

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 030-04405/93001(DRSS)

Docket No. 030-04405

License No. 13-72416-01 Priority 5 Category E2 Program Code 03620

Licensee: Department of the Army
U.S. Army Jefferson Proving Ground
Madison, IN 47250

Inspection At: Jefferson Proving Ground

Inspection Conducted: January 12, 1993

Inspector: D. R. Gibbons
D. R. Gibbons
Radiation Specialist

February 3, 1993
Date

Approved By: B. J. Holt
B. J. Holt, Chief
Nuclear Materials Inspection
Section 1

2/3/93
Date

Inspection Summary

Close-out Inspection on January 12, 1993 (Report No. 030-04405/93001(DRSS))

Areas Inspected: Announced, close-out inspection limited to confirming the disposition of licensed material. The inspection consisted of selective examination of representative records, independent measurements and interviews with personnel.

Results: No violations of NRC requirements were identified. Licensed material was properly disposed of as described in the NRC Form 314 enclosed with the licensee's letter dated August 10, 1992 (Attachment A).

DETAILS

1. Persons Contacted

*Mr. Bruce Cantwell - Acting Director of Material Testing
*Mr. Richard Herring - Radiation Protection Officer
Mr. Goebel Bowling, Jr. - Field Technologist

*Present at exit meeting.

2. Program Summary and Inspection History

Licensed activities have been performed on at least three occasions since the license was first issued on August 30, 1967. The licensed material (scandium-46) was used as radioactive tracers to locate inert ammunition components to assure 100% recovery of artillery dispersed items. The tracers were essential for complete recovery in a wooded area, or in heavy ground cover. The impact area at this facility was at the edge of a wooded area with a heavy vegetation ground cover. Section 5. of this report describes licensed activity in more detail.

This was the first inspection of this license, although a routine safety inspection was attempted on November 29, 1989. The inspectors were informed that radioactive material authorized by this license was not currently possessed, nor had any radioactive material been possessed for approximately ten years, and that there were no plans to procure radioactive material under this license in the near future.

3. Receipt and Transfer of Licensed Material

Receipt and transfer records of licensed material from 1968 through December 2, 1976 were reviewed (Attachment A). The records indicated that all of the scandium-46 received during that period was accounted for and returned to the manufacturer for disposal.

No violations were identified.

4. Independent Measurements

A radiation survey of three empty storage containers revealed no radiation above background level. The containers were used to store the Sc-46 after retrieval and prior to return to the manufacturer. The survey was performed with a Ludlum Model 3 survey instrument last calibrated on August 29, 1992.

No violations were identified.

5. Interviews with Personnel

Two individuals involved with licensed activities in 1974 and 1976 were interviewed and relayed the following information to the inspector.

- The Sc-46 was in the form of irradiated screws with original activity of 0.5 to 1.0 mCi (Attachment B).
- The screws were used as tracers in explosive shells of varying sizes.
- Each explosive shell contained 8 to 15 Sc-46 tracers, and was fired from artillery pieces to an impact area 5 to 6 miles from the gun.
- All of the tracers from each shell were retrieved before another shell was fired.
- The tracers were stored after retrieval for at least 900 days prior to disposal.
- All personnel wore film badges supplied by the army, and followed the Standard Operating Procedures submitted with their license applications.

A review of the film badge records revealed the following:

37 personnel wore film badges during the 1968-1969 test series. The maximum exposure for that series was 243 millirem extremity dose (wrist badge), and 80 millirem whole body.

- 27 personnel wore badges in the 1973-1974 series with a maximum exposure of 93 millirem extremity dose and 44 millirem whole body dose.
- 20 personnel wore badges during the 1974-1976 series with a maximum of 430 millirem extremity dose, and 388 whole body dose.

No violations were identified.

6. Exit Meeting

The results of the inspection were discussed with the individuals listed in Section 1 of this report. The inspector informed them that no violations of NRC requirements were identified during the inspection. No proprietary information was discussed during this inspection.

Attachments:

1. A - Receipt and Disposal Records
2. B - Drawing Describing Sc-46 Screw
3. C - Form NRC 314 Dated August 10, 1992

DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGCEN.

REFERENCE OR OFFICE SYMBOL

SUBJECT

-TD-E

Shipment of Radioactive Material

TO THRU Director, MTD
C, F&A Ofc
TO C, Safety Ofc
ATTN: Mr. Hubbard

FROM Test Engr Div

DATE 2 Dec 76

CMT 1

1. Reference Picatinny Arsenal DT-2 AMCPM-SA5.
2. Request shipment of 250 each radioactive screws original activity 1.0MCI Scandium sealed source received at JPG for referenced test.
3. Address shipment to: International Chemical and Nuclear Corporation, 2727 Campus Drive, Irvine, California, 92664.
4. Authority for shipment received at JPG by Mr. J. Black from Mr. J. Grogan, PA, at 1250 hrs 2 Dec 76 by telecon on file.
5. Transportation cost is chargeable to:

2172020 067-8756 P728010-220 512040
27286010/11/0000/900000/520G

Concurrence of C, F&A requested on this paper.

