

NRC FORM 241 (8-2002) U.S. NUCLEAR REGULATORY COMMISSION

REPORT OF PROPOSED ACTIVITIES IN NON-AGREEMENT STATES, AREAS OF EXCLUSIVE FEDERAL JURISDICTION, OR OFFSHORE WATERS

(Please read the instructions before completing this form)

APPROVED BY OMB: NO. 3150-0013 EXPIRES: 08/31/2008
 Estimated burden per response to comply with this mandatory collection request: 15 minutes. This notification is required so that NRC may schedule inspection of the activities to ensure that they are conducted in accordance with requirements for protection of the public health and safety. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollect@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0013), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. NAME OF LICENSEE (Person or firm proposing to conduct the activities described below) University of South Florida		2. TYPE OF REPORT <input checked="" type="checkbox"/> INITIAL <input type="checkbox"/> REVISION <input type="checkbox"/> CLARIFICATION	
3. ADDRESS OF LICENSEE (Mailing address or other location where licensee may be located) Radiation Safety Office 12901 Bruce B. Downs Blvd., MDC 35 Tampa, FL 33612-4799		4. LICENSEE CONTACT AND TITLE Adam Weaver, RSO	
		5. TELEPHONE NUMBER (Include Area Code) 813 974 1194	6. FACSIMILE NUMBER (Include Area Code) 813 974 7091

7. ACTIVITIES TO BE CONDUCTED UNDER THE GENERAL LICENSE GIVEN IN 10 CFR 150.20

WELL LOGGING LEAK TESTING AND/OR CALIBRATIONS TELETHERAPY/IRRADIATOR SERVICE

PORTABLE GAUGES OTHER (Specify) ⇒ Marine research - sampling - in vitro assays on board vessel

RADIOGRAPHY ⇒ REGISTERED AS USER OF PACKAGING (CERTIFICATES OF COMPLIANCE NUMBERS)

8. CLIENT NAME, ADDRESS, CITY/COUNTY, STATE, ZIP CODE Florida Institute of Oceanography State of Florida St. Petersburg, FL Vessel: R/V Bellows	9. ACTUAL PHYSICAL ADDRESS OF WORK LOCATION (Street and Number or other location. Give as complete an address or directions as possible.) Middle Grounds - W. Florida Shelf (-84.25° W, 28.5° N) 0-100 km off shore
10. CLIENT TELEPHONE NUMBER (Include Area Code) 727 553 1667	11. WORK LOCATION TELEPHONE NUMBER (Include Area Code) Vessel - Radio

12. DATES SCHEDULED	13. NUMBER OF WORK DAYS	14. ADD	15. DELETE	16. LOCATION REFERENCE NUMBER
FROM TO Feb. 17, 2003 Feb. 21, 2003	5			000240

LIST ADDITIONAL WORK SITES ON SEPARATE SHEET(S) TO INCLUDE ALL INFORMATION CONTAINED IN ITEMS 9-16 ABOVE.

17. LIST RADIOACTIVE MATERIAL, WHICH WILL BE POSSESSED, USED, INSTALLED, SERVICED, OR TESTED (Include description of type and quantity of radioactive material, sealed sources, or devices to be used.)

5 millicuries of Carbon 14 - biocarbonate

18. AGREEMENT STATE SPECIFIC LICENSE WHICH AUTHORIZES THE UNDERSIGNED TO CONDUCT ACTIVITIES WHICH ARE THE SAME, EXCEPT FOR LOCATION OF USE, AS SPECIFIED IN ITEM 9. ABOVE. (Four copies of the specific license must accompany the initial NRC Form 241.)	LICENSE NUMBER SFRML 806-1	STATE FL	EXPIRATION DATE 12-31-2004
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19. CERTIFICATION (MUST BE COMPLETED BY APPLICANT)

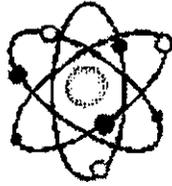
I, THE UNDERSIGNED, HEREBY CERTIFY THAT:

