DOCKET NO. 40 -8027

REGULATORY FILE CY



GROUP VICE PRESIDENT

June 30, 1972



Mr. S. H. Smiley, Director Division of Material Licensing U. S. Atomic Energy Commission Washington, D. C. 20545

Dear Mr. Smiley:

In answer to your request of April 12, 1972, we have forwarded 200 copies of the "Environmental Report, USAEC Docket No. 40-8027 Uranium Hexafluoride Plant-Supplementary" today.

We request that Tables VII, VIII and IX be withheld from public disclosure pursuant to Section 2.790(b) of the Commission's Rules of Practice, 10 CFR Part 2. These tables are proprietary information of value to our competitors and are not required in the public interest.

Five (5) copies of these tables are attached for your information and evaluation.

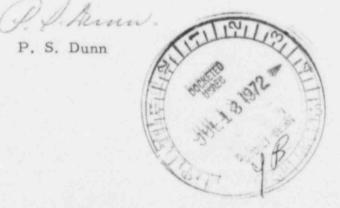
If we can supply additional information, please let us know.

Yours very truly,

P. S. Dunn

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Attachments



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U.S. ATOMIC ENERGY COMMISSION

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February 11, 1972

Mr. C. R. Buchanan Division of Material Licensing U.S. Atomic Energy Commission Washington, D. C. 20545

Dear Mr. Buchanan:

Please refer to our telephone conversations and earlier correspondence on the subject of fluoride content of vegetation near the Sequoyah Facility.

As reported to you on the telephone February 7, we have measured the fluoride content of the off-gas stack from the HF scrubber and find that we are discharging 1.27 pounds per day which gives a concentration at the stack of .75 ppm.

Design calculations were made demonstrating that a .89 pound per day release would result in a concentration of .06 ppb in a sector of an anular area with an ID of 1000 meters from the stack and an OD of 2000 meters from the stack. With these calculations in mind, the measurements shown on Table VIII seem reasonable and nonharmful.

As I described in view of the initial vegetation data, additional samples were taken of vegetation in the plant area and the results reported below with the approximate location of the sampling points described in reference to the "Site Plan" included in the Environmental Report:

Sample No.	ppm	Location
2-1	4.7	At fault well numbered 2307
2 - 2	4.0	Halfway between fault well and sample reported as E-3 (3000 feet east of stack) originally
2-3	4.4	At same location as sample E-3,3000 feet east of stack
2-4	6.2	Northwest of sample 2-3, approximately 1000 feet in center of area enclosed by 580 foot contour line

SENT TO COPIES

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Mr. C. R. Buchanan February 11, 1972 Page Two

Sample No.	ppm	Location
2 - 5	4.6	1000 feet north of sample 2-3
2-6	4.3	Approximately 5000 feet east of stack at border of school property
2 - 7	4.3	East of stack at property boundary corner adjacent to Route 64
2 - 8	4.0	On northeast corner of property north of Route 64
2-9	1.1	1/4 mile north of Route 64 directly north of stack
2-10	5.3	1/2 mile north of Route 64 directly north of stack
2-11	3.1	On west bank of Arkansas River at Interstate 40 bridge

All samples taken were of forage grasses.

I believe this report completes the data you requested. Please let me know if you need additional information.

Very truly yours,

W. J. Shelley Director, Regulation &

/ Control

Nuclear Operations Division

WJS:srj





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Mr. W. J. Shelley	×				
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DOCKET NO. 40-8027



January 31, 1972

Mr. C. R. Buchanan Division of Material Licensing U.S. Atomic Energy Commission Washington, D. C. 20545

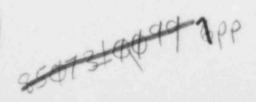
Dear Mr. Buchanan:

This information supplements data previously submitted in my letter dated January 21, 1972, and is in regard to the "Show Cause" statement for our Sequoyah Plant.

1. As you requested on January 14, vegetation samples were collected at 1000 foot intervals from the plant in the same direction and starting at the air sampling stations located 1000 feet from the plant fence. Duplicate samples collected at these locations, along with two (2) single samples at the plant security fence line, were analyzed for fluoride by two independent commercial laboratories designated as Lab A and Lab B, hereafter. Results reported on January 21 were from Lab A. Results from Lab B were reported by telephone on January 24 and all results received to date are reported below:

		Lab A	Lab B
West	No. 1	14.3 ppm	19.8 ppm
	No. 2	4.0 ppm	10.5 ppm
North	No. 1	5.4 ppm	<1.0 ppm
	No. 2		8.1 ppm
South	No. 1		4.2 ppm
	No. 2		6.6 ppm
	No. 3		12.9 ppm
East	No. 1		11.1 ppm
	No. 2		9.0 ppm
	No. 3		
Fence	Line		
	North	100	6.4 ppm
	South	Tallio	3.6 ppm
East	No. 1 No. 2 No. 3 No. 1 No. 2 No. 3 No. 4 Line North	4.4 ppm 8.7 ppm 8.8 ppm 10.3 ppm 83.7 ppm	4.2 ppm 6.6 ppm 12.9 ppm 11.1 ppm 9.0 ppm <1.0 ppm 14.4 ppm





Mr. C. R. Buchanan January 31, 1972 Page Two

All results are on the basis of micrograms of fluoride per gram of dried sample. We have concluded that sample No. 3 East analyzed by Lab A was contaminated and, therefore, should not cause undue concern. To confirm this, additional vegetation samples have been collected at the location and in the immediate vicinity. They are being analyzed for fluoride content by Lab B and will be reported when received.

