

OFFICIAL RECORD COPY MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		In accordance with the application dated January 31, 1997	
1.	Cumberland River Coal Company	47-25204-01	
		3. License Number	
		is amended in its entirety to read as follows:	
2.	Pardee Complex P.O. Drawer 109 Appalachia, Virginia 24216	4. Expiration Date May 31, 2002 (extended)	
		5. Docket or Reference No. 030-32789	
6. Byproduct, Source, and/or Special Nuclear Material		7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
A.	Cesium 137	A. Any sealed source registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation	A. No single source to exceed 370 MBq (10 millicuries) per source.
B.	Americium 241	B. Any sealed neutron source registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation	B. No single source to exceed 11.1 GBq (300 millicuries) per source.
C.	Californium 252	C. Any sealed source registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation	C. No single source to exceed 150 micrograms (81 millicuries) per source.
D.	Barium 133	D. Any sealed source registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation	D. No single source to exceed 370 MBq (10 millicuries) per source.
9. Authorized Use:			
A. through D.		Sealed source(s) contained in compatible non-portable gauging devices (registered pursuant 10 CFR 32.210 or an equivalent Agreement State regulation) for measuring properties of materials and/or controlling industrial processes.	
A. through C.		Sealed source(s) contained in Troxler Electronic Laboratories, Inc. portable gauging devices that have been registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation and distributed in accordance with an NRC or Agreement State License for use in determining the compacted density and moisture content of soils.	

100064



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**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number 47-0001-01

Docket or Reference Number 99-32789

Amendment No. 3

Continued-

- C. Sealed sources contained in Gamma-Metrics FastLab bulk sample analyzer which has been registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation and distributed in accordance with an NRC or Agreement State License for laboratory elemental analysis.

CONDITIONS

10. Licensed material shall be used only at the licensee's:
- A. Holden No. 25 Complex Facilities on U.S. Route 65N/County Road 5, Ragland, WV.
 - B. Pardee Complex, VA Route 603 (Dundar-Pardee Road), 6.9 miles from the U.S. Route 23.VA 603 intersection, Appalachia, Virginia
 - C. The Troxler gauge shall be stored at the licensee's facilities and may also be used at temporary job sites of the licensee anywhere in the United States where the U. S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.
11. A. The Radiation Safety Officer for Holden No. 25 Complex is William C. Spry.
- B. The Radiation Safety Officer for the Pardee Complex is Gary Wright.
- C. The Radiation Safety Officer responsible for the Troxler gauge is Rick Morgan.
12. Licensed material shall be used by, or under the supervision of, William C. Spry, Gary Wright, Rick Morgan, or individuals who have successfully completed the manufacturer's training program for gauge users, have been instructed in the licensee's routine and emergency operating procedures and who have been designated by the Radiation Safety Officer. The licensee shall maintain records of persons designated as users.
13. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
- B. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source received from another person shall not be put into use until tested.
- C. Sealed sources need not be leak tested if they contain only a radioactive gas; or not more than 100 microcuries of beta and/or gamma emitting material or, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number 47-25204-01

Docket or Reference Number 030-32789

Amendment No. 3

CONDITIONS

Continued -

- D. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U. S. Nuclear Regulatory Commission, Region II, Division of Nuclear Materials Safety, 61 Forsyth Street, S.W., Suite 23T85, Atlanta, Georgia 30303-3415. The report shall specify the source involved, the test results, and corrective action taken.
- E. The licensee is authorized to collect leak test samples for analysis by Troxler Electronics Laboratories. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.
14. Installation, initial radiation survey, relocation, removal from service, maintenance, and repair of devices containing sealed sources shall be performed only by persons specifically licensed by the Commission or an Agreement State to perform such services. Any cleaning, maintenance, or repair of the portable gauge that requires removal of the source rod shall be performed only by the manufacturer or other persons specifically licensed by the Commission or an Agreement State to perform such services.
15. Sealed sources or detector cells containing licensed material shall not be opened or removed from their respective source holders by the licensee.
16. Each gauge shall be tested for the proper operation of the on-off mechanism and indicator, if any, at no longer than six-month intervals or at such longer intervals as specified by the manufacturer and approved by NRC.
17. The licensee shall operate each gauge within the manufacturer's specified temperature and/or environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.
18. The licensee shall assure that the shutter mechanism is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify as appropriate its "lock-out" procedures whenever a new gauge is obtained to incorporate the device manufacturer's recommendations.
19. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under this license.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

47-25204-01

Docket or Reference Number

03033789

Amendment No. 3

CONDITIONS

Continued -

20. The licensee shall maintain records of information important to safe and effective decommissioning at the location specified in Item 10 pursuant to the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.
21. In addition to the possession limits in item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.
22. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above and below the gauge with the shutter open.

This survey shall be performed only by persons authorized to perform such services by the Commission or an Agreement State.
23. The licensee may transport the Troxler gauge only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
24. Each portable gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.
25. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from NRC before making any changes in the sealed source, device, or source-device combination that would alter the description or specification as indicated in the respective Certificate of Registration issued either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.
26. The licensee shall not use sealed sources or probes containing sealed sources at depths exceeding 3 feet below the surface.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number 47-25204-01

Docket or Reference Number 050-32789

Amendment No. 3

(continued)

CONDITIONS

27. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Applications dated:

- April 30, 1992
- July 19, 1995 [add VA location for use]
- January 31, 1997 [add Troxler gauge]

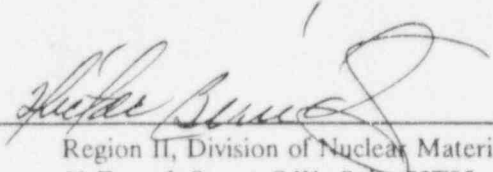
B. Letters dated:

- April 20, 1994
- May 6, 1994
- August 28, 1995 fax [VA location sketch and message]
- March 29, 1997 [add Gamma-Metrics FastLab, change RSO]
- May 8, 1997 fax [additional information]

C. NRC letter dated March 1, 1996 (extends expiration date in accordance with 10 CFR 30.36)

FOR THE U.S. NUCLEAR REGULATORY COMMISSION
HECTOR BERMUDEZ

DATE MAY 16 1997

BY 

Region II, Division of Nuclear Materials Safety
61 Forsyth Street, S.W., Suite 23T85
Atlanta, GA 30303-3415

JF 5/19/97
N:\MLICENSE\47-25204.A03



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303

MAY 16 1997
INFORMATION FOR NRC MATERIAL LICENSEES

Please find enclosed: ☒ Your NRC material license
☐ Amendment to your NRC material license
☐ Amendment renewing your NRC material license
☐ Amendment terminating your NRC material license
☐ Notice for Radiographer Quality Assurance Approval Program

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify this office (ATTN: Ms. Diane Heim at (404) 562-4723) so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day in the month and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR 19, "Notice, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Not possess and use materials authorized in Items 6, 7, and 8, on the license until:
 - a. you have constructed the facilities and obtained the equipment described in the license application and supporting documentation; and
 - b. you have notified the U. S. Nuclear Regulatory Commission, Region II, ATTN: Materials Licensing/Inspection Branch, in writing, that activities authorized by the license will be initiated.
 - c. you have submitted and certified implementation of a Quality Management Program (10 CFR 35.32) for radiotherapy, or for administering > 30 uCi of I-125 or I-131.
3. Notify NRC, in writing, within 30 days:
 - a. when an authorized user, Radiation Safety Officer, or Teletherapy Physicist permanently discontinues performance of duties under the license or has a name change; or
 - b. when the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).
4. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:
 - a. when you decide to terminate all activities involving materials authorized under the license; or
 - b. if you decide not to complete the facility, acquire equipment, or possess and use authorized material.

5. Request and obtain a license amendment before you:
 - a. receive or use byproduct material for a clinical procedure permitted under Part 35 but not permitted by your license issued pursuant to this part.
 - b. permit anyone, not authorized under 10 CFR 35, Subpart J, to work as an authorized user under a license for medical use of byproduct material.
 - c. permit anyone, not authorized under 10 CFR 35, Subpart J, to work as a Radiation Safety Officer, Teletherapy Physicist, or Nuclear Pharmacist, under a license for medical use of byproduct material.
 - d. order byproduct material in excess of the amount, or a different radionuclide or form, other than authorized on the license;
 - e. add or change the areas of use or address (or addresses) of use identified in the license application or on the license; or
 - f. change ownership of your organization.
6. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. Transfer of licensed materials must be consistent with 10 CFR 30.41, 40.51 or 70.42, as applicable. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a Notice of Violation, or imposition of a Civil Penalty, or an order suspending, modifying or revoking your license as specified in the "General Statement of Policy and Procedures for NRC Enforcement Actions," NUREG-1600, (7/95). Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken against those who do not achieve the necessary attention to detail and standard of compliance expected of licensees.

Thank you for your cooperation.

Enclosures:

1. NRC License
2. Category Marked Below for:
 - ☐ New licenses: NUREG-1600 (7/95); 19; 20; 30; 40 or 70, as appropriate; 71; 170; NRC Form 3; Agreement State list; and NRC Form 313.
 - ☐ New radiography licenses: Parts 34; 150.
 - ☐ New medical and teletherapy licenses: Part 35.
 - ☐ Amendments and renewals: NRC Form 313.

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PARDEE COMPLEX

CUMBERLAND RIVER COAL CO.

FAX

THIS FACSIMILE MAY CONTAIN INFORMATION THAT IS PRIVILEGED AND CONFIDENTIAL AND /OR EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. THIS TRANSMISSION IS INTENDED SOLELY FOR THE INDIVIDUAL OR ENTITY DESIGNATED BELOW. IF YOU ARE NOT THE INTENDED RECIPIENT, OR THE EMPLOYEE OR AGENT RESPONSIBLE FOR DELIVERING IT TO THE INTENDED RECIPIENT, YOU SHOULD UNDERSTAND THAT ANY DISTRIBUTION, COPYING OR USE OF THE INFORMATION CONTAINED IN THIS FACSIMILE BY ANYONE OTHER THAN THE DESIGNATED RECIPIENT IS UNAUTHORIZED AND STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS FACSIMILE IN ERROR, PLEASE IMMEDIATELY NOTIFY THE SENDER BY TELEPHONE.

INTENDED RECIPIENT Orysia Bailey

SENDER Ron Samples

DATE 5/8/97

SUBJECT License revision application corrections

PAGES TO FOLLOW 1

COMMENTS

IF YOU DO NOT RECEIVE ALL PAGES OR HAVE PROBLEMS WITH RECEIVING, PLEASE CALL _____

PHONE NO. 540 579-4937

CUMBERLAND RIVER COAL COMPANY

FAX NO. 540 579-4908

P O BOX 109

APPALACHIA, VA 24216

Cumberland River Coal Company, Inc.

P.O. Drawer 109
Appalachia, Virginia 24216

Orysia Bailey
Nuclear Licensing and Inspection Branch
U.S. Nuclear Regulatory Commission Region II
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

May 8, 1997

Dear Orysia,

In reference to your comments and review of my nuclear materials license revision application dated March 29, 1997, the following changes are submitted for the record.

Item 5: The maximum amount of radioisotope will 150 micrograms instead of 150 milligrams.

Item 9: The statement referring to access to the FastLab not being limited should be disregarded. The room where the FastLab is to be installed will be kept locked and secured when not in use by authorized personnel.

I can be contacted at telephone number (540)679-4937 if you have questions.

Sincerely,

Ron Samples
Ron Samples

CONVERSATION RECORD

TIME

DATE

TYPE

☐ VISIT

☐ CONFERENCE

☒ TELEPHONE

☐ INCOMING

☒ OUTGOING

Location of Visit/Conference:

40 679-4937

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

Tom Samples

ORGANIZATION (Office, dept., bureau, etc.)

Cumberland River Valley

TELEPHONE NO.

ROUTING

NAME/SYMBOL IN

SUBJECT

Amendment 3 clarification

SUMMARY

Application dated 3-29-97 asks for 150 milligrams of Cf 252 which would be 81 Ci. Actually want 150 microgram. Asked licensee to correct this via letter.

Also asks for clarification that the Gamma meters will be in a secured area when not in use.

Licensee will mail letter.

done for file 5/8/97

ACTION REQUIRED

NAME OF PERSON DOCUMENTING CONVERSATION

SIGNATURE

DATE

Marion Bailey

5-8-97

ACTION TAKEN

SIGNATURE

TITLE

DATE

3/26/96

~ 9:35

☒ A.M.
☐ P.M.

