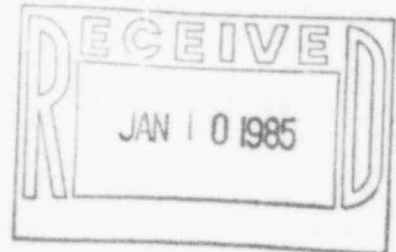


✓

OPPI

Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000
January 3, 1985
LIC-84-407

Richard P. Denise, Director
Division of Resident
Reactor Project & Engineering Programs
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011



Reference: Docket No. 50-285

Dear Mr. Denise:

I.E. Inspection Report No. 84-24
Transportation of Solid Radioactive Waste

On September 28, 1984, Mr. Wes Holley of your office held an exit meeting concerning the above subject inspection. At that meeting, the District stated that they would submit three completed special procedures to your office in order to close NRC Open Item No. 8226-06. In response to that commitment, please find attached Special Procedures for Loading of NUPAC 14D-2.0 Shipping Cask (M.O. 22290), NUPAC 14D-2.0 Shipping Cask (M.O. 22502) and NUPAC 14D-2.1 Cask loading (M.O. 22515). The District believes that the attached procedures should adequately address NRC Open Item 8226-06 and should be sufficient documentation to close that item.

Sincerely,

A handwritten signature in cursive script, appearing to read "R. L. Andrews".

R. L. Andrews
Division Manager
Nuclear Production

RLA/JJF/dao

Attachment

cc: Leboeuf, Lamb, Leiby & MacRae (without attachment)
1333 New Hampshire Avenue, N.W.
Washington, DC 20036

Mr. E. G. Tourigny, NRC Project Manager (without attachment)
Mr. L. A. Yandell, NRC Senior Resident Inspector (without attachment)

8503110459 850304
PDR ADOCK 05000285
G PDR

WD MAINTENANCE ORDER

No. 22502 (20)

UNIT NO. 1	SYSTEM RAD WASTE	ITEM NO.	ITEM NAME RAD WASTE
DATE 12-15-83	REQUESTED BY: W. Balan	APPROVED BY: [Signature]	EQUIP. OUTAGE <input type="checkbox"/> UNIT OUTAGE <input type="checkbox"/> SERVICE <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>
LIST SPECIFIC SYMPTOMS AND PROBLEMS:		SAFETY PIPE/CABLE IN IMMEDIATE AREA <input type="checkbox"/>	AREA CONTAMINATED <input checked="" type="checkbox"/> EQUIPMENT <input type="checkbox"/>

REQUEST MAINTENANCE SUPPORT FOR LOADING CASK FOR RADIOACTIVE WASTE SHIPMENT.

TECH. REVIEW:	SEE SUPPL. <input type="checkbox"/>
	PRC PROC. <input checked="" type="checkbox"/>
	DET. W.I. <input type="checkbox"/>
	INT. <input checked="" type="checkbox"/>
	QA <input checked="" type="checkbox"/>
	Q.A. <input type="checkbox"/>
	Q.O. <input type="checkbox"/>

PRIORITY: 21 OPER. SUPV.: [Signature] TECH. REVIEW SUPV.: [Signature] MAINT. SUPV.: MC

Q.A. REQUIREMENTS: No additional Q.A. req.

Q.A. SIGN/DATE: [Signature] 12/15/83

REQUIREMENTS: Positive Q.C. History in procedure

Q.A. SIGN/DATE: [Signature] 12/15/83

START DATE: 12/15/83 SCHED. COMP. DATE: 12/15/83 CLASS I CODE: Max

WORK ACCOMPLISHED:	1/4	PREP. FR.
per attached procedure	2/8	G.M.
		ELECT.

RELEASED: [Signature] ASSIGNED TO: [Signature] SEE SUPPL.

OPERABILITY OF REDUNDANT EQUIP. ITEM/LAST RUN

TECH. SPEC. BY SHIFT SUPV. [Signature]

WORK ACCOMPLISHED: [Signature] TAG OUT NO. [Signature] RELEASED TO: [Signature] DATE: 12-15-83

SEE SUPPL.

PARTS AND MATERIAL USED	QUAN.	UNIT MEASURE	PART/STOCK NO.	QUANTITY
NA				

WORK COMPLETED BY: [Signature] DATE: 12-15-83 EQUIP. HISTORY: [Signature]

RETURNED TO OPER. DATE: [Signature] TIME: 16

ARC REVIEW:

es () No (4)

Fort Calhoun Station Unit No. 1
PRC Approval Form for New Procedures

ND (Type of Procedure) ND 22502 (Procedure Number)
NUARC 14D-2.0 Shipping Cask (Procedure Title)

The above listed NEW Procedure has been reviewed and approved by the members of the PRC Committee as indicated below:

PLANT REVIEW COMMITTEE (PRC):

[Signature] 12/15/83
Supv - Operations Date

[Signature] 12/15/83
Supv - PRC and EFH Date

[Signature] 12/15/83
Supv - Technical Date

[Signature] 12/15/83
Reactor Engineer Date

[Signature] 12-15-83
Subv - Maintenance Date

[Signature] 12-15-83
Plant Engineer Date

[Signature] 12-15-83
Subv - C/OP Date

REVIEWED and APPROVED BY: [Signature] 12-15-83
Manager - Fort Calhoun Station Date

Documentation Review Responsibility: NA MW
Department

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M.O. # 22502

Purpose

The purpose of this procedure is to outline the requirements and steps necessary to accept and fill the NUPAC 14D-2.0 shipping cask

Reference

1. Cask user manual (Procedure WM-018) see attached

Prerequisites

1. An RWP has been issued to cover the work RWP# 236 (SB 12133)
UP
2. The area has been surveyed and stay times reviewed with personnel involved (SB 12133)
UP
3. Tractor has been moved into the railroad siding for loading (SB 12133)
UP

059701336

27502

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Precautions

1. As noted on Radiation Work Permit
 2. Use standard safe work practices
- EX-100
12-15-83*

0 2 9 7 0 1 3 3 7

Procedure

1. Notify the shift supervisor and GC that work is beginning

*for then
KCS
with A. P. [unclear]
SS
12-15-83
GC*

2. Perform steps 6.1.1 through 6.1.12 of attached procedure and initial each step in the left hand margin

*QRB 12-15-83
[unclear]
GC*

3. Load the cask in accordance with step 6.3.3 in attached procedure

QRB 12-15-83

22552

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4. I have paper work in order to allow transportation of rad. waste signed

QOB 12-16-83
H.P.

5. Notify the shift supervisor that work is complete and shipment is off site

MM 12-16-83
55

059701538

Remarks _____

Completed by Q. Bilou Date 12-16-83

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2-05-17

NO

WM-018

TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE	3
2.0 APPLICABILITY	3
3.0 DEFINITIONS	3
4.0 REFERENCES	3
5.0 RESPONSIBILITIES	4
6.0 PROCEDURE	4
6.1 Cask & Vehicle Receipt Inspection	6
6.2 Removal of Cask from Trailer	7
6.3 Loading Cask	7
7.0 DISTRIBUTION	17

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1.0 PURPOSE

The purpose of this procedure is to provide operating instructions for loading and unloading the NUPAC 14D-2.0 radioactive materials shipping casks.

2.0 APPLICABILITY

This procedure shall be followed when loading or unloading the NUPAC 14D-2.0 shipping cask. This procedure may be used in its entirety as is or incorporated into the policies and procedures of a registered user.

3.0 DEFINITIONS

None.

4.0 REFERENCES

- 4.1 U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9079
- 4.2 QA-014 NUS Process Services Corporation Quality Assurance Program Plan
- 4.3 Code of Federal Regulations, Title 10 Part 71
- 4.4 Code of Federal Regulations, Title 49

5.0 RESPONSIBILITIES

Registered users of the cask shall ensure the following.

059/1341

- 5.1 A Certificate of Compliance (C of C) for this cask and all the documents referenced by the C of C which relate to the use and maintenance of the cask are on file.
- 5.2 User has registered as a user of this certified cask with the U.S. NRC in accordance with Reference 4.3.
- 5.3 The cask has been inspected under a quality assurance program to verify its compliance with the terms and conditions of the issued Certificate of Compliance.
- 5.4 The cask is loaded and closed in accordance with an appropriate written procedure.
- 5.5 The cask is loaded in accordance with the requirements and restrictions stated in the C of C.
- 5.6 The shipment meets all of the applicable requirements established by the Department of Transportation, U.S. Nuclear Regulatory Commission, burial site disposal criteria and burial site licenses.

6.0 PROCEDURE

6.1 Cask & Vehicle Receipt Inspection

- 6.1.1 Perform radiation and external contamination surveys on both the shipping cask and vehicle. Loose and fixed contamination levels shall comply with the requirements of Reference 4.4. In the event these specified levels are exceeded, immediately notify the transportation department of NUS Process Services Corporation.

- 6.1.2 Inspect tiedown lugs and shackles on cask and trailer for cracks and wear.

NO

WM-018

REVISION

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6.1.3 Inspect tiedown cables to ensure they are not loose or damaged (crimped, frayed, etc.). Tighten if necessary.

KLV 12-15-83
G.C. HOLD POINT Initial Date

6.1.4 Inspect tiedown ratchets/turnbuckles to ensure they are in proper working condition.

KLV 12-15-83
G.C. HOLD POINT Initial Date

6.1.5 Ensure cask ratchet binders and binder accessories are in proper working condition.

KLV 12-15-83

6.1.6 Ensure that primary lid and shield plug lifting lug covers are present.

KLV 12-15-83

6.1.7 Remove cask lid in accordance with steps 6.3.1 through 6.3.2.7.

KLV 12-15-83

6.1.8 Inspect primary lid gasket for cracks or tears which would affect proper sealing.

KLV 12-15-83
G.C. HOLD POINT Initial Date

6.1.9 Inspect interior of cask for standing water.

Water must be removed prior to shipment.

KLV 12-15-83
G.C. HOLD POINT Initial Date

6.1.10 Inspect interior of cask for obstructions to loading.

KLV 12-15-83

6.1.11 Inspect interior of cask for defects which might affect the cask integrity.

KLV 12-15-83

6.1.12 Inspect the shield plug holddown nuts to ensure they are all present and not damaged.

KLV 12-15-83

6.1.13 Inspect the shield plug gasket for cracks, nicks or tears which would affect proper sealing.

Inspection is not required if shield plug has

KLV 12-15-83
KLV (Holding nut removed)

039701343

not been removed and security seal is in place and intact.

