70-687

CERTIFIED MAIL

REGULATORY OPERATIONS
FILE COPY

UNION CARBIDE CORPORATION
MEDICAL PRODUCTS DIVISION
P.O. BOX 324, TUXEDO, NEW YORK 10987
TELEPHONE: 914-351-2131

December 23, 1980

Director of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTEN: License Management Branch
Division of Fuel Cycle & Material Safety

SUBJECT: DOCKET NO. 70-687, SNM-639, RENEWAL APPLICATION

Ref.: a. Change No. 10, License R-81, Jan. 12, 1973. (Docket 50-54).

b. Letter to USAEC from UCC dated Dec. 5, 1972. (Docket 50-54).

It is requested that the subject license be renewed. No changes to the current license conditions are being sought in this renewal application. The following information is supplied:

ACCT-1129
Applicant.....
Check No. 27467 +126.70832
Facility Fee Category B 10.2 +11,000
Type Fee.....Renewal.....
Date Check Rec'd.. 1/8/81.....
Received By.....

1. Applicant:

Union Carbide Corporation, Medical Products Division
P. O. Box 324, Tuxedo, New York 10987

2. License Renewal Fee:

A check in the amount of $11,100 is enclosed, in accordance with Part 170.31, Category 1G

3. Purpose:

The special nuclear material under this renewal will be used in research and development activities of a type specified in Section 31 of the Atomic Energy Act, namely for medical purposes. Full details of these activities appear in the licensee's letters referenced in the current license.

4. Period of Renewal:

A renewed license period of ten (10) years is requested.

5. Special Nuclear Material Specification:

The amounts and specifications of the SNM that are to be used are as given the current license, as amended. No change is being sought in these amounts or specifications.

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6. Qualifications of Staff:

The qualifications of the staff, their training and experience, their responsibilities, and the organizational structure are as described in the current license and its amendments. An updated organization chart of the Nuclear Products segment of the Medical Products Division is enclosed for your information (Enclosure 1). The composition of the Nuclear Safeguards Committee is as described in Technical Specifications Section 6.5.1.1 of the Union Carbide Nuclear Reactor License R-81.

7. Description of Facility:

The hot laboratory facilities in which the SNM operations will be (and are presently being) conducted, and the equipment and procedures for protection of health, are as presently described in the current license. A description of the hot lab monitoring system and evacuation procedure is given in Enclosure 2 to this renewal application. This description is an up-to-date version of that given in an earlier application letter dated June 13, 1973.

8. Accountability and Control:

The program for SNM accountability and control is fully described in the current license and its amendments.

9. Physical Security Plan:

A physical security plan was furnished to the Commission by letter dated May 18, 1980. This plan covers all SNM activities at this site, both reactor and hot laboratories. The plan was furnished to the Office of Nuclear Reactor Regulation in support of the renewal of reactor operating license R-81, and is withheld from public disclosure under the provisions of 10 CFR Part 2.790(d).

10. Emergency Plan:

A plan for coping with radiation emergencies was filed May 23, 1980, with the Commission as a part of the request to the Division of Licensings for renewal of reactor license R-81. This plan is a site-wide plan that covers both the reactor and the hot laboratories, and thus includes operations incident to the SNM under the subject license.

11. Storage of Waste Form Cylinders:

License Condition No. 21 of the current license, Amendment No. 5, specifies a time limit of two weeks for interim storage of these aluminum cylinders in the water-filled transfer canal. This limit was imposed pending our furnishing relevant corrosion data that might substantiate eliminating the limit.

11. Storage of Water Form Cylinders: (cont'd)

References a and b establish water quality standards for storage pool water that permit safe storage of aluminum-clad fuel elements for periods of at least 5 years. This same water is used in the transfer canal. The minimum wall thickness of the waste form cyclinder is .035 in., whereas that for fuel element cladding is .015 in. Clearly, corrosion of these cylinders is no problem.

12. Environmental Appraisal:

For the following reasons, it is considered that an environmental impact statement is not required:

a. Activities both in nature and scope will be significantly unchanged in the renewal period and therefore any environmental effects will not be changed significantly over those that have, or could have, existed previously.

b. The activity for which the SNM is used is the generation of by-product material to be used in medical applications, and is not "processing and fuel fabrication", nor any of the other activities cited in 10 CFR Parts 70.23(a)(7), and 51.5(b)(4).

