

10-160B RH Cask Program Guidance

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10-160B RH Cask Program Guidance

February 2010

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Date

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RECORD OF REVISION

Revision	Reason for Revision/Change
0	New RH Packaging Program Guidance for the CNS 10-160B Cask.
1	<ul style="list-style-type: none">• Added wording from 10 CFR Part 71.• Added definition for clean O-ring.• Section 1.5, first bullet: deleted "does not include final shipments from a generator site or small quantity site."• Step 1.7.1: added wording for buying O-rings from an approved O-ring vendor.• Step 1.7.1: added spare parts list.• Added Sections 2.3, 2.4 and 2.5.• Section 2.8: changed to allow maintenance at user sites.• Section 5.0: changed wording to allow maintenance at user sites.• Added Sections 5.3, 5.4 and 5.6 for maintenance activities.• Added Figure 5.1, "Maintenance Record," to record maintenance activities.• Added Attachment A for approved maintenance work instructions.• Global, changed Duratek to Energy Solutions
2	<ul style="list-style-type: none">• Global, removed all mention of CNS• Global, removed all mention of Chem-Nuclear Systems• Global, removed all mention of Duratek, Inc.

WIPP M&O CONTRACTOR TECHNICAL REVIEW ORGANIZATIONS
WASHINGTON TRU SOLUTIONS
CBFO REVIEW ORGANIZATIONS
OFFICE OF THE NATIONAL TRU PROGRAM
QUALITY ASSURANCE
EDITORIAL

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide guidelines and to define responsibilities for use, operation, inspection, and maintenance of the 10-160B cask and directly related components used for shipments of DOE controlled TRU waste. This document complies with the minimum requirements specified in the Safety Analysis Report (SAR) for Model 10-160B Type B Radwaste Shipping Cask and U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (C of C) 9204. In the event of a conflict between this document and the SAR or C of C, the C of C shall govern.

Energy Solutions is the design authority for the 10-160B cask. In those instances where Energy Solutions is the shipper of record or conducts maintenance activities, Energy Solutions shall operate under its own Title 10 *Code of Federal Regulations* (CFR) Part 71, Subpart H, "Quality Assurance," (QA) program and procedures.

Washington TRU Solutions LLC (WTS) may develop cask operating procedures and maintenance procedures that meet SAR requirements for required site-specific activities. WTS documents and revisions directly related to 10-160B operations must be submitted to Energy Solutions, to review for SAR compliance. WTS documents and revisions related to cask operations must be submitted to the Carlsbad Field Office (CBFO) at site.documents@wipp.ws for approval. A copy of concurrence from Energy Solutions and approval documentation from the CBFO shall be available for audit purposes. WTS may develop site-specific procedures addressing preoperational activities, QA requirements, hoisting and rigging, and radiation health physics to be used in conjunction with the instructions contained in this document.

This document is available on the Internet at <http://www.wipp.energy.gov/library/caolib.htm>. The user of this document is responsible for ensuring that the current revision and/or change notice are used.

In accordance with 10 CFR Part 71, "Packaging and Transportation of Radioactive Material," certificate holders, packaging users, and contractors or subcontractors who use, design, fabricate, test, maintain, or modify the packaging shall post copies of (1) 10 CFR Part 21, "Reporting of Defects and Noncompliance," regulations, (2) Section 206 of the Energy Reorganization Act of 1974, and (3) NRC Form 3, Notice to Employees. These documents must be posted in a conspicuous location where the activities subject to these regulations are conducted.

Users may recommend changes to this document by submitting their recommendations (in writing) to site.documents@wipp.ws for evaluation.

Before first use and approximately every 12 months after, users will be audited to the requirements of this document to ensure compliance.

1.2 Conventions

The following conventions are used to standardize the language used in this document.

- The words "will," "shall," and "must" denote requirements.
- The word "should" denotes a recommendation.
- The word "may" denotes permission, neither a requirement nor a recommendation.
- The word "verify" is used to confirm a condition.

1.3 References

U.S. Department of Energy, *Quality Assurance Program Document*, DOE/CBFO-94-1012

U.S. Nuclear Regulatory Commission, *Establishing Quality Assurance Programs for Packaging Used In Transport Of Radioactive Waste*, Regulatory Guide 7.10

U.S. Nuclear Regulatory Commission Certificate of Compliance 9204.

U.S. Nuclear Regulatory Commission, Title 10 Code of Federal Regulations (CFR), Part 71, *Packaging and Transportation of Radioactive Material*.