6.1.13.1 Remove the shield plug from the primary cask lid in accordance with steps 6.3.6.4 through 6.3.6.6.

6.1.13.2 Inspect the shield plug holddown studs for damage.

6.1.13.3 Inspect the shield plug gasket for cracks or tears which would affect proper sealing.

6.1.13.4 Install shield plug in accordance with step 6.3.8 unless loading requires the shield plug to be removed.

6.2 Removal of Cask from Trailer

If it is necessary to remove cask from trailer proceed as follows:

6.2.1 If cask is equipped with raincover, and it has not been removed, remove the raincover from the cask.

6.2.2 Loosen ratchet binders/turnbuckles as necessary to remove pins from shackles at cask end of tiedown system.

6.2.3 Remove pins from shackles.

6.2.4 Loosen cask shear blocks as necessary.

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N/A
KCH
12-15-83
(plug not removed)

N/A
KCH
12-15-83
(cask on trailer)

-CAUTION-

DO NOT USE CASK LID LIFTING LUGS TO LIFT CASK.

6.2.5 Using the four (4) cask lift lugs and suitable rigging lift cask off trailer and place cask in proper position for loading.

Empty Cask Weight: 34,500 lbs

Maximum Loaded Cask Weight: 48,000 lbs

6.3 Loading Cask

Remove the primary full diameter cask lid as follows:

6.3.1 If cask is equipped with a raincover, and it has not been removed, remove the raincover from the cask.

6.3.2 Disconnect the cask lid from the cask as follows:

6.3.2.1 Release the ratchet-binder handle from its storage position.

6.3.2.2 Engage the flip block to the sprocket wheel in the direction necessary to loosen the ratchet binder (see Figure 1).

6.3.2.3 Loosen the ratchet binder by pulling the handle in the appropriate direction.

6.3.2.4 Remove the ball-lock pin by depressing the top of the pin and pulling the pin through the hole in the threadless bolt (see Figure 2).

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- 6.3.2.5 Remove the threadless bolt by pulling the bolt through the holes in the upper ratchet binder connector and lid closure lug (see Figure 2).

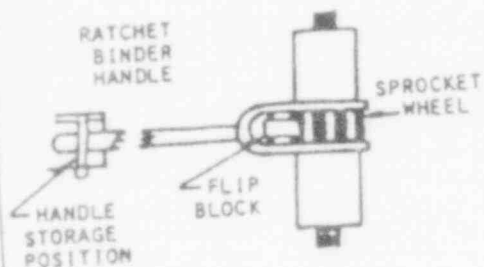


Figure 1

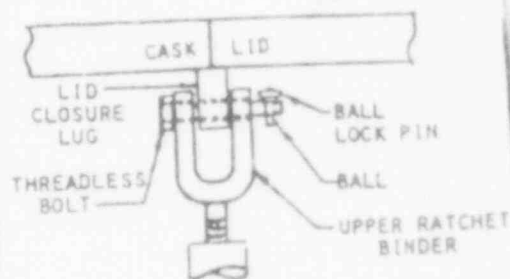


Figure 2

- 6.3.2.6 Remove the three (3) casks lid lifting lug covers.

-CAUTION-

WHENEVER THE CASK LID IS MOVED ON OR OFF THE CASK, TREAT THE UNDERSIDE OF THE LID AS A CONTAMINATED SURFACE UNTIL A CONTAMINATION SURVEY CAN BE MADE TO VERIFY ITS STATUS.

ALSO, ENSURE THAT THE CASK LID IS MOVED HIGH ENOUGH ABOVE THE CASK TOP TO AVOID DAMAGE TO THE CASK LID GUIDE PINS WHEN THE LID IS MOVED AWAY FROM OR OVER THE CASK.

6.3.2.7 Remove the cask lid using the three (3) lifting lugs on the cask lid to accommodate suitable rigging. Cask lid weighs 5700 pounds with the shield plug installed.

*KLH
12-15-83*

6.3.2.8 Inspect interior of cask for free standing water.

*KC 10
12-15-83*

NOTE: All water must be removed prior to loading and shipping.

6.3.2.9 Inspect interior of cask for obstructions which could affect loading or proper placement of drum pallets and liners.

*KLH
12-15-83*

6.3.3 Loading seven-drum pallets into the cask:

6.3.3.1 Using the slings provided and exercising caution in the handling of the pallet due to possible contamination, remove the top pallet from the cask. Inspect slings on both pallets for damage or conditions which could affect safety.

*KLH
12-15-83*

NOTE: Empty pallet weight - approx. 750 lbs.

N/C: Use heavy lead path when moving the cask cover on next step.
Exercising caution to avoid placing drums on the pallet lift slings, load

6.3.3.2

Four (4) drums on the lower pallet left in the cask. (See Figure 3 for drum placement on pallet.)

and a cask cover

Note: If a drum falls while the cask cover is being removed, it is necessary to stop work and inspect the drum.

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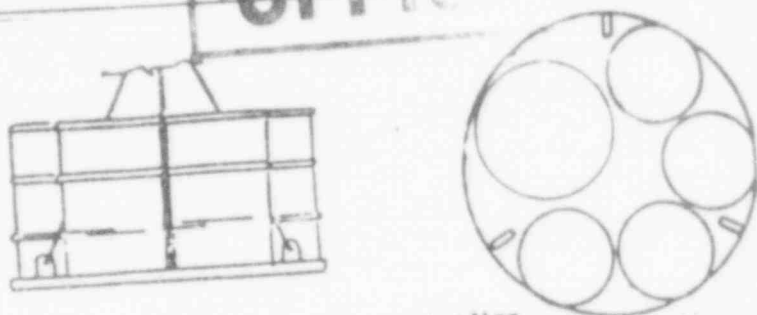


FIGURE 3 - Pallet Loading

NOTE: For maximum shielding, load higher dose rate drums in the center position and the positions toward the front and rear of the trailer.

- 6.3.3.3 Place a *plywood spacer* on top of the drums. Ensure lower pallet slings are accessible for retrieving pallet when off-loading.

Pallet Weight - 750 lbs.

Exercising caution to avoid placing drums on the pallet lift slings, load *four (4)* drums on the *spacer* in the cask (see Figure 3 and the *v.c.* *the step 6.3.3.2*)

- 6.3.3.4 Install primary lid in accordance with step 6.3.7.

- 6.3.4 Loading the Seven-Drum Pallets Outside the Cask:

- 6.3.4.1 Using slings provided and exercising caution in the handling of the pallet due to possible contamination, remove both the pallets from the cask.

NOTE: Empty Pallet Weight - approx. 750 lbs.

6.3.4.2 Inspect slings on both pallets for damage or conditions which would affect safety.

6.3.4.3 Load seven (7) drums onto each pallet (see Figure 3).

For maximum shielding, load higher dose rate drums in the center position.

6.3.4.4 Lift one of the loaded pallets and place it inside the cask. For maximum shielding, ensure proper orientation of pallet (see Note of Figure 3). Ensure slings of lower pallet are accessible for retrieving when off-loading.

6.3.4.5 Lift the other loaded pallet and place it inside the cask on the top of the first pallet. For maximum shielding, ensure proper orientation of pallet (see Note of Figure 3).

NOTE: Ensure easy access to the pallet lifting slings for removal of pallet at burial site.

6.3.4.6 Install primary lid in accordance with step 6.3.7.

6.3.5 Loading a Prefilled Liner into the Cask:

6.3.5.1 Ensure lid and all plugs or caps are installed on liner.

6.3.5.2 Using the lifting slings provided, place liner into the cask.

0 1 2 3 4 5

NA
KCR
12-83

- 6.3.5.3 Install shims/shoring between liner and cask as necessary to secure in position, if necessary.
- 6.3.5.4 Install primary lid in accordance with step 6.3.7.
- 6.3.6 Installing and loading empty liner in cask:
- 6.3.6.1 Using the slings provided, place liner in the cask.
- 6.3.6.2 Install shims/shoring between liner and cask as necessary to secure in position.
- 6.3.6.3 Install primary lid in accordance with step 6.3.7.
- 6.3.6.4 Remove the 8-3/4" shield plug holddown nuts.
- 6.3.6.5 Remove the shield plug lifting lug cover.
- 6.3.6.6 Exercising caution due to possible contamination of the underside of the shield plug, remove the shield plug.
- 6.3.6.7 Load liner through shield plug opening.
- 6.3.6.8 Install the liner lid, plugs or caps onto the liner.

NA
12-83

6.3.6.9 Place the shield plug on the cask using the shield plug guide pins for proper positioning

NOTE: Care should be taken to avoid damage to the gasket.

6.3.6.10 Secure the shield plug by installing and tightening the 8-3/4" shield plug holddown nuts in accordance with torquing steps provided in step 6.3.8.3.

6.3.6.11 Install the shield plug lifting lug cover.

6.3.6.12 If cask is equipped with raincover, install raincover.

6.3.7 Installation of Primary Cask Lid

6.3.7.1 Inspect primary lid gasket for cuts, nicks or other damage which may affect the sealing capabilities. Replace if necessary.

-CAUTION-

WHENEVER THE CASK LID IS MOVED ON OR OFF THE CASK, TREAT THE UNDERSIDE OF THE LID AS A CONTAMINATED SURFACE UNTIL A CONTAMINATION SURVEY CAN BE MADE TO VERIFY ITS STATUS.

ALSO, ENSURE THAT THE CASK LID IS MOVED HIGH ENOUGH ABOVE THE CASK TOP TO AVOID DAMAGE TO THE CASK LID GUIDE PINS WHEN THE LID IS MOVED AWAY FROM OR OVER THE CASK.

NA
KLH
12-12-87

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6.3.7.2 *Hand* the three (3) lifting lugs on the cask lid to accomodate suitable rigging, lift the cask lid and place it on the cask using the alignment pins for proper positioning. If the cask lid guide pins were damaged and are missing, ensure that the holes in the cask lid line up with the guide pin positions. Adjust the lid position as necessary to accomplish proper alignment.

*KCH
12-15-83*

6.3.7.3 Install the threadless bolt through the upper ratchet binder connector and the lid closure lug (see Figure 2).

*KCH 15-83
12-15-83*

6.3.7.4 Install the ball-lock pin by pressing down on the top of the pin and inserting the pin through the hole in the threadless bolt.

*KCH 15-83
12-15-83*

6.3.7.5 Tighten the ratchet binder by engaging the flip block to the sprocket wheel and rotate the ratchet binder handle in the direction necessary to tighten the ratchet binder. (See Figure 1)

6.3.7.6 Disengage the flip block and rotate and secure the handle to its storage position (see Figure 1).

*KCH
12-15-83*

6.3.7.7 Install the three (3) primary cask lid lifting lug covers.

*QAB
12-15-83*

6.3.7.8 Install tamper-proof seals.

03701352

6.1.8 Installation of Shield Plug:

6.1.8.1 Inspect the shield plug gasket for cuts, nicks or other damage which may affect the sealing capabilities. Replace, if necessary.

