Borehole Materials Management

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Next Review Date:	9/1/2018

Hazard Class: [X] Low [ ] Moderate [ ] High/Complex

Usage Mode: [X] Reference [ ] Use Every Time (UET) [ ] Both Reference & UET

Approval Signatures:

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Name	Z#	Signature	Date
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Revision History

Document No./Revision No.	Issue Date	Action	Description
ER-SOP-20019, R0	9/1/2015	New procedure	New document control number assigned; supersedes SOP-12.01 and SOP-12.02

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1. PURPOSE

This procedure describes the handling of the subset of borehole materials to be curated from the time they are collected from the borehole through the time they are transported to the Core Storage Area (CSA) at the SMO for curating, archiving, and ultimate disposition.

2. SCOPE

This standard operating procedure (SOP) describes the process for field logging, handling, transporting and admitting to TA-3, Bldg. 271 at the Sample Management Office (SMO), and documenting borehole materials (collectively referred to as borehole material management) at the Los Alamos National Laboratory (LANL) Environmental Programs (EP) Directorate. This SOP is a mandatory document and will be implemented by all EP field personnel when managing borehole material for EP.

3. REFERENCES

EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees*

4. APPLICABILITY

This procedure prescribes the specific borehole material management methods and documentation to be followed for selected borehole materials identified in the project specific documents.

This procedure is limited to the activities necessary to take custody of core and cuttings from drill rig personnel, conduct field screening, remove time-sensitive analytical samples and subsamples for preliminary characterization, and mark, package, and temporarily store the borehole materials at a drill site. Furthermore, it guides users from the collection process to the transport and final disposition of materials to storage.

The technical Team Leader (TL) should evaluate the borehole handling procedures on a case-by-case basis to maintain quality yet allow efficient drilling production. If possible, modification to handling methods should be described in the drilling guidance documents. Drilling guidance documents provide further information borehole material practices and documentation of the disposition of materials collected during drilling.

5. ENTRY CONDITIONS

N/A

6. DEFINITIONS AND ABBREVIATIONS

6.1 Definitions

Borehole materials: Any materials that come from the subsurface during a drilling project, with the intent of sampling, analysis, and curation; typically soil, core, cuttings, rubble, rock chips, groundwater, and drilling fluids (gas, vapor, and liquid).

Borehole material management: The collection, documentation, storage, and control of borehole materials and records.

Core: 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 to examine and/or analyze.

Core run: The process of drilling and recovering a length of core; also the piece of core recovered from a core barrel during the core run.

CSA: Located at Building TA-3, Bldg. 271. The facility consists of equipment and space designed to effectively process and archive borehole materials.

Curation/disposal strategy: A strategy summarizing a specific project's plans for borehole material handling, curation, and disposal. The strategy includes planned depth of boreholes, number of samples to be removed, and a schedule for these activities. The curation strategy also allows the field team a mechanism to describe options in borehole material curation available in this SOP on Attachment 1, Curation and Disposal Strategy Example.

Cuttings: Formation materials that are removed from the borehole during drilling.

Drilling guidance documents: Documents that summarize the location, objectives, and operations guidelines for a specific borehole. Included are details and exceptions relevant to the logging, handling, documenting, and curating/disposing of borehole materials for the borehole (i.e., Field Implementation Plan (FIP) or Statement of Work (SOW)).

Field Personnel: LANS or subcontractor personnel managing the borehole material from its generation to submittal to the CSA.

6.1 Definitions (continued)

Rubble: Pieces of core with diameters smaller than half the diameter of whole core such that reconstruction between individual pieces is not possible.

Sample: A physical entity collected in the field that is the original source material for all subsequent analyses and testing activities.

Subsample: A selection or aliquot from a sample that may or may not be representative of the sample.

Waste Characterization Strategy Form (WCSF): A document that presents the acceptable knowledge (AK) for waste to be generated during a project. AK incorporates the history of releases and known contaminants in the vicinity of the site and from upgradient locations that could impact the project site. Using the AK and anticipated waste forms to be generated, a preliminary waste determination is done (e.g., radioactive waste, New Mexico Special Waste). The analytical suite for waste characterization sampling developed is based on the waste determination. The document also outlines on-site waste management procedures such as storage areas and segregation practices.

6.2 Acronyms

ADEP	Associate Directorate for Environmental Programs
AK	Acceptable Knowledge
CSA	Core Storage Area
EP	Environmental Programs (Directorate)
FIP	Field Implementation Plan
FTL	Field Team Leader
H&S	Health and Safety
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Scope of Work
TL	Team Leader
VOC	Volatile Organic Compound
WCSF	Waste Characterization Strategy Form

7. RESPONSIBILITIES

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

- Field Staff Personnel – LANS or subcontractor personnel managing the borehole material from its generation to submittal to the CSA
- Driller
- ER-FS Curator
- Team Leader
- Quality Program Project Leader
- Users of this procedure

8. PRECAUTIONS AND LIMITATIONS

N/A

9. PREREQUISITE ACTIONS

9.1 Special Tools and Equipment, Parts, and Supplies

A checklist of suggested equipment and supplies needed to implement this procedure is provided in Attachment 2, Equipment and Supplies Checklist for Field Logging, Handling, and Documentation of Borehole Materials.

10. ACCEPTANCE CRITERIA

N/A

11. ON-SITE PROCESSING OF BOREHOLE MATERIALS

11.1 Borehole Material Staging

NOTE 1 *Screening is performed by field staff personnel to determine the levels of certain radiological and nonradiological characteristics for comparison with the SMO acceptance criteria for borehole materials. See Attachment 3, Field Screening Log.*

NOTE 2 *Table 1 defines the prescribed field-screening techniques and the acceptance levels of the SMO.*

Driller or Driller's Helper

[1] **COLLECT** the core or cuttings according to drilling documents.

