SUPERIOR INDUSTRIAL X-RAY COMPANY	QUALITY ASSURANCE PROGRAM	SECTION 7	REV. NO. 1
SIX	SHIPMENT OF RADIOACTIVE MATERIAL IN RADIOGRAPHIC EXPOSURE DEVICE	PAGE 1 OF 27	
		DATE July 10,1981	
		APPROVED BY John J. Freeman	

1. SCOPE

Superior Industrial X-Ray Company pursuant to 10 CFR 71, is responsible for shipment of radiographic material in industrial radiographic devices.

2. ORGANIZATION

a) The Radiation Protection Officer and the Quality Assurance Manager are responsible for auditing and ensuring Quality Assurance Records are maintained.

b) The Radiation Safety Training Instructor is responsible for training and certification. (See Attachment A).

c) The radiographers are responsible for handling, storing and shipping of radioactive material in radiographic exposure devices.

3. QUALITY ASSURANCE PROGRAM

a) Radiographers are trained in their responsibilities according to Superior Industrial X-Ray Company's Operating and Emergency Procedures, Section II, Rev.2, 2.3.4.

b) The Quality Assurance Program will emphasize control of characteristics of the package critical to safety.

c) Manufacturer's Certificate of Compliance from the United States Nuclear Regulatory Commission will be maintained. These include Technical Operations, Model 533, 660 and 714 radiographic exposure devices. (See Attachments B, C and D). Changers - (See Attachment E).

d) U.S.N.R.C. Certificate of Compliance for Technical Operations Model 650 source changer is also included. (See Attachment E).

4. DOCUMENT CONTROL

a) The Chief Radiographer will control all quality related activities by written instructions as stated in the Superior Industrial X-Ray Company's Radioactive Materials Manual 2.3.3.

b) Packaging, shipping and handling instructions from the manufacturer will be maintained by the Chief Radiographer. The Chief Radiographer will also ensure that quality related activities are conducted with the latest applicable drawings, instructions and procedures.

5. HANDLING, SHIPPING, TRANSPORTATION AND STORAGE

a) Radiography personnel will handle, ship, transport and store radioactive packages in accordance with the procedures in Superior Industrial X-Ray Company's Radioactive Materials Manual.

b) Radiography personnel will determine the completeness of package inspections and presence of manufacturer's certificate before shipment. (See Attachment F).

6. INSPECTIONS, SURVEYS AND MAINTENANCE REPORT

a) Daily surveys, inspections and maintenance reports on radiographic exposure devices will be maintained by the radiographer. (See Attachment G).

b) Quality inspection and maintenance reports will be maintained by the Chief Radiographer. (See Attachment H).

c) A log will be maintained by the Chief Radiographer for indicating the operating status, inspection and maintenance of radiographic exposure devices. (See Attachment I).

7. QUALITY ASSURANCE RECORDS

a) The Quality Assurance Manager will be responsible for completing the Internal Audit Reports at least quarterly. (See Attachment J).

b) The Field Manager, Chief Radiographer or Quality Assurance Manager will be responsible for completing the field audits. Field audits will be done under field conditions. (See Attachment K).

c) Any deficiency or nonconformance in either audit will be reported to the Radiation Safety Committee. The Radiation Safety Committee will institute the corrective action reports.