James Black
JAMES BLACK
Test Engr Div

CF:

C, Test Engr Div
C, F&A Ofc
C, Range Op Div
C, Supply Div
C, Safety Ofc
Transportation Off

12 November 1970

RADIOACTIVE MATERIALS MOVEMENT
[X] SHIPMENT [] RECEIPT

STEJP-SO

15 December 1976

SUBJECT: Notification of Transfer of Unwanted Byproduct Material

THRU: Commander
US Army Test and Evaluation Command
ATTN: DRSTE-ST
Aberdeen Proving Ground, MD 21005

TO: Commander
US Army Materiel Development and Readiness Command
ATTN: DRCSF-P
5001 Eisenhower Avenue
Alexandria, VA 22333

1. Shipping Installation: US Army Jefferson Proving Ground, Madison, Indiana, License number 13-12416-01.
2. Description of Material: Scandium ⁴⁶
Radioactive Screws, Sc⁴⁶ in accordance with Picatinny Arsenal sketch.
3. Original Quantities: 250 Screws (1.0 mCi per each).
Received 26 April 1976 from ICN Pharmaceuticals, Inc, 2727 Campus Drive, Irvine, California. California State License number 1132-59.
4. Date Shipped: 15 December 1976.
5. Quantity Shipped: 250 Screws, total 250 mCi.
6. Receiving Installation: ICN Pharmaceuticals, Inc, 2727 Campus Drive, Irvine, CA, ATTN: Mr. H. B. Carter.

FOR THE COMMANDER:

WARREN S. HUBBARD
RAD Protection Officer

10. BY
11. BY
12. OR

DA FORM

12 November 1970

RADIOACTIVE MATERIALS MOVEMENT					
<input checked="" type="checkbox"/> SHIPMENT <input type="checkbox"/> RECEIPT <small>For use of this form, see AR 55-55, the proponent agency is Office of the Deputy Chief of Staff for Logistics.</small> <small>(SEE INSTRUCTIONS ON REVERSE.)</small>					
DETAILS OF SHIPMENT					
1. TO: (Include ZIP Code) ICN Pharmaceuticals, Inc. 2727 Campus Drive Irvine, CA 92715			2. FROM: (Include ZIP Code) Commander US Army Jefferson Proving Ground Mauison, IN 47250		
3. SHIPMENT NUMBER GAL K-3104631		4. SECURITY CLASSIFICATION UNCLAS		5. MODE OF SHIPMENT (i.e., Railway Express) LTL O.K. TRUCKING CO.	
6. COMMODITY DESCRIPTION			7. RADIOACTIVITY		
CONTAINERS	NUMBER OF ITEMS	NOMENCLATURE	QUANTITY, ISOTOPE AND FORM	8. LEVEL	
a	b	c	d	AT SURFACE	AT ONE METER
1	250	Screws, Magnetic set radioactive, in foil.	250mCi, Scandium -46, Solid - Sealed	5.0mR Hr.	0.2mR Hr.
SHIPMENT THE ABOVE DESCRIBED ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED, AND LABELED. THE ARTICLES ARE IN PROPER CONDITION FOR TRANSPORTATION AND THE SPREADABLE ACTIVITY AND DOSE RATES ARE WITHIN THE SPECIFIED LIMITS, AS PRESCRIBED BY APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND DEPARTMENT OF THE ARMY.					
9. REMARKS					
SHIPPING DOCUMENT MUST STATE:					
9. SPECIAL PRECAUTIONS 1. Screws, socket head, modified radioactive. 2. Scandium -46. Solid - Sealed Sources. 3. Group III. 4. 250mCi. 5. Yellow label III applied. 6. Transport Index 5. 7. This is to certify that the above named articles are properly classified and described, marked, packed and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.					
10. SIGNATURE OF RADIATION PROTECTION OFFICER (Shipping Organization)				DATE	
<i>Robert L. Hubbard</i>				15 Dec 76	
11. SIGNATURE OF TRANSPORTATION OFFICER (Shipping Organization)			GRADE AND TITLE		DATE
<i>Mary T. Hamard</i>					15 Dec 76
12. ORGANIZATION					

DA FORM 2791-R, 1 Oct 70

 REPLACES DA FORM 2791, 1 JUN 64, WHICH IS OBSOLETE.
 (Paper size, 8" x 10 1/2"; image size, 7-4/10" x 10")

 Front
 Figure 3-7. DA Form 2791-R.

