

**CERTIFICATE OF COMPLIANCE
 FOR RADIOACTIVE MATERIALS PACKAGES**

1. a. CERTIFICATE NUMBER 9176	b. REVISION NUMBER 6	c. PACKAGE IDENTIFICATION NUMBER USA/9176/A	d. PAGE NUMBER 1	e. TOTAL NUMBER PAGES 4
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2. 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 and Transportation of Radioactive Material."
- 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. ISSUED TO (Name and Address):

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

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

NUPAC application dated February 29, 1988,
 as supplemented.

c. DOCKEY NUMBER

71-9176

4. CONDITIONS

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

5.

(a) Packaging

(1) Model Nos.: NUPAC 14/210L, NUPAC 14/210H, CNSI 14-215H Series A, LN 14-195L, and LN 14-195H

(2) Description

Steel encased lead shielded casks for low specific activity material. The casks are right circular cylinders with a 77.25-inch ID by 80.25-inch IH cavity. The walls of the casks contain a lead thickness ranging from 1.25 to 1.88 inches encased in 0.38-inch thick inner steel shell and 0.88-inch thick outer steel shell. The top cover and cask bottom are made up of two steel plates with thickness of 2.0 inches. The primary cask lid is secured to the cylindrical cask body by eight, 1-1/4-inch ratchet binders. An optional secondary lid is centered in the primary lid and is secured to the primary lid with eight, 3/4-inch studs and nuts. Each lid is provided with a Neoprene gasket seal. The casks may be provided with an optional 12 gauge stainless steel liner (seal welded along all edges), an optional lid vent line with pipe plug, and an optional 3/4-inch drain line and pipe plug. The casks are provided with four equally spaced lifting/tie-down devices. The primary lid is provided with three lifting lugs and the optional secondary lid is provided with one lifting lug. The casks gross weights range from 51,600 to 58,400 pounds.

Model Number	OD, inches	Lead Tk, inches	Top Tk, inches	Bottom Tk, inches	Gross Wt, pounds
NUPAC 14/210L, LN 14-195L	82.25	1.25	4.0	4.0	51,600
NUPAC 14/210H, LN 14-195H	83.5	1.88	4.0	4.0	58,400
CNSI 14-215H Series A	83.8	1.85	4.0	4.0	58,400

5. (a) (3) Drawings

Model Nos. NUPAC 14/210L and NUPAC 14/210H

The packages are fabricated in accordance with Nuclear Packaging, Inc. Drawing No. X-20-306-SNP, Sheets 1, 2 and 3, Revision No. A.

Model No. CNSI 14-215H

The package is fabricated in accordance with Chem-Nuclear Systems, Inc. Drawing Nos. 24500-08, Sheets 1 and 2, Rev. D, and 24500-5, Rev. 2.

Model Nos. LN 14-195L and LN 14-195H

The packages are fabricated in accordance with LN Technologies Corporation Drawing No. 5025-M-2005: Sheets 1 and 2, Revision No. 0.

(b) Contents

(1) Type and form of material

- (i) Dewatered, solids, or solidified water, meeting the requirements for low specific activity material, in secondary containers; or
- (ii) Activated solid components 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 decay heat load is limited to 9 watts.

6. (a) For any package containing water and/or organic substances which could radiolytically generate combustible gases, determination must be made by tests and measurements or by analysis of a representative package such that the following criteria are met over a period of time that is twice the expected shipment time:

- (i) The hydrogen generated must be limited to a molar quantity that would be no more than 5% by volume (or equivalent limits for other inflammable gases) of the secondary container gas void if present at STP (i.e., no more than 0.063 g-moles/ft³ at 14.7 psia and 70°F); or
- (ii) The secondary container and cask cavity must be inerted with a diluent to assure that oxygen must be limited to 5% by volume in those portions of the package which could have hydrogen greater than 5%.

For any package delivered to a carrier for transport, the secondary container must be prepared for shipment in the same manner in which determination for gas generation is made. Shipment period begins when the package is prepared (sealed) and must be completed within twice the expected shipment time.

6. (b) For any package shipped within 10 days of preparation, or within 10 days after venting of drums or other secondary containers, the determination in (a) above need not be made, and the time restriction in (a) above does not apply.
7. Maximum gross weight of the contents, secondary containers, and shoring is limited to 20,000 pounds.
8. Except for close fitting contents, shoring must be placed between secondary containers and the cask cavity to minimize movement during normal conditions of transport.
9. The lid and shield plug lifting lugs must not be used for lifting the cask, and must be covered in transit.
10. The cask must be provided with either (or both) a drain line or a lid vent line as shown in the drawing in order to provide a method to leak test the package.
11. In addition to the requirements of Subpart G of 10 CFR Part 71:
 - (a) Prior to each shipment, the packaging Neoprene 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 and vent lines must be sealed with appropriate sealant applied to the pipe plug threads.
 - (b) Each packaging must meet the Acceptance Tests and Maintenance Program of:
 - Model Nos. NUPAC 14/210L and NUPAC 14/210H
 - Section 8.0 of the application.
 - Model No. CNSI 14-215H Series A
 - Chem-Nuclear Systems, Inc. Document No. CNSI 9176-S1, Rev. 1, Section 4.0.
 - Model Nos. LN 14-195L and LN 14-195H
 - LN Technologies Corporation Procedures WM-036, Rev. A; WM-026, Rev. B and; WM-013, Rev. F.
 - (c) The package shall be prepared for shipment and operated in accordance with the Operating Procedures of:
 - Model Nos. NUPAC 14/210L and NUPAC 14/210H
 - Section 7.0 of the application.

11. (c)(Continued)

Model No. CNSI 14-215H Series A
Chem-Nuclear Systems, Inc. Document No. CNSI 9176-S1, Rev. 1,
Section 3.0.

Model Nos. LN 14-195L and LN 14-195H

LN Technologies Corporation Procedures WM-025, Rev. C.

12. The ratchet binders on the cask lid must be torqued to 100±10 ft-lb.
13. The cask body and each cask lid must be marked in accordance with 10 CFR §71.85(c).
14. The packages 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.
15. The packages authorized by this certificate are hereby approved for use under the general license provisions of 10 CFR §71.12.
16. Expiration date: May 31, 1993.

REFERENCES

Nuclear Packaging Inc. application dated February 29, 1988.

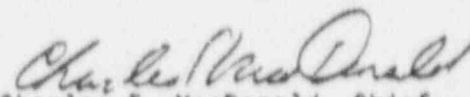
Supplement dated: April 19, 1988.

Chem-Nuclear Systems, Inc. supplements dated: February 19 and April 21, 1988.

NUS supplement dated: November 22, 1985.

LN Technologies Corporation supplement dated: February 16, 1988.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION


Charles E. MacDonald, Chief
Transportation Branch
Division of Safeguards and
Transportation, NMSS

Date: JUN 15 1988



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Transportation Branch

Approval Record

Model Nos. NUPAC 14/210L, NUPAC 14/210H, LN 14-195L,
LN 14-195H and CNSI 14/215H Series A

Docket No. 71-9176

Revision No. 6

By application dated February 29, 1988, as supplemented, Nuclear Packaging, Inc. requested renewal of Certificate of Compliance No. 9176 for the Model Nos. NUPAC 14/210L and 14/210H packages. In support of the request for renewal the applicant submitted a consolidated application which incorporated those portions of the October 29, 1982 application as supplemented (Docket No. 71-9159) pertaining to the Model Nos. NUPAC 14/210L and 14/210H packagings. The application also includes a new set of packaging drawings which address only the NUPAC 14/210L and 14/210H packagings.

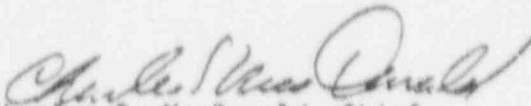
A review of the consolidated application confirmed that the application is complete and all appropriate supplement information has been incorporated. The applicant has revised the drawings and safety analysis report to permit the use of ASTM A537CL1 plate material as an alternate to the ASTM A516 GR. 70 material specification. The drawing requires that material made to either specification be normalized as recommended by NUREG/CR-1815. The drawing revisions also include small dimensional corrections and the addition of tolerances to some of the overall packaging dimensions.

By application dated February 16, 1988 LN Technologies Corporation requested renewal of Certificate of Compliance No. 9176 for the Model Nos. LN 14-195L and LN 14-195H packagings. The application included the NUS supplements referenced by the existing certificate with the exception of the information in the November 22, 1985 supplement. Since the information in the November 22, 1985 supplement was not part of the consolidated application the certificate of compliance will continue to reference the NUS document. The applicant has changed the title blocks and title pages of all NUS documentation to read "LN Technologies Corporation," including the model number, in accordance with a previous notification regarding the merger of the two companies. The certificate of compliance has been revised accordingly.

By application dated February 19, 1988, as supplemented, Chem-Nuclear Systems, Inc. requested renewal of Certificate of Compliance No. 9176 for the Model No. CNSI 14-215H Series A packaging. The application contained the packaging drawings, acceptance test, maintenance program and operating procedures. The drawings have been revised to make the torque requirement on the ratchet binder agree with the requirement in the certificate of compliance.

The certificate has been conditioned to require the packages to be prepared for shipment, operated, acceptance tested, and maintained in accordance with their respective procedures.

The certificate of compliance has been renewed for a five year term which expires May 31, 1993.


Charles E. MacDonald, Chief
Transportation Branch
Division of Safeguards and
Transportation, NMSS

Date: JUN 15 1988



CHEM-NUCLEAR SYSTEMS, INC.

140 Stoneridge Drive • Columbia, South Carolina 29210

QUALITY ASSURANCE CERTIFICATION OF TRANSPORT CASKS

Originally filed on December 21, 1978 with the NRC was a description of Chem-Nuclear Systems, Inc.'s (CNSI) Quality Assurance Program in accordance with current requirements in 10 CFR 71.101 (Subpart H).

The CNSI QA Program was initially approved by the NRC on October 26, 1979 and Approval Certificate No. 0231 was issued. The CNSI QA Program was subsequently reapproved in September, 1983, January, 1985, and January, 1990. Under this certificate, the continued use of the program is authorized.

This is to certify that the following CNSI radioactive waste transport packages were fabricated prior to January 1, 1979:

<u>CASK NOMENCLATURE</u>	<u>CNSI NAME</u>	<u>SERIAL NO. (S)</u>	<u>C OF C</u>
CNS 1-13C	CNS 1-13C	2	9081
B-2	CNS 15-160B	N/A	6144
CNS 3-55	CNS 3-55	1,2	5803
N-55	CNS 1-8	N/A	9070
CNS 6-75	CNS 6-75	1	9108
CNS 6-80-2	CNS 6-80-2	1,2,3	9111
CNS 4-85	CNS 4-85	N/A	6244
CNS 8-120A	CNS 8-120A	1	6601
CNS 14-195H	CNS 14-195H	2,4,6,7,8,9	9094
CNS 21-300	CNS 21-300	1,2,3,4,6	9096
CNS 1-13G	CNS 1-13G	1	9216

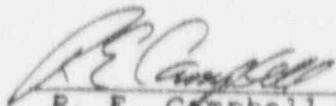
CNSI radioactive waste transport packages fabricated after January 1, 1979:

CNS 6-80-2A	CNS 6-80-2	4,5	9111
CNS 8-120A	CNS 8-120A	2,3,4,5	6601
CNS 8-120B	CNS 8-120B	1,2	9168
CNS 14-170 Series III	CNS 14-170 Series III	1,2,3,10,11	9151
WUPAC 14-190H	CNS 14-190H	1	9159
CNS 14-195H	CNS 14-195H	12,13,14,15	9094
CNS 14-215H Series A	CNS 14-215H Series A	1,2,3,4,5,6,7,8	9176
CNS 21-300	CNS 21-300	7,8,9,10,11,12,13	9096
WUPAC 14D-2.0	CNS 14-170 Series II	4,5,6,7,8,9	9079

Licensed transport packages owned by Chem-Nuclear Systems, Inc. which are certified under the provisions of 10 CFR 71 and built after January, 1979 have been/are designed, fabricated, assembled, tested, modified, maintained, and repaired in accordance with a Nuclear Regulatory Commission approved Quality Assurance Program (Docket #71-0231).

Licensed transport packages designed, fabricated, and assembled prior to January, 1979 are being tested, modified, maintained, and repaired in accordance with a Nuclear Regulatory Commission approved Quality Assurance Program (Docket #71-0231).

This letter will remain effective for a period of one (1) year or reissued as casks are modified, redesignated, added to, or deleted from the Chem-Nuclear Systems, Inc. inventory.

 10-8-90
R. E. Campbell
CNSI Quality Assurance



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAR 21 1990

SGTB:NLO
71-9168

Chem-Nuclear Systems, Inc.
ATTN: Mr. Charles R. Witt
220 Stoneridge Drive
Columbia, SC 29210

Dear Mr. Witt:

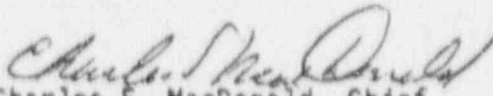
As requested by your application dated February 26, 1990, enclosed is Certificate of Compliance No. 9168, Revision No. 6, for the Model No. CNS 8-120B package. This certificate supersedes, in its entirety, Certificate of Compliance No. 9168, Revision No. 5, dated June 27, 1989.

Changes made to the enclosed certificate are indicated by vertical lines in the margin.

Those on the attached list have been registered as users of this package under the general license provisions of 10 CFR §71.12 or 49 CFR §173.471.

This approval constitutes authority to use this package for shipment of radioactive material and for the package to be shipped in accordance with the provisions of 49 CFR §173.471.

Sincerely,


Charles E. MacDonald, Chief
Transportation Branch
Division of Safeguards
and Transportation, NMSS

Enclosures:

1. Certificate of Compliance
No. 9168, Rev. 6
2. Approval Record

cc w/encl:
Mr. Michael E. Wangler
Department of Transportation

Registered Users

~~900403024118~~

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. PACKAGE IDENTIFICATION NUMBER	d. PAGE NUMBER	e. TOTAL NUMBER PAGES
9168	6	USA/9168/E(U)	1	3

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 and Transportation of Radioactive Material."
- 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. ISSUED TO *Name and Address*
- b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Chem-Nuclear Systems, Inc.
220 Stoneridge Drive
Columbia, SC 29210

Chem-Nuclear Systems, Inc. application
dated February 26, 1990.

c. DOCKET NUMBER 71-9168

4. CONDITIONS

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

5.

(a) Packaging

(1) Model No.: CNS 8-120B

(2) Description

The packaging is a carbon steel-encased, lead shielded 74-inch OD by 88-inch high cask for radioactive waste materials. The cask is a right circular cylinder with a 62-inch ID by 75-inch high cavity. The walls of the cask contain a lead thickness of 3.35 inches encased in 0.75-inch thick inner steel shell and 1-1/2-inch thick outer steel shell. The exposed sides of the package are provided with a thermal barrier consisting of a 5/32-inch diameter wire wrap on 12-inch centers and covered with a 3/16-inch thick steel jacket. The bottom weldment is made of two, 3-1/4-inch thick carbon steel plates. The primary lid is sealed with a double silicone O-ring and 20 equally spaced 2-inch diameter bolts. The 29-inch diameter centered secondary lid is sealed with a double silicone O-ring and twelve equally spaced 2-inch diameter bolts. The optional drain line is sealed with a 3/4-inch diameter cap screw and a silicone O-ring. The lid sealing surfaces are stainless steel and the space between the double O-ring seals is provided with a test port for leak testing.

The top and bottom of the cask is provided with steel encased, rigid polyurethane foam impact limiters. The impact limiters are secured to each other about the cask with eight 1-inch diameter ratchet binders. The impact limiters are 102 inches in diameter and the overall height of the package with the impact limiters attached is 132 inches.

The package is provided with four tie-down and two removable lifting devices. Each lid is provided with three lifting lugs. The gross weight of the packaging and contents is approximately 74,000 pounds.

9004050243 SA

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(a) (3) Drawings

The packaging is constructed in accordance with Chem-Nuclear Systems, Inc. Drawing No. C-110-E-0007, Sheets 1, 2 and 3, Revision H.

(b) Contents

(1) Type and form of material

- (i) Byproduct material in the form of dewatered resins, solids, or solidified waste contained within secondary container(s); or
- (ii) Radioactive material in the form of activated reactor components.

(2) Maximum quantity of material per package

Type B quantity of radioactive material, not to exceed 2,000 times a Type A quantity, 100 thermal watts, and 14,680 pounds (including weight of the contents, secondary container(s), and shoring. The contents may include fissile materials provided the mass limits of 10 CFR §71.53 are not exceeded.

6. Except for close fitting contents, wood shoring must be placed between the secondary container(s) (or activated components) and the cask cavity to prevent movement during accident conditions of transport.
7. The cask primary lid must be secured by twenty and the secondary lid by twelve, 2"-8UNC-2A x 4" long hex cap screws with a flat washer torqued to 500 ft-lbs ± 50 ft-lbs (lubricated).
8. Prior to each shipment (except for the contents meeting the requirements for low specific activity material which is transported by exclusive use vehicle), the packaging must be leak tested in accordance with Section 8.2.2.2 of the application.
9. In addition to the requirements of Subpart G of 10 CFR Part 71:
 - (i) Each package must meet the acceptance tests and be maintained in accordance with the Acceptance Tests and Maintenance program of Section 8.0 of the application, and
 - (ii) The seals must be replaced with new seals if inspection shows any defects or every 12 months, whichever occurs first. The test ports and optional drain line must be appropriately plugged and sealed prior to transport.
10. (a) For any package containing water and/or organic substances which could radiolytically generate combustible gases, determination must be made by tests and measurements or by analysis of a representative package such that the following criteria are met over a period of time that is twice the expected shipment time:

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- (i) The hydrogen generated must be limited to a molar quantity that would be no more than 5% by volume (or equivalent limits for other inflammable gases) of the secondary container gas void if present at STP (i.e., no more than 0.063 g-moles/ft³ at 14.7 psia and 70°F); or
- (ii) The secondary container and cask cavity must be inerted with a diluent to assure that oxygen must be limited to 5% by volume in those portions of the package which could have hydrogen greater than 5%.

For any package delivered to a carrier for transport, the secondary container must be prepared for shipment in the same manner in which determination for gas generation is made. Shipment period begins when the package is prepared (sealed) and must be completed within twice the expected shipment time.

- (b) For any package containing materials with a radioactivity concentration not exceeding that for low specific activity material, and shipped within 10 days of preparation, or within 10 days after venting of drums or other secondary containers, the determination in (a) above need not be made, and the time restriction in (a) above does not apply.

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: March 31, 1995.

REFERENCES

Chem-Nuclear Systems, Inc., application dated February 26, 1990

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald
 Charles E. MacDonald, Chief
 Transportation Branch
 Division of Safeguards
 and Transportation, NMSS

Date: MAR 21 1990



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APPROVAL RECORD
Model No. CNS B-120B Package
Certificate of Compliance No. 9168
Revision No. 6

By application dated February 26, 1990, Chem-Nuclear Systems, Incorporated (CNSI) requested that Certificate of Compliance No. 9168 be renewed for a five year period. CNSI reviewed Section 7.0 of the Safety Analysis Report, Operating Procedures, and Section 8.0, Acceptance Tests and Maintenance Program, and determined that they were complete and current and required no revisions. No changes to the package design were requested. CNSI provided a consolidated application which included previously approved supplements.

The Certificate of Compliance has been renewed for a five year period which expires March 31, 1995.

Charles E. MacDonald
Charles E. MacDonald, Chief
Transportation Branch
Division of Safeguards and
Transportation, NMSS

Date MAR 21 1990



CHEM-NUCLEAR SYSTEMS, INC.

140 Stoneridge Drive • Columbia, South Carolina 29210

QUALITY ASSURANCE CERTIFICATION OF TRANSPORTATION CASKS

Originally filed on December 21, 1978 with the NRC was a description of Chem-Nuclear Systems, Inc.'s (CNSI) Quality Assurance Program in accordance with current requirements in 10 CFR 71.101 (Subpart H).

The CNSI QA Program was initially approved by the NRC on October 26, 1979 and Approval Certificate No. 0231 was issued. The CNSI QA Program was subsequently reapproved in September, 1983, January, 1985, and January, 1990. Under this certificate, the continued use of the program is authorized.

This is to certify that the following CNSI radioactive waste transport packages were fabricated prior to January 1, 1979:

<u>CASK NOMENCLATURE</u>	<u>CNSI NAME</u>	<u>SERIAL NO. (S)</u>	<u>C OF C</u>
CNS 1-13C	CNS 1-13C	2	9081
B-2	CNS 15-160B	N/A	6144
CNS 3-...	CNS 3-55	1,2	5805
N-55	CNS 1-8	N/A	9070
CNS 6-75	CNS 6-75	1	9109
CNS 6-80-2	CNS 6-80-2	1,2,3	9111
CNS 4-85	CNS 4-85	N/A	6244
CNS 8-120A	CNS 8-120A	1	6601
CNS 14-195H	CNS 14-195H	2,4,6,7,8,9	9094
CNS 21-300	CNS 21-300	1,2,3,4,6	9095
CNS 1-13G	CNS 1-13G	1	9216

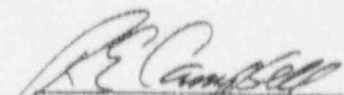
CNSI radioactive waste transport packages fabricated after January 1, 1979:

CNS 6-80-2A	CNS 6-80-2	4,5	9111
CNS 8-120A	CNS 8-120A	2,3,4,5	6601
CNS 8-120B	CNS 8-120B	1,2	9168
CNS 14-170 Series III	CNS 14-170 Series III	1,2,3,10,11	9151
NUPAC 14-190H	CNS 14-190H	1	9159
CNS 14-195H	CNS 14-195H	12,13,14,15	9094
CNS 14-215H Series A	CNS 14-215H Series A	1,2,3,4,5,6,7,8	9176
CNS 21-300	CNS 21-300	7,8,9,10,11,12,13	9096
NUPAC 14D-2.0	CNS 14-170 Series II	4,5,6,7,8,9	9079

Licensed transport packages owned by Chem-Nuclear Systems, Inc. which are certified under the provisions of 10 CFR 71 and built after January, 1979 have been/are designed, fabricated, assembled, tested, modified, maintained, and repaired in accordance with a Nuclear Regulatory Commission approved Quality Assurance Program (Docket #71-0231).

Licensed transport packages designed, fabricated, and assembled prior to January, 1979 are being tested, modified, maintained, and repaired in accordance with a Nuclear Regulatory Commission approved Quality Assurance Program (Docket #71-0231).

This letter will remain effective for a period of one (1) year or reissued as casks are modified, redesignated, added to, or deleted from the Chem-Nuclear Systems, Inc. inventory.

 10-8-90

R. E. Campbell
CNSI Quality Assurance