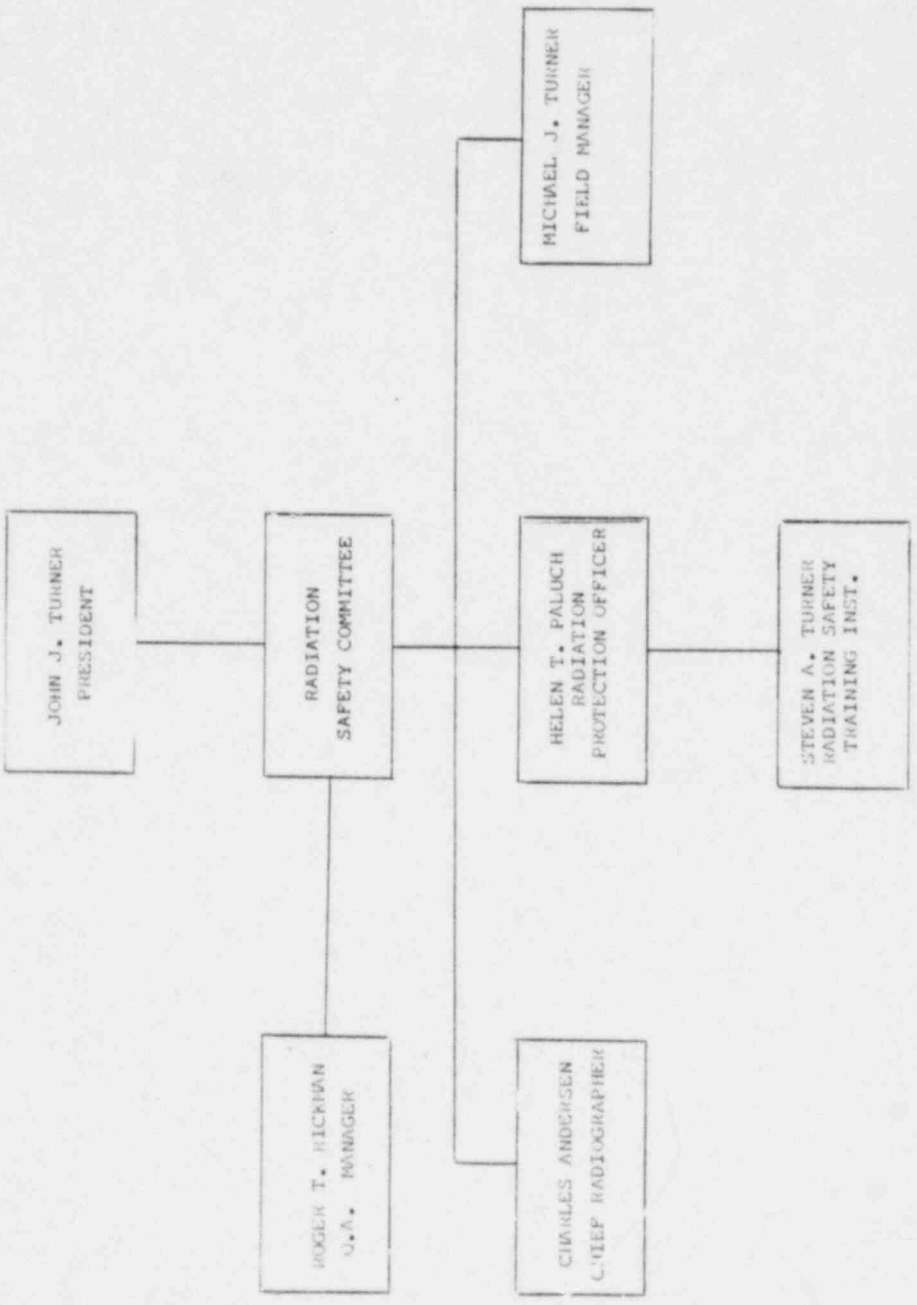
8. AUDITS

a) Audits will be performed according to predetermined checklists and frequency of audits will be based on relative significance of activity.

b) Results of these audits will be reported to management for evaluation and any deficiencies will be quickly corrected.

c) Auditor(s) will not have responsibility in the activity being audited at the particular time of audit.

ATTACHMENT A



ATTACHMENT B 1

Form NRC 618
(12-73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
9039	5	USA/9039/B( )	1	2

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.396 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 103) and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146-149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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--

3.(a) Prepared by (Name and address):
Technical Operations, Inc.
Northwest Industrial Park
Burlington, MA 01803

3.(b) Title and identification of report or application:
Technical Operations, Inc. application dated April 11, 1980.

3.(c) Docket No. 71-9039

4. CONDITIONS
This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Model No.: 715

(2) Description

A protective overpack for radiographic devices. The overpack consists of an MS-27683-2, 18-gage steel drum; 14-gage clamp closure ring fastened by a bolt; 1.5 inches of Mil-I-2781 or Mil-2819 high temperature insulation; and a molded rubberized hair filler material. Overall dimensions of the overpack are approximately 15.5-inch diameter by 24-inch high. Maximum weight including contents is 105 pounds.

(3) Drawings

The radiographic devices, as secondary packaging authorized for use in the overpack are constructed in accordance with the following Technical Operations Inc. Drawing Nos.:

Model No.	Drawing Nos.
533	D53301, Rev. B
616	D61699, Rev. O
644	D64400, Rev. I
713	C71301, Rev. O
	D53301, Rev. B

ATTACHMENT B 2

5. (b) Contents

(1) Type and form of material

Iridium-192 as sealed sources that meet the requirements of special form defined in §71.4(o) of 10 CFR Part 71.

