18 of the FPA,[12] 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.

16. By letter filed August 17, 2005, Interior indicates that section 18 prescriptions are not anticipated because fish passage is not practical for the project. Interior states that the project is surrounded by a series of reservoirs and installing fish passage at the Markham Ferry Project would only allow fish to access Lake Hudson and its lake habitat, which is similar to downstream lake habitat that is already accessible. Consequently, Interior did not reserve its authority to prescribe fishways pursuant to section 18 of the FPA.

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[9] 33 U.S.C. § 1341(a)(1).

[10] 33 U.S.C. § 1341(d).

[11] In its initial consultation document, GRDA indicated that it may request an increase in the upper elevation of the normal operating pool for the project reservoir. This proposal is not included in the license application or subsequent filings. Therefore, staff considers the maximum reservoir elevation during normal operating conditions to be 619 feet msl, consistent with the current license.

[12] 16 U.S.C. § 811.

THREATENED AND ENDANGERED SPECIES

17. Section 7(a)(2) of the Endangered Species Act of 1973 (ESA)[13] 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.

18. In its comment letter dated January 14, 2003, Interior indicated that the federally endangered American burying beetle and gray bat and the federally threatened bald eagle may occur in, or downstream of, the project area. In addition, GRDA mentioned that Interior's Fish and Wildlife Service's field office in Tulsa, Oklahoma, has identified the federally threatened Ozark cavefish and piping plover as occurring in Mayes County.

19. The EA recommended that GRDA implement measures for protecting bald eagle nesting and roosting habitat, surveying for the American burying beetle before significant ground disturbance, and surveying for and protecting cave areas suitable for the gray bat near proposed project-related development.

20. The EA found that relicensing the project with the EA-recommended measures would not likely adversely affect the threatened bald eagle, endangered American burying beetle, and endangered gray bat and would have no effect on the Ozark cavefish and piping plover. Interior concurred in a letter filed March 20, 2006. Article 403 requires the licensee to develop and implement a threatened and endangered species management plan that includes the protection measures identified above.

NATIONAL HISTORIC PRESERVATION ACT

21. Under section 106 of the National Historic Preservation Act (NHPA)[14] and its implementing regulations,[15] 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 to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

22. To satisfy these responsibilities, on June 19, 2006, the Commission executed a Programmatic Agreement (PA) with the Oklahoma State Historic Preservation Officer (SHPO) and invited the Oklahoma Archaeological Survey and GRDA to concur with the

[13] 16 U.S.C. § 1536(a).

[14] 16 U.S.C. § 470 et seq.

[15] 36 C.F.R. Part 800 (2006).

stipulations of the PA. The Oklahoma Archaeological Survey concurred. The PA requires the licensee to prepare and implement a Historic Properties Management Plan (HPMP). Execution of the PA demonstrates the Commission's compliance with section 106 of the NHPA. Article 404 requires GRDA to implement the PA and to file its HPMP with the Commission within 18 months of license issuance. The HPMP will include, among other things, measures to protect or minimize project-related effects (such as, project-induced erosion and shoreline use on cultural resources.

23. The EA recognized that GRDA did not conduct cultural resource field surveys when preparing its license application, but in the application proposed to locate and identify archaeological resources and historic structures and buildings within the perimeter of Lake Hudson up to elevation 622 feet msl, which corresponds to the upper limit of GRDA's fee title ownership. The EA, however, recommended the survey include all lands within the project boundary (i.e., up to the 636 or 642 msl contour elevation; as appropriate) because project-related effects on cultural resources such as water level fluctuations and shoreline use can occur on lands above the 622-foot elevation. Therefore, the HPMP requires GRDA to, at a minimum; identify historic properties within the entire project boundary.

24. In its comments on the EA, GRDA disagrees with this EA recommendation stating that the cost of the survey would be excessive and that it would be difficult to contact all the landowners to receive permission to access their land for the survey.

25. The EA recognized that a broader survey would be more costly ($90,000 versus $30,000) than the one proposed by GRDA. However, in designing the survey, it will likely be found that only certain areas need to be surveyed in the field as there are typically areas with a low probability of containing cultural resources or where cultural resources are likely to exist but are not in danger of being affected. Nonetheless, such a survey is needed to ensure the Commission can meet its section 106 responsibilities. Regarding obtaining access to non-GRDA land, it is expected that to the extent that GRDA's property rights do not provide for such access, GRDA will make a reasonable effort to receive permission from landowners to gain access.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

A. Recommendations Pursuant to Section 10(j) of the FPA

26. Section 10(j)(1) of the FPA,[16] requires the Commission, when issuing a license, to include conditions based on recommendations by federal and state fish and wildlife

[16] 16 U.S.C. § 803(j)(1).

agencies submitted pursuant to the Fish and Wildlife Coordination Act,[17] to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

27. If the Commission believes that any such recommendation may be inconsistent with the purposes and requirements of Part I of the FPA or other applicable law, section 10(j)(2) requires the Commission and the agencies to attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agencies.[18] If the Commission still does not adopt a recommendation, it must explain how the recommendation is inconsistent with Part I of the FPA or other applicable law and how the conditions imposed by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources.

28. In response to the June 20, 2005 public notice that the project was ready for environmental analysis, Interior, on August 17, 2005, filed five recommendations. Three recommendations were determined to be outside the scope of section 10(j) and are discussed in the next section. This license includes a condition consistent with one of the remaining two recommendations that are within the scope of section 10(j): to implement threatened and endangered species management measures (Article 403).

29. Commission staff made an initial determination that Interior's recommendation for off-site wetland restoration may be inconsistent with the substantial evidence standard of section 313(b) of the FPA. By letter dated February 17, 2006, Commission staff advised Interior of its preliminary determination and attempted to resolve the apparent inconsistency. By letter dated March 17, 2006, Interior requested a teleconference to attempt to resolve the inconsistency. A meeting was held on April 20, 2006, to try to resolve the inconsistency, but no resolution could be reached.

30. The EA found that although an inventory has been conducted of project shoreline habitats, there is no information in the record on the quality of these shoreline habitats, nor is there information in the record quantifying a project effect on habitat quality from reservoir drawdowns or shoreline use. In addition, the EA notes that Interior's recommendation for off-site mitigation of 220 habitat units is based on assumed values for existing and potential shoreline habitat values at the project. Therefore, Commission staff had no basis on which to recommend the off-site mitigation of 220 habitat units. Consequently, the EA recommended protection of shoreline habitat, if needed, on-site

[17] 16 U.S.C. §§ 661 *et seq*.

[18] 16 U.S.C. § 803(j)(2).

and in the context of a shoreline management plan, which would classify appropriate uses for specific shoreline areas and protect areas with important habitat values.

31. The EA recognized that Interior recommended this off-site measure because managing project land at the Markham Ferry Project is reportedly not practical because of poor access and the high cost of fencing, posting, and enforcing regulations.