11.1 Borehole Material Staging (continued)

Table 1.
Acceptance Criteria for Borehole Materials Submitted to the Sample Management Office

Hazard	Screening Method	Acceptance Criteria
Penetrating Radiation	Beta/Gamma (e.g., pancake GM) Detector	<100,000 disintegrations per minute (dpm)/100 cm^2 @ 1 in. from sample
Beta/Gamma Radiation	Beta/Gamma Detector	<100,000 dpm/100 cm^2
Alpha Radiation	Alpha Detector	<1000 dpm/100 cm^2
VOCs	Photoionization detector, flame ionization detector, or colorimetric indicator tubes	<5.9 ppm total VOC
Metals	U.S. Environmental Protection Agency Method SW 6010	Acceptable exposure* limits
Tritium	Portable tritium monitor or liquid scintillation counting for borehole material collected from tritium-contaminated areas	<50,000 pCi/L

*Acceptable level (mg/m^3) = occupational exposure limit.

11.2 Documentation of Core Runs

Field Staff

[1] **OBTAIN** the depth interval for each run from the driller, and **ASSIGN** the run number.

[2] **ENSURE** that the core is not switched end-for-end during any transport.

[3] **PREPARE** a run marker (i.e., pink index cards) using Attachment 4, Run Markers.

11.3 Measurement of Run Interval for Core Samples

NOTE *Total core loss cannot be determined until the next run is recovered.*

Field Staff

[1] **FIT** together pieces of core, starting at the top of the core run, to reconstruct larger sections of core.

[2] **RECONSTRUCT** rubble, if possible, to accurately represent the interval from which it was recovered.

[3] **MEASURE** the core with a steel engineering tape to the nearest 0.1 ft.

[4] **RECORD** the amount of core drilled and recovered on the run marker (pink index card) and on the core log as required by project-specific guidance.

11.4 Determination of Core Loss

Field Staff or Driller

[1] **DETERMINE** the interval(s) at which the loss(es) occurred.

[2] **IF** core loss is indicated after core is measured,
THEN use the following guidelines:

- **ASSIGN** the core loss to obvious loss zones.
- If there are no obvious loss zones, **ASSIGN** the core loss to the lowermost rubble zone in that run.
- If there are no rubble zones, **PLACE** the loss at the bottom of the run.

[3] **ENTER** the borehole ID, the core loss interval, and the total amount of true core loss on a “Lost Core Marker” (white index card) and **PLACE** in the proper location in accordance with Attachment 5, Marking and Boxing Core.

11.5 Marking Core (Depth Notation and Stripes)

Field Staff

[1] **MEASURE** the core to the nearest 0.1 ft with a steel engineering measuring tape using the top of the run as the starting point for measurement.

[2] **IF** the top of the run is angled (e.g., a fracture) and does not match with the previous run, **THEN** use the axis of the core as the starting point, indicating footage on the cores at 1-ft intervals.

NOTE 1 *Do not mark footages on the inside of the core boxes because the core may be repackaged and footages invalidated.*

NOTE 2 *Orientation stripes on bagged or packaged cuttings, rubble, and disaggregated core are not required, unless a reasonable attempt has been made to preserve the uphole/downhole respective position of the material.*

NOTE 3 *Use an alternative method for marking depths and orientation stripes depending on the condition of the borehole material.*

[3] **MARK** orientation stripes on the core to show top versus bottom of the run.

[4] **PLACE** parallel orientation stripes using red and blue permanent markers on core according to the instructions provided in Attachment 5, Marking and Boxing Core.

11.6 Core Logging

Field Staff/Geologist

[1] **PERFORM** logging of borehole materials pursuant to currently endorsed EP guidance for stratigraphic nomenclature and lithologic description.

[2] **SUBMIT** Attachment 6, Borehole Log.

11.7 Removal of Core Material for Analytical/Lithologic Purposes

Field Staff

[1] **REMOVE** the sample from the core or cuttings, and **PLACE** a marker (blue index card) at the location from where the sample portion was removed.

[2] **LOG** the sample on Attachment 7, Field Borehole Analytical Sample Removal Checklist as it is removed from the core or cuttings.

11.8 Core Box Loading and Storing

NOTE 1 *The rule of thumb is "going downhole, load core/cuttings left to right, front to back in core box."*

NOTE 2 *Core boxes can be stored on-site. Specific procedures on transportation and admittance of borehole materials to the CSA are discussed in Section 7.12.*

Field Staff

[1] **BOX** the core/cuttings/rubble with the top or shallowest depth of the run at the lower left corner and with core orientation maintained, in accordance with Attachment 5, Marking and Boxing Core.

[2] **TRANSFER** all markers (Run [pink], Lost Core [white], and Analytical Sample Removed [blue]) during the loading process from their position in the core rack to their corresponding position in the core box.

11.9 Preparation of Materials for Transport and Admittance to TA-3, Bldg. 271, CSA

NOTE *Materials not correctly prepared will not be accepted at the CSA. This procedure includes steps to minimize the occurrence of discrepancies and errors and to prevent errors from becoming part of the permanent record. Common errors that will prevent acceptance include clerical and handling discrepancies, and unsuitable packaging and labeling of materials.*

Field Staff

[1] **ENSURE** that materials are correctly packaged, shipped, and documented to facilitate processing by ER-FS curator. This includes packaging materials in boxes waiting meeting the specifications of Attachment 10, Specifications.

