



**Department of Energy**

Nevada Operations Office  
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WBS #1.2.9.3  
"QA"

**AUG 18 1989**

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**CLOSURE OF STANDARD DEFICIENCY REPORT (SDR) 036, REVISION 0, RESULTING FROM YUCCA MOUNTAIN PROJECT OFFICE QUALITY ASSURANCE AUDIT S-87-1 OF LAWRENCE LIVERMORE NATIONAL LABORATORY**

SDR 036, Revision 0, has been closed based on satisfactory verification of completed corrective action. A copy of the SDR is enclosed for your files.

If you have any questions, please contact James Blaylock of my staff at (702) 794-7913 or FTS 544-7913, or Catherine M. Thompson of Science Applications International Corporation at (702) 794-7738 or FTS 544-7738.

Edwin L. Wilmot, Acting Director  
Quality Assurance Division  
Yucca Mountain Project Office

YMP:JB-5465

Enclosure:  
SDR 036, Revision 0

- cc w/encl:
- Ralph Stein, HQ (RW-30) FORS
  - Dwight Shelor, HQ (RW-3) FORS
  - R. E. Schwartz, LLNL, Livermore, CA
  - J. J. Brogan, SAIC, Las Vegas, NV, 517/T-12
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  - C. M. Thompson, SAIC, Las Vegas, NV, 517/T-12
  - S. W. Zimmerman, NWPO, Carson City, NV
  - J. E. Kennedy, NRC, Washington, DC

- cc w/o encl:
- F. L. Ramirez, SAN
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# WMPO STANDARD DEFICIENCY REPORT

N-DA-03  
3/87

Completed by Originating QA Organization	1 Date <u>6/18/87</u>		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page <u>1</u> of <u>2</u>
	3 Discovered During Audit <u>S-87-1</u>		3a Identified By <u>W. R. Kazor</u>		3b Branch Chief Concurrence Date <u>N/A</u>
	4 SDR No <u>036</u>		5 Organization <u>LLNL</u>		6 Person(s) Contacted <u>Dr. R. Van Konynenburg</u>
Completed by Organization in Block 5	7 Response Due Date in 20 Working Days from Date of Transmittal				
	8 Requirement (Audit Checklist Reference if Applicable) <u>SOP-02-01 Rev. (3-1-85) requires that all Quality Assurance Level Assignments (QALAS be approved by WMPO prior to start of work.</u>				
	9 Deficiency Contrary to the above, although QALA E-20-6 for Metals Barrier Testing (WBS #2.2.3.2) was disapproved by WMPO on 11/18/85, LLNL issued P.O. No. 8058705 dated 2/13/86 which assigned activity E-20-6 to San Diego State University. One 55 gallon drum of J-13 Water was shipped to San Diego State via shipping document (cont'd)				
Completed by Org. QA Org.	10 Recommended Action(s) <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective <u>LLNL to: 1) determine root cause of deficiency and take appropriate action to preclude recurrence; 2) initiate action to determine validity of data; 3) insure PI/QA review of all future P.O.s and shipping documents; 4) Prepare appropriate (cont'd)</u>				
	11 QAE/Lead Auditor Date <u>WRKazor 7/1/87</u>		12 Branch Manager Date <u>WRKazor 7/1/87</u>		13 Project Quality Mgr. Date <u>James Blairford 7/1/87</u>
	14 Remedial/Investigative Action(s) <u>See attached sheets.</u>				
Completed by Org. QA Org.	15 Effective Date _____				
	16 Cause of the Condition & Corrective Action to Prevent Recurrence <u>See attached sheets.</u>				
	17 Effective Date _____				
Completed by Org. QA Org.	18 Signature/Date <u>John J. Donkeris 10/29/87</u>				
	19 Response <input checked="" type="checkbox"/> Accept <input type="checkbox"/> Amended Response <input type="checkbox"/> Reject		QAE/Lead Auditor/Date <u>WRKazor 3/1/88</u>		Branch Manager/Date <u>WRKazor 3/1/88</u>
	20 Amended Response <input type="checkbox"/> Accept <input type="checkbox"/> Reject		QAE/Lead Auditor/Date		Branch Manager/Date
Completed by Org. QA Org.	21 Verification <input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date <u>Stewart Nolan 5/31/89</u>		Branch Manager/Date <u>John Blairford 6/14/89</u>
	22 Remarks <u>SEE YMP-SR-89-099 FOR VERIFICATION DETAILS. S.P. ISLAND 6.1.89</u> <u>REFERENCE LETTER FROM L.B. PALLEN (LLNL) TO S. BLAYLOCK (YMP-OA) DATED 1.30.89</u> <u>QA: 89/871 and spn 5/31/89</u>				
	23 QA CLOSURE <u>Stewart Nolan 5/31/89</u> <u>John Blairford 6/14/89</u> <u>James Blairford 6/24/89</u>				

