Sandia National Laboratories SAND2013-9806C

Operated for the U.S. Department of Energy's
National Nuclear Security Administration
by **Sandia Corporation**

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Michael W. Hazen
Vice President
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Chief Security Officer

Mr. James W. Todd
Assistant Manager
U. S. Department of Energy
National Nuclear Security Administration
Sandia Field Office, MS-0184
P. O. Box 5400
Albuquerque, NM 87185-0184

Dear Mr. Todd:

Subject: ***Submittal of Updated Reference Documents Cited in the Chemical Waste Landfill Post-Closure Care Permit for Sandia National Laboratories/New Mexico (SNL/NM), Environmental Protection Agency Identification Number NM5890110518***

Updated Sandia National Laboratories reference documents cited in the Chemical Waste Landfill (CWL) Post-Closure Care Permit (PCCP) are being provided to the Department of Energy for submittal to the New Mexico Environment Department (NMED). This submittal is required by Attachment 2 of the CWL PCCP.

This submittal is comprised of three reference documents used by SNL/NM Sample Management Office personnel for conducting activities related to sample handling, packaging, shipping and review and management of sample results received from outside laboratories. The updated reference documents are:

AOP 95-16	Sample Management and Custody
LOP 94 -03	Sample Handling, Packaging, and Shipping
SMO 05-03	Procedure for Completing the Contract Verification Review

I have signed the certification to be sent to the NMED as the Operator at SNL/NM. If you agree, please sign the certification as the Owner.

If you have any questions regarding the enclosed document, please contact Francis Nimick, Sr. Manager, at (505) 284-2577/fbnimic@sandia.gov, or Pam Puissant, Manager, at (505) 844-3185/pmpuiss@sandia.gov.

Sincerely,

Michael W. Hazen,
Vice President

Enclosures:
1. Enclosure A – Revised Reference Documents Cited in The Chemical Waste Landfill Post-Closure Care Permit for Sandia National Laboratories/New Mexico (SNL/NM) Environmental Protection Agency Identification Number NM5890110518.
2. Certification Statement.

Copy to (w/enclosures):
MS-0184 John Weckerle, NNSA/SFO
MS-0184 Cynthia Wimberly, NNSA/SFO
MS-0184 SFO Waste Management File, NNSA/SFO

Blind copy to (w/enclosures):
MS-0651 Customer Funded Records Center, 09532

Blind copy to (w/o enclosures):
MS-0141 Amy Blumberg, 11100
MS-0718 Michael Mitchell, 06234
MS-0725 Sidney Gutierrez, 04100
MS-0729 Francis Nimick, 04140
MS-0729 Anita Reiser, 04144
MS-1151 Pam Puissant, 04142

BL/kh

Enclosure A

Updated Reference Documents Cited in the Chemical Waste Landfill Post-Closure Care Plan for Sandia National Laboratories/New Mexico

November 2013

SANDIA NATIONAL LABORATORIES
LONG TERM STEWARDSHIP DEPARTMENT (ORG 4142)

SAMPLE MANAGEMENT AND CUSTODY ADMINISTRATIVE OPERATING PROCEDURE

AOP 95-16
Revision 05

Prepared By: 11-05-2013
Lorraine Herrera — Date
SMO Project Coordinator, 4142

Reviewed By: 11/05/13
Don Watenpaugh — Date
SMO Packaging Facility Coordinator, 4142

Reviewed By: 11/5/13
Doug Perry — Date
SMO Packaging Facility Coordinator, 4142

Approved By: 11/12/13
Pam Puissant, — Date
Manager, Long Term Stewardship, 4142

Author: *How frequently does this document need to be reviewed and/or revised?*	*Every 3 years*
Manager: *Does this document need to be tracked?*	*Yes*

EFFECTIVE DATE: 11/12/13

IMPORTANT NOTICE: *A printed copy of this document may not be the document currently in effect. The official version is located on the Sandia Restricted Network (SRN), 4100 Controlled Documents home page.*

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TABLE OF CONTENTS

LIST OF ATTACHMENTS

AUTHORIZED USERS LIST

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Revision History

Revision	Effective Date	Summary of Changes
Rev 0	01/25/1995	New Document
Rev 1	04/08/1996	Administrative Updates
Rev 2	12/19/2003	Organization ownership change from Sandia ES&H to Environmental Restoration Project
Rev 3	03/28/2007	Changed revision cycle from 2 to 3 years. Organization ownership change from Sandia Environmental Restoration Project to Sandia ES&H Organization.
Rev 4	06/29/2011	Programmatic revisions include the addition of the Sample Management Analysis Request Tool (SMART) and the addition of Industrial Hygiene (IH) sampling. Other revisions are definition updates, sentence structure, grammar, and formatting. Additions include Revision History page, tracking box and footnote disclaimer
Rev 5		Programmatic revisions include improvements to ARCOC processing, the addition of Bioassay sampling and changes to Industrial Hygiene (IH) sampling to include the use of the Radiological Process Knowledge Form (SF 6951-RRF). Chem101 and PKX050 were added to training requirements. The chemicals were removed from use in addition to removing the use of the fume hood. Added SMO QA Coordinator role. Other revisions include updating language to reflect current program elements and requirements.

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ACRONYMS AND ABBREVIATIONS

AOP	Administrative Operating Procedure
ARCOC	Analysis Request/Chain-of-Custody Record
COC	Chain-of-Custody
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
IATA	International Air Transport Association
IH	Industrial Hygiene
LOP	laboratory operating procedure
OP	operating procedure
PHS	Primary Hazard Screening
RCT	Radiation Control Technician
RMA	Radioactive Materials Area
RPDP	Radiation Protection Dosimetry Program
RPPM	Radiation Protection Procedures Manual
RPSD	Radiation Protection Sample Diagnostics
SALI	Sample Analysis Laboratory Information
SARF	Sample Analysis Request Form
SMART	Sample Management Analytical Request Tool
SMO	Sample Management Office
SMO-QAPP	Sample Management Office Quality Assurance Project Plan
SNL/NM	Sandia National Laboratories/New Mexico
SOW	Statement of Work

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1.0 PURPOSE, SCOPE, AND OWNERSHIP

1.1 Purpose

This administrative operating procedure (AOP) describes the handling of samples at Sandia National Laboratories/New Mexico (SNL/NM) Sample Management Office (SMO) and delineates requirements for the selection of sample containers, required sample volumes, holding times, preservation techniques and sample custody control and documentation. This procedure also contains basic requirements for packaging and shipping environmental, industrial hygiene, bioassay and waste samples. Refer to the Sample Handling, Packaging and Shipping Laboratory Operating Procedure, LOP 94-03 for more detailed sample packaging and shipping requirements. This procedure implements Section 3.3.3, Sampling Handling and Custody Requirements, of the Sample Management Office/Quality Assurance Project Plan (SMO-QAPP).

1.2 Scope

This document applies to SNL/NM sampling projects that use the services of the SMO. Projects that reference this procedure or process samples through the SMO shall comply with this procedure. Samples, forms, and data submitted to the SMO for processing shall conform to the requirements in this procedure.

1.3 Ownership

The SMO owns this document. The SMO is responsible for preparing, revising, and distributing this document as necessary.

2.0 RESPONSIBLE INDIVIDUALS AND ORGANIZATIONS

The **Department Manager** is responsible for the following:

- Providing programmatic guidance leading to the development of this AOP.
- Reviewing and approving the procedure.
- Acting as liaison to the U.S. Department of Energy (DOE) and National Nuclear Security Administration/Sandia Field Office (NNSA/SFO) regarding sample management issues.

The SMO **Technical Lead** is responsible for the following:

- Updating this procedure.
- Developing and maintaining the SNL/NM Sample Management Office (SMO) Contract Statement of Work for Analytical Laboratories (SMO-SOW).
- Managing contractor laboratory services including procurement, routine performance assessments and general laboratory oversight.

The SMO **QA Coordinator** is responsible for the following:

- Providing project data quality assurance guidance.

- Ensuring that this procedure is distributed to the appropriate personnel for project/program use.
- Ensuring that sufficient quality checks are in place to maintain the integrity of the SMO sample information management and analytical result database.
- Documenting non-conformances and corrective actions in accordance with the applicable SMO-QAPP.
- Interfacing with the Records Management Coordinator for maintenance of project documentation and to resolve record management concerns for storage and maintenance of sampling and analysis records.

The **SMO Packaging Coordinator and Packaging support staff** are responsible for receiving and packaging samples shipped through the Receiving/Mail & Material Movement Organization (10263, "Shipping and Receiving") to the contracted laboratories for analysis. SMO Packaging Coordinator(s) and Support Staff responsibilities include but are not limited to the following:

- Overseeing the day-to-day operations of the SMO Sample Packaging Facility and support personnel.
- Verifying proper sample collection documentation from field sampling personnel.
- Ensuring that sample custody is properly maintained and documented in accordance with the most current SMO-QAPP.
- Ensuring all samples, with the exception of groundwater samples or known non-radiological samples with a Clearance-Radiological Process Knowledge Form SF 6951-RRF (Attachment A) on file, receive a radiological survey by a Health Physics Radiation Control Technician (RCT) prior to shipment to an analytical laboratory.
- Ensuring samples are properly stored and packaged for shipment to the analytical laboratories in accordance with the SMO-QAPP, DOE, U.S. Department of Transportation (DOT) and International Air Transportation Administration (IATA) regulations. (Refer to LOP 94-03.)
- Interfacing with SNL/NM Shipping, Radiation Protection Operations and other SNL/NM on-site organizations;
- Ensuring Samples are shipped in a timely manner giving laboratories sufficient time to analyze samples within holding times.

The **SMO Customer(s)/Sampling Personnel** are responsible for sampling and initiating chain-of-custody documentation. Sampling personnel are responsible for performing the applicable activities prescribed in this procedure, including but not limited to:

- Utilizing the Sample Management Analysis Request Tool (SMART) to initiate and submit bottle orders, to produce container labels and to produce and submit the Analytical Request Chain-of-custody (ARCOC) (Attachment B).
- Utilizing the Industrial Hygiene (IH) Sampling Analysis Request Form (SARF) chain-of-custody for industrial hygiene customers (Attachment C).
- Utilizing the Radiation Protection Dosimetry Program (RPDP) SARF chain-of-custody for RPDP customers (Attachment D).
- Providing the SMO with the Radiation Survey Documentation (Attachment H) for samples coming out of a Radioactive Material Area (RMA).
- Working with the Radiation Protection program, and providing the SMO with a copy of the Clearance-Radiological Process Knowledge Form, SF 6951-RRF (Attachment A), for non-

radiological samples. This is not mandatory, but will help expedite sample processing for some sampling programs.
- Labeling and using the correct containers and preservatives for the materials to be analyzed.
- Documenting field parameters during the sampling event according to applicable sampling procedure(s).
- Collecting sufficient volumes of samples for all analyses, including quality control analyses.
- Delivering samples to the SMO Packaging Facility according to chain-of-custody requirements and in secure/safe condition according to SMO requirements as stated in the Sample Handling, Packaging and Shipping Laboratory Operating Procedure (LOP 94-03).
- Delivering samples to SMO in a timely manner and communicating with SMO staff about short holding times.

The **Analytical Laboratory** is responsible for following the applicable SMO-SOW. Requirements include, but are not limited to:
- Developing and maintaining quality assurance programs and procedures in accordance with the applicable SMO-SOW.
- Providing sampling kits that include coolers and certified sample containers to the SMO using appropriate cleaning methods and preservatives.
- Ensuring that sample custody is properly maintained and documented in accordance with the current SMO-QAPP and SMO-SOW.
- Immediately notifying the SMO of non-conformances such as broken sample custody seals, leaking sample containers, broken sample containers, incorrect sample containers and incorrect preservation (i.e., pH, temperature).
- Performing analyses in accordance with the applicable SMO-SOW.
- Analyzing samples within required holding times.
- Providing data in accordance with format requirements in the applicable SMO-SOW.
- Handling of samples from receipt at the laboratory through completion of analysis maintaining sample integrity.
- Returning sample control documentation and analytical reports to SMO in accordance with contract and project requirements.

3.0 TRAINING QUALIFICATIONS

Personnel shall be trained and qualified as necessary to perform their assigned work. The Sandia Education and Training Organization provides basic training and qualification guidance. Training requirements are presented in activity-specific operating procedures with specific requirements for the tasks performed. Personnel shall be trained according to established training cycles to maintain proficiency. Training shall be updated to meet required frequency schedules when specified. Details of corporate training are outlined in the SMO-QAPP and are referenced in the current Primary Hazard Screening (PHS) document, PHS 972834764, SMO Packaging Facility Operations and in LOP 94-03.

SMO personnel and customers are responsible for adherence to training requirements stipulated in this procedure and the current SMO-QAPP and the SMO Packaging Facility Operations PHS as it pertains to each individual.

4.0 SAMPLE DOCUMENTATION AND MATERIALS

4.1 Bottle Order/Sample Request Form & Sample Containers

The Bottle Order/ Sample Request form is accessed through the SMART application. The completed and approved Bottle Order initiates the sampling process and is used to complete the ARCOC. The ARCOC may be obtained from the SMO home page, Electronic Forms link, or through the SMART application. Note that the SMART application is *not* used for the IH SARF or RPDP SARF chain-of-custody.

Recommended sample containers and chemical preservatives may be obtained by logging on to the SMO SMART application and completing the Bottle Order/Sample Request form. Most projects require that a bottle order be placed with the contract laboratory. (The IH and Bioassay projects do not utilize the SMO Bottle Order process.) It is recommended that bottle orders be submitted for approval to the SMO one to two weeks prior to sampling. The purpose of the bottle order is to:

- Initiate the sampling process.
- Notify the lab of the expected number of samples and analyses.
- Notify the lab of expected sampling dates.
- Obtain sample containers from certified suppliers with analytical method specified chemical preservatives. (Containers are inspected as covered in Part B, Section 3.3.8 of the SNL/NM SMO-QAPP.)

4.2 Analytical Request Chain-of-custody (ARCOC or COC, SARF) Forms

The COC provides an accurate and defensible written and/or computerized record to trace the possession and handling of a sample from collection to completion of all required analyses. COC records provide a record of sample history and are critical for data integrity. Four different COC forms may be submitted to the SMO:

- Contract Laboratory Analysis Request and Chain-of-custody (ARCOC) (Attachment B)
- Industrial Hygiene SARF (IH SARF)(Attachment C)
- Radiation Protection Dosimetry Program Sample Analysis Request Form (RPDP SARF) (Attachment D)
- Onsite Laboratory/Radiation Protection Sample Diagnostics (RPSD) Sample Analysis Request Form (RPSD SARF) (Attachment E)

4.3 Sample Label

An SMO SNL/NM sample label must be completed with indelible ink and affixed to each sample container prior to or during sampling. The label in Attachment F is required for all samples submitted on an ARCOC. The Sample Label is produced after completion of the SMART application ARCOC and using the label printer model Zebra LP 2844. It may also be produced using a spreadsheet and the Zebra

label printer. A label printer is available for customer use at the SMO Packaging Facility (Building 928) and at the Field Office (Building 9925). The Sample Label information shall match the information on the corresponding ARCOC. For samples not submitted under the ARCOC, the label information must match the information on the SARF. Each completed sample label submitted on an ARCOC includes the following:

- SMO SNL/NM Sample Identification Number (The first 5 digits of the Sample Number are controlled and obtained from the SMO. The Sample fraction designation is assigned by the sampler.)
- ARCOC Number
- Sample location
- Date and time of sample collection
- Sample matrix type
- Chemical Preservative
- Analysis
- Collector's name
- SNL/NM Thunderbird logo

Samples submitted on a SARF chain-of-custody will contain a SARF chain-of-custody number. and Sample Number.

4.4 Custody Seals

Sample custody seals are used to help determine unauthorized tampering of samples following collection until the time of sample preparation and analysis. SNL/NM uses adhesive backed seals with the SNL/NM Thunderbird logo. Custody seals may be obtained from an SMO Packaging Facility representative. Initialed and dated seals must be affixed to sample containers before the samples leave the custody of the sampling personnel. IH containers and Volatile Organic Compound containers are exempt from this requirement. The container(s) are placed in a sealed plastic bag and the bag, not the container(s), is secured with the custody tape.

- The custody seal is initialed and dated while the seal is affixed to the backing.
- The seal is then removed from the backing and affixed to the container in such a manner that it is necessary to break the seal in order to open the container.
- The custody seal may be removed by the person initiating or retaining custody of the sample (e.g., the sampling personnel or the analytical laboratory sample custodian).
- The integrity of the seal must be verified prior to its removal.
- A broken seal invalidates the sample and must be documented as a nonconformance.

4.5 SNL/NM "Shipper" Form and Shipper's Waybill

The SNL/NM electronic shipping form, Web Shipper, is required on all shipments leaving SNL/NM. The Web Shipper and the commercial shipper's waybill complete the sample custody documentation and show possession of the sample from shipment to arrival at a contract laboratory. A copy of the Web Shipper form and shipper's waybill (if applicable) under which the samples are shipped shall be retained to document shipment of the sample(s). The SMO Packaging Facility Personnel are responsible for completing all shipping documentation per the current version of LOP 94-03.

5.0 SAMPLE MANAGEMENT PROCEDURES

5.1 Sampling Kit Procedure (Bottle Orders)

Required sample containers and chemical preservatives are obtained by logging on to the SMO SMART application and completing the Bottle Order/Sample Request form. Most projects require that a bottle order be placed with the contract laboratory. IH and RPDP Bioassay programs do not require a Bottle Order.