12 November 1970

RADIOACTIVE MATERIALS MOVEMENT					
<input type="checkbox"/> SHIPMENT			<input checked="" type="checkbox"/> RECEIPT		
For use of this form, see AR 55-55; the proponent agency is Office of the Deputy Chief of Staff for Logistics. (See instructions on reverse.)					
DETAILS OF SHIPMENT					
1. TO: (Include ZIP Code)			2. FROM: (Include ZIP Code)		
			ICN Pharmaceuticals, Inc. 2727 Campus Drive Irvine, California 92715		
3. SHIPMENT NUMBER		4. SECURITY CLASSIFICATION		5. MODE OF SHIPMENT (i.e., Railway Express)	
20085		None		Commercial Truck	
6. COMMODITY DESCRIPTION			7. RADIOACTIVITY		
CONTAINERS	NUMBER OF ITEMS	NOMENCLATURE	QUANTITY, ISOTOPE AND FORM	8. LEVEL	
				AT SURFACE	AT ONE METER
1	250	Screws, Magnetic Set Radioactive In Foils (Each Screw Consists Of 1.0 mCi Sc 46 Sealed Sources Original Activity)	250 mCi Scandium 46 Solid - Sealed	10 mR/Hr	20 mR/Hr
SHIPMENT THE ABOVE DESCRIBED ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED, AND LABELED. THE ARTICLES ARE IN PROPER CONDITION FOR TRANSPORTATION AND THE SPREADABLE ACTIVITY AND DOSE RATES ARE WITHIN THE SPECIFIED LIMITS, AS PRESCRIBED BY APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND DEPARTMENT OF THE ARMY.					
9. REMARKS					
10. SPECIAL PRECAUTIONS					
11. SIGNATURE OF RADIATION PROTECTION OFFICER (Shipping Organization)				DATE	
12. SIGNATURE OF TRANSPORTATION OFFICER (Shipping Organization)				GRADE AND TITLE	
13. ORGANIZATION				DATE	

DA FORM 2791-R, 1 Oct 70

REPLACES DA FORM 2791, 1 JUN 64, WHICH IS OBSOLETE.
 (Paper size, 8" x 10 1/2"; Image size, 7-4/10" x 10")

Front
 Figure 3-7. DA Form 2791-R.

26 Apr 1976

RADIOACTIVE MATERIALS MOVEMENT					
<input checked="" type="checkbox"/> SHIPMENT <input type="checkbox"/> RECEIPT <small>For use of this form, see AR 55-55; the proponent agency is Office of the Deputy Chief of Staff for Logistics.</small>					
DETAILS OF SHIPMENT					
1. TO: (Include ZIP Code) International Chemical Nuclear Corp 2727 Campus Drive ATTN: Mr. Harold Carter Irvine, California 92664			2. FROM: (Include ZIP Code) US Army Jefferson Proving Ground Madison, Indiana 47250 JPG License #AEC 13-12416-01		
3. SHIPMENT NUMBER GBLK-8394149		4. SECURITY CLASSIFICATION Unclassified		5. MODE OF SHIPMENT (i.e., Railway Express) LTL	
6. COMMODITY DESCRIPTION			7. RADIOACTIVITY		
CONTAINERS #	NUMBER OF ITEMS #	NOMENCLATURE	QUANTITY, ISOTOPE AND FORM #	8. LEVEL	
				AT SURFACE	AT ONE METER
1	55	Screws Magnetic Set Radioactive In Foil	.055 Ci Sc46 Solid (Original Activity)	20 mRs	1.5mRs
	*516	Screws Magnetic Set Radioactive In Foil	.258 Ci Sc46 Solid (Original Activity)		
SHIPMENT THE ABOVE DESCRIBED ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED, AND LABELED. THE ARTICLES ARE IN PROPER CONDITION FOR TRANSPORTATION AND THE SPREADABLE ACTIVITY AND DOSE RATES ARE WITHIN THE SPECIFIED LIMITS, AS PRESCRIBED BY APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND DEPARTMENT OF THE ARMY.					
9. REMARKS Transport Index 2. Yellow Label III Applied *Each of these Screws originally contained 0.5 mCi Sc 46. They have been in Static Storage at JPG 943 Days.					
10. SPECIAL PRECAUTIONS					
11. SIGNATURE OF RADIATION PROTECTION OFFICER (Shipping Organization) <i>Harold S. Hubbard</i>				DATE 3 Dec 1974	
12. SIGNATURE OF TRANSPORTATION OFFICER (Shipping Organization) <i>Mary F. Harward, T.O.</i>				GRADE AND TITLE DATE 20 Dec 74	
13. ORGANIZATION					

DA FORM 2791-R, 1 Oct 70

 REPLACES DA FORM 2791, 1 JUN 64, WHICH IS OBSOLETE.
 (Paper size, 8" x 10 1/2"; Image size, 7-4/10" x 10")

 Front
 Figure 3-7. DA Form 2791-R.

