40-8768

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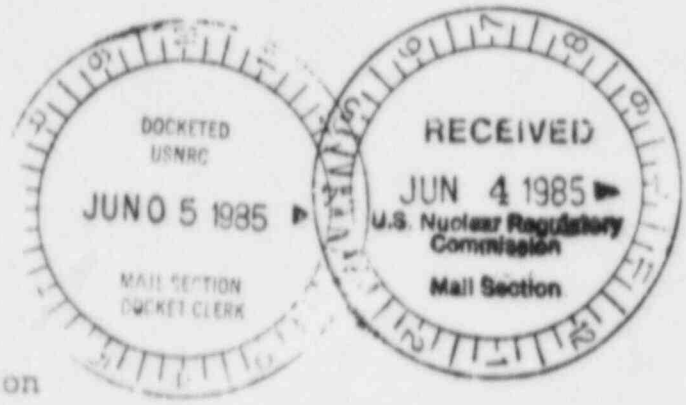
ENVIRONMENT AND HEALTH MANAGEMENT DIVISION



May 31, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

R. Dale Smith, Director
anium Recovery Field Office
gion 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. The current semi-annual ALARA review covering the period November 1984 through April 1985 was conducted by Gerald R. Sinke (RSO) on May 14, 15, and 16, 1985. The result of that audit is attached. There was only one item identified during the review that deviated from strict license conditions.

During the review, it was noted that License Condition 18 was not fully followed when some sludge from an evaporation pond was removed and processed for recovery of uranium. The pond liquid was properly inventoried and then shipped for disposal at a nearby licensed conventional uranium mill in accordance with license authorization. However, a special work permit (SWP) for processing the bottom sludge was not formally written, reviewed and signed by the RST: a draft procedure for the work outlining proper safety and processing procedures but without the necessary approvals was used. See Item 26.8 of the attached ALARA review,

The license conditions were reviewed with the RST and site supervisors to assure that proper oversight review and adherence to all requirements are achieved.

If you have any questions concerning this ALARA report, please call me at (405) 270-2623.

Sincerely,

J. C. Stauter

J. C. Stauter, Director
Nuclear Licensing & Regulation

DESIGNATED ORIGINAL

Certified By Mary C. Hood

JCS/cwp
Attachment: ALARA Audit

FEE EXEMPT

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ALARA Review
License No. SUA-1387

I. Summary

The seventh semi-annual ALARA review was conducted on May 14 and 15 at the uranium in-situ operations site in accordance with condition No. 26 of license No. SUA-1387.

II. Recommendations

Previous ALARA recommendations have been accomplished. It is recommended that smaller batches of Q.A. urine samples be prepared at any one time and that they be refrigerated to avoid changes which appear to occur by aging.

III. Details (License Condition No. 26)

26.1 Bioassay Results

Sixty nine urine samples were submitted during this report period (November 84 - April 85)

No. of Samples	Micrograms U per liter
44	<5
1	6
1	8
5	9
3	10
8	11
3	12
1	13
1	15
1	17
1	39

No reason could be found for the elevated levels of uranium in urine. Follow-up sampling gave results <5 micrograms of uranium per liter.

There were fifteen Q.A. urine samples submitted and on the average, the contract laboratory reported results almost twice the amount of uranium known to have been placed in the spiked samples. One "blank" Q.A. sample (zero uranium) was reported as 39 micrograms of uranium per liter. Although the Q.A. samples contain nitric acid as a preservative, it appears that aging darkens the sample and some precipitation occurs when stored at room temperature. It is recommended that the nitric acid content be reduced by one-half; that smaller batches be prepared, and that the Q.A. samples be refrigerated for preservation before use. A new

type plastic specimen container is also recommended for the Q.A. samples and employee urine samples. It is hoped that these recommendations will solve the problem the contract laboratory seems to be having with the Q.A. samples.

26.2 Exposure Data

(a) External

4th Qtr. 1984	
Persons	mrem
14	0
1	7
1	25
1	31
1	43
1	62

1st Qtr. 1985	
Persons	mrem
14	0
1	6
2	20
1	25

The above six month cumulative external exposure totals 239 mrem, average 13 mrem per person. The previous 6 months data showed the average external exposure to be 18 mrem per person. A favorable trend is indicated by the average 5 mrem per person reduction of external exposure for the current six month period compared to the previous six months.