The Bottle Order initiates the sampling process for the projects that utilize the ARCOC. The customer shall submit a Bottle Order request to the SMO utilizing the SMART application. Upon receipt, the SMO reviews the Bottle Order and submits it to the contract laboratory. The contract laboratory provides sampling kits according to the Bottle Order specifications. The SMO shall ensure staff is trained in sampling kit requirements. It is recommended that bottle orders be submitted for approval to the SMO one to two weeks prior to sampling. IH and RPDP projects do not utilize the SMART application for sampling kits.

The SMO shall provide oversight and ensure that the laboratories follow the SMO-SOW as it pertains to providing sampling kits. The laboratories shall have applicable procedures and processes in place. The SMO shall inspect sampling kits to determine that they are intact, accurate, and meet any specific written requirements associated with the SMO-SOW. Any errors or damage to sampling kits will be addressed in accordance with the SMO-SOW and procurement policies.

5.2 Sampling Considerations

For sampling requirements, refer to Sample Containers and Preservatives, Holding Times and Sample Preservation (Attachment G).

Sample Volume**:** The volume of the sample collected should be sufficient to perform all the required analyses plus any additional volume needed to meet quality control requirements or repeat analyses. The minimum sample volume required for typical analytical procedures is listed in Attachment G, Holding Times and Sample Preservation. After the Bottle Order/Sample Request form is complete and approved, the required sample volumes will auto fill on the ARCOC when initiated. Laboratory-specific sample volume requirements may apply.

For the IH SARF chain-of-custody, the IH customer is responsible for meeting volume requirements.

Sample Preservation: Prior to sampling, the appropriate chemical preservative(s) is added to the sample bottles by the analytical laboratory. Due to the variety of chemical tests performed on samples, it may be impractical to chemically preserve samples during actual field collection. Following collection, most samples are cooled and maintained at <6˚C (i.e., stored in a cooler with ice or ice gel or in a refrigerator) to conform to temperature preservation requirements. Chemical and temperature Preservation requirements are listed in Attachment G and will auto fill on the Bottle Order and the ARCOC forms.

For the IH SARF COC, the IH customer is responsible for meeting sample preservation requirements.

Holding Times: Holding time is the time interval between sample collection and sample preparation or analysis. Holding times are calculated in days or hours, according to the time units used in the U.S. Environmental Protection Agency (EPA) holding time requirements. That is, if the EPA-specified holding time is given in hours, then the analysis must be complete before the end of the last hour of the holding time when calculated from the sampling time. When the holding time is given in days, the analysis must be complete before the end of the day on which the holding time would expire as calculated from the sampling day. Recommended maximum holding times are listed in Attachment G and should be adhered to. Samples should be shipped to the laboratory at the completion of each day of sampling, or as soon as practical.

SMO will make every effort to notify the laboratory when samples having less than 72 hours of the holding time remaining are to be shipped.

Sample Storage: All samples shall be stored in a secured location when not in the immediate custody of an individual. The samples should be stored under physical and environmental conditions commensurate with the preservation requirements and intended analysis. Sample integrity must be maintained during sample storage through access controls and documentation. Samples shall be placed in a sample storage refrigerator and allowed to equilibrate to the required temperature prior to shipment to a contract laboratory.

Daily verification and documentation of storage temperature should be maintained when temperature is a preservation requirement. Additional measures must be taken to separate waste samples from non-waste samples in order to avoid cross-contamination. Trip blanks should be used as appropriate to determine sample contamination during sample storage and shipment.

5.3 Sample Custody Procedure

Custody procedures provide an accurate record of sample history and shall be followed by SMO, field (sampling) and laboratory personnel to provide an accurate record of sample history.

By definition, a sample is in custody if it is:

- In one's possession,
- In view,
- In a controlled access area
- In transit following proper chain-of-custody procedures.

Sampling Team Member (Customer) Custody Procedure

A Sample Team Member is responsible for the care and custody of samples collected until sample custody is properly transferred. The following procedure shall be used to ensure proper control of samples:

- For the ARCOC, a project team member must submit to the SMO a Bottle Order at least 7 days prior to the requested delivery date for containers. The Bottle Order is initiated using the SMART application found on the SMO homepage. Once the Bottle Order is submitted, it will go through an SMO approval process and will be submitted to the appropriate analytical laboratory. Upon approval, all project team members will be notified. The approved Bottle Order is used by the customer to

complete the ARCOC. From the approved Bottle Order, the Sample Matrix, Container Type and Volume, Preservative, Analysis Parameter and Method will pre-fill the ARCOC. SMART application Bottle Orders are not submitted for the IH or RPDP Bioassay SARF COC or the Onsite Laboratory (RPSD) Sample Analysis Request Form (RPSD/SARF).

- For the ARCOC, the Sample Team Member documents sample collection information: *Sample-No.-Fraction, Sample ID or Sample Location Detail, Pump Depth, Date/Time Collected, Collection Method, Sample Type, Filtered/Unfiltered sample* (refer to LOP 94-03).
- For the IH SARF COC, the sample team member will provide a completely filled form to include *IH Survey ID number, Submitted by name, Submission date, Analysis Requested, IH Sample #, Col. Date, Turn-Around-Time, Matrix.* In the *Sample Comments* section, the IH sample team member or the SMO will assign a unique sample number and fraction for each *IH Sample #.* The IH SARF COC is 2 pages. The second page is the received/relinquished page. The corresponding second page must include the IH Survey ID number.
- If samples are destined for the on-sight Radiation Protection Sample Diagnostics (RPSD) laboratory for analysis (i.e., gamma spec, alpha, beta, etc.), the customer shall complete either the paper form RPSD/SARF COC (Attachment E) provided by the RPSD laboratory or submit an electronic version of the SARF through the Sample Analysis Laboratory Information (SALI) system.
- For the ARCOC, sample container labels (Attachment F) shall be affixed to sample containers, or in some cases, to the re-sealable bag, and shall match information on the associated ARCOC. Sample labels shall be legible and completed in indelible ink. (Refer to LOP 94-03). Blank Sample Labels may be obtained by contacting an SMO Packaging Facility representative or may be printed from the SMO SMART Application. (See Sample Labeling section.)
- All samples shall be accompanied with corresponding ARCOC, IH or RPDP SARF, COC, and/or RPSD SARF documentation.
- Samples shall be delivered to the SMO Packaging Facility for review of custody documentation prior to acceptance and transfer of custody to the SMO. (Refer to LOP 94-03).
- The SMO Packaging Facility shall process samples as required by LOP 94-03. Samples submitted by sampling team members to the SMO Packaging coordinator or support staff shall be clean, sealed, and intact. Sample container lids shall be secured with custody tape that has been initialed and dated. Glass containers are placed in re-sealable bubble bags and double bagged. If samples are from an area designated as a Radioactive Material Area (RMA), the sampling team member shall include the Radiation Survey Documentation (Attachment H) with the samples. (Refer to LOP 94-03).
- A sampling team member shall assist the Sample Packaging Facility representative verifying that all sample containers and request forms are correct and complete. (Refer to LOP 94-03).
- Upon complete verification, the sampling team member shall transfer custody of the samples to the SMO Packaging Facility representative by signing, dating and noting the time on the appropriate *Relinquished By* line on the ARCOC,IH or RPDP SARF, COC, and/or RPSD SARF. The SMO Packaging Facility representative shall then accept custody by signing, dating, and noting the time on the appropriate *Received By* line, below the *Relinquished By* signature.

Packaging Coordinator Procedure

- The SMO Packaging Facility representative shall relinquish samples to the contract laboratory by signing the *Relinquished By* line on the ARCOC, SARF, or COC. The chain-of-custody documentation is then put into a zip-lock bag and placed inside the shipping container/cooler. The shipping container/cooler is then closed and sealed with custody tape and delivered to SNL/NM Shipping and Receiving personnel for shipment to contract laboratories. Included with the shipping

container is a completed Web Shipper. The SNL/NM Shipping and Receiving Department shall be responsible for assigning the shipment to the appropriate commercial carrier (overnight air shipment is preferred) and for final labeling of the container/cooler. Non-hazardous samples may be hand-delivered to local analytical laboratories by the SMO after meeting all other requirements for packaging and shipping. Refer to LOP 94-03 for detailed sample handling, packaging, and shipping requirements and instructions.

- The SNL/NM Shipping/Receiving Department is responsible for completing the shipping documentation, including the waybill. The SMO shall retain a copy of all sample custody documents including shipping documentation.

Analytical Laboratory Custody Procedure

Sample custody is transferred to the contract laboratory at the time of sample receipt, after which the contract laboratory is responsible for maintenance of unbroken chain-of-custody. The analytical laboratory shall maintain the sample custody records until sample analysis is complete. Sample receipt requirements for the analytical laboratory are:

- At the time of receipt, the subcontract laboratory sample custodian shall sign and date the ARCOC or SARF COC form in indelible ink to acknowledge sample receipt and to accept custody.
- The contract laboratory sample custodian receiving the samples shall verify that the information listed on the ARCOC or SARF COC form is correct and accurately describes the contents of the shipment.
- Maintain records to clearly document all internal transactions as well as the final disposition (e.g., destruction) of the sample.
- Retain samples for at least 60 days, or according to contract or project requirements, after the final analytical report is issued.
- Return custody documentation (original ARCOC, IH SARF, or RPDP SARF or applicable chain-of-custody) to SMO SNL/NM upon completion of analysis.
- Follow the current version of the SMO-SOW

Non-conformance and Corrective Action:

Any non-conformances and corrective actions related to processes described in this procedure and associated corrective actions will be documented, approved, and implemented in accordance with the requirements of the SMO-QAPP and the responsibilities identified in this procedure (Section 4.0). Non-conformances shall be identified by any personnel (e.g., SNL/NM staff; contractor; or contract analytical laboratory).

6.0 RECORDS MANAGEMENT

The SMO shall maintain records to document activities and to provide support for possible evidential proceedings. Records that provide documentary evidence of quality shall be specified, prepared and maintained in accordance with appropriate SNL/NM record-keeping procedures. SMO records shall be transferred to the customer as well as the Records Center for cataloging and storage in accordance with SNL/NM and DOE requirements. The following documentation required by this procedure should be submitted to the Project/Task Leader or SMO personnel for review, approval, and storage in the Records Center:

- ARCOC, IH SARF COC, or RPDP SARF COC Record (hard copy to Records Center)
- Shipper form (hard copy to Records Center)
- Radiation Survey Documentation when applicable (hard copy to Records Center)
- Data package electronic file and EDD
- Nonconformance and corrective action records
- Pertinent correspondence

References

International Air Transport Association (IATA) Dangerous Goods Regulations, current edition, 52nd Edition (updated annually), International Air Transport Association (IATA), Montreal, Canada

National Nuclear Security Administration Service Center Model Statement of Work for Analytical Laboratories, current revision, National Nuclear Security Administration Service Center, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico Quality Assurance Project Plan for the SNL/NM Sample Management Office (SMO-QAPP), current revision, Sandia National Laboratories/New Mexico Sample Management Office, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico Sample Handling, Packaging and Shipping Laboratory Operating Procedure (LOP 94-03), current revision, Sandia National Laboratories/New Mexico Sample Management Office, Albuquerque, New Mexico.

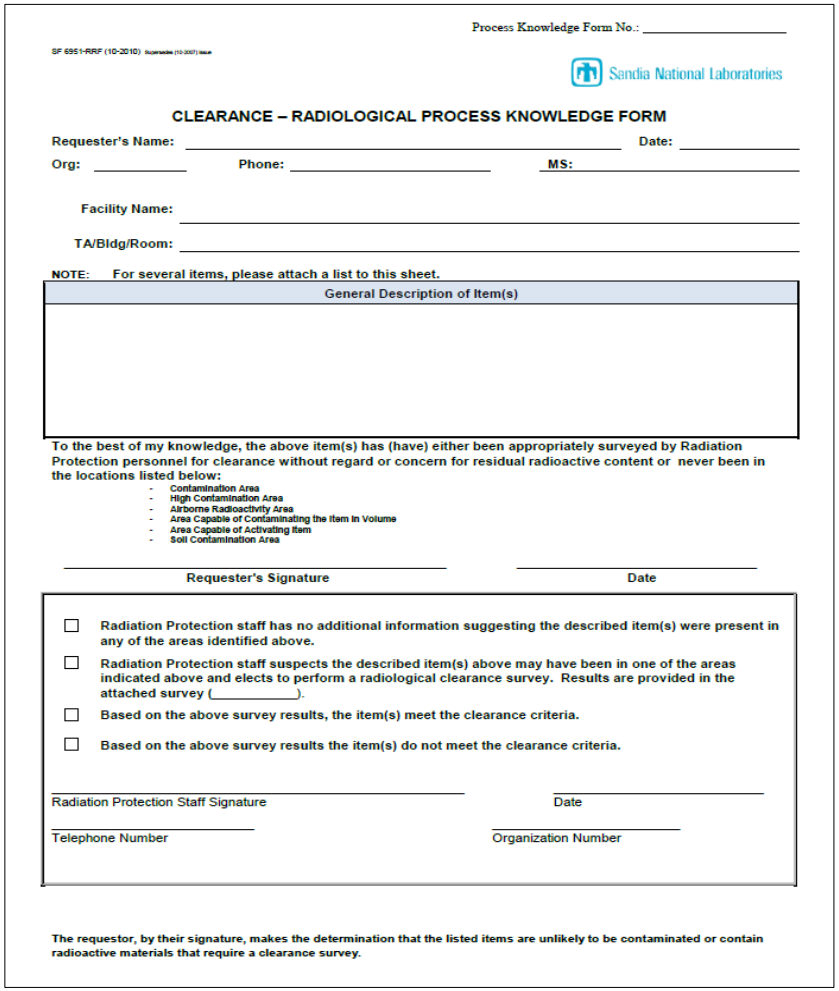
Sandia National Laboratories/New Mexico Statement of Work for Analytical Laboratories, current revision, Sandia National Laboratories/New Mexico Sample Management Office, Albuquerque, NM

U.S. Environmental Protection Agency Code of Federal Regulations (CFR), CFR Title 49, Updated Quarterly as of October 1st, U.S. Environmental Protection Agency, Washington, DC

U.S. Occupational Safety and Health Administration Code of Federal Regulations (CFR), Title 29, Section 1910.1200, Updated Quarterly as of July1st, U.S. Occupational Safety and Health Administration Government Printing Office, Washington, D.C.

ATTACHMENTS

ATTACHMENT A: CLEARANCE RADIOLOGICAL PROCESS KNOWLEDGE FORM SF 6951-RRF



Process Knowledge Form No.: _____

SF 6951-RRF (10-2010) Supersedes (10-2007) Issue

Sandia National Laboratories

CLEARANCE – RADIOLOGICAL PROCESS KNOWLEDGE FORM

Requester's Name: _____ Date: _____

Org: _____ Phone: _____ MS: _____

Facility Name: _____

TA/Bldg/Room: _____

NOTE: For several items, please attach a list to this sheet.

General Description of Item(s)

To the best of my knowledge, the above item(s) has (have) either been appropriately surveyed by Radiation Protection personnel for clearance without regard or concern for residual radioactive content or never been in the locations listed below:

- Contamination Area
- High Contamination Area
- Airborne Radioactivity Area
- Area Capable of Contaminating the Item In Volume
- Area Capable of Activating Item
- Soil Contamination Area

_____ _____
Requester's Signature Date

☐ Radiation Protection staff has no additional information suggesting the described item(s) were present in any of the areas identified above.

☐ Radiation Protection staff suspects the described item(s) above may have been in one of the areas indicated above and elects to perform a radiological clearance survey. Results are provided in the attached survey (_____).

☐ Based on the above survey results, the item(s) meet the clearance criteria.

