UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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TO: John J. Linehan, Deputy Director, DHLWM, NM/S 4 H 3

FROM: Paul T. Prestholt and John W. Gilray
Senior On-Site Licensing Representatives

DATE: February 13, 1991

SUBJECT: SECOND PHASE OF THE QA WORKSHOP ON SOFTWARE

DOE/YMP held the second phase of the QA Workshop on Software at Las Vegas on February 4 through 7, with senior scientists, engineers, QA engineers, and software developers and users from DOE and the participants. The two NRC On-Site Representatives (Paul Prestholt and John Gilray) and Tilak Verma of NRC/HLPD attended this workshop as observers. The first phase of the QA Software Workshop was held in Las Vegas on January 22 and 23. The results of the first phase of the QA Software Workshop are discussed in John Buckley's memorandum of February 4.

The goals for the second phase of the QA Software Workshop was to identify a common set of precisely defined software QA requirements that will (1) produce deliverables that will withstand the rigors of the licensing process, and (2) be acceptable to the users by allowing flexibility and avoiding unnecessary controls.

During the first phase of the QA Software Workshop, 82 identified specific software quality-related concerns were evaluated and consolidated into the following three basic problem statements.

- The current software QA requirements are ambiguous, lack a basis for need, and are poorly understood.
- Software QA requirements must include a software classification scheme based on the nature, importance and intended application and must be commensurate with impact on quality.
- Software QA requirements focus on documentation of all phases/cycles of software development, not on testing/validation. Emphasis needed on the quality of software required for licensing and not paper trail.

1/1

These three basic problem statements were evaluated and discussed during the second phase workshop and recommended action items to resolve these three problems were identified in a short term action plan and a long term action plan. (Enclosure 1). The short term plan addresses the need to (1) identify and clarify existing software QA controls in Section 19 of the QARD; (2) include software QA in a mock licensing process and (3) enhance the grading software process to achieve flexibility in software development and use where appropriate. The long term plan addresses the need to establish a standing software working group to identify the optimum software QA requirements for licensing utilizing outside experts and the NRC for consultations and assistance.

Members of the software QA workshop presented their findings, recommendations, and action plans to DOE/YMP management (M. Blanchard, D. Horton) which resulted in management direction for the workshop team members to carry out the recommendations and action items.

A formal QA workshop presentation (Enclosure 2), was given to John Bartlett and Carl Gertz on February 8, 1991, at Las Vegas. The workshop process, findings, recommendations, and action items of the two major QA workshops were discussed. At the conclusion of this presentation John Bartlett and Carl Gertz both complemented the progress and results of the workshop and expressed an endorsement of high priority to carry out the identified recommendations and action items.

NRC observation comments:

- The workshop was well attended by scientists, engineers, and QA personnel from the participants knowledgeable in software QA.

- There was an effective, interactive, constructive, and cooperative process between the workshop team members which resulted in the identification of software concerns, problems, and recommendations and action items to resolve these software QA problems and concerns.

- The identified short term and long term recommendations and action items appear sound and meaningful. The completion of the short term action items may very well resolve the overall software QA problems to the extent that it may not be necessary to carry out the long term action.

- It is encouraged that the NRC/HLPD continue to work with the software workshop members in providing appropriate consultations where necessary.

ENCLOSURE 1

QA SOFTWARE

WORKSHOP

PRESENTATION

TO

PROJECT MANAGEMENT

LAS VEGAS, NEVADA

FEBRUARY 7, 1991

AGENDA-DOE/PARTICIPANT QA SOFTWARE WORKSHOP

INTRODUCTION (L. Hayes/D. Helton)

- o Introductions
- o Agenda Discussion
- o Workshop Credo
- o Process
  Problem statement

GROUP REPRESENTATIONS (J. Stuckless/K. Schwartztrauber)

- o The Problem (need)
- o Integrated Solution
- o Additional (short-term) Solutions

CLOSING (All)

- o Summary (All)
- o Questions
- o Decisions

DOE SOFTWARE QUALITY ASSURANCE WORKSHOPS

LAS VEGAS

JANUARY 22-23 AND FEBRUARY 4-7, 1991

TO IDENTIFY SPECIFIC ISSUES ASSOCIATED WITH THE SOFTWARE QA PROGRAM, AND TO DEVELOP RECOMMENDATIONS FOR IMPROVING THE SOFTWARE QA PROGRAM

(WORKSHOP CHARTER)

<u>PARTICIPANTS</u>

SCIENTISTS/ENGINEERS

QA STAFF

DATA AND INFORMATION ADMINISTRATOR

DOE

LANL	MACTEC
LLNL	REECO
SNL	RSN
USGS	SAIC

<u>OBSERVERS</u>

NRC
EEI
EG&G

SOFTWARE QA ISSUES IDENTIFIED AT THE DENVER WORKSHOP

August 7, 1990

1. Software QA control applied too early.

2. Software QA control specified in inappropriately excessive detail.

3. Work acceptable to one participant may not be acceptable to another.

4. QA 88-9 (QARD Section 19) requirements focus on documenting all phases/cycles of development, not (as it should) on testing/validating software that will be used.

5. Labor intensive documentation greatly impedes scientists from keeping abreast of state-of-the-art techniques of products.

6. Documentation centers on development cycle without regard to determination of acceptability prior to use or change/configuration controls once software is operational.

7. Present trail (myriad) from QAP-88-9/QARD to USGS QAPP, Software QA Plan, to QMP is too complex to allow reasonable implementation.