Safety Analysis Report for Model 10-160B Type B Radwaste Shipping Cask

1.4 Definitions

- **Annual Maintenance** - Periodic maintenance that is performed at one-year intervals.
- **Maintenance Leakage Rate Test** - Leak tests to verify containment boundary integrity. This test is required after installing any new lid or port O-rings or repairs to the seal seating surfaces.
- **Assembly Verification Leak Test** - Leak tests performed during assembly of a loaded package. It is also referred to as the pressure drop test.
- **Carlsbad Field Office (CBFO)** - The U.S. Department of Energy (DOE) office responsible for managing the packaging and transportation activities associated with contact-handled (CH) and remote-handled (RH) transuranic (TRU) materials.
- **Central Monitoring Room (CMR)** - A communication center where the WIPP M&O contractor can be reached at any time.
- **Certificate of Compliance (C of C)** - A document issued by the NRC, approving

the design of a specific radioactive materials packaging for use with specified payload limitations.

- **Clean O-Ring** - Absence of free-standing vacuum grease, dirt, debris, or other foreign matter. Vacuum grease embedded in the O-ring is acceptable.
- **Inspection/Inspect** - Unless otherwise stated in this document, this refers to personnel performing routine operational inspections of the cask.
- **Mobile Loading Unit (MLU)** - This consists of trailer-mounted equipment necessary to load/unload packaging at locations where fixed loading/unloading facilities do not exist.
- **Nonconformance Report** - A document that identifies and records a nonconforming condition, and the action taken for the disposition of the nonconformance. Disposition of nonconforming items includes review, accept, reject, rework, use-as-is, or repair. All occurrences of nonconformance reports require formal disposition by the WIPP M&O contractor.
- **Nuclear Regulatory Commission (NRC)** - The federal agency that certifies the design of Type B radioactive materials shipment packaging as meeting the requirements of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
- **Out-of-Service** - An administrative condition of the packaging that states it is not useable for radioactive shipments. When a packaging is out-of-service, a tag shall be attached that states the out-of-service condition.
- **Owner** - The organization to which the NRC C of C is issued. Energy Solutions is the owner and the design authority for the 10-160B cask.
- **Package** - Packaging together with its radioactive contents as presented for transport.
- **Packaging Maintenance Engineer (PME)** - WIPP M&O contractor employee responsible for coordinating and tracking maintenance for TRU packaging.
- **Packaging** - The assembly of components necessary to ensure compliance with the packaging requirements of 10 CFR Part 71. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for absorbing mechanical shock. The vehicle, tie-down system, and auxiliary equipment may be designated as part of the packaging.
- **Remote-Handled Transuranic (RH TRU) Waste** - Transuranic waste with an external radiation dose rate exceeding 200 millirem/hr and less than or equal to 1,000 rem/hr at the waste container's surface.
- **Safety Analysis Report for Packaging (SARP or SAR)** - The safety basis for

an application to a packaging licensing agency (DOE or NRC) containing a demonstration of packaging effectiveness and ability to achieve the requirements delineated in 10 CFR Part 71.

- **Transportation Tracking and Communication System (TRANSCOM)** - A vehicle tracking system for sensitive DOE shipments using satellite communications and interpretive computer software. The system allows the tracking of selected shipments without driver input.
- **Transuranic (TRU) Waste** - Waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for the following:
 - High-level radioactive waste
 - Waste that the Secretary has determined, with concurrence of the Administrator, does not need the degree of isolation required by the disposal regulations
 - Waste that the NRC has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61, "Disposal of Radioactive Waste."
- **Users** - For purposes of this document the users of the 10-160B cask are Energy Solutions, WTS, and WTS contracted mobile loading crews.
- **WIPP** - The Waste Isolation Pilot Plant.

1.5 Prerequisites for Shipping

Prior to making an initial shipment of TRU waste in the 10-160B cask, WTS must submit operating and handling procedures and associated QA plans to the CBFO for review and approval at site.documents@wipp.ws. When shipping from a new generator site, the site representatives must also perform the following:

- Have a program in place to accept return shipments from WIPP.
- Determine whether a fixed facility or an MLU will be required. The facility must meet minimum size and height requirements to accommodate loading operations. Minimum electrical power requirements for operation of a crane and other equipment must be considered.
- Prepare and approve site procedures (QA, hoisting and rigging, preoperational checks, and radiation health physics) for use during packaging operations, if necessary.
- Obtain authorization to use and complete training to operate the DOE TRANSCOM satellite-based shipment tracking system (not required of small generator sites).

