UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

In the Matter of:	)	Docket No. 40-4492
	)	Source Material License
Federal-American Partners	)	No. SUA-667
ATTN: Mr. N. J. Andrus	)	Amendment No. 8
Acting General Manager	)	
Gas Hills Star Route	)	
Riverton, Wyoming 82501	)	

ORDER TO MODIFY LICENSE

I

Federal-American Partners ("The Licensee") is the holder of Source Material License No. SUA-667 issued by the Nuclear Regulatory Commission ("The Commission"). The license authorizes the possession, use and processing of natural uranium and the production of 900 tons of U_3O_8 per day. The licensee converts natural uranium ore to U_3O_8 (yellowcake). The current license was issued February 2, 1971 and is presently undergoing renewal assessment.

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 F, 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 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 and to obtain reasonable lower limits of detection for analytical systems 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 available environmental monitoring data, and has completed predictive modeling assessments. 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, 161c, 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-667 is hereby amended to add the following conditions:

34 For a period of four (4) calendar quarters from July 1, 1981, the sampling and analysis results of the Environmental Monitoring Program, as required by License Conditions 24 and 28, 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.

35 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 34 above.

36 To provide a basis for separation of contributions of the mill from those due to local mining sources, as a minimum, the following additional fieldwork shall be performed:

A. An up-to-date inventory of extraneous sources, including mine waste dumps and subore storage piles in the area, must be conducted and reported. The inventory must include a detailed topographic map locating all sources, and also provide the area, height above ground surface, and average ore grade for each source. This data must be submitted to the NRC by June 1, 1981.

B. Temporary, continuous, low-volume, air particulate sampling stations must be installed at locations upwind of the Federal-American Partners camp in the prevailing wind direction, but downwind of mine dumps and ore storage areas nearest the camp. Concurrent wind speed and direction readings shall be taken at these new locations for at least the first five weeks of operation. One-week samples must be taken and analyzed weekly for U_{nat}, Ra-226, and Th-230 to determine

the extent to which secular equilibrium exists in order to distinguish tailings contributions from mine waste contributions. A minimum of 5 weekly samples must be taken. However, the program must continue until sufficient data has been acquired to establish a basis for source term separation. All sampling shall be conducted in the breathing zone (i.e., 1 to 2 meters in height). Data must be submitted to the NRC within one month of receipt of sample analysis results

37 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.

38 The licensee shall follow the lower limits of detection (LLD) contained in the attached Table, "Lower Limits of Detection (LLD) for Sample Analysis" for the analysis of samples collected pursuant to the Environmental Monitoring Program of License Conditions 24 and 28. If the licensee wishes to use other LLDs, such LLDs shall be submitted 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.

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-667 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"
3. Table "Lower Limits of Detection (LLD) for Sample Analysis"

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 (μCi/ml)	Error Estimate[b] (μCi/ml)	Release Rate (Ci/qr)	Error Estimate (Ci/qr)	LLD[c] (μCi/ml)	% MPC[c]
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 (μCi/ml)	Error Estimate (μCi/ml)	LLD (μCi/ml)	% MPC
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.

TABLE (Continued)

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)

Radionuclide	Concentration (μCi/ml)	Error Estimate (μCi/ml)	LLD (μCi/ml)
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

Radionuclide	Concentration (μCi/kg wet)	Error Estimate (μCi/kg)	LLD (μCi/kg)
U-nat			
Th-230			
Ra-226			
Pb-210			
Po-210			

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

TABLE (Continued)

SAMPLE FORMAT FOR REPORTING MONITORING DATA

5. SOIL AND SEDIMENT 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

Radionuclide	Concentration (pCi/g)	Error Estimate (pCi/g)	LLD (pCi/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 (mR/qr)	Error Estimate (mR/qr)

7. RADON FLUX MEASUREMENTS

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

Location	Flux (pCi/m^2-sec)	Error Estimate (pCi/m^2-sec)

Lower Limits of Detection (LLD) for Sample Analysis

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