8. The present process contains too many unnecessary layers of requirements documents.

QA SOFTWARE 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 to work"

WORKSHOP PROCESS:

Las Vegas Meeting

- Initial input & open discussion of problems relating to QA software implementation

- Address & clarify the problems

- Problems impact on ability to do needed technical/scientific work effectively

(Close interaction between Technical staff, management, and QA throughout entire process)

- Group Consensus Building

PROBLEM STATEMENT

Poor identification and definition of valid requirements has led to a pervasive lack of common understanding of SQA requirements and their need and application among NRC, DOE and participants. (What are the requirements? Why are they needed? To whom do they apply? When are they required?)

GOAL STATEMENT

DOE and participants identify a common set of precisely defined SQA requirements that will:

1. Produce deliverables that will withstand the rigors of the licensing process.

2. Be acceptable to the users by allowing flexibility and avoiding unnecessary controls.

SUMMARY

- o Obtain Acceptance by DOE Management
- o Focus on Short-Term Improvements
- o Establish a Software Working Group
- o Identify and Define Requirements
- o Process will remain interactive with all Participants
- o Implement a QA Software Program that meets requirements--Regulatory and Technical

ACTION-------ACTION-------ACTION

As an indication of the effectiveness of the problem-solving process we used, I'd like to give you a brief scorecard as follows:

- There were 82 specific software quality-related concerns identified by the workshop team members

- As a result of solving the 3 most important problems, 69 of the 82 problems were also addressed

- A number of the 13 remaining concerns were implicitly covered during the process of addressing the 3 major problems

All of the 13 concerns will be tracked as part of the follow-on process.

I MAY NOT HAVE THE ANSWER TO ALL YOUR PROBLEMS. IN FACT I MAY RAISE MORE QUESTIONS THAN I ANSWER. BUT REST ASSURED, IF YOU ARE STILL CONFUSED WHEN I AM FINISHED, IT WILL BE ON A HIGHER PLANE AND ABOUT MORE IMPORTANT ISSUES.

ESTABLISH A STANDING SOFTWARE WORKING GROUP

DEVELOP A CHARTER

- REVIEW AND RECOMMEND REVISIONS TO THE SOFTWARE PROGRAM
- MEMBERSHIP MUST REPRESENT THE BROAD SCOPE OF THE PROJECT AND INCLUDE SPECIALTIES SUCH AS SQA, SOFTWARE DEVELOPERS AND TECHNICAL PERSONNEL
- MEMBERSHIP LIMITED TO 10
- EVALUATE NEED FOR SQA MANAGER
- PROVIDE LONG-TERM FOCUS FOR RESOLUTION OF SOFTWARE ISSUES, AND INTERPRETATION OF REQUIREMENTS

THE WORKING GROUP WILL IDENTIFY THE OPTIMUM SQA REQUIREMENTS FOR LICENSING

- PRESENTATION OF SQA WORKSHOP GROUP RESULTS
- EXAMINE CURRENT REGULATIONS, DOE ORDERS, INDUSTRY STANDARDS, NRC GUIDANCE.
- EMPHASIZE ACCEPTED SCIENTIFIC PRACTICES
- CONSULT WITH OUTSIDE EXPERTS INCLUDING THE NRC
- DEVELOP DEFINITIONS AND SOFTWARE CLASSIFICATIONS
- USE SOFTWARE CLASSIFICATIONS TO PROVIDE FLEXIBILITY IN THE APPLICATION OF SQA CONTROLS
- DOCUMENT RATIONALE FOR MODIFICATIONS TO EXISTING SQA PROGRAM

PARTICIPANT REVIEW

- PARTICIPANT REVIEW OF PROPOSED SQA PROGRAM

PRESENT PROGRAM TO DOE/NRC

- DOE FIRST
- NRC

SQA TRAINING

- AUDITORS AND PARTICIPANTS POINT OF CONTACT MUST RECEIVE SAME SQA REQUIREMENTS TRAINING

SHORT TERM AND SPIN-OFF ISSUES

SHORT-TERM

- EXISTING QARD FLEXIBILITY
- PRELIMINARY DATA COLLECTION FOR SOFTWARE WORKING GROUP

SPIN-OFF ISSUES

- MOCK LICENSING PROCESS (PHASE 2 WORKSHOP COMMITTEE)
- QA GRADING
  - GRADING REVISION BY BLANCHARD, HORTON, ET. AL.

EXISTING QARD FLEXIBILITY

RECOMMENDATION:

IDENTIFY AND CLARIFY EXISTING FLEXIBILITY IN SECTION 19 OF QARD. (EG: NATURE, COMPLEXITY, AND IMPORTANCE)

ACTION:

1. PARTICIPANTS* COMMUNICATE IMPLEMENTATION CONCERNS TO PROJECT OFFICE QA

2. QA* SPONSOR MEETING(S) WITH PARTICIPANTS* TO DEVISE SOLUTIONS TO IMPLEMENTATION ISSUES

*REPRESENTATIVES FROM THIS WORKSHOP

PRELIMINARY DATA COLLECTION

RECOMMENDATION:

IDENTIFY AND GATHER PREVIOUSLY PERFORMED ANALYSES OF STANDARDS/ REQUIREMENTS FOR SOFTWARE QA AND MAKE AVAILABLE TO SOFTWARE WORKING GROUP

ACTIONS:

AL WILLIAMS OF THE PROJECT OFFICE WILL BE THE POINT-OF-CONTACT FOR DISSEMINATION OF INFORMATION

MOCK LICENSING PROCESS

RECOMMENDATION:

INCLUDE SOFTWARE IN THE MOCK LICENSING PROCESS RECOMMENDED IN THE PHASE 2 QA WORKSHOP

ACTION:

SOFTWARE WORKSHOP PARTICIPANTS* WILL CONTACT PHASE 2 QA WORKSHOP PARTICIPANTS** TO REQUEST THAT PROJECT RELATED SOFTWARE ACTIVITIES ARE REPRESENTED IN THE MOCK LICENSING PROCESS