32. During the teleconference, Interior reiterated that the project's shoreline has been adversely impacted by unauthorized grazing, shoreline erosion, and the daily 1- to 2-foot fluctuating lake levels. GRDA and Oklahoma DWC agreed that unauthorized grazing is occurring along the shoreline. Interior and Oklahoma DWC also believe that water surface fluctuations limit the ability of desirable wetland plant species to become established. GRDA does not agree that lake level fluctuations from project operation are adversely affecting wetlands along the project's shoreline.

33. Interior and Oklahoma DWC reiterated their earlier comments that it would be more efficient and effective to enhance wetland habitat off-site rather than at the Markham Ferry Project. The agencies believe that wetland restoration at other nearby locations would be less expensive and more efficient. They believe it would be difficult to control grazing along Lake Hudson, and establish an effective wetland/wildlife management site along the project's narrow shoreline corridor. GRDA indicated that it was not necessarily opposed to Interior's off-site wetland mitigation recommendation.

34. On May 8, 2006, in support of Interior's off-site wetland measure, Oklahoma DWC filed video documentation of the project's shoreline, primarily showing ongoing adverse effects of cattle grazing.[19]

35. Based on the teleconference and information filed subsequent to the teleconference, adequate information is available to determine that unauthorized activities are adversely affecting the project's shoreline. However, no additional information has been provided to support the recommendation for the establishment of 220 habitat units off site. Instead, the shoreline management plan (Article 406) required in this license includes among other requirements, a provision for identifying and protecting valuable shoreline habitat areas such as wetlands and bottomland hardwoods at the project. The

[19] On July 18, 2006, Interior filed comments on the Commission's May 2, 2006, summary of the 10(j) teleconference. Interior provided corrections to several of its statements as they appeared in the summary, and reiterated its belief that shoreline management at the project would be difficult and that off-site management of lands for wildlife would be more effective and economical.

shoreline management plan will be developed and implemented in consultation with Interior and Oklahoma DWC.

36. For the above reasons, I conclude, in accordance with FPA section 10(j)(2)(A), that Interior's recommendation is inconsistent with the substantial evidence standard of section 313(b) of the FPA. In accordance with section 10(j)(2)(B) of the FPA, I find that the measures required by this license will adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources affected by this project.

B. Recommendations Pursuant to Section 10(a)(1) of the FPA

37. Interior made three recommendations that are not specific measures to mitigate damages to, or enhance fish and wildlife. [20] Consequently, I do not consider these recommendations under section 10(j) of the FPA. Instead, I consider these recommendations under the broad comprehensive-development standard of FPA section 10(a)(1).[21]

38. I have adopted one of Interior's recommendations to require GRDA to develop and implement a comprehensive shoreline management plan (Article 406).

39. I did not adopt Interior's recommendation to implement a plan for all of the enhancement measures recommended by Oklahoma DWC.[22] Instead, this license

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[20] Interior's recommendation to test flow releases to determine the volume and timing of releases needed to meet state water quality standards is a study that could have been completed during pre-filing consultation. Interior's recommendations to develop and implement a plan for all enhancement measures recommended by Oklahoma DWC, and to develop a comprehensive shoreline management plan are not appropriate 10(j) recommendations because the recommendations are not specific measures for the protection, mitigation, or enhancement of fish and wildlife.

[21] 16 U.S.C. § 803(a)(1). Section 10(a)(1) 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.

[22] At the time Interior made its recommendation Oklahoma DWC had not filed such a plan with the Commission. Subsequently, Interior stated in its comments on the EA that it was referring to a draft plan that had been developed in negotiations with GRDA and the resource agencies and that a similar plan was being filed by Oklahoma

requires an aquatic resources enhancement plan to be developed in consultation with the Oklahoma DWC and Interior (Article 402). This plan is discussed below.

40. Interior's recommendation to require GRDA to test flow releases is discussed in the next section.

COMMENTS ON THE EA

Aquatic Resources Enhancement Plan

41. The EA found that a combination of factors such as reservoir level fluctuations, entrainment losses, low dissolved oxygen levels, and over-fishing could be causing relatively low recruitment rates, and poor growth and condition of some Lake Hudson game fish species. To address this issue, the EA recommended that GRDA prepare an aquatic resources enhancement plan and that planting vegetation in the near-shore areas of Lake Hudson and stocking of game fish species could be part of such a plan. The EA indicated that planting emergent vegetation could improve recruitment success of some of the lake's species by improving spawning and rearing habitats. The EA also noted that adjusting the timing and magnitude of fluctuations through water level management measures could help ensure that reservoir fluctuations are minimized during important spawning and rearing periods.

42. In its comments on the EA, Oklahoma DWC contends that fish losses from the project reservoir due to entrainment are greater than those estimated by Commission staff and that these losses contribute to the low numbers and poor condition of certain fish species. To address these effects, Oklahoma DWC submitted an aquatic enhancement proposal that includes provisions for aquatic vegetation planting, stocking of hybrid striped bass, fish population studies, and angler surveys. Oklahoma DWC also recommends that a water level management plan be developed for Lake Hudson that would reduce the magnitude and frequency of lake level fluctuations. In its comments on the EA, Interior recommends that the Commission adopt Oklahoma DWC's aquatic enhancement proposal as a license condition. GRDA did not comment on the specifics of Oklahoma DWC's proposal but stated that a submergent plant program has been initiated on Grand Lake at the Pensacola Project.

43. The enhancement measures discussed in the EA are similar to some of the measures included in the Oklahoma DWC plan. The Oklahoma DWC plan also includes provisions for fish population monitoring and creel surveys. Measures such as these

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DWC in their comments on the EA. The Oklahoma DWC plan was filed on March 20, 2006.

would provide valuable feedback as to the effectiveness of the vegetation plantings, game fish stocking and water level management measures that are developed as part of an enhancement plan. Therefore, Article 402 requires that GRDA develop in consultation with Interior and Oklahoma DWC an aquatic resource enhancement and monitoring plan that includes measures for aquatic vegetation planting, stocking game fish species, and water level management; and fish population monitoring and creel surveys to evaluate the effectiveness of the measures.

Water Quality

44. The EA did not recommend adopting Interior's recommendation to test flow releases from the project to determine the volume and timing of releases necessary to meet water quality standards for dissolved oxygen in the project tailrace and to estimate these test flows' impacts on reservoir water levels using Corps models. Instead, the EA recommended a dissolved oxygen monitoring and enhancement plan using an adaptive management approach. The EA-recommended plan would include consideration of additional testing of the effects of various flow release scenarios on dissolved oxygen downstream of the project dam as recommended by Interior as well as other potential remedies such as various mechanical enhancement measures that could address project effects on dissolved oxygen.