- a. All information in this report is true and complete.
- b. I have read and understand the provision of the general license 10 CFR 150.20 reprinted on the instructions of this form; and I understand that I am required to comply with these provisions as to all byproduct, source, or special nuclear material which I possess and use in non-Agreement States or offshore waters under the general license for which this report is filed with the U.S. Nuclear Regulatory Commission.
- c. I understand that activities, including storage, conducted in non-Agreement States under general license 10 CFR 150.20 are limited to a total of 180 days in calendar year. With the exception of work conducted in off-shore waters, which is authorized for an unlimited period of time in the calendar year.
- d. I understand that I may be inspected by NRC at the above listed work site locations and at the Licensee home office address for activities performed in non-Agreement States or offshore waters.
- e. I understand that conduct of any activities not described above, including conduct of activities on dates or locations different from those described above or without NRC authorization, may subject me to enforcement action, including civil or criminal penalties.

CERTIFYING OFFICER - RSO or Management Representative (Name and Title) Adam S. Weaver, CHP - RSO	SIGNATURE <i>Adam S. Weaver</i>	DATE 1/17/2003
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WARNING: False statements in this certificate may be subject to civil and/or criminal penalties. NRC regulations require that submissions to the NRC be complete and accurate in all material respects. 18 U.S.C. Section 1001 makes it a criminal offense to make a willfully false statement or representation to any agency of the United States as to any matter within its jurisdiction.

FOR NRC USE ONLY	R Janice H. Kirby Licensing Assistant	SIGNATURE <i>Janice H. Kirby</i>	DATE 1/22/03	TOTAL USAGE - DAYS TO DATE 6
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Facsimile Transmittal

To:	Ms. Janice H. Kirby Licensing Assistant NRC Region II	Fax:	404-562-4955
From:	Adam S. Weaver, RSO	Date:	1/17/2003
Re:	Research cruise Initial request 2003	Pages:	14
For Review		Please Reply	

The University of South Florida (USF), a State of Florida Agreement State licensee (SFRML 806-1), submits a NRC form 241 for offshore water research cruise with radioactive materials, initial request for calendar 2003.

We request reciprocity for using 5 millicuries of carbon-14 on board a research vessel in offshore waters February 17 – February 21, 2003 (5 days).

USF is a non-profit educational institution and is exempted by 10 CFR 170.11(a)(4) from payment of reciprocity recognition fee required by 10 CFR 170.31(16).

If you have any questions about this request, please call me at 813-974-1194

Attached

NRC form 241 – 1 page

Cruise plan – R/V Bellows - 4 pages

USF State of Florida radioactive materials license – 8 pages

Thank You

Adam Weaver, CHP Tampa, FL 33612-4799	University of South Florida Phone 813-974-1194	12901 Bruce B. Downs Blvd., MDC 35 Fax 813-974-7091
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Radiation Cruise Plan
R/V Bellows
Middle Ground Productivity Cruise
Feb 17-21, 2003

Principal Investigator: Dr. Cynthia Heil
 College of Marine Science, University of South Florida
 140 7th Ave S, St. Petersburg, FL 33701
 (tel) 727-553-1667, (fax) 727-553-1189
 e-mail: cheil@seas.marine.usf.edu

Departure/Return Port: USF Bay Campus, St. Petersburg, FL

Destination: Middle Grounds, West Florida Shelf (-84.25°W, 28.5°N)

Vessel: R/V Bellows, Florida Institute of Oceanography, St. Petersburg, FL
USF Radiation Contact: Adam Weaver (tel) 813-974-1194

Project: Productivity of the Florida Middle Grounds: Linkages between inorganic nutrient distributions, primary productivity and cetacean distributions.

