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70-687

JUN 17 1976

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Union Carbide Corporation
Sterling Forest Research Center
ATTN: Mr. C. J. Konnerth, Manager
Health Physics Department
P.O. Box 324
Tuxedo, New York 10987

Gentlemen:

We have reviewed the fundamental nuclear material control plan dated July 1, 1975, for the Sterling Forest Laboratory and your letter dated March 5, 1976, both of which were submitted in response to the requirement of 10 CFR 70.58(1).

In order to ensure complete compliance with the requirements of 10 CFR 70.58, we have found it necessary to require that you strengthen your material control and accounting program in certain respects. Accordingly, the new conditions listed in Enclosure 1 are being added to your license. In order to consolidate these conditions with all outstanding letter amendments to your safeguards amendment, and to withdraw obsolete amendments, Special Nuclear Material License No. SNM-639 is hereby amended to incorporate Materials and Plant Protection Amendment MPP-2 (Enclosure 2), effective sixty (60) days after the date of this letter. When this amendment becomes effective it will supersede in its entirety Amendment MPP-1 which was previously issued to this license.

We are in agreement with your position on the two subjects discussed in your letter of March 5, 1976.

You may request a hearing within 20 days of the date of this letter with respect to all or any part of the new conditions set forth in Enclosure 1 except Conditions 2.1 and 2.2. It has been determined that the prompt establishment of measures to protect special nuclear material against diversion is required in the interests of the public health and safety. Therefore, any request for a hearing will not stay the effective date of these license conditions.

Note that changes in your approved fundamental nuclear material control plan must be made in accordance with 10 CFR 70.32(c).

Sincerely,

R. A. Brightsen, Assistant Director
for Licensing
Division of Safeguards

Enclosures:	SGMC	SGMC	SGMC	SGL
Office New Conditions	B	W	W	W
2. Amendment MPP-2	JBlaylock:ch	CNSmith	LWirfs	RBrightsen
DATE	6/15/76	6/15/76	6/15/76	6/16/76

Enclosure 1

New License Conditions For Materials
And Plant Protection Amendment MPP-2 to License No. SNM-639

1.0 FACILITY ORGANIZATION

- 1.1 The Manager, Health Physics shall have the responsibility for the overall planning, coordination, and administration of the material control functions for special nuclear material (SNM).
- 1.3 Records on training or briefing session attendance and other training data shall be maintained and retained for a minimum of two years by the Manager, Health Physics.

2.0 FACILITY OPERATION

- 2.1 The licensee shall follow the fundamental nuclear material control plan dated July 1, 1975, with the exception of the last three sentences in section 7.3.4, and as revised in accordance with the provisions of 10 CFR 70.32(c).
- 2.2 No statement in the licensee's Plan identified in Condition 2.1 shall relieve the licensee of a requirement of 10 CFR 70 unless granted in a specific exemption or exception set forth as a condition of this license.
- 2.3 Operations involving special nuclear materials which are not described in the Plan identified in Condition 2.1 shall not be initiated until an appropriate safeguards plan has been approved by the Nuclear Regulatory Commission.
- 2.4 All SNM not in transit shall be physically within an MBA or an ICA.
- 2.5 The custody of all special nuclear material within each MBA and ICA shall be the responsibility of a single designated individual. Each MBA shall have a different custodian and no individual shall be the custodian of an MBA and an ICA.

3.0 MEASUREMENTS

- 3.2 All internal transfers of uranium from MBAs shall be based on measurements for element and isotope, except as specified in Conditions 3.1.1 and 3.1.2.

4.0 MEASUREMENT CONTROL

- 4.12 The SNM Measurement Procedures Manual shall be approved and be in use, effective with the implementation of the Plan identified in Condition 2.1.

6.0 RECORDS AND REPORTS

- 6.1 The licensee shall use his or his designated agent's measured values for SNM accounting, except as specified in Condition 3.1.1.
- 6.3 All accounting records, including measurement source data documents and internal transfer records, shall be included in the accounting records retained for five years.