- Successfully complete a certification audit by the CBFO/WIPP M&O contractor to ship TRU waste in the 10-160B cask. Certification will include observation of a loading operation. (This does not apply to sites with shipments loaded by other trained personnel.)

1.6 Packaging Description

The 10-160B cask is a U.S. Department of Transportation (DOT) Type B packaging certified by the NRC. It is a cylindrical carbon steel and lead shielded shipping cask with a pair of cylindrical foam-filled impact limiters installed on each end. The 10-160B cask is designed to provide containment and shielding for shipment of radioactive waste material. The cask is transported in the upright position.

The authorized payload container for shipment of TRU waste to WIPP is a 55-gallon DOT Type A drum. Drums are loaded into the cask on two pallets that each hold five 55-gallon drums. Up to ten payload containers of TRU waste may be loaded in the cask. If there are fewer than five payload containers containing waste in a payload assembly, sufficient dunnage drums will be required to make up the difference as a form of blocking and bracing. An empty pallet shall be used when shipping a single payload assembly.

Thirty-gallon drums are also authorized payload containers for intersite shipments, but may not be shipped to WIPP unless overpacked in a 55-gallon drum.

Cask weights (approximate):

Cask weight empty (including lids, without impact limiters) is 47,000 pounds.

Cask lid weight:	Primary lid	5,300 pounds
	Secondary lid	2,150 pounds
	Total lid weight	7,450 pounds

Impact limiter weight:	Top	5,300 pounds
	Bottom	5,200 pounds

Maximum cask payload
(including shoring and optional steel insert if installed) 14,500 pounds

Maximum cask weight loaded (with impact limiters) 72,000 pounds

1.7 Ancillary Equipment

1.7.1 Spare Parts

Energy Solutions shall provide replacement parts as required for maintenance activities (except for the butyl rubber O-rings). Spare parts may be obtained from Energy Solutions in anticipation of maintenance needs. Energy Solutions will provide a copy of the C of C and supporting documentation for each spare part.

Table 1.0, Spare Parts (Bench Stock for users), lists the spare parts that support replacement of packaging components during routine operations by all users who retain a bench stock at their facility. A bench stock inventory should be conducted quarterly to determine shortages. Replacements will be provided through the WIPP M&O Contractor RH Packaging Maintenance Engineer. The On-Hand, P/O No., and Needed columns may be used to conduct inventories and should be faxed to the WIPP M&O Contractor RH Packaging Maintenance Engineer quarterly (at the end of March, June, September, and December) for parts replacement. There may be several different purchase order (P/O) numbers associated with a given part. Sites are responsible for notifying the WIPP M&O Contractor when spare parts are needed.

Table 1.0 Spare Parts (Bench Stock for Users)					
Description	Part No./ Substitute	P/O No.	Min/ Max	On Hand	Needed
Lid Bolts	29003-010-32		1 - 10		
Lid Bolt Washers	29003-010-33		1 - 10		
Lift Lug Bolts	29003-010-22		1 - 10		
Lift Lug Bolt Washers	29003-010-23		1 - 10		
Vent Plug	29003-010-13		1 - 3		
Vent Bolt	29003-020-14		1 - 3		
Test Port Plug	29003-010-38		1 - 3		
Primary Lid Lift Hole Plug	29003-010-17		1 - 3		
Rain Cover Screws	29003-010-51		1 - 10		
Alignment Pins	29003-010-34		1 - 3		
Primary Lid Inner O-ring Seal	29003-010-28		1 - 3		
Primary Lid Outer O-ring Seal	29003-010-29		1 - 3		
Secondary Lid Inner O-ring Seal	29003-010-30		1 - 3		
Secondary Lid Outer O-ring Seal	29003-010-31		1 - 3		
Vent Port Seal	29003-010-15		1 - 3		
Impact Limiter Fuse Plug	44009-007-59		1 - 3		
Impact Limiter Ratchet Binder	29003-010-54		1 - 3		
Cask/Ratchet Binder Turnbuckle	44009-008-3		1 - 3		
Ratchet Binder Turnbuckle	44009-008-4		1 - 3		

1.7.2 Transport Trailer

A dedicated trailer is used to transport the 10-160B cask, either loaded or empty. The trailer chassis is a specially equipped, drop-frame trailer design. The chassis carries a single 10-160B cask. Before moving the trailer, the operator shall verify the rear axle rating of the towing device is at least 30,000 lb for towing an empty 10-160B cask, or 36,000 lb for towing a fully loaded 10-160B cask. The operator shall verify the fifth wheel is securely latched prior to moving the trailer.