(2) Maximum quantity of material per package

(i) 120 curies contained in the Model No. 533, Model No. 644 or Model No. 713 radiographic device.

(ii) 240 curies contained in the Model No. 616 radiographic device.

6. Source assemblies for use in this packaging are limited to those assemblies as identified in Technical Operations, Inc. Drawing No. C42400, Rev. F, Sheet 2, and Sheet 3 of 3.

7. Separate molded filters shall be used for each model type radiographic device to ensure a snug fit within the overpack.

8. Nameplates shall be fabricated of materials capable of resisting the fire test of 10 CFR Part 71 and maintaining their legibility.

The packaging authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12(b).

10. Expiration date: August 31, 1985.

REFERENCE

Technical Operations, Inc. application dated April 11, 1980.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald

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

Date: AUG 19 1980

ATTACHMENT C 1

Form NRC-618
(12-73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
9027	2	USA/9027/B( )	1	3

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.396 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 103) and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146-149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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--

3.(a) Prepared by (Name and address):

Technical Operations, Inc.
40 North Avenue
Burlington, MA 01803

3.(b) Title and identification of report or application:

Technical Operations, Inc. consolidated application dated November 29, 1979.

3.(c) Docket No. 71-9027

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Models Nos.: 741 and 741E

(2) Description

A steel encased, uranium shielded Gamma Ray Projector. Primary components consist of an outer steel shell, internal bracing, polyurethane potting material, depleted uranium shield, and a Zircalloy "S" tube. The contents are securely positioned in the Zircalloy "S" tube by a source cable locking device and shipping plug. Tamper-proof seals are provided on the packaging and a 1/4-inch thick steel shipping plate is bolted over the source locking mechanism for additional protection during transport. The total weight of the package is approximately 300 pounds.

ATTACHMENT C 2

5. (a) Packaging (continued)

(3) Drawings

The packaging is constructed in accordance with the following Technical Operations, Inc. Drawings:

74190, Sheets 1 through 5
66025, Sheets 2 and 3

(b) Contents

(1) Type and form of material

Cobalt-60 or iridium-192 as sealed sources which meet the requirements of special form as defined in §71.4(o) of 10 CFR Part 71.

(2) Maximum quantity of material per package

33 curies of cobalt-60; or
240 curies of iridium-192

6 The package authorized by this certificate is hereby approved for use under the general license provisions of Paragraph 71.12(b) of 10 CFR Part 71.

7. Expiration date: January 31, 1985.

REFERENCE

Technical Operations, Inc. consolidated application dated November 29, 1979.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald

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

Date: JAN 16 1980

ATTACHMENT D 1

Form NRC-618
(12-73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
9033	3	USA/9033/B( )	1	2

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.398 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 103) and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146-149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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

3.(a) Prepared by (Name and address):	3.(b) Title and identification of report or application:
Technical Operations, Inc. Northwest Industrial Park Burlington, Massachusetts 01803	Technical Operations, Inc. application dated November 8, 1974. 3.(c) Docket No. 71-9033

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Model Nos.: 660 and 660E

(2) Description

A steel encased, uranium shielded Gamma Ray Projector. Primary components consist of an outer steel shell, polyurethane potting material, uranium shield, Zircalloy or Titanium "S" tube, and end plugs. The contents are securely positioned in the "S" tube by a source cable locking device and shipping plug. Tamper-proof seals are provided on the packaging. The maximum total weight of the package is approximately 48 pounds.

(3) Drawings

The packaging is constructed in accordance with the Technical Operations, Inc. Drawings Nos. 66025, Rev. A, Sheets 1, 2, and 3.

ATTACHMENT 2

(b) Contents

(1) Type and form of material

Iridium-192 sources which meet the requirements of special form as defined in §71.4(o) of 10 CFR Part 71.

(2) Maximum quantity of material per package

120 curies

6. The source assembly for use with this packaging is limited to Technical Operations, Inc. Model No. A424-9 as shown in Technical Operations, Inc. Drawing No. C42400, Sheet 2 of 3, Rev. F.

7. The name plate shall be fabricated of materials capable of resisting the fire test of 10 CFR Part 71 and maintaining their legibility.

8. The package authorized by this certificate is hereby approved for use under general license provisions of Paragraph 71.12(b) of 10 CFR Part 71.