"BEST AVAILABLE COPY"

ENCLOSURE

Block 22

SDR 036

This SDR identified that LLNL shipped J-13 water to its sub-suppliers for analysis without an approved Quality Assurance Level Assignment for the activity as required by SOP-01-01, Rev. (3/1/85).

For resolution it was verified that LLNL wrote a Scientific Investigation Plan (SIP) with an assigned QA Level Assignment Sheet for the Metal Barrier Selection and Testing. The Project Office reviewed and approved the SIP and QA Level Assignment Sheet. A letter to this effect was issued November 12, 1987. Quality Levels I and III were assigned to various activities involving Metal Barrier Selections and Testing.

In addition, LLNL has developed procedure 033-YMP-QP-2.0, Rev. 0 "Assigning Levels of Quality Assurance" issued February 24, 1989, which assigns responsibilities and describes the process whereby levels of QA are assigned to work performed in support of the LLNL Yucca Mountain Project. 033-NWMP-P 20.0, Rev. 0 concerning QA Level Assignment has been renumbered to 033-YMP-QP-2.8, Rev. 0 approved by LLNL 2/23/89.

This SDR is closed.



**MPO STANDARD DEFICIENCY REPORT  
CONTINUATION SHEET**

N-GA-03  
10:86

SDR No 036

Rev.

Page 2 of 2

DEFICIENCY (cont'd)

L-60275. In addition, work on a Waste Package Metal Barrier activity was contracted to the University of Minnesota via P.O. #7057605 on 2/25/86. Five gallons of J-13 Water were shipped to the University of Minnesota via shipping document No. 1-60232. There was no approved QALA for this activity.

RECOMMENDED ACTION (cont'd)

QALA for WMPO approval. In addition, LLNL is requested to evaluate and report on the impact of work involving J-13 Water on the NNWSI Project. This would include internal work at LLNL on Waste Package Environment, Waste Form (Spent Fuel), and Metals Barriers and work being done at off site locations such as Ohio State University, HEDL and PNL.

RESPONSE TO SDR No. 36

Block 8

We do not believe that the cited SOP exists. We have searched our records and cannot find SOP-02-01 with a revision dated March 1, 1985. The dates we have for SOP-02-01 are: January 7, 1985 for Rev. 0, and January 31, 1986 for Rev. 1. We do have SOP-02-02 with a Revision 0 dated March 1, 1985. Given the subject of the deficiency, which we assume to be Levels of Quality Assurance, we will further assume that you intended to reference SOP-02-02, and we will respond as if that is the case.

Block 9

The "Deficiency" is very poorly written. What are the issues? Is it the San Diego State contract? The University of Minnesota contract? Is there a concern with the J-13 water shipped to both institutions (remembering that this was an audit of the traceability of J-13 water)? It would seem obvious that the latter is a consequence of the former.

In order to reply to this baroquely written deficiency, we will assume the following: the concern is with LLNL awarding contracts to have work done of which the Level of Quality Assurance assignments were not approved by WMPO. In Block #9 you cited specific examples, namely, San Diego State and University of Minnesota (incidentally, that is how one writes findings in system audits: the definition of a systemic deficiency, buttressed by specific examples).

