

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of May 14, 2021

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Title 18: Conservation of Power and Water Resources

PART 4—LICENSES, PERMITS, EXEMPTIONS, AND DETERMINATION OF PROJECT COSTS

Subpart E—Application for License for Major Unconstructed Project and Major Modified Project

§4.41 Contents of application.

Any application under this subpart must contain the following information in the form prescribed:

(a) Initial statement.

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

Application for License for Major Unconstructed Project or Major Modified Project

(1)[Name of applicant] applies to the Federal Energy Regulatory Commission for a [license or new license, as appropriate] for the [name of project] water power project, as described in the attached exhibits. [Specify any previous FERC project number designation.]

(2)The location of the proposed project is:

State or territory: _____

County: _____

Township or nearby town: _____

Stream or other body of water: _____

(3)The exact name, business address, and telephone number of the applicant are:

(4) The applicant is a (citizen of the United States, association of citizens of the United States, domestic corporation, municipality, or State, as appropriate) and (is/is not) claiming preference under section 7(a) of the Federal Power Act. See 16 U.S.C. 796.

(5)(i) The statutory or regulatory requirements of the state(s) in which the project would be located and that affect the project as proposed with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act, are: [provide citation and brief identification of the nature of each requirement; if the applicant is a municipality, the applicant must submit copies of applicable state or local laws or a municipal charter or, if such laws or documents are not clear, any other appropriate legal authority, evidencing that the municipality is competent under such laws to engage in the business of developing, transmitting, utilizing, or distributing power.]

(ii) The steps which the applicant has taken, or plans to take, to comply with each of the laws cited above are: [provide brief description for each requirement]

(b) Exhibit A is a description of the project. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. The description for each development must contain:

(1) The physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces or other structures proposed to be included as part of the project;

(2) The normal maximum water surface area and normal maximum water surface elevation (mean sea level), gross storage capacity of any impoundments to be included as part of the project;

(3) The number, type and rated capacity of any proposed turbines or generators to be included as part of the project;

(4) The number, length, voltage and interconnections of any primary transmission lines proposed to be included a part of the project [See 16 U.S.C. 796 (11)];

(5) The description of any additional mechanical, electrical, and transmission equipment appurtenant to the project; and

(6) All lands of the United States, including lands patented subject to the provisions of section 24 of the Act, 16 U.S.C. 818, that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey, by the best available legal description. The tabulation must show the total acreage of the lands of the United States within the project boundary.

(c) Exhibit B is a statement of project operation and resource utilization. If the project includes more than one dam with associated facilities, the information must be provided separately for each discrete development. The exhibit must contain:

- (1) A description of each alternative site considered in selecting of the proposed site;
- (2) A description of any alternative facility designs, processes, and operations that were considered.
- (3) A statement as to whether operation of the power plant will be manual or automatic, an estimate of the annual plant factor, and a statement of how the project will be operated during adverse, mean, and high water years;
- (4) An estimate of the dependable capacity and average annual energy production in kilowatt-hours (or mechanical equivalent), supported by the following data:
 - (i) The minimum, mean, and maximum recorded flows in cubic feet per second of the stream or other body of water at the powerplant intake or point of diversion, with a specification of any adjustment made for evaporation, leakage minimum flow releases (including duration of releases) or other reductions in available flow; monthly flow duration curves indicating the period of record and the gauging stations used in deriving the curves; and a specification of the critical streamflow used to determine the dependable capacity;
 - (ii) An area-capacity curve showing the gross storage capacity and usable storage capacity of the impoundment, with a rule curve showing the proposed operation of the impoundment and how the usable storage capacity is to be utilized;
 - (iii) The estimated minimum and maximum hydraulic capacity of the powerplant in terms of flow and efficiency (cubic feet per second at one-half, full and best gate), and the corresponding generator output in kilowatts;
 - (iv) A tailwater rating curve; and
 - (v) A curve showing powerplant capability versus head and specifying maximum, normal, and minimum heads;
- (5) A statement of system and regional power needs and the manner in which the power generated at the project is to be utilized, including the amount of power to be used on-site, if any, supported by the following data:
 - (i) Load curves and tabular data, if appropriate;
 - (ii) Details of conservation and rate design programs and their historic and projected impacts on system loads; and
 - (iii) The amount of power to be sold and the identity of proposed purchaser(s); and
- (6) A statement of the applicant's plans for future development of the project or of any other existing or proposed water power project on the affected stream or other body of water,

indicating the approximate location and estimated installed capacity of the proposed developments.

