Documentation of Periodic Review

Document Number: EP-DIR-SOP-20020, RQ[NB] Revision: 0

Title: Physical Processing, Storage, and Examination of Packaged Material at the Fuel Supp

Due Date for Review: 3/25/15 Responsible Line Manager Craig Douglass Z#: 216051

Editorial Review and Validation are suggested methods of evaluation, but are not required.

Evaluation	YES	NO	N/A
1. Editorial Review performed?	☒	☐	☐
2. Validation performed?	☐	☒	☐

Evaluation Results	YES	NO	N/A
3. Is the document, in its entirety, still needed for operations at the facility? (If No, skip questions 4 – 7 and select "Cancellation" or "Revision."	☒	☐	☐
4. Is the document technically accurate?	☐	☒	☐
5. Is the document usable in its current form?	☒	☐	☐
6. Are the references current and complete? (If "No," a Minor revision should be considered)	☐	☒	☐
7. Does the document satisfy the format requirements?	☐	☒	☐

Integrated Work Document (IWD) – Equivalent Evaluation Results	YES	NO	N/A
8. Is the P300 Hazard Grading Matrix for this document still accurate?	☐	☒	☐
9. Is the document still acceptable as P300 Part 1, *Activity Specific Information*?	☐	☒	☐
10. Is this document still acceptable as P300 Part 2, *Work-Area Information*?	☐	☒	☐
11. Is this document still acceptable as P300 Part 3, *Validation and Work Release Information*?	☐	☒	☐
12. Is this document still acceptable as P300 Part 4, *Post-Job Review*?	☐	☐	☒

13. Based on this evaluation, the following action is required.

☐	None	The document is extended in accordance with its periodic review cycle.
☒	Revision	Initiate a revision in accordance with the governing procedure.
☐	Cancellation	Initiate cancellation in accordance with the governing procedure.

14. Periodic Review Evaluation Performed By:

Name (print)	Signature	Z number	Date
Mike Alexander		102267	2/25/15

Comments: _____

Responsible Line Manager (RLM) Approval:

RLM/Representative (print)	Signature	Z number	Date
Craig Douglass		216051	3/26/15

Facility Operations Director (FOD) Concurrence (if required):

FOD/Representative (print)	Signature	Z number	Date
N/A	N/A	N/A	N/A

Physical Processing, Storage, and Examination of Borehole Material at the Field Support Facility

Effective Date: 12/13/12

Procedure Owner:	Signature:	Date:
Mike Clevenger	/s/ Mike Clevenger	11/27/12

This document fully satisfies the requirements of P300, Integrated Work Management, in order to systematically describe the work activity, the associated hazards, and the controls that **MUST** be employed to mitigate the risks.

REVISION HISTORY

Document No./Revision No.	Issue Date	Action	Description
EP-DIR-SOP-20020, R0	12/13/12	Revised to new format; updated references.	New document control number assigned; Supersedes SOP-12.04

TABLE OF CONTENTS

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to facilitate the physical processing, storage, and examination of borehole material at the Environmental Programs (EP) Field Support Facility (FSF). This procedure applies to all Curatorial staff.

2.0 SCOPE

This SOP is a mandatory document, and EP, and FSF participants will implement this SOP when processing, storing, or examining borehole materials.

3.0 REFERENCES

EP personnel using this procedure should become familiar with the contents of the following documents to properly implement this SOP.

- EP-DIR-AP-10007, Environmental Programs Procedure Preparation, Revisions, Review, Approval and Use
- EP-DIR-AP-10003, Records Management Procedure for ADEP Employees
- SOP-5181, Notebook and Logbook Documentation for Environmental Directorate Technical and Field Activities
- EP-DIV-SOP-20018, Field Logging, Handling, and Documentation of Borehole Materials
- EP-DIV-SOP-20019, Transportation and Admittance of Borehole Materials to the Field Support Facility
- ES&H Administrative Requirements (AR) Manual, AR 12-1, "Personal Protective Equipment" Physical Processing, Storage, and Examination of Borehole Materials at the Field Support Facility

4.0 TRAINING

All users of this SOP are trained by reading the procedure. The user will ensure that the training is documented in accordance with Directorate protocol.

