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9/7/71

United Nuclear Corporation
Fuels Recovery Plant
ATTN: Mr. John A. Lindberg
Vice President -
Manufacturing
P.O. Box 1883
365 Winchester Avenue
New Haven, Connecticut 06508

Gentlemen:

Enclosed is Safeguards Amendment SG-3 to special nuclear material license No. SNM-777. This amendment reflects the recent corporate changes and supersedes all previous safeguards amendments to this license.

Sincerely,

(Signed) C. D. W. Thornton

C. D. W. Thornton, Director
Division of Nuclear Materials
Safeguards -

Enclosure:
Safeguards Amendment SG-3

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UNITED STATES
ATOMIC ENERGY COMMISSION

LICENSE AMENDMENT
FOR
SPECIAL NUCLEAR MATERIALS SAFEGUARDS

Pursuant to the Atomic Energy Act of 1954, as amended, 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 controls for the safeguarding of special nuclear material.

Licensee

Name: United Nuclear Corporation

License No. SNM-777

Address: Fuels Recovery Plant,
Wood River Junction, R. I.

Amendment No. SG-3

Docket No. 70-820

CONDITIONS

1.0 FACILITY ORGANIZATION

- 1.1 The Nuclear Materials Supervisor shall develop, revise, implement, and enforce the nuclear material control procedures and manage an overall system of special nuclear material control.
- 1.2 Nuclear material control procedures and revisions thereto shall be approved by the Nuclear Materials Supervisor and the Plant Manager. A manual containing all current nuclear material control procedures shall be maintained by the Nuclear Materials Supervisor.

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1.3 The Nuclear Materials Supervisor shall assure that the nuclear material control procedures are appropriately reflected in process specifications, manufacturing instructions, standard operating procedures, or similar detailed management instructions.

1.4 All delegations of safeguards responsibilities by the Nuclear Materials Supervisor, approved by the Plant Manager, shall be in writing.

2.0 FACILITY OPERATION

2.1 Material Balance Areas (MBA's) shall be established by the Nuclear Materials Supervisor.

2.2 Each MBA shall be an identifiable physical area into and out of which movement of special nuclear material can be measured.

2.3 Sufficient numbers of MBA's shall be established so that losses of special nuclear material can be identified and localized.

2.4 All operations within an MBA shall be the responsibility of a single employee who shall also be responsible for the custody of special nuclear material within his MBA.

3.0 MEASUREMENTS AND STATISTICAL CONTROLS

3.1 The licensee shall determine the U-235, U-233, and/or Pu content of all receipts, shipments, intentional discards and material inventoried, along with the limits of error associated with these quantities. The licensee shall make sufficient measurements to substantiate the stated quantities and associated limits of error. Measurements are not required on items which have been determined by other means to contain less than ten (10) grams U-235, U-233, and/or Pu each. Limits of error as used herein means the boundaries within which the true or best value of the parameter being measured lies with a probability of 95%.

3.2 A program of standardization and calibration of measurement equipment and analytical procedures shall be maintained to provide data to substantiate the limits of error associated with all measurements required for safeguards purposes.

- 3.3 All measurements required by this amendment shall be reviewed annually by the Naval Products Division Quality Control Manager. This review shall include a quantitative calculation of limits of error of the measurement system. The Quality Control Manager shall utilize data obtained through calibrations specified in Condition 3.2 to monitor performance of the measurement system to assure calculated limits of error are maintained between reviews. Records of reviews, calculations, and use of calibration data shall be kept by the Quality Control Manager.
- 3.4 After any physical inventory the material unaccounted for (MUF) and the limits of error associated with the material unaccounted for shall be computed promptly. The limits of error associated with MUF shall be calculated by statistically combining the limits of error determined for shipments, receipts, beginning inventory, ending inventory, and measured losses for the period since the last inventory.
- 3.5 If the quantity of MUF exceeds the associated limits of error the licensee shall promptly notify the Atomic Energy Commission, Division of Nuclear Materials Safeguards, District I, Newark, New Jersey. The licensee shall investigate the MUF and notify the Division of Nuclear Materials Safeguards within thirty (30) days after the initial notice, specifying the probable reasons for the MUF and the corrective action taken or planned.
- 4.0 SHIPPING AND RECEIVING
- 4.1. All shipper-receiver differences shall be brought to the attention of the Nuclear Materials Supervisor, who shall evaluate these differences to determine whether they are statistically significant and of sufficient magnitude to warrant investigation. The Plant Manager shall investigate all statistically significant differences which exceed \$500 value. A shipper-receiver difference shall be considered statistically significant when (1) the difference exceeds the statistical combination of the limits of error of the shipper's and receiver's measurements, or (2) if the shipper's limits of error is unknown, the difference exceeds twice the limits of error for the receiver's measurement. Statistical analyses of past performance, measurement uncertainties, and other data shall be kept by the Nuclear Materials Supervisor.