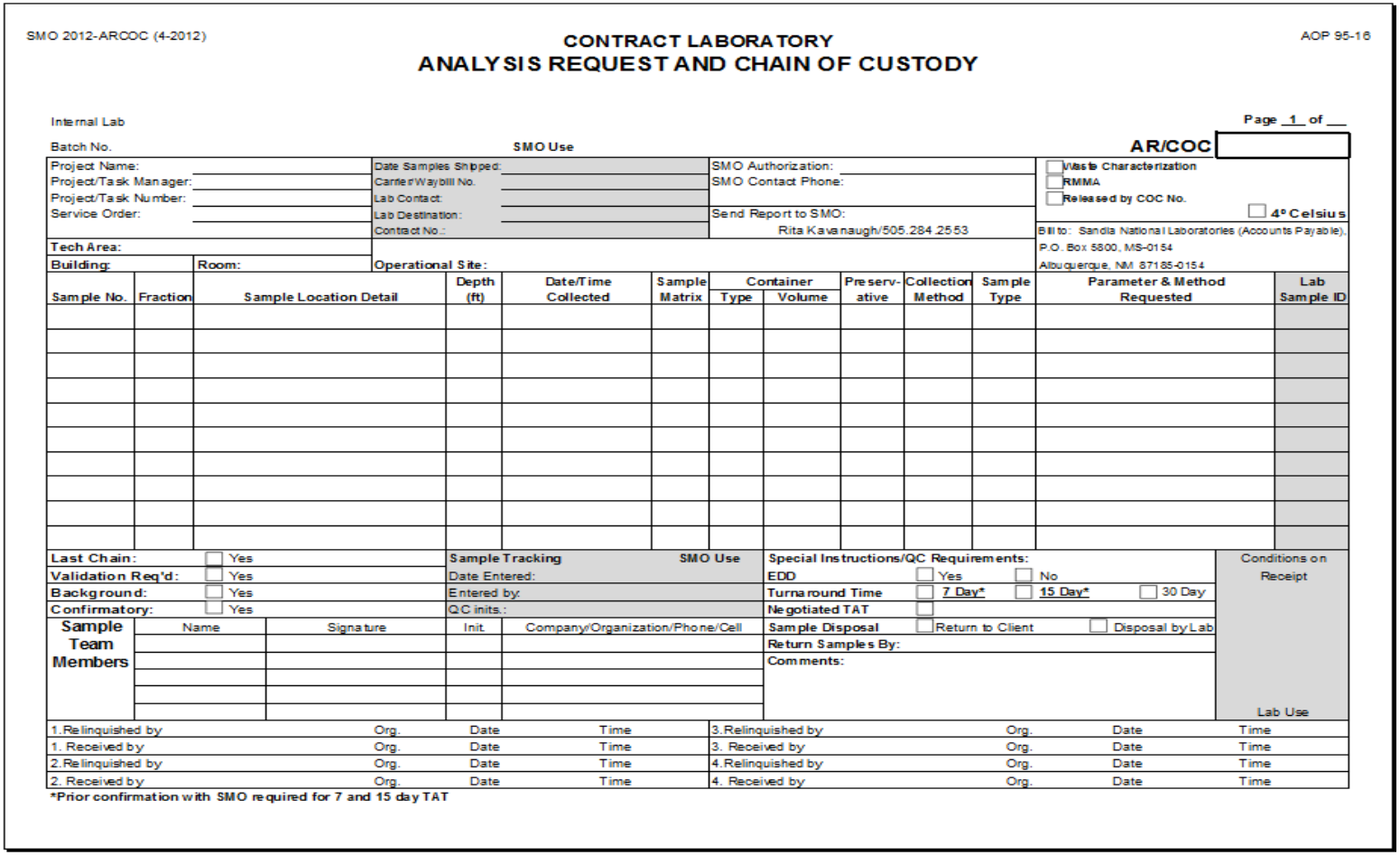
☐ Based on the above survey results the item(s) do not meet the clearance criteria.

_____ _____
Radiation Protection Staff Signature Date

_____ _____
Telephone Number Organization Number

The requestor, by their signature, makes the determination that the listed items are unlikely to be contaminated or contain radioactive materials that require a clearance survey.

ATTACHMENT B:
CONTRACT LABORATORY ANALYSIS REQUEST AND CHAIN-OF-CUSTODY
SMO 2012-ARCOC



SMO 2012-ARCOC (4-2012)

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

AOP 95-16

Internal Lab

Page 1 of ___

Batch No.

SMO Use

AR/COC

Project Name:	Date Samples Shipped:	SMO Authorization:	☐ Waste Characterization ☐ RMMA ☐ Released by COC No.
Project/Task Manager:	Carrier/Waybill No.	SMO Contact Phone:	
Project/Task Number:	Lab Contact:		☐ 4° Celsius
Service Order:	Lab Destination:	Send Report to SMO:	Bill to: Sandia National Laboratories (Accounts Payable), P.O. Box 5800, MS-0154, Albuquerque, NM 87185-0154
	Contract No.:	Rita Kavanaugh/505.284.2553	
Tech Area:			
Building: Room:	Operational Site:		

Sample No.	Fraction	Sample Location Detail	Depth (ft)	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID

Last Chain: ☐ Yes	Sample Tracking SMO Use	Special Instructions/QC Requirements:	Conditions on Receipt
Validation Req'd: ☐ Yes	Date Entered:	EDD ☐ Yes ☐ No	
Background: ☐ Yes	Entered by:	Turnaround Time ☐ 7 Day* ☐ 15 Day* ☐ 30 Day	
Confirmatory: ☐ Yes	QC inits.:	Negotiated TAT ☐	
		Sample Disposal ☐ Return to Client ☐ Disposal by Lab	
		Return Samples By:	
		Comments:	

Sample Team Members	Name	Signature	Init.	Company/Organization/Phone/Cell

Lab Use

1.Relinquished by	Org.	Date	Time	3.Relinquished by	Org.	Date	Time
1. Received by	Org.	Date	Time	3. Received by	Org.	Date	Time
2.Relinquished by	Org.	Date	Time	4.Relinquished by	Org.	Date	Time
2. Received by	Org.	Date	Time	4. Received by	Org.	Date	Time

*Prior confirmation with SMO required for 7 and 15 day TAT

This ARCOC is for example purposes only. The ARCOC currently in effect is posted on the 4100 Controlled Documents homepage (SMO 2012-ARCOC).

ATTACHEMNT C: Industrial Hygiene (IH) SARF Chain-of-custody

SANDIA
SNL NM
SARF Chain of Custody Report

IH Survey ID: S01013 Lab Log Batch ID: Lab receiving sample
Sample location TA1 897 1300

Submitted By: CASTILLO,R Submission Date:
Charge code:

Send Report To: SNL NM Attention of: CASTILLOR
Address: Email:
Phone: Fax:

Analysis requested (please be specific if possible)
CADMIUM

General comments to lab personnel
Additional Potential Hazards, Name and phone/pager of a person knowledgeable about the sample origin and hazards

IH Sample #	Lab ID	Col. Date	Turn-Around-Time	Matrix	Sample Comments
12345678901		11/17/2010	NORMAL (15 DAYS)	SWIPE	088750-001
12345678902			NORMAL (15 DAYS)	SWIPE	088750-002
12345678903			NORMAL (15 DAYS)	SWIPE	088750-003

Samples Checked For
☐ Container Integrity
☐ Sample Size
☐ Sampling Label

Condition of Sample Receivec
☐ Acceptable
☐ Not Acceptable

Custody Seals
☐ Present
☐ Not Present

ATTACHMENT D:
RPDP SAMPLE ANALYSIS REQUEST FORM

RPDP SARF

SAMPLE ANALYSIS REQUEST FORM (SARF)
RADIATION PROTECTION DOSIMETRY PROGRAM (RPDP)

Page 1 of 1

RPDP BATCH NO. _____ RPSD LOG NO. _____

Customer Name: Goke, Sarah Hayes
Organization: 4121
MailStop: 0651
Phone: 845-DOSE / 284-5598
Email: dosimetry@sandia.gov
Prgm Name: Radiation Protection Dosimetry Program

Analytical Lab: _____
Lab Contact: _____
Contract No.: _____
Date Shipped: _____
Shipper No.: _____
RPDP Contact/Ph: Sarah Hayes Goke / 505.284.5598

Send Results to: RPDP
P.O. Box 5800, MS-0651
Albuquerque, NM 87185
Email: dosimetry@sandia.gov
FAX: 505.844.8313

Bill to: Sandia National Laboratories
Accounts Payable Department
P.O. Box 5800, MS-1383
Albuquerque, NM 87185-1383

Customer Sample ID	Lab Sample ID	Date Collected	Time Collected 0-24 HRS	TAT	Sample Matrix	Qty/Tot Volume Tare Wt	Rad Screen (cpm)	QC Set	EDD (Off-Site Labs) [ ] Yes [X] No: Parameter / Method Requested	Lab Notes

Turn Around Time(TAT) Instructions
ENTER DATE NEEDED BY: (applicable to all samples)

N - Normal, R - Rush, U - Urgent

Special Instructions/Hazards
Biological Sample - Treat With Caution
Contact: Sarah Hayes Goke, 284-5598, pager (800) 237-6849

Sample(s) Condition on Receipt
[ ] Normal
[ ] Abnormal
If abnormal, fill out the attached Sample Condition Upon receipt form and contact the customer about the sample condition before proceeding further.

1. Relinquished by	Org.	Date	1. Received by	Org.	Date
2. Relinquished by	Org.	Date	2. Received by	Org.	Date
3. Relinquished by	Org.	Date	3. Received by	Org.	Date
4. Relinquished by	Org.	Date	4. Received by	Org.	Date
5. Relinquished by	Org.	Date	5. Received by	Org.	Date
6. Relinquished by	Org.	Date	6. Received by	Org.	Date

ATTACHMENT E: ONSITE LABORATORY (RPSD) SAMPLE ANALYSIS REQUEST

RPSD SARF

Sandia National Laboratories
Sample Analysis Programs

Sample Analysis Request Form
Page ____of ____

To be completed by Customer

Shaded areas are for Lab use

Customer Name: _____
Customer Email ID: _____
Organization: _____
Phone: Sample _____
Location (Bldg/Rm): _____
Date Results Needed: _____
Project/Task Number: _____

Hazards/Special Instructions:

☐ Provide EDD

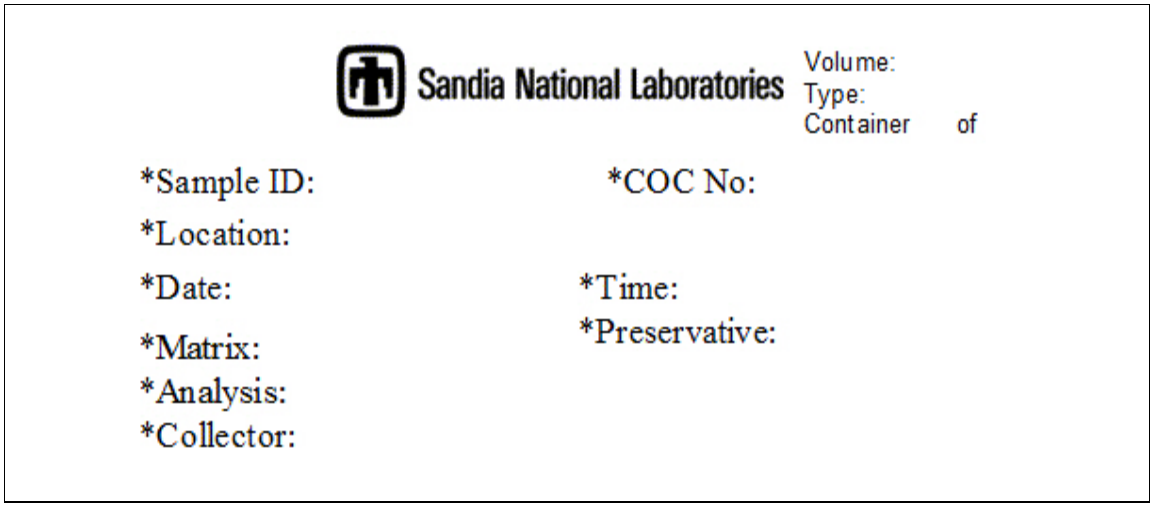
Batch Log No: _____
Logged By: _____

o RPOP - Rad Protection Operation
o RPID - Dosimetry
o RPSD - Sample Diagnostics
o IH - Industrial Hygiene
o DND -DeconDecom
o EXT- External
o SND - Source & Device
o WM – Waste Management
o OTH - Other
o EM - Environment Monitoring
o EMAA - Ambient Air
o EMWW - Waste Water
o EMGW - Ground Water
o EMTS - Terrestrial surveill
o EMSW - Storm Water
o CMC – Coop Monitoring Ctr
o ER – Enviroment Restoration

Customer Sample ID	Sample Type	Date/Time Collected	Sample Amount or Flow Rate	Requested Analysis	Survey or COC#	Lab ID	Rad Screen(CPM)	Remarks/Aliquot Amount

Relinquished by _____ Date _____ Received by _____ Date_____

ATTACHMENT F
SAMPLE LABEL
http://info.sandia.gov/esh/smo/
https://info.sandia.gov/esh/smo_application



***Required fields**

ATTACHMENT G
SAMPLE CONTAINERS AND PRESERVATIVES
Holding Times and Sample Preservation

305.1,310.1	Acidity, Alkalinity	Water	Plastic or Glass	4 °C	14 Days	NA
300, 320.1, 325	Bromide, Chloride	Water	1 L Plastic	4 °C	28 Days	NA
340.2, 375.X	Fluoride, Sulfate	Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
405	BOD	Water	1 L Plastic	4 °C	48 Hours	NA
9010B, 9014	Total Cyanide	Water	1 L Plastic	4 °C; NaOH; pH > 12	14 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	14 Days	NA
415, 9060	DOC, TOC	Water	250 mL Amber Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
200, 6010, 6020, 7000	All metals except Cr(VI) and Hg	Water	500 mL Plastic	HNO_3 ; pH < 2	180 Days	NA
		Solid/Other	250 mL Glass Jar		180 Days	NA
3060A, 7196A, 7197	Cr(VI)	Water	500 mL Plastic	4 °C	24 Hours	NA
		Solid/Other	250 mL Glass Jar	4 °C	30 Days	NA
245, 7470A, 7471A	Hg	Water	500 mL Plastic	HNO_3 ; pH < 2	28 Days	NA
		Solid/Other	250 mL Glass Jar	4 °C	28 Days	NA
130.1	Hardness	Water		HNO_3 ; pH < 2 4 °C	180 Days	NA
345.1	Iodide	Water		4 °C	24 Hours	NA
300, 353.1, 351, 365	Ammonium, Nitrate + Nitrite Total Phosphorus, TKN	Water	1 L Plastic	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	250 mL Glass Jar	4 °C	28 Days	NA
300, 365, 9210	Nitrate, Nitrate + Nitrite, Nitrite, Ortho Phosphorus	Water	500 mL Plastic	4 °C	48 Hours	NA
		Solid/Other	250 mL Glass Jar	4 °C	48 Hours	NA

1664, 9070	Total Recoverable oil and Grease	Water	1 L Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
376	Sulfide	Water	1 L Glass	4 °C; NaOH; Zinc acetate; pH > 9	7 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	7 Days	NA
160	TDS, TSS, TS	Water	1 L Plastic	4 °C	7 Days	NA
9020B	TOX	Water	1 L Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
418.1, 8440	TPH	Water	1 L Amber Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
1664		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
9065, 9066	Total Recoverable Phenols	Water	1 L Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid	125 mL Glass Jar	4 °C	28 Days	NA
150, 9040B	pH	Water	125 mL Plastic	4 °C	24 Hours	NA
110, 180	Color, Turbidity	Water	500 mL Plastic	4 °C	48 Hours	NA
120, 9050	Specific Conductance	Water	125 mL Plastic	4 °C	28 Days	NA
All radiochemical parameters except Rn-222 and tritium		Water	1 L Plastic (2 x 2 L Preferred)	HNO_3 ; pH < 2	180 Days	NA
		Solid/Other	250 mL Glass Jar		180 Days	NA
Rn-222	Radon 222	Water	3 x 40 mL Amber Glass Vial	None	72 Hours	NA
Tritium	^3H	Water	1 L Glass		180 Days	NA
		Solid/Other	Required sample size will vary with solid moisture content			NA
8015	Petroleum Hydrocarbons	Water	2 x 1 L Amber Glass Bottle	4 °C	14 Days	40 Days
		Soil/Other	250 mL Glass Jar	4 °C	14 Days	40 Days

8021B	Halogenated Volatile Organics	Water	3 x 40 mL Amber Glass Vial	4 °C; HCl; pH < 2	14 Days	NA
		Soil/Other	125 mL Glass Jar	4 °C	14 Days	NA
8081, 8082	Organochlorine Pesticides, PCBs	Water	4 L Amber Glass Bottle	4 °C	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8141A	Organophosphorous Compounds	Water	4 L Amber Glass Bottle	4 °C; NaOH or H_2SO_4; pH 5-8	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8151	Chlorinated Herbicides	Water	4 L Amber Glass Bottle	4 °C;	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8260B (Modified)	Volatile Organics by GC-MS	Water	3 x 40 mL Amber Glass Vial	4 °C; HCl; pH < 2	14 Days	NA
		Soil/Other	125 mL Glass Jar	4 °C	14 Days	NA
8270C	Semi-volatile Organics by GC-MS	Water	4 L Amber Glass Bottle	4 °C	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8280A	Polychlorinated Dioxins and Furans by GC/MS	Water	4 L Amber Glass Bottle	4 °C	30 Days	45 Days
		Soil/Other	250 Glass Jar	4 °C	30 Days	45 Days
8318	N-Methylcarbamate Pesticides by HPLC	Water	4 L Amber Glass Bottle	4 °C; 0.1 N $ClCH_2CO_2H$, pH 4 - 5	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	7 Days	40 Days
8330	Nitroaromatics and Nitramines by HPLC	Water	4 L Amber Glass Bottle	4 °C	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
TO-13	PAHs in Filter Cartridges	PUF, Tenax, or XAD-2 Filter Cartridge		4 °C	7 Days	40 Days
TO-14/ TO-15	VOC in Air	SUMMA® Canister			30 Days (by consensus)	
305.1,310.1	Acidity, Alkalinity	Water	Plastic or Glass	4 °C	14 Days	NA
300, 320.1, 325	Bromide, Chloride	Water	1 L Plastic	4 °C	28 Days	NA
340.2, 375.X	Fluoride, Sulfate	Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
405	BOD	Water	1 L Plastic	4 °C	48 Hours	NA

