

Michigan Wireline Services

P.O. BOX 782 • MT PLEASANT, MI 48804-0782 • (517)772-5075

SEPTEMBER 7, 1990

LICENSE # 21-25931-01
DOCKET # 030-30694

NUCLEAR REGULATORY COMMISSION
NUCLEAR MATERIALS SAFETY SECTION 2
799 ROOSEVELT ROAD
GLEN ELLYN IL 60137

GENTLEMEN:

THIS IS OUR RESPONSE TO YOUR NOTICE OF VIOLATIONS LETTER, RESULTING FROM YOUR SAFETY INSPECTION ON JULY 26, 1990.

1. THE 100 MILLICURIE AM241-BE TEST SOURCE THAT WAS INADVERTENTLY OMITTED FROM THE APPLICATION FOR OUR LICENSE IN 1988 WILL BE CORRECTED BY APPLYING FOR AN AMENDMENT TO THE LICENSE. THIS APPLICATION WILL BE SUBMITTED TO YOU BY OCTOBER 1, 1990. WE WILL BE IN COMPLIANCE ON THE DATE OF APPROVAL OF THIS AMENDMENT.
2. PACKAGING AND TRANSPORTATION OF RADIOACTIVE MATERIAL.
 - a. THIS VIOLATION WAS CORRECTED IMMEDIATELY. WE ARE NOW INCLUDING THE PROPER HM SHIPPING NAME ON OUR SHIPPING PAPERS AND THE CORRECT IDENTIFICATION OF THE RADIONUCLIDE, THE CORRECT DESCRIPTION OF THE CHEMICAL AND PHYSICAL FORM THE LABEL CATEGORY AND THE TRANSPORT INDEX. (EXAMPLE ATTACHED)
 - b. WE HAVE REQUESTED AND RECEIVED FROM THE MANUFACTURER OF THE TRACER MATERIAL SHIPPING CARTONS AND THE SOURCE TRANSPORT CONTAINERS THE TEST AND ENGINEERING EVALUATION DATA. THESE DOCUMENTS ARE NOW IN OUR FILES. (DOCUMENTS ATTACHED)
 - c. THE TEST DATA ON THE SOURCE HOLDERS WAS REQUESTED FROM THE MANUFACTURER AND HAS NOW BEEN RECEIVED. THESE DOCUMENTS ARE NOW IN OUR FILES. (DOCUMENTS ATTACHED)

THE THREE VIOLATIONS LISTED HAVE BEEN CORRECTED AND WE ARE IN FULL COMPLIANCE AT THIS TIME.

IF THERE IS ANY QUESTIONS OR ADDITIONAL INFORMATION REQUIRED PLEASE CONTACT US. WE WILL RESPOND AS QUICKLY AS POSSIBLE.


ED CRAIN, MGR.
MICHIGAN WIRELINE

SEP 12 1990

9010020096 900921
REC3 LIC30
21-25931-01 PNU

SHIPPING CERT. & JOB MONITORING

SHIPPING TO:				SHIPPING FROM:			
Company Name:				Company Name:			
Address:				Address:			
OR				OR			
Location:				Location:			
City:		State:		City:		State:	

NATURE and QUANTITY of MATERIALS								UN#-UN2974	
RADIO-ACTIVE ISOTOPE	SERIAL NUMBER	FORM (Normal or Special)	GROUP (Normal Only)	PHYSICAL & CHEMICAL FORM	ACTIVITY (Curies)	LABEL TYPE	TRANS-PORT INDEX	TYPE A or B	READING AT 6" (mr/hr)
AM241-BE	71-1-952B	S		SOLID METAL	3C	YELLOW III	3.0	A	2.8
RADIOACTIVE MATERIAL N.O.S									
SHIPMENT PREPARED ACCORDING TO 49CFR PARTS 171 & 172									

SURVEY METER					
METER TYPE	MODEL #	SERIAL #	DATE CALIBRATED	BACKGROUND LEVEL MR/HR	

VEHICLE MONITORING BEFORE LEAVING SHOP					
BACK SIGN	FRONT SIGN	RIGHT SIGN	LEFT SIGN	CAB	

MONITORING PROCEDURE BEFORE OPERATION BEGINS			
AREA AROUND WELLHEAD	AREA AROUND CATWALK		
NEUTRON HANDLING TOOL	DENSITY HANDLING TOOL		