45. In their comments on the EA, Interior and Oklahoma DWC continued to recommend that flow releases from the spillway gates be tested at the project for their ability to enhance dissolved oxygen levels and stated that releasing flows from the spill gates would provide the greatest potential for improving dissolved oxygen concentrations downstream of the project dam. Interior and Oklahoma DWC stated that releases through a small gate opening have been very effective at several Oklahoma reservoirs with hydropower operations including Ft. Gibson Lake located on the Grand (Neosho) River downstream of the Markham Ferry Project. Interior stated that flows released through spill gates would be more effective and less costly than other methods such as turbine releases and that inflow is not sufficient to make generation releases feasible in most years without affecting reservoir water levels.[23]

46. Attached to its comments, Oklahoma DWC included its recommended dissolved oxygen monitoring and enhancement plan. Oklahoma DWC's plan would allow GRDA, in consultation with the resource agencies, to evaluate various oxygen enhancement measures using an adaptive management approach similar to staff's recommendation in the EA. However, Oklahoma DWC's plan would require that the initial enhancement

[23] Interior indicated that they would not oppose dissolved oxygen enhancement options that included routing flows through a small turbine.

measure to be tested consist of a range of minimum flow releases [100, 300, and 500 cubic feet per second (cfs)].[24] In addition to the monitoring and testing provisions, the plan would require a guaranteed minimum flow of 300 cfs for the term of the license to be released through the spillway gates or some other mutually agreed upon release location to ensure water quality enhancement through the evaluation period unless certain conditions are met such as an agreement among the consulting parties that a flow release of less than 300 cfs is appropriate. The Oklahoma DWC plan also includes continuous water quality monitoring for the entire license term. Interior indicates its support for the dissolved oxygen enhancement plan recommended by Commission staff but believes that Oklahoma DWC's plan would meet the objectives of the Commission staff's recommendation and recommends that the Oklahoma DWC plan be adopted as a license article. GRDA did not comment on specific aspects of the Oklahoma DWC plan but states that there is no evidence that Oklahoma DWC's plan would be any more effective than the plan recommended by Commission staff and agreed to by GRDA.

47. The evidence provided by Interior and Oklahoma DWC supports the testing of continuous flow releases from spill gates or other mutually agreeable locations as a measure that should be evaluated as part of any dissolved oxygen mitigation plan. However, there is no basis for the guaranteed minimum flow provision of a 300-cfs release. Further, although Interior and Oklahoma DWC state that GRDA was involved in developing the plan, it is unclear whether GRDA supports the Oklahoma DWC plan in its entirety. Therefore, this license includes Article 401 which requires the licensee to develop and implement a plan to test continuous spill flow releases for their effectiveness at maintaining state standards for dissolved oxygen downstream of the Markham Ferry Project.

Procedural Concerns

48. Oklahoma DWC expressed concern that the EA only considered two alternatives; status quo and issuance of the license with GRDA's proposed measures. Oklahoma DWC recommended consideration of at least one additional alternative that would include provisions that incorporate defined and finalized mitigation plans. The EA considered the environmental effects of three different alternatives; the proposed action, the proposed action with additional staff-recommended measures, and no-action. In the EA, Commission staff recommended that several protection and enhancement plans be developed and implemented at the project. Consistent with Commission practice, this license requires that these plans be developed and finalized in consultation with the

[24] Interior notes GRDA agreed to evaluate the minimum flow releases at the Markham Ferry Project but those tests were never conducted. The estimated value of lost generation of spilling the test minimum flow releases would be about $20,400.

appropriate resource agencies. Under the National Environmental Policy Act of 1969 (NEPA), the range of alternatives that must be discussed in an environmental document is a matter within the agency's discretion.[25] A discussion of environmental alternatives need not be exhaustive and need only provide sufficient information to permit a reasoned choice of alternatives.[26]

49. Oklahoma DWC next disagrees with the Commission staff's finding that issuance of a new license with staff-recommended measures would not constitute a major federal action significantly affecting the quality of the human environment. It argues that, barring issuance of a revised EA with defined mitigation measures, an Environmental Impact Statement (EIS) must be prepared. The agency contends that the staff-recommended measures are not completely defined and thus it is not possible to determine whether the measures provide an adequate buffer so as to render the effects so minor as to not warrant an EIS.

50. NEPA does not require perfect information before the Commission may act.[27] The conditions of this license do require GRDA to adopt measures to mitigate the impacts of the Markham Ferry Project. The fact that the license may require studies to determine the methods for implementing the mitigation measures does not mean that this mitigation is speculative or undefined. As discussed above, it is customary for the Commission to include in project licenses a requirement for the licensee to develop and implement plans for the protection and enhancement of environmental resources in consultation with appropriate resource agencies. This license includes such plans for implementation of specific provisions for dissolved oxygen mitigation, aquatic resource enhancement measures, shoreline management, threatened and endangered species and recreation measures.

Heavy Metals

51. Interior and Oklahoma DWC expressed concern that dredging activities associated with shoreline development could re-suspend heavy metal contaminants and make them available for uptake by aquatic organisms. However, Interior indicated that its concerns regarding heavy metal contamination were not limited to dredging activities. Interior and Oklahoma DWC agreed with Commission staff's analysis in the EA that insufficient data of metals contamination in Lake Hudson currently exist to make an ecological risk

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[25] *See Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551-52 (1976).

[26] *See North Carolina v. Federal Power Commission*, 533 F.2d 702 (1976).

[27] *See* U.S. Department of the Interior v. FERC, 952 F.2d 538 (1992).

assessment. Both agencies recommend that the license require GRDA to develop and implement a monitoring plan for sediment contamination. Interior and Oklahoma DWC recommend that sampling for metals in fish and sediments be conducted every 5 years to monitor the status of heavy metal contamination. In addition, Oklahoma DWC recommend that permits for sediment-disturbing activities be denied until the monitoring program and a shoreline management plan are implemented, that permits for sediment-disturbing activities be denied for areas containing contaminants at a level that would put aquatic and terrestrial resources at risk, and that the plan include provisions for coordinating future findings on contaminants into the shoreline management plan and endangered species plan.

52. Although the extent of heavy metal contamination of sediments in Lake Hudson was determined to be inconclusive based on studies to date, staff found that dredging associated with shoreline development activities could contribute to re-suspension and distribution of any contaminated sediments that are present. The EA did not identify any additional project activities that would likely contribute to re-suspension and distribution of any contaminated sediments. Therefore, monitoring sediments for contaminants every 5 years as recommended by Interior and Oklahoma DWC is not justified. Rather, this license integrates into the shoreline management plan (Article 406) a provision for sediment testing for contaminants if dredging is proposed.[28]

Bald Eagle Monitoring

53. The EA recommended that GRDA report to the Commission the results of bald eagle monitoring measures required as part of a threatened and endangered species management plan at intervals of 1, 3, 6, and every 6 years thereafter. In their comments on the EA, Interior and Oklahoma DWC recommend that a report summarizing monitoring activities be submitted annually to the agencies and the Commission. They argue that bald eagle nesting activity varies each year and more frequent reporting would help in making management decisions. Because the statewide population of bald eagles and bald eagle use of the project area has increased in recent years, I agree that changes in nesting and roosting activities could occur on an annual basis. Therefore, the threatened and endangered species management plan required by Article 403 includes a provision for an annual report on bald eagle monitoring results to be submitted to Interior and Oklahoma DWC and filed with the Commission.