[2] **PACKAGE** materials to ensure that they arrive at the CSA in acceptable condition and correctly prepared for storage.

11.10 Documentation for Transmittal

Field Staff

[1] **CONTACT** the ER-FS curator with site-specific information to allow them to create labels for the project material.

[2] **OBTAIN** labels for material containers from the ER-FS curator before materials are transported.

[3] **COMPLETE** Attachment 8, Field Labels and Transmittal Documentation Checklist and Completion Instructions to assist in compiling the needed data.

[4] **INCLUDE** in the request to the CSA: the number of boxes, the number of containers, the number of samples removed, the number of runs, and the number of missing intervals, as well as the information requested on Attachment 8, Field Labels and Transmittal Documentation Checklist and Completion Instructions.

[5] **COMPLETE** Attachment 9, Field Container Summary and Transmittal Form, and **INCLUDE** information on missing intervals, defined as unrecovered (UNREC), not attempted (NAT), lost (LOST), or destroyed (DEST).

[6] **COMPLETE** the documentation listed in Attachment 8, Field Labels and Transmittal Documentation Checklist and Completion Instructions, before materials are transported to the CSA.

[7] **ENSURE** that materials transported and submitted to the core storage area are nonhazardous and are documented by on-site screening.

NOTE *At sites where collection of hazardous samples is not a concern, field personnel shall complete a Field Screen Log noting that material does not exhibit hazardous properties.*

[8] **PROVIDE** site-specific documentation stating that levels of radiological and nonradiological contaminants of the material are within the acceptance criteria of the CSA (Table 1).

[9] **SCHEDULE** delivery time for borehole materials with the ER-FS curator.

[10] **ENSURE**, once a delivery time is set, that containers are loaded such that shifting of contents is prevented.

11.11 Transport and Admittance of Borehole Material and Documents

Field Staff

[1] **INVENTORY** the containers and documents, and **CHECK** them against the Field Container Summary and Transmittal Form.

[2] When inventory is complete, **OBTAIN** the signature of the staff member who removed the borehole material from the site in the "Person Accepting Custody" field on the "Field Site to Transport" side of Attachment 9, Field Container Summary and Transmittal Form, and **ENTER** the date and time of the transfer.

[3] **TRANSPORT** the containers and documents to the CSA.

[4] **SUBMIT** the appropriate documentation, in accordance with Attachment 8, Field Labels and Transmittal Documentation Checklist and Completion Instructions, to the ER-FS curator.

[5] **PLACE** materials in an available receiving area after receiving curatorial staff approval of the documentation.

[6] **INVENTORY** the containers in accordance with EP-DIV-SOP-20020, *Physical Processing, Storage, and Examination of Borehole Material at the SMO*, and **VALIDATE** Attachment 9, Field Container Summary and Transmittal Form.

[7] **OBTAIN**, if valid, the signature of the field staff member delivering materials for the "Person Releasing Custody" field on the "Transport to CSA" side of Attachment 9, Field Container Summary and Transmittal Form, and **ENTER** date and time of transfer.

[8] **SIGN** the "Person Accepting Custody" field on the "Transport to CSA" side of Attachment 9, and **ENTER** date and time of transfer in the space provided.

[9] **RECORD** any discrepancies on the transmittal form.

11.12 Assessment of Screening

NOTE 1 *The frequency at which materials are resurveyed depends on historical site information, field-screening results, and analytical laboratory results.*

NOTE 2 *This determination will serve as a quality control check to ensure that no borehole materials exceeding acceptance criteria are admitted for curation and archiving.*

11.12 Assessment of Screening, cont.

ER-FS Curator

[1] **RESURVEY** incoming borehole material periodically.

12. INSTRUCTIONS

N/A

13. POST-PERFORMANCE ACTIVITY

N/A

14. RECORDS

The ER-FS curator is responsible for submitting the following records to the Records Processing Facility in accordance with EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees*:

- Field Borehole Analytical Sample Removal Checklist
- Borehole Log
- Field Screening Log
- Curation/Disposal Strategy
- Field Container Summary and Transmittal Form

15. APPENDICES

N/A

16. ATTACHMENTS

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

Attachment 1 Curation and Disposal Strategy Example

Attachment 2 Equipment and Supplies Checklist for Field Logging, Handling, and Documentation of Borehole Materials

Attachment 3 Field Screening Log

Attachment 4 Run Markers

Attachment 5 Marking and Boxing Core

Attachment 6 Borehole Log – Typical

Attachment 7 Field Borehole Analytical Sample Removal Checklist

Attachment 8 Field Labels and Transmittal Documentation Checklist and Completion Instructions

Attachment 9 Field Container Summary and Transmittal Form

ATTACHMENT 1
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Curation and Disposal Strategy Example

CURATION AND DISPOSAL STRATEGY

This borehole material curation/disposal strategy (CDS) provides guidance for the curation of _____ borehole materials (core, cuttings, chips, and groundwater) at TA-3, Bldg. 271, CSA at the SMO until curation objectives are met. In addition, the CDS provides a strategy for disposal of _____ borehole materials. Borehole material curation includes volume minimization as an integral objective and is a component of borehole material waste management. The objective of the CDS is to ensure consistency of curation and proper disposal of borehole materials pursuant to Laboratory waste management protocols.

_____ is located at Technical Area _____ (TA-_____) in _____ Canyon in the _____ part of the Laboratory. Since 1951, radioactive wastewater has been discharged into upper _____ Canyon. The history of discharges to, potential sources of contamination in, and previous investigations of _____ Canyon are presented in the _____ Canyon Work Plan.