The Team Leader (TL) shall monitor the proper implementation of this procedure and ensure that relevant team members have completed all applicable training assignments.

5.0 DEFINITIONS

Analytical Sample —is a subsection or portion, which has been removed from a sample that undergoes testing, analysis, or other technical or scientific evaluation. It is also referred to as a specimen.

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

Curatorial Sample Inventory and Tracking System (CSITS) — is the computer database that has been developed to track in detail all actions taken on the EP borehole materials over which the FSF has control. The primary objective of the database is to assist in establishing and maintaining traceable records of each borehole material collected for the EP.

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

Examiner —is an individual from the EP or outside who is authorized to visually examine borehole materials at the FSF.

Information Block — is an object placed in a container that represents a depth interval and provides information pertaining to the status of that interval.

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

Field Support Facility —is the facility used, in part, for the documentation, storage, and control of borehole materials collected and distributed for analysis and evaluation by EP personnel. The FSF consists of physical facilities and equipment designed to effectively process and preserve collected borehole materials.

FSF Acceptance Criteria for Borehole Materials — the allowed exposure levels inside the FSF to radioactivity and non-radioactivity contamination occurring from the acceptance, handling, processing, examinations, and storage of borehole materials. The FSF Acceptance Criteria (Table 1 of EP-DIV-SOP-20018) are designed to ensure that potential exposures are limited to levels at which health and safety concerns are minimized.

Material Type —designates the type of material that makes up a sample (i.e., core, cuttings, chips, or remnants).

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 and 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.

6.0 BACKGROUND AND PRECAUTIONS

6.1 Background

The implementation of EP-DIV-SOP-20018 shall ensure that a determination is made as to the levels of radioactive and non-radioactive hazards associated with EP borehole materials accepted by Curatorial staff. This determination is made prior to the use of this procedure.

Borehole materials received from EP field sites shall be processed after arrival at the FSF only after the completion of EP-DIV-SOP-20019 activities. The purpose of processing these materials for archival purposes is to ensure proper identification and traceability of these materials. Borehole materials undergo different phases of processing depending upon the condition of the material

6.2 Precautions

The user of this procedure is responsible for verifying that FSF Acceptance Criteria (Table 1 of EP-DIV-SOP-20018) levels have not been exceeded prior to physical processing. Borehole material that has contamination levels that are above the upper limits of the FSF Acceptance Criteria, shall not be accepted into the FSF facility.

If borehole material contamination levels are below the upper limits of the FSF Acceptance Criteria, the following handling precautions are prescribed:

- Laboratory coats and plastic or rubber gloves may be worn while manipulating exposed material;
- Eating or drinking is prohibited in areas where these materials are open to the environment;
- Handling, processing and examination of materials shall be kept to a minimum.

Borehole material that has contamination levels that are above the upper limits of the FSF Acceptance Criteria shall not be accepted into the FSF.

Note: Generators should contact Environment Safety & Health (ESH) for direction on handling and storing contaminated borehole materials that are above the FSF Acceptance Criteria.

7.0 RESPONSIBLE PERSONNEL

The following participants are responsible for activities identified in this procedure:

- FSF Curatorial Staff
- Examiners

- Team Leader

8.0 EQUIPMENT

Equipment necessary for this procedure may include, but is not limited to the following;

- core boxes and dividers;
- core marking supplies;
- measuring rulers marked in tenths of a foot;
- polyethylene lay-flat tubing;
- polystyrene core cradles; and
- work tables.

9.0 PROCEDURE

Borehole materials received from EP field sites shall be processed after arrival at the FSF only after the completion of EP-DIV-SOP- 20019 activities. The purpose for archival is to ensure proper identification and traceability of borehole materials. Borehole materials undergo different phases of processing depending upon the condition of the material.

