

Reference: Docket No. AD04-4-000, Notice Requesting Applications for Panel Members List for Hydropower Licensing Study Dispute Resolution

Applicant: Donald J. Thompson, P.E.
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1. Technical Expertise

Engineering

- Civil Engineering
- Hydraulic Engineering
- General

Education:

B.S. Civil Engineering, University of Washington, 1974

Experience Summary:

Mr. Thompson has experience in licensing and engineering of hydroelectric power facilities since 1974. His technical experience includes FERC licensing and relicensing activities, FERC dam safety inspections, PMF and Inflow Design Flood analysis, dambreak analysis, single and multi-reservoir operation analysis, risk assessment, hydraulic analyses and design of structures such as dams, spillways, outlet works, intakes, gates, fish screens, tunnels, penstocks, canals, river improvements and related features associated with hydroelectric projects. He performs technical analysis as well as manages multi-disciplinary project teams on projects involving hydropower generation, flood protection, fish passage facilities, fishery PME measures and dam safety under the jurisdiction of FERC and state dam safety agencies.

Mr. Thompson founded Water & Energy Services Corporation (WESCORP) in 1998, and was previously employed at Harza Engineering Co. (Chicago), R.W.Beck & Associates (Seattle), and HDR Engineering (Bellevue, WA).

Representative projects he has been involved with include:

FERC Licensing / Relicensing:

Whitman Lake Hydroelectric Project, Ketchikan, Alaska. Project Manager for preparing a FERC License Application and NEPA Environmental Assessment for developing hydroelectric power at an existing 75-year old dam. The Applicant-Prepared EA process was used in this licensing effort. The dam is currently used to impound and regulate approximately 30 cfs of continuous supply to a private fish hatchery. Extensive fishery studies were conducted within the lake, below the dam and within a major tributary to the stream. A new fish screen is

proposed to protect juvenile Dolly Varden from being entrained in the penstock. Work included 3 phases of formal and informal consultations with state and federal fishery resource agencies, the Forest Service, tribes, DNR, and other agencies and NGO's. The license application was filed with FERC in September 2004.

Connell Lake Hydroelectric Project, Ketchikan, Alaska. Project Manager for preparing a FERC License Application and NEPA Environmental Assessment for developing hydroelectric power at this existing 50-year old dam located near Ketchikan for Ketchikan Public Utilities. The Alternative Licensing Process was utilized for this project. Extensive fishery studies were conducted, and a rigorous agency consultation process was pursued, primarily because of the importance of potential impacts to anadromous fish. Fish passage studies were prepared and presented to agencies for review.

Enloe Hydroelectric Project, Oroville, Washington. Currently assisting Okanogan County PUD in the preparation of a license application for a 1,000 cfs, 75-foot head project at an existing dam.

Nacimiento Hydroelectric Project, Paso Robles, California. Project Manager for FERC licensing, design and construction of this 4.3 MW project. Duties included managing a multi-disciplinary team of engineers, scientists and support personnel as well as providing technical analysis. The project consisted of a retrofit to the existing 200-foot high earthfill dam used for flood control and irrigation water supply. The powerhouse was constructed at the outlet of the existing low-level outlet conduit. Minimum instream flows and dissolved oxygen levels were successfully negotiated with the responsible State and federal agencies.

Mahoney Lake Hydroelectric Project, Alaska. Conducted initial planning for the project, assisted in preparation of engineering designs and FERC license exhibits A, B, C, D, F and G, and provided guidance and assistance in the preparation of Exhibit E.

Snoqualmie Falls Hydroelectric Project, Snoqualmie, Washington. Lead Engineer for FERC relicensing of the 42 MW Snoqualmie Falls Hydroelectric Project. Work involved preliminary design of a new power intake and fish screens, retrofit of a second intake, design of sediment exclusion facilities, sizing of tunnel and penstocks, inspection of existing conditions for retrofit, and layout of new turbine/generator units. Responsible for preparing preliminary engineering design drawings for the FERC License Application (Exhibit's F and G), preparing the Erosion/Sedimentation Control Plan, and composing text for various technical portions of the License Application.