TELEPHONE OR VERBAL CONVERSATION RECORD

☒ INCOMING CALL

☐ OUTGOING CALL

☐ VISIT

PERSON CALLING

RON JAMPLES

OFFICE/ADDRESS

CUMBERLAND RIVER CO. AC CO.
APPALACHIA, VA

PHONE NUMBER

EXTENSION

540-679-4937

PERSON CALLED

DAVID COLLINS

OFFICE/ADDRESS

USNRC-RTI ATLANTA, GA

PHONE NUMBER

EXTENSION

404-331-5629

CONVERSATION

SUBJECT

LIC. AMENDMENT REQUEST UTR DATED 1/31/97

SUMMARY

- RECEIVED CALL WITH QUESTIONS ON LIC. AMENDMENT REQUEST.

- REFERRED TO ME (WTR)

- CALLED MR. JAMPLES. HE WANTS TO KNOW UPDATE OF REQUEST,

NEEDS TO ADD A GAMMA RAY AIR ANALYZER.

- INFORMED HIM WHERE AMEND UTR IS IN TO ADD TO HIS REQUEST

THE REQUEST OF THE AIR ANALYZER.

- HE WILL SEND.

(WTR)

☐ ADVISE ME OF ACTION TAKEN.

ACTION REQUESTED

INITIALS

DATE

ACTION TAKEN

INITIALS

DATE

Cumberland River Coal Company, Inc.

P.O. Drawer 109
Appalachia, Virginia 24216

Nuclear Licensing and Inspection Branch
U.S. Nuclear Regulatory Commission Region II
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

March 29, 1997

Dear Examiner,

Enclosed is an application requesting amendment to the Cumberland River Coal Company licensing (#47-25204-01) to include a Gamma-Metrics FastLab. Items 5 through 11 have been addressed as requested on the application and are attached to the application along with information from the manufacturer of the radioactive source.

Cumberland River Coal Company currently has an amendment request in review with NRC for addition of a Troxler density gauge. This application and fee of \$570.00 was submitted in February of 1997 and is still in review. Subsequent to that submittal, Cumberland River decided upon employment of a Gamma-Metrics FastLab. I would like to have the amendment to the Cumberland River licensing to include a Gamma-Metrics FastLab along with the Troxler density gauge. No further licensing fee is being submitted at this time.

The present license for Cumberland River includes an ETI ash analyzer for which Merle Caudill has been designated Radiation Safety Officer. Merle will be leaving Cumberland River Coal Company and Gary Wright will assume responsibilities as RSO for the ETI ash analyzer. Gary is also designated as RSO for the FastLab. Gary has the required training in radiation safety and device operation from ETI so that he can perform the duties of RSO.

I can be contacted at telephone number (540)679-4937 if you have questions.

Sincerely,

Ron Samples

Ron Samples

APPLICATION FOR MATERIAL LICENSE

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 9 HOURS. SUBMITTAL OF THE APPLICATION IS NECESSARY TO DETERMINE THAT THE APPLICANT IS QUALIFIED AND THAT ADEQUATE PROCEDURES EXIST TO PROTECT THE PUBLIC HEALTH AND SAFETY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND,
MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA,
RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO
RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,
SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0190

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN,
SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,
LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA,
OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH,
WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 78011-8064

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☐ A. NEW LICENSE
☒ B. AMENDMENT TO LICENSE NUMBER 47-25204-01
☐ C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip code)

Cumberland River Coal Company, Inc.
Pardee Complex
P.O. Drawer 109
Appalachia, VA 24216

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Cumberland River Coal Company, Inc.
Pardee Complex, P.O. Drawer 109
Dunbar Road, Appalachia, VA 24216

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Ron Samples

TELEPHONE NUMBER

540/679-4937

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

- a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY 3P

AMOUNT
ENCLOSED \$

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 82 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER - TYPE/PRINTED NAME AND TITLE

Jeff Bitzer Mine Manager

SIGNATURE



DATE

3/29/97

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

RADIOACTIVE MATERIALS LICENSE REVISION

March 28, 1997

RADIOACTIVE MATERIALS (item 5)

The Gamma-Metrics FastLab will contain the following materials:

<u>Manufacturer</u>	<u>Radioisotope</u>	<u>Form</u>	<u>Drawing #</u>	<u>Maximum Amount</u>
Frontier Technology	Cf-252	Special Form	Cf-Pd cermet or Cf-Pd Alloy Model 100 Series	Not to exceed 150 milligrams

USE OF RADIOACTIVE MATERIALS (item 6)

The radioactive material is used as a neutron source in Gamma-Metrics FastLab bulk sample analyzer for laboratory elemental analysis using PGNAA.

RADIATION SAFETY OFFICER (item 7) (Gamma-Metrics FastLab)

The Radiation Safety Officer will be Gary Wright. He has had instrument specific training conducted by Gamma-Metrics. In the training the following subjects were covered:

- (a) Radiation Safety
- (b) Regulatory Requirements 10 CFR 19, 20, 30 and comparable State regulations
- (c) Leak Testing
- (d) Waste Disposal
- (e) "Lock-Out" Procedures

TRAINING FOR OTHER PERSONNEL (item 8)

Training in the use of the FastLab will be provided by Gamma-Metrics during installation for those Cumberland River Coal Company (CRCC) employees who will be working with the FastLab.

- (a) Radiation Theory
- (b) Radiation Protection
- (c) PGNAA Theory and Operation
- (d) FastLab Maintenance and Care
- (e) Hands-On operation FastLab

A copy of each individual trained in the use of the FastLab will be maintained on file at the Cumberland River Coal Company (CRCC) office at Dunbar, VA by the RSO.

FACILITIES AND EQUIPMENT (item 9)

Facility:

The FastLab is designed so that the radiation at any point on the surface is less than .5 milliRem/hr. The source(s) are contained in a locked box on the device. Therefore, it is not necessary to have the FastLab in locked or limited access. The FastLab will be housed in a 12'x24' building that will be the coal testing lab. An area of 12'x14' will be dedicated to the FastLab. The other 12'x10' area will be the lab office which will be utilized by lab and supervisory personnel. A sketch is included.

Equipment:

1. Survey Instruments: Survey instruments are not proposed for use at this site. A survey will be conducted by Gamma-Metrics at installation and leak tests will be conducted by Gamma_Metrics every 6 months.
2. Personnel Monitoring Devices: Dosimetry is not necessary for the Gamma-Metrics FastLab.

RADIATION SAFETY PROGRAM (item 10)

(Gamma-Metrics FastLab)

1. Radiation Officer:

A. Gary Wright has been designated as the company Radiation Safety Officer and will assume the duties and responsibilities that include the following:

1. To ensure that all terms and conditions of the license are being met and that the information contained in the license is up-to-date.
2. To ensure that the equipment has been leak tested in the required timely manner and that the leak test is performed in the manner prescribed by the equipment manufacturer.
3. To ensure that the use of equipment is only by individuals that have been authorized by the Radiation Safety Officer.
4. To maintain the records as required by the license and the regulations. These records include leak test records and training certification for all users.
5. To ensure that the equipment is properly secured against unauthorized removal at all times when it is not in use.
6. To serve as a point of contact and give assistance in case of emergency such as equipment damaged in the field or theft and to notify the proper authorities in case of emergency.

7. To ensure that all users have read and understand the radiation safety operating and emergency procedures.

2. Operating Procedures:

A. Transportation of Radioactive Material:

1. Movement of the radioactive material will be done under the control of Gamma-Metrics, the manufacturer of FastLab.
2. Radioactive material will be moved in a shipping cask Model 50200 provided by Frontier Technology, the manufacturer of the radioactive source. This unit meets U.S.D.O.T. specification: 7A as defined in 49CFR178.350 for gross weight up to 840 pounds, and is therefore suitable for common carrier shipment of Type "A" quantities of radioactive material in normal or special form subject to prescribed limits of external radiation and the gross weight.

B. Utilization Procedures:

The FastLab will be operated in accordance with specific procedures outlined by Gamma-Metrics testing of bulk material.

C. Maintenance and Leak Test Procedures:

Gamma-Metrics will perform leak testing at 6 month intervals and provide certifications.

D. Record Keeping in Regards to Facility Decommissioning:

Records of information important to the safe and effective decommissioning of the facility will be maintained in an identified location, until the license is terminated by the Commission. The file shall be entitled "FACILITY DECOMMISSIONING FILE". The records will include the following:

1. Records of any leakage involving the spread of contamination, where the contamination remains after cleanup procedures have been exhausted, and/or if the contamination is inaccessible.
2. Drawing or sketches of area(s) in the facility where radioactive materials are used and/or stored. These drawings will indicate location of any non-removable contamination.
3. Records of the cost estimate for the decommissioning of the facility.

3. Emergency Procedures:

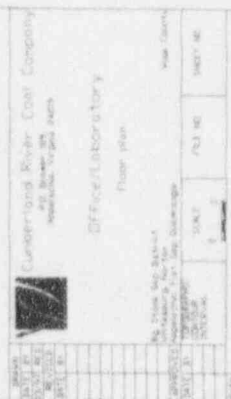
In the event of an accident resulting in structural damage to the analyzer, such as fire or any other situation that could cause one or more of the radiation sources to be exposed, follow this

procedure:

1. In the case of a Bulk Material Analyzer, if possible, empty the chute of material (which will automatically cause the sources to be stored).
2. Turn off the power.
3. Notify the on-site Radiation Safety Officer (RSO).
4. Rope off the area around the analyzer at a distance to be determined by the RSO (normally about 50 feet from any possible area of radiological contamination).
5. Restrict access to the roped-off area to all non-essential personnel.
6. Call GAMMA-METRICS as soon as possible and ask for the Radiation Safety Officer or the BMA Field Service Department.
7. Notify the appropriate governmental authorities responsible for emergency response activities.

WASTE MANAGEMENT (item 11)

Disposition of the FastLab will be by transfer to either another licensee specifically licensed to possess the radioactive material or to a licensed disposal facility. The manufacturer will assist in locating a properly licensed disposal facility.



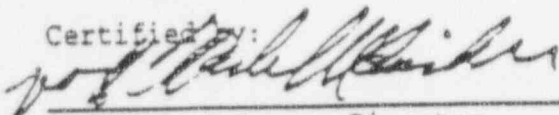
IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS
CERTIFICATE NUMBER USA/0367/S, REVISION 4

This certifies that the sources described have been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in the regulations of the International Atomic Energy Agency and the United States of America for the transport of radioactive materials.

1. Source Identification - Frontier Technology Corporation Model 10 Series and Model 100 Series.
2. Source Description - The Series 10 sources are single encapsulations measuring 5.5 mm (0.217") OD x either 12 mm (0.47") or 25 mm (0.98"). The Series 100 sources are double encapsulations (inner capsule is a Series 10) measuring 9.4 mm (0.37") OD x approximately 25 mm (0.98") or 38 mm (1.48") in length. Both the Series 10 and 100 source capsules are manufactured of 304L stainless steel or zircalloy. Series 100 sources may have a special stud attachment, or may have an extended length with or without an attachment hole as illustrated and described on the attached drawings. These features are identified by prefix and suffix letters in the source model numbers which are also identified on the attached drawings.
3. Radioactive Contents - These sources consist of not more than 0.2 TBq (5.4 Ci) of Californium 252 in the form of Cf-Pd cermet or Cf-Pd alloy.
4. Expiration Date - This certificate expires September 30, 2000.

This certificate is issued in accordance with paragraph 803 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the petition and information dated August 8, 1995 and September 12, 1995 submitted by Frontier Technology Corporation, Xenia, OH, and in consideration of other information on file in this Office.

Certified by:



James K. O'Steen, Director
Office of Hazardous Materials
Technology

OCT 3 1995

(DATE)

Revision 4 - Issued to authorize the use of special attachments on the Series 100 capsule, and to extend the expiration 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 100 - 199, United States of America.

Frontier Technology Corporation Model 100

The Model 100 series of neutron sources are doubly-encapsulated sources which employ a Model 10 series source as the primary encapsulation. Model 100 series sources have an outside diameter of 0.370/0.371 inches, and are available in two lengths, both of which are available with or without a 10-32 threaded stud on one end. The longer length version with the stud is equivalent to the Savannah River SR-CF-100 series capsules. Outer capsule material may be either type 304L stainless steel or Zircalloy-2. Closure is by TIG welding.

Thirty-two versions of the standard length source and thirty-two versions of the shortened source are possible as the result of various combinations of inner and outer capsule materials and orientations, and the presence of or lack of the threaded stud. All sixty-four versions of the Model 100 series are certified by the USDOT as Special Form, and all have been approved for licensing purposes by the USNRC for general uses.