9. Expiration date: July 31, 1984.

REFERENCES

Technical Operations, Inc. application dated November 8, 1974.
Supplements dated: December 15, 1978 and June 15, 1979.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald

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

Date: JUL 25 1979

ATTACHMENT E 1

Form NRC-618
(12-73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
9032	2	USA/9032/B( )	1	2

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.396 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 1031 and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146-149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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—

3.(a) Prepared by (Name and address):

Technical Operations, Inc.
Radiation Products Division
Northwest Industrial Park
Burlington, Massachusetts 01803

3.(b) Title and identification of report or application:

Technical Operations, Inc. application dated August 8, 1979.

3.(c) Docket No. 71-9032

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Model No.: Model 650

(2) Description

A steel encased, uranium shielded, Iridium-192 source changer. Primary components consist of an outer steel shell, polyurethane potting material, uranium shield, Titanium "U" tube, and source holdown assembly. The source holdown assembly secures the source assembly in position within the crimped "U" tube. Tamper-proof seals and a padlock are provided on the packaging. Total weight of the package is approximately 70 pounds.

(3) Drawings

The packaging is constructed in accordance with the Technical Operations, Inc. Drawing No. 65002, Rev. A, Sheets 1, 2 and 3 of 3.

ATTACHMENT E 2

5. (b) Contents

(1) Type and form of material

Iridium-192 as sealed sources which meet the requirements of special form as defined in §71.4(o) of 10 CFR Part 71.

(2) Maximum quantity of material per package

240 Curies

6. The source shall be secured in the shielded position of the packaging by the source assembly. The source assembly must be fabricated of materials capable of resisting a 1475°F fire environment for one-half hour and maintaining their positioning function. The cable of the source assembly must engage the source holdown assembly. The flexible cable of of the source assembly must be of sufficient length and diameter to provide positive positioning of the source at the crimp of the "U" tube.

7. The nameplates shall be fabricated of materials capable of resisting the fire test of 10 CFR Part 71 and maintaining their legibility.

8. The package authorized by this certificate is hereby approved for use under the general license provisions of Paragraph 71.12(b) of 10 CFR Part 71.

9. Expiration date: September 30, 1984.

REFERENCE

Technical Operations, Inc. application dated August 8, 1979.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald, Chief
Transportation Certification Branch
Office of Nuclear Material
Safety and Safeguards

