BTP-SMF-002: REV1 DRAFT

TRANSPORT, RECEIPT, AND ADMITANCE FOR CURATION TO THE SAMPLE MANAGEMENT FACILITY OF BOREHOLE SAMPLES

NOTES

This "Information Copy" indicates changes made to BTP-SMF-002 Rev 0, (approved 7/7/89) as a result of experience gained processing prototype core from Utah. All changes have been italicized in this copy.

KEY:

(+) Means the preceding phrase has been added to the original
(-) Means the peceding phrase has been deleted from the original
(#) Means the peceding phrase has been changed from the original

Some explanations regarding changes have been included.

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BTP-SMF-002 REV 1

TRANSPORT, RECEIPT, AND ADMITTANCE FOR CURATION TO THE SAMPLE MANAGEMENT FACILITY OF BOREHOLE SAMPLES

1.0 PURPOSE AND SCOPE

This procedure describes the Yucca Mountain Project Office (Project Office) requirements and responsibilities for the transport of Yucca Mountain Project (Project) borehole samples from the field collection site to the Sample Management Facility (SMF), receipt from transport personnel, and admittance for curation.

2.0 APPLICABILITY

This procedure applies to the Sample Management (SM) staff and support personnel who perform activities related to transport, receipt, and admittance for curation of Project borehole samples from the field site to the SMF, including core, cuttings, fluids, and other geologic samples.

3.0 DEFINITIONS

3.1 Sample Management

SM of the Technical and Management Support Services (T&MSS) contractor is the organization responsible for the documentation, storage, and control of selected samples and sample remnants collected and dispersed for analysis and evaluation by participants. SM includes the SMF and Field Operations (FO). 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 users. 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. Examples of samples covered by this procedure may include core, cuttings, fluids, and other geologic samples collected at Project borehole 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.

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 Curatorial Sample Inventory and Tracking System (CSITS)

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

3.7 Specimens

Specimens are selected portions of a borehole sample removed from that sample for detailed study. (+)

4.0 RESPONSIBILITIES

4.1 Field Operations Geologist

The FO Geologist shall supervise the activities applicable to the shipment of samples from the field collection site to the SMF and shall record information applicable to those shipments.

4.2 Sample Management Facility Geotechnician

The SMF Geotechnician shall inspect and accept custody of samples, sample containers, and associated field documentation for admittance for curation upon their arrival at the SMF.

4.3 Field Operations Administrative Assistant

The FO Administrative Assistant shall ensure that quality assurance (QA) records resulting from the implementation of this procedure are turned over to the T&MSS Local Records Center (LRC).

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

REECo staff shall place samples in temporary storage if applicable, load the samples onto the transport vehicle, and operate all preparation and loading equipment, including banders and fork lifts.

4.5 Technical Staff Assistant (TS)

The TS Assistant shall sign applicable QA records attesting that the SMF records are correctly completed and conform to QA guidelines.

5.0 PROCEDURES

5.1 Introduction

Borehole samples collected and subsequently stored at Project field sites will be transferred to the SMF for processing and storage. This procedure describes the methods necessary to ensure that samples are correctly packaged and shipped from Project borehole sites such that the samples, containers, and

associated documentation arrive at the SMF in acceptable condition. However, clerical and handling errors and discrepancies may occur in the field and during transport preparation, including unsuitable packaging of samples, improper or missing documentation or improper annotation of samples or containers. This procedure is designed to minimize the occurrence of these discrepancies and errors and to recognize and correct these errors before they become part of the permanent record.

5.2 Preparation of Samples and Documentation for Transmittal

5.2.1 All activities associated with transmittal of borehole samples and documentation from the drill site to the SMF will be recorded on the Field Container Summary and Transmittal Form ([transmittal form] Figure 1). Transmittal of borehole samples and documents from the site to the SMF will be performed at least once every 24 hours during borehole sample recovery periods. Any deviation from this schedule shall be approved by the FO Manager. All completed original records will be photocopied on paper marked "COPY" prior to transmittal. The photocopy will be retained at the borehole site, and the original shall be transferred to the SMF.
The transmittal form contains a header and information rows. The header includes:

Shipment Label - A shipment identification label will be affixed to the transmittal form. If the transmittal form consists of two or more pages, the shipment label will be affixed to the first page, and the shipment ID number will be written on the remaining pages. (#) **--Removed references to SHP bar code.**

Sample Custody Changes - Signatures, dates, and times of sample transfer from the field site to the transport and from the transport to the SMF will be entered here. At the field site, the FO Geologist will release custody and REECo staff will receive custody; at the SMF, REECo staff will release custody and SMF staff will accept custody.

Checked By - The TS Assistant shall sign here and enter the date and time after determining that the information on the transmittal form is completely and accurately entered.