12 November 1970

RADIOACTIVE MATERIALS MOVEMENT					
<input checked="" type="checkbox"/> SHIPMENT <input type="checkbox"/> RECEIPT <small>For use of this form, see AR 55-55; the proponent agency is Office of the Deputy Chief of Staff for Logistics.</small> <small>(See instructions on reverse.)</small>					
DETAILS OF SHIPMENT					
1. TO: (Include ZIP Code) International Chemical Nuclear Corp 2727 Campus Drive ATTN: Mr. Harold Carter Irvine, California 92664			2. FROM: (Include ZIP Code) US Army Jefferson Proving Ground Madison, Indiana 47250 JPG License #AEC 13-12416-01		
3. SHIPMENT NUMBER GBLK-8394148		4. SECURITY CLASSIFICATION Unclassified		5. MODE OF SHIPMENT (i.e., Railway Express) LTL	
6. COMMODITY DESCRIPTION			7. RADIOACTIVITY		
CONTAINERS	NUMBER OF ITEMS	NOMENCLATURE	QUANTITY, ISOTOPE AND FORM	8. LEVEL	
A	B	C	D	AT SURFACE	AT ONE METER
1	55	Screws Magnetic Set Radioactive In Foil	.055 Ci Sc46 Solid (Original Activity)	20 mRs	1.5mRs
	*516	Screws Magnetic Set Radioactive In Foil	.258 Ci Sc46 Solid (Original Activity)		
SHIPMENT THE ABOVE DESCRIBED ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED, AND LABELED. THE ARTICLES ARE IN PROPER CONDITION FOR TRANSPORTATION AND THE SPREADABLE ACTIVITY AND DOSE RATES ARE WITHIN THE SPECIFIED LIMITS, AS PRESCRIBED BY APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND DEPARTMENT OF THE ARMY.					
8. REMARKS Transport Index 2. Yellow Label III Applied *Each of these Screws originally contained 0.5 Ci Sc 46. They have been in Static Storage at JPG 943 Days.					
9. SPECIAL PRECAUTIONS					
10. SIGNATURE OF RADIATION PROTECTION OFFICER (Shipping Organization)				DATE	
<i>Thomas L. Stullard</i>				2 Oct 74	
11. SIGNATURE OF TRANSPORTATION OFFICER (Shipping Organization)				GRADE AND TITLE	
<i>Mary F. Harward, T.O.</i>				DATE	
				2 Oct 74	
12. ORGANIZATION					

DA FORM 2791-R, 1 Oct 70

 REPLACES DA FORM 2791, 1 JUN 64, WHICH IS OBSOLETE.
 (Paper size, 8" x 10 1/2"; image size, 7-4/10" x 10")

 Front
 Figure 3-7. DA Form 2791-R.

-12

MR. CARTER
 PLEASE SIGN ON BACK WHERE INDICATED
 AND RETURN IN ENCLOSED ENVELOPE

file

12 November 1970

RADIOACTIVE MATERIALS MOVEMENT					
<input checked="" type="checkbox"/> SHIPMENT <input type="checkbox"/> RECEIPT					
For use of this form, see AR 55-35; the proponent agency is Office of the Deputy Chief of Staff for Logistics.					
1. TO: (Include ZIP Code)					
2. FROM: (Include ZIP Code)					
3. SHIPMENT NUMBER					
4. SECURITY CLASSIFICATION					
5. MODE OF SHIPMENT (i.e., Railway Express)					
COMMODITY DESCRIPTION			RADIOACTIVITY		
CONTAINERS	NUMBER OF ITEMS	DESCRIPTION	QUANTITY, ISOTOPE AND FORM	LEVEL	
				AT SURFACE	AT ONE METER
1	55	Screws Magnetic Set Radioactive In Foil	.055 Ci Sc46 Solid (Original Activity)	20 mRs	1.5mRs
	*516	Screws Magnetic Set Radioactive In Foil	.258 Ci Sc46 Solid (Original Activity)		

SHIPMENT
 THE ABOVE DESCRIBED ARTICLES ARE PROPERLY CLASSIFIED, PACKAGED, MARKED, AND LABELED. THE ARTICLES ARE IN PROPER CONDITION FOR TRANSPORTATION AND THE SPREADABLE ACTIVITY AND DOSE RATES ARE WITHIN THE SPECIFIED LIMITS, AS PRESCRIBED BY APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND DEPARTMENT OF THE ARMY.

8. REMARKS
 Transport Index 2. Yellow Label III Applied
 *Each of these Screws originally contained 0.5 mCi Sc 46. They have been in Static Storage at JPG 943 Days.

9. SPECIAL PRECAUTIONS

10. SIGNATURE OF RADIATION PROTECTION OFFICER (Shipping Organization)

11. SIGNATURE OF TRANSPORTATION OFFICER (Shipping Organization)

12. ORGANIZATION

DATE

DATE

GRADE AND TITLE

DA FORM 2791-R, 1 Oct 70

REPLACES DA FORM 2791, 1 JUN 64, WHICH IS OBSOLETE.
 (Paper size, 8" x 10 1/2"; image size, 7-4/10" x 10")

Front
 Figure 3-7. DA Form 2791-R.