6.1.8.2 Using the one (1) lifting lug on the shield plug to attach suitable rigging, lift and place shield plug into the opening on the primary lid. Use alignment pins to assure proper lid alignment. If the alignment pins are damaged, verify proper lid alignment by lining up the holes in the shield plug with the alignment pin positions. Be careful not to damage the gasket during installation.

6.1.8.3 Secure the shield plug by installing and tightening the shield plug stud nuts in accordance with the following torquing sequence.

- Coat all threaded surfaces and seating area with an anti-seize compound.
- Install and hand-tighten all fasteners.
- Torque all fasteners to twenty (20) foot-pounds using the following tightening sequence:
 - o Opposite pair randomly selected
 - o Opposite pair at 90°
 - o Opposite pair at 45°
- Torque all fasteners to forty (40) foot-pounds using the following tightening sequence:

Handwritten notes:
Verify alignment
pins
before
torquing

*NA if plug is
not removed KCH
12-12-83*

- o Opposite pair different than those selected above
 - o Opposite pair at 90°
 - o Opposite pair at 45°
- Torque all fasteners to fifty-five (55) foot-pounds using the following tightening sequence:
- o Opposite pair different than those selected above
 - o Opposite pair at 90°
 - o Opposite pair at 45°

6.3.8.4 Install the shield plug lifting lug cover.

6.3.9 Cask Installation on Trailer:

-CAUTION-

DO NOT USE CASK LID LIFTING LUGS TO LIFT THE CASK.

6.3.9.1 Using the four (4) cask lift lugs and suitable rigging, lift cask and place in proper position within the shear blocks provided on the trailer. See Figure 4 for proper orientation.

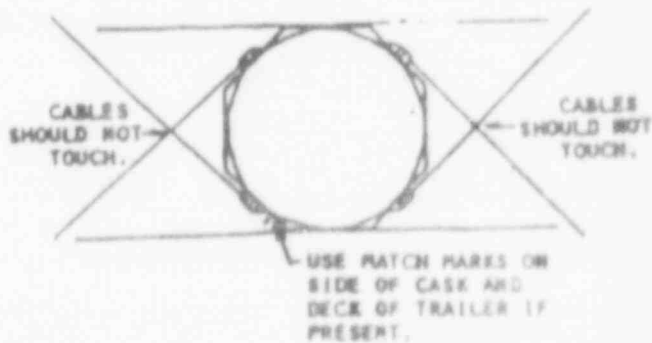


Figure 4

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NA if plug is not removed KCH 12-12-83

- 0690155
- 6.3.9.2 *NG* Inspect tiedown lugs and shackles on
 cask and trailer for cracks and wear
 which would affect their strength.
KCH 12/16/83
 Initials Date
- 6.3.9.3 Inspect tiedown cables to ensure they
 are not loose, or damaged (crimped,
 frayed, etc.).
NG
KCH 12/16/83
 Initials Date
- 6.3.9.4 Inspect tiedown ratchets/turnbuckles to
 ensure they are in proper working
 condition.
NG
KCH 12/16/83
 Initials Date
- 6.3.9.5 Install shackles through the end of the
 tiedown cables and attach to cask
 tiedown lugs by screwing pin through
 shackle and hole in lug.
NG
KCH 12/16/83
 Initials Date
- 6.3.9.6 Tighten ratchet binders/turnbuckles as
 necessary to secure cask on trailer.
NG
KCH 12/15/83
 Initials Date

7.0 DISTRIBUTION

Library - 2 copies
 Transportation Supervisor - 2 copies
 NUS Corporate QA - 1 copy

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES**

U.S. NUCLEAR REGULATORY COMMISSION

1. CERTIFICATE NUMBER	2. REVISION NUMBER	3. PACKAGE IDENTIFICATION NUMBER	4. PAGE NUMBER	5. TOTAL NUMBER PAGES
9079	10	USA/9079/A	1	3

2. PREAMBLE

- a. This certificate is issued to certify that the packaging and contents described in item 3 below meets the applicable safety standards set forth in Title 10 Code of Federal Regulations, Part 71 - Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material under Certain Conditions.
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. PREPARED BY: Name and Address:
Nuclear Packaging, Incorporated
1010 South 336th Street
Federal Way, WA 98003

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:
Nuclear Packaging, Incorporated, application
Dated November 29, 1982, as supplemented.

c. DOCKET NUMBER: 71-9079

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below:

(a) Packaging

- (1) Model Nos.: NUPAC 140-2.0, HN-100 Series 2 and HN-100 Series 2A
- (2) Description

Steel encased, lead shielded casks for low specific activity material. The casks are right circular cylinders 81-1/2 inches high by 81-3/4 inches in diameter. The cask cavities are 73-3/8 inches high by 75-1/2 inches in diameter. The cask side walls consists of a 3/8-inch thick inner steel shell, a 1-3/4-inch lead shell, and a 7/8-inch thick outer steel shell. Each base is comprised of two, 2-inch thick steel plates welded together to form a 4-inch thick base which is integrally welded to the inner and outer steel shells of the side wall. A steel flange is welded to the inner and outer steel shells of the side wall at the top. The lid is comprised of two (2), 2-inch thick steel plates, which are stepped and welded together to mate with the steel flange. The cask closures are sealed by a Neoprene gasket located between the lid and steel flange, positive closure of the lid is accomplished by eight ratchet binders. The lid contains a centrally located shield plug comprised of two (2), 2-inch thick steel plates and one, 1-inch thick steel plate stepped and welded. The shield plug is sealed by a Neoprene gasket, and eight, 3/4-inch studs and nuts are used to provide positive closure.

6
5
4
3
2
1
0
0 9 7 0 1 3 5 6

5.(a) (2) Description (continued)

Tie-down is accomplished by four tie-down lugs welded to the cask body. There are four cask lifting lugs, three lid lifting lugs, and one shield plug lifting lug. The package gross weight is approximately 48,000 pounds.

(3) Drawings

The Model No. NUPAC 14D-2.0 packaging is fabricated in accordance with Nuclear Packaging, Incorporated Drawing No. X-20-2150, Revision B; or

The Model Nos. HN-100 Series 2 and HN-100 Series 2A packaging is fabricated in accordance with Hittman Nuclear & Development Corp. Drawing Nos.: C001-5-9122, Rev. 3; C001-5-9123, Rev. 3; and C001-5-9124, Rev. 2. The Model No. HN-100 Series 2 is constructed of A-36 carbon steel. The Model No. HN-100 Series 2A is constructed of A-516, Grade 70, carbon steel.

(b) Contents

(1) Type and form of material

Process solids, either dewatered, solid or solidified, meeting the requirements for low specific activity material, in secondary containers.

(2) Maximum quantity of material per package

Greater than Type A quantity of radioactive material which may contain fissile material provided the fissile material does not exceed the limits in 10 CFR §71.53. The weight of the contents and secondary containers shall not exceed 14,000 pounds and the internal decay heat load shall not exceed 7 watts.

6. Except for close fitting contents shoring must be placed between secondary containers and the cask cavity to prevent movement during normal conditions of transport.
7. The lid and shield plug lifting lugs must not be used for lifting the cask, and shall be covered in transit.

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22572

ge 3 - Certificate No. 9079 - Revision No. 10 - Docket No. 71-9079

8. In addition to the requirements of Subpart G of 10 CFR Part 71:

(i) Prior to each shipment, the packaging lid seals, if opened (or if security seal is broken), must be inspected. The seals must be replaced with new seals if inspection shows any defects or every twelve (12) months, whichever occurs first. Cavity drain line must be sealed with appropriate sealant applied to the pipe plug threads.

(ii) Each cask must meet the Acceptance Tests and Maintenance Program of Section 4.0 of the application. In addition, the cask must be leak tested at least once every twelve (12) months in accordance with Appendix 4.3.2 of the application.

9. The cask body and each cask lid shall be marked in accordance with 10 CFR §71.85(c).

10. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland watercraft, or hold or deck of a seagoing vessel assigned for the sole use of the licensee.

11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.

Expiration date: April 30, 1988.

REFERENCES

Nuclear Packaging, Incorporated application dated November 29, 1982.

Supplements dated: March 3 and April 3, 1983.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald
 Charles E. MacDonald, Chief
 Transportation Certification Branch
 Division of Fuel Cycle and
 Material Safety, NRC

Date: SEP 06 1983

054704359E

UNREVIEWED SAFETY QUESTION EVALUATION (10CFR50.59)

Procedure Change # _____ Operations Incident # _____

Modification # _____ Procedure _____

Other _____

Answer the following questions with a YES or NO and provide specific reasons for justifying the decision.

- I. Will the probability of occurrences or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report be increased?

0
5
3
1
0
7
6
0

YES NO because This procedure provides for safe handling of heavy loads and radioactive materials any accident related with this work would be connected to one of those parameters

Reference FSAR Section(s) (if applicable) _____

- II. Will the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report be created?

YES NO because See I above

- III. Will the margin of safety as defined in the basis for any technical specification be reduced?

YES NO because See I above

Reference Technical Specification(s) (if applicable) _____

Prepared By: L. C. Hylle Date 12-15-83

MAINTENANCE ORDER

No. 22290

UNIT NO. SYSTEM RAD WASTE ITEM NO. ITEM NAME RAD WASTE

DATE WRITTEN 12-9-83 REQUESTED BY: G. Bilau APPROVED BY: J. Clafford

LIST SPECIFIC SYMPTOMS AND PROBLEMS: REQUEST MAINTENANCE SUPPORT ON LOADING CASE AND PREPARING FOR SHIPMENT. SEE ALBUQUERQUE CASK MANUAL.