* J. BLINK & T. CHANEY

** A. JARDINE

QA GRADING

RECOMMENDATION:

USE GRADING PROCESS TO ACHIEVE FLEXIBILITY IN APPLICATION OF SOFTWARE QA CONTROLS. GRADING SHOULD BE AT A LEVEL OF DETAIL TO DISTINGUISH AMONG DIFFERENT SOFTWARE USES

ACTION:

ONCE THE PROJECT GRADING PROCESS IS REVISED THE DEFINED SOFTWARE CATEGORIES CAN BE USED TO GUIDE THE SELECTION OF CONTROLS TO BE APPLIED TO SOFTWARE

ENCLOSURE 2

QA ENHANCEMENT

WORKSHOP

PRESENTATION

TO

JOHN BARTLETT

LAS VEGAS, NEVADA

FEBRUARY 8, 1991

AGENDA

Introduction	Larry Hayes, USGS
Workshop I	
Workshop Process	Joe Schelling, SNL
Short term recommendations	Dale Wilder, LLNL
Long term recommendations	Bill Steinkampf, USGS
Workshop II	Les Shephard, SNL
Summary	Larry Hayes
EEI Comments	Tom Colandrea
Close	Larry Hayes

REPORT

DOE QUALITY ASSURANCE WORKSHOPS

DENVER AND LAS VEGAS

AUGUST 7, OCTOBER 10-12 AND 25, 1990

"BRING SCIENTIFIC RESEARCH AND THE QUALITY ASSURANCE PROGRAM TOGETHER AND PROVIDE WORKABLE RECOMMENDATIONS FOR MANAGEMENT ACTION."

(WORKSHOP CHARTER)

PARTICIPANTS

- SENIOR SCIENTIST
- QA MANAGERS
- TPOs

- LANL
- LLNL
- SNL
- USGS
- DOE

OBSERVERS

- NRC
- EEI
- NYE COUNTY (PARTIAL)

QA WORKSHOP GOALS ARE TO DEVELOP AND IMPLEMENT A QA PROGRAM THAT:

- Is compatible with scientific practice
- Documents the R & D products for use in legal and regulatory arenas
- Is NRC acceptable
- Would be consistently written and interpreted, and stable
- Facilitates R & D activities within a regulated environment
- Places initiative at working level
- Doesn't manage line activities
- Managers don't use for purposes other than assuring QA implementation

CHANGE IN SCIENTIFIC PERCEPTION/ATTITUDE

QA IS SOMETHING TO BE:

SUCCESS

- o APPRECIATED AS BENEFICIAL TO GOOD SCIENCE
- o ACCEPTED AS NEEDED
- o DONE ONLY UNDER DURESS
- o IGNORED
- o FOUGHT

FAILURE

"QA MUST NOT BE THE FATAL FLAW FOR SITE CHARACTERIZATION"

Workshop Process

Denver Meeting

- Discuss problems

Las Vegas Meetings

- Clarify problems
- Assess impact on work
- Begin effective interactions
- Start building group consensus

QA WORKSHOP PROCESS
OCTOBER 10-12 AND 25, 1990
LAS VEGAS, NEVADA

- Convened to Address Issues of QA Program Inflexibility

- Attended by Management, Technical, and QA Staff

- Facilitated Meeting Used:
  - Group Consensus Building Approach
  - Formal Problem Solving Methods

- Focused on Positive Approach, Open Communication, Constructive Discussion, Results

WORKSHOP AGENDA

1 Introduction

2 Workshop Process

3 Current State
(Statement of the problem)

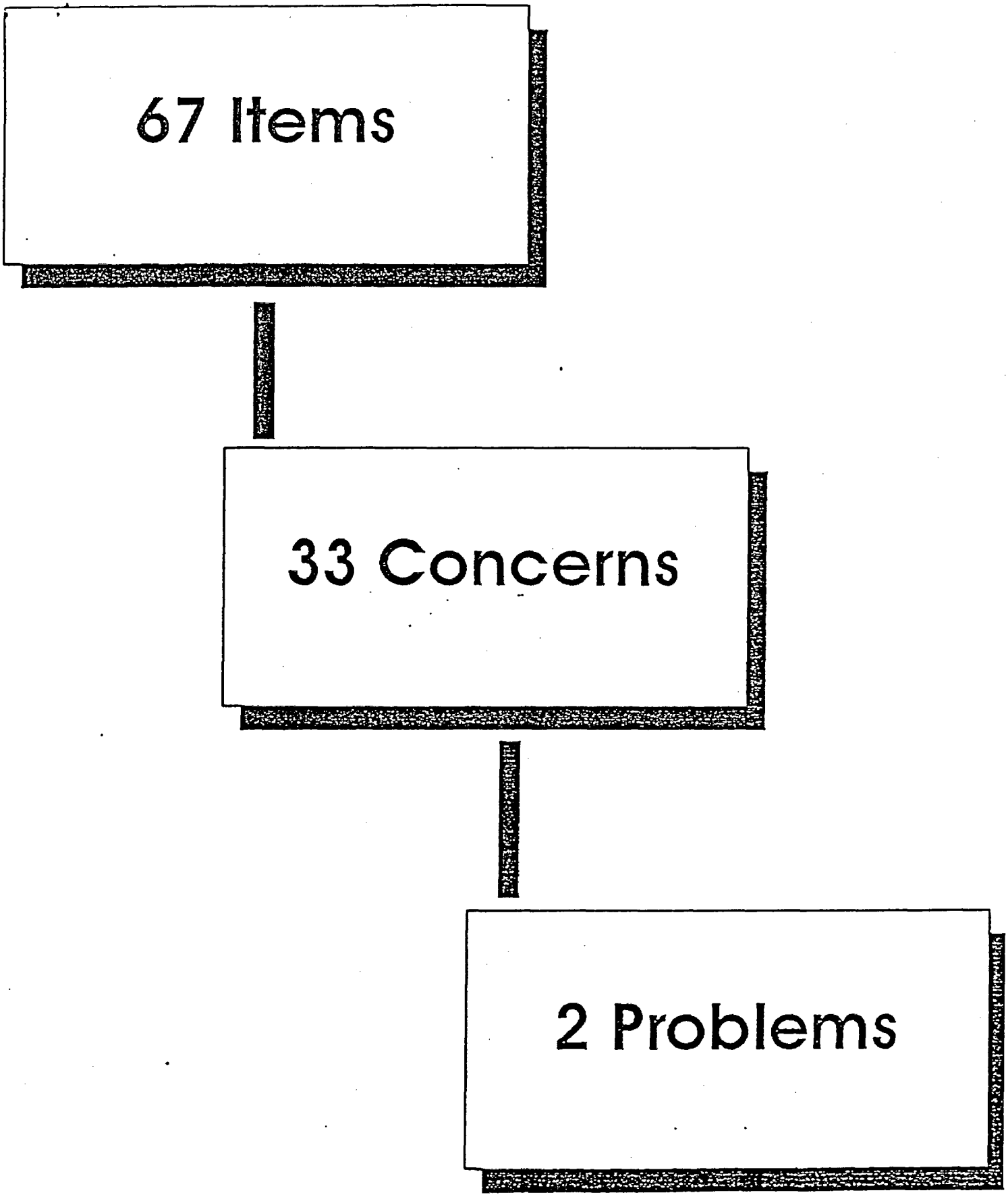
4 Desired State
(Statement of the goals)

