



A Symposium on Cooling Water Intake Technologies to Protect Aquatic Organisms

May 6 – 7, 2003

Hilton Crystal City at National Airport

AGENDA

Tuesday, May 6, 2003

8:10 am – 8:15 am **Opening Remarks, Scott Minamy, U.S. EPA Office of Research and Development**

8:15 am – 9:00 am **Keynote Addresses (Chesapeake Hall)**

8:15 – 8:30 Benjamin Grumbles, Deputy Assistant Administrator, U.S. EPA Office of Water

8:30 – 8:45 Alex Matthiessen, Executive Director, Riverkeeper, Inc.

8:45 – 9:00 Charles Goodman, Senior Vice President, Research and Environmental Affairs, Southern Company

9:00 am – 10:00 am **Overview Presentations (Chesapeake Hall)**

9:00 – 9:30 *An Overview of Fish Protection Technologies and Costs for Cooling Water Intake Structures*, Edward Taft and Thomas Cook, Alden Research Laboratory, Inc.

9:30 – 10:00 *An Overview of Flow Reduction Technologies for Reducing Aquatic Impacts at Cooling Water Intake Structures*, Reed Super, Riverkeeper, Inc.

10:00 am – 10:30 am *Break*

10:30 am – 12:00 pm **Session A: State-Level Issues (Chesapeake Hall)**

10:30 – 11:00 Richard McLean, Director of Nuclear Programs, Maryland Department of Natural Resources

11:00 – 11:30 Edward W. Radle (retired) and Michael J. Calaban, New York State Department of Environmental Conservation, Steam Electric Unit

11:30 – 12:00 Richard L. Wantuck, NOAA Fisheries, Santa Rosa, California

12:00 pm – 1:30 pm *Lunch (on your own)*

1:30 pm – 3:00 pm **Session B: Flow Reduction (Chesapeake Hall)**

1:30 – 1:50 *Retrofit of Closed-Cycle Cooling with Unit-Specific Mechanical Draft Wet Cooling Towers with By-Pass Capability: A Case Study*, Reed Super, Riverkeeper, Inc. and John Torgan, Save The Bay – People for Narragansett Bay

1:50 – 2:10 *Innovative Cooling System for Heat and Flow Reduction at the Brayton Point Power Station*, Thomas Englert, Lawler, Matusky and Skelly Engineers, LLP

2:10 – 2:30 *Design and Performance of Optimized Air-Cooled Condenser at Crockett Cogeneration Plant*, Bill Powers, P.E., Powers Engineering

2:30 – 2:50 *Evaluation of Variable Pumping Rates as a Means to Reduce Entrainment Mortalities*, John Young, ASA Analysis & Communications, Inc.

2:50 - 3:00 Q&A for Session B

3:00 pm – 3:30 pm *Break*

3:30 pm – 5:00 pm **Session C: Costs Associated with Flow Reduction (Chesapeake Hall)**

3:30 – 3:50 *Cooling System Retrofit Costs*, John Maulbetsch, Maulbetsch Consulting

3:50 – 4:10 *Estimating Energy Penalties for Wet and Dry Cooling Systems at New Power Plants*, Wayne Micheletti, Wayne C. Micheletti, Inc.

4:10 – 4:30 *A Tool for Budgetary Estimation of Cooling Towers Unit Costs Based on Flow*, Faysal Bekdash and Mike Moe, SAIC

4:30 – 4:50 *Power Plant Repowering as a Strategy for Reducing Water Consumption at Existing Electric Generating Facilities*, David Schlissel, Synapse Energy Economics, Inc.

4:50 – 5:00 Q&A for Session C

6:00 pm – 8:00 pm *Poster and Vendor Exhibit Social (Posters: Charleston Room; Vendors in room next door)*

Conference participants are invited to convene for drinks and discussion. Twelve displays prepared by scientists and industry experts will be presented, covering a range of innovative technologies for reducing impingement and entrainment by cooling water intake structures. Displays will include the latest developments in screening technologies, behavioral barriers, aquatic filter barriers, velocity caps, and more. Beverages will be available at a cash bar.