(d) Exhibit C is a proposed construction schedule for the project. The information required may be supplemented with a bar chart. The construction schedule must contain:

- (1) The proposed commencement and completion dates of any new construction, modification, or repair of major project works;
- (2) The proposed commencement date of first commercial operation of each new major facility and generating unit; and
- (3) If any portion of the proposed project consists of previously constructed, unlicensed water power structures or facilities, a chronology of original completion dates of those structures or facilities specifying dates (approximate dates must be identified as such) of:
 - (i) Commencement and completion of construction or installation;
 - (ii) Commencement of first commercial operation; and
 - (iii) Any additions or modifications other than routine maintenance.

(e) Exhibit D is a statement of project costs and financing. The exhibit must contain:

(1) A statement of estimated costs of any new construction, modification, or repair, including:

- (i) The cost of any land or water rights necessary to the development;
- (ii) The total cost of all major project works;
- (iii) Indirect construction costs such as costs of construction equipment, camps, and commissaries;
- (iv) Interest during construction; and
- (v) Overhead, construction, legal expenses, and contingencies;

(2) If any portion of the proposed project consists of previously constructed, unlicensed water power structures or facilities, a statement of the original cost of those structures or facilities specifying for each, to the extent possible, the actual or approximate total costs (approximate costs must be identified as such) of:

- (i) Any land or water rights necessary to the existing project works;
- (ii) All major project works; and

(iii) Any additions or modifications other than routine maintenance;

(3) If the applicant is a licensee applying for a new license, and is not a municipality or a state, an estimate of the amount which would be payable if the project were to be taken over pursuant to section 14 of the Federal Power Act, 16 U.S.C. 807, upon expiration of the license in effect including:

(i) Fair value;

(ii) Net investment; and

(iii) Severance damages;

(4) A statement of the estimated average annual cost of the total project as proposed, specifying any projected changes in the costs (life-cycle costs) over the estimated financing or licensing period if the applicant takes such changes into account, including:

(i) Cost of capital (equity and debt);

(ii) Local, state, and Federal taxes;

(iii) Depreciation or amortization,

(iv) Operation and maintenance expenses, including interim replacements, insurance, administrative and general expenses, and contingencies; and

(v) The estimated capital cost and estimated annual operation and maintenance expense of each proposed environmental measure;

(5) A statement of the estimated annual value of project power based on a showing of the contract price for sale of power or the estimated average annual cost of obtaining an equivalent amount of power (capacity and energy) from the lowest cost alternative source of power, specifying any projected changes in the costs (lifecycle costs) of power from that source over the estimated financing or licensing period if the applicant takes such changes into account;

(6) A statement describing other electric energy alternatives, such as gas, oil, coal and nuclear-fueled powerplants and other conventional and pumped storage hydroelectric plants;

(7) A statement and evaluation of the consequences of denial of the license application and a brief perspective of what future use would be made of the proposed site if the proposed project were not constructed;

(8) A statement specifying the sources and extent of financing and annual revenues available to the applicant to meet the costs identified in paragraphs (e) (1) and (4) of this section;

- (9) An estimate of the cost to develop the license application; and
- (10) The on-peak and off-peak values of project power, and the basis for estimating the values, for projects which are proposed to operate in a mode other than run-of-river.

(f) Exhibit E is an Environmental Report. Information provided in the report must be organized and referenced according to the itemized subparagraphs below. See §4.38 for consultation requirements. The Environmental Report must contain the following information, commensurate with the scope of the project:

- (1) General description of the locale. The applicant must provide a general description of the environment of the proposed project area and its immediate vicinity. The description must include location and general information helpful to an understanding of the environmental setting.
- (2) Report on water use and quality. The report must discuss water quality and flows and contain baseline data sufficient to determine the normal and seasonal variability, the impacts expected during construction and operation, and any mitigative, enhancement, and protective measures proposed by the applicant. The report must be prepared in consultation with the state and Federal agencies with responsibility for management of water quality and quantity in the affected stream or other body of water. The report must include:
 - (i) A description of existing instream flow uses of streams in the project area that would be affected by construction and operation; estimated quantities of water discharged from the proposed project for power production; and any existing and proposed uses of project waters for irrigation, domestic water supply, industrial and other purposes;
 - (ii) A description of the seasonal variation of existing water quality for any stream, lake, or reservoir that would be affected by the proposed project, including (as appropriate) measurements of: significant ions, chlorophyll a, nutrients, specific conductance, pH, total dissolved solids, total alkalinity, total hardness, dissolved oxygen, bacteria, temperature, suspended sediments, turbidity and vertical illumination;
 - (iii) A description of any existing lake or reservoir and any of the proposed project reservoirs including surface area, volume, maximum depth, mean depth, flushing rate, shoreline length, substrate classification, and gradient for streams directly affected by the proposed project;
 - (iv) A quantification of the anticipated impacts of the proposed construction and operation of project facilities on water quality and downstream flows, such as temperature, turbidity and nutrients;
 - (v) A description of measures recommended by Federal and state agencies and the applicant for the purpose of protecting or improving water quality and stream flows during project construction and operation; an explanation of why the applicant has rejected any

measures recommended by an agency; and a description of the applicant's alternative measures to protect or improve water quality stream flow;

(vi) A description of groundwater in the vicinity of the proposed project, including water table and artesian conditions, the hydraulic gradient, the degree to which groundwater and surface water are hydraulically connected, aquifers and their use as water supply, and the location of springs, wells, artesian flows and disappearing streams; a description of anticipated impacts on groundwater and measures proposed by the applicant and others for the mitigation of impacts on groundwater; and

(3) Report on fish, wildlife, and botanical resources. The applicant must provide a report that describes the fish, wildlife, and botanical resources in the vicinity of the proposed project; expected impacts of the project on these resources; and mitigation, enhancement, or protection measures proposed by the applicant. The report must be prepared in consultation with the state agency or agencies with responsibility for these resources, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service (if the proposed project may affect anadromous, estuarine, or marine fish resources), and any state or Federal agency with managerial authority over any part of the proposed project lands. The report must contain:

(i) A description of existing fish, wildlife, and plant communities of the proposed project area and its vicinity, including any downstream areas that may be affected by the proposed project and the area within the transmission line corridor or right-of-way. A map of vegetation types should be included in the description. For species considered important because of their commercial or recreational value, the information provided should include temporal and spatial distributions and densities of such species. Any fish, wildlife, or plant species proposed or listed as threatened or endangered by the U.S. Fish and Wildlife Service or National Marine Fisheries

Service [see 50 CFR 17.11 and 17.12] must be identified;

(ii) A description of the anticipated impacts on fish, wildlife and botanical resources of the proposed construction and operation of project facilities, including possible changes in size, distribution, and reproduction of essential population of these resources and any impacts on human utilization of these resources;

(iii) A description of any measures or facilities recommended by state or Federal agencies for the mitigation of impacts on fish, wildlife, and botanical resources, or for the protection or enhancement of these resources, the impact on threatened or endangered species, and an explanation of why the applicant has determined any measures or facilities recommended by an agency are inappropriate as well as a description of alternative measures proposed by applicant to protect fish, wildlife and botanical resources; and

(iv) The following materials and information regarding any mitigation measures or facilities, identified under clause (iii), proposed for implementation or construction:

(A) Functional design drawings;

- (B) A description of proposed operation and maintenance procedures for any proposed measures or facilities;
- (C) An implementation, construction and operation schedule for any proposed measures or facilities;
- (D) An estimate of the costs of construction, operation, and maintenance of any proposed facilities or implementation of any measures;
- (E) A statement of the sources and amount of financing for mitigation measures or facilities; and
- (F) A map or drawing showing, by the use of shading, crosshatching or other symbols, the identity and location of any proposed measures or facilities.

(4) Report on historic and archaeological resources. The applicant must provide a report that discusses any historical and archaeological resources in the proposed project area, the impact of the proposed project on those resources and the avoidance, mitigation, and protection measures proposed by the applicant. The report must be prepared in consultation with the State Historic Preservation Officer (SHPO) and the National Park Service of the U.S. Department of Interior. The report must contain:

- (i) A description of any discovery measures, such as surveys, inventories, and limited subsurface testing work, recommended by the specified state and Federal agencies for the purpose of locating, identifying, and assessing the significance of historic and archaeological resources that would be affected by construction and operation of the proposed project, together with a statement of the applicant's position regarding the acceptability of the recommendations;
- (ii) The results of surveys, inventories, and subsurface testing work recommended by the state and Federal agencies listed above, together with an explanation by the applicant of any variations from the survey, inventory, or testing procedures recommended;
- (iii) An identification (without providing specific site or property locations) of any historic or archaeological site in the proposed project area, with particular emphasis on sites or properties either listed in, or recommended by the SHPO for inclusion in, the National Register of Historic Places that would be affected by the construction of the proposed project;
- (iv) A description of the likely direct and indirect impacts of proposed project construction or operation on sites or properties either listed in, or recommended as eligible for, the National Register of Historic Places;
- (v) A management plan for the avoidance of, or mitigation of, impacts on historic or archaeological sites and resources based upon the recommendations of the state and Federal

agencies listed above and containing the applicant's explanation of variations from those recommendations; and

(vi) The following materials and information regarding the mitigation measures described under paragraph (f)(4)(v) of this section:

(A) A schedule for implementing the mitigation proposals;

(B) An estimate of the cost of the measures; and

(C) A statement of the sources and extent of financing.

(vii) The applicant must provide five copies (rather than the eight copies required under §4.32(b)(1) of the Commission's regulations) of any survey, inventory, or subsurface testing reports containing specific site and property information, and including maps and photographs showing the location and any required alteration of historic and archaeological resources in relation to proposed project facilities.

(5) Report on socio-economic impacts. The applicant must provide a report which identifies and quantifies the impacts of constructing and operating the proposed project on employment, population, housing, personal income, local governmental services, local tax revenues and other factors within the towns and counties in the vicinity of the proposed project. The report must include:

(i) A description of the socio-economic impact area;

(ii) A description of employment, population and personal income trends in the impact area;

- (iii) An evaluation of the impact of any substantial in-migration of people on the impact area's governmental facilities and services, such as police, fire, health and educational facilities and programs;
- (iv) On-site manpower requirements and payroll during and after project construction, including a projection of total on-site employment and construction payroll provided by month;
- (v) Numbers of project construction personnel who:
 - (A) Currently reside within the impact area;
 - (B) Would commute daily to the construction site from places situated outside the impact area; and
 - (C) Would relocate on a temporary basis within the impact area;
- (vi) A determination of whether the existing supply of available housing within the impact area is sufficient to meet the needs of the additional population;
- (vii) Numbers and types of residences and business establishments that would be displaced by the proposed project, procedures to be utilized to acquire these properties, and types and amounts of relocation assistance payments that would be paid to the affected property owners and businesses; and
- (viii) A fiscal impact analysis evaluating the incremental local government expenditures in relation to the incremental local government revenues that would result from the construction of the proposed project. Incremental expenditures may include, but are not be limited to, school operating costs, road maintenance and repair, public safety, and public utility costs.

(6) Report on geological and soil resources. The applicant must provide a report on the geological and soil resources in the proposed project area and other lands that would be directly or indirectly affected by the proposed action and the impacts of the proposed project on those resources. The information required may be supplemented with maps showing the location and description of conditions. The report must contain:

- (i) A detailed description of geological features, including bedrock lithology, stratigraphy, structural features, glacial features, unconsolidated deposits, and mineral resources;
- (ii) A detailed description of the soils, including the types, occurrence, physical and chemical characteristics, erodability and potential for mass soil movement;
- (iii) A description showing the location of existing and potential geological and soil hazards and problems, including earthquakes, faults, seepage, subsidence, solution cavities,

active and abandoned mines, erosion, and mass soil movement, and an identification of any large landslides or potentially unstable soil masses which could be aggravated by reservoir fluctuation;

(iv) A description of the anticipated erosion, mass soil movement and other impacts on the geological and soil resources due to construction and operation of the proposed project; and

(v) A description of any proposed measures or facilities for the mitigation of impacts on soils.