Recreation Plan

[28] I note that condition number 1 of the water quality certification does not authorize the discharge or dredging of soil material in or into Lake Hudson.

54. Lake Hudson is heavily used for recreation. The EA notes that in 2004, Lake Hudson attracted over 1,000,000 visitors with fishing and boating being the primary activities. A combination of state, county, and GRDA facilities provide access to the lake. This includes an estimated 115 lake access sites, most of which are privately owned, 19 marinas, two state parks and one city park as well as an estimated 351 private boat docks.

55. Based on the most recent Commission Environmental and Public Use Inspection (EPUI) conducted on April 27, 2000, GRDA recreation facilities at the project include boating access sites above and below the dam, and boat ramps at several locations around the reservoir. The project recreation plan, however, has only had minor revision since it was approved in 1968 and does not include most of these GRDA sites.[29]

56. In its application, GRDA proposed no recreation-related measures. Subsequently, however, in response to staff requests for additional information, GRDA proposed to prepare a recreation plan that would include: (1) information on existing recreation facilities and use at Lake Hudson; (2) an assessment of the carrying capacity of Lake Hudson for various uses; (3) an estimate of future recreation trends and needs; and (4) an implementation strategy to improve recreation opportunities in coordination with GRDA's proposed shoreline management plan. GRDA acknowledges that recreational development at Lake Hudson has been left primarily to the private sector and the state, and that recreational use may have exceeded capacity at some locations on Lake Hudson. GRDA also notes that some of the infrastructure supporting recreation may need updating, and that conflicts between some user groups may be occurring.

57. The EA agreed that a recreation plan for the project is needed to better manage recreation and clarify the licensee's responsibilities. Oklahoma DWC and Interior concurred with the EA recommendation for a recreation plan and stated that a recreation plan should include measures for determining and quantifying existing and future recreational uses, including an assessment of reservoir boating use, and an evaluation of the capability of existing recreation facilities to meet future needs. This license, therefore, requires a recreation plan (Article 405) which, in addition to the measures proposed, will require GRDA to maintain the facilities it has provided at the project as indicated in the EPUI report. Moreover, Article 203, which requires a revised project boundary, requires GRDA to identify these project recreation areas.

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[29] Order approving Exhibit R; 39 FPC 561 (1968). The recreation plan was amended in 1998 to include a tailwater boat launch facility; 84 FERC ¶ 62,062 (1998).

ADMINISTRATIVE CONDITIONS

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.

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. The exhibit F drawings filed with the license application are approved and made part of this license. Article 202 requires the filing of these drawings.

60. The exhibit G drawings that were filed with the license application, do not meet the current Commission requirements for project boundary maps because a project boundary map must: (1) provide the project boundary data in a geo-referenced electronic format; (2) have three control points with latitude and longitude or state plane coordinates; and (3) be stamped by a Registered Land Surveyor. Article 203 requires the licensee to file revised Exhibit G drawings with the above requirements pursuant to 18 C.F.R. sections 4.39 and 4.41. The exhibit G drawings filed with the license application are not approved and are not made part of the license.

C. Transmission Lines

61. The original licensed project facilities include, among other things, a single 110-kilovolt (kV) transmission line connecting the step-up substation with the Markham Ferry Project's switching station. In the license application, GRDA noted that the 110-kV transmission line is not currently in use because the project is now directly integrated into the power distribution grid. The Commission's test for a primary line is that the line is used solely to transmit power from the licensed project to a load center, and that without the line there would be no way to transmit all the project power to market. Under this test, the line leading from a project ceases to be a primary line at the point it is no longer used solely to transmit power from the project to the interconnected grid.[30]

62. On January 10, 2005, GRDA filed a response to staff's additional information request regarding the regional transmission line system. GRDA stated that the 110-kV transmission line is de-energized and no longer used to transmit power from the licensed

[30] *See, e.g., Vermont Electric Generation & Transmission Cooperative, Inc. and North Hartland, LLC*, 104 FERC ¶ 61,151 at P 8 (2003) and the orders cited there.

project to a load center. GRDA also filed a transmission lines system map and the system one-line diagram showing project power flowing directly from the powerhouse to the substation which is connected to the regional grid by a double circuit distribution line. Since the single 110-kV transmission line is no longer a primary line as defined above, the transmission line will not be included in this new license as a licensed project facility.

D. Headwater Benefits

63. Some projects directly benefit from headwater improvements that were constructed by other licensees, by the United States, or by permittees. Article 204 requires the licensee to reimburse such entities for these benefits if they were not previously assessed and reimbursed.

E. Use and Occupancy of Project Lands and Waters

64. Requiring a licensee to obtain prior Commission approval for every use or occupancy of the project land would be unduly burdensome. Therefore, Article 407 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.

STATE AND FEDERAL COMPREHENSIVE PLANS

65. Section 10(a)(2)(A) of the FPA,[31] requires the Commission to consider the extent to which a hydroelectric project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.[32] Staff identified and reviewed nine comprehensive plans that address resources relevant to this project.[33] No conflicts were found.

APPLICANT'S PLANS AND CAPABILITIES

66. In accordance with sections 10(a)(2)(C) and 15(a) of the FPA,[34] Commission staff evaluated GRDA's record as a licensee for these areas: (A) conservation efforts; (B)

[31] 16 U.S.C. § 803(a)(2)(A).

[32] Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19.

[33] The list of applicable plans can be found in section IX of the EA for the project.

[34] 16 U.S.C. §§ 803(a)(2)(C) and 808(a).

compliance history and ability to comply with the new license; (C) safe management, operation, and maintenance of the project; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission services; (G) cost effectiveness of plans; and (H) actions affecting the public. I accept the staff's findings in each of the following areas.

A. Conservation Efforts

67. Section 10(a)(2)(C) of the FPA requires the Commission to consider the extent of electricity consumption efficiency improvement programs in the case of license applicants primarily engaged in the generation or sale of electric power, like GRDA. GRDA has contracted a service organization to perform infrared audits of buildings associated with major industrial energy customers, and based on these audits, recommends actions to mitigate energy losses. GRDA also encourages conservation of energy through its billing system. Staff concludes that GRDA complies with section 10(a)(2)(C) of the FPA.

B. Compliance History and Ability to Comply with the New License

68. In recent years, Commission staff reviewing the license application for the Markham Ferry Project has experienced considerable difficulty obtaining information from GRDA regarding aquatic resources, recreational facilities and use, cultural resources, and shoreline conditions. Often, Commission staff has had to reiterate its requests or send follow-up requests, asking for additional information or for further information to clarify or correct the previously submitted information.

69. Given these difficulties in obtaining necessary information from the licensee, I have decided that it would be appropriate for the new license to focus greater attention on GRDA's compliance with its new license requirements. To that end, I will require, in Article 501, that GRDA file a Hydropower Compliance Management Program for Commission review and approval. This should facilitate both GRDA's compliance and the Commission staff's review of that compliance. It should also make it easier to provide a prompt response to any compliance issues that may arise during the term of the new license. With this requirement, I believe GRDA can satisfy the conditions of a new license.