9010B, 9014	Total Cyanide	Water	1 L Plastic	4 °C; NaOH; pH > 12	14 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	14 Days	NA
415, 9060	DOC, TOC	Water	250 mL Amber Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
200, 6010, 6020, 7000	All metals except Cr(VI) and Hg	Water	500 mL Plastic	HNO_3 ; pH < 2	180 Days	NA
		Solid/Other	250 mL Glass Jar		180 Days	NA
3060A, 7196A, 7197	Cr(VI)	Water	500 mL Plastic	4 °C	24 Hours	NA
		Solid/Other	250 mL Glass Jar	4 °C	30 Days	NA
245, 7470A, 7471A	Hg	Water	500 mL Plastic	HNO_3 ; pH < 2	28 Days	NA
		Solid/Other	250 mL Glass Jar	4 °C	28 Days	NA
130.1	Hardness	Water		HNO_3 ; pH < 2 4 °C	180 Days	NA
345.1	Iodide	Water		4 °C	24 Hours	NA
300, 353.1, 351, 365	Ammonium, Nitrate + Nitrite Total Phosphorus, TKN	Water	1 L Plastic	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	250 mL Glass Jar	4 °C	28 Days	NA
300, 365, 9210	Nitrate, Nitrate + Nitrite, Nitrite, Ortho Phosphorus	Water	500 mL Plastic	4 °C	48 Hours	NA
		Solid/Other	250 mL Glass Jar	4 °C	48 Hours	NA
1664, 9070	Total Recoverable oil and Grease	Water	1 L Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
376	Sulfide	Water	1 L Glass	4 °C; NaOH; Zinc acetate; pH > 9	7 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	7 Days	NA
160	TDS, TSS, TS	Water	1 L Plastic	4 °C	7 Days	NA
9020B	TOX	Water	1 L Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA
418.1, 8440 1664	TPH	Water	1 L Amber Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid/Other	125 mL Glass Jar	4 °C	28 Days	NA

9065, 9066	Total Recoverable Phenols	Water	1 L Glass	4 °C; H_2SO_4; pH < 2	28 Days	NA
		Solid	125 mL Glass Jar	4 °C	28 Days	NA
150, 9040B	pH	Water	125 mL Plastic	4 °C	24 Hours	NA
110, 180	Color, Turbidity	Water	500 mL Plastic	4 °C	48 Hours	NA
120, 9050	Specific Conductance	Water	125 mL Plastic	4 °C	28 Days	NA
All radiochemical parameters except Rn-222 and tritium		Water	1 L Plastic (2 x 2 L Preferred)	HNO_3 ; pH < 2	180 Days	NA
		Solid/Other	250 mL Glass Jar		180 Days	NA
Rn-222	Radon 222	Water	3 x 40 mL Amber Glass Vial	None	72 Hours	NA
Tritium	^3H	Water	1 L Glass		180 Days	NA
		Solid/Other	Required sample size will vary with solid moisture content			NA
8015	Petroleum Hydrocarbons	Water	2 x 1 L Amber Glass Bottle	4 °C	14 Days	40 Days
		Soil/Other	250 mL Glass Jar	4 °C	14 Days	40 Days
8021B	Halogenated Volatile Organics	Water	3 x 40 mL Amber Glass Vial	4 °C; HCl; pH < 2	14 Days	NA
		Soil/Other	125 mL Glass Jar	4 °C	14 Days	NA
8081, 8082	Organochlorine Pesticides, PCBs	Water	4 L Amber Glass Bottle	4 °C	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8141A	Organophosphorous Compounds	Water	4 L Amber Glass Bottle	4 °C; NaOH or H_2SO_4; pH 5-8	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8151	Chlorinated Herbicides	Water	4 L Amber Glass Bottle	4 °C;	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8260B (Modified)	Volatile Organics by GC-MS	Water	3 x 40 mL Amber Glass Vial	4 °C; HCl; pH < 2	14 Days	NA
		Soil/Other	125 mL Glass Jar	4 °C	14 Days	NA

8270C	Semi-volatile Organics by GC-MS	Water	4 L Amber Glass Bottle	4 °C	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
8280A	Polychlorinated Dioxins and Furans by GC/MS	Water	4 L Amber Glass Bottle	4 °C	30 Days	45 Days
		Soil/Other	250 Glass Jar	4 °C	30 Days	45 Days
8318	N-Methylcarbamate Pesticides by HPLC	Water	4 L Amber Glass Bottle	4 °C; 0.1 N $ClCH_2CO_2H$, pH 4 - 5	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	7 Days	40 Days
8330	Nitroaromatics and Nitramines by HPLC	Water	4 L Amber Glass Bottle	4 °C	7 Days	40 Days
		Soil/Other	250 Glass Jar	4 °C	14 Days	40 Days
TO-13	PAHs in Filter Cartridges	PUF, Tenax, or XAD-2 Filter Cartridge		4 °C	7 Days	40 Days
TO-14						

Attachment H: Radiological Survey Form

http://www-irn.sandia.gov/esh/radpro_procedures/forms/rsf.dot

Survey Number:

RADIOLOGICAL SURVEY FORM

Page: _____ of _____

Location:	Requester/Org.:	Date:	Time:
Purpose:	Request #:	RWP#:	

Instrument and Probe Type and Serial Number		Surveyor(s) Printed Name(s)	Surveyor(s) Signature/Date

#	Item Description/Location	BETA-GAMMA ACTIVITY Counting Data Attached: ☐ YES ☐NO % Eff.: [c] _____ Radionuclide: _____				ALPHA ACTIVITY Counting Data Attached: ☐ YES ☐NO % Eff.: [c] _____ Radionuclide: _____				RADIATION SURVEY Background: _____ mrem/hr Radiation Type: Gamma	
		cpm	Bkg. cpm	dpm [a, b] 100cm2	T/R/F [c]	cpm	Bkg. cpm	dpm [a, b] 100cm2	T/R/F [c]	mrem/hr	Distance from Source [d]

[A] ND = No detectable activity above background [B] If other than 100 cm², indicate area or record as 'dpm/probe' or 'dpm/LAW' (large area wipe). [C] T/R/F = Total/Removable/Fixed [D] OC or CT = On Contact [E] %Eff-Removable/Direct

Remarks:		
	Reviewed by:	Date:

Page _____ of _____

AUTHORIZED USERS LIST

Document Title: Sample Management and Custody
Administrative Operating Procedure

Document Number: AOP 95-16 **Revision:** 05

By my signature below, I affirm that I have read and understand this document, and all references called out in procedural steps, and I agree to operate within the stated constraints.

Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date

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SANDIA NATIONAL LABORATORIES
LONG TERM STEWARDSHIP DEPARTMENT (4142)

SAMPLE MANAGEMENT OFFICE (SMO) SAMPLE HANDLING, PACKAGING AND SHIPPING

LABORATORY OPERATING PROCEDURE

LOP 94-03
Revision 6

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Prepared By: 11.05.2013
Lorraine Herrera — Date
SMO Project Coordinator, 4142

Reviewed By: 11/5/13
Don Watenpaugh — Date
SMO Packaging Facility Coordinator, 4142

Reviewed By: 11/5/13
Doug Perry — Date
SMO Packaging Facility Coordinator, 4142

Reviewed By: 11/5/2013
Michael Starr — Date
Packaging and Shipping Project Leader, 10269

Reviewed By: 11/5/2013
Patrick Beall — Date
Radiation Protection Radiological Engineer, 4128

Approved By: 11/12/13
Pam Puissant, — Date
Manager, Long Term Stewardship, 4142

Author: How frequently does this document need to be reviewed and/or revised?	Every 3 years
Manager: Does this document need to be tracked?	Yes

EFFECTIVE DATE: 11/12/13

IMPORTANT NOTICE: *A printed copy of this document may not be the document currently in effect. The official version is located on the Sandia Restricted Network (SRN), 4100 Controlled Documents home page.*

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Revision History

Revision	Effective Date	Summary of Changes
0	01/14/1994	New Document
1	05/14/1996	Administrative Updates
2	09/17/1998	Administrative Updates
3	12/16/2003	Organization ownership change from Sandia ES&H to Environmental Restoration Project
4	6/26/2007	Changed revision cycle from 2 to 3 years. Organization ownership change from Sandia Environmental Restoration Project to Sandia ES&H Organization.
5	6/29/2011	Programmatic revisions include the addition of the Sample Management Analysis Request Tool (SMART) and the addition of Industrial Hygiene (IH) sampling. Other revisions are definition updates, sentence structure, grammar, and formatting. Additions include Revision History page, tracking box and footnote disclaimer.
6		Programmatic revisions include improvements to ARCOC processing, the addition of Bioassay sampling and changes to Industrial Hygiene (IH) sampling to include the use of the Radiological Process Knowledge Form (SF 6951-RRF). Chem101, PKX050, and OJT for HWMF Operations coordination were added to training requirements. A buddy system has been mandated for Friday work schedules. The chemicals were removed from use in addition to removing the use of the fume hood. The two Emergency Evacuation routes have been described with additional evacuation information. A requirement to stage first time samples waiting RCT survey in the RMA has been added. Other revisions include updating language to reflect current program elements and requirements.

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TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

AUTHORIZED USERS LIST

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ACRONYMS AND ABBREVIATIONS

AOP	Administrative Operating Procedure
ARCOC	Analysis Request/Chain-of-Custody Record
COC	Chain-of-custody
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
IATA	International Air Transport Association
IH	Industrial Hygiene
LOP	laboratory operating procedure
MOU	memorandum of understanding
OP	operating procedure
PHS	Primary Hazard Screening
RCT	Radiation Control Technician
RMA	Radioactive Management Area
RPDP	Radiation Protection Dosimetry Program
RPPM	Radiation Protection Procedures Manual
RPSD	Radiation Protection Sample Diagnostics
SARF	Sample Analysis Request Form
SMART	Sample Management Analytical Request Tool
SMO	Sample Management Office
SMO-QAPP	Sample Management Office Quality Assurance Project Plan
SNL/NM	Sandia National Laboratories/New Mexico
SOW	Statement of Work

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1.0 PURPOSE, SCOPE, AND OWNERSHIP

The main purpose for this Laboratory Operating Procedure (LOP) is the following:

- Sample integrity is maintained during the packaging and shipping processes by Sandia National Laboratories/New Mexico (SNL/NM)/ Sample Management Office (SMO).
- SMO packaging processes meet regulatory requirements with applicable state, federal, local and international transportation regulations, U.S. Department of Energy (DOE) regulations and Sandia Environment, Safety and Health (ES&H) policies and procedures.

1.2 Scope

This document applies to all SMO employees and contractors responsible for the packaging and/or shipping of samples via a common carrier at SNL/NM.

1.3 Ownership

The SMO is responsible for the development, approval, distribution, revision and control of this document. Suggestions for improvement to this document should be submitted to the SMO.

2.0 RESPONSIBLE INDIVIDUALS AND ORGANIZATIONS

The following individuals and organizations have the specified responsibilities with regard to samples submitted to the SMO Packaging Facility for packaging and shipping.

Requesting Organization(s): Organizations that require SMO services are responsible for communicating requirements to the SMO at least two weeks prior to sample collection. This allows sufficient time to notify the analytical laboratories and provide sample kits (Bottle Orders) for sampling events. SMO customers, including field personnel, are responsible for providing complete sample documentation, completed Analytical Request Chain-of-custody (ARCOC) or Sample Request Analysis (SARF) forms (Attachment A, B and C), and Radiological Survey Forms (Attachment F) as applicable. In addition, SMO customers must notify the SMO of any special shipping requirements (i.e., late delivery, short hold times, limited quantity, etc.).

Packaging Coordinators: Trained SMO Packaging Coordinators (refer to Training section) are responsible for the packaging of all samples shipped to contract analytical laboratories through the Receiving/Mail & Material Movement Organization (10261) commonly referred to as "Shipping and Receiving". SMO Packaging Coordinators ensure that samples are properly

processed, stored, and packaged for shipment to analytical laboratories in accordance with the current *SMO Quality Assurance Project Plan* (SMO-QAPP), DOE, US Department of Transportation (DOT), and International Air Transportation Administration (IATA) requirements. In addition, the Packaging Coordinators shall ensure that sample custody is maintained and documented in accordance with the current SMO-QAPP and the *Sample Management and Custody Administrative Operating Procedure* (AOP-95-16).

Hazardous Material Packaging Consultants: The Logistics Risk Management consultants in the Sandia National Laboratories Shipping and Receiving organization are responsible for oversight and guidance and are the final authority in the shipment of all samples processed at the SMO Packaging Facility as described in Section 7.3 of this document.

Radiological Control Technicians (RCTs): Radiation Protection Program RCTs are responsible for surveying all non-exempt samples prior to shipping. See Section 7.1 for a discussion regarding sample exemption.

3.0 TRAINING QUALIFICATIONS

Requesting Organization: Customers requesting SMO services on a regular basis shall read this procedure and sign the SMO Sample Handling, Packaging and Shipping LOP Authorized Users List. Customers who use SMO services occasionally are not required to sign the Authorized Users List.

Packaging Coordinator: Required training is listed in the Primary Hazard Screen (PHS) document (PHS 972834764), *SMO Packaging Facility Operations* (current revision). Upon completion of required training, the SMO Packaging Coordinator is qualified to process and package samples for shipping through Logistics Risk Management SNL Shipping and Receiving/Mail & Material Movement organizations. This training is in compliance with the Code of Federal Regulations 49 CFR Subpart H, Part 172.700-704. The Packaging Coordinator must complete training listed in Table 1.

Table 1 - Training Course List

Course Code	Course Title
CHM100	Chemical Safety
CHM 101	Chemical Safety Training Update for GHS
CHM103	Site Specific Chemical Safety
ESH 100	ES&H Awareness
ESH 200	Safety Management
ENV102	OSHA Health & Safety Basic Training – Occasional Worker (24 HR)
ENV103	OSHA Health & Safety Training Refresher (8 HR)

Table 1 - Training Course List (concluded)

Course Code	Course Title
ENV112	Hazardous Waste & Environmental Management Training
PKX050	Site Specific Packaging and Transportation of Hazardous Materials Training
PKX100	Basic Hazardous Material Transportation Training
PKX112	Basic Hazardous Waste Transportation Training
PKX115	Basic Hazardous Material Driver Training
PKX130	Basic International Air Transportation (IATA) Training
PKX111	Basic Radioactive Materials Transportation Training
PKX211	Advanced Radiological Materials Transportation Training
PPE106	Personal Protective Equipment Training
RAD102	General Employee Radiological Training (May be replaced with RAD210, Rad230 or SNL qualified RCT training)
RAD210	Radiological Worker I Training
OJT	HWMF Operations Coordination (Contingency Plan and MOU)

4.0 HEALTH AND SAFETY

Hazards Identification:
A complete listing of hazards is identified in PHS 972864764, *SMO Packaging Facility Operations* (current version). In addition, Sampling/Field Technicians shall inform SMO Packaging Coordinators and Packaging Facility Staff of other known potential hazards associated with samples to be packaged and shipped by SMO. Hazards associated with sample handling and packaging activities include, but are not limited to, the following:

- Chemical hazards
- Radiological hazards
- Physical hazards
- Biological hazards (etiologic agents) are a remote possibility not incident to normal working conditions.

5.0 EQUIPMENT AND MATERIALS

The Packaging Facility equipment and materials include but are not limited to the following list.

Equipment

- Eberline E600 Survey Meter with attached SHP380AB (or equivalent) is used by the RCTs in accordance with the Radiation Protection Operating Procedure RPO-03-31 for indication only. Daily instrument source checks are performed in accordance with the

Radiation Protection Procedures Manual (RPPM), Chapter 12, Attachment 12-1.

- Work Table Commercial Scale with a capacity of 150 lbs/68 kg. for weighing shipping containers/coolers.
- Various laboratory refrigerators and freezers for sample storage, including storage of containers/coolers, and Blue Ice™.

Materials

- Re-sealable plastic bags and bubble bags (assorted sizes)
- Insulated plastic ice chests/coolers (preferably without a spout)
- Absorbent packing material (i.e., Powersorb™ Universal Sorbent Pads)
- Large plastic bags
- Strapping tape
- Strapping bands
- Crimping supplies
- Custody seal tape
- Labels: Up arrows, "Fragile" and various hazard and handling DOT/IATA approved labels (i.e., "Flammable", "Corrosive", etc.)
- Cooling material (frozen) (i.e., Blue Ice™). In the event that cooling material is not readily available, ice may be substituted, provided that the ice is double-bagged, sealed and placed in the cooler with the bag opening facing up.
- Gloves: chemical resistant gloves and disposable, latex, polyvinyl chloride (PVC), nitrile, etc.
- Safety glasses
- Lab coat or coveralls
- Steel toed shoes
- Thermoluminescent dosimeter (TLD) for personnel involved in handling radioactive materials and samples which have not been screened by an RCT.

6.0 SMO PACKAGING FACILITY (BUILDING 928) HOURS OF OPERATION

SMO Packaging Coordinators are available at the Packaging Facility (Building 928) on ***Monday through Thursday from 7AM to 5PM*** **and on** ***Friday, from 7AM to 12***. The SMO customer shall make special arrangements with the SMO in advance for sample delivery to Building 928 during non-standard hours of operation. The SMO uses a buddy system on Fridays due to historical light work load and single person packaging support. The SMO Packaging Coordinator working on Friday, shall notify one other SMO support staff when work is complete and the coordinator is leaving for the day/week.