Upper South Fork Snoqualmie Hydroelectric Project, North Bend, Washington. Project Manager for preparation of a FERC license application for this 3.5 MW project. The project included a 10,800 foot long, 42-inch diameter buried steel pipeline.

Lake Elva Hydroelectric Project, Dillingham, Alaska. Lead Engineer for conducting a Detailed Feasibility Study consistent with FERC license application exhibit requirements. Project was a 120-foot high zoned rockfill dam and 55-mile long transmission line.

Youngs Creek Hydroelectric Project, Sultan, Washington. Assisted in preparation of license Exhibits F and G. The exhibits consisted of preliminary design drawings of the concrete gravity dam, power intake, sluiceway, trashracks, fish screens, and fish bypass. The project is designed to convey 140 cfs to a 51-inch diameter buried steel penstock and 7.5 MW powerhouse.

Foothills North Hydroelectric Project, North Bend, Washington. Project Manager for all licensing activities for a 5.5 MW high head project. Work will begin in 2005.

Foothills South Hydroelectric Project, North Bend, Washington. Project Manager for all licensing activities for a 6.6 MW high head project. Work will begin in 2005.

Dam Safety Inspections and Probable Maximum Flood Studies:

Ketchikan Lakes Dam, Ketchikan, Alaska. FERC-approved Independent Consultant. Prepared Part 12 Report and Potential Failure Mode Analysis. Rockfill with timber core. Completed 2005.

Upper Silvis and Lower Silvis Dams, Ketchikan, Alaska. FERC-approved Independent Consultant. Prepared Part 12 Report and Potential Failure Mode Analysis. Both dams are rockfill with concrete upstream face. Completed 2005.

Whitman Lake Dam, Ketchikan, Alaska. Prepared Periodic Safety Inspection Report in accordance with State of Alaska dam safety regulations. Concrete arch.

Sullivan Lake and Mill Pond Dam, Metaline Falls, Washington. FERC-approved Independent Consultant. Prepared Part 12 Report and developed a new Inflow Design Flood. Sullivan Dam is a composite concrete gravity/earthfill, and the Mill Pond facility consists of a concrete gravity dam and an earthen dike.

Ross, Diablo, and Gorge Dams, Newhalem, Washington. Developed three new Probable Maximum Floods based on newly published HMR57, and wrote the Spillway Adequacy section for each Part 12 report.

South Fork Tolt Dam, Carnation, Washington. Prepared a new Probable Maximum Flood based on HMR57, and wrote the Spillway Adequacy section for the Part 12 report.

Boundary Dam, Metaline Falls, Washington. Assisted in a major updating of the Probable Maximum Flood for the 25,000 square mile basin, including development of a complex computer model to route the PMF through 7 large upstream dams. Work was conducted as part of a Part 12 report.

Bull Run Dam Nos. 1 and 2, Portland, Oregon. As part of a FERC Part 12 Independent Consultant Dam Safety Inspection, conducted two new PMF studies, based on HMR 57 criteria, for Bull Run Dam Nos. 1 and 2.

Jackson Hydroelectric Project, Sultan, Washington. Analyzed and prepared the Probable Maximum Flood and Spillway Adequacy section on the Part 12 report.

Rocky Reach and Chelan Dams, Wenatchee, Washington. Assisted in monument data collection, plotting and data interpretation for a Part 12 report.

Dambreak Analysis / EAP's:

Bull Run Dam Nos. 1 & 2, Portland, Oregon. Conducted a dambreak analysis of Dam Nos. 1 and 2 through a 27 mile stretch of river to the Columbia River. Prepared inundation maps for emergency preparedness officials.

Mt. Tabor Reservoir Complex, Portland, Oregon. Conducted a dambreak analysis of the City of Portland's in-city water supply reservoirs. Work involved determining hypothetical failure modes for Reservoir Nos. 1, 5 and 6, and estimating the extent, depth and timing of flooding through mostly residential and commercial areas of the city.

Washington Park Reservoir Complex, Portland, Oregon. Conducted work similar to that at Mt. Tabor. Work involved determining hypothetical failure modes for Reservoir Nos. 3 and 4, and estimating the extent, depth and timing of the flood wave through a mostly commercial area of downtown Portland.