The maximum allowable gross shipping weight for loaded packages, including the tractor and trailer, is 111,000 lb. A shipment of the 10-160B cask is an overweight shipment requiring state permits, whether empty or full.

Trailer maintenance is performed by a CBFO contractor on the government owned trailer and may be performed by Energy Solutions on trailers that are owned by Energy Solutions.

2.0 GENERAL REQUIREMENTS

2.1 Quality Assurance Requirements

A QA program meeting the requirements of 10 CFR Part 71, Subpart H, shall be in place for use, maintenance, repair, replacement, and/or modification to the 10-160B cask. The QA program applicable to the 10-160B activities performed by Energy Solutions shall be approved by the NRC. The QA program applicable to the 10-160B activities performed by other users shall be approved by the CBFO.

Existing CBFO-approved QA programs may be used to satisfy the above requirements provided a review has been made as to its applicability to the scope of activities performed by each participant and equivalency of the program to the NRC QA program requirements in Subpart H. Energy Solutions shall operate under their own 10 CFR Part 71 QA program.

2.2 Records

Packaging users (for purposes of this document the users of the 10-160B cask are Energy Solutions, WTS, and WTS contracted mobile loading crews) and maintenance contractors must comply with 10 CFR §71.91, "Records." Records regarding inspections, tests, and maintenance must be retained for three years after the life of the package to which they apply. Shipping records relating to each shipment must be maintained for a period of three years after the shipment.

2.3 Records Maintenance

All records of maintenance activities performed on the packaging used for WIPP shipments shall be forwarded to the WIPP M&O Contractor for retention. Records are designated as QA records and will be maintained as required. All records concerning design, fabrication, and assembly; results of reviews, inspections, tests, and audits; results of monitoring work performance and materials analyses; and results of maintenance, modification and repair activities must be retained for three years after the life of the packaging to which they apply. Inspection, test, and audit records must identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken concerning any deficiencies noted.

2.4 Document Distribution

Upon completion, original maintenance records and copies of supporting documentation shall be transmitted to the WIPP M&O Contractor RH Packaging Maintenance Engineer, P.O. Box 2078, mailstop GSA-211, Carlsbad, NM 88221 within seven working days of performance of maintenance. The maintenance records will become part of the permanent RH packaging system record.

Users preparing maintenance records should retain copies for their files.

The work instructions should be used as checklists by those performing the work. Data attachments to the work instructions **must be** transmitted to WIPP with the original RH packaging maintenance record, unless stated otherwise in the work instruction.

2.5 Approved Work/Periodic Maintenance Instructions

Periodic and unscheduled maintenance tasks shall be accomplished using preapproved work instructions and/or one-time use repair instructions.

Approved work and periodic maintenance instructions are listed in this document on Attachment A, Approved Work Instructions. Completed originals will be filed with and become part of the permanent record. For approved work instructions intended for one-time use (either the WIPP M&O Contractor or vendor-generated), the original will become part of the permanent record. Users are responsible for ensuring that they have the latest approved revision.

2.6 Material Control

Initial and replacement packaging component control will be under Energy Solutions' approved 10 CFR Part 71, Subpart H, QA program. Energy Solutions shall provide spare parts (not including butyl O-rings), appropriate certificates of conformance, and/or other required documentation. All replaced (used) components should be disposed of in accordance with site procedures. If return of used components is deemed necessary for analysis, usage trends, or investigation, a request for return will be issued to user sites.

2.7 Training Requirements

Each user shall have the responsibility for a training program specific to this scope of work to ensure that their qualified personnel are experienced in their assigned tasks and related operations. Each user site must be able to satisfactorily perform maintenance, leak testing, component replacement and related operations, as applicable. User sites may use subcontracted personnel to satisfy this requirement.

Qualification of leak test personnel shall meet the requirements of the American Society of Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A - June 1980 Edition (later editions of SNT-TC-1A may be used as the basis for the qualification of nondestructive examination (NDE) personnel, as long as the minimum requirements of the June 1980 edition are met)

2.8 Shipping Requirements

The transport trailer and cask, both empty and loaded, is overweight (>80,000 lb), requiring permits and additional consideration for planning routes and shipping schedules.

When shipping an empty package to WIPP, a copy of the radiation and contamination survey and survey map(s) performed when the packaging was last closed will be faxed to the WIPP M&O contractor Radiological Control organization prior to departure.