9.1 Inventory Borehole Material

- Conduct a manual inventory of borehole materials and compare that inventory against the documentation obtained from the EP-DIV-SOP-20019 activities.
- Input the data resulting from this activity into the CSITS database, including the storage location of the borehole material.
- Use the CSITS database to verify/validate the data input and to generate a Processing Checklist (Attachment A).

Note: This checklist is used to document the various steps in the processing of borehole materials. The checklist includes any special processing instructions that may apply to a specific container. Individual steps in the Processing Checklist that do not apply are marked as "N/A."

- Once the Processing Checklist is completed, verify and document with an approval signature in the space provided for Curatorial staff.

- Secure the checklist inside a polybag and place it into the respective borehole material container.

9.2 Conduct the Checklist

9.2.1 Ensure Proper Borehole Material Bagging and Marking

Inspect borehole material for correct packaging (EP-DIV-SOP-20018). If Curatorial staff deems that bagging/rebagging of the borehole material is necessary, it will be bagged as follows:

- Lengths of lay-flat tubing (or similar type of preservation material, e.g., polybag) are used for each interval. When utilizing lay-flat tubing, one end of each length is sealed with a heat sealer. One side of the tubing is marked with the top and bottom depths of the interval.

- Orientation marks, *red on the right and blue on the left* (Attachment C), are drawn on the plastic bag (provided material orientation has been maintained).

- The borehole material is then inserted into the pre-marked lay flat tubing, the excess air is squeezed out, and the end of the tubing heat-sealed. *This process is repeated for each row of the container as necessary*.

Note: If any inconsistencies are discovered during the checklist process, Curatorial staff shall confer with the requesting field personnel to remedy any anomalies.

9.2.3 Verify Missing/Removed Labels

Verify that any missing interval is noted by a marker denoting that the interval is missing or was removed.

9.2.4 Label Container

Utilize the CSITS database to generate five container labels for each individual borehole material container.

Affix the labels to both ends and on the right side of the container lid, and on the front end and right side of the container base.

Note: The borehole material remains in the same box in which it was received from the field unless the container was damaged beyond usefulness. If the container is damaged beyond usefulness, the borehole material is transferred to a new material container.

9.2.5 Verify Borehole Material Orientation Marking

Ensure that the field markings are complete, clear, and unobscured; or redraw them as necessary using the process described in EP-DIV-SOP-20018.

Note: Depth indicators are permanently marked and appropriately located on both ends of the borehole material (Attachment B).

If any inconsistencies are discovered during this process, confer with the submitting field personnel to remedy any anomalies.

9.2.6 Verify Inserted Box Dividers

Ensure that the plastic-coated dividers were properly inserted between each row of borehole material.

9.2.7 Verify Borehole Seating in Foam Cradles

Ensure that the borehole material is correctly seated in the foam cradles.

9.2.8 Ensure Container Lids Closed

Ensure that all container lids are properly closed and are secure before transporting containers to the permanent assigned shelf locations.

9.2.9 Store Borehole Material

Upon completion of the processing activities, process containers for storage as follows:

- a specific location is located within the FSF.
- the location is input into the CSITS database.
- the borehole material boxes are shelved.

Note: Where temperature is of no concern, designated boreholes may be stored outside the FSF in the designated cold storage areas. These borehole material storage areas are within a locked area restricted to authorized personnel only.

9.2.10 Request Examination of Processed Borehole Material

Anyone wishing to conduct further research of archived borehole materials who wants to examine borehole material at the FSF need to complete an Examination Request (Attachment D) and forward that request to curatorial staff at least 24 hours in advance of the borehole material examination.

Note: The 24-hour advance notice allows curatorial staff enough time to get the borehole material pulled from storage and arranged on the examination table. Data from the Examination Request and the CSITS database is used by curatorial staff to initiate an Examination Report (Attachment E).