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

70. Staff has reviewed the licensee's record of management, operation, and maintenance of the project pursuant to the requirements of 18 C.F.R. Part 12 and periodic safety inspection reports. Staff concludes that the dam and other project works are safe

and that there is no reason to believe that GRDA cannot continue to safely manage, operate, and maintain these facilities under a new license.

D. Ability to Provide Efficient and Reliable Electric Service

71. Commission staff reviewed GRDA's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. GRDA has been operating the project in an efficient manner within the constraints of the existing license. Staff concludes that GRDA is capable of operating the project to provide efficient and reliable electric service in the future.

E. Need for Power

72. GRDA is a member of the Southwest Power Pool (SPP), which covers Nebraska; Kansas; and portions of Texas, Arkansas, Louisiana, Mississippi, and New Mexico. Peak loads for the region typically occur during the summer months. Energy growth in the SPP is projected to rise about 1.8 percent per year between 2005 and 2014, from 193,553 to 227,123 MWh. Staff concludes that the project's power, low cost, displacement of nonrenewable fossil-fired generation, and contribution to the SPP's diversified generation mix, would help meet a need for power in the region.

F. Transmission Services

73. The Markham Ferry Project does not have a primary transmission line that carries electric power generated from the project to the regional grid. Instead, the project's power flows directly into a double circuit distribution line through appurtenant facilities at the powerhouse. GRDA proposes no changes that would affect the capability of the project to connect to the regional grid to continue to serve delivery to the region.

G. Cost Effectiveness of Plans

74. GRDA proposes no new generating capacity at the Markham Ferry Project. The annual average flow of the Grand River exceeds the installed hydraulic capacity of the project about 5 percent of the time. Staff concludes that the project, as presently configured and as operated according to this order, is consistent with environmental requirements, and fully develops the economical hydropower potential of the site in a cost-effective manner.

H. Actions Affecting the Public

75. The project provides employment opportunities and attracts those interested in various forms of available recreation. The license includes various environmental and

recreational enhancement measures, which, along with the power to be generated by the project, will benefit the public.

PROJECT ECONOMICS

76. In determining whether to issue a new 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.*,[35] 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 Markham Ferry Project, we have considered two options: GRDA's proposal and the project as licensed herein. As proposed by GRDA, and consistent with the mandatory certification conditions, the annual cost of operating the project would be about $3,576,000, or $14.3/megawatt-hour (MWh). The annual power value, for the estimated annual generation of 250,671 MWh, would be $9,024,200 or $36.0/MWh).[36] To determine whether the proposed project is currently economically beneficial, staff subtracts the project's cost from the value of the project's power. Therefore, in the first year of operation, the project would cost $5,448,200 or $21.7/MWh less than the likely alternative cost of power.

78. As licensed herein with the certification conditions and staff measures,[37] the project would produce an average of 250,106 MWh of energy annually at a cost of $3,645,100 or $14.6/MWh. The annual value of the project's power would be $9,003,800 or $36.0/MWh. Therefore, in the first year of operation, the project would cost $5,358,700 or $21.4/MWh less than the currently available alternative power.

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[35] 72 FERC ¶ 61,027 (1995).

[36] The value of alternative power is based on information in GRDA's license application and adjusted to a more current value.

[37] Staff recommends a dissolved oxygen mitigation plan, aquatic resources enhancement plan, shoreline management plan, threatened and endangered species management plan, HPMP, and recreation plan.

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 capability to provide an almost instantaneous load-following response to dampen voltage and frequency instability on the transmission system, system-power-factor-correction through condensing operations, and a source of power available to help in quickly putting fossil-fuel based generating stations back on line following a major utility system or regional blackout.

COMPREHENSIVE DEVELOPMENT

80. Sections 4(e) and 10(a) of the FPA,[38] 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. I conclude based on the record for this proceeding, including the EA and the comments thereon, that licensing the Markham Ferry Project as described in this order would not constitute a major federal action significantly affecting the quality of the human environment.

82. Based on our independent review and evaluation of the Markham Ferry Project, recommendations from the resource agencies and other stakeholders, and the no-action alternative, as documented in the EA, I have selected the Markham Ferry Project, with the certification conditions, and with the additional staff-recommended measures, and find that it is best adapted to a comprehensive plan for improving or developing the Grand River.

83. I selected this alternative because: (1) issuance of a new license will serve to maintain a beneficial, dependable, and an inexpensive source of electric energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreational resources, and historic properties; and (3) the 108-MW of electric energy generated from a renewable resource will continue to offset the use of fossil-fueled, steam-electric generating plants, thereby conserving nonrenewable resources and reducing atmospheric pollution.

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[38] 16 U.S.C. §§ 797(e) and 803(a)(1).

LICENSE TERM

84. Section 15(e) of the FPA,[39] provides that any new license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years or more than 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. This license authorizes no new construction or new capacity, and only a minor amount of new environmental mitigation measures. Consequently, a 30-year license term for the Markham Ferry Project is appropriate.

The Director orders:

(A) This license is issued to Grand River Dam Authority (licensee) for a period of 30 years, effective the first day of the month in which this order is issued, to operate and maintain the Markham Ferry Hydroelectric 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 drawings filed on June 2, 2003.

Exhibit G Drawings	FERC No. 2183-	Description
Sheet 1	1001	Land Map 1
Sheet 2	1002	Land Map 2
Sheet 3	1003	Land Map 3
Sheet 4	1004	Land Map 4
Sheet 5	1005	Land Map 5
Sheet 6	1006	Land Map 6
Sheet 7	1007	Land Map 7
Sheet 8	1008	Land Map 8

[39] 16 U.S.C.§ 808(e).

Sheet 9	1009	Land Map 9
Sheet 10	1010	Land Map 4
Sheet 11	1011	Land Map 11
Sheet 12	1012	Land Map 12
Sheet 13	1013	Land Map 13
Sheet 14	1014	Land Map 14
Sheet 15	1015	Land Map 15
Sheet 16	1016	Land Map 16
Sheet 17	1017	Land Map 17
Sheet 18	1018	Land Map 18
Sheet 19	1019	Land Map 19
Sheet 20	1020	Land Map 20
Sheet 21	1021	Land Map 21
Sheet 22	1022	Land Map 22
Sheet 23	1023	Land Map 23
Sheet 24	1024	Land Map 24
Sheet 25	1025	Land Map 25
Sheet 26	1026	Land Map 26
Sheet 27	1027	Land Map 27
Sheet 28	1028	Land Map 28
Sheet 29	1029	Land Map 29
Sheet 30	1030	Land Map 30
Sheet 31	1031	Land Map 31
Sheet 32	1032	Land Map 32

(2) The project works consisting of: (1) the 3,744-foot-long, 90-foot-high Kerr dam, including: (a) a 2,256-foot-long, 90-foot-high earthen embankment on its northern side with a crest elevation of 645 feet mean sea level (msl), (b) a 1,388-foot-long concrete non-overflow section with a crest elevation at 642 feet msl, and (c) an 824-foot-long gated spillway with a crest of 599 feet msl topped with 17, 40-foot-long by 27-foot-high, steel Taintor gates and two 80-ton capacity traveling gate hoists; (2) a concrete

powerhouse integral with the dam containing four generating units with a total installed generating capacity of 108 MW; (3) the 15-mile-long, 10,900-acre Lake Hudson, with a normal elevation of 619 feet msl; (4) the 6,200-foot-long by 45-foot-high Salina dike with a crest elevation of 642.25 feet msl; and (5) 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: Pages A-1 through A-3 filed on June 2, 2003.

