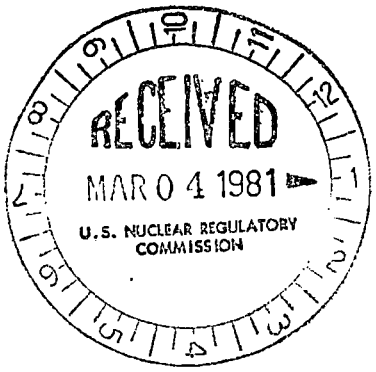
DSB

Consumers Power Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • (517) 788-0550

February 26, 1981



Mr James G Keppler
Office of Inspection and Enforcement
Region III
U S Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60127

DOCKET 50-255 - DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 81-009 - DOSE EQUIVALENT
IODINE EXCEEDED TECHNICAL SPECIFICATION LIMIT

Attached is Licensee Event Report 81-009 which is reportable under Technical Specifications 6.9.2B(2).

Brian D. Johnson
for

Steven R Frost
Palisades Licensing Engineer

CC Director, Office of Nuclear Reactor Regulation
Director, Office of Inspection and Enforcement
NRC Resident Inspector, Palisades Plant

Attachment

MAR 2 1981

A002
S
1/1

8103030806

PALISADES PLANT

NRC FORM 366 (7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: [| | | | |] (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 | M I P A L 1 (2) | 0 0 - 0 0 0 0 0 - 0 0 (3) | 4 1 1 1 1 (4) | | (5)
LICENSEE CODE; LICENSE NUMBER; LICENSE TYPE; CAT

CON'T 0 1 | REPORT SOURCE L (6) | 0 5 0 0 0 2 5 5 (7) | 0 1 1 5 8 1 (8) | 0 2 2 6 8 1 (9)
DOCKET NUMBER; EVENT DATE; REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 Following a plant trip from full power, PCS sample revealed dose
0 3 equivalent iodine 131 to be 1.148 microcurie per ml, in excess of the
0 4 limit of TS 3.1.4 (1.0 microcurie per ml). Sampling frequency was
0 5 increased per 3.1.4e. Out of spec condition lasted approximately 8 hours.
0 6 Event not repetitive. No threat to public health or safety existed.
0 7 Determination of reportability was made on 2-20-81; reportable per
0 8 TS 6.9.2.B2.

	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
0 9	R C (11)	E (12)	X (13)	F U E L X X (14)	Z (15)	Z (16)

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	8 1	—	0 0 9	/	0 3	L	—	0

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS (22)	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
X (18)	Z (19)	Z (20)	Z (21)	0 0 0 0	Y (23)	N (24)	X (25)	X 9 9 9 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Low level cladding failure combined with transient conditions following
1 1 plant trip resulted in high activity. No operating history (eq power
1 2 escalation rates) which would contribute abnormally to full clad failure
1 3 has been identified. Fuel supplied by CE and Exxon.
1 4

	FACILITY STATUS	% POWER	OTHER STATUS (30)	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION (32)
1 5	G (28)	0 0 0 (29)	Hot Shutdown	B (31)	PCS Sample

	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
1 6	Z (33)	Z (34)	NA	NA

PERSONNEL EXPOSURES

	NUMBER	TYPE	DESCRIPTION (39)
1 7	0 0 0 (37)	Z (38)	NA

PERSONNEL INJURIES

	NUMBER	DESCRIPTION (41)
1 8	0 0 0 (40)	NA

LOSS OF OR DAMAGE TO FACILITY (43)

	TYPE	DESCRIPTION
1 9	Z (42)	NA

PUBLICITY

	ISSUED	DESCRIPTION (45)	NRC USE ONLY
2 0	N (44)	NA	

8103030810

ATTACHMENT TO LICENSEE EVENT REPORT 81-09
CONSUMERS POWER COMPANY
PALISADES PLANT
DOCKET 50-255

This attachment supplies data required by Technical Specification 3.1.4e.

1. Power History

Time	Power (1-31-81	Power (1-14-81)
0100	97	98.5
0200	97.4	98.5
0300	97.7	98.5
0400	98.4	98.8
0500	98.5	98.7
0600	98.5	98.7
0700	98.4	98.7
0800	98.2	98.4
0900	98	98.4
1000	97.8	98.2
1100	97.6	98.1
1200	97.4	-
1300	97.3	97.7
1400	97.8	97.4
1500	98.1	97.4
1600	98.1	97.3
1700	98	97.2
1800	98.2	97.1
1900	98.4	97.0
2000	98.5	97.8
2100	98.5	97.9
2200	98.5	98.5
2300	98.5	98.4
2400	98.5	98.9

2. Fuel burnup by core region. (See Attached Printout)

3.

Time	Flow (GPM) * (1-13-81)	Flow (GPM) * (1-14-81)
0100	35	40
0200	35	41
0300	35	40
0400	35	41
0500	35	41
0600	35	40
0700	36	38
0800	35	38
0900	35	38
1000	35	38
1100	35	38
1200	35	38
1300	35	38
1400	35	38
1500	35	80
1600	36	54
1700	36	54
1800	36	52
1900	36	78
2000	35	38

*Clean-up System

Time	Flow (GPM) * (1-13-81)	Flow (GPM) * (1-14-81)
2100	35	38
2200	35	38
2300	38	38
2400	36	38