TECH. REVIEW

URGENT 21 HIGH. SUPV. [Signature] EQUIP. REVIEW [Signature] DATE 12-12-83

Q.A. REQUIREMENTS: No Additional Q.A. Req

Q.B. REQUIREMENTS: Closure of G. Goldsmith is attached

Q.C. REQUIREMENTS: [Signature]

Q.D. REQUIREMENTS: [Signature]

Q.E. REQUIREMENTS: [Signature]

Q.F. REQUIREMENTS: [Signature]

RELEASED BY: [Signature] ASSIGNED TO: J. L. [Signature]

OPERABILITY OF REDUNDANT EQUIP. ITEM/LAST RUN 117

TECH. SPEC. BY HIPT SUPV. [Signature]

DATE BY HIPT SUPV. 1/17/84

WORK ACCOMPLISHED: Per attached procedure

PARTS AND MATERIAL USED: [Signature]

DATE: [Signature]

BY: [Signature]

DATE: [Signature]

BY: [Signature]

DATE: [Signature]

BY: [Signature]

ORIGINAL

SARC REVIEW:

Yes () No ()

Fort Calhoun Station Unit No. 1
PRC Approval Form for New Procedures

MO
(Type of Procedure)

MO 22290
(Procedure Number)

Loading of MOPAC 14D-2.0 Shipping Cask
(Procedure Title)

The above listed NEW Procedure has been reviewed and approved by the members of the PRC Committee as indicated below:

PLANT REVIEW COMMITTEE (PRC):

L.T. Kusch 11/12/83 Harvey Martin 10/26/83
Supv - Operations Date Supv - IAC and CFM Date

Don Richard 11/12/83 John H. ... 11/24/83
Supv - Technical Date Reactor Engineer Date

Mark ... 11/12/83 John H. ... 11/24/83
Supv - Maintenance Date Plant Engineer Date

... .. 11/12/83
Supv - CRP Date

REVIEWED and APPROVED BY: L.T. Kusch 11/12/83
for Manager - Fort Calhoun Station Date

Documentation Review Responsibility NA. MO
Department

010101142

Purpose

The purpose of this procedure is to outline the requirements and steps necessary to accept and fill the NUPAC 14D-2.0 shipping cask

References

1. Cask User manual (Procedure WM-018) see attached

Prerequisites

An RWP has been issued to cover the work RWP# 638

[Signature]
HP

2. The area has been surveyed and stay times reviewed with personnel involved

[Signature]
HP

3. Trailer has been moved into the railroad siding for loading

[Signature] (10/10/82)

Precautions

1. As noted on Radiation Work Permit
2. Use standard safe work practices

W. S.
12/13/83

Procedure

1. Notify the shift supervisor and QC that work is beginning

W. S. 12/12/83
 J. S. 12/12/83
 QC

2. Perform steps 6.1.1 through 6.1.12 of attached procedure and initial each step in the left hand margin

W. S. 12-13-83
 J. S. 12/14/83
 QC

3. Load the cask in accordance with step 6.3.3 in attached procedure

W. S. 12-13-83

4. I move paper work in order to allow transportation of rad. waste signed

GOB /12-13-83

5. Notify the shift supervisor that work is complete and shipment is off site

AW /12-13-83
55

069703945

Remarks _____

completed by Al Bilson date 12-13-83

22290

NUS

PROCESS SERVICES

 ALL RIGHTS RESERVED

NO
WM-018

REVISION
A

PAGE
1 of 17

TITLE
OPERATING INSTRUCTIONS FOR LOADING
AND UNLOADING
THE NUPAC 14D-2.0 CASK

0 2 9 / 0 9 4 6

5/17/11

22290

NO WM-018	REVISION A	PAGE 2 of 17
--------------	---------------	-----------------

TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE	3
2.0 APPLICABILITY	3
3.0 DEFINITIONS	3
4.0 REFERENCES	3
5.0 RESPONSIBILITIES	3
6.0 PROCEDURE	4
6.1 Cask & Vehicle Receipt Inspection	4
6.2 Removal of Cask from Trailer	6
6.3 Loading Cask	7
7.0 DISTRIBUTION	17

22294

NO WM-018	REVISION A	PAGE 3 of 17
--------------	---------------	-----------------

1.0 PURPOSE

The purpose of this procedure is to provide operating instructions for loading and unloading the NUPAC 14D-2.0 radioactive materials shipping casks.

2.0 APPLICABILITY

This procedure shall be followed when loading or unloading the NUPAC 14D-2.0 shipping cask. This procedure may be used in its entirety as is or incorporated into the policies and procedures of a registered user.

3.0 DEFINITIONS

None.

4.0 REFERENCES

- 4.1 U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9079
- 4.2 QA-014 NUS Process Services Corporation Quality Assurance Program Plan
- 4.3 Code of Federal Regulations, Title 10 Part 71
- 4.4 Code of Federal Regulations, Title 49

5.0 RESPONSIBILITIES

Registered users of the cask shall ensure the following.

22290

NO WM-018	REVISION A	PAGE 4 of 17
--------------	---------------	-----------------

- 5.1 A Certificate of Compliance (C of C) for this cask and all the documents referenced by the C of C which relate to the use and maintenance of the cask are on file.
- 5.2 User has registered as a user of this certified cask with the U.S. NRC in accordance with Reference 4.3.
- 5.3 The cask has been inspected under a quality assurance program to verify its compliance with the terms and conditions of the issued Certificate of Compliance.
- 5.4 The cask is loaded and closed in accordance with an appropriate written procedure.
- 5.5 The cask is loaded in accordance with the requirements and restrictions stated in the C of C.
- 5.6 The shipment meets all of the applicable requirements established by the Department of Transportation, U.S. Nuclear Regulatory Commission, burial site disposal criteria and burial site licenses.

059700149

6.0 PROCEDURE

6.1 Cask & Vehicle Receipt Inspection

ALB
12-17-83

- 6.1.1 Perform radiation and external contamination surveys on both the shipping cask and vehicle. Loose and fixed contamination levels shall comply with the requirements of Reference 4.4. In the event these specified levels are exceeded, immediately notify the transportation department of NUS Process Services Corporation.
- 6.1.2 Inspect tiedown lugs and shackles on cask and trailer for cracks and wear.

NO WM-018	REVISION A	PAGE 5 of 17
--------------	---------------	-----------------

01972031

- OK 12/14/83*

6.1.3 Inspect tiedown cables to ensure they are not loose or damaged (crimped, frayed, etc.). Tighten if necessary.
- KLG 12-12-83*

6.1.4 Inspect tiedown ratchets/turnbuckles to ensure they are in proper working condition.
- KLG 12-12-83*

6.1.5 Ensure cask ratchet binders and binder accessories are in proper working condition.
- KLG 12-12-83*

6.1.6 Ensure that primary lid and shield plug lifting lug covers are present.
- KLG 12-12-83*

6.1.7 Remove cask lid in accordance with steps 6.3.1 through 6.3.2.7.
- KLG 12-12-83*

6.1.8 Inspect primary lid gasket for cracks or tears which would affect proper sealing.
- KLG 12-12-83*

6.1.9 Inspect interior of cask for standing water. Water must be removed prior to shipment.
- KLG 12-12-83*

6.1.10 Inspect interior of cask for obstructions to loading.
- KLG 12-12-83*

6.1.11 Inspect interior of cask for defects which might affect the cask integrity.
- KLG 12-12-83*

6.1.12 Inspect the shield plug holddown nuts to ensure they are all present and not damaged.
- KLG 12-12-83*

6.1.13 Inspect the shield plug gasket for cracks, nicks or tears which would affect proper sealing. Inspection is not required if shield plug has

Shield plug not removed

NO WM-018	REVISION A	PAGE 6 of 17
--------------	---------------	-----------------

not been removed and security seal is in place and intact.

NA
KCH 12-12-83

6.1.13.1 Remove the shield plug from the primary cask lid in accordance with steps 6.3.6.4 through 6.3.6.6.

NA
KCH 12-12-83

6.1.13.2 Inspect the shield plug holddown studs for damage.

NA
KCH 12-12-83

6.1.13.3 Inspect the shield plug gasket for cracks or tears which would affect proper sealing.

NA
KCH 12-12-83

6.1.13.4 Install shield plug in accordance with step 6.3.8 unless loading requires the shield plug to be removed.

6.2 Removal of Cask from Trailer

If it is necessary to remove cask from trailer proceed as follows:

NA
KCH 12-12-83

6.2.1 If cask is equipped with raincover, and it has not been removed, remove the raincover from the cask.

6.2.2 Loosen ratchet binders/turnbuckles as necessary to remove pins from shackles at cask end of tiedown system.

6.2.3 Remove pins from shackles.

6.2.4 Loosen cask shear blocks as necessary.

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22290

WM-018

REVISION

A

PAGE

7 of 17

-CAUTION-

DO NOT USE CASK LID LIFTING LUGS TO LIFT CASK.

NA
KCH
12-12-83

~~6.2.5 Using the four (4) cask lift lugs and suitable rigging lift cask off trailer and place cask in proper position for loading.~~

~~Empty Cask Weight: 34,500 lbs~~

~~Maximum Loaded Cask Weight: 48,000 lbs~~

6.3 Loading Cask

Remove the primary full diameter cask lid as follows:

HP
KCH
12-12-83

6.3.1 If cask is equipped with a raincover, and it has not been removed, remove the raincover from the cask.

6.3.2 Disconnect the cask lid from the cask as follows:

KCH
12-12-83

6.3.2.1 Release the ratchet-binder handle from its storage position.

6.3.2.2 Engage the flip block to the sprocket wheel in the direction necessary to loosen the ratchet binder (see Figure 1).

6.3.2.3 Loosen the ratchet binder by pulling the handle in the appropriate direction.

KCH
12-12-83

6.3.2.4 Remove the ball-lock pin by depressing the top of the pin and pulling the pin through the hole in the threadless bolt (see Figure 2).

KCH
12-17-83

6.3.2.7 Remove the cask lid using the three (3) lifting lugs on the cask lid to accommodate suitable rigging. Cask lid weighs 5700 pounds with the shield plug installed.

KCH
12-12-83

6.3.2.8 Inspect interior of cask for free standing water.

NOTE: All water must be removed prior to loading and shipping.

KCH
12-12-83

6.3.2.9 Inspect interior of cask for obstructions which could affect loading or proper placement of drum pallets and liners.

6.3.3 Loading seven-drum pallets into the cask:

6.3.3.1 Using the slings provided and exercising caution in the handling of the pallet due to possible contamination, remove the top pallet from the cask. Inspect slings on both pallets for damage or conditions which could affect safety.

KCH
12-12-83

*pallets placed on
trailer not in cask*

NOTE: Empty pallet weight - approx. 750 lbs.

*NOTE: Use heavy lead path under main
th. shield with cover on road side*

6.3.3.2 Exercising caution to avoid placing drums on the pallet lift slings, load four (4) drums on the lower pallet left in the cask. (See Figure 3 for drum placement on pallet.)

