

10 *See Packet to for
encl.*

Type

Reply to:
U.S. Nuclear Regulatory Commission
Suite #319
1050 Flamingo Road
Las Vegas, NV 89119

WM Record File 102
WM Project 11
Docket No. _____
PDR
LPDR

Distribution:
Kennedy Linehan w/cover ltr only
Stablein " " " "
(Return to WM, 623-SS) *af*

MEMORANDUM

DATE: August 1, 1985
FOR: Jim Kennedy
WMRP DC 623-SS
FROM: Paul T. Prestholt, Sr. OR-NNWSI
Subject: QA Lawrence Livermore Ntl Lab

For your information I am forwarding the following documents:
1. letter LLNL to Don Vieth, DOE dated 4-26-85
2. letter LLNL to James Blaylock, DOE dated 7-1-85
3. Audit Team Assignments 85-6
4. QA Note #2 dated April 22, 1985
5. Audit check list 85-6

PTP/brnm

WM DOCKET CONTROL
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NWM:LR 85-149

April 26, 1985

Donald L. Vieth, Director
Waste Management Project Office
U.S. Department of Energy
Nevada Operations Office
P.O. Box 14100
Las Vegas, NV 89114

Dear Don:

Last week Jesse Yow handcarried our Quality Assurance Program Plan to your office. That QAPP is a description of the way I intend to manage the part of the NNWSI for which I am responsible. It is the result of careful consideration and a clear understanding of what I wish to accomplish.

The attention I give QA is strong. I meet with John Dronkers, my Deputy for QA, as frequently as any other manager on the project. I spend more time on QA than any other single function. Because such commitment may not be evident in the formal phrases of a QAPP, I wanted to write a statement of my QA philosophy to accompany our transmittal of the QAPP.

There are four premises on which our QA Program is built:

- A good management method must serve to improve the processes it manages, thereby also improving the product of those processes.
- Any successful quality assurance program must be compatible with existing management traditions.
- Whatever quality assurance methods are used must be integrated with the work.
- Quality assurance is a line management responsibility and cannot succeed without active involvement of the manager.

The rest of this letter expands on these points.

I have thought long and hard on how to make the management of science workable in terms of administrative requirements that essentially are incompatible with the tradition to which I, and the scientists working with me, are accustomed. I took time from my normal work schedule to attend conferences by both Juran and Demming. I listened to what other quality professionals had to say. I read the latest management of quality literature. From the conferences, from the private conversations, from the literature, and most of all, from my past experience as a manager of science I have distilled a method whereby I will manage the projects for which I accept responsibility. And I wrote it down in the QAPP.

Our QAPP is a management plan. It is anchored on the premise stated above that a good management method must serve to improve the processes it manages, thereby also improving the product of those processes. In terms of my current efforts this means that the quality assurance methods described in the QAPP will be used to improve the processes by which we now attain quality. I know that the work we do is of high quality; i.e., we have no trouble attaining quality. I also know that we are lacking experience and methods to assure that attainment objectively. We intend to gain that experience during the next few years. The improvement described above is the criterion by which the success of our program QA should be measured. I am aware, however, that the "world" has several criteria for judging a quality program. I am confident that our system, once fully implemented, will meet any criteria anyone wishes to judge us by. We are and will remain process and result oriented, but we will produce the required paper.

Let us turn to the premise that any quality assurance program must be compatible with existing management traditions. Although it is possible to change a mode of management completely, such a wholesale change requires a time span of at least ten years (Juran). There is no time for that, even if it were acceptable to us. Therefore I will accept whatever already exists and integrate that with the necessary assurance functions. Where assurances are required in areas where we ourselves never felt the need for any, solutions will be sought that are consistent with local management traditions.

As a result, measures that we take to assure the quality of our work must be "doable". Many of the requirements that we are told to implement at first glance are so far removed from our daily activities that we have no idea to what we are to apply them, or what their utility is. After analysis and subsequent conversion to our methods (and sometimes language), many of these requirements become clear and can be used effectively. But still there remain those that are either nonsensical or unsuitable to our activities. We reject them. To do otherwise would risk the wholehearted support of those who must implement the QAPP at the daily level.

I am aware that "doability" is a highly subjective criterion. I am very gratified, however, by the response of our scientists to these new and alien requirements. In those instances where resolution remains elusive, I am the final arbiter.

The next premise is vital but apparently not widely used: whatever quality assurance methods are used must be integrated with the work. It is unthinkable to have two systems, one that pertains to work activities and another that pertains to assurance activities. The notion that two systems can be made to apply to one management structure is primitive and has been shown to be false. You are familiar with what is known as the Ford Amendment Study. It seems to me that the main lesson to be learned from that study is that quality assurance methods must form an integrated whole with the total effort, if that effort is going to be successful. The examples of failures cited in the study all had one thing in common: they treated their quality assurance activities as separate and distinct from the work activities.