5 Problem Solving Process
(Find solutions to specific problems)

6 Transition Plan
(Set strategy for remaining problems)

7 Integration
(Combine problem solutions)

8 Action Recommendations


67 Items
33 Concerns
2 Problems

PROBLEM ONE

A lack of understanding exists among technical staff, quality assurance staff, and managers regarding:

- o adapting existing scientific practices to satisfy licensing requirements
- o relating requirements to the work performed
- o achieving a balance between professional judgement and prescriptive controls

PROBLEM TWO

Quality assurance requirements and management policy are intertwined in procedures, which negatively impacts productivity.

PROBLEM SOLVING PROCESS

1 **Identify Problem**
(Who, What, When, Where, Why, How)

2 **Collect Data**

3 **Identify Cause**
(Fishbone Diagrams; Brainstorming)

4 **Generate Solutions**
(Brainstorm; Prioritize)

5 **Evaluate and Select Solutions**
(Criteria Ranking)

6 **Create Action Plan**

Building a Group Consensus

Develop action plans

Improve action plans

Consolidate action plans into six recommendations

Short Term Recommendations

Objectives:

- Begin to address QA issues
- Integrate short term with overall process
  - Positive results that will merge with long term
  - Address real "causes" not merely symptoms

Short Term Recommendations cont.

Benefits:

- Credibility by producing results
  - Technical Staff
  - Management
- Relieve staff to work on Workshop Issues
- History to evaluate process (Prototype change process)

Short Term Focus Areas

- Simplify Publications Release Process
- Establish Effective (not excessive) Training
- Simplify Procedures and Maintain Flexibility
- Clarify, Simplify, and Add Traceability to Document Hierarchy

Publications Release

Approach

- Emphasize Participant Technical Review
- Utilize Normal Scientific Review Process
- Accept Same Risk Typical in Scientific Endeavors

Progress

- Practice streamlined--not asking for YMP staff to do technical reviews
- AP 1.3Q revision in draft for approval to make this official

Effective Training

Approach

- As Needed-not Blanket
- Read and Sign When Appropriate
- When Needed

Progress

- Project Office has accepted training to internal procedures without requiring APQ training in addition
- Participants Exercising more judgement will use Readiness Reviews to trigger training for specific technical procedures
- Greater use of read and sign

