YUCCA MOUNTAIN PROJECT
INTERIM CHANGE NOTICE TO ADMINISTRATIVE PROCEDURE 1.38

YAD-066
4/89

ICN Number: 1 Applies to AP Number: AP-5.6Q Rev: 0

Title: Field Collection, Documentation and SPecimen Removal of Exploratory Shaft and Drift Rock

REQUIRED CHANGES:

AP SECTION	CHANGE TO
1.0	Insert at the end of the existing paragraph: This procedure fulfills the requirements of section 8 (Identification and Control of Items, Samples and Data) and section 13 (Handling, Shipping and Storage)of the NNWSI Quality Assurance Plan, Rev. 4 as applicable to the operations and activities at the Sample Management Facility. Guidance is given for the control, identification and handlingof samples and specimens.

PCB Chief

Effective Date 4/24/90	Project Manager 4/19/90	Page 1 of 1	No. AP-6.6Q
Supersedes N/A	Project Quality Manager 4/18/90		

Title
AP-6.6Q FIELD COLLECTION, DOCUMENTATION, AND SPECIMEN REMOVAL OF EXPLORATORY SHAFT AND DRIFT ROCK

1.0 PURPOSE AND SCOPE

This procedure describes the Yucca Mountain Project Office (Project Office) requirements and responsibilities for the collection, documentation, and specimen removal and distribution of bulk mined samples from the Yucca Mountain Project (Project) exploratory shafts and drifts during sinking and mining activities.

2.0 APPLICABILITY

This procedure applies to all bulk samples collected during excavation of the shafts and drifts of the Project Exploratory Shaft Facility (ESF). It does not include core or sidewall samples collected directly from the shafts, drift walls, or breakout rooms.

3.0 DEFINITIONS

3.1 SAMPLE MANAGEMENT (SM)

SM of the Technical and Management Support Services (T&MSS) contractor is the organization responsible for the collection, documentation, storage, and control of selected samples and sample remnants collected and dispersed for analysis and evaluation by participants. SM includes Field Operations (FO) and the Sample Management Facility (SMF). SM staff consists of management and operations personnel who ensure that SM operations and documentation satisfy applicable regulatory and quality requirements.

3.2 SAMPLE MANAGEMENT FACILITY

The SMF is the facility used for the documentation, storage, and control of samples and sample remnants collected and dispersed for analysis and evaluation by Users. The SMF consists of a physical facility and equipment designed to effectively process and preserve collected samples.

3.3. SAMPLE OVERVIEW COMMITTEE (SOC)

The SOC is comprised of representataives from Lawrence Livermore Natinal Laboratory, Los Alamos Natinal Laboratory, Sandia National Laboratories, the U.S. Geological Survey, SM, T&MSS, and the Project Office. It was formed to ensure a balance between Project sample needs, acquisition, and use, and the need to curate samples for posterity.

3.4 EXPLORATORY SHAFT (ES)

The two ESs are each 12-ft in diameter shafts and vertically mined to the approximate depth of the repository horizon. They provide access to the repository horizon for scientific investigations. Construction of the ESs shall be in accordance with Project Administrative Procedure (AP) AP-5.10Q.

3.5 EXPLORATORY SHAFT FACILITY

The ESF includes the surface facilities, shafts, and subsurface excavations directed by the Project to allow detailed study of the host rock under in situ conditions.

3.6 DRIFT

A drift is a horizontally mined excavation in the ESF. A series of drifts will be mined in the ESF.

3.7 DRIFT INTERVAL

A drift interval is a cross-sectional area of a drift from which samples will be routinely collected.

3.8 BREAKOUT ROOM

A breakout room is a lateral opening mined from an ESF shaft from which selected tests will be performed.

3.9 BREAKOUT HORIZON

A breakout horizon is an area or zone from which a lateral drift or station is mined away from the shaft. It may also be a mine drift, pump station, or other area off a vertical shaft.

3.10 SCIENTIFIC SHAFT (ES-1)

The ES-1 will be mined for the purpose of satisfying the scientific needs of the Project site characterization effort.