REQUISITION AND INVOICE/SHIPPING DOCUMENT

1. FROM: US Army Jefferson Proving Ground Madison, Indiana 47250		SHEET NO. 1		NO. OF SHEETS 1		5. REQUISITION DATE 1 OCT 74		8. REQUISITION NUMBER	
2. TO: International Chemical Nuclear Corporation 2727 Campus Drive Irvine, California 92664		7. DATE MATERIEL REQUIRED 10 OCT 74		6. AUTHORITY OR PURPOSE DE dtd 24 Sep 74 Fm T&S		9. PRIORITY 04		11. VOUCHER NUMBER AND DATE W53HZB-4274-0704	
3. SHIP TO - MARK FOR JPG License #AEC 13-12416-01 License No. Calif State License #1132-59 ATTN: Mr. Carter		12. DATE SHIPPED 2 OCTOBER 1974		13. MODE OF SHIPMENT O.K. TRUCKING CO. C% IML FREIGHT LTL		14. BILL OF LADING NUMBER K-8394149		15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.	

4. APPROPRIATION SYMBOL AND SUBHEAD 2152020 67-8750 P720000-220 S12040 35721403/01/0000/140000/520G		OBJECT CLASS 1	EXPENDITURE ACCOUNT From To		CHARGEABLE ACTIVITY	BUREAU CONTROL ACTIVITY NO.	BUREAU CONTROL NO.	AMOUNT \$12.75 MIN
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ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CONTAINER NOS. (f)	CON-TAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1.	SCREWS RADIOACTIVE (Each Screw consists of 1.0 mCi. Sc. 46 sealed sources - Original Activity)	Ea		55			N/A	N/A
2.	SCREWS RADIOACTIVE (Each Screw consists of .0.5 mCi. Sc. 46 sealed sources - Original Activity)	Ea		516			N/A	N/A
Screws contained in Lead Container								

16. TRANSPORTATION VIA MATS OR MATS CHARGEABLE TO

17. SPECIAL HANDLING

ISSUED BY	TOTAL CONTAINERS	TYPE CONTAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE	CONTAINERS RECEIVED EXCEPT AS NOTED	DATE	BY	SHEET TOTAL
CHECKED BY	1	BX	L-15" W-12" H-15"	100	1.56	QUANTITIES RECEIVED EXCEPT AS NOTED	DATE	BY	GRAND TOTAL
PACKED BY	1		TOTAL	100	1.56	FOOTED	DATE	BY	10. RECEIVER'S VOUCHER NO.

RM 1149

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

REQUISITION AND INVOICE/SHIPPING DOCUMENT

1. FROM: US Army Jefferson Proving Ground
Madison, Indiana 47250

2. TO:

International Chemical Nuclear Corporation
2727 Campus Drive
Irvine, California 92664

3. SHIP TO - MARK FOR

JPG License #AEC 13-12416-01

License No. Calif State License #1132-59
ATTN: Mr. Carter

4. APPROPRIATION SYMBOL AND SUBHEAD

2152020 67-8756 P720000-220 S12040
35721403/01/0000/140000/520G

OBJECT
CLASS

EXPENDITURE ACCOUNT

(From)

(To)

CHARGEABLE
ACTIVITYBUREAU CONTROL
ACTIVITY NO.BUREAU
CONTROL NO.

AMOUNT

\$12.75 MIN

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CON- TAINER (f)	CON- TAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1.	SCREWS RADIOACTIVE (Each Screw consists of 1.0 mCi. Sc. 46 sealed sources - Original Activity)	Ea		55			N/A	N/A
2.	SCREWS RADIOACTIVE (Each Screw consists of 0.5 mCi. Sc. 46 sealed sources - Original Activity)	Ea		516			N/A	N/A
Screws contained in Lead Container								

16. TRANSPORTATION VIA MATS
OR MATS CHARGEABLE TO17. SPECIAL
HANDLING

18. ISSUED BY	TOTAL CONTAINERS	TYPE CON- TAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE	19. CONTAINERS RECEIVED EXCEPT AS NOTED	DATE	BY	SHEET TOTAL
	1	BX	L-15" W-12" H-15"	100	1.56				
CHECKED BY						QUANTITIES RECEIVED EXCEPT AS NOTED	DATE	BY	GRAND TOTAL
PACKED BY						POSTED	DATE	BY	20. RECEIVER'S VOUCHER NO.
	1		TOTAL	100	1.56				

1149

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

TOTALS MOVEMENT

4152020 67 8756 P720000-220 S12040 35721403/01/0000/140000/520G

DISPOSITION FORM

(AR 340-15)

REFERENCE OR OFFICE SYMBOL

TD-S

SUBJECT

Shipment of Radioactive Screws

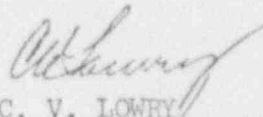
TO THRU Dir, Materiel Testing
TO C, Safety Ofc
ATTN: Mr. Hubbard

FROM C, TS&A Div

DATE 27 Apr 72

CMT 1

1. Reference Picatinny Arsenal TPR DW-1333, Addendum 1.
2. Request shipment of 164 each radioactive screws original activity .5 mCi scandium 46 sealed source received at JPG for referen d test.
3. Authority for shipment is contained in Addendum 2 to PA TPR DW-1333, dated 24 Feb 72.
4. Address shipment to International Chemical & Nuclear Corp., 2727 Campus Drive, Irvine, California.
5. Transportation cost is chargeable to 31721002/01/0780/348000/52CG 2122020 067-8756 P720000-52CG S12040.



