

NUCLEAR
RESEARCH
CORPORATION



125 Titus Avenue
Warrington, Pa. 18976
Phone: 215-343-5900

October 31, 1983

Control 16181

RECEIVED BY LFMB	
Date	11/14/83
Log No.	1 REP
By	P. Brown
Orig. To	
Action Compl	11/10/83

United States Nuclear Regulatory Commission
Material Licensing Branch
Division of Fuel Cycle & Material Safety
Washington, DC 20555

Attention: Dr. John W.N. Hickey

Subject: Request for Renewal of Nuclear Research Corporation's
License No. 37-02401-01

Dear Mr. Hickey:

This letter will serve as Nuclear Research Corporation's request for renewal of its License Number 37-02401-01, which is due to expire on December 31, 1983. In accordance with your simplified license renewal procedure the following information is provided:

1. Upon review of our current license it is determined that the license represents our current program, however, it does not meet our anticipated program, which consists of manufacture, fabricate, distribute exempt quantity by product material to be used as internal calibration check source for ionizing radiation measuring instruments. Attached to this letter, please find a copy of the reference letter which was submitted on April 29, 1983 in order to obtain authority for the anticipated program. Nuclear Research Corporation desires that this be incorporated in the renewal license.

2. Procedure for personnel monitoring and handling radioactive material will be followed as outlined in the Nuclear Research Corporation Manual which is on file with the commission.

3. Following is an additional listing of radiation survey and measuring instruments:

- a) Low Energy Ion Chamber Survey Meter - Model SM-400

Radiation Detected: Alpha, Beta, Gamma & X-Ray
Energy Dependence: Within +15% from 7keV to 1.3MeV
Ranges: 0-3, 0-10, 0-100, 0-300, 0-1000 mR/hr

Applicant	
Check No.	30064
Amount, Fee Category	440.74
Type of Fee	Renewal
Date Check Rec'd	11/14/83
Received By	P. Brown

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b) Alpha Survey Meter Radiac AN/PDR-56

Radiation Detected: Above 3 MeV Alpha
Range: 0-10⁶ CPM
Detector: ZnS(Ag)

c) Low Energy X-Ray Probe (Survey) DT-590/PDR

Radiation Detected: Low Energy X-Ray (17keV), Gamma
Range: 0-10⁶ CPM
Detector: CaF2

d) Neutron Survey Meter: AN/PDR-70 (Snoopy NP-2)

Radiation Detected: Thermal (.025 ev) to 15 MeV Neutron
Ranges: 0-2, 0-20, 0-200, 0-2000 mrem/hr
Detector: BF3 proportional counter

e) Phoswitch Detector: Model MD-34

Radiation Detected: Alpha and Beta separately
Detector: Plastic Scintillation (NE102)
coated with ZnS(Ag)
Active Diameter: 1.5" inches
Window Thickness: 0.5 mg/cm² mylar
Range: 0-10⁶ CPM

f) End Window G.M. Detector - Model 727

Radiation Detected: Alpha, Beta, Gamma
Active Diameter: 1" inch, 2 mg/cm² mica window
Range: 0-10⁵ CPM
Detector Shielded in lead castle

g) NaI (Tl) Detector - Model 50 series

4. Calibration Methods and Frequency of the instruments listed in item (3)

a) Gamma Survey Meter is calibrated with Ra-226 needle (.871 mg) traceable to NBS (low range). High range is calibrated with Cs-137 120 Ci source (AN/UDM-1A). The output of Cs-137 source is calibrated with Victoreen Condenser R Meter traceable to NBS.

b) Alpha Survey and X-Ray Survey Meter is calibrated with AN/UDM-7 (Pu-239) Calibrator. This source was supplied from Naval Electronic Systems Command, Charleston, S.C.

- c) Neutron Survey Meter is calibrated with Am-Be neutron source (2.34×10^7 n/cm²/sec) traceable to NBS (Monsanto Research Corporation)
- d) Alpha efficiency is determined with calibrated Am-241 and Th-230 sources (Isotopes Product)
- e) Beta efficiency is determined with calibrated Pm-147, Tc-99, Co-60, Cs-137, Cl-36 and Bi-210 beta reference sources (New England Nuclear)
- f) Gamma efficiency is determined with calibrated Cs-137, Co-60, Ba-133, Mn-54, Cd-109, Na-22, Co-57, Gamma reference sources (New England Nuclear)

Calibration Frequency: 6 months for survey meter.
 Efficiency of other detectors are checked with appropriate source at the time of measurement

5. The licensed material shall be used by, or under the supervision of:

- a) Earl M. Pollock (Resume on File)
- b) Subhash Sengupta (Resume on File)
- c) Wayne Paffrath (Resume on File)
- d) John Brochon (Resume on File)
- e) Mitch Fujita (Resume on File)
- f) T.W. Schwager (Resume Enclosed)

6. Personnel Monitoring Devices:

- a) Film Badge (Whole Body): Exchange Monthly ✓
- b) TLD (Finger): Exchange Monthly ✓
- c) Pocket Dosimeter

Film Badges and TLD are supplied by R.F. Landauer,
 Gleanwood, Illinois 60425

7. Waste disposal service will be provided by:

Teledyne Isotopes ✓
50 Van Buren Avenue
Westwood, NJ 07675

or any other licensed waste disposal service.

8. The person to be contacted with concerning this renewal is:

Subhash Sengupta
Nuclear Research Corporation
125 Titus Avenue (Box H)
Warrington, PA 18976
(215) 343-5900

Enclosed please find a check for \$460.00 (Fee Category 3A) to cover the cost of renewal of our license.

Thank you.

Sincerely,

NUCLEAR RESEARCH CORPORATION

Subhash Sengupta
Subhash Sengupta
Radiation Safety Officer

SS/clb

Enclosure: Check # 30064
Copy of Letter dated April 29, 1983