Exhibit F: The following sections of exhibit F filed on June 2, 2003:

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 1	1033	General Map
Sheet 2	1034	Site Map
Sheet 5 [40]	1035	Plan And Elevation
Sheet 6	1036	Earth Embankment
Sheet 7	1037	North Non-Overflow Section
Sheet 8	1038	Intermediate Non-Overflow Section And Inspection Gallery Sump
Sheet 9	1039	South Non-Overflow Section
Sheet 10	1040	Reinforcing Details-Cable Tunnel, Inspection Gallery, and Access Openings
Sheet 11	1041	Spillway Section-Plan, Elevation and Section
Sheet 12	1042	Spillway Section-Pier Reinforcing

[40] Sheets 3 and 4 showing hydrographs for 1927 – 1993, and for 1964 – 2000, respectively, do not show project structures and therefore are not approved in this license.

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 13	1043	Spillway Section-Typical Pier And South Pier Reinforcing
Sheet 14	1044	Spillway Section-North Pier And Guide Wall
Sheet 15	1045	Spillway Section-Intermediate Pier And Guide Wall
Sheet 16	1046	Spillway Section-South Pier And Guide Wall
Sheet 17	1047	Spillway Section-Hoist Bridge
Sheet 18	1048	Power House And Intake-Elevations
Sheet 19	1049	Power House And Intake-Sections
Sheet 20	1050	Power House And Intake-Transverse Sections
Sheet 21	1051	Power House And Intake Plan At Elevation 594
Sheet 22	1052	Power House And Intake Plan At Elevation 582 And Draft Tube Sump
Sheet 23	1053	Power House And Intake Plan At Elevation 566, 549, and 523
Sheet 24	1054	Power House And Intake Working Bay Plans
Sheet 25	1055	Power House And Intake Working Bay Sections

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 26	1056	Power House And Intake Working Bay Non-Overflow Section And Intake
Sheet 27	1057	Power House And Intake Reinforcing-Working Bay Intake
Sheet 28	1058	Power House And Intake Reinforcing-Intake
Sheet 29	1059	Power House And Intake Reinforcing-Intake And Stop Log Covers
Sheet 30	1060	Power House Intake Reinforcing-Plan And Beams At Elevation 610
Sheet 31	1061	Power House And Intake Reinforcing –Elevation 610 Units No. 1 And No. 4
Sheet 32	1062	Power House And Intake Reinforcing-Transverse Section
Sheet 33	1063	Power House And Intake Reinforcing Elevation 594 And Scroll Case
Sheet 34	1064	Power House And Intake Reinforcing Working Bay Elevation 610
Sheet 35	1065	Power House And Intake Reinforcing Working Bay Elevation 594
Sheet 36	1066	Power House And Intake Reinforcing Working Bay Elevation 580

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 37	1067	Power House And Intake Reinforcing Working Bay Elevation 555
Sheet 38	1068	Power House And Intake Reinforcing Working Bay Columns
Sheet 39	1069	Power House And Intake Reinforcing Walls, Tunnels And Walkway
Sheet 40	1070	Power House And Intake Reinforcing Gantry Crane Beam And Frames
Sheet 41	1071	Power House And Intake Reinforcing-Stair Details
Sheet 42	1072	Power House And Intake Reinforcing Spiral Stairs And Architectural Details
Sheet 43	1073	Water Supply Intake Piping And Water Treatment Plant
Sheet 44	1074	Air Tanks And Plan Fire And Service Water And Air Piping
Sheet 45	1075	Air Compressor And Blower Details And Working Bay Sump Piping
Sheet 46	1076	Dam And Power House Sewage Disposal System And Intake Pipe Vault
Sheet 47	1077	Water Level Transmitter Housing Details
Sheet 48	1078	Handrail Details

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 49	1079	Structural Steel-Radial Gates
Sheet 50	1080	Structural Steel Radial Gate Trunnions And Anchorage
Sheet 51	1081	Structural Steel Spillway Stop Logs
Sheet 52	1082	Structural Steel Head Gates
Sheet 53	1083	Structural Steel Head Gates Lifting Beam, Intake Slide Gate And Details
Sheet 54	1084	Structural Steel Intake And Draft Tube Stop Logs
Sheet 55	1085	Structural Steel Intake And Draft Tube Stop Logs Lifting Beam And Details
Sheet 56	1086	Structural Steel Trash Racks
Sheet 56A	1087	Structural Steel Trash Racks
Sheet 56B	1088	Trash Rack Plate Installation
Sheet 57	1089	Structural Steel Power House Frames And Gratings
Sheet 58	1090	Structural Steel Generator Covers And Working Bay Hatch Covers
Sheet 59	1091	Structural Steel Log Boom And Miscellaneous Details

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 60	1092	Hoisting Equipment Traveling Gate Hoists
Sheet 60A	1093	Hoisting Equipment Traveling Gate Hoists
Sheet 61	1094	Hoisting Equipment Gantry Crane
Sheet 62	1095	Plan-South Access Roads And Spillway And Tailrace Excavation
Sheet 63	1096	Dam And Power House Upper Bluff Protective Work Grading Plan
Sheet 64	1097	Dam And Power House Upper Bluff Protective Work Gravity Wall
Sheet 65	1098	Dam And Power House Switchyard Access Road And Grading Plan
Sheet 66	1099	Dam And Power House Switchyard Foundation Plan
Sheet 67	1100	Dam And Power House Switchyard Cable Tunnel And Cable Chase Plan And Sections
Sheet 68	1101	Dam And Power House Switchyard Transformer And Switchgear Foundations
Sheet 69	1102	Dam And Power House Switchyard Foundation Details

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 70	1103	Dam And Power House Station Service Transformers and Switchgear Foundations
Sheet 71	1104	Dam And Power House Cable Tunnel And Elevator Shaft-Rock Excavation
Sheet 72	1105	Dam And Power House Cable Tunnel And Elevator Shaft Plans And Sections
Sheet 73	1106	Dam And Power House Cable Tunnel And Elevator Shaft Transverse Sections
Sheet 74	1107	Dam And Power House Cable Tunnel And Elevator Shaft Longitudinal Sections
Sheet 75	1108	Dam And Power House Control Building Plan At Elevation 677
Sheet 76	1109	Dam And Power House Control Building Plan At Elevation 687
Sheet 77	1110	Water Supply Intake Piping
Sheet 78	1111	Salina Dike General Map
Sheet 79	1112	Salina Dike Layout Map
Sheet 80	1113	Salina Dike Typical Sections
Sheet 81	1114	Salina Dike Plan And Profile-0+00 to 48+00
Sheet 82	1115	Salina Dike Plan And Profile-48+00 to 81+50

Exhibit F Drawings	FERC No. 2183-	Description
Sheet 83	1116	Salina Dike Plan At Storage Area
Sheet 84	1117	Salina Dike R.C. Culvert & Misc. Details
Sheet 85	1118	Salina Dike Emergency Water Intake & Discharge Flume
Sheet 86	1119	Salina Dike Pump Station-Plan & Sections
Sheet 87	1120	Salina Dike Pump Station-Elevation & Details
Sheet 88[41]	1121	Salina Dike Pump Station-Construction Details

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary, 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 and F described above are approved and made part of this license. The exhibit G drawings filed on June 2, 2003, do not conform to Commission regulations and are not approved. Article 203 requires filing revised exhibit G drawings.

