

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, 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.

<p>Licensee</p> <p>1. Department of Veterans Affairs</p> <p>2. Veterans Administration Medical Center 2002 Holcombe Boulevard Houston, Texas 77030</p>		<p>In accordance with letter dated December 1996</p> <p>3. License number 42-00084-06 is amended in its entirety to read as follows:</p>	
		<p>4. Expiration date July 31, 2003</p>	
		<p>5. Docket or Reference No 030-03255</p>	
<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Any byproduct material with Atomic Numbers 1 through 83, inclusive, except as specified below</p> <p>B. Hydrogen-3</p> <p>C. Carbon-14</p> <p>D. Molybdenum-99</p> <p>E. Technetium-99m</p> <p>F. Iodine-125</p> <p>G. Iodine-131</p> <p>H. Xenon-133</p> <p>I. Sulfur-35</p> <p>J. Phosphorus-32</p> <p>K. Phosphorus-33</p> <p>L. Any byproduct material with Atomic Numbers 1 through 83, inclusive, except as specified below</p>	<p>7. Chemical and/or physical form</p> <p>A. Any, except sealed sources</p> <p>B. Any</p> <p>C. Any</p> <p>D. Any</p> <p>E. Any</p> <p>F. Any</p> <p>G. Any</p> <p>H. Any</p> <p>I. Any</p> <p>J. Any</p> <p>K. Any</p> <p>L. Sealed sources (Registered pursuant to 10 CFR 32.210 or equivalent Agreement State regulations)</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. Not to exceed 200 millicuries per radionuclide with a total possession limit of 2 curies</p> <p>B. 1 curie</p> <p>C. 1 curie</p> <p>D. 5 curies</p> <p>E. 5 curies</p> <p>F. 500 millicuries</p> <p>G. 500 millicuries</p> <p>H. 5 curies</p> <p>I. 300 millicuries</p> <p>J. 300 millicuries</p> <p>K. 300 millicuries</p> <p>L. Not to exceed 1.5 curies per source with a total possession not to exceed 10 curies</p>	

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Amendment No. 53

M. Cesium-137	M. Sealed sources	M. 2.0 curies
N. Iridium-192	N. Sealed sources	N. 2.0 curies
O. Gold-198	O. Sealed sources	O. 2.0 curies
P. Cesium-137	P. Sealed source (Amersham Model No. X.19)	P. 1.2 curies
Q. Cesium-137	Q. Sealed source (RAMCC-50-ORN)	Q. Not to exceed 420 curies

9. Authorized use:

- A. through O. Medical diagnosis, therapy, and research in humans. Research and development as defined in 10 CFR 30.4. Animal studies. Student instruction. Instrument calibration.
- P. For use in J. L. Shepherd Model 28-6A calibrator for calibration of the licensee's instruments.
- Q. For possession only in Isomedix Model Gammator 50B irradiator.

CONDITIONS

- 10. A. Licensed material shall be used only at Veterans Administration Medical Center, 2002 Holcombe Blvd., Houston, Texas.
- B. Licensed material identified in Item 7.Q. shall be stored only at Veterans Administration Medical Center, 2002 Holcombe Blvd., Houston, Texas in Research Bldg. 211, Room 211 West.
- 11. A. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.
- B. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR Part 35, Subpart J and shall be designated by the licensee's Radiation Safety Committee. Exceptions may be made on a case-by-case basis in accordance with the procedures described in application dated June 4, 1993. The licensee shall maintain records of individuals designated as users for three years after the individual's last use of licensed material.

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- C. Licensed material for other than human use shall be used by, or under the supervision of, individuals designated by the Radiation Safety Committee. The licensee shall maintain records of individuals designated as users for three years after the individual's last use of licensed material.
- D. Licensed material identified in Item 7.Q. may be stored under the supervision of Roger D. Rossen, M.D., Frank M. Orson, M.D., or Arline Laughter.
- E. The Radiation Safety Officer for this license is Jeffrey Triebel.
12. A. Sealed sources and detector cells 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. Notwithstanding Paragraph A of this Condition, sealed sources and detector cells designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.
- C. 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 or detector cell received from another person shall not be put into use until tested.
- D. Sealed sources need not be leak tested if:
- (i) they contain only hydrogen-3; or
 - (ii) they contain only a radioactive gas; or
 - (iii) the half-life of the isotope is 30 days or less; or
 - (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
 - (v) they are not designed to emit alpha particles, 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.
- E. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. 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

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Regulatory Commission 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 IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Radiation Safety and Safeguards. 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.