Date: SEP 17 1979

SUPERIOR INDUSTRIAL X-RAY COMPANY	QUALITY ASSURANCE PROGRAM	SECTION 7	REV. NO. 1
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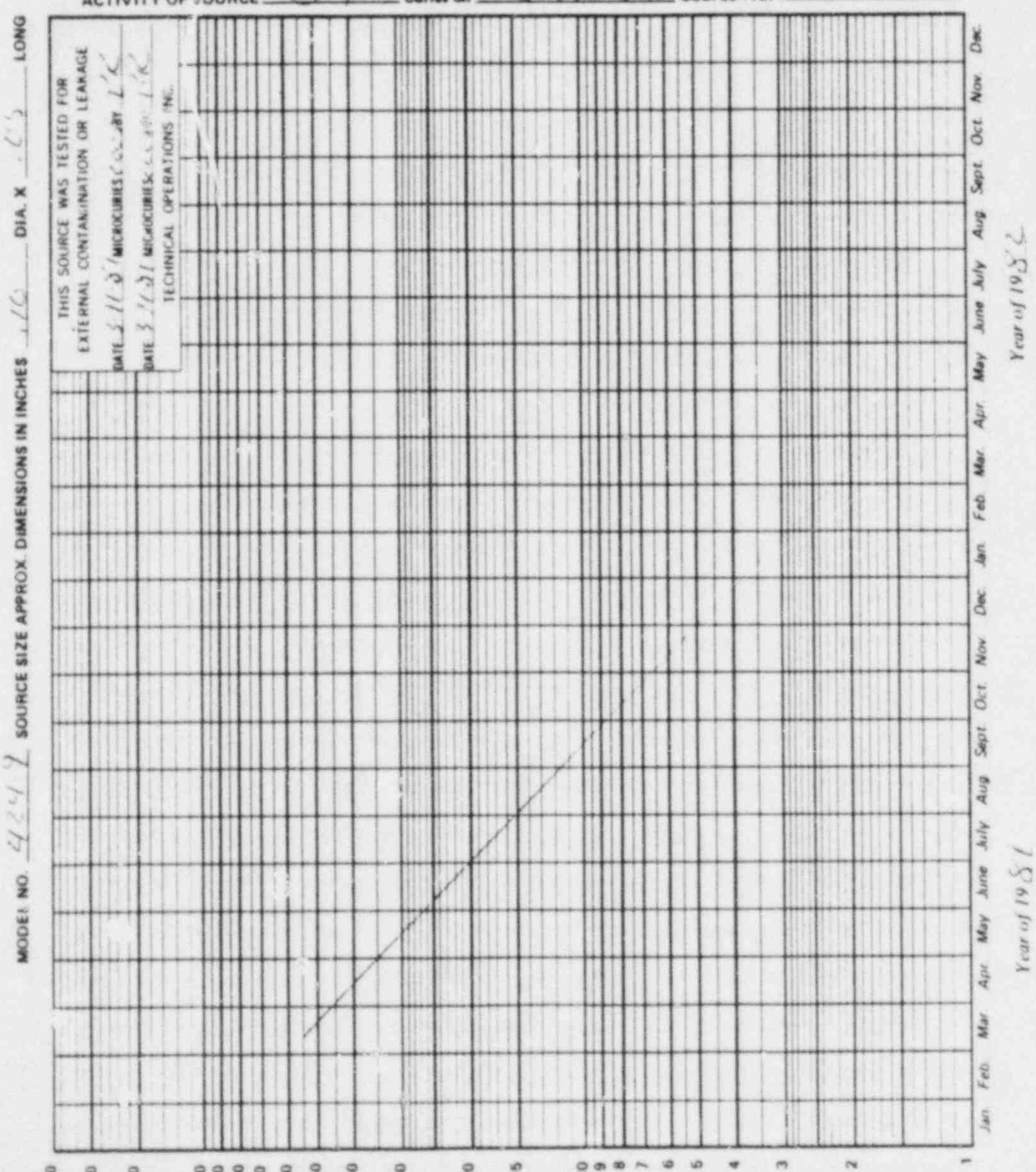
		DATE July 10,1981	
		APPROVED BY John J Turner	

ATTACHMENT F 1

TECHNICAL OPERATIONS, INC. NORTH AVENUE, BURLINGTON, MASS.
IRIDIUM 192 SOURCE DECAY CHART

ACTIVITY OF SOURCE 54 Curies on 3-11-81 Source No. 9140



ATTACHMENT F 2

RADIATION PRODUCTS DIVISION
TECHNICAL OPERATIONS, INCORPORATED
40 NORTH AVENUE • WATS LINE 800-225-1383
BURLINGTON, MASSACHUSETTS 01803
PHONE (617) 273-3000

INVOICE
No. 15735

SOLD TO:

Superior Industrial X-Ray
126th and Rossen Ave.
Blue Island, IL 60406

SHIP TO:

SAME

INVOICE DATE	CUSTOMER ACCOUNT NO.	DESTINATION	AEC LICENSE NO.
	33260	IL-05	12-02370-01

DATE RECEIVED	CUSTOMER ORDER NO.	TERMS	F.O.B.	NR	X
3-10-81		NET 30 DAYS	BURLINGTON, MASS.		

QUANTITY ORD.	QUANTITY S.O.	MODEL NO.	DESCRIPTION	QUANTITY SHIPPED	UNIT PRICE	PRODUCT CODE	NET AMOUNT
1	0	50 ci	Ir-192, SN 9140, 54 Ci A424-9-460	1			
1	0	650	DE Source Changer, SN 222 on loan	1			
			Radioactive II Labels				
			Transport Index 0.8				
			Conf. Mallen to Dottie Daly				
			Fed. Express				

SCHED. SHIP DATE	DATE SHIPPED	CARRIER	COLLECT / PREPAID
3-11-81	3/12/81	0147657904	COLLECT X / PREPAID ☐

(IMPORTANT: REMITTANCE INSTRUCTIONS)

Make all checks payable to Technical Operations and mail to:
Technical Operations, Inc.
RADIATION PRODUCTS DIVISION
40 North Avenue
Burlington, Massachusetts 01803