C. V. LOWRY
C, Test Scheduling & Analysis Div

CF
C, Test Engr Div
C, Engr Test Br
C, Tech Test Support Div
C, Munitions Rec Br
C, Supply Div
Transportation Ofc
C, Finance & Acctg Div

DA FORM 2496

REPLACES DD FORM 36, EXISTING SUPPLIES OF WHICH WILL BE ISSUED AND USED UNTIL 1 FEB 63 UNLESS SOONER EXHAUSTED. U.S. GOVERNMENT PRINTING OFFICE: 1963 O-707-511

DISPOSITION FORM

(AR 240-15)

REFERENCE OR OFFICE SYMBOL

SUBJECT

TD-U

Shipment of Radioactive Screws

TO THRU: STEJP-SO

FROM

TD&A Div

DATE: 10 May 1972

TO: STEJP-SO

SUBJECT: Notification of Transfer of Unwanted Byproduct Material

1. Reference Picatinny Arsenal TPR DW-1325, Addendum 1.

THRU: Commanding General
U.S. Army Test and Evaluation Command
ATTN: AMSTE-ST
Aberdeen Proving Ground, Maryland 21005

TO: Commanding General
U.S. Army Materiel Command
ATTN: AMCSF-P
Washington, D. C. 20315

1. Shipping Installation: Jefferson Proving Ground, Madison, Indiana,
License number 13-12416-01.

2. Description of Material: Scandium ⁴⁶
Radioactive Screws, Sc⁴⁶ In accordance with Picatinny Arsenal sketch.

3. Original Quantities:
164 Screws, .5 mCi each, received 23 September 1971 from Picatinny Arsenal,
License number BNL 29-00047-02.

4. Date Shipped: 9 May 1972.

5. Receiving Installation: International Chemical Nuclear Corporation,
2727 Campus Drive, Irvine, California 92664, ATTN: Mr. Merle Layport,
California State License number 1132-59.

FOR THE COMMANDER:

SIGNED

WARREN S. HUBBARD
RAD Protection Officer

DA Form 2-486

Shipped 1 May 72

1. Reading File

2. Safety Office Files
608-11

Signature

Reg # 4483

~~RESTRICTED~~

AMCSF-P

AMSTE-ST (18 Oct 71) 5th Ind
SUBJECT: Loss of Radioactive Sources

MrStarkey/pd/870-2170

Headquarters, US Army Test and Evaluation Command, Aberdeen Proving
Ground, Maryland 21005 2 DEC 1971

TO: Commanding General, US Army Materiel Command, ATTN: AMCSF-P,
Washington, D. C. 20315

1. The restricted JPG test area was visited on 22-23 Nov 71 by the
TECOM Health Physicist, who attempted unsuccessfully to locate the
lost source with a Baird Atomic Scintillation Survey Meter, Model
904-148.
2. The last of the lost sources was found by JPG personnel on 1 Dec 71.
3. Observations and comments of JPG operations are as follows:
 - a. Area is completely isolated and protected by an anti-personnel
fence in good repair.
 - b. A large portion of target area is marshy. A Sc-46 tagged
ammunition component could sink into the ground thereby causing
difficulty in detection and recovery of lost components.
 - c. The survey meters used by JPG were equal to or better than
the above Model 904-148 Baird Atomic meter.
4. Since JPG receives assembled test rounds from Picatinny Arsenal
and it is impractical to disassemble these rounds to perform a leak
test on each source, it is requested that your office consider waiving
the five-day leak test, JPG requirement, noted in para 2Op, AMCR 385-25.
To comply with AEC requirements, JPG will in the future retain a
certificate stating that sources were leak tested by manufacturer prior
to shipment.

FOR THE COMMANDER:

3 Incl
nc

Roger J. Lehwil
ROGER J. LEHWILL
Chief, Safety Office

~~RESTRICTED~~

file
~~RESTRICTED~~
WHILE SEPARATED FROM
ORIGINAL RECORDS
(4th Ind)

STEJP-50

18 October 1971

SUBJECT: Notification of Transfer of Unwanted Byproduct Material

THRU: Commanding General
U.S. Army Test and Evaluation Command
ATTN: AMSTE-ST
Aberdeen Proving Ground, Maryland 21005

TO: Commanding General
U.S. Army Materiel Command
ATTN: AMCSF-P
Washington, D. C. 20315

1. Shipping Installation: Jefferson Proving Ground, Madison, Indiana, License number 13-12416-01.
2. Description of Material: Scandium ⁴⁶
Radioactive Screws, Sc ⁴⁶ in accordance with Picatinny Arsenal sketch.
3. Original Quantities:
90 Screws, .5 mc each received 22 September 1971 from Picatinny Arsenal, License number BNL 29-00047-02.
4. Date Shipped: 18 October 1971.
5. Quantity Shipped: 5 Screws, TOTAL 2.5 mc.
6. Receiving Installation: International Chemical Nuclear Corporation, 2727 Campus Drive, Irvine, California 92664, ATTN: Mr. Merle Layport, California State License Number 1132-59.

