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Rockwell
International

LTR. NO.
80ESG-3900

NAME	INITIALS	LTR/ENC
ANDERSON, R. V.	LB17	
ANDERSON, S. H.	LA03	
ANDERSON, T. L.	NB02	
ASH	LA24	
ASHWORTH	JB09	
BALENT	LA05	
BARTO	055, AA89	
BEELEY, R.	LB17	X
BINNS, D. R.	JB01	
BRADLEY, J. W.	EMSC	
BRINDLEY	LA34	
CARTER, E. H.	JB07	
COCHRAN, J. C.	T038	
COCKERAM	HAN	
CRAWFORD, A. C.	KB08	
DE LOS PRADOS	LA26	
DETERMAN	LA17	
FEILER	LA30	
GYLFE	LA39	
HARRIS-WASH.		
HARTZLER	JB02	
HILLIG	LA24	
HOLBROOK	LA07	
JACOBELLIS	LA04	
JACOBSON, J.	LA20	
JOHNSON, R. A. (D/798)	LA33	
JONES, R. G.	LA06	X
JULIAN, M.	KB03	
KITTINGER	NB02	
KOLIN	LA35	
MAKI, L. M.	NB02	
MARTIN, A. B.	LB14	
MASON, D.	NB02	
MCCOURT	LA02	
MCDERMOTT, R. J.	KB44	
MCDONALD, J. S.	LB11	
MEECHAN, C. J.	LA25	
MEYERS, G. W.	LA10	X
MOSS, T.	NB02	
MURPHY, J. E.	MA03	
NA	TSU	JB01
OL	MP	LA42
PARALKR, T. G.	LA29	
PARKINS	NB15	
PARRY	EMSC	
PEKRUL	LA29	
REINECKER	LA08	
REMLEY	NB08	X
SANDERS	NB01	
SCHIRM, R. C.	LA23	
SCHMITT	LA17	
SILVERMAN	JB06	
SWANSON, G. K.	JB01	
TINGER	NA14	
TOHER	MA11	
WHEELER	LA33	
WIESENECK	LA21	X
WILLIAMS, R. O.	ROK	

April 30, 1980

In reply refer to 80ESG-3900

Mr. William Gammill
Acting Assistant Director for
Operating Reactor Projects
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

- References:
- (1) Rockwell International Letter 74AT-4512 dated July 16, 1974, L. W. Wheeler to Donald J. Skovholt, "Application for Amendment of Facility License CX-17 to Authorize the Dismantling of the Facility, Disposal of its Component Parts, and Voluntary Surrender of the Facility License, Docket 50-147"
 - (2) U.S. AEC letter, George Lear to L. W. Wheeler, November 1, 1974, transmitting the order authorizing the dismantlement of the Fast Critical Experimental Laboratory reactor

Dear Mr. Gammill:

Subject: Radiation Survey Report of the FCEL Reactor Facility Following Dismantlement and Decontamination of the Facility

The Fast Critical Experimental Laboratory (FCEL) reactor covered by Facility License CX-17 has been dismantled in accordance with the dismantling plan submitted with the application transmitted with our letter of July 16, 1974 (Reference 1 above) and the dismantling order transmitted with your letter of November 1, 1974 (Reference 2 above).

The facility has also been decontaminated as described in the dismantling plan transmitted with the July 16, 1974 letter. Enclosed with this letter is a report on the radiation survey of the facility showing that the radiation levels in the facility area do indeed meet the requirements described in the dismantling plan. We are now requesting that the facility be inspected by representatives of the Commission, termination of License CX-17 be authorized, and the facility be released for unrestricted use.

Spalestern - NA13 XA
J. Walter 1008 X
TITTLE UB12 X
RP Johnson X
JP Steele X
F. B. ... X
W. M. ... X

N.S.I. CLASSIFICATION LTR/ENC
UNCLASSIFIED
CLASSIFIED

LTR. APPROVALS
[Signature]

ORIG. & TYPIST INITIALS
[Initials]



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We would appreciate your early attention to inspection of the facility and its release for unrestricted use, as we have an urgent requirement for use of the facility for other activities. If you have questions or desire further information, please call me at (213) 341-1000, Extension 2238.

Sincerely yours,

M. E. Remley, Director
Health, Safety, & Radiation
Services
Energy Systems Group

sjs:4/1-2

Enclosure: Radiation Survey Report of FCEL Facility

cc w/enclosure:

R. H. Engelken, Director, Region V Office, NRC

REPORT OF RADIATION SURVEY OF THE FCEL REACTOR FACILITY
IN SUPPORT OF REQUEST
TO TERMINATE FACILITY LICENSE CX-17
AND TO RELEASE THE FACILITY FOR UNRESTRICTED USE

DOCKET NO. 50-147

1.0 INTRODUCTION

Operations under the dismantling plan authorized by previous NRC (USAEC) order dated November 1, 1974, have been completed. This report presents the supporting information indicating that the dismantling effort has been completed so that the facility license may be terminated and the facility released for unrestricted use.

