Signal UOP Research Center

50 UOP Plaza Des Plaines, Illincis 60016-6187 Telephone 312 • 391 2000

April 25, 1985

U. S. Nuclear Regulatory Commission Office Material Licensing Section 799 Roosevelt Road Glen Ellyn, IL 60137

SUBJECT: Renewal Of License #12-18770-01

We are requesting renewal of our material license number 12-18770-01. The following information represents our current and anticipated status:

1.	LicenseeFrom-	UOP,	In	icor	porated
		Proce	SS	bi Di	vision

TO- SIGNAL RESEARCH CENTER INC.

- Reason: Acquisition of UOP by Signal Companies and subsequent internal reorganinzation
- 2. Address---From- 20 UOP Plaza Mount Prospect and Algonquin Roads Des Plaines, Illinois 60016
 - To- 50 East Algonquin Road Box 5016 Des Plaines, IL 60017-5016
 - Reason: New Post Office designation to accurately reflect location. Physical location of facilities has not changed.
- 3. Radioactive Materials (Sections 6., 7., 8.,)



Items A., B., C., these are sealed source elements that were part of a commercial x-ray fluorescence metal analyzer --Texas Nuclear Series 9200, Model 9256 FE-55, CD-109, and Americium 241. The device was returned to Texas Nuclear for disposal, memorandum dated 8 April, 1983 from Texas Nuclear to Mr. R. M. Popercs -UOP Process Division confirms receiptVED and disposal of the instrumentAprd sources. Copy attached.

No changes for items D., E., F., G., H.

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4. Purposes/Authorized Use (Section 9)

Delete: References to item A., B., C.

No changes for items D., E., F., G., H.

5. Supervisory Personnel (Section 12)

Delete:	R. V. Roberts	Sealed Sources
	Edmund W. Hafner	In-Vitro Studies
	Yoshihisa Tsuda	In-Vitro Studies
Add:	Paul Allenza	In-Vitro Studies
	James Goodman	In-Vitro Studies
	Susan A. Sweeny	In-Vitro Studies

Training and Experience ---

Paul Allenza, SS# 095-50-7088, Employee #49814 Ph.D degree in Microbiology - University of Massachusetts - 1982. His education and research programs were on the identification and characterization of enzyme systems, bacterial physiology and molecular genetics. His Post-Doctoral work was supported by the NIH and the American Cancer Society. His course work and research provide him with a background in understanding and characterizing the effects of physical or chemical agents on biological systems at a macro and microbiological level. His course work includes college level mathematics, chemistry and the biological sciences. He is working with Dr. Tsuda to assure transfer of project information and responsibilities. Paul has been provided with our radiological safety manual in addition to other laboratory safety manuals. As a new employee he is scheduled to participate in our safety orientation program which covers all areas of laboratory safety including radiologicals, waste disposal, personal protective equipment, and general lab operations.

James Goodman, SS# 482-74-3071, Employee #49763 B.S. Degree - Biology from St. John's University. Relevant course work included exposition to radiation physics, biological effects of radiation, and college level mathematics - calculus, statistics, and probability. He has been employed here for one year under the tutalage of Dr. Yoshihisa Tsuda, whose credentials exist in a prior supplement to our license. James' work here

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involves the operation of the scintillation counter, maintenance of the storage and inventory of the isotopes. His project related activities involved the use of Cl4 - in the study of Gamma-Globulin Immobilization. He will continue to work under the direction of one of the Ph.D's listed above.

Susan Sweeny, SS# 477-60-2327, Employee #49812 Ph.D degree in Biochemistry from the University of Tilinois. Undergraduate degrees in Chemistry and Science. Relevant course work includes Physics, Physical Chemistry, and the Biological Sciences as well as college level Mathematics through Calculus. Her graduate work entailed enzyme purification and characterization through fluoresence spectroscopy. She has worked on RNA Isolates and has experience with the Ames Test for evaluating the effects of physical and chemical agents on biological systems. She has been employed here since April, 1985 under the direction of Dr. Tsuda.

6. Contact - Charles Worman - Manager of Research Safety and Environmental Activities -Phone: (312) 391-2332 50 East Algonquin Road Box 5016 Des Plaines, IL 60017-5016

7. There have been no additional changes to any of the previously submitted information. Our safety manual for radiologicals issued 3/82 will be revised to reflect the new organization, names and addresses. A copy of the cover page and index is attached.

8. SIGNAL RESEARCH CENTER INC. Manager of Safety: Charles Worman

9. CERTIFYING OFFICIAL: Kenneth F. Machacek

TITLE: Controller, Manager Business Systems

DATE: 25 April, 1985

SIGNATURE: Squalle 7. Macharel

ATTACHMENTS:

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 Check for \$460.00, payable to NRC for license renewal under Section 170.31, category 3M, 49 FR 21293.

CONTROL NO. 78808

- Copy of memorandum Texas Nuclear Company to UOP Process Division - Subject: receipt and disposal of instrument with sealed sources.
- Copy of cover page and index Signal UOP Radiological Safety Manual.

Sincerely,

SIGNAL RESEARCH ING. ulu Charles H. Worman

Manager of Research Safety and Environmental Activities

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BOX 9267. AUSTIN. TEXAS 78766 USA. (512) 836-0801. TELEX 77-6413



April 8, 1983

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UOP Process Division 20 UOP Plaza Des Plaines, IL 60016

Attention: R.V. Roberts

This letter is to verify that Texas Nuclear has received and disposed of the device containing radioactive material described below pursuant to applicable regulations as authorized by our Texas License 6-1825.