Wednesday, May 7, 2003

- 8:15 am – 8:20 am **Opening Remarks (Chesapeake Hall)**
Scott Minamyer, U.S. EPA Office of Research and Development
- 8:20 am – 9:30 am **Session D-1: Screening and Other Fish Diversion/Deterrent Technologies (Chesapeake Hall)**
- 8:20 – 8:40 *Fish Return System Efficacy and Monitoring Studies for JEA's Northside Generating Station,*
Isabel C. Johnson, Golder Associates, Inc.
- 8:40 – 9:00 *Effectiveness, Operation and Maintenance, and Costs of a Barrier Net System for Impingement Reduction at the Chalk Point Generating Station,* David Bailey, Mirant Mid-Atlantic
- 9:00 – 9:20 *Reductions in Impingement Mortality Resulting from Enhancements to Ristroph Traveling Screens at an Estuarine Cooling Water Intake Structure,* Kenneth Strait, PSEG Services Corporation
- 9:20 – 9:30 Q&A for Session D-1
- 9:30 am – 10:00 am *Break*
- 10:00 am – 11:30 am **Session D-2: Screening and Other Fish Diversion/Deterrent Technologies (cont'd) (Chesapeake Hall)**
- 10:00 – 10:20 *Development and Operation of Acoustic Fish Deterrent Systems at Estuarine Power Stations,*
Andy Turnpenny and Jeremy Nedwell, Fish Guidance Systems, Inc.
- 10:20 – 10:40 *Induced Sweeping Flows at CWIS for Reducing Fish Impingement,* Charles C. Coutant, Oak Ridge National Laboratory
- 10:40 – 11:00 *The Use of Angled Bar Racks and Louvers for Protecting Fish at Water Intakes,* Stephen Amaral, Alden Research Laboratory, Inc.
- 11:00 – 11:20 *A Review of Impingement Survival Studies at Steam-Electric Power Stations,* Steven Jinks, ASA Analysis & Communications, Inc.
- 11:20 – 11:30 Q&A for Session D-2
- 11:30 am – 1:00 pm *Lunch (on your own)*
- 1:00 pm – 2:50 pm **Session D-3: Screening and Other Fish Diversion/Deterrent Technologies (cont'd) (Chesapeake Hall)**
- 1:00 – 1:20 *Optimal Slot-Width Selection for Wedgewire Screens,* William Dey, ASA Analysis & Communications
- 1:20 – 1:40 *Development of Filter Fabric Technology to Reduce Aquatic Impacts at Water Intake Structures,* Matthew J. Raffenberg, Lawler, Matusky and Skelly Engineers, LLP
- 1:40 – 2:00 *Vulnerability of Biofouling of Filter Curtain Materials Used for Entrainment Reduction,*
Peter Henderson, Pisces Conservation Ltd. & University of Oxford and Richard Seaby, Pisces Conservation, Ltd.
- 2:00 – 2:20 *Laboratory Evaluation of Wedgewire Screens for Protecting Fish at Cooling Water Intakes,*
Stephen Amaral, Alden Research Laboratory, Inc.
- 2:20 – 2:40 *Selection and Design of Wedgewire Screens and a Fixed-Panel Aquatic Filter Barrier System to Reduce Impingement and Entrainment at a Cooling Water Intake Structure on the Hudson River,* Mark Strickland, PSEG Service Corporation, and James E. Mudge, Ph.D., Civil and Environmental Consultants, Inc.
- 2:40 – 2:50 Q&A for Session D-3
- 2:50 pm – 3:15 pm *Break*
- 3:15 pm – 4:15 pm Open Discussion: *Identify Research Needs,* facilitated by Jim Elder (**Chesapeake Hall**)
- 4:15 pm – 4:30 pm Wrap-up and Summary (**Chesapeake Hall**)
- 4:30 pm Closing Remarks and Adjourn, Scott Minamyer, U.S. EPA Office of Research and Development (**Chesapeake Hall**)