2.9 Shipment Scheduling

Package shipments are coordinated by the WIPP M&O contractor. Once agreed upon by the shipping site traffic manager and the CBFO representative, WTS will enter the advance shipment schedule into the DOE TRANSCOM.

2.10 Nonconformance Reports

Conditions encountered during operation or inspection of the packaging, excluding those shown on the deferred maintenance list, shall be brought to the attention of the WIPP M&O contractor RH PME for resolution, and shall be entered into the Computerized History and Maintenance Planning System (CHAMPS). An evaluation of the noted condition will be performed to determine whether a condition adverse to quality (CAQ) exists. If a CAQ exists, the packaging will be controlled to prevent further use until either dispositioned to "use as is" or until the problem is corrected. A nonconformance report shall be issued by WTS when a CAQ exists.

Instances in which the conditions of approval in the C of C were not observed in making a shipment shall be reported to WTS. WTS will report it to the CBFO and to Energy Solutions in sufficient detail to address the requirements of 10 CFR §71.95, "Reports." Nonconformance reports to the NRC for DOE owned packaging shall be made by WTS.

3.0 PAYLOAD PREPARATION

The CBFO, with the input of the M&O contractor and generator site representatives, will determine whether Energy Solutions or WTS personnel will load the cask. Payload assembly shall be performed using Energy Solutions procedures when Energy Solutions is the shipper. Other shippers shall use CBFO-approved procedures. Any requests for payload changes must be submitted to Energy Solutions, as the design authority for the cask.

Only shipments approved for disposal at WIPP in the WIPP Waste Information System (WWIS) shall be accepted for transport to WIPP. Intersite shipments are not required to be approved in the WWIS.

Maximum allowable weight of the payload is 14,500 lb, including contents, secondary containers, shoring, and optional steel insert (if used).

4.0 PACKAGE OPERATING INSTRUCTIONS

Package Operations shall be performed using Energy Solutions procedures when Energy Solutions is responsible for loading, unloading, or shipping the cask. When other users are responsible for cask operations, including activities at the WIPP site, they shall use CBFO-approved procedures.

Site-specific procedures should only address the site-specific functions. Each site must have a program in place to accept return shipments from WIPP.

5.0 PACKAGE MAINTENANCE

Periodic maintenance activities shall be performed by Energy Solutions, under their NRC-approved 10 CFR Part 71, Subpart H, QA program. The WIPP M&O contractor maintains a contract with Energy Solutions for periodic maintenance and spare parts (not including butyl rubber O-rings). Maintenance requests will be coordinated by the WIPP M&O contractor RH PME.

Minor maintenance activities (like-for-like spare part replacement) will be completed by users following pre-approved work instructions.

5.1 Inspections

5.1.1 Routine Inspections

Inspections will be performed on the cask prior to shipments (both empty shipments and loaded shipments). Bolts, screws, O-rings and seal seating surfaces require inspection only when the particular parts are removed or exposed during cask operations. Inspections shall determine that surfaces are free of excessive deformation and that all threaded components are as specified and in good operating condition.

5.1.2 Annual Inspections

Annual inspections will be performed by Energy Solutions under their 10 CFR Part 71, Subpart H, QA program.

5.2 Maintenance Due Labels

Upon completion of annual maintenance, the WIPP PME shall affix, or shall have affixed, a maintenance due label on the cask. The packaging is considered **Out-of-Service** on the first day of the month indicated on this label. This will be in addition to the maintenance tag placed on the primary lid by Energy Solutions after completing annual maintenance.

5.3 Maintenance Records

All maintenance performed on RH packaging shall be thoroughly and completely documented on a Maintenance Record by the person performing the maintenance activity (Figure 5.1, Maintenance Record).