KCH
*under cover
cask 2000*

*NOTE: If a pallet is used for
the shield cover, it must be
secured to the cask.*

*NOTE: If a pallet is used for
the shield cover, it must be
secured to the cask.*

0 2 9 1 5 4

22290

WM-018

REVISION	PAGE
A	18 of 17

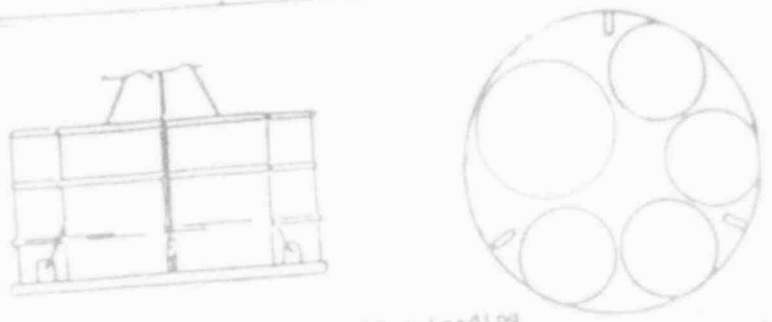


FIGURE 3 - Pallet Loading

NOTE: For maximum shielding, load higher dose rate drums in the center position and the positions toward the front and rear of the trailer.

- 6.3.3.3 Place a *plywood sheet* over the *drums*. Ensure lower pallet slings are accessible for retrieving pallet when off-loading.
Pallet Weight - 750 lbs.

*PLS
12-12-83*

Exercising caution to avoid placing drums on the pallet lift slings, load *four (4)* drums on the *sheet* in the cask (see Figure 3 *and the P.C. for step 6.3.2*)

- 6.3.3.4 Install primary lid in accordance with step 6.3.7.

*PLS
12-12-83*

6.1.4 Loading the Seven-Drum Pallets Outside the Cask:

- 6.1.4.1 Using slings provided and exercising caution in the handling of the pallet due to possible contamination, remove both the pallets from the cask.

NA

NOTE: Empty Pallet Weight - approx. 750 lbs.

*PLS
12-12-83*

NO WM-018	REVISION A	PAGE 11 of 15
--------------	---------------	------------------

6.3.4.2 Inspect slings on both pallets for damage or conditions which would affect safety.

6.3.4.3 Load seven (7) drums onto each pallet (see Figure 3).

For maximum shielding, load higher dose rate drums in the center position.

6.3.4.4 Lift one of the loaded pallets and place it inside the cask. For maximum shielding, ensure proper orientation of pallet (see Note of Figure 3). Ensure slings of lower pallet are accessible for retrieving when off-loading.

6.3.4.5 Lift the other loaded pallet and place it inside the cask on the top of the first pallet. For maximum shielding, ensure proper orientation of pallet (see Note of Figure 3).

NOTE: Ensure easy access to the pallet lifting slings for removal of pallet at burial site.

6.3.4.6 Install primary lid in accordance with step 6.1.7.

6.3.5 Loading a prefilled liner into the cask.

6.3.5.1 Ensure lid and all plugs or caps are installed on liner.

6.3.5.2 Using the lifting slings provided, place liner into the cask.

0 3 7 1 2 3 4 5

NA
8/28/2013

22290

NO WM-018	REVISION A	PAGE 12 of 17
--------------	---------------	------------------

- 6.3.5.3 Install shims/shoring between liner and cask as necessary to secure in position, if necessary.
- 6.3.5.4 Install primary lid in accordance with step 6.3.7.
- 6.3.6 Installing and loading empty liner in cask:
 - 6.3.6.1 Using the slings provided, place liner in the cask.
 - 6.3.6.2 Install shims/shoring between liner and cask as necessary to secure in position.
 - 6.3.6.3 Install primary lid in accordance with step 6.3.7.
 - 6.3.6.4 Remove the 8-3/4" shield plug holddown nuts.
 - 6.3.6.5 Remove the shield plug lifting lug cover.
 - 6.3.6.6 Exercising caution due to possible contamination of the underside of the shield plug, remove the shield plug.
 - 6.3.6.7 Load liner through shield plug opening.
 - 6.3.6.8 Install the liner lid, plugs or caps onto the liner.

0 3 9 1 0 1 5 7

NA
KC
10-12-83

22294

NO WM-018	REVISION A	PAGE 11 of 17
--------------	---------------	------------------

6.3.6.9 Place the shield plug on the cask using the shield plug guide pins for proper positioning.

NOTE: Care should be taken to avoid damage to the gasket.

6.3.6.10 Secure the shield plug by installing and tightening the 8-3/4" shield plug holddown nuts in accordance with torquing steps provided in step 6.1.8.3.

6.3.6.11 Install the shield plug lifting lug cover.

6.3.6.12 If cask is equipped with raincover, install raincover.

6.3.7 Installation of Primary Cask Lid

6.3.7.1 Inspect primary lid gasket for cuts, nicks or other damage which may affect the sealing capabilities. Replace if necessary.

*NA
KC
12-12-83*

*11/18/83
12-12-83
gasket not replaced*

-CAUTION-

WHENEVER THE CASK LID IS MOVED ON OR OFF THE CASK, TREAT THE UNDERSIDE OF THE LID AS A CONTAMINATED SURFACE UNTIL A CONTAMINATION SURVEY CAN BE MADE TO VERIFY ITS STATUS.

ALSO, ENSURE THAT THE CASK LID IS MOVED HIGH ENOUGH ABOVE THE CASK TOP TO AVOID DAMAGE TO THE CASK LID GUIDE PINS WHEN THE LID IS MOVED AWAY FROM OR OVER THE CASK.

NO WM-018	REVISION A	PAGE 14 of 17
--------------	---------------	------------------

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KCH
12-12-83

6.3.7.2 Using the three (3) lifting lugs on the cask lid to accommodate suitable rigging, lift the cask lid and place it on the cask using the alignment pins for proper positioning. If the cask lid guide pins were damaged and are missing, ensure that the holes in the cask lid line up with the guide pin positions. Adjust the lid position as necessary to accomplish proper alignment.

(Lid weight ⁵²⁰⁰ ~~4200~~ lbs)

KCH
12-12-83

6.3.7.3 Install the threadless bolt through the upper ratchet binder connector and the lid closure lug (see Figure 2).

KCH
12-12-83

6.3.7.4 Install the ball-lock pin by pressing down on the top of the pin and inserting the pin through the hole in the threadless bolt.

KCH
12-12-83

6.3.7.5 Tighten the ratchet binder by engaging the flip block to the sprocket wheel and rotate the ratchet binder handle in the direction necessary to tighten the ratchet binder. (See Figure 1)

KCH
12-12-83

6.3.7.6 Disengage the flip block and rotate and secure the handle to its storage position (see Figure 1).

KCH
12-12-83

6.3.7.7 Install the three (3) primary cask lid lifting lug covers.

QAB
12-12-83

6.3.7.8 Install tamper-proof seals.

NO WM-01R	REVISION A	PAGE 11 of 17
--------------	---------------	------------------

6.3.8 Installation of Shield Plug.

6.3.8.1 Inspect the shield plug gasket for cuts, nicks or other damage which may affect the sealing capabilities. Replace, if necessary.

6.3.8.2 Using the one (1) lifting lug on the shield plug to attach suitable rigging, lift and place shield plug into the opening on the primary lid. Use alignment pins to assure proper lid alignment. If the alignment pins are damaged, verify proper lid alignment by lining up the holes in the shield plug with the alignment pin positions. Be careful not to damage the gasket during installation.

6.3.8.3 Secure the shield plug by installing and tightening the shield plug studs in accordance with the following torquing sequence.

- Coat all threaded surfaces and seating area with an anti-seize compound.
- Install and hand-tighten all fasteners.
- Torque all fasteners to 1000 foot-pounds using the following tightening sequence:
 - o Opposite pair diagonally clockwise
 - o Opposite pair at 90°
 - o Opposite pair at 45°
- Torque all fasteners to 1000 foot-pounds using the following tightening sequence:

037/000130

Handwritten notes:
N.H. J. J. J.
is not removed
K.L.H.
12-12-83

22290

NO WM-018	REVISION A	PAGE 16 of 17
--------------	---------------	------------------

*NA of plug in
not removed KCH
12-12-83*

- o Opposite pair different than those selected above
 - o Opposite pair at 90°
 - o Opposite pair at 45°
- Torque all fasteners to fifty-five (55) foot-pounds using the following tightening sequence:
- o Opposite pair different than those selected above
 - o Opposite pair at 90°
 - o Opposite pair at 45°

6.3.8.4 Install the shield plug lifting lug cover.

6.3.9 Cask Installation on Trailer:

-CAUTION-
DO NOT USE CASK LID LIFTING LUGS TO LIFT THE CASK.

6.3.9.1 Using the four (4) cask lift lugs and suitable rigging, lift cask and place in proper position within the shear blocks provided on the trailer. See Figure 4 for proper orientation.

*NA
(not removed)
KCH
12-12-83*

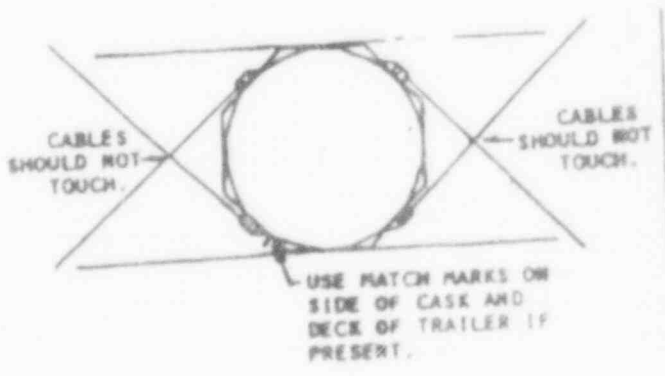


Figure 4

0 2 4 / 0 0 1 5 1

22290

NO WM-018	REVISION A	PAGE 17 of 17
--------------	---------------	------------------

SEE HOLD POINT *JHS 12/1/83*
Initial Date

6.3.9.2 Inspect tiedown lugs and shackles on cask and trailer for cracks and wear which would affect their strength.

JHS 12/1/83

6.3.9.3 Inspect tiedown cables to ensure they are not loose, or damaged (crimped, frayed, etc.).

SEE HOLD POINT *JHS 12/1/83*
Initial Date

6.3.9.4 Inspect tiedown ratchets/turnbuckles to ensure they are in proper working condition.

JHS 12/1/83

6.3.9.5 Install shackles through the end of the tiedown cables and attach to cask tiedown lugs by screwing pin through shackle and hole in lug.

JHS 12/1/83

6.3.9.6 Tighten ratchet binders/turnbuckles as necessary to secure cask on trailer.

7.0 DISTRIBUTION

- Library - 2 copies
- Transportation Supervisor - 2 copies
- NUS Corporate QA - 1 copy

22290

NRC FORM 518
10-83
10 CFR 71

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

U.S. NUCLEAR REGULATORY COMMISSION

1. CERTIFICATE NUMBER 9079	2. REVISION NUMBER 10	3. PACKAGE IDENTIFICATION NUMBER USA/9079/A	4. PAGE NUMBER 1	5. TOTAL NUMBER PAGES 3
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7. PREAMBLE

- a. This certificate is issued to certify that the packaging and contents described in item 3 below meets the applicable safety standards set forth in Title 10 Code of Federal Regulations, Part 71, Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions.
- b. This certificate does not relieve the consignor from compliance with any requirements of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION.
 a. PREPARED BY (Name and Address):
 Nuclear Packaging, Incorporated
 1010 South 336th Street
 Federal Way, WA 98003

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:
 Nuclear Packaging, Incorporated, application
 Dated November 29, 1982, as supplemented.

c. DOCKET NUMBER: 71-9079

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified herein.

