

U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
QUALITY ASSURANCE AUDIT PLAN
FOR AUDIT NO. YMP-92-21

OF

LAWRENCE LIVERMORE NATIONAL LABORATORY

LIVERMORE, CALIFORNIA

AUGUST 10 THROUGH 14, 1992

Prepared by: Richard L. Maudlin Date: 07-01-92
Richard L. Maudlin
Audit Team Leader
Yucca Mountain Quality Assurance Division

Approved by: R.G. Horton For Date: 7/6/92
Donald G. Horton
Director
Office of Quality Assurance

1.0 SCOPE

This audit will evaluate the Lawrence Livermore National Laboratory's (LLNL's) Quality Assurance (QA) Program to determine whether it meets the requirements and commitments imposed by the Office of Civilian Radioactive Waste Management (OCRWM). This will be done by verifying implementation and effectiveness of the system in place, as well as verifying compliance with requirements.

In addition to follow-up on open Corrective Action Requests, a representative sample of discrepancies identified during previous QA audits and surveillances of LLNL, will be included in the scope of this audit to determine the effectiveness of LLNL corrective actions.

The programmatic elements and technical areas to be audited, as well as those programmatic elements not included in this audit, are identified in Section 4.0 of this plan.

2.0 AUDIT SCHEDULE

Pre-Audit Team/Observer Meeting	8:15 am, August 10, 1992 Livermore, California
Pre-Audit Conference	9:00 am, August 10, 1992 Livermore, California
Audit Activities	8:00 am to 4:00 pm, August 11 - 13, 1992 Livermore, California
	8:00 am to 11:00 am August 14, 1992 Livermore, California
Daily Meeting With LLNL Management	8:00 am, August 11 - 14, 1992 Livermore, California
Post-Audit Conference	11:00 am, August 14, 1992 Livermore, California

There will also be a daily closed meeting of the audit team and observers starting at 4:30 pm to discuss the results of that day's activities.

3.0 REQUIREMENTS TO BE AUDITED AND APPLICABLE REFERENCES

The requirements to be audited will be contained in the programmatic checklists. These checklists will be developed from the applicable revision of the following LLNL documents:

- Yucca Mountain Project Quality Assurance Program Plan
- LLNL Yucca Mountain Project Software Quality Assurance Plan
- Yucca Mountain Site Characterization Project Office Administrative Procedures - Quality
- Yucca Mountain Project Quality Procedures
- Yucca Mountain Project Technical Implementing Procedures

The conduct of the audit will be guided by the documents (latest revision) listed below:

- Quality Assurance Administrative Procedure (QAAP) 18.2, Revision 5, "Audit Program"
- QAAP 16.1, Revision 4, "Corrective Action Requests"

4.0 ACTIVITIES TO BE AUDITED

Programmatic Elements

This audit includes the program elements scheduled on the OCRWM FY-92 Quality Assurance Audit Schedule, Revision 3. In addition, the program elements listed below include 3.0, 5.0, 6.0, 17.0, 19.0, and 20.0, from the April 1992 LLNL audit that was postponed.

Activities associated with the following LLNL QA Program elements will be audited:

- 3.0 Scientific Investigation Control and Design Control
- 4.0 Procurement Document Control
- 5.0 Instructions, Procedures, Plans, and Drawings
- 6.0 Document Control
- 7.0 Control of Purchased Items and Services
- 8.0 Identification and Control of Items, Samples, and Data
- 13.0 Handling, Shipping, and Storage
- 17.0 Quality Assurance Records

The following QA Program elements will also be included in this audit based on either lack of sufficient implementation during the previous audit or implementation was considered marginal.

- 2.0 Quality Assurance Program
- 12.0 Control of Measuring and Test Equipment
- 16.0 Corrective Action
- 18.0 Audits

The following QA Program elements will not be audited since they are not applicable or no activity has occurred.

- 9.0 Special Processes
- 10.0 Inspection
- 11.0 Test Control
- 14.0 Inspection Test and Operating Status

Technical Areas

<u>WBS NUMBER</u>	<u>TITLE</u>
1.2.1.4.5	Geochemical Modeling
1.2.2.3.1.1	Waste Form Testing
1.2.2.3.2	Metal Barriers

If the audit team identifies a need to verify additional programmatic or technical areas during the audit, they will be added to the audit checklists and verified accordingly.

5.0 AUDIT TEAM MEMBERS

Richard L. Maudlin, MAC Technical Services (MACTEC)/YMQAD, Las Vegas, Nevada,
Audit Team Leader
Paul L. Cloke, SAIC/YMQAD, Las Vegas, Nevada, Technical Specialist
Mario R. Diaz, U.S. Department of Energy/YMQAD, Las Vegas, Nevada, Auditor
Thomas J. Higgins, SAIC/YMQAD, Las Vegas, Nevada, Lead Technical Specialist
John R. Matras, SAIC/YMQAD, Las Vegas, Nevada, Auditor
John E. Therien, SAIC/YMQAD, Las Vegas, Nevada, Auditor
Charles C. Warren, MACTEC/YMQAD, Las Vegas, Nevada, Auditor
Richard L. Weeks, SAIC/YMQAD, Las Vegas, Nevada, Auditor

6.0 AUDIT CHECKLISTS

Two checklists will be employed during the audit. These are YMP-92-21-01 for programmatic requirements and YMP-92-21-02 for the technical portion of the audit.

TENTATIVE AUDIT SCHEDULE - AUDIT

Monday 8/10	Tuesday 8/11	Wednesday 8/12	Thursday 8/13	Friday 8/14
08:15 Team/Observer Meeting 09:00 Pre-Audit Conference M. Diaz - 12 J. Therien - 4/7 R. Weeks - 2 C. Warren/P. Cloke 3/20 J. Matras/T. Higgins 3/19	M. Diaz - 12 J. Therien - 4/7 R. Weeks - 5/6 C. Warren/P. Cloke 3/20 J. Matras/T. Higgins 3/19	M. Diaz - 16 J. Therien - 4/7 R. Weeks - 5/6 C. Warren/P. Cloke - 3/20 J. Matras/T. Higgins 3/19	M. Diaz - 18 J. Therien - 8 R. Weeks - 13 C. Warren/P. Cloke - 17 J. Matras/T. Higgins - 3/19	Prepare for Exit 11:00 - A
11:30-12:45 LUNCH	11:30-12:45 LUNCH	11:30-12:45 LUNCH	11:30-12:45 LUNCH	11:30-12:45 LUNCH
M. Diaz - 12 J. Therien - 4/7 R. Weeks - 2 C. Warren/P. Cloke 3/20 J. Matras/T. Higgins 3/19	M. Diaz - 16 J. Therien - 4/7 R. Weeks - 5/6 C. Warren/P. Cloke - 3/20 J. Matras/T. Higgins 3/19	M. Diaz - 18 J. Therien - 8 R. Weeks - 5/6 C. Warren/Cloke - 17 J. Matras/T. Higgins 3/19	M. Diaz - 18 J. Therien - 8 R. Weeks - 13 C. Warren/P. Cloke - 17 J. Matras/T. Higgins - 3/19	
4:30 CAUCUS	4:30 CAUCUS	4:30 CAUCUS	4:30 CAUCUS	