One (1) 3 millicurie Cd-109 source, Source Serial Number C-811; removed from Texas Nuclear Modei 9256 source holder, Serial Number B445.

One (1) 20 millicurie Fe-55 source, Source Serial Number C-978; removed from Texas Nuclear Model 9256 source holder, Serial Number 6446.

This letter should be retained in your files as a permanent record showing the disposition of this nuclear device.

If we can be of any further assistance, please do not hesitate to let us know.

Sincerely,

TEXAS NUCLEAR CORPORATION

Martha E. Raico Technical Services Assistant Personnel & Technical Services



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UNITED STATES NUCLEAR REGULATORY COMMISSION REGION III 799 ROOSEVELT ROAD GLEN ELLYN, ILLINOIS 60137

JUL 1 6 1984

TO THE LICENSEE:

Enclosed is the NRC license or license amendment which you requested.

You are encouraged to carefully review your license or amendment upon receipt as special conditions may have been added to ensure that the changes requested meet NRC requirements.

Any future correspondence relating to your license should specifically reference your license number to expedite your inquiry.

Should you have any questions regarding your new license or amendment or require clarification, please contact the Materials Licensing Section at 312/790-5625 or 312/790-5743.

Materials Licensing Section

Enclosure: As Stated

Corporate Research Center Ten UOP Plaza – Algonquin & Mt. Prospect Roads Des Plaines, Illinois 60016 Telephone 312-391-2000

May 22, 1984

U. S. Nuclear Regulatory Commission Off 799 Roosevelt Road Glen Ellyn, IL 60137

RECEIVED BY LEMB. Date Applicant 1CE Ampuni Ft Orig Type of Fcc Action Cemp Date Check 20 Received Dy

Attention: B. J. Holt

Gentlemen:

We are requesting an additional amendment to License Number 12-18770-01 in order to use the radioisotope iodine-125 (γ -emitter).

The purpose of this radioisotope usage is to carry out radioimmunoassays in our Research Center.

Immunoassay techniques have been used for many years to measure unknown amounts of proteins with maximum accuracy and precision based on antigen-antibody interaction. Using ¹²⁵I-labeled artibodies, the anti-antibody complex is readily and simply assayed with a Gamma-ray counting device. We are going to make ¹²⁵I-labeled antibodies in the laboratory. Maximum usage of ¹²⁵I per each ¹²⁵I-antibody preparation will not exceed 1 mCi. Even with accounting for the radioisotopes half-life of 60 days, we will not possess or store more than ²⁰ mCi. Usage of ¹²⁵I-labeled antibodies per each radioimmunoassay will not exceed 10µCi. No more than three radioimmunoassays will be carried out per day.

¹²⁵I-labeled antibodies will be prepared according to the procedure of Morrison (Methods In Enzymology, Vol. 70, pp. 214-220, Academic Press, New York, 1980).

A convenient bench-top shield enclosure (protective head barrier, Ca⁺. #NES-876) from New England Nuclear, will be used for handling more than 500μ C 125-radio-isotope. All handling of 1251-radioisotope will be carried out in a fume hood.

All radioimmunoassays using 125I-labeled antibodies will be performed in one laboratory. The working area bench top will be covered with Whatman "benchkote" obtained from CMS, Inc.(Cat. #268-482). All radioisotopes will be used and monitored in only one laboratory which covers about 500 ft². Total laboratory bench space is 100 ft². The fume hood (2 1/2 x 7 ft.) is permanently installed in the laboratory.

 ^{125}I will be used only for vitro experiments. No in vivo or animal experiments using $^{125}\text{I-containing compounds will be carried out.}$

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NMS LIC30 12-18770-01 FDR

REGION III

Control No. 76832

Storage of Isotopes

- 1. Radioisotopes having higher than 1 mCi will be stored in portable lead container from ICN Nutritional Biochemicals, Inc. (Cat. #805490).
- 2. Radioisotopes having less than 1 mCi will be stored in polystyrene container (Scientific Products, Cat. #C-8847-1). These containers will be in the storage cabinet provided by ICN Nutritional Biochemicals, Inc. (Cat. #8030204) with a security lock.

All materials mentioned above will be placed in Kelvinator series 500 deep freezer with a security lock.

The Radiation Protection Program

The Research Center scrupulously observes the following Radiation Protection Program:

- 1. Use of isotopes in strictly defined areas that are labeled to warn others that radioactive materials are present.
- 2. The use of laboratory coats and gloves for personnel protection.
- 3. The use of plastic-lined paper for protection against spills.
- 4. Monitoring for contamination by monthly counting in a scintillation counter swabs of floors and bench-tops.
- 5. The use of geiger-type counters when high energy isotopes, such as ³²P, are used.
- 6. Monthly service of film badge monitoring for personnel protection.
- 7. The use of automatic pipetting devices to eliminate mouth pipetting.
- 8. The use of tape and labels to mark clearly all radioactive samples.
- 9. Maintenance of clean, uncluttered laboratories to minimize the potential for accidents.
- 10. Forbidding eating or drinking in areas where radioactive compounds are used.
- 11. Careful cataloging and record keeping to keep track of the arrival and fate of radioactive compounds obtained.
- Individual who will use or directly supervise the use of licensed material: Yoshihisa Tsuda, Ph.D.

Signal UOP Research Center Safety Manager: W. C. Bevers

Certifying Official

albour 1 Signature

Name Albert O. Braun

Title Director, Administrative and Technical Services

Date May 22, 1984

Control No. 76832