MONITORING PROCEDURE AFTER OPERATION ENDS			
AREA AROUND WELLHEAD *	AREA AROUND CATWALK		
NEUTRON HANDLING TOOL	DENSITY HANDLING TOOL		

VEHICLE MONITORING BEFORE LEAVING JOB SITE					
BACK SIGN	FRONT SIGN	RIGHT SIGN	LEFT SIGN	CAB	

VEHICLE MONITORING AFTER UNLOADING AT SHOP					
BACK SIGN	FRONT SIGN	RIGHT SIGN	LEFT SIGN	CAB	

PERSONNEL	SIGNIFICANT CONTAMINATION
ENGINEER	LOCATION
RIGGER	CLEANUP PROCEDURE
WITNESS	

EXTRA EQUIPMENT

THIS SHALL CERTIFY THAT THE ABOVE ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORT ACCORDING TO PARTS 171 AND 172 OF 49CFR, AND THAT ALL MONITORED LEVELS ARE TRUE.

DATE	SIGNATURE	TITLE
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SHIPPING CERT. & JOB MONITORING

SHIPPING TO:				SHIPPING FROM:			
Company Name:				Company Name:			
Address:				Address:			
OR Location:				OR Location:			
City:		State:		City:		State:	

NATURE and QUANTITY of MATERIALS								UN#-UN XXXX 2982	
RADIO-ACTIVE ISOTOPE	SERIAL NUMBER	FORM (Normal or Special)	GROUP (Normal Only)	PHYSICAL & CHEMICAL FORM	ACTIVITY (Curies)	LABEL TYPE	TRANS-PORT INDEX	TYPE A or B	READING AT XXXX (m/hr)
Iodine-131		N		ALOID, INORGANIC SALT, SOLUBLE IN WATER.	50 MIC	YELLOW III	2.5	A	50
RADIOACTIVE MATERIALS - N.O.S									

SHIPMENT PREPARED ACCORDING TO 49CFR PARTS 171 & 172

SURVEY METER					
METER TYPE	MODEL #	SERIAL #	DATE CALIBRATED	BACKGROUND LEVEL mR/hr	

VEHICLE MONITORING BEFORE LEAVING SHOP					
BACK SIGN	FRONT SIGN	RIGHT SIGN	LEFT SIGN	CAB	

MONITORING PROCEDURE BEFORE OPERATION BEGINS			
AREA AROUND WELLHEAD	AREA AROUND CATWALK		
NEUTRON HANDLING TOOL	DENSITY HANDLING TOOL		

MONITORING PROCEDURE AFTER OPERATION ENDS			
AREA AROUND WELLHEAD	AREA AROUND CATWALK		
NEUTRON HANDLING TOOL	DENSITY HANDLING TOOL		

VEHICLE MONITORING BEFORE LEAVING JOB SITE					
BACK SIGN	FRONT SIGN	RIGHT SIGN	LEFT SIGN	CAB	

VEHICLE MONITORING AFTER UNLOADING AT SHOP					
BACK SIGN	FRONT SIGN	RIGHT SIGN	LEFT SIGN	CAB	

PERSONNEL	SIGNIFICANT CONTAMINATION
ENGINEER	LOCATION
RIGGER	CLEANUP PROCEDURE
WITNESS	

EXTRA EQUIPMENT

THIS SHALL CERTIFY THAT THE ABOVE ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORT ACCORDING TO PARTS 171 AND 172 OF 49CFR AND THAT ALL MONITORED LEVELS ARE TRUE.

DATE	SIGNATURE	TITLE
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U.S. Department
of Transportation

Research and
Special Programs
Administration

400 Seventh St. S.W.
Washington D.C. 20590

IAEA CERTIFICATE OF COMPETENT AUTHORITY

Special Form Radioactive Material Encapsulation

Certificate Number USA/0078/S
(Revision 4)

This certifies that the encapsulated source, as described, when loaded with the authorized radioactive contents, has been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in IAEA 1/ and USA 2/ regulations for the transport of radioactive materials.

