

5 Minute ~ Lessons Learned



*Nuclear
Professionals*

U.S NUREG-1055

Content From GQM Advisors
'Nuclear Management Systems' Course

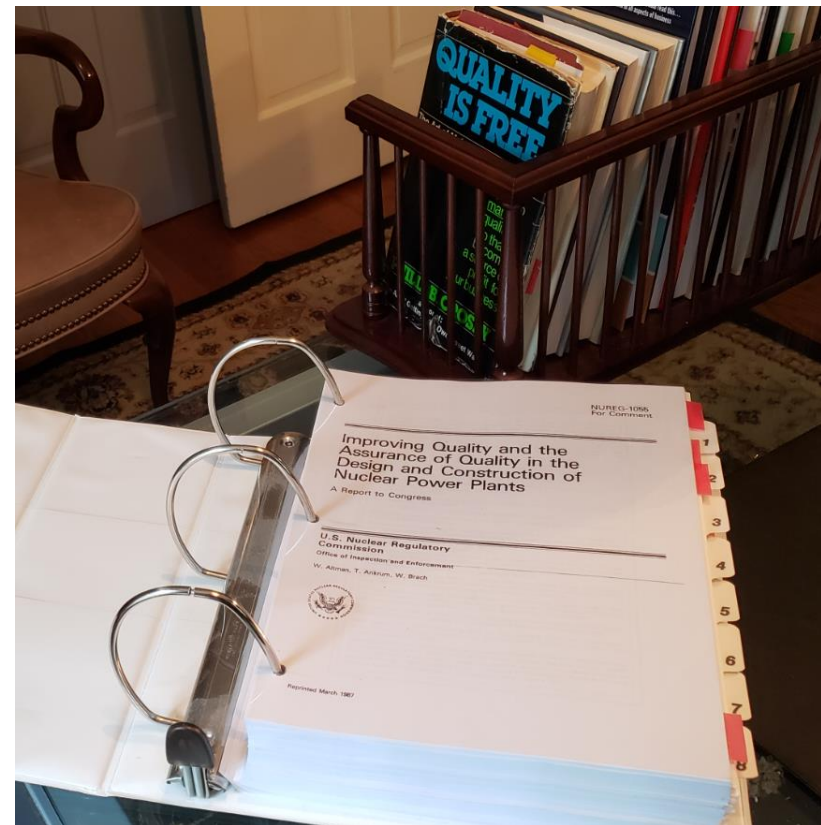
<https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1055/>

‘A Report to Congress ~ 1984’

The NRC Continues to Address the Need for ‘Improving Quality in the Design & Construction of NPPs.’

“Those Who Cannot Remember the Past are Condemned to Repeat It.”

Glenn M. Tracy, NRC



About The Study ~ Public Law 97-415

- H.R. 2330 Bill authorizing appropriations to the NRC in accordance with Section 261 of the Atomic Energy Act of 1954
- H.R. 2330 became Public Law 97-415 also known as the NRC Authorization Act for fiscal years 1982-'83
 - To Conduct a Study of Existing & Alternative Programs for Improving Quality & the Assurance of Quality in the Design & Construction of NPPs
- Ford Amendment adding Section 13(b) outlining the specifics of the study
 - Introduced by Senator Wendell Ford of Kentucky
 - Cosponsored by Senators Simpson, Mitchell, Levin, Hart
 - Outlined five alternatives referred to as alternatives b(1) - b(5)



Abstract

At the request of Congress, NRC conducted a study of existing & alternative programs for improving quality & the assurance of quality in the design & construction of commercial nuclear power plants. A primary focus of the study was to determine the underlying causes of major quality-related problems in the design & construction of some nuclear power plants & the untimely detection & correction of these problems. *The study concluded that the root cause for major quality-related problems was the failure or inability of some utility management to effectively implement a management system that ensured adequate control over all aspects of the project.* These management shortcoming arose in part from inexperience on the part of some project teams in the construction of nuclear power plants. NRC's past licensing & inspection practices did not adequately screen construction permit applicants for overall capability to manage or provide effective management oversight over the construction project.

