

50-409

October 17, 1980

In reply, please  
refer to LAC-7185

Mr. James G. Keppler, Regional Director  
U. S. Nuclear Regulatory Commission  
Directorate of Regulatory Operations  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

SUBJECT: DAIRYLAND POWER COOPERATIVE  
LA CROSSE BOILING WATER REACTOR  
PROVISIONAL OPERATING LICENSE NO. DPR-45  
SPECIAL REPORT 80-02

REFERENCE: (1) LACBWR Technical Specifications  
Section 4.2.2.22, Action g.

Dear Mr. Keppler:

In accordance with the provisions of Reference (1), a Special Report is submitted covering results of sampling and analysis actions together with additional operational information for five separate occasions when reactor thermal power changed by more than 15% of Rated Thermal Power within one hour while in Operational Condition 1 or 2.

The separate occasions are discussed in sections as follows:

SECTION 1-----July 19, 1980  
SECTION 2-----August 8, 1980  
SECTION 3-----August 22, 1980  
SECTION 4-----September 5, 1980  
SECTION 5-----October 4, 1980

Each section provides a summary of operating data and radiological data for the time period prior to the thermal power change along with the results of the additional sampling required.

If there are any questions concerning this report, please contact us.

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Mr. James G. Keppler, Regional Director  
U. S. Nuclear Regulatory Commission

LAC-7185  
October 17, 1980

Very truly yours,

Frank Linder, General Manager

FL:LSG:abs

ATTACHMENTS

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U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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INTRODUCTION

LACBWR Technical Specifications, Section 4.2.2.22, Action g, requires sampling and analysis for Iodine-131, -133, and -135, as well as gross beta and gamma activity between 2 and 6 hours following a thermal power change of greater than 15% of rated thermal power within one hour. This special report is required to contain the information determined by the analysis plus additional information regarding reactor power history, fuel burnup, cleanup flow history, offgas activity levels, and gross alpha activity levels.

SECTION 1

1B Forced Circulation Pump tripped at 2214 on July 19, 1980, due to low seal inject leakoff flow.

The reactor was operating at 85% of rated thermal power (37 MWe-Net) at the time of the 1B FCP trip. The pump trip caused reactor power to drop to 49% rated thermal power.

GROSS  $\beta\gamma$  ACTIVITY AND IODINE ANALYSIS

Time of Sample: 0200, 7/20/80

Sample Results: Gross  $\beta\gamma$ -----1.07  $\mu\text{Ci/gm}$   
 I-131-----5.19  $\times 10^{-3}$   $\mu\text{Ci/gm}$   
 I-133-----2.29  $\times 10^{-2}$   $\mu\text{Ci/gm}$   
 I-135-----1.05  $\times 10^{-2}$   $\mu\text{Ci/gm}$

ADDITIONAL INFORMATION

- (1) Reactor Thermal Power Level starting 48 hours prior to thermal power change:

0200, 7/17/80 - 2214, 7/19/80-----85%

- (2) The approximate fuel burnup of assemblies in a symmetrical core region is depicted in Figure 1.

- (3) Cleanup Flow History starting 48 hours prior to the thermal power change:

Primary Purification Flow Rate

2200, 7/17/80 - 2214, 7/19/80-----41 GPM

Primary Purification Decontamination Factors ( $\beta\gamma$ )

0025, 7/17/80-----114:1

0226, 7/21/80-----196:1

(4) Offgas Activity Levels for 48 Hours Prior to Thermal Power Change:

1600-2400, 7/17/80-----	261 Ci/day
0000-0800, 7/18/80-----	261 Ci/day
0800-1600, 7/18/80-----	257 Ci/day
1600-2400, 7/18/80-----	266 Ci/day
0000-0800, 7/19/80-----	269 Ci/day
0800-1600, 7/19/80-----	269 Ci/day

(5) Gross Alpha Activity Level Starting With the Last Sample Taken Prior to Thermal Power Change:

0023, 7/17/80-----	$2.14 \times 10^{-8} \mu\text{Ci/gm}$
2214, 7/19/80-----	Thermal Power Change
0225, 7/21/80-----	$3.82 \times 10^{-8} \mu\text{Ci/gm}$

SECTION. 2

A reactor scram occurred at 0843 on August 8, 1980, when the Forced Circulation Pumps tripped due to low seal inject flow.

The reactor was operating at 85% of rated thermal power (37 MWe-Net) at the time of the scram.