In your review of the draft of our QAPP, you raised the question whether quality assurance measures would be part of administrative or technical procedures. As a result of our integrated approach we do not differentiate between the two. We have procedures. Some of them prescribe the conduct of a test, others the collection of records. All will contain the necessary assurance measures that result in the objective evidence that the procedures were implemented and implemented correctly.

Our integrated approach also allows us to focus on important issues. I have often observed that quality assurance professionals like to wrap total programs around everything that they contact. I believe that such an approach is destructive to the intent of quality assurance. I think that you are familiar with the general reception of such an approach and the derisive comments that result from it. Our approach requires us to assess the importance of an activity in terms of stipulated requirements, assess its probability of failure and the consequences of that failure in terms of cost and schedule, and then integrate the appropriate assurance for success and quality attainment. Conversely we do not waste a lot of time and effort on activities where traditional good professional practices will suffice. The best individual to make such determinations is the one responsible for the activity, in our case the Subtask Leader.

Given that attainment and assurance are integrated activities, I strongly endorse the stated DOE policy that quality assurance is a line responsibility. It is in fact our fourth premise. The focal point of our QAPP is the Subtask Leader, who is responsible for attaining and assuring the quality of his work. The QAPP defines the line organization that further supports both the attainment and assurance requirements for the total effort we do on your behalf.

I know what we are contractually obligated to do. I would like to emphasize that, beyond the contract, I am committed to assist you in obtaining a license to construct a repository should the NNWSI be authorized to apply for one. This commitment translates into me doing the best I can in the administration of science. I have written a program plan to do that. I am sure that during the implementation phase of that program, some changes will be made. Nevertheless I am pleased with what now exists and I am excited about working with it. Quality Assurance of research and development, as contrasted with construction and manufacturing, is in its infancy and we have the opportunity to attain leadership in that area, just as in the technical disciplines.

In closing I want to mention that in accepting the responsibility to do work for NNWSI, I have isolated the project from the rest of the Laboratory. LLNL does not have the institutional assurance system which you and the other OCRWM projects require. We have therefore designed a program that will allow us to use some of the available services, but in such a way as to allow us to perform the assurance functions ourselves. We ourselves close all the "loops".

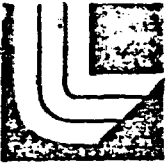
I hope that this letter clarifies some things for you. I am of course more than willing to discuss these and other aspects with you.



Lawrence Ramspott
LNL Technical Project Officer
for NNWSI

LR:sc

cc: J. Dronkers



Lawrence Livermore National Laboratory

NWM:LR 85-224

July 1, 1985

James Blaylock
Quality Assurance Manager
Waste Management Project Office
U.S. Department of Energy
Nevada Operations Office
P.O. Box 14100
Las Vegas, NV 89114

Dear Jim:

Please find enclosed 033-NNWSI-P20.0, Assigning Levels of Quality Assurance. This procedure closely follows the structure of SOP-02-02, except for two instances. Note that in Section 20.4, Definitions, under the criteria for QA Level I and also in Fig. 20.1, a section has been added to include activities where the intended purpose is to provide primary data for license application. This is an addition to requirements in SOP-02-02; it clarifies some uncertainties for us.

Also, in Section 20.7.4, Project Office approvals are assumed and implementing procedures are drafted as soon as possible. We believe that any external perception of loss of NV control will be more than balanced by expeditious implementation of our QA program. For those cases where the project office disapproves, we will handle the necessary paperwork to document the required changes.

Lawrence Ramspött
LLNL Technical Project Officer
for NNWSI

LR:sg (6811)

cc: D. Vieth, WMPO/NV

ACTION	<u>WMPO</u>
INFO	<u>QAD</u>
R.F.	_____
AMA	_____
AME & S	<input checked="" type="checkbox"/>
AMO	_____

LLNL
COPIED
COPY NO. 11

No.: 033-NNWSI-P. 20.0
Revision: 0
Date: June 26, 1985
Page: 1 of 12

NUCLEAR WASTE MANAGEMENT PROJECTS

Subject:

ASSIGNING LEVELS OF QUALITY ASSURANCE

Approved:

S. Ranspatt

Prepared by:

Lynden B. Ballou
Lynden B. Ballou
Deputy Leader for NNWSI
Project

Reviewed by:

John J. Cronkers
John J. Cronkers
Deputy Leader for Quality
Assurance

20.1 PURPOSE

This procedure assigns responsibilities and describes the process whereby Levels of Quality Assurance are assigned to work done or items designed, made, or procured in support of the NNWSI project.