FOR THE COMMANDER:

SIGNED

WARREN S. HUBBARD
RAD Protection Officer

Safety Office Files

608-11

free
fig

TD-EY

Disposition of Radioactive Tags, Correction to DF
dated 4 Nov 70, due to incorrect license number

//TERR: MTP

Eng. Test Br.

1 Dec 70

TO: Radiation Protection Officer, Bldg. 116

Mr. Roberts/ma/3115

1. The following radioactive material, Scandium 46, now on hand under AEC License No. 13-12416-01 is described as follows:

Quantity	Type	Original Activity (Milli-curie)			Received by JPO	
		Each	Total	Half Life	From	Date
741	Screw	.5	370.5	85 days	Picatinny Arsenal	24 Sep 70

2. 735 sources 367.5 milli-curie have been accounted for after use in conducting test this Proving Ground. Six (6) sources .5 milli-curie each were lost in vegetation during test. A limited number of sources ruptured during test and are separately wrapped in adhesive.

3. Request shipment of radioactive material, Scandium 46, in solid form for disposal as per TCR-DM-301-79, to:

International Chemical Nuclear Corp.
2727 Campus Dr.
Irvine, California 92614
License No. Calif. State License No. 1132-59
ATTN: Mr. Merle Leyport

4. Funds to cover cost are available under local work order No. 497919.
Charge shipment to 497919/33300/33309/34709.

5. Disposal of above material is authorized by Warren Hubbard, Radiation Protection Officer, Jefferson Proving Ground, Madison, Indiana, AEC License No. 13-12416-01. (Expires October 1972).

HAMMIE S. ROBERTS
Eng. Test Br.

DISTRIBUTION:

Material Test Directorate
Test Engineering Div.
Nominations Rec., Insp. & Distr. Br.
Test Scheduling & Analysis Div.
Transportation Officer, Mary Howard
& Copies, AEC
Verna Hancock, Bldg. 106
File

STEJP-SO

10 December 1970

SUBJECT: Notification of Transfer of Byproduct Material for Disposal

Commanding General
U. S. Army Materiel Command
ATTN: AMCAD-SE, Mr. P. Edwards
Washington, D.C. 20315

1. Shipping Installation: Jefferson Proving Ground, Madison, Indiana,
License number 13-12416-01.

2. Description of Material: Scandium 46

Radioactive Screws, Sc⁴⁶ in accordance with Picatinny Arsenal sketch.

3. Original Quantities:

741 Screws of 1/2 millicurie each received from Picatinny Arsenal,
License number BNL 29-00047-02, 24 September 1970.

TOTAL: 370.5 millicuries.

4. Date Shipped: 10 December 1970.

5. Receiving Installation: International Chemical Nuclear Corporation,
2727 Campus Drive, Irvine, California 92664, Attn: Mr. Merle Layport.
California state license number 1132-59.

FOR THE COMMANDER:

SIGNED

WARREN S. HUBBARD
Radiation Protection Officer

CF:

CG, USATECOM, ATTN: AMSTE-ST, Mr. J. E. Starkey

4. Battery file
2. Safety Office Files
608-11

See
file



DEPARTMENT OF THE ARMY
JEFFERSON PROVING GROUND
MADISON, INDIANA 47250

TEPO

STEJP-AD-S

SUBJECT: Notification of Transfer of Byproduct Material for Disposal

Commanding General
U. S. Army Materiel Command
ATTN: AMCAD-SE, Mr. P. Edwards
Washington, D.C. 20315

1. Shipping Installation: Jefferson Proving Ground, Madison, Indiana,
License number 13-12416-01.

2. Description of Material: Scandium 46

Radioactive Tags, Sc^{46} encapsulated between 2 layers of aluminized mylar.
Radioactive Screws, Sc^{46} in accordance with Picatinny Arsenal sketch.

3. Original Quantities:

1500 Screws of 1/2 millicurie each received from Picatinny Arsenal,
License number BNL 29-00047-02, 11 September 1967.

100 Screws of 1 millicurie each received from Tracerlab, License number
20-1382-14, 18 January 1968.

600 Tags of 1 millicurie each received from Tracerlab, License number
20-1382-14, 18 January 1968.

TOTAL - 1.5 curie.

4. Date Shipped: 11 September 1968.

5. Receiving Installation: Tracerlab, Division of LFE, Inc., 1601
Trapelo Road, Waltham, Massachusetts, 02154, License number 20-1382-14.

