

March 9, 1995

U.S. Department of the Interior
 Geological Survey
 ATTN: Gregory A. Wandless
 Radiation Safety Officer
 Mail Stop 990
 12201 Sunrise Valley Drive
 Reston, Virginia 22092

SUBJECT: TRANSMITTAL AND EXPLANATION OF MATERIALS LICENSE
 (REFERENCE CONTROL NO. 256330; DOCKET NO. 030-10034)

Gentlemen:

Enclosed is Amendment No. 27 to License No. 45-15923-01 issued in response to your application dated February 22, 1995. Revisions to your license are printed in **BOLD** typeface. Please review this document carefully and be sure that you understand all of its provisions.

If you have questions about this letter or your license, please call me at (404) 331-0344.

Sincerely,

Jay L. Henson
 Materials License Reviewer
 Nuclear Materials Licensing Section

Enclosure: Amendment No. 27

SEND TO PUBLIC DOCUMENT ROOM?		YES	NO				
OFFICE	RH DRSS	RH DRSS					
SIGNATURE	<i>JLH</i>	<i>JPotter</i>					
NAME	JHenson	JPotter					
DATE	03/9/95	03/3/95	02/ / 95	02 / 95	02 / 95	02 / 95	
	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	

OFFICIAL RECORD COPY

DOCUMENT NAME: G:\DRSS\NMLS\256330\JLH

MATERIALS LICENSE

Amendment No. 27

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 as limited below, to use such material for the purpose(s) and at the place(s) designated below, to deliver or transfer such material to any person 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

U.S. Department of the Interior
Geological Survey
National Center
M.S. 927
12201 Sunrise Valley Drive
Reston, Virginia 22092

In accordance with the letter dated February 22, 1995

3. License Number 45-15923-01

is amended in its entirety to read as follows:

4. Expiration Date November 30, 1995

5. Docket or Reference No. 030-10034

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

Hydrogen 3	A. Any	A. 2 millicuries (74 MBq) total
Carbon 14	B. Any	B. 8 millicuries (296 MBq) total
C. Phosphorus 32	C. Any	C. 2 millicuries (74 MBq) total
D. Phosphorus 33	D. Any	D. 2 millicuries (74 MBq) total
E. Sulphur 35	E. Any	E. 4 millicuries (148 MBq) total
F. Chlorine 36	F. Liquid	F. 50 microcuries (1.85 MBq)
G. Cobalt 60	G. Sealed sources	G. 3 sources, not to exceed 16 microcuries (582 kBq) total
H. Cobalt 60	H. Any	H. 500 microcuries (18.5 MBq) total
I. Nickel 63	I. Foils in Shimadzu Model EDC-M2 detector cells	I. Not to exceed 15 millicuries (555 MBq) per foil
J. Nickel 63	J. Sealed or plated sources	J. Not to exceed 15 millicuries (555 MBq) per sealed or plated source
K. Iron 55	K. Any	K. 10 millicuries (370 MBq)
L. Zinc 65	L. Any	L. 200 microcuries (7.4 MBq)
M. Strontium 89	M. Any	M. 10 microcuries (370 kBq)
N. Strontium 90	N. Any	N. 10 microcuries (370 kBq)
O. Tin 113	O. Any	O. 10 microcuries (370 kBq)

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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
P. Antimony 125	P. Any	P. 100 microcuries (3.7 MBq)
Q. Barium 133	Q. Any	Q. 500 microcuries (18.5 MBq) total
R. Cesium 137	R. Sealed sources	R. 3 sources, not to exceed 20 microcuries (740 kBq) total
S. Cesium 137	S. Any	S. 10 millicuries (370 MBq)
T. Promethium 147	T. Sealed sources	T. 2 millicuries (74 MBq)
U. Protactinium 231	U. Any	U. 10 microcuries (370 kBq) total
V. Neptunium 237	V. Any	V. 10 microcuries (370 kBq) total
W. Americium 241	W. Any	W. 500 microcuries (18.5 MBq) total
X. Americium 241	X. Sealed sources (custom made)	X. 20 sources, not to exceed 40 millicuries (1.48 GBq) total
Y. Any byproduct material	Y. Activated samples	Y. 530 millicuries (19.65 GBq) total
Z. Technetium 99	Z. Liquid	Z. 1 millicurie (37 MBq)

9. Authorized Use:

A. through E.

For use in laboratory tracer studies and molecular biology procedures

F. For use in molecular biology procedures

G. For use in the testing, evaluation, and calibration of detectors

H. For use in laboratory tracer studies

I. For use in Shimadzu Mini-2E gas chromatographs for sample analysis

J. For use in gas chromatographs for sample analysis

K. through Q.

For use in laboratory tracer studies

R. For use in testing, evaluation, and calibration of detectors

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9. Authorized Use (Continued)**S. through W.**

For use in laboratory tracer studies

X. For use in X-ray fluorescence studies**Y. For possession incident to neutron activations and radioactive dating studies****Z. For use in laboratory studies****CONDITIONS****10. Licensed material may be used at:**

- A. Geological Survey Physics Building, Lot "O" off South Lakes Drive, and the National Center, 12201 Sunrise Valley Drive, Reston Virginia.**
- B. Room 519, U.S. Geological Survey, Stephenson Center, Suite 129, 729 Gracern Road, Columbia, South Carolina.**

