

**U. S. NUCLEAR REGULATORY COMMISSION
MATERIALS LICENSE**

Amendment No. 01

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 1, Parts 30, 31, 32, 33, 34, 35, 36, 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); and to import such byproduct and source material. 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.

<p align="center">Licensee</p> <p>1. Peabody Coal Company</p> <p>2. 301 North Memorial Drive St. Louis, Missouri 63102</p>		<p>In accordance with letter dated May 22, 1978,</p> <p>3. License number SNM-1665 is amended in its entirety to read as follows:</p>	
		<p>4. Expiration date August 31, 1981</p>	
		<p>5. Docket or Reference No. 070-02272</p>	
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. Plutonium 238	A. Sealed sources (Amersham Corp. Model PPCL)	A. 2 sources not to exceed 10 millicuries each	
B. Plutonium 238	B. Sealed sources (Amersham Corp. Model PPC-X)	B. 1 source of 30 millicuries	
C. Americium 241	C. Foil source (Amersham Corp. Model MM.4)	C. 1 source of 0.5 microcurie	
9. Authorized use			
A. To be used in a Sortex Company of North America Model Phase III A-2 Coal Ash Analyzer to demonstrate the analyses of ash content of coal.			
B. To be used in a Texas Nuclear Division Model 9254 or Model 9256 source housing in a Texas Nuclear Model 9200 Series x-ray fluorescence analyzer for demonstration of in-situ elemental analysis.			
C. To be used in a Texas Nuclear Division Model 9200 Series x-ray fluorescence probe head for electronics stabilization.			

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MATERIALS LICENSE

Supplementary Sheet

License Number SM-1665

Docket or
Reference No. 070-02272

CONDITIONS

Amendment No. 01

10. Licensed material shall be used only at the licensee's corporate headquarters, St. Louis, Missouri.
11. The licensee shall comply with the provisions of Title 10, Chapter 1, Code of Federal Regulations, Part 19, "Notices, Instructions and Reports to Workers; Inspections" and Part 20, "Standards for Protection Against Radiation."
12. Licensed material shall be used by, or under the supervision of, Pete Bacchetti, Jack Ellis, James Addington, or William Emke.
13. A. (1) Each sealed source containing licensed material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a sealed source received from another person shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

(3) The periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another person unless they have been leak tested within six months prior to the date of use or transfer.

B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.

C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the test with Region III, U. S. Nuclear Regulatory Commission, Office of Inspection and Enforcement, 799 Roosevelt Road, Glen Ellyn, Illinois 60137, describing the equipment involved, the test results, and the corrective action taken.

MATERIALS LICENSE

Supplementary Sheet

License Number SNM-1555

Docket or

Reference No. 070-02272

CONDITIONS

Amendment No. 01

(continued)

D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically authorized by the Commission or an Agreement State to perform such services.

14. Sealed sources containing licensed material shall not be opened or removed from their respective source holders by the licensee.

15. Installation, relocation, maintenance, repair, and initial radiation survey of devices containing licensed material and leak testing, installation, replacement, and disposal of sealed sources containing licensed material used in devices shall be performed only by Pete Bacchetti, Jack Ellis, James Addington or William Enke or by other persons specifically authorized by the Commission or an Agreement State to perform such services.

16. Except for plutonium contained in a medical device designed for individual human application, no plutonium, regardless of form, shall be delivered to a carrier for shipment by air transport or transported in an aircraft by the licensee.

17. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in applications dated April 28, 1976 and June 24, 1976, and letters dated July 16, 1976, August 3, 1976 and May 22, 1978.

Date AUG 24 1978

For the U. S. Nuclear Regulatory Commission

Original Signed By

JOSEPH M. BROWN, JR.

by Radioisotopes Licensing Branch

Division of Fuel Cycle and
Material Safety
Washington, D.C. 20555

JMB/27

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U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS DATA INPUT INDUSTRIAL

1 - FILE COPY

A. TYPE OF ACTION AND IDENTIFICATION CODES

<input type="checkbox"/> NEW LICENSE	<input type="checkbox"/> AMENDMENT TO RENEW LICENSE	<input type="checkbox"/> AMENDMENT TO TERMINATE	<input type="checkbox"/> VOID	DOCKET NUMBER	MAIL CONTROL NUMBER	CHANGE NAME/ ADDRESS
<input type="checkbox"/> NEW LICENSE AND NEW LICENSEE	<input checked="" type="checkbox"/> OTHER AMENDMENT	<input type="checkbox"/> CLERICAL CHANGE NO AMENDMENT	4	070-02272	09430	<input type="checkbox"/>

