II

YUCCA MOUNTAIN PROJECT OFFICE
DOCUMENT APPROVAL SHEET

Y-AD-002
1/22/91

Title BRANCH TECHNICAL PROCEDURE: GAMMA-RAY LOGGING OF YUCCA MOUNTAIN PROJECT CORE

NO. BTP-SHF-010
[X] Q
[ ] Non Q

APPROVAL

PROJECT MANAGER: _____ Signature _____ 3/5/91 Date

DIRECTOR OF QUALITY ASSURANCE: _____ Signature _____ 3/1/91 Date

Uel S. Clanton
(OTHER, AS REQUIRED)
YMP Branch Chief
_____ Signature _____ Feb. 28 1991 Date

REVISION 0 EFFECTIVE DATE: ~~3/20/91~~ DOE 3/7/91 3/14/91

REVISIONS

	INITIAL AND DATE			
	REVISION 1	REVISION 2	REVISION 3	REVISION 4
PROJECT MANAGER:				
DIRECTOR, QA:				
(OTHER, AS REQUIRED)				
EFFECTIVE DATE:				

TRAINING REQUIRED ☐ YES ☒ N/A NUMBER OF DAYS REQUIRED FOR TRAINING N/A

COMMENTS:
TRAINING WILL BE AFFORDED WHEN ASSIGNED BY MANAGEMENT

_____ TRAINING OFFICER/TRAINING MANAGER 3/6/91 DATE

1.0 PURPOSE AND SCOPE

The purpose of this procedure is to produce a gamma-ray log of the core stored at the Yucca Mountain Site Characterization Project (Project) Sample Management Facility (SMF), which can be compared to the gamma-ray logs run in the borehole.

2.0 APPLICABILITY

This procedure applies to existing Project core that was drilled prior to the implementation of the Yucca Mountain Site Characterization Project Office (Project Office) Quality Assurance (QA) Program Plan (YMP/88-9) and any core drilled subsequent to implementation of YMP/88-9 has subsequently been replaced by Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Program Description Document. This procedure applies exclusively to those Sample Management (SM) staff assisting in the implementation of this procedure as directed by the SMF Curator.

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 SAMPLE MANAGEMENT

SM of the Technical and Management Support Services (T&MSS) contractor is the organization responsible for reprocessing activities. SM staff consists of management and operations personnel who ensure that SM operations and documentation satisfy applicable regulatory requirements. Reynolds Electrical and Engineering Co., Inc., shall assist the SMF staff in a craft support role as needed.

3.2 SAMPLE MANAGEMENT FACILITY

The SMF consists of a physical facility and equipment designed to effectively process and preserve geologic and other samples. The SMF is operated by T&MSS contractor personnel for the Project. The SMF Curator administers daily operations and activities at the SMF, and the SMF Geologist directs and performs daily processing activities, with support from the SMF Geotechnician. Core will be gamma scanned in a restricted area of the SMF.

3.3 EXISTING (UNQUALIFIED) SAMPLES

Existing (unqualified) samples are those cores that were collected for the Project prior to implementation of the YMP/88-9 and applicable, approved implementing procedures. Samples will be considered unqualified until they

have been qualified by the process described in Project Administrative Procedure (AP)-5.9Q. Data from qualified samples may be used as primary data in reports supporting licensing documents.

3.4 LOST CORE BLOCK

A lost core block indicates an interval of core that was not recovered.

3.5 CORE INFORMATION PACKAGE

A core information package is prepared by SMF staff during reprocessing. These packages may include, but are not limited to, lithologic logs, geophysical logs, oriented and wax core logs, geolograph records, Participant sample collection and disposition records, and core gamma scanner logs. Also included are the QA records generated by this procedure.

3.6 CORE GAMMA-RAY SCANNER

A core gamma-ray scanner is a machine that detects and records the total gamma-rays emitted by the minerals in the core.

3.7 CORE GAMMA-RAY LOG

The gamma-ray log is a plot of the total gamma counts versus the depth of the core.