20.2 SCOPE

This procedure applies to all the work done or items designed, made, or procured in support of the NNWSI project for which the NWMP Leader has technical or administrative responsibility. It applies to NNWSI related work conducted by LLNL project personnel both on- and off-site. It also applies to NNWSI related work conducted by subcontractors to LLNL.

20.3 REFERENCES

1. Nevada Nuclear Waste Storage Investigations Quality Assurance Plan, NVO-196-17 (Rev 3) November 1, 1984.
2. NNWSI-SOP-02-02 "Assignment of Quality Assurance Levels to NNWSI Activities and Items", Revision 0

20.4 DEFINITIONS

Activity:

Any effort that affects the achievement or verification of the objectives stated in the WBS Dictionary

Item:

An all inclusive term that is used in place of the following: appurtenance, assembly, component, equipment, material module, part, structure, subassembly, subsystem, unit, datum, sample, and prototype hardware.

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Quality Assurance Level I:

Those radiological health and safety related items or activities that are important to either safety or waste isolation and that are associated with the ability of a nuclear waste repository to function in a manner that prevents or mitigates the consequences of a process or event that could cause undue risk to the radiological health and safety of the public.

Items or activities important to safety are those engineered structures, systems, and components essential to the prevention or mitigation of an accident that could result in a radiation dose either to the whole body or to any organ of 0.5 rem or greater either at or beyond the nearest boundary of the unrestricted area at any time until the completion of the permanent closure of the repository.

Items or activities important to waste isolation are those that must meet the criteria that address long term performance of engineered and natural barriers to prevent the release of radionuclides from the site to the accessible environment after permanent closure.

Activities conducted with the intent to provide the basis for the Department of Energy to submit a license application for a potential repository.

Quality Assurance Level II:

Those items or activities related to the systems, structures, and components which require a level of quality assurance sufficient to provide for reliability, maintainability, public and worker nonradiological health and safety, and other operational factors which would have an impact on DOE and WMPO concerns, and the environment.

Quality Assurance Level III:

Those items or activities that are not assigned Level of Quality Assurance I or II.

Work Breakdown Structure (WBS) Dictionary:

A product-oriented framework for organizing and defining work to be accomplished.

20.5 RESPONSIBILITIES

20.5.1

The assignment of the correct Level of Quality Assurance to apply to a specific activity or item is a collective effort. Such an assignment is made formally and is agreed to by the Subtask Leader for the activity or item under consideration, the NWMP Deputy Leader for NNWSI Project, and the NWMP Deputy Leader for Quality Assurance. Final review for approval of the assignment is the responsibility of the NWMP Leader.

Certain aspects of this collective effort require the assignment of specific responsibilities among the participants. These are fully described in Section 20.7 "Procedure", but an outline is given here for ease of reference.

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20.5.2

The Subtask Leader is responsible for:

- initiating the procedures to assign the correct Level of Quality Assurance.
- participating in the procedures to assign the correct Level of Quality Assurance.
- assuring that all items and activities that fall within the scope of this procedure and for which the Subtask Leader has responsibility have a Level of Quality Assurance assigned to them using this procedure.

20.5.3

The NWMP Deputy Leader for NNWSI Project is responsible for:

- assuring that this procedure is implemented and remains effective.
- participating in the procedures to assign the correct Level of Quality Assurance.
- assuring that justification for, exceptions to, and documentation of the assignments of Quality Assurance Levels have some level of consistency throughout that part of the NNWSI Project for which the NWMP Leader is responsible.
- assuring that all the required documentation is correct and complete before it is submitted for final approval.

20.5.4

The NWMP Deputy Leader for Quality Assurance is responsible for:

- participating in the procedures to assign the correct Level of Quality Assurance.
- assuring that all necessary references are available to the procedure participants.
- assuring that all the necessary Quality Assurance criteria are included in the Level of Quality Assurance assignment and that, where appropriate, they are correctly applied.
- assuring that WMPO receives the assignment of Levels of Quality Assurance for their management approval.

20.5.5

The NWMP Leader is responsible for:

- final review and approval of all Level of Quality Assurance assignments before they are sent to WMPO for approval.

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20.6 CRITERIA FOR DETERMINATION OF QUALITY LEVELS

20.6.1

The NNWSI Project uses an approach to quality assurance that allows selective application of the 18 quality assurance criteria described in the NNWSI Quality Assurance Program Plan. The approach is used to be able to apply requirements contained in each of the 18 criteria to the extent necessary to provide assurances that the work was done correctly.