(a) Packaging

(1) Model Nos.: NUPAC 140-2.0, HN-100 Series 2 and HN-100 Series 2A

(2) Description

Steel encased, lead shielded casks for low specific activity material. The casks are right circular cylinders 81-1/2 inches high by 81-3/4 inches in diameter. The cask cavities are 73-3/8 inches high by 75-1/2 inches in diameter. The cask side walls consists of a 3/8-inch thick inner steel shell, a 1-3/4-inch lead shell, and a 7/8-inch thick outer steel shell. Each base is comprised of two, 2-inch thick steel plates welded together to form a 4-inch thick base which is integrally welded to the inner and outer steel shells of the side wall. A steel flange is welded to the inner and outer steel shells of the side wall at the top. The lid is comprised of two (2), 2-inch thick steel plates, which are stepped and welded together to mate with the steel flange. The cask closures are sealed by a Neoprene gasket located between the lid and steel flange, positive closure of the lid is accomplished by eight ratchet binders. The lid contains a centrally located shield plug comprised of two (2), 2-inch thick steel plates and one, 1-inch thick steel plate stepped and welded. The shield plug is sealed by a Neoprene gasket, and eight, 3/4-inch studs and nuts are used to provide positive closure.

05010015

22290

CONDITIONS (continued)

Page 2 - Certificate No. 9079 - Revision No. 10 - Docket No. 71-9079

5.(a) (2) Description (continued)

Tie-down is accomplished by four tie-down lugs welded to the cask body. There are four cask lifting lugs, three lid lifting lugs, and one shield plug lifting lug. The package gross weight is approximately 48,000 pounds.

(3) Drawings

The Model No. NUPAC 140-2.0 packaging is fabricated in accordance with Nuclear Packaging, Incorporated Drawing No. X-20-2150, Revision B; or

The Model Nos. HN-100 Series 2 and HN-100 Series 2A packaging is fabricated in accordance with Hittman Nuclear & Development Corp. Drawing Nos.: C001-5-9122, Rev. 3; C001-5-9123, Rev. 3; and C001-5-9124, Rev. 2. The Model No. HN-100 Series 2 is constructed of A-36 carbon steel. The Model No. HN-100 Series 2A is constructed of A-516, Grade 70, carbon steel.

(b) Contents

(1) Type and form of material

Process solids, either dewatered, solid or solidified, meeting the requirements for low specific activity material, in secondary containers.

(2) Maximum quantity of material per package

Greater than Type A quantity of radioactive material which may contain fissile material provided the fissile material does not exceed the limits in 10 CFR §71.53. The weight of the contents and secondary containers shall not exceed 14,000 pounds and the internal decay heat load shall not exceed 7 watts.

6. Except for close fitting contents shoring must be placed between secondary containers and the cask cavity to prevent movement during normal conditions of transport.

7. The lid and shield plug lifting lugs must not be used for lifting the cask, and shall be covered in transit.

9079-10-10

CONDITIONS (continued)

Page 3 - Certificate No. 9079 - Revision No. 10 - Docket No. 71-9079

8. In addition to the requirements of Subpart G of 10 CFR Part 71:

(i) Prior to each shipment, the packaging lid seals, if opened (or if security seal is broken), must be inspected. The seals must be replaced with new seals if inspection shows any defects or every twelve (12) months, whichever occurs first. Cavity drain line must be sealed with appropriate sealant applied to the pipe plug threads.

(ii) Each cask must meet the Acceptance Test and Maintenance Program of Section 4.0 of the application. In addition, the cask must be leak tested at least once every twelve (12) months in accordance with Appendix 4.J.2 of the application.

9. The cask body and each cask lid shall be marked in accordance with 10 CFR §71.85(c).

10. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland watercraft, or hold or deck of a seagoing vessel assigned for the sole use of the licensee.

11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.

Expiration date: April 30, 1988.

REFERENCES

Nuclear Packaging, Incorporated application dated November 29, 1982.

Supplements dated: March 3 and April 3, 1983.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald
Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NRC

Date: SEP 06 1983

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A-G-46-3

FE-154

UNREVIEWED SAFETY QUESTION EVALUATION (10CFR50.59)

Procedure Change # _____ Operations Incident # NA
 Modification # NA Procedure NO 22290
 Other _____

Answer the following questions with a YES or NO and provide specific reasons for justifying the decision.

I. Will the probability of occurrences or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report be increased?

YES NO because This procedure provides for safe handling of heavy loads and radiation protection considerations.

Reference FSAR Section(s) (if applicable) _____

II. Will the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report be created?

YES NO because See I above

III. Will the margin of safety as defined in the basis for any technical specification be reduced?

YES NO because See I above

Reference Technical Specification(s) (if applicable) _____

Prepared By [Signature] Date [Date]

WD MAINTENANCE ORDER

26
No 22515

UNIT NO. 1	SYSTEM RAD WASTE	ITEM NO. —	ITEM NAME RAD WASTE
DATE 12-21-83 WRITTEN	REQUESTED BY: A. Bilau	APPROVED BY: [Signature]	<input type="checkbox"/> WITH CONTACT <input type="checkbox"/> WITH [unclear] <input checked="" type="checkbox"/> WITH [unclear] <input checked="" type="checkbox"/> WITH [unclear]

LIST SPECIFIC SYMPTOMS AND PROBLEMS: DAMAGED PIPE/CABLE IN IMMEDIATE AREA AREA UNDER [unclear] [unclear]

REQUEST MAINTENANCE SUPPORT TO LOAD SHIPPING CASK FOR RAD WASTE SHIPMENT. SEE A. BILAU FOR DETAILS.

TECH. REVIEW	<input type="checkbox"/> PRE PROC. <input type="checkbox"/> DET. W.I. <input type="checkbox"/> NOT <input type="checkbox"/> LAB <input type="checkbox"/> Q.A. <input type="checkbox"/> [unclear]
PRIORITY: 23 Q.A. REQUIREMENTS: No special Q.A. Req.	<input type="checkbox"/> SEC SUPPL. OPEN. SUPV.: [Signature] TECH. REVIEW: [Signature] MAINT. SUPV.: [Signature]

Q.A. REQUIREMENTS: Observe Q.A. Handprints in Providence

Q.A. SIGN/DATE: [Signature] 12/29/83

ATN: 4248 SCHED. COMP. DATE: 12/29/83 CLASS: 1 LT: 11 CODE: Nae	SIGN/DATE: [Signature] 12/29/83 <input type="checkbox"/> DES SUPPL.
---	--

210	10	10
RELEASED	AS. JONES TO: [Signature]	<input type="checkbox"/>
OPERABILITY OF REDUNDANT EQUIP. ITEM/LAST RUN	[Signature]	
TECH. SPEC. 9.0	BY SHIFT SUPV. [Signature]	

BY UNIT SUPV. [Signature] WORK ACCOMPLISHED: [unclear]	TAG OUT NO. 14 RELEASED TO: [Signature]	DATE: 12/29/83
---	--	----------------

PARTS AND MATERIAL: [unclear]

DATE: 12-21-83	BY: [Signature]	DATE: 12/29/83	ITEM: 1125
----------------	-----------------	----------------	------------

Q.A. [Signature] MAINT. [Signature]	[unclear]
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SARC REVIEW:

Yes () No (X)

Fort Calhoun Station Unit No. 1
PRC Approval Form for New Procedures

NID
(Type of Procedure)

MO-22515
(Procedure Number)

NUPAC 14D-2.1 CPSX Loading
(Procedure Title)

The above listed NEW Procedure has been reviewed and approved by the members of the PRC Committee as indicated below:

PRC REVIEW COMMITTEE (PRC)

LT. Kusek 11/22/83
Supv - Operations Date

[Signature]
Supv - T&C and EFM Date

Wm W. Richard 11/21/83
Supv - Technical Date

[Signature] 11/21/83
Reactor Engineer Date

Mark [Signature] 11/21/83
Supv - Maintenance Date

[Signature] 11/21/83
Plant Engineer Date

[Signature] 11/22/83
Supv - G/RP Date

REVIEWED and APPROVED BY: [Signature] 11/22/83
Manager - Fort Calhoun Station Date

Documentation Review Responsibility _____
Department

0397-1514

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Purpose

The purpose of this procedure is to outline the requirements and steps necessary to accept and fill the NUPAC 140-2.0 shipping cask

References

- 1. Cask User manual (Procedure WM-018) see attached

Requirements

- 1. An RWP has been issued to cover the work RWP# 638 QCB 12/26/04
- 2. The area has been surveyed and stay times reviewed with personnel involved QCB 12/28/04
- 3. Tractor has been moved into the railroad siding for loading RWP 12/29

OFF

4. I move paper work in order to allow transportation of rad. waste shipment

QOB 12-23-68

5. Notify the shift supervisor that work is complete and shipment is off site

[Signature]
/

2 more

Completed by *[Signature]* Date *12-23-68*

TABLE OF CONTENTS

OFFICE

	<u>Page</u>
1.0 PURPOSE	3
2.0 APPLICABILITY	3
3.0 DEFINITIONS	3
4.0 REFERENCES	3
5.0 RESPONSIBILITIES	3
6.0 PROCEDURE	4
6.1 Cask & Vehicle Receipt Inspection	4
6.2 Removal of Cask from Trailer	6
6.3 Loading Cask	7
7.0 DISTRIBUTION	17

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1.0 PURPOSE

The purpose of this procedure is to provide operating instructions for loading and unloading the NUPAC 14D-2.0 radioactive materials shipping casks.

2.0 APPLICABILITY

This procedure shall be followed when loading or unloading the NUPAC 14D-2.0 shipping cask. This procedure may be used in its entirety as is or incorporated into the policies and procedures of a registered user.

3.0 DEFINITIONS

None.

4.0 REFERENCES

- 4.1 U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9079
- 4.2 QA-014 NUS Process Services Corporation Quality Assurance Program Plan
- 4.3 Code of Federal Regulations, Title 10 Part 71
- 4.4 Code of Federal Regulations, Title 49

5.0 RESPONSIBILITIES

Registered users of the cask shall ensure the following.

