

# Qualification Statement Submittal Form for Regulatory Dam Inspection Services and Other Dam Safety Related Engineering Services

Please save this document locally, fill in all applicable fields, and attach to your submittal e-mail.

## A. Company Contact Information:

Company Name:	Black & Veatch Corporation		
Street Address:	200 Wheeler Road	City:	Burlington
		State:	MA
		Zip Code:	01803
		Phone:	215-928-2232
		E-Mail:	hogandj@bv.com
Web Address:	www.bv.com	Primary Contact:	Dennis Hogan

Is this company registered to practice as a Professional Engineering Corporation in the State of Connecticut?  YES  NO

CT Registration#: PEC.0000710

## B. Company Description:

Black & Veatch has been designing dams longer than any other consulting engineering firm in the United States. Our first project, the Vyrnwy Dam in Wales, was completed in 1888. Since that project, Black & Veatch has been responsible for the investigation, analysis, design, or construction of more than 1,500 dams in 20 countries with nearly continuous work for over 100 years. Since 2008, more than 350 of our engineers worked on over 200 dams around the world. ENR currently lists Black & Veatch as the fifth largest firm in the design and construction of dams and reservoirs.

Today's projects require increasingly more complex processes and procedures for tracking and sharing data because many people need access to the information to support decision-making. The ripple effect of each decision influences the lifecycle of a project. Our management system, technical expertise, and commitment to providing our clients with Black & Veatch's very best professionals translate to successful projects that exceed our clients's expectations.

We recognize dam engineering as a key technology and maintain a global Community of Practitioners (CoP). The purpose of the CoP is to provide consistency of service and to share knowledge, transfer technology, and provide our best technical resources regardless of the project location. This ensures that our clients stay on the leading edge of innovation. Through this process, we have successfully provided dam engineering services for clients worldwide, resulting in award-winning, innovative, and cost-effective projects. Black & Veatch has more than 2,500 professionals dedicated to executing water projects throughout the world. More than 200 of these professionals are versed in the investigation, design, and construction of dams and levees. Our CoP is a dedicated group of professionals that work solely on dam and reservoir projects.

As a dam and water engineering firm, Black & Veatch will provide a wide range of technical specialists and experts as necessary to provide rock solid conclusions, recommendations and designs. In developing our team, we selected a core group of professionals who have the skills, experience, and working relationship needed to complete the varied scope potential. With a technically proficient project staff and a proactive, hands-on manager, Black & Veatch exceeds client expectations.

As we have discovered on previous projects, the best approach is the one that allows all critical project components—from client goals to technical concerns, from site conditions to operability—to be evaluated from outside the confines of a predetermined design. Black & Veatch's approach and procedures have been applied to dam and reservoir engineering projects across the United States and worldwide. These experiences afford Black & Veatch an understanding of the performance of dams and reservoirs over the facilities' full, expected range of operation.

### C. Staff Information

For key staff members that may be assigned dam safety related tasks, please provide the following information. For each staff member listed, attach a current resume to the submittal e-mail.

Staff 1 Name:	Dennis J. Hogan, PE	Title:	East Region Practice Leader, Dam Engineering
Primary Duties:	Managing large, high hazard dam design and rehabilitation projects. CT experience in spillway and dam rehabilitation construction.	Connecticut P.E. License #:	Pending June 2014
		Relevant Years Experience:	14 Resume Attached <input checked="" type="checkbox"/>
Staff 2 Name:	Molly O'Connor, PE	Title:	Senior Project Engineer, Dam Engineering
Primary Duties:	Executing geotechnical investigations and analyses in support of new dam and rehabilitation designs.	Connecticut P.E. License #:	Application through reciprocity
		Relevant Years Experience:	10 Resume Attached <input checked="" type="checkbox"/>
Staff 3 Name:	Greg Zamensky, PE	Title:	Americas Practice Leader, Dam Engineering
Primary Duties:	Managing dam safety programs, dam design and rehabilitation projects. Directs discipline leaders and provides technical guidance.	Connecticut P.E. License #:	Application through reciprocity
		Relevant Years Experience:	22 Resume Attached <input checked="" type="checkbox"/>
Staff 4 Name:	Jeff Bair, PE	Title:	Chief Engineer, Dam Engineering
Primary Duties:	Lead technical designer and quality reviewer for all large dam projects in the United States.	Connecticut P.E. License #:	Application through reciprocity
		Relevant Years Experience:	22 Resume Attached <input checked="" type="checkbox"/>
Staff 5 Name:	Mario Francucci, PE	Title:	Client Director, New England
Primary Duties:	Project management and contract execution for heavy civil engineering projects in New England.	Connecticut P.E. License #:	0022966
		Relevant Years Experience:	38 Resume Attached <input type="checkbox"/>

### D. Services:

Please check the box next to any service your firm is qualified to undertake and interested in providing. If your firm offers other specialized dam-related services, please list them in the space provided. In following sections you will be asked to explain qualifications and provide examples of previous work and references for each service you check or list.