Nominal dimensions for the Frontier Technology Corporation Model 100 and Model 100S sources are shown below:

	Model 100	Model 100S
outside diameter	0.370/0.371 inch 9.398/9.423 mm	0.370/0.371 inch 9.398/9.423 mm
inside diameter	0.234/0.235 inch 5.953/5.982 mm	0.234/0.235 inch 5.953/5.982 mm
inside length	1.02 inches 30.6 mm	0.52 inch 13.2 mm
outside length w/stud	1.48 inches 37.59 mm	0.97 inch 24.6 mm
outside length w/o stud	1.28 inches 32.5 mm	0.77 inch 19.55 mm
Maximum content: Californium-252	10 milligrams	4 milligrams

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(AMENDED COPY)

NO: NR-298-S-102-S

DATE:

SEP 15 1997

PAGE 1 of 6

SOURCE TYPE: General Neutron SourceMODEL: FTC Model 100 SeriesMANUFACTURER/DISTRIBUTOR:

Frontier Technology Corporation
P.O. Box 486
1641 Burnett Drive
Xenia, Ohio 45385

ISOTOPE:

Californium-252

MAXIMUM ACTIVITY:

5.2 curies
(10 milligrams)

LEAK TEST FREQUENCY: 6 monthsPRINCIPAL USE: (H) General Neutron Source ApplicationsCUSTOM SOURCES: _____ YES _____ ☒ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(AMENDED COPY)

NO: NR-298-S-102-S

DATE: MAR 15 1987

PAGE 2 of 6

SOURCE TYPE: General Neutron SourceDESCRIPTION:

The Frontier Technology Corporation (FTC) Model 100 Series neutron source is a family of doubly-encapsulated californium-252 sources. Californium-252 in the form of Cf-Pd cermet or alloy is sealed inside a FTC Model 10 series capsule by tungsten-inert-gas (TIG) fusion welding, then the completed and tested Model 10 series sources are sealed inside an FTC Model 100 series outer capsule. The basic Model 100 capsule is made of type 304L stainless steel and is 0.370 inch outside diameter by 1.28 inches in length. A 10/32 threaded stud is machined into the unwelded end of the capsule, bringing the overall length to 1.48 inches. The Model Z100 is identical to the Model 100 except that the capsule material is Zircalloy-2. These models are FTC's embodiment of the Savannah River Laboratory's SR-CF-100 series industrial source capsules. The Model 100S and Model Z100S are shortened versions of the 100 and Z100 capsules, respectively, each having a length (without stud) of 0.77 inches. The Model 100 and Z100 capsules have a cavity approximately 0.235 inch in diameter by 1.020 inch long which contains a Model 10 series source capsule. The threaded stud may be deleted from any of the outer capsules, in which case a suffix "NS" is added to the model designation. The inner capsule may be inserted into the outer capsule non welded end first (standard) or welded end first (reversed). In the latter case, a suffix "R" is added to the model number. A configuration having a zircalloy inner capsule and a stainless steel outer would have a model number prefix "ZS".

LABELING:

The FTC Model 100 series sources are intended to be used either as encapsulated sources or as the inner capsules of multi-encapsulated sources. The Model 100 series capsules will be electro-etched, engraved, or imprinted with a unique serial number in the format FTC-CF-XXX, FTC-CF-ZXXX, FTC-CF-ZSXXX or FTC-CF-SZXXX to identify the manufacturer, isotope, capsule material and unique serial number. The XXX represents a unique number which is assigned sequentially to FTC californium sources regardless of model. No two FTC californium sources will have the same three-digit number represented by the XXX. Capsules of the Model 100S series ("short") will also be electro-etched, engraved, or imprinted with the word "Radioactive", and all other capsules of the Model 100 series ("long") will be electro-etched, engraved, or imprinted with the words "CAUTION RADIOACTIVE MATERIAL". When used as the inner capsule of a multi-encapsulated source, the outer surface of the outermost sealed capsule shall be marked as specified above. A detailed description of the Model 100 series sources is presented in table 1.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(AMENDED COPY)

NO: NR-298-S-102-S

DATE:

JUL 16 1987

PAGE 3 of 6

SOURCE TYPE: General Neutron SourceDIAGRAM:

See Attachment 1.

CONDITIONS OF NORMAL USE:

The FTC Model 100 series neutron source is intended for various neutron source applications under environmental conditions which are not detrimental to the Type 304L or Zircalloy-2 capsule material. Typical uses may include neutron radiography, activation analysis, mineral exploration, process control by activation analysis and nuclear fuel rod scanning.

The useful life of the Model 100 series source is expected to be that period during which the neutron output is adequate for the intended use. Tests on source designs to which the Model 100 series conforms shows that the source series will meet special form criteria at the time of manufacture. In addition, analysis of the Model 100 series capsule shows that it will meet the Special Form heating test at the time of manufacture and at any time within 30 years after manufacture, assuming that the capsule has not been subjected to chemical attack or physical abuse.

PROTOTYPE TESTING:

The FTC Model 100 series sources has been shown to meet Special Form criteria and ANSI 77E66344 as a result of physical tests of equivalent source models. Life analyses were performed on the FTC Model 100 series sources using methods specified in ASME Pressure Vessel Code, Division I, Section III. The analyses show that the Model 100 will pass the Special Form heating test at any time after sealing. The analyses assume infinite decay of the californium, and hereby assumes maximum gas quantity within the capsule.

The Savannah River Laboratory conducted a ten-ton crush test and a 25,000 psi external pressure test on prototype SR-CF-100 sources of 304L and Zircalloy-2. The test sources were flattened during the crush test which consisted of placing the source between two steel anvils and applying a load of 10 tons, but did not leak after the test. No visible deformation resulted from subjecting test sources to 25,000 psi of external hydrostatic pressure, nor did the test capsules leak following the test. Because of the similarity of the FTC Model 100 and Z100 source to the SF-CF-100 sources tested, the FTC Model 100 and Z100 will also pass these tests.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(AMENDED COPY)

NO: NR-298-S-102-S

DATE:

JAN 18 1987

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SOURCE TYPE: General Neutron Source

PROTOTYPE TESTING (cont'd):

The shortened versions of the Model 100 and Z100 will have greater resistance to external pressure and/or crushing than the model tested and should also pass these tests.

EXTERNAL RADIATION LEVELS:

Maximum radiation levels per milligram of Cf-252 at 5 and 30 centimeters from the surface of the source are summarized in the table below. The levels reported in the table are based on dose rates for an unshielded californium-252 point source as reported by the manufacturer and adjusted for distance using the inverse-square relation.

Distance from source, cm	5	30
Neutron dose rate, mrem/hr	8.8×10^5	2.4×10^4
Gamma dose rate, mrem/hr	6.4×10^4	1.8×10^3
Total dose rate, Rem/hr	944	26

QUALITY ASSURANCE CONTROL:

Capsule components are made from traceable steels certified to meet the drawing specification. All hardware is examined for dimensions, fit, and finish, and is cleaned prior to use. Welding is performed by the tungsten-inert-gas (TIG) method using a programmable welder and welding process previously proven to provide welds of the proper penetration and quality for the particular capsule design. Each source is fabricated to a Manufacturing Order (MO) which specifies the californium content, Cf/Pd and material configuration, other internal components if any, and source serial number. The program also determines that the void volume within the source satisfies the minimum void volume requirement for the particular californium loading and volume of internals is verified before the MO is released for manufacture.

After welding, each source will be leak tested using the Dry Wipe Test per paragraph A 2.1.2 American National Standard N 542-1977, "Sealed Radioactive Sources, Classification", NBS Handbook 126.

Sources having less than 0.005 microcurie of removable contamination are acceptable and may be shipped to the customer.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(AMENDED COPY)

NO: NR-298-S-102-S

DATE:

JUL 13 1992

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SOURCE TYPE: General Neutron SourceLIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- * The source shall be distributed only to persons specifically licensed by the NRC or an Agreement State.
- * The source shall be leak tested at six (6) month intervals using techniques capable of detecting 0.005 microcurie of removable contamination.
- * Handling, storage, use, transfer, and disposal: To be determined by the licensing authority. In view that these sources exhibit high doses rates when unshielded, the sources should be handled only by experienced licensed personnel using adequate remote handling equipment and procedures.
- * The source shall not be subjected to environmental or other conditions of use which exceed ANSI classification of 77E65344.
- * This registration sheet and the information contained within the references shall not be changed without the written consent of the NRC.

SAFETY ANALYSIS SUMMARY:

Based on our review of the information and test data cited below, that the storage design is equivalent to designs previously deemed acceptable for licensing by the NRC, we continue to conclude that the FTC Model 100 series source design is acceptable for licensing purposes. Furthermore, we continue to conclude that this source would be expected to maintain its containment integrity for normal conditions of use and accident conditions which might occur during uses specified in this certificate.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE
(AMENDED COPY)

NO: NR-298-S-102-S

DATE:

~~JAN 18 1987~~ PAGE 6 of 6SOURCE TYPE: General Neutron SourceREFERENCES:

The following supporting documents for the FTC Model 100 series source design are hereby incorporated by reference and are made a part of this registry document.

- ° Frontier Technology Corporation letters dated June 17, 1985, July 18, 1985 and September 11, 1986, with enclosures thereto.

ISSUING AGENCY:

U.S. Nuclear Regulatory Commission

JAN 18 1987

DATE: _____

REVIEWER:



DATE: _____

JAN 18 1987

CONCURRENCE:

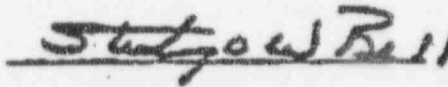


TABLE 1

MODEL	:INNER CAPSULE MATERIAL	:OUTER CAPSULE MATERIAL	:THREADED : :STUD :	Cf LIMIT
I00 & I00R	304L	304L	YES	10 mg
Z100 & Z100R	Zirc-2	Zirc-2	YES	10 mg
I00S & I00SR	304L	304L	YES	4 mg
Z100S & Z100SR	Zirc-2	Zirc-2	YES	4 mg
ZS100 & ZS100R	Zirc-2	304L	YES	10 mg
SZ100 & SZ100R	304L	Zirc-2	Yes	10 mg
ZS100S & ZS100SR	Zirc-2	304L	YES	4 mg
ZS100S & ZS100SR	304L	Zirc-2	YES	4 mg
I00NS & I00NSR	304L	304L	NO	10 mg
Z100NS & Z100NSR	Zirc-2	Zirc-2	NO	10 mg
I00SNS & I00SNSR	304L	304L	NO	4 mg
Z100SNS & Z100SNSR	Zirc-2	Zirc-2	NO	4 mg
ZS100NS & ZS100NSR	Zirc-2	304L	NO	10 mg
Z100NS & Z100NSR	304L	Zirc-2	NO	10 mg
ZS100SNS & ZS100SNSR	Zirc-2	304L	NO	4 mg
ZS100SNS & ZS100SNSR	304L	Zirc-2	NO	4 mg

IRC = ZIRCALLOY

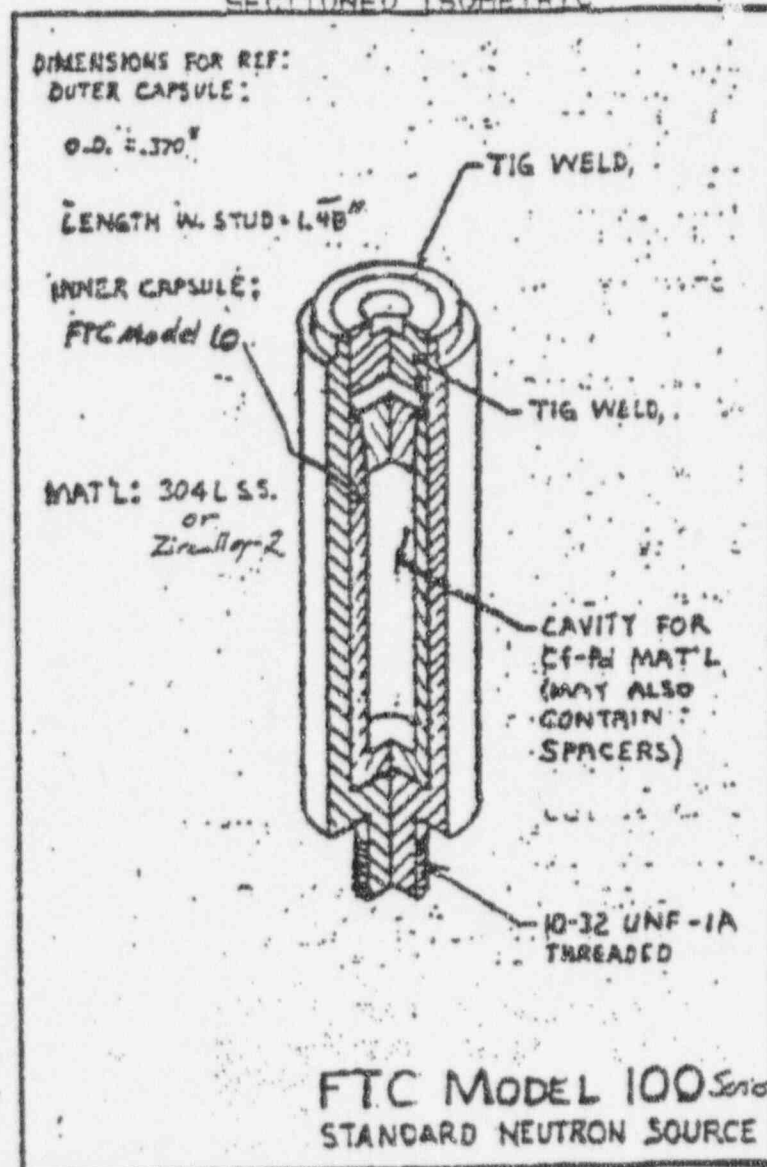
REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SOURCE