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QUALITY ASSURANCE CHECKLIST

ORGANIZATION EVALUATED LLNL		<input checked="" type="checkbox"/> EXTERNAL <input type="checkbox"/> INTERNAL	<input checked="" type="checkbox"/> AUDIT <input type="checkbox"/> SURVEILLANCE	PREPARED BY <u>SEE BELOW</u> DATE _____	
DATES OF EVALUATION					
CONTROLLING DOCUMENT (Title, Number, Revision)				ACTIVITY EVALUATED	
ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted			RESULTS
	(SEE ATTACHED)	<p>CHECKLIST PREPARED BY:</p> <ul style="list-style-type: none">o Paul Clokeo Mario Diazo John Matras/Thomas Higginso John Therieno Charles Warreno Richard Weeks			

* INDICATE RESULTS: SATISFACTORY (SAT), UNSATISFACTORY (UNSAT), NOT APPLICABLE (N/A)

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-1	<p>PREPARATION, APPROVAL AND REVISION OF PROCEDURES, REQUIREMENTS, PLANS AND THE QUALITY ASSURANCE PROGRAM DESCRIPTION 033-YMP-QP 2.1, Revision 3</p> <p>Section 2.1.4.2</p> <p>Verify that Quality Procedures contain the following information as a minimum:</p> <ol style="list-style-type: none"> 1. Purpose 2. Scope 3. Responsibilities 4. Procedure/Text 5. Retained Documentation 		
2-2	<p>Section 2.1.4.3.1</p> <p>Verify that at least one independent reviewer and each examined procedure.</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-3	<p>Section 2.1.4.3.31</p> <p>1. Are there currently any procedure review packages being stored by LLNL, which are awaiting YMPD approval?</p> <p>If yes examine fire-resistant cabinet.</p> <p>2. Are review comments accompanied by a memo identifying the comment due date, clarifying information and any special instructions?</p>		

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2-4	<p>Section 2.1.4.3.5</p> <ol style="list-style-type: none">1. Verify that when major comments are resolved, the reviewer completes the bottom section of the Review Request form. 2. Verify that when the originator and reviewer cannot resolve the comments, the LLNL-YMP Leader documents disposition of the comments. 3. Verify that the Publications Manager prepares a Review Close-out memo indicating the following:<ol style="list-style-type: none">a. Those to whom review copies were sent;b. Those who returned comments;c. Disposition of comments.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-5	Section 2.1.4.5 Verify that documents that have been submitted to YHPO for approval are identified by Document Control as "Approved For Interim Use".		
2-6	Section 2.1.5.2 Verify that when a procedure is a complete or general rewrite, the issued document will indicate: General Rewrite or Complete Rewrite.		

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2-7	<p>Section 2.1.5.4</p> <p>Are change notices reviewed and approved by those authorized to approve the original document, prior to issuance?</p>		
2-8	<p>Section 2.1.6</p> <p>Is a log of controlled document revisions and Change Notices maintained?</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-9	<p>Section 2.1.8.1</p> <p>Verify that the following records have been retained:</p> <ul style="list-style-type: none">a. Current and previously issued QAPP.b. Current and previously issued QA procedures.c. Record of YMPQ review and approval.d. Review close-out memo including disposition of comments documentation, if applicable.		

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2-10	<p>PEER REVIEW . 033-YMP-QP 2.2, REVISION 0</p> <p>Has LLNL conducted Peer Reviews in accordance with QP 2.2?</p>		
2-11	<p>MANAGEMENT ASSESSMENT 033-YMP-QP-2.3, REVISION 0</p> <p>Section 2.3.2</p> <p>Verify that a Management Assessment is conducted at least once a year and evaluates the following aspects of the LLNL YMP program:</p> <ul style="list-style-type: none"> a. training with respect to QA requirements; b. effectiveness of QA program; c. adequacy of resources provided for the QA program. 		

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2-12	<p>Section 2.3.4</p> <ol style="list-style-type: none">1. Verify that the decision as to which individual(s) will conduct the management assessment is documented and kept as a QA record.2. Verify that each assessment is designated by a unique three-digit number.3. Verify that Assessment Worksheets have been completed and that assessment areas have been identified.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-12 Cont.	<p>4. Verify that the assessment report contains the following information:</p> <ul style="list-style-type: none">a. Identification of the management assessment individual(s).b. A description of the assessment activities.c. The scope of the management assessment.d. Identification of personnel interviewed during the assessment.e. Management Assessment Worksheets.f. A summary of the results of the assessment.g. A description of any adverse conditions identified during the management assessment.		

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2-12 Cont.	<p>5. Was the assessment report signed by each individual that participated in the assessment?</p> <p>6. Have minority or dissenting comments been attached to the report?</p> <p>7. Verify that the Energy Program Leader signs the cover page of the report.</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-12 Cont.	<p>8. Verify that the assessment report was distributed to the following:</p> <ul style="list-style-type: none">a. DOE Project Office Directorb. DOE Project Office Quality Managerc. responsible Project Leaderd. QA Managere. Technical Area Leaders		
2-13	<p>Section 2.3.5</p> <p>Verify that the following QA records have been submitted to the LRC:</p> <ul style="list-style-type: none">a. management assessment worksheetsb. management assessment reportc. closure memo(s)		

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2-14	<p>TECHNICAL REVIEW 033-YMP-QP 2.4, REVISION 0</p> <p>Section 2.4.4.1</p> <p>Verify that a specific schedule for technical reviews has been established by the Task Leader.</p>		
2-15	<p>Section 2.4.4.2</p> <p>Verify that when the originators immediate supervisor participates in the review, it is documented and approved in advance with the concurrence of the QA Manager.</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-16	<p>Section 2.4.4.4</p> <p>Verify that investigation/design documentation includes the following:</p> <ol style="list-style-type: none">1. objective(s)2. method(s) used in analysis3. design inputs and their sources4. applicable references5. results of literature searches6. assumptions7. identification of computer calculations		

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2-17	<p>Section 2.4.4.8</p> <p>1. Verify that each review member signs one technical review approval sheet.</p> <p>2. Verify that the Technical Area Leader signs the review approval sheet.</p> <p>3. Verify that the approval sheet includes the conclusions of the technical review board.</p>		

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2-18	<p>Section 2.4.5</p> <p>Verify that the following QA records have been retained:</p> <ol style="list-style-type: none"> 1. Technical review approval sheet(s). 2. Review comment records. 3. Recommendations for future action. <p>(Interface with C. Warren)</p> <p>ACCEPTANCE OF DATA NOT GENERATED UNDER THE CONTROL OF THE YMP QAPP 033-YMP-QP 2.5, REVISION 0</p>		
2-19	<p>Has LLNL accepted data in accordance with QP 2.5?</p> <p>READINESS REVIEWS 033-YMP-QP 2.6, Revision 1</p>		
2-20	<p>Have any readiness reviews been conducted in accordance with QP 2.6 since the last audit?</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-21	<p>STOP WORK ORDER 033-YMP-QP 2.7, REVISION 1</p> <p>Section 2.7.4</p> <p>1. Verify that each examined Stop Work Order is uniquely numbered and issued using the appropriate form.</p> <p>2. Does the SWO specify the following:</p> <ul style="list-style-type: none"> 1. The responsible technical Area Leader, and Principal Investigator. 2. A description of the work to be stopped. 3. The deficiency observed. 4. The criteria for resuming work. 		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-21 Cont.	<p>3. Verify that the Request for Release portion of the SWO identifies the actions taken to correct the adverse condition as well as the action taken to prevent recurrence.</p> <p>4. Verify that the QA Manager has approved all rescinded SWOs.</p>		
2-22	Verify that Document Control retains a copy of each SWO.		