Abstract

The study recommends self-imposed rising standards of excellence, treatment of quality assurance as a management tool, not a substitute for management, improved trend analysis & identification of root causes of quality problems, & a program of comprehensive third party audits of present & future construction projects. To improve NRC programs, the study recommends a heavier emphasis on team inspections & resident inspectors, an enhanced review of new applicant's capabilities to construct commercial nuclear power plants, more attention to management issues, improved diagnostic & trending capabilities, improved quality & quality assurance for operating reactors, & development of guidance to facilitate the prioritization of quality assurance measures commensurate with the importance of plant structures, systems, & components to the achievement of safety.

Events Leading to The Study

Brown's Ferry Incident in 1975



Three Mile Island Accident in 1979



Construction Contractors Issued SWOs & SCOs

Investigations – Policy, Procedure, Specification Non-conformances

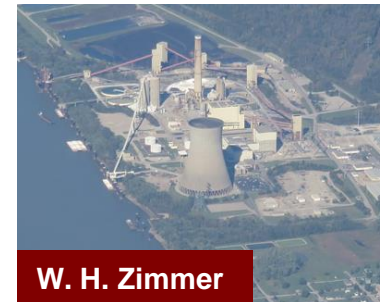
Construction Problems in '70s such as Marble-Hill & W. H. Zimmer



Licensees Unable to Demonstrate Plant Built to All Requirements
Marble-Hill & W. H. Zimmer Cancelled

Reports of Schedule Precedence Over Quality

**Reports Lowered Trust that Plants were being Built per Regulations,
Codes, Standards to ensure Safety & Quality**



Licensee Design | Build Programs Reviewed & Analyzed

Build Program	<u>Case Study</u>	<u>Major Quality Problems</u>	Utility	Online Dates
Marble Hill Cancelled	A	Yes	Public Service of Indiana	Proposed 1973. \$2.2 billion failed design/build program closed 1984
St. Lucie 2	B	No	Florida Power & Light	R1 03/01/76 R2 06/10/83
Diablo Canyon	C	Yes	Pacific Gas & Electric	R1 05/07/85 R2 03/13/86
South Texas	D	Yes	Houston Lighting & Power	R1 08/25/88 R2 06/19/89
Vogtle 1 & 2	E	No	Georgia Power	R1 06/01/87 R2 05/20/89
Palo Verde	F	No	Arizona Public Service	R1 01/28/86 R2 10/19/86 R3 01/08/88
W. H. Zimmer Cancelled	G	Yes	Cincinnati Gas & Electric	Proposed 1969. \$3.4 billion failed design/build program converted to coal 1984

Per NUREG-1055, quality of structures, systems, and components was indeterminate due to:

- Inadequate quality inspection documentation
- Inadequate reporting of nonconformances
- Drawing deficiencies
- Inadequate specifications
- Materials control deficiencies
- Inadequate procedures and instructions
- Procedure violations
- Inadequate licensee audits
- Inadequate corrective action program

