

## UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

In the Matter of:

United Nuclear Corporation  
ATTN: Mr. C. E. Wolff  
Operations Manager  
Wyoming Operations  
P.O. Box 2996  
Casper, Wyoming 82602

Docket No. 40-8602  
Source Material License  
No. SUA-1356  
Amendment No. 2

3/26/01



ORDER TO MODIFY LICENSE

I

United Nuclear Corporation ("The Licensee") is the holder of Source Material License No. SUA-1356 issued by the Nuclear Regulatory Commission ("The Commission"). The license authorizes the possession, use and processing of natural uranium and the production of not more than 2,400,000 pounds of  $U_3O_8$  per year. The licensee converts natural uranium ore to  $U_3O_8$  (yellowcake). The current license was issued May 10, 1979 and is due to expire on May 31, 1984.

II

On January 13, 1977, the U.S. Environmental Protection Agency issued regulations setting forth environmental radiation protection standards for the uranium fuel cycle. These regulations are found in Title 40, Chapter 1, Subchapter Part 190, of the Code of Federal Regulations (40 CFR 190). The standard for uranium ore milling facilities became effective on December 1, 1980. The

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regulations in 40 CFR 190 require that planned discharges to the general environment of radioactive materials, radon and its daughters excepted, and radiation from licensed milling operations shall be limited in such a manner as to provide reasonable assurance that no member of the public will receive an annual dose equivalent of more than 25 millirems to the whole body, 75 millirems to the thyroid, or 25 millirems to any other organ.

The Nuclear Regulatory Commission is responsible for assuring that uranium milling facilities licensed by the Commission meet the requirements of these new environmental radiation protection standards. To assure compliance with 40 CFR 190, the license is being modified to require the evaluation and periodic reporting of environmental monitoring data and other pertinent information. The attached NRC document, "Compliance Determination Procedures for Environmental Radiation Protection Standards for Uranium Recovery Facilities - 40 CFR 190," sets forth a standardized reporting format for the environmental monitoring data and the dose conversion factors to be used to calculate the dose commitments. That document also sets forth the need to establish a comprehensive Quality Assurance Program so that the data generated from the environmental monitoring program will be meaningful and will be of a sufficient degree of accuracy to permit the required radiological dose assessments.

The NRC staff has reviewed the radiological assessments contained in the Final Environmental Statement (FES) for United Nuclear Corporation (NUREG-0532). On

the basis of this information and its review, the staff concludes that implementation of the 40 CFR 190 standard is practicable (see the NRC Report "40 CFR 190 Compliance Assessment for NRC Licensed Uranium Recovery Facilities as of December 1, 1980"). This report and the attached document describing NRC 40 CFR 190 compliance determination procedures form the technical basis for the conditions contained in this order.

### III

Accordingly, in order to assure compliance with Title 40, Code of Federal Regulations, Part 190, pursuant to Sections 62, 63, 81, 83, 84, 161b, 161o, and 182 of The Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR Parts 2 and 40, Source Material License No. SUA-1356 is hereby amended to add the following conditions:

- 42 For a period of four (4) calendar quarters from the time that the Morton Ranch uranium mill becomes operational and the Environmental Monitoring Program is initiated as required by License Condition 29, the sampling and analysis results of the Environmental Monitoring Program shall be reported to the Uranium Recovery Licensing Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Director of Inspection and Enforcement, Region IV, U.S. Nuclear Regulatory Commission, 611 Ryan Plaza Drive, Arlington, Texas 76011, within 60 days of the end of each calendar quarter in accordance with the format in the attached Table,

"Sample Format for Reporting Monitoring Data." Dose evaluations based on this actual environmental monitoring program data and the dose conversion factors as given in Attachment A of "Compliance Determination Procedures for Environmental Radiation Protection Standards for Uranium Recovery Facilities - 40 CFR 190" shall be included in the report.