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2-23	<p>QUALITY ASSURANCE GRADING 033-YMP-QP 2.8, REVISION 2</p> <p>Section 2.8.5.2</p> <ol style="list-style-type: none">1. Verify that all information on Exhibit B is addressed.2. Verify that all information on Exhibit C is addressed.3. Verify that all information on Exhibit D is addressed.4. Verify that each QA grading report is initiated using Exhibit A.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-24	Section 2.8.5.4 Verify that each grading report is assigned a unique LLNL-QAG number.		
2-25	Section 2.8.5.6 1. Verify that when the QA grading documentation is in final form, the QA Grading Reviewers sign and date Exhibit B. 2. Verify that the Task Leader signs Exhibit C as the "Preparer".		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-25 Cont.	<p>3. Verify that when the the Project Leader does not approve the grading package, a meeting is convened at which resolution of issues are documented and documentation is made a part of the documentation package.</p> <p>4. Verify that the Project Leader then signs Exhibit D.</p>		

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2-26	<p>INDOCTRINATION AND TRAINING 033-YMP-QP 2.9, REVISION 3</p> <p>Section 2.9.4</p> <p>Verify that individuals assigned to the LLNL-YMP project receive training, as a minimum, to the following:</p> <ol style="list-style-type: none"> 1. QAPP 2. Applicable implementing procedures and work instructions 3. Regulations (10 CFR 60, 10 CFR 960 and 40 CFR 191) 4. Project level documents 		
2-27	<p>Section 2.9.5</p> <ol style="list-style-type: none"> 1. Verify that if an individual is exempted from certain training, it is documented in writing by the TAL. 		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-28	<p>Section 2.9.9.1</p> <p>1. Verify that the Trainer Preparation Sheet includes the following:</p> <ul style="list-style-type: none">a. subjects/topics to be coveredb. training settingc. performance objectivesd. handoutse. visual aids <p>2. Verify that training materials are approved by the TC prior to use.</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
2-29	<p>Section 2.9.11.1</p> <p>Verify that the following training records are retained as QA records.</p> <ol style="list-style-type: none"> 1. Annotated Training Matrix (Exhibit A) 2. Training printout 		
2-30	<p>Section 2.9.11.2</p> <p>Verify that the following records are retained as QA records:</p> <ol style="list-style-type: none"> 1. Trainer Preparation Sheet (EXHIBIT B). 2. Instructor Note Page (EXHIBIT C). 3. Sample copies of Training Evaluation Records (EXHIBIT D). 4. Copies of signature pages documenting that retraining to a revised procedure is not required. 5. Sample copies of read and sign training memos. 6. Printout of personnel trained. <p>(Interface with C. Warren)</p>		

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2-31	<p>QUALIFICATION OF PERSONNEL 033-YMP-QP 2.10, REVISION 4</p> <p>Section 2.10.4</p> <p>Verify that Personnel Qualification Records (PQRs) are prepared, reviewed and approved by the TAL for each individual.</p>		
2-32	<p>Section 2.10.4.1</p> <p>Verify that a written position description is prepared and approved by the TAL for each Project position and includes the following information:</p> <ul style="list-style-type: none"> 1. education 2. experience 3. skills 		

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2-33	Section 2.10.4.2 1. Verify that the relevant education and experience history is verified by LLNL-YMP Management. (Check for new employees only.)		
2-34	Section 2.10.4.3 Verify that a Management Certificate has been completed by the TAL for each individual.		

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2-35	<p>Section 2.10.4.4</p> <p>Verify that the TAL has performed and documented an annual recertification for each person conducting YMP activities.</p>		
2-36	<p>Section 2.10.5</p> <p>Verify that the following QA records are retained:</p> <ol style="list-style-type: none">1. position description2. personnel resume3. management certification4. management recertification (as applicable)5. training documentation <p>(Interface with C. Warren)</p>		

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2-37	<p>QUALIFICATION AND CERTIFICATION OF INSPECTION AND NDE PERSONNEL 033-YMP-QP 2.11; REVISION 0</p> <p>Have any NDE personnel been certified in accordance with QP 2.11 for work on the YMP?</p>		

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3-1	<p>SCIENTIFIC INVESTIGATION CONTROL</p> <p>033-YMP-QP 3.0, REVISION 2, PARA. 3.0.4</p> <p>Verify that before data is generated, analysis is performed or conclusions are reached; work is planned, reviewed, and approved by preparation of one or more of the following work planning documents containing the required information.</p> <p>Scientific Investigation Plans (SIPs) Study Plans (SPs) Activity/Test Plans Test Planning/Job Packages</p>		

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3-2	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.5 Verify that Technical Implementing Procedures (TIPs) are documented and approved, and provide detailed direction for performance of work as described in this paragraph.		
3-3	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.6 Verify that Scientific Notebooks (SNs) are used to record data, information, analysis, and work in progress on a daily or as appropriate basis. NOTE: Inquire about use of electronic notebooks. Scientific Notebooks on computer.		

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3-4	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.7 Verify that verification of scientific investigation is accomplished as described in this paragraph.		
3-5	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.8 Verify that in-depth technical and programmatic review for approval and revision of SIPs, SPs, Activity Plans, and TIPs is accomplished in accordance with 033-YMP-QP 2.1.		

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3-6	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.9 Verify that Principal Investigator (PI)/Task Leader identifies hold points in Activity Plans as required by this paragraph.		
3-7	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.10 Verify that LLNL personnel identify interfaces and interface controls as required by this paragraph.		

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3-8	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.11 Verify that revisions to work planning documents are effected in accordance with the requirements of this paragraph.		
3-9	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.12 Verify that results of activities are documented in sufficient detail and content to satisfy the requirements of this paragraph.		

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3-10	033-YMP-QP 3.0, REVISION 2, PARA. 3.0.13 Verify that the required QA records from this procedure are collected, handled, stored, and maintained in accordance with 033-YMP-QP 17.0.		

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3-11	<p>DESIGN CONTROL</p> <p>033-YMP-QP 3.1, REVISION 1, PARA. 3.1.5</p> <p>Verify that sufficient detail to perform the design process and to permit verification for repetitive design activities, is prescribed in TIPS for the following:</p> <p>QA Grading Design Input Design Process Design Analyses Design Verification Design Change Control Design Interface Control Design Output Documentation Design Output Review and Approval by YMPO Engineering Plans</p>		

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3-12	033-YMP-QP 3.1, REVISION 1, PARA. 3.1.5 Verify that activities listed in Audit Item 3-11 have been implemented in accordance with the requirements of the appropriate TIP.		
3-13	033-YMP-QP 3.1, REVISION 1, PARA. 3.1.6 Verify that QA Grading Documentation Packages are collected, handled, stored, and maintained in accordance with 033-YMP-QP 17.0.		