Curation Plan

The following _____ borehole materials will be curated pursuant to ERP-SOP-20019, *Boreholes Materials Management.*

[list only those applicable]

- Hollow-stem auger (HSA) core
- Air rotary (AR) core
- Cuttings
- Chips

Core and cuttings will be curated and placed into treated cardboard boxes, and chips will be washed onsite and stored in plastic trays. Selected intervals of core and cuttings will also be packaged and heat sealed in Core-Protec aluminum foil onsite and stored pending analysis selection. These specially packaged materials are an archived set of borehole materials that may be selected as analytical samples for a variety of moisture-sensitive analyses identified in the _____ Field Implementation Plan (FIP). These specially packaged materials must not freeze.

Based on projections outlined in the _____ FIP, approximately _____ feet of core, _____ feet of cuttings, and _____ box(es) of rock chip trays will be curated or archived.

ATTACHMENT 1
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Disposal Strategy

A LANL-approved _____ Waste Characterization Strategy Form (WCSF) provides guidance for on-site waste management of borehole materials such as cuttings and groundwater. All borehole materials (wet or dry) generated at the _____ site are field screened for beta-gamma radiation. In addition, all dry materials are also field screened for alpha radiation and volatile organic compounds. The _____ WCSF allows that clean, solid borehole materials (no field screening hits) may be used at the site as site restoration material. Therefore, following a curation period identified below for additional study and characterization needs, solid borehole materials will be returned to the _____ site using a "cradle-to-grave" disposal strategy.

The _____ borehole materials curated at the SMO will each be managed by a disposal strategy as follows:

Borehole Material	**Preservation**	**Curation Period**	**Disposal Strategy**
HSA core	Boxed	1 year from total depth (TD)	Return to site
AR core	Boxed	5 years from TD	Return to site
Cuttings	Boxed	6 months from TD	Return to site
Chips	Boxed trays	5 years from TD	Return to site
AR core Core-Protec	Core-Protec	1 year from TD	Return to site
Cuttings Core-Protec	Core-Protec	1 year from TD	Return to site

ATTACHMENT 2
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Equipment and Supplies Checklist for Field Logging, Handling, and Documentation of Borehole Materials

EQUIPMENT AND SUPPLIES CHECKLIST FOR FIELD LOGGING, HANDLING, AND DOCUMENTATION OF BOREHOLE MATERIALS			
☐	Engineering measuring tape	☐	Core boxes and divider (specifications depend on core diameter) Attachment 10
☐	Colored temporary markers	☐	Polyethylene lay-flat tubing
☐	Core racks	☐	Impermeable packaging
☐	Work table/surface	☐	Pocket transit (0–360 degree)
☐	Indelible marker pens	☐	Rock hammer
☐	Hand lens	☐	Dilute HCl (per WCSF control)
☐	Grain-size chart	☐	Heat sealer
☐	Polystyrene core cradles	☐	4 × 6-in. index cards
☐	Knives/blades	☐	Spray bottle
☐	Chisel	☐	Filament tape
☐	Magnet	☐	Protractor
☐	Rags and sponges	☐	Binocular microscope with light
☐	PVC core trays	☐	Standard rock-color chart
☐	Nontear, waterproof labels	☐	Field Bit Cutting Log
☐	Cuttings containers	☐	Borehole Log
☐	Field Borehole Analytical Sample Removal Checklist	☐	Daily Drilling Summary
☐	Polystyrene run blocks	☐	Field Screening Log
☐	Container labeling and packaging equipment	☐	Chain-of-Custody/Request for Analysis Forms
☐	Wire mesh sieve	☐	Polyethylene sheeting

