**DWIGHT A. CLAYTON**
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Dwight A. Clayton is the Research Operations Manager for the Electrical and Electronics Systems Research Division (EESRD) at the Oak Ridge National Laboratory (ORNL), Oak Ridge Tennessee. The mission of the Electrical and Electronics Systems Research Division is to perform research that translate the science and engineering of measurement, instrumentation, and electric machines into technology solutions to ensure America's security and prosperity by addressing nuclear, environmental, and energy challenges. Dwight joined ORNL in 1983 as a development staff member in the Instrumentation and Controls Division. In 1994, Dwight was named leader of the Electronic and Embedded Systems Group (EESG). During his time as the group leader (1994-2014), the innovative efforts of the EESG resulted in the receipt of four R&D 100 awards.

## Research and Professional Experience

**1/15 Present** **Research Operations Manger,** EESRD, ORNL

- Leading the Nondestructive Evaluation of concrete structures for the DOE-NE Light Water Reactor Sustainability Program as part of the Materials Aging and Degradation Pathway
- Serving as the Accident Tolerant Equipment Topic Lead for the U.S. in the Light Water Reactor R&D Sub-Working Group of the Civil Nuclear Energy Working Group (US-Japan collaboration following Fukushima)
- Assists the division director to ensure the smooth operation of the Electrical and Electronics Systems Research Division
- Electrical Safety Officer for the Energy and Environmental Sciences Directorate
- Chairman of the ORNL Electrical Safety Committee

**10/94 12/14** **Leader,** Electronics and Embedded Systems Group, EESRD, ORNL

- Provided technical leadership >35 electronic engineers, electronic technicians, postdocs, and students
- Led the Power Harvesting for Sensor Network project for DOE-NE Nuclear Energy Enabling Technologies Program
- Led the Accident Tolerant Instrumentation effort for DOE-NE (funding from both LWRS and NEET programs)
- Assisted NASA Glenn Research Center in determining the radiation tolerance of the electronics for NASA's Advanced Radioisotope Generator, Advanced Stirling Converters Automated Control Unit
- Led the electronic hardware and software development for the Standoff Detector of Explosive Residues (SDER) system
- Helped to define the role instrumentation and controls should play in the deployment of Small Modular Reactors (SMRs)
- Designed the system architecture for the Block II Chemical and Biological Mass Spectrometer (CBMS)
- Led the electronic hardware and software development for the Block II CBMS project.

**6/89 9/94** **Principal Investigator,** Real-time Computer Systems Group, Instrumentation & Controls Division

- Led the electronic hardware and software development for several advanced signal processing systems – particularly for underwater acoustic signals

**12/83 6/89** **Development Staff Member,** Real-time Computer Systems Group, Instrumentation & Controls Division

- Various projects ranging from wide area computer networks, radiation tolerant electronic designs for fuel cycle applications, to custom data acquisition systems for challenging environments

**Relevant Publications**


1. Clayton, Dwight A., Kyle Hoegh and Lev Khazanovich. *Thick Concrete Specimen Construction, Testing, and Preliminary Analysis.* ORNL/TM-2015/72. Oak Ridge, TN: Oak Ridge National Laboratory.2015.
2. Clayton, Dwight A., Willis P. Poore III and Damian Peko. "A Case Study for BWR Instrumentation and Control Systems Performance During a Severe Accident." ANS 9th International Conference on Nuclear Plant Instrumentation, Control & Human-Machine Interface Technologies, Charlotte, North Carolina, USA, February 23, 2015.
3. Clayton, Dwight A. and Cyrus M. Smith "Comparative Testing of Nondestructive Examination Techniques for Concrete Structures." *Proceedings of SPIE* 90631G, (2014). http://info.ornl.gov/sites/publications/Files/Pub48194.pdf
4. Clayton, Dwight A. and Blake W. Van Hoy. "Non-Destructive Evaluation Technologies Overview and Near Term Future Developments." Transportation Research Board, Washington, District of Columbia, USA, January 11—15, 2014.
5. Clayton, Dwight A., Cyrus M. Smith, Christopher Ferraro, Jordan Nelson, Lev Khazanovich, Kyle Hoegh, Satish Chintakunta, John Popovics, Hajin Choi, and Suyun Ham *Evaluation of Ultrasonic Techniques on Concrete Structures.* ORNL/TM-2013/430. Oak Ridge, TN: Oak Ridge National Laboratory.2013. http://info.ornl.gov/sites/publications/Files/Pub46126.pdf
6. Clayton, Dwight A. and Cyrus M. Smith. "Research in Nondestructive Evaluation Techniques for Nuclear Reactor Concrete Structures." In *Annual Review of Progress in Quantitative NDE,* 962—969, 2014. http://info.ornl.gov/sites/publications/Files/Pub45327.pdf
7. Clayton, Dwight A. and Willis P. Poore III. *Fukushima Daiichi - A Case Study for BWR Instrumentation and Control Systems Performance during a Severe Accident* . ORNL/TM-2013/154. Oak Ridge, TN: Oak Ridge National Laboratory.2013. http://info.ornl.gov/sites/publications/Files/Pub42256.pdf
8. Clayton, Dwight A. and Cyrus M. Smith. *Summary of Recent Concrete Issues at Nuclear Power Plants.* ORNL/LTR-2013/125. Oak Ridge, TN: Oak Ridge National Laboratory.2013.
9. Clayton, Dwight A. and Michael S. Hileman. *Light Water Reactor Sustainability Non-Destrustive Evaluation for Concrete Research and Development Roadmap.* ORNL/TM-2012/360. Oak Ridge, TN: Oak Ridge National Laboratory.2012. http://info.ornl.gov/sites/publications/Files/Pub38704.pdf
10. Clayton, Dwight A. and Richard Thomas Wood. "The Role of Instrumentation and Control Technology in Enabling Deployment of Small Modular Reactors." *Nuclear News* 54, no. 13, 42—47, (2011).
11. Laughter, M. D., C. E. Romano, J. D. White, J. M. Begovich, B. L. Boradhead, D. A. Clayton, E. D. Collins, G. D. DelCul, D. W. DePaoli, M. H. Ehinger, G. F. Flanagan, I. C. Gauld, S. R. Greene, R. A. Kisner, T. J. McIntyre, M. Whitaker. *Recommendations for Development of an Integrated Nuclear Fuel Cycle Nonproliferation Strategy.* ORNL/TM-2010/133. Oak Ridge, TN: Oak Ridge National Laboratory.2010.