Simplification and Flexibility

Approach

- Flexible Implementation
- Priority on Technical Quality not Rigid Procedures

Progress

- Software QA
- Grading
- Notebook Procedures

Document Hierarchy

Approach

- Educate on Existing Hierarchy

Progress

- Participant level discussions-not formalized

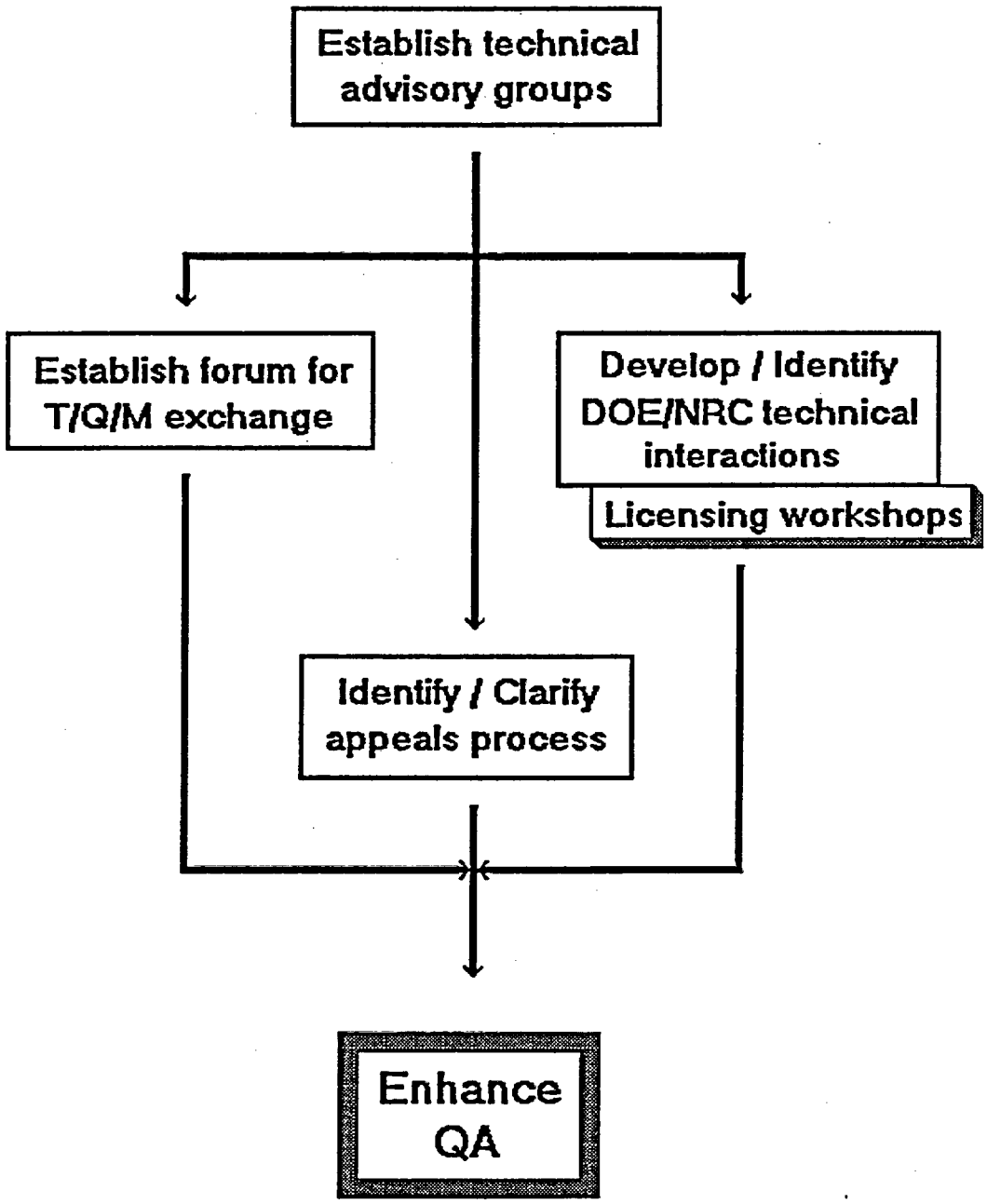
  Document Review Procedure

Conclusions

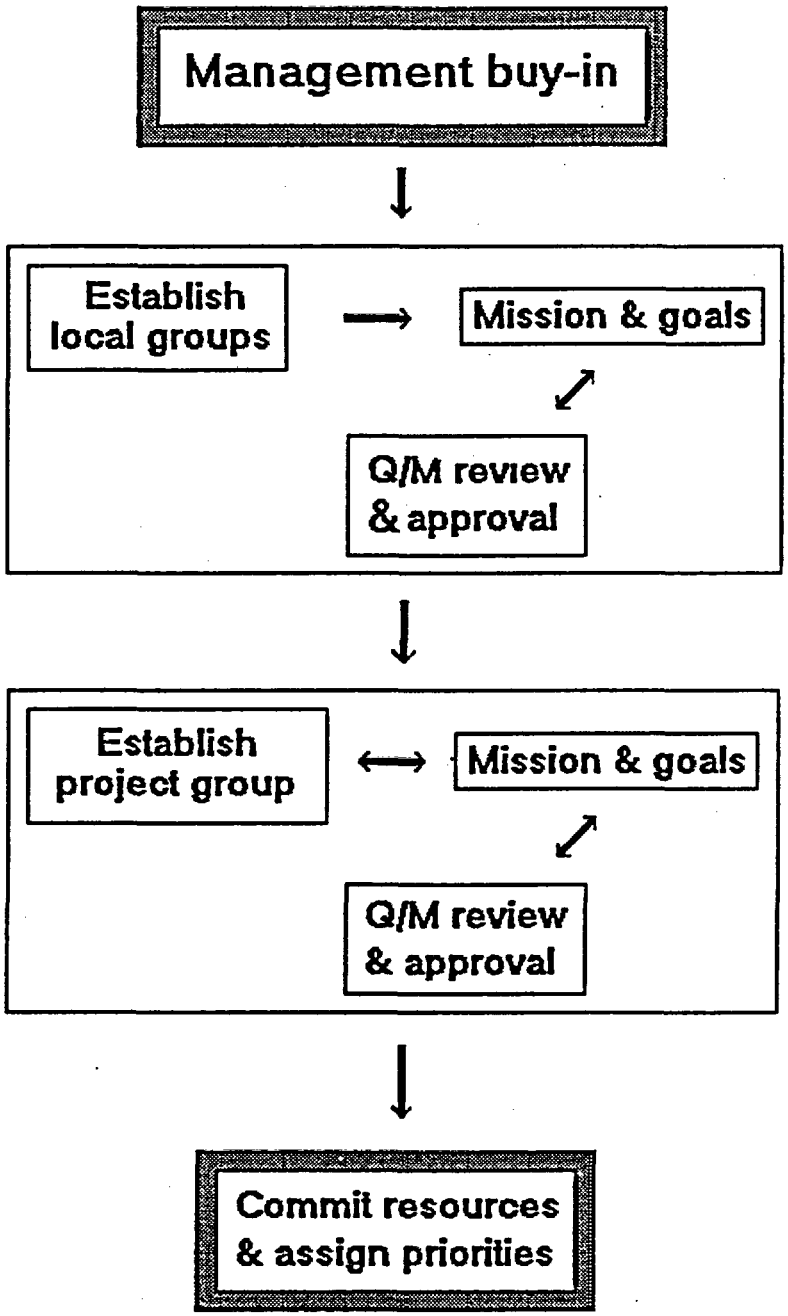
Progress has been made

Appreciate DOE management interest and support

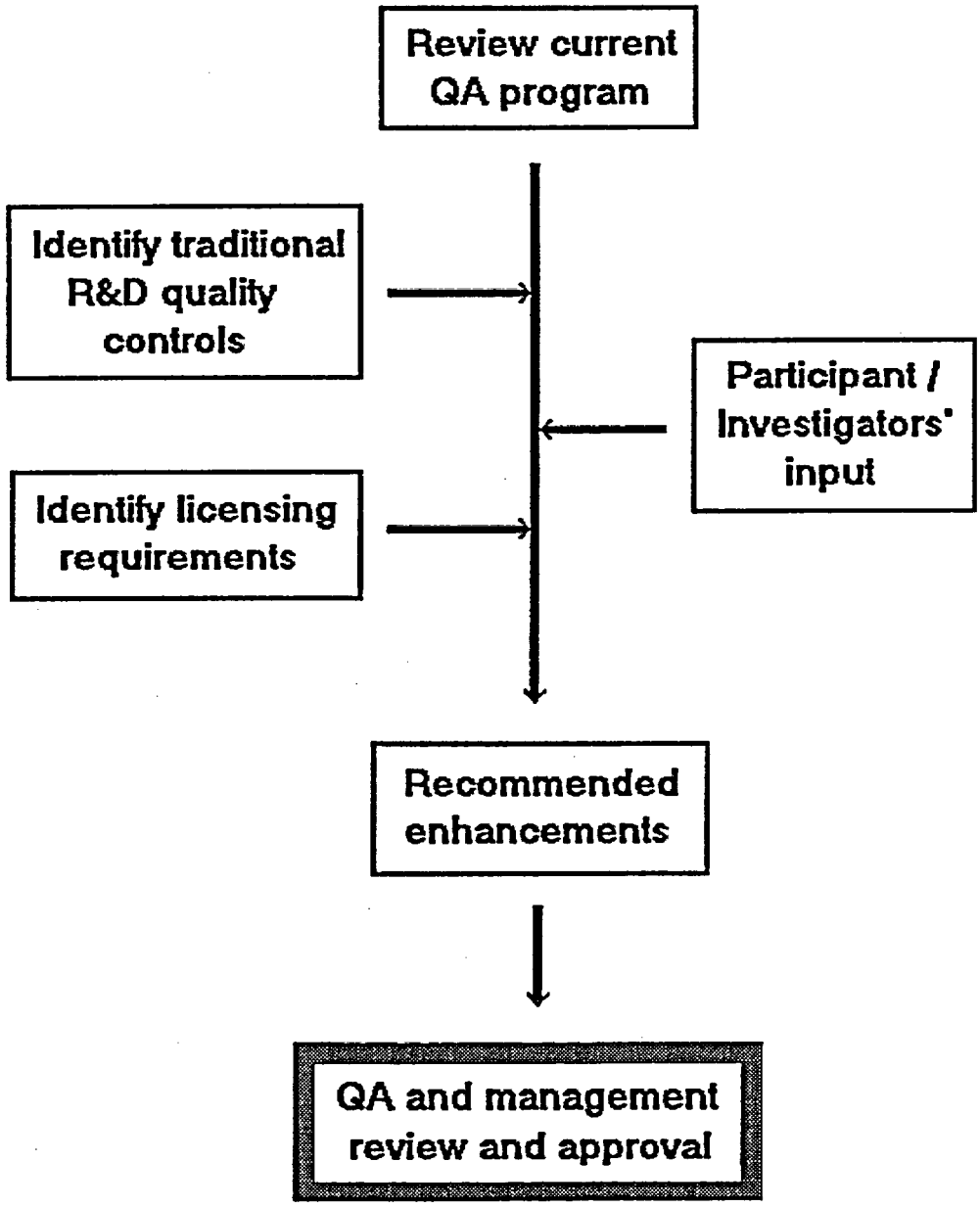
RECOMMENDATION OVERVIEW



TECHNICAL ADVISORY GROUPS



QA PROGRAM ENHANCEMENT



DOE SOFTWARE QUALITY ASSURANCE WORKSHOPS

January 22-23 and February 4-7

PARTICIPANTS

Scientists/Engineers

QA Staff

Data and Information Administrators

Management

DOE

LANL MACTEC
LLNL REECo
SNL RSN
USGS SAIC

OBSERVERS

EG&G NRC EEI

TO IDENTIFY SPECIFIC ISSUES ASSOCIATED WITH THE SOFTWARE QA PROGRAM AND TO DEVELOP RECOMMENDATIONS FOR IMPROVING THE SOFTWARE QA PROGRAM
(WORKSHOP CHARTER)

QA SOFTWARE WORKSHOP CREDO

"Establish an interactive and dynamic process among Scientist/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 to work"

PROBLEM STATEMENTS

- The current requirements are ambiguous, lack a basis for need, and are poorly understood.
- Software QA requirements must include a software classification scheme based on the nature, importance and intended application and must be commensurate with impact on quality.
- Requirements focus on documentation of all phases/cycles of software development, not on testing/validation. Emphasis needed on the quality of software required for licensing and not paper trail.