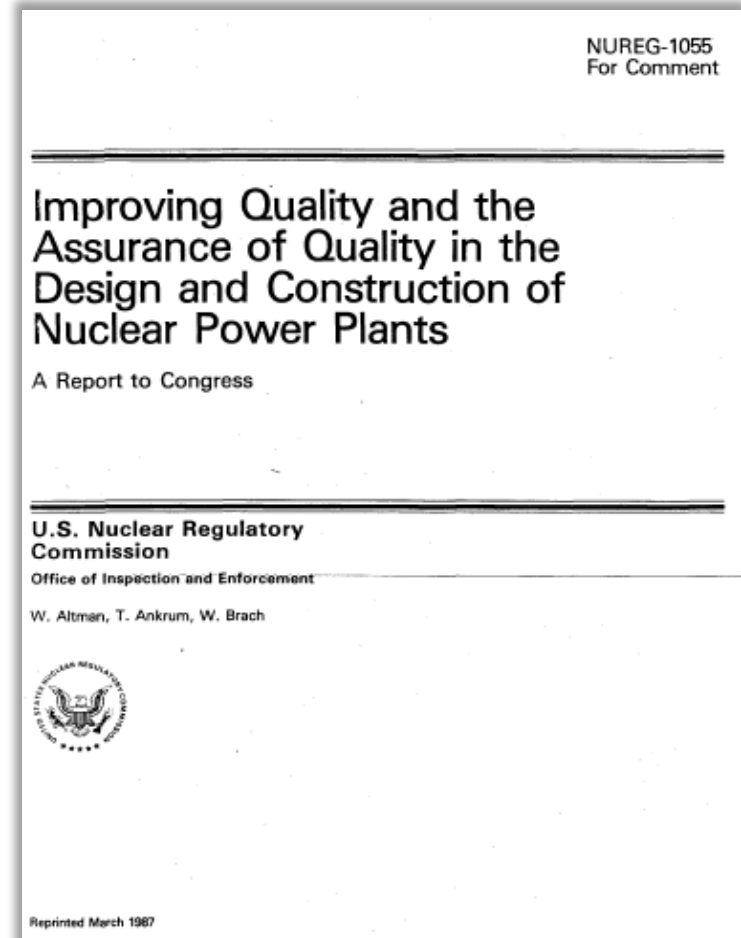
10 CFR50, Appendix B

“Early training to Appendix B of 10CFR50 was through on-the-job-training with experienced personnel. In 1975, training in App B consisted of self-reading. In 1976, one hour of a fragmented course whose schedule was diverted by the class, was allocated to App B. A longer formalized course was not developed until 1983. During the study, it was stated there is a great need for more training in Quality Assurance, Standards, & App B of 10CFR50. It was also stated that there was practically no training in how to apply modules or how to do inspections. These skills come mainly from on-the-job-training. More training is needed to improve the caliber & qualifications of inspectors.”

<https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1055/>

The Study Concluded that the Root Cause for Major Quality-related Problems ~ ~

Was the Failure or Inability of Some Utility Management to Effectively Implement a Management System that Ensured Adequate Control Over All Aspects of the Project.



Questions

1. In your opinion, is your top management and program management-level committed to unconditionally executing your Nuclear Quality Management Policy?
2. Are all employees committed to Company Policies, Processes, & Procedures?
3. Do you have access to the Nuclear Management System?
4. Have you attended training on Nuclear Quality Management, Four Disciplines QL/QM/QA/QC, 10CFR50 App A & B, 10CFR Part 21, ASME/NQA-1, ISO9001, ASME Codes, NPP Licensing, Nuclear Safety Culture, Employee Concern & Corrective Action Programs, etc.?
5. Do you feel confident in understanding the requirements as they apply to your daily programs/projects/activities/tasks?
6. Does your management unconditionally endorse the Employee Concern Program or are you working in “chilled” work environment?
7. Do you feel confident in submitting a formal Employee Concern to your management?

You're welcome to share answers with Professionals at GQM Advisors. Simply state yes or no in a message using our **Web Contact page <https://gqmadvisors.com/contact/> or Email to paul@gqmadvisors.com**

Management of Quality

Is Your C-Suite Aware of Their Roles in U.S. NRC 10CFR50, App B & 10CFR Part 21?

If NOT Contact

Beri Associates
(USA) Inc.

About Beri Associates

Beri Associates was founded in 1994. We are a small, highly specialized company that provides training, auditing and consulting located in the great Pacific Northwest, USA. We are excited that you are interested in our high quality trainings based on Sham Beri's experience of nearly 850 audits all over the globe.