Livestock are grazed adjacent to the Sequoyah Plant on an intermittent basis. Based upon comparison of the level of fluoride shown in the data listed above and recent references, it is concluded that no threat to grazing cattle results from measured fluoride levels surrounding the Sequoyah Plant. Safe fluoride levels for forage for the State of Washington have been established by the Department of Ecology, Chapter 18-48 WAC, "Fluoride Standards", effective February 4, 1971, and discussed in "AIR POLLUTION, Second Edition, Arthur C. Stern, Academic Press, New York, 1968," pages 528-530. These references state that 40 ppm fluoride ion is acceptable for total ration of all types of foraging livestock.

2. NO2 effluent, reported as being measured at 24.1 lbs/
hour in my letter of January 21, is calculated to be
170 ppm at the stack discharge, 150 feet above ground
level. Based upon a volume of 25,000 cfm, the current
engineering estimate of stack discharge with two boilers
operating, estimates of ground level concentration have
been made and are attached as Appendix A. We have used
this calculation of volume rather than those included
in our license application which were made from design
calculations prior to installation. When a sampling
system for the stack has been designed and installed,
we will determine this exact number.

As shown on Table 1 of Appendix A, calculated NO_2 concentrations range from 0.009 to 0.041 ppm with varying distances and conditions from the stack. In seeking recognized reference data to which this evaluation can be compared, we find nothing reported at levels this low. Study of the "Air Quality Criteria for Nitrogen Oxides", published by the Environmental Protection Agency, January, 1971, revealed that the average levels of NO_2 over the entire continent may be .004 ppm (4 ppb). Peak urban concentrations vary with

APPENDIX A

ESTIMATES OF NO2 STACK CONCENTRATIONS AND MAXIMUM DOWNWIND NO2 CONCENTRATIONS

1. Stack Concentration: The $\rm NO_2$ concentration in ppm was determined by calculating the fraction of $\rm NO_2$ in the total stack gas stream:

$$C_s = \frac{Q}{V}$$
 Given: $Q = 24.1 \text{ lbs/hr}$
 $V = 2.5 \times 10^4 \text{ cfm}$

a. To get R in units of M3/sec:

$$Q = \frac{24.1 \left(\frac{1 \text{bs}}{\text{hr}}\right) \times 453 \left(\frac{\text{gm-mole}}{1 \text{b-mole}}\right) \times 2.24 \times 10^{-2} \left(\frac{\text{M}^3}{\text{gm-mole}}\right)}{3.6 \times 10^3 \left(\frac{\text{sec}}{\text{hr}}\right) \times 46 \left(\frac{1 \text{bs}}{1 \text{b-mole}}\right)} = 1.4 \times 10^{-3} \frac{\text{M}_{\text{NO}_2}^3}{\text{sec}}$$

b. To get V in units of M³/sec:

$$V = 2.5 \times 10^{4} \left(\frac{\text{ft}^{3}}{\text{min}} \right) \times 2 \times 10^{-2} \left(\frac{\text{M}^{3}}{\text{ft}^{3}} \right) \times \frac{1}{60} \left(\frac{\text{min}}{\text{sec}} \right) = .83 \times 10 = 8.3 \text{ M}^{3}/\text{sec}$$

c. NO2 concentration at point of discharge

$$C_s = \frac{R}{U} = \frac{1.4 \times 10^{-3} \left(\frac{M_{NO_2}^3}{\text{sec}}\right)}{8.3 \left(\frac{M_T^3}{\text{sec}}\right)} \times 17 \times 10^{-3} = 1.7 \times 10^{-4} \frac{M_{NO_2}^3}{M_T^3}$$
or $C_s = 1.7 \times 10^{-4} \times 10^6 = 170 \text{ ppm}$

2. Maximum Downwind Concentration: Using dispersion estimates suggested by Pasquill (1961) and modified by Gifford (1961) and data presented in a U.S. Public Health Service Publication No. 999-AP-26, dated 1969 and titled, "Workbook of Atmospheric Dispersion Estimates," maximum downwind concentrations are estimated for six (6) different stability conditions and nominal wind speeds.