NO: NR-298-S-102-S

DATE:

JAN 18 1987

ATTACHMENT 1

SOURCE TYPE: General Neutron SourceDIAGRAM
SECTIONED ISOMETRIC

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO: CA305D102S

DATE: OCTOBER 1, 1990

PAGE: 1 OF 10

DEVICE TYPE: Bulk Sample Elemental Analyzer

MODEL: FastLab Bulk Sample Analyzer

MANUFACTURER: Gamma-Metrics, Inc.
5788 Pacific Center Boulevard
San Diego, CA 92121

SEALED SOURCE MODEL DESIGNATION: Frontier Technology Corporation
Model 100 series
Amersham Model CVN.CY6

ISOTOPE: Californium 252 MAXIMUM ACTIVITY: 150 micrograms (81 mCi) total
in up to three sources

LEAK TEST FREQUENCY: Six months

PRINCIPAL USE: General Neutron Source Application (H)

CUSTOM DEVICE: ____ Yes X No

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D1C2S

DATE: OCTOBER 1, 1990

PAGE: 2 OF 10

DESCRIPTION:

The device is the Gamma Metrics Bulk Sample Analyzer. It is a PGNAA (Prompt Gamma Neutron Activation Analyzer) elemental analyzer designed for laboratory use by the coal, cement, fertilizer and chemical industries. The device analyzes the contents of a 5-liter plastic sample container for its elemental composition. An overview of the device is shown in Figure 1. Dimensions are given in Figures 2, 3, and 4.

The sample container is inserted into a solid carousel that rotates the sample through the radiation shielding to locate the sample above a fixed ^{252}Cf source. The gamma-rays emitted from the capture of thermal neutrons are counted by a detector installed above the sample. The sample is typically analyzed for up to 10 minutes in this location.

A lead or bismuth shield immediately surrounds the source(s). This assembly (shield and source) are enclosed by another shield consisting of a mixture of paraffin wax, polyethylene and boric acid. These shielding layers reduce the external radiation dose rate to less than 0.5 millirem/hr at 30 cm over all normally accessible surfaces and reduce the radiation dose equivalent rates to less than 0.5 Rem/year to any operator remaining in front of the device.

Up to three doubly encapsulated ^{252}Cf neutron sources can be inserted into the device on rigid rods. The source rods are accessible only through a locked box within the lockable housing.

LABELLING:

The FastLab Bulk Sample Analyzer bears the following permanent label:

CAUTION: RADIOACTIVE MATERIALS

Along with a radiation symbol meeting the requirements of 17 CCR 30278 (10CFR 20.203), the label also contains the company name Gamma-Metrics, as well as the isotope and activities (including the measurement dates). The label contains a reference to the Gamma-Metrics FastLab analyzer Radiological safety procedures manual with regard to operator safety. This label is located on the rear of the device near the source access location.

DIAGRAMS:

See Figures: (1) Overview (2) Side View, (3) Top View, (4) End View,
(5) Side View - Radiation Profiles

• REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

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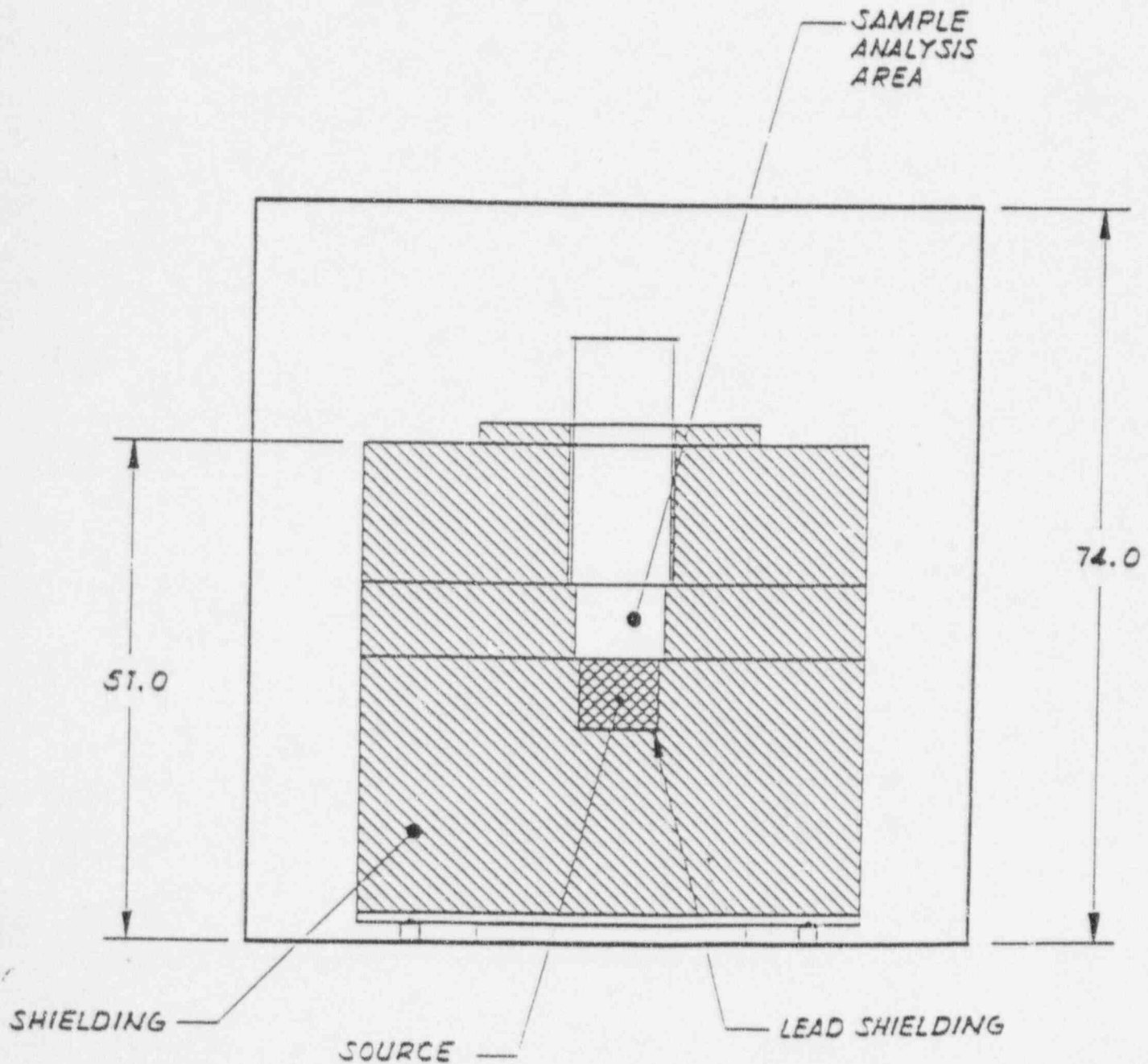