20.6.2 Criteria for Quality Assurance Level I

QA Level I is the most stringent level of quality. It is to be applied to those items and activities that may affect the ability of the repository to meet the preclosure and postclosure performance objectives specified by the NRC and the U.S. Environmental Protection Agency (EPA) for protecting public health and safety from radiological hazards. The items and activities to which QA Level I applies include data collection, analysis, design, construction, fabrication, and operation. The items and activities to which QA Level I applies can be categorized as follows:

- a. Items and activities that could affect the preclosure radiological health and safety of the general public. Specifically, this means items and activities that could cause, or result in, an accident that could result in a radiation dose, either to the whole body or to any organ, of 0.5 rem, either at or beyond the nearest boundary of the unrestricted area, at any time until the permanent closure of the repository.
- b. Items and activities that will provide site-characterization data. Site-characterization data are the field and laboratory data and subsequent analyses that provide the basis for determining and demonstrating that the natural and the engineered systems of the repository are capable of providing long-term waste containment and isolation. This includes all tests, experiments, and research which have a significant impact to site-characterization or are an essential part of the data base that directly support the final design of the repository and the waste package as well as the assessment of repository performance. It also includes those activities (e.g., tests, experiments, and research) that are one of several independent activities contributing to a single base of information that is considered in formulating the repository design or performance assessment of the engineered or natural barriers.
- c. Items and activities that affect the radiological health and safety of repository workers.
- d. Items and activities that could affect the retrievability of waste up to the time of repository closure.
- e. Items and activities that, having failed, could cause failure or loss of function of a QA Level I item or activity.
- f. Activities that are conducted with the intended purpose of being used as part of the primary data package for a license application.

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20.6.3 Criteria for Quality Assurance Level II

QA Level II is the second highest level of quality. It is applicable to the items and activities that do not warrant QA Level I and pertain to the non-radiological operation of the repository, including the items and activities that support the preclosure performance objectives and are designed to minimize the non-radiological hazard to the public and repository workers. Also included are the items and activities that may have a major impact on project costs or schedules. Specifically, Quality Assurance Level II is to be applied to the following items and activities.

- a. Items and activities that are essential to the operation of the repository and could have a major impact on the non-radiological health and safety of the public and repository worker. In this context, "major impact" is defined as a catastrophic accident with the possibility of single or multiple deaths.
- b. Items and activities that involve the non-radiological operational reliability and maintainability of engineered systems, structures, or components.
- c. Items and activities that are concerned with evaluating alternative solutions, materials, or conceptual designs.
- d. Items and activities that, if failed, could result in a major cost overrun, which is defined as 50 percent for the item or activity (excluding those items and activities under \$500,000 that would not have an impact of \$500,000 on the NNWSI Project).
- e. Items and activities that, if failed, could result in a major schedule slippage which is defined as a slippage of 50 percent for the item (excluding slippage under 2 months).

20.6.4 Criteria for Quality Assurance Level III

QA Level III is the least stringent level of QA. It is applied to all items and activities that are not assigned to either Level I or Level II. It is a level of quality sufficient to perform the activity to meet the end results. No additional procedures and documentation are required. Existing procedures and practices are considered to be adequate.

20.7 PROCEDURE

20.7.1

When preparing to assign Levels of Quality Assurance, each Subtask Leader's area of responsibility is considered individually and uniquely. The LLNL NNWSI Program's List of Planned Field and Laboratory Tests is used as a guide to consider possible subdivision of activities into smaller components.

If an activity is assigned a Level of Quality Assurance without further division, then all of its components have the same Level of Quality Assurance. If an activity is divided and some of the components are assigned a Level of Quality Assurance different from the activity itself, then this assignment is justified and the justification documented.

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It is the responsibility of the Subtask Leader to assure that all the activities in his or her area of responsibility are subjected to this procedure. No actual work on any activity can be started until this procedure has been used to assign a Level of Quality Assurance to it. Those activities that were started before the effective date of this procedure and are still continuing, will have this procedure applied to them as if they were just starting. Priorities for such Quality Assurance assignments are determined by the NWMP Deputy Leader for NNWSI Project and reviewed by the NWMP Leader.

20.7.2

The actual assignment of the Level of Quality Assurance is accomplished by a panel that consists of: the Subtask Leader whose activity is under consideration, the NWMP Deputy Leader for NNWSI Project, and the NWMP Deputy Leader for Quality Assurance. Each of the three participants may have additional people present, but not in substitution of them, unless specifically authorized by the NWMP Leader.

a. The Subtask Leader initiates the process of assigning Levels of Quality Assurance by notifying the NWMP Deputy Leader for Quality Assurance (Deputy for QA) that an activity has been identified that requires the assignment of a Level of Quality Assurance.