ATTACHMENT 3
Page 1 of 1

Field Screening Log

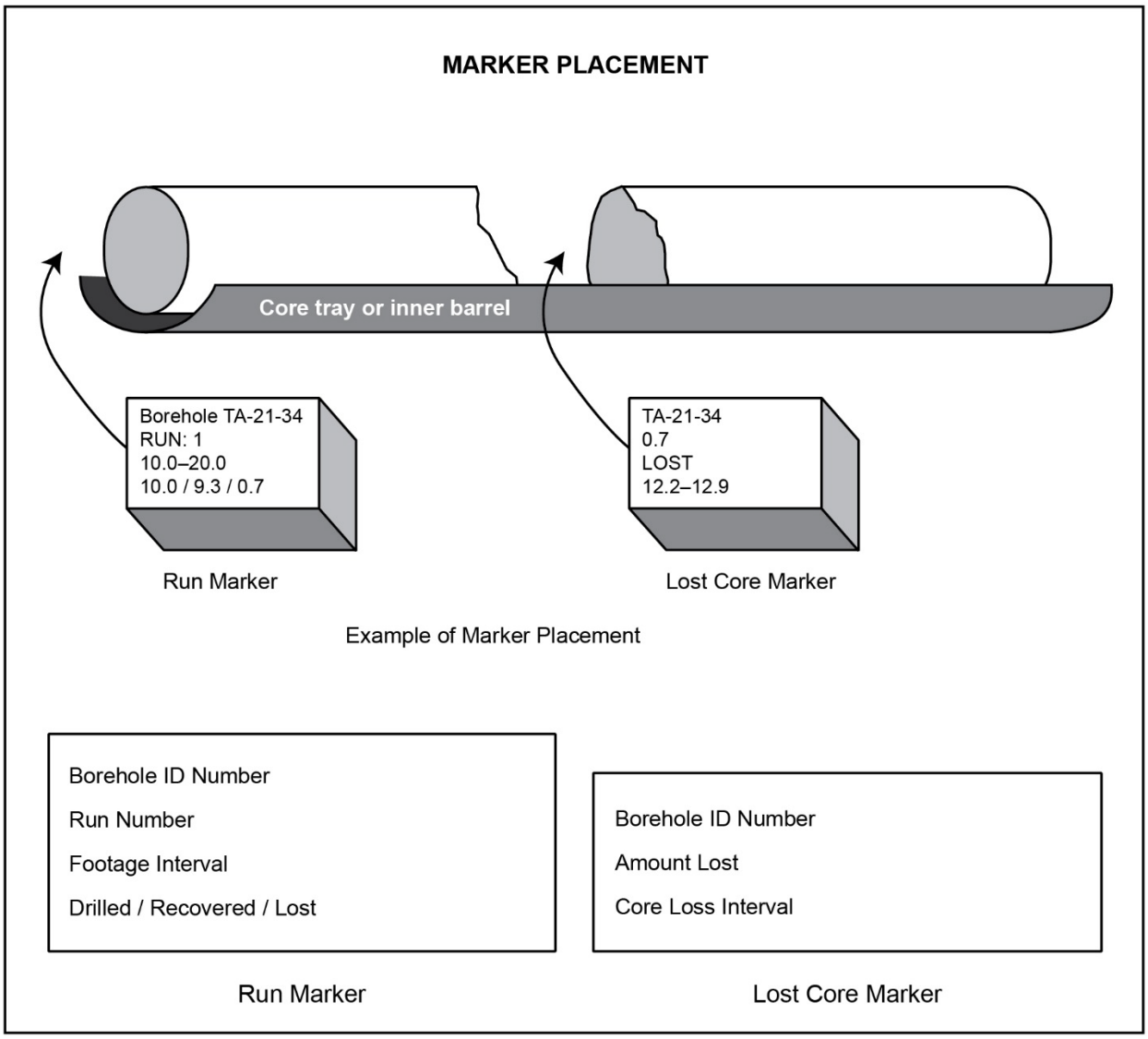
FIELD SCREENING LOG

Technical Area:		Borehole ID:	
Form Completed by:		Date:	
Form Checked by:		Date:	

Run		Hazard	Screening Method	Reading	Acceptance Criteria		Technician's Initials
No.	Interval				BELOW	ABOVE	