70 C3

Survey of Shipping Container

Received on 3/13/81

Indicated 2.0 mr's on surface

and _____ mr's at 36" from surface

Checked by Roger Cochran

PACKING SLIP

ATTACHMENT F 3

N.D.E. WORK REQUEST

Customer: _____ Date Called: _____ Date Work Needed: _____

Starting Time From Shop: _____ Number Of Men: _____ Work Order Number: _____

Person Requesting Work: _____ Phone: _____ Report To: _____

N.D.E. Method: _____ Code: _____ Job Duration: _____

Pipe DIA: _____ Material Thickness: _____ Number Of Welds/Pieces _____

Job Location And Directions: _____

_____

_____

_____

Remarks: _____

_____

_____

Assigned Personnel: _____

ATTACHMENT F 4

SHIPPING PAPERS

A/C 312/389-5100

SUPERIOR INDUSTRIAL X-RAY CO.

126TH & HOMAN AVENUE, BLUE ISLAND, ILLINOIS

RADIOACTIVE DEVICE – NOS DATE _____

NO. of PACKAGES	DESCRIPTION	MATERIAL	CURIES
_____	MODEL 533	IRIDIUM-192	_____
_____	MODEL 660	IRIDIUM-192	_____
_____	MODEL 741	COBALT-60	_____

Special Form Material
Radioactive Yellow III (Label Applied)
Transport Index _____ mr/hr at 3 feet
Type "B" Package

The **RADIOACTIVE MATERIALS** listed above are owned by **Superior Industrial X-Ray Company** located at 126th & Homan Avenue, Blue Island, Illinois 60406 under FEDERAL N.R.C. LICENSE No. 12-2370-1.

The **MATERIAL** listed is in **SOLID SATE** encapsulated by Technical Operations, Inc., Burlington, Massachusettes for purposes of **INDUSTRIAL RADIOGRAPHY**. This **MATERIAL** is being transported as a tool in a **COMPANY VEHICLE** to and from temporary job sites.

The **SHIPPING CONTAINER** is a **LICENSED** and **APPROVED PROJECTOR** properly labeled as **CLASS 7 MATERIALS.**

ATTACHMENT G 1

SUPERIOR INDUSTRIAL X-RAY COMPANY

UTILIZATION LOG

NAME ____________________ MONTH __________ __________ YEAR __________

LOCATION	DATE	SOURCE STRENGTH	POT NUMBER	REEL NUMBER	METER NUMBER	INSPEC. OF EQUIPMENT-DAILY CHECK	EXPOSURES	TOTAL TIME IN MINUTES	SURVEY OF AREA MR's AT BOUNDARY	POT SURVEY AFTER LOCKING	DOSIMETER READING AT END OF DAY	OPERATORS INITIALS

ATTACHMENT G 2

SUPERIOR INDUSTRIAL X-RAY COMPANY

DAILY TRUCK UTILIZATION LOG

NAME ______________________ MONTH ______________ YEAR __________

DATE	TRUCK	READING in mr's CAB	READING in mr's left/side	READING in mr's right/side	READING in mr's BACK	OPERATORS INITIALS

ATTACHMENT H 1

QUARTERLY INSPECTION OF REEL ASSEMBLY

REEL SERIAL #_____

1st QUARTER DATE INSPECTED_____

		S	U
Hand crank mechanism --------	freedom of operation ----------		
Drive gear box ----------	wear - lubricati ----------		
Control conduit ----------	cuts-wear-dents ----------		
Drive control cable ---------	dirt-wear-kinks ----------		
Drive control connector -----	wear-alignment ----------		

Comments_____

INSPECTOR_____ DATE DUE_____

2nd QUARTER DATE INSPECTED_____

Hand crank mechanism --------	freedom of operacion ----------		
Drive gear box ----------	wear - lubrication ----------		
Control conduit ----------	cuts - wear - dents ----------		
Drive control cable ---------	dirt - wear - kinks ----------		
Drive control connector -----	wear - alignment ----------		

Comments_____

INSPECTOR_____ DATE DUE_____

3rd QUARTER DATE INSPECTED_____

Hand cranck mechanism --------	freedom of operation ----------		
Drive gear box ----------	wear - lubrication ----------		
Control Conduit ----------	cuts - wear - dents ----------		
Drive control cable ---------	dirt - wear - kinks ----------		
Drive control connector ------	wear - alignment ----------		