Dam Inspection <input checked="" type="checkbox"/>	Inundation Modeling and Mapping <input checked="" type="checkbox"/>	Other Specialized Dam Safety Related Services: Risk characterization and prioritization, FEMA Table top and functional Exercises, Funding, grants and CIP planning.
Dam Emergency Action Plan Preparation <input checked="" type="checkbox"/>	Hydrologic and Hydraulic Studies <input checked="" type="checkbox"/>	
Dam Operations and Management Plan Preparation <input checked="" type="checkbox"/>	Stability Analysis <input checked="" type="checkbox"/>	
Dam Repair Plan Preparation <input checked="" type="checkbox"/>	Underwater Investigation <input type="checkbox"/>	
Dam Removal Plan Preparation <input type="checkbox"/>	Dam Repair and Construction Monitoring <input checked="" type="checkbox"/>	

## E. Qualifications:

Please explain your firm's qualifications for each service checked or listed in section D.

Black & Veatch dam engineers are active members of the Association of State Dam Safety Officials (ASDSO), serving on technical committees and reviewing conference proceedings. With our Connecticut dams experience, we are familiar with the dam safety regulations, as well as other applicable federal entities involved with dams (FERC, USACE, USBR). A brief summary of our qualifications is listed below:

**SAFETY INSPECTIONS** - Black & Veatch regularly inspects Earth Embankment Dams, Concrete Gravity Dams, Slab and Buttress Dams, Roller Compacted Concrete (RCC) Dams, and Rockfill Dams. Our experience also includes Timber Crib and Ambursen Dams, granting us considerable representative insight into our client's facilities and needs. Black & Veatch is familiar with state dam safety regulations throughout the United States, as well as with federal regulations such as those mandated by the Federal Energy Regulatory Commission (FERC), US Bureau of Reclamation (USBR) and US Army Corps of Engineers (USACE). With six FERC approved Independent Consultants, we regularly perform FERC Part 12 safety inspections.

**DAM INVESTIGATIONS** - Understanding the condition and details of a dam leads to timely and efficient study. It is paramount with older structures to know the true state of the dam and its foundation. Black & Veatch focuses on phased investigations using state-of-the-practice techniques to best characterize the structure for further analyses. We have employed techniques ranging from traditional test pitting and test borings to ground penetrating radar and seismic analysis of spectra waves to provide subsurface information.

**DAM STABILITY** - Black & Veatch dam engineers use state-of-the-art Finite Element Analysis to analyze aging structures and determine their stability under various loading conditions. Standard tasks that would be involved in a stability analysis include evaluation of slope stability under static and dynamic loadings and 3D finite element analysis of concrete dams.

**SEEPAGE MODELING** - Quantifying the phreatic conditions and related stability in earth embankment dams is a primary requirement for the safety of aging structures. Black & Veatch Dam engineers are experienced in the most advanced finite element, time-dependent, and variable strength modeling of embankments. Standard tasks that could be involved in seepage and stability analyses include: Review existing documentation and data for material and foundation characterization; Coordinate assumed reservoir levels and anticipated flows with existing or updated hydrologic and hydraulic analyses;

**SPILLWAY DESIGN FLOOD DETERMINATION & HAZARD CLASSIFICATION** - The inflows calculated for the watershed are analyzed in accordance with the appropriate dam safety regulations for storm recurrence intervals and the existing or planned spillway capacity. The size and hazard classification of the dam mandate the Spillway Design Flood (SDF) flow requirements, and the hazard classification is determined by the estimated downstream affects from a theoretical dam failure to life and property.

**DAM BREACH MODELING & FLOOD ROUTING** - CT DEEP requires that Owners have a detailed understanding of the consequences of failure of their dams and that they report that information to the public. From the watershed and design flood tasks, a hydraulic model of the downstream channel and the inflow tributaries is developed and dam breach conditions applied. Standard tasks that would be involved in a comprehensive downstream hydraulic model include: Develop 3D model using HEC-GeoRAS, Perform field survey for inclusion in the model for critical structures such as bridges and crossings; Execute Dam Breach model for required regulatory storm events, typically including "sunny day", SDF and Probable Maximum Flood (PMF) conditions.

**INUNDATION MAPPING & EVACUATION PLANNING** - The inundation maps for an EAP identify the population at risk in case of a dam failure. Development of the inundation maps is founded in hydrologic, hydraulic and dam break analyses. The proper graphical representation of the analysis results is just as important as the results themselves. Black & Veatch will coordinate with the client and emergency management personnel to incorporate necessary information to create useful maps.