5.0 STORAGE AND INTERNAL TRANSFERS

5.1 A documented system of control over special nuclear material stored and processed within the facility shall be maintained which will provide continuous knowledge of the location, and quantity of all material contained in discrete, identifiable items or containers.

5.2 All transfers of special nuclear material between MBA's shall be documented to show the identity, quantity, and isotopic analysis of the material transferred. A system of controls shall be maintained by the licensee for the distribution and accounting of all transfer documents.

5.3 Each document supporting a transfer of material between MBA's shall be signed by the delegated individual.

6.0 INVENTORY

6.1 A complete physical inventory of all special nuclear material subject to this license shall be conducted at approximately twelve-month intervals, but in no case shall more than fourteen months elapse between inventories.

6.2 Prior to each complete physical inventory, written procedures shall be prepared which:

6.2.1 specify the extent to which each MBA is to shut down and clean out process equipment;

6.2.2 specify the extent to which each MBA is to remain static during the inventory;

6.2.3 identify the basis for accepting, for inventory purposes, previously made measurements and their limits of error;

6.2.4 designate measurements to be made for inventory purposes to establish and demonstrate the limits of error associated with the quantity of material on inventory; and

6.2.5 identify the manner by which material on inventory will be listed to assure each item is inventoried and there are no duplications or omissions.

6.3 The book inventory shall be reconciled with and adjusted to the results of the physical inventory upon completion of the physical inventory.

6.4 Special physical inventories of an MBA shall be conducted whenever there is reason to believe that subsequent to the last prior physical inventory a particular MBA has experienced losses or gains that are different by a statistically significant amount from those expected.

7.0 RECORDS AND REPORTS

7.1 The licensee shall establish and maintain a records system which will provide sufficient information to maintain a material balance around each MBA and the total plant. These records shall contain information pertaining to all receipts, shipments, measured discards, inventory, and MUF for each material balance. MBA and plant records shall be reconciled at the end of each accounting period. All entries in the records shall be supported by appropriate documents.

7.2 All measured discards and MUF shall be reported on a monthly basis by the Nuclear Materials Supervisor to the Plant Manager.

7.3 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 U.S. Atomic Energy Commission, Division of Nuclear Materials Safeguards, District I, Newark, New Jersey. Each report shall be identified by the Reporting Identification Symbol(s) (RIS) assigned to the licensed operations and shall include a statement of the nature of the discards, the probable reasons for the MUF and any actions taken or planned with respect to the MUF.

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8.0 MANAGEMENT OF MATERIALS CONTROL SYSTEM

- 8.1 The Plant Manager, independent of the Nuclear Materials Supervisor, shall conduct, at least once each year, an internal review of the nuclear materials control procedures and management of the overall system of special nuclear material control and report the findings to the Vice President of Manufacturing.
- 8.2 An estimate of anticipated losses (measured discards plus MUF) for each period of time between inventories shall be prepared for each MBA, with the concurrence of the Nuclear Materials Supervisor, and shall be based on prior experience, throughput quantities and rates, etc. If losses exceed the estimate of those anticipated, they shall be investigated by the Plant Manager, and the results of his investigation shall be reported to the Vice President of Manufacturing.
- 8.3 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 Plant Manager, who shall promptly notify the Atomic Energy Commission, Division of Nuclear Materials Safeguards, District I, Newark, New Jersey, and shall conduct an investigation of the loss. The Plant Manager shall report the results of his investigation to the Vice President of Manufacturing.

FOR THE ATOMIC ENERGY COMMISSION

Date of Amendment SEP 7 1971

(Signed) C. D. W. Thornton

Division of Nuclear Materials
Safeguards

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