3.11 FAST SHAFT (ES-2)

The ES-21 will be mined primarily for safety egress, ventilation, and various operational functions, but will also be used for some scientific investigations.

3.12 MUCK

Muck is broken rock that results from excavation during ESF mining operations.

3.13 BULK SAMPLE

A bulk sample is a rock sample of irregular size and shape obtained by excavation. This definition excludes core from drillholes. Bulk samples collected according to this procedure will be representative portions of the muck from each blasting round during excavation of the ESF.

3.14 CURATORIAL SAMPLE INVENTORY AND TRACKING SYSTEM (CSITS)

The CSITS is a computer-based system designed to aid in the control and documentation of Project samples.

4.0 RESPONSIBILITIES

4.1 SAMPLE MANAGEMENT

SM staff shall direct the collection of muck at the headframe, provide sample collection documentation forms, mark and record sample information to ensure traceability, transport samples to the SMF, provide support facilities for specimen storage and distribution, and archive material from each round.

4.2 PROJECT OFFICE SITE REPRESENTATIVE

The Project Office Site Representataive or other Project Office Division level personnel shall comply with requirements in Project Office Quality Management Procedure (QMP) QMP-01-02, Stop Work, should conflicts arise during collection of samples at Project sample collection sites.

4.3 PRINCIPAL INVESTIGATOR (PI)

The PI from the responsible Project participant is responsible for designing and directing all testing in the ESF and for directing the SM staff to ensure that samples collected meet requirements.

4.4 SAMPLE OVERVIEW COMMITTEE

Prior to excavation of the shafts, the SOC shall review requests from PIs for muck samples and make recommendations to the Director of the Regulatory and Site Evaluation Division (RSED) according to AP-6.4Q. The RSED Director shall approve or disapprove the requests, and the SOC shall notify partici- pants of Project Office authorization.

4.5 ESF TEST MANAGER

The ESF Test Manager will notify PIs who have requested information concerning any unusual or unexpected features encountered during excavation and mapping of the shafts and drifts.

4.6 MINER

The miner shall assist with collection activities by operating equipment, loading muck buckets at the shaft bottom, and assisting with other activities required by the ESF Test Manager or SM staff. Miners will notify the ESF Test Manager or designee of any unusual or unexpected geologic conditions during excavation.

5.0 PROCEDURE

5.1 INTRODUCTION

5.1.1 To obtain representative samples from the ESF, it is important that this procedure be implemented to (1) provide opportunities for all interested parties to obtain samples from the complete geologic section; (2) obtain samples from the vertical section rubblized by each round; (3) obtain well-documented, traceable samples; (4) perform activities in a safe manner; and (5) allow minimal disruption to the regular mining activity. Any deviation from this procedure or from the Drilling Program Package requires prior consultation and agreement between FO personnel and the FO Manager and is subject to the requirements of Section 6 in the Project Quality Assurance Plan (QAP), NNWSI/88-9, Rev. 2. The size of each shaft limits sample

collection at the bottom of the shaft. It is therefore necessary to obtain bulk samples at the headframe and not at the bottom after each shot.
5.1.2 The ESF Test Manager will notify PIs who have requested information concerning any unusual or unexpected features encountered during excavation and mapping of ESF. Miners will also notify the ESF Test Manager of any unusual features. If it is necessary to collect additional samples when these features are encountered, the ESF Test Manager shall direct SM staff in these instances.

5.2 SHAFT SAMPLE COLLECTION

5.2.1 A muck haul truck of sufficient quantity (minimum 10 ton) will be used for collecting and transporting samples from ES-1 and ES-2. Three buckets of muck (approximately two tons each) will be collected as samples during each muck cycle.