(D) This license is subject to the conditions submitted by the Oklahoma Department of Environmental Quality under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1431(a)(1), as those conditions are set forth in Appendix A to this order.

(E) This license is also subject to the articles set forth in Form L-3 (Oct. 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States" (*see* 54 FPC 1799 *et seq*.), and the following additional articles:

[41] Sheets 89 through 92 showing electrical plans and details do not show project structures and therefore are not approved in this license.

Article 201. *Administrative Annual Charges.* The licensee shall pay the United States annual charges, effective the first day of the month in which this license is issued, and as determined in accordance with provisions of the Commission's regulations in effect from time to time, for the purpose of 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 108,000 kilowatts.

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

a) Three 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-1234-#### through P-1234-####) 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, 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 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 Atlanta Regional Office.

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 Atlanta Regional Office. Exhibit F drawings must be identified as critical energy infrastructure information (CEII) material under 18 C.F.R. § 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-1234-####, F-1, Description, 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

Article 203. *Exhibit G Drawings.* Within 90 days of license issuance, the licensee shall file for Commission approval, revised Exhibit G drawings enclosing within the

project boundary all principal project works necessary for operation and maintenance of the project, including the recreation facilities indicated in item (a) of Article 405. The Exhibit G drawings must comply with sections 4.39 and 4.41 of the Commission's regulations.

Article 204. *Headwater Benefits.* If the licensee's project was directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license. The benefits will be assessed in accordance with Part 11, Subpart B, of the Commission's regulations.

Article 401. *Dissolved Oxygen Mitigation Plan.* Within six months of license issuance, the licensee shall file with the Commission for approval, a plan to test continuous spill flow releases [100, 300, and 500 cubic feet per second (cfs)] for their effectiveness at maintaining state standards for dissolved oxygen (DO) in the Grand (Neosho) River downstream of the Markham Ferry Project.

The plan shall include, but not be limited to, the following: (a) a description of the methodology to test spill flow releases of 100, 300, and 500 cfs for their effectiveness at maintaining state standards for DO in the Grand River downstream of the project; (b) a description of the methods and locations for monitoring DO concentrations during the testing; and (c) a schedule for implementing the plan, consulting with the agencies concerning the results of the testing, and filing the results (as a final report), agency comments, and licensee's response to agency comments with the Commission. Implementation of the spill flow tests must begin no later than the first summer season following issuance of this license.

The results of the testing shall be filed with the Commission as a final report according to the approved schedule. The licensee shall include in the final report, for Commission approval, recommendations concerning appropriate spill flow releases or alternative measure(s) to improve DO concentrations downstream of the project. The final report shall include an assessment of the effects of the recommended measure(s) on other environmental resources. Any recommendations provided in the report shall also include a schedule for implementing the spill flow releases (or alternative measure) at the project.

The licensee shall prepare the plan after consultation with the Oklahoma Water Resources Board (Oklahoma WRB), Oklahoma Department of Wildlife Conservation

(Oklahoma DWC), and the U.S. Fish and Wildlife Service (FWS). The licensee shall include with the plan documentation of consultation with the agencies, copies of agency comments or recommendations on the completed plan after it has been prepared and provided to the agencies, 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 prior to 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 information.

The Commission reserves the right to require changes to the plan. The plan shall not be implemented 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. *Aquatic Resources Enhancement and Monitoring Plan.* Within six months of license issuance, the licensee shall file with the Commission for approval, a plan to enhance and monitor aquatic resources in Lake Hudson.

The plan shall include, but not be limited to, the following: (a) provisions to enhance aquatic resources at Lake Hudson using aquatic vegetation plantings, game fish stocking, and water level management; (b) provisions for monitoring the effectiveness of the items identified in item (a) through fish population monitoring and creel surveys; and (c) a schedule for implementing the plan, consulting with the agencies concerning the results of the monitoring, and filing the results of the monitoring, agency comments, and licensee's response to agency comments with the Commission. Implementation of item (a) must begin within 1 year of license issuance.

The licensee shall prepare the plan after consultation with the Oklahoma Department of Wildlife Conservation (Oklahoma DWC) and the U.S. Fish and Wildlife Service (FWS). The licensee shall include with the plan documentation of consultation with the agencies, copies of agency comments or recommendations on the completed plan after it has been prepared and provided to the agencies, 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 prior to 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 information.

The Commission reserves the right to require changes to the plan. The plan shall not be implemented 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. *Threatened and Endangered Species Management Plan*. Within six months of license issuance, the licensee shall file, for Commission approval, a threatened and endangered species management plan for the Markham Ferry Project.

For the bald eagle, the plan shall include: (a) provisions for annual surveys to monitor for bald eagle presence and habitat use (both nesting and roosting); (b) provisions for defining and maintaining specific buffer distances around any roost sites and nest sites located at the project; (c) reporting the results of monitoring; (d) measures to identify, protect, and enhance winter roosting habitat including specific timber management practices to enhance potential roosting or nesting habitat; and (e) provisions for placing signage or other information at public access sites explaining bald eagle sensitivity to human disturbance.

For the American burying beetle, the plan shall: (a) define the amount of proposed earth-disturbing activity that would trigger consultation with the U.S. Fish and Wildlife Service (FWS) and on-site surveys; (b) provide details as to what methods would be used to survey for the beetle; and (c) define procedures for both Commission notification and consultation with the FWS that would be implemented if the beetle is found during surveys to determine appropriate protective actions such as how the beetles would be handled and transported.

For the gray bat, the plan shall include measures to consult with the FWS and survey for gray bats if any project-related development is planned in potential cave areas and to protect the gray bat if any are found.

The licensee shall prepare the plan after consultation with the FWS and the Oklahoma Department of Wildlife Conservation. The licensee shall include with the plan an implementation schedule, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how 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 licensees' reasons, based on project-specific information.

The Commission reserves the right to require changes to the threatened and endangered species management plan. Implementation of the plan shall not begin until the plan is approved by the Commission. Upon Commission approval, the licensee shall implement the threatened and endangered species management plan, including any changes required by the Commission.

