from Steve

E G & G 3/19/93

-PACKING LIST-

FRONTIER TECHNOLOGY CORPORATION
1641 Burnett Drive, Xenia Ohio 45385 * tel: 513/376-5691

Sold to:
E G & G IDAHO, INC.
P/O NO. C 93 807845.2
(208) 526-0166
P.O. BOX 1625
IDAHO FALLS, ID 83415-3117

Ship to:
E G & G IDAHO INC. FOR THE U.S.D.O.E.
IDAHO NATIONAL ENGINEERING LAB.
SCOVILLE, ID 83415
ORDER NO. C 93 807845

Shipped via FEDERAL EXPRESS Date shipped: 03/19/93 FOB: Xenia, OH

SOURCE DATA: as of 03/18/93

Serial No.	Model No.	Content(ug)	Output(n/s)	Contamination/100 cm^2 (per source)
FTC-CF-Z431	Z100	4.4	1.0×10^7	alpha$<9 \times 10^{-6}$uCi beta/gamma$<45 \times 10^{-6}$uCi

SHIPPING CONTAINER: US-DOT 7A Type A
Model 50240 s/n 124 Weight 45 lbs. Seal# FTC

Radiation level (mrem/hr):	surface	at one meter	
gamma	10	.2	
neutron	45	4.0	
TOTAL	55	4.2	(TI)

Survey Instruments Used: Gamma RO2 287 Neutron PNR4 1004
Contamination level: alpha$<9 \times 10^{-6}$uCi/100cm^2
beta/gamma$<45 \times 10^{-6}$uCi/cm^2

NOTICE: A radiation safety specialist should be present when this container is opened.

CERTIFICATIONS

SPECIAL FORM: At the time of shipment the sources in this shipment met the requirements for special form.

LEAK TEST: The sources in this shipment have passed the helium bubble pressure leak test.

CERTIFICATE OF ORIGIN: The Cf-252 neutron sources, Frontier Technology Corporation Model Z100, s/n FTC-CF-Z431 and the Type A shipping package, FTC Model 50240 s/n 124 are the product of the United States of America.

The products covered by this document are certified to meet the requirements of the contract.

SHIPMENT APPROVALS:

QC _____ Date: March 19, 1993

Health Physics _____ Date: March 19, 1993

SHIP 50240 124

FRONTIER TECHNOLOGY CORPORATION
RADIOACTIVE SOURCE SHIPMENT SURVEY RECORD

Date: March 19, 1993

A. Source Data

1. Type of source: Cf-252
2. Quantity of sources: 1
3. Type of radiation emitted: neutron, gamma
4. Source identification: FTC-CF-Z431

B. Shipping Package Data

1. Type A
2. Model No. 50240 S/N 124
3. Approximate weight 45 lbs.

C. Radiological Control

1. Container Survey - contamination, microcuries/100 cm^2
   Outer Surface: alpha $<9 \times 10^{-6}$
   beta/gamma $<45 \times 10^{-6}$

2. Container Survey - radiation, mrem/hr

	Surface	1 meter from surface	
Gamma	10	.2	
Neutron	45	4.0	
Total	55	4.2	*

*=transport index when rounded to next higher tenth, 49CFR173.389(i)
Survey instruments used: Gamma: RO2 287
Neutron: PNR4 1004

D. Name and address of shipper:

FRONTIER TECHNOLOGY CORPORATION
1641 Burnett Drive
Xenia, Ohio 45385 U.S.A.

tel: 513/376-5691

E. Name and title of person generating form: Treva L. Janzow
Projects Manager

SHIP 50240 124

FRONTIER TECHNOLOGY CORPORATION
RADIOACTIVE SOURCES LEAK TEST CERTIFICATE

CURRENTLY, STATE AND FEDERALLY ISSUED RADIOACTIVE MATERIALS LICENSES DEFINE A SEALED RADIATION SOURCE AS LEAKING IF REMOVABLE CONTAMINATION IS FOUND ON THE SOURCE IN EXCESS OF 0.005 MICROCURIES.

THIS IS TO CERTIFY THAT THE FOLLOWING LISTED SOURCES HAVE BEEN TESTED FOR REMOVABLE SURFACE CONTAMINATION WITH THE LEVEL OF REMOVABLE CONTAMINATION OBSERVED ON THE SOURCE SURFACE BEING AS LISTED BELOW.

METHOD OF TEST:

[X] DRY WIPE TEST PER PARAGRAPH A2.1.2 OF AMERICAN NATIONAL STANDARD N542; SEALED RADIOACTIVE SOURCES, CLASSIFICATION (ANSI STANDARD N542-1977, NBS HANDBOOK 126).

[ ] OTHER (DESCRIBE):

SOURCE DESCRIPTION	ISOTOPE	CONTENT (micrograms @ 03/18/93):
FTC-CF-Z431	Cf-252	4.4

TEST FOR: ALPHA, BETA/GAMMA

REMOVABLE SURFACE CONTAMINATION (MICROCURIES):

alpha $<9 \times 10^{-6}$ uCi/100 cm^2

beta/gamma $<45 \times 10^{-6}$ uCi/100 cm^2

FROM THE RECORDED RESULTS THERE IS NO INDICATION OF LEAK IN THE SOURCE.

SIGNED BY: Treva L. Janzow

DATES: March 19, 1993

PRINTED NAME: TREVA L. JANZOW
TITLE: PROJECTS MANAGER

FRONTIER TECHNOLOGY CORPORATION
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