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3-14	<p>REVIEW OF TECHNICAL PUBLICATIONS AND DATA</p> <p>033-YMP-QP 3.3, REVISION 2, PARA. 3.3.4.1</p> <p>1. Verify that review process documentation including comments, questions, and requests are kept until technical reviews are completed.</p> <p>2. Verify that a record of LLNL-YMP leader resolution of comments is retained if the author and reviewer could not agree on resolution.</p>		
3-15	<p>033-YMP-QP 3.3, REVISION 2, PARA. 3.3.4.2</p> <p>Verify independence of technical reviewers of publications in accordance with the requirements of this paragraph.</p>		

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3-16	<p>033-YMP-QP 3.3, REVISION 2, PARA. 3.3.4.5</p> <p>Verify that the Publications Manager retains all review documentation in a fire resistant cabinet until distribution of the printed publication is completed, at which time the review package along with the copy of the printed report are submitted to the Local Records Center (LRC).</p>		
3-17	<p>033-YMP-QP 3.3, REVISION 2, PARA. 3.3.5</p> <p>Verify that data to be submitted to the YMP TDB or RIB is reviewed for technical accuracy, and that inherent calculations are sufficiently described in accordance with the requirements of this paragraph.</p>		

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3-18	<p>033-YMP-QP 3.3, REVISION 2, PARA. 3.3.7</p> <p>Verify that QA records listed in this paragraph are collected, stored, and maintained in accordance with 033-YMP-QP 17.0.</p>		

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3-19	<p>SCIENTIFIC NOTEBOOKS (SNs)</p> <p>033-YMP-QP 3.4, REVISION 2, PARA. 3.4.5.1</p> <p>Verify that identification and control of SNs is coordinated by the LRC in accordance with the requirements of this paragraph.</p>		

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3-20	<p>033-YMP-QP 3.4, REVISION 2, PARA. 3.4.5.2</p> <ol style="list-style-type: none">1. Verify that initial SN entries are made by the Investigator in accordance with the requirements of paragraph 3.4.5.2.1.2. Verify that all SN entries are in compliance with the requirements of paragraph 3.4.5.2.2.3. Verify that final SN entries include signatures of the SN Custodian and a Technical Reviewer prior to final submittal of the SN to the LRC.		

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3-21	<p>033-YMP-QP 3.4, REVISION 2, PARA. 3.4.5.3</p> <p>1. Verify that SNs are reviewed by the Task Leader at the frequency required in paragraph 3.4.5.3.1.</p> <p>2. Verify that technical review of SNs is accomplished by a Technical Reviewer selected by the Task Leader in accordance with the requirements of paragraph 3.4.5.3.2.</p>		

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3-22	033-YMP-QP 3.4, REVISION 2, PARA. 3.4.5.3.3 Verify that qualifications of SN Technical Reviewers are in accordance with the requirements of this paragraph.		
3-23	033-YMP-QP 3.4, REVISION 2, PARA. 3.4.6 Verify that SNs are submitted to the LRC for photocopying annually or when full; or are copied by the Investigator and the copies submitted to the LRC.		

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3-24	<p>CONTROL OF INTERNAL TECHNICAL INTERFACES</p> <p>033-YMP-QP 3.5, REVISION 0, PARA. 3.5.5</p> <p>Verify that internal interfaces are identified on a Technical Information Transmittal Form (TIIF) and that TIIFs are logged, approved, utilized, and maintained as records in accordance with this paragraph.</p>		
3-25	<p>033-YMP-QP 3.5, REVISION 0, PARA. 3.5.6</p> <p>Verify that changes to TIIFs previously transmitted are approved and distributed in the same manner as the original except for a new TIIF number.</p>		

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4-2	<p>PROCUREMENT DOCUMENT CONTROL</p> <p>033-YMP-QP 4.0, REVISION 3, PARA. 4.0.5.1 CHANGE NOTICE 4.0-2-1</p> <p>Verify that purchase requisitions include the scope of work, technical requirements, and QA requirements.</p>		
4-2	<p>Verify that the Task Leader prepares a Procurement Document Review (PDR) form if the procurement is quality affecting and/or a Technical Services Contract and that the Task Leader indicates whether the procurement is quality affecting.</p>		

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4-3	<p>33-YMP-QP 4.0, REVISION 3, PARA. 4.0.5.1</p> <p>Verify that memorandums initiating SANL procurements address:</p> <ul style="list-style-type: none"> a. Work Scope b. Amount Requested c. Period of Performance d. Account Number e. Technical contact at LLNL and the contracted organization f. Applicable QA Requirements 		
4-4	<p>Verify that the QAM signs the Procurement Action Form for quality-affecting SANL procurements.</p>		

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4-5	33-YMP-QP 4.0, REVISION 3, PARA. 4.0.5.2 Verify that the RPCM reviews the package for completeness, accuracy, and compliance with LLNL and YMP procurement requirements and that, if the procurement is for a Technical Services Contract, forwards the package to the LLNL/YMP Leader. The LLNL/YMP Leader reviews and signs the PDR and forwards to the QAM.		
4-6	Verify that LLNL procurement notifies the QAM when the final purchase document has been completed and that for quality-affecting procurements, the QAM signs the QA Procurement Action form prior to final placement.		

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4-7	<p>PREPARATION OF QUALITY ASSURANCE REQUIREMENTS SPECIFICATIONS AND APPROVAL OF SUBCONTRACTOR QA PROGRAMS 33-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.1.1</p> <p>CHANGE NOTICES - 4.1 - 1-1 4.1 - 1-2 4.1 - 1-3</p> <p>Verify that the QAM prepares the Generic QA Requirements Specification and that it is approved by the YMP Project Leader.</p>		

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4-8	<p>33-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.1.2</p> <p>Verify that the Local Records Center assigns the approved Generic QA Requirements Specification a control number and distributes controlled copies to the following:</p> <ul style="list-style-type: none">a. YMP Project Leaderb. YMP QA Managerc. YMP Technical Area Leadersd. YMP Task Leaders		

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4-9	<p>33-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.2.3</p> <p>Verify that Subcontract QA Requirements Specifications are approved by the cognizant Technical Area Leader, the QAM, and the Project Leader.</p>		
4-10	<p>33-YMP-QA 4.1, REVISION 1, PARA. 4.1.5.2.4</p> <p>Verify that the Local Records Center assigns approved Subcontract QA Requirements Specifications a control number and distributes controlled copies to the following:</p> <ul style="list-style-type: none"> a. Cognizant Technical Leader b. Cognizant Task Leader c. QAM d. Resource Manager for inclusion in applicable procurement documents. 		

