

Introduction

"Quality Assurance"

- **" . . . A system that is hostile to surprises in a world that is full of them."**
- **"Because almost any geologic phenomenon has more than one possible cause, flexibility (including the recognition that uncertainty is inevitable and must be accommodated) is more likely to lead to the design and construction of a safe repository system than are rigid, predetermined protocols."**

NATIONAL RESEARCH COUNCIL

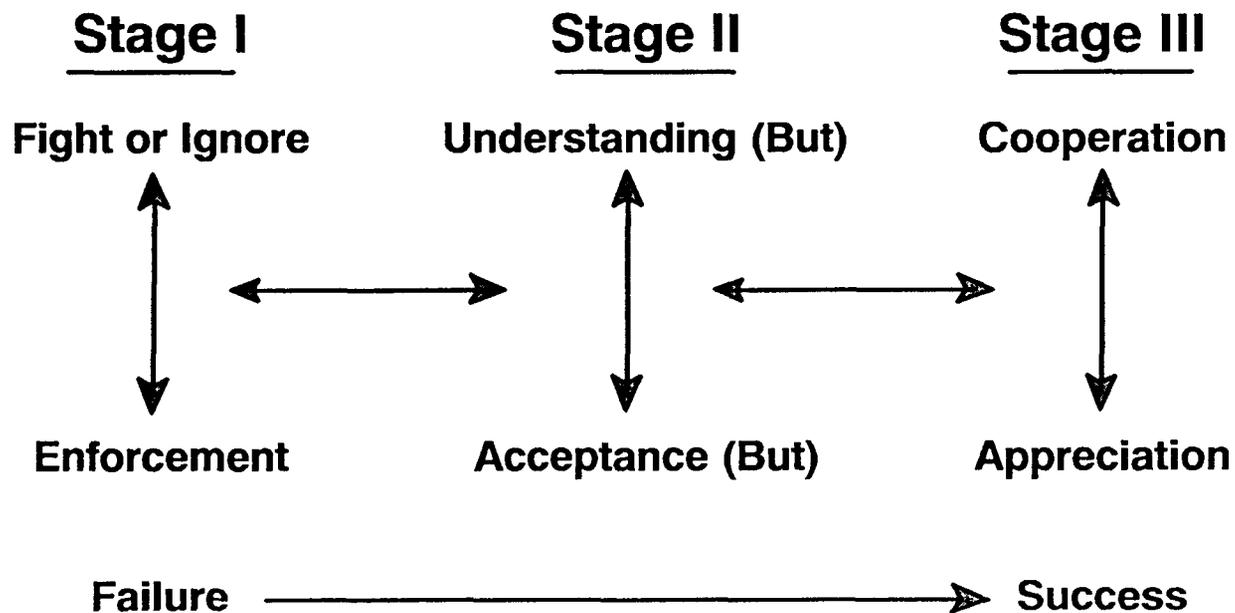
Commission on Geosciences, Environment, and Resources

"RETHINKING HIGH-LEVEL RADIOACTIVE WASTE DISPOSAL"

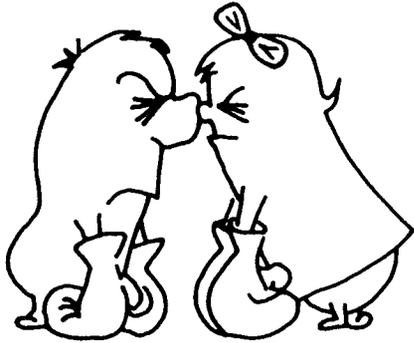
**"A Position Statement
of the Board on Radioactive Waste Management"**

Evolution of Implementation of Quality Assurance In Earth Science Investigations for the Yucca Mountain Project

(FROM THE VIEWPOINT OF THE USGS TECHNICAL PROJECT OFFICER)