FOR THE COMMANDER:

Warren S. Hubbard
WARREN S. HUBBARD
Radiation Protection Officer

CF:
CG, USATECOM, ATTN: AMSTE-AD-S, Mr. J. E. Starkey

ST.

608-11

[Handwritten signature]

13 SEP 1968

SAFETY & SURVEILLANCE DIVISION FILE CY

STEJP-AD-S

DEPARTMENT OF THE ARMY
JEFFERSON PROVING GROUND

SUBJECT: Notification of Transfer of Byproduct Material for Disposal

Commanding General
U. S. Army Materiel Command
ATTN: AMCAD-SE, Mr. P. Edwards
Washington, D.C. 20315

1. Shipping Installation: Jefferson Proving Ground, Madison, Indiana,
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FOR THE COMMANDER:

SIGNED

WARREN S. HUBBARD
Radiation Protection Officer

CF:
CG, USATECOM, ATTN: AMSTE-AD-S, Mr. J. E. Starkey

WARREN S. HUBBARD
Radiation Protection Officer

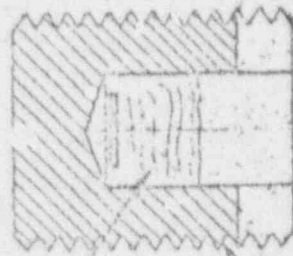
CF:
CG, USATECOM, ATTN: AMSTE-AD-S, Mr. J. E. Starkey

1. Reading File
2. Safety & Surveillance File Cy
1-809

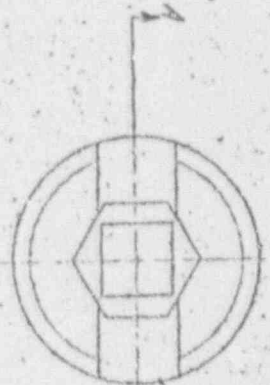
MATERIAL: STEEL
SUGGESTED SOURCE: ALLEN SCREW CO.
HARTFORD, CONN.

SCREW, RADIOACTIVE

SECTION A-A 1.0 AND OR 0.5 MILLICURIE LEVEL FOIL TO BE APPROXIMATELY 1/16" X 1/16" X .006.



#8-32NF HEADLESS HEX HD SET SCREW



SCALE 10:1

ATTACHMENT C

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY DAIB
3150-0076
EXPIRES 12-31-88NRC Form 334
(11-82)
10 CFR 30.36(h)(1)(iv)
10 CFR 40.42(h)(1)(iv)
10 CFR 70.38(h)(1)(iv)

CERTIFICATE OF DISPOSITION OF MATERIALS

(All items MUST be completed, please print)

LICENSEE NAME AND ADDRESS

Commander
U.S. Army Jefferson Proving Ground
Madison, Indiana 47250-5100

LICENSE NUMBER

13-12416-01

LICENSE EXPIRATION DATE

30 April 1993

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT: (Check and/or complete the appropriate item(s) below.)

A. MATERIALS DATA (Check one and complete, as necessary)

- ☐ 1. NO MATERIALS HAVE EVER BEEN POSSESSED OR PROCURED BY THE LICENSEE UNDER THIS LICENSE.
- OR
- ☐ 2. ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN TRANSFERRED ON

DATE

TO

WHICH HAS NRC LICENSE NUMBER

- OR
- ☒ 2. ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSEE UNDER THE LICENSE NUMBER CITED ABOVE HAVE BEEN TRANSFERRED ON

DATE

TO International Chemical and Nuclear Corporation

2727 Campus Drive, Irvine, CA

WHICH HAS LICENSE NUMBER

ISSUED BY THE STATE OF

15 December 1976

1132-59

California

AN AGREEMENT STATE PURSUANT TO SECTION 274 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED, AND THE ENERGY REORGANIZATION ACT OF 1974.

- OR
- ☐ 4. MATERIALS HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. (Describe specific disposal procedures—if additional space is needed, use the reverse of this form, or provide attachments)

B. OTHER DATA

- ☒ 1. OUR LICENSE HAS NOT YET EXPIRED; PLEASE TERMINATE IT.
- ☐ 2. WAS A RADIATION SURVEY CONDUCTED TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE? (Check one)
- ☐ NO
- ☒ YES, THE RESULTS (Check one)
- ☐ ARE ATTACHED, OR
- ☐ WERE FORWARDED TO NRC ON (Date)

3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM

NAME

Mr. Richard H. Herring, Radiation Protection Officer

TELEPHONE NUMBER

(812) 273-7303

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO

Commander, U.S. Army Jefferson Proving Ground, ATTN: Mr. Richard H. Herring
Madison, Indiana 47250-5100

RETURN TO:

DIRECTOR, DIVISION OF FUEL CYCLE AND MATERIAL SAFETY
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555

CERTIFYING OFFICIAL

SIGNATURE



DATE

10 AUG 82

PRINTED NAME AND TITLE

Ronald J. Benick

Colonel, U.S. Army, Commanding Officer

CONTROL NO.

93840