

YMP-054-R0 YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE
7/12/91
DOCUMENT APPROVAL SHEET

Title: TRANSPORT, RECEIPT, ADMITTANCE, AND PROCESSING OF BOREHOLE SAMPLES FOR THE SMF
NO. BTP-SMF-002
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 Non O

INFORMATION ONLY

APPROVAL

T&MSS Assistant
PROJECT MANAGER: Original signed by John E. Shaler 6/28/89
Signature Date
DIRECTOR OF QUALITY ASSURANCE: Edwin L. Wilmot 6/28/89
Signature Date
YMP Branch Chief D. E. Livingston for M. B. Blanchard 6/28/89
(OTHER, AS REQUIRED) Signature Date

REVISION 0 EFFECTIVE DATE: 7/7/89

REVISIONS

INITIAL AND DATE

	REVISION 1	REVISION 2	REVISION 3	REVISION 4
PROJECT MANAGER:	E. L. Wilmot 10/26/90	C. P. Gertz 8/6/91	<i>[Signature]</i> 7/8/92	
DIRECTOR, QA:	D. G. Horton 10/26/90	D. G. Horton 8/2/91	<i>[Signature]</i> 7/8/92	
YMP Branch Chief (OTHER, AS REQUIRED)	Uel S. Clanton M. B. Blanchard 10/26/90	Uel S. Clanton 8/2/91	<i>[Signature]</i> 7-9-92	
EFFECTIVE DATE:	10/26/90	R. B. Barton for Maxwell Blanchard 8/6/91	<i>[Signature]</i> 7/15/92	

Complete Revision
Complete Revision
8/19/91



TRAINING REQUIRED YES N/A NUMBER OF DAYS REQUIRED FOR TRAINING 2

COMMENTS: self study for personnel required to maintain training on procedure.
discussed with C. Lugo
7/10/92, 11:15
7/10/92

TRAINING OFFICER/TRAINING MANAGER: *[Signature]* DATE: 7/10/92

9212170103 921208
PDR WASTE
WM-11 PDR

rec'd w/cta rtd 12/8/92
9212170094 OMP-06-04

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1.0 PURPOSE AND SCOPE

1.1 PURPOSE

The purpose of this procedure is to facilitate the transport, handling, tracking, and documentation of borehole samples after their shipment from the drillsite and their subsequent arrival at the Sample Management Facility (SMF). The goals are to maintain the traceability and identity of all borehole samples and their containers admitted to the SMF from the field.

1.2 SCOPE

The scope of this procedure includes (1) instructions for loading and transporting borehole samples from the field; (2) instructions for receiving and admitting borehole samples from the field; (3) instructions for confirming the condition of and documentation associated with borehole samples and containers received at the SMF; (4) instructions for processing and storing borehole samples and containers; (5) responsibilities of Sample Management Facility Division (SMFD) Staff during the receipt, admission, confirmation, processing, and storage of borehole samples; and (6) the documentation of these activities.

2.0 APPLICABILITY

This procedure applies to all Drilling Support and Sample Management (DS&SM) Department personnel (DS&SM includes Drilling Support Division and Sample Management Facility Division) involved with the transport, receipt, processing, curation, and documentation of samples collected from Yucca Mountain Site Characterization Project (YMP) boreholes. The procedure also applies to any borehole samples collected by DS&SM personnel and submitted to the SMF for curation.

3.0 DEFINITIONS

Terms in this procedure are used as defined in the Project Glossary, YMP/89-15. The following additional definitions are adopted for the purposes of this procedure.

3.1 CORE

A core is a cylindrical section of rock, or fragment thereof, taken as a sample of the interval penetrated by a core bit and brought to the surface for examination and/or laboratory analysis.

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3.2 CUTTINGS

Cuttings are chips of rock produced during drilling that are removed from the borehole by circulation of drilling fluids (gas, foam, or liquid).

3.3 INFORMATION BLOCK

An information block is an object placed in a sample container. The block contains a depth interval and provides information pertaining to the status of that interval.

3.4 RUBBLE

Rubble consists of fragments of core from a single interval, the individual diameters of which average less than one half the diameter of the whole core. Core fragments are broken in such a manner that reconstruction between individual pieces is impossible.

3.5 SAMPLES

A sample is part of a population whose properties are studied to gain information about the whole or group. Geologic, hydrologic, environmental or other types of examinations are conducted on samples or specimens derived from samples. Samples include core, cutting, fluids, and any other geologic samples collected at Yucca Mountain or related field sites.

3.6 SAMPLE MANAGEMENT FACILITY

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

3.7 SAMPLE TYPE

Sample type designates the type of material that makes up a sample, i.e., core and cuttings.

3.8 SPECIMEN

A specimen is a subsection or portion that has been removed from the original sample. Further splits of specimens are subspecimens.

3.9 UNIQUE IDENTIFIER

A unique identifier (ID) is a designation that sets a documentable object apart from similar entities. It may be an assigned number, a name, an alphanumeric designation, or a set of data items that collectively serve to

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specify an entity. Examples of unique identifiers used in this procedure include Borehole ID, Container ID, Sample ID, or Specimen ID.

4.0 RESPONSIBLE PARTIES

The following YMP individuals are responsible for activities identified in Section 5.0 of this procedure:

1. SMFD Curator
2. DS&SM Courier
3. SMFD Technical Staff (includes SMFD Curator, SMFD Resources Geologist, SMFD Geologist)
4. SMFD Geotechnician
5. Drilling Support (DS) Staff
6. SMF/DS Administrative Assistant (AA)

5.0 PROCEDURE

A flowchart of the following processes described in this procedure is attached as Figure 1.

<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
DS Staff	1.	Before shipping a group of borehole sample containers from the drillsite to the SMF, prepare a Field Container Summary and Transmittal Document (Transmittal Document). The Transmittal Document shall contain the following information: <ol style="list-style-type: none">a. Borehole IDb. Number of containers included in the shipmentc. Date of the shipmentd. A list of the containers included in the shipment, containing the following information for each:

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
DS Staff		<ul style="list-style-type: none">i. Container IDii. Sample type (core, cuttings, or other sample)iii. Sequential container number with respect to other containers from the same borehole of the same sample typeiv. Depth intervale. For each container, a list of all included depth intervals, and their existence codes.

NOTE: Existence codes may include the following:

- i. REC - A sample recovered from the borehole and included within the container
- ii. UNREC - An interval for which no samples were successfully recovered
- iii. NAT - A drilled interval during which no sample recovery was attempted
- iv. WCR - A sample removed from core before the boxing of the container interval, in accordance with applicable procedures
- v. LOST - A sample that was recovered, but is unaccounted for during container loading
- vi. DEST - A sample accidentally destroyed before loading into its container
- f. A description of the documentation supplied with the sample shipment.

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
DS Staff	2.	Inventory containers and documents to be loaded onto the transport vehicle and check them against the Transmittal Document. Mark the "Shipped OK" space for each container.
	3.	When the data on the Transmittal Document agree with the contents of the vehicle, sign the "Person Releasing Custody" field, and place the date and time of the transfer in the spaces provided.
DS&SM Courier	4.	Load containers into the transport vehicle. Ensure that the containers are adequately secured against displacement, and that sufficient padding exists between rows and layers of containers to minimize the transmission of road shocks to the samples inside.
	5.	Inventory containers and documents loaded onto the transport vehicle and check them against the Transmittal Document. When the data agree with the contents of the vehicle, sign the "Person Accepting Custody" field, and place the date and time of the transfer in the spaces provided.
	6.	Transport containers from the drillsite to the SMF.
	7.	Unload containers and documentation from the transport vehicle and place them in an available receiving area.
	8.	Inventory containers and documents unloaded from the transport vehicle and check them against the Transmittal Document.
	9.	When the data on the Transmittal Document agree with the contents of the vehicle, sign the "Person Releasing Custody" field and place the date and

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
DS&SM Courier		time of the transfer in the spaces provided.
SMFD Geotechnician	10.	Inventory containers and documents unloaded from the transport vehicle and check them against the Transmittal Document. Mark the "Received OK" space for each container properly unloaded.
	11.	When the data on the Transmittal Document agree with the contents of the vehicle, sign the "Person Accepting Custody" field and place the date and time of the transfer in the space provided.

ADMITTANCE

SMFD Technical Staff	12.	Assign a group of one or more available containers to undergo the admittance portion of this procedure.
	NOTE:	The containers to be admitted at a particular time will be determined by the scheduling needs of the SMF, and by the needs of YMP participants.
SMFD Geotechnician	13.	Arrange containers in a working area in preparation for admittance.
	14.	Open the lids of the containers and inspect the contents for signs of damage or disruption of samples that may have been sustained during transport.
SMFD Geotechnician/ SMFD Technical Staff	15.	Prepare a Confirmation Checklist using data from the Transmittal Document and the Specimen Contract, containing as a minimum the following items: a. A list of containers included in the assignment with the following data for each: i. Container ID ii. Borehole ID

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician/ SMFD Technical Staff		<ul style="list-style-type: none">iii. Sequential container numberiv. Sample type (core, cuttings, or other sample)v. Depth interval <ul style="list-style-type: none">b. For each container, a list of all included sample intervals, and their existence codesc. Date the Confirmation Checklist was preparedd. For each interval, spaces for notations, corrections, and comments regarding status of samples, and a verification line for the SMFD Geotechnician to initial after confirmation of sample datae. Signature lines for the SMFD Geotechnician and an SMFD Technical Staff member to document the completion of the Confirmation Checklistf. A page marker indicating the total number of pages in the Confirmation Checklist, and the sequence of the individual page <p>16. Compare the information contained in the Confirmation Checklist with the contents of the containers. Check for the following conditions:</p> <ul style="list-style-type: none">a. Container IDs should match those on container labels.b. Existence codes should match the samples or information blocks within the indicated container.c. All core field specimens documented on information blocks in the

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician/ SMFD Technical Staff		containers should have been recorded on the Specimen Contract. d. All depths marked on samples should be consistent with those recorded on the container labels and with intervals given on the Confirmation Checklist.
	NOTE:	SMFD Geotechnician shall resolve discrepancies and document corrections on Confirmation Checklist. If necessary, a corrected Confirmation Checklist will be completed and attached to the original Confirmation Checklist.
	17.	Initial each sample interval in the space provided when the information on the Confirmation Checklist is confirmed or corrected.
	18.	Sign and date each page of the completed Confirmation Checklist in the spaces provided and submit it to an SMFD Technical Staff member.
	19.	Submit the Transmittal Document and the Specimen Contract to an SMFD Technical Staff member.
	20.	Submit remaining documents received under step 1(f) to the AA.
SMFD Technical Staff	21.	Verify that the Confirmation Checklist, Specimen Contract (if present), and Transmittal Document are completely and correctly filled out. Sign and date each page in the spaces provided, and submit them to the AA.
	22.	Process samples. a. If cuttings samples are to be processed, proceed to Step 23. b. If core samples are to be processed, proceed to Step 34.

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RESPONSIBLE PARTY

STEPS

PROCEDURE

CUTTINGS PROCESSING

SMFD Geotechnician/
SMFD Technical Staff

23. For each group of cuttings samples to be processed, prepare a Cuttings Processing Checklist, providing as a minimum the following information:
 - a. Container ID
 - b. Borehole ID
 - c. Depth interval of the container
 - d. A list of existence codes for each depth interval within the container
 - e. A list of specific steps for processing cuttings, with space for checking the completion of each
 - f. A space for including any special processing instructions that might apply to a specific container
 - g. Signature and date spaces to document completion of the procedure by SMFD Geotechnician and an SMFD Technical Staff member.
 - h. Space for recording permanent storage location of container

24. ~~Obtain containers to store the archive and research sample splits. For each archival and research container, affix~~ five permanent labels or markings displaying the following information:
 - a. Container ID
 - b. Borehole ID
 - c. Sequential cuttings container number
 - d. Type of sample, i.e., cuttings

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician/ SMFD Technical Staff		<p>e. The cuttings split represented by the container, whether Research or Archive</p> <p>f. Depth interval</p> <p>NOTE: Labels or marks must be placed on both ends of the container base and lid, and on one side of the container lid.</p> <p>25. If cuttings were drilled using a drilling fluid, wash and dry each cuttings sample. Otherwise, dry and disaggregate cuttings as necessary to ease subsequent splitting. Document this step by marking the space provided on the Cuttings Processing Checklist.</p>
SMFD Geotechnician	26.	<p>Split cuttings into archive and research portions. The amount of sample taken for the archival split may be up to 50 percent of the cuttings sample.</p> <p>a. Prepare a screw-capped plastic vial for the research split, and a screw-capped plastic vial for the archive split.</p> <p>b. Permanently label or mark on each vial the Borehole ID, Sample ID, sample interval, and Container ID for the sample.</p> <p>c. Place the archival split into a pre-labeled screw-capped plastic vial.</p> <p>d. Place the research split into a pre-labeled screw-capped plastic vial.</p> <p>e. Discard any remaining material after the archive and research sample vials have been filled.</p>

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician		f. Document the splitting of cuttings samples by marking the space provided on the Cuttings Processing Checklist.
	27.	Place vials containing archival and research splits into the containers as illustrated in Attachment 1. Document on the Cuttings Processing Checklist by marking in the space provided.
SMFD Geotechnician/ SMFD Technical Staff	28.	Close and seal the research and archive cuttings sample containers. Document by checking the space provided on the Cuttings Processing Checklist.
	29.	Assign a permanent shelf location for each of the archival and research cuttings sample containers. Store archival and research splits of cuttings sample containers in separate areas of the SMF.
	30.	Mark the Cuttings Processing Checklist on the spaces provided for location assignment of containers.
	31.	Check that information on the Cuttings Processing Checklist is complete and accurate. Sign and date in the spaces provided and submit it to an SMFD Technical Staff member.
SMFD Technical Staff	32.	Verify that entries on the Cuttings Processing Checklist are complete and correct. Sign and date each page on the spaces provided and submit it to the AA.
	33.	Go to Step 45.

CORE PROCESSING

SMFD Geotechnician/ SMFD Technical Staff	34.	For each container to be processed, prepare a Core Processing Checklist, providing as a minimum the following information:
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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician/ SMFD Technical Staff		a. Container ID
		b. Borehole ID
		c. Depth interval
		d. A list containing the depth interval and existence code of each sample within the container
		e. A list of specific steps for processing core, with a space for checking the completion of each
		f. Space for including any special processing instructions that might apply to a specific container
		g. Signature and date spaces for the documentation of procedure completion by the SMFD Geotechnician and an SMFD Technical Staff member
		h. Space for recording the permanent storage location assignment for the container
	35.	Affix five permanent labels or markings for each box displaying the following information:
		a. Container ID
		b. Borehole ID
		c. Depth interval
		d. Sequential container number
		e. Type of sample, i.e., core

NOTE: Labels or marks must be placed on both ends of the container base and lid, and on one side of the container lid.