Prior to the time of the exam, weigh the borehole material and container individually or together as a quality control measure (documented on the Examination Report, Attachment E).

Note: Borehole material may also be compared to photographs (if available) prior to the examination as an additional quality control activity.

9.2.11 Examine Borehole Material

Notify the examiner that the borehole material is available for examination and schedule a date and time for the exam.

At the time of the examination, make a borehole material review folder containing borehole information available for the examiner.

Note: Included in this folder, is a summary of hazardous materials monitoring results indicating that the values are within FSF Acceptance Criteria.

Should the examiner decide to remove a specimen for analysis, the examiner places a temporary marker (indicating who the examiner is, the date, and what interval is to be removed), is placed on the borehole material.

After each specimen is selected for removal, curatorial staff shall assist the examiner in the specimen removal and shall make a listing of the removed specimens.

Enter the appropriate information into the CSITS database and the appropriate specimen labels and documentation are generated.

Upon completion of the examination, the curatorial staff may again compare the core material viewed to the core photographs (if taken) and reweigh the borehole material to ensure that the borehole material was not removed or disrupted (i.e., an exception is when specimens were removed for analysis).

If there are no discrepancies, complete the Examination Report and proceed to 9.2.12.

9.2.12 Reshelf Borehole Material

Remove all containers from the Examination Room and replace them in their appropriate storage location.

10.0 RECORDS

Curatorial staff personnel are responsible for submitting the following records to the Records Processing Facility only when the borehole material is retired to a disposal area.

- Examine Request
- Examination Report

11.0 ATTACHMENTS

The document user may employ documentation formats different from those attached to/named in this procedure—as long as the substituted formats provide, as a minimum, the information required in the official forms developed by the procedure.

Attachment A: Processing Checklist (database generated) (1 page)

Attachment B: Core Markings (1 page)

Attachment C: Marks on Lay-Flat Tubing (1 page)

Attachment D: Examination Request (database generated) (1 page)

Attachment E: Examination Report (database generated) (1 page)

Click here for "Required Read" credit.

ATTACHMENT A	
EP-DIV-SOP-XXX-1 **PROCESSING CHECKLIST** **Field Support Facility**	Records Use only Los Alamos NATIONAL LABORATORY EST.1943

FIELD SUPPORT FACILITY
Processing Checklist

Box ID	Number	Of	Borehole	Top	Bottom
	00501	1	56 Example	0.0	6.0

1. Rubble Bagged? _____
2. Bags Footage Marked? _____
3. Missing/Removed Labels in Place? _____
4. Permanent Box Labels Applied? _____
5. Orientation Marks Easily Visible? _____
6. Depth Markers Clear and Legible? _____
7. Box Dividers Inserted? _____
8. Core in Foam Cradles? _____
9. Box Lids Closed? _____
10. Permanent Assigned Shelf Location: _____

Sample ID	Top	Bottom	Status	Packaging	Comment
000387	0.0	4.0	REC	None	
000388	4.0	4.2	WC-Fld	Unknown	
000389	4.2	6.0	REC	None	

Example

Special Instructions: _____

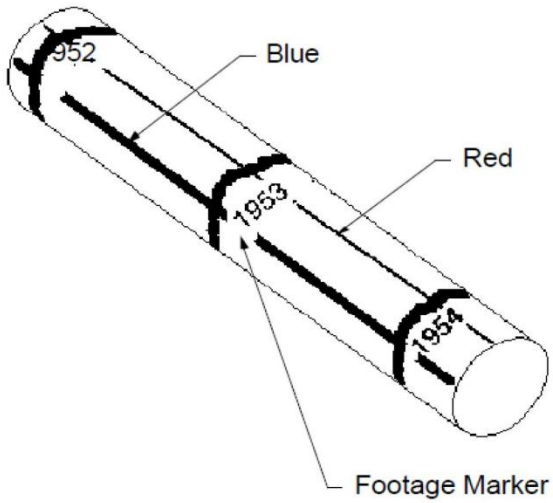
_____

Page ___ of ___ Curatorial Staff _____ Date _____

Title: Physical Processing, Storage, and Examination of Borehole Material at the Field Support Facility	No.: SOP-XXX	Page 2 of 5
	Revision: 0	Effective Date:

ATTACHMENT B	
EP-DIV-SOP-XXX-1 **CORE MARKINGS**	Records Use only Los Alamos NATIONAL LABORATORY EST.1943

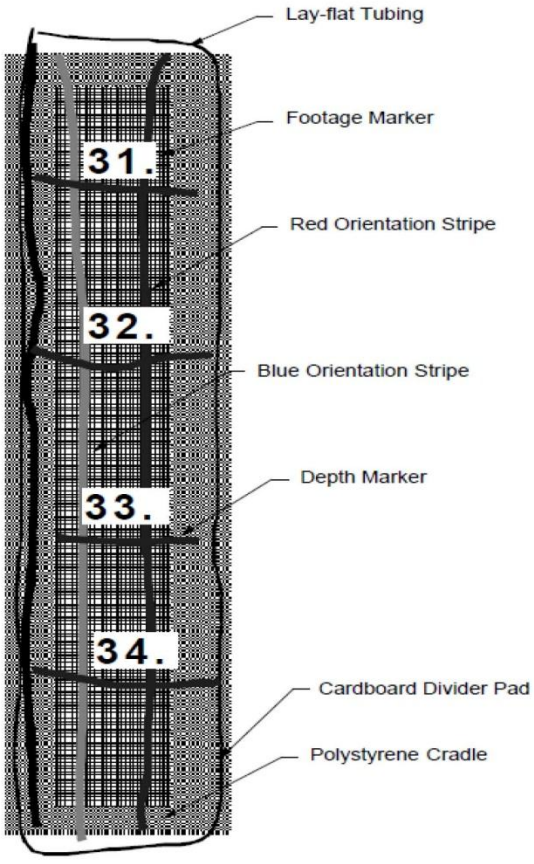
Core Markings



ORIENTATION STRIPES

ATTACHMENT C	
EP-DIV-SOP-XXX-1 **MARKS ON LAY-FLAT TUBING**	Records Use only Los Alamos NATIONAL LABORATORY EST.1943

Marks on Lay-Flat Tubing



Title: Physical Processing, Storage, and Examination of Borehole Material at the Field Support Facility	No.: SOP-XXX	Page 4 of 5
	Revision: 0	Effective Date:

ATTACHMENT D	
EP-DIV-SOP-XXX-1 **EXAMINATION REQUEST** **Field Support Facility**	Records Use only Los Alamos NATIONAL LABORATORY EST.1943

EXAMINATION REQUEST
Field Support Facility

Requester: _____ (Print Name) _____ (Organization)

_____ (Date of Examination) _____ (Estimated Duration)

Mailing Address: (Include City, State and Zip Code)

Telephone Numbers: (Primary, Alternate and Fax)

The Environmental Restoration Project geologic material that have been provided for your examination at the Field Support Facility are controlled by the Quality Management Plan for the Los Alamos National Laboratory Environmental Restoration Project. The materials made available to you are for visual examination. Requesters needing to destroy or consume material for analytical purposes must collaborate with the Curator Staff who will ensure that these actions are properly performed and documented.

I have read the above statement and will comply with borehole material examination restrictions: _____ (Requester's Signature)

Acquisition Site – TA/PRS - Borehole	Depth Interval or Reference	Material Type

FSF USE ONLY CURATORIAL STAFF: _____ (Print Name/Signature) _____ (Date)

Example

Title: Physical Processing, Storage, and Examination of Borehole Material at the Field Support Facility	No.: SOP-XXX	Page 5 of 5
	Revision: 0	Effective Date:

ATTACHMENT D	
EP-DIV-SOP-0XXX-E **EXAMINATION REPORT** **Boxes Viewed at the Field Support Facility**	Records Use only Los Alamos NATIONAL LABORATORY EST.1943