- F. 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.
13. The licensee shall conduct a physical inventory every 3 months to account for all sources and/or devices received and possessed pursuant to 10 CFR 35.59, 10 CFR 35.400 and 10 CFR 35.500 and every 6 months for all other sources and/or devices. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the information required in 10 CFR 35.59(g).
14. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperature from exceeding that specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.
- B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.
15. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in 10 CFR 20.203(a)(1), the licensee is hereby authorized to label detector cells, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols.
16. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 10 CFR 35.100, 10 CFR 35.200, 10 CFR 35.300, 10 CFR 35.400, and 10 CFR 35.500, the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable United States Food and Drug Administration (FDA) and other Federal and State requirements.
17. The licensee shall possess and use byproduct material for human research use in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except Sections 35.49(a) and (b), 35.100, 35.200, and 35.300.

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18. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
19. The licensee is authorized to hold medical byproduct waste with a physical half-life of less than 100 days for decay-in-storage before disposal in ordinary trash provided:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
 - B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
 - C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.
 - D. A record of each disposal permitted under this License Condition shall be retained for 3 years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
20. The licensee is authorized to hold non-medical byproduct waste with a physical half-life of less than 100 days for decay-in-storage before disposal in ordinary trash provided:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
 - B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
 - C. A record of each disposal permitted under this License Condition shall be retained for 3 years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

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21. Radioactive waste, specifically tritium, carbon-14, and calcium-45, possessed under this license shall be stored in accordance with the statements, representations, and procedures included with the licensee's waste storage plan described in the licensee's application dated June 4, 1993.
22. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
23. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
24. Written instructions contained in licensee application dated March 20, 1989, shall be followed and a copy of these instructions shall be made available to each individual using or having responsibility for use of licensed material identified in Item 7.Q. Any changes in these instructions shall have the prior approval of the U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011, ATTN: Director, Division of Radiation Safety and Safeguards.
25. This license does not authorize repairs or alterations of the irradiator or facility involving removal of shielding or access to the licensed material except as provided otherwise by specific condition of this license. Removal, replacement, and disposal of sealed sources containing licensed material shall be performed only by Isomedix or other persons specifically authorized by the Commission or an Agreement State to perform such services.
26. In addition to the possession limits in Condition 8, the licensee shall further restrict the possession of unsealed licensed material to quantities less than 10^5 times the applicable limits in Appendix C of 10 CFR Part 20 as specified in 10 CFR 30.35(d).

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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 U.S. 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 March 20, 1989
- B. Letter dated February 7, 1991
- C. Letter dated August 15, 1991
- D. Letter dated August 26, 1992
- E. Letter dated September 28, 1992
- F. Application dated June 4, 1993
- G. Letter dated July 16, 1993
- H. Facsimile dated July 29, 1993
- I. Letter received August 18, 1993
- J. Letter dated December 26, 1996, except for alternate disposal method

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Original Signed By
Vivian H. Campbell

Date MAR 31 1997

By

Vivian H. Campbell
Nuclear Materials Licensing Branch
Region IV
Arlington, Texas 76011



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

March 31, 1997

Department of Veterans Affairs
ATTN: Robert F. Stott, Director
2002 Holcombe Boulevard
Houston, Texas 77030

SUBJECT: LICENSE AMENDMENT

Please find enclosed License No. 42-00084-06. You should review this license carefully and be sure that you understand all conditions. If you have any questions, you may contact the reviewer who signed your license at 817-860-8143.

Please note that we have approved your amendment request dated December 26, 1996, with the exception of your request for approval of proposed disposal procedures. Your request has been forwarded to our Division of Waste Management, NMSS, for review. You will be informed of the results of NRC's review under separate correspondence.