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician/ SMFD Technical Staff	36.	Ensure that field markings on core are clear and unobscured; redraw as necessary using the process described in BTP-SMF-008. Document the completion of this step on the Core Processing Checklist.
SMFD Geotechnician	37.	<p>Check to ensure that all rubble intervals are properly bagged and labeled. If bag is damaged or if labeling is unclear, rebag the rubble using the following method:</p> <ol style="list-style-type: none">Note the top and bottom depths assigned to the rubble interval.Cut a length of clear polyethylene lay flat tubing sufficient to include the length of the rubble interval plus enough overlap to facilitate complete sealing.Using a heat sealer, seal one end of the tubing. Designate the sealed end as the bottom depth of the interval, and mark the depth on it. With the bottom end of the tubing facing you, draw parallel red and blue stripes on the bag from top to bottom, with the red stripe on the right.Transfer rubble as a unit to the new bag, taking care to keep disturbance of the sample to a minimum. Ensure that the measured length of the sample corresponds to the assigned depth interval.Expel as much air as possible from the bag without disturbing the sample. Seal the top end of the bag with a heat sealer. Mark the top of the bag with the assigned top depth of the sample. Insert the bag into its proper position within the core container.

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Geotechnician	38.	Indicate by marking or labeling the inside of each container at the top and bottom of each row of core the corresponding depth assigned to the core at that point.
	39.	Photograph the core in its container to create a visual record of its condition, position in the box, and orientation. Document the process on the Core Processing Checklist. <ul style="list-style-type: none"> a. Ensure all core markings, information blocks, and significant features are visible and in focus. b. If authorized by the SMFD Curator, moisten the core with a distilled water spray to enhance the contrast of the core's colors and textures. c. After each exposure, recheck the focus and core placement to ensure correct arrangement and legibility.
	40.	Close containers and seal with adhesive tape. Document by checking the space provided on the Core Processing Checklist.
SMFD Geotechnician/ SMFD Technical Staff	41.	Assign a permanent shelf location for each of the core sample containers.
	42.	Mark the Core Processing Checklist on the spaces provided for location assignment of containers.
	43.	Check that the information on the Core Processing Checklist is complete and accurate. Sign and date each page in the spaces provided and submit it to an SMFD Technical Staff Member.
SMFD Technical Staff	44.	Verify that entries on the Core Processing Checklist are complete and correct. Sign and date each page on the

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<u>RESPONSIBLE PARTY</u>	<u>STEPS</u>	<u>PROCEDURE</u>
SMFD Technical Staff		spaces provided, and submit the checklist to the AA.
AA	45.	Photocopy, compile, and submit records generated or received under this procedure in accordance with AP-1.18Q, Records Management: Las Vegas Record Source Implementation.

6.0 REFERENCES

Refer to the latest revision of the documents listed below unless otherwise stated.

6.1 REQUIREMENTS DOCUMENTS

OCRWM Quality Assurance Requirements Document, DOE/RW-0214

OCRWM Quality Assurance Program Description Document, DOE/RW-0215

6.2 INTERFACE DOCUMENTS

Project Glossary, YMP/89-15

BTP-SMF-008, Field Logging, Handling, and Documenting Borehole Samples

AP-1.18Q, Records Management: Las Vegas Record Source Implementation

7.0 FIGURES AND ATTACHMENTS

Figure 1, BTP-SMF-002 Flowchart

Attachment 1, Arrangement of Split Cuttings Samples in Containers

8.0 RECORDS

The following Quality Assurance documents are generated by this procedure:

1. Field Container Summary and Transmittal Document
2. Confirmation Checklist

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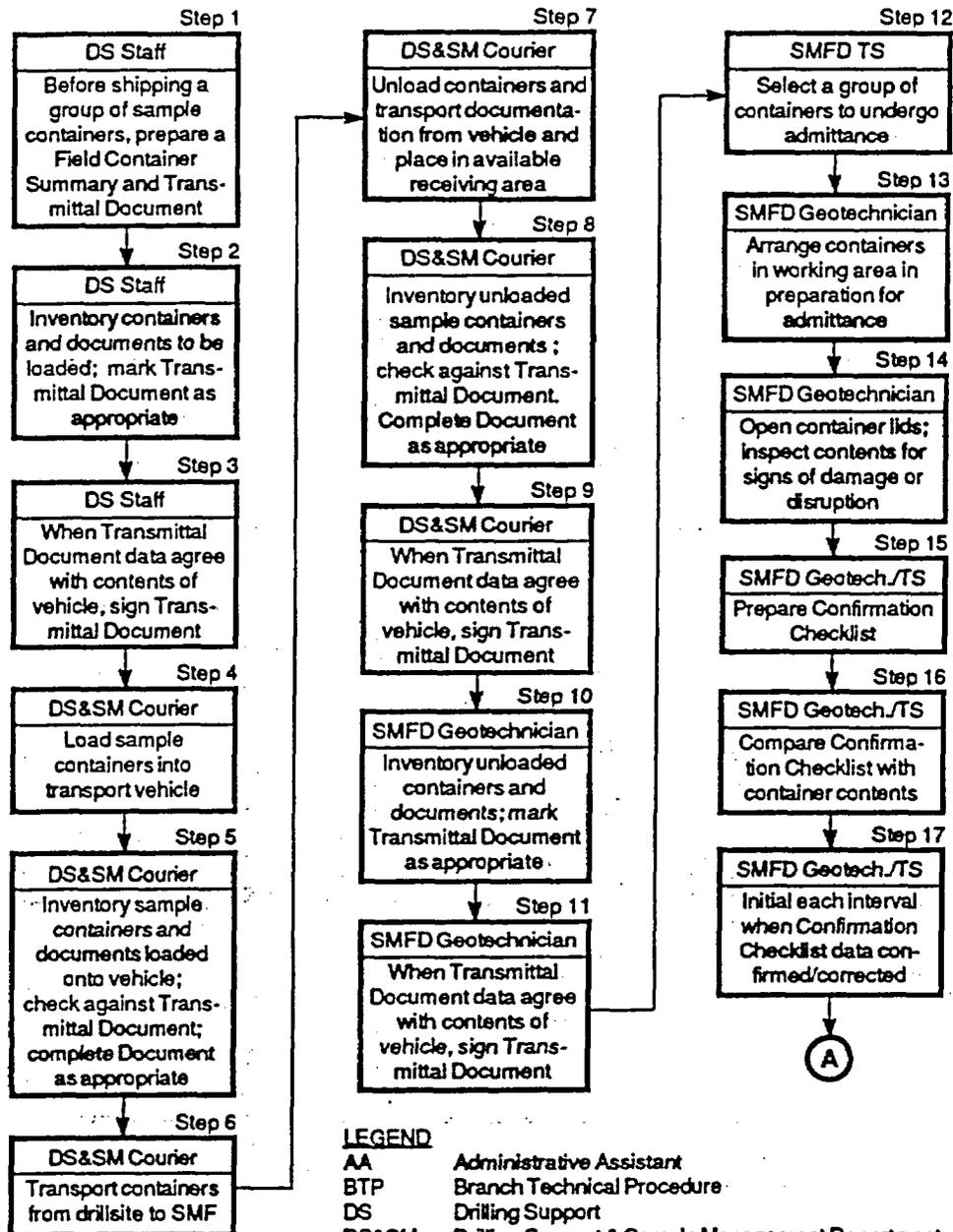
3. Cuttings Processing Checklist
4. Core Processing Checklist

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LEGEND

- AA Administrative Assistant
- BTP Branch Technical Procedure
- DS Drilling Support
- DS&SM Drilling Support & Sample Management Department
- QMP Quality Management Procedure
- SMF Sample Management Facility
- SMFD Sample Management Facility Division
- TS Technical Staff

Figure 1. - BTP-SMF-002 Flowchart

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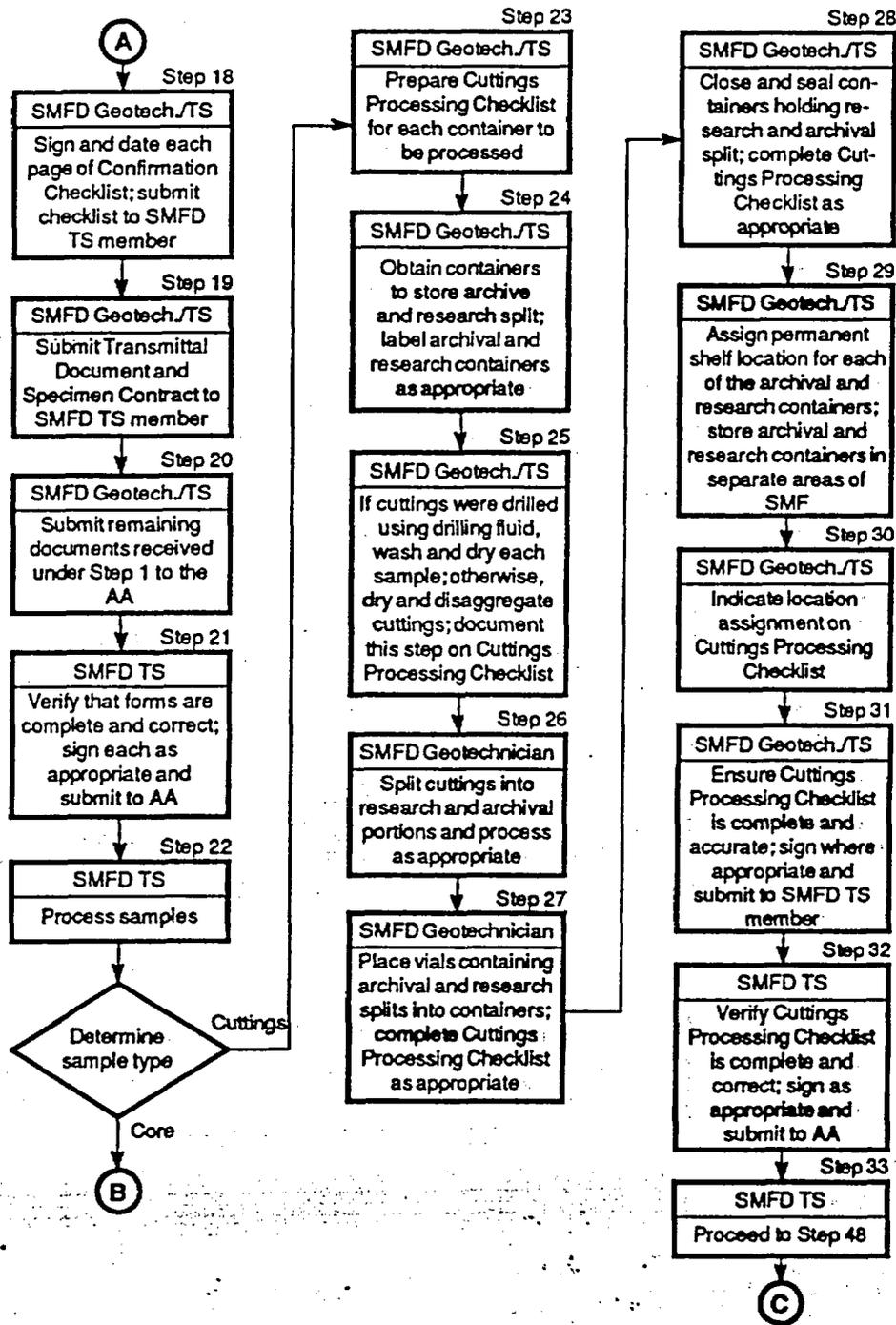


Figure 1 - BTP-SMF-002 Flowchart (continued)

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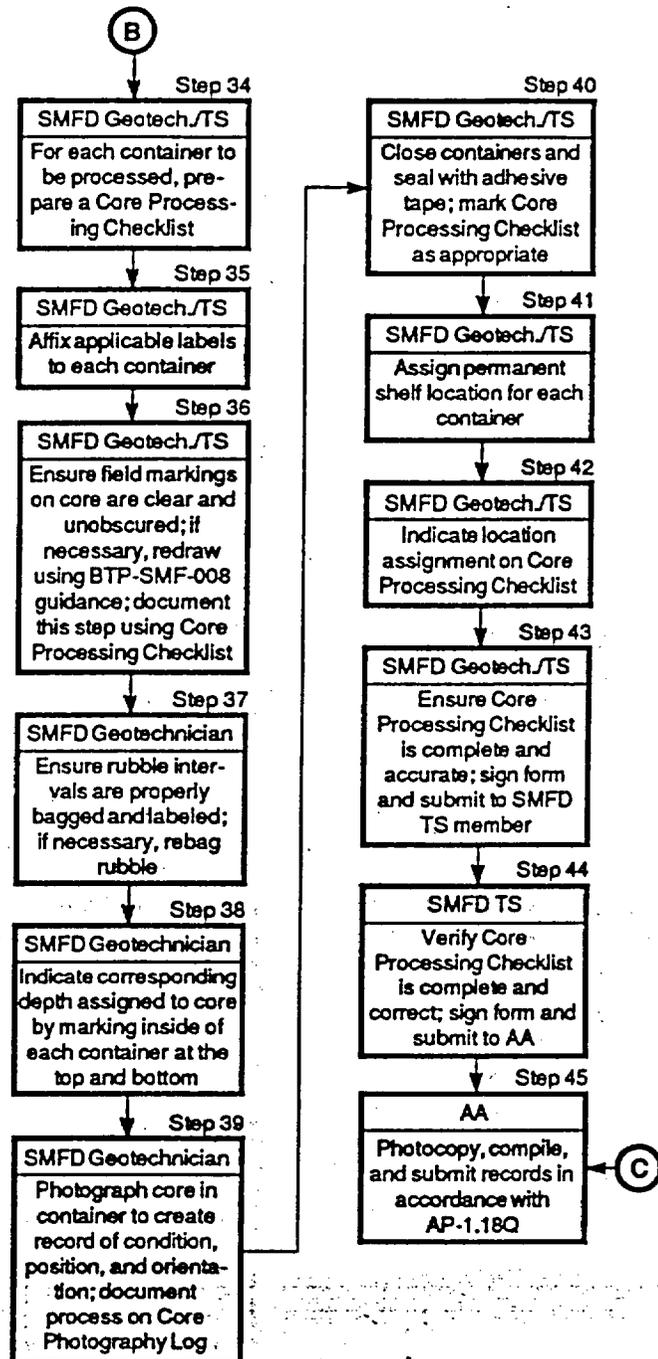


