

QUALITY ASSURANCE PANEL, NWTRB
OPENING REMARKS BY JOHN CANTLON,
PANEL CHAIRMAN 11/1/90

This is the first meeting of the Quality Assurance Panel of the Nuclear Waste Technical Review Board. My name is John Cantlon and I am chairman of this Panel. Up until I retired on September 1 of this year, I was Vice President for Research and Graduate Studies at Michigan State University. My field of expertise is ecology and environmental science. Other members of the Panel are:

Dr. Warner North, Decision Focus, Inc. of Los Altos, Calif. and consulting professor, Department Engineering & Economic Systems, Stanford University. His field of expertise is decision theory and risk analysis in complex systems.

Dr. Clarence Allen, Professor Emeritus of Geology, California Institute of Technology, Pasadena, whose sub-field in geology is earthquakes and seismology. He is in China this week on an earthquake research project. Ad hoc members of the Panel who are present are:

Dr. Dennis Price, Professor of Engineering, Virginia Polytechnic Institute, Blacksburg, Va., a specialist in transportation and systems safety. All of the named individuals are members of the NWTRB.

The Nuclear Waste Technology Review Board was created by Congress and charged to provide an independent review of the

technological aspects of DOE's high level nuclear waste repository program. Its members were nominated by the U. S. National Academy of Science and appointed by Presidents Reagan and Bush. The Board is authorized to have 11 members, 9 of which have been appointed at this time.

Board panels such as this one on quality assurance, conduct fact-finding hearings, workshops or technical exchange sessions and their reports are reviewed by the full Board and thus make contributions to reports made twice a year to Congress and the Secretary of the Department of Energy.

The Board and its panels are supported by a small technical and operations staff. Dr. William Barnard is the Board's Executive Director; Dr. Sherwood Chu is the chief staff support for this panel.

This Quality Assurance Panel expects to examine two aspects of quality assurance related to the repository program. First, and foremost, a credible Q.A. program is necessary, though not sufficient in and of itself, to public trust and confidence in technologies that have the potential to pose risk to workers, the general public or the environment. NRC's Title 10 of the Code of Federal Regulations outline the requirements on quality assurance, much of the language apparently a carry over from design, construction and operation of nuclear reactors and fuel processing facilities. The Panel is interested in learning how DOE, the Nuclear Technology Development Agency, and NRC and EPA, the two

regulatory agencies, view of the Q.A. requirements more explicitly for a high level nuclear waste repository. Quality assurance is an especially important dimension for siting, constructing, operating and closing such a repository in our highly litigious society with a general public that has become pervasively skeptical about governmental handling of nuclear technologies and facilities.

Secondly, the Panel needs to look at the interface between the quality demands for data and analysis to be used in licensure decisions on the one hand, and the required environment for excellent basic scientific research progress on the other hand. Since no one in the world has built an engineered and geological containment system for hazardous radioactive materials that must continue to be effective for 10,000 years, there remains considerable basic research that is essential to forming a basis of understanding of the natural world with all its spatial and temporal variation and uncertainties. Expeditious clarification of these basic scientific questions is one of the requisites to anchoring expert opinion upon which licensure decisions must always rest when the uncertainty characteristic of the natural world can not be eliminated.

Building the edifice of scientific knowledge is very different from constructing an engineered structure that meets regulatory requirements from blueprints and technical specifications. Scientific research is an assault on our ignorance about the unknown. Its progress is made through exploration that typically

includes many blind alleys. It has been suggested to the Panel that it may be neither essential nor efficacious to have multi-layered Q.A. oversight of all basic scientific research pertinent to the repository. We have been reminded that since excellent science can only be done by excellent scientists who have been trained to shun bureaucratic constraints, a burdensome centralized Q.A. process may drive away from our assaults on key gaps in scientific knowledge the very talent that can expedite progress to a solid framework for decision making. It is argued that the nation may save time in the long run if essential basic research is allowed to proceed with its normal quality oversight of peer review, and save the detailed Q.A. process for confirmatory research repeated explicitly for the licensure submission.

Thus, the Q.A. Panel hopes that we will find evidence over the next two days that the several agencies a) have in place a Q.A. process that is both credible to a skeptical public, and b) have come to grips with how a technically and legally credible Q.A. process can accommodate the two very different needs of licensure and basic research.

This morning, we will hear NRC's Q.A. requirements for repository licensure from Mr. Ken Hooks of NRC. Then Mr. Don Horton of DOE will outline DOE's interpretation and implementation of these requirements. Following that we will hear from Mr. Carl Johnson, from the state of Nevada Agency for Nuclear Projects on how the state selected by Congress as the candidate host state of

the repository has provided for Q.A. for assessments and data they plan to use in final determinations on site section, and licensing of a repository.

This afternoon we will hear from Ms. Nancy Wentworth and Mr. Dean Neptune of EPA, the second regulatory agency that has responsibilities for safety of human health and enforcement of the national environmental protection act in connection with repository siting, construction, operation and closure.

We will close the day with a workshop on Q.A. implementation experiences, chaired by Don Horton of DOE.

Tomorrow morning we will hear from four of DOE's contractors. These representatives can present us with the perspectives of researchers working in the trenches as they cope with this dual challenge of on the one hand insuring the Q.A. bona fides of data and analyses that will be presented for regulatory decisions (and perhaps litigation thereafter following); and on the other hand insuring satisfactory progress in marshalling adequate basic research in those areas of our gaping ignorance. Can Q.A. reporting overload be as modest as possible before one even knows whether that particular research has any formal role to play in repository decision making?

In the late afternoon the NWTRB's Q.A. Panel will go into executive session to digest what we have learned and to ascertain what, if any, next steps should be taken.

Let us now hear from Mr. Ken Hooks of the U. S. Nuclear

Regulatory Commission on the Q.A. requirements for the High Level
Nuclear Waste Management program.