Block 14

We note that work done at LLNL is done in accordance with LLNL procedures and not in accordance with WMPO procedures. The LLNL procedures, of course, must be approved by WMPO. To base the deficiency stated in Block #9 on the SOP cited in Block #8 is only valid if we had adopted the SOP as our own, as we did, for instance with WMPO's Interim Change Notice dated May 9, 1986, NVO-196-17, Rev. 4. We did not adopt the SOP cited in Block #8.

SOP-02-02, Revision 0, dated March 1, 1985 was implemented by LLNL through LLNL's procedure 033-NNWSI-P 20.0 dated June 26, 1985. LLNL's procedure contains a statement in Section 20.7.4 that "[The LLNL Deputy for QA obtains approval for the Level of Quality Assurance assignments from the WMPO Branch Chief and the PQM]. Unless determined otherwise, such approval is assumed..." This procedure was approved by WMPO in July of 1985. The deficiency stated in Block #9, therefore, is incorrect. The scientists followed an LLNL procedure which was approved by WMPO. The deficiency should have read that LLNL wrote a procedure not in compliance with the NVO-196-17 document applicable at that time, and that, in addition, WMPO approved that procedure. In a previous audit and pertaining to a different procedure a finding did exactly that.

The LLNL Task Leader whose activities are under scrutiny in this SDR acted in accordance with accepted procedures in the case of the San Diego State contract. There are other problems, however, and, although the SDR does not mention them all, we wish to discuss them for pedagogic purposes.

1. The LLNL procedure 033-MNWSI-P 20.0 does not address the case of what happens when LLNL assumes approval of a Level of Quality Assurance assignment, but it is eventually rejected by WMPO.
2. What were the actual steps taken by the Deputy for QA when it was discovered that contracts had been let after the notification of a rejected level assignment?
3. How was it possible for a Task Leader to let a contract without ever identifying an activity (this is in reference to the University of Minnesota contract)?

We reviewed the records and interviewed people who were involved with the activities and are still with the LLNL-NWMP. What we discovered and our conclusions follow.

The Task Leader of the activities that are the subject of this SDR advised the various Subtask Leaders that work could begin as soon as the LLNL-NWMP Leader approved the Level Assignments. The LLNL-NWMP Leader approved the Level Assignment on September 24, 1985 and again approved a modified (in term of which QA elements apply, not the actual Level of QA itself) Level Assignment on November 13, 1985. The work to be done required the possible use of J-13 water. It was therefore shipped. It should be kept in mind that until very recently there was no concern for the traceability of J-13 water.

WMPO disapproved the Level Assignments on November 18, 1985. There is a memorandum from the Deputy for QA to the Task Leader, dated December 11, 1985, advising the latter of the disapproval, but there is no evidence of any further action. There is no evidence that the Subtask Leaders were ever notified. This then can be construed as a failure to act in the best interest of the Project on the part of the Deputy for QA and the Task Leader. It is a failure to recognize the impact of a Level Assignment disapproval, a failure to communicate, and a failure to recognize an impending QA deficiency, i.e., unauthorized work was being done.

Even when WMPO's rejection of all of LLNL's Level Assignments became widely known, through discussions at various group meetings, there was no clear response on anybody's part, including the Deputy for QA. Conditions best described by words like confusion, frustration, and uncertainty seemed to exist. The cause can only be surmised. It was perhaps partly due to the reason for the rejection. WMPO's rejection was a blanket one and was necessitated because of the number of Level Assignments and WMPO's method of review and approval had overwhelmed WMPO. The volume could not be handled in any timely way and the activities could not be placed in context. Of course, the procedure was subsequently changed and codified through the publication of the requirement for SIPs.

Another cause was perhaps the lack of QA training. The QA program during the time relevant to this SDR was young, just six months old. Neither the technical nor QA staffs fully appreciated the impact of a rejected Level of Quality Assurance assignment. Nor had any of the technical staff received any QA training. This lack of training and the attendant frustrations caused by that were to become the subject of an NCR filed by a Task Leader against the Deputy for QA (LLNL NCR #7).