Borehole identification (ID) - This is the unique alphanumeric designation assigned to each borehole.

Pagination - The sequential number for each page will be placed in the first blank. The total number of pages for the *borehole shipment* (#) will be placed in the second blank after the borehole has been completely logged.

Shipment Container Total - This is the total number of containers being transported. *The information will be entered in the appropriate space on each page of the transmittal form.* (+)

Field Forms - Checks will be used by the FO staff to indicate that original applicable field forms necessary for confirmation verification were shipped, and SMF staff will similarly indicate that the forms were received.

The information rows include:

Sample Type - The type of sample is designated here; e.g., core, cuttings, *fluid,* (#) etc.

Field Container Identification (#) Number - The field container *ID* (#) number is copied from the *identification number* (#) on the container label.

Rec'd - Upon receipt of the shipment at the SMF, SMF staff will indicate receipt of each

individual container here.

Status Code - Status codes are:

NAT: Not Attempted - If the sample type in the container is core, this would represent cuttings as they would occur during spot coring.
REC: Recovered.
UNREC: Unrecovered - This represents an interval of samples that was drilled but never recovered from the borehole.
WCR: Whole core removed - Section 5.3.3 describes the steps associated with this activity.
LOST: Lost - This is sample that was recovered but was subsequently lost.
DEST: Destroyed - Though this refers primarily to the condition of specimens following laboratory analysis, it is possible that catastrophic events at the drill site might destroy samples.
CONS: Consumed - This is a code almost exclusively reserved for specimens.

Container or Sample Interval - The container interval will be entered here in the same row as the *field container ID* (#) number.

5.2.2 Dunnage will consist of 4 in thick (minimum) foam rubber pads to protect the borehole samples from mechanical shock during transport. A foam rubber pad will be laid on the floor against the front wall of the transport vehicle and the first row of containers laid on top of the pad. Another pad will be placed on top of this row and the second row of containers will be stacked on the second pad. Containers will be stacked a maximum of two rows high. The next two rows will be stacked in the same manner and immediately adjacent to the first two rows.

5.2.3 Subsequent rows will be stacked immediately adjacent to the first two rows as described above; this will continue until all containers have been loaded or maximum vehicle capacity has been reached. If the load does not completely fill the length of the vehicle, a backing board will be secured against the load to create an integral package. In addition, tie-downs or other methods will be used to prevent upward displacement of containers during transport.

5.2.4 When an entire load has been placed on the vehicle and the total number of containers and the intervals of the samples within those containers have been agreed upon by the FO staff, the REECo staff, and the Teamster, the transmittal form will be signed and dated in the "Field Site to Transport" section by the responsible personnel. The FO Geologist shall then check on the transmittal form to indicate that the applicable field forms are being sent with the shipment. *An identification* (#) label representing the entire shipment will be placed on the transmittal form, as described in Section 5.2.1. If data communications are available at the drill site, information from the transmittal form may be entered into CSITS; otherwise, this will be done after arrival of the shipment at the SMF and prior to verification (Project Office Branch Technical Procedure [BTP] BTP-SMF-003).

5.3 Transport

All applicable Nevada Test Site transport restrictions described in the REECo Safety Manual shall be observed by transport personnel. Transport personnel shall be aware of emergency procedures.

5.4 Receipt of Samples and Documentation

5.4.1 Upon arrival at the SMF, the SMF Geotechnician shall check that field documents completed during field logging as described in BTP-SMF-008 and applicable to that shipment are present and will record receipt of the field documents on the transmittal form. The documents are the Field Photographic Log, the Structural Log, the Lithologic Log, and other applicable forms.

5.4.2 REECo staff will unload the vehicle and place the containers in an available receiving area at the SMF. As the containers are unloaded from the vehicle, the SMF Geotechnician will check that the sample type and *field container ID* (#) numbers correspond to the transmittal form. If the information is correct, a check (√) is placed in the column next to the *field container ID* (#) number.

5.4.3 After all the containers have been unloaded, and if the total number of containers agrees with that on the transmittal form, the "Transport to SMF" section shall be signed. REECo staff shall sign the "Person Releasing Custody" and the SMF Geotechnician shall sign the "Person Accepting Custody." If the number of containers does not agree with that on the transmittal form, all persons signing custody release blocks shall be contacted and the problem resolved. The containers will then be stacked sequentially on pallets or placed directly on tables in the working area in preparation for admittance for curation.

5.5 Admittance of Samples for Curation

5.5.1 The process followed for the admittance of samples for curation includes the review of field handling, loading, and transport documentation in order to verify that all records are complete and traceability has been maintained. Container labeling, photography, packaging, orientation, reconstruction of the core, depth notation, and marker notation will be checked.