7.0 INTERNAL CONTROL

- 7.1 The same individual shall not sign a document as both the Shipper and Receiver.
- 7.2 Accurate records shall be established and maintained which provide on a daily basis knowledge of the identity, location, and quantity of all SNM within the plant in discrete items and containers.

8.0 MANAGEMENT

- 8.1 Any apparent loss of a discrete item or container of special nuclear material which cannot be resolved by an immediate investigation shall be reported to the Manager, Health Physics, who shall promptly notify the Regional Office of the Nuclear Regulatory Commission, and shall conduct an investigation of the loss. The Manager, Health Physics shall document the results of his investigation and maintain the record for five years.
- 8.2 Deficiencies noted during an audit shall be investigated immediately and a summary report on the corrective action taken, including the date when action was completed, shall be appended to the audit report.

Enclosure 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION

LICENSE AMENDMENT
FOR
SPECIAL NUCLEAR MATERIAL SAFEGUARDS

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and Title 10, Code of Federal Regulations, Chapter 1, Part 70, the following amendment to the special nuclear material license identified below is hereby issued, incorporating requirements for the control and accounting of special nuclear material.

Licensee

Name: Union Carbide Corporation

License No. SNM-639

Address: Sterling Forest Research Center
P.O. Box 324
Tuxedo, New York 10987

Amendment No. MPP-2 super-
seding all previous safeguards
amendments

Docket No. 70-687

CONDITIONS

1.0 FACILITY ORGANIZATION

- 1.1 The Manager, Health Physics shall have the responsibility for the overall planning, coordination, and administration of the material control functions for special nuclear material (SNM).
- 1.2 All delegations of material control and accounting responsibilities shall be in writing by the Manager, Nucleonics.
- 1.3 Records on training or briefing session attendance and other training data shall be maintained and retained for a minimum of two years by the Manager, Health Physics.

2.0 FACILITY OPERATION

- 2.1 The licensee shall follow the fundamental nuclear material control plan dated July 1, 1975, with the exception of the last three sentences in section 7.3.4, and as revised in accordance with the provisions of 10 CFR 70.32(c).

- 2.2 No statement in the licensee's Plan identified in Condition 2.1 shall relieve the licensee of a requirement of 10 CFR 70 unless granted in a specific exemption or exception set forth as a condition of this license.
- 2.3 Operations involving special nuclear materials which are not described in the Plan identified in Condition 2.1 shall not be initiated until an appropriate safeguards plan has been approved by the Nuclear Regulatory Commission.
- 2.4 All SNM not in transit shall be physically within an MBA or an ICA.
- 2.5 The custody of all special nuclear material within each MBA and ICA shall be the responsibility of a single designated individual. Each MBA shall have a different custodian and no individual shall be the custodian of an MBA and an ICA.
- 3.0 MEASUREMENTS
- 3.1 The licensee or his designated agent shall measure, except as specified in Conditions 3.1.1 and 3.1.2, the uranium and U-235 content of all special nuclear material receipts, shipments, waste discards, and material inventoried.
- 3.1.1 Measurements are not required on sealed PuBe sources, and those samples intended for analysis and testing which have been determined by other means to contain less than ten grams U-235 each.
- 3.1.2 Enrichment factors determined from plating solution materials can be applied to U-235 values for sealed targets for purposes of obtaining uranium values.
- 3.2 All internal transfers of uranium from MBAs shall be based on measurements for element and isotope, except as specified in Conditions 3.1.1 and 3.1.2.
- 4.0 MEASUREMENT CONTROL
- 4.1 An ongoing measurement control program covering all SNM accounting measurements shall be maintained.
- 4.2 All measurement systems shall be calibrated against standards over the range of operation.