Funding Agency: Florida Institute of Oceanography

Radiation User:

<u>User</u>	<u>Isotope</u>
Dr. Cynthia Heil	¹⁴ C

Project Summary:

The Florida Middle Ground is an area of ancient paleoreef off the central west coast of Florida that is characterized by high secondary production and under consideration for the establishment of a Marine Reserve. This cruise will consist of a survey of the Florida Middle Grounds to obtain preliminary data investigating whether primary production, inorganic nutrient concentrations and dolphin distributions within the west Florida shelf Middle Ground region reflect the topography of this ancient reef. Data collected will include: 1) Census of dolphin abundance, distribution, and photo-identification in the Florida Middle Ground, 2) Physical data to determine the distributional relationships between dolphins and a) small scale (*e.g.* Eckman) and large scale (*e.g.* river plume) surface frontal features in the Florida Middle Ground, b) topographical relief, and c) primary production within the Florida Middle Ground, 3) primary production measurements using standard radioisotopic ($H^{14}CO_3$ uptake) techniques, and Fast Repetition Rate (FRRF) Fluorescence technology and 4) nutrient distribution data.

Summary of Radioisotopic Use:

During this cruise, phytoplankton primary production will be measured by $\text{H}^{14}\text{CO}_3^-$ uptake into water samples collected with Niskin bottles mounted on a rosette. It is expected that ~10 experiments (=measurements of primary productivity) will be conducted which will require use of ^{14}C -bicarbonate.

Radioisotopic Protocol for ^{14}C :

1. All isotope usage will be confined to the designated radiation area in the dry lab of the R/V Bellows and an on-deck incubation container. All radioisotopic manipulations (e.g. filtering, isotope additions etc) will be conducted within a large portable Plexiglass hood within the dry lab. All ^{14}C isotope stocks will be stored in a small refrigerator in the wet lab in a lock box when not in use. All liquid waste will be stored in 20 L Nalgene carboys double wrapped within plastic bags within drums lashed to the boat out of the way of daily operations.
2. A survey of the proposed usage area (dry lab) on the R/V Bellows will be conducted using a Geiger counter survey meter and swipes (at least 6 wipe samples per survey) prior to loading the isotope aboard the ship, after each experiment, and after lab clean up immediately prior to return to the dock. Wipe activity will be determined immediately after wipes using a Perkin-Elmer BetaScout™ liquid scintillation counter. Upon return to the dock the radiation use area on board will be sealed until activity of final swipes by USF radiation safety staff is read. If no activity above 200 cpm (net) open window LSC counting is found, then the radiation use area will be reopened.
3. Only personnel authorized for the use of ^{14}C by USF Radiation Safety will conduct the experiments and handle radioactive samples and waste. All authorized users will have provided USF Radiation Safety Office Proof of Radioisotopic training prior to the cruise.
4. Double gloves and lab coats will be used during all experiments.
5. All areas for radioisotope use (i.e. the portable Plexiglass radiation hood and the benchtop area underneath the hood) will be clearly labeled with tape and covered with benchcote. All equipment used for radioisotopic work will be labeled with "Caution Radioactive Material" tape and dedicated solely for use with ^{14}C .
6. All stock solutions of $\text{H}^{14}\text{CO}_3^-$ will be stored in a separate container in a locked Plexiglass box inside a refrigerator located within the dry lab. All ^{14}C and ^3H stocks, solid waste and vial samples will be kept separated at all times. Solid ^{14}C waste will be separated into solid waste and vials, each of which will be double-bagged. Solid waste will be stored within the radiation hood. Sample vials will be stored underneath the benchtop below the radiation hood within the dry lab. All waste solutions will be stored in 20 L carboys, which will be double bagged, placed with Solid-A-Sorb inside a large plastic waste container and returned to USF for proper disposal. All waste will be tagged with the appropriate USF waste tag.
7. All additions of ^{14}C to sample bottles and filtering of samples will be conducted inside the radiation hood within the dry lab.
8. All incubations will be conducted in Coleman coolers to contain any spills and drips. These coolers will never be used for storage of food or ice for human consumption and will be appropriately labeled with "Caution Radioactive Material" tape.

Summary of Radiation Use and Storage

All isotope use will be restricted to radiation hood within the dry lab on the R/V Bellows, except when samples need to be incubated under natural light conditions, when samples will be placed in a radiation use only cooler plumbed with flowing seawater.

Solid Waste: All ^{14}C solid waste will be stored within the radiation hood in the dry lab in large plastic bags provided by USF Radiation Safety.