NRC expects licensees to conduct their programs with meticulous attention to detail and a high standard of compliance. Because of the serious consequences to employees and the public which can result from failure to comply with NRC requirements, you must conduct your program involving radioactive 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 Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Possess radioactive material only in the quantity and form indicated in your license.
3. Use radioactive material only for the purpose(s) indicated in your license.
4. Notify NRC in writing of any change in mailing address (no fee required if the location of radioactive material remains the same).
5. Request and obtain written NRC consent before transferring your license or any right thereunder, either voluntarily or involuntarily, directly or indirectly, through transfer of control of your license to any person or entity. A transfer of control of your license includes not only a total change of ownership, but also a change in the controlling interest in your company whether it is a corporation, partnership, or other entity. In addition, appropriate license amendments must be requested and obtained for any

other planned changes in your facility or program that are contrary to your license or contrary to representations made in your license application, as well as supplemental correspondence thereto, which are incorporated into your license. A license fee may be charged for the amendments if you are not in a fee-exempt category.

6. Maintain in a single document decommissioning records that have been certified for completeness and accuracy listing all the following items applicable to the license:
 - Onsite areas designated or formerly designated as restricted areas as defined in 10 CFR 20.3(a)(14) or 20.1003.
 - Onsite areas, other than restricted areas, where radioactive materials in quantities greater than amounts listed in Appendix C to 10 CFR 20.1001-20.2401 have been used, possessed, or stored.
 - Onsite areas, other than restricted areas, where spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site have occurred that required reporting pursuant to 10 CFR 30.50(b)(1) or (b)(4), including areas where subsequent cleanup procedures have removed the contamination.
 - Specific locations and radionuclide contents of previous and current burial areas within the site, excluding radioactive material with half-lives of 10 days or less, depleted uranium used only for shielding or as penetrators in unused munitions, or sealed sources authorized for use at temporary job sites.
 - Location and description of all contaminated equipment involved in licensed operations that is to remain onsite after license termination.
7. Submit a complete renewal application with proper fee, or termination request at least 30 days before the expiration date on your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of radioactive material after your license expires is a violation of NRC regulations.
8. Request termination of your license if you plan to permanently discontinue activities involving radioactive material.

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; imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), 60 FR 34381, June 30, 1995.

Thank you for your cooperation.

Sincerely,

Original Signed By
Vivian H. Campbell

Vivian H. Campbell
Senior Health Physicist
Nuclear Materials Licensing Branch

Docket: 030-03255
License: 42-00084-06
Control: 466290

Enclosures: As stated

MAR 31 1997

Department of Veterans Affairs

-4-

DOCUMENT NAME: P:\VAHouston.mlc

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

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VHCampbell	WHL						
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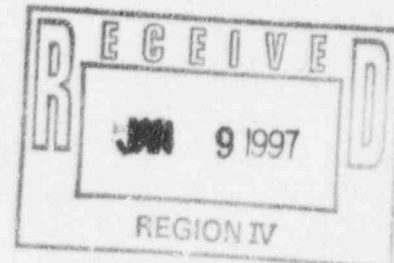
DEPARTMENT OF VETERANS AFFAIRS
Medical Center
St Louis MO 63125

January 6, 1997

U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8604

SUBJECT: NRC License No. 42-00084-06

In Reply Refer To:



The enclosed correspondence from the Houston, Texas VA Medical Center has been received and is forwarded to your office for processing. If there are questions, please contact the facility.

Please provide a copy of any correspondence relative to licensing actions for this Medical Center to:

Department of Veterans Affairs
Health Physics Programs (115HP)
915 North Grand Blvd.
St. Louis, MO 63106

Sincerely,

Cindy Bukawsky

for

Francis K. Herbig
Health Physics Programs

466290



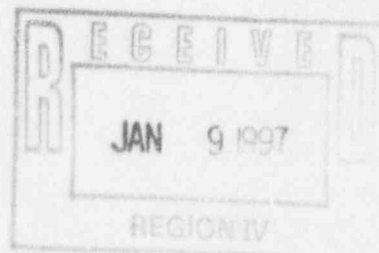
DEPARTMENT OF VETERANS AFFAIRS
Medical Center
2002 Holcombe Boulevard
Houston TX 77030

DEC 26 1996

In Reply Refer To: 580/002S
Radiation Safety

U.S. Nuclear Regulatory Commission
Region IV
Material Radiation Protection Section
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Subject: Amendment Request for License #42-00084-06
Reference: Docket #030-03255



Please amend License #42-00084-06 as described below.