I. Source Description - The source described by this certificate is identified as Gulf Nuclear Model Number CSV which is doubly encapsulated in stainless steel and measures 5.0 to 25.4 mm (0.2 to 1 inch) in diameter by 12.7 to 76.2 mm (0.5 to 3 inches) in length.

II. Radioactive Contents - The authorized radioactive contents of this source consist of not more than:

<u>Radionuclide</u>	<u>Activity</u>	<u>Form</u>
Thulium-170	111GBq(3Ci)	Oxide
Cesium-137	370GBq(10Ci)	Ceramic Pellets
Cobalt-60	185GBq(5Ci)	Metal
Americium-241	74GBq(2Ci)	Oxide
Radium-226	1.85GBq(50mCi)	Sulfate

III. This certificate, unless renewed, expires April 30, 1991.

This certificate is issued in accordance with paragraph 803 of the IAEA Regulations 1/, and in response to the March 5, 1986, petition by Gulf Nuclear, Webster, Texas, and in consideration of the associated information therein.

Certified by:

Michael E. Wangler
Michael E. Wangler
Chief, Radioactive Materials Branch
Office of Hazardous Materials Transportation

7 July 1986
(Date)

1/ "Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition (As Amended)", published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

2/ Title 49, Code of Federal Regulations, Parts 170-199, USA.

Revision 4 - issued to modify contents and to extend the date of expiration.

AMERICAN NATIONAL STANDARD N542
SEALED RADIOACTIVE SOURCES
TEST RESULTS
ANSI77C56522

GNI MODEL CSV
(For oil well logging)

GULF NUCLEAR, INC.
202 MEDICAL CENTER BOULEVARD
WEBSTER, TEXAS 77598
(713) 332-3581

C O N T E N T S

1. Source Description.....1

2. Radioactive Content.....1

3. Test Procedures..... 1

 3.1 Temperature Test.....1

 3.2 External Pressure.....1

 3.3 Impact Test.....2

 3.4 Vibration Test.....2

 3.5 Puncture Test.....2

4. Witnessed..3

1. SOURCE DESCRIPTION

The source described by the report is identified as Gulf Nuclear Inc. Model number CSV for oil well logging, they are double encapsulated in stainless steel and measures 0.2 to 1 inch in diameter by 0.5 to 3 inches in length.

2. RADIOACTIVE CONTENTS

The authorized radioactive contents of this source consist of not more than 5.0 curies of Cobalt-60 as metal or Cesium-137 in ceramic fired resin pellets or Americium 241 oxide pressed pellet.

3. TEST PROCEDURE

3.1 Temperature Test

3.1.1 Performed Vacuum Bubble test using analytical reagent grade ethylene glycol, in a vacuum chamber, lowering the air content of the fluid by evacuating the chamber for at least one (1) minute and then returned to atmospheric pressure. Submerging the source capsule completely to a depth of two (2) inches below the fluid level. Reducing the pressure in the chamber to thirty (30) inches of mercury and observed for bubble(s) over a period of two (2) minutes. No bubble(s) were observed, the source is considered leak free.

3.1.2 Exposed dummy sources to -75°C for twenty (20) minutes with no apparent damage.

3.1.3 Performed vacuum bubble test - no leak. (see 3.1.1)

3.1.4 Exposed dummy source to 600°C for one hour with no apparent damage.

3.1.5 For thermal shock test, removed dummy source from oven (600°C) and subjected to 20°C . Visual examination showed no damage and slight discoloration.

3.1.6 Performed vacuum bubble test - no leak, (see 3.1.1)

3.2 External Pressure

3.2.1 Performed vacuum bubble test - no leak. (see 3.1.1)

3.2.2 Exposed dummy source to 26,000 psia - no apparent damage.

3.2.3 Performed vacuum bubble test - no leak (see 3.1.1)

3.3 Impact Test

3.3.1 Performed vacuum bubble test - no leak (see 3.1.1)

3.3.2 Struck dummy source with 300 grams from one (1) meter with no apparent damage.

3.3.3 Performed vacuum bubble test - no leak (see 3.1.1)

3.4 Vibration Test

3.4.1 Vacuum bubble test - no leak (see 3.1.1)

3.4.2 Subjected dummy source for 90 minutes to 25 to 80 Hz at 1.5 mm amp. peak to peak and 80 to 2000 Hz at 20 grams with no apparent damage.