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4-11	<p>033-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.3.2</p> <p>Verify that the QAM reviews Subcontractors Quality Assurance Program Manual for inclusion of the requirements specified in the Subcontract QA Requirements Specification.</p>		
4-12	<p>033-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.3.3</p> <p>Verify that the QAM conducts a Pre-qualification QA Surveillance of the subcontractor's facilities.</p> <p>(Interface with M. Diaz)</p>		

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4-13	<p>033-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.3.6</p> <p>Verify that the cognizant Task Leader provides a letter to the subcontractor indicating that the QA Program is approved.</p>		
4-14	<p>033-YMP-QP 4.1, REVISION 1, PARAS. 4.1.5.4.1 AND 4.1.5.4.2</p> <p>Verify that, upon revisions to the LLNL/YMP QAPP, the QAM reviews the Generic QA Requirements Specification for impacts. The QAM notifies Task Leaders in writing that the Generic QA Requirements Specification has been revised.</p>		

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4-15	<p>033-YMP-QP 4.1, REVISION 1, PARA. 4.1.5.4.3</p> <p>Verify that the Task Leaders review existing Subcontract QA Requirements Specifications each time there is a change to the Generic QA Requirements Specification, a change to the scope, or once each year. The QAM is notified in writing of the results.</p> <p style="text-align: center;">53</p>		

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5-1	<p>TECHNICAL IMPLEMENTING PROCEDURES</p> <p>Section 5.0.5</p> <p>Verify that TIPs include the following, as applicable:</p> <ol style="list-style-type: none"> 1. Title of procedure; 2. Requirements, objectives, methods and characteristics to be tested or observed; 3. Stepwise or detailed description of the procedure sequence; 4. Special training or qualification requirements; 5. A list of materials to be used; 6. Prerequisites to TIP implementation; 7. Acceptance and rejection criteria and limits including required levels of precision and accuracy; 8. Mandatory verification points (as required); 9. QA records to be generated by the TIP. 		

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5-2	Section 5.0.6 Verify that procedural deviations encountered during activities are authorized and documented by change notices. NOTE: Also, are these deviations documented on a corrective action document? M. Diaz		
5-3	Section 5.0.8.3 Verify that TIPs pertaining to multiple technical areas (TIP-YM) or QA (TIP-QA) are approved by the YMP Project Leader and YMP QA Manager.		

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5-4	<p>Section 5.0.9.1</p> <ol style="list-style-type: none"> 1. Verify that a method of documenting work progress is identified in the TIP. 2. Verify that when a scientific notebook is used, the following information is included, as applicable: <ol style="list-style-type: none"> a. date and name of individual making entry; b. description of the activity attempted, including detailed step-by-step process followed. 		
5-5	<p>Section 5.0.9.2</p> <ol style="list-style-type: none"> 1. Have modifications been made to any TIPs 		

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5-6	<p>Section 5.0.10</p> <p>Verify that the following QA records have been retained:</p> <ol style="list-style-type: none">1. Current and previously issued TIPs and change notices.2. Returned draft review copies with major comments.3. Disposition of comments. <p>(Interface with C. Warren)</p>		

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6-1	<p>DOCUMENT CONTROL 033-YMP-QP 6.0, Revision 2</p> <p>Section 6.0.5.3</p> <p>1. Verify that a Receipt Acknowledgement Form is used for distribution of controlled documents.</p> <p>2. Verify that appropriate action is taken when the above signed form is not returned within 20 working days.</p>		
6-2	<p>Section 6.0.5.3.1</p> <p>Verify that the Table of Contents is signed and dated by the LLNL-YMP Project Administrator in the "Approved" box indicating review and authentication.</p>		

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6-3	Section 6.0.5.5, ICN 6.0-2-1, 3. and 6. Verify that a Decontrol Notice of Controlled Document form has been sent to individuals removed from controlled distribution.		
6-4	Section 6.0.5.6, ICN 6.0-2-1, 5. 1. Verify that all Minor changes are approved by the LLNL-YMP Leader and QA Manager. 2. Do Minor changes meet the definition of a Minor Change?		

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6-5	Section 6.0.5.7 Verify that the LRC maintains a log of releases of unverified documents.		
6-6	Section 6.0.5.8 Verify that the LRC develops and maintains document master lists for all controlled document categories.		

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6-7	<p>Verify that the following documents are retained as QA records:</p> <ol style="list-style-type: none">1. Originals and revisions of completed controlled documents generated by the YMP;2. Decontrol Notice of Controlled Documents forms;3. controlled distribution receipt acknowledgments4. distribution lists5. request for collection of documents forms6. release prior to verification forms and log7. stamped copy of document <p>(Interface with C. Warren)</p>		

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8-1	<p>IDENTIFICATION AND CONTROL OF ITEMS, SAMPLES, AND DATA 033-YMP-QP 8.0, REVISION 0, PARA. 8.0.4.1 CHANGE NOTICE 8.0-0-1</p> <p>Verify that measures for the identification and control of items are provided in Technical Implementing Procedures (TIPs) or in the work planning document as described in 033-YMP-QP 3.0.</p>		
	<p>8-2</p> <p>Items are identified when they are received, fabricated, stored, worked on, or shipped.</p>		

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8-3	033-YMP-QP 8.0, REVISION 0, PARA. 8.0.4.1.2 Verify that markings are applied using material and methods that provide clear and legible identification and do not adversely affect the function or service life of the item.		
8-4	033-YMP-QP 8.0, REVISION 0, PARA. 8.0.4.1.4 Verify that a record is kept of all damaged or deteriorated identifiers.		

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8-5	033-YMP-QP 8.0, REVISION 0, PARA. 8.0.4.2 Verify that samples are archived when they are no longer needed for scientific investigation. NOTE: Look at samples related to metal barriers.		
8-6	033-YMP-QP, REVISION 0, PARA. 8.0.4.2.1 Verify that identification methods provide a means by which the samples can be traced to the appropriate documentation.		

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8-7	033-YMP-QP 8.0, REVISION 0, PARA. 8.0.4.2.6 Verify that measures are developed and implemented to maintain sample identification while in storage and that these measures are consistent with the planned duration and conditions of storage.		
8-8	033-YMP-QP 8.0, REVISION 0, PARA. 8.0.4.3.1 Verify that the identification of data includes a reference to the origin of the data (e.g., task, test, experiment, report, or publication).		

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12-1	<p>YMP-QP 12.0, REVISION 2, PARA. 12.0.4</p> <p>1. Verify that the M&TE Master Status List identifies the M&TE authorized for use on the YMP.</p> <p>NOTE: Get list of contractors performing calibration services. Pass along to John Therien.</p> <p>2. Verify that the M&TE Master Status list is issued and updated periodically.</p> <p>3. Verify that the required accuracy for M&TE is specified in calibration procedures and is consistent with the accuracy of the manufactures or the designer's specifications.</p>		

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12-1 Cont.	<p>YMP-QP 12.0, REVISION 2, PARA. 12.0.4</p> <p>4. Verify that calibration frequency of M&TE has been established and is consistent with the manufacturer's or designer's recommendations.</p> <p>5. Verify that calibration certificates provide information required by paragraph and QAPP.</p> <p>6. Verify that the accuracy of the standard(s) used for calibration was equal to or better than the instrument calibrated.</p>		

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12-1 Cont.	<p>YMP-QP-12.0, REVISION 2, PARA. 12.0.4</p> <p>7. Verify that the Calibration Coordinator (CC) issued recall notices prior to the expiration of the calibration interval of the M&TE.</p> <p>8. Verify that M&TE in service do have calibration stickers as per paragraph.</p> <p>9. Verify that when M&TE used in qualify affecting activities are found out-of-calibration, an NCR is prepared by the Task Leader.</p>		