TAR required
This medical center is currently paying approximately \$1900.00 per compacted 55-gallon drum for the disposal of solid radioactive waste that cannot be decayed in storage or is not otherwise exempted according to 10 CFR 20.2005. At the same time, the State of Texas exempts several waste forms and/or radionuclides that are not currently exempted by 10 CFR 20. Therefore, as per 10 CFR 20.2002 we wish to amend our license to allow for the disposal of radioactive waste according to the Texas Regulations for Control of Radiation (TRCR) Part 21.1304. Please see Attachment 1 for the specific wording of this amendment request and Attachment 2 for a copy of TRCR 21.1304.

On page 3 of our license application dated June 4, 1993, please replace Item 7.1, paragraph B.4 with the following:

OK
The RSO meets with senior management as often as necessary to review the radiation safety program. The RSO always has access to senior management to discuss radiation safety program issues.

On page 4 of our license application dated June 4, 1993, please replace Item 7.2, paragraph C.2 with the following:

OK
The Radionuclide Use Subcommittee (RUS) consists of the RSO and five to six rotating members who are authorized users of radioactive material and/or x-rays. The Chiefs of Nuclear Medicine and Radiology Services are no longer members of the committee, but they must still approve clinical protocols utilizing their Services. Thus, both clinical and non-clinical protocols still receive the same scrutiny as before. In addition, human use protocols which are outside the bounds of routine nuclear medicine will continue to be reviewed by the RUS and the Chief of Nuclear Medicine Service.

466290

U.S. Nuclear Regulatory Commission, Region IV
Amendment Request for License #42-00084-06

On page 11 of our license application dated June 4, 1993, please replace the section on dose calibrator calibration in Item 9, Facilities and Equipment with the following:

Dose Calibrator Calibration: We will establish and implement the model procedure for calibrating dose calibrators that was published in Appendix C to Regulatory Guide 10.8, Revision 2, with the following exceptions:

- OK
- a. All tolerances for repair, adjustment, replacement, or arithmetic correction will be $\pm 10\%$.
 - b. When linearity is determined by measuring a decaying Tc-99m source, the source will be measured at least twice per day and the percent difference between the calculated and measured activities calculated. Use of a graph is optional.
 - c. When linearity is determined using the sleeve method, we will follow the manufacturer's instructions for conducting the test.

On page 19 of our license application dated June 4, 1993, please replace Item 10.2.1, paragraph E with the following:

OK Policy for opening packages: The procedures outlined in 10 CFR 20.1906 will be followed. A copy of our specific package opening procedure is included as Attachment 5. Records of package checks need not be maintained for materials received under the general license in 10 CFR Part 31.11.

On page 22 of our license application dated June 4, 1993, please replace Item 10.4.1, paragraph C with the following:

OK The RSO meets with senior management as often as necessary to review the radiation safety program. The RSO always has access to senior management to discuss radiation safety program issues.

Thank you for your consideration of this amendment request. If you require any further information, please contact Mr. Jeffrey Triebel at (713) 794-7188.

Sincerely,

*for in
absence
of:*
Adam C. Walman
ROBERT F. STOTT
Director

Attachments

cc: Director, National Health Physics Program, VA

Amendment Request Concerning Radioactive Waste Disposal

1. As per 10 CFR 20.2002 we wish to amend our license to allow for the disposal of radioactive waste according to TRCR 21.1304 (Attachment 2).

2. The following licensed material may be disposed of as if it were not radioactive.

(a) 0.05 microcurie, or less of hydrogen-3, carbon-14, or iodine-125 per gram of medium used for liquid scintillation counting or in vitro clinical or in vitro laboratory testing; and 0.05 microcurie, or less, of hydrogen-3, carbon-14, or iodine-125 per gram of animal tissue, averaged over the weight of the entire animal.

(b) Liquid scintillation vials are disposed of as chemical waste and thus are transferred to a licensed broker for proper disposal.

(c) A letter from the Texas Bureau of Radiation Control describing in-vitro laboratory waste is included as Attachment 3. This waste is in the form of paper, plastic, and glass and is processed as infectious waste with the hospital waste stream. Currently, the waste is put through an on-site industrial grinder, chemically disinfected (chlorinated), macerated, and transported to a municipal landfill.

(d) As per 10 CFR 20.2005(b), we will not dispose of animal tissue in a manner that would permit its use either as food for humans or as animal feed.