After the Deputy for QA has been notified, the Subtask Leader prepares for the panel meeting. A tentative predetermination of the Level of Quality Assurance is made using the criteria and logic diagram given in reference 2. (See pages 5, 6, and 7 of reference 2 for criteria and pages 12 and 13 for logic diagram.) This predetermination constitutes a "first best effort" by the individual best positioned to make such a determination. This predetermination does not have to be documented. It serves as a point of departure for the actual determinations.

The second part of the preparation consists of a division of the total activity into subactivities. The division results in a sequence of steps that leads from the start of the activity, through various subactivities, to the final anticipated end result. Each subactivity is defined so as to constitute a coherent unit. The relationships between subactivities also are defined. Although there is no specified format, this division is documented and the documentation made available to the panel members at the time of the meeting.

b. When the Deputy for QA is notified that an activity has been identified that requires the assignment of a Level of Quality Assurance, he prepares for the panel meeting. He schedules a mutually acceptable time for the meeting in general no later than two weeks after notification. He also arranges for the meeting room.

The Deputy for QA assembles all the necessary references that are required during the panel meeting in sufficient quantities to accommodate all known participants. (Reference 2 may be made available to the Subtask Leader at the time of the latter's notification.)

The Deputy for QA chairs all panel meetings. It is his responsibility to relate all activities and subactivities to the appropriate quality assurance elements contained in the Quality Assurance Program Plan and then assure that the correct control and documentation requirements are applied. He also assures that each meeting is uniquely identified by activity and date, month-day-year. Documents that result from a specific meeting are marked with the meeting date. All subsequent procedures written as a result of a specific meeting have numbers assigned to them at the time of the meeting.

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c. The Deputy for QA notifies the NWMP Deputy Leader for NNWSI Project (Deputy for NNWSI) that a panel meeting will be scheduled. When notified the latter prepares for the meeting. He determines who else from his organization needs to attend the panel meeting. He submits those names to the Deputy for QA as early as possible.

The Deputy for NNWSI is responsible for being aware of the historical development of these meetings. Specifically he is responsible for assuring that, over a period of time, the deliberations and decisions have some level of consistency. This is to be accomplished by citing precedents set in previous meetings, or, where necessary, creating new precedents when previous ones do not apply.

d. When the panel meeting is over, the Deputy for NNWSI Project collects all the documents of the meeting and verifies that they are correct and complete (see Section 20.7.4). He then forwards them to the NWMP Leader for review for approval. If the NWMP Leader approves, he will sign the approval sheet and return the documentation to the Deputy for QA. If the NWMP Leader does not approve, then a special panel meeting is convened to resolve the issues. This meeting is chaired by the NWMP Leader. Both the issues and their eventual resolution are documented and the documentation made part of the original documents package.

The Deputy for QA is responsible for the final review of the documents package. He submits one copy of the entire package to WMPO. The originals are placed in the NNWSI Records Center.

20.7.3

The assignment of Levels of Quality Assurance is a function of the definitions of the three levels and the criteria applied to each item and activity. Specifically, the following sequence is used:

- divide each activity to component parts if appropriate.
- process each component part of the activity sequentially through the logic diagram until a Level of Quality Assurance is apparent. (The logic diagram is shown in figure 20.1)
- record the assignment for each component part (or the entire activity) on the Quality Level Assignment (QLA) form (Figure 20.2).
- record all justifications for each assignment on the QLA. (If a justification is based on Step 6 of the logic diagram, then record what item or activity affected.)
- record which of the 18 quality assurance elements apply to each component part on the QLA.

20.7.4

When the assignment is made and the QLA is complete, the three panel members sign the Quality Assurance Level Determination Approval Sheet (Figure 20.3) and date it. The Deputy for NNWSI Project reviews the QLA for correctness and completeness and forwards it to the NWMP Leader for his review and approval.

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The NWMP Leader reviews the QLA to determine the acceptability of the assignment of the Level of Quality Assurance. If he approves, then he signs and dates the Quality Assurance Level Determination Approval Sheet and returns it to the NWMP Deputy Leader for Quality Assurance.

The NWMP Deputy Leader for Quality Assurance is responsible for obtaining official approval of the appropriate WMPO Branch Chief and the Project Quality Manager. Unless determined otherwise, such approval is assumed and the implementing procedures are written immediately upon approval by the NWMP Leader.

20.7.5

Any changes to the Level of Quality Assurance are determined by the same process that assigned the original level.

20.8 DOCUMENTS AND RECORDS

20.8.1

Procedures that result from the implementation of this procedure are issued and controlled in accordance with the requirements and procedures found under Tab: "Document Control 033-NNWSI-R 6.0".

20.8.2

Quality assurance records created by this procedure and procedures implementing it are collected, stored and maintained in accordance with procedures found under Tab: "Quality Assurance Records 033-NNWSI-P 17.0".

20.8.3

Quality Assurance Records:

- Completed QLA.
- All supporting documentation.