If same day packaging and shipping is required, samples shall be delivered to the SMO Packaging Facility, Building 928, ***before 11:00AM***. This allows sufficient time for the SMO Packaging Coordinator to complete the packaging process and meet corporate shipping deadlines. If corporate shipping deadlines cannot be met and sample integrity or customer requirements may be compromised, the SMO Packaging Coordinator or authorized representative may deliver samples to the FedEx drop-off located at the Albuquerque International Sunport (3720 Spirit Dr SE). The SMO Packaging Coordinator or authorized representative will deliver the entire consignment to the carrier for transport. **This applies to non-hazardous samples only.** Non- hazardous samples are described in the RPPM, Chapter 6: "*ES&H samples are exempted from the requirements of the RPPM if it is reasonably expected that the exterior of the sample container exhibits contamination levels less than those listed in Attachment 6-1, 'Radioactive Contamination Limits', and if dose rate on contact with the container is less than 0.5 mrem per hour".*

7.0 SAMPLE RECEIPT AND PACKAGING PROCEDURES

If samples are determined to be hazardous (flammable, corrosive, radioactive, etc.), the type of hazard shall be documented and SMO shall be notified prior to receiving samples. The SMO Packaging Coordinator shall follow the procedures outlined in Section 7.2 of this procedure.

7.1 Receiving Non-Hazardous Samples

- A minimum of one chain-of-custody must accompany submitted samples. The SMO Packaging Coordinator or SMO Support Staff shall be present during the acceptance of samples at the SMO Packaging Facility in Building 928 (Section 7.1.1).

- If the samples are not packaged for shipment immediately and refrigeration is required, the SMO Packaging Coordinator shall refrigerate the samples to maintain the temperature at $\leq 6^{o}C$ until shipment to the analytical laboratory.

- Items containing Radioactive Material shall be stored in the area posted "Controlled Area" and "Radioactive Material Area (RMA)".

- Based on process knowledge, IH media and samples are shipped as non-regulated.

- An RCT shall survey all non-exempt samples before they are shipped. Samples that are exempt and *do not* require an RCT survey prior to shipment include non-hazardous ground water samples, IH and any other samples with a Clearance – Radiological Process Knowledge Form (SF 6951-RRF) on file and exempt bioassay samples. Exempt bioassay samples that meet the following definitions and other criteria are qualified for the exemption

(Diagnostic Specimen Exemptions: under IATA DGR 2005, Amendment III):

- Specimens are those collected directly from humans or animals, including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluid, swabs, and body parts being transported for purposes such as research, diagnosis, investigational activities, disease treatment, and prevention.
- A patient or animal specimen is considered exempt if there is a minimal likelihood that pathogens are present. In determining whether a patient or animal specimen has a minimal likelihood that pathogens are present, an element of professional judgment is required to determine if a substance is exempt. This judgment should be based on known history, symptoms, and individual circumstances of the source, human or animal, and endemic local conditions.
- Examples of specimens which may be transported under the exemption include the blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, PSA tests, tests required to monitor organ function such as heart, liver, or kidney function for humans or animals with non-infectious diseases, or therapeutic drug monitoring; tests conducted for insurance or employment purposes, biopsies to detect cancer; and antibody detection in humans or animals.

- The SMO Packaging Facility shall not ship any samples that have specific activity above that specified by the Nuclear Regulatory Commission (NRC) license of the contract analytical laboratory and/or IATA Section 6. Or, those samples that fail to meet the definition and other criteria under IATA DGR 2005 for Diagnostic Specimen Exemptions.

7.1.1 SAMPLE CHECK- IN

7.1.1.1 Documentation

Ensure that all applicable documentation is correct and present. Nitrile gloves shall be worn when handling all samples.

- Ensure that the information on the Analysis Request and Chain-of-custody (ARCOC) and/or SARF for the IH program, Radiation Protection Dosimetry Program (RPDP) or the Onsite Laboratory (RPSD) forms are legible. (Attachment A, B, C and D). Illegible request forms will not be accepted.

- Ensure that sample containers are labeled and that all labels are legible and complete. The container labels in Attachment E are required for customers submitting samples on the ARCOC. Illegible sample labels will not be accepted.

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- If samples are from a radiological controlled area, the Sample Team Member shall have the *Radiological Survey* documentation (Attachment F) and/or the radiological survey

number present upon sample delivery to the SMO Packaging Facility.

- If samples are destined for the RPSD laboratory for analysis (i.e., gamma spec, alpha, beta, etc.), a completed *Onsite Laboratory (RPSD) SARF* from the Sample Team Member shall accompany the samples to the laboratory. (Attachment D).

- The Sample Team Member shall work with the SMO Packaging Coordinator or other SMO support staff to ensure that all sample containers and request forms are correct and sample information is cross-referenced and complete.

7.1.1.2 Sample Container Inspection

The SMO Packaging Coordinator and/or the Support Staff have the authority to refuse samples that do not meet the following criteria.

- Ensure that containers are clean, sealed and intact.
- Verify that each sample container has double containment in a re-sealable plastic bag. Glass containers shall be placed in sealed plastic bubble bags.
- Verify that no sample containers are leaking or broken.
- Verify that all sample container lids are secured with SNL approved custody tape. 40 ml glass vial containers for aqueous samples like groundwater, and IH containers, are exempt from this requirement. The container(s) are placed in a plastic bag and the bag, not the container(s), is secured with the custody tape.
- Verify that all sample containers are labeled with a complete and legible label. The label in Attachment E is required for all samples submitted on an ARCOC.
- Bioassay sample packaging must consist of the following three components:
    - a leak-proof primary receptacle(s);
    - a leak-proof secondary packaging, and
    - outer packaging of adequate strength for its capacity, mass and intended use, and with at least one surface having minimum dimensions of 100mm x 100mm.

7.1.1.3 Chain-of-custody Verification

Contract Laboratory SMO ARCOC

Review the Contract Laboratory ARCOC to verify that:

- The controlled document ARCOC form is used. This is SMO 2012-ARCOC (4-2012).
- The *ARCOC Number* is present.
- The *Page Numbers* are present and correct.
- The *Project Information* is correct (Dept. No./Mail Stop, Project/Task Manager, Service Order Number). This information can be found in the Project Management table in the Sample Management Analysis Request Tool (SMART) application. This information is uploaded from the Electronic Bottle Order and from the Electronic ARCOC.
- The *Analytical Lab* information is correct (Lab Contact, Lab Destination). External analytical lab information is uploaded from the Electronic Bottle Order and from the Electronic ARCOC. (Note that Analytical Lab information is not uploaded for the IH and RPDP SARF COC.) The SMO Packaging personnel may verify this information by checking the Lab Management Table in the SMART Application.
- The analytical laboratory *Contract Number* is correct. Contract numbers are found in the Lab Management Table in the SMART Application and are uploaded from the Electronic Bottle Order and the Electronic ARCOC.
- The *Project/Task No. and Customer group* are correct. This information is found in the SMART Application's most recent Project Management Tables and is uploaded from the Electronic Bottle Order and the Electronic ARCOC.
- The appropriate box in the Radiation Material Area, *RMA*,section is marked. If "Yes" is checked in the *RMA* box, verify that the Rad Survey data is provided and write "*Rad Survey Data Provided*" under *Comments*.
- The appropriate *Sample Disposal* box has been marked.
- The appropriate *Turnaround Time* (TAT) has been indicated. 30 days is a normal TAT. For a *Negotiated TAT*, the Sample Team Member shall indicate the number of days requested for the rush delivery (i.e., 3, 5 etc.). The 3, 7-Day TAT and Negotiated TAT prior authorization is completed when the Electronic Bottle Order is submitted.
- The *Special Instructions/QC Requirements* section of the ARCOC may be used by the Sample Team Member to indicate special instructions for SMO and/or the analytical laboratory.
- The *Sample Team Members* section has been completed. A signature for each field technician listed is required.
- The sample information on the ARCOC matches the information on the sample labels. All information must be cross-referenced and correct. If there are multiple sample containers assigned to a *Sample No.-Fraction*, verify that the number of sample containers submitted matches those indicated in the *Container-Volume* column (i.e., 3X40 mL will have three 40 mL containers for that sample).
- To relinquish samples go to Section 7.1.1.4.

IH SARF Chain-of-custody

Review the IH SARF Chain-of-custody Report (Attachment B) to verify:

- The *IH Survey ID* is present.
- The *Sample Location* is indicated.
- The *Lab receiving sample* is indicated.
- The *Submitted By and Submission Date* are indicated and correct.
- The *Charge code* (Project/Task number) is correct. This information is found in the most recent Project Management Table of the SMART Application.
- The *Send Report To* and *Phone* are indicated.
- The *Attention of* line is completed with the name of the person that will receive the final data package. The *Email* line is filled in with this person's e-mail address. Filling in the *Fax* line is optional.
- The *Analysis requested* is completed.
- The *General Comments to lab personnel* are included. Generally, contact information and more specific sample information are indicated in this section.
- The *IH Sample #, Col. Date, Turn-Around-Time* and *Matrix* are indicated.
- The *Sample Comments* lists an SMO Sample Number-Fraction to correspond to each *IH Sample #.*
- The sample information on the SARF concurs with the samples delivered. All information must be cross-referenced and correct.
- Note that the IH SARF COC is 2 pages. The second page is the signature page for received and relinquished signatures. Verify that the IH Survey ID number is listed on the second page.
- To relinquish samples go to Section 7.1.1.4.

RPDP SARF

Review the RPDP SARF COC to verify that:

- The *RPDP Batch No* is present.
- The *Page Numbers* are *present and* correct.
- The *Customer Name, Organization (4121), Phone (845-DOSE/284.5598), email (dosimetry@sandia.gov) and program Name (Radiation Protection Dosimetry Program* are listed.
- The *Analytical Lab* information is correct (Lab Contact, Lab Destination). The analytical laboratory *Contract Number* is correct. Contract numbers are found in the Lab Management Table in the SMART Application.

- The appropriate *Turnaround Time* (TAT) has been indicated. Normal (N) TAT is 30 days, Rush (R) TAT is 15 days and Urgent (U) TAT is 7 days.
- *Date Needed By* has been filled.
- The *Special Instructions/QC Requirements* section is completed. This section should include "Biological Sample – Treat with Caution" and an RPDP contact (name and phone).
- The sample information on the RPDP SARF matches the information on the sample labels. All information must be cross-referenced and correct. If there are multiple sample containers assigned to a *Customer Sample ID*, verify that the number of sample containers submitted matches those indicated in the *Qty/Tot Volume Tare Wt* column.
- Assure that the Electronic Data Delivery, *EDD,* box is checked either yes or no.
- To relinquish samples go to Section 7.1.1.4.

7.1.1.4 Relinquishing Samples

Samples are relinquished after the chain-of-custody document is deemed correct and complete. A Chain-of-custody (on ARCOC) or Submitted by customer (on IH SARF) or person delivering the bioassay samples shall sign and date the appropriate *Relinquished By* box.

- The SMO representative shall sign and date the appropriate *Received By* box. For the ARCOC and RPDP SARF, this box is located directly below the *Relinquished by* signature. For the IH SARF, this box is located directly across from the *Relinquished by* signature.
- For the ARCOC, authorized SMO personnel shall sign the *SMO Authorization* line.
- The IH SARF is 2 pages. The second page is the signature page for relinquishing and receiving samples. Verify that the IH Survey ID number is indicated on the second page.
- Assure that all pages of the chain-of-custody are identified with the ARCOC Number, IH Survey ID Number or RPDP Batch Number.
- Give a copy of the ARCOC, IH SARF or RPDP SARF to the customer.
- Enter all pertinent ARCOC, IH SARF or RPDP SARF information in the Sample Management Log (Attachment G).
- Place the original ARCOC, IH SARF or RPDP SARF and accompanying documentation with the samples in preparation for packaging and shipping

7.1.2 SAMPLE PACKAGING FOR ENVIRONMENTAL OR IH SAMPLES

Follow the listed steps when packaging Environmental or IH samples in preparation for shipment. Nitrile gloves shall be worn when handing all samples.

1. Verify that:
   - Each sample container is in a re-sealable plastic bag and that the bag is sealed.
   - Glass containers are placed in a re-sealable bubble bag and the bag is sealed. Glass containers larger than the plastic bags are surrounded with cushioning material (bubble wrap) or placed in a "bubble" sleeve.

2. Place absorbent material (Powersorb™ Universal Sorbent Pads) in the bottom of the cooler and place an appropriately sized waterproof plastic bag on top of the absorbent. If the cooler contains water samples, place an additional sorbent pillow inside the plastic bag at the bottom of the cooler. Place the protected sample container(s) in the large plastic bag and alternate glass containers with plastic containers or padding. This step does not pertain to IH samples which are packaged and shipped in boxes.

3. Place frozen cooling material (Blue Ice™) in the cooler for samples requiring temperature preservation. Avoid direct contact of the Blue Ice™ with sample containers (Blue Ice™ is often below 0^{o}C). Insulate 40 mL vials with other sample containers or with water filled plastic bottles if necessary. (40 mL vials freeze or break if they are not protected due to the small volume of liquid.)

4. Pack the container with cushioning material to minimize the possibility of breakage from dropping or severe shock. Seal the large plastic bag containing samples with duct or plastic tape or a strong rubber band.

5. Log on to Web Shipper and follow the on-line instructions to complete the Web Shipper form.
   - A Shipper Number is automatically assigned. All coolers or boxes shipped to the same laboratory may be included on one shipper. Each laboratory location requires a separate shipper. Write the Shipper Number on the associated chain(s) of custody.
   - Assign a cooler or box number (i.e., #1, #2, #3, etc.) for each cooler that is being shipped to the same location.
   - For the Description on the Line Item List enter the cooler/box number, volume of the cooler and the corresponding ARCOC number, IH Survey ID or RPDP Batch Number of the samples packed in the cooler. (Example, "Cooler #1; 3.0 Cu. Ft.; COC606877")
   - Do not close the Web Shipper form at this time. Go to Step 6. The Web Shipper will be completed after Steps 6-11 are completed in Step 12.
   - Write the Shipper Number on all chain(s) of custody associated with the shipper.

6. Make a copy of the original ARCOC or SARF. Place the original ARCOC or SARF in a re-sealable plastic bag and place it on top of the large sealed and closed plastic bag

containing the samples. Close the cooler/box lid.

7. If the cooler has a drain plug, secure the drain in the closed position with packing or duct tape.

8. Secure the cooler lid with packing tape in two locations. Use strapping bands completely around the cooler in two locations.

9. Mark and label the cooler as indicated below:
   - Place the appropriate analytical laboratory pre-printed address label on the cooler lid and ensure that the ARCOC number, IH Survey ID number or RPDP Batch Number on the shipper form matches the ARCOC number or IH Survey ID number on the address label. Cover with transparent tape.
   - Place "Up" arrow labels on two opposing sides of all coolers containing liquids. Put a "Fragile" label on the cooler lid for all coolers with glass containers.
   - Record the shipper number and cooler number (i.e., "1 of 3") on the packing tape located on the cooler lid. Do not write directly on the cooler lid. The packing tape will be removed and the cooler will be re-used.

10. Weigh each cooler and record the weight in the Sample Management Log (Attachment G). The weight of the cooler will also be recorded in the *Comments* section of the Web Shipper (Step #12).

11. Measure the dimensions of the cooler and record the total cubic feet on the appropriate line on the address label. The cooler dimensions will also be recorded in the *Comments* section of the Web Shipper (Step #12).

12. Return to the Web Shipper form.
    - In the *Comments* section, enter the weight of the filled cooler (Step #10), the volume and dimensions of the cooler (Step #11) and enter: "FED-EX FIRST OVERNIGHT". (Example, "44LBS; 3.0 CU. FT.=23X14X15; DO NOT RE-PACK, FED-EX FIRST OVERNIGHT")
    - The completed shipper is approved electronically and is automatically sent to Shipping and Receiving.
    - Print 1 copy of the completed shipper. This copy is taken to Shipping and Receiving with the corresponding cooler(s). After samples are shipped, Shipping and Receiving will send a notification with a completed shipper that includes a tracking number.

13. Transport the cooler(s) and or boxes to Shipping and Receiving, Building 957 and present the Web Shipper form to the Service Clerk. DOT driver training is not required to transport non-hazardous samples but is required for the transportation of hazardous and

radioactive samples.

14. Complete all entries in the SMO Packaging Facility Sample Management Log (Attachment G).

15. Documentation submitted to the SMO data administrator may be submitted by one of the following options:

- Make a pink and yellow copy of the ARCOC or the IH SARF COC. Place these copies, a copy of the shipper and other documentation pertaining to the ARCOC or IH SARF COC in a large Ziploc™ bag and deliver to the SMO data administrator. The yellow copy is part of the laboratory data package and is sent to the SNL Records Center. The pink copy is kept at SMO as a reference copy.
- Or, the completed chain(s) of custody with associated documentation pertaining to the ARCOC or IH SARF COC is scanned and placed in the SMO COCsPackaging folder on the SMO shared drive.

7.1.3 SAMPLE PACKAGING FOR BIOASSAY SAMPLES

1. RPDP will deliver unsealed, packed bioassay coolers for shipment. The bioassay samples will be packed per Procedure No: RPDP-03-03 (current issue). The samples will be accompanied with an RPDP SARF.
2. Inspect the sample containers to verify that:
    - Sample containers are in a re-sealable plastic bag and that the bag is sealed.
    - Verify that no sample containers are leaking.
    - Verify that sample containers are labeled with a complete and legible label.
3. Follow Steps 1-15 in Section 7.1.2 (Sample Packaging for Environmental or IH Samples)

7.2 Receiving Hazardous Samples

The following steps must be followed when hazardous samples are received. Refer to *Shipment Planning* at Ship an Item (Web Shipper).