EXAMINATION REPORT

Boxes Viewed at the Field Support Facility

Examination ID:_____ Organization:_____ Primary Examiner:_____
Print Name/Signature

Date Viewed:_____ Number of Boxes Viewed:_____

Box ID	Of Borehole	Box	Top D	Bottom D	Type	Exam Room	Weight In	Date	Weight Out	Date	Penetrating Radiation	β/γ Particulate	α Particulates	VOCs	Metals	Radon	Tritium

Curatorial Staff:_____ _____
Print Name/Signature Date

Key: NB = Natural Background AC – FSF Acceptance Criteria

Example

Document Action Request

Section 1 – Originator Request

Document No.: EP-DIR-SOP-20020	Revision No.: 0
Title: Physical Processing, Storage, and Examination of Borehole Material at the Field Support Facility	Page 1 of 2

Description of requested action (Attach numbered additional sheets if needed.):
Editorial and technical changes to procedure. This new document supersedes SOP-12.04

Originator Name (print):	Z#:	Organization:	Date:
Mike Clevenger	101789	BPS-SLS	7/11/12

Section 2–Approval for Processing - Responsible Manager

☒ New Document	☐ Minor Revision ☐ Major Revision	☐ Deactivation ☐ Cancellation	☐ Perform Concurrent Periodic Review?
Superseded Document(s) and Revision Number:	SOP 12.04, R2		
☒ Approved ☐ Disapproved (return to originator)	Comments:		PCRs N/A

Signature:	Print Name, Title:	Z#:	Date:
	Craig Douglass, RLM	216051	8/29/12

Section 3 – Hazard Determination – Responsible Manager

Hazard Determination: ☐ Low ☒ Moderate ☐ High/Complex ☐ N/A

Document is authorized to serve as IWD? ☐ Part I only ☐ Full IWD ☐ N/A

Section 4 – Required Reviews (see P315, Ch 16, Section 16.5.3)

Discipline:	Name:	Signature:	Date:
CAP-FS	Mike Alexander		9-20-12
QPA-IQ	~~Paul E. Lowe~~ 12/13/12 Robert A. Trujillo	/s/ Robert A. Trujillo	12-13-12
ET-EI	Danny Katzman	/s/ Danny Katzman	9-13-12

Validation Required (SME): ☒ Yes ☐ No ☐ Waive Comment:

Scope of Validation: ☒ Entire Procedure ☐ Change Only

Validation Method: ☐ Walkdown ☐ Simulation ☒ Tabletop ☐ First Time Use

Training Determination completed?: ☒ Yes ☐ N/A Completed by: Craig Douglass

USQ/USI Number (if needed):	Signature:	Z#:	Date:
N/A	/s/ Lance Platter	236299	8/28/12
Derivative Classifier: ☒ Unclassified ☐ OUO ☐ UCNI ☐ Classified	Signature:	Z#: 115164	Date: 8-29-12
☐ DUSA DUSA # N/A	Signature N/A	Z# N/A	Date N/A

Section 5– Final Approvals – Responsible Manager

☐ Release ☐ Hold	Details:

Responsible Manager Signature:	Print Name, Title:	Z#:	Date:
	Craig Douglass, RLM	216051	12/5/12
Additional Approval Signature' N/A	Print Name, Title: N/A	Z#: N/A	Date: N/A

DAR Continuation

Document No.: EP-DIV-SOP-20020	Revision No.: 0
Title: Transportation & Admittance of Borehole Materials to the Field Support Facility	Page 2 of 2

Description of Requested Action (continued from Section 1)

Approval/Disapproval Comments (continued from Section 2)

Required Reviews (continued from Section 4)

Discipline:	Name:	Signature:	Date:
CAP-FS	Steve Pearson	/s/ Steve Pearson	9/13/12

Validation Comments (continued from Section 4

Release/Hold Details (continued from Section 5)