



JUN 4 1981

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MEMORANDUM FOR: James Miller, Chief  
Standardization and Special Projects Branch, DOL

FROM: R. Wayne Houston, Chief  
Accident Evaluation Branch, DSI

SUBJECT: SMALL MODIFICATION OF ACCIDENT ANALYSIS FOR LICENSE RENEWAL -  
UNIVERSITY OF CALIFORNIA AT LOS ANGELES TRAINING REACTOR

Plant Name: University of California at Los Angeles (UCLA) Training Reactor  
Docket No.: 50-142  
Responsible Branch: Standardization and Special Projects Branch  
Project Manager: H. Bernard  
Review Status: AEB - Complete

Small modifications to the whole body and thyroid doses presented in the enclosure to the memorandum of March 17, 1981 have been made. A new page 8, to replace the page 8 of the enclosure to the March 17 memorandum, entitled "ACCIDENT ANALYSIS FOR SAFETY EVALUATION FOR LICENSE RENEWAL - UNIVERSITY OF CALIFORNIA AT LOS ANGELES TRAINING REACTOR" is attached.

Original Signed by  
R. Wayne Houston

R. Wayne Houston, Chief  
Accident Evaluation Branch  
Division of Systems Integration

Enclosure:  
As stated

cc: R Mattson  
W. E. Kreger  
D. Eisenhut  
W. Pasedag  
T. Quay  
H. Bernard  
M. Wohl

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*A/2*

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DATE	5/1/81	6/2/81	6/4/81		

Radionuclide Inventories\*\*

Nuclide	Curies *** Released	Plume Concentration, Ci/m <sup>3</sup>	Dose Equivalent, rem	
<sup>85m</sup> Kr	2.1	4.1 x 10 <sup>-6</sup>	0.08	} to total body
<sup>85</sup> Kr	0.03	5.8 x 10 <sup>-8</sup>	--	
<sup>87</sup> Kr	3.8	7.7 x 10 <sup>-6</sup>	0.73	
<sup>88</sup> Kr	5.8	1.1 x 10 <sup>-5</sup>	--	
<sup>133m</sup> Xe	0.3	5.9 x 10 <sup>-7</sup>	--	
<sup>133</sup> Xe	10.8	2.1 x 10 <sup>-5</sup>	0.13	
<sup>135m</sup> Xe	1.7	3.3 x 10 <sup>-6</sup>	--	
<sup>135</sup> Xe	10.7	2.1 x 10 <sup>-5</sup>	0.44	
Total whole-body dose equivalent from noble gases			1.38 rem	
<sup>131</sup> I	4.4	8.4 x 10 <sup>-6</sup>	15.2	} to thyroid
<sup>132</sup> I	6.6	1.3 x 10 <sup>-5</sup>	0.8	
<sup>133</sup> I	10.8	2.1 x 10 <sup>-5</sup>	10.6	
<sup>134</sup> I	11.4	2.2 x 10 <sup>-5</sup>	0.7	
<sup>135</sup> I	10.2	1.7 x 10 <sup>-5</sup>	3.0	
Total thyroid dose equivalent from radiiodines			30.3 rem	

\* Equivalent to the nominal exposed fuel surface area of all the plates of one element if all clad is stripped away.

\*\* Assumed that all activity produced within the range of the recoil particles (1.37 x 10<sup>-3</sup> cm) escapes; referenced to that fuel element containing the maximum inventory; steady-state operation for 36.5 Mwd (inventories much smaller for 8-30 hr. duty cycle); uncorrected for burnup; instantaneous release assumed.

\*\*\* The volume of fuel from which the radionuclides escape is

$$V_{esc} = 1.37 \times 10^{-3} \text{ cm} \times 10,500 \text{ cm}^2 \\ \approx 14 \text{ cm}^3$$

The total fuel volume/element is 526 cm<sup>3</sup>. Thus, conservatively assuming a uniform volume distribution of fission products, the fraction of escaped radionuclides is 14/526  $\approx$  .027 or 2.7%.