- If a sample is determined to be hazardous upon field-testing, via process knowledge and/or during sample survey, SMO personnel shall be notified of the specific hazard prior to sample delivery.
    - If unanticipated radioactive material or removable surface contamination exceeding RPPM Attachment 6-1 limits is determined refer to the **EMERGENCY PROCEDURES** section of this document.

- All samples that are labeled radioactive by an RCT shall be stored in the Radioactive

Material Area (a labeled refrigerator).
  - General area radiation levels are maintained at a level that does not require posting as a controlled area (<100 mrem per year or about ≤0.05 mrem/hr). If total samples present increase the general area dose rate to greater than 0.05 mrem/hr, the Controlled Area boundaries will be extended to reduce radiation exposure to personnel. The SMO support RCT is responsible for all radiation related postings or meter readings.

- Radiation screening shall be conducted on a representative sample fraction at the onsite RPSD laboratory to determine the total isotopic activity.
  - A sample that has a specific activity of 0.002 μCi/g or less may be packaged and shipped as an environmental sample with a disclaimer (Attachment H).
  - A sample that has a specific activity greater than 0.002 μCi/g shall be regarded as a radioactive material [IATA Section 6.0.1.3(a)].

- If a sample is determined to be radioactive, it must be within the allowable limits of the contract laboratory NRC license. Copies of NRC licenses documenting allowable radioactive limits are on file at the SMO Packaging Facility or electronically from SMO personnel or on the SMO shared drive in the NRC Licenses folder. The SMO Packaging Facility shall not accept a radioactive sample for packaging if it does not meet the allowable limits of the contract laboratory NRC license. The SMO Packaging Coordinator shall notify the customer when a sample is refused and the customer shall take custody of the sample immediately upon notification.

- If a sample is determined to be radioactive and within the allowable limits of the contract laboratory license, the SMO Packaging Coordinator and/or Packaging Facility staff will prepare the sample for shipment in accordance with IATA Section 10 as it applies to the packaging, marking, labeling, certification and documentation requirements for Class 7 radioactive materials (Preparing Hazardous Samples section). The SMO Packaging Coordinator shall deliver these radioactive samples SNL Shipping and Receiving for packaging and shipping.

- Radioactive samples shall only be delivered to SNL Shipping and Receiving by SMO staff in accordance with Corporate Procedure SCM100.3.19, *Movement of Hazardous Material.*

7.3 Preparing Hazardous Samples

The SMO Packaging Coordinator or SMO Packaging Staff shall take samples deemed hazardous, but not classified as radioactive materials, to Sandia Shipping and Receiving for packaging and shipping. The SMO Packaging Coordinator shall reference the section, *"How to*

Use the Regulations" in the current edition of the IATA Dangerous Goods Manual when preparing hazardous samples for delivery to Shipping and Receiving (Building 957). The steps below provide general guidance when preparing hazardous samples for delivery to Shipping and Receiving.

1. Inform the Hazardous Material Packaging Consultant of the specific hazards and the composition and amount of the specific hazards (Hazardous Material Packaging, Packaging Engineers).

2. Prepare and complete the required forms:
   - Web Shipper
   - Information for Hazardous Material Shipments at *Shipment Planning*
   - Print two copies of the completed *Web Shipper* and *Hazardous Material Shipments* form. (One copy is for Shipping and Receiving and one is for SMO records.)
   - Attach the completed *Hazardous Material Shipments* form to the *Web Shipper*.

3. Complete the remainder of the *SMO Use Only* section on the ARCOC form (Attachment A) with the required information.

4. Deliver the following to Shipping and Receiving, Building 957:
   - Hazardous samples
   - Completed *Web Shipper* and attached *Hazardous Material Shipments* form

5. The Hazardous Material Packaging Consultant shall review the *Web Shipper* and attached *Hazardous Material Shipments* form for completeness and correctness. If errors are found, the package shall be refused for shipment until all corrections are made.

EMERGENCY PROCEDURES

An emergency is defined as an unplanned, significant event or condition that requires time-urgent actions from emergency response resources to ensure the:

- Health and safety of Members of the Workforce and the public.
- Protection of the environment.
- Security of operations.

Emergency procedures shall be in accordance with established SNL policies and procedures. Refer to ESH100.3.1, *Prepare for and Manage Emergencies*, and refer to the current version of the *Contingency Plan for the Hazardous Waste Management Facility* (HWMF) (PLA94-23). The SMO Packaging Facility is a close neighbor to the HWMF, directly east. When Tone Alert

Radio (TAR) alerts go off at the HWMF, they also go off in Building 928. SMO personnel in the SMO Packaging Facility shall follow the procedure outlined in the HWMF Contingency Plan when TAR alerts sound.

General post-incident actions by involved personnel are:

- Stop activity.
- Secure the scene to prevent further injury or damage, if it is safe to do so.
- Evacuate if necessary. The SMO facility has two evacuation routes, one to the north and one to the south. Personnel shall check the wind socks at the HWMF and make a determination on the most appropriate evacuation route going away from potential inhalation hazards.
- Do not disturb the scene.
- Notify Department Manager.

Actions required when discovering unanticipated radioactive material or removable surface contamination are listed below.

- Discovery of unanticipated radioactive material will require employees to place work and materials into a safe configuration and exit the building pending a radiological survey and evaluation by SNL Radiation Protection and Facility Management. To mitigate the chance of unanticipated radioactive material, all new samples without process knowledge, are placed in the facility RMA prior to RCT scans.

- Discovery of material with removable surface contamination in excess of RPPM Attachment 6-1 limits for removable surface contamination will require employees to place work and materials into a safe configuration and exit the building pending a radiological survey and evaluation by SNL Radiation Protection and Facility Management.

The following information from ESH100.3.1, *Prepare for and Manage Emergencies* provides guidance for both emergency and non-emergency situations.

Table 8. Hazardous Materials Release, Emergency

1. At SNL/NM, call 911 or 844-0911 (cellular).
2. Evacuate and isolate the immediate area. Keep personnel from walking or driving through the affected area. For an outdoor release, stay upwind to avoid fumes.
3. If it is possible to do so safely, determine the chemical and quantity spilled; provide this information to emergency responders.
4. Consult the Material Safety Data Sheets and area ES&H Safety Operating Procedures for information about the released material and provide to emergency responders.

Table 9. Hazardous Materials Release, Non-Emergency

1. For a non-emergency situation, call 311 or 844-6515 or 844-0311 (cellular). To clean up large spills, call the Non-Emergency Hotline (844-6515) for spill response and cleanup.
2. Clean up small spills generated by personnel, as long as you have the correct training and equipment. If you do not feel comfortable doing so, request advice or assistance from the Non-Emergency Hotline (844-6515).
3. Handle all spilled material, absorbents, neutralizers and contaminated PPE as chemical waste. Follow the requirements for containment, labeling, storage, and disposal request specified in ESH100.2.ENV.22, Manage Hazardous Waste at SNL/NM.

Call for Help:

- 911 or 844-0911 (cellular)
- Call 311 or 844-6515 or 844-0311 (cellular), Non-Emergency Phone Numbers, when observing or experiencing an unusual condition that does not appear to constitute an emergency.
- Call the appropriate phone number in (as soon as it is safe to do so) when:
    - An emergency condition is observed or experienced.
    - You are unsure whether you have an emergency or not.

8.0 REFERENCES

International Air Transport Association, Dangerous Good regulations, 52nd edition (updated annually), International Air Transport Association, Montreal, Canada.

Sandia National Laboratories Environment Safety and Heath, Corporate Processes and Procedures, https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth

Sandia National Laboratories Quality Assurance Project Plan for the SNL/NM Sample Management Office, SMO QAPP, Current Revision, Sandia National Laboratories/New Mexico Sample Management Office, Albuquerque, New Mexico.

Sandia National Laboratories Sample Management and Custody Administrative Operating Procedure (AOP-95-16), Current Revision, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories Statement of Work for Analytical Laboratories, Current Revision, Sample Management Office, Sandia National Laboratories/New Mexico (SNL/NM), Albuquerque, New Mexico.

Sandia National Laboratories Supply Chain Management Corporate Processes and Procedures, SCM100.3.6, https://my.sandia.gov/authsec/portal/cps/supplyChainManagement

US Environmental Protection Agency (EPA), Code of Federal regulations, CFR Title 40, (http://www.epa.gov/epahome/cfr40.htm).

ATTACHMENTS

ATTACHMENT A:
CONTRACT LABORATORY ANALYSIS REQUEST AND CHAIN-OF-CUSTODY
SMO 2012-ARCOC

SMO 2012-ARCOC (4-2012) — AOP 95-16

CONTRACT LABORATORY
ANALYSIS REQUEST AND CHAIN OF CUSTODY

Internal Lab — Page 1 of ___

Batch No. — SMO Use — **AR/COC**

Project Name:	Date Samples Shipped:	SMO Authorization:	☐ Waste Characterization ☐ RMMA ☐ Released by COC No.
Project/Task Manager:	Carrier/Waybill No.	SMO Contact Phone:	
Project/Task Number:	Lab Contact:		☐ 4° Celsius
Service Order:	Lab Destination:	Send Report to SMO:	Bill to: Sandia National Laboratories (Accounts Payable), P.O. Box 5800, MS-0154, Albuquerque, NM 87185-0154
	Contract No.:	Rita Kavanaugh/505.284.2553	
Tech Area:			
Building: Room:	Operational Site:		

Sample No.	Fraction	Sample Location Detail	Depth (ft)	Date/Time Collected	Sample Matrix	Container Type	Container Volume	Preserv-ative	Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID

Last Chain: ☐ Yes	Sample Tracking — SMO Use	Special Instructions/QC Requirements:	Conditions on Receipt
Validation Req'd: ☐ Yes	Date Entered:	EDD ☐ Yes ☐ No	
Background: ☐ Yes	Entered by:	Turnaround Time ☐ 7 Day* ☐ 15 Day* ☐ 30 Day	
Confirmatory: ☐ Yes	QC inits.:	Negotiated TAT ☐	
		Sample Disposal ☐ Return to Client ☐ Disposal by Lab	
		Return Samples By:	
		Comments:	Lab Use

Sample Team Members	Name	Signature	Init.	Company/Organization/Phone/Cell

1. Relinquished by	Org.	Date	Time	3. Relinquished by	Org.	Date	Time
1. Received by	Org.	Date	Time	3. Received by	Org.	Date	Time
2. Relinquished by	Org.	Date	Time	4. Relinquished by	Org.	Date	Time
2. Received by	Org.	Date	Time	4. Received by	Org.	Date	Time

*Prior confirmation with SMO required for 7 and 15 day TAT

This ARCOC is for example purposes only. The ARCOC currently in effect is posted on the 4100 Controlled Documents homepage (SMO 2012-ARCOC).

ATTACHMENT B: Industrial Hygiene (IH) SARF Chain-of-custody

SANDIA
SNL NM
SARF Chain of Custody Report

IH Survey ID: S01013 Lab Log Batch ID: Lab receiving sample

Sample location TA1 897 1300

Submitted By: CASTILLO,R Submission Date:

Charge code:

Send Report To: SNL NM Attention of: CASTILLOR

Address: Email:

Phone: Fax:

Analysis requested (please be specific if possible)
CADMIUM

General comments to lab personnel
Additional Potential Hazards, Name and phone/pager of a person knowledgeable about the sample origin and hazards

IH Sample #	Lab ID	Col. Date	Turn-Around-Time	Matrix	Sample Comments
12345678901		11/17/2010	NORMAL (15 DAYS)	SWIPE	088750-001
12345678902			NORMAL (15 DAYS)	SWIPE	088750-002
12345678903			NORMAL (15 DAYS)	SWIPE	088750-003

Samples Checked For
- ☐ Container Integrity
- ☐ Sample Size
- ☐ Sampling Label

Condition of Sample Receivec
- ☐ Acceptable
- ☐ Not Acceptable

Custody Seals
- ☐ Present
- ☐ Not Present

ATTACHMENT C
RPDP SAMPLE ANALYSIS REQUEST FORM
RPDP SARF

SAMPLE ANALYSIS REQUEST FORM (SARF)
RADIATION PROTECTION DOSIMETRY PROGRAM (RPDP)

Page 1 of 1

RPDP BATCH NO. _____ RPSD LOG NO. _____

Customer Name: Goke, Sarah Hayes
Organization: 4121
MailStop: 0651
Phone: 845-DOSE / 284-5598
Email: dosimetry@sandia.gov
Prgm Name: Radiation Protection Dosimetry Program

Analytical Lab: _____
Lab Contact: _____
Contract No.: _____
Date Shipped: _____
Shipper No.: _____
RPDP Contact/Ph: Sarah Hayes Goke / 505.284.5598

Send Results to: RPDP
P.O. Box 5800, MS-0651
Albuquerque, NM 87185
Email: dosimetry@sandia.gov
FAX: 505.844.8313

Bill to: Sandia National Laboratories
Accounts Payable Department
P.O. Box 5800, MS-1383
Albuquerque, NM 87185-1383

Customer Sample ID	Lab Sample ID	Date Collected	Time Collected 0-24 HRS	TAT	Sample Matrix	Qty/Tot Volume Tare Wt	Rad Screen (cpm)	QC Set	EDD (Off-Site Labs) [ ] Yes [X] No: Parameter / Method Requested	Lab Notes

Turn Around Time(TAT) Instructions
ENTER DATE NEEDED BY: (applicable to all samples)

N - Normal, R - Rush, U - Urgent

Special Instructions/Hazards
Biological Sample - Treat With Caution
Contact: Sarah Hayes Goke, 284-5598, pager (800) 237-6849

Sample(s) Condition on Receipt
[ ] Normal
[ ] Abnormal
If abnormal, fill out the attached Sample Condition Upon receipt form and contact the customer about the sample condition before proceeding further.

	Org.	Date		Org.	Date
1. Relinquished by			1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Received by		
5. Relinquished by			5. Received by		
6. Relinquished by			6. Received by		

ATTACHMENT D: ONSITE LABORATORY (RPSD) ANALYSIS REQUEST & CHAIN-OF-CUSTODY

RPSD SARF

Sandia National Laboratories
Sample Analysis Programs

Sample Analysis Request Form
Page ____of ____

To be completed by Customer

Shaded areas are for Lab use only

Customer Name: _____
Customer Email ID: _____
Organization: _____
Phone: Sample _____
Location (Bldg/Rm): _____
Date Results Needed: _____
Project/Task Number: _____

Hazards/Special Instructions:

☐ Provide EDD

Batch Log No: _____
Logged By: _____

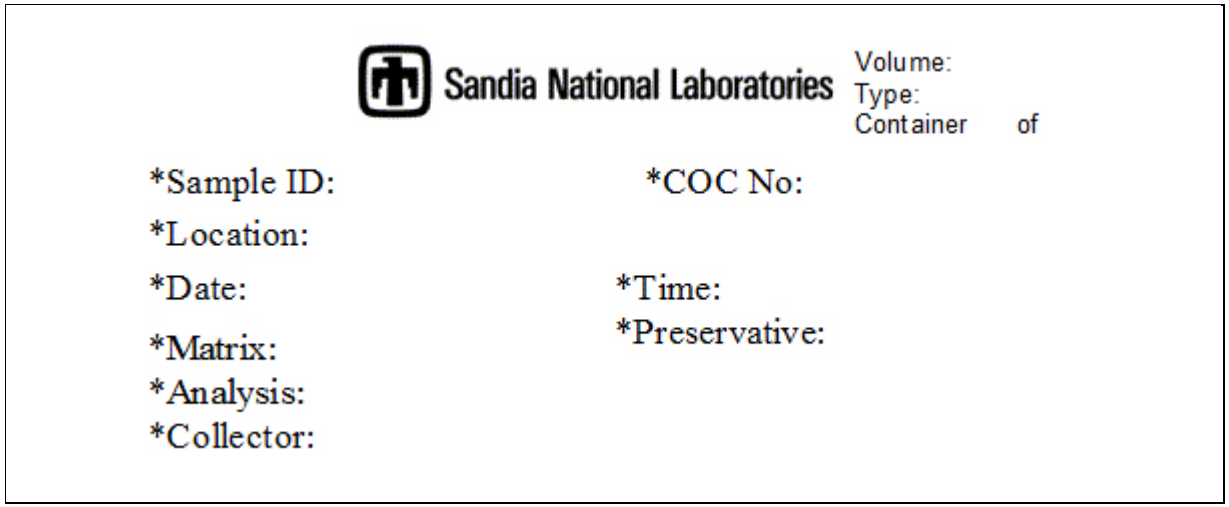
o RPOP - Rad Protection Operation
o RPID - Dosimetry
o RPSD - Sample Diagnostics
o IH - Industrial Hygiene
o DND -DeconDecom
o EXT- External
o SND - Source & Device
o WM – Waste Management
o OTH - Other
o EM - Environment Monitoring
o EMAA - Ambient Air
o EMWW - Waste Water
o EMGW - Ground Water
o EMTS - Terrestrial surveil
o EMSW - Storm Water
o CMC – Coop Monitoring Ctr
o ER – Enviroment Restoration

Customer Sample ID	Sample Type	Date/Time Collected	Sample Amount or Flow Rate	Requested Analysis	Survey or COC#	Lab ID	Rad Screen(CPM)	Remarks/Aliquot Amount

Relinquished by _____ Date _____ Received by _____ Date_____

Relinquished by _____ Date _____ Received by _____ Date_____

ATTACHMENT E
SAMPLE LABEL



* Required Fields

Attachment F: Radiological Survey Form
http://www-irn.sandia.gov/esh/radpro_procedures/forms/rsf.dot

Survey Number:

RADIOLOGICAL SURVEY FORM

Page: _____ of _____

Location:	Requester/Org.:	Date:	Time:
Purpose:	Request #:	RWP#:	

Instrument and Probe Type and Serial Number	Surveyor(s) Printed Name(s)	Surveyor(s) Signature/Date

#	Item Description/Location	BETA-GAMMA ACTIVITY Counting Data Attached: ☐ YES ☐NO % Eff.: [e] _____ Radionuclide: _____				ALPHA ACTIVITY Counting Data Attached: ☐ YES ☐NO % Eff.: [e] _____ Radionuclide: _____				RADIATION SURVEY Background: _____ mrem/hr Radiation Type: Gamma	
		cpm	Bkg. cpm	dpm[a, b] 100cm2	T/R/F[c]	cpm	Bkg. cpm	dpm[a, b] 100cm2	T/R/F[c]	mrem/hr	Distance from Source[d]

[a] ND = No detectable activity above background [b] If other than 100 cm^2, indicate area or record as 'dpm/probe' or 'dpm/LAW' (large area wipe). [c] T/R/F = Total/Removable/Fixed [d] OC or CT = On Contact [e] %Eff-Removable/Direct

Remarks:		
	Reviewed by:	Date:

ATTACHMENT G: Sample Management Log

DATE	PROJECT NAME	RELINQUISHED BY	RCVD. BY	PARENT C.O.C.	SHIP DATE	DESTINATION LAB	SHIPPER #	WAYBILL #	<5 Y/N	QTY.	WGHT.	COMMENTS

ATTACHMENT H: DISCLAIMER

NOTE:

The samples in this cooler are labeled radioactive per Sandia National Laboratory policies and procedures.