FIGURE 4
FRONT VIEW

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

DATE: OCTOBER 1, 1990

PAGE: 3 of 10 Pages

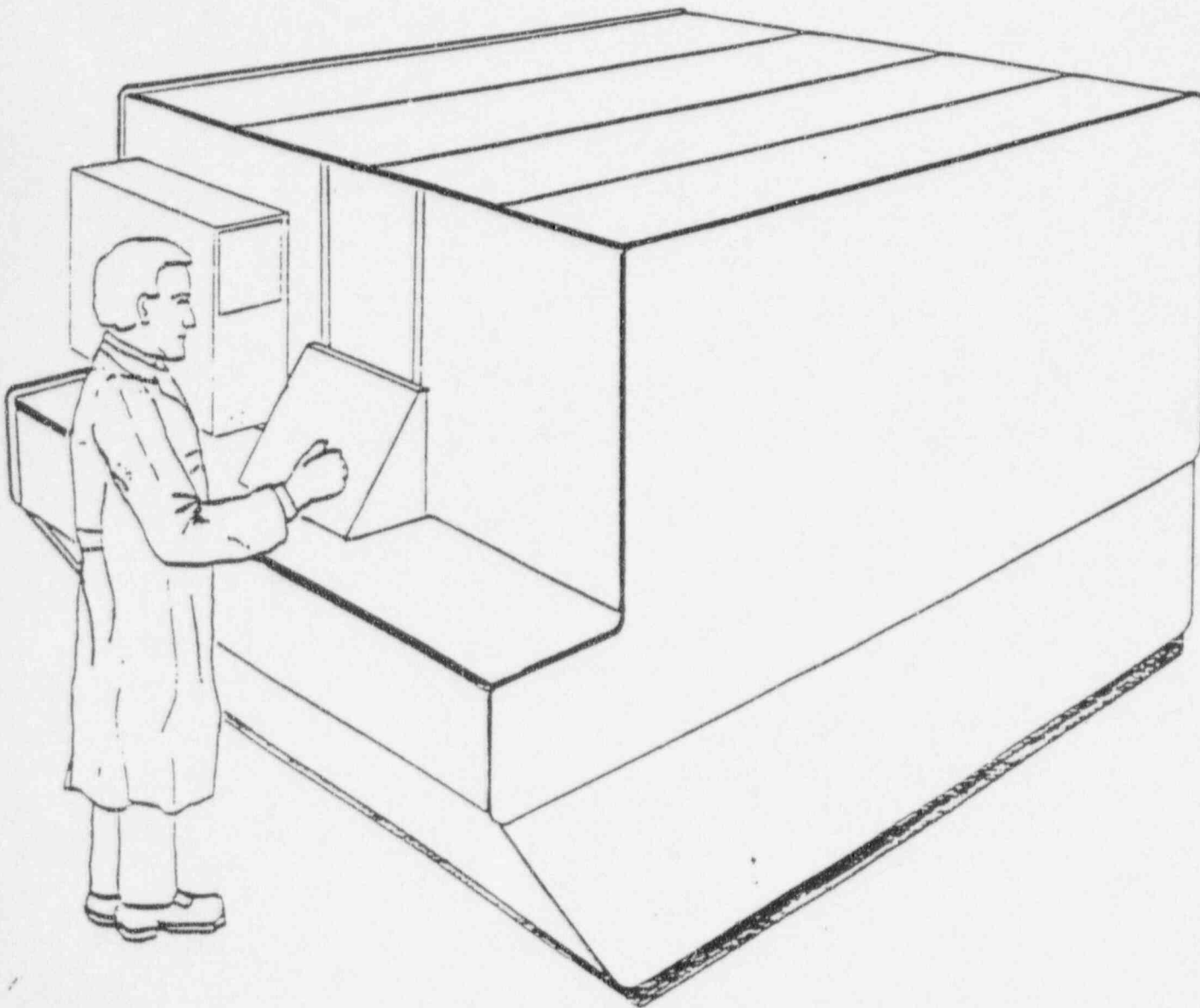


Figure 1

OVERVIEW

FastLab Bulk Sample Analyzer

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

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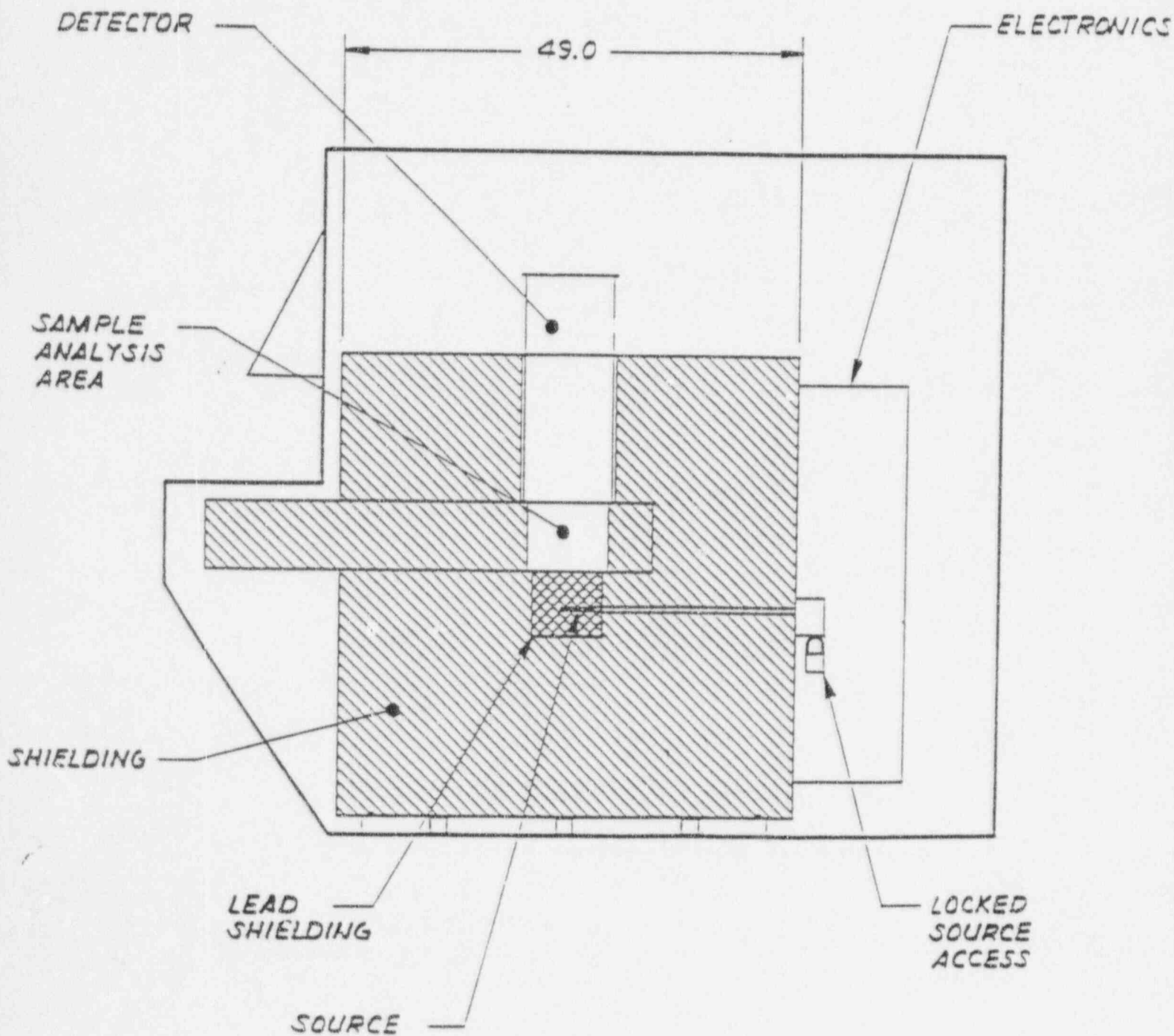


FIGURE 2
SIDE VIEW

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

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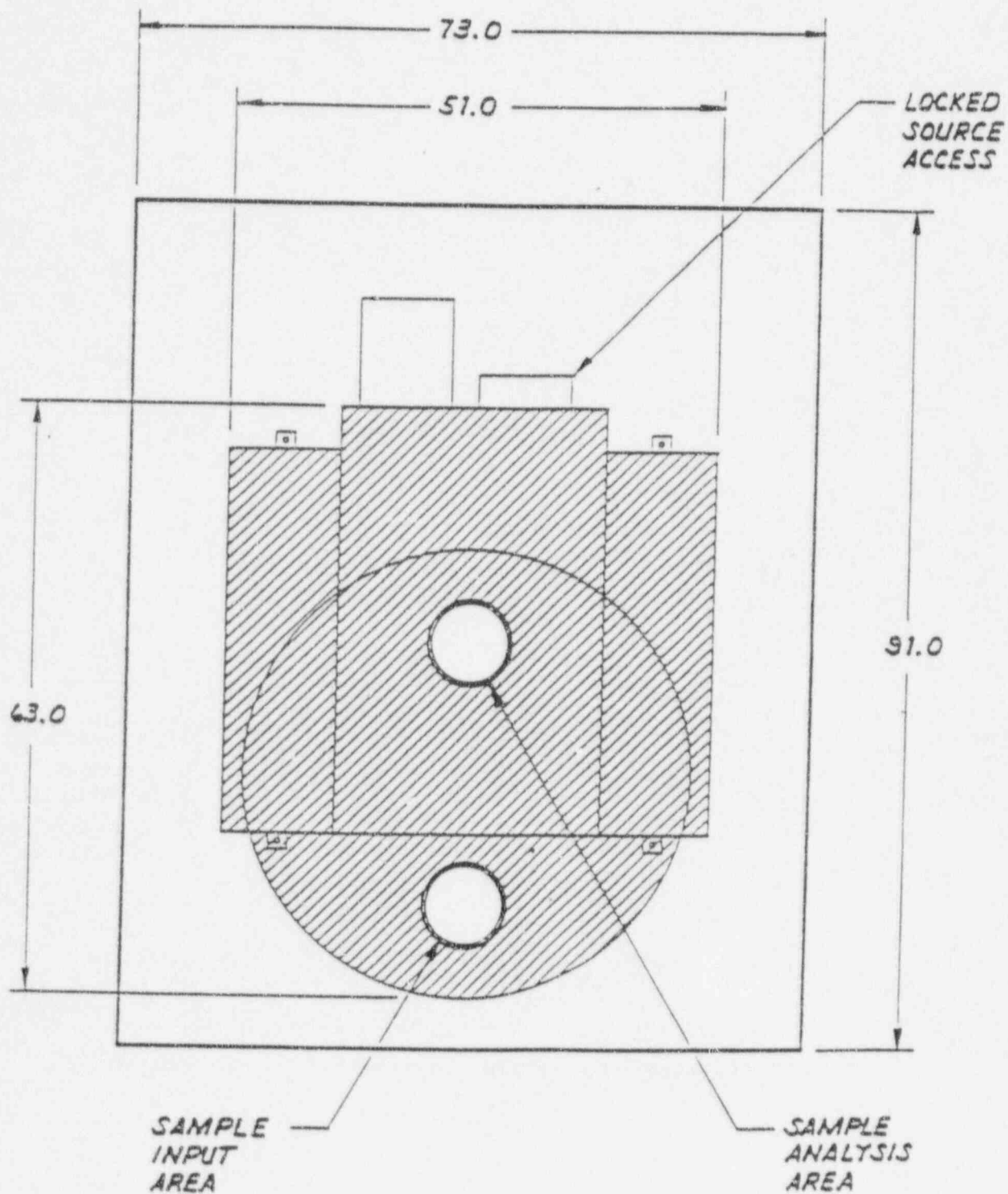


FIGURE 3
TOP VIEW

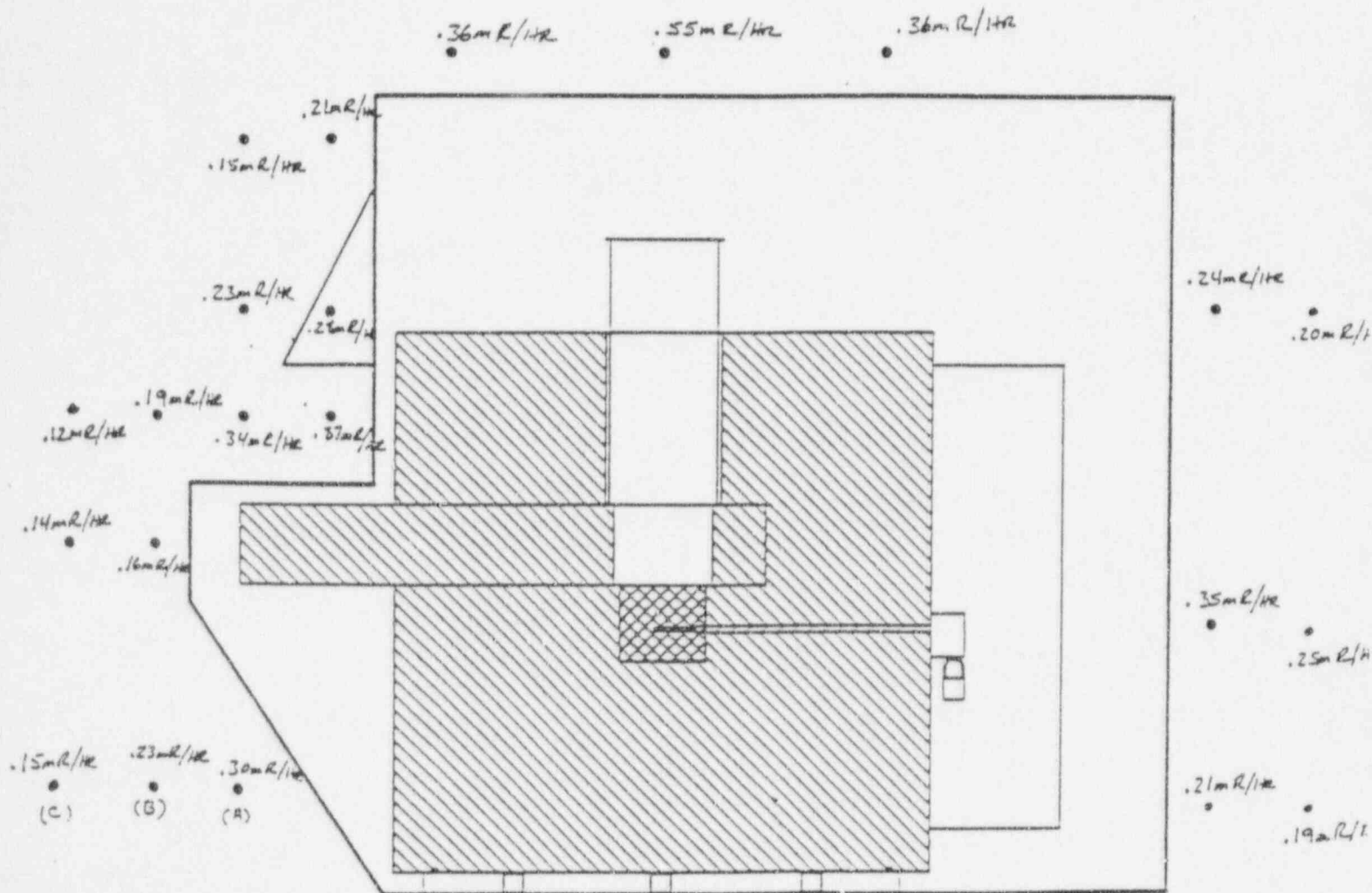
REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

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- (A) CONTACT
- (B) 1 ft.
- (C) 2 ft.

FIGURE 5
SIDE VIEW
RADIATION PROFILES

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

DATE: OCTOBER 1, 1990

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CONDITIONS OF NORMAL USE:

Planned Use: The Gamma-Metrics FastLab bulk sample elemental analyzer will be used in the laboratories of the coal, cement, fertilizer and chemical industries. The device will be delivered by common carrier. Radioactive sources will be independently delivered by common carrier. Installation shall be performed by Gamma-Metrics personnel.

Environment: The device will be used in air conditioned laboratory environments. The device is capable of tolerating $65 \pm 35^{\circ}\text{F}$ during operation but it can be stored at 0 to 120°F . The device will be able to function in humidities 0-95% non-condensing.

PROTOTYPE TESTING:

The prototype unit was loaded with 100 micrograms of ^{252}Cf . The ANSI classification for this loading is ANSI-23-175-175-R1. Due to the materials of construction, a fire test was not performed. A loading of 40 micrograms of ^{252}Cf would have an ANSI classification ANSI-23-185-185-R1 while a loading of 150 micrograms of ^{252}Cf would have an ANSI classification ANSI-23-174-174-R1.

Most units will be loaded with between 40 and 100 micrograms of ^{252}Cf .

EXTERNAL RADIATION LEVELS:

All measurements were made with 100 micrograms of ^{252}Cf using two calibrated Victoreen gamma-ray survey meters and a calibrated BF_3 "Snoopy" Rem-meter. Results are given in milliRms per hour on Figure 5. The only external location greater than 0.7 mRem/hr is in the sample loading location. Results with 40 micrograms and 150 micrograms of ^{252}Cf would be 0.4x and 1.5x, respectively, the stated levels in Figure 5.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES

SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

DATE: OCTOBER 1, 1990

PAGE: 9 OF 10

Samples are normally run for 10 minutes but some typical bulk samples were irradiated continuously for a week. On immediate inspection they were found to be activated to a maximum of 0.1 mR/hr of Gamma at the location which had been in the highest neutron flux. After 10 minutes this had decayed to 0.04 mR/hr. Al-28 was measured to be the dominant activation product decaying with a half life of 2.3 minutes. Na-24 (15 hours) and Mn-56 (2.6 hours) were the other most dominant activation products. The total activity was calculated to be < 1 nanocurie per gram and hence not a hazard.