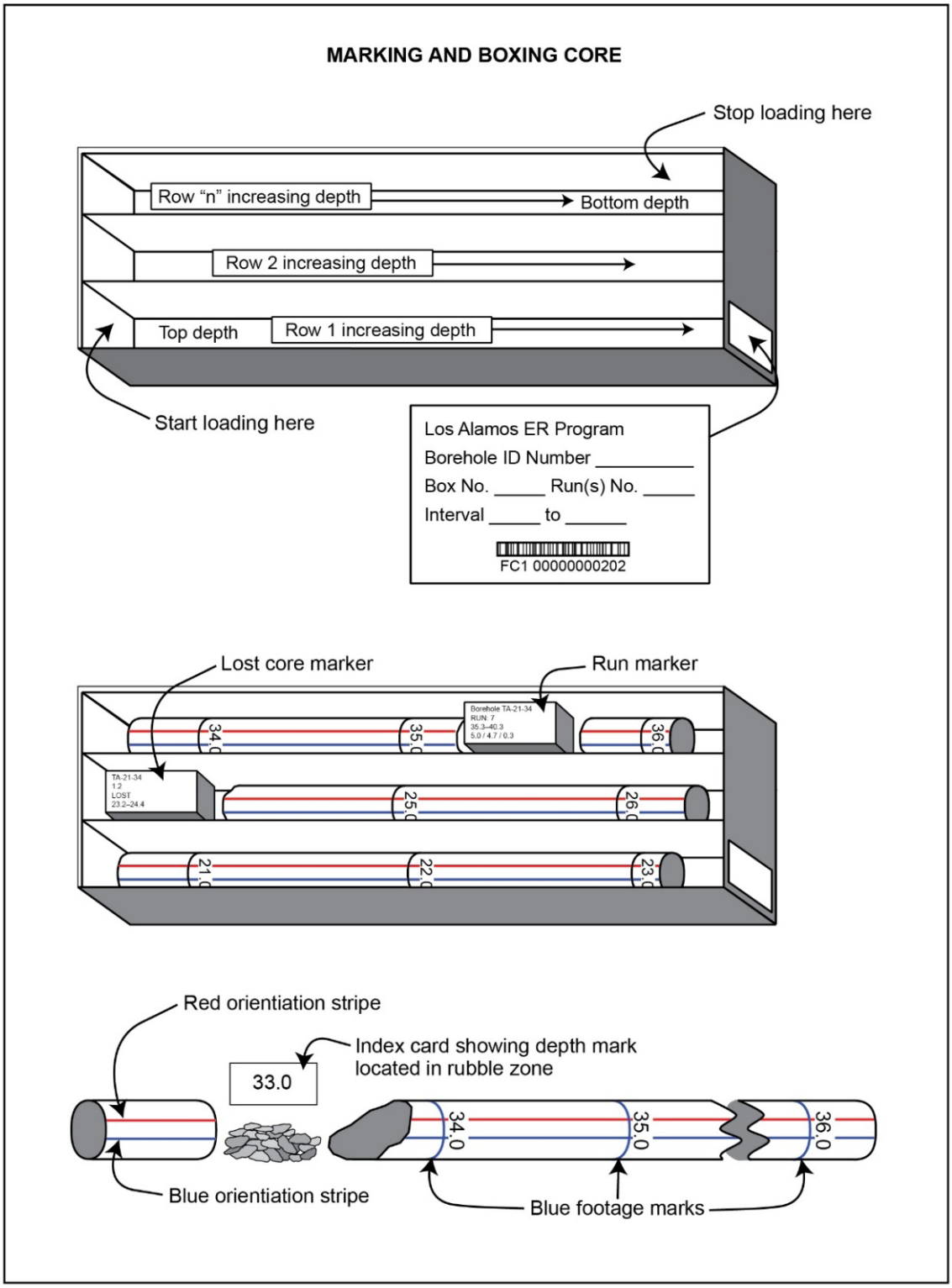
ATTACHMENT 4

Run Markers


MARKER PLACEMENT
Core tray or inner barrel
Borehole TA-21-34
RUN: 1
10.0–20.0
10.0 / 9.3 / 0.7
TA-21-34
0.7
LOST
12.2–12.9
Run Marker
Lost Core Marker
Example of Marker Placement
Borehole ID Number
Run Number
Footage Interval
Drilled / Recovered / Lost
Borehole ID Number
Amount Lost
Core Loss Interval
Run Marker
Lost Core Marker

ATTACHMENT 5
Page 1 of 1

Marking and Boxing Core



ATTACHMENT 6
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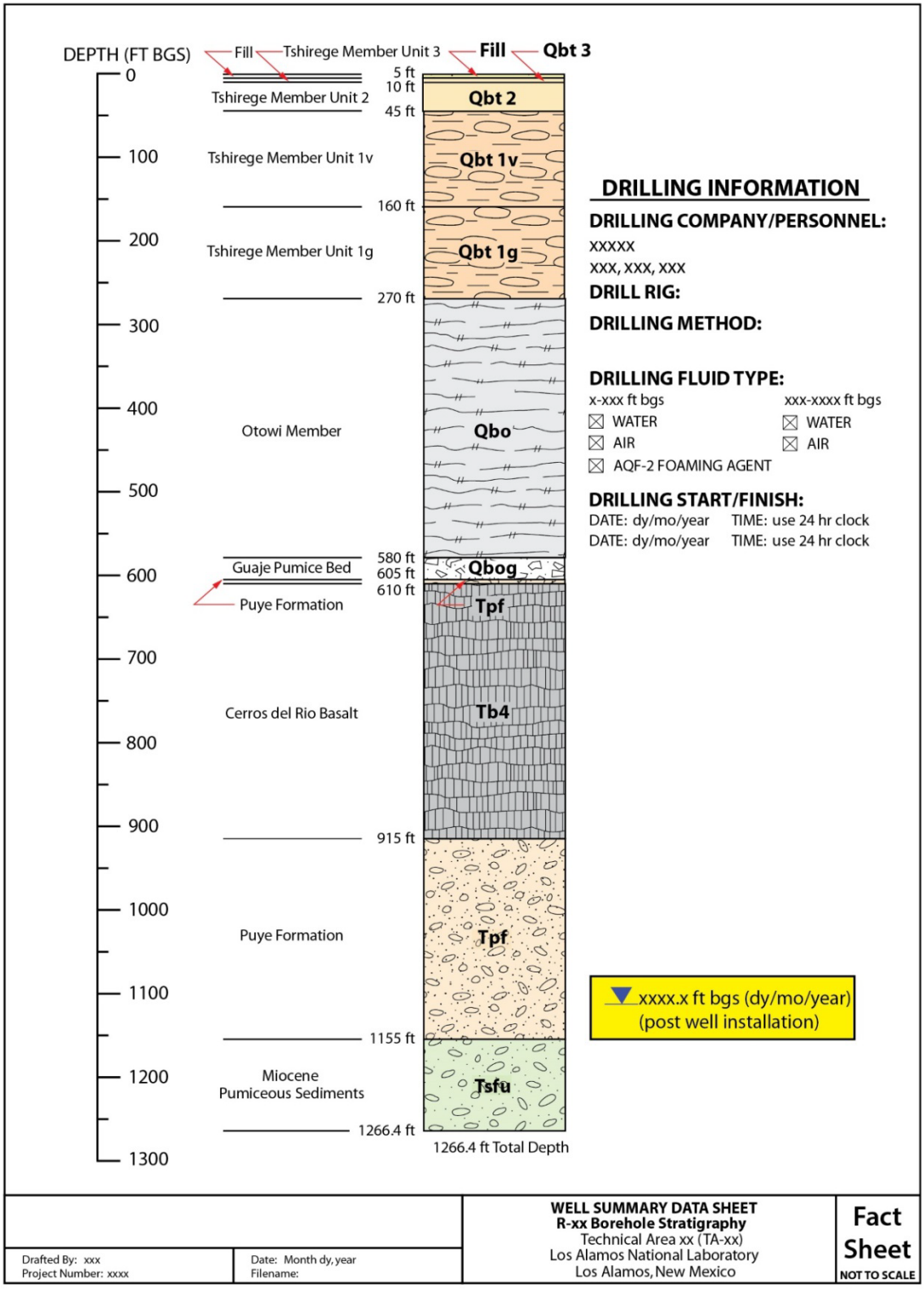
Borehole Log - Typical



ATTACHMENT 7
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Field Borehole Analytical Sample Removal Checklist

FIELD BOREHOLE ANALYTICAL SAMPLE REMOVAL CHECKLIST				
Team Lead:		Address:		
Organization:				
Form completed by:			Date:	
Borehole ID:			Page of	
FIELD BOREHOLE ANALYTICAL SAMPLE INFORMATION				
Field Borehole Analytical Sample Barcode Number (SpecID)	Interval Removed (ft)	Date Removed	Notes	
FIELD BOREHOLE ANALYTICAL SAMPLE TRANSFER				
Person Releasing Custody:		Person Accepting Custody:		
Print Name/Signature		Print Name/Signature		
Checked by:				
Print Name/Signature		Date/Time		

