

UNITED STATES
REGULATORY COMMISSION
REGION III
ROOSEVELT ROAD
GLEN ELLEN, ILLINOIS 60137

March 2, 1983

MEMORANDUM FOR: J. A. Hind, Director, Division of Radiological
and Materials Safety Programs

FROM: A. Bert Davis, Deputy Regional Administrator

SUBJECT: LEAD-212 EMISSIONS FROM KERR-MCGEE - WEST CHICAGO

Enclosed is the EPA letter to Kerr-McGee that was sent to me from Bill Crow yesterday. I request that you and your staff review this memorandum and meet with me on March 9, 1983, at 10:00 a.m. to discuss it.

As I discussed with you yesterday, NMSS has requested that we review this matter. I believe that request is appropriate, since EPA alleges that Kerr-McGee is violating NRC regulations. Bill Crow is also sending us a large package of EPA data. I will expect your Division to review the data and make a determination as to whether or not that data is properly characterized in the subject EPA letter. If we agree with the EPA finding, it would appear that some type of enforcement action from the NRC is in order. I would not want to take that enforcement action unilaterally, but rather we would discuss it fully with NMSS. It's hard to visualize a separation between what EPA is stating and the Environmental Impact Statement being put together by NMSS in that both are aimed at either cleaning up the site or making an interim site modification which will reduce radioactive emissions.

If you have any questions on this matter before our March 9 meeting, please call me.

A. Bert Davis

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Deputy Regional Administrator

Enclosure: As stated

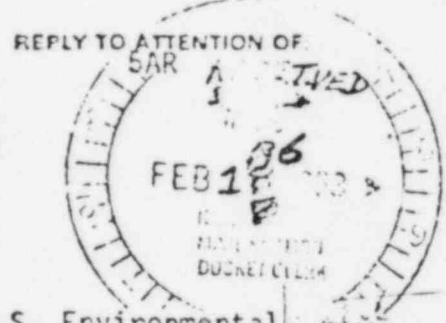
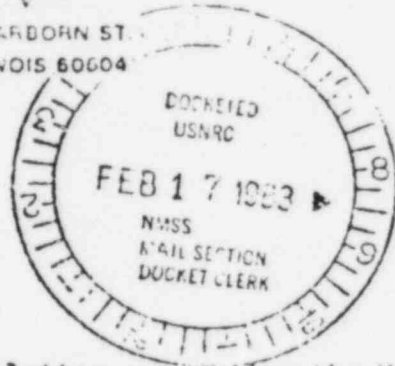
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REGION V
 COLLECTION
 200 SOUTH DEARBORN ST.
 CHICAGO, ILLINOIS 60604

Mr. Ivan L. Denny
 Manager, Special Projects
 Kerr-McGee Chemical Corporation
 Kerr-McGee Center
 Oklahoma City, Oklahoma 73215



Dear Mr. Denny:

Upon receipt of your November 5, 1982, letter concerning the U.S. Environmental Protection Agency-Region V's air study of emissions from the Kerr-McGee West-Chicago Facility in 1981, my staff reviewed your comments and data. We find that your data is very compatible with our results but on a few sampling days greatly exceeds our measured lead-212 air concentrations. Consequently, we remain firm in our original assessment that interim abatement measures would eliminate unwarranted inhalation risks to citizens in the immediately adjacent residential community due to radon-220 decay products.

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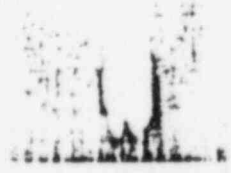
For discussion we have compared your data to the 10 CFR 20, Appendix B, Table II level for lead-212 (600 picocuries per cubic meter, pCi/m³) and one-third the Table II level (200 pCi/m³). 10 CFR 20.105(e) authorizes the Nuclear Regulatory Commission to establish air quality concentrations of one-third the allowable concentrations specified in Table II in recognition of the fact Table II limitations are not adequate to protect the public health in all instances. We feel this stricter limitation is warranted in West Chicago because of the close proximity of the residential community to the waste piles.

	Sampling Days	Sampling Period Average (pCi/m ³)	Daily Concentrations* 600 pCi/m ³	Daily Concentration* 200 pCi/m ³	Maximum Concentration (pCi/m ³)
Station 1	199	100	1%	17%	990
Station 2	207	76	0%	11%	570
Station 3	208	230	12%	34%	2000
Station 4	219	160	8%	25%	1800
Station 5	64	500	30%	50%	2600
Station 6	60	2200	48%	77%	15000
Station 7	216	28	0%	1%	330
Station 8	211	62	10%	9%	420
Station 9	141	48	0%	2%	300

* , greater or equal to

We noted the following particulars in reviewing the table.

- (a) At Stations 5 and 6 the daily concentrations exceed 600 pCi/m³ 30% and 48% of the time, respectively. The sampling period average at Station 6, 2200 pCi/m³, exceeds the Table II level by a factor of 3.7. The maximum daily value exceeds the Table II level by a factor of 25.



Handwritten signature: Denny

(b) At Stations 3, 4, 5 and 6, which sample the four sides of the waste site, the restricted Table II level of 200 pCi/m³ is exceeded between 25% and 77% of the time. The maximum concentration measured was 75 times greater than the restricted Table II level.

Your data and ours raise the possibility that the residential population group may be receiving a daily intake of radioactive air emissions in excess of the one-third allowable concentration of radioactive materials listed in 10 CFR 20, Appendix B, Table II.

Three additional comments can be made.

(a) We feel the proximity of Station 6 to the waste piles is a better explanation for the high average at that station than are topographical features.

(b) With reference to Mr. Shelley's statement about the air sampler data being log-normal, this gives useful information about the nature of the particulates but does not affect the way in which compliance with 10 CFR 20 air concentrations are assessed. Compliance is based upon an arithmetic mean of the samples collected. If you choose to use the geometric mean to describe the average level then the standard for comparison would have to be a geometric mean, a value lower than the arithmetic mean.

(c) With reference to Mr. Shelley's confusion about my statement that "...radon-220 daughters...under the appropriate atmospheric conditions...can rise to several times the maximum permissible levels for lead-212 listed for unrestricted areas in 10 CFR 20, Appendix B", we based this upon noting that the lead-212 air concentrations on individual days were several times higher than 600 pCi/m³. This usually occurred in periods of hot, dry weather. We were not referring to average concentrations. By way of substantiation, your data also shows these daily excursions (11,000 pCi/m³ on 7-2-82, 15,000 pCi/m³ on 9-9-82 - Station 6).

In conclusion, there is ample evidence that radon-220 daughter levels at the Waste Site fencelines are not As Low As Reasonably Achievable (ALARA) and with minimal effort and expense could be eliminated so as to remove an unwarranted health risk to the adjacent residential population. I urge you to initiate interim abatement measures.

My staff is available to discuss this matter further if you wish.

Sincerely yours,

Valdas V. Adamkus
Regional Administrator

cc: ✓ Glen Sjoblom, U.S. EPA Office of Radiation Programs
✓ William Nixon, Nuclear Regulatory Commission
Dr. Phillip Gustafson, Illinois Department of Nuclear Safety
Eugene Rennels, City of West Chicago
Anne Rapkin, Illinois Attorney General