3.8 DISCREPANCY

A discrepancy exists when there is incorrect information that significantly affects documentation or notation and that is beyond the scope of the immediate activity or form being completed.

3.9 NONCONFORMANCE

A nonconformance exists when there is a deficiency in characteristics, documentation, or procedures that renders the quality of an item or activity unacceptable or indeterminate. The intent of nonconformance reporting is to ensure the resolution of the conditions not meeting the requirements or to ensure that undefined conditions are defined.

4.0 RESPONSIBLE PARTIES

The SMF staff is responsible for the implementation of this procedure as defined and outlined in Section 5.0. The support staff to the SMF Curator includes the following individuals:

1. Chief, Site Investigation Branch (SIB)
2. SMF Geologist
3. SMF Geotechnician
4. SMF Technical Staff Assistant
5. SMF Administrative Assistant

5.0 PROCEDURE

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

RESPONSIBLE PARTY	STEPS	PROCEDURE
Chief, SIB	1.	Notify the SMF Curator of request to scan an interval of core.
SMF Curator	2.	Notify the SMF staff which cores will be gamma-scanned.
SMF Staff	3.	Place the core into the polyvinyl chloride (PVC) half-tube, ensuring that fit is maintained.
	NOTE:	The half-tube should be marked at one end to indicate top depth.
	NOTE:	In the event of core loss intervals, specimens, or other intervals of removed or missing core, measure the correct amount of space to the beginning of the next piece of core.
		a. Mark the location of the end of the box and each row.
		b. Repeat Step 3 as required until desired interval of core has been scanned.
	4.	Standardize the gamma scanner at the beginning and end of each day or when boreholes are changed.

RESPONSIBLE PARTY	STEPS	PROCEDURE
SMF Staff		a. Start the gamma scanner and run with nothing in the detector for five to ten minutes. This is the background count.
		b. Place a rock specimen into the gamma scanner using the bracket to hold the rock stationary over the detector and record for five to ten minutes. The rock used should produce a total count approximately two times greater than background.
	5.	Perform gamma scan of core using operating instructions by the manufacturer.
	NOTE:	The system is menu driven. However, a hard copy of the operating instructions is kept with the gamma scanner. The equipment used to gamma scan the core may include, but is not limited to, a Harbert Engineering single channel Core Gamma-Ray Scanner.
	6.	Return core to box as it exits the gamma scanner.
	7.	Return core to storage location and continue processing core until interval is complete.
	8.	Submit a floppy disk with gamma scanner files and a hard copy of the information (including log printout and data file) to the Administrative Assistant when the borehole or requested interval is complete.
	NOTE:	SMF staff completing scan should initial and date hard copy of the log and the data file.
	9.	Identify a discrepancy that results from the actions of the SMF staff using this procedure.

RESPONSIBLE PARTY	STEPS	PROCEDURE
	10.	Is the discrepancy discovered after an activity or form has been completed?
SMF Staff		a. If yes, handle according to BTP-SMF-001.
		b. If no, go to next step.
	11.	Cross through the error, correct the original document, and initial and date the correction.
	NOTE:	If additional explanation is required, assign a number to the correction and attach a sheet to the original record describing the correction performed.
	12.	Identify any nonconformance to this procedure, process in accordance with QMP-15-01.
	NOTE:	This is applicable for nonconformances noted during or after activities associated with this procedure.
Administrative Assistant	13.	Submit records to Local Records Center (LRC) according to QMP-17-01.
	14.	Submit copy of records to the Chief, SIB.

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

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

6.2 INTERFACE DOCUMENTS

Project Glossary, YMP/89-15

AP-5.9Q, Qualification of Existing Data or Data Interpretation Not Developed under the Nevada Nuclear Waste Storage Investigation QA Plan

QMP-15-01, Control of Nonconformances

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

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

BTP-SMF-004, Physical Processing and Storage of Core and Cuttings at the Sample Management Facility

Harbert Engineering Operations Manual, Instructions for the Core Gamma-Ray Logger

7.0 FIGURES AND ATTACHMENTS

Figure 1, Gamma-Ray Logging Flowchart

8.0 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 every 10 business days:

Core Gamma-Ray Log

A copy of the QA records will be retained by the SMF and stored at the SMF Documents Center.