Comments _____

INSPECTOR_____ DATE DUE_____

4th QUARTER DATE INSPECTED_____

Hand cranck mechanism --------	freedom of operation ----------		
Drive gear box ----------	wear - lubrication ----------		
Control conduit ----------	cuts - wear - dents ----------		
Drive control cable ---------	dirt - wear - kinks ----------		
Drive control connector ------	wear - alignment ----------		

Comments_____

INSPECTOR_____ DATE DUE_____

ATTACHMENT H 2

RADIOGRAPHIC EQUIPMENT INSPECTION CHECK

MAKE_____MODEL_____SERIAL NUMBER_____

1st QUARTER DATE INSPECTED_____

EXPOSURE DEVICE	COMPLETENESS & GENERAL CONDITION	S	U
Handle	attached & secured-ripped-torn		
Handle studs	looseness - must be tight		
Source outlet	wear-dents-threads		
Lock and lock plunger	freedom of oper. must turn by hand		
Case shield	dents-cracks-proper handling		
Source pigtail connector	alignment-wear-frayed cable strands		
Safety plug	wear-dirt-frayed cable strands		
Connector cap	wear		

INSPECTOR_____DATE DUE_____

2nd QUARTER DATE INSPECTED_____

Handle	attached & secured-ripped-torn		
Handle studs	looseness - must be tight		
Source outlet	wear-dents-threads		
Lock and lock plunger	freedom of oper.must turn by hand		
Case shield	dents-cracks-proper handling		
Source pigtail connector	alignment-wear-frayed cable strands		
Safety plug	wear-dirt-frayed cable strands		
Connector cap	wear		

INSPECTOR_____DATE DUE_____

3rd QUARTER DATE INSPECTED_____

Handle	attached & secured-ripped-torn		
Handle studs	looseness - must be tight		
Source outlet	wear-dents-threads		
Lock and lock pluger	freedom of oper.must turn by hand		
Case shield	dents-cracks-proper handling		
Source pigtail connector	alignment-wear-frayed cable strands		
Safety plug	wear-dirt-frayed cable strands		
Connector cap	wear		

INSPECTOR_____DATE DUE_____

4th QUARTER DATE INSPECTED_____

Handle	attached & secured-ripped-torn		
Handle studs	looseness - must be tight		
Source outlet	wear-dents-threads		
Lock and lock plunger	freedom of oper.must turn by hand		
Case shield	dents-cracks-proper handling		
Source pigtail connector	alignment-wear-frayed cable strands		
Safety plug	wear-dirt-frayed cable strands		
Connector cap	wear		

INSPECTOR_____DATE DUE_____

ATTACHMENT I 1

QUARTERLY REEL INSPECTION RECORD

REEL #	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	REMARKS
#1					
#2					
#3	retired				
#4	retired				
#5					
#6	retired				
#7	retired				
#8					
#9					
#10					
#11					
#12					
#13					
#14					
#15					
#16					
#17					
#18					
#19					
#20					
#21					

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ATTACHMENT I 2

QUARTERLY POT INSPECTION RECORD

POT #	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	remarks
# 1490					
# 267					
# 276					
# 297					
# 307					
# 340					
# 442					
# 448					
# 500					
# 2547					
# 151					

SUPERIOR INDUSTRIAL X-RAY COMPANY SIX	QUALITY ASSURANCE PROGRAM	SECTION 7	REV. NO. 1
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		DATE July 10,1981	
		APPROVED BY John J Furman	

ATTACHMENT J 1

SUPERIOR INDUSTRIAL X-RAY COMPANY SIX	RADIOACTIVE MATERIALS MANUAL	SECTION 6	REV. NO. 2
	MANAGEMENT & ADMINISTRATIVE PROCEDURES	PAGE 2 OF 3	
		DATE August 27, 1979	
		APPROVED BY John J Furman	

INTERNAL AUDIT CHEC .IST

	YES	NO	CORRECTIVE ACTION
1. Are the Operating and Emergency Pro-dures up-to-date?	—	—	_____
2. Are all radiographic personnel's ex-amination records up-to-date?	—	—	_____
3. Has the Radiation Protection Officer administer control and corrective action in an emergency situation?	—	—	_____
4. Has he reviewed the Field Managers field audits and taken corrective action if needed?	—	—	_____
5. Are his records as to receipt of the Radiation and Safety Control Manual complete and up-to-date?	—	—	_____
6. Has he seen to it that all the respon-sibilities delegated to him have been carried out in accordance with appli-cable NRC Regulations?	—	—	_____
7. Are the records describing the procure-ment and disposal of by-product material current and up-to-date?	—	—	_____
8. Are storage facilities adequate and pro-perly maintained?	—	—	_____
9. Is leak testing system and maintenance of records properly performed?	—	—	_____
10. Are all radiographic materials given a quarterly inventory and properly docu-mented?	—	—	_____