Sullivan Lake and Mill Pond Dam, Metaline Falls, Washington. Conducted a dambreak analysis of two concrete dams in sequence on a tributary of the Pend Oreille River, located north of Spokane. Also prepared the Emergency Action Plan for both dams.

Enloe Dam, Oroville, Washington. Conducted a dambreak analysis of this 60-foot high concrete gravity arch dam. Maximum discharge is 216,000 cfs. Also prepared the Emergency Action Plan and inundation maps showing a large portion of Oroville impacted by a dambreak.

Bremerton Reservoir No. 4, Bremerton, Washington. Conducted a field study and engineering analysis of the consequences of failure to the City's 11 million gallon water supply reservoir. The dambreak analysis and EAP were prepared in conformance with requirements of the State Department of Ecology's Dam Safety Section.

Design and Construction:

Reza Shah Kabir Dam (also called Karun I Dam or Shahid Abbaspour Dam), Iran. Civil works inspector and office engineer during construction of the 660-foot high concrete arch dam, 570,000 cfs gated spillway, and 1,000 MW powerhouse. Duties included concrete placement inspection, shop drawing reviews and approvals of dam and powerhouse construction, preparing design modifications and processing change orders, devising methods for monitoring dam and abutment seepage rates, and observing and reporting on specific dam and abutment grouting operations.

Nacimiento Hydroelectric Project, Paso Robles, California. Project Manager for design and construction of a 4.3 MW plant at an existing 200-foot high earthfill dam. Two construction contracts involved: 1) Turbine/generator equipment procurement and installation, and 2) General construction of the powerhouse, short penstock, and switchyard.

Roberts Tunnel Hydroelectric Project, Colorado. General Office Engineer duties including responding to contractor requests for clarification, processing change orders and reviewing pay requests.

South Fork Tolt Reservoir Intake Seismic Upgrade, Carnation, Washington. Responded to contractor requests for clarification, and general CM assistance.

Homer Wastewater Treatment Plant, Homer, Alaska. Five construction contracts. General CM duties included responding to contractor inquiries, processing change orders, providing direction to field inspectors, and processing contractor pay requests.

White River Dam, Buckley, Washington. Designed repairs to the right abutment of an existing timber crib dam. The concrete abutment was severely undermined and required stabilization.

Bigfork Hydroelectric Project, Bigfork, Montana. Project Manager for design and preparation of technical specifications for repair of the concrete-lined canal following a canal failure in January 1995. Also designed and prepared technical specifications for repair of power intake gate seals and replacement of two 6-foot diameter turbine isolation valves.

Cabinet Gorge Dam, Sandpoint, Idaho. Project Manager for analysis, design and preparation of technical specifications for remedial measures to protect the left abutment and thrust block from scour due to potential overtopping.

R. D. Smith Hydroelectric Plant, Othello, Washington. Assisted in the design of a new headgate, tailrace bulkhead gates, and associated hoisting equipment at this existing hydro site located within the Columbia Basin Project canal system.

Miscellaneous Projects:

Hydropower Study on Columbia Basin Project Canal System, Pasco, Washington. Analyzed the hydropower potential at various canal drops within the canal system. Prepared four FERC Preliminary Permit Applications on the most promising sites, and conducted a feasibility study of one site.

Skagit Project (Ross Dam, Diablo Dam, Gorge Dam)– Inflow Forecast, Newhalem, Washington. Participated in a 2 year study to determine how to best forecast the volume and timing of runoff into the 3 reservoir system in order to better manage the storage and releases from each reservoir.

Boundary Dam Rehabilitation Project, Metaline Falls, Washington. Conducted an inventory and evaluation of civil and structural rehabilitation measures for this 1,051 MW hydroelectric

project owned and operated by Seattle City Light. Rehabilitation work includes increasing dam instrumentation, stabilizing settlement of the forebay wall, trashrack repairs and improvements, modifications and additions to the existing water supply and wastewater systems, road and drainage improvements, improving corrosion protection measures, tunnel improvements and improving safety hazard protections.

Willamette Falls Hydroelectric Project, West Linn, Oregon. Lead Engineer for conducting a Feasibility Study of rehabilitating an old hydropower project adjacent to PGE's existing plant.