GROSS  $\beta\gamma$  ACTIVITY AND IODINE ANALYSIS

Time of Sample: 1307, 8/8/80

Sample Results: Gross $\beta\gamma$ -----	.696 $\mu\text{Ci/gm}$
I-131-----	$7.408 \times 10^{-3} \mu\text{Ci/gm}$
I-133-----	$5.331 \times 10^{-3} \mu\text{Ci/gm}$
I-135-----	$5.559 \times 10^{-3} \mu\text{Ci/gm}$

ADDITIONAL INFORMATION

- (1) Reactr Thermal Power Level starting 48 hours prior to thermal power change:  
0800, 8/6/80 - 0843, 8/7/80-----85%
- (2) The approximate fuel burnup of assemblies in a symmetrical core region is depicted in Figure 2.
- (3) Cleanup Flow History starting 48 hours prior to the thermal power change:

Primary Purification Flow Rate

0800, 8/6/80 - 0843, 8/8/80-----41 GPM

Primary Purification Decontamination Factors (By)

0102, 8/7/80-----134:1

0103, 8/14/80-----75:1

(4) Offgas Activity Levels for 48 Hours Prior to Thermal Power Change:

0800-1600, 8/6/80-----	268 Ci/day
1600-2400, 8/6/80-----	269 Ci/day
0000-0800, 8/7/80-----	293 Ci/day
0800-1600, 8/7/80-----	272 Ci/day
1600-2400, 8/7/80-----	280 Ci/day
0000-0800, 8/8/80-----	265 Ci/day

(5) Gross Alpha Activity Level Starting With the Last Sample Taken Prior to Thermal Power Change:

0104, 8/7/80-----	$6.1 \times 10^{-7}$ $\mu$ Ci/gm
0843, 8/8/80-----	Thermal Power Change
1307, 8/8/80-----	$6.96 \times 10^{-7}$ $\mu$ Ci/gm

SECTION 3

A reactor scram occurred at 1430 on August 22, 1980, when the 1A Reactor Feed Pump (RFP) tripped due to water dripping onto and shorting out a portion of the RFP controls.

The reactor had achieved 55% rated thermal power during a slow escalation when the scram occurred.

GROSS BY ACTIVITY AND IODINE ANALYSIS

Time of Sample: 1648, 8/22/80

Sample Results: Gross BY-----	.667 $\mu$ Ci/gm
I-131-----	$3.086 \times 10^{-3}$ $\mu$ Ci/gm
I-133-----	$4.342 \times 10^{-2}$ $\mu$ Ci/gm
I-135-----	$< 8.3478 \times 10^{-3}$ $\mu$ Ci/gm

ADDITIONAL INFORMATION

## (1) Reactor Thermal Power Level starting 48 hours prior to thermal power change:

1400-2400, 8/20/80-----	45% + 49%
0000-2400, 8/21/80-----	49% + 51%
0000-1430, 8/22/80-----	51% + 55%

## (2) The approximate fuel burnup of assemblies in a symmetrical core region is depicted in Figure 2.

- (3) Cleanup Flow History starting 48 hours prior to the thermal power change:

Primary Purification Flow Rate

1400, 8/20/80 - 1430, 8/22/80-----41 GPM

Primary Purification Decontamination Factor ( $\beta\gamma$ )

0041, 8/21/80-----68:1  
0045, 8/25/80-----181:1

- (4) Offgas Activity Levels for 48 Hours Prior to Thermal Power Change:

0800-1600, 8/20/80-----137 Ci/day  
1600-2400, 8/20/80-----150 Ci/day  
0000-0800, 8/21/80-----149 Ci/day  
0800-1600, 8/21/80-----157 Ci/day  
1600-2400, 8/21/80-----144 Ci/day  
0000-0800, 8/22/80-----165 Ci/day

- (5) Gross Alpha Activity Level Starting With the Last Sample Taken Prior to Thermal Power Change:

0033, 8/21/80----- $2.12 \times 10^{-7}$   $\mu$ Ci/gm  
1430, 8/22/80-----Thermal Power Change  
1648, 8/22/80----- $8.54 \times 10^{-7}$   $\mu$ Ci/gm

SECTION 4

A partial scram occurred at 0700 on September 5, 1980, when water leakage from the seal inject supply line connection to Control Rod Drive Mechanism (CRDM) No. 1 sprayed onto the scram solenoid area of CRDM No. 3 causing an electrical short.

The reactor had achieved 31% rated thermal power during a slow escalation prior to the scram.