B. INDICATIVE INFORMATION:

INDIVIDUAL	NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)			
	NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)			
	NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)			
ORGANIZATION	ORGANIZATION NAME (ALPHABETIC SEQUENCE)				
	Peabody Coal Company				
	DEPARTMENT OR BUREAU				
ADDRESS	STREET	CITY	STATE	ZIP CODE	
	301 North Memorial Drive	St. Louis	MO	63102	
TYPE OF APPLICANT	<input type="checkbox"/> U.S. GOVERNMENT AGENCY	DATE REQUEST RECEIVED	INSTITUTION CODE	PENDING PROG. CODE	ACTUAL PROG. CODE
	<input type="checkbox"/> INDIVIDUAL LICENSEE	2/1/78	15275		
	<input checked="" type="checkbox"/> ORGANIZATIONAL LICENSEE				
SECONDARY PROGRAM CODES AS REQUIRED:					
#1	#2	#3	#4	#5	
LICENSE NUMBER	DATE LICENSE ISSUED OR ACTION COMPLETED	EXPIRATION DATE			
011-1335	AUG 24 1978	08-31-81			

C. STATISTICAL INFORMATION:

MEDICAL CATEGORY:
<input type="checkbox"/> FOR HUMAN USE ONLY <input type="checkbox"/> FOR HUMAN AND NONHUMAN USE <input checked="" type="checkbox"/> FOR NONHUMAN USE ONLY
POSSESSION OF THE MATERIAL IS AUTHORIZED IN ONE OF THE FOLLOWING AREAS:
<input checked="" type="checkbox"/> SAME AS "STATE" IN ADDRESS <input type="checkbox"/> ALL STATES <input type="checkbox"/> ALL NON-AGREEMENT STATES
AND/OR IN THE STATE(S), TERRITORY(S), COUNTRY CHECKED BELOW:
ALABAMA -AL GEORGIA -GA MARYLAND -MD NEW JERSEY -NJ SOUTH CAROLINA -SC WYOMING -WY
ALASKA -AK HAWAII -HI MASSACHUSETTS -MA NEW MEXICO -NM SOUTH DAKOTA -SD
ARIZONA -AZ IDAHO -ID MICHIGAN -MI NEW YORK -NY TENNESSEE -TN AMERICAN SAMOA -AS
ARKANSAS -AR ILLINOIS -IL MINNESOTA -MN NORTH CAROLINA -NC TEXAS -TX CANAL ZONE -CZ
CALIFORNIA -CA INDIANA -IN MISSISSIPPI -MS NORTH DAKOTA -ND UTAH -UT GUAM -GU
COLORADO -CO IOWA -IA MISSOURI -MO OHIO -OH VERMONT -VT PUERTO RICO -PR
CONNECTICUT -CT KANSAS -KS MONTANA -MT OKLAHOMA -OK VIRGINIA -VA VIRGIN ISLANDS -VI
DELAWARE -DE KENTUCKY -KY NEBRASKA -NB OREGON -OR WASHINGTON -WA
WASHINGTON, DC -DC LOUISIANA -LA NEVADA -NV PENNSYLVANIA -PA WEST VIRGINIA -WV CANADA -CN
FLORIDA -FL MAINE -ME NEW HAMPSHIRE -NH RHODE ISLAND -RI WISCONSIN -WI

D. POSSESSION LIMITS OF SOURCE AND SPECIAL NUCLEAR MATERIALS AND TRITIUM

SOURCE MATERIAL CEILING				SNM CEILING				
<input type="checkbox"/> GRAMS <input type="checkbox"/> KILOGRAMS				<input type="checkbox"/> GRAMS <input type="checkbox"/> KILOGRAMS				
<input type="checkbox"/> "X" HERE IF FOR POWER REACTOR								
AMOUNT	UNIT	CONFIG.	ENRICH.	MAT.	AMOUNT	UNIT	CONFIG.	ENRICH.
U5	kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
U3	kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
PU	003 kg <input checked="" type="checkbox"/> G <input checked="" type="checkbox"/>	UNS <input checked="" type="checkbox"/> S <input checked="" type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
UR	kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
TH	kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
	kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
	kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>				kg <input type="checkbox"/> G <input type="checkbox"/>	UNS <input type="checkbox"/> S <input type="checkbox"/>	
H3		<input type="checkbox"/> CURIES <input type="checkbox"/> MICROCURIES <input type="checkbox"/> MILLICURIES		RIS CODES				