11. The Radiation Protection Officer for the activities authorized by this license is Gregory A. Wandless.**12. Authorized users:**

- A. Allan B. Tanner For materials listed in Subitems 6.A. through Z.**
- B. Eurybiades Busenburg For material listed in Subitem 6.I.**
- C. Nancy D. Naeser For materials listed in Subitem 6.Y.**
- D. Philip A. Baedecker For materials listed in Subitems 6.F, H, L through O, S, U through W and Y.**
- E. Jeffrey N. Grossman For materials listed in Subitems 6.F, H, L through O, S, U through W, and Y.**
- F. Michael J. Kunk For materials listed in Subitem 6.Y**
- G. Edward R. Landa For material listed in Subitem Z.**
- H. Derek R. Lovely For materials listed in Subitems 6.A through C, D, J and Z.**
- I. John W. Morgan For materials listed in Subitems 6.F, H, J through O, S, U through W, and Y.**
- J. Curtis A. Palmer For materials listed in Subitems 6.F, H, J through O, S, U through W, and Y.**
- K. Elizabeth J. Jones For materials listed in Subitems 6.A through C, E and J.**
- L. Michael J. Pickering For materials listed in Subitems 6.G, R, and Y**

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CONDITIONS

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12. Authorized Users: (Continued)

- M. John F. Sutter For materials listed in Subitem 6.Y.
- N. Gregory A. Wandless For materials listed in Subitems 6.F, H, L through Q, S, V through Y.
- O. Joan Woodward For materials listed in Subitems 6.A through E, and J.
- P. Francis H. Chapelle For materials listed in Subitems 6.B, C and J.
- Q. Paul M. Bradley For materials listed in Subitems 6.C, D and J.
- R. James E. Landmeyer For materials listed in Subitems 6.C, D and J.
- S. Debra J. Lonergan For materials listed in Subitems 6.C, D and F.
- T. Peggy K. Widman For materials listed in Subitems 6.A through E, and J.
- U. Charles W. Naeser For materials listed in Subitems 6.Y.

13. A.(1) The sealed source(s) specified in Item 7, shall be tested for leakage and/or contamination at intervals not to exceed 6 months. Any sealed source received from another person which is not accompanied by a certificate indicating that a test was performed within 6 months before the transfer 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.
- B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.
- C. The 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, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A 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 Radiation Safety and Safeguards, Nuclear Materials Inspection Section, 101 Marietta Street, Suite 2900, Atlanta, Georgia 30323. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.
- D. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
14. Sealed sources containing licensed material shall not be opened by the licensee.

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15. Detector cells containing licensed material shall not be opened or the sources removed from the detector cell by the licensee.
16. In lieu of using the conventional radiation caution color (magenta or purple on yellow background) as provided in 10 CFR 20.203(a)(1), the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.
17. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under this license.
18. Licensed material shall not be used in or on human beings or in products distributed to the public.
19. The licensee shall maintain records of information important to safe and effective decommissioning at the U.S. Department of the Interior, Geological Survey, 990 National Center, Reston, Virginia, pursuant to the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission.
20. In addition to the possession limits in item 8, the licensee shall further restrict the possession of licensed material as follows:
 - A. For unsealed sources to quantities less than 10^5 times the applicable limits in Appendix C, 10 CFR 20 as specified in 10 CFR 30.35(d) and
 - B. For sealed sources, to quantities less than 10^{10} times the applicable limits in Appendix C, 10 CFR 20 as specified in 10 CFR 30.35(d).
21. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material"

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22. 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. Application dated June 26, 1990
- B. Letters dated:
 - (1) October 4, 1990
 - (2) August 29, 1991
 - (3) December 10, 1991
 - (4) January 14, 1993
 - (5) January 14, 1993
 - (6) November 23, 1993
 - (7) July 1, 1994
 - (8) August 22, 1994
 - (9) January 30, 1995
 - (10) February 22, 1995

[Add Columbia SC and authorized users there]
 [Add P-32, Ms. Lonergan as user, reinstate CI-36 use]
 [Add P-33 w/Ms. Lonergan as user, deletes Yuri Gorby and Steven Mee as authorized users]
 [Change user names, add authorized user, delete departed users, change rooms]
 [Change Radiation Safety Officer]
 [Add authorized users]
 [Increase C-14 limit to 8 mCi]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

JAY L. HENSON

DATE MAR 9 1995

BY Jay L. Henson

NRC LICENSE 45-15923A27

Region II, Nuclear Materials Licensing Section
101 Marietta Street, N.W., Suite 2900
Atlanta, GA 30333-0199

(FOR LFMS USE)
INFORMATION FROM LTS

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

Program Code: 03620
Status Code: 0
Fee Category: EX SM
Exp. Date: 19951130
Fee Comments:
Decom Fin Assur Req: Y

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: INTERIOR, DEPARTMENT OF THE
Received Date: 950224
Docket No: 3010034
Control No.: 256330
License No.: 45-15923-01
Action Type: Amendment

2. FEE ATTACHED

Amount: _____
Check No.: _____

3. COMMENTS

Signed _____
Date _____

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

1. Fee Category and Amount: ~~_____~~ **FREE EXEMPT**

2. Correct Fee Paid. Application may be processed for:
Amendment _____
Renewal _____
License _____

3. OTHER

Signed _____
Date _____