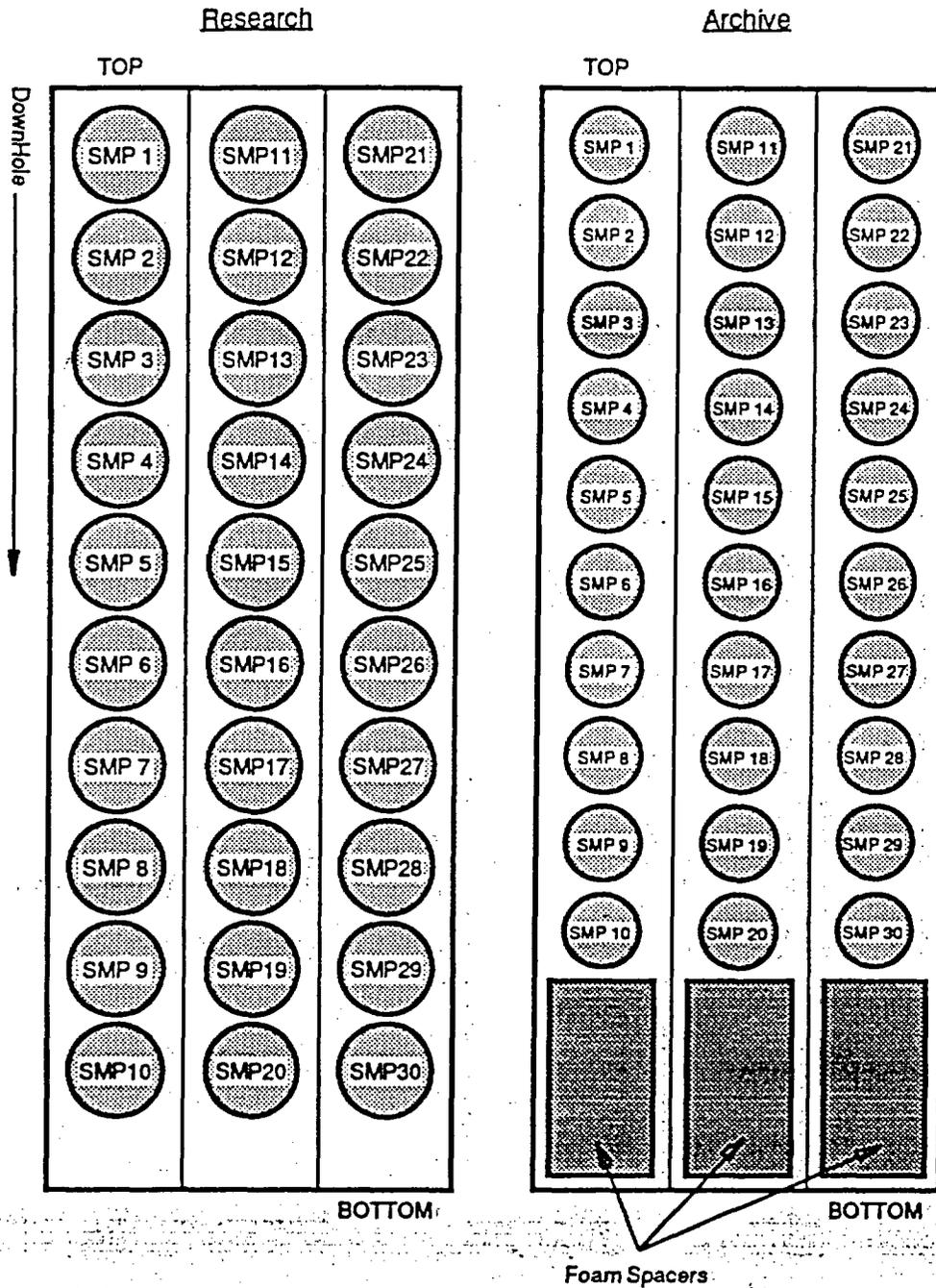
Figure 1 - BTP-SMF-002 Flowchart (continued)

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CUTTINGS.0657-15-91

Attachment 1 - Arrangement of Split Cuttings Sample in Containers

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BRANCH TECHNICAL PROCEDURE

N-QA-048
11/88

11110 PHYSICAL PROCESSING AND STORAGE
OF CORE AND CUTTINGS AT THE
SAMPLE MANAGEMENT FACILITY

No. BTP-SMF-004 Rev. 0
Effective Date 7/7/89
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NNA-900822-0063

1.0 PURPOSE AND SCOPE

This procedure describes the Yucca Mountain Project Office (Project Office) requirements and responsibilities for the physical processing and storage of Yucca Mountain Project (Project) core and cuttings at the Sample Management Facility (SMF).

2.0 APPLICABILITY

This procedure applies to Technical and Management Support Services (T&MSS) contractor personnel and support staff performing physical processing and storage of Project core and cuttings at the SMF.

3.0 DEFINITIONS

3.1 Sample Management (SM)

SM of the T&MSS contractor is the organization responsible for the collection, documentation, storage, and control of selected samples, remnants and records. SM includes the SMF and Field Operations. SM staff consists of management and operations personnel who ensure that SM operations and documentation satisfy applicable regulatory 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 requesters. The SMF consists of a physical facility and equipment designed to effectively process and preserve collected samples. The SMF is operated by T&MSS contractor personnel for the Project.

3.3 Sample

A sample is part of a population whose properties are studied to gain information about the whole or group. Samples covered by this procedure include core and cuttings collected at Project field sites.

3.4 Core

A core is a cylindrical section of rock, or fragment thereof, taken as a sample of the interval penetrated by a core bit and brought to the surface for examination and/or analysis.

APPROVED BY

Assistant Project Manager	Date	YMP Branch Chief	Date	YMP Project Quality Manager	Date
<i>John E. Shelton</i>	<i>6/23/89</i>	<i>B.E. [Signature]</i> <i>for M.D. Blanchard</i>	<i>6/23/89</i>	<i>[Signature]</i>	<i>6/23/89</i>

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3.5 Cuttings

Cuttings are chips of rock produced during drilling that are removed from the borehole by circulation of drilling fluids (gas, foam, or liquid).

3.6 Archival-Research Borehole Sample Processing System

The archival-research borehole sample processing system of sample preservation is based upon splitting a representative sample of core or cuttings from the total collected sample, one of which is preserved as an archive (archival split), the other of which is available for research and analysis (research split). A critical factor in the application of this system is the availability of core of a certain minimum diameter (approximately 3.0"). The system in place at the SMF requires that the core be split longitudinally off-center, resulting in an approximately 1/3 archival split and 2/3 research split.

3.7 Whole Core Specimen

A whole core specimen is a subsection of whole core that constitutes the entire core sample recovered for the depth interval represented.

3.8 Curatorial Sample Inventory and Tracking System (CSITS)

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

4.0 RESPONSIBILITIES

4.1 Curator

The Curator shall supervise SMF staff members performing physical processing and storage activities on borehole and other geologic samples. If authorized by the Curator after consultation with the SOC, the core will be moistened with a water spray to enhance the colors for photographic purposes.

4.2 Technical Staff Assistant (TS)

The TS Assistant shall ensure that activities performed during this procedure conform to quality assurance (QA) guidelines.

4.3 Sample Management Facility Geotechnician

The SMF Geotechnician will perform the following core processing and storage activities: sample splitting, placing in containers, labeling, subsampling, and storing. The SMF Geotechnician will conduct the following cuttings processing and

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storage activities: cleaning of samples, bagging, placing in containers, labeling, subsampling, and storing.

4.4 Sample Management Facility Administrative Assistant

The SMF Administrative Assistant shall submit original QA records resulting from the implementation of this procedure to the T&MSS Local Records Center (LRC).

4.5 Reynolds Electrical & Engineering Company, Inc. (REECo)

REECo Teamsters and Laborers shall assist in handling and shelving of sample containers and will operate trucks and other material-handling equipment.

4.6 Sample Overview Committee (SOC)

The SOC is comprised of representatives from Lawrence Livermore National Laboratory, Los Alamos National 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.

5.0 PROCEDURES

5.1 Introduction

Core and cuttings acquired from Project field sites shall be processed after arrival at the SMF. The purposes of processing these samples are: (1) to photo-document core, and (2) to achieve and maintain traceability on these samples acquired during Project site characterization activities. In addition to the purposes for processing, core greater than 3" diameter and cuttings will be divided (1) to prepare an archival split for future reference, and (2) to prepare a research split for scientific data-gathering activities. Samples will undergo different phases of processing, depending upon the condition of the sample and the analytical data to be derived. At the discretion of the Director of the Regulatory and Site Evaluation Division (RSED), Project Office, some core greater than 3" diameter will be left whole for analytical purposes or because it is too unconsolidated for slabbing. An archival split shall be cut from whole core or separated from cuttings (approximately 50 grams). The research split of core shall be photographed and placed in the appropriate storage location. At the discretion of the Curator, the archival split may be photographed in addition to or instead of the research split.

5.2 Core Processing

Requested whole core larger than 3" diameter that is selected by participants during a Core Examination Meeting (Project Office Branch Technical Procedure [BTP] BTP-SMF-005) shall be segregated from the rest of the core prior to slabbing. The

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reserved whole core specimens held out from processing (BTP-SMF-006) shall have the approval of the RSED Director. Following verification of sample documentation (BTP-SMF-003) and selection and removal of whole core specimens, the remaining whole core will be slabbed, marked, packaged, and stored. Core less than 3" diameter will be verified, permanently marked, packaged, and stored.

5.2.1 Facilities

The core processing room will be equipped with electrical service, compressed air, running water, and drain lines with sediment traps.

5.2.2 Equipment

Core processing equipment will include, but is not limited to:

Self-feeding core slabbing saws	Ear and eye protection
Work tables equipped with casters	Core marking supplies
Measuring rules marked in tenths of a foot	Polystyrene core cradles
Dust collection system for dry slabbing	Pneumatic staple guns
Polyvinyl chloride (PVC) half-tubes	Core boxes
Polyethylene lay-flat tubing	

5.2.3 Core Slabbing Documentation

Information from CSITS will be used to generate one Core Slabbing/Boxing Checklist (Figure 1) per box to document the various steps in the slabbing process of whole core. The top portion of the checklist will include the borehole identification (ID) and other information specific to the core in that box (i.e., container interval, sample status). The lower portion of the Core Slabbing/Boxing Checklist will be divided into prelabbing and postlabbing sections and provides space for each activity in the process to be documented by the SMF Geotechnician performing it. During slabbing, the Core Slabbing/Boxing Checklist will be stored in a document cache mounted inside the lid of each box. Core that measures less than 3" diameter (small bore core) will not be slabbed. Individual steps in the Core Slabbing/Boxing Checklist that do not apply to small bore core will be marked "N/A" during core processing.

5.2.4 Core Box Preparation

5.2.4.1 Prior to the removal of the whole core from the field box in preparation for slabbing, another box of the same size will be constructed and include polystyrene cradles sized to fit the archival split of core. Polystyrene core status and whole core specimen markers will be placed in the research split box at the appropriate positions, and duplicates will be made and placed in the archival split box. Labels for these markers will be generated using information in CSITS. After the core from a field box has been slabbed, the field box will be used to hold the research split of core, and the newly constructed box will hold the archival split of core. Information from

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CSITS will be used to generate five labels for each box, including borehole ID, box interval, and an index of sample interval statuses as they will exist immediately after slabbing (Figures 2 and 3). Labels will be affixed to both ends and one side of the core box lid and to both ends of the body of each archival or research split box. After all the core (excluding whole core specimens) from a borehole has been slabbed and boxed, a sequential box number will be laminated to the box (i.e., Box 3 of 246). Core less than 3" diameter will remain in the same box in which it was received from the field. Permanent labels for boxes containing 3" or less diameter core will contain the same information as the research core box labels.

5.2.4.2 The whole core (3" diameter or larger) will be removed from the field core box and placed one row at a time in PVC half-tubes fastened to a work table. Both the archival and research core box interiors will be marked at the top and bottom of each row to indicate the total depth interval represented in that row (i.e., core, missing core, whole core specimens removed, etc.).

5.2.5 Orientation Stripes and Depth Mark Finalization and Duplication

On core larger than 3" diameter, a second set of permanent orientation stripes will be placed 180° from the existing orientation stripes on the core. The blue footage indicator will be extended with a permanent marker to completely circumscribe the core. Depth indicators will be permanently marked in blue and appropriately located on both sides of the core (Figure 4). Core less than 3" diameter will have the temporary field markings replaced by permanent markings. These markings will not be duplicated as on core 3" diameter or larger.

5.2.6 Slabbing of Core

5.2.6.1 Approximately 3 ft of whole core (3" diameter or larger) from the work table will be placed in the core sawing jig with the top end to the operator's left and the original field orientation stripes facing outward toward the saw operator. The core shall be slabbed longitudinally into the approximately 1/3 archival split and 2/3 research split, each portion containing identical markings. The core will be slabbed with a diamond saw blade. Cores will be slabbed using water as the coolant/lubricant, or with a special dry-cutting sawblade. When the dry-cutting sawblade is used, a dust collection system will be used to control air quality within the saw room.

5.2.6.2 Rubble will be removed from the field transport bag and laid out on the work table. An approximate 1/3 - 2/3 diameter longitudinal split will be made on the rubble sample. Each split will be rebagged separately in 8" wide, 4-mil thick polyethylene lay-flat tubing, with a minimal amount of disturbance to the sample. Rubble from core less than 3" diameter will be bagged, but not split into archival and research portions. Each bag will be marked with orientation marks and depth indicators and placed in its respective box, row, and position.

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5.2.7 Final Markings on Slabbed Core

After slabbing, the research split of core will be removed from the saw jig first, the archival split afterwards. Both splits of core will be laid out in the Core Processing Area, with the 1/3 and 2/3 splits placed face down, parallel to each other, and oriented correctly. Any markings that may have been obscured during slabbing shall be verified using the Core Status section of the Core Slabbing/Boxing Checklist (Figure 1) before being redrawn. The core will then be placed in its respective row and box.