Liquid Waste: All ^{14}C liquid waste will be stored in 20 L Nalgene plastic carboys wrapped in plastic bags within larger plastic barrels with solid absorbant, with barrels stored lashed on deck.

Vials: All ^{14}C in vials will be stored within in boxes double wrapped in plastic in the bench in the dry lab beneath the radiation hood.

Isotope Storage: all isotopes will be stored in locked box within refrigerator in dry lab.

Table 1 Details of Isotopes to be used in experiment

Isotope	Type emitted	Range in Air	Decays to	Max Energy (MeV)	Shielding
^{14}C	Beta	0.75 ft	^{14}N	0.16	None

Table 2. Summary of isotope use, expected waste activities during cruise

	Isotope	Amt Brought	Amt Used	Liquid		Solid	Vials
				Activity	Vol.		
Primary Production	H^{14}CO_3	5000 μCi	2880 μCi	2736 μCi	14. L	115.2 μCi	29.952 μCi

Experimental Protocol

A.) H^{14}CO_3 Uptake (Primary Production)

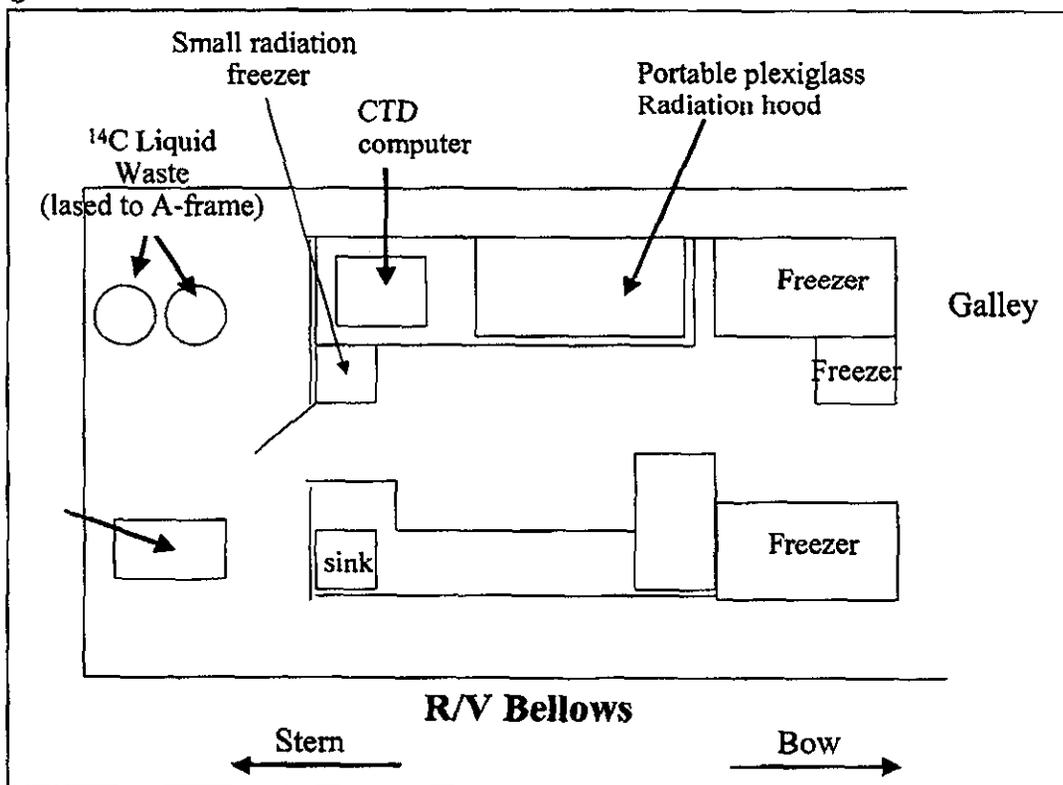
- 1.) All manipulations of ^{14}C stock solutions and filtering of samples will be conducted in the radiation hood within the dry lab.
- 2.) At each station 2 depths will be sampled. Unfiltered station seawater (~100 ml) will be placed in 125 ml Nalgene bottles, with duplicate bottles incubated at 7 light levels (100%, 75%, 50%, 25%, 15%, 4%, dark). Each bottle will be inoculated with ~20 μCi of ^{14}C labeled bicarbonate from a secondary stock solution of ^{14}C (made by placing a known amount of ^{14}C into ~25 ml sterile filtered seawater). Note: One secondary ^{14}C stock solution will be made up at the start of the cruise which will be used for the entire cruise.
 - a. Duplicate bottles *7 light levels/station= 14 bottles/depth
 - b. 2 depths = 24 bottles total/station
 - c. 2 stations/day*4 days= 192 bottles*100 ml/bottle=19.2 L ^{14}C liquid waste
 - d. Total ^{14}C activity used = 192 bottles * 20 μCi /bottle = 3.84 mCi ^{14}C
- 3.) Remove triplicate initial samples (100 μl each) from the secondary stock ^{14}C solution with pipette and place in scintillation vial with scintillation fluid daily for measurement of ^{14}C primary stock activity.