3.4.3 Performed vacuum bubble test - no leak (see 3.1.1)

3.5 Puncture Test

3.5.1 Performed vacuum bubble test - no leak (see 3.1.1)

3.5.2 Dropped 300 gram hammer with pin attachment a distance of one meter with no apparent damage.

3.5.3 Performed vacuum bubble test - no leak (see 3.1.1)

ANSI77C56522

WITNESSED

THE ANSI77 requirement test for temperature, external pressure, impact, vibration and puncture test were witnessed by the following individuals.

J. Mike Bevill

J. Mike Bevill
Sales Representative

Paul Nixon

Paul Nixon
Cesium Laboratory
Production Supervisor

March 1983



U.S. Department
of Transportation

Research and
Special Programs
Administration

400 Seventh St. S.W.
Washington D.C. 20590

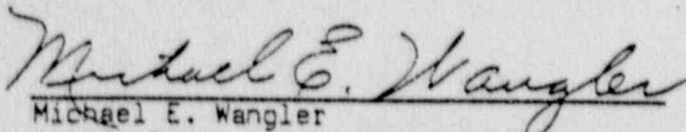
IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIAL ENCAPSULATION
CERTIFICATE USA/0114/S, REVISION 3

This certifies that the encapsulated source, as described, when loaded with the authorized radioactive contents, has been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in IAEA¹ and USA² regulations for the transport of radioactive materials.

1. Source Description - The source described by this certificate is identified as Gulf Nuclear, Inc. Model No. AmBe 71-1 which is doubly encapsulated in stainless steel and measures 19 mm (3/4") to 31 mm (1-1/4") in diameter and 25.4 mm (1") to 79 mm (3-1/8") in length. The end plugs of both the inner and outer capsule are sealed by heliarc welds. The outer capsule has a wall thickness of 1.5 mm (0.06").
2. Radioactive Contents - The maximum authorized activity of this neutron source consists of not more than 0.18 TBq (5 Ci) of americium-241. The americium is in oxide form and mixed with beryllium powder.
3. This certificate, unless renewed, expires May 31, 1993.

This certificate is issued in accordance with paragraph 803 of the IAEA Regulations¹ and 49 CFR § 173.476 of the USA Regulations and in response to the March 11, 1988, petition by Gulf Nuclear, Inc., Webster, Texas and in consideration of the associated information therein.

Certified by:



Michael E. Wangler
Chief, Radioactive Materials Branch
Office of Hazardous Materials Transportation

MAY 18 1988

(DATE)

¹"Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition", published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

²Title 49, Code of Federal Regulations, Parts 170-178, USA.

AMERICAN NATIONAL STANDARD N542

SEALED RADIOACTIVE SOURCES

TEST RESULTS

ANSI77C56522

GULF NUCLEAR, INC.

MODEL AMBE 71-1

GULF NUCLEAR, INC.
202 MEDICAL CENTER BOULEVARD
WEBSTER, TEXAS 77598
(713) 332-3181

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3.5. PUNCTURE TEST.....	2
4. WITNESSED.....	3

ANSI77C56522

1. SOURCE DESCRIPTION

The sources described by this certificate are identified as Gulf Nuclear, Inc. Model AmBe 71-1 which is doubly encapsulated in stainless steel and measures from 3/4 to 1 1/4" in diameter and from 1 to 3-1/8" long.

2. RADIOACTIVE CONTENTS

The authorized radioactive contents of this source consists of not more than 5 curies of Americium-241.

3. TEST PROCEDURE

3.1. Temperature Test

3.1.1 Performed Vacuum Bubble test using analytical reagent grade ethylene glycol, in a vacuum chamber, lowering the air content of the fluid by evacuating the chamber for at least one (1) minute and then returned to atmospheric pressure. Submerging the source capsule completely to a depth of two (2) inches below the fluid level. Reducing the pressure in the chamber to thirty (30) inches of mercury and observed for bubble(s) over a period of two (2) minutes. No bubble(s) were observed, the source is considered leak free.