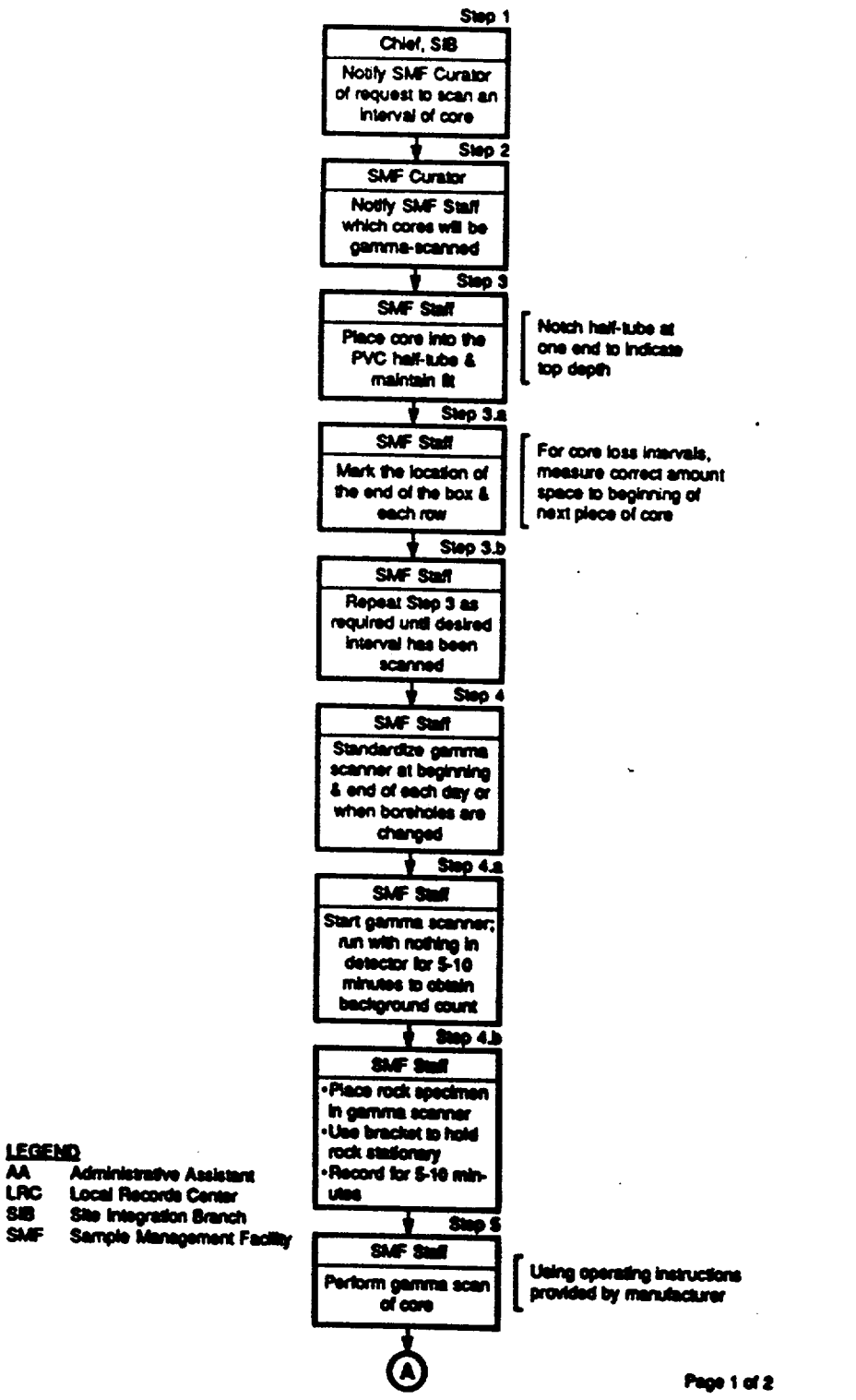

Figure 1 - BTP-SMF-010 Flowchart