PROPOSED RESOLUTION

Establish a standing Software Advisory Group to identify the optimum SQA requirements for licensing:

- Examine current regulations, DOE Orders, Industry Standards, NRC guidance, etc.
- Consult with outside experts including the NRC
- Emphasize accepted scientific practices
- Standardize definitions and software classifications
- Use software classifications to provide flexibility in the application of SQA controls
- Provide long-term focus on interpretation of requirements and resolution of software issues

SHORT-TERM RECOMMENDATIONS AND RELATED ISSUES

SHORT-TERM RECOMMENDATIONS

- Evaluate Section 19 of QARD to clarify requirements and identify specific concerns for resolution
- Initiate collection of information for Software Advisory Group

RELATED ISSUES

- Incorporate Software QA into mock licensing process
- Grading process being revised by Project QA
  - Application of QA Grading controls specific to software use

SUMMARY
OF SOFTWARE QA WORKSHOPS

- Synergistic environment
- Focus on short-term improvements
- Establish a Software Advisory Group
- Identify and define optimum requirements
- Process will remain interactive with all Participants
- Implement a QA Software Program that meets requirements--Regulatory and Technical

ACTION - ACTION - ACTION

NRC OBSERVERS COMMENTS

WORKSHOP PROCESS

Managed by Joe Caldwell (MacTec) and facilitated by Cathie Martin and Herb Worsham (MacTec)

(Comment: EXCELLENT JOB)

- **PRODUCTIVE: BROUGHT THE SCIENTIST AND QA PERSONNEL TOGETHER TO CONSTRUCTIVELY DISCUSS THEIR FRUSTRATIONS, CONCERNS, PERCEPTIONS, PROBLEMS ASSOCIATED WITH IMPLEMENTING QA PROGRAM REQUIREMENTS:**

- **COOPERATIVE SPIRIT: CREATED A RESPECT AND COOPERATIVE SPIRIT BETWEEN WORKSHOP PARTICIPANTS (SCIENTISTS, TECHNICAL,QA, MANAGERS) THROUGHOUT THE IDENTIFICATION AND PROPOSED RESOLUTIONS OF INDIVIDUAL CONCERNS.**

- **CHANGING ATTITUDES: TRANSITION TAKING PLACE WHERE MORE SCIENTISTS AND OTHERS ARE ACCEPTING QA PROGRAM AS NEEDED. APPRECIATED AS BENEFICIAL TO GOOD SERVICE.**

- **IMPROVED QA PROGRAM: CARRYING OUT RECOMMENDATIONS AND CONDUCTING FUTURE WORKSHOPS WILL IMPROVE THE QA PROGRAM, AND**

- **ALLOW FOR IMPROVED IMPLEMENTATION**

- **CREATE AN IMPROVED QUALITY DOCUMENTED PRODUCT**

EDISON ELECTRICAL INSTITUTE OBSERVER COMMENTS

- EEI has been impressed by the actions taken to date by DOE through these workshops to identify and address the QA-related concerns of the scientific/ technical personnel.
- There has been a good cross-section of QA, management and the scientific/technical people represented at the workshops.
- The feedback from the scientific/technical personnel at the workshops has been positive regarding DOE's willingness to listen to their concerns and do something about them.

EEI OBSERVER COMMENTS
Continued

- During the workshops, a rapport and a positive cooperative spirit developed between the QA, management and scientific/technical attendees. This was most vividly displayed through a common interest in addressing these concerns.

- The workshops represent a major step toward establishing a "meeting of the minds" between QA, management and scientific/technical personnel and EEI recommends that the workshop process be continued and that action be taken to address the results of the workshops.

NEXT STEP

INTEGRATED RECOMMENDATIONS

- FOCUS ON SHORT-TERM IMPROVEMENTS
- ESTABLISH A TECHNICAL QA ADVISORY GROUP
- ESTABLISH A FORUM FOR TECHNICAL/ QA/MANAGEMENT INTERACTION
- HOLD DOE/NRC/PARTICIPANT WORKSHOPS
- QA PROGRAM MAXIMIZE USE OF SCIENTIFIC METHOD
- ESTABLISH AN APPEALS PROCESS

ACTION------ACTION------ACTION

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 to work"

DRAFT

CHARTER

PARTICIPANT TECHNICAL WORKING GROUP

Objective

- To contribute to the evolution and implementation of a coherent and stable quality-assurance program that: 1) is compatible with the scientific method and with research-and-development activities; 2) provides controls such that the products of site-characterization efforts and basic and applied research are useable in legal and regulatory arenas; 3) is in accord with upline NRC documents; and 4) facilitates the conduct of participant technical activities within a regulatory environment.

Approach

- The working groups shall assist participant technical staff in the formulation and conduct of their plans and activities within the framework of participant- and Project-level QA by the following means.

  1. Serve as a sounding board for QA problems at the participant level.

  2. Function as an interactive agent between investigators and the TPO and QA organization.

  3. Serve as a means of conveying to the Project level, QA-implementation problems that cannot be resolved at the participant level, or that are of import to the Project overall.

  4. Report to the TPO, QA organization, investigators, and the Project working group on the results of working group meetings.

Meetings

- Frequency

  1. The working group shall meet bimonthly, at a minimum, and on an *ad hoc* basis as appropriate. Agendas will include reports by individual group members regarding investigator solicitations for assistance; status of, and updates regarding, problem resolutions; and formulation of plans for problem resolution.

- Agenda

  1. The working group shall follow a formal meeting agenda. Investigators, participant management and QA staffs, and the TPO will be apprised of agenda items prior to each meeting.

- Participation

  1. Meetings shall be open to all interested persons, and investigators, managers, and QA staff are encouraged to participate. For efficient and productive operations, observer participation shall be subject to ground rules developed by the working group.

  2. The working group may invite individuals from within or outside the YMSCP to participate in meetings and to advise the group regarding specific topics under consideration.