LOGIC DIAGRAM FOR ASSIGNING QUALITY ASSURANCE LEVELS

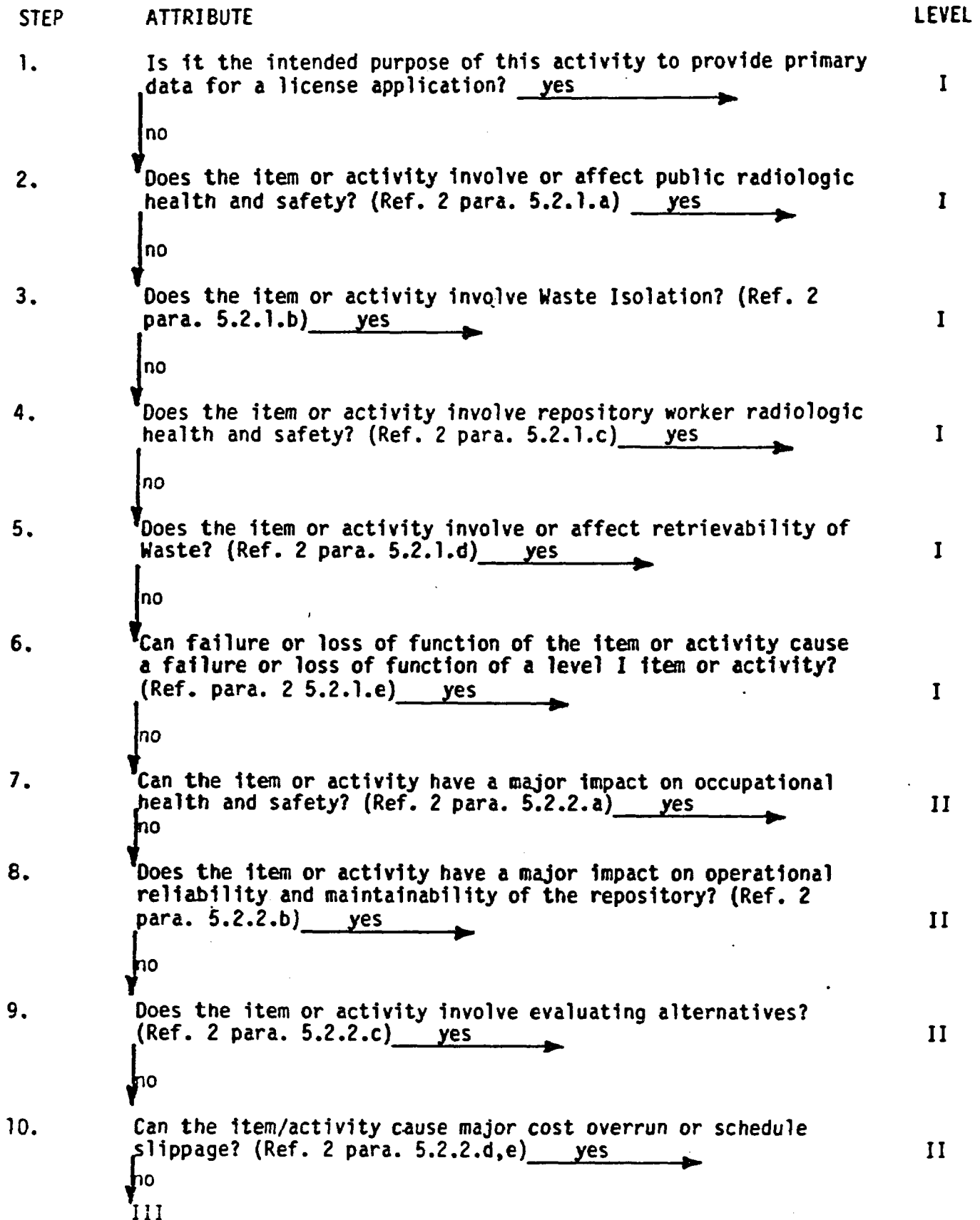


FIGURE 20.1

NWMP-NNWSI QUALITY LEVEL ASSIGNMENT

ACTIVITY:

DATE:

QUALITY ASSURANCE ELEMENTS 1, 2, 14, 15, 16, 17, AND 18 APPLY TO ALL WORK DONE AT
QUALITY ASSURANCE LEVEL I OR II.