2.0 STATUS OF FACILITY DISMANTLING

The split-table critical machine has been dismantled and removed. Other hardware and parts not necessary for operation of the building have been removed with the exception of an instrument shop. The instrument shop has occupied and will continue to occupy the rooms in the building as indicated in Figure 1.

The building has been cleaned and surveyed for contamination. No covering material such as painting, plating, or wax has been applied to the floor, walls, equipment, or structure remaining in the building. Such covering will not be applied until after NRC approval to release for unrestricted use.

3.0 RESULTS OF SURVEY FOR ACTIVATION PRODUCTS
AND TOTAL SURFACE ACTIVITY

The area in and around where the split-table critical machine was located has been checked for evidence of induced radioactivity. This included the pit area below the split table and the floor and wall areas closest to the machine when it was in place.

General radiation background measurements were made with a Ludlum Model 125 Micro R meter and a Technical Associates PUG-1 countrate meter with a thin window pancake GM detector. Residual activity in the critical assembly area was determined to be below 0.1 m rad/hr at 1 cm from the surface with a 7 mg/cm² absorber as measured with a Technical Associates Model CP-7M ion chamber dosimeter. Alpha activity was surveyed by use of a Ludlum Model 12 countrate meter equipped with a Ludlum Alpha Scintillation Probe Model 43-5.

4.0 RESULTS OF SURVEY FOR REMOVABLE ACTIVITY

Surfaces were smeared for contamination using standard health physics procedure. In suspect places such as in sumps, traps, filters, etc., samples were collected and counted using standard procedures. The smears were counted with a Nuclear Measurements Corp. Gas Proportional automatic counting system. This system is capable of counting both alpha and beta-gamma activity simultaneously. It will detect 43.5% of all beta activity present, and 26.3% of all alpha activity for radionuclides expected to be present.

The results of these surveys are summarized below. The detailed results are on file in the Radiation and Nuclear Safety Office at the ESG Headquarters on De Soto Avenue. The locations of the areas cited below are given in the attached figure.

- . Critical Assembly Room - Floor Area
Measurements of all smears showed less than 20 d/m/100 cm²
alpha and 50 d/m/100 cm² beta-gamma

- . Critical Assembly Room - East Shield Wall
Measurement of all smears showed less than 20 d/m/100 cm²
alpha and 50 d/m/100 cm² beta-gamma

- . Critical Assembly Room - South Shield Wall
Measurement of all smears showed less than 20 d/m/100 cm²
alpha and 50 d/m/100 cm² beta-gamma

- . Critical Assembly Room - West Shield Wall
Measurement of all smears showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma
- . Critical Assembly Room - North Shield Wall
The average of all the smears showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma.
- . Critical Assembly Room - Wire Tray - South Wall
Measurement of all smears showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma
- . Critical Assembly Room - South Air Conditioner - West Wall
Measurement of all smears showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma
- . Critical Assembly Room - North Air Conditioner - West Wall
Measurement of all smears showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma
- . Critical Component Laboratory - Room 114
Measurements of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.
- . Chemical Laboratory - Room 130
Measurements of all smears for the floor and walls showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

- . Closet (adjacent to Chemistry Lab) - Room 126
Measurement of all smears from the room showed less than 20 d/m/cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

- . Change Room - Room 128
Measurement of all smears for the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

- . Control Passage Way - Room 113
Measurement of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

- . Fuel Vault - Room 112
Measurement of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

- . Subassembly Room - Room 111
Measurement of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

- . Locker Room - Room 127
Measurement of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma readings, i.e., less than 0.015 mr/hr beta-gamma.

. Equipment Storage - Room 131

Measurement of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

. Material Storage - Room 115

Measurements of all smears from the room showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

. Other Building 100 Rooms (nonoperating areas)

Smears were taken from the following areas:

Womens' Lavatory, Room 119

Mens' Lavatory, Room 120

Entry Area, Room 102

Health Physics, Room 123

Hall Corridor, Room 124

Office, Room 103

Office, Room 104

Office, Room 105

Hall Corridor, Room 107

Office, Room 106

Instrument Service and Lab, Room 108

Control Room, Room 109

Measurements all showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

. Drain and Cleanout Lines

Smears were taken from the following locations:

Floor Drain, Room 114

Floor Drain, Room 130

Wall Drain, Room 130

Wall Drain, Room 128

Floor Drain, Room 128

Floor Drain, Room 127

Wall Drain, Room 127

Drain, Room 120

Drain, Room 121

Floor Drain, Room 111

Cleanout, Room 111

Lines to Outside Holdup Tank

Outside cleanout line at east wall

Outside cleanout line at southeast wall

Inside of line at holdup tank

Measurements all showed less than 20 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Survey meter readings showed background alpha and beta-gamma, i.e., less than 0.015 mr/hr beta-gamma.