5.2.2 After the round is shot and the shaft is readied for mucking, the first shaft sinking bucket will be loaded 3/4 full from the top 4 ft of muck. This first load will be mostly larger pieces. As this first bucket is hoisted to the surface, the miner assisting the cryderman operator at the bottom will signal above this bucket is for sampling. Before the bucket is dumped in the main dump chute, a suitable container (such as a muck truck designated for sample transport) will be positioned under the dump chute and will catch this first bucket or rock. Mucking can then continue until the 4 ft of muck is exposed. At this point a 1/2 - 3/4 bucketful will be loaded, hoisted to the surface, and dumped into the truck. Mucking can then continue until the last 4 ft of the blasting round is exposed. At this time another 1/2 - 3/4 bucketful will be dumped into the truck. The truck will then be driven to Area 25 where it will be emptied into a clean, covered, concrete bin located in a secured area at the SMF.

5.3 DRIFT AND BREAKOUT ROOM SAMPLE COLLECTION

Samples will also be collected from the drifts and breakout rooms that are mined as part of the ESF. SM staff will attempt to sample the muck to represent the lateral distance excavated by the blast. One 55 gal barrel per round will be loaded with muck, transported from the drift by a loader, and carried to the surface on the mancage. It will then be transported to the SMF.

5.4 UNUSUAL SAMPLING REQUIREMENTS

5.4.1 For those predetermined blasting rounds from which dry samples have been requested, samples will be collected prior to water misting or wet-down. The sample will come from the first bucket load and must be kept dry and uncontaminated. The sample will be dumped in an area close to the headframe, leveled to a depth of about 2 ft, and marked with an identifier indicating round and depth in the shaft. The area shall be covered for sorting and sealing. SM staff, the PI, or designated representative will select pieces to be sealed and labeled, transported in a refrigerated truck to the SMF, and placed in a cooler. SM staff shall honor any special handling and/or packaging needs, as specified by the PI and directed by the ESF Test Manager.

5.4.2 Another modification of this procedure may occur when a PI requires collection of all the muck generated from a specified round. It is anticipated that such requests will be limited in number (approximately five) and will be made only for intervals below the breakout horizon. In those cases, the muck will be removed from the shaft according to normal mining procedures and removed to the access-controlled yard at the SMF. It will be leveled to a depth of about 2 ft and marked with an identifier indicating round and depth in the shaft. The PI shall be responsible for providing transportation of the muck to the SMF and for removing the muck when no longer needed. SM shall provide the necessary documentation to record the tranfer to and from the SMF.

5.4.3 Access to the muck from some drift intervals (for instance, those intervals actually crossing fault zones) may be requested by PIs. In this case, muck from those intervals will be specifically collected by SM staff as directed by the ESF Test Manager and made available to the PI.

5.5 TRANSFER OF SAMPLES FROM THE ESF TO THE SMF

The transfer of the samples to the SMF will be documented on the Sample Collection Report (Exhibit 1). SM staff will issue a unique designator in the form of a machine scannable bar code label affixed to the report and to the truck load. The staff delivering the sample load will present the Sample Collection Report to SMF staff upon placing the load into a bin. If all required information is present on the Sample Collection Report, the staff delivering the sample load and the SMF staff member completing the custody change will sign and date the Sample Collection Report. Information from the Sample Collection Report will be entered into CSITS. Information

from CSITS will be used to generate shaft sample bin labels for the sample loadand will contain the sample identification bar code, storage bin location, collection location, date of collection, date of receipt at the SMF, and date placed in storage. These labels will be affixed to label holders on the sample bin.

5.6 SAMPLE EXAMINATION

After the samples are placed in the bin, PIs or their designated representatives can examine and select the samples they require from the collected material. Samples will generally be available at the SMF for examination for approximately seven days; however, availability may be determined by the excavation rate in the ESF. Procedures describing the process required to gain authorization to examine samples are found in Project Administrative Procedure (AP) AP-6.3Q.

5.7 SAMPLE DISTRIBUTION

5.7.1 The removal of bulk specimens shall be authorized by the RSED Director who may at his discretion calll upon the SOC for recommendations for or against specimen removal. The RSED Director shall normally grant a blanket authorization to a PI for examination and specimen removal for shaft and drift specimens. This allows the PI access to all muck materials while they are laid out for examination and specimen selection. SMF staff will then distribute samples to PIs as described in AP-6.3Q. When PIs or their representatives collect the samples from the muck, SM will provide documentation and packing materials.