ATTACHMENT 8
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Field Labels and Transmittal Documentation
Checklist and Completion Instructions

Field Labels and Transmittal Documentation Checklist for the Core Storage Area (additional pages may be utilized as necessary for completion of various sections of this report)		
Part I–Initation: (Initator completes) Provide the ER-FS Curator staff the following information to obtain field labels for your borehole materials. **Note**: An entered check mark (✓) indicates the requirement has been met. (If the statement does not apply enter n/a.)		
Borehole Name/ID No.	Intiator: _____ (*print name, then sign*) (*date*)	
Team Leader	Borehole Date Started and/or Completion Date	
Labels Required (Type/Amount):		
6. Borehole Total Depth	7. Location Identification Number	
Part II–Documentation Required for Acceptance of Borehole Materials		Delivered to SMO (Date)
8. Field Screening Log (attachment 3)		
9. Transmittal Form (Attachment 9)		
10. Curation and Disposal Strategy (Attachment 1)		
11. Borehole Log (Attachment 6)		
12. Field Borehole Analytical Sample Removal Checklist (Attachment 7)		
Part II–Verfication: (completed by ER-FS staff)		
15. Verfied by ER-FS Curator: _____ _____ (*print name, then sign*) Date		

ATTACHMENT 9
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Field Container Summary and Transmittal Form

FIELD CONTAINER SUMMARY AND TRANSMITTAL FORM
Field Support Facility

FIELD SITE TO TRANSPORT	TRANSPORT TO CSA
Person Releasing Custody: (print name, sign & date)	Person Releasing Custody: (print name, sign & date)
Person Accepting Custody: (print name, sign & date)	Person Accepting Custody: (print name, sign & date)
Checked By: (print name, sign & date)	Borehole ID: BH-12 TA/OU: 21 Shipment Container Total: 65

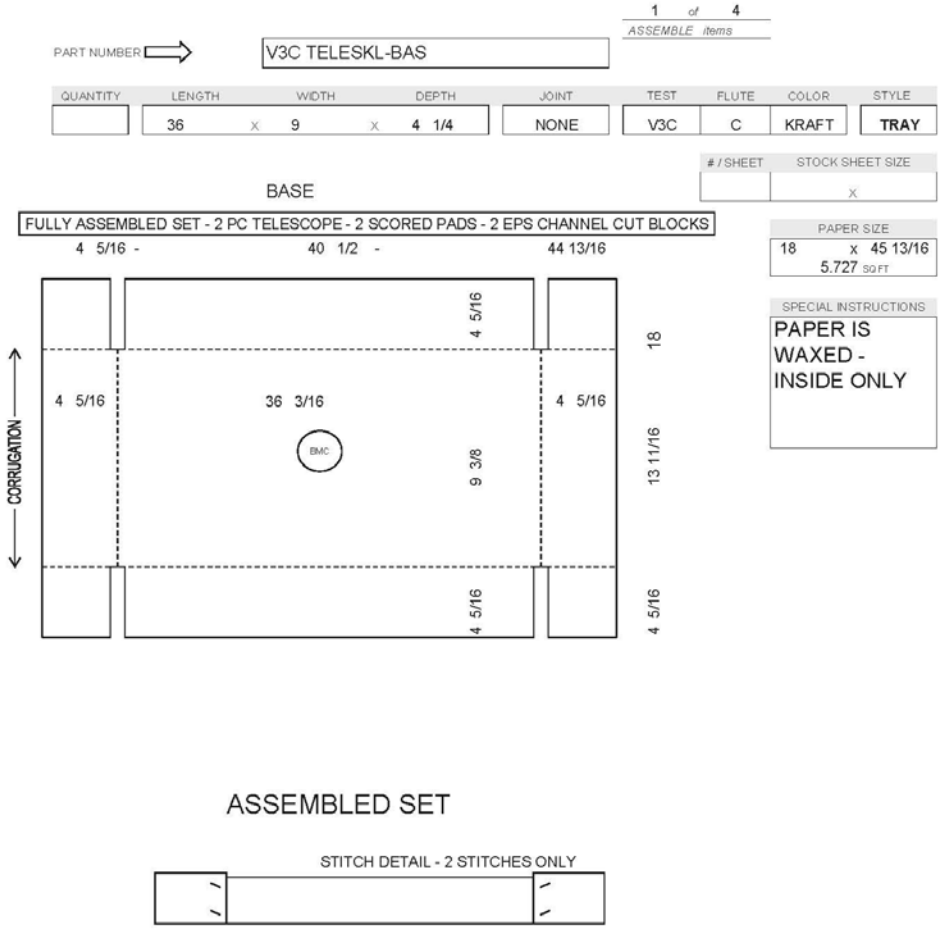
DOCUMENTATION									RECEIVED AT CSA
Borehole Material Type	FCT Bar Code Number	Existence Code	Container or Borehole Material Interval	Received	Borehole Material Type	FCT Bar Code Number	Existence Code	Container or Borehole Material Interval	Received 4
CORE	8647	REC	0.0-2.2						
CORE	8647	UNREC	2.2-4.5						
CORE	8647	REC	4.5-5.5						
CORE	8647	WCR	5.5-7.0						
CORE	8647	REC	7.0-8.3						

Existence Codes: ***REC*** – Recovered ***UNREC*** – Unrecovered ***NAT*** – Not Attempted ***WCR*** – Whole Core Removed ***LOST*** – Lost ***DEST*** - Destroyed