<https://berassociates.thinkific.com/pages/about-beri-associates>

<https://berassociates.thinkific.com/collections>

Management of Quality

**Is Your C-Suite Aware of ISO19443
Nuclear Energy-Specific Requirements?**

If NOT Contact



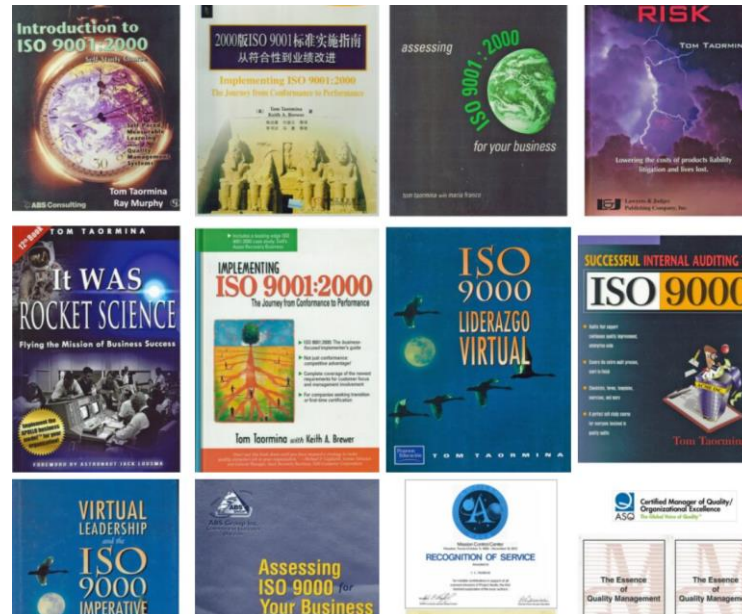
Nuclear CC - Consultancy in the nuclear and manufacturing industry

List of ISO 19443 Certified Companies (nqsa.org)

Management of Quality

Is Your C-Suite Aware of The ISO9001 Management System Framework Model?

If NOT Contact



The Taormina Group – Accountability, Authority, Experience

Management of Quality

Is Your C-Suite Aware of ASME/NQA-1
Audit / Assessment Processes?

If NOT Contact



Nuclear Training Company | J-E-T-S Quality Consultants (jetsquality.com)

Free Audit & Assessment Help | Jets Quality Consultants

Management of Quality

**Does Your C-Suite Operate from
A Risk Mitigation Standpoint?**

If NOT Contact



Quality + Engineering (qualityplusengineering.com)

Management of Quality

Do You Know About GQM Advisors?

WHY NOT?

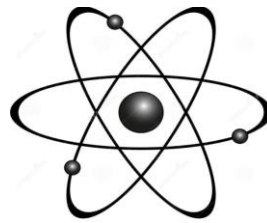
GQM ADVISORS WAS FOUNDED IN 1991 on the belief the “Management of Quality is a fundamental responsibility of everyone engaged in the delivery of products & services.” We are a group of leading Independent Quality-focused Professionals with a reputation of mastery & excellence in deploying the Four Quality Disciplines > QL, QM, QA, & QC. The Group understands that all business disciplines must be quality-focused for an organization to achieve annual goals & objectives delineated in its Quality Management System (QMS).

Advisors collective expertise exceeds 1,000 years encompassing more than 50 Business Sectors | Segments | Applications. Our established relationships in various industries, societies, agencies, business peer groups, & supply chains enables us to align the never-ending mix of management systems baseline requirements in virtually any operation and program environment. Our experiences vary & span a 50-year period beginning in the early 1970s.

Global Quality Management Advisors

Nuclear Management Systems

~ Focused on Quality ~



~ Since 1991 ~

Paul W. Gladioux
CEO | CQO | Founder
Lynchburg, VA USA
503-939-4498 C

34 Years ~ Serving Clients

www.gqmadvisors.com