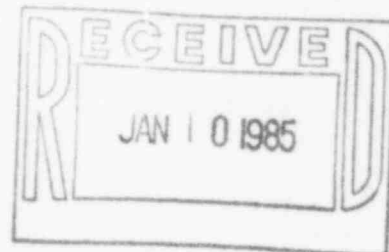


✓

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

UNIT NO. 1 SYSTEM RAD WASTE ITEM NO. APPROVE BY: [Signature] ITEM NAME RAD WASTE
DATE 12-15-83 REQUESTED BY: Al Bulau EQUIP. OUTAGE ☐ UNIT OUTAGE ☐ SERVICE ☐ OTHER ☒
LIST SPECIFIC SYMPTOMS AND PROBLEMS: SAFETY PIPE/CABLE IN IMMEDIATE AREA ☐ AREAL CONTAINER ☒ ☐
REQUEST MAINTENANCE SUPPORT FOR LOADING CASK FOR RADIOACTIVE WASTE SHIPMENT.

TECH. REVIEW

SEE SUPPL. ☐PRC PROC. ☒
DET. W.I. ☒
KNT ☒
GANT ☒
Q.A. ☒
Q.C. ☒

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

Q.A. REQUIREMENTS: No Additional Q.A. [Signature]

Q.A. SIGN/DATE [Signature] 12/15/83 SEE SUPPL. ☐REQUIREMENTS: [Signature] Q.A. SIGN/DATE [Signature] 12/15/83 SEE SUPPL. ☐

EQUIP. REQUEST DATE: 12/15/83 SCHED. COMP. DATE: 12/15/83 CLASS I [Signature] CODE: [Signature]

WORK INSTRUCTIONS: [Signature]

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

OPERABILITY OF REDUNDANT EQUIP. ITEM/LAST RUN [Signature]

TECH. SPEC. BY SHIFT SUPV. [Signature]

EQUIP. HISTORY BY SHIFT SUPV. TAG OUT NO. [Signature] RELEASED TO: [Signature] TIME: 1200 DATE: 12-15-83

WORK ACCOMPLISHED: [Signature]

PARTS AND MATERIAL USED QUAN. MEASURE PART/STOCK NO. COMMENTS

[Signature]

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

PFC U.C. P.O. W.C. CIRC. ACCT. OTHER

CRAFT SUPV. [Signature] ASSIGN PM [Signature] Q.C. [Signature] MAINT. [Signature] [Signature] Q.A. [Signature]

A-G-17-12 ORIGINAL Form FC-61 8-12-1-13-81

ARC REVIEW:

es () No (✓)

2250
FC-142

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

MD
(Type of Procedure)

MD 22502
(Procedure Number)

NUREG 14D-2.0 Shipping Cash
(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):

A. J. Kusek 12/15/83
Supv - Operations Date

David Mueller 12/15/83
Supv - PRC and EFH Date

Alan A. Richard 12/15/83
Supv - Technical Date

J. J. Fluehr 12/15/83
Reactor Engineer Date

Mike Cur 12-15-83
Supv - Maintenance Date

John Howard 12-15-83
Plant Engineer Date

George L. Porsch 12-15-83
Supv - C/RP Date

REVIEWED and APPROVED BY:

W. Gary Dora 12-15-83
Manager - Fort Calhoun Station Date

Documentation Review Responsibility

NA MD
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

(LB) 12/13/81
UP

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

(LB) 12/13/81
UP

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

BCV 12/14/81
UP

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Precautions

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

EX-100
12-15-83

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Procedure

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

for then
HKS
with proper
SS 12-15-83
QC

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

QAB 12-15-83
QC

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

QAB 12-15-83

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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
SS

Remarks

completed by Q. Bilou Date 12-16-83

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NO

WM-018

REVISION

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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 4.3.
- 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.

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

Q.C. HOLD POINT 12-15-83
Initials Date

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

Q.C. HOLD POINT 12-15-83
Initials Date

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

KLB 12-15-83

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

KLB 12-15-83

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

KLB 12-15-83

6.1.8 Inspect primary lid gasket for cracks or tears

Q.C. HOLD POINT 12-15-83
Initials Date

which would affect proper sealing.

6.1.9 Inspect interior of cask for standing water.

Q.C. HOLD POINT 12-15-83
Initials Date

Water must be removed prior to shipment.

6.1.10 Inspect interior of cask for obstructions to loading.

KLB 12-15-83

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

KLB 12-15-83

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

KLB 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

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(this not removed)

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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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NA
KC
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(plug not removed)

NA
KC
Cask
Trailer

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-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).

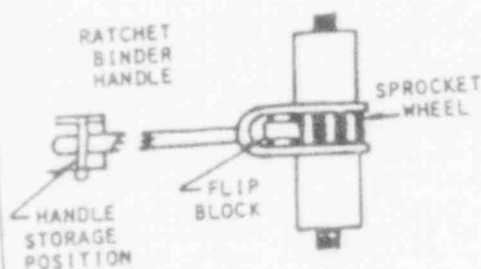


Figure 1

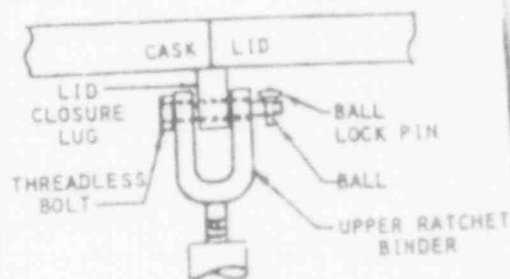


Figure 2

- 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.

6.3.2.8 Inspect interior of cask for free standing water.

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.

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.

NOTE: Empty pallet weight - approx. 750 lbs.

NOTE: Use heavy lead path when moving the cask liner in and out.

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.)

NOTE: IF A Pallet Is Not Available, Use A Suitable Alternative As Necessary And Load The Pallet Drums

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and a cask liner

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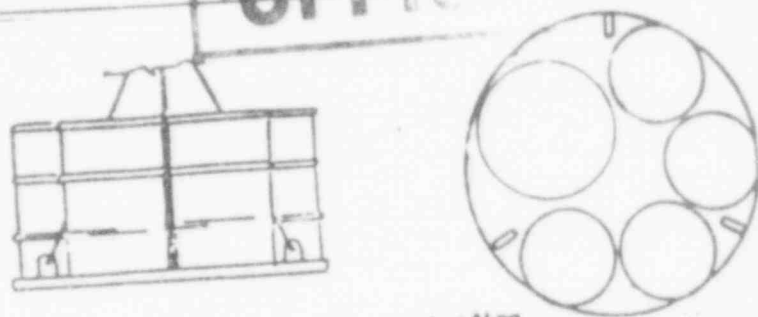


FIGURE 3 -

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 skid 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 skid in the cask (see Figure 3 and the N.C. after 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.

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- 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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- 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.

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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 6200 lbs.)

6.3.7.3

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

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.

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).

6.3.7.7

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

6.3.7.8

Install tamper-proof seals.

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6.3.8 Installation of Shield Plug:

6.3.8.1 Inspect the shield plug gasket for cuts, cracks 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.

*NA if plug is
not removed KCM
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.

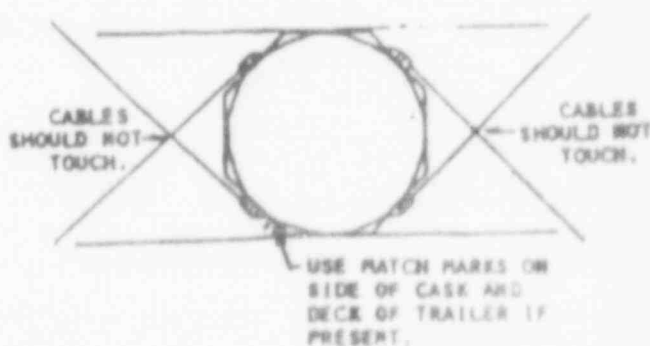


Figure 4

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

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6.3.9.2

QAC HOLD REPORT
Initials Date
KCH 12/16/83

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

6.3.9.3

QAC HOLD REPORT
Initials Date
KCH 12/16/83

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

6.3.9.4

QAC HOLD REPORT
Initials Date
KCH 12/16/83

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

6.3.9.5

QAC HOLD REPORT
Initials Date
KCH 12/16/83

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

NCH
KCH 12/16/83

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

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NRC FORM 515
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

6. PREAMBLE

- a. 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.
- 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.

7. 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

8. 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.

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.: 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.

CONDITIONS (continued)

OFFICIAL COPY

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.

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 # _____ 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?

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: K. C. Hylleberg Date 12-15-83

MAINTENANCE ORDER

Nº 22290

UNIT NO. 1	SYSTEM RAD WASTE	ITEM NO. —	ITEM NAME RAD WASTE
DATE 12-7-83	REQUESTED BY: G. Bilan	APPROVED BY: J. Clapfel	DATE 12-12-83
WRITTEN	BY: G. Bilan	BY: J. Clapfel	DATE 12-12-83
LIST SPECIFIC SYMPTOMS AND PROBLEMS:		IN IMMEDIATE AREA <input type="checkbox"/> AREA <input checked="" type="checkbox"/>	

REQUEST MAINTENANCE SUPPORT ON LOADING CASE AND PREPARING FOR SHIPMENT. SEE ALPHABETIC CASK MANUAL.

TECH. REVIEW

URGENT 21 HIGH. SUPV. *12/12/83* TECH. REVIEW *12/12/83* URGENT *12/12/83*

Q.A. REQUIREMENTS:

No Additional Q.A. Req

Q.B. REQUIREMENTS:

Check of Q.B. requirements in attached

RELEASED

ASSIGNED TO: *7.6*

OPERABILITY OF REDUNDANT EQUIP. ITEM/LAST RUN

TECH. SPEC.

BY SHIFT SUPV.

DATE 12-12-83

NO. 707

RELEASED

Hyde

8940

2/10/83

WORK ACCOMPLISHED:

Per attached procedure

PARTS AND MATERIAL USED

QTY.

DATE

REVISION NO.

WORK COMPLETED

DATE 12-12-83

BY: *Hyde*

DATE 12-12-83

BY: *Hyde*

DATE 12-12-83

BY: *Hyde*

DATE 12-12-83

WORK COMPLETED

DATE 12-12-83

BY: *Hyde*

DATE 12-12-83

BY: *Hyde*

DATE 12-12-83

BY: *Hyde*

DATE 12-12-83

ORIGINAL

FORM FC-41 R-12 1-71-81

22290

FC-142

SARC REVIEW:

Yes () No ()

Fort Calhoun Station Unit No. 1
PRC Approval Form for New ProceduresMD
(Type of Procedure)MV 22290
(Procedure Number)Loading of NUPAC 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):

LT Kusch 11/12/83 Date
Supv - OperationsLandy Martin 11/12/83 Date
Supv - LAC and EFMW. J. Richard 11/12/83 Date
Supv - TechnicalJ. H. Heston 11/12/83 Date
Reactor EngineerMike Cove 11/12/83 Date
Supv - MaintenanceJ. H. Heston 11/12/83 Date
Plant EngineerLandy Martin 11/12/83 Date
Supv - C/RP

REVIEWED and APPROVED BY:

for LT Kusch 11/12/83 Date
Manager - Fort Calhoun Station

Documentation Review Responsibility

NA. MD
Department

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

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

HP 10/2/83

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

HP 10/2/83

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

HP 10/10/83

Precautions

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

at 2
12/12/83

Procedure

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

Pro 12/12/83
QC 12/12/83

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

QCB 12-13-83
J/15 12/14/83
QC

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

QCB 12-13-83

059720744

22290

4. I have 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
SS

069703945
Remarks

completed by AL Bilson Date 12-13-83

22290

NUS
PROCESS SERVICES

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WM-018

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TITLE

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

[illegible]

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6.1 Cask & Vehicle Receipt Inspection	4
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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 4.3.

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.

ALB
12-17-83

22290

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- 6.1.3 Inspect tiedown cables to ensure they are not loose or damaged (crimped, frayed, etc.). Tighten if necessary.
- 6.1.4 Inspect tiedown ratchets/turnbuckles to ensure they are in proper working condition.
- 6.1.5 Ensure cask ratchet binders and binder accessories are in proper working condition.
- 6.1.6 Ensure that primary lid and shield plug lifting lug covers are present.
- 6.1.7 Remove cask lid in accordance with steps 6.3.1 through 6.3.2.7.
- 6.1.8 Inspect primary lid gasket for cracks or tears which would affect proper sealing.
- 6.1.9 Inspect interior of cask for standing water. Water must be removed prior to shipment.
- 6.1.10 Inspect interior of cask for obstructions to loading.
- 6.1.11 Inspect interior of cask for defects which might affect the cask integrity.
- 6.1.12 Inspect the shield plug holddown nuts to ensure they are all present and not damaged.
- 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

OK 12/14/83

KLG 12-12-83

KLG 12-12-83

KLG 12-12-83

KLG 12-12-83

OK 12/14/83

KLG 12-12-83

KLG 12-12-83

KLG 12-12-83

KLG 12-12-83

Shield plug not removed

22240

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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.

05970151

NA
KCH 12-12-83NA
KCH 12-12-83NA
KCH 12-12-83NA
KCH 12-12-83NA
KCH 12-12-83

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-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:

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).

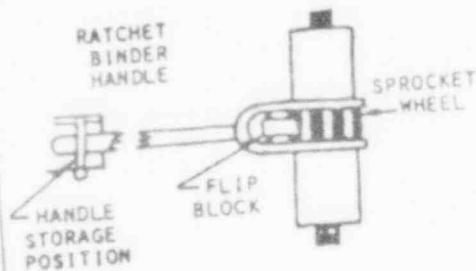


Figure 1

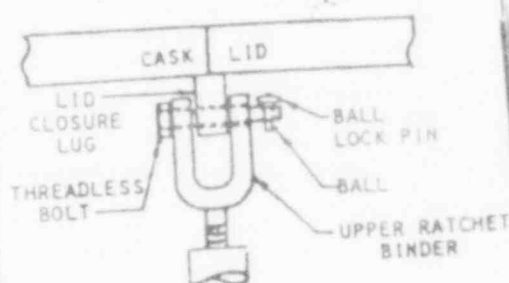


Figure 2

- 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.

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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:

KCH
12-12-83

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.

*all the debris on
top of the cask*



NOTE: Empty pallet weight - approx. 750 lbs.

*Also use heavy lead path under main
th. shield cask cover in road way*

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.)

*Under control
cask 2000
all the debris on
top of the cask*

*NOTE: If a fifth drum were to be placed
on the pallet, it would be placed on the right side.*

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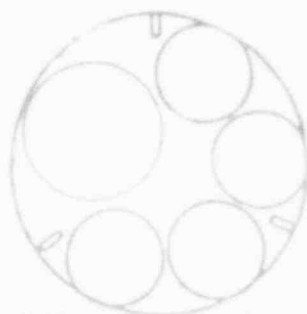
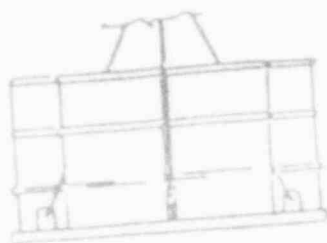


FIGURE 3 - Pallet Loading

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 sheet* over 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 *sheet* in the cask (see Figure 3 and the *step 6.3.2*).

- 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.

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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.

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- 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
KC
10-12-43

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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 6.1.8.3.

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.

-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
KCH
12-12-83

1/14
12-12-83
should not
be used

22296

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- 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.

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.

KCH
12-12-83

- 6.3.7.8 Install tamper-proof seals.

AB
12-12-83

03970759

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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, attach suitable rigging, lift and place shield plug into the opening on the primary lid. Use alignment pins to ensure 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 mating area with an anti-seize compound.
- Install and hand-tighten all fasteners.
- Torque all fasteners to 100 ft-lbs (133 Nm) using the following tightening sequence:
 - o Opposite pair at 100 ft-lbs
 - o Opposite pair at 25 ft-lbs
 - o Opposite pair at 25 ft-lbs
- Torque all fasteners to 100 ft-lbs (133 Nm) using the following tightening sequence:

*N.A. 1.2.83
is not removed
K.L.H.
12-12-83*

039700130

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NO

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- 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.

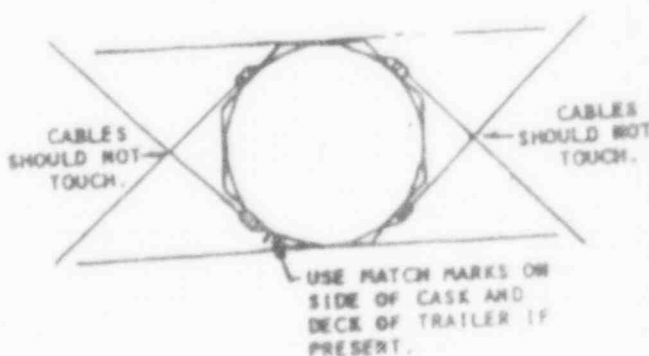


Figure 4

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

NA
Cask not removed
KCH
12-12-83

0 4 1 0 0 1 5 1

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USE HOLD FOR *MS* 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.

USE HOLD FOR *MS* 12/1/83
Initial Date

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

USE HOLD FOR *MS* 12/1/83
Initial Date

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

USE HOLD FOR *MS* 12/1/83
Initial 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.

USE HOLD FOR *MS* 12/1/83
Initial Date

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

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

U.S. NUCLEAR REGULATORY COMMISSION

22290

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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6. PREAMBLE

- a. This certificate is issued to certify that the packaging and contents described in item 3 below meet the applicable safety standards set forth in Part 71 Code of Federal Regulations, Part 71 Packaging of Radioactive Materials for Transport and Transportation of Radioactive Materials 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.

7. 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

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

b. DOCKET NUMBER 71-9079

8. 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.

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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-20-215D, 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.: 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.

22290

CONDITIONS (continued)

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 T and Maintenance Program of Section 4.0 of the application. In addition, th : 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, NMSS

Date: SEP 06 1983

UNREVIEWED SAFETY QUESTION EVALUATION (10CFR50.59)

Procedure Change # _____

Operations Incident # NAModification # NAProcedure NE 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 [Signature]

WD MAINTENANCE ORDER

Nº 22515

UNIT NO. 1	SYSTEM RAD WASTE	ITEM NO. —	ITEM NAME RAD WASTE
DATE 12-21-83	REQUESTED BY: A. Bilau	APPROVED BY: [Signature]	ESTIMATED COST: []
WRITTEN	BY: A. Bilau	IN IMMEDIATE AREA: []	AREA: []

LIST SPECIFIC SYMPTOMS AND PROBLEMS: REQUEST MAINTENANCE SUPPORT TO LOAD SHIPPING CASK FOR RAD WASTE SHIPMENT. SEE A. BILAU FOR DATA.

TECH. REVIEW	PREC. PROC. []
	DET. W.I. []
	NOT []
	CAND []
	W.A. []
	U.I. []

PRIORITY 23	OPER. SUPV. [Signature]	TECH. REVIEW [Signature]	MAINT. SUPV. [Signature]
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Q.A. REQUIREMENTS: No Special Q.A. Req.

Q.A. SIGN/DATE: [Signature] 12/24/83

Q.C. REQUIREMENTS: OBSERVE Q.C. HANDLING IN PROVIDENCE

Q.C. SIGN/DATE: [Signature] 12/24/83

DATE: 12/24/83 SCHED. COMP. DATE: 12/24/83

LAST 1 1/2 HOURS: 11:00 AM

2 10:00 AM

RELEASED [Signature] ASSIGNED TO: [Signature]

OPERABILITY OF REDUNDANT EQUIP. ITEM/LAST RUN [Signature]

TECH. SPEC. [Signature] BY SHIFT SUPV. [Signature]

DATE: 12/24/83 TIME: 11:25

WORK ACCOMPLISHED: [Signature]

PARTS AND MATERIAL: []

DATE: 12-22-83

DATE: 12/24/83

DATE: 12/24/83

DATE: 12/24/83

DATE: 12/24/83

DATE: 12/24/83

ORIGINAL

Form FC-63 R-12 1-1-81

SARC REVIEW:

Yes () No (X)

FC-142

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

PHASE 1 11/22/83
Supv - T&C and EFM Date

Walter Richard 11/22/83
Supv - Technical Date

D. Z. Hirsch 11/22/83
Reactor Engineer Date

Mark Orr 11/22/83
Supv - Maintenance Date

K. L. Hoke 11/22/83
Plant Engineer Date

Ray P. Rord 11/22/83
Supv - G/RP Date

REVIEWED and APPROVED BY:

W. Harry Davis 11/22/83
Manager - Fort Calhoun Station Date

Documentation Review Responsibility

Department

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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 task

References

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

Transitions

1. An RWP has been issued to cover the work RWP# 638 QCB 12114
40
2. The area has been surveyed and stop times reviewed with personnel involved QCB 12114
40
3. Tractor has been moved into the Railroad siding for loading RWP 12114

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M.O. # 22515

Precautions

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

8

11/14

12/21/83

Procedure

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

11/13/83/81
8/15 11/23/83
GC

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

DOB 122283
12/29/83
GC

3. Load the cask in accordance with step 6.3.3 in attached procedure or 6.3.4

DOB 122283



4. I move paper work in order to
allow transportation of Rad. waste
aboard

QOB 12-23-68

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

Off 12/23/68
JF

Remarks _____

Completed by Ed. Johnson Date 12-23-68

 A JOURNAL OF THE *International Association of Agricultural Economists*

A

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

OFFICE

WM-018	REVISION A	PAGE 2 of 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.

10

- 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 signed 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 GRS Process Services Corporation.

- 6.1.2 Inspect tie-down logs and shackles on cask and trailer for cracks and wear.

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OFF

QC HOLD POINT
8/15 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
8/15 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
8/15 12/22/83
Initials Date

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

QC HOLD POINT
8/15 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

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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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-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).

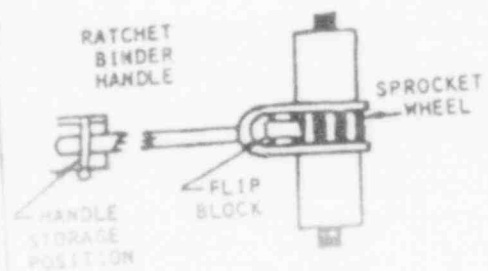


Figure 1

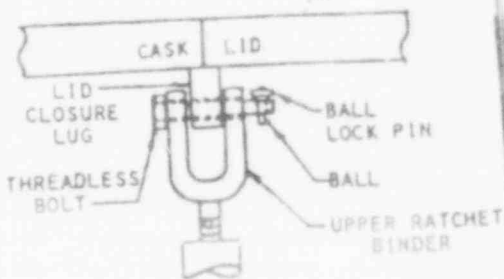


Figure 2

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.

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- 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.

- 6.3.2.8 Inspect interior of cask for free standing water.

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.

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.

NOTE: Empty pallet weight - approx. 750 lbs.

- 6.3.3.2 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 1 for drum placement on pallet.)

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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.

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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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NA
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12-22-83

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.

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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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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)

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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
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6.3.7.8 Install tamper-proof seals.

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12-22-43

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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:

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- 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.

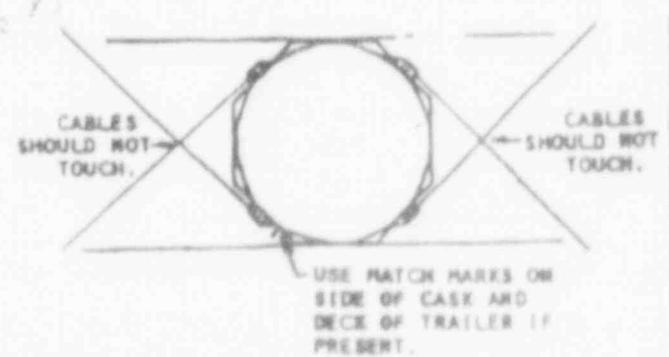


Figure 4

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

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

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

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.

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

22515

NRC FORM 618
(9-82)
10 CFR 71

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

U.S. NUCLEAR REGULATORY COMMISSION

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

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.

(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.

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.

22515

CONDITIONS (continued):

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, NMSS

Date: SEP 06 1983

FC-154

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 [☒] because This Procedure provides for proper handling of radioactive material and Heavy work will still be performed by personnel who will not perform work that is not intended.

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 Eric Boh Date 11-4-82

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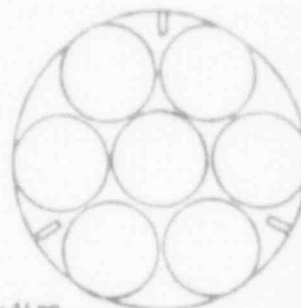
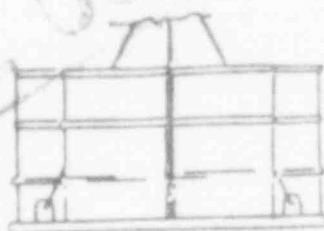


FIGURE 3 - 7 Drum Pallet Loading

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.