5.2.8 Photography of Split Core

The core, whether newly slabbed (3" diameter or larger) or whole (less than 3" diameter), shall be photographed to record its initial condition, position in the box, orientation, and color. The Core Photography Log (Figure 5), used to document photography of the core, includes borehole ID, photographer's name and organization, film speed and f-stop, and date. Information on each exposure will include the following: exposure number, RCT (research) or ACT (archive) bar code number, box interval, missing footage status, and remarks. A Nevada Test Site (NTS) Support Contractor or the SMF staff shall be responsible for photographing the core. The SMF Geotechnician will complete this log as the photographs are taken and will initial and date the action.

5.2.8.1 Methods

5.2.8.1.1 The core and labeling cards will be arranged as shown in Figure 6. The borehole ID, RCT or ACT bar code number, box depth interval, date photographed, missing and whole core specimen interval markers, grey scale, and color scale will be displayed in each shot.

5.2.8.1.2 A box of research or small bore core will be placed with the shallower end of the interval in the lower left of the box stand. The box and photographic marquees will be outlined with tape to facilitate placement for subsequent shots. Labels will be in place to represent missing core and to explain discontinuous intervals (e.g., whole core specimens). If authorized by the Curator after consultation with the SOC, the core will be moistened with a water spray to enhance the colors. Core placement and camera focus shall be checked to ensure correct arrangement and legibility of labels. The SMF Geotechnician will record the exposure numbers, replace the core box lid, and remove the box from the box stand.

5.2.8.1.3 The developed exposures shall be examined by an SMF staff member to ensure that all boxes of core have been photographed and that the exposures are adequate to document the condition of the core. A list of any unsatisfactory or missing photographs will be made and the photographs will be retaken.

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5.2.8.2 Handling and Archiving of Prints and Negatives

A minimum of three set of prints shall be maintained, one by the SMF Documents Center and two by the T&MSS LRC. The NTS Support Contractor or the SMF shall submit the original negatives to the T&MSS LRC. An index of each borehole photographic record will be kept in the respective notebook.

5.2.9 Bagging of Archival Core

If bagging of the archival split is deemed necessary by the SOC, it will be sealed in polyethylene lay-flat tubing as soon as it has been marked and labeled. Lengths of lay-flat tubing will be cut for each core interval. One end of each length will be sealed with a heat sealer. One side of the tubing will be marked with the top and bottom depths of the core interval near the ends. Orientation marks, red on the right and blue on the left (Figure 4), will be drawn on the plastic bag. The approximately 3-foot section of core will be laid slabbed side face up on a contoured polystyrene cradle. The core and polystyrene cradle will then be inserted into the premarked lay-flat tubing, the excess air will be squeezed out, and the end of the tubing will be heat sealed. The sealed section of core will be placed in a protective cardboard divider pad and positioned in the archival split box. This process will be repeated for the other row in the box.

5.2.10 Sealing of Boxes

After core processing, containers will be sealed with filament tape and prepared for storage.

5.3 Cuttings Processing

Following verification of samples at the SMF (BTP-SMF-003), cuttings will be washed (if necessary), divided into archival and research splits, packaged, and stored.

5.3.1 Facilities

The cuttings processing room will be equipped with electrical service, compressed air, running water, and drain lines with sediment traps.

5.3.2 Equipment

Cuttings processing equipment will include, but is not limited to:

Wemas automatic drill cuttings washer/dryer	Storage boxes
Work table equipped with casters	Storage vials
Riffle type sample splitter	Pneumatic stapler
Digital platform scale	

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5.3.3 Processing

A Cuttings Processing Log (Figure 11) will be used to document the various steps in processing the cuttings samples. The log contains the batch ID, borehole ID, container ID and interval, sample ID and interval of each bag, and a checklist delineating each stage of processing (i.e., wash/dry, split).

5.3.3.1 Washing and Drying

If the cuttings were produced by drilling with air, the samples will not be washed. If the cuttings were produced by drilling with drilling muds or air/foam, the samples will be washed.

5.3.3.2 Splitting

5.3.3.2.1 An archival split shall be taken from each cuttings sample received at the SMF. Cuttings will be split using a riffle-type sample splitter. The amount of sample taken for the archival split shall be up to 50 percent of the entire cuttings sample, not to exceed 50 grams. The archival cuttings sample will then be placed into a pre-labeled plastic vial with screw caps. Each vial will have a label affixed denoting borehole ID, sample interval, and ACT bar code number of that sample. The plastic vial will be kept in a storage box containing other archival cuttings samples within the storage box sample range.

5.3.3.2.2 The research cuttings sample split, which will not exceed 200 grams, will be kept in plastic vials with screw caps. Each vial will have a label affixed denoting borehole ID, sample interval, and RCT bar code number of that sample. Principal Investigators requiring amounts of cuttings greater than 200 grams shall collect them at the borehole site and then submit a Sample Collection Report (BTP-SMF-007) to the SMF. SM Geotechnicians can also collect the cuttings for the investigator and document this on a Sample Collection Report.

5.3.3.3 Packaging and Labeling

Vials containing the research and archival splits of cuttings will be stored in separate boxes. The borehole ID, container interval, RCT or ACT bar code number (if applicable), and missing footage within that container (if applicable) will be entered into CSITS. Four permanent label types will be generated using information contained in CSITS with the aforementioned information contained on them: an Archival Sample vial label (Figure 7), a Research Sample vial label (Figure 8), an Archival Sample storage box label (Figure 9), and a Research Sample storage box label (Figure 10). Boxes will be sealed with filament tape.

5.4 Sample Storage

A Sample Container Storage Log (Figure 12) is generated using information contained in CSITS and includes the borehole ID, sample type, and RCT or ACT bar code

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number. The SMF Geotechnician placing the sample container in storage will enter the storage location and the date the container was shelved into the Sample Container Storage Log. The SMF Geotechnician and the TS Assistant shall both sign and date this record. The storage location of each container will be entered into CSITS. The storage areas shall be access-limited.

5.4.1 Core Sample Storage

The 1/3 and 2/3 diameter splits of the processed core, as well as the small bore core, will be shelved separately by acquisition site and location ID system. The 1/3 diameter archival split will be stored in the Archival Core Storage area of Building 4221, while the 2/3 diameter research split and the small bore core will be stored in Building 4320.

5.4.2 Cuttings Storage

Both the archival and research cuttings sample splits will be stored in the bulk sample storage area in Building 4320.

5.5 Identification and Resolution of Discrepancies

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 by crossing through the error, correcting it in the original document, and initialing and dating the correction. If the correction is not self-explanatory, the individual shall assign a number to the correction and attach a sheet to the original record that fully describes the correction performed. Discrepancies discovered after an activity or form has been completed will be handled according to the procedure outlined in BTP-SMF-001, Section 5.7.4.

5.6 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 Quality Manager or another individual in the Project Office QA organization. Segregation of a nonconforming item or termination of a nonconforming activity will be done according to Quality Management Procedure (QMP) QMP-15-01.

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6.0 REFERENCES

- BTP-SMF-001. Sample Management for the Yucca Mountain Project.
- BTP-SMF-003. Verification of Field Logging and Documentation of Core and Cuttings.
- BTP-SMF-005. Examination of Samples by Participants at the SMF.
- BTP-SMF-006. Removal of Whole Core and Other Specimens from Samples for Shipment and Remnant Return.
- BTP-SMF-007. Acceptance for Curation by the SMF of Selected Samples and Documentation.
- BTP-SMF-008. Field Logging and Documentation of Borehole Samples.
- QMP-15-01, Rev. 1, Control of Nonconformances.

7.0 FIGURES

- Figure 1 - Example of CSITS-generated Core Slabbing/Boxing Checklist.
- Figure 2 - Example of CSITS-generated Core Box Label for Research Split.
- Figure 3 - Example of CSITS-generated Core Box Label for Archival Split.
- Figure 4 - Example of Core Markings.
- Figure 5 - SMF Core Photography Log.
- Figure 6 - Core Photographic Format.
- Figure 7 - Example of CSITS-generated Vial Label for Cuttings Archival Sample.
- Figure 8 - Example of CSITS-generated Vial Label for Cuttings Research Sample.
- Figure 9 - Example of CSITS-generated Archive Cuttings Container Label.
- Figure 10 - Example of CSITS-generated Research Cuttings Container Label.
- Figure 11 - Example of CSITS-generated Cuttings Processing Log.
- Figure 12 - Sample Container Storage Log.

8.0 QA RECORDS

The SMF Administrative Assistant shall ensure that the following QA records resulting from implementation of this procedure are turned over to the T&MSS LRC. Copies of these QA records will be retained by the SMF and stored at the SMF Documents Center.

1. Core Slabbing/Boxing Checklist.
2. SMF Core Photography Log.
3. Cuttings Processing Log.
4. Sample Container Storage Log.
5. Core Photographs.

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CORE SLABBING/BOXING CHECKLIST

Batch: RAT : BAT43

Borehole: SCORE : BHL141

Container:

Sample Status:

Specifer: FCT100003
Top Depth: 50.0
Bot Depth: 75.0

50.0 to 60.0 : REC
60.0 to 62.5 : WCR
62.5 to 75.0 : REC

Remarks:

CORE SLABBING CHECKLIST

- Labels Affixed to Boxes?
- Duplicate Orientation Marks Drawn?
- Depth Markers Extended Around Core?
- Duplicate Footage Markers Drawn?
- Rubbish Split and Bagged?
- Missing Footage Markers Inserted?
- Whole Core Removed Markers Inserted?
- Core Slabbed?

James Dunsalden
SMF Geotechnician

Chris [Signature]
7/1/89
Date
IS Assistant

Avery Dunsalden
SMF Geotechnician
7/1/89
Date

CORE BOXING CHECKLIST

- Tubing Marked with Depth and Orientation?
- Core Placed in Polystyrene Cradle?
- Cardboard Liner in Place?
- Archive Core Placed in Lay-flat Tubing?

Archival
Research *ALA* *ALA*

Figure 1. Example of CSITS-generated Core Slabbing/Boxing Checklist.

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YUCCA MOUNTAIN PROJECT RESEARCH CORE SAMPLES BOREHOLE: YMP-AC1 BHL10005 INTERVAL: 0.0 TO 46.0  RCT00000203	STATUS: 0.0 to 40.0 : NAT 40.0 to 46.0 : REC
--	--

Figure 2. Example of CSITS-generated core box label for Research Split.

YUCCA MOUNTAIN PROJECT ARCHIVE CORE SAMPLES BOREHOLE: YMP-AC1 BHL10005 INTERVAL: 0.0 TO 46.0  ACT00000203	STATUS: 0.0 to 40.0 : NAT 40.0 to 46.0 : REC
---	--

Figure 3. Example of CSITS-generated core box label for Archival Split.

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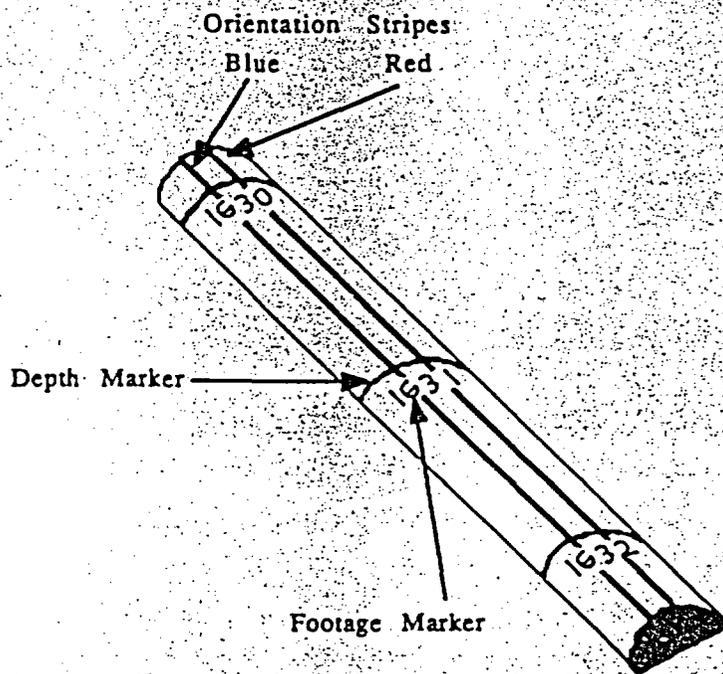


Figure 4. Example of Core Markings.

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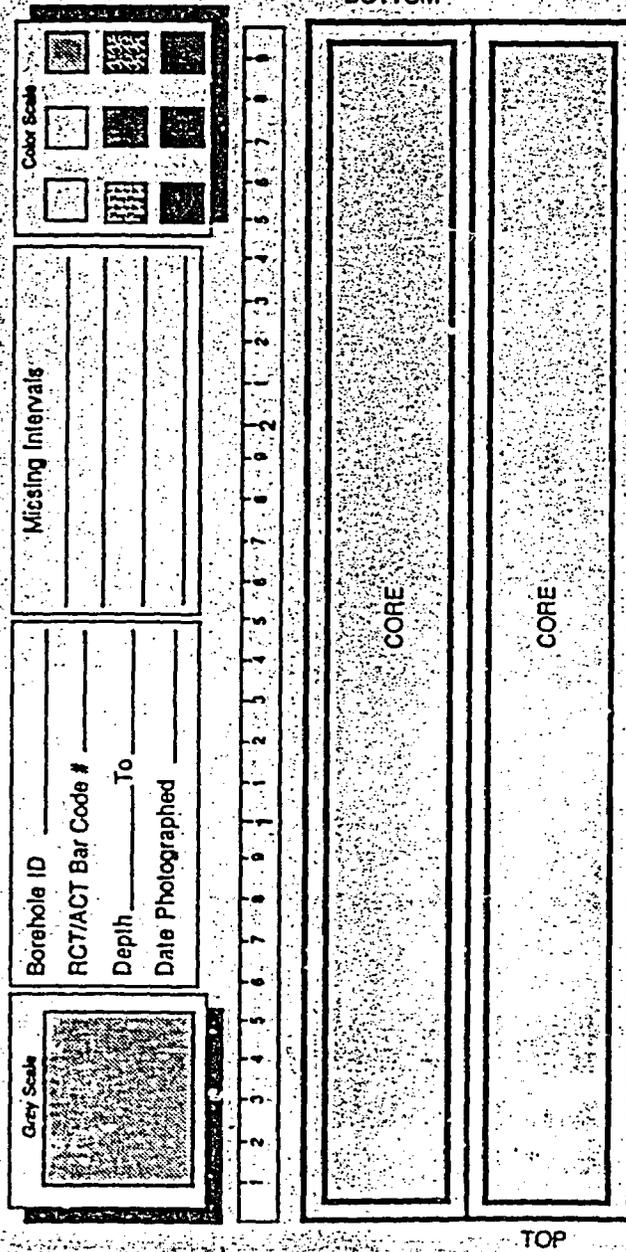


Figure 6. Core Photographic Format.