(e) The disposal procedure is as follows:

i. The activity in each container of waste is estimated using receipt and disposal records as well as a knowledge of the procedures that generated the waste.

ii. Each container is weighed and the concentration of H-3, C-14, and/or I-125 calculated to ensure there is $\leq 0.05 \mu\text{Ci/gram}$ of waste.

iii. Each container is surveyed at its surface with an appropriate meter set on its most sensitive scale and with no interposed shielding. The container is disposed of only if its radioactivity cannot be distinguished from background.

iv. All radiation labels are removed or obliterated.

3. Licensed material listed in TRCR Appendix 21-H (see Attachment 4) may be disposed of according to TRCR 21.1304(d) and the procedures described below.

(a) The activity of each radionuclide in each waste container is estimated using receipt and disposal records as well as a knowledge of the procedures that generated the waste. Calculations are made and records kept to ensure the concentration and total curie limits are not exceeded.

- (b) Each waste container is surveyed to ensure the radiation level does not exceed 50 mrem/hr at the surface and 1 mrem/hr at a distance of 1 meter from the container. Thus, if the waste were subject to DOT regulations, the required label would be no greater than Yellow II.
 - (c) To ensure security of the material during transportation, waste containers are sealed and are either given directly to the landfill operator or are delivered directly to the landfill.
 - (d) All radiation labels are removed or obliterated.
4. Licensed material discarded under this amendment is exempt from the requirements of 10 CFR Part 71.
5. Disposal records of all materials described above are kept in accordance with 10 CFR 20.2108.
6. Other information required by 10 CFR 20.2002:
- (a) There is no pertinent information with regard to the nature of the environment.
 - (b) There are no licensed or unlicensed facilities affected or potentially affected by this process.
 - (c) ALARA considerations:
 - i. The waste described in paragraph 2 above is not released until its radioactivity is indistinguishable from background.
 - ii. The radiation level of the waste described in paragraph 3 is limited in order to minimize exposure to individuals handling the material. Since waste containers will be loaded onto a truck for transport to the landfill, individuals will be close to the containers for only a few minutes at a time. Based on our current waste stream, the projected surface exposure rate will be no more than a few mrem/hr.
7. These changes to our license are in addition to, and not to replace the waste disposal provisions already approved in our current license.

TRCP 21.1304 Exemption of Specific Wastes

- (a) A licensee may discard the following licensed material without regard to its radioactivity:
- (1) 0.05 microcurie (1.85 kilobecquerels), or less of hydrogen-3, carbon-14, or iodine-125 per gram of medium used for liquid scintillation counting or in vitro clinical or in vitro laboratory testing; and
 - (2) 0.05 microcurie (1.85 kilobecquerels), or less, of hydrogen-3, carbon-14, or iodine-125 per gram of animal tissue, averaged over the weight of the entire animal.
- (b) A licensee shall not discard tissue pursuant to 21.1304(a)(2) in a manner that would permit its use either as food for humans or as animal feed.
- (c) The licensee shall maintain records in accordance with 21.1109.
- (d) Any licensee may, upon Agency approval of procedures required in 21.1304(f), discard licensed material included in Appendix 21-H, provided that it does not exceed the concentration and total curie limits contained therein, in a Type I municipal solid waste site as defined in the Municipal Solid Waste Regulations of the authorized regulatory agency (31 TAC Section 330), unless such licensed material also contains hazardous waste, as defined in Section 3(15) of the Solid Waste Disposal Act, Health and Safety Code, Chapter 361. Any licensed material included in Appendix 21-H and which is a hazardous waste as defined in the Solid Waste Disposal Act may be discarded at a facility authorized to manage hazardous waste by the authorized regulatory agency.
- (e) Each licensee who discards material described in 21.1304(a) or (d) shall:
- (1) make surveys adequate to assure that the limits of 21.1304(a) or (d) are not exceeded; and
 - (2) remove or otherwise obliterate or obscure all labels, tags or other markings which would indicate that the material or its contents is radioactive.
- (f) Prior to authorizations pursuant to 21.1304(d), a licensee shall submit procedures to the Agency for:
- (1) the physical delivery of the material to the disposal site;
 - (2) surveys to be performed for compliance with 21.1304(e)(1);
 - (3) maintaining secure packaging during transportation to the site; and
 - (4) maintaining records of any discards made under 21.1304(d).
- (g) Nothing in this section relieves the licensee of maintaining records showing the receipt, transfer, and discard of such radioactive material as specified in 11.4.
- (h) Nothing in this section relieves the licensee from complying with other applicable federal, state, and local regulations governing any other toxic or hazardous property of these materials.
- (i) Licensed material discarded under this section is exempt from the requirements of 41.100.