U5=U235, U3=U233, PU=PLUTONIUM, UR=URANIUM, TH=THORIUM, H3=TRITIUM, G=GRAMS, kg=KILOGRAMS, S=SEALED, UNS=UNSEALED

U. S. NUCLEAR REGULATORY COMMISSION MATERIALS LICENSE

Page 1 of _____ Pages

Amendment NO. 1

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 1, Parts 30, 31, 32, 33, 34, 35, 36, 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); and to import such byproduct and source material. 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		Amount is <u>indefinite per letter</u> Dated <u>May 22, 1978</u>	
1. <u>Peabody Coal Co</u>		3. License number	<u>SNM-1645</u>
2.		4. Expiration date	<u>Aug 31, 1981</u>
		5. Reference No.	<u>070-02272</u>
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- <u>Plutonium-238</u>	A. <u>Sealed sources</u> <u>(Amersham corp.</u> <u>model PPC-L)</u>	A. <u>2 sources not to</u> <u>exceed 10 millicuries</u> <u>each</u>	
B. <u>Plutonium-238</u>	B. <u>Sealed sources</u> <u>(Amersham Corp.</u> <u>model PPC-X)</u>	B. <u>1 source 3</u> <u>30 millicuries</u>	
C. <u>Amersham 241</u>	C. <u>Foil source</u> <u>Amersham corp model</u> <u>AMM, 4</u>	C. <u>1 source 0.5</u> <u>millicurie</u>	
<p>D. <u>To be used in a Sartex Company of North America Model Phase III A-2</u> <u>Coal Ash Analyzer to demonstrate the analysis of ash content of coal.</u></p> <p>E. <u>To be used in a Texas Nuclear Div. model 9254 or model 9256 source</u> <u>housing in a Texas Nuclear model 9200 Series X-ray fluorescence analyzer</u> <u>for demonstration of in situ elemental analysis. (over)</u></p>			

For the U. S. Nuclear Regulatory Commission

Date _____

by _____

[Signature]
Division of Materials and Fuel Cycle
Facility Licensing
Washington, D. C. 20555

Mail To: ATTN: Mr. Jack T. Ellis
Director, Analytical & Technical
Services

A1196

C. To be used in a Texas nuclear div. model
9200 series x-ray ~~fluorescence~~ probe head
for electronics stabilization.

1. B. The University corporate headquarters, ~~St. Louis~~ St. Louis,
Missouri,

5, J.A. Pete Baschetti, Jack Ellis, James Addington or
William Embree

11 A(1), 11 A(2), 11 A(3), 11 B, 11 C, 11 D the licensee, 19,

copy card 15 and add: James Addington and William Embree

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copy card 17 (18) and add letter dated May 22, 1975

U.S. NUCLEAR REGULATORY COMMISSION
MATERIALS DATA INPUT INDUSTRIAL

1 - FILE COPY

A. TYPE OF ACTION AND IDENTIFICATION CODES

<input type="checkbox"/> NEW LICENSE	<input type="checkbox"/> AMENDMENT TO RENEW LICENSE	<input type="checkbox"/> AMENDMENT TO TERMINATE	<input checked="" type="checkbox"/> VOID	DOCKET NUMBER	MAIL CONTROL NUMBER	CHANGE NAME ADDRESS
<input type="checkbox"/> NEW LICENSE AND NEW LICENSEE	<input checked="" type="checkbox"/> OTHER AMENDMENT	<input type="checkbox"/> CLERICAL CHANGE NO AMENDMENT	4	070-02272	16712	<input type="checkbox"/>