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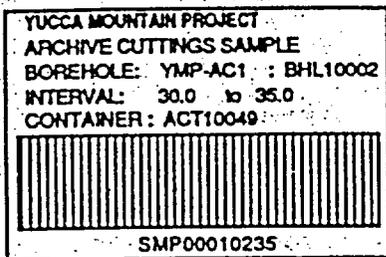


Figure 7. Example of CSITS-generated Vial Label for Cuttings Archival Sample.

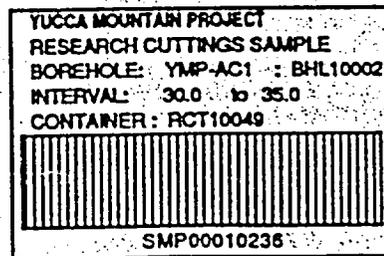


Figure 8. Example of CSITS-generated Vial Label for Cuttings Research Sample.

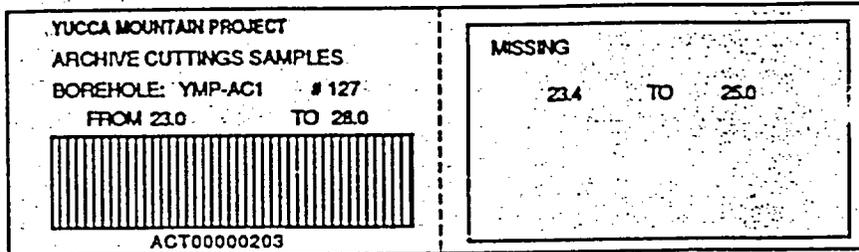


Figure 9. Example of CSITS-generated Archive Cuttings Container Label.

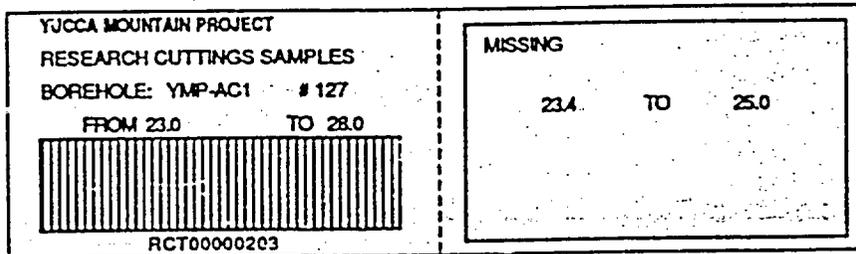


Figure 10. Example of CSITS-generated Research Cuttings Container Label.

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CUTTINGS PROCESSING LOG

Batch: Borehole: YMP-AC2 : DHL143	Specifer: FCT000319	Container		Wash/Dry	Spill	Packaged	Labeled
		Top: 238.7	Bot: 300.0				
Specifer: SMF00000382	Top: 238.7	Bot: 300.0	<input checked="" type="checkbox"/>				
Specifer: SMF00000383	Top: 300.0	Bot: 350.0	<input checked="" type="checkbox"/>				

 Chris Lewin SMF Assistant	Date 6/20/89
--	-----------------

 Chris Lewin SMF Assistant	Date 6/20/89
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Figure 11. Example of CSITS-generated Cuttings Processing Log.

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7/12/91 DOCUMENT APPROVAL SHEET

NNA.911001.0022

Title BRANCH TECHNICAL PROCEDURE: TRANSPORT, RECEIPT, ADMITTANCE, AND PROCESSING OF BOREHOLE SAMPLES FOR THE SMF	NO. BTP-SMF-002 K10 () Non O
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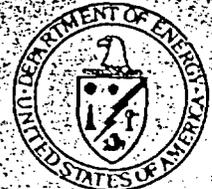
APPROVAL

T&MSS Assistant	John E. Shaler	6/28/89
PROJECT MANAGER: Original signed by	Signature	Date
DIRECTOR OF QUALITY ASSURANCE	Edwin L. Wilmot	6/28/89
	Signature	Date
YMP Branch Chief	D. E. Livingston for M. B. Blanchard	6/28/89
(OTHER, AS REQUIRED)	Signature	Date
REVISION 0 EFFECTIVE DATE: 7/7/89		

REVISIONS

INITIAL AND DATE

	REVISION 1	REVISION 2	REVISION 3	REVISION 4
PROJECT MANAGER:	E. L. Wilmot 10/26/90	<i>[Signature]</i> 3/6/91		
DIRECTOR, QA:	D. G. Horton 10/26/90	<i>[Signature]</i> 10/26/90		
YMP Branch Chief	Vel S. Clanton 10/26/90	<i>[Signature]</i> 10/26/90		
(OTHER, AS REQUIRED)	M. B. Blanchard 10/26/90	<i>[Signature]</i> 10/26/90		
EFFECTIVE DATE:	10/26/90	Completed Revision 8/19/91		



TRAINING REQUIRED YES N/A NUMBER OF DAYS REQUIRED FOR TRAINING 9

COMMENTS:

Self-Study For
Branch Chief Personnel

[Signature] 8/7/91
TRAINING OFFICER/TRAINING MANAGER DATE

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1.0 PURPOSE AND SCOPE

1.1 PURPOSE

The purpose of this procedure is to facilitate the transport, handling, tracking, and documentation of borehole samples after their shipment from the drillsite and their subsequent arrival at the Sample Management Facility (SMF). The goals are to maintain the traceability and identity of all borehole samples and their containers admitted to the SMF from the field.

1.2 SCOPE

The scope of this procedure includes (1) instructions for loading and transporting borehole samples from the field; (2) instructions for receiving and admitting borehole samples from the field; (3) instructions for confirming the condition of and documentation associated with borehole samples and containers received at the SMF; (4) instructions for processing and storing borehole samples and containers; (5) responsibilities of SMF staff during the receipt, admission, confirmation, processing, and storage of borehole samples; and (6) the documentation of these activities.

2.0 APPLICABILITY

This procedure applies to all Field Test Control Department personnel; specifically, to all SMF and Field Operations (FO) personnel involved with the transport, receipt, processing, curation, and documentation of samples collected from Yucca Mountain Site Characterization Project (YMP) boreholes. The procedure also applies to any borehole samples collected under the Yucca Mountain Site Characterization Project Office (YMPO) Branch Technical Procedure BTP-SMF-008, "Field Logging, Handling, and Documenting Borehole Samples," and submitted to the SMF for curation.

3.0 DEFINITIONS

NOTE: Terms in this procedure are used as defined in the Project Glossary. The following additional definitions are adopted for the purposes of this procedure.

3.1 CORE

Core consists of a cylindrical section of rock taken as a sample of the interval penetrated by a core bit and brought to the surface for examination and/or analysis.

3.2 CUTTINGS

Cuttings are chips of rock produced during drilling that are removed from the borehole by circulation of drilling fluids (gas, foam, or liquid).

3.3 INFORMATION BLOCK

An information block is an object placed in a sample container. The block represents a depth interval and provides information pertaining to the status of that interval.

3.4 RUBBLE

Rubble consists of fragments of core from a single interval, the individual diameters of which average less than one half the diameter of the whole core.

3.5 SAMPLE

A sample is part of a population whose properties are studied to gain information about the whole or the group. Examples of samples include core, cuttings, and fluids collected at YMP borehole sites.

3.6 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.

3.7 SAMPLE TYPE

Sample type designates the type of material that makes up a sample, i.e., core and cuttings.

3.8 SPECIMEN

A specimen is a portion or subsection removed from a sample or remnant and tracked individually.

3.9 UNIQUE IDENTIFIER

A unique identifier (ID) is a designation that sets a documentable object or event apart from similar entities. It may be an assigned number, a name, an alphanumeric designation, or a set of data items that collectively serve to specify an entity. Examples of unique identifiers used in this procedure include Borehole ID, Container ID, Sample ID, or Specimen ID.

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4.0 RESPONSIBLE PARTIES

The following YMP individuals are responsible for activities identified Section 5.0 of this procedure:

1. SMF Curator
2. FO/SMF Courier
3. SMF Staff
4. SMF Geotechnician
5. FO Staff
6. SMF Technical Staff Assistant (TSA)
7. SMF/FO Administrative Assistant (AA)

5.0 PROCEDURE

NOTE: A flowchart of the following processes described in this procedure is attached as Figure 1.

RESPONSIBLE PARTY	STEPS	PROCEDURE
FO Staff	1.	<p>Before shipping a group of borehole sample containers (containers) from the drillsite to the SMF, prepare a Field Container Summary and Transmittal Document (Transmittal Document). The Transmittal Document shall contain the following information:</p> <ol style="list-style-type: none"> a. Borehole ID b. Number of containers included in the shipment c. Date of the shipment d. A list of the containers included in the shipment, containing the following information for each: <ol style="list-style-type: none"> 1. Container ID

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RESPONSIBLE PARTY	STEPS	PROCEDURE
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FO Staff

i. Sample type (core, cuttings, or other sample)

ii. Sequential container number with respect to other containers from the same borehole of the same sample type

iv. Depth interval

e. For each container, a list of all included depth intervals, and their existence codes

NOTE: Existence codes may include the following:

i. REC - A sample recovered from the borehole and included within the container

ii. UNREC - An interval for which no samples were successfully recovered

iii. NAT - A drilled interval during which no sample recovery was attempted

iv. WCR - A field specimen removed from core before the boxing of the container interval, in accordance with BTP-SMF-002

v. LOST - A sample that was recovered, but is unaccounted for during container loading

vi. DEST - A sample accidentally destroyed before loading into its container

f. A description of the documentation supplied with the sample shipment

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RESPONSIBLE PARTY	STEPS	PROCEDURE
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FO Staff

NOTE: The cumulative sample shipments for each borehole shall have included the following:

- i. Field Specimen Removal Checklist and Contract (Specimen Contract)
- ii. Shift Drilling Summary
- iii. Lithologic Logs
- iv. Structural Logs
- v. Daily Activities Log
- vi. Field Photographic Log
- vii. Field Facility Access Log
- viii. Core videotape

FO/SMF Courier

2. Prepare a vehicle for transport of borehole samples from the field to the SMF. Lay a sufficient thickness of foam rubber dunnage on the floor of the transport vehicle to protect containers from mechanical shock during transport.
3. Load containers into the transport vehicle. Ensure that the containers are adequately secured against displacement, and that sufficient padding exists between rows and layers of containers to minimize the transmission of road shocks to the samples inside.
4. Inventory containers and documents being loaded onto the transport vehicle and check them against the Transmittal Document. When the data agree with the contents of the vehicle, sign the "Person Accepting Custody" field, and place the date and time of the transfer in the spaces provided.

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RESPONSIBLE PARTY	STEPS	PROCEDURE
EO Staff	5.	Inventory containers and documents being loaded onto the transport vehicle and check them against the Transmittal Document. Mark the "Shipped OK" space for each container properly loaded.
	6.	When the data on the Transmittal Document agree with the contents of the vehicle, sign the "Person Releasing Custody" field and place the date and time of the transfer in the spaces provided.
EO/SMF Courier	7.	Transport containers from the drillsite to the SMF.
	8.	Unload containers and documentation from the transport vehicle and place them in an available receiving area.
SMF Geotechnician	9.	Inventory containers and documents being unloaded from the transport vehicle and check them against the Transmittal Document. Mark the "Received OK" space for each container properly unloaded.
	10.	When the data on the Transmittal Document agree with the contents of the vehicle, sign the "Person Accepting Custody" field and place the date and time of the transfer in the space provided.
EO/SMF Courier	11.	Inventory containers and documents being unloaded from the transport vehicle and check them against the Transmittal Document.
	12.	When the data on the Transmittal Document agree with the contents of the vehicle, sign the "Person Releasing Custody" field and place the date and time of the transfer in the spaces provided.

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RESPONSIBLE PARTY

STEPS

PROCEDURE

ADMITTANCE

SMF Curator

13. Assign a group of one or more available containers to undergo the admittance portion of this procedure.

NOTE: The containers to be admitted at a particular time will be determined by the scheduling needs of the SMF, and by the needs of YMP participants.

SMF Staff

14. Arrange containers in a working area in preparation for admittance.

15. Open the lids of the containers and inspect the contents for signs of damage or disruption of samples that may have been sustained during transport.

16. Prepare a Confirmation Checklist using data from the Transmittal Document and the Specimen Contract, containing as a minimum the following items:

a. A list of containers included in the assignment with the following data for each:

i. Container ID

ii. Borehole ID

iii. Sequential container number

iv. Sample type (core, cuttings, or other sample)

v. Depth interval

b. For each container, a list of all included sample intervals, and their existence codes

c. Date the Confirmation Checklist was prepared

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RESPONSIBLE PARTY

STEPS PROCEDURE

SMF Staff

- d. For each interval, spaces for notations, corrections, and comments regarding status of samples, and a verification line for the SMF Geotechnician to initial after confirmation of sample data.
- e. Signature lines for the SMF Geotechnician and the TSA to document the completion of the Confirmation Checklist.
- f. A page marker indicating the total number of pages in the Confirmation Checklist, and the sequence of the individual page.

SMF Geotechnician

- 17. Compare the information contained in the Confirmation Checklist with the contents of the containers. Check for the following conditions:
 - a. Container IDs should match those on container labels.
 - b. Existence codes should match the samples or information blocks within the indicated container.
 - c. All core field specimens documented on information blocks in the containers should have been recorded on the Specimen Contract.
 - d. All depths marked on samples should be consistent with those recorded on the container labels and with intervals given on the Confirmation Checklist.
- 18. Initial each sample interval in the space provided when the information on the Confirmation Checklist is confirmed or corrected.

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RESPONSIBLE PARTY

STEPS PROCEDURE

SMF Geotechnician

19. Sign and date each page of the completed Confirmation Checklist in the spaces provided and submit it to the TSA.

20. Submit the Transmittal Document and the Specimen Contract to the TSA.

21. Submit remaining documents received under step 1(f) to the AA.

TSA

22. Verify that the Confirmation Checklist, Specimen Contract, and Transmittal Document are completely and correctly filled out. Sign and date each page in the spaces provided, and submit them to the AA.