. Ventilation System

Smears were taken at:

Exhaust Plenum, 1st Roof Level

Exhaust Plenum, 2nd Roof Level

Measurements all showed less than 5 d/m/100 cm² alpha and 50 d/m/100 cm² beta-gamma. Direct survey with PUG-1 showed no contamination.

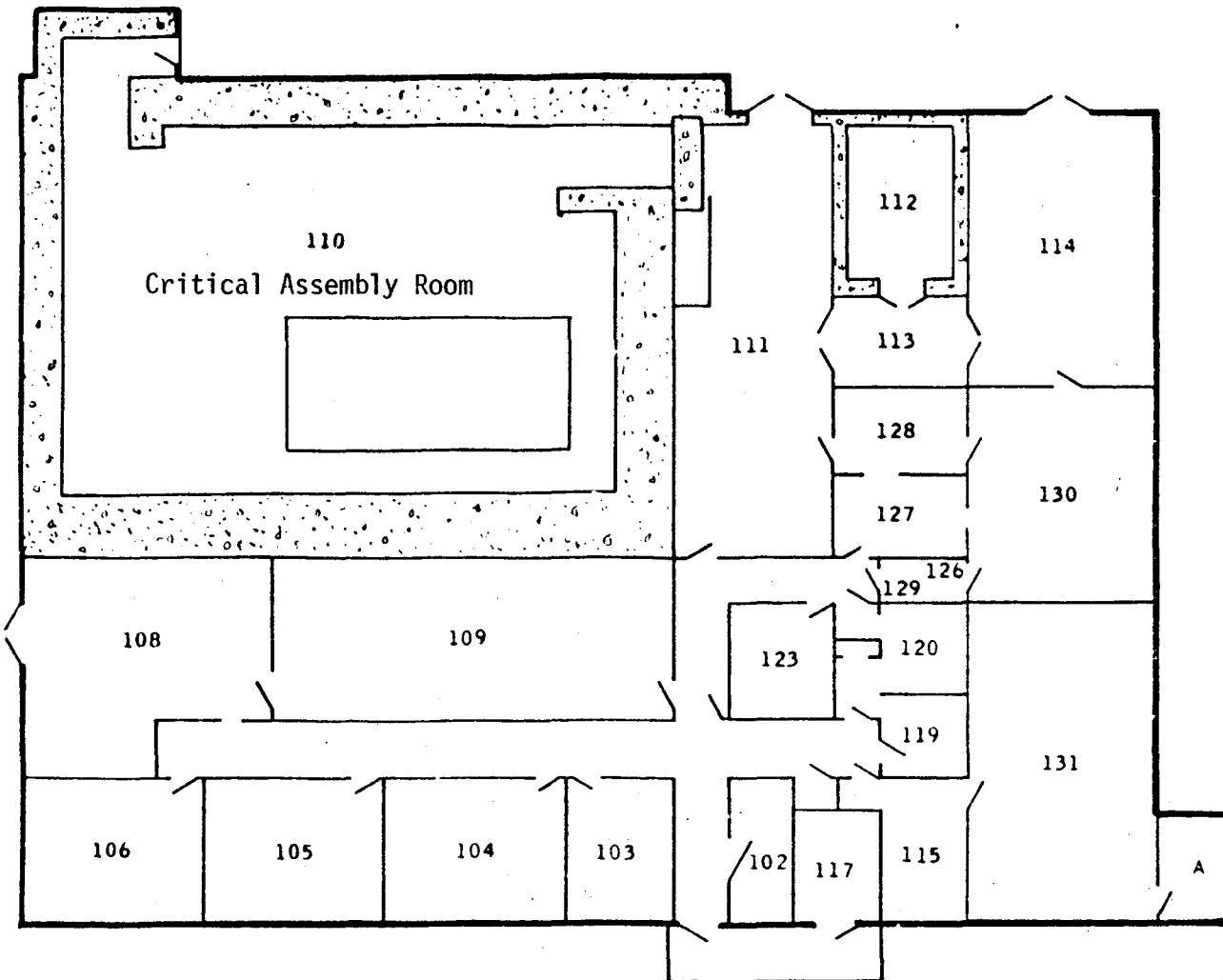
Liquid Materials - 100 m/volume

	<u>μ Ci/m/Alpha</u>	<u>μ Ci/m/Beta</u>
Holdup Tank Pit Motor	None detected	1.7×10^{-8}
Holdup Tank Motor	1.7×10^{-8}	1.7×10^{-8}
North Holdup Tank Motor	1.9×10^{-8}	1.5×10^{-8}

5.0 CONCLUSION

The results of the radiation surveys are all well under the acceptable surface contamination levels (removable) for the nuclides listed in Table 1 of US NRC Regulatory Guide 1.86.

As indicated from Section 3.0, there is no indication of the presence of activation remaining in the most susceptible areas around where the critical machine was located.



EPITHERMAL CRITICAL EXPERIMENT LABORATORY
BUILDING 100

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