At any rate, in the confusion, frustration, and uncertainty the LLNL QAPP was generally ignored, and since the work of the activities under consideration here was thought to be important to the Project, science marched on without the benefit of QA.

It can generally be concluded from our investigations that the time period between the wholesale rejection of LLNL's Level Assignments and the "stop work order" of June 1986 contained a great deal of uncertainty as to how the QA program would be implemented, what the detailed implementation would entail in terms of time and effort, and what had to be done in order to obtain approvals for Level Assignments. A perhaps distant but apt analogy would be the time in history from the fall of the Roman Empire, generally pegged at the year 476 AD, to the cessation of the Viking Raids, around the end of the 10th century, known as the Dark Ages. The Deputy for QA was primarily concerned with external interfaces attempting to solve problems brought on by the wholesale rejection of all Level Assignments, while the technical staff, lacking any guidance from the Deputy for QA, did science the old fashioned way, without QA.

It is also for those reasons that a contract without any activity identification at all was let to the University of Minnesota.

#### Block 15

October 12, 1987.

#### Block 16

The comments in this Block will be a point-for-point response to the numbered recommended actions stated in Block #10.

1. The cause of the condition is discussed in Block #14. Actions taken to prevent future such occurrences include:

- deletion of the clause in LLNL's 033-NWMP-P 20.0 that allows LLNL to assume approval (See 033-NWMP-P Rev. 0, dated December 24, 1986).

- review of all procurements by QA to assure that they meet LLNL-QAPP's requirements and that the activity for which the procurement is placed has an approved Level of Quality Assurance (see Revision 1 of 033-NWMP-P 4.0 and 033-NWMP-P 7.0 submitted for WMPD approval on September 22, 1987).

- all LLNL personnel who are engaged in NWMP work have received at least four hours of orientation.

- Task and Subtask Leaders are now an integral part of the Level of Quality Assurance process. Any approvals or disapprovals are communicated directly, and, because of the orientation received, everybody knows what it means.

2. We fail to understand how the disapproval of Level Assignments in any way bears upon the validity of data. The data is valid or invalid, but that determination is independent of whether or not there was an approved Level of Quality Assurance assignment.

Perhaps what is meant here is: can the data used by the NNWSI Project? The answer to that question was provided to the audit team when it conducted its investigation. The reports of the work done at the University of Minnesota and San Diego State will not be used in NNWSI work assigned Level of Quality Assurance I or II. The reports will be included as part of the literature survey done in activity E-20-13, assigned QA Level III, which is currently awaiting WMPO approval (a revised SIP for Metal Barriers was submitted to WMPO on October 20, 1987). Unless something else is required we consider this point closed.

3. This point is addressed in our comments contained in point 1 above. A purchase order is considered a procurement.
4. This point actually consists of two requirements. The first one, "prepare appropriate QALA for WMPO approval," is nonsensical. Both activities have been completed and are no longer funded. Hence, those activities no longer exist. We don't think assigning Levels of Quality Assurance retroactively, or to non-existing activities is productive.

The second part of this requirement is something else altogether. It would appear that some members of the audit team had a hidden agenda, or had existing biases before the audit was conducted. It is not possible to infer from the objective evidence gathered during the execution of the audit, nor is it possible from the deficiency statement itself, that all the work that included J-13 water is suspect and has to be evaluated. The audit team itself has yet to decide whether this investigation is worth pursuing, and whether it is confined to LLNL or extends to other participating organizations. Additionally, the audit team never included in its investigations and interview enough of a representative sample of LLNL's technical records or staff to warrant so broad an indictment. The audit team is fishing and it is unprofessional.

It may be worthwhile to do what is requested here. When the audit team as a whole decides that it is, LLNL will initiate this effort. At this time we estimate the effort to require approximately two manyears. We will itemize that effort when we request the funding for it.