SMF Staff

23. If cuttings samples are to be processed, continue with the next step. Otherwise, proceed to step 35.

CUTTINGS PROCESSING

24. For each container to be processed, prepare a Cuttings Processing Checklist, providing as a minimum the following information:

a. Container ID

b. Borehole ID

c. Depth interval of the container

d. A list of existence codes for each depth interval within the container

e. A list of specific steps for processing cuttings, with space for checking the completion of each

f. A space for including any special processing instructions that might apply to a specific container

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RESPONSIBLE PARTY	STEPS	PROCEDURE
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SMF Staff

g. Signature and date spaces to document completion of the procedure by SMF Staff and the TSA

h. Space for recording permanent storage location of container

25. For each container, obtain an identical container to store the archive sample split. Use the original container to store the research split of the samples. For each archival and research container, affix five permanent labels or markings displaying the following information:

a. Container ID

b. Borehole ID

c. Sequential cuttings container number

d. Type of sample, i.e., cuttings

e. The cuttings split represented by the container, whether Research or Archive

f. Depth interval

NOTE: Labels or marks must be placed on both ends of the container base and lid, and on one side of the container lid.

26. If cuttings were drilled using an externally introduced fluid lubricant, wash and dry each cuttings sample. Otherwise, dry and disaggregate cuttings as necessary to ease subsequent splitting. Document this step by marking the space provided on the Cuttings Processing Checklist.

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RESPONSIBLE PARTY	STEPS	PROCEDURE
SMF Staff	27	<p>Split cuttings into archive and research portions. The amount of sample taken for the archival split may be up to 50 percent of the cuttings sample.</p> <ul style="list-style-type: none">a. Prepare a 6-ounce screw-capped plastic vial for the research split, and a 2-ounce screw-capped plastic vial for the archive split.b. Permanently label or mark on each vial the Borehole ID, Sample ID, sample interval, and Container ID for the sample.c. Before splitting, filter out excessively large particles using a 2mm x 2mm sieve. Divide larger particles into two equal splits.d. Split cuttings using a riffle-type sample splitter. Return particles filtered out previously to the sample splits.e. Place the archival split into a pre-labeled 2-ounce screw-capped plastic vial.f. Place the research split into a pre-labeled 6-ounce screw-capped plastic vial.g. Discard any remaining material after the archive and research sample vials have been filled.h. Document the splitting of cuttings samples by marking the space provided on the Cuttings Processing Checklist. <p>28. Place vials containing archival and research splits into the containers as illustrated in Figure 7. Document on the Cuttings Processing Checklist by marking in the space provided.</p>

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RESPONSIBLE PARTY	STEPS	PROCEDURE
SMF Staff	29.	Close and seal the research and archive cuttings sample containers. Document by checking the space provided on the Cuttings Processing Checklist.
	30.	Assign a permanent shelf location for each of the archival and research cuttings sample containers. Store archival and research splits of cuttings sample containers in separate areas of the SME.
	31.	Mark the Cuttings Processing Checklist on the spaces provided for location assignment of containers.
	32.	Check that information on the Cuttings Processing Checklist is complete and accurate. Sign and date in the spaces provided and submit it to the TSA.
TSA	33.	Verify that entries on the Cuttings Processing Checklist are complete and correct. Sign and date each page on the spaces provided and submit it to the AA.
SMF Staff	34.	Go to Step 19.
		CORE PROCESSING
SMF Staff	35.	For each container to be processed, prepare a Core Processing Checklist, providing as a minimum the following information: <ul style="list-style-type: none">a. Container IDb. Borehole IDc. Depth intervald. A list containing the depth interval and existence code of each sample within the container

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RESPONSIBLE PARTY

STEPS

PROCEDURE

SMF Staff

- e. A list of specific steps for processing core, with a space for checking the completion of each
 - f. Space for including any special processing instructions that might apply to a specific container
 - g. Signature and date spaces for the documentation of procedure completion by the SMF staff and the TSA
 - h. Space for recording the permanent storage location assignment for the container
36. Affix five permanent labels or markings for each box displaying the following information:
- a. Container ID
 - b. Borehole ID
 - c. Depth interval
 - d. Sequential container number
 - e. Type of sample, i.e., core

NOTE: Labels or marks must be placed on both ends of the container base and lid, and on one side of the container lid.

37. Ensure that field markings on core are clear and unobscured; redraw as necessary using the process described in BTP-SMF-C08. Document the completion of this step on the Core Processing Checklist.

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RESPONSIBLE PARTY	STEPS	PROCEDURE
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SMF Staff

38.

Check to ensure that all rubble intervals are properly bagged and labeled. If bag is damaged or if labeling is unclear, rebag the rubble using the following method:

- a. Note the top and bottom depths assigned to the rubble interval.
- b. Cut a length of clear polyethylene lay flat having sufficient to include the length of the rubble interval plus enough overlap to facilitate complete sealing.
- c. Using a heat sealer, seal one end of the tubing. Designate the sealed end as the bottom depth of the interval, and mark the depth on it. With the bottom end of the tubing facing you, draw parallel red and blue stripes on the bag from top to bottom, with the red stripe on the right.
- d. Transfer rubble as a unit to the new bag, taking care to keep disturbance of the sample to a minimum. Ensure that the measured length of the sample corresponds to the assigned depth interval.
- e. Expel as much air as possible from the bag without disturbing the sample. Seal the top end of the bag with a heat sealer. Mark the top of the bag with the assigned top depth of the sample. Insert the bag into its proper position within the core container.

39.

Indicate by marking or labeling the side of each container at the top and bottom of each row of core the corresponding depth assigned to the core at that point.

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RESPONSIBLE PARTY	STEPS	PROCEDURE
SMF Staff	40.	Prepare a Core Photography Log containing spaces for the following entries: <ul style="list-style-type: none">a. Film exposure numberb. Container IDc. Depth interval of the containerd. Borehole IDe. Photographer's name and organizationf. Signature and date spaces for the SMF staff overseeing the photography and for the TSA
	41.	Photograph the core in its container to create a visual record of its condition, position in the box, and orientation. Document the process on the Core Photography Log. <ul style="list-style-type: none">a. Arrange the container and labeling cards as shown in Figure 3.b. Ensure all core markings, information blocks, and significant features are visible and in focus.c. If authorized by the SMF Curator, moisten the core with a distilled water spray to enhance the contrast of the core's colors and textures.d. After each exposure, recheck the focus and core placement to ensure correct arrangement and legibility.
	42.	Check that information on the SMF Core Photography Log is complete and accurate. Sign and date it in the spaces provided, and submit it to the TSA.

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RESPONSIBLE PARTY	STEPS	PROCEDURE
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TSA	43.	Verify that the SMF Core Photography Log is completely and correctly filled out. Sign and date each page in the spaces provided, and submit it to the AA.
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SMF Staff	44.	Close containers and seal with adhesive tape. Document by checking the space provided on the Core Processing Checklist.
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	45.	Assign a permanent shelf location for each of the core sample containers.
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	46.	Mark the Core Processing Checklist on the spaces provided for location assignment of containers.
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	47.	Check that the information on the Core Processing Checklist is complete and accurate. Sign and date each page in the spaces provided and submit it to the TSA.
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TSA	48.	Verify that entries on the Core Processing Checklist are complete and correct. Sign and date each page on the spaces provided, and submit the checklist to the AA.
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AA	49.	Photocopy, compile, and submit records generated or received under this procedure in accordance with QMP-17-01, Records Management: Record Source Implementation.
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IDENTIFICATION AND RESOLUTION OF DISCREPANCIES

SMF Staff	50.	Identify and resolve upon discovery any discrepancy resulting from the actions of staff members using this procedure by crossing through the error and correcting it on the original document, and initialing and dating the correction.
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RESPONSIBLE PARTY

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PROCEDURE

SMF Staff

- a. If the correction is not self-explanatory, then assign a number to the correction and attach a sheet to the original record that fully describes the problem and the correction performed.
- b. If the discrepancy is discovered after an activity or a form has been completed, then handle according to the procedure outlined in BTP-SMF-001, Sample Management for the YMPO.

51. Identify any nonconformances to this procedure and process according to QMP-15-01, Control of Nonconformances.

6.0 REFERENCES

NOTE: Refer to the latest revision of the documents listed below unless otherwise stated.

6.1 REQUIREMENTS DOCUMENTS

Project Office Quality Assurance Program Plan, YMP/88-9

OCRWM Quality Assurance Requirements Document, DOE/RW-0214

CCRWM Quality Assurance Program Description Document, DOE/RW-0715

6.2 INTERFACE DOCUMENTS

Project Glossary, YMP/89-15

BTP-SMF-001, Sample Management for the Yucca Mountain Site Characterization Project Office

BTP-SMF-008, Field Logging, Handling, and Documenting Borehole Samples

QMP-15-01, Control of Nonconformances

QMP-17-01, Records Management: Record Source Implementation

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7.0 FIGURES AND ATTACHMENTS

Figure 1, BTP-SMF-002 Flowchart

Figure 2, Arrangement of Split Cuttings Samples in Containers

Figure 3, Sample Container Arrangement for Photography

8.0 RECORDS

The following Quality Assurance documents are generated by this procedure:

1. Field Container Summary and Transmittal Document
2. Confirmation Checklist
3. Cuttings Processing Checklist
4. Core Processing Checklist
5. Core Photography Log

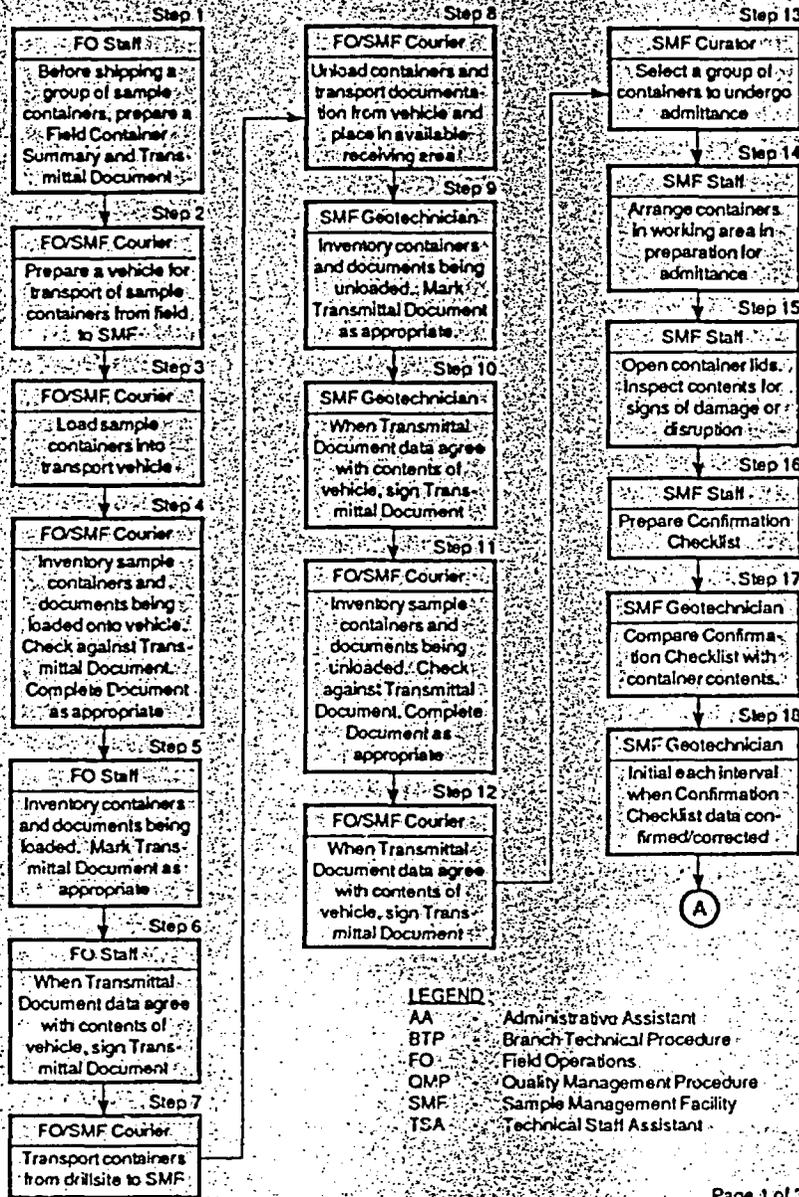
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LEGEND
 AA Administrative Assistant
 BTP Branch Technical Procedure
 FO Field Operations
 QMP Quality Management Procedure
 SMF Sample Management Facility
 TSA Technical Staff Assistant

Figure 1 - BTP-SMF-002 Flowchart

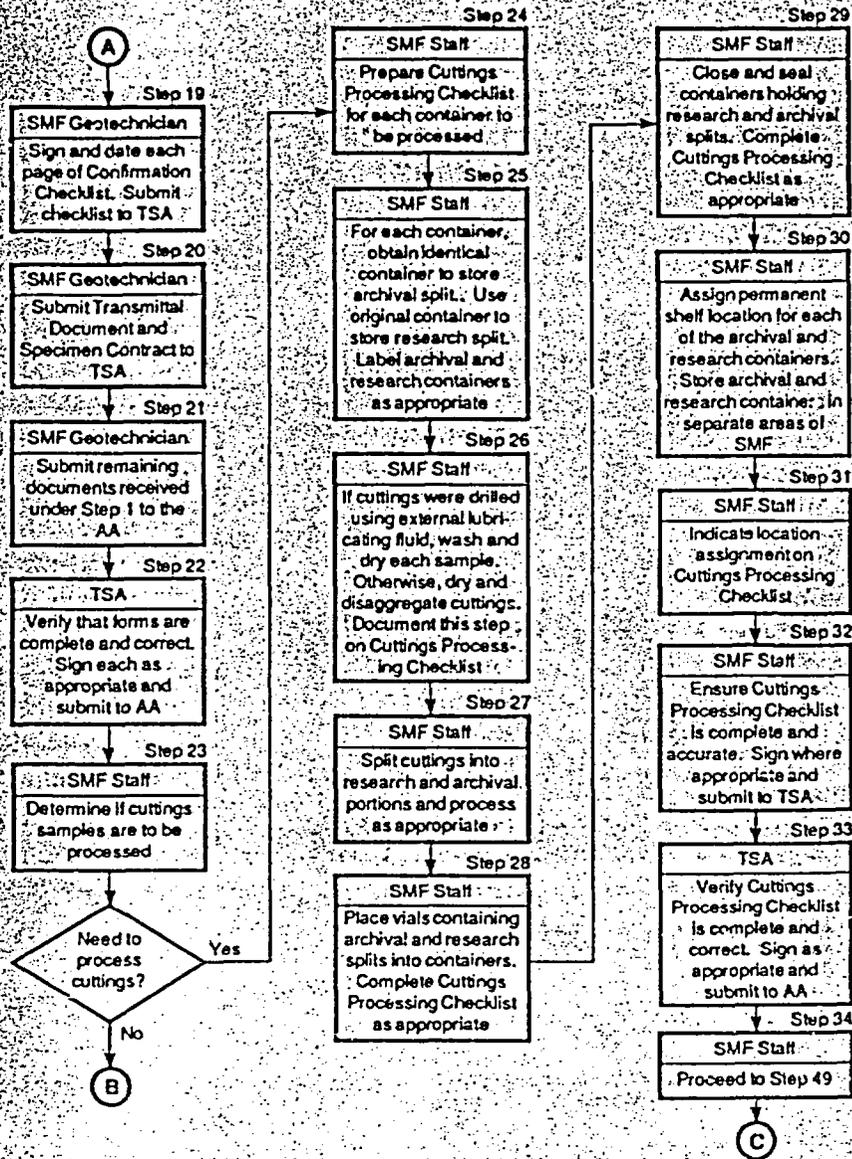


Figure 1 - RTP-SMF-002 Flowchart (continued)