Buttonrock Dam Raise, Longmont, Colorado. Lead Engineer for studying the feasibility of raising the existing 190-foot high zoned embankment dam an additional 50 feet to provide additional water supply regulation capability.

Bradley Lake Hydroelectric Project, Homer, Alaska. Project Manager for assessing the U.S. Army Corps of Engineers' preliminary design of the 135MW project, including a 110-foot high concrete gravity dam. Reviewed the dam, spillway, tunnel and penstocks, powerhouse and overall constructibility and cost.

Tazimina Hydroelectric Project, Iliamna, Alaska. Lead Engineer for preliminary design of a low-head intake, penstock and powerhouse. The intake required sediment exclusion facilities to prevent severe abrasion of the turbine runners. Developed specifications for construction of a 1:40 scale hydraulic model for purposes of evaluating the intake performance.

Guri Dam, Venezuela. Analyzed spillway discharge profiles for raising the dam and spillway at Guri Dam, a 530 foot high concrete gravity dam in Venezuela. Optimum spillway shapes, training wall heights, and zones of subatmospheric pressures were determined for normal and Probable Maximum Flood conditions.

Inspection of Miscellaneous Dam and Hydroelectric Projects, New England. Project Manager for inspection and review of 28 existing dams and hydroelectric projects located in the New England area. The condition of existing masonry and concrete structures was observed and recommendations for remedial measures were made.

Miscellaneous Studies, Conducted various technical, regulatory and economic analyses for the following hydroelectric projects: Dolores Pumped Storage (Colorado, 250 MW), Ellwood (Pennsylvania, 3.2 MW), Moss Bluff (Florida, 1.3 MW), Salamonie (Indiana, 5.3 MW), Monroe (Indiana, 4 MW), Huntington (Indiana, 1.8 MW), Brookville (Indiana, 3 MW), Tuttle Creek (Kansas, 14.8 MW), Milford (Kansas, 10 MW), Antilon Lake Pumped Storage (Washington, 1000 MW), Cave Run (Kentucky, 11.5 MW), Fishtrap (Kentucky, 5.6 MW), San Antonio (California, 2.5 MW), Sheep Mountain (Colorado, 500 MW), Asotin (Washington, 350 MW), Black River (New Hampshire, 12 MW), Martinsville (Virginia, 15 MW), LaChute (New York), Yough (Pennsylvania), Aziscohos (Maine, 6.8 MW).

Professional Licenses:

Registered Professional Engineer, Washington (No. 18211), California (No. C-40147), Alaska (No. CE-5216), Wisconsin (No. E-18087)

Member, United States Society on Dams (USSD)

2. Knowledge of the effects of construction and operation of hydroelectric projects.

I believe I have acquired sufficient practical knowledge of what can and does happen during construction and operation of a hydroelectric project to be of some use to both sides of a dispute. I've been at the table many times with agency personnel, contractors, and project owners to discuss a wide array of issues such as fish passage, minimum instream flows, seasonal construction windows, instream construction, low dissolved oxygen, nitrogen supersaturation, permissible reservoir fluctuations, tailrace barriers and the design of project facilities to find an acceptable balance between those responsible for managing and protecting public resources and the public's desire for economical power costs.

3. Working knowledge of laws relevant to expertise, such as: the Fish and Wildlife Coordination Act, the Endangered Species Act, the Clean Water Act, the Coastal Zone Management Act, the Wild and Scenic Rivers Act, the Federal Power Act or other applicable laws.

I appreciate and understand the importance and applicability of the specific sections of each law relevant to hydropower development. It would be difficult to accumulate 3 decades of hydropower experience and not be aware of how these laws affect hydro development. My experience includes preparing, and assisting in the preparation of, applications for dredge and fill permits, 401 certification, CZMA questionnaires and similar state and local permits. I would feel very comfortable participating in any study dispute resolution case, and providing analysis, opinions, or recommendations that would be consistent with federal law.

4. Ability to promote constructive communication about a disputed study.

I feel I have the ability to speak AND listen effectively within a group for the purpose of finding common ground and resolving any study dispute. Most people probably feel the same way as I do. But don't take my word for it. Ask my references. They can give you a candid and more objective opinion about my communication skills and ability to work constructively within a group.

References:

Mr. Frank Galida, Hydroelectric Project Manager
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