SUPERIOR INDUSTRIAL X-RAY COMPANY	QUALITY ASSURANCE PROGRAM	SECTION 7	REV. NO. 1
SIX	SHIPMENT OF RADIOACTIVE MATERIAL IN RADIOGRAPHIC EXPOSURE DEVICE	PAGE 24	OF 27
		DATE July 10,1981	
		APPROVED BY John J Furnus	

ATTACHMENT J 2

SUPERIOR INDUSTRIAL X-RAY COMPANY	RADIOACTIVE MATERIALS MANUAL	SECTION 6	REV. NO. 2
SIX	MANAGEMENT & ADMINISTRATIVE PROCEDURES	PAGE 3	OF 3
		DATE August 27, 1979	
		APPROVED BY John J Furnus	

INTERNAL AUDIT CHECKLIST - cont'd:

		YES	NO	CORRECTIVE ACTION
11.	Are all survey meters calibrated quarterly and properly documented?	___	___	_____
12.	Is the radiation badge system adequate, properly posted and documented?	___	___	_____
13.	Are utilization logs fully completed, current and up-to-date?	___	___	_____
14.	Is all equipment in working order?	___	___	_____
15.	Are all survey meters in working order and within calibration period?	___	___	_____
16.	Are field audits performed at quarterly intervals?	___	___	_____
17.	Are field audits properly documented?	___	___	_____
18.	Are all deficiencies noted in field audits corrected?	___	___	_____

COMMENTS:

_____

_____

_____
Quality Assurance Manager

DATE_____

ATTACHMENT K 1

FIELD INSPECTION
FOR
RADIATION SAFETY & QUALITY ACCEPTANCE

RADIOGRAPHER_____ DATE_____

LOCATION_____

A. Radiation Safety and Compliance	Items checked and approved
1. Survey Meter	
a. Calibration date _____	a._____
b. Proper use _____	b._____
c. Working order_____	c._____
2. Personnel Monitors	
a. Film badge worn properly _____	a. _____
b. Dosimeter worn properly _____	b. _____
3. Documentations	
a. Utilization log _____	a._____
b. Truck log _____	_____
4. Radiation Area	
a. Proper surveillance _____	a. _____
b. Ropes and/or signs _____	b. _____
c. Radiation levels in accordance with Operating and Emergency Procedures _____	c. _____
d. Source locked after each exposure _____	d. _____
5. Forms and Procedures	
a. N.R.C. License _____	a. _____
b. CFR-10 Parts 19,20 & 34_____	b. _____
c. Company Operating and Emergency Procedures _____	c. _____

ATTACHMENT K 2

FIELD INSPECTION cont'd:

6. Equipment Condition

a.	Collimator	a.	
b.	Pot	b.	
c.	Source guide tubes	c.	
d.	Reel, crank, & cables	d.	

7. Vehicle

a. Properly posted "CAUTION RADIOACTIVE MATERIALS" _____

b. Properly posted "RADIOACTIVE SIGNS" _____

c. Source back in vehicle _____

8. Comments on Inspection and General Work Habits

_____

_____

_____

B. 1. Facilities

a. Chemicals, date of change, temperature _____ Check if acceptable

b. Film type _____ Expiration date _____

c. Shims, similar radiographically _____

d. Lead screens, crimped, worn, oxidized _____

2. Penetrameters Check if acceptable

a. Identification, material size _____

b. Type _____ Acceptable to code _____

c. Plastic cut off _____

3. Procedure

a.	Radiographic Procedure	a.	
b.	Radiation Source acceptable	b.	

ATTACHMENT K 3

FIELD INSPECTION cont'd:

		Check if acceptable
4.	Radiographic Quality	
	a. Film density	a.
	b. Sensitivity	b.
	c. No. of film per weld	c.
	d. Numbering & lettering acceptable	d.
	e. Film water marks, fingerprints, dirt, light leaks, chemical leaks	e.
5.	Documentation	
	a. Radiographers records and reports	a.
	b. Records of repairs, welds shot and to be shot	b.

6. Comments

Approved by _____

Date _____

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