GROSS  $\beta\gamma$  ACTIVITY AND IODINE ANALYSIS

Time of Sample: 1115, 9/5/80

Sample Results: Gross  $\beta\gamma$ ----- $9.34 \times 10^{-2}$   $\mu$ Ci/gm  
I-131----- $2.373 \times 10^{-4}$   $\mu$ Ci/gm  
I-133----- $3.737 \times 10^{-3}$   $\mu$ Ci/gm  
I-135----- $5.774 \times 10^{-3}$   $\mu$ Ci/gm

ADDITIONAL INFORMATION

- (1) Reactor Thermal Power Level starting 48 hours prior to thermal power change:



0700-1655, 9/3/80-----Shutdown  
 1655, 9/3/80-----Reactor Critical  
 1700, 9/3/80 - 1700, 9/4/80---- $10^{-4}$  + 1%  
 1800-1900, 9/4/80-----1% + 14%  
 2000-2400, 9/4/80-----17% + 20%  
 0100-0700, 9/5/80-----22% + 31%

- (2) The approximate fuel burnup of assemblies in a symmetrical core region is depicted in Figure 2.
- (3) Cleanup Flow History starting 48 hours prior to the thermal power change:

Primary Purification Flow Rate

0700-1500, 9/3/80-----41 GPM  
 1600-1900, 9/3/80-----42 GPM  
 2000, 9/3/80-----39 GPM  
 2100, 9/3/80-----35 GPM  
 2200, 9/3/80 - 0700, 9/4/80----Shutdown  
 0800-1400, 9/4/80-----42 GPM  
 1500, 9/4/80 - 0700, 9/5/80----41.5 GPM

Primary Purification Decontamination Factor (B<sub>γ</sub>)

0602, 9/4/80-----35.7:1  
 0231, 9/8/80-----36.7:1

- (4) Offgas Activity Levels for 48 Hours Prior to Thermal Power Change:

0000-0800, 9/3/80-----No Offgas Flow  
 0800-1600, 9/3/80-----No Offgas Flow  
 1600-2400, 9/3/80-----No Offgas Flow  
 0000-0800, 9/4/80-----No Offgas Flow  
 0800-1600, 9/4/80-----No Offgas Flow  
 1600-2400, 9/4/80-----66.5 Ci/day  
 0000-0700, 9/5/80-----90.2 Ci/day

- (5) Gross Alpha Activity Level Starting With the Last Sample Taken Prior to Thermal Power Change:

0105, 9/5/80----- $3.07 \times 10^{-7}$   $\mu$ Ci/gm  
 0700, 9/5/80-----Thermal Power Change  
 0130, 9/6/80----- $3.54 \times 10^{-7}$   $\mu$ Ci/gm

SECTION 5

A reactor scram occurred at 0732 on October 4 when the RB Reactor Feed Pump controller failed, increasing reactor water level to the high water level setpoint.

The reactor was operating at 85% rated thermal power at the time of the scram.

GROSS  $\beta\gamma$  ACTIVITY AND IODINE ANALYSIS

Time of Sample: 0942, 10/4/80

Sample Results: Gross  $\beta\gamma$ -----0.250  $\mu\text{Ci/gm}$   
 I-131-----2.19  $\times 10^{-3}$   $\mu\text{Ci/gm}$   
 I-133-----1.78  $\times 10^{-2}$   $\mu\text{Ci/gm}$   
 I-135-----2.61  $\times 10^{-2}$   $\mu\text{Ci/gm}$

ADDITIONAL INFORMATION

- (1) Reactor Thermal Power Level starting 48 hours prior to thermal power change:

0700, 10/1/80 - 0732, 10/4/80----85%

- (2) The approximate fuel burnup of assemblies in a symmetrical core region is depicted in Figure 3.

- (3) Cleanup Flow History starting 48 hours prior to the thermal power change:

Primary Purification Flow Rate

0700, 10/2/80-----43 GPM  
 0800, 10/2/80-----42.8 GPM  
 0900-1500, 10/2/80-----42.5 GPM  
 1600, 10/2/80 - 0732, 10/4/80----43 GPM

Primary Purification Decontamination Factor ( $\beta\gamma$ )

0116, 10/2/80-----62:1  
 0109, 10/6/80-----4.28:1  
 0036, 10/9/80-----38.9:1

- (4) Offgas Activity Levels for 48 Hours Prior to Thermal Power Change:

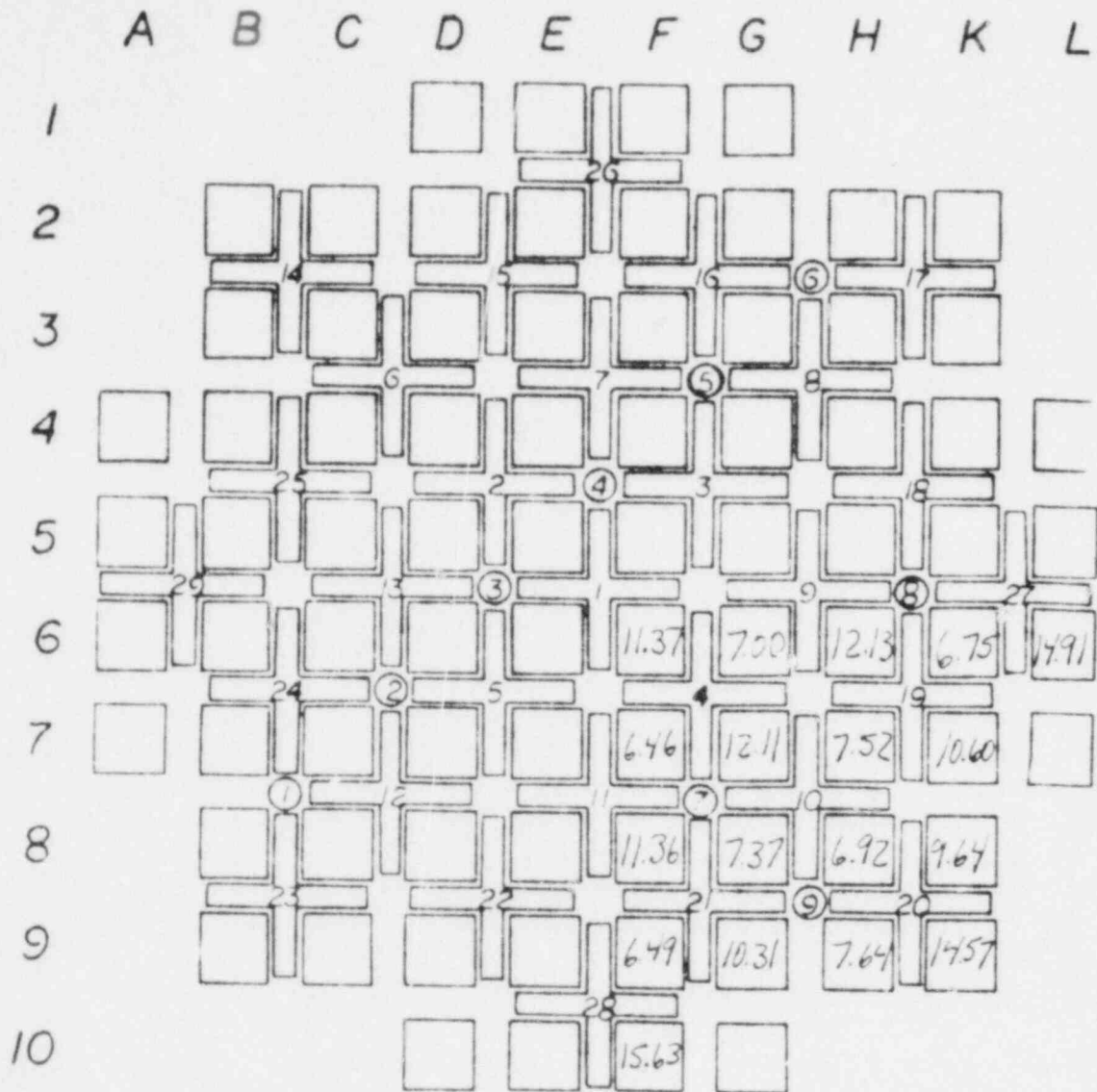
0000-0800, 10/2/80-----288 Ci/day  
 0800-1600, 10/2/80-----279 Ci/day  
 1600-2400, 10/2/80-----288 Ci/day  
 0000-0800, 10/3/80-----288 Ci/day  
 0800-1600, 10/3/80-----288 Ci/day  
 1600-2400, 10/3/80-----288 Ci/day  
 0000-0732, 10/4/80-----285 Ci/day

- (5) Gross Alpha Activity Level Starting With the Last Sample Taken Prior to Thermal Power Change:

0115, 10/2/80-----1.22  $\times 10^{-7}$   $\mu\text{Ci/gm}$   
 0732, 10/4/80-----Thermal Power Change  
 1257, 10/5/80-----7.04  $\times 10^{-7}$   $\mu\text{Ci/gm}$