Given: Effective Stack Height (H) = 150 ft (no plume rise)

$$NO_2$$
 Emission Rate (Q) = 24.1 $\frac{1bs}{hr}$ = 1.4x10⁻³ $\frac{M_{NO_2}^3}{sec}$

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J. 6: ATOMIC EMERRY BOMM, PRODUCTION MAIL CROSSON Appendix A Page Two

$$X(x,y,o;H) = \frac{Q}{\pi\sigma_y\sigma_z} \exp\left[-\frac{1}{2}\left(\frac{y}{\sigma_y}\right)^2\right] \exp\left[-\frac{1}{2}\left(\frac{H}{\sigma_z}\right)^2\right]$$
where $X = \text{concentration}\left(g/M^3 \text{ or } M_{NO_2}^3/M_T^3\right)$

$$Q = \text{emission rate}\left(M_{NO_2}^3/\text{sec}\right)$$

$$H = \text{discharge height (M)}$$

$$y = \text{distance downwind (M)}$$

$$\sigma_y\sigma_z = \text{dispersion coefficients}$$

Using these data and Figures 3-5 (A-F) of the referenced document, maximum downwind concentration locations were determined along with dispersion values. These are listed in the righthand column of Table 1.

TABLE 1

MAXIMUM CONCENTRATION DATA

Condition	Distance to Max. Conc. (KM)	Dispersion Factor $X\mu/Q$ (M^{-2})	Nominal Windspeed M (M/sec)	Max. NO ₂ Conc. (ppm)
A	. 25	5.8x10 ⁻⁵	2	.041
В	.38	5.4x10 ⁻⁵	3	.025
C	.60	4.5x10 ⁻⁵	5	.013
D	1.10	4.4x10 ⁻⁵	6	.010
E	2.00	3.2x10 ⁻⁵	5	.009
F	3.50	2.6x10 ⁻⁵	3	.012

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J. S. ATENTS CHERRY COMM. BENGLALERY MAN. BOLTON

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DOCKET No. 40-8027



January 21, 1972

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Mr. C. R. Buchanan Division of Materials Licensing U. S. Atomic Energy Commission Washington, D. C.

Dear Mr. Buchanan:

Please refer to your request of January 14, 1972 for additional information in regard to the "Show Cause" statement submitted in November of 1971.

1. In accordance with your request samples were taken at 1000 foot intervals from the Sequoyah Plant in the same direction as the sampling stations. The first sample in each sequence is at the sampling station.

West	No.		14.3	ppm
North	No.		5.4	
South	No. No.	2	5.5 4.4 8.7	
East	No. No. No.	2 3	8.8 10.3 83.7 18.9	

All data are on the basis of micrograms per gram of dried sample. The on site samples were misplaced and their results will be reported when completed.

While we were examining the problem it was realized that the units given for fluoride results on Table 10 in the "Applicant's Environmental Report" is in error. These reports are in micrograms per gram of dry weight. We plan to take additional samples to further examine the apparent anomaly shown by the above samples.

COPPLES SENT TO COMPLIANCE

3597210105-2PP. 453 . . Mr. C. R. Buchanan January 21, 1972 Page Two Samples were taken by removing forage vegetation with scissors at ground level exercising care not to include any soil with the sample. All samples had approximately the same appearance of typical forage grasses at this season, a light tan in color showing no green, and extremely dry. 3. In regard to Table No. 4 in the Environmental Report, wells 1, 2 and 4 show an anomaly of nitrate content due to the run off of fertilizers at ground level entering the monitor well head. In later months these wells were pumped down and seepage allowed to take place prior to sampling. We have since capped all wells so only underground seepage will be represented and such an anomaly will not again appear. 4. We have studied the off gas from the NOX absorber and, as a result of sampling the stack five times, find average results from this absorber as follows: the absorber effluent is composed of 823 lbs. per hour of water vapor and 15 lbs. per hour of NO. We assume since the temperature of the discharge stack is high enough to cause a reaction, the NO is oxidized further to the NO2 in the stack and is discharged as 24.1 lbs. of NO2 per hour. We are investigating the possibility of installing in the exhaust stack a sampler to measure these emissions. I believe all of the questions you asked are answered. Please call me in the event you need additional information. Very truly yours, W./J. Shelley Director, Regulation and Control Nuclear Division WJS:cp

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000K 0 NO. 70-1193 KERR-MCGEE CORPORATION Regulatory File Cy. KERR-MOGEE BUILDING . OKLAHOMA CITY, OKLAHOMA 73102 November 24, 1971 Mr. L. M. Muntzing Director of Regulations United States Atomic Energy Commission 20545 Washington, D. C. Dear Mr. Muntzing: Please refer to our submissions dated November 8 and 9 transmitting the "Environmental Report" for our licenses SUB-1010, Docket No. 40-8027, and SNM-1174, Docket No. 70-1193, required by Revised Appendix D of 10CFR50. Upon more complete review and examination of other documents submitted by others to fulfill this requirement, we have concluded that our submissions referred to above are incomplete. After review we have concluded that complete resubmissions would be the most appropriate correction of this deficiency. Consequently, we are shipping 200 copies each of "Environmental Report-Revised" for the subject licenses. This "revised" submission has been significantly changed in content to meet what we believe to be your requirements more adequately. We would appreciate your replacing the previous submission with these "revised" copies and your willingness to use it in your considerations. We would be happy to discuss all or part of these reports at your convenience. Sinkerely. 8. Shelley Director, Regulation and Control WJS:sri