Interest Growing in Digital Radiography Technology

In November of 2004, the Center for Naval Shipbuilding Technology awarded a project to a Northrop Grumman Newport News (NGNN)-led team to develop a Digital Radiography system that uses Computed Radiography (CR) techniques. The system will employ reusable phosphorescent plates to replace current processes that consume expensive, non-reusable film and chemical systems. CR also offers a digital format for more compact, convenient storage of images and can provide an immediate indication of weld quality.

On April 6th, NGNN held a quarterly project review that demonstrated the wide-ranging interest being generated by this project. The meeting drew representatives from NAVSEA 05, NAVSEA 08, CNST, naval shipyards, Northrop Grumman Ship Systems, General Dynamics-Electric Boat and SupShips Newport News.

CR System in use at NGNN.

The review had two main objectives, first to brief the project's status with regard to technical, schedule and budgetary goals and second, to provide a venue for other interested parties to learn about the project and its opportunities. With regard to the first objective, considerable technical progress has been made; in particular:

- The project team has accumulated a wide range of knowledge and resources, including ASTM standards, technical imaging gauges, evaluation exercises and state-of-the-art CR capability.
- Benchmark exercises have been completed with ASTM EPS tools using class I & II film systems with low & high energy X-ray and iridium sources.
- Simulated production welds and castings were identified and prepared for an upcoming project phase when film and CR evaluations will be compared side-by-side.

Fuji NDT's Dynamix CR System

- Qualification radiographs from Norfolk Naval Shipyard were reviewed for consistency with this project's technical approach and consistency with past naval radiographic qualification attributes. This information will be used as part of the overall technical connection to past naval radiographic standards.

The second meeting objective is closely related to the project's technology transfer goals. To provide other interested parties the opportunity to get involved in developing CR technology, NGNN developed a plan for voluntary participation of activities desiring to acquire knowledge/experience with CR. This written plan provides details of technical image performance gauges and their use, ASTM standards information on CR and a fairly extensive compilation of technical reference materials accumulated to date. It also includes a suggested CR system minimum

capability with recommended technical performance attributes as currently available to the project. NGNN also provided CD-ROM copies of the formal presentation and led an interactive session where participants queried the project team on its mission and progress.

To further encourage technology transfer, other exchanges are planned for the near future, including attendance and technical update at the NAVSEA NDT Workgroup meeting in May, '05; attendance and technical update at the ASNT Digital Radiography Topical Conference in July, '05 and continued participation with CR updates during NAVSEA NDT teleconferences. Other exchanges are planned as funding permits, i.e., participation in the CVN/PMS 378 review in June, '05.

It is clear that the project has a good sense of technical direction, teaming support and interest of key naval personnel.

About CNST

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