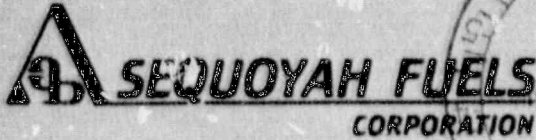


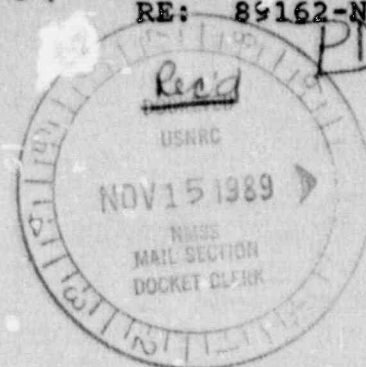
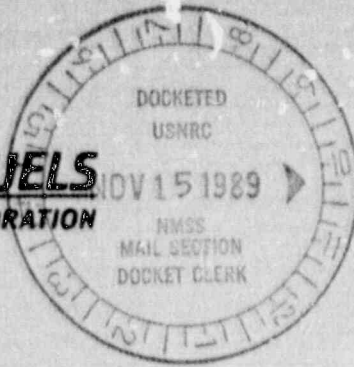
RETURN TO ~~206-NS~~
PL-137

40-8027
PDR/LPDR

RE: 89162-N



November 7, 1989



**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Mr. Leland C. Rouse, Chief
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS
U.S. NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20535

RE: License SUB-1010; Docket No. 40-8027
Revised Amendment Application
Section 1.8, Fertilizer Distribution

Dear Mr. Rouse:

On March 30, 1989, Sequoyah Fuels Corporation (SFC) filed an Amendment Application (Control No. 8950-N) to modify the license requirements concerning its fertilizer distribution operation. The amendment application was revised on May 1, 1989 (Control No. 8971-N), and July 25, 1989 (Control No. 89125-N). This submittal further revises and supersedes the earlier submittals. The purpose of this submittal is to restore the original limits for Ra-226 and uranium in the ammonium nitrate fertilizer product. SFC decided to restore these limits following conversations with Merri Horn of your staff.

Please contact Lee Lacey (918/489-3207) if you have any questions concerning this submittal.

Sincerely,

Scott P. Knight
Vice President
Administration

SPK:LRL:nv

Enclosures

xc: A. Bill Beach, DRSS - Region IV
K. E. Asmussen, General Atomics
R. B. Lenz
NLEC File

8911290138 891107
PDR ADOCK 04008027
PDC
C

Hwy 10 & I 40

P.O. Box 610

Gore, Oklahoma 74435

Telephone (918) 489-6111

Facsimile (918) 489 5620

addit w/j 26077

DF04

hour with an average not in excess of 0.2 mR/hr as measured by an open-window beta-gamma survey meter with a window thickness of not more than seven milligrams per square centimeter.

Posting Exception

An exception to the posting requirements of 20.203(e)(2) shall be made for areas and rooms within the plant. All entrances to restricted areas shall be conspicuously posted with a sign having the words "Caution - Any area or room within this plant may contain radioactive material."

Fertilizer Distribution

In accordance with applications dated May 16, and August 15, 1980, August 17, 1982, June 2, 1983, and pursuant to Title 10, Code of Federal Regulations, Part 40, the following activities shall be authorized: (1) the use of ammonium nitrate solution processed from barium-treated neutralized solvent extraction raffinate for fertilizer, and (2) the release of crops grown on land fertilized with the fertilizer authorized in item (1) above, subject to the following conditions:

1. Treated ammonium nitrate shall be used as a fertilizer only for crops which are not used directly as human food, such as animal forage or seed production.
2. Raffinate shall be neutralized, and Ra-226 and other trace metals precipitated from the raffinate in accordance with approved procedures.
3. The treated ammonium nitrate shall be analyzed prior to use and shall be released for use as a fertilizer only if:
 - a. The Ra-226 content does not exceed 2 pCi/l of solution or 0.1 pCi/gN.
 - b. The average uranium concentration does not exceed 0.1 mg/l.
4. The total quantity of nitrogen applied to any land in any one year by using treated ammonium nitrate as fertilizer will not exceed 700 lb. N/Acre.
5. Quantitative analyses for metals and specified isotopes shall be performed as outlined in the enclosed Appendix I, Revision 1.
6. The designated ammonium nitrate fertilizer application control areas shall be the Rabbit Hill and the 270-acre sites.
7. Monitoring wells on the designated fertilizer application control sites shall be sampled at the beginning of each

fertilizer application season, every other month during fertilizer application, and one month after the last fertilizer application. Samples shall be analyzed individually for nitrates. If the nitrate concentration in a monitoring well exceeds 20 mg/l, SFC shall take appropriate investigative and corrective action, including further analyses for all elements whose concentration in the applied SFC ammonium nitrate exceeds the concentration stated for short-term use of irrigation waters.