5.7.2 After all interested parties have selected the samples they require, two 55 gal barrels of archival material will be taken from the truck load for storage at the SMF. These barrels will be documented, labeled, sealed, and then stored in a designated barrel storage area. If archival samples of hydrochemical muck samples are required, they will be sealed and refrigerated. Authorization to secure samples from the archive barrels shall be secured from the RSED Director.

5.8 IDENTIFICATION AND RESOLUTION OF DISCREPANCIES

5.8.1 A discrepancy exists when there is incorrect information that significantly affects documentation or notation that is beyond the scope of the immediate activity or form being completed. Any discrepancies shall be resolved upon discovery.

5.8.2 If the incorrect information is identified by the originator or other person subsequent to the completion of the document or activity (i.e., becomes a record), the individual is responsible for documenting the corrections to the erroneous information. The incorrect information shall be crossed through, corrected on the original document, and initialed and dated by the individual making the corrections. If the correction is not self-explanatory, the individual shall assign a number to the correction and attach a sheet to the original that fully describes the correction that has been performed.

5.8.3 If a discrepancy is found on a form or document, and the same discrepant information appears on previous documents already verified (entered into a baselined data system), then corrections will be made on a copy of the field record. This corrected copy will be placed with the uncorrected file copy of the record.

5.9 NONCONFORMANCE REPORTING

A nonconformance exists when there is a deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate. The intent of nonconformance reporting is to assure the resolution of the conditions not meeting the requirements or to assure that undefined conditions are defined. If there are any nonconformances to this procedure noted during or after associated activities, SMF staff members shall report them to the Project Office Project Quality Manager or another individual in the Project Office QA organization. Reporting and segregation of a nonconforming item or termination of a nonconforming activity will be done according to QMP-15-01.

6.0 REFERENCES

AP-6.3Q, Interaction of Participants and Outside Interests with Project Office Sample Management.

AP-6.4Q, Approval Procedure for Requests for YMP Geologic Specimens.

QMP-01-02, Stop Work.

QMP-15-01, Control of Nonconformances.

QMP-17-01, Record Source and Record User Responsibilities.

Yucca Mountain Project QAP, NNWSI/88-9, Rev. 2.

7.0 APPLICABLE FORMS

Exhibit 1. Sample Collection Report.

8.0 RECORDS

The PI shall ensure that the following quality assurance records resulting from implementation of this procedure are processed according to QMP-17-01 and turned over to the T&MSS Local Records Center at least every 10 working days. Copies of these records will be retained by SM and stored at the SMF Documents Center.

1. Sample Collection Report.

YUCCA MOUNTAIN PROJECT SAMPLE MANAGEMENT FACILITY

SAMPLE COLLECTION REPORT	BTPSMF7-1 5/89

Date Sample Collected		Page____of____
Sample Collector		
Organization		
Collector's Sample ID		

PLACE SMP BAR CODE LABEL HERE

Type of sample (*circle*): rock muck soil liquid gas
other (*specify*): _____

Type of site (*Circle all appropriate entries*)

SURFACE:				ESF:	Shaft	Drift	
trench	outcrop	borehole	other	borehole	muck pile	in place	other

Collection Location:

SAMPLE: weight_____, volume_____, dimensions_____

FIELD PHOTOS (*circle*): prints slides instant prints video photogrammetry NA

STORAGE REQUIREMENTS:

REMARKS:

SAMPLE TRANSFER TO SMF (*Check one*) ☐ Yes ☐ No

Person Releasing Custody	Date	Person Accepting Custody	Date

SMF USE

STORAGE LOCATION: Area_____ Unit_____
Date Stored_____ Time Stored_____
Verified By_____ Date_____

Exhibit 1. Sample Collection Report.