4. Degassing Operation History: No degassing was performed during 48-hour period prior to the event.

5. Time Duration of Dose Equivalent Iodine Limit Being Exceeded: The limit was exceeded for approximately 8 hours.

*Clean-up System

E 102 01/13-15/81 120216 MWHT 98% PWR TAPE 2 RUN DATE 810116 155447660

CORE INFORMATION

TOTAL CORE POWER (MW-THERMAL) = 2490.0
CORE AVERAGE EXPOSURE (MWD/MTU)= 15839.0

CYCLE CORE AVERAGE EXPOSURE (MWD/MTU)= 4659.2

POWER SPLIT
LOWER-UPPER/TOTAL =0.052146

BATCHWISE INFORMATION

POWER FRACTION IN BATCH D = 0.2687
POWER FRACTION IN BATCH E = 0.0335
POWER FRACTION IN BATCH G = 0.3589
POWER FRACTION IN BATCH H = 0.1065
POWER FRACTION IN BATCH WH = 0.2324

EXPOSURE IN BATCH D (MWD/MTU) = 25599.6
EXPOSURE IN BATCH E (MWD/MTU) = 30543.6
EXPOSURE IN BATCH G (MWD/MTU) = 15938.8
EXPOSURE IN BATCH H (MWD/MTU) = 4321.0
EXPOSURE IN BATCH WH (MWD/MTU) = 4956.1

XY NORMALIZED POWER FROM INCA DETECTORS
FULL - CORE COLLAPSED POWER DISTRIBUTION - % ERROR
COLLAPSED XTG POWER DISTRIBUTION - % ERROR

0.883		1.074		0.919		0.907		1.061		1.070		0.932		0.986	
0.877	-0.53%	1.127	4.94%	0.894	-2.74%	0.868	-4.29%	1.071	0.92%	1.087	1.61%	0.900	-3.49%	0.956	-3.04%
0.875	-0.87%	1.131	5.31%	0.905	-1.53%	0.884	-2.49%	1.095	3.20%	1.107	3.50%	0.900	-3.48%	0.924	-5.28%

0.911		1.022		1.173		0.932		0.915		1.040		0.954	
0.903	-0.88%	1.045	2.31%	1.135	2.02%	0.892	-4.20%	0.864	-5.54%	1.068	2.73%	0.952	-0.23%
0.903	-0.64%	1.053	3.05%	1.212	3.39%	0.907	-2.62%	0.876	-4.31%	1.064	2.34%	0.918	-3.78%

	1.114		1.127		1.273		0.854		1.173		0.777	
	1.128	1.27%	1.190	5.59%	1.266	-0.59%	0.873	2.20%	1.191	1.49%	0.730	-5.94%
	1.134	1.80%	1.199	6.33%	1.279	0.49%	0.877	2.61%	1.183	0.79%	0.703	-9.49%

		0.901		0.900		1.028		1.044			
		0.872	-3.23%	0.886	-1.56%	1.041	1.26%	1.070	2.49%		
		0.874	-2.95%	0.888	-1.34%	1.040	1.25%	1.056	1.21%		

				1.260		1.092		0.715			
				1.269	0.75%	1.094	0.18%	0.691	-3.38%		
				1.272	0.93%	1.089	-0.26%	0.680	-4.84%		

THERE ARE 170. EFFECTIVE FULL POWER DAYS LEFT IN THE LIBRARY. THIS OCCURS AT THE LOWER MIDDLE LEVEL OF OCTANT 19.

E 102 81/13-15/81 · 120215 MWHT 98% PWR TAPE 2 RUN DATE 810116 155447660

ASSEMBLY INFORMATION

OCTANT NUMBERING SYSTEM

1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
		16	17	18	19	20	21
			22	23	24	25	
				26	27	28	

CYCLE 4 CORE LOADING

D	G	D	D	G	G	D	H
	J	G	G	D	D	G	H
		J	G	WH	E	WH	H
			D	D	G	WH	
				WH	WH	WH	

INTEGRATED POWER (MWTH)

10.78	13.10	11.21	11.07	12.96	13.05	11.38	12.03
	11.12	12.47	14.31	11.37	11.17	12.69	11.64
		13.59	13.76	15.54	10.43	14.32	9.48
			10.99	10.58	12.54	12.74	
				15.38	13.33	9.73	

XY NORMALIZED POWER

0.883	1.074	0.919	0.907	1.061	1.071	0.932	0.986
	0.911	1.022	1.173	0.932	0.915	1.040	0.954
		1.114	1.127	1.273	0.854	1.173	0.777
			0.901	0.900	1.023	1.044	
				1.260	1.092	0.715	

EXPOSURE (MWD/MTU)

25592.22	13369.18	23196.89	25487.72	15819.92	15784.01	23870.29	4691.23
25639.04	18918.95	12558.06	26767.86	25312.83	15834.37	4614.16	
19331.40	15193.30	5946.14	30343.54	5493.20	3557.75		
28747.29	26092.22	17836.25	4872.70				
5525.66	4966.69	3271.83					

TOTAL ACCUMULATED CONTROL ROD EXPOSURE (MWD)

26.53	21.25	24.32	27.62
23.89	22.26	21.08	
552.14	17.05		

POINT OF MAXIMUM CONTROL ROD EXPOSURE (FRACTION OF ROD LENGTH FROM ROD BOTTOM)

0.02	0.02	0.02	0.02
0.02	0.02	0.02	
0.02	0.02		

MAXIMUM CONTROL ROD EXPOSURE (MWD/.04 ROD LENGTH)

19.61	21.25	22.10	20.91
23.12	22.26	21.08	
346.17	17.05		

****

********** 15-JAN-81 05:46:25 **********

****

NDS620 GELI-2/ DAS-2 SAMPLE ANALYSIS

SAMPLE DATE: 15-JAN-81 04:35:00
SAMPLE IDENTIFICATION: SX1023