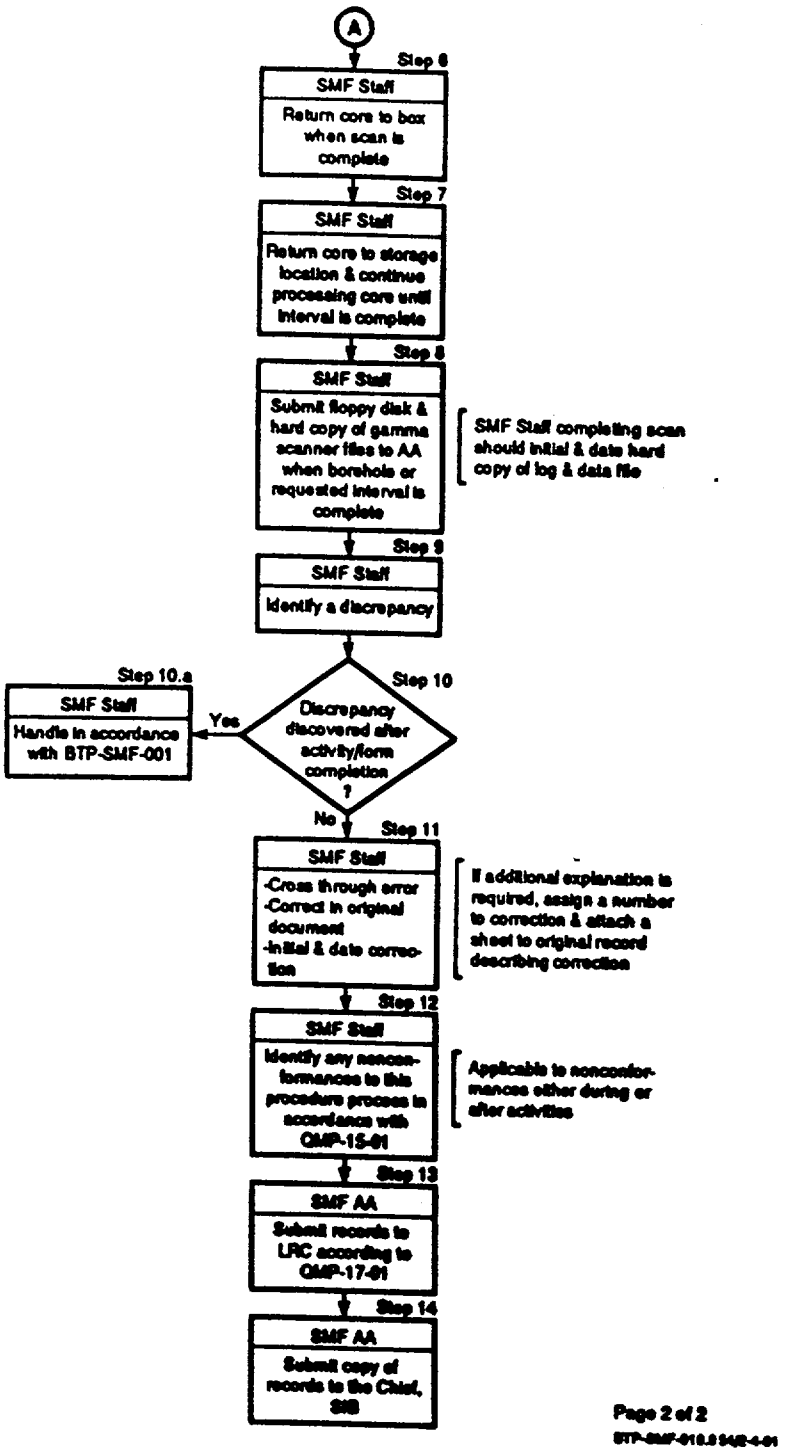

Figure 1 - BTP-SMF-010 Flowchart (continued)