- 4.) Incubate sample bottles in 30 L Coleman coolers under *in situ* light conditions with flowing seawater.
- 5.) After 2-4 hr incubation, the contents of each bottle will be filtered onto 0.45 μm nucleopore filters. Filters will be immediately placed into scintillation vials with scintillation fluid. For each station it is expected that the ^{14}C activity on filters will be $\sim 4.8 \mu\text{Ci } ^{14}\text{C}$, activity in solid waste will be $19.2 \mu\text{Ci } ^{14}\text{C}$ and the activity in liquid waste will be $456 \mu\text{Ci } ^{14}\text{C}$. Total activity used in all experiments will be $3840 \mu\text{Ci } ^{14}\text{C}$, with final activities of $38.4 \mu\text{Ci}$ on filters, $153.6 \mu\text{Ci}$ in solid waste and $3648 \mu\text{Ci}$ in waste liquids ($\sim 19 \text{ L}$).
- 6.) All liquid waste from filtration and sample bottles will be stored in plastic containers double bagged with plastic, placed in larger plastic waste barrels with solid-A-sorb.
- 7.) It is anticipated that 6 experiments examining uptake will be conducted during the cruise
- 8.) Surveys of the radiation van will be conducted immediately at the start of the cruise, after each experiment and after clean up prior to return to dock.

References for methods

Parsons, T.R., Y. Maita & C. M. Lalli. 1984. A Manual of Chemical and Biological Methods for Seawater Analysis. Pergamon Press, N.Y.

Fig. 1 Schematic of Radiation use area on R/V Bellows



**STATE OF FLORIDA
DEPARTMENT OF HEALTH
BUREAU OF RADIATION CONTROL**

RADIOACTIVE MATERIALS LICENSE

Pursuant to Chapter 404, Florida Statutes, and Chapter 64E-5, Florida Administrative Code (F.A.C.), and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to receive, acquire, possess and transfer the radioactive material(s) designated below and to use such radioactive material(s) for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations and orders of the state of Florida, Department of Health now or hereafter in effect and to any conditions specified below.

<p style="text-align: center;">Licensee</p> <p>1. Name: UNIVERSITY OF SOUTH FLORIDA</p>	<p>3. License Number: 806-1 is hereby amended in its entirety, with reference to correspondence dated March 25, 2002.</p>
<p>2. Address: Office of Research 4202 E. Fowler Avenue ADM 200 Tampa, FL 33620-5950</p>	<p>4. Expiration Date: 12/31/2004 5. Category: 3M(I)</p>

6. Radioactive Material (element and mass number)	7. Chemical And/Or Physical Form	8. Maximum Quantity Licensee May Possess At Any One Time
A. Any radioactive material between Atomic numbers 3 and 83, inclusive, except as listed below	A. Any form	A. 250 millicuries each of any radioactive material between atomic numbers 3 and 83, inclusive, except as listed below. Total possession limit shall not exceed 2.5 curies.
B. Hydrogen 3	B. Any form	B. 20 curies
C. Nickel 63	C. Foils (U.S. Radium Corp. Model Number LAB-784 or NRD Model Number N-1001)	C. 5 foils not to exceed 15 millicuries each
D. Cobalt 57	D. Sealed source (E.I. DuPont Corp. Model Number NER-072)	D. 2 sources not to exceed 50 millicuries