Article 404. *Programmatic Agreement and Historic Properties Management Plan.* The licensee shall implement the "Programmatic Agreement Among the Federal

Energy Regulatory Commission and the Oklahoma State Historic Preservation Officer for Managing Historic Properties That May Be Affected By Issuing a License to Grand River Dam Authority For the Continued Operation of the Markham Ferry Hydroelectric Project In Mayes County, Oklahoma (FERC Project No. 2183)" executed on June 19, 2006, including but not limited to the Historic Properties Management Plan (HPMP) for the project. Pursuant to the requirements of this Programmatic Agreement, the licensee shall file, for Commission approval, a HPMP within 18 months of issuance of this order. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the HPMP, the licensee shall obtain approval from the Commission and the Oklahoma State Historic Preservation Officer, before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Article 405. *Recreation Plan*. Within 12 months of license issuance, the licensee shall file a recreation plan for the Markham Ferry Project for Commission approval. At a minimum, the recreation plan shall include:

(a) operation and maintenance by the licensee of the project facilities noted in the Commission's April 27, 2000, Environmental and Public Use Inspection including: the boating access sites at the dam and in the tailwater area; the tailrace fishing area; the boating access area just south of the Town of Salina; the boating access area in Corey Cove; the boating access area next to Dogwood Marina; and the boating access area at Rock Creek.

(b) as-built drawings of the facilities in item (a), above, with the project boundary clearly indicated as enclosing the facilities;

(c) an inventory of existing recreation facilities and recreational use at the project including: (i) a description of all (public and private) formal and informal recreation facilities that provide access to project land and water; (ii) a map showing the recreation facilities identified in item (i) in relation to the project boundary; and (iii) a description of the number and type of recreational amenities at each site, the site capacity and identification of the owner and the entity responsible for operation and maintenance;

(d) an assessment of the current condition and capacity of public recreation facilities (state, city or GRDA-provided) at the project compared to current demand;

(e) an assessment of anticipated future recreation trends and needs and a description of any areas set aside at that project for potential future recreational access;

(f) an evaluation of any conflicts associated with recreational use at the project, such as crowding or competing uses;

(g) an implementation plan with specific measures the licensee will provide to improve recreational access and opportunities and reduce use conflicts based on identified needs consistent with the shoreline management plan being developed pursuant to Article 406; (f)

(h) provisions for making information on project recreation facilities and opportunities available to the public; and

(i) provisions for reviewing and updating the recreation plan.

The licensee shall prepare the recreation plan after consultation with the U.S. Fish and Wildlife Service; Department of the Army, Corps of Engineers; Oklahoma Department of Wildlife Conservation; and Oklahoma Tourism and Recreation Department, State Parks Division. The licensee shall include with the recreation plan an implementation schedule, documentation of consultation, copies of comments and recommendations on the completed recreation plan after it has prepared and provide to the agencies, 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 make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensees' reasons, based on project-specific information.

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

Article 406. *Shoreline Management Plan.* Within 12 months of license issuance, the licensee shall file a shoreline management plan for the Markham Ferry Project with the Commission for approval. The plan shall include, at a minimum: (a) a discussion of the plan's purpose, goals, and objectives; (b) a discussion of key issues associated with shoreline management at the project, and how issues were addressed in developing the plan; (c) an identification and description of land use along the project shoreline, including maps identifying the locations of land use types, a description of how these use classifications were defined and delineated, and descriptions of activities and uses that would be allowed within those classifications; (d) a description of all types of permitted uses, the permit application process, and guidelines for applying for a construction permit within the project boundary; (e) measures to protect water, fish, and wildlife during shoreline development activities, including testing sediments for contaminates if dredging is proposed; (f) a description of management policies, monitoring programs, and enforcement; (g) provisions for periodically reviewing and updating the shoreline management plan; (h) provisions for consultation with agencies and other interested parties in the implementation of the shoreline management plan; (i) measures to protect

important shoreline habitat areas and cultural resources; and (j) provisions for coordination with the threatened and endangered species management plan (Article 403), historic properties management plan (Article 404), and recreation management plan (Article 405).

The plan shall be developed in consultation with the U.S. Fish and Wildlife Service; Department of the Army, Corps of Engineers; Oklahoma Water Resources Board; Oklahoma Department of Wildlife Conservation; and Oklahoma Tourism and Recreation Department, State Parks Division. The licensee shall include with the plan an implementation schedule, documentation of consultation, copies of comments and recommendations on the completed shoreline management plan after it has been prepared and provided to the agencies, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensees' reasons, based on project-specific information.

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

Article 407. *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 are 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 types 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 watercraft 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 enhancements. 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. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission in writing no later than January 31 of each year.

(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 watercraft 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 5 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 paragraphs (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; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands shall occur in a manner that shall protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(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 shall 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.

Article 501. *Compliance History and Ability to Comply with the New License*. The licensee, within six months of license issuance, shall file a Hydropower Compliance Management Program (HCMP) for Commission approval. The HCMP shall include the following elements for each license requirement:

(a) the identification of, and a schedule for, each action necessary to complete the license requirements;

(b) a schedule for the start and completion of the consultation process with each resource agency required to be consulted for each action necessary to complete the license requirement; and

(c) the identification of specific individuals in each agency that need to be consulted on each action necessary to complete the license requirement.

Seven copies of all submissions under this article must be filed with the Secretary of the Commission. One copy of each submission must also be filed with any agency consulted under element (b) above.

The Commission reserves the right to require the licensee to make modifications to the HCMP and to take other measures necessary to ensure compliance by the licensee with the terms and conditions of the license.

(F) 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

(G) This order is final unless a request for rehearing is filed within 30 days from the date of its issuance, as provided in section 313(a) of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

J. Mark Robinson
Director
Office of Energy Projects

Form L-3
(October, 1975)

**FEDERAL ENERGY REGULATORY COMMISSION
TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED
MAJOR PROJECT AFFECTING NAVIGABLE
WATERS OF THE UNITED STATES**

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project area and project works shall be in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Article 4. The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the

region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him such information as he may require concerning the operation and maintenance of the project, and any such alterations thereto, and shall notify him of the date upon which work with respect to any alteration will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall submit to said representative a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of any such alterations to the project. Construction of said alterations or any feature thereof shall not be initiated until the program of inspection for the alterations or any feature thereof has been approved by said representative. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights or occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a nonpower licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall

make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission any direct in the

interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail

to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable

modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of

passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 27. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 28. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

APPENDIX A

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY WATER QUALITY CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT

1. This Certification does not authorize the discharge or dredging of soil material in or into Lake Hudson. The Application proposal included a letter from Atkins Environmental, dated January 7, 2003. This letter informed that no discharge of soil materials is included or intended for the re-licensing of this structure.

2. The Operation or "Power Pool Level" of Lake Hudson shall not be maintained above the 621 ft mark as requested in the proposed project.

3. Emergency and Routine Maintenance shall be permitted under the appropriate US Army Corps of Engineers Permit.