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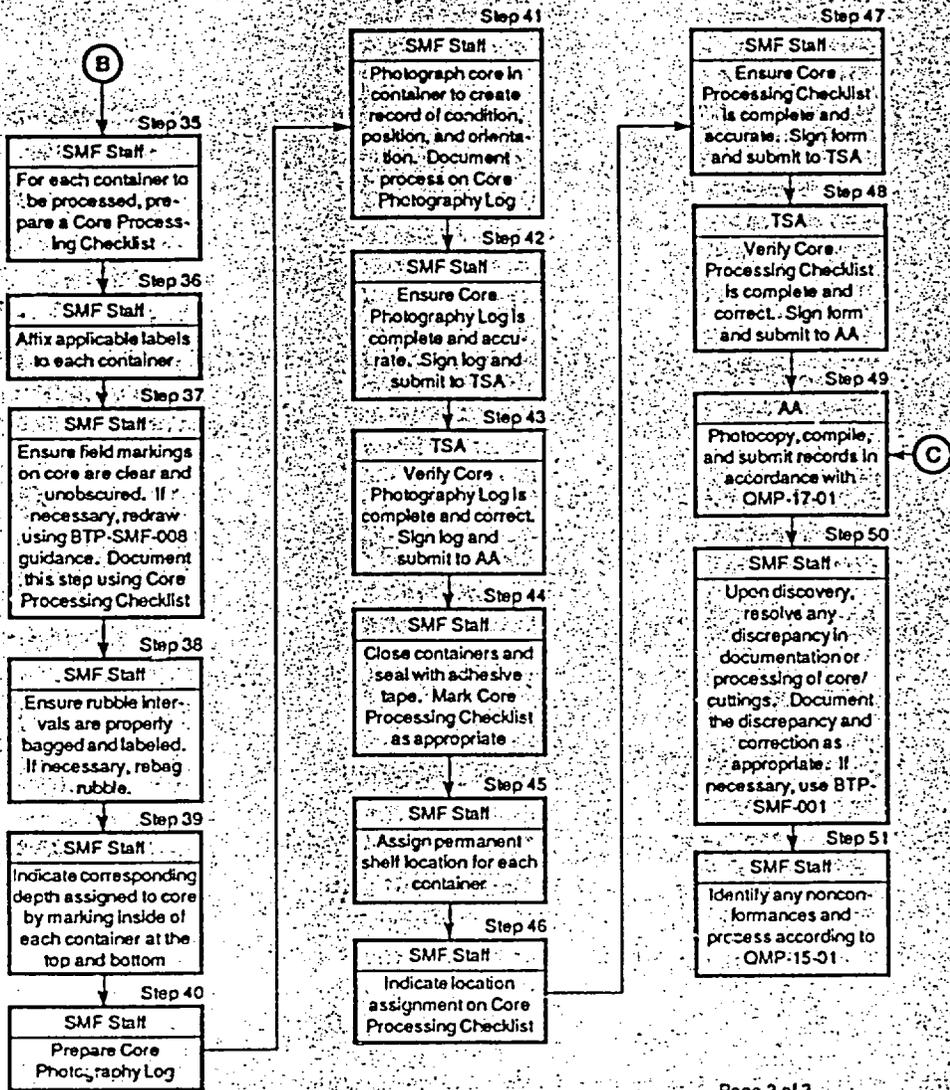


Figure 1 - BTP-SMF-002 Flowchart (continued)

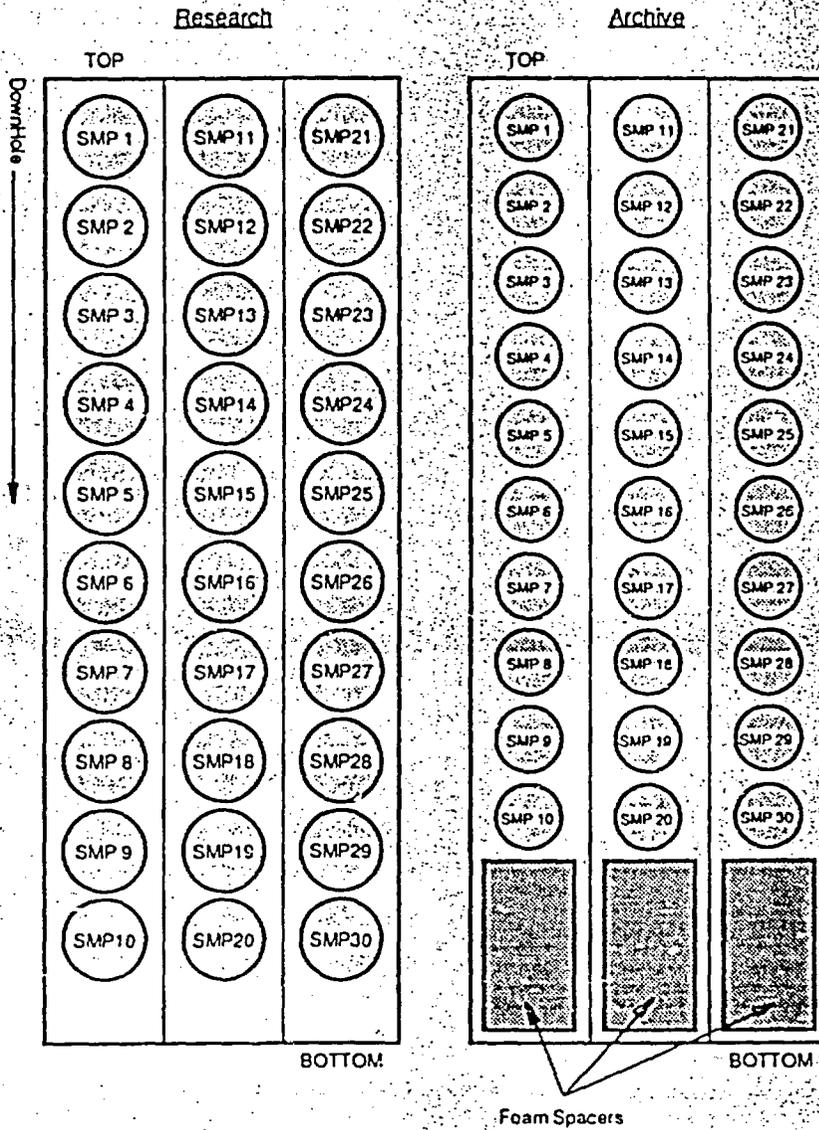
YMP-053-R0
7/12/91

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT PROCEDURE

Procedure No.: RTP-SMF-002
TRANSPORT, RECEIPT, ADMINISTRATION, AND PROCESSING OF
MOBILITY SAMPLES FOR THE SMF

Revision:
2

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CUTTINGS 0657-15 91

YMP-053-R0
7/12/91

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT PROCEDURE

Procedure No.: BTF-SMF-002
TRANSPORT, RECEIPT, ADMITTANCE, AND PROCESSING OF
BOREHOLE SAMPLES FOR THE SMF

Revision

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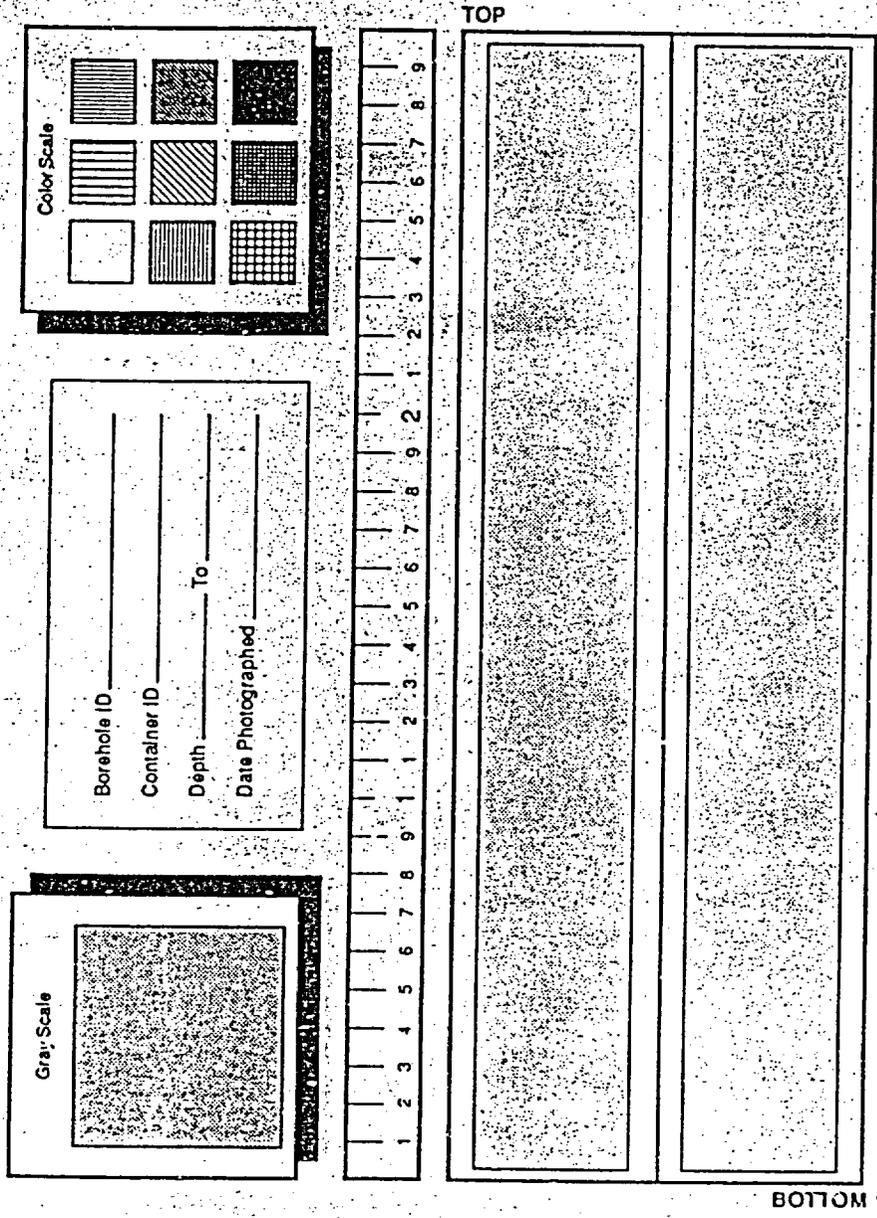


Figure 3 - Sample Container Arrangement for Program

DOCUMENT REVIEW SHEET

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M-QA-041
12/87

Document Originator T-HASS Sample Management Division
 Document No. BIP-SMF-004 Rev. No. 0 Date 11/8/88
 Document Title Physical Processing + Storage of Yucca
Mountain Project core + cuttings
 Name of Reviewer S. R. [Signature]
 Comments Required By (Date) 11/18/88
 Dispute Correspondence N/A
 Signature of Reviewer [Signature] Date 12/8/88

TYPE OF REVIEW REQUIRED

- Management* Quality Assurance
 Technical** Regulatory*
- *Regulatory & Management Reviewers Indicate Preference for a
 1) Peer Review: Yes No
 2) Technical Review: Yes No
- **Technical Reviewers Indicate Preference for a
 Peer Review: Yes No

REVIEWERS COMMENTS			RESOLUTION			REVIEWERS DISPOSITION FOR MAJOR COMMENTS	
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
		<i>no comments</i>	<input checked="" type="checkbox"/>				
			<i>PS</i>				
			<i>2/23/89</i>				

3000-22-9006-YMM



DOCUMENT REVIEW SHEET

page 2 of 1

N-QA-041
12/87

Document Originator T-HASS Sample Management Division
 Document No. BTP-SMF-004 Rev. No. 0 Date 11/8/88
 Document Title Physical Processing + Storage of Yellow
Mound-SN Project core + cuttings
 Name of Reviewer J. Thayer
 Comments Required By (Date) 11/18/88
 Dispute Correspondance N/A
 Signature of Reviewer Jack Keffler for John Thayer Date 11/16/88

TYPE OF REVIEW REQUIRED

- Management* Quality Assurance
 Technical** Regulatory*
- *Regulatory & Management Reviewers Indicate Preference for a
 1) Peer Review: Yes No
 2) Technical Review: Yes No
- **Technical Reviewers Indicate Preference for a
 Peer Review: Yes No

REVIEWERS COMMENTS			RESOLUTION			REVIEWERS DISPOSITION FOR MAJOR COMMENTS	
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
1. major	1	3.1 GA not part of SMF staff	DK 6/26/89		Removed from 3.1	JK 6/16/89	
2 editorial	2	3.5 line 3 one of which	DK 6/26/89		added "of" RD 2/21/89	JK 6/16/89	
3 minor	2	3.7 line 2 what is a Remnant?	DK 6/26/89		added definition of remnant RD 2/21/89	JK 6/16/89	
4 editorial	4	5.2.1 line 1 we SMF 003 drop SMF 003	DK 6/26/89		Renumbered section RD 2/21/89	JK 6/16/89	
5	12	reference SMF 008 chip JK 6/16/89					

DOCUMENT REVIEW SHEET

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N-QA-041
12/87

Document Originator TWASS Sample Management Division
 Document No. RTP-SMF-004 Rev. No. 0 Date 11/8/88
 Document Title Physical Processing + Storage of Yucca
Mountain Project core + cuttings
 Name of Reviewer J. Therien
 Comments Required By (Date) 11/18/88
 Dispute Correspondence N/A
 Signature of Reviewer Jack [unclear] for [unclear] Date 11/16/88