- 43 The requirement in 10 CFR 20.405(c), when effective, for notification of levels of radiation or releases of radioactive materials in excess of the limits specified in 40 CFR 190 shall be suspended during the period that the four quarterly environmental monitoring reports are being submitted as required in License Condition 42 above.
- 44 The licensee shall submit the following information to the Uranium Recovery Licensing Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, by June 1, 1981 for NRC review and approval prior to implementation:
  - A. Specifications for a quality assurance program. Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment" may be followed by the licensee in submitting its specifications; or the licensee may provide specifications for an equivalent quality assurance program.
  - B. A detailed topographic map(s) showing all environmental sample collection locations and all of the following within 5 miles (8 km) of any portion of the restricted area boundary: private residences,

grazing areas, private and public potable water and agricultural wells, milk cattle, nonresidential structures and uses, mining areas, and ore storage pads.

#### IV

The licensee or any other person whose interest may be affected by this Order may request a hearing on this Order before May 1, 1981. A request for hearing shall be submitted to the Secretary, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. A copy of the request shall also be sent to the Executive Legal Director, at the same address. If a hearing is requested by a person other than the licensee, that person shall describe, in accordance with 10 CFR 2.714(a)(2), the nature of the person's interest and the manner in which that interest is affected by this Order.

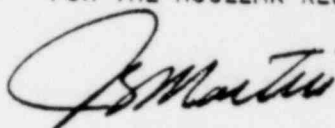
If a hearing is requested by the licensee or other person who has an interest affected by this Order, the Commission will issue an Order designating the time and place of any such hearing. If a hearing is held, the issue to be considered at such a hearing shall be:

- o Whether on the basis of the matters set forth in Section II of this Order, License Number SUA-1356 should be modified as set forth in Section III of this Order.

This amendment will become effective upon expiration of the period during which a hearing may be requested. In the event a hearing is requested, the amendment will become effective on a date specified in an Order made following the hearing.

The reporting requirements contained in this order to modify the license have been approved by the U.S. General Accounting Office under number B-180225 (R0709).

FOR THE NUCLEAR REGULATORY COMMISSION



John B. Martin, Director  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Dated at Silver Spring, Maryland  
this 26 day of March 1981.

Attachments:

1. "Compliance Determination Procedures  
for Environmental Radiation  
Protection Standards for Uranium  
Recovery Facilities - 40 CFR 190"  
(dated December 1980)
2. Table "Sample Format for Reporting  
Monitoring Data"

TABLE (a)

## SAMPLE FORMAT FOR REPORTING MONITORING DATA

## 1. STACK SAMPLES

For each sample analyzed, report the following information:

- a. Date sample was collected  
 b. Location of sample collection  
 c. Stack flow rate ( $m^3/sec$ )

Radionuclide	Concentration ( $\mu Ci/ml$ )	Error Estimate <sup>(b)</sup> ( $\mu Ci/ml$ )	Release Rate ( $Ci/qr$ )	Error Estimate ( $Ci/qr$ )	LLD <sup>(c)</sup> ( $\mu Ci/ml$ )	% MPC <sup>(c)</sup>
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U-nat

Th-230

Ra-226

Pb-210

## 2. AIR SAMPLES

For each sample analyzed, report the following information:

- a. Date sample was collected  
 b. Location of sample collection

Radionuclide	Concentration ( $\mu Ci/ml$ )	Error Estimate ( $\mu Ci/ml$ )	LLD ( $\mu Ci/ml$ )	% MPC
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U-nat

Th-230

Ra-226

Pb-210

Rn-222

(a) This table illustrates format only. It is not a complete list of data to be reported.

(b) Error estimate should be calculated at 95% uncertainty level, based on all sources of random error, not merely counting error.

Significant systematic error should be reported separately.

(c) All calculations of lower limits of detection (LLD) and percentages of maximum permissible concentration (MPC) should be included as supplemental information.