ATTACHMENT 10
Page 1 of 4

SPECIFICATIONS/BASE

Base



ASSEMBLED SET

ATTACHMENT 10
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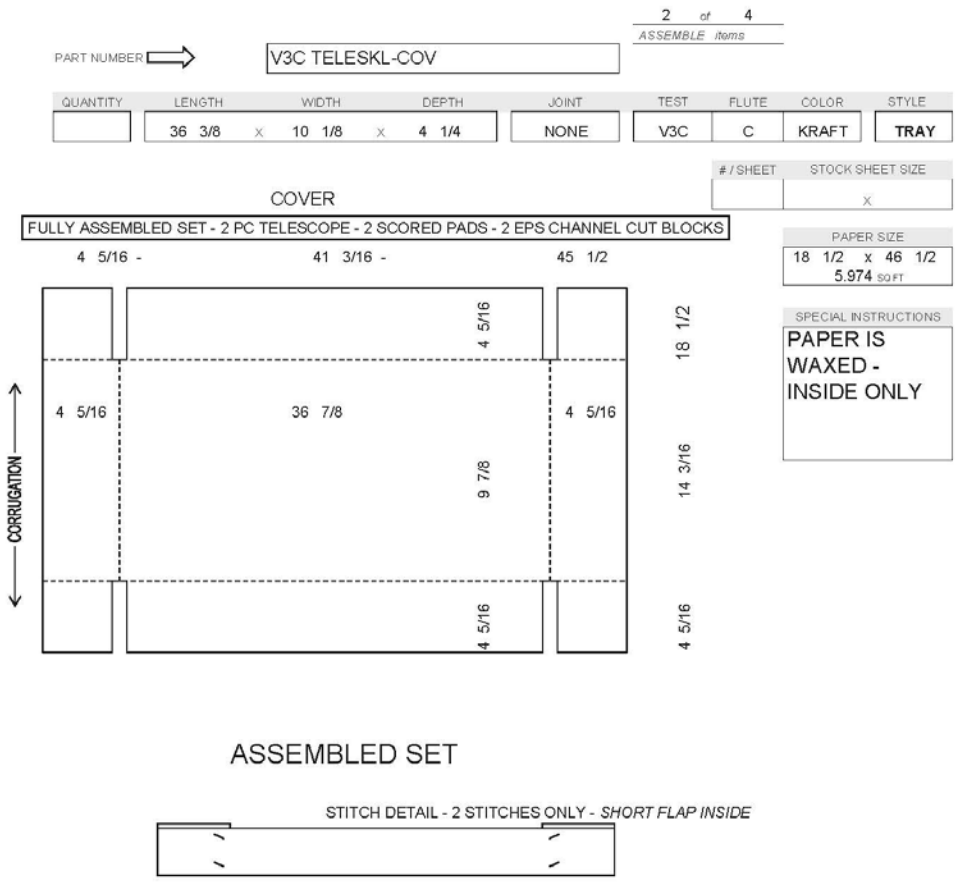
SPECIFICATIONS/COVER

Cover



ASSEMBLED SET

ATTACHMENT 10
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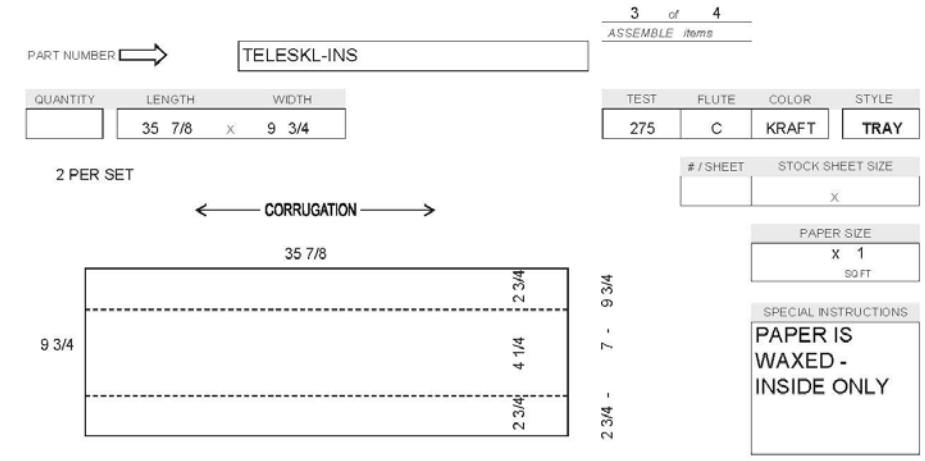
SPECIFICATIONS/CORREGATED INSERT

Corrugated Insert



ASSEMBLED SET

FULLY ASSEMBLED SET - 2 PC TELESCOPE - 2 SCORED PADS - 2 EPS CHANNEL CUT BLOCKS

ATTACHMENT 10
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SPECIFICATIONS/FOAM INSERT

Foam Insert

4 of 4
ASSEMBLE items

PART NUMBER ⇨ V3C TELESCOPE SET

QUANTITY	LENGTH	WIDTH	THICKNESS	MATERIAL	TEST	COLOR	STYLE
	35 1/2	x 4 1/8	x 1	STYRENE	1	WHITE	PATTERN

2 PER SET

FULLY ASSEMBLED SET - 2 PC TELESCOPE - 2 SCORED PADS - 2 STYRENE CHANNEL CUT BLOCKS

# / SHEET	MATERIAL SHEET SIZE
	X

DIE #	LENGTH X WIDTH
	1.017 BOARD FT

SPECIAL INSTRUCTIONS