3.1.2 Exposed dummy sources to -40°C for twenty (20) minutes with no apparent damage.

3.1.3 Performed vacuum bubble test - no leak (see 3.1.1)

3.1.4 Exposed dummy source to 600°C for one hour with no apparent damage.

3.1.5 For thermal shock test, removed dummy source from oven (600°C) and subjected to 20°C. Visual examination showed no damage and slight discoloration.

3.1.6 Performed vacuum bubble test - no leak, (see 3.1.1)

3.2 External Pressure

3.2.1 Performed vacuum bubble test - no leak, (see 3.1.1)

3.2.2 Exposed dummy source to 26,000 psia-no apparent damage.

3.2.3 Performed vacuum bubble test - no leak (see 3.1.1)

3.3 Impact Test

- 3.3.1 Performed vacuum bubble test - no leak
(see 3.1.1)
- 3.3.2 Struck dummy source with 5 kg from one (1)
meter with no apparent damage.
- 3.3.3 Performed vacuum bubble test - no leak
(see 3.1.1).

3.4 Vibration Test

- 3.4.1 Vacuum bubble test - no leak (see 3.1.1)
- 3.4.2 Subject dummy source for 30 minutes to
25 to 500 Hz at 5 g peak amp. with no
apparent damage.
- 3.4.3 Performed vacuum bubble test - no leak
(see 3.1.1)

3.5. Puncture Test

- 3.5.1 Performed vacuum bubble test - no leak
(see 3.1.1)
- 3.5.2 Dropped 1 gram hammer with pin attachment
a distance of one meter with no apparent
damage.
- 3.5.3 Performed vacuum bubble test - no leak
(see 3.1.1)

ANSI77C56522
Gulf Nuclear Inc.
Model AmBe 1-1
Page 3

WITNESSED:

J. Mike Bevill
J. Mike Bevill
Sales Representative

7-12-83
Dated

Paul Nixon
Paul Nixon
Cesium Laboratory
Production Supervisor

7-12-83
Dated

GNI INCORPORATED

GNC 5 Cylinder Shipping Container

I. DESCRIPTION:

A right circular cylinder shipping container for a sealed source. The container is constructed of 11 guage steel, 14 inches O.D. by 14 inches long with a cavity 3.5 inches O.D. by 9 inches long. This cavity is designed to hold different type inserts to contain different type sealed sources. Each insert has a plug between the source and the door for shielding purposes. The door for the cavity is made of steel and is secured with a locking pin and a padlock. The container and plug are both filled with a 60-40 weight percent of hydrated boric acid and polyester resin weighing approximately 11 pounds/gallon. The gross weight of the container is 130 pounds.

II. LABELING:

D.O.T. 7A Radioactive Material; proper T.I. Sticker and a serial number.

III. USES:

To transport radioactive material special form.

IV. TEST PROCEDURES:

4.1. WATER SPRAY TEST:

The water spray test preceded each following test. The tests were conducted to simulate a rainfall of 2 inches per hour for one hour.

4.1.1. VISUAL INSPECTION:

No damage to container.

4.2. FREE DROP TEST:

The container was dropped a distance of 4 feet onto a concrete slab.

4.2.1. VISUAL INSPECTION:

Minor damage was done, but the integrity of the container was not changed.

4.3. COMPRESSION TEST:

Since 5 times the weight of the container is the greater of the two conditions prescribed, the container was subjected to 700 pounds for a 24 hour period.

4.3.1. VISUAL INSPECTION:

There was no damage to the container.

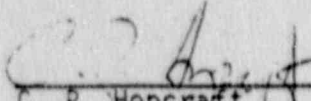
4.4. PENETRATION TEST:

A steel bar 1.25 inches O.D. X 41 inches long weighing 14 pounds was dropped a distance of 4 feet onto the container.

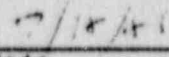
4.4.1. VISUAL INPECTION:

Very minor damage was done; the integrity of the container remained intact.