5.5.2 After a sample shipment has been transferred to the SMF, information from the transmittal form will be entered into CSITS if it has not already been done in the field. The Borehole Sample Confirmation Checklist ([checklist] Figure 2) will be generated from this information. The checklist header contains the batch name and ID, the Project and SMF borehole IDs, and the sample type. The lower section of the checklist contains information from CSITS and spaces to check that information.

5.6 Confirmation Procedure

Sample containers will be placed in sequential order on the examination table with the container lids propped up behind the container bottoms. Using the checklist, the SMF Geotechnician will begin the sample admittance procedures for each box. If the information is correct, a check (√) is entered in the appropriate columns, as described:

Container - Depth notations on the core or on the cuttings bags will be scrutinized to ensure that they are marked and sequential and that no depths have been skipped or miswritten (e.g., 109-110-112-113-141-115, etc.). Core will be measured with a steel tape to the nearest 0.1 ft; any differences greater than 0.1 ft will constitute a discrepancy. The *container ID number* (#) (specifier) and the uppermost and lowermost depths on the core or on the cuttings bags will be compared to the information from the checklist and to all container labeling locations.

Labeling - If the depth notations on the samples correspond to those on the checklist and if that information matches all the labels, checks will be placed in the appropriate columns.

Orientation (core only) - The general reconstruction of core and the alignment of the orientation stripes will be checked. If the reconstruction of a break is incorrect, the core will be rotated to fit properly. The orientation stripes will then be misaligned for a section of core. To correct this misalignment, the remaining core will be rotated from the reoriented section to the nearest nonorientation symbol (*, ø), and the orientation stripes will be annotated. These new orientation stripes will be spaced differently to differentiate them from the original field markings.

Packaging - Determine if polystyrene foam cradles, cardboard liners, cardboard dividers, or other

appropriate packaging materials are in place.

Photograph (core only) - The instant print will be removed from the document cache affixed to the inside of the container lid (BTP-SMF-008) and compared to the interval of core in the container. The condition of the core should correspond to that in the photograph.

Sample - Determine if intervals of core or cuttings Not Attempted (NAT), Unrecovered (UNREC), or Whole Core Removed (WCR) are indicated on a marker placed appropriately in the container. Check that the *Specimen ID* (#) number for the marker matches the *Specimen ID* (#) number on the Whole Core Specimen Field Removal Checklist and Contract (BTP-SMF-008). Check that these status codes and their intervals match the information written on all container labels.

Completed - The SMF Geotechnician will initial and date admittance of the container after performing all the above steps. *The TS Assistant will review the form, and sign and date it when satisfied that the included information is correct.* (+)

5.7 Resolution of Discrepancies

5.7.1 If a discrepancy in depth notation is discovered during completion of the checklist, the correct depth notations will be marked on the core with a green temporary marker, continuing as far downhole as necessary to correct the problem. If the error is such that the problem may be compounded downhole on undrilled core or cuttings, appropriate field personnel will immediately be notified. It may be necessary to follow the core or bags through several containers to entirely resolve a discrepancy. This change, and changes due to discrepancies in box labeling, will be made on all labels by marking through the incorrect interval with a single line, substituting the correct interval, and initialing this action. The core boxes will then indicate a different interval than on the original Borehole Sample Confirmation Checklist. The newly corrected box intervals will be entered into CSITS, and the information will be used to generate an updated Borehole Sample Confirmation Checklist. The modified entries will be checked, and this process will continue until all discrepancies are resolved.

5.7.2 If a discrepancy other than incorrect depth notation is identified subsequent to the completion of the checklist, the incorrect information shall be crossed through, corrected on the original document, and initialed and dated by the individual making 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 that fully describes the correction.

5.8 Temporary Storage

After confirmation, (+) the containers will *then* (-) be placed on pallets in the SMF until verification of field logging and documentation (Project Office Branch Technical Procedure BTP-SMF-003) commences.

5.9 Nonconformance Reporting

A nonconformance exists when there is a deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate. The intent of non-conformance 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 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.

6.0 REFERENCES

BTP-SMF-003, Verification of Field Logging and Documentation of Core and Cuttings.

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

QMP-15-01, Rev. 1, Control of Nonconformances.

REECo Safety Manual.

7.0 FIGURES

Figure 1 - Field Container Summary and Transmittal Form.
Figure 2 - Example of CSITS-generated Borehole Sample Confirmation Checklist.

8.0 QA RECORDS

The FO Administrative Assistant shall ensure that the following QA records resulting from implementation of this procedure are turned over to the T&MSS LRC at least every 10 business days. Copies of the QA records will be retained by the SMF and stored at the SMF Documents Center.

1. Field Container Summary and Transmittal Form.
2. Borehole Sample Confirmation Checklist.