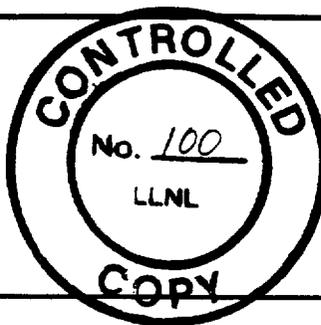


UCCA MOUNTAIN PROJECT



No.: 033-YMP-QP 5.0  
Revision: 2  
Effective Date: 1/27/92  
Page: 1 of 6

Subject: TECHNICAL IMPLEMENTING PROCEDURES

Training Required: Yes  No   
Comment: RM 1/16/92

Approved by: W. A. Lehman 1/16/92  
Yucca Mountain Project Leader Date

Approved by: Roy L. Montoye 1/16/92  
YMP Quality Assurance Manager Date

5.0.1 PURPOSE

The purpose of this procedure is to describe methods for preparation and use of Technical Implementing Procedures (TIPs) in support of quality affecting activities. The procedure may also be used in support of other activities.

5.0.2 SCOPE

TIPs are documented, approved procedures which provide detailed direction for the performance of work. They include instructions, procedures, plans, sketches, drawings or other information to define and control operations which do not require technical judgement and may be performed by qualified personnel.

5.0.3 RESPONSIBILITIES

The Principal Investigator (PI), Task Leader (TL) or designee is responsible for:

- Preparation and revisions of TIPs.
- Overall conduct of work and reporting of results as described in the TIP.
- Verification of personnel qualifications.
- Assuring that the prerequisites defined in Paragraph 5.0.5 have been met.
- Maintaining scientific notebooks and other documentation until ready for transmittal as QA records.
- Transmittal of QA records as described in Procedure 033-YMP-QP 17.0, "Quality Assurance Records."

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The next level of project management above the individual performing the work is responsible for assuring that prior to and during the progress of work:

- The work is proceeding according to the TIP.
- Modifications or changes to the work are within the limitations stated in paragraph 5.0.9.2.
- Revisions which may be required to the TIP are identified and implemented in a timely manner to allow the work to continue according to an approved plan.
- The data collected and/or analysis performed meet the objectives of the TIP and will lead to a supportable conclusion.
- Any required verifications have been performed.
- Information contained in the recording documentation represents a traceable path throughout the course of the work activity.

The Technical Area Leader is responsible for:

- Verification that TIPs meet the objectives of the Scientific Investigation Plans or other project planning documents.
- Review and/or approval of TIPs.

The YMP Quality Assurance Manager is responsible for:

- Verification that the TIP identifies and implements the applicable quality assurance requirements.
- Review and/or approval of TIPs.

The YMP Project Leader is responsible for:

- Review and/or approval of TIPs

#### 5.0.4 DESCRIPTION

TIPs are generally used when qualified personnel are performing repetitive work that does not include the use of professional judgement or trial and error methods. TIPs are used when it is not possible to deviate from a prescribed sequence of actions, without compromising the quality of the results that will be obtained from the work. Scientific notebooks, data sheets or both may be used to record data and document the performance of the work.

TIPs are prepared, reviewed and approved prior to use to provide detailed instructions for such activities as:

- Measurements such as chemical analysis, physical and mechanical properties, etc.,
- Control of samples and materials described in Procedure 033-YMP-QP 8.0, "Identification and Control of Items, Samples and Data."
- Control of processes involving use of equipment or engineered systems described in Procedure 033-YMP-QP 9.0, "Control of Processes."

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#### 5.0.5 TECHNICAL IMPLEMENTING PROCEDURES INCLUDE THE FOLLOWING AS APPLICABLE

1. Title of the procedure;
2. Requirements, objectives, methods and characteristics to be tested or observed.
3. A stepwise or detailed description of the procedure sequence. The description must be sufficiently complete to assure that a person with the specified qualifications and with the specified materials and equipment will be able to reproduce the results of the test without additional information.
4. Special training or qualification requirements for personnel performing the procedure.
5. A list of materials to be used. The purchase of these materials is to comply with the requirements of 033-YMP-QP 4.0, "Procurement Control and Documentation."
6. Prerequisites to TIP implementation, such as calibrated instrumentation, adequate and appropriate equipment and instrumentation, suitable and controlled environmental conditions, and provisions for data collection and storage. For activities of long duration, specific provisions are established and documented for instrumentation whose calibration interval is shorter than the expected duration of the activity. Such provisions are to be designed to ensure validity of data throughout the activity. For instrumentation and/or equipment used in data collection consideration is given to whether failure or malfunction of the instrumentation during the activity will be detectable, either during data collection or by examination of the data. Where ability to detect such failure or malfunction is questionable, procedures include any special provisions for equipment/instrumentation configuration, installation, and use that can further reduce risk of undetectable failure or malfunction.
7. Methods of documenting or recording data and results, including precision and accuracy.
8. Methods of data reduction if performed by other than the Task Leader or Principal Investigator.
9. Details of provisions to comply with the applicable sections of:
  - 033-YMP-QP 8.0 "Identification and Control of Items, Samples and Data"
  - 033-YMP-QP 9.0 "Control of Processes"
  - 033-YMP-QP 10.0 "Inspection"
  - 033-YMP-QP 11.0 "Test Control"
  - 033-YMP-QP 12.0 "Control of Measuring and Test Equipment"
  - 033-YMP-QP 13.0 "Handling, Storage and Shipping"
  - 033-YMP-QP 14.0 "Inspection, Test and Operating Status"
10. Personnel responsibilities.
11. Acceptance and rejection criteria and limits including required levels of precision and accuracy.

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12. Mandatory verification points (as required).