However, the samples have been analyzed by gamma spectroscopy and are not radioactive materials per DOT regulations (49 CFR 173.403). Gamma spectroscopy results are enclosed with the chain-of-custody.

Signature:_____ Date:_____

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Page _____ of _____

AUTHORIZED USERS LIST

Document Title: Sample Management Office (SMO) Sample Handling, Packaging and Shipping Laboratory Operating Procedure

Document Number: LOP 94-03 **Revision:** 6

By my signature below, I affirm that I have read and understand this document, and all references called out in procedural steps, and I agree to operate within the stated constraints.

Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date
Name (printed)	Signature	Dept./Company	Date

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SANDIA NATIONAL LABORATORIES
Sample Management Office (SMO) DEPARTMENT 4142

PROCEDURE FOR COMPLETING THE CONTRACT VERIFICATION REVIEW (CVR)

SMO-05-03
Revision 05

Approved: Wendy Palencia **Date:** 11.5.2013
Wendy Palencia, Author,
SMO Technical Support

Approved: **Date:** 11.05.2013
Lorraine Herrera, SMO Technical Support

Approved: **Date:** 11/12/13
Pamela Puissant, Manager

Author: *How frequently does this document need to be reviewed and/or revised?*	*Every 3 years*
Manager: *Does this document need to be tracked?*	*Yes*

EFFECTIVE DATE: 11/12/13

IMPORTANT NOTICE: A printed copy of this document may not be the document currently in effect. The official version is located on the Sandia Restricted Network (SRN), 4100 Controlled Documents home page.

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TABLE OF CONTENTS

LIST OF APPENDICES

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Revision History

Revision	Effective Date	Summary of Changes
Rev 1	June 9, 1999	New document, first issue
Rev 2	December 2, 2003	Technical changes
Rev 3	April 30, 2007	Technical changes
Rev 4	May 11, 2010	Edited sections due to method changes. Added section to cover the Data Anomaly Report (DAR). Renamed Issue to Revision.
Rev 5		Expanded section on processing the DAR. Added Responsible Individual descriptions, footnote disclaimer, and Acronyms and Abbreviations. Minor sentence and grammar edits. Added yes/no option for closure to Problem Resolution section of CVR form. Removed yes/no "Resolved" boxes on section 1 and 2 of CVR form.

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ACRONYMS AND ABBREVIATIONS

AOP	Administrative Operating Procedure
ARCOC	Analysis Request and Chain of Custody
brw	Oracle Query Builder File
CSV	Comma Separated Values file
CVR	Contract Verification Review
DAR	Data Anomaly Report
EDD	Electronic Data Deliverable
EPA	U.S. Environmental Protection Agency
GC/HPLC	Gas Chromatography/High Performance Liquid Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
HRGC/HRMS	High Resolution Gas Chromatography/High Resolution Mass Spectrometry
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
IDL	Instrument Detection Limit
L_c	Critical Level
LC/MS/MS	Liquid Chromatography/Mass Spectrometry/Mass Spectrometry
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MB	Method Blank
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NNSA/SFO	National Nuclear Security Administration/Sandia Field Office
OP	Operating Procedure
ppm	Parts Per Million
PQL	Practical Quantitation Limits
QAPP	Quality Assurance Project Plan
QC	Quality Control
RRT	Relative Retention Time
SA	Sample
SDG	Sample Delivery Group
SMO	Sample Management Office
SNL/NM	Sandia National Laboratories New Mexico
SOW	Statement of Work
STAR	Sample Tracking and Analytical Results
TAT	Turnaround Time
TIC	Tentatively Identified Compounds

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1.0 PURPOSE, SCOPE, AND OWNERSHIP

1.1 Purpose

This document provides instructions for performing a contract verification review (CVR) of analytical data packages received by the Sandia National Laboratories/New Mexico (SNL/NM) Sample Management Office (SMO). The CVR checks completeness and compliance of the sample custody and laboratory report documentation. Sample custody documentation is generated during a sampling event. The laboratory that performs the sample analyses generates the laboratory analytical report. The CVR determines whether or not sample custody is completely documented, and whether or not the laboratory complied with technical and reporting requirements of their contract.

The CVR examines specific items of sample management, custody, and laboratory reporting. The field sampling team and the analytical laboratory enter the sample management and custody items on the Analysis Request and Chain of Custody (ARCOC) form SMO 2012-ARCOC. After sample receipt at the laboratory, the laboratory completes the ARCOC and returns a copy to the SMO for sample login verification. Additionally, the complete ARCOC original is included in the final laboratory analytical report.

Contract verification review items checked in the laboratory analytical report are technical, quality control (QC), and reporting requirements imposed upon the laboratory through the *SNL/NM Contract Statement of Work (SOW) for Analytical Laboratories*. The laboratory is required to provide specific information in all analytical reports at the request of SNL/NM SMO. These data are often in addition to the laboratory's standard operating procedures or requirements of the analytical method. The CVR provides the SMO with a record of laboratory performance on a report deliverable basis, and allows for SMO tracking of reporting deficiencies, correction requests, and problem resolutions. The SMO monitors the performance of contracted laboratories, in part, using results from the CVR.

1.2 Scope

This procedure applies to all sampling and analysis events coordinated through the SNL/NM SMO and/or utilizing analytical laboratories under contracts administered by the SMO. Any sampling and analysis event, whether for environmental monitoring, site investigation, site restoration, waste characterization, industrial hygiene, bioassay or other purpose, which is tracked by the SMO and for which an SMO contract laboratory generates a data report, will be monitored by the SMO utilizing the CVR. The SMO is responsible for completing the CVR, initiating and tracking any corrective actions based upon the CVR, and documenting corrective action closure.

1.3 Ownership

The SNL/NM SMO is the owner of this operating procedure (OP). The SMO is responsible for maintaining and revising this OP as necessary. Any comments or suggestions for improvement should be forwarded to the SMO.

2.0 RESPONSIBLE INDIVIDUALS AND ORGANIZATIONS

The **Department Manager** is responsible for the following:

- Providing programmatic guidance leading to the development of this OP.
- Reviewing and approving this procedure.
- Acting as liaison to U.S. Department of Energy (DOE) and National Nuclear Security Administration/Sandia Field Office (NNSA/SFO) regarding sample management issues.

The **SMO Technical Lead** is responsible for the operations and activities conducted within the SMO. The principal responsibilities of the SMO Technical Lead include the following:

- Updating this procedure.
- Developing and maintaining the *SNL/NM Contract SOW for Analytical Laboratories*.
- Managing contractor laboratory services, including procurement, reviewing routine performance assessments, and conducting general laboratory oversight.

The **SMO QA Coordinator** is responsible for the following:

- Providing project data quality assurance guidance.
- Ensuring that this procedure is distributed to the appropriate personnel for project/program use.
- Ensuring that sufficient quality checks are in place to maintain the integrity of the SMO sample information management and analytical result database.
- Documenting non-conformances and corrective actions in accordance with the applicable SMO-QAPP.
- Interfacing with the Records Management Coordinator for maintenance of project documentation and to resolve record management concerns for storage and maintenance of sampling and analysis records.

The **Project Coordinator** is responsible for coordinating efforts associated with SMO analytical services. The principal responsibilities of the Project Coordinator include the following:

- Acting as a point of contact between Task/Project Leaders and the analytical laboratories.
- Obtaining appropriate sample containers from a vendor or analytical laboratory.

- Scheduling projects with contract laboratories.
- Notifying analytical laboratories of any quality assurance, environmental, safety, health, and sample matrix requirements regarding sample handling, preparation, and analysis.
- Resolving problems, issues, non-conformances, and errors for projects with regard to analytical data.
- Performing CVR to ensure appropriate QC analyses have been performed in accordance with the *SNL/NM Contract SOW for Analytical Laboratories*.
- Performing QC of data entered into the SMO database.
- Performing electronic data QC and transfer.
- Processing and follow-up on any data package corrections, both hardcopy and electronic.
- Providing technical guidance and information, as required.
- Reviewing, verifying, and processing proformas and invoices from contractors.

The principal responsibilities of the **Laboratory Oversight/Data Validation Contractor**, as reflected in the applicable contract, include the following:

- Performing laboratory oversight as directed by the SNL/NM SMO.
- Conducting visits to and technical system audits of, contractor laboratories to ensure compliance with *SNL/NM Contract SOW for Analytical Laboratories*.
- Performing data validation in accordance with the applicable procedures.
- Communicating non-compliance issues to the SMO Technical Lead and/or SMO Project Coordinator(s).
- Verifying implementation of laboratory corrective action plans.

3.0 PROCEDURES

3.1 Prerequisites and Associated Procedures

Prerequisite to completing the CVR, reviewers must be familiar with the appropriate requirement documents and associated procedures. SMO personnel shall read this procedure and sign the Authorized Users List, EP 2009-AUL. Applicable documents include current revisions of the following:

- *Quality Assurance Project Plan (QAPP) for the SNL/NM Sample* Management *Office*, SMO QAPP,

- The current analytical laboratory contract including the *SNL/NM Contract SOW for Analytical Laboratories*, and

- The project specific sampling and analysis plan and/or quality assurance project plan (or equivalent).

Associated procedures include current revisions of the following:

- *SMO Data Management Plan*, Administrative Operating Procedure (AOP) 95-44,
- *Procedure for Electronic Data Deliverable (EDD) Processing*, SMO-05-04,
- *Administrative Operating Procedure for Sample Management and Custody*, AOP 95-16, and
- *Data Validation Procedure for Chemical and Radiochemical Data SNL/SMO*, AOP 00-03.

3.2 Completing the CVR

The CVR will be completed on analytical data packages delivered to the SMO from the contracted analytical laboratories. The CVR must be completed prior to validation and forwarding to the sampling task manager and the Records Center. The CVR shall be maintained in the Records Center in accordance with the requirements in section 2.4.1 of the SMO QAPP. A copy of the CVR form can be found on the SNL Controlled Document site under SMO Forms, SMO 2012-CVR. Alternatively, the CVR may be completed and electronically signed and date stamped using the CVR tool at https://rails-rn-prod.sandia.gov/esh_smo/cvr/.

Upon receipt of the analytical data package, the SMO will log the Sample Delivery Group (SDG) number and receipt date into the Sample Tracking and Analytical Results (STAR) database, retrieve the current correspondence and documentation files associated with the specific sampling activity, and place the package in queue awaiting CVR.

The CVR is divided into six topical sections, with line entries to be checked as complete or incomplete under each section. The six sections are:

- 1.0 Analysis Request and Chain of Custody Record and Log-In Information
- 2.0 Analytical Laboratory Report
- 3.0 Data Quality Evaluation
- 4.0 Calibration and Validation Documentation
- 5.0 Data Anomaly Report
- 6.0 Problem Resolution

The electronic CVR Form can be found on: Q:\SMO\SMO-2012-CVR.doc.

A copy of the CVR form is provided in Appendix A.

To complete the CVR, gather the analytical data report including the original, signed, returned ARCOC, and the current correspondence and documentation file. Complete the following information.
Header Information

- Project Leader
- Project Name
- Project/Task Number
- ARCOC Number
- Analytical Lab
- SDG Number

The header information items will be found on the ARCOC and on the analytical laboratory report.

Review the items indicated on each line of the CVR. If the items indicated are complete and correct check "Yes" in the appropriate column. If the items are incomplete or incorrect check "No" and record an explanatory note. The reviewer should resolve any deficiencies with the documentation, if possible, during the review.

3.2.1 Review the ARCOC and laboratory login information and complete the CVR Section 1.0.

Line 1.1 All items on ARCOC complete – data entry clerk initialed and dated

All information prompted for on the ARCOC is necessary for accurate tracking of the samples and documenting sample custody. Verify that all items have been completed and that the sample custody record is complete and unbroken. Check that the SMO data entry clerk has initialed and dated the ARCOC (on the field copy) indicating when the sample data were entered into the STAR database.

Line 1.2 Container type(s) correct for analyses requested

Check that the recorded sample container types are compatible with the sample matrices and analyses requested. Recommended containers are listed in Attachment 5, *SNL/NM Contract SOW for Analytical Laboratories*.

Line 1.3 Sample volume adequate for # and types of analyses requested

Check that the volume or mass of sample provided meets or exceeds the analysis minimum requirement, including sufficient volume/mass required for quality control analyses.

Line 1.4 Preservative correct for analyses requested

Sample preservation, both chemical and thermal, must be consistent with guidance and requirements of the U.S. Environmental Protection Agency (EPA). Correct preservatives are found in Attachment 5, *SNL/NM Contract SOW for Analytical Laboratories*.

Line 1.5 Custody records continuous and complete

Check that a member of the sampling team listed on the ARCOC was first to relinquish the samples. There should be no time gaps in the custody record and all custodians should be identified, from sample collection until receipt at the laboratory. If an express carrier transported samples to the laboratory they should be identified and the shipment waybill number recorded.

Line 1.6 Lab sample number(s) provided and SNL sample number(s) cross referenced and correct

Laboratory sample numbers that uniquely correspond to the SNL/NM assigned sample numbers must be indicated on the returned ARCOC or sample acknowledgement. SNL/NM sample numbers must be correctly cross-referenced to the laboratory sample numbers in the analytical data package.

Line 1.7 Date samples received

The date that samples were received at the laboratory must be indicated on the ARCOC. The date received is noted in the laboratory's acknowledgement of custody.

Line 1.8 Condition upon receipt information provided

The laboratory should make notation as to whether or not the samples were received intact, in good condition, and correctly preserved. Any anomalies should be noted.

3.2.2 Review the analytical laboratory report and complete the CVR Section 2.0.

Line 2.1 Data reviewed, signature

Check that there is a transmittal letter or section in the laboratory report case narrative testifying to laboratory management's review and approval for release of the analytical data. The testimonial should bear the signature of an appropriate laboratory manager.

Line 2.2 Method reference number(s) complete and correct

The analytical methods used by the laboratory should be standard, published methods and reflect the latest promulgated revisions. EPA numbers will typically identify the methods in the report. Check that the analytical methods are referenced and conform to the ARCOC.

Line 2.3 QC analysis and acceptance limits provided (MB, LCS, and sample replicate)

Analytical laboratory batch QC sample analysis results and result acceptance limits must be provided in the report. The types of QC samples analyzed will depend on the analytical method and requirements of the *SNL/NM Contract SOW for Analytical Laboratories*. Typically, minimum batch quality control might consist of a method blank (MB), laboratory control sample (LCS), and laboratory control sample duplicate (LCSD). Sample replicates should not be performed on field QC samples. Sample replicates are required for most inorganic and radiochemical analyses.

Line 2.4 Matrix spike/matrix spike duplicate data provided

Organic method sample matrix spike analyses are run in duplicate on representative sample matrices, per batch, if adequate sample volume is provided. Check that the laboratory analyzed matrix spike/ matrix spike duplicate (MS/MSD) on the sample(s) and that accuracy and precision data in the sample matrix are reported. Inorganic and radiochemistry methods require MS only. MS should not be performed on field QC samples.

Line 2.5 Detection limits provided; PQL, MDL (or IDL), MDA and L_C

Limits of detection should be provided in the report for each sample analysis. The reported limits of detection should be appropriate to the analysis and in compliance with the *SNL/NM Contract SOW for Analytical Laboratories*.

