



The Challenges of Dams in Cold Climates

Design, Construction, Permitting, Environmental, and Sustainability Issues

Focusing on

Alaska, Canada, and High Elevation Dams

September 20-22, Girdwood, Alaska

Tuesday, September 19

6:00 pm – 7:00 pm **NHA/USSD Welcome Reception**

Wednesday, September 20

7:30 am – 6:00 pm **Registration Desk open**

7:30 am – 8:30 am **Continental Breakfast and Exhibition**

8:30 am – 10:15 am **Plenary Session, Part One**

Moderator -- Denise Bunte-Bisnett, Santee Cooper

Welcome and Introductions

Robert Cannon, Schnabel Engineering; and **Denise Bunte-Bisnett**, Santee Cooper

Cold Climate Dam Engineering and Operation in Alaska: Case Studies

Charles Cobb, State Dam Safety Engineer, Alaska Department of Natural Resources

Dams in Cold Climates: Lessons Learned

Doug Johnson, Federal Energy Regulatory Commission, Portland

IHA Hydropower Sustainability Protocol

Joerg Hartman, Sustainability Consultant

10:15 am – 10 :45 am **Break**

10:45 am – 12:15 pm **Plenary Session, Part Two**

Moderator -- Robert Cannon, Schnabel Engineering

Overview of Alaska Affordable Energy Strategy and the Role of Hydropower

Neil McMahon, Alaska Energy Authority

Special Alaska Requirements to Permit Hydropower and Other Dams

David Schade, Alaska Department of Natural Resources

Cold Weather and High Altitude Dam Construction -- Twin Lakes Dam Enlargement Project Case Study

Daniel L. Johnson, AECOM; **Dan Hertel**, Engineering Solutions; and **Ted Feldsher**, AECOM

12:15 pm – 1:30 p.m. Lunch and Special Presentation

Moderator -- Robert Cannon

ASCE's Cold Regions Engineering Division: Standards, Manuals of Practice Case History Documentation

Thomas G. Krzewinski, Golder Associates, former President of the International Association of Cold Regions Development Studies (IACORDS)

1:30 pm – 3:00 p.m. Track A - Part 1: Investigation, Design, Construction and Operation of Dams in Cold Climates

Moderator – Frank Immel, Global Diving

Selection of Dam Types for Cold Climate and High Altitude Conditions

Glenn Tarbox, Stantec

Cost Estimating for Cold Climate Construction

Kevin Schneider, Barnard Construction Company

Applications and Performance of Exposed Waterproofing Geomembrane Liners on Dams in Extremely Cold Climate and Icy Conditions

John Wilkes, Alberto Scuero, and Gabriella Vaschetti, Carpi Tech

1:30 pm – 3:00p.m. Track B – Part 1: Environmental Sustainability – Plans, Studies and Permits in Alaska

Moderator—Denise Bunte Bisnett

Hydropower and Fish: Considerations and Case Studies for Sustainable Development in Alaska

Megan Marie, Alaska Department of Fish and Game

What's Needed to Obtain Water Rights for FERC and Non-FERC Hydroelectric Projects

Carl Reese, Alaska Department of Natural Resources

Using Climate Science to Assess Long-Term Effects of Dams on Salmon

Susan Walker, National Marine Fisheries Service, Alaska Region; **Andrea J. Ray**, NOAA Earth System Research Lab; and **Joseph J Barsugli**, NOAA-University of Colorado CIRES

3:00 pm – 3:30 pm Break

3:30 pm – 5:30 pm Track A – Presentations: Muskrat Falls Hydroelectric Development

Moderator -- Mike Pauletto, M. Pauletto and Associates, LLC

Muskrat Falls Project Overview

Ron Power, Nalcor Energy

Muskrat Falls Dams - Cold Climate Considerations

Greg Snyder, SNC Lavalin

Muskrat Falls North RCC Dam - Constructing in a Harsh Environment
Anderson Koehler, Barnard Construction Company

3:30 pm – 5:30 pm **Track B - Part Two**

Planning Site Work at Cold Region Dams - Logistical Impacts of Short Summer Seasons
Jennifer Richcreek, Kodiak Electric Association

Considerations in FERC Licensing of New Projects
Kirby Gilbert, Stantec

Permitting and Gaining Acceptance for Sweetheart Lake Hydroelectric Project
Duff Mitchell, Juneau Hydro

Emerging Federal Policy Affecting Hydro Development
Chuck Sensiba, VanNess Feldman

5:30 pm – 6:30 pm **Reception and Exhibition**
Dinner on your own

Thursday, September 21

7:30 am – 5:00 pm **Registration Desk open**

7:30 am – 8:00 am **Continental Breakfast and Exhibition**

8:00 am – 9:45 am **Track A Panel Discussion – Site C Dam, BC Hydro**

Panel Moderator -- Mike Pauletto, M. Pauletto and Associates, LLC
Bryan Forbes, GHD Australia
Francisco (Paco) Ortega, Consultant
Alfred Hanna, SNC Lavalin
Rod Carter, BC Hydro