B. INDICATIVE INFORMATION:

INDIVIDUALS	NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)
	NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)
	NAME (LAST, FIRST, MIDDLE)	NAME (LAST, FIRST, MIDDLE)
ORGANIZATION	ORGANIZATION NAME (ALPHABETIC SEQUENCE)	
	DEPARTMENT OR BUREAU	
ADDRESS	BUILDING, STREET	CITY
	301 North Memorial Drive	St. Louis
6	STATE	ZIP CODE
	MO	63102
6	TYPE OF APPLICANT	DATE REQUEST RECEIVED
	<input type="checkbox"/> U.S. GOVERNMENT AGENCY <input type="checkbox"/> INDIVIDUAL LICENSEE <input checked="" type="checkbox"/> ORGANIZATIONAL LICENSEE	06/30/80
6	INSTITUTION CODE	PENDING PROG. CODE
	15275	
6	ACTUAL PROG. CODE	
6	SECONDARY PROGRAM CODES AS REQUIRED:	
	#1 #2 #3 #4 #5	
6	LICENSE NUMBER	DATE LICENSE ISSUED
	bnm-1665	7/9/80
6	EXPIRATION DATE	

C. STATISTICAL INFORMATION:

MEDICAL CATEGORY:					
<input type="checkbox"/> FOR HUMAN USE ONLY	<input type="checkbox"/> FOR HUMAN AND NONHUMAN USE	<input type="checkbox"/> FOR NONHUMAN USE ONLY			
POSSESSION OF THE MATERIAL IS AUTHORIZED IN ONE OF THE FOLLOWING AREAS:					
<input type="checkbox"/> SAME AS "STATE" IN ADDRESS	<input type="checkbox"/> ALL STATES	<input type="checkbox"/> ALL NON-AGREEMENT STATES			
AND/OR IN THE STATE(S), TERRITORY(S), COUNTRY CHECKED BELOW:					
ALABAMA -AL	GEORGIA -GA	MARYLAND -MD	NEW JERSEY -NJ	SOUTH CAROLINA -SC	WYOMING -WY
ALASKA -AK	HAWAII -HI	MASSACHUSETTS -MA	NEW MEXICO -NM	SOUTH DAKOTA -SD	
ARIZONA -AZ	IDAHO -ID	MICHIGAN -MI	NEW YORK -NY	TENNESSEE -TN	AMERICAN SAMOA -AS
ARKANSAS -AR	ILLINOIS -IL	MINNESOTA -MN	NORTH CAROLINA -NC	TEXAS -TX	CANAL ZONE -CZ
CALIFORNIA -CA	INDIANA -IN	MISSISSIPPI -MS	NORTH DAKOTA -ND	UTAH -UT	GUAM -GU
COLORADO -CO	IOWA -IA	MISSOURI -MO	OHIO -OH	VERMONT -VT	PUERTO RICO -PR
CONNECTICUT -CT	KANSAS -KS	MONTANA -MT	OKLAHOMA -OK	VIRGINIA -VA	VIRGIN ISLANDS -VI
DELAWARE -DE	KENTUCKY -KY	NEBRASKA -NE	OREGON -OR	WASHINGTON -WA	
WASHINGTON, DC -DC	LOUISIANA -LA	NEVADA -NV	PENNSYLVANIA -PA	WEST VIRGINIA -WV	CANADA -CN
FLORIDA -FL	MAINE -ME	NEW HAMPSHIRE -NH	RHODE ISLAND -RI	WISCONSIN -WI	

D. POSSESSION LIMITS OF SOURCE AND SPECIAL NUCLEAR MATERIALS AND TRITIUM

SOURCE MATERIAL CEILING				SNM CEILING				
<input type="checkbox"/> GRAMS <input type="checkbox"/> KILOGRAMS				<input type="checkbox"/> GRAMS <input type="checkbox"/> KILOGRAMS				
<input type="checkbox"/> "X" HERE IF FOR POWER REACTOR								
AMOUNT	UNIT	CONFIG.	ENRICH.	MAT.	AMOUNT	UNIT	CONFIG.	ENRICH.
U5	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
U3	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
PU	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
UR	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
TH	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
	<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS				<input type="checkbox"/> G <input type="checkbox"/> kg	<input type="checkbox"/> S <input type="checkbox"/> UNS	
H3	<input type="checkbox"/> CURIES <input type="checkbox"/> MICROCURIES <input type="checkbox"/> MILLICURIES			RIS CODES				

U5=U235, U3=U233, PU=PLUTONIUM, UR=URANIUM, TH=THORIUM, H3=TRITIUM, G=GRAMS,
kg=KILOGRAMS, S=SEALED, UNS=UNSEALED