



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

February 13, 1978

MEMORANDUM FOR: G. T. Lonergan
T. H. Essig ✓

FROM: W. L. Fisher, Acting Chief, Fuel Facility and
Materials Safety Branch

SUBJECT: RESPONSIBILITY FOR KERR-MCGEE/WEST CHICAGO
AND COTTER/WEST LAKE LANDFILL PROJECTS

As we agreed this morning, the responsibility for the subject projects is to be transferred from Tom Lonergan to Tom Essig. This reassignment results from the loss of Cooper, Pettijohn, Moretti, Moe, and Lonergan from MRPS.

Although E&SP will now have the overall responsibility, MRPS may be called upon for some inspection support (e.g., Thor Oberg at the Kerr-McGee facility).

Make this transfer at your convenience.

W. L. Fisher

W. L. Fisher, Acting Chief
Fuel Facility and Materials
Safety Branch

cc: J. G. Keppler
J. A. Pagliaro
C. E. Norelius
G. W. Roy
R. J. Strasma

Summary of ANL Findings at West Chicago

N 5/78

file 61
West Chicago

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Area of known thorium residual	Radiation level in excess of 10 CFR 20?	Licenseable Quantity or Concentration per 10 CFR 40?
Reed-Kegler Park	yes	yes
Sewage Treatment Plant	yes (slightly)	yes
Kress Creek	no	yes (limited to certain areas)
75 "epicenters"	yes - 1 area no - 74 areas 1 meter from surface	yes - 34 areas maybe - 16 areas no - 25 areas
<p>10 CFR 20.105 limits:</p> <p>a) $2 \frac{\text{mrem}}{\text{hr}} = 2000 \frac{\mu\text{R}}{\text{hr}}$</p> <p>b) $100 \frac{\text{mrem}}{7 \text{ days}} = 0.6 \frac{\text{mR}}{\text{hr}} = 600 \frac{\mu\text{R}}{\text{hr}}$</p> <p>(no occupancy factor allowed)</p> <p>20.105 also permits $500 \frac{\text{mrem}}{\text{yr}}$ (occupancy considered), but is not stated as a limit</p>		<p>.05% Th by wt</p> <p>15 lbs is unimportant quantity</p>

Item	Licensable cmc./gty?	Radiation Level	Volume or Surface Area of Material	Alternatives	Recommended Course of Action Based on Technical Considerations	Remarks
Reed Keyler Park	yes	$> 10,000 \mu R/hr$ (10-100 mR/hr) pop. dose = $0.2 \frac{\text{man-rem}}{\text{yr}}$	18,000 — 133,000 yd ³	1. Remove all or portion of residue & bury: a) Landfill adjacent to K-K Park b) K-M tailing pile 2. Leave where is, put dirt, etc on top of	Remove to K-M tailings pile, if possible	1. Need to convince City that movement can be done safely (Frigerio suggests using rail) 2. Need ok from K-M, possibly don't have room for that much material 3. Contact State, & DNR for financing
Sewage Treatment Plant	yes	$750 \mu R/hr @ 3'$	2500 ft ² couple of cubic yds. (like 10)	Remove residues (see remarks)	Remove to K-M tailings pile	1. Sewage treatment plant is slated for modification in near future; residuals will likely have to be moved anyway 2. Need ok from K-M, but should be no problem for such a small volume of material
Kress Creek	yes, int-guts	$150 \mu R/hr @ 3'$	Along banks for ~1/2 mi. Sooty	1. Remove highest concentration residues 2. Remove all residues 3. Do nothing	Do nothing	1. Radiation levels are below 10 CFR 20.105 2. Need to know legal aspects of leaving licensable concentrations of source material

Item	Licensable cnc./qty?	Radiation level	Volume or Surface Area of Material	Alternatives	Recommended Course of Action Based on Technical Considerations	Remarks
75 "egicenters"	—	—	—	—	—	—
1 qt. #6	yes	900 $\mu\text{R/hr}$ @ 3' [183 mrem/yr based on occupancy]	400 ft^2	Remove	Remove to K-M pile	Removal recommended — radiation level exceeds 10 CFR 20.105
remaining 74 gts.	$\begin{cases} 45\% \text{ yes} \\ 22\% ? \\ 34\% \text{ no} \end{cases}$	$4 - 400 \frac{\mu\text{R}}{\text{hr}} @ 3'$ $[.07 - 20 \frac{\text{mrem}}{\text{yr}}, \text{ based on occupancy}]$	$3 \text{ ft}^2 -$ 70,000 ft^2	1. Remove all 74 gints 2. Remove only the 62 "easily" removed gints 3. Do nothing	Do nothing	1. Radiation levels are within 10 CFR 20.105 2. ALARA principles might argue that 62 gints should be removed (although easily removable according to Ferguson, 7 of the gints encrusted areas from 1200-70,000 ft^2 and 5 of these 7 are in private property) 3. Political considerations might argue that all 74 gts. be removed. (12 of which might be difficult (costly)) 4. Need to know legal aspects of leasing licensable gts. of source material in place