(b) Internal

The November 1984 through April 1985 statistics for time weighted exposures to airborne uranium for the job classifications involved are:

Job	Typical Monthly MPC-hrs	Highest MPC-hrs
Operator	0.7	2.5
Maintenance	0.1	0.1

No protection factor for respirator use has been applied.

(Trend Analysis)

The 2nd, 3rd, 4th, 5th and 6th ALARA reports showed typical monthly MPC-hrs. for operators to be 3, 2, 0.9 0.8 and 0.5 respectively. The current value of 0.7 may or may not indicate a trend.

(c) Radon Daughters

There were no radon daughters detected within the processing areas of the building.

26.3 Safety Meetings and Training

No new employees have been added to the facility work force. Safety meetings are conducted by the RST. On nine occasions during this report period, safety topics concerning radiological health were discussed with the operating personnel. These topics included use of respirators, alpha surveys, contamination control, use of Anti-C clothing, use of dosimeters and emergency procedures.

On May 15, 1985 the RSO conducted the annual refresher training program for all facility personnel. Included in this program were topics such as: Atomic theory; alpha, beta and gamma radiation from unstable uranium atoms; the uranium decay series with emphasis on thorium -230, radium 226, radon 222 and radon daughters; biological effects of radiation (DNA mutations and cancer potential) from internal and external exposures; protective measures, contamination control; radiation detection (dosimetry, monitoring, air sampling, bio assay); exposure records and employees rights under parts 19 and 20 of the NRC rules. A movie "Man and Radiation" was also viewed which highlighted many of the beneficial uses of ionizing radiation and nuclear technology.

26.4 Daily Inspection Log Entries and Monthly Summary Reports

For the report period, the RST's daily log seldom indicated any problems discovered during his "walk through" inspection of the facility. On four occasions minor equipment leaks were noted. The RST's monthly report summarizes his health physics activities and monitoring data. This report also includes industrial safety and hygiene activity information.

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

There were 449 individual alpha survey readings in both the controlled and uncontrolled areas of the plant. Eating and change room locations are surveyed weekly. Controlled areas are surveyed about 3 times a month as a routine. 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 no problems except for the four minor leaks noted earlier.

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 report period, the self inspection record showed one individual needed to return to the change room for extra hand washing. No problems were uncovered during the surprise "frisk" by the RST.

(b) Gamma Monitoring

On one occasion, between the ion exchange columns, the dose rate at 1 meter from the columns read 3.4 mrem/hr. Typically, the dose rate averages 0.3 mrem/hr. where personnel may be located for a short time. The press area dose rate ranges from 0.1-0.2 mrem. At the yellowcake drum storage area the exposure rate is 0.9 mR/hr.

(c) Air Monitoring

	Average Value	Highest Value
Yellowcake filter press for uranium	0.03 MPC	0.19 MPC
General plant for radon daughters	0.03 W.L.	0.08 W.L.

There were 331 samples taken for airborne uranium. Radon daughter measurements are done weekly.

(Trend Analysis)

Average values since the beginning of operations is 0.05 MPC for airborne uranium and 0.06 W.L. for radon daughter concentration. The current report concentration values for these airborne contaminants is about one-half of the historical values.

(d) Environmental Radon

The RDT-310 passive Rn monitoring devices gave the following results:

	pCi/l	
Station No.	4th Qtr. 1984	1st Qtr. 1985
D-1	0.6	0.7
U-1	0.7	0.8
T-1	0.9	0.5

(e) Performance of Exposure Control Equipment

Survey instruments are all functioning properly and have up to date calibration records. Air samplers are calibrated 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 adequate supply.

26.6 Surveys Required by Radiation Work Permits

There were eighteen special work permits requiring special radiation survey work: typical maintenance activity requiring work permits were:

- Pulling pump from well.
- Sump cleaning.
- Loading resin in ion exchange column.
- Tank and pump repair
- Scrubbing out a well casing.

26.7 Reports of Overexposures

No overexposure reports were necessary.

26.8 Procedures Review

The procedure for obtaining and preserving Q.A. urine samples will be changed as discussed under Section 26.1.

An approved written procedure had not been provided for the processing of sludge removed from the bottom of the evaporation pond. A written "draft" procedure had been provided and used. This is not in strict compliance with license condition No. 18.