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- 5.1 A Certificate of Compliance (C of C) for this cask and all the documents referenced by the C of C which relate to the use and maintenance of the cask are on file.
- 5.2 user has registered as a user of this certified cask with the U.S. NRC in accordance with Reference 4.1.
- 5.3 The cask has been inspected under a quality assurance program to verify its compliance with the terms and conditions of the issued Certificate of Compliance.
- 5.4 The cask is loaded and closed in accordance with an appropriate written procedure.
- 5.5 The cask is loaded in accordance with the requirements and restrictions stated in the C of C.
- 5.6 The shipment meets all of the applicable requirements established by the Department of Transportation, U.S. Nuclear Regulatory Commission, burial site disposal criteria and burial site licenses.

6.0 PROCEDURE

6.1 Cask & Vehicle Receipt Inspection

- 6.1.1 Perform radiation and external contamination surveys on both the shipping cask and vehicle. Loose and fixed contamination levels shall comply with the requirements of Reference 4.4. In the event these specified levels are exceeded, immediately notify the Transportation Department of GNS Process Services Corporation.

6.1.2 Inspect treadworn logs and shackles on cask and trailer for cracks and wear.

22515

NO

WM-010

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PAGE

5 of 17

QC HOLD POINT 8/25 12/22/83
Initials Date

6.1.3 Inspect tiedown cables to ensure they are not loose or damaged (crimped, frayed, etc.). Tighten if necessary.

QC HOLD POINT 8/25 12/22/83
Initials Date

6.1.4 Inspect tiedown ratchets/turnbuckles to ensure they are in proper working condition.

KCH
12-22-83

6.1.5 Ensure cask ratchet binders and binder accessories are in proper working condition.

KCH
12-22-83

6.1.6 Ensure that primary lid and shield plug lifting lug covers are present.

KCH
12-22-83

6.1.7 Remove cask lid in accordance with steps 6.3.1 through 6.3.2.7.

QC HOLD POINT 8/25 12/22/83
Initials Date

6.1.8 Inspect primary lid gasket for cracks or tears which would affect proper sealing.

QC HOLD POINT 8/25 12/22/83
Initials Date

6.1.9 Inspect interior of cask for standing water. Water must be removed prior to shipment.

KCH
12-22-83

6.1.10 Inspect interior of cask for obstructions to loading.

KCH
12-22-83

6.1.11 Inspect interior of cask for defects which might affect the cask integrity.

KCH
12-22-83

6.1.12 Inspect the shield plug holddown nuts to ensure they are all present and not damaged.

N
KCH
12-22-83

6.1.13 Inspect the shield plug gasket for cracks, nicks or tears which would affect proper sealing. Inspection is not required if shield plug has

0 1 2 3 4 5 6 7 8 9

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8 of 17

not been removed and security seal is in place and intact.

6.1.13.1 Remove the shield plug from the primary cask lid in accordance with steps 6.3.6.4 through 6.3.6.6.

6.1.13.2 Inspect the shield plug holddown studs for damage.

6.1.13.3 Inspect the shield plug gasket for cracks or tears which would affect proper sealing.

6.1.13.4 Install shield plug in accordance with step 6.3.8 unless loading requires the shield plug to be removed.

6.2 Removal of Cask from Trailer

If it is necessary to remove cask from trailer proceed as follows:

6.2.1 If cask is equipped with raincover, and it has not been removed, remove the raincover from the cask.

6.2.2 Loosen ratchet binders/turnbuckles as necessary to remove pins from shackles at cask end of tiedown system.

6.2.3 Remove pins from shackles.

6.2.4 Loosen cask shear blocks as necessary.

WM-018

REVISION

PAGE 7 of 17

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-CAUTION-

DO NOT USE CASK LID LIFTING LUGS TO LIFT CASK.

*N/A
KCH
2003*

6.2.5 Using the four (4) cask lift lugs and suitable rigging lift cask off trailer and place cask in proper position for loading.

Empty Cask Weight: 34,500 lbs
Maximum Loaded Cask Weight: 48,000 lbs

6.3 Loading Cask

Remove the primary full diameter cask lid as follows:

*N/A
KCH
2003*

6.3.1 If cask is equipped with a raincover, and it has not been removed, remove the raincover from the cask.

6.3.2 Disconnect the cask lid from the cask as follows:

N/A

6.3.2.1 Release the ratchet-binder handle from its storage position.

N/A

6.3.2.2 Engage the flip block to the sprocket wheel in the direction necessary to loosen the ratchet binder (see Figure 1).

N/A

6.3.2.3 Loosen the ratchet binder by pulling the handle in the appropriate direction.

*N/A
KCH*

6.3.2.4 Remove the ball-lock pin by depressing the top of the pin and pulling the pin through the hole in the threadless bolt (see Figure 2).

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6.3.2.5

Remove the threadless bolt by pulling the bolt through the holes in the upper ratchet binder connector and lid closure lug (see Figure 2).

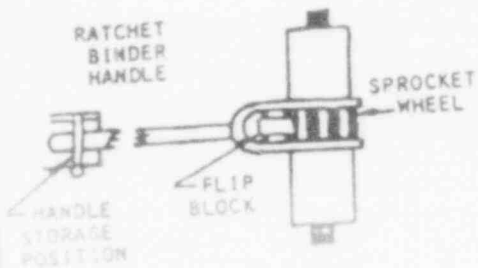


Figure 1

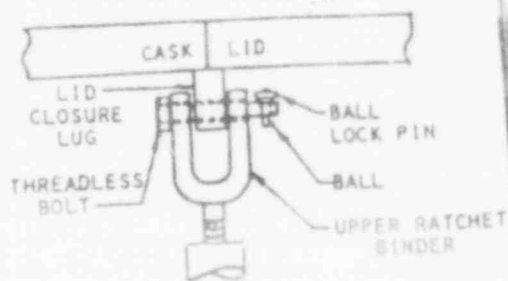


Figure 2

6.3.2.6 Remove the three (3) casks lid lifting lug covers.

KCH

-CAUTION-

WHENEVER THE CASK LID IS MOVED ON OR OFF THE CASK, TREAT THE UNDERSIDE OF THE LID AS A CONTAMINATED SURFACE UNTIL A CONTAMINATION SURVEY CAN BE MADE TO VERIFY ITS STATUS.

ALSO, ENSURE THAT THE CASK LID IS MOVED HIGH ENOUGH ABOVE THE CASK TOP TO AVOID DAMAGE TO THE CASK LID GUIDE PINS WHEN THE LID IS MOVED AWAY FROM OR OVER THE CASK.

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6.3.2.7
KCB
2000

Remove the cask lid using the three (3) lifting lugs on the cask lid to accommodate suitable rigging. Cask lid weighs 5700 pounds with the shield plug installed.

6.3.2.8
KCB
2000

Inspect interior of cask for free standing water.

NOTE: All water must be removed prior to loading and shipping.

6.3.2.9
KCB
2000

Inspect interior of cask for obstructions which could affect loading or proper placement of drum pallets and liners.

6.3.3 Loading seven-drum pallets into the cask:

6.3.3.1
KCB
2000

Using the slings provided and exercising caution in the handling of the pallet due to possible contamination, remove the top pallet from the cask. Inspect slings on both pallets for damage or conditions which could affect safety.

NOTE: Empty pallet weight - approx. 750 lbs.

6.3.3.2
KCB
2000

Exercising caution to avoid placing drums on the pallet lift slings, load seven (7) drums on the lower pallet left in the cask. (See Figure 3 for drum placement on pallet.)

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NO WM-018	REVISION A	PAGE 11 of 17
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6.3.4.2 ⁶³ Inspect slings on both pallets for damage or conditions which would affect safety.

KCH 12-22-83
6.3.4.3 Load seven (7) drums onto each pallet (see Figure 3).

KCH 12-22-83
For maximum shielding, load higher dose rate drums in the center position.

6.3.4.4 Lift one of the loaded pallets and place it inside the cask. For maximum shielding, ensure proper orientation of pallet (see Note of Figure 3). Ensure slings of lower pallet are accessible for retrieving when off-loading.

6.3.4.5 Lift the other loaded pallet and place it inside the cask on the top of the first pallet. For maximum shielding, ensure proper orientation of pallet (see Note of Figure 3).

KCH 12-22-83
NOTE: Ensure easy access to the pallet lifting slings for removal of pallet at burial site.

6.3.4.6 Install primary lid in accordance with step 6.3.7.

KCH 12-22-83
6.3.5 Loading a Prefilled Liner into the Cask:

6.3.5.1 Ensure lid and all plugs or caps are installed on liner.

KCH 12-22-83
6.3.5.2 Using the lifting slings provided, place liner into the cask.

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NO	REVISION	PAGE
WM-018	A	12 of 17

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12-22-83

6.3.5.3 Install shims/shoring between liner and cask as necessary to secure in position, if necessary.

6.3.5.4 Install primary lid in accordance with step 6.3.7.

6.3.6 Installing and loading empty liner in cask:

6.3.6.1 Using the slings provided, place liner in the cask.

6.3.6.2 Install shims/shoring between liner and cask as necessary to secure in position.

6.3.6.3 Install primary lid in accordance with step 6.3.7.

6.3.6.4 Remove the 8-3/4" shield plug holddown nuts.

6.3.6.5 Remove the shield plug lifting lug cover.

6.3.6.6 Exercising caution due to possible contamination of the underside of the shield plug, remove the shield plug.

6.3.6.7 Load liner through shield plug opening.

6.3.6.8 Install the liner lid, plugs or caps onto the liner.

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KCH

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NO WM-018	REVISION A	PAGE 13 of 17
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6.3.6.9 Place the shield plug on the cask using the shield plug guide pins for proper positioning.

NOTE: Care should be taken to avoid damage to the gasket.

6.3.6.10 Secure the shield plug by installing and tightening the 8-3/4" shield plug holddown nuts in accordance with torquing steps provided in step 6.3.8.3.

6.3.6.11 Install the shield plug lifting lug cover.

6.3.6.12 If cask is equipped with raincover, install raincover.

6.3.7 Installation of Primary Cask Lid

6.3.7.1 Inspect primary lid gasket for cuts, nicks or other damage which may affect the sealing capabilities. Replace if necessary.

KCH
12-22-83

-CAUTION-

WHENEVER THE CASK LID IS MOVED ON OR OFF THE CASK, TREAT THE UNDERSIDE OF THE LID AS A CONTAMINATED SURFACE UNTIL A CONTAMINATION SURVEY CAN BE MADE TO VERIFY ITS STATUS.

ALSO, ENSURE THAT THE CASK LID IS MOVED HIGH ENOUGH ABOVE THE CASK TOP TO AVOID DAMAGE TO THE CASK LID GUIDE PINS WHEN THE LID IS MOVED AWAY FROM OR OVER THE CASK.