FIRST
SUBDIVISION

QA LEVEL _____

CITE "YES" ITEM ON LOGIC DIAGRAM _____

QA ELEMENT	APPLIES	IF NO - JUSTIFICATION IF YES - LIST NEEDED PROCEDURES
3.0 DESIGN CONTROL		
4.0 PROC. DOC. CONTROL		
5.0 INSTR., PROCS, DWGS		
6.0 DOCUMENT CONTROL		
7.0 CTL OF PUR MATERIALS		
8.0 I.D. & CTL OF MATERIALS		
9.0 CONTROL OF PROCESSES		
10.0 INSPECTION		
11.0 TEST CONTROL		
12.0 CTL OF M & T EQUIP		

FIGURE 20.2

QUALITY LEVEL ASSIGNMENT APPROVAL SHEET

DATE:

MEETING ATTENDEES:

ACTIVITY:

COMMENTS:

APPROVE QUALITY ASSURANCE LEVEL DETERMINATION

SUBTASK LEADER

DEPUTY LEADER FOR QA

DEPUTY LEADER FOR NNWSI PROJECT

NWMP LEADER

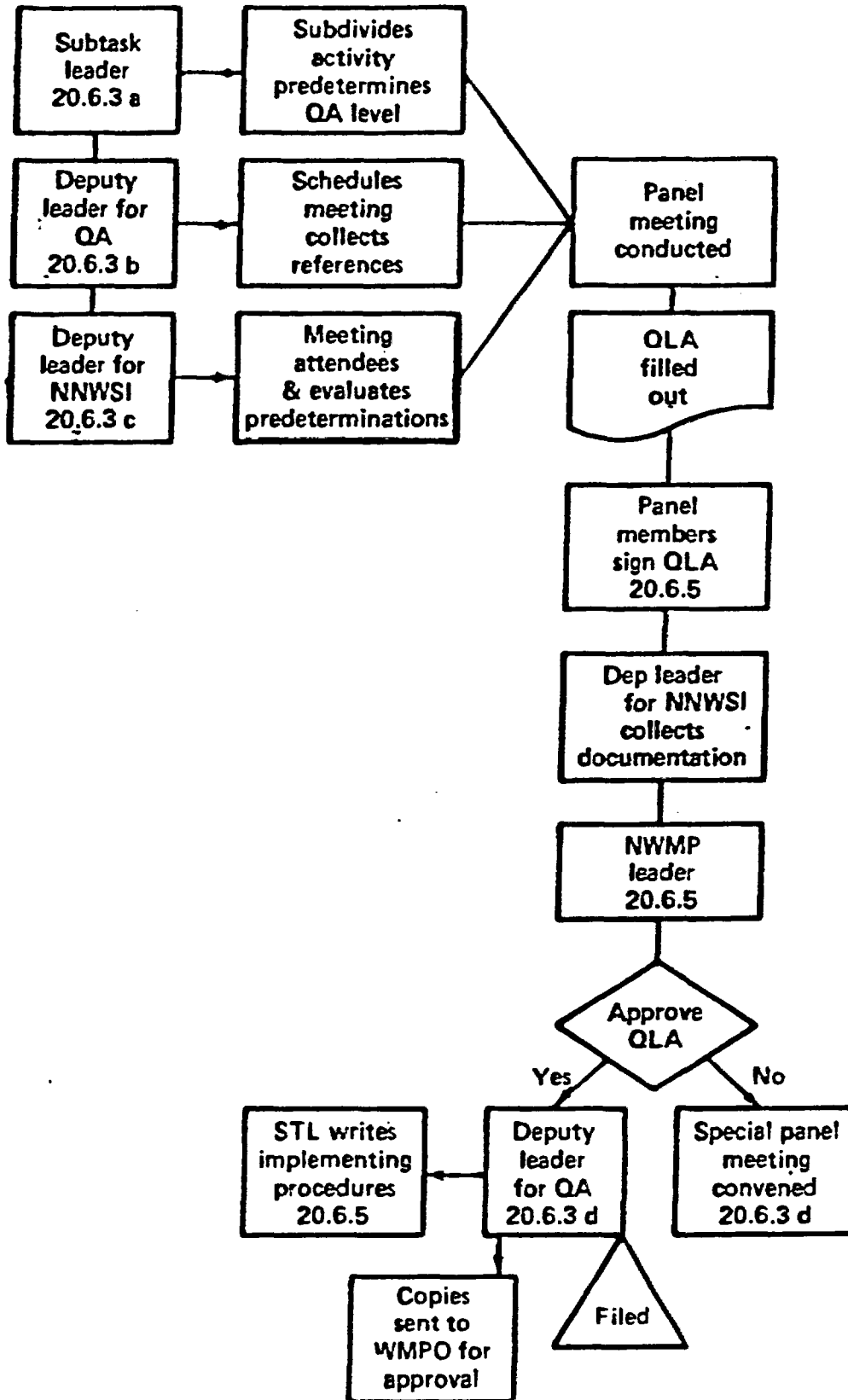
AFTER NWMP LEADER APPROVAL RETURN TO DEPUTY LEADER FOR QA WITH COPY TO SUBTASK LEADER