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## SAMPLE FORMAT FOR REPORTING MONITORING DATA

## 3. LIQUID SAMPLES

For each sample analyzed, report the following information:

- a. Date sample was collected  
 b. Location of sample collection  
 c. Type of sample (for example: surface, ground, drinking, stock, or irrigation)

LLD  
 (μCi/ml)

Error Estimate  
 (μCi/ml)

Concentration  
 (μCi/ml)

Radionuclide

U-nat (dissolved)  
 U-nat (suspended) (d)  
 Th-230 (dissolved)  
 Th-230 (suspended) (d)  
 Ra-226 (dissolved)  
 Ra-226 (suspended) (d)  
 Pb-210 (dissolved)  
 Pb-210 (suspended) (d)  
 Po-210 (dissolved)  
 Po-210 (suspended) (d)

## 4. VEGETATION, FOOD, AND FISH SAMPLES

For each sample analyzed, report the following information:

- a. Date sample was collected  
 b. Location of sample collection  
 c. Type of sample and portion analyzed

LLD  
 (μCi/kg)

Error Estimate  
 (μCi/kg)

Concentration  
 (μCi/kg wet)

Radionuclide

U-nat  
 Th-230  
 Ra-226  
 Pb-210  
 Po-210

(d) Not all samples must be analyzed for suspended radionuclides.

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TABLE (Continued)

SAMPLE FORMAT FOR REPORTING MONITORING DATA

5. SOIL AND SEDIMENT SAMPLES

For each sample analyzed, report the following information:

- Date sample was collected
- Location of sample collection
- Type of sample and portion analyzed

Radionuclide	Concentration ( $\mu\text{Ci/g}$ )	Error Estimate ( $\mu\text{Ci/g}$ )	LLD ( $\mu\text{Ci/g}$ )
U-nat			
Th-230			
Ra-226			
Pb-210			
Po-210			

6. DIRECT RADIATION MEASUREMENTS

For each measurement, report the dates covered by the measurement and the following information:

Location	Exposure Rate ( $\text{mR/hr}$ )	Error Estimate ( $\text{mR/hr}$ )

7. RADON FLUX MEASUREMENTS

For each measurement, report the dates covered by the measurement and the following information:

Location	Flux ( $\text{pCi/m}^2\text{-sec}$ )	Error Estimate ( $\text{pCi/m}^2\text{-sec}$ )

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# Lower Limits of Detection (LLD) for Sample Analysis

U-natural, Th-230, Ra-226 in air	-	$1 \times 10^{-16} \mu\text{Ci/ml}$
Pb-210 in air	-	$2 \times 10^{-15} \mu\text{Ci/ml}$
Rn-222	-	$2 \times 10^{-10} \mu\text{Ci/ml}$
U-natural, Th-230, Ra-226 in water	-	$2 \times 10^{-10} \mu\text{Ci/ml}$
Po-210 in water	-	$1 \times 10^{-9} \mu\text{Ci/ml}$
Pb-210 in water	-	$1 \times 10^{-9} \mu\text{Ci/ml}$
U-natural, Th-230, Ra-226, Pb-210 in soil and sediment (dry)	-	$2 \times 10^{-7} \mu\text{Ci/g}$
U-natural, Th-230 in vegetation, food, and fish (wet)	-	$2 \times 10^{-7} \mu\text{Ci/kg}$
Ra-226 in vegetation, food, and fish (wet)	-	$5 \times 10^{-8} \mu\text{Ci/kg}$
Po-210, Pb-210 in vegetation, food, and fish (wet)	-	$1 \times 10^{-6} \mu\text{Ci/kg}$

40 CFR 190 COMPLIANCE ASSESSMENT

FOR

NRC LICENSED URANIUM RECOVERY FACILITIES

AS OF

DECEMBER 1, 1980

U.S. Nuclear Regulatory Commission

Division of Waste Management

Uranium Recovery Licensing Branch

February 1981

DUPLICATE DOCUMENT

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No. of pages: 103

COMPLIANCE DETERMINATION PROCEDURES FOR  
ENVIRONMENTAL RADIATION PROTECTION  
STANDARDS FOR URANIUM RECOVERY FACILITIES  
40 CFR 190

U. S. Nuclear Regulatory Commission

Division of Waste Management  
Uranium Recovery Licensing Branch

December, 1980

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