8:00 am – 9:45 am **Track B – Case Studies of Projects Successfully Permitted**
Moderator -- Jeff Leahey, National Hydropower Association

Permitting, Licensing, and Environmental Issue Resolution for the Susitna-Watana Hydro, Southcentral Alaska
Wayne Dyok, H2O EcoPower (Retired, Alaska Energy Association)

Project Development and Assessment of Site C, British Columbia, Canada
Andrew Watson, BC Hydro

Thayer Creek Hydro
Del Shannon, Barnard Construction Company

9:45 am – 10:15 am **Break**

10:15 am – 12:15 pm **Track A Presentations**

Remote Access Drilling and Geophysical Program at Terror Lake Hydro Project, Kodiak Island
Gary Rogers, Schnabel Engineering; and **Jennifer Richcreek**, Kodiak Electric Association

The Challenges of Design and Construction of Back Dam at Red Dog Mine
Tom Krzewinski, Golder Associates

Dense Asphaltic Concrete Faced Dams and DAC Core Dams: A Canadian and European Solution for Short Construction Periods and Ice-Covered Reservoirs
David Wilson, WALO

10:15 am – 12:15 pm **Track B – IHA Hydropower Sustainability Assessment Protocol**, presented by **Dr. Joerg Hartman**

General Introduction: background, evolution, governance, methods, results
Overview of Case Studies

12:15 pm – 1:30 p.m. **Lunch and Special Presentation**
Moderator – Denise Bunte-Bisnett

Permitting, Cost and Technical Challenges of Removing Lower Eklutna Dam
Brad Meiklejohn, Alaska State Director, The Conservation Fund

1:30 pm – 3:30 pm **Track A Presentations**

High Production RCC and Mass Concrete Operations in Extreme Climate Conditions for Large Dams and Hydro Projects Worldwide
Ted Warren, RCC Presa Associates International LLC

Design and Construction Issues for the Planned RCC Susitna Dam
Wayne Dyok, H2O EcoPower (Retired, Alaska Energy Association)

Mile-High Cold Weather Marine Construction Mitigation Techniques
Jared Bell and **Scott Korab**, Ballard Marine

Unique Challenges of Floating Barriers in Cold Climate Regions: Case Studies
Greg Saunders, Revelstoke Design Services, Ltd.

1:30 pm – 3:30 pm **Track B – IHA Hydropower Sustainability Assessment Protocol**,
continued

1. *Lessons Learned and Case Studies from Protocol Applications in Iceland, Norway, Sweden and Canada*
2. *Exercises: How to Score the Sustainability Performance of a Project Against International Best Practices*

3:30 pm – 4:00 p.m. Break

4:00 pm – 5:00 pm Track A Presentations

Sweetheart Hydro Near Juneau, Alaska --Constructing a Large RCC Dam with no Road Access: Design and Construction Considerations

Tom Fitzgerald, Schnabel Engineering and **Duff Mitchell**, Juneau Hydro Inc.

Moose Creek Dam/Chena River Lakes Flood Control Project, North Pole, Alaska: USACE Design, Cost, and Constructability Considerations for CSM Barrier Walls in the Far North

Coleman Chalup and **Derek Maxey**, U.S. Army Corps of Engineers

4:00 pm – 5:00 pm Track B – IHA Hydropower Sustainability Assessment Protocol,
continued

Moderator – Jeff Leahey, NHA

Discussion: Practical requirements for assessments, added value of assessments, possible next steps in Alaska, closing panel

Friday, September 22

8:00 am – 4:00 pm Field Tour to Lower Eklutna Dam Removal Project

The field trip will leave the Hotel Alyeska at 8:00 a.m. and will return to the hotel by 4:00 p.m. Arrangements will be made for those with rental cars to leave their cars in Anchorage during the tour, and/or to take participants to the Anchorage airport by 3:00 p.m. Please do not schedule any departures before 5 pm.

Transportation during the tour will be provided in private vehicles. **Please plan to be in the lobby of the hotel by 7:30 am to work out the transportation details.**

The dam removal project project involves the demolition of the 61-foot high concrete Lower Eklutna Dam. The tour also includes a visit to a smaller dam on the glacial Upper Eklutna Lake in a scenic glacier-carved valley. The lower reservoir is filled with sediment, and the dam is obsolete. The demolition is intended to reestablish a salmon run in the Eklutna River. At the time of the field trip, the dam will be about 50% demolished. For those who want to walk down to the dam site, it is a strenuous climb down and back up a 400-foot aluminum staircase.

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