QUALITY ASSURANCE:

Gamma-Metrics provided a summary of the Quality Assurance Program, referencing 10 CFR 50, Appendix B and ANSI N45.2. These procedures are outlined in the Gamma-Metrics Quality Assurance Manual to ensure quality of design, material, workmanship and documentation.

LIMITATIONS AND/OR OTHER CONSIDERATIONS:

- A. FastLab shall be distributed only to persons specifically licensed by the NRC or Agreement States.
- B. Sources used in the device shall be leak tested at six (6) month intervals using techniques capable of detecting 0.005 microcuries of removable contamination.
- C. These devices shall not be subjected to environmental conditions exceeding those specified in the ANSI-23-174-174-R1 classification.
- D. Instructions to users: A radiological procedures manual is provided and summarizes basic radiation safety with respect to the use of the device.
- E. Installation, Relocation and Repair: This must be provided by the manufacturer or other specifically licensed organization.
- F. Emergency Procedures: As a fire could substantially compromise the shielding, specific instructions should be described and posted.
- G. Source exchange due to decay shall only be performed by Gamma-Metrics or other specifically licensed organization.
- H. Maintenance is provided at six-month intervals by the manufacturer and should be a licensee commitment.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO.: CA305D102S

DATE: OCTOBER 1, 1990

PAGE: 10 OF 10

- I. This registration sheet and the information contained within the references shall not be changed without the written consent of the California Department of Health Services.

SAFETY ANALYSIS SUMMARY:

Based on our review of the information and test data cited below, we conclude that the FastLab device design is acceptable for licensing purposes.

The external dose rates average less than 0.5 mRem/hr at 30 cm.

Even in the event that a fire destroys the shielding, the sources should maintain their integrity due to their own ANSI classifications which exceed those required for the intended use (C64444).

REFERENCES:

The following supporting documents for the FastLab Bulk sample analyzer are hereby incorporated by reference and are made part of this registry document:

- (a) GAMMA-METRICS letter with attachments dated March 30, 1990 signed by James F. Miller, Radiation Safety Officer.
- (b) "Radiation Safety Training," GAMMA-METRICS; March 28, 1990.
- (c) "Radiological Safety Procedures Manual for Model FastLab Bulk Sample Analyzer," GAMMA-METRICS; March 28, 1990.
- (d) NBS Handbook 129, ANSI N.538, "Gauging Devices,": 1979.

DATE: 10-16-90

REVIEWED BY:

Donna Sutherland

DATE: 10/16/90

CONCURRENCE:

[Signature]

ISSUING AGENCY: California Department of Health Services.

FRONTIER TECHNOLOGY CORPORATION

N.R.C. License S.N.M. 1957

P.O. Box 400 • 1641 Burnett Drive • Xenia, Ohio 45385 • (513) 370-5091 • Telex 11910 111 d257

RADIOACTIVE SHIPPING CASK CERTIFICATION

FTC Model 50200 - U.S.D.O.T. Spec. 7A

We hereby certify that radioactive shipping cask, Model No. 50200 meets U.S.D.O.T. specification: 7A as defined in 49CFR178.350 for gross weight up to 840 pounds, and is therefore suitable for common carrier shipment of Type "A" quantities of radioactive material in normal or special form subject to prescribed limits of external radiation and the gross weight.

Documentation supporting this certification is on file at our office (indicated in our letterhead above) and can be provided to the U.S. Department of Transportation upon their request.

This certification is issued pursuant to the requirement of 49CFR173.415(a)

Authorized Signature	<u>Edward F. Janz</u>
Name	<u>Edward F. Janz</u>
Title	<u>President</u>
Date	<u>5 August 1985</u>

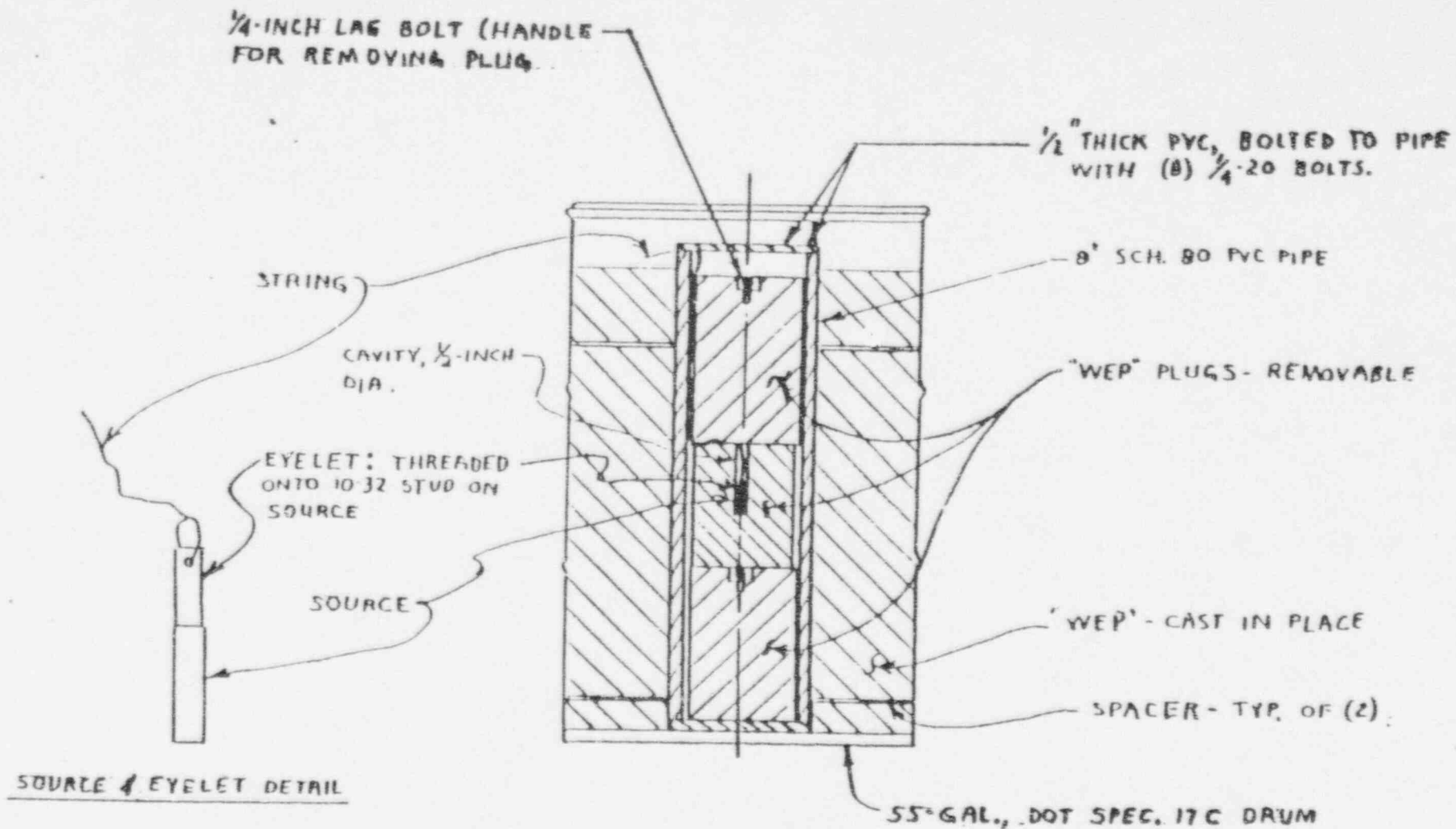
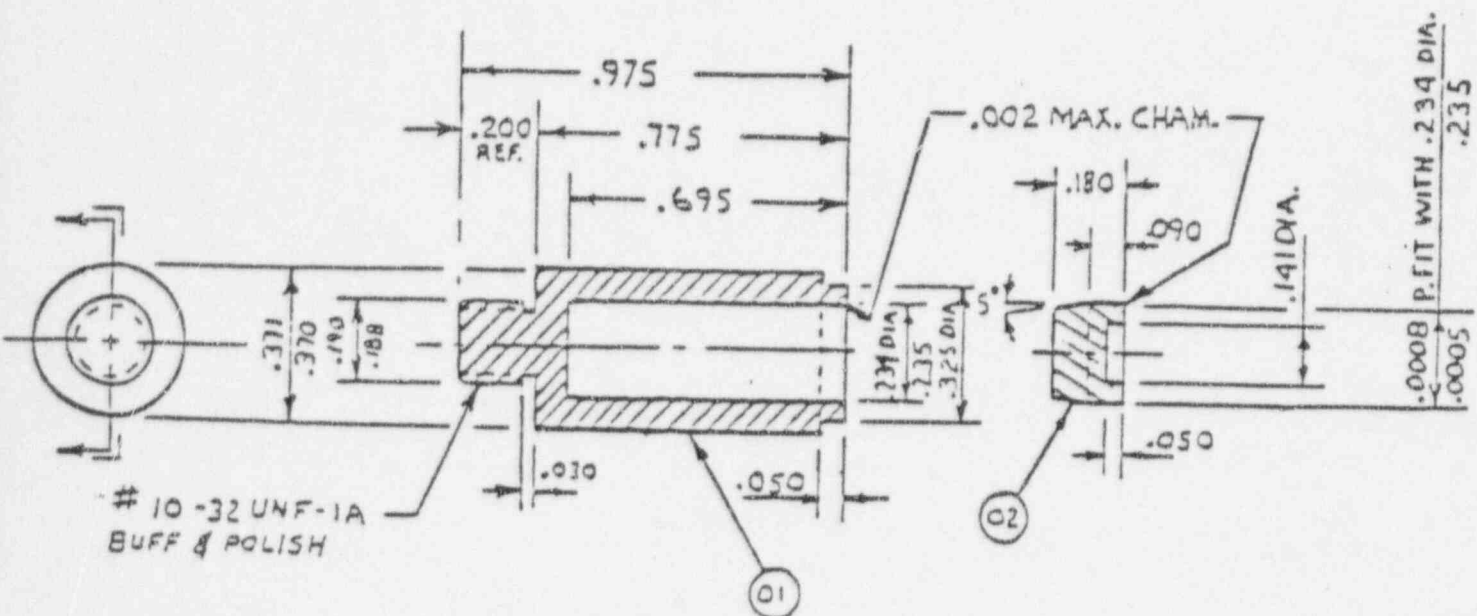
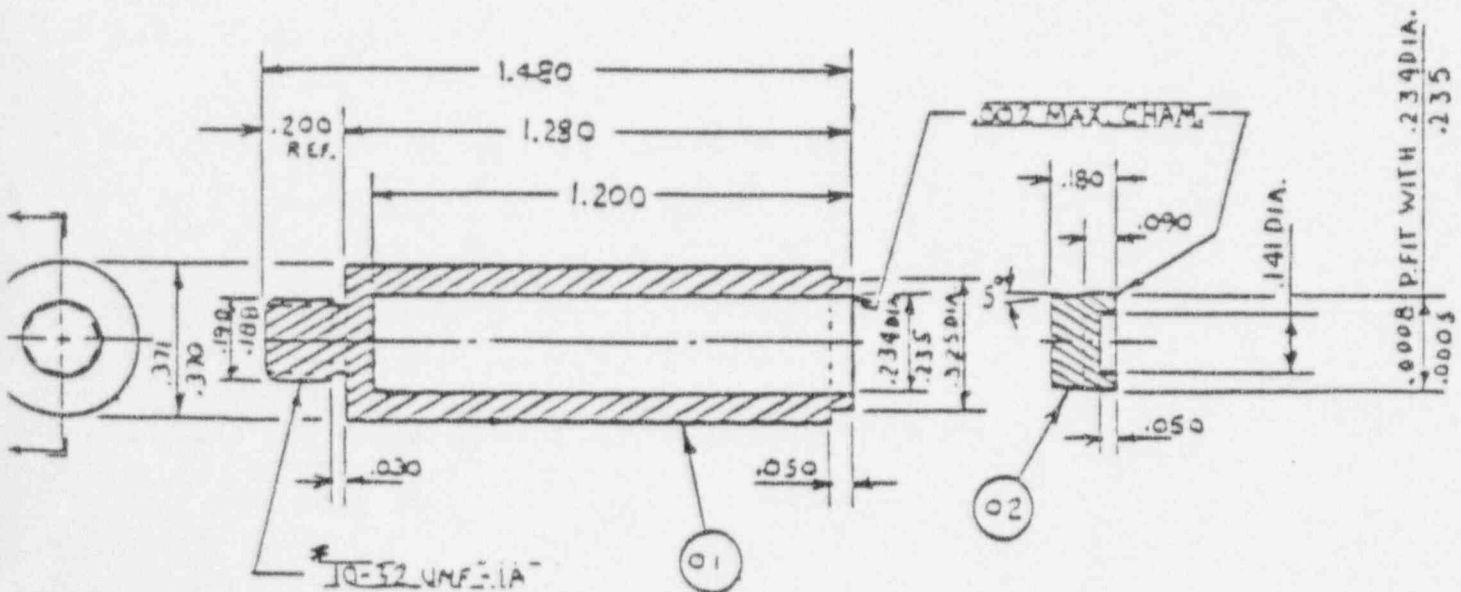