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KCH
12-22-83

6.3.7.2 Using the three (3) lifting lugs in the cask lid to accomodate suitable rigging, lift the cask lid and place it on the cask using the alignment pins for proper positioning. If the cask lid guide pins were damaged and are missing, ensure that the holes in the cask lid line up with the guide pin positions. Adjust the lid position as necessary to accomplish proper alignment.

KCH
12-22-83

6.3.7.3 Install the threadless bolt through the upper ratchet binder connector and the lid closure lug (see Figure 2).

KCH
12-22-83

6.3.7.4 Install the ball-lock pin by pressing down on the top of the pin and inserting the pin through the hole in the threadless bolt.

KCH
12-22-83

6.3.7.5 Tighten the ratchet binder by engaging the flip block to the sprocket wheel and rotate the ratchet binder handle in the direction necessary to tighten the ratchet binder. (See Figure 1).

KCH
12-22-83

6.3.7.6 Disengage the flip block and rotate and secure the handle to its storage position (see Figure 1).

6.3.7.7 Install the three (3) primary cask lid lifting lug covers.

ABB
12-22-83

6.3.7.8 Install tamper-proof seals.

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WM-018

REVISION
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PAGE
15 of 17

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6.3.8 Installation of Shield Plug:

6.3.8.1 Inspect the shield plug gasket for cuts, nicks or other damage which may affect the sealing capabilities. Replace, if necessary.

6.3.8.2 Using the one (1) lifting lug on the shield plug to attach suitable rigging, lift and place shield plug into the opening on the primary lid. Use alignment pins to assure proper lid alignment. If the alignment pins are damaged, verify proper lid alignment by lining up the holes in the shield plug with the alignment pin positions. Be careful not to damage the gasket during installation.

6.3.8.3 Secure the shield plug by installing and tightening the shield plug stud nuts in accordance with the following torquing sequence.

- Coat all threaded surfaces and seating area with an anti-seize compound.
- Install and hand-tighten all fasteners.
- Torque all fasteners to twenty (20) foot-pounds using the following tightening sequence:
 - o Opposite pair randomly selected
 - o Opposite pair at 90°
 - o Opposite pair at 45°
- Torque all fasteners to forty (40) foot-pounds using the following tightening sequence:

0 3 9 7 0 1 3 9 2

MA
KC
12-22-43

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NO	REVISION	PAGE
WM-018	A	17 of 17

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- 6.3.9.2 *VS 12/17/83*
DATE ISSUED BY: Initials Date
 Inspect tiedown lugs and shackles on cask and trailer for cracks and wear which would affect their strength.
- 6.3.9.3 *VS 12/23/83*
DATE ISSUED BY: Initials Date
 Inspect tiedown cables to ensure they are not loose, or damaged (crimped, frayed, etc.).
- 6.3.9.4 *VS 12/22/83*
DATE ISSUED BY: Initials Date
 Inspect tiedown ratchets/turnbuckles to ensure they are in proper working condition.
- 6.3.9.5 *NA*
KCH 12-22-83
 Install shackles through the end of the tiedown cables and attach to cask tiedown lugs by screwing pin through shackle and hole in lug.
- 6.3.9.6 *NA*
KCH 12-22-83
 Tighten ratchet binders/turnbuckles as necessary to secure cask on trailer.

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7.0 DISTRIBUTION

- Library - 2 copies
- Transportation Supervisor - 2 copies
- NUS Corporate QA - 1 copy

22515

NRC FORM 618
10-82
10 CFR 71

CERTIFICATE OF COMPLIANCE FOR RADIOACTIVE MATERIALS PACKAGES

U.S. NUCLEAR REGULATORY COMMISSION

A. CERTIFICATE NUMBER	B. REVISION NUMBER	C. PACKAGE IDENTIFICATION NUMBER	D. PAGE NUMBER	E. TOTAL NUMBER PAGES
9079	10	USA/9079/A	1	3

2. PREAMBLE

- This certificate is issued to certify that the packaging and contents described in Item 5 below, meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71 - Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material under Certain Conditions.
- This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION
 a. PREPARED BY (Name and Address):
 b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Nuclear Packaging, Incorporated
 1010 South 336th Street
 Federal Way, WA 98003

Nuclear Packaging, Incorporated, application
 Dated November 29, 1982, as supplemented.

c. DOCKET NUMBER 71-9079

4. CONDITIONS
 This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71 as applicable and the conditions specified below.

039701395

(a) Packaging

- Model Nos.: NUPAC 140-2.0, HN-100 Series 2 and HN-100 Series 2A
- Description

Steel encased, lead shielded casks for low specific activity material. The casks are right circular cylinders 81-1/2 inches high by 81-3/4 inches in diameter. The cask cavities are 73-3/8 inches high by 75-1/2 inches in diameter. The cask side walls consists of a 3/8-inch thick inner steel shell, a 1-3/4-inch lead shell, and a 7/8-inch thick outer steel shell. Each base is comprised of two, 2-inch thick steel plates welded together to form a 4-inch thick base which is integrally welded to the inner and outer steel shells of the side wall. A steel flange is welded to the inner and outer steel shells of the side wall at the top. The lid is comprised of two (2), 2-inch thick steel plates, which are stepped and welded together to mate with the steel flange. The cask closures are sealed by a Neoprene gasket located between the lid and steel flange, positive closure of the lid is accomplished by eight ratchet binders. The lid contains a centrally located shield plug comprised of two (2), 2-inch thick steel plates and one, 1-inch thick steel plate stepped and welded. The shield plug is sealed by a Neoprene gasket, and eight, 3/4-inch studs and nuts are used to provide positive closure.

22515

5.(a) (2) Description (continued)

Tie-down is accomplished by four tie-down lugs welded to the cask body. There are four cask lifting lugs, three lid lifting lugs, and one shield plug lifting lug. The package gross weight is approximately 48,000 pounds.

(3) Drawings

The Model No. NUPAC 14D-2.0 packaging is fabricated in accordance with Nuclear Packaging, Incorporated Drawing No. X-20-215D, Revision B; or

The Model Nos. HN-100 Series 2 and HN-100 Series 2A packaging is fabricated in accordance with Hittman Nuclear & Development Corp. Drawing Nos.: COO1-5-9122, Rev. 3; COO1-5-9123, Rev. 3; and COO1-5-9124, Rev. 2. The Model No. HN-100 Series 2 is constructed of A-36 carbon steel. The Model No. HN-100 Series 2A is constructed of A-516, Grade 70, carbon steel.

(b) Contents

(1) Type and form of material

Process solids, either dewatered, solid or solidified, meeting the requirements for low specific activity material, in secondary containers.

(2) Maximum quantity of material per package

Greater than Type A quantity of radioactive material which may contain fissile material provided the fissile material does not exceed the limits in 10 CFR §71.53. The weight of the contents and secondary containers shall not exceed 14,000 pounds and the internal decay heat load shall not exceed 7 watts.

6. Except for close fitting contents shoring must be placed between secondary containers and the cask cavity to prevent movement during normal conditions of transport.

7. The lid and shield plug lifting lugs must not be used for lifting the cask, and shall be covered in transit.

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2255

CONDITIONS (continued):

Page 3 - Certificate No. 9079 - Revision No. 10 - Docket No. 71-9079

8. In addition to the requirements of Subpart G of 10 CFR Part 71:

(i) Prior to each shipment, the packaging lid seals, if opened (or if security seal is broken), must be inspected. The seals must be replaced with new seals if inspection shows any defects or every twelve (12) months, whichever occurs first. Cavity drain line must be sealed with appropriate sealant applied to the pipe plug threads.

(ii) Each cask must meet the Acceptance Tests and Maintenance Program of Section 4.0 of the application. In addition, the cask must be leak tested at least once every twelve (12) months in accordance with Appendix 4.3.2 of the application.

9. The cask body and each cask lid shall be marked in accordance with 10 CFR §71.85(c).

10. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland watercraft, or hold or deck of a seagoing vessel assigned for the sole use of the licensee.

11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.

12. Expiration date: April 30, 1988.

REFERENCES

Nuclear Packaging, Incorporated application dated November 29, 1982.

Supplements dated: March 3 and April 3, 1983.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald
Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Date: SEP 06 1983

UNREVIEWED SAFETY QUESTION EVALUATION (10CFR50.59)

Procedure Change # NA Operations Incident # NA
 Modification # NA Procedure NO 22515
 Other NA

Answer the following questions with a YES [] or NO [] and provide specific reasons for justifying the decision.

I. Will the probability of occurrences or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report be increased?
 YES [] NO [X] because This Procedure provides for proper handling of radioactive material and Heavy work will still be performed. Accidents which could result from performance have been evaluated.
 Reference FSAR Section(s) (if applicable) _____

II. Will the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report be created?
 YES [] NO [X] because See I above

III. Will the margin of safety as defined in the basis for any technical specification be reduced?
 YES [] NO [X] because See I above
 Reference Technical Specification(s) (if applicable) _____

Prepared By [Signature] Date [Signature]

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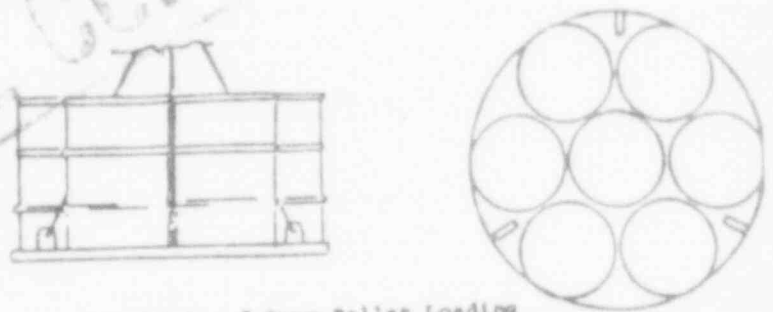


FIGURE 3 - 7 Drum Pallet Loading

NOTE: For maximum shielding, load higher dose rate drums in the center position and the positions toward the front and rear of the trailer.

6.3.3.3 Place the top pallet into the cask. Ensure lower pallet slings are accessible for retrieving pallet when off-loading.

Pallet Weight - 750 lbs.

Exercising caution to avoid placing drums on the pallet lift slings, load seven (7) drums on the top pallet in the cask (see Figure 3).

6.3.3.4 Install primary lid in accordance with step 6.3.7.

6.3.4 Loading the Seven-Drum Pallets Outside the Cask

6.3.4.1 Using slings provided and exercising caution in the handling of the pallet due to possible contamination, remove both the pallets from the cask.

NOTE: Empty Pallet Weight - approx. 150 lbs.