WMPO BRANCH CHIEF

PROJECT QUALITY MANAGER

RETURN TO LLNL NNWSI QA FILE

FIGURE 20.3



Audit Team Assignments 85-6

Quality Assurance Elements

1. Organization
2. Quality Assurance Program
3. Design and Site Investigation Control
4. Procurement Document Control
5. Instructions, Procedures, and Drawings
6. Document Control
7. Control of Purchased Materials, Equipment, and Services
8. Identification and Control of Materials, Parts, and Components
9. Control of Processes
10. Inspection
11. Test/Experiment Control
12. Control of Measuring and Test Equipment
13. Handling, Storage, and Shipping
14. Inspection, Test, and Operating Status
15. Nonconformances
16. Corrective Action
17. Quality Assurance Records
18. Audits

LLNL Technical Areas to be Audited

- a. Programmatic areas to be audited QA 1, 2, 5, 6, 10, 14, 15, 16, 17, and 18
- b. Package Environment - WBS 2.2.2.L (New Number), WBS 2.2.1.L (Old Number)
- c. Waste-Form Testing - WBS 2.2.3.1.L
- d. Design, Fabricate, and Prototype Testing - WBS 2.2.4.L
- e. Metal-Barrier Testing - WBS 2.2.3.2.L
- f. Exploratory Shaft Test Plan - WBS 2.6.9.1.L
- g. Engineered Barrier Design Testing - WBS 2.6.9.2.5.L

Quality Assurance Elements for the Programmatic Areas

1, 2, 5, 6, 10, 14, 15, 16, 17
and 18

Quality Assurance Elements for the Technical Areas

3, 4, 5, 6, 7, 8, 9, 11, 12, 13,
and 17

Audit Team Member Assignments

- Lead Auditor - S. Singer - Programmatic Areas 1, 2, 5, 6, 10, 14, 15, 16,
17, and 18
- Auditor - R. Coleman - Programmatic Areas as assigned
- Auditor - F. Ramirez - Technical Areas b and c
- Auditor - J. Blaylock - Technical Areas d and e
- Auditor - N. Voltura - Technical Areas f and g
- Observer - P. Prestholt - NRC Rep.

6.0 Audit Team Members

S. Singer, SAIC/QASC-Lead Auditor
F. Ramirez, DOE/SAN-Auditor
J. Blaylock, DOE/PQM/NV-Auditor
N. Voltura, DOE/NV QAD-Auditor
R. Coleman, DOE/HQ OGR-Auditor
P. Prestholt, NRC-Observer

Prepared by/date: S. Singer June 14, 1985

Approved by/date: James Blaylock WMPO
6/14/85

Distribution:
All team members
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NNWSI AUDIT PLAN 85-6

1.0 Scope

The purpose of this audit is to evaluate the effectiveness of the Lawrence Livermore National Laboratory (LLNL) Quality Assurance Program Plan and its procedures with respect to the requirements of NNWSI NVO-196-17 Rev. 3 and to verify the implementation of the Quality Assurance program as it relates to the Waste Package.

2.0 Organization to be Audited

Lawrence Livermore National Laboratory (LLNL)

3.0 Audit Schedule

- o Pre-Audit Team Meeting: 1:30 pm, 7/8/85 - LLNL
- o Opening Meeting: 9:00 am, 7-9-85 - LLNL *Arrive 08:30 West Gate office - Bonnie E. Corn*
- o Audit Activities: 7/9/85-7/11/85 - LLNL
- o Closing Meeting: afternoon of 7/11/85 - LLNL

4.0 Requirements to be Audited

The requirements to be audited are stated in the 85-6 checklist which was generated from the following documents:

- o NNWSI NVO-196-17 Rev. 3
- o The applicable SOPs

5.0 Activities to be Audited

- o Programmatic Areas
- o Package Environment
- o Waste-Form Testing
- o Design, Fabricate, and Prototype Testing
- o Metal-Barrier Testing
- o Exploratory Shaft Test Plan
- o Engineered Barrier Design Testing

June 13, 1985

High Copy
TO: R. M. Coleman, DOE/HQ (RW-22), FORSTL
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P. Prestholt, NRC Rep.
J. Blaylock, DOE/NV PQM
Mike Valentine

Subject: Audit of LLNL 85-6, July 9-11, 1985

The following items are to be included in the package of materials for your reference and use in auditing LLNL:

1. NNWSI Audit Plan 85-6
2. Audit Team Assignments 85-6
3. A copy of LLNL Quality Assurance Plan and procedures manual
4. A copy of the LLNL 85-6 Checklist
5. A set of the LLNL Project Status Reports for six months.

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Record Center