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12-1 Cont.	<p>YMP-QP-12.0, REVISION 2, PARA. 12.0.4</p> <p>10. Verify that for calibration of devices performed by user, the calibration document includes information required by paragraph.</p> <p>11. Verify that when waiver of calibration interval were used, were done in accordance with paragraph.</p> <p>PARA. 12.0.5</p> <p>12. Verify that calibration records are handled by the CC as QA records as required by paragraph.</p>		

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13-1	<p>HANDLING, STORAGE AND SHIPPING, 033-YMP-QP 13.0, REVISION 0</p> <p>Section 13.0.4.1</p> <p>Verify that written instructions stating how items and equipment are to be handled, stored and shipped have been incorporated within procurement documents, shipping documents, etc.</p> <p>(Interface with J. Therien)</p>		

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13-2	<p>Section 13.0.4.2</p> <ol style="list-style-type: none">1. Verify that inspection and testing of special handling tools and equipment is completed in accordance with documented procedures and at specified time intervals.2. Verify that if special equipment requires specially trained or experienced operators, it is specified and verified.3. Are all verifications documented?4. How does LLNL verify to determine if special instructions for packaging, marking and preservation are followed?		

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13-3	<p>Section 13.0.5</p> <p>Verify that the following documents are retained as QA records:</p> <ol style="list-style-type: none">1. handling, storage and shipping procedures2. handling, storage and shipping records <p>(Interface with C. Warren)</p>		

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16-1	<p>YMP-QP 16.0, REVISION 3, PARA. 16.0.5.1.1</p> <p>1. Verify that when prescribed conditions adverse to quality are detected, those are documented on CARs by the paragraph.</p> <p>PARA. 16.0.5.1.4</p> <p>2. Verify that the QA Manager distributes copies of the CARs to the Project Leader, Associate Project Leader, Assistant Project Leaders, and to the cognizant Technical Area Leader and Task Leader.</p> <p>PARA. 16.0.5.3.1</p> <p>3. Verify that CARs are categorized as Significant or Not Significant and they do contain the required documentation per same paragraph.</p>		

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16-2	<p>YMP-QP 16.0, REVISION 3, PARA. 16.0.6</p> <p>1. Verify that completed CARs and supporting documentation has been transmitted to the LRC within time limitations and as QA records.</p> <p>2. Verify that weekly Action Item Lists are transmitted to the LRC as QA records.</p>		

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16-3	<p>YMP-QP-16.2, REVISION 3, PARA. 16.2.4.2</p> <p>1. Verify that Trend Analysis (TA) report are issued within two months of the end of the calendar year.</p> <p>PARA. 16.2.4.3</p> <p>2. Verify that CARs are issued when a trend is identified and in case that it was not issued the QA Manager provided justification in the TA report.</p> <p>PARA. 16.2.5</p> <p>3. Verify that TA report (s) are submitted to the LRC in Accordance w/QP 17.0.</p>		

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17-1	<p data-bbox="228 526 552 552">QUALITY ASSURANCE RECORDS</p> <p data-bbox="228 594 779 620">033-YMP-QP 17.0, REVISION 4, PARA. 17.0.5.2</p> <ol style="list-style-type: none"><li data-bbox="228 662 1010 883">1. Verify that the Records Source transmits records to the LRC using a Records Transmittal Form (Exhibit A) no later than 10 working days after the records are completed and that the Records Source verifies each record is legible, identifiable with the activity it relates to, accurate, complete, reproducible, and that it is appropriate to the work accomplished.<li data-bbox="228 961 995 1120">2. Verify that the Records Source verifies record packages are complete and identified in accordance with the requirements of this paragraph and transmits packages to the LRC using a Records Package form Table of Contents (Exhibit B).		

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17-2	033-YMP-QP 17.0, REVISION 4, PARA. 17.0.5.3 Verify that records transmittals are inspected by the LRC to assure they are legible, identifiable, complete, suitable for microfilming, and are properly authenticated.		
17-3	033-YMP-QP 17.0, REVISION 4, PARA. 17.0.5.3.1 Verify that unacceptable records are corrected or rejected and logged in accordance with the requirements of this paragraph.		

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17-4	033-YMF-QP 17.0, REVISION 4, PARA. 17.0.5.3.2 Verify receipt and acceptance of records by the LRC is documented and logged in accordance with the requirements of this paragraph.		
17-5	033-YMF-QP 17.0, REVISION 4, PARA. 17.0.5.3.3 Verify that revision of a previously accepted records package is identified by referencing the original record or package, is identified as a revision, supplement, or superseding a previous record, and is authenticated as required.		

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17-6	<p>033-YMP-QP 17.0, REVISION 4, PARA. 17.0.5.3.4</p> <p>Verify that damaged or lost records are documented as described in this program.</p>		
17-7	<p>033-YMP-QP 17.0, REVISION 4, PARA. 17.0.5.5</p> <p>Verify that the LRC transmits records to the CRF using the LRC Transmittal Form (Exhibit C) approximately once per week, or every two weeks depending on volume of records, but no later than 30 working days after the records are received and accepted.</p>		

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17-8	<p>033-YMP-QP 17.0, REVISION 4, PARA. 17.0.5.6</p> <ol style="list-style-type: none">1. Verify proper storage and preservation of records by Records Sources and by the LRC through copying, dual storage, using appropriate containers, and limiting access as required by this paragraph.2. Verify that one-of-a-kind records are stored in locked, one-hour fire resistant containers that meet UL requirements for one-hour fire rating.		

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18-1	<p>YMP-QP-18.0, REVISION 3, PARA. 18.0.5.1</p> <p>1. Verify that all applicable program elements for project activities are audited at least annually, or at least during the life of the activity.</p> <p>PARA. 18.0.5.1.3</p> <p>2. Verify that subcontractor audits are performed on a triennial basis when supplemented by annual evaluations.</p> <p>PARA. 18.0.5.2</p> <p>3. Verify that when audits were performed by technical specialists, their qualifications have been reviewed and accepted by the YMP Leader and QAM.</p>		

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18-2	<p>YMP-QP 18.0, REVISION 3, PARAS. 18.0.5.3 AND 18.0.5.4</p> <p>1. Verify that an audit plan is prepared for each audit by the Lead Auditor and contains all the elements of those paragraphs. (Reference Exhibit B).</p> <p>PARA. 18.0.5.6</p> <p>2. Verify that audit reports are issued no later than 30 calendar days after the closing meeting and they do contain all the information required by paragraph.</p> <p>PARA. 18.0.7</p> <p>3. Verify that audit records contain the audit schedule, audit planning worksheet, audit plan, completed audit checklist, audit report and have been transmitted to the LRC in accordance with QP 17.0</p>		

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18-3	<p>YMP-QP-18.1, REVISION 3, PARA. 18.1.5.2.1</p> <p>1. Verify that the QA Manager publishes the surveillance schedule for each fiscal year. Additionally if it is modified the schedule is reissued.</p> <p>PARA. 18.1.5.4.1</p> <p>2. Verify that checklist reflecting requirements of same paragraph are used for surveillances.</p> <p>PARAS. 18.1.5.6.1 AND 18.1.5.6.2</p> <p>3. Verify that surveillance reports containing information required by same paragraph are issued no later than 30 calendar days after completion of the surveillance.</p>		