(7) Report on recreational resources. The applicant must prepare a report containing a proposed recreation plan describing utilization, design and development of project recreational facilities, and public access to the project area. Development of the plan should include consideration of the needs of the physically handicapped. Public and private recreational facilities provided by others that would abut the project should be noted in the report. The report must be prepared in consultation with appropriate local, regional, state and Federal recreation agencies and planning commissions, the National Park Service of the U.S. Department of the Interior, and any other state or Federal agency with managerial responsibility for any part of the project lands. The report must contain:

(i) A description of any areas within or in the vicinity of the proposed project boundary that are included in, or have been designated for study for inclusion in:

(A) The National Wild and Scenic Rivers Systems (see 16 U.S.C. 1271);

(B) The National Trails System (see 16 U.S.C. 1241); or

(C) A wilderness area designated under the Wilderness Act (see 16 U.S.C. 1132);

(ii) A detailed description of existing recreational facilities within the project vicinity, and the public recreational facilities which are to be provided by the applicant at its sole cost or in cooperation with others no later than 3 years from the date of first commercial operation of the proposed project and those recreation facilities planned for future development based on anticipated demand. When public recreation facilities are to be provided by other entities, the applicant and those entities should enter into an agreement on the type of facilities to be provided and the method of operation. Copies of agreements with cooperating entities are to be appended to the plan;

(iii) A provision for a shoreline buffer zone that must be within the project boundary, above the normal maximum surface elevation of the project reservoir, and of sufficient width to allow public access to project lands and waters and to protect the scenic, public recreational, cultural, and other environmental values of the reservoir shoreline;

- (iv) Estimates of existing and future recreational use at the project, in daytime and overnight visitation (recreation days), with a description of the methodology used in developing these data;
 - (v) A development schedule and cost estimates of the construction, operation, and maintenance of existing, initial, and future public recreational facilities, including a statement of the source and extent of financing for such facilities;
 - (vi) A description of any measures or facilities recommended by the agencies consulted for the purpose of creating, preserving, or enhancing recreational opportunities at the proposed project, and for the purpose of ensuring the safety of the public in its use of project lands and waters, including an explanation of why the applicant has rejected any measures or facilities recommended by an agency; and
 - (vii) A drawing or drawings, one of which describes the entire project area, clearly showing:
 - (A) The location of project lands, and the types and number of existing recreational facilities and those proposed for initial development, including access roads and trails, and facilities for camping, picnicking, swimming, boat docking and launching, fishing and hunting, as well as provisions for sanitation and waste disposal;
 - (B) The location of project lands, and the type and number of recreational facilities planned for future development;
 - (C) The location of all project lands reserved for recreational uses other than those included in paragraphs (f)(7)(vii) (A) and (B) of this section; and
 - (D) The project boundary (excluding surveying details) of all areas designated for recreational development, sufficiently referenced to the appropriate Exhibit G drawings to show that all lands reserved for existing and future public recreational development and the shoreline buffer zone are included within the project boundary. Recreational cottages, mobile homes and year-round residences for private use are not to be considered as public recreational facilities, and the lands on which these private facilities are to be developed are not to be included within the proposed project boundary.
- (8) Report on aesthetic resources. The applicant must provide a report that describes the aesthetic resources of the proposed project area, the expected impacts of the project on these resources, and the mitigation, enhancement or protection measures proposed. The report must be prepared following consultation with Federal, state, and local agencies having managerial responsibility for any part of the proposed project lands or lands abutting those lands. The report must contain:
- (i) A description of the aesthetic character of lands and waters directly and indirectly affected by the proposed project facilities;

- (ii) A description of the anticipated impacts on aesthetic resources from construction activity and related equipment and material, and the subsequent presence of proposed project facilities in the landscape;
- (iii) A description of mitigative measures proposed by the applicant, including architectural design, landscaping, and other reasonable treatment to be given project works to preserve and enhance aesthetic and related resources during construction and operation of proposed project facilities; and
- (iv) Maps, drawings and photographs sufficient to provide an understanding of the information required under this paragraph. Maps or drawings may be consolidated with other maps or drawings required in this exhibit and must conform to the specifications of §4.39.

(9) Report on land use. The applicant must provide a report that describes the existing uses of the proposed project lands and adjacent property, and those land uses which would occur if the project is constructed. The report may reference the discussions of land uses in other sections of this exhibit. The report must be prepared following consultation with local and state zoning or land management authorities, and any Federal or state agency with managerial responsibility for the proposed project or abutting lands. The report must include:

- (i) A description of existing land use in the proposed project area, including identification of wetlands, floodlands, prime or unique farmland as designated by the Natural Resources Conservation Service of the U.S. Department of Agriculture, the Special Area Management Plan of the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, and lands owned or subject to control by government agencies;
- (ii) A description of the proposed land uses within and abutting the project boundary that would occur as a result of development and operation of the project; and
- (iii) Aerial photographs, maps, drawings or other graphics sufficient to show the location, extent and nature of the land uses referred to in this section.