13. Quality Assurance Records that will be generated by the TIP are identified and include a description of how data and information will be recorded and identified for record purposes.

#### 5.0.6 ADDITIONAL CONSIDERATION

Procedures are complete to the extent that another qualified individual may, at a later date, reproduce the results.

Any potential sources of uncertainty and error that must be controlled and measured to assure that scientific investigations are controlled and identified. Parameters that need to be measured and/or controlled to minimize such uncertainties or error, and to ensure adequate control, are addressed explicitly in the procedures.

Any procedural deviations encountered during activities are authorized and documented by change notices as described in paragraph 5.0.8.3.

#### 5.0.7 EXISTING PROCEDURES

In lieu of specially prepared procedures, appropriate sections of existing procedures, such as American Society for Testing and Materials (ASTM) methods, supplier manuals, equipment maintenance instructions, or approved drawings may be used. If the referenced material does not completely describe the test being conducted, sufficient additional information must be developed or cited to ensure completeness.

#### 5.0.8 PREPARATION, REVIEW AND APPROVAL OF TECHNICAL IMPLEMENTING PROCEDURES

##### 5.0.8.1 Preparation

The TIP is prepared as a revision controlled document by the Principal Investigator, Task Leader or designee. The Title Page is as shown in Exhibit A.

##### 5.0.8.2 Procedure Identification

Each Technical Implementing Procedure is identified by a number which is related to the originating technical area as follows:

- TIP-CM N for Container Materials Modeling and Testing
- TIP-GM N for Geochemical Modeling
- TIP-NF N for Near Field Environment Modeling and Testing
- TIP-PA N for Performance Assessment
- TIP-QA N for Quality Assurance
- TIP-SS N for Special Studies
- TIP-WF N for Waste Form Modeling and Testing
- TIP-YM N for multiple technical areas

The TIP preparer assigns the appropriate technical area. The number N is assigned by Document Control.

### 5.0.8.3 Review

TIPs are reviewed, approved and revised as described in Procedure 033-YMP-QP 2.1, "Preparation, Approval and Review of Quality Procedures and Requirements." TIPs pertaining to multiple technical areas (TIP-YM) or Quality Assurance (TIP-QA) are approved by the YMP Project Leader and YMP QA Manager. The originator prepares a package of review copy pages with major comments and submits the disposition memo and the package to the Local Records Center with a Records Transmittal form.

### 5.0.8.4 Status Control

Document Control maintains a log of TIP revisions and Change Notices. Controlled distribution is maintained through Document Control by assigning a controlled copy number. Recipients must sign and return the "Controlled Document Transmittal Record" form shown in Procedure 033-YMP-QP 6.0 for all transmittals.

## 5.0.9 DOCUMENTING WORK PROGRESS

5.0.9.1 The method of documenting work progress is identified in the TIP. If a scientific notebook is used, entries are made in sufficient detail that another competent experimenter/researcher could repeat the work. Information includes, as applicable:

- Date and name(s) of individual(s) making entry.
- Description of the activity attempted, including detailed step-by-step process followed.

5.0.9.2 Modifications may be made by the individual performing the work if the change or modification is 1) within the scope of the TIP(s) and 2) the investigation is repeatable and 3) the change or modification does not potentially impact the waste isolation capability of the site or interfere with other site characterization activities. Otherwise, revision and approval of the work TIP(s) is required. If the change in the TIP is outside the scope of the Activity Plan, revision of the Activity Plan is also required.

Certain types of information may be inappropriate to enter directly into the scientific notebook. This could include large volumes of data, computer printouts, etc. In these cases, references to the information may be recorded provided the information is adequately identified and controlled. Use and control of Scientific Notebooks are prescribed in quality procedure 033-YMP-QP 3.4, "Scientific Notebooks."

## 5.0.10 QUALITY ASSURANCE RECORDS

Retained as QA Records:

- Current and previously issued TIPs and change notices.
- Returned draft review copies with major comments.
- Disposition of comments.

<p><i>University of California</i></p> <p> <b>Lawrence Livermore National Laboratory</b></p> <p><b>YUCCA MOUNTAIN PROJECT</b></p> <p><b>Technical Implementing Procedure</b></p>	<p>No:</p> <p>Revision:</p> <p>Date:</p> <p>Page: of</p> <p style="font-size: 48pt; text-align: center;">E</p>						
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<p>Approved by:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>_____</p> <p>LLNL-YMP Project Leader</p> </td> <td style="width: 50%; border: none;"> <p>_____</p> <p>Date</p> </td> </tr> <tr> <td style="border: none;"> <p>_____</p> <p>LLNL-YMP QA Manager</p> </td> <td style="border: none;"> <p>_____</p> <p>Date</p> </td> </tr> <tr> <td style="border: none;"> <p>_____</p> <p>LLNL-YMP Technical Area Leader</p> </td> <td style="border: none;"> <p>_____</p> <p>Date</p> </td> </tr> </table>		<p>_____</p> <p>LLNL-YMP Project Leader</p>	<p>_____</p> <p>Date</p>	<p>_____</p> <p>LLNL-YMP QA Manager</p>	<p>_____</p> <p>Date</p>	<p>_____</p> <p>LLNL-YMP Technical Area Leader</p>	<p>_____</p> <p>Date</p>
<p>_____</p> <p>LLNL-YMP Project Leader</p>	<p>_____</p> <p>Date</p>						
<p>_____</p> <p>LLNL-YMP QA Manager</p>	<p>_____</p> <p>Date</p>						
<p>_____</p> <p>LLNL-YMP Technical Area Leader</p>	<p>_____</p> <p>Date</p>						
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EXHIBIT A - TITLE PAGE  
for Technical Implementing Procedures