QUARTER CORE FUEL EXPOSURE ESTIMATION (GWD/MTU)  
 AN INDICATION OF REGIONAL EXPOSURE AS OF JULY 19, 1980  
 THE AVERAGE EXPOSURE: 10.117 GWD/MTU

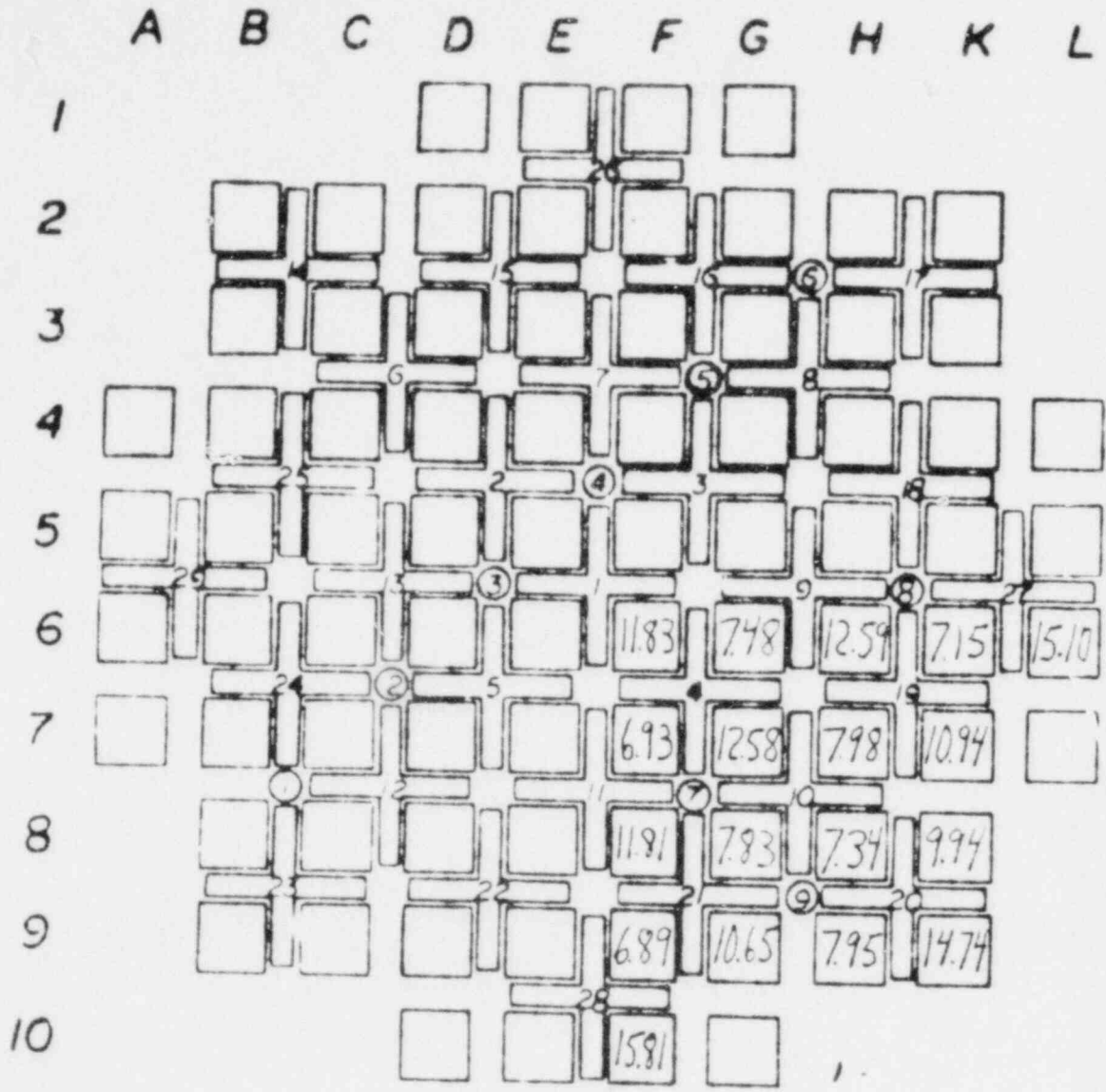


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 PLANT  
 NORTH

IN CORE FLUX MONITORS

FIGURE 1

FUEL EXPOSURE ESTIMATION (GWD/MTU)  
 AN INDICATION OF EXPOSURE ON AUGUST 31, 1980  
 THE AVERAGE EXPOSURE: 10,486 GWD/MTU