Line 2.6 QC batch numbers provided

Check that analytical laboratory QC samples are identified by laboratory assigned batch numbers.

Line 2.7 Dilution factors provided and all dilution levels reported

Check that dilution factors are reported for all samples. Most samples will have a dilution factor of "1" indicating that the sample, digestion solution, or extract was analyzed using the optimum preparation weights and volumes described in the analytical method. All liquid samples, solid sample digestions, or extracts that may have required further dilution to be analyzed within the linear working range of the test instrumentation or standards curve must be identified and the dilution factor used must be provided.

Line 2.8 Data reported in appropriate units and using correct significant figures

The number of significant figures to be reported is specified in the *SNL/NM Contract SOW for Analytical Laboratories*. Typically, final analytical results may be reported at three significant figures and limits of detection reported at two significant figures. Check that results are reported in the appropriate units and with the correct number of significant figures. All data for inorganic and metal parameters shall be reported in parts per million (ppm).

Line 2.9 Radiochemistry analysis uncertainty (2-sigma error) and tracer recovery provided

Confirm that total measurement errors, expressed as plus and minus two standard deviations, i.e., 2-sigma, are reported for all final radiochemistry activity concentration results. Confirm the tracer recoveries are reported for alpha spectroscopy, and any other applicable radiochemical method.

Line 2.10 Narrative provided

Check that the analytical report narrative conforms to requirements in the *SNL/NM Contract SOW for Analytical Laboratories*. Generally, the report narrative will describe the contents of the data package, provide an index or list of analyses performed and samples processed, and describe the circumstances leading to laboratory qualification of any analysis result.

Line 2.11 Turnaround times (TAT) met

The analytical report is due at SNL/NM SMO after the elapsed time specified in the *SNL/NM Contract SOW for Analytical Laboratories* and indicated on the ARCOC (typically 30 calendar days from receipt of the samples). Mutually agreed upon expedited turnaround times may be applicable if documented and so noted on the ARCOC. Verify that the analytical report was received within the required turnaround time. Analytical data packages not meeting turnaround performance requirements may result in reduced or non-payment for services.

Line 2.12 Holding times met

Sample analysis holding times are counted as days from when the sample was taken until when it was prepared, if applicable, and analyzed. Analysis holding times may be required for valid analysis results or just recommended per industry guidance. Holding times for SNL/NM samples are listed in Attachment 5, *SNL/NM Contract SOW for Analytical Laboratories*. Analytical data not meeting holding times may result in reduced or nonpayment for services.

Line 2.13 Contractual qualifiers provided

The *SNL/NM Contract SOW for Analytical Laboratories* requires the laboratory to assign standard data qualifiers to analytical results not meeting specified criteria. For example, "B" will be assigned when sample analyte contamination was observed above the detection limit and in the associated batch preparation blank sample, and "J" will be assigned to indicate an estimated result less than a limit of quantitation but greater than a method detection limit. Check that the laboratory has appropriately assigned the correct data qualifiers. Qualifiers for SNL/NM samples are listed in Appendix G, *SNL/NM Contract SOW for Analytical Laboratories*.

Line 2.14 All requested result and Tentatively Identified Compounds (TIC) data provided

Confirm that all information requested from the laboratory on the ARCOC, in the *SNL/NM Contract SOW for Analytical Laboratories*, and in task specific correspondence was supplied.

3.2.3 Section 3.0 of the CVR, "Data Quality Evaluation," provides opportunity to evaluate the analytical QC performance measures reported by the laboratory. Sample numbers are recorded to identify sample analysis results associated with nonconforming conditions or poor QC measurement results. Review line items in Section 3.0 highlight those laboratory reporting and technical performance measures checked for completeness in Section 2.0.

Complete the data quality evaluation, Section 3.0 of the CVR.

Line 3.1

Are reporting units appropriate for the matrix and meet SMO contractual specified or project-specific requirements? Inorganics and metals reported as ppm (mg/liter or mg/Kg)? Tritium reported in picocuries per liter with percent moisture for soil samples? Units consistent between QC samples and sample data?

Note the sample numbers for analytical results not meeting reporting unit conventions or requirements.

Line 3.2 Quantitation limit met for all samples

Note the sample number of analyses associated with elevated quantitation limits. Some analytical laboratories also call the quantitation limit the detection or reporting limit; for radiochemical analyses, the L_C or MDA are the limits reported. Quantitation limits will be elevated when high concentration of an analyte is present. This may only be a cause for concern when the other analytes are not detected in the same analysis.

Line 3.3 Accuracy

Note the sample numbers of analyses associated with nonconforming QC accuracy measurements. Analytical batch LCS analyte percent recoveries must fall within the specified control limits. Sample-specific surrogate compound percent recoveries (organic compound analyses) must be within established control limits. And, if required, matrix spike percent recoveries should also fall within acceptable limits.

Line 3.4 Precision

Note the sample numbers of analyses associated with nonconforming QC precision measurements. Precision measurement values are calculated as relative percent difference between the MS and MSD for organics, sample and sample replicate for inorganics, and paired LCS/LCSD for some analysis. Precision for radiochemistry is reported as the replicate error ratio.

Line 3.5 Blank data

Note the sample numbers associated with any blank sample in which significant positive results are observed. Contamination observed in a laboratory batch method blank sample, field or trip blank, or equipment rinse blank may indicate inadvertent or cross-sample contamination.

Line 3.6 Contractual qualifiers provided: "J"- estimated quantity; "B"- analyte found in method blank above the MDL for organic and inorganic; "U"- analyte undetected (results below the MDL, IDL or MDA (radiochemical)); "H"- analysis done beyond the method prescribed holding time; "h"- analysis done beyond the extraction/preparation holding time; "N" - result associated with spike analysis outside control limits.

Qualifier flags are to be assigned to analytical result data in accordance with requirements in the *SNL/NM Contract SOW for Analytical Laboratories*. Verify that laboratory qualifiers are correctly assigned and if not, record the affected sample numbers.

Line 3.7 Narrative addresses planchet flaming for gross alpha/beta

Check that the narrative includes information concerning planchet flaming for all gross alpha/beta analysis.

Line 3.8 Narrative included, correct, and complete

Check that information provided by the laboratory in the case narrative is accurate and in agreement with the analysis and QC data presented in the report. If the report narrative is inaccurate, note the sample numbers directly impacted.

Line 3.9 Second column confirmation data provided for methods 8330 (high explosives), pesticides/PCBs 8081 and 8082 and herbicides 8151.

Check that confirmation results data is provided for detected compounds for high explosive, pesticide/PCB and herbicide analyses.

3.2.4 Review the analytical data report to ensure it includes the required calibration and validation documentation and complete Section 4.0 for the CVR.

Line 4.1 GC/MS (8260 and 8270)

Verify the 12-hour tune check, initial calibration, continuing calibration, internal standard performance data, and instrument run logs are provided.

Line 4.2 GC/HPLC (8330, 8082, 9070A, and 8010)

Verify the initial calibration, continuing calibration and instrument run logs are provided.

Line 4.3 HRGC/HRMS (1668)

Verify the 12-hour tune check, initial calibration, continuing calibration, internal standard performance data, labeled compound recovery data, Relative Retention Times (RRTs) and ion abundance ratios for samples and standards, and instrument run logs are provided.

Line 4.4 LC/MS/MS (6850)

Verify the initial calibration, continuing calibration, CRI, internal standard performance data and instrument run logs are provided. For perchlorate analysis, verify that chlorine isotope ratios and ICS data are also provided.

Line 4.5 Inorganics (metals)

Verify the initial calibration, continuing calibration, ICP interference check sample data, ICP serial dilution, and instrument run logs are provided.

Line 4.6 Radiochemistry and General Chemistry

Verify the instrument run logs are provided.

Section 5.0 of the CVR, "Data Anomaly Report (DAR)," evaluates data results to historical monitoring data points to determine outliers and a need for data verification or sample reanalysis. The DAR is generated for monitoring and surveillance data.

3.2.5 Run the DAR and complete section 5.0 of the CVR.

Line 5.1 DAR completed for monitoring and surveillance data

When applicable, process the DAR according to steps below. The DAR shall be completed for all applicable sample data indicated as "SA", not field QC samples.

Update the Historical file

- Open Oracle Query builder
- Log in with user ID, password, "gspr1", press OK
- Click on "Open Query from File System"
- Press OK
- Open \\catbert\7500\SMO\STAR\SAR (suspected/data anomaly report) folder
- Select applicable browser file (i.e., SAR_Ambient_Filters.brw)
- Press "Open", then OK
- Execute query
- Maximize window
- Click on the "File" tab
- Select "Export Data"
- Select "Comma-Delimited (CSV)" as format
- Open "Select" window and open C:\SandiaSAR\SandiaSAR_Ver1p2\ applicable CSV file, press "Save", select "Yes" for "Save As"
- Press OK on export data window, then OK again
- Close file, press No

Run anomaly report

- Open SAR Application
- Press "Select EDD File"
- Go to \\catbert\7500\SMO\STAR\EDD by COC
- Highlight applicable EDD and press "Open"

- Press "Select Historical Data File" – select the CSV file you just updated under C:\SandiaSAR\SandiaSar_Ver1p2, then press "Open"
- Press "Load Parameters.xls"
- Highlight "parameters.xls", then press "Open"
- Press "Generate Report" – the report opens in a PDF format
- Right click on the PDF report and go to "Send to Mail Recipient"
- Select "PDF Format", then press OK
- Send Report to your mailbox and save in a file
- Press "Close Print Preview"
- Press "Generate SAR Workbook" – the report opens in an Excel format
- The Excel Report is automatically saved to your desktop under "SAR_ARCOC#"
- Review the report and note any anomalies on the CVR
- Notify task leader of any anomalies

3.2.6 Complete the CVR by noting the review results and correction tracking at the end of the form in Section 6.0 "Problem Resolution." Note any deficiencies and their resolution on the CVR, or initiate a nonconformance report or correction request. The Correction Request Form can be found on: Q:\SMO\Correction Request Form.doc.

A copy of the Correction Request Form is provided in Appendix B.

Record the date that any nonconformance report or correction request was forwarded to the laboratory. Sign and date the CVR. If corrections to the analytical report were required, then the CVR remains active and open until the corrected laboratory report is received. After receipt, review, and acceptance of the corrected analytical report, note closure of the corrective action by date and signature.

4.0 References

Sandia National Laboratories, *Administrative Operating Procedure for Sample Management and Custody*, AOP 95-16, current revision, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, *Data Validation Procedure for Chemical and Radiochemical Data*, AOP 00-03, current revision, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, *Procedure for Electronic Data Deliverable (EDD) Processing*, SMO-05-04, current revision, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, *Quality Assurance Project Plan for the SNL/NM Sample Management Office*, SMO QAPP, current revision, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, *SMO Data Management Plan*, AOP 95-44, current revision, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, *SNL/NM Contract SOW for Analytical Laboratories*, current revision, Sandia National Laboratories, Albuquerque, New Mexico.

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APPENDIX A
CONTRACT VERIFICATION REVIEW FORM

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Contract Verification Review (CVR)

Project Leader _____ Project Name _____ Project/Task No. _____

ARCOC No. _____ Analytical Lab _____ SDG No. _____

In the tables below, mark any information that is missing or incorrect and give an explanation.

1.0 Analysis Request and Chain of Custody Record and Log-In Information

Line No.	Item	Complete? Yes	Complete? No	If no, explain
1.1	All items on ARCOC complete - data entry clerk initialed and dated			
1.2	Container type(s) correct for analyses requested			
1.3	Sample volume adequate for # and types of analyses requested			
1.4	Preservative correct for analyses requested			
1.5	Custody records continuous and complete			
1.6	Lab sample number(s) provided and SNL sample number(s) cross referenced and correct			
1.7	Date samples received			
1.8	Condition upon receipt information provided			

2.0 Analytical Laboratory Report

Line No.	Item	Complete? Yes	Complete? No	If no, explain
2.1	Data reviewed, signature			
2.2	Method reference number(s) complete and correct			
2.3	QC analysis and acceptance limits provided (MB, LCS, Replicate)			
2.4	Matrix spike/matrix spike duplicate data provided			
2.5	Detection limits provided; PQL and MDL(or IDL), MDA and L_c			
2.6	QC batch numbers provided			
2.7	Dilution factors provided and all dilution levels reported			
2.8	Data reported in appropriate units and using correct significant figures			
2.9	Radiochemistry analysis uncertainty (2 sigma error) and tracer recovery (if applicable) reported			
2.10	Narrative provided			
2.11	TAT met			
2.12	Holding times met			
2.13	Contractual qualifiers provided			
2.14	All requested result and TIC (if requested) data provided			

Contract Verification Review (Continued)

3.0 Data Quality Evaluation

Item	Yes	No	If no, Sample ID No./Fraction(s) and Analysis
3.1 Are reporting units appropriate for the matrix and meet contract specified or project-specific requirements? Inorganics and metals reported as ppm (mg/liter or mg/Kg)? Tritium reported in picocuries per liter with percent moisture for soil samples? Units consistent between QC samples and sample data			
3.2 Quantitation limit met for all samples			
3.3 Accuracy a) Laboratory control sample accuracy reported and met for all samples			
b) Surrogate data reported and met for all organic samples analyzed by a gas chromatography technique			
c) Matrix spike recovery data reported and met			
3.4 Precision a) Replicate sample precision reported and met for all inorganic and radiochemistry samples			
b) Matrix spike duplicate RPD data reported and met for all organic samples			
3.5 Blank data a) Method or reagent blank data reported and met for all samples			
b) Sampling blank (e.g., field, trip, and equipment) data reported and met			
3.6 Contractual qualifiers provided: “J”- estimated quantity; “B”- analyte found in method blank above the MDL for organic and inorganic; “U”- analyte undetected (results are below the MDL, IDL, or MDA (radiochemical)); “H”- analysis done beyond the holding time; “h” - analysis done beyond the extraction/preparation holding time; “N” - result associated with spike analysis outside control limits			
3.7 Narrative addresses planchet flaming for gross alpha/beta			
3.8 Narrative included, correct, and complete			
3.9 Second column confirmation data provided for methods 8330 (high explosives), pesticides/PCBs 8081 and 8082 and Herbicides 8151			

Contract Verification Review (Continued)

4.0 Calibration and Validation Documentation

Item	Yes	No	Comments
4.1 GC/MS (8260, 8270)			
a) 12-hour tune check provided			
b) Initial calibration provided			
c) Continuing calibration provided			
d) Internal standard performance data provided			
e) Instrument run logs provided			
4.2 GC/HPLC (8330, 8082, 9070A, and 8010)			
a) Initial calibration provided			
b) Continuing calibration provided			
c) Instrument run logs provided			
4.3 HRGC/HRMS (1668)			
a) 12-hour tune check provided			
b) Initial calibration provided			
c) Continuing calibration provided			
d) Internal standard performance data provided			
e) Labeled compound recovery data provided			

f) RRTs for samples and standards provided			
g) Ion abundance ratios for samples and standards provided			
h) Instrument run logs provided			
4.4 LC/MS/MS (6850) a) Initial calibration provided			
b) Continuing calibration provided			
c) CRI provided			
d) Internal standard performance data provided			
e) Chlorine isotope ratios provided (perchlorate only)			
f) ICS provided (perchlorate only)			
4.5 Inorganics (metals) a) Initial calibration provided			
b) Continuing calibration provided			
c) ICP interference check sample data provided			
d) ICP serial dilution provided			
e) Instrument run logs provided			
4.6 Radiochemistry and General Chemistry a) Instrument run logs provided			

Contract Verification Review (Concluded)

5.0 Data Anomaly Report

Item	Yes	No	Comments
5.1 DAR completed for monitoring and surveillance sample data			
5.2 Problems or outliers noted			
5.3 Verification or reanalysis requested from lab			

6.0 Problem Resolution

Summarize the findings in the table below. List only samples/fractions for which deficiencies have been noted.

Sample/Fraction No.	Analysis	Problems/Comments/Resolutions

Were deficiencies unresolved? θ Yes θ No

Based on the review, this data package is complete. θ Yes θ No

If no, provide nonconformance report or correction request number _____ and date correction request was submitted: _____

Reviewed by: _____ Date: _____

Were resolutions adequate and data package complete? θ Yes θ No

Closed by: _____ Date: _____

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APPENDIX B
CORRECTION REQUEST FORM

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Date: _____

To: _____ From: _____

Company: _____ Org: _____

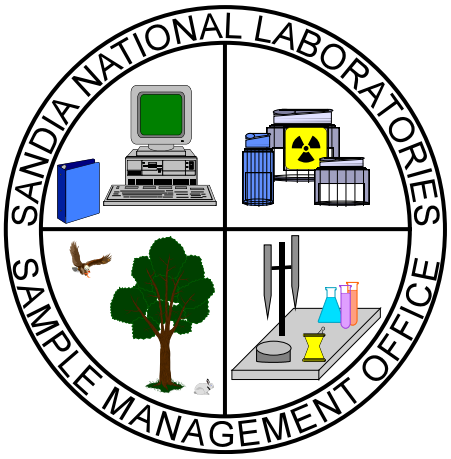
Phone: _____ Phone: _____

Fax: _____ Fax: _____

Correction Request

COC: _____ SDG: _____ Tracking No: _____

NOTE:



Sandia National Laboratories
Sample Management Office
P.O. Box 5800
Albuquerque, New Mexico 87185-1331

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