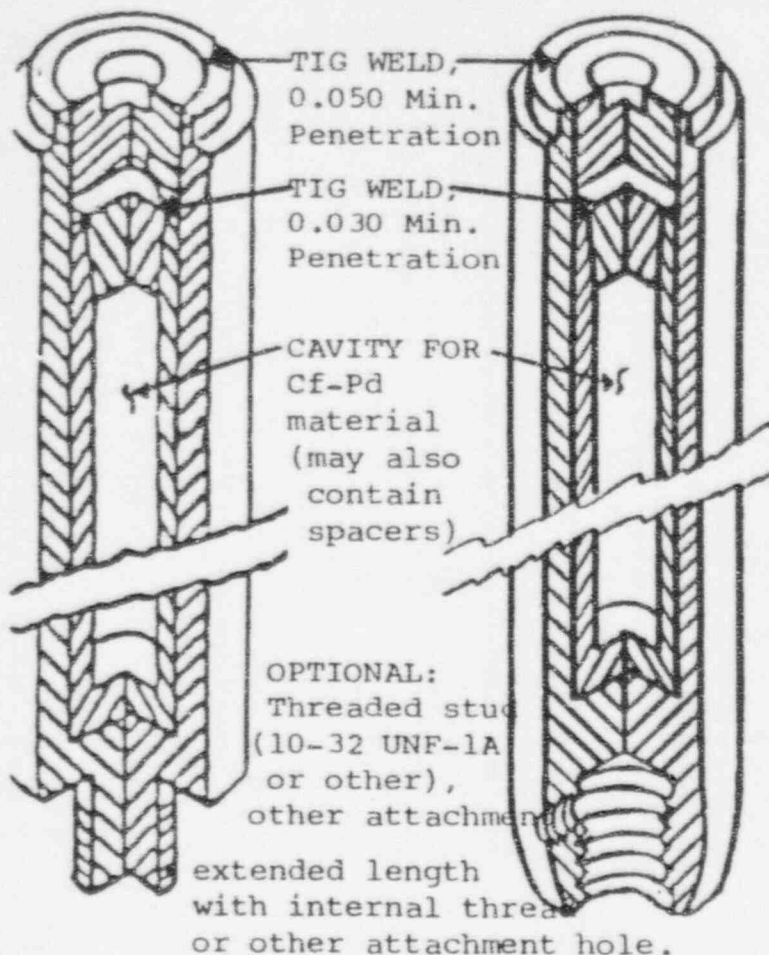
FIGURE 1. FTC MODEL 50200 SHIPPING PACKAGE, WITH W.E.P. SOURCE HOLDER.

Standard Neutron Source Model 100S per Dwg. No. A10100-PA02



Standard Neutron Source Model 100 per Dwg. No. A10100-PA01



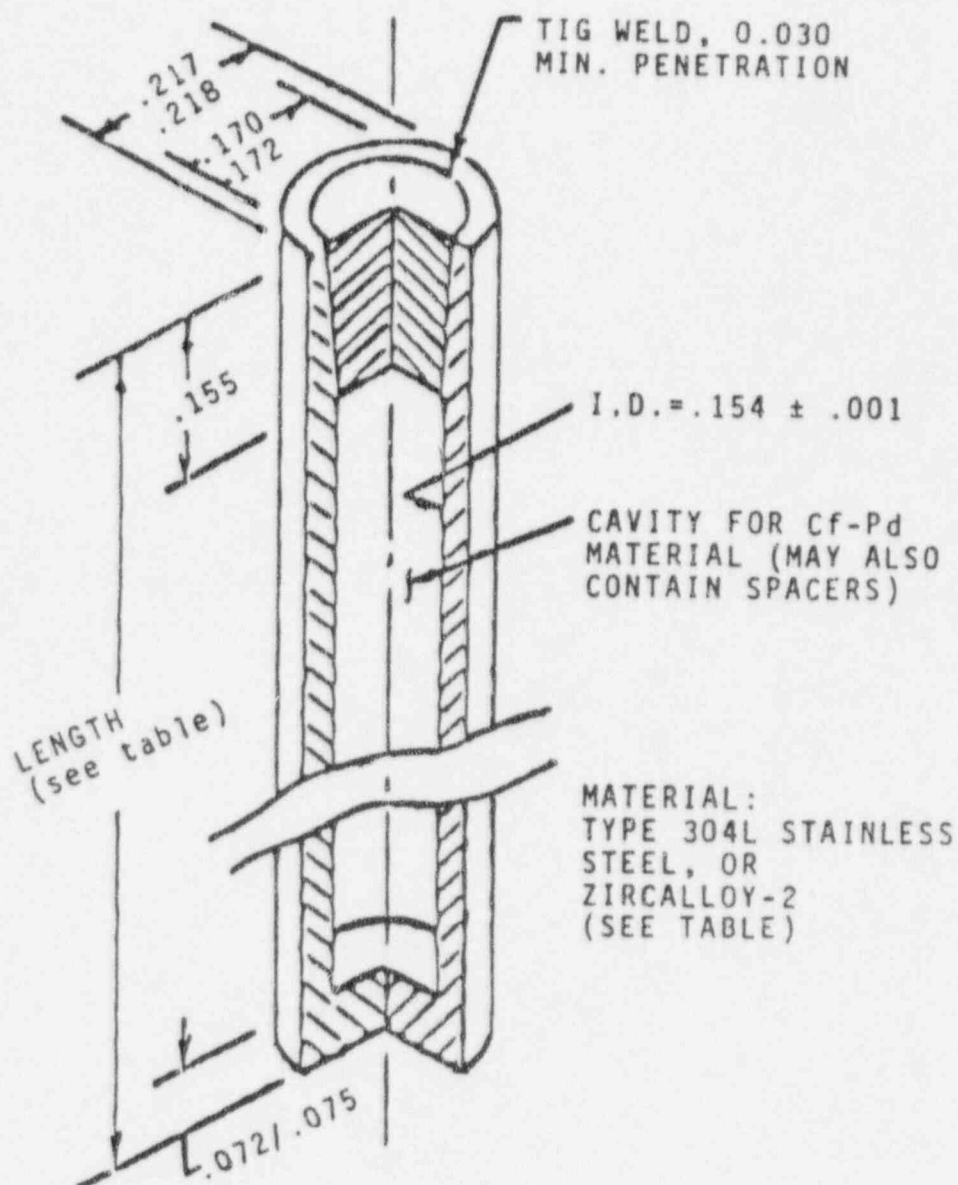


LABELING: Each source is marked on the outside surface with the letters "FTC" to denote the manufacturer, "CF" to denote the contents as Cf-252, and a unique serial number. The letter "Z" precedes the serial number when either or both capsules are Zircalloy-2.

Material: 304L Stainless Steel or Zircalloy-2

Model	Inner Capsule Material/Dwg	Outer Capsule Material/Dwg	Threaded Stud	Assembly Dwg	Cf Limit
100 & 100R	304L/ A10010-AA00	304L/ A10100-PA01	yes	A10100- AA00	10 mg
Z100 & Z100R	Zirc-2/ A10010-ZA00	Zirc-2/ A10100-PZ01	yes	A10100- ZA00	10 mg
100S & 100SR	304L/ A10010-AA01	304L/ A10100-PA02	yes	A10100- AB00	4 mg
Z100S & Z100SR	Zirc-2/ A10010-ZA01	Zirc-2/ A10100-PZ02	yes	A10100- ZB00	4
ZS100 & ZS100R	Zirc-2/ A10010-ZA00	304L/ A10100-PA01	yes	A10100- ZA01	10 mg
SZ100 & SZ100R	304L/ A10010-AA00	Zirc-2/ A10100-PZ01	yes	A10100- ZA02	10 mg
ZS100S & ZS100SR	Zirc-2/ A10010-ZA01	304L/ A10100-PA02	yes	A10100- ZB01	4 mg
SZ100S & SZ100SR	304L/ A10010-AA01	Zirc-2/ A10100-PZ02	yes	A10100- ZB02	4 mg
100NS & 100NSR	304L/ A10010-AA00	304L/ A10100-PA03	no	A10100- AC00	10 mg
Z100NS & Z100NSR	Zirc-2/ A10010-ZA00	Zirc-2/ A10100-PZ03	no	A10100- ZC00	10 mg
100SNS & 100SNSR	304L/ A10010-AA01	304L/ A10100-PA04	no	A10100- AD00	4 mg
Z100SNS & Z100SNSR	Zirc-2/ A10010-ZA01	Zirc-2/ A10100-PZ04	no	A10100- ZD00	4 mg
ZS100NS & ZS100NSR	Zirc-2/ A10010-ZA00	304L A10100-PA03	no	A10100- ZC01	10mg
SZ100NS & SZ100NSR	304L/ A10010-AA00	Zirc-2/ A10100-PZ03	no	A10100- ZC02	10 mg
ZS100SNS & ZS100SNSR	Zirc-2/ A10010-ZA01	304L/ A10100-PA04	no	A10100- ZD01	4 mg
SZ100SNS & SZ100SNSR	304L/ A10010-AA01	Zirc-2/ A10100-PZ04	no	A10100- ZD02	4 mg
Any above with "MX"	As for model designation without "MX"		Special stud or attach- ment	A10100- MX00	As w/o "MX"
In suffix Any above with "ML" In suffix	As for model designation without "ML"		Extended length with or without attach- ment hole	A10100- ML00	As w/o "ML"

FTC MODEL 10 SERIES - Standard Neutron Source



DIMENSIONS IN INCHES
(FOR REFERENCE)

MODEL DESCRIPTION CHART

MODEL	LENGTH(inches)	MATERIAL	Cf LIMIT
10	0.970/0.980	304L Stainless Steel	10 mg.
10S	0.465/0.475	304L Stainless Steel	4 mg.
Z10	0.970/0.980	Zircalloy-2	10 mg.
Z10S	0.465/0.475	Zircalloy-2	4 mg.

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

: (FOR LFMS USE)
: INFORMATION FROM LTS
: -----

: Program Code: 03120
: Status Code: 0
: Fee Category: 3P
: Exp. Date: 20020531
: Fee Comments: _____
: Decom Fin Assur Req'd: N
:

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: CUMBERLAND RIVER COAL COMPANY
Received Date: 970227
Docket No: 3032789
Control No.: 257407
License No.: 47-25204-01
Action Type: Amendment

2. FEE ATTACHED

Amount: 570.00
Check No.: 0412514

3. COMMENTS

Signed _____ diane heim
Date 2/27/97

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /_/)

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:

Amendment _____
Renewal _____
License _____

3. OTHER _____

Signed _____
Date _____

Log Mar 1 II
Remitter _____
Check No. 0412514
Amount 570.00
Fee Category 3P
Type of Fee Amend
Date Check Rec'd. 3/2/97
Date Completed 3/2/97
By Ron



CZCC
ARCH OF KENTUCKY, INC.

RON SAMPLES

To: David Collins

Date: 2/24/97

This revision is to add a Troxler density gauge to our licensing. All other devices licensed to the Fardee operation will not be changed at this time. Call me if you have questions.

Ron Samples
(540) 679-4937

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 3.25 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS

IF YOU ARE LOCATED IN

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO

NUCLEAR MATERIALS SAFETY SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO

MATERIAL RADIATION PROTECTION SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-0064

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO

NUCLEAR MATERIALS SAFETY SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION V
1450 MARIA LANE
WALNUT CREEK, CA 94596-5068

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☐ A. NEW LICENSE
☒ B. AMENDMENT TO LICENSE NUMBER 47-25204-01
☐ C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT (Includes Zip Code)

Cumberland River Coal Company, Inc.
Pardee Complex
P.O. Drawer 109
Appalachia, Virginia 24216

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Cumberland River Coal Company, Inc.
Pardee Complex, P.O. Drawer 109
Dunbar Road, Appalachia, Virginia 24216

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Ron Samples

TELEPHONE NUMBER

540/679-4937

SUBMIT ITEMS 5 THROUGH 11 ON 8 1/2 x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY

3P

AMOUNT ENCLOSED \$ 570.00

13. CERTIFICATION (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 52 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE - CERTIFYING OFFICER

TYPED/PRINTED NAME

Jeff Bitzer

TITLE

Mine Manager

DATE

1-31-97

FOR NRC USE ONLY

TYPE OF FEE FEE LOG FEE CATEGORY COMMENTS

AMOUNT RECEIVED

CHECK NUMBER

257407

APPROVED BY

DATE

RADIOACTIVE MATERIALS LICENSE APPLICATIONOCTOBER 30, 1995

Item 5

RADIOACTIVE MATERIALS

The nuclear density gauge(s) will contain one of the following materials:

<u>Radioisotope</u>	<u>Form</u>	<u>Troxler Drawing #</u>	<u>Maximum Amount</u>
Cs-137	Special Form	A-102112	Not to Exceed 9 mCi per source
Am-241:Be	Special Form	A-102451	Not to Exceed 44 mCi per Source
Cf-252	Special Form	A-105560	Not to Exceed 66 uCi per Source

Item 6

USE OF RADIOACTIVE MATERIALS

The radioactive material is used as a power source in a Troxler Model 3400 series nuclear density gauges, which are used in determining the compacted density and moisture content of soils.