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18-4	<p>YMP-QA-18.2, REVISION 1, PARA. 18.2.4.1</p> <p>1. Verify that the QAM maintains a file for each auditor to document training and audit participant.</p> <p>PARA. 18.2.4.2</p> <p>2. Verify that each Lead Auditor has been evaluated by the YMP QA Manager in accordance with requirements of same paragraph.</p> <p>PARA. 18.2.4.2.e</p> <p>3. Verify that the QAM has administered a supplementary examination to test areas not covered in the original examination of Lead Auditor previously certified by another organization.</p>		

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18-5	<p>YMP-QP-18.2, REVISION 1, PARA. 18.2.4.4</p> <p>1. Verify that Lead Auditor certification(s) have been reviewed and accepted by the QAM.</p> <p>PARA. 18.2.5</p> <p>2. Verify that QA records of Lead Auditors are in accordance with same paragraph.</p>		

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18-6	<ol style="list-style-type: none">1. Verify that LLNL performed a surveillance of records packages to ensure authentication adequacy (Reference: DOE Surveillance YMP-SR-92-010, Para. 6.0).2. Verify that surveillance report of number 1, above, found the area of concern in a satisfactory manner.		

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19-1	TIP-YM-11, Revision 0, Section 4.4 - Obtain copies of Master File Folders, File Folders and Development Logs. See TIP-YM-11, Revision 0, Section 6, for details on content of these products. File Folders and Development Logs are QA records.		
19-1a	<p>SOAP, Section 4.0, A, second paragraph - Verify the "Master Log" identifies the following:</p> <ol style="list-style-type: none"> 1. Configuration Item Baselines 2. Product Release Baseline <p>SOAP, SECTION 4.3.1 - Verify the "Master Log" contains the information in 4.3.1.</p>		

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19-2	<p>SQAP, Revision 0 - Select folders in the following categories and evaluate the adequacy.</p> <p>6.1.1 A - Large In-House SES (or Large SES sponsored by LLNL-YMP).</p> <p>6.1.1 B - Medium In-House SES.</p> <p>6.1.1 C - Small In-House SES.</p>		

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19-2 Cont.	<p>6.1.1 D - Acquired, Existing, or Commercial Large SES (SQAP, Section 6.3.1.1, look for acquisition plan).</p> <p>6.1.1 E - Acquired, Existing, or Commercial Small SES (SQAP, Section 6.3, Acquired, Existing, and Commercial Software).</p> <p>6.1.1 F - Large In-House Calculation Non-SES.</p>		

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19-2 Cont.	<p data-bbox="258 529 871 552">6.1.1 G - Small In-House Computational Non-SES.</p> <p data-bbox="258 764 1079 786">6.1.1 H - Acquired, Existing, or Commercial Computational Non-SES.</p> <p data-bbox="258 1021 871 1044">6.1.1 I - In-House Non-Computational Software.</p> <p data-bbox="258 1289 1079 1346">6.1.1 J - Acquired, Existing, or Commercial Non-Computational Software.</p>		

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19-3	<p>TIP-YM-11, Revision 0, Section 4.1 - Verify that, after an ISP is approved, a software package release number is assigned.</p> <p>NOTE: SQAP, Revision 0, Section 6.2.2 - The ISP is maintained by the Software Quality Manager in the CM system.</p>		
19-4	<p>SQAP, Revision 0, Section 6.1 - Verify that the Software Category Selection Form, "Appendix C," is correctly filled out.</p>		

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19-5	<p>SQAP, Section 5.2.1.1 - Verify the Backup Log contains the following information for the above software products.</p> <ul style="list-style-type: none">o Dateo Storage Mediao Medium Numbero File Identificationo Physical Location		

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19-6	<p>SQAP, Revision 0, Section 6.2.3 - Verify the ISPs meet the requirements in the following sections of the SQAP.</p> <p>6.1.1 A - Large In-House SES (or Large SES sponsored by LLNL-YMP).</p> <p>6.1.1 B - Medium In-House SES.</p> <p>6.1.1 C - Small In-House SES.</p>		

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19-6 Cont.	<p>6.1.1 D - Acquired, Existing, or Commercial Large SES (SQAP, Section 6.3.1.1, look for acquisition plan)</p> <p>6.1.1 E - Acquired, Existing, or Commercial Small SES (SQAP, Section 6.3, Acquired, Existing, and Commercial Software).</p> <p>6.1.1 F - Large In-House Calculation Non-SES.</p>		

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19-6 Cont.	<p>6.1.1 G - Small In-House Computational Non-SES.</p> <p>6.1.1 H - Acquired, Existing, or Commercial Computational Non-SES.</p> <p>6.1.1 I - In-House Non-Computational Software.</p> <p>6.1.1 J - Acquired, Existing, or Commercial Non-Computational Software.</p>		

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19-7	TIP-YM-11, Revision 0, Section 5.0 - Verify the above configuration items are identified correctly.		
19-8a	SQAP, REVISION 0, SECTION 4.2 - Verify Error and Change Request reports and distribution.		
19-8b	<p>SQAP, Revision 0, Section 4.2.2 - Verify activities Error Report/Change Request Tracking (ER/CRT) System Procedures have been developed and approved. Walk through procedures.</p> <p>TIP-YM-11, Revision 0, Section 4.5 requires change request.</p>		

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19-9	<p>SQAP, Revision 0, Section 4.3 - Verify that the following are monitored by the Configuration Status Accounting and Reporting.</p> <ul style="list-style-type: none">o Contento Formato Authoro Code Developero Distributiono Timing of Reports		

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19-10	<p>SOAP, Revision 0, Section 4.3 - Verify the following can be obtained from the configuration records:</p> <ul style="list-style-type: none"> o Current baseline list of configuration items. o Latest revision and change information for baselined documents, including pending of approved changes. o Audit trail for each configuration item detailing changes of each baseline during the software product's life cycle. o Hierarchy of documents. o Distribution, documentation, and change control information. o Report on completion of test suite by latest version, and all previous versions, of the software. o Latest version of and change information on test suite for a software product. o Test suite and verification libraries used for testing. o Applications and their status. 		