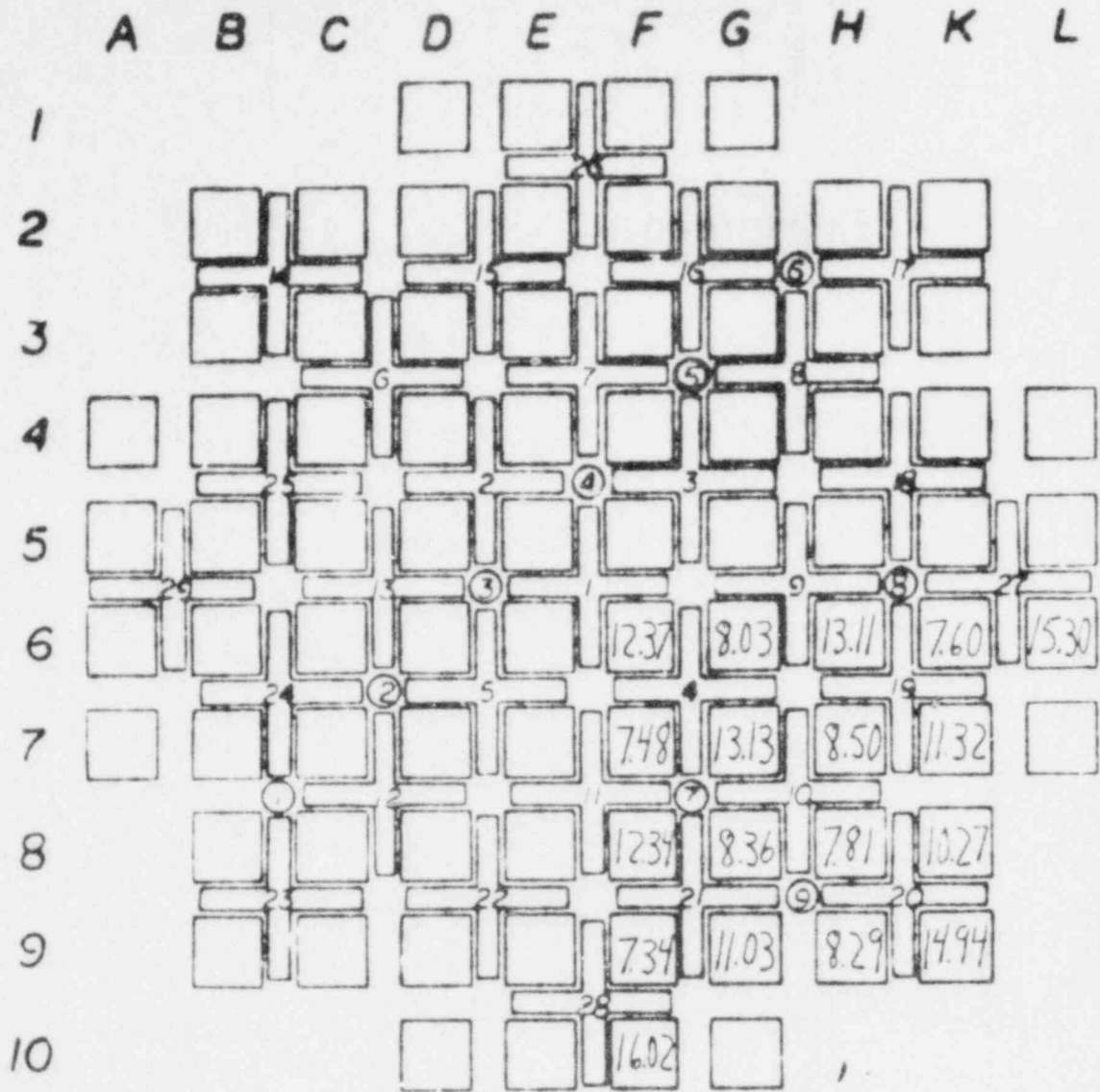


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IN CORE FLUX MONITORS ○

FIGURE 2

FUEL EXPOSURE ESTIMATION (GWD/MTU)  
 AN INDICATION OF EXPOSURE ON SEPTEMBER 30, 1980  
 THE AVERAGE EXPOSURE: 10,909 GWD/MTU



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○ IN CORE FLUX MONITORS

FIGURE 3