Item 7

RADIATION SAFETY OFFICER

(Troxler density gauge only)

The Radiation Safety Officer will be Rick Morgan. He has had instrument specific training conducted by Troxler Electronics. In the training the following subjects were covered:

- (a) Radiation Safety
- (b) Regulatory Requirements 10 CFR 19, 20, 30 and comparable State regulations
- (c) Leak Testing
- (d) Waste Disposal
- (e) "Lock-Out" Procedures

Item 8

TRAINING FOR OTHER PERSONNEL

Training in the use of the Troxler Density Gauge will be provided for those Cumberland River Coal Company (CRCC) employees who will be working with the Density Gauge. Said training will be conducted by Troxler Electronics and will include:

- a. Radiation Theory
- b. Radiation Protection
- c. Gauge Theory

- d. Gauge Operation
- e. Gauge Maintenance and Care
- f. Licensing
- g. Transportation
- h. Written examination
- i. Hands-On operation of gauge

A copy of each individual trained in the use of the nuclear density gauges will be maintained on file at the Cumberland River Coal Company (CRCC) office at Dunbar, VA by the RSO.

Item 9

FACILITIES AND EQUIPMENT

Facility:

When not in use, the Troxler density gauge(s) will be stored in the filing room of the Cumberland River Coal Company office at Dunbar, Virginia. The Office is occupied most of the work day. A copy of the CRCC office floor plan is attached.

Equipment:

1. Survey Instruments: Survey instruments are not proposed for use at this site.
2. Personnel Monitoring Devices:

Type: Film or TLD badges
 Troxler Radiation Monitoring Services
 Division of Troxler Electronics Labs, Inc.
 PO Box 12057
 Research Triangle Park, NC 27709

Exchange Frequency: Monthly (Film) or Quarterly (TLD)

Item 10

RADIATION SAFETY PROGRAM (Troxler density gauge only)

1. Radiation Officer

A. Rick Morgan has been designated as the company Radiation Safety Officer and will assume the duties and responsibilities that include the following:

1. To ensure that all terms and conditions of the license are being met and that the information contained in the license is up-to-date.

2. To ensure that the equipment has been leak tested in the required timely manner and that the leak test is performed in the manner prescribed by the equipment manufacturer.
3. To ensure that the use of the equipment is only by individuals that have been authorized by the Radiation Safety Officer and that all users wear personnel monitoring equipment when utilizing the equipment. Personnel monitoring equipment will consist of film badges or TLD's supplied by Troxler Radiations Monitoring Services on a monthly or quarterly, as applicable.
4. To maintain the records as required by the license and the regulations. These records shall include personnel exposure records, leak test records and training certification for all users.
5. To ensure that the equipment is properly secured against un-authorized removal at all times when it is not in use.
6. To serve as a point of contact and give assistance in case of emergency such as equipment damaged in the field or theft and to notify the proper authorities in case of emergency.
7. To ensure that all users have read and understand the radiation safety operating and emergency procedures.

2. Operating Procedures

A. Transportation of Equipment:

1. All possible means shall be provided to ensure that the equipment is secured in the transporting vehicle and the equipment is away from the passenger compartment. When transporting in an enclosed vehicle (van), the vehicle will be locked. When transporting in an open vehicle, the gauge should be securely fastened and locked to the truck bed.
2. The gauge will be transported in the TROXLER transportation case. The Department of Transportation requires that the gauge be transported in a properly labeled carrying case.
3. At all times during transport, the operator will have a properly completed Bill of Lading for each gauge.

B. Utilization Procedures:

1. When the gauge is in the field, the user will maintain control over the gauge

257407

at all times. The gauge is to never be left unattended.

2. When not making measurements, the gauge should be placed in the transportation case and returned to its permanent storage area as soon as possible. The gauge is to be used for its intended purpose only. By doing so, you will maintain any radiation exposure to as low as reasonably achievable (ALARA).
3. When using the equipment, you will wear the personnel monitoring device that has been assigned to you. When you are not using the equipment, your monitoring device is to be stored in the radiation free area that has been designated in the office.

C. Maintenance and Leak Test Procedures:

1. Periodic maintenance will include cleaning the gauge. During any maintenance, you must wear your personnel monitoring device. Accepted cleaning and lubrication procedures developed by the manufacturer will be followed.
2. No maintenance will be performed in which the radioactive source is removed from the gauge. For this type of maintenance, the gauge will be returned to the manufacturer.
3. The leak test will be performed using the TROXLER Model 3880 Leak Test Kit. The leak test will be performed using the manufacturer's instructions. Again, the personnel monitoring device will be employed. Gauges will be leak tested at intervals not to exceed six (6) months.

D. Record Keeping in Regards to Facility Decommissioning:

Records of information important to the safe and effective decommissioning of the facility will be maintained in an identified location, until the license is terminated by the Commission. The file shall be entitled "FACILITY DECOMMISSIONING FILE". The records will include the following:

1. Records of any leakage involving the spread of contamination, where the contamination remains after cleanup procedures have been exhausted, and/or if the contamination is inaccessible.
2. Drawings or sketches of area(s) in the facility where radioactive materials are used and/or stored. These drawings will indicate locations of any non-removable contamination.
3. Records of the cost estimate for the decommissioning of the facility.

3. Emergency Procedures:

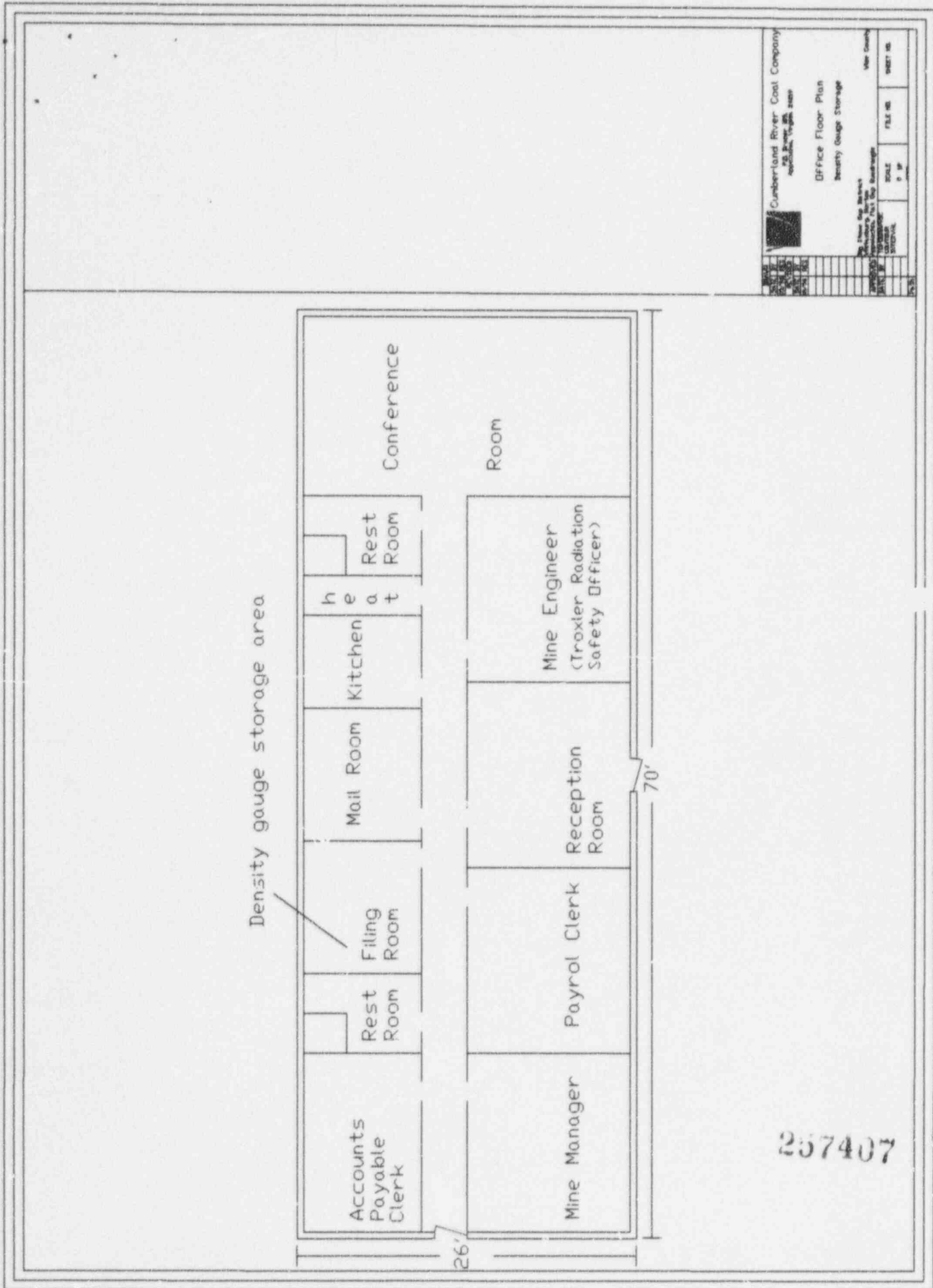
- A. In the event of an emergency, serious fire or explosion which could result in severe damage to the "nuclear gauge", the following actions are to be taken:
1. Isolate the "nuclear gauge" to a minimum of 15 feet by roping off the area or by other suitable means.
 2. Limit access to the "nuclear gauge" until a leak test and safety evaluation can be performed by a qualified person.
 3. Keep personnel informed about the accident or emergency situation.
 4. Obtain assistance from the Cumberland River Coal Co. Radiation Safety Officer at (540) 679-4937, who if needed, will contact the Troxler Radiation Safety Officer at ((919)549-8661.
 5. Make the required notification pursuant to regulatory requirements if required.
- B. In the event the gauge is lost or stolen, immediately notify the Radiation Safety Officer as listed in paragraph 3 a.4, above.

4. Waste Management

"Disposition of the gauge will be by transfer to either another licensee specifically licensed to possess the radioactive material or to a licensed disposal facility. The manufacturer will assist in locating a properly licensed disposal facility".

Item 12

Cumberland River Coal Co. is listed as a Category 3P user. The required license fee is \$570.00.



DIVISION OF ACCOUNTING AND FINANCE REQUEST FOR REFUND TO EMPLOYEE/VENDOR

THE EMPLOYEE/VENDOR IDENTIFIED BELOW HAS OVERPAID THE NUCLEAR REGULATORY COMMISSION FOR GOODS AND/OR SERVICES PROVIDED AND IS DUE A REFUND

EMPLOYEE/VENDOR/PAYEE CODE: _____

NAME: Cumberland River Coal Company

ADDRESS: Attn: Ron Samples

ADDRESS: P. O. Box Drawer 109

CITY: Appalachia STATE: VA ZIP: 24216

TRANS CODE: PX

TRANS TYPE: FE FUND: X5280 JOB CODE: _____ AMOUNT: \$270.00

TRANS TYPE: IR FUND: R1435 JOB CODE: INTR AMOUNT: _____

TRANS TYPE: IR FUND: R1099 JOB CODE: ADCH AMOUNT: _____

TRANS TYPE: IR FUND: R1099 JOB CODE: FINE AMOUNT: _____

TOTAL REFUND AMOUNT: \$270.00

COMMENTS: Overpaid Amal fee Lic 47-25204-01
CK 4/25/94

(limit comments to 40 characters, including spaces)

PREPARED BY: Rita Messier DATE: 3/4/97

AUTHORIZED BY: Shirley Johnson DATE: 3/4/97

ORIGINAL INV. NO: _____ DATE PAID: _____ AMOUNT: _____

REFUND ENTERED INTO COLLECT BY: _____

REFUND DETERMINED BY: _____ DATE: _____

PLEASE ATTACH APPROPRIATE SUPPORTING DOCUMENTATION

3P
AA905 AMD
Mar 11
ck # 412514
dated 2/11/97
for \$ 570
257407