True North Consulting has developed two sets of heat exchanger training courses for nuclear plant system and component/program engineers. The next course offering for the Heat Exchanger training will be on July 15-19, 2013 in Ouray, CO at the Beaumont Hotel. Details regarding the conference location and accommodations are included below and at the provided links.

Additionally, we offer the option of providing a dedicated training course at your site, corporate location, or a preferred conference site of your choice, typically requiring a minimum of 5 participants.

We look forward to hearing from you,
Donald R. Horn, P.E.
President
True North Consulting, LLC

REGISTRATION

Telephone – 970-252-1489
E-mail – cma@tnorthconsulting.com or complete and return form below.

Course #1 - BOP Heat Exchanger Program:

- PM Actions
- Eddy Current Testing
- Tube Flaws
- Tube Plugging Decisions
- Guidance on Tube Plugs / Stabilization / and Tube Pulling
- Condition Assessment and Long Range Planning
- General Visual Inspection
- Industry Technical References
- Industry Experience Reviews
Course #2 - Service Water (UHS) / GL 89-13 Heat Exchanger Program:

- Visual Inspections (including new partial tube blockage guidance)
- Heat Exchanger Design Bases
- Heat Exchanger Operability
- Heat Exchanger Margins
- Margin Recovery Actions
- Integrated Approach to GL 89-13 HX Actions
- Industry Technical References
- Industry Experience Reviews

The BOP HX course emphasizes how to maximize HX reliability and service life by making the best tube plugging decisions. The course helps the students understand the various tube defects reported by eddy current testing, their causes, and the limitations of the inspection technology. Other PM actions such as visual inspection are also covered. The course addresses the performance of remaining life and condition assessments to support long range planning for major O&M and capital projects. A wide array of technical references and industry experiences are included in the training.

The Service Water (Ultimate Heat Sink cooling water) system / GL 89-13 HX course is focused on those HXs which rely upon visual inspections versus thermal performance testing. The training incorporates new industry guidance for partial tube blockage and the benefits of a checklist to ensure consistent thorough inspections. The training also helps the SW HX engineer understand the relationships between design basis, license basis, operability requirements, the corrective action program, and margins for safety related heat exchangers. A wide array of technical references and industry experiences are included in the training.

The BOP HX Program course is 2 ½ days and the SW/GL 89-13 HX Program course is 2 days. The courses include class exercises, Q&A periods, and an exam. True North Consulting offers each training course individually or a combined training package at a discounted price.

INSTRUCTOR / COURSE
Instructor – Iver Jacobson

Mr. Jacobson has 22+ years of professional experience in nuclear power plant engineering, including engineering roles in the System Engineering, Engineering Programs, and Design Engineering organizations. Heat exchanger activities have involved specifications, replacements, repairs, eddy current testing, monitoring, thermal performance testing, performance analysis, program procedures, calculations, reports, preventive maintenance optimization, and training. Heat exchanger related industry activities include:

- Technical Lead for EPRI Projects/Reports:
  - 1022980, Guidance for an Effective Heat Exchanger Program, September, 2011
- “Heat Exchangers & Power Uprates” paper at EPRI 11th BOP NDE Conference, 2010
- Technical Advisory Group member for EPRI Reports:
- EPRI Heat Exchanger Performance Users Group (HXPUG) past utility co-Chairman.
- Heat Exchanger Program Assessments at 10 stations for 8 utilities.

COURSE OUTLINE

Content and schedule for each training course is as follows:

Course #1 - BOP HX Program

Monday 8:00 – 5:00
- BOP HX Program
- HX PM Actions
- Eddy Current Testing Background
- Preparation for Eddy Current Testing
- ECT Report Content / Indications / Reviews
- Tube Plugging Calculator / Follow-up
- ECT Industry Experience Review

Tuesday 8:00 – 5:00
- ECT Class Exercise
- Tube Plug Selection/ Leak Response
- HX Remaining Life & Condition Assessment

Wednesday 8:00 – 12:00
- HX Industry Experiences / Contacts
- Visual Inspections
- HX Technical References
- Review / Exam

Course #2 – SW/GL 89-13 HX Program

Wednesday 1:00 – 5:00
- GL 89-13 Program
- SW HX Visual Inspections - Checklists
- SW Visual Insp. – Partial Tube Blockage

Thursday 8:00 – 5:00
- Industry Experience / Ref. Docs
- HX Design Basis & Licensing Basis
- HX Operability
- Margins & Margin Recovery
- HX Margin Class Exercise
- General HX Visual Inspection

Friday 8:00 – 12:00
- Integrated Approach to GL 89-13 HXs
- Review / Exam

PRICING

Course 1 or Course 2 training including related reference materials **$1,850/attendee**
Combined Course 1 & Course 2 (4 ½ days) training including reference materials **$2,500/attendee**

LOCATION

Beaumont Hotel
www.beaumonthotel.com
505 Main Street
Ouray, CO 81425
Phone: (970) 325-7000; Reservations: (888) 447-3255

“COMPREHENSIVE TRAINING SERVICES FROM INDUSTRY EXPERTS”
ACCOMODATIONS There are several options for accommodations in the Ouray area, most within walking distance of the training facility. Please see the below link for Ouray for more information.

Montrose Area Information Montrose, Telluride, Ouray

Training Critique and Comments

- "Excellent materials, maybe the best on-site training we've ever had. Excellent presentation."
- "Will improve heat exchanger performance and reliability site wide."
- "Long overdue training. I've been reviewing ECT data and making calls, but learned a lot about the data we're presented to make more informed calls."
- "Excellent training. Would highly recommend."
- "Trainer was very knowledgeable subject matter expert. This was a very good and very applicable training subject for BOP Engineers."
- "The material was very pertinent to our work. Good OE, vendor contact info, and reference materials. The material was covered well with good experience of the presenter. Excellent class."
- "Handouts were excellent quality, many good, real-life examples made the training hit home."

Note: Additional information on Courses offered may be found at the link above or through True North’s website at: www.tnorthconsulting.com.

Registration

Four Easy Ways to Register!

- E Mail: (Complete Form below and forward to Christine Allen (cma@tnorthconsulting.com)
- Telephone: 970-252-1489
- Fax: 970-252-1837
- Mail (complete form and enclose check or credit card information):

True North Consulting, LLC
Training Courses for the Heat Exchanger Engineer
150 Merchant Drive
Montrose, CO 81401

Please Select Desired Course:

Course #1: BOP HX Program Course #2: SW/GL 89-13 HX Program Both Courses #1 & #2

“COMPREHENSIVE TRAINING SERVICES FROM INDUSTRY EXPERTS”
Name________________________________________________________________________________
Title_________________________________________________________________________________
Company_____________________________________________________________________________
Address______________________________________________________________________________
Telephone____________________________________________________________________________
Fax__________________________________________________________________________________
Email________________________________________________________________________________

**Payment Information**

Credit Card

__ Visa   __ MasterCard  __ American Express __ Other (                   )

Card #_________________________________________________________ Exp. Date______________

Cardholder Name_______________________________________________________________________

Cardholder Signature___________________________________________________________________

*Receipt will be available sent electronically once payment has been processed.*