Working Group Membership

- **Composition**

  1. The working group shall comprise two to four investigators. Appointees must be supported fully or in part by the YMSCP.

- **Term of Appointment**

  1. Members shall serve for two years. Terms shall be staggered so that one or two members will be replaced each year. To enable this, two members will be selected to serve initial terms of one year.

- **Selection of Members**

  1. Members shall be selected by the TPO from the technical staff.

Changes to the Charter

- This charter can be revised upon recommendation of the working group. Revision requires the approval of the TPO.

DRAFT

1/31/91

CHARTER

Yucca Mountain Site Characterization Project
Quality Integration Group

Objective

- To facilitate communication, discussion, and resolution of concerns arising from management, quality assurance (QA), and scientific interactions on the Yucca Mountain Project.

- To contribute to the evolution and implementation of a coherent and stable quality-assurance program that: 1) is compatible with the scientific method and with research-and-development activities; and 2) provides suggestions such that the products of site-characterization efforts and basic and applied research are usable in legal and regulatory arenas.

Approach

- The Group shall provide participant technical perspective and foster communication and resolution of scientific, QA, and management issues by:

  1. Serving as a sounding board for identifying problems, discussing issues, and proposing solutions to concerns that have broad programmatic implications or that are interdisciplinary in nature and could impact multiple activities and organizations. Emphasis will be on innovative quality improvements that could positively impact the technical direction or scope of the Yucca Mountain Site Characterization Program.

2. Initiating activities to improve communication and produce integrated solutions to problems involving scientific, QA, and management issues.

3. Submission of findings and recommendations to the Yucca Mountain Site Characterization Project Office (YMPO) Program Manager and QA Manager. Copies shall be forwarded to the TPO, QA Manager, and each participant member.

Selection of Members

- Composition

The working group shall be comprised of seven members, one from each of the participant organizations with major scientific responsibilities (Los Alamos, Lawrence Livermore, Sandia National Laboratories, and the U.S. Geological Survey) and one each from YMPO management, QA, and technical staffs.

YMPO will have Chairman responsibility. TPO will select members from their technical staff and take into consideration such factors as diversity and representativeness of viewpoints and disciplines and breadth of understanding of the program and goals of YMP.

A Group secretary will be assigned by the Chairman to coordinate preparation of the agenda, distribution of meeting notes, and other administrative matters.

The Group will evaluate meeting effectiveness on an annual basis.

Meetings

- Frequency and Location

  1. The Group shall hold meetings periodically.

  2. Additional meetings shall be held as needed with management staff and others as deemed appropriate by the Chairman.

  3. Meeting sites shall rotate among the Group member home sites.

- Agenda -- The Group shall follow a formal meeting agenda. A summary of the previous meeting topics and list of proposed agenda items shall be distributed prior to each meeting. The agenda may include unresolved topics from previous meetings and new topics or proposals appropriate to the mission of the Group.

- Participation -- The Group may invite experts in various disciplines from within or outside YMP to participate in or make presentations at meetings, and to advise the Group on topics under consideration. Project staff are encouraged to provide input to the Group. Other YMP participants will be invited to Group functions as appropriate.

TRAINING PROGRAM QUESTIONNAIRE:

NAME: (OPTIONAL)_____ DATE:_____

1. What is your position/title on the Yucca Mountain Project?

2. Does your position/title have a formal position description listing your Yucca Mountain duties?

3. Do you have a copy of your position description document for reference and have you weighed the training needs against your responsibilities to ensure that you are knowledgeable of implementing procedures that affect your work?

4. Which of the following regulatory requirements for training are you familiar with:

   a. NRC Nuclear Regulation, NUREG 1220,
   b. NQA-1,
   c. Criterion II of Appendix B, and/or
   4. Others?

5. What are your personal views of regulatory requirements for training?

6. How does the training program apply to you and your work responsibilities?

7. Who identifies what training you require for the Project and do you participate in this process?

TRAINING PROGRAM QUESTIONNAIRE:

NAME:(OPTIONAL)_____ DATE:_____

8. Have you requested any training that you felt was needed under your job description to properly perform your tasks?

How was your request satisfied?

9. How are you notified of your official training needs?

10. Are you aware that assigned training must be completed prior to the execution of your quality affecting work?

11. What consequences, if any, are there if you don't complete the required training?

For Example: cut off from doing any work, can't release any publications, can't purchase any material, can't charge time to the project, or can't review documents?

12. Have you ever received training for your Yucca Mountain work? And on a scale of 1-10 (low-poor to high-excellent), how would you rate the training received to date and why?

TRAINING PROGRAM QUESTIONNAIRE:

NAME: (OPTIONAL)_____ DATE:_____

13. For the training that you received:

a. What method(s) was/were used: OJT, read only assignment, formal classroom training, computer based, structured learning, or other methods(please spell out)?

b. Have you received any job specific technical training for the conduct of your work?

c. Who is your training coordinator?

d. Describe your interaction with your training coordinator, if any.

14. What method (see 12a above) used to date was efficient, effective, and produced a better understanding of requirements relating to your job task(s) and why?

15. Have you been asked to evaluate your training?

a. Does anyone follow-through after any training to obtain your input on its effectiveness or applicability to your YMP job task?

b. Have you been provided with a contact to call if you have questions regarding the course content?

TRAINING PROGRAM QUESTIONNAIRE:

NAME:(OPTIONAL)_____ DATE:_____

16. What actions would you take to improve the quality of your training program if it was your responsibility?

a. What goals would you set?

b. What training techniques/methods would you use to achieve your goals?

17. Who do you feel is responsible for ensuring that a favorable climate exists within which training can be accomplished effectively?

18. Have you ever thought of becoming an instructor for your YMP training program? How could you make a difference?

19. Additional comments WELCOME!