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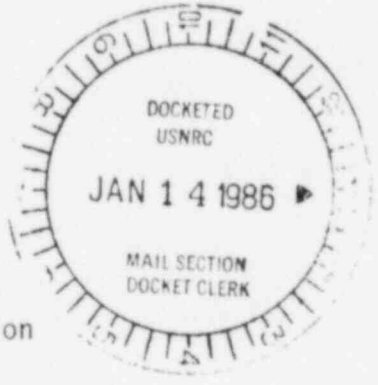
KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

ENVIRONMENT AND HEALTH MANAGEMENT DIVISION



December 31, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. R. Dale Smith, Director
Uranium Recovery Field Office
Region IV
U.S. Nuclear Regulatory Commission
P.O. Box 25325
Denver, Colorado 80225

Re: License SUA-1387
Docket 40-8768

Dear Mr. Smith:

Condition 26 of License SUA-1387 requires the Radiation Safety Officer (RSO) to perform an ALARA audit on a semi-annual basis. In compliance with this requirement, the semi-annual ALARA review covering the period May 1985 through October 1985 was conducted by Scott C. Munson (RSO) on November 20, 1985. The results of that audit are attached. We note there was one item identified during the review that deviated from strict license conditions.

During the review, it was noted that License Condition 50 had not been fully followed. This license condition requires that radon-222 be monitored upwind, downwind and in the pregnant leach tank area of the recovery plant. This monitoring had not been performed during the months of July through October 1985. During this period, SFC submitted a license amendment request to delete the upwind and leach tank area monitoring based on historical data results. This application was submitted on September 19, 1985. NRC, on November 21, 1985, issued Amendment 14 which requires that radon-222 monitoring be performed at the downwind site boundary only. A radon monitor has been installed at the downwind site boundary, and sampling at this location will continue as required by new License Condition 50 (Amendment 14).

All facility operations were being done according to license conditions.

If you have any questions concerning this ALARA report, please call me at (405) 270-2544.

Sincerely,

J C Munson

S.C. Munson, RSO
Nuclear Licensing & Regulation

JCS/br

Attachment: As Stated

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ALARA REVIEW
LICENSE SUA-1387

I. SUMMARY

The eighth semi-annual ALARA review was conducted on November 20, 1985, at the uranium in-situ leach operations site in accordance with Condition 26 of License SUA-1387.

II. RECOMMENDATIONS

Previous ALARA recommendations have been instituted. I note a continuing problem with high analysis results for Q/A urine samples. It is recommended that a different standardization source for these samples be used for a six-month period and the results evaluated to determine if the trend of high analysis continues. This problem has existed for several years and needs to be resolved.

III. DETAILS (LICENSE CONDITION 26)

26.1 Bioassay Results

Sixty-five urine samples were submitted during this report period (May 1985 to October 1985).

Number of Samples	Micrograms Uranium per Liter
50	5
2	6
3	7
1	8
1	9
3	10
2	11
1	12
1	13
1	14

No samples exceeded the investigation action level of 15 ug-U/l of urine.

There were 18 Q/A samples submitted. The analysis of the 30 ug U/l samples averaged 46 percent high and the 15 ug U/l sample 94 percent high. The recommendation made during the last audit; i.e., use of different plastic containers, nitric acid reduction by half, smaller batches and refrigeration of samples, was implemented. These changes have not resulted in acceptable concentration correlations. It is therefore recommended that a source other than the Kerr-McGee Technical Center provide the Q/A samples.

26.2 Exposure Data

(a) External

Second Quarter 1985		Third Quarter 1985	
Persons	mrem	Persons	mrem
13	min.*	16	min.
1	18	2	24
1	22	1	25
1	31	1	39
1	34		
1	35		
1	46		

* min. = less than 10 mrem.

The above six-month cumulative external exposure totals 298 mrem, an average of 15 mrem per individual. The previous two six-month periods average external exposures were 13 and 18 mrem, respectively. External exposures continue to be approximately equal with no significant upward or downward trend observed. The average 15 mrem per six-month period is 0.6 percent of that allowed for a radiation worker.

(b) Internal

The May 1985 through October 1985 statistics for time-weighted exosures to airborne uranium for the job classifications involved are:

Job	Monthly Average MPC Hours	Highest MPC Hours
Operator	1.10	5.37
Maintenance	0.00	0.00

No protection factor for respirator use has been applied.