8. Surface water samples shall be collected from designated ponds (ponds P-1 through P-3 and the retention pond on the 270-acre plot) at the beginning of each fertilizer application season, every other month during fertilizer application, and one month after the last fertilizer application. Samples shall be individually analyzed for nitrates. If the nitrate concentration in the surface water exceeds 20 mg/l, SFC shall take appropriate investigative and corrective action, including further analysis for those elements whose concentrations in the ammonium nitrate fertilizer exceeds Livestock Enterprise Standards, Appendix II, as specified in Water Quality Criteria, 1972.
9. If Sequoyah Fuels Corporation decides to discontinue the use of any designated control site as part of the ammonium nitrate fertilizer application area, the Division of Industrial and Medical Nuclear Safety, NMSS, U.S. Nuclear Regulatory Commission must be informed promptly so alternate areas for long-term testing can be identified. Should more than 30% of a control site be eliminated from application for any reason, an alternate control site will be proposed.
10. Other crops grown on land fertilized with the ammonium nitrate fertilizer solution may be used or sold without restriction if the use or sale is approved by a qualified independent agronomist.
11. Sequoyah Fuels Corporation shall continue to obtain input and recommendations for the overall ammonium nitrate fertilizer use program from Oklahoma State Extension Agronomists.
12. A completion report for the previous calendar year's fertilizer program shall be submitted to NRC by May 1 of each year. The report shall contain a description of the program, the analytical results obtained, an analysis of the results, a discussion of any unusual or unexpected results and a summary of the projected future program.
13. Sequoyah Fuels Corporation is responsible for all tests, controls, arrangements and reports required under Conditions 1-11 above regardless of the ownership of the fertilized land or crops.

APPENDIX I-Revision 1

Required Quantitative Analyses

<u>Element</u>	<u>Soil</u>	<u>Vegetation</u>	<u>Raffinate</u>
As	X	X	X
Ba			X
B	X	X	X
Cd			X
Co	X	X	X
Cr			X
Cu	X	X	X
Fe	X	X	X
Hg			X
Mg			X
Mn	X	X	X
Mo	X	X	X
Ni	X	X	X
Pb	X	X	X
Se			X
V	X	X	X
Zn	X	X	X
U	X	X	X
Th-230	X	X	X
Ra-226	X	X	X

-
- (1) Soil samples representative of the major soil types in each fertilized area shall be collected and individually analyzed semi-annually for nitrate content. If a problem of excessive accumulation is determined by the consulting agronomist, then further analysis shall be conducted for those elements indicated whose concentrations in the ammonium nitrate fertilizer exceeds the "Recommended Maximum Concentrations of Trace Elements," short term use standards as stated in Water Quality Criteria, 1972.
 - (2) Vegetation samples from the control sites shall be collected and analyzed for all elements listed in Appendix I, Revision 1, either just prior to or immediately after harvest. A statistically sound sampling program shall be used to ensure that the results obtained are representative of the vegetation harvested.

Elemental analysis of the ammonium nitrate fertilized vegetation from the control sites shall serve as an indicator of elemental concentrations in vegetation grown on all other ammonium nitrate fertilized sites subject to the following restrictions:

The loading rate for any site does not exceed that of the control sites. For sites where this restriction is not met, vegetation shall be analyzed. Collection and analysis shall take place prior to or immediately after harvest.

- (3) A representative composite sample of ammonium nitrate fertilizer solution shall be collected during the application season and analyzed for the elements indicated once per year.

APPENDIX JI

LIVESTOCK ENTERPRISE WATERS STANDARDS

As	2 mg/L
Ba	*
B	5.0 mg/L
Cd	50 mg/L
Co	1.0 mg/L
Cr	1.0 mg/L
Cu	.5 mg/L
Fe	*
Hg	10.0 mg/L
Mg	*
Mn	*
Mo	1.0 mg/L
Ni	*
Pb	.5 mg/L
Se	.05 mg/L
V	*
Zn	25.0 mg/L

* - No standards available.