Texas Department of Health

David R. Smith, M.D.
Commissioner

1100 West 49th Street
Austin, Texas 78756-3189
(512) 458-7111

Robert A. MacLean, M.D.
Deputy Commissioner

Radiation Control
(512) 834-6688

November 25, 1992

Warren D. Snell, M.A.
Radiation Safety Officer
Baylor College Of Medicine
Office of Environmental Safety
One Baylor Plaza, Garage 6
Houston, Texas 77030

Re: Letter dated November 10, 1992

Dear Mr. Snell:

We have reviewed the origination of the Texas "Biomedical Waste Rule," Texas Regulation for Control of Radiation 21.307(a) with Mr. Richard Ratliff and Mrs. Ruth McBurney. It is our and their conclusion that it's adoption was intended to address a wide range of radioactive waste, not to be restricted to a literal interpretation of "medium" as bacteriological or biological material or reagents. Other liquids and solids would also qualify for this waste stream, provided the concentration limits were adhered to. For a research facility such as yours, there would be very little ^3H or ^{14}C waste that could not potentially qualify for this type of disposal.

The rule as worded might exclude quantities of waste not involved in individual research laboratory scale processes, such as commercial production of products with ^3H or commercial production of laboratory reagents or other products labeled or incorporating ^{14}C . In these examples, the volumes and activities in the waste streams could exceed those postulated in the safety analysis for adoption of the rule. However, this would need to be addressed on a case by case basis, and specific cases might be found where commercial production wastes were acceptable under the intent of this rule.

If your discussions with other licensees show their interpretation to be different from the above, you may wish to share this with them. It may be important to take full advantage of this rule as indicated, rather than to have to address the inevitable extra hazards of long term interim storage of this type of waste, if disposal options for it are curtailed in the coming year.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jon R. Sharp".

Jon R. Sharp, Chief
Medical and Academic Program
Division of Licensing, Registration
and Standards
Bureau of Radiation Control

PART 21

Appendix 21-H

CONCENTRATION AND ACTIVITY LIMITS OF NUCLIDES FOR DISPOSAL IN A TYPE I MUNICIPAL SOLID WASTE SITE OR A HAZARDOUS WASTE FACILITY

(For use in 21.1304)

Nuclides	Concentrations Limit (Ci/m ³)	Annual Generator Disposal Limit (Ci/yr)
F-18	3×10^{-1}	8
Si-31	$1 \times 10^{+2}$	$3 \times 10^{+3}$
Na-24	9×10^{-4}	2×10^{-2}
P-32	2	$5 \times 10^{+1}$
P-33	10	$3 \times 10^{+2}$
S-35	9	$2 \times 10^{+2}$
Ar-41	3×10^{-1}	8
K-42	2×10^{-2}	5×10^{-1}
Ca-45	4	$1 \times 10^{+2}$
Ca-47	2×10^{-2}	5×10^{-1}
Sc-46	2×10^{-3}	5×10^{-2}
Cr-51	6×10^{-1}	$2 \times 10^{+1}$
Fe-59	5×10^{-3}	1×10^{-1}
Co-57	6×10^{-2}	2
Co-58	1×10^{-2}	3×10^{-1}
Zn-65	7×10^{-3}	2×10^{-1}
Ga-67	3×10^{-1}	8
Se-75	5×10^{-2}	1
Br-82	2×10^{-3}	5×10^{-2}
Rb-86	4×10^{-2}	1
Sr-85	2×10^{-2}	5×10^{-1}
Sr-89	8	$2 \times 10^{+2}$
Y-90	4	$1 \times 10^{+2}$
Y-91	4×10^{-1}	10
Zr-95	8×10^{-3}	2×10^{-1}
Nb-95	8×10^{-3}	2×10^{-1}
Mo-99	5×10^{-2}	1
Tc-99m	1	$3 \times 10^{+1}$
Rh-106	1	$3 \times 10^{+1}$
Ag-110m	2×10^{-3}	5×10^{-2}
Cd-115m	2×10^{-1}	5
In-111	9×10^{-2}	2

Appendix 21-H (Continued)