TYPE OF REVIEW REQUIRED

Management* Quality Assurance
 Technical** Regulatory*

*Regulatory & Management Reviewers Indicate Preference for a

1) Peer Review: Yes No
 2) Technical Review: Yes No

**Technical Reviewers Indicate Preference for a
 Peer Review: Yes No

REVIEWERS COMMENTS

RESOLUTION

REVIEWERS DISPOSITION FOR MAJOR COMMENTS

COMMENT NO & TYPE	PAGE NO.	COMMENTS	RESOLUTION			REVIEWERS DISPOSITION FOR MAJOR COMMENTS	
			ACCEPT	REJECT	REASONING	ACCEPT	REJECT
1 major	1	3.1 YA not part of SMF staff					
2 distorted	2	3.5 line 3 one of which					
3 minor	2	3.7 line 2 what is a Remnant?					
4 distorted	4	5.2.1 line 1 we smf 003 drop smf 003					
5	10	Reference RTP-SMF-008 ship JK 6/16/88					

1 2 7 4 2 3 1 7 7

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DOCUMENT REVIEW CONTINUATION SHEET

N-OA-0
12/87



BTP-SMF-004

Document Title Physical Processing and Storage of Yucca Note Project Core and Cuttings

Name of Reviewer UEL S CLARSON 2-6-89

REVIEWERS COMMENTS		RESOLUTION			REVIEWERS DISPOSITION, FC MAJOR COMMENT		
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
3	3	A.S. Identify REECO transect and laborer.	PPS 4/14/89		Changed per comment RSD 2/24/89	UEL 4-24-89	
	3	5.1 line 2 : (1) to prepare an archival split for future reference, ... Section should state that only the 3.5 inch and larger core will be split 1/3-2/3. The 2.5 in core will NOT be split.	PPS 4/20/89		Changed per comment RSD 2/21/89	UEL 5-6-89	
4	3	line 1 replace "which can be" with "are"	PPS 4/26/89		Changed per comment RSD 2/21/89	UEL 5-6-89	
5	3	Replace "At the discretion of the SOC" with "After recommendations by the SOC and approval by the PM."	PPS 4/24/89		Changed per comment PM replaced by Dr.-RSED RSD 2/21/89	UEL 5-6-89	

DOCUMENT REVIEW CONTINUATION SHEET

N-0A-041
12/87

Document Title BTP-SMF-004 Physical Processing and Storage of Yucca Mountain Project Ore and Cuttings

Name of Reviewer UEC & (KAWITA) 2-6-89

REVIEWER'S COMMENTS		RESOLUTION			REVIEWER'S DISPOSITION FOR MAJOR COMMENTS		
COMMENT NO & TYPE	PAGE NO	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
6	4	5.2.1 This section should include the option for storage of the large diameter wire without the 1/3-2/3 mandatory split. Should consider storage of whole ore and make the 1/3-2/3 split only when a sample is requested.		<p>REJECT</p> <p>2/16/89</p>	<p>PI's can reserve any amount of whole core (with authorization). Core will be stored whole. Boxing logistics make it impossible to split small quantities of core at different times. hoo</p> <p>2/21/89</p>	<p>ACCEPT</p> <p>2/16/89</p>	
7	4	5.2.2 Should probably specify marking pens and paint(?) for control purposes.	<p>ACCEPT</p> <p>2/16/89</p>		<p>Specified marking pens hoo</p> <p>2/21/89</p>	<p>ACCEPT</p> <p>2/16/89</p>	
8	5	5.2.4 "blue", How well does the photograph using the proposed system?			<p>Test will be performed when photo clearance approved. hoo</p> <p>2/24/89</p>	<p>ACCEPT</p> <p>2/16/89</p>	

DOCUMENT REVIEW CONTINUATION SHEET

N-0A-041
12/87

Document Title BTP-SMF-004 Physical Processing and Storage of Yucca Mtn. Project Core and Castings
 Name of Reviewer UCL. S. (LAWTON) 2-6-89

REVIEWER'S COMMENTS		RESOLUTION			REVIEWER'S DISPOSITION FOR MAJOR COMMENTS		
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
9	6	5.2.7 Processors should be made for SMF to take photos for small runs or to delay Pan Am photography until such time some volume has accumulated.	DOA 1/16/89		Field staff should take photos because of small quantity to be shot and irregular timing of photos. Pan Am photography might work 1 or 2 hours in 2.4 hr period. In SMF core could be accumulated for photos by Pan Am. Specimens should be shot by SMF staff.	DOA 2/2/89	
10	6	5.2.7.1.1 - add "scale", change "color control bar" to "grey scale and color scale."	DOA 1/16/89		Changed per comment. DOA 2/2/89	DOA 2/2/89	
11	7	5.2.7.3 Begging ... Do we really want to seal? How do we control the growth of "critters" on/in the core? - line two ... paint? What is painted and with what type paint?	DOA 1/16/89		Core will be bagged at request of SOC. DOA 2/2/89 Paint changed to marker. DOA 2/2/89	DOA 2/2/89	



DOCUMENT REVIEW CONTINUATION SHEET

N-0A-041
12/87

BTP-SMF-004

Document Title Physical Processing and Storage of Geoscan Mtn. Project One and Patterns

Name of Reviewer UFL S (LINA) TDA 2-6-89

REVIEWERS COMMENTS		RESOLUTION		REVIEWERS DISPOSITION FOR MAJOR COMMENTS			
COMMENT NO & TYPE	PAGE NO	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
12	8	5.3.5 Where do the 50 and 200 grams values come from? Some P.I.'s have identified the need for larger weights. How do we accommodate these needs?		REJECT DJA 2/24/89	120 2/1/89 Researcher should remain @ 200g. Extra cuttings to be collected at request of PI. DJA 2/21/89	ACCEPT DJA 2/24/89	
13	8	5.3.6 Boxing - Section is confusing & sounds like you are keeping cuttings in the same box with the core. Eweil!	ACCEPT DJA 2/24/89		Rewritten per comment. 120 2/21/89	ACCEPT DJA 2/24/89	
14	14	Figure 5. Do we need a column for Photo numbers?	ACCEPT DJA 2/24/89		Changed per comment. 120 2/21/89	ACCEPT DJA 2/24/89	
15	15	make gray card and color card agree with words in 5.2.7.1.1			Changed per comment 120 2/21/89	ACCEPT DJA 2/24/89	

DOCUMENT REVIEW CONTINUATION SHEET

N-0A-04
12/87

BTP-SMF-004

Document Title Physical Processing and Storage of Glacier Mtn. Project Core and Castings

Name of Reviewer UEL S. CLANTON 2-6-89

REVIEWER'S COMMENTS		RESOLUTION			REVIEWER'S DISPOSITION FOR MAJOR COMMENT		
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
16	16	Correct Label on "Research" Vial.	Res 6/26/89		Changed per comment Red 2/21/88	Res 5/6/89	

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DOCUMENT REVIEW SHEET

Page 1 of 3

N-QA-04
12/87

Document Originator _____
 Document No. BTP-SMF-004 Rev. No. Draft Date 11-1-88 * see first comment
 Document Title BTP-SMF-004 PHYSICAL PROCESSING AND STORAGE OF YULCA MOUNTAIN PROJECT CORE AND CUTTINGS
 Name of Reviewer DIANE ST. HUGHES, YMPO, R+SD FOR CLANTON
 Comments Required By (Date) 11-18-88
 Dispute Correspondence N/A
 Signature of Reviewer [Signature] Date 1-16-89

TYPE OF REVIEW REQUIRED

- Management* Quality Assurance
 Technical** Regulatory*

*Regulatory & Management Reviewers Indicate Preference for a

- 1) Peer Review: Yes No
 2) Technical Review: Yes No

**Technical Reviewers Indicate Preference for a Peer Review: Yes No

REVIEWERS COMMENTS		RESOLUTION			REVIEWERS DISPOSITION FOR MAJOR COMMENT		
COMMENT NO. & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
① Major!	-	Two title pages were supplied, one dated October 1988, one November 1988. Fix in final draft.	<input checked="" type="checkbox"/>		Date changed. <u>NOV 2/24/89</u>	<input checked="" type="checkbox"/>	
② Major	1	Section 2.0 Section 5.2.5.2 address rubble samples from SMF also. Add to this section (2.c)		<input checked="" type="checkbox"/>	Rubble is just another form of core. Not a separate type of sample. <u>NOV 2/21/89</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
③ Major	1	Section 3.1 Revise definitions of SMF and SMD in accordance with those in AP 6.30. Draft of Dec. 28, 1988	<input checked="" type="checkbox"/>		Definitions revised. <u>NOV 2/21/89</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 1 7 4 2 3 1 3 3
 DOCUMENT REVIEW CONTINUATION SHEET Page 2 of 3

N-OA-041
 12/87

Document Title BTR-SMF-004 PHYSICAL PROCESSING AND STORAGE OF YUCCA MOUNTAIN PROJECT CORE AND CUTTINGS

Name of Reviewer William T. HULTES, YNPO, RESED, WTH 1-16-89

REVIEWERS COMMENTS		RESOLUTION			REVIEWERS DISPOSITION FOR MAJOR COMMENTS		
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
④ Major	2	Section 3.6 Need definition of "whole core" - Suggest something like "Sample that constitutes the entire core sample recovered for the depth interval represented"	WTH 3-15-89		Checked definition RCD 2/24/89	WTH 3-15-89	
⑤ editorial	2	Section 3.7 insert "organization" after "participated"	WTH 3-15-89		Changed per comment RCD 2/21/89	WTH 3-15-89	
⑥ Major	2,6	Section 4.1 and Section 5.2.7.1.2 These must be criteria for authorization to monitor core. SOC approved if nothing else.	WTH 3-15-89		Curator will approve ^{disapproval} after consultation w/ SOC (Chid-SED) RCD 2/24/89	WTH 3-15-89	
⑦ edit.	3	Section 5.1, line 5 Insert after "during", "site characterization activities of"	WTH 3-15-89		Changed per comment RCD 2/21/89	WTH 3-15-89	
⑧ edit.	3	Section 5.1, last sentence needs rewording: "... may be photographed in addition to or instead of..."	WTH 3-15-89		Changed per comment RCD 2/21/89	WTH 3-15-89	
⑤ Major	4	Section 5.2.1, lines 5, 6, 7 line 5 - replace "samples" with "sample" line 6 - delete "BTR-SMF-3" documentation line 7 - insert after "second specimens" "remaining"	WTH 3-15-89		Changed per comment RCD 2/24/89	WTH 3-15-89	

1 1 7 1 2 3 1 1 4
 DOCUMENT REVIEW CONTINUATION SHEET Page 3 of 3

N-OA-041
 12/87

Document Title BTP-SMF-004 PHYSICAL PROCESSING AND STORAGE OF VULCAN MOUNTAIN PROTECT CORE AND CUTTINGS

Name of Reviewer WILLIAM T. HUGHES, YMPD, RSED *William T. Hughes 1-16-87*

REVIEWERS COMMENTS			RESOLUTION			REVIEWERS DISPOSITION FOR MAJOR COMMENTS	
COMMENT NO & TYPE	PAGE NO.	COMMENTS	ACCEPT	REJECT	REASONING	ACCEPT	REJECT
(11) Major	7	Section 5.2.7.3 Clarity reference to <u>painting</u> arching core sample!	<i>WTH</i> <i>3/15/89</i>		Changed from "painting" to "marking"	<i>WTH</i> <i>3-15-89</i>	
(12) edit.	5	Section 5.2.5.2, line 3 delete "d" in 'rubbled'	<i>WTH</i> <i>6/26/89</i>		Changed per comment <i>Rad</i> 2/21/89	<i>WTH</i> <i>3-15-89</i>	
(12) edit.	6, 7	Section 5.2.7.1.2, line 2 and 5.2.7.3 line 6 Append "er" to "shallow" i.e. "shallower and..."	<i>WTH</i> <i>6/26/89</i>		Changed per comment <i>Rad</i> 2/21/89	<i>WTH</i> <i>3-15-89</i>	
(13) suggestion	8	Section 5.3.5.1, with ^{with} 5.3.5.2 State minimum weight (as per availability) - i.e. "up to 50% of entire cuttings sample, not to exceed 50g" etc.	<i>WTH</i> <i>6/26/89</i>		Changed per comment <i>Rad</i> 2/21/89	<i>WTH</i> <i>3-15-89</i>	
(14) Sugg.	8	Section 5.3.6 State that cuttings will be held in "same size boxes" as used for <u>size</u> core samples rather than "in core boxes"	<i>WTH</i> <i>6/26/89</i>		Changed per comment <i>Rad</i> 2/21/89	<i>WTH</i> <i>3-15-89</i>	
(15) Sugg.	9	Section 5.6 Beel up to in BTP-SMF-p01			Changed per comment <i>Rad</i> 2/21/89	<i>WTH</i> <i>3-15-89</i>	
(16) Major	15	"Tot" misplaced in Figure 6	<i>WTH</i> <i>3/15/89</i>			<i>WTH</i> <i>3-15-89</i>	



DOCUMENT REVIEW SHEET

Page 1 of 1

N-QA-041
12/87

Document Originator T.E.M.S.S.
 Document No. DDP-SMP-004 Rev. No. 0 Date October 1988
 Document Title Physical Processing and Storage of
Yucca Mountain Parcel Core and Cuttings
 Name of Reviewer Karen Hatch / Jim Staller / L. Frawick
 Comments Required By (Date) _____
 Dispute Correspondence N/A
 Signature of Reviewer Jim Staller / L. Frawick Date 1/2/89

TYPE OF REVIEW REQUIRED

- Management* Quality Assurance
 Technical** Regulatory*

*Regulatory & Management Reviewers Indicate Preference for a

- 1) Peer Review: Yes No
 2) Technical Review: Yes No

**Technical Reviewers Indicate Preference for a Peer Review: Yes No

REVIEWERS COMMENTS

RESOLUTION

REVIEWERS DISPOSITION FOR MAJOR COMMENTS

COMMENT NO. & TYPE	PAGE NO	COMMENTS	RESOLUTION		REASONING	REVIEWERS DISPOSITION FOR MAJOR COMMENTS	
			ACCEPT	REJECT		ACCEPT	REJECT
1/11	6	5.2.7 Record management require two copies of any photo graphs.	ACCEPT DFK 6/26/89	REJECT	Changes # of copies from 1 to Two. NAD 2/21/89	ACCEPT JK 5/16/89	REJECT

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