Very truly yours,

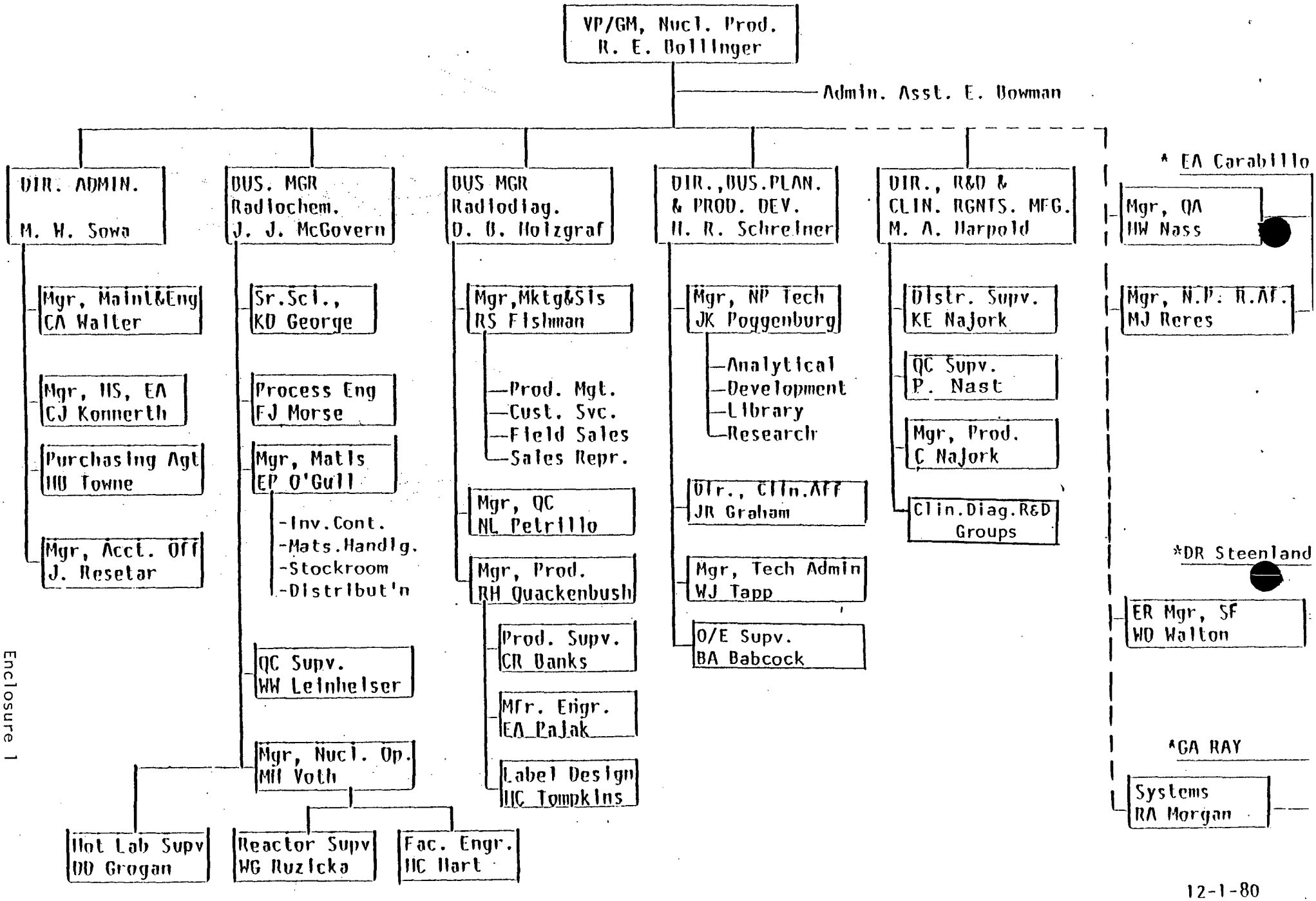
K. D. George

Kenneth D. George
Senior Development Scientist

KDG:sk

Enclosures (2)

MEDICAL PRODUCTS DIVISION



Enclosure 1

12-1-80

*Pleasantville location

A. HOT LABORATORY MONITORING SYSTEM

The Health Physics Supervisor is responsible for all phases of Health Physics. He supervises the activities of Health Physics technicians.