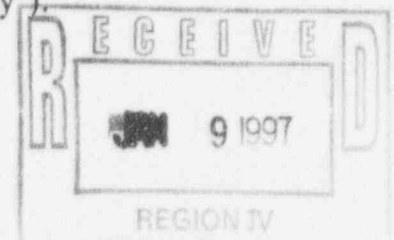
CONCENTRATION AND ACTIVITY LIMITS OF NUCLIDES FOR DISPOSAL IN A
TYPE I MUNICIPAL SOLID WASTE SITE OR A HAZARDOUS WASTE FACILITY

(For use in 21.1304)

Nuclides	Concentrations Limit (Ci/m ³)	Annual Generator Disposal Limit (Ci/yr)
In-113m	9	$2 \times 10^{+2}$
Sn-113	6×10^{-2}	2
Sn-119	$2 \times 10^{+1}$	$5 \times 10^{+2}$
Sb-124	2×10^{-3}	5×10^{-2}
Te-129	2×10^{-1}	5
I-123	4×10^{-1}	$1 \times 10^{+1}$
I-125	7×10^{-1}	$2 \times 10^{+1}$
I-131	4×10^{-2}	1
I-133	2×10^{-2}	5×10^{-1}
Xe-127	8×10^{-2}	2
Xe-133	1	$3 \times 10^{+1}$
Ba-140	2×10^{-3}	5×10^{-2}
La-140	2×10^{-3}	5×10^{-2}
Ce-141	4×10^{-1}	$1 \times 10^{+1}$
Ce-144	1×10^{-3}	3×10^{-2}
Pr-143	6	$2 \times 10^{+2}$
Nd-147	7×10^{-2}	2
Yb-169	6×10^{-2}	2
Ir-192	1×10^{-2}	3×10^{-1}
Au-198	3×10^{-2}	8×10^{-1}
Hg-197	8×10^{-1}	$2 \times 10^{+1}$
Tl-201	4×10^{-1}	$1 \times 10^{+1}$
Hg-203	1×10^{-1}	3

NOTE: In any case where there is a mixture in waste of more than one radionuclide, the limiting values for purposes of this Appendix shall be determined as follows:

For each radionuclide in the mixture, calculate the ratio between the quantity present in the mixture and the limit established in Appendix 21-H for the specific radionuclide when not in a mixture. The sum of such ratios for all the radionuclides in the mixture may not exceed "1" (i.e., "unity").



VAMC HOUSTON
RADIATION SAFETY OFFICE

PROCEDURE FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL

1. Visually inspect package for any sign of damage (e.g. wetness, crushed). If damage is noted, notify RSO.
2. Measure exposure rate at surface of package and record. If higher than the surface limits in Table 1, stop procedure and notify RSO. If less than the surface limits, but still unusually high notify RSO.
3. If the box bears one of the labels listed in Table 1, wipe test 100 cm² of the box (unless it contains only gaseous material). Assay the swab in an appropriate counter (see Table 2) and notify the RSO if test results reveal radioactivity above 1,000 dpm.

In addition, **ALL** packages that show evidence of damage must be wipe tested. If internal damage is suspected, use a second swab to wipe the packaging material and source container. Assay swabs immediately in an appropriate counter (see Table 2). Notify the RSO if contamination is present.

4. Open the package with the following precautionary steps:
 - (a) Remove the packing slip.
 - (b) Put on gloves and open the outer package following the supplier's instructions, if provided.
 - (c) Open the inner package and verify that the contents agree with the packing slip.
 - (d) Check the integrity of the final source container. Look for broken seals or vials, loss of liquid, condensation, or discoloration of the packing material.
 - (e) If anything is other than expected, stop and notify the RSO.
5. **NOTE:** Count all wipe tests as soon as possible so that: (a) Notification of any hazardous contamination can be made as soon as possible and (b) the results for short-lived isotopes will be accurate.

Table 1

Radioactive Package Labels

Label	Expected rate at 3' (mR/hr)	Surface limits (mR/hr)
White I	N/A - measure at surface only	0.5
Yellow II	Transport Index	50
Yellow III	Transport Index	200

Table 2

Appropriate Counters for Wipe Tests

Isotopes	Counter
H-3, C-14, S-35, P-32, P-33, Ca-45, Sr-89	LSC
Cr-51, Ga-67, Tc-99m, In-111 I-123, I-125, I-131, Tl-201	Gamma