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6. Radioactive Material (element and mass number)	7. Chemical And/Or Physical Form	8. Maximum Quantity Licensee May Possess At Any One Time
E. Cesium 137	E. Sealed source (3M Co. Model Number 4P6E, 4D6L, 4F68, or U.S. Nuclear Corp. Model Number 375, or Amersham Corp. Model Number X.9, X.8 or Industrial Reactor Lab Inc. Model Number 2-4, 2-10, or J.L. Shepherd and Associates Model Number 6810, or Isotope Product Type 255)	E. 1 source not to exceed 120 curies
F. Polonium 210	F. Any form	F. 50 millicuries
G. Any radioactive material between Atomic numbers 3 and 83, inclusive	G. Any form	G. 25 millicuries each of any radioactive material between atomic numbers 3 and 83. Total possession limit shall not exceed 75 millicuries.
H. Radioactive material distributed to a general licensee per 64E-5.206(1) and (4), F.A.C.	H. Sealed or contained source(s)	H. No single source to exceed that quantity authorized for the general license
I. Radioactive material distributed to a general licensee per 64E-5.206(6), F.A.C.	I. Sealed or contained source(s)	I. No single source to exceed that quantity authorized for the general license described in 64E- 5.206(6), F.A.C.

License Number: 806-1
Amendment No.: 45
Control Number: 20020328-0398

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BUREAU OF RADIATION CONTROL**

6. Radioactive Material (element and mass number)	7. Chemical And/Or Physical Form	8. Maximum Quantity Licensee May Possess At Any One Time
J. Radioactive material distributed to a general licensee per 64E-5.206(7), F.A.C.	J. Any form authorized by the general license described in 64E-5.206(7), F.A.C.	J. See item 9.K. below
K. Radioactive material distributed to a general licensee per 64E-5.206(8), F.A.C.	K. Any form authorized by the general license described in 64E-5.206(8), F.A.C.	K. See item 9.L. below

9. Authorized Use

- A. - F. To be used for research and development as defined in 64E-5.101, F.A.C.; teaching, training, for use as components of analytical instruments and for calibration of instruments.
- G. To be used at temporary job sites, such as research vessels and mobile laboratories, for the purpose of research and development as defined in 64E-5.101, F.A.C.; teaching, training, for use as components of analytical instruments and for calibration of instruments.
- H. To be used in devices approved for receipt under general license provisions as described in Items 6, 7 and 8.
- I. To be used as calibration and reference sources in accordance with the regulation and possession limits described in subsection 64E-5.206 (6), F.A.C.
- J. To be used for In-vivo testing in accordance with the regulations described in subsection 64E-5.206 (7), F.A.C. Each laboratory shall not exceed the possession limits allowed under this general license.
- K. To be used for In-vivo testing in accordance with the regulations described in subsection 64E-5.206 (8), F.A.C. Each laboratory shall not exceed the possession limits allowed under this general license.

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**STATE OF FLORIDA
DEPARTMENT OF HEALTH
BUREAU OF RADIATION CONTROL**

CONDITIONS

10. A. Licensed material may be used and stored at the following University owned locations:
University of South Florida (USF) Tampa campus located at 4202 E. Fowler Avenue,
Tampa, Florida 33620 in the following locations:

College of Art and Science:
Bioscience Facility (BSF)
Life Science Annex (LSA)
Physics Building (PHY)
Science Center Building A (SCA)
Social Science (SOC);

College of Engineering:
Engineering Research (ENG);

College of Public Health (CPH)

Florida Mental Health Institute:
Building H (MHH);

Hazardous Waste Facilities:
Hazardous Waste Building A (HWA)
Hazardous Waste Building B (HWB);

Medical Center Building (MDC) located at 12901 Bruce B. Downs Boulevard, Tampa,
Florida 33612:

Med Center Laboratories (MLC)
Med Center Receiving (MDR)
Med Center Vivarium (MDV);

Psychiatric Hospital (PSH) located at 3515 E. Fletcher Avenue, Tampa, Florida 33613;

USF Sarasota Campus located at 5700 Tamiami Trail, Sarasota, Florida 34243-2197, in
the following locations:

Hansen Building (HAN)
Selby Building (SEL);

USF St. Petersburg Marine Science and Bayboro Campus located at 830 1st Street
South, St. Petersburg, Florida 33701 in the following location:

Receiving Department
Knights Oceanographic Research Building (KOR)
Marine Science Building A (MLS);

Children's Research Institute (CRI), 420 6th Avenue S., St. Petersburg, Florida 33701;
and

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10. A. Non University owned locations listed below:
All Children's Hospital, (ACH) and Children's Health Clinic (CHC), 824 4th Street, South, St. Petersburg, Florida 33701 to include the following:
General Receiving Department
Research labs located: ACH 2nd floor room 2NE and CHC 5TH and 6TH floors
All children's Hospital (ACH) to include:
Shipping/Receiving Department located at 801 6th Street South, St. Petersburg, Florida 33701
- Archbold Biological Station, located near, Lake Placid, Florida on Old State Road 8, 2 miles south of County Road 70, 33862
Moffitt Cancer Research Hospital (MCC), 12902 Magnolia Drive, Tampa, Florida 33612
Moffitt Cancer Research Center (MRC), 13131 Magnolia Drive, Tampa, Florida 33612
Shriners Hospital (SHC), 12502 North Pine Drive, Tampa, Florida 33612-9449
Tampa General Hospital (TGH), Davis Island, Tampa, Florida 33606
USF Dialysis Center, 13101 Bruce B. Downs Boulevard, Tampa, Florida 33612.
- B. All records will be kept at the physical address located at 3500 E. Fletcher Ave., Suite 523, Tampa, Florida 33613.
- C. Licensed material described in Items 6, 7, 8, Subitem H shall be used and stored on research vessels and mobile laboratories at temporary job sites throughout the State of Florida in accordance with the correspondence dated September 1, 1988.
- D. This condition does not prohibit use in other agreement states and states under the jurisdiction of the U.S. Nuclear Regulatory Commission (NRC) under reciprocity that has been approved by an agreement state or the NRC.
11. Failure to comply with the provisions of this license is a felony of the third degree pursuant to section 404.161, Florida Statutes. Also, violations may warrant an administrative fine of up to \$1,000.00 per violation per day, pursuant to section 404.162, Florida Statutes.
12. A. Licensed materials shall be used by, or under the supervision of, individuals designated by the University of South Florida Radiation Safety Committee, Bruce G. Lindsey, Ph.D., Interim Vice President of Research. Records of such designations shall be made available for inspection by the department.
- B. The radiation safety officer is Adam Weaver, CHP.
13. The licensee shall comply with the provisions of Chapter 64E-5, F.A.C., Part IX, "Notices, Instructions and Reports to Workers; Inspections" and Part III, "Standards for Protection Against Radiation."

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14. The licensee shall not transfer possession or control of radioactive material, or products containing radioactive material as a contaminant except:
- A. By transfer to a specifically licensed recipient; or
 - B. As provided otherwise by specific provision of this license pursuant to the requirements of Chapter 64E-5, F.A.C.
15. Radioactive material transported on public thoroughfares shall be packaged, prepared for shipment and transported in accordance with Title 49, Code of Federal Regulations and Chapter 64E-5, F.A.C.
16. A. The licensee shall assure that each sealed source is tested for leakage or contamination and follow the appropriate actions as required by section 64E.5.1303, F.A.C. Licensed material shall be tested at least every 6 months. The test sample (smear) shall be taken by the licensee using an approved leak test kit. Analysis of the test sample shall be performed by licensee, individuals who are licensed by the department, NRC, agreement state, or licensing state to provide these services. The licensee is required to retain leak test records containing the manufacturer's name, model and serial number of each sealed source tested, identity of each sealed source radionuclide and its estimated activity, the measured activity of each test sample expressed in microcuries, the date of the test and signature of the radiation safety officer or designee. The records shall be maintained for 3 years for inspection by the department.
- B. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to use or transfer as a sealed source. If the inspection or test reveals any construction defects or 0.005 microcurie or greater of contamination, the source shall not be used or transferred as a sealed source until it has been repaired, decontaminated and re-tested.
17. The licensee shall conduct a physical inventory and inspection at least every 12 months to account for all sealed sources received and possessed under this license as required by section 64E-5.1304, F.A.C. Inventory records shall be maintained for 3 years from the date of the inventory for inspection by the department, and shall include the manufacturer's name, model and serial numbers of each sealed source, the identity of each sealed source radionuclide and its estimated activity, the location of each sealed source, the date of the inventory and the signature of the radiation safety officer or designee.
18. Detector cells containing nickel 63 shall only be used in conjunction with a properly operating temperature control mechanism which prevents the temperature from exceeding 360 degrees Celsius.