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19-11	<p>Verify status of ISP/Acquisition Plan for:</p> <ol style="list-style-type: none">1. "V Tough," 5/31/91 - This was in the draft during YMP-91-01 Audit. 2. EQ3/6 - This was in the draft in YMP-SR-92-018 Surveillance Report. (Versions 6, 7, and 8)<ol style="list-style-type: none">a) EQ36 - Overview and Installation Guideb) EQNR - Theoretical Manual and User Guidec) EQ6 - Documentation and User Manuald) Other		

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19-11 Cont.	<p>3. Pandora</p> <p>4. SIMSZ</p> <p>5. GENVOCSE</p> <p>6. CNGVDCSE</p>		

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ORGANIZATION EVALUATED LLNL	<input checked="" type="checkbox"/> EXTERNAL <input type="checkbox"/> INTERNAL	<input checked="" type="checkbox"/> AUDIT <input type="checkbox"/> SURVEILLANCE	PREPARED BY <u>PAUL L. CLOKE</u> DATE <u>7/30/92</u>	
DATES OF EVALUATION AUGUST 10-14, 1992				
CONTROLLING DOCUMENT (Title, Number, Revision)			ACTIVITY EVALUATED WBS 1.2.2.3.1.1, 1.2.2.3.2, and 1.2.1.4.5	
ITEM NO.	CHARACTERISTICS TO BE EVALUATED		REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	PAUL CLOKE - WBS 1.2.2.3.1.1, WASTE FORM TESTING WBS 1.2.2.3.2, METAL BARRIERS WBS 1.2.1.4.5, GEOCHEMICAL MODELING			

* INDICATE RESULTS: SATISFACTORY (SAT), UNSATISFACTORY (UNSAT), NOT APPLICABLE (N/A)

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T-1	<p>GEOCHEMICAL MODELING</p> <p>What is the new structure for the sets of basis and auxiliary basis aqueous species used in EQ3/6 calculations? Examine old and new data bases for comparison.</p>		

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T-2	Examine scientific notebooks or other documentation that provide detail as to how these changes were made and confirm that they were done in accordance with approved procedures.		
T-3	What geochemical problems can now be handled, as a consequence of these changes, that could not previously be done?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-4	Examine actual results for these new problems, identified in question T-3, if available, to confirm the improved capability.		
T-5	To what specific aspects of geochemical modeling needs for the Yucca Mountain Project do these new capabilities apply?		

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T-6	In detail what architectural changes in Version 8 of EQ3/6 are envisioned to implement capability to model redox disequilibrium and redox kinetics? Compare existing structure with anticipated new architecture to explain why the existing arrangement is not sufficient and the new one will be.		
T-7	Will this change simultaneously permit modeling of speciation disequilibrium and kinetics when there is no change of oxidation state?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-8	To what specific aspects of geochemical modeling needs for the Yucca Mountain Project do these new capabilities apply?		
T-9	What aqueous redox kinetic data of relevance to the YMP exist? Can these data be qualified?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-10	What plans exist to acquire additional needed kinetic data?		
T-11	In detail what architectural changes in Version 8 of EQ3/6 are envisioned to implement capability to model surface chemistry?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-12	What surface chemistry models will be implemented?		
T-13	To what specific aspects of geochemical modeling needs for the Yucca Mountain Project do these new capabilities apply?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-14	What surface chemical data of relevance to the YMP exist? Can these data be qualified?		
T-15	What plans exist to acquire additional needed surface chemical data?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-16	In detail what architectural changes in Version 8 of EQ3/6 are envisioned to implement capability to model solid solutions?		
T-17	What additional solid models will be implemented?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-18	To what specific aspects of geochemical modeling needs for the Yucca Mountain Project do these new capabilities apply?		
T-19	What solid solution data of relevance to the YMP exist? Can these data be qualified?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-20	What plans exist to acquire additional needed solid solution data?		
T-21	Examine scientific notebooks or other documentation that provide detail as to how the changes noted in items T-6 through T-14 have been or will be made and confirm that they conform to approved procedures.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-22	Examine the abstract submitted to the Energy Science and Technology Software Center together with Version 7.0 of EQ3/6.		
T-23	Which reactions were rewritten in EQ3/6?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-24	Why were these reactions rewritten?		
T-25	What errors were detected in testing the codes after the rewrite?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-26	What is the status of correcting these errors?		
T-27	Examine scientific notebooks or other documentation that provide detail as to how the changes involved in items T-17 through T-21 were made and confirm that they were done in accordance with approved procedures. This question includes the process of rewriting the reactions, the testing, and the corrections.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
	<p data-bbox="447 566 697 589">WASTE FORM TESTING:</p> <p data-bbox="447 633 735 656">SPENT FUEL DISSOLUTION</p> <p data-bbox="111 735 936 792">T-28 What is the experimental set-up for the spent fuel (SF) dissolution tests?</p> <p data-bbox="111 1143 1014 1229">T-29 Examine documentation detailing the changes that were made in the experimental set-ups as a consequence of oxygen diffusion through plastic tubing. Activity Plan D-20-53a</p>		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-30	Examine the data obtained from the earlier experiments and compare with data from the redesigned apparatus.		
T-31	Examine the data analysis from which it was concluded that oxygen permeated through the plastic tubing.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-32	What dissolution results have been obtained using single crystals of UO ₂ ?		
T-33	What is the experimental set-up for the single crystal dissolution work? Examine the Activity Plan.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-34	What elements were detected by ICP/MS in the analyses of buffer and leachate solutions?		
T-35	What procedure was followed in obtaining the ICP/MS analyses?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-36	Examine the analytical results from the ESCA analyses of the UO2 pellets.		
T-37	What procedure was followed in obtaining the ESCA analyses?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-38	Examine the results of the SEM analyses of the UO ₂ pellets.		
T-39	What procedure was followed in obtaining the SEM analyses?		

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T-40	Visit the SF dissolution laboratory and observe work in progress, if feasible.		
T-41	Visit the SEM and ESCA laboratories to observe how work is actually done, if feasible.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-42	How was the oxygen to uranium ratio determined on the pellets?		
T-43	Examine the data reduction process from the raw analytical data for the oxidation of uranium to calculation of the oxidation state.		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-44	What procedure or procedures were used for the analyses for determining the oxidation state and for data reduction?		
T-45	Examine documentation showing that these procedures were actually followed.		

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	METAL BARRIERS		
T-46	What is the status of the degradation mode survey report for nickel-chromium-molybdenum alloys?		
T-47	Have degradation mode surveys been done for any other alloy systems aside from the Ni-Cr-Mo, austenitic, and copper based alloys? If so what is their status?		

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ITEM NO.	CHARACTERISTICS TO BE EVALUATED	REMARKS Record objective evidence reviewed, method of verification, personnel contacted	RESULTS
T-48	Examine the process by which evaluations from the degradation mode surveys produced numerical ratings that were used together with weighting factors to recommend titanium grade 12, alloy C-4 and alloy 825 for consideration and testing as a container material.		
T-49	Confirm that the weighting factors used in the selection of these alloys were the same as those recommended by the peer review panel.		

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T-50	Has a more comprehensive report than that published on this issue in the proceedings of the FOCUS '91 meeting been published? If so, where? If not, what is its status?		
T-51	Has the stochastic modeling for predicting pitting corrosion relied exclusively on literature data, or has LLNL performed some related experimentation? (Activity E-20-16)		

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T-52	Track data reported on the stochastic modeling in the proceedings of the FOCUS '91 meeting back to laboratory notebooks or other documentation.		
T-53	Track data reported by McCright and Fleming in the proceedings of the FOCUS '91 meeting back to laboratory notebooks. (Activity E-20-17 and/or E-20-18)		

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T-54	What is the relation of the studies noted in items T-51 and T-52 to the principles under study by Roger Staehle at the Univ. of Minn.?		
T-55	Is any work proceeding in cooperation with D. Jones of the University of Nevada (Reno)? If so, what is its status and is it being performed under procedures that conform to Project requirements?		