1. Health Physics Training

   All personnel working with radioactive material in the Hot Lab receive basic radiation safety training. This initial radiation safety instruction is supplemented by on-the-job training during each new operation.

2. Personnel Monitoring

   All personnel working in the Hot Lab wear a film badge and two pocket ionization chambers. The pocket chambers are read daily and the film badges are evaluated bi-weekly by an approved commercial laboratory. Urinalyses on all Hot Lab personnel working with radioactive materials are made on a routine basis at least once each year. Additional samples will be taken as recommended by the Health Physics Supervisor.

3. Instruments and Equipment

   All radiation detection and monitoring equipment is set and kept in proper operating condition.

   a. Radiation Detection and Monitoring

      Radiation detection instruments available for monitoring include at least 5 Ion Chamber survey meters with range up to 50,000 mr/hr, 2 Geiger Detectors with range up to 20 mr/hr, 1 Alpha Scintillation Counter, 1 End Window G.M. Counter with Scaler, and 1 Multichannel Analyzer with NaI Scintillation Detector.

      Portable radiation detection equipment such as cutie-pies, G-M survey meters, and alpha detectors are located at various points in the area. A Hand and Foot Counter is near the main exit from the Hot Lab; it is used by visitors and personnel before leaving the building.

   b. Area Monitors

      Within the Hot Lab at various points, monitrons are provided to detect local increases in radiation levels and to give alarms. These monitors have audio and visual alarms at the local point and at the main monitron control panel in the operating area of

the Hot Lab. (A similar system monitors SNM-639 material while in the reactor building, the main monitron control panel for that area being in the reactor control room.) Set points for the monitrons in occupied areas are normally set at 5 mr/hr to 10 mr/hr.

Two monitrons on the second floor of the Hot Lab are used for a criticality monitor pursuant to 10 CFR 70.24(a). All extremities of the area are within 120 feet of each of the monitors. The maximum intervening shielding is a six inch hollow concrete block wall. The high level alarm set points are set between 5 mr/hr and 20 mr/hr, providing capability to detect a criticality which generates radiation levels of 300 rems per hour one foot from the source. The location of intervening shielding has been evaluated to verify that a criticality of that magnitude at all possible locations will be detected. In the event of a criticality of this magnitude, both monitrons will trip and alarm. The simultaneous trip of these two monitrons will initiate an automatic evacuation alarm. Two channels are used rather than one to avoid false alarms caused by movement of radioactive material near a monitron. Each detector is designed to fail in the tripped condition. To clear a criticality monitor alarm which is known to be the result of other factors (e.g., monitron failure, equipment maintenance, or movement of radioactive material), the set points may be changed from those specified above if all special nuclear material is secured and operating personnel are vacated from the area.

c. Constant Air Monitors

Two constant air monitrons are located in the Hot Lab. The monitors can be set to draw air (via a vacuum pump) past filter paper at a flow rate ranging from 1 to 10 ft^3/min. A G-M tube is located above the filter paper and measured activities are continually recorded.

d. Stack Monitors

The exhaust air from both the Reactor and Hot Lab are continuously monitored for radioactive particulate matter and for gaseous activity. This monitor is equipped with a recorder and alarm circuits to indicate high activity or equipment failure. It is checked on a routine basis at least once a day. An accumulative weekly sample is analyzed for alpha activity.

e. Hot Lab Evacuation System

In the event of unexplained alarms from (a) two area monitors, (b) an area monitor and a constant air monitor, or (c) an area monitor and the stack monitor, the evacuation alarm will be sounded. This alarm is normally sounded manually by means of

push buttons located throughout the facility. The alarm sounds from units located in every major area of the Hot Lab and is easily heard in all locations. All personnel are instructed in the use of the system.

The simultaneous trip of the two monitrons used to detect criticality on the second floor of the Hot Lab will initiate the evacuation alarm automatically.

f. Wipe Tests

Wipe tests are made of the floors daily and analyzed for beta, gamma, or alpha activity as appropriate. Wipe tests are done on all sealed sources semiannually. All equipment and materials require Health Physics' approval before being removed from a controlled area.