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19. The licensee shall not use radioactive material in or on human beings nor in field applications where radioactive material is released to the environment, except as provided otherwise by a specific provision of this license.
20. Animals and plants administered radioactive materials, and their products, shall not be used for human consumption.
21. Radioactive material shall not be used in or on human beings, nor in products distributed to the public.
22. The licensee shall notify the Bureau of Radiation Control at least 48 hours in advance of shipping its low-level radioactive waste to a commercial treatment, storage, or disposal facility. Notification shall consist of either calling (407) 297-2095 or writing the Bureau of Radiation Control, Department of Health, Post Office Box 680069, Orlando, Florida 32868-0069.
23. The following conditions pertain to device(s) received under general license provisions as described in item 6, Subitem 1:
 - A. Sealed sources containing radioactive materials authorized for distribution under a general license shall not be opened or removed from their source holders by the licensee.
 - B. Installation, relocation, maintenance, repair, removal from service and initial radiation survey of devices containing radioactive material and installation, replacement and disposal of sealed sources containing radioactive material used in devices shall be performed only by persons specifically authorized by the NRC, a licensing state, or an agreement state to perform such services.
 - C. The licensee shall maintained record showing date of receipt, site of use and date and method of disposal.
 23. D. At intervals not to exceed 12 months, an inventory and inspection of all devices containing radioactive material shall be conducted which determine, where applicable, at least the general physical condition of the device, proper shutter operation and adequate posting of radiation caution signs. Records shall be maintained for inspection by the department and shall include the date and name of the individual taking the inventory, the location and identification of the devices, the quantity, and kinds of radioactive material, and the findings of the physical inspection.
 - E. Required testing for leakage and contamination of the sealed sources containing radioactive materials shall be performed by the licensee, persons specifically authorized by the NRC, a licensing state, or an agreement state to perform such services.

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DEPARTMENT OF HEALTH
BUREAU OF RADIATION CONTROL**

24. A. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6, 7, 8, and 9 of this license in accordance with statements, representations and procedures contained in the licensee's application dated April 13, 1999, signed by George R. Newkome, Ph.D., Vice President of Research, and correspondence dated:
- August 13, 1999, signed by George R. Newkome, Ph.D., Vice President for Research;
 - October 25, 1999, signed by Robert B. Vomacka, Radiation Safety Officer;
 - December 1, 1999;
 - November 16, 2000, both signed by George R. Newkome, Ph.D., Vice President for Research; and
 - March 25, 2002 (new package delivery procedure for Tampa campus), signed by Bruce G. Lindsey, Ph.D., Interim Vice President of Research, Professor of Physiology and Neuroscience.
- B. The licensee shall comply with all applicable requirements of Chapter 64E-5, Florida Administrative Code, and these regulations shall supersede the licensee's statements in applications or correspondence, unless the statements are more restrictive than the regulations.

For the Bureau of Radiation Control:

Issuance Date: APR 01 2002


Joy Stephenson
Environmental Specialist
 Bin #C21
 4052 Bald Cypress Way
 Tallahassee, FL 32399-1741
 (850) 245-4545

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