(10) Alternative locations, designs, and energy sources. The applicant must provide an environment assessment of the following:

- (i) Alternative sites considered in arriving at the selection of the proposed project site;
- (ii) Alternative facility designs, processes, and operations that were considered and the reasons for their rejection;
- (iii) Alternative electrical energy sources, such as gas, oil, coal, and nuclear-fueled power plants, purchased power or diversity exchange, and other conventional and pumped-storage hydroelectric plants; and
- (iv) The overall consequences if the license application is denied.

(11) List of literature. Exhibit E must include a list of all publications, reports, and other literature which were cited or otherwise utilized in the preparation of any part of the environmental report.

(g) Exhibit F consists of general design drawings of the principal project works described under paragraph (b) of this section (Exhibit A) and supporting information used as the basis of design. If the Exhibit F submitted with the application is preliminary in nature, applicant must so state in the application. The drawings must conform to the specifications of §4.39.

(1) The drawings must show all major project structures in sufficient detail to provide a full understanding of the project, including:

- (i) Plans (overhead view);
 - (ii) Elevations (front view);(iii) Profiles (side view);
- and
- (iv) Sections.

(2) The applicant may submit preliminary design drawings with the application. The final Exhibit F may be submitted during or after the licensing process and must show the precise plans and specifications for proposed structures. If the project is licensed on the basis of preliminary designs, the applicant must submit a final Exhibit F for Commission approval prior to commencement of any construction of the project.

(3) Supporting design report. The applicant must furnish, at a minimum, the following supporting information to demonstrate that existing and proposed structures are safe and adequate to fulfill their stated functions and must submit such information in a separate report at the time the application is filed. The report must include:

(i) An assessment of the suitability of the site and the reservoir rim stability based on geological and subsurface investigations, including investigations of soils and rock borings and tests for the evaluation of all foundations and construction materials sufficient to determine the location and type of dam structure suitable for the site;

(ii) Copies of boring logs, geology reports and laboratory test reports;

(iii) An identification of all borrow areas and quarry sites and an estimate of required quantities of suitable construction material;

(iv) Stability and stress analyses for all major structures and critical abutment slopes under all probable loading conditions, including seismic and hydrostatic forces induced by water loads up to the Probable Maximum Flood as appropriate; and

(v) The bases for determination of seismic loading and the Spillway Design Flood in sufficient detail to permit independent staff evaluation.

(4) The applicant must submit two copies of the supporting design report described in paragraph (g)(3) of this section at the time preliminary and final design drawings are submitted to the Commission for review. If the report contains preliminary drawings, it must be designated a “Preliminary Supporting Design Report.”

(h) Exhibit G is a map of the project that must conform to the specifications of §4.39. In addition, to the other components of Exhibit G, the Applicant must provide the project boundary data in a geo-referenced electronic format—such as ArcView shape files, GeoMedia files, MapInfo files, or any similar format. The electronic boundary data must be positionally accurate to ± 40 feet, in order to comply with the National Map Accuracy Standards for maps at a 1:24,000 scale (the scale of USGS quadrangle maps). The electronic exhibit G data must include a text file describing the map projection used (i.e., UTM, State Plane, Decimal Degrees, etc.), the map datum (i.e., feet, meters, miles, etc.). Three sets of the maps must be submitted on compact disk or other appropriate electronic media. If more than one sheet is used for the paper maps, the sheets must be numbered consecutively, and each sheet must bear a small insert sketch showing the entire project and indicate that portion of the project depicted on that sheet. Each sheet must contain a minimum of three known reference points. The latitude and longitude coordinates, or state plane coordinates, of each reference point must be shown. If at any time after the application is filed there is any change in the project boundary, the applicant must submit, within 90 days following the completion of project construction, a final exhibit G showing the extent of such changes. The map must show:

(1) Location of the project and principal features. The map must show the location of the project as a whole with reference to the affected stream or other body of water and, if possible, to a nearby town or any other permanent monuments or objects, such as roads, transmission lines or other structures, that can be noted on the map and recognized in the field. The map must also show the relative locations and physical interrelationships of the principal project works and other features described under paragraph (b) of this section (Exhibit A).