The second through the seventh ALARA report average monthly MPC hours for operators were 3, 2, 0.9, 0.8, 0.5 and 0.7 MPC hours, respectively. The current value of 1.10 is only 0.63 percent of the allowable (520 MPC-hours per quarter, divided by 3 months per quarter, equals 173 MPC-hours per month allowed). A significant trend is not apparent.

(c) Radon Daughters

During this current six-month period, five employees accumulated an exposure of 0.1 WLM.

27.3 Safety Meetings and Training

One new employee was hired in June and has completed the required training. Training of the new employee was given by the Radiation Safety Technician (RST). Safety meetings are conducted by the RST. On six occasions during the reporting period, safety topics concerning radiological health were discussed with the operating personnel.

26.4 Daily Inspection Log Entries and Monthly Summary Reports

For the report period, the RST's daily log noted that the floors required cleaning and painting on several occasions. A few safety and industrial hygiene type recommendations were also made (Repair of exposed wires and step repair). The RST's monthly report summarizes the health physics activities, monitoring data, and industrial safety and hygiene activity information.

26.5 In-Plant Radiological Survey and Monitoring Data -- Environmental Monitoring Data and Contamination Surveys

There were 507 individual alpha survey readings in both the controlled and uncontrolled areas of the plant. Eating areas, change rooms, and controlled areas are surveyed weekly. Work permits and other circumstances will occasionally require an alpha contamination survey. Wipe tests are included in this type of contamination monitoring.

Smearable contamination exceeding 2,000 dpm per 100 cm^2 requires decontamination in areas outside of the yellowcake filter press area. There were a total of seven occasions during the reporting period when the removable contamination clean-up criteria was exceeded. These areas were cleaned and resurveyed. The surface contamination is usually a result of leaking valves or leakage following sampling of an ion exchange column.

Personnel exiting the change room sign a log after they alpha "frisk" themselves, before entering the uncontrolled areas of the building. On a quarterly basis the RST "frisks" personnel leaving the change room. This is an unannounced inspection. During this reporting period, the self-inspection record and RST surprise "frisks" showed no individuals with contamination present.

(b) Gamma Monitoring

The exposure rates at one meter and on contact with ion exchange columns are shown below:

1985	Exposure Rate (mR/hour) 3 Feet from Column	Surface of Column
Second Quarter	0.40	5.5
Third Quarter	0.19	4.4
Fourth Quarter	0.29	4.2

Exposure rates in the press area averaged 0.09 mR/hour. At the yellowcake drum storage area, the exposure rate is 1.6 mR/hour.

(c) Air Monitoring

	Average Value	Highest Value
Yellowcake Filter Press for Uranium	0.05 MPC	0.65 MPC
General Plant for Radon Daughters	0.04 WL	0.44 WL

There were 292 samples taken for airborne uranium. Radon daughter measurements are done weekly.

Average values since the beginning of operations is 0.05 MPC for airborne uranium and 0.06 WL for radon daughter concentration. The current report concentration values for these airborne contaminants are the same as the historical values.

(d) Environmental Radon

Radon results are available for the months of April, May and June only. No samples were collected from July through October. A track-etch radon detector (Terradex) was installed in November at location D-1, the downwind station, only as required by license amendment 14. The radon monitoring results available for this period are given below:

Station Number	Radon (pCi/l) April	May	June
D-1	1.4 $\pm$ 0.5	0.9 $\pm$ 0.3	0.6 $\pm$ 0.2
U-1	0.8 $\pm$ 0.3	0.7 $\pm$ 0.2	1.0 $\pm$ 0.3
T-1	0.9 $\pm$ 0.3	1.0 $\pm$ 0.3	0.9 $\pm$ 0.3

(e) Performance of Exposure Control Equipment

Survey instruments are all functioning properly and have up-to-date calibration records. Air sampler flow rates are checked with a calibrated rotameter before each use. The sample counting equipment is operating properly. Ventilation control equipment is in good repair. Personal protective equipment is in good condition and in adequate supply.

26.6 Surveys Required by Radiation Work Permits

There were 55 special work permits issued during the reporting period that required special radiation survey work.

26.7 Reports of Overexposures

No overexposure reports were necessary.

26.8 Procedure Review

No new procedures were written during the report period.