

**KERR-MCGEE CORPORATION**

KERR-MCGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102

November 13, 1970

Mr. L. D. Low
Director, Division of Compliance
United States Atomic Energy Commission
Washington, D. C. 20545

Reference: Source Material License No. SUB-1010,
Docket No. 40-8027

In accordance with the provisions of 10CFR20.405, as applicable to the reference license, Kerr-McGee Corporation reports on the exposures of eleven (11) individuals at its Sequoyah Facility to concentrations of airborne radioactive material in excess of the occupational concentration limits in 10CFR20, Appendix B, Table 1.

Time weighted exposure calculations were made from measured concentrations and working time records. The results for those individuals potentially exposed to over limit airborne concentrations are given in Table 1.

Table 1

Personnel Exposures to Airborne Concentrations

Employee (1)	Period of Exposure	Conc. Averaged for 40 hours (2)
	Date 1970	(uCi/ml)
A	7/19 - 7/25	11×10^{-11}
	7/19 - 7/25	14×10^{-11}
C	7/12 - 7/18	13×10^{-11}
	7/19 - 7/25	10×10^{-11}
	7/26 - 8/1	10×10^{-11}
	8/2 - 8/8	9×10^{-11}
D	7/12 - 7/18	13×10^{-11}
E	7/19 - 7/25	13×10^{-11}
	7/26 - 8/1	19×10^{-11}
	8/2 - 8/8	16×10^{-11}
	8/9 - 8/15	19×10^{-11}
	9/20 - 9/26	10×10^{-11}

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Table 1 (continued)

F	8/2 - 8/8	7×10^{-11}
	8/9 - 8/15	9×10^{-11}
G	7/5 - 7/11	10×10^{-11}
H	8/23 - 8/29	7×10^{-11}
I	7/19 - 7/25	10×10^{-11}
	7/26 - 8/1	7×10^{-11}
J	7/19 - 7/25	14×10^{-11}
	7/26 - 8/1	9×10^{-11}
K	7/26 - 8/1	11×10^{-11}
	8/2 - 8/8	12×10^{-11}

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- (1) In accordance with 10CFR20.405(b), the names, identification data, and exposure data for the individual employees are listed in the enclosed Appendix.
 - (2) The maximum permissible concentration in air (MPCa) limit of 6×10^{-11} uCi/ml for insoluble natural uranium based on a forty (40) hour exposure in a seven day period was applied.

These employees were exposed during performance of production duties in the Sequoyah facility. Unplanned equipment failures which resulted in the loss of uranium powder and excessive air concentrations in the working areas intermittently during July, August and September and the failure of personnel to wear adequate protective equipment during the clean-up of the powder spills were the causes of overexposure. Control procedures prevented the spread of uranium outside restricted areas on people, or otherwise, and all of the exposed individuals have and will continue to submit bioassay samples.

No allowance for exposure to particles of a non-respirable size was taken in determining the extent of exposure.

The individuals involved are being notified of the nature and extent of their exposures in accordance with 10CFR20.405(c).

Corrective Action

To protect against recurrence of similar future personnel exposures, the following actions have been taken.

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- 1) A greater degree of equipment reliance is being achieved through operating experience and replacement of deficient items.
- 2) Additional enclosures that provide local ventilation at transition points in the process have been installed where powder losses recurred.
- 3) The health physics staff at the facility was increased to provide better detection capabilities and control of personnel exposure to uranium. All shifts now have an assigned health physics technician with additional coverage on day shift. The present staff consists of six (6) experienced individuals.
- 4) Better control of personnel exposure during the clean-up of spills has been achieved through better adherence to work permit procedures and the participation of health physics personnel in specifying protective equipment and control procedures.


Please advise us should you require any additional information.

Sincerely,

A. M. Valentine
Coordinator, Radiation
Health and Safety

AMV:dg

Enclosure

cc: Mr. Donald Walker, Director 
Region IV, Division of Compliance
United States Atomic Energy Commission

Mr. Dale McHard, Oklahoma Department of Health
Division of Occupational and Radiological Health

Mr. Howard C. Eberline

Appendix to letter from A. M. Valentine, Kerr-McGee Corporation
to L. D. Low, United States Atomic Energy Commission, November 13, 1970.

APPENDIX A

EMPLOYEE IDENTIFICATION AND EXPOSURE

Report Symbol	Employee's Name	Birthdate	Security Number	Exposure ⁽¹⁾ ($\mu\text{Ci/ml}$)	Period (1970)
				11×10^{-11}	7/19-7/25
				16×10^{-11}	7/12-7/18
				14×10^{-11}	7/19-7/25
				13×10^{-11}	7/12-7/18
				10×10^{-11}	7/19-7/25
				10×10^{-11}	7/26-8/1
				9×10^{-11}	8/2 -8/8
				13×10^{-11}	7/12-7/18
				13×10^{-11}	7/19-7/25
				19×10^{-11}	7/26-8/1
				16×10^{-11}	8/2 -8/8
				19×10^{-11}	8/9 -8/15
				10×10^{-11}	9/20-9/26
				7×10^{-11}	8/2 -8/8
				9×10^{-11}	8/9 -8/15
				10×10^{-11}	7/8 -7/11
				7×10^{-11}	8/23-8/29
				10×10^{-11}	7/19-7/25
				7×10^{-11}	7/26-8/1
				14×10^{-11}	7/19-7/25
				9×10^{-11}	7/26-8/1
				11×10^{-11}	7/26-8/1
				12×10^{-11}	8/2 -8/8

(1) Average concentration exposure to airborne natural uranium for 40 hours during the referenced seven (7) day period.