**EMERGENCY ACTION PLANNING** - We will work with the owners and other necessary emergency management personnel to develop/refine the specific elements of the EAP. A few elements for consideration include: Notification Flow Charts with Owner protocols, downstream parties, and Emergency Management Agencies' interests. Event Level Determination Guidance and Action Data Sheets are also developed in conjunction with tabletop and field exercises in accordance with FEMA guidelines.

**PM/CM CAPABILITIES** - Black & Veatch delivers major capital programs from concept to successful, efficient operation. Global clients rely on Black & Veatch engineering, construction, operations and program delivery specialists to deliver and optimize the most complex programs. We provide expert representation as the owner's engineering and construction consultants including Master planning, Capital and life cycle cost modeling, risk management, contractor pre-qualification, permit management, design and constructability reviews, value engineering, bid and construction phase services.

## F. Examples of Previous Work:

For each service checked or listed in section D, provide at least one comparable project completed by your firm within the past 10 years. Provide a brief description of the service rendered, the project name and location (Town and State), dam class, and a customer reference name and contact information (phone and/or e-mail)

Service Provided	Dam Name and Location	Dam Class	Customer Reference Name	Customer Reference E-mail/ Phone
Geotechnical investigation, Hydrology & Hydraulics, rehabilitation design	Reservoir No. 3 Hartford, CT	C	Chris Levesque	(860) 278-7850 x3113 CLEvesque@themdc.com
Dam Safety Inspections, Surveillance and monitoring plans, rehabilitation design	Occoquan River Dams Fairfax, VA	C	Mishelle Noble-Blair	703-641-6612 mnoble@fairfaxwater.org
Spillway expansion and rehabilitation, computational fluid dynamics	Lake Holiday Dam Cross Junction, VA	C	Wayne Poyer	540-888-9329 poyer67@gmail.com
Forensic engineering, geotechnical investigation, rehabilitation alternatives	CW Young Reservoir Tampa Bay, FL	C	John Kennedy	jkennedy@tampabaywater.org 727-796-2355
Geotechnical Investigation, Hydrology & Hydraulics, new dam design	Lake Wohlford Dam Escondido, CA	C	Craig Whittemore	cwhittemore@ci.escondido.ca.us
Dam break inundation mapping, 3D finite element analysis, scour analysis	Pedlar Dam Lynchburg, VA	C	Steve Shenk	William.Shenk@lynchburgva.gov
Construction Management, Design and constructability reviews, cost estimating	San Vicente Dam San Diego, CA	C	Jerry Reed	858-522-6835 jreed@sdcwa.org
Seismic Retrofit Program Manager, dam raising, spillway expansion	Anderson Dam Santa Clara, CA	C	Emmanuel Aryee	408-630-3074 earyee@valleywater.org
Construction Management, public outreach, constructability review	Caleveras Dam San Francisco, CA	C	Dan Wade	415-554-1853 dwade@sflower.org
Dam inspections, potential failure modes analysis, geotechnical investigations	Multiple dams Pacific Northwest	C	William Schallenberger	will.schallenberger@PacifiCorp.com
Hydrology & Hydraulics, Dam Safety Inspections, rehabilitation alternatives	16 High Hazard Dams North Carolina	C	Terri Ruch	919-873-2130 Terri.Ruch@nc.usda.gov
Seismic characterization, stability modeling, risk characterization	Patillas Dam, Patillas, PR	C	Jose Bermudez	J-BERMUDEZ@AEEPR.COM
Planning and design of a new 110-foot high earth embankment dam	Catawba Reservoir Rock Hill, SC	C	Mike Bailes	mbailes@crwtp.com 803-289-5949
Dam raising feasibility study, value engineering	Lower Ragged Mtn.Dam Charlottesville, VA	C	Lauren Hildebrand	434-970-3333
Dam raising feasibility study, water resources permitting and planning	Siegrist Dam Lebanon, PA	C	Jon Beers	jbeers@lebanonauthority.org (717) 272-2841
Radial Tainter Gate Inspection, licensing support services	Bagnell Dam Ozark, MO	C	Matt Frerking	mfrerking@ameren.com 314.957.3426
Rehabilitation design with overtopping protection, emergency action plan	Lake Blalock Dam Spartanburg, SC	C	Ken Tuck	ktuck@spartanburgwater.org (864) 578-2764
Forensic investigation of outlet pipe, rehabilitation design	Motts Run Dam, Spotsylvania, VA	C	Chris Edwards	CTEdwards@spotsylvania.va.us 540-507-7304
Evaluation of two concrete arch dams, seismic analysis, material assessment	Pinnacles Hydro Dams Danville, VA	C	Philip Slate	slatepa@ci.danville.va.us
Dam and spillway design, value engineering, construction management	Lake Lenexa Dam, Lenexa, KS	C	Tom Jacobs	913-477-7644