APPENDIX III

ALLOWABLE HEAVY METAL CONTENT OF FORAGE

<u>Element</u>	<u>Maximum tolerable dietary level (ppm)*</u>
P	150
Cu	100
Fe	1000
Mn	1000
Mo	10
Ni	50
Pb	30
Zn	500

* National Academy of Sciences, M. ... rary of
Domestic Animals," Washington, D.C.

**TABLE 5-2
SEQUOYAH FACILITY**

ENVIRONMENTAL MONITORING SCHEDULE

Sample No.	Sample Location	Sampling and Analyses Frequency (see notes)
----- <u>AIR</u> (Continuous Samples)-----		
E-1	East Fence	GA(D)/F(W)
E-2	West Fence	GA(D)/F(W)
E-3	South Fence	GA(D)/F(W)
E-4	North Fence	GA(D)/F(W)
2103	East - 1000 feet	GA, F(W)/GA, U, TH, RA(CW-Q)
2105	1/2 Mile SW of Plant	GA, F(W)/GA, U, TH, RA(CW-Q)
2106	Carlile School	GA, F(W)/GA, U, TH, RA(CW-Q)
2107	Hwy. 64 North	GA, F(W)/GA, U, TH, RA(CW-Q)
2108	I-40 South	GA, F(W)/GA, U, TH, RA(CW-Q)
2109	Nearest Residence	GA, U, US(CW-Q)/N1

----- <u>SURFACE WATER</u> (Grab Samples)-----		
2201	Ill River - Up	N, F, U, GA, GB, N2(M)/RA(Q)
2202	Ill River - Down	N, F, U, GA, GB, N2(M)/RA(Q)
2203	Ark River - Up	N, F, U, GA, GB, RA, N2, (Q)
2204	Ark River - Down	N, F, U, GA, GB, RA, N2, (Q)
2205	Farm Pond - East	N, F, U, GA, GB, RA, N2, (S)
2207	Facility Effluent	N, F, U, GA, GB, N2, (CC-M)/RA(Q)/TH(M)/N3/N4
2208	Tenkiller Raw Water	N, F, U, GA, GB, N2, RA(S)
2209	Salt Fork River	N, F, U, GA, GB, N2(M)/RA(Q)
2210	Carlile School Pond	N, F, U, GA, GB, N2(M)/RA(Q)
RHLA	Fertilizer Monitoring Plot	N(N5)
270-RP	Fertilizer Monitoring Plot	N(N5)
FP-1	Fertilizer Monitoring Plot	N(N5)
FP-2	Fertilizer Monitoring Plot	N(N5)
FP-3	Fertilizer Monitoring Plot	N(N5)

----- <u>WELL WATER</u> (Grab Samples)-----		
270-1	MW-Fertilizer Monitoring Plot	N(N5)
270-2	MW-Fertilizer Monitoring Plot	N(N5)
270-3	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-1	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-2	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-3	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-4	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-5	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-6	MW-Fertilizer Monitoring Plot	N(N5)
RHMW-7	MW-Fertilizer Monitoring Plot	N(N5)

Sample Analysis Notes

- N1 - A particle size sample is collected for one week each six months. (Plant operational during sample collection)
- N2 - If gross alpha is greater than 15 pCi/l or gross beta is greater than 50 pCi/l, then isotopic analysis will be performed.
- N3 - The facility effluent is a continuous sample composited monthly.
- N4 - Special 1-gallon quality assurance sample for February, May, August and November.
- N5 - Sampled every other month during the growing season beginning one month before ammonium nitrate applications and ending one month following ammonium nitrate applications.

Sample Analysis =====	Frequency =====
GA - Gross Alpha	D - Daily
GB - Gross Beta	W - Weekly
F - Fluoride	B - Biweekly
U - Uranium	M - Monthly
US - Uranium Solubility	Q - Quarterly
TH - Thorium-230	S - Semi-annual
RA - Radium-226	A - Annual
N - Nitrate (nitrogen)	CW-Q - Composite of weekly samples for quarterly analysis
I - Isotopic Analysis	
MO - Molybdenum	CC-M - Composite from continuous sampler for monthly analysis
N* - Note (*indicates sample analysis note number)	

DOCKET NO. 40-8027

CONTROL NO. 26077

DATE OF DOC. November 7, 1989

DATE RCVD. November 15, 1989

FCAF

PDR

FCAF

LPDR

I & E REF.

SAFEGUARDS

FCTC

OTHER

DATE 11/15/89

INITIAL SAC