(2) Project boundary. The map must show a project boundary enclosing all project works and other features described under paragraph (b) of this section (Exhibit A) that are to be licensed. If accurate survey information is not available at the time the application is filed, the applicant must so state, and a tentative boundary may be submitted. The boundary must enclose only those lands necessary for operation and maintenance of the project and for other project purposes, such as recreation, shoreline control, or protection of environmental resources (see paragraph (f) of this section (Exhibit E)). Existing residential, commercial, or other structures may be included within the boundary only to the extent that underlying lands are needed for project purposes (e.g., for flowage, public recreation, shoreline control, or protection of environmental resources). If the boundary is on land covered by a public survey, ties must be shown on the map at sufficient points to permit accurate platting of the

position of the boundary relative to the lines of the public land survey. If the lands are not covered by a public land survey, the best available legal description of the position of the boundary must be provided, including distances and directions from fixed monuments or physical features. The boundary must be described as follows:

(i) Impoundments. (A) The boundary around a project impoundment must be described by one of the following:

- (1) Contour lines, including the contour elevation (preferred method);
- (2) Specified courses and distances (metes and bounds);
- (3) If the project lands are covered by a public land survey, lines upon or parallel to the lines of the survey; or
- (4) Any combination of the above methods.

(B) The boundary must be located no more than 200 feet (horizontal measurement) from the exterior margin of the reservoir, defined by the normal maximum surface elevation, except where deviations may be necessary in describing the boundary according to the above methods or where additional lands are necessary for project purposes, such as public recreation, shoreline control, or protection of environmental resources.

(ii) Continuous features. The boundary around linear (continuous) project features such as access roads, transmission lines, and conduits may be described by specified distances from center lines or offset lines of survey. The width of such corridors must not exceed 200 feet unless good cause is shown for a greater width. Several sections of a continuous feature may be shown on a single sheet with information showing the sequence of contiguous sections.

(iii) Noncontinuous features. (A) The boundary around noncontinuous project works such as dams, spillways, and powerhouses must be described by one of the following:

- (1) Contour lines;
- (2) Specified courses and distances;
- (3) If the project lands are covered by a public land survey, lines upon or parallel to the lines of the survey; or
- (4) Any combination of the above methods.

(B) The boundary must enclose only those lands that are necessary for safe and efficient operation and maintenance of the project or for other specified project purposes, such as public recreation or protection of environmental resources.

(3) Federal lands. Any public lands and reservations of the United States (Federal lands) [see 16 U.S.C. 796 (1) and (2)] that are within the project boundary, such as lands administered by the U.S. Forest Service, Bureau of Land Management, or National Park Service, or Indian tribal lands, and the boundaries of those Federal lands, must be identified as such on the map by:

(i) Legal subdivisions of a public land survey of the affected area (a protraction of identified township and section lines is sufficient for this purpose); and

(ii) The Federal agency, identified by symbol or legend, that maintains or manages each identified subdivision of the public land survey within the project boundary; or

(iii) In the absence of a public land survey, the location of the Federal lands according to the distances and directions from fixed monuments or physical features. When a Federal survey monument or a Federal bench mark will be destroyed or rendered unusable by the construction of project works, at least two permanent, marked witness monuments or bench marks must be established at accessible points. The maps show the location (and elevation, for bench marks) of the survey monument or bench mark which will be destroyed or rendered unusable, as well as of the witness monuments or bench marks. Connecting courses and distances from the witness monuments or bench marks to the original must also be shown.

(iv) The project location must include the most current information pertaining to affected Federal lands as described under §4.81(b)(5).

(4) Non-Federal lands. For those lands within the project boundary not identified under paragraph (h)(3) of this section, the map must identify by legal subdivision:

(i) Lands owned in fee by the applicant and lands that the applicant plans to acquire in fee; and

(ii) Lands over which the applicant has acquired or plans to acquire rights to occupancy and use other than fee title, including rights acquired or to be acquired by easement or lease.

[Order 184, 46 FR 55936, Nov. 13, 1981; 48 FR 4459, Feb. 1, 1983, as amended by Order 413, 50 FR 11684, Mar. 25, 1985; Order 464, 52 FR 5449, Feb. 23, 1987; Order 540, 57 FR 21737, May 22, 1992; Order 2002, 68 FR 51119, Aug. 25, 2003; 68 FR 61742, Oct. 30, 2003; 68 FR 63194, Nov. 7, 2003; 68 FR 69957, Dec. 16, 2003; Order 699, 72 FR 45324, Aug. 14, 2007] [Need](#)

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