5.3.1 Instructions for Completing the Maintenance Record

- Packaging S/N - Record the serial number of the packaging (*Example: 007*).
- Date Initiated - Enter the date that the maintenance was initiated. (*If no corrective actions are performed immediately, enter the date the discrepancy was discovered.*)
- Location/Site - Enter the acronym for the site or location initiating the maintenance. (*Example: INEEL, WIPP, or EPD, etc.*)
- Job No. - Enter the next sequential job number from the site packaging maintenance log. (*See Section 5.5, Maintenance Log.*)
- Reason for Maintenance - Check the appropriate block. Check *other* for unscheduled inspections, modification, or repairs that are not listed in Attachment A.
- Discrepancy Description - Provide a short narrative description of repair or other discrepancies. No entry is required specifically for annual or five-year maintenance, but list discrepancies discovered as part of these scheduled inspections. List NCR numbers, tag numbers, or correspondence letter numbers, if applicable.
- Work Performed - Provide a concise description of the actions taken to correct discrepancies listed in the Discrepancy Description block. (*Example: Replaced IV lid containment O-ring.*)
- Work Instructions Used - List the work instruction numbers (e.g., WI-RH., WI-RH., etc.) used to perform the maintenance covered by the maintenance record.
- Measuring and Test Equipment (M&TE) Used - List the M&TE description, serial number (S/N) (also known as the ID number), calibration due date and work instruction used.
- Spare Parts Used - List any spare parts used by description, part number, and WIPP PO number. (*Required information is printed on packages or available on a removable label provided in the package. Place label in space provided.*)
- Work Inspected By - Should be signed and dated by the **supervisor** of the personnel who performed the work. The signature verifies that the actions taken were within the scope of the work instruction or traveler (if applicable) and the packaging can be returned to service. This signature also shows that the maintenance record is **accurate and complete** (i.e., all applicable supporting documentation is attached).
- Attach any Certified Material Test Reports or other reports for materials used.

5.4 Maintenance Record Disposition

Upon completion, the **ORIGINAL** RH packaging maintenance record, including attachments to the work instructions, shall be transmitted within seven working days of performance of maintenance to: WIPP M&O Contractor RH Packaging Maintenance Engineer, P.O. Box 2078, Carlsbad, NM 88221.

5.5 Maintenance Log

Each user site shall maintain a packaging maintenance log. The log shall contain copies of completed maintenance records and a sequential listing, by job number, of maintenance performed on packaging. The user copies of maintenance records should be kept for three years, after which they may be sent to PME for reconciliation.

5.6 Maintenance Due Labels

Upon completion of annual maintenance, the maintenance facility shall affix, next to the name plate, a maintenance due label. The RH packaging is considered **Out-of-Service** on the first day of the month shown on this label.

Figure 5.1. Maintenance Record

Package SN		MAINTENANCE RECORD			
Location/Site		Date initiated		Job No	
Check all applicable: Five-Year PM <input type="checkbox"/> Annual PM <input type="checkbox"/> Repair <input type="checkbox"/> Other <input type="checkbox"/>					
Discrepancy Description:					
Work Performed:					
Work Instructions Used:					
Measuring and Test Equipment Used					
Description	SN	Calibration Due Date	Work Instruction		
Spare Parts Used					
<small>(If self-stick labels are used, they shall contain a part description, part number and PO number. Enter each part quantity)</small>					
Description/part number/WIPP PO number:	Qty	Description/part number/WIPP PO number:	Qty		
If Continuation Sheet used check, yes:		Yes			
Work Inspected by:					
Printed Name	Signature			Date	
M&O Contractor Review and Package Closeout:					
Printed Name	Signature			Date	

6.0 LEAKAGE RATE TESTING

6.1 Preshipment Leak Tests

Preshipment leakage rate testing will be conducted following leak testing section in the Safety Analysis Report for the 10-160B Cask.

6.2 Periodic/Post Maintenance Leak Tests

Energy Solutions shall be responsible for performing a periodic packaging leakage rate test any time an O-ring is replaced or sealing surface is reworked, at a minimum once per year, using Energy Solutions procedures. A copy of the leak test results shall be provided to the WIPP M&O contractor RH PME.

Attachment A - Approved Work Instructions

NOTE: *All work instructions listed below may be performed by the maintenance vendor. Work instructions RH.20 through RH.23 are considered to be within the capabilities of a user to perform (except any weld work that needs to be done which may be accomplished by the maintenance vendor). Users may replace any spare parts they are qualified to replace following approved work instructions.*

NOTE: *Conditions may warrant that only specific steps of a work instruction are required for corrective action. Consequently, it is acceptable to perform only the necessary steps of the work instruction and to mark with "N/A" the steps not needed.*

NOTE: *Packaging users are responsible for ensuring that the current revision of the work instruction is used. Users can find the current revision to all work instructions at <http://wipp.energy.gov/library/caolib.htm#containers>.*

- WI-RH.20, Replacement of 10-160B Test Port Plugs and O-Rings
- WI-RH.21, Replacement of Lid O-Rings
- WI-RH.22, Replacement/Repair of Lid Bolts
- WI-RH.23, Replacement of Impact Limiter Ratchet Binders