- 4.3 Secondary standards used in the calibration of nondestructive assay systems shall be representative of all material to be measured. Consideration shall be given to matrix composition, and SNM geometrical distribution, quantity and isotopic content.
- 4.4 A standards program shall be maintained to provide a minimum of two measurements of standards per week for each measurement type during any week in which one or more measurements will be made.
- 4.5 A program of replicate sampling and measurement of all types of process materials shall be maintained to provide a minimum of either fifteen (15) representative data sets or 100% replication for each measurement type per material balance period.
- 4.6 The licensee shall determine measurement biases and systematic errors from the standards program, and random errors from the replicate sampling and measurement of process materials. Estimates of random and systematic errors shall be updated every material balance period and used in the determination of current LEMUF.
- 4.7 Material accounting data shall be adjusted for any measurement bias, as determined under Condition 4.4, which exceeds 10% of its standard deviation.
- 4.8 The data generated under the measurement control program shall be utilized to monitor and control measurement performance.
- 4.9 The measurement program required under this Section shall be reviewed annually by the Manager of Quality Assurance and the Nuclear Safeguards Committee. Results shall be documented and reported to licensee management.
- 4.10 The licensee shall assure that any person who contracts to perform material control and accounting measurements conforms to the measurement control requirements of this Section. Conformance shall include the application of bias corrections and the reporting of random and systematic errors to the licensee, who shall have access to the supporting control data. The licensee shall perform and document program audits at intervals not to exceed twelve 12 months.
- 4.11 Limit of error calculations shall include consideration of both random and systematic errors in all components of measurement. All identifiable covariance effects shall be taken into account in the calculations of LEMUF.

- 4.12 The SNM Measurement Procedures Manual shall be approved and be in use, effective with the implementation of the Plan identified in Condition 2.1.

5.0 INVENTORY

- 5.1 The licensee shall follow the material control and accounting plan entitled, "SNM Measurements, Statistical Controls and Inventory," dated October 17, 1974, and revised December 5, 1974, with the exception of section 4, paragraphs 5.4 and 5.11 including the figures and tables, section 6 except paragraph 6.6, and the appendices, and as revised in accordance with the provisions of 10 CFR 70.32(c).
- 5.2 No statement in the licensee's material control and accounting plan shall relieve the licensee of a requirement of 10 CFR Part 70 unless granted in a specific exemption or exception set forth as a condition of this license.

6.0 RECORDS AND REPORTS

- 6.1 The licensee shall use his or his designated agent's measured values for SNM accounting, except as specified in Condition 3.1.1.
- 6.2 The licensee shall report on a monthly basis all intentional discards and material unaccounted for. The MUF shall be that which has been determined during the month as a result of completing a material balance around a single operation, a number of operations, or the entire plant. This report shall be made within fifteen (15) days after the end of the month in which the discard was made or the material unaccounted for was determined. Reports shall be sent to the NRC Regional Office.
- 6.3 All accounting records, including measurement source data documents and internal transfer records, shall be included in the accounting records retained for five years.
- 6.4 In lieu of the requirement in 10 CFR 70.54 that the Form NRC-741 be completed and distributed within 10 days after receipt of nuclear material, the licensee may use a Form NRC-284 to acknowledge receipt where measurements cannot be completed in the time specified. Receipt measurements shall be completed and reported on the Form NRC-741 within 30 days after receipt of material.

7.0 INTERNAL CONTROL

7.1 The same individual shall not sign a document as both the Shipper and Receiver.

7.2 Accurate records shall be established and maintained which provide on a daily basis knowledge of the identity, location, and quantity of all SNM within the plant in discrete items and containers.

8.0 MANAGEMENT

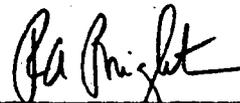
8.1 Any apparent loss of a discrete item or container of special nuclear material which cannot be resolved by an immediate investigation shall be reported to the Manager, Health Physics, who shall promptly notify the Regional Office of the Nuclear Regulatory Commission, and shall conduct an investigation of the loss. The Manager, Health Physics shall document the results of his investigation and maintain the record for five years.

8.2 Deficiencies noted during an audit shall be investigated immediately and a summary report on the corrective action taken, including the date when action was completed, shall be appended to the audit report.

FOR THE NUCLEAR REGULATORY COMMISSION

JUN 17 1976

Date of Amendment _____



R. A. BRIGHTSEN, ASSISTANT DIRECTOR
FOR LICENSING
DIVISION OF SAFEGUARDS