STAGE I



Fight or Ignore



Enforcement



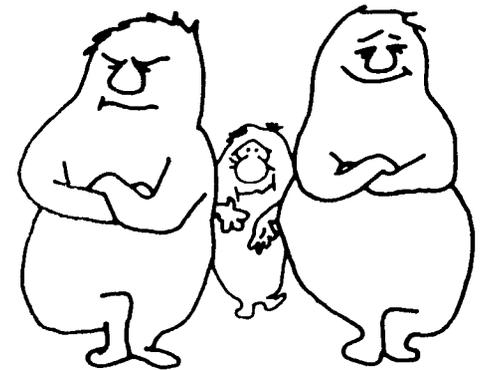
STAGE II



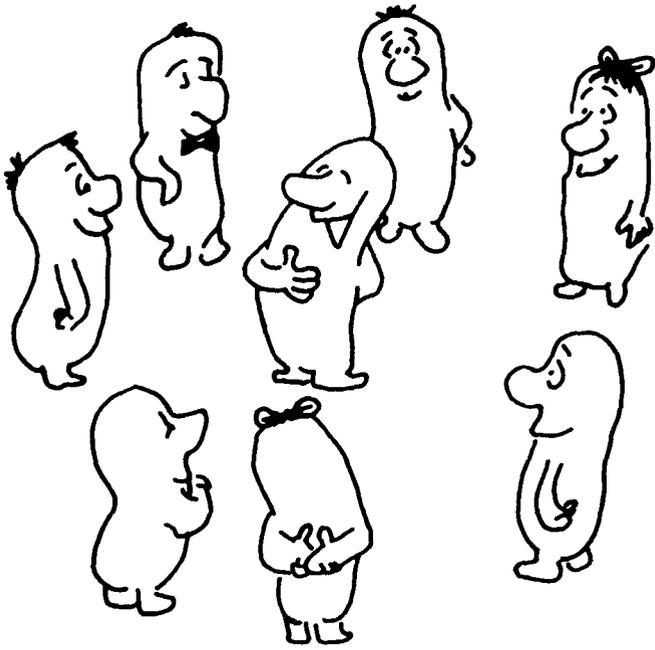
Understanding (But)



Acceptance (But)



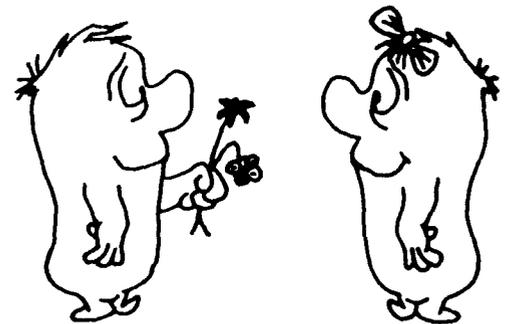
STAGE III



Cooperation

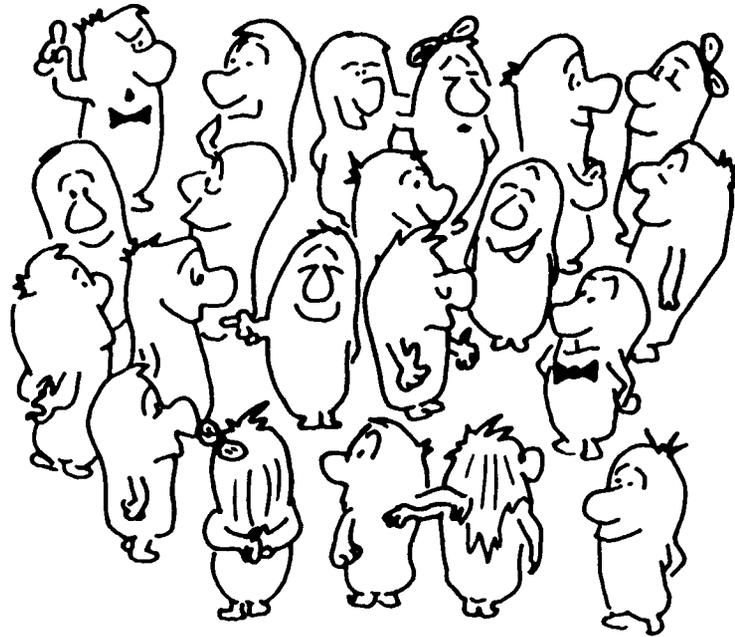


Appreciation



Characteristic of Stage III

Meeting of the Minds--Communication



QUALITY INTEGRATION GROUP

- Workshop Recommendations
 - Establish forum for technical/quality/management interchange
 - Maximize use of established scientific methods in the QA program

QUALITY INTEGRATION GROUP

MEMBERS

L. Hayes - Chairman	USGS
B. Barton	DOE
J. Blink	LLNL
R. Morley	LANL
S. Jones	DOE
R. Price	SNL
B. Steinkampf	USGS
N. Voltura	DOE

OBJECTIVE OF QIG

- To facilitate communication, discussion, and resolution of quality-related concerns arising from management, quality assurance, and scientific interactions on the YMP;
- To contribute to the evolution and implementation of a coherent and stable quality assurance program that is compatible with the scientific method and with research-and-development activities; and
- To provide suggestions that enhance the likelihood that the products of site characterization efforts and basic and applied research will be suitable for use in the licensing process.

APPROACH

- The Group shall provide participant technical perspective and foster communication and resolution of scientific, QA, and management issues by the following:
 - Serving as a sounding board for identifying problems, discussing issues, and proposing solutions to quality-related concerns that have broad programmatic implications or that are interdisciplinary in nature and could impact multiple activities and organizations. Emphasis will be on innovative improvements that benefit the technical direction or scope of the Yucca Mountain Site Characterization Project.
 - Submitting findings and recommendations to the YMP Project Manager and QA Division Director.

FIRST MEETING OF QIG

Held March 14, 1991 - USGS Denver, CO

- ✓ Reviewed and finalized Charter
- ✓ Clarified roles
- ✓ Identified group tasks
- ✓ Established action items and due dates
- ✓ Scheduled next meeting time and place.

QA ENHANCEMENT WORKSHOP CREDO

"Establish an interactive and dynamic process among scientists/engineers, regulators, QA staff, and managers to develop requirements and then implementing procedures, with emphasis on understanding, need, and end use; then let the Program have a chance work".

<u>NAME</u>	<u>DEGREE</u>	<u>EXPERIENCE</u>
Steinkampf	B.S. Geology	Total of 16 years Primary field of interest is low temperature aqueous geochemistry
	<u>Present Role</u> -	P.I. characterization of saturated-zone hydrochemistry for YMP
Barton	B.S. Civil Engineering	Total of 28 years of hydrologic engineer and project management
	<u>Present Role</u> -	Assistant Deputy Project Manager YMP (DOE)
Blink	Ph.D. Engineering Nuclear Reactor Design	Total of 20 years in engineering - 15 of which in nuclear engineering
	<u>Present Role</u> -	Assistant Project Leader for YMP at LLNL to include review and production of technical planning & QA documents, management of software quality program & supervision of quality engineers
Price	M.S. Geology	Total of 11 years experience in rock mechanics
	<u>Present Role</u> -	YMP Task Leader/PI for SNL in the areas of intact and fracture mechanical properties from laboratory experiments
Hayes	M.S. Geology	Total of 18 years experience of which 10 have been in groundwater geology and 8 have been in management
	<u>Present Role</u> -	TPO USGS-YMP
Jones geology	B.S. Geology	Total of 17 years experience in
	<u>Present Role</u> -	Acting Deputy Director, Regulatory & Site Evaluation Division YMP (DOE)

NAME	DEGREE	EXPERIENCE
Morley	M.S. Geology	Total of 10 years experience in geology
	<u>Present Role</u> -	Researching structural control aspects for Los Alamos YMP Volcanism studies
Voltura	B.A. Education	Total 15 years experience in nuclear QA
	<u>Present Role</u> -	QA Specialist Yucca Mountain Project QA Programs Development