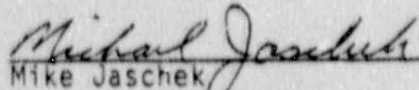
The aforementioned tests done on the GNG-5 Cylinder Shipping Container
were witnessed by:



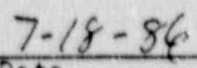
C. P. Hopcraft
Vice President



Date



Mike Jaschek
Production Manager



Date

D.O.T. CERTIFICATION

12 x 12 x12 30X

I. DESCRIPTION

12" x 12" x 12" Wax coated cardboard box, (bursting strength 160 lb./inch) cardboard pad top and bottom, with cardboard spacer to hold container in place. Package is stapled with heavy duty staples approximately 2" apart with 2" Scotch clear tape over seams when liquids are packaged.

II. INTERNAL CONTENTS

Radioactive materials normal form or radioactive materials special form, in quart cans.

III. LABELING

D.O.T. 7A, Radioactive Material NOS, or Special Form NOS, proper T.I. stickers.

IV. USES

For shipping radioactive materials.

V. TEST PROCEDURES

5.1 WATER SPRAY TEST: simulated exposure to rainfall of approximately 2 inches per hour for two hours.

5.1.1 VISUAL INSPECTION: showed no apparent damage; wax coating and tape kept water out of container.

5.2 FREE DROP TEST: measuring from the lowest point of the package to the target (unyielding surface) was 30'.

5.2.1 VISUAL INSPECTION: showed small disformation of box. Radioactive material was still in middle of package.

5.3 COMPRESSION TEST: the test lasted for 24 hour and consisted of a compressive load equivalent to 225 lbs/ft² multiplied by the vertically projected areas of the package. The load was applied to two opposite sides of the package, one of which is the base on which the package normally stands.

5.3.1 VISUAL INSPECTION: package showed no apparent damage.

5.4 PENETRATION TEST: a bar weighing 15 lbs, 1.25" in diameter with a hemispherical end was dropped onto the center of the weakest part of the package from a distance of 5.5 feet.

5.4.1 VISUAL INSPECTION: showed that the can remained in the center of the box, a slight dent in the quart can was discovered but the lead pig and bottle were undisturbed.

All of the aforementioned Test Procedures on the 12 x 12 x 12 Wax Coated
Cardboard Box were witnessed by:

Kent Vaughan
Kent Vaughan
Radiography Supervisor

5-12-83
Dated

Mike Beville
Mike Beville
Sales Representative

5-12-83
Dated

GULF NUCLEAR, INC.

GCG-2A CYLINDER

I. DESCRIPTION

CCG-2A Cylinder Container which is 9½" long with a diameter of 6" and is made of 11 gauge hot rolled mild steel and the container is lead filled weighing 85 pounds. The plug retainer is 1½" in width and 6" in diameter, also lead filled. The lid is lockable. (See Diagram)

II. LABELING

D.O.T. 7A Radioactive material NOS, proper T.I. sticker, serial number tag.

III. USES

To ship radioactive material special form.

IV. TEST PROCEDURES

4.1 Water Spray Test: simulated exposure to rainfall of approximately 2 inches per hour for 2 hours.

4.1.1 Visual Inspection: showed no damage.

4.2 Free Drop Test: measuring from the bottom of the container to the target (flat unyielding surface). The height of not less than 5.5'.

4.2.1 Visual Inspection: showed no apparent damage.

4.3 Compression Test: The test lasted for 24 hours and consisted of a compressive load equivalent to 225 lbs/ft.² multiplied by the vertically projected areas of the package. The load was applied to two opposite sides of the package, one of which the package normally stands.

4.3.1 Visual Inspection: showed no apparent damage.

4.4 Penetration Test: a bar weighing 15 lbs., 1.25" in diameter with a hemispherical end was dropped onto the center of the weakest part of the package from a distance of 3.3'.

4.4.1 Visual Inspection: showed no apparent damage.

WITNESSED:

Certification of GCG-2A Cylinder

Kent Vaughan
Kent Vaughn
Radiography Supervisor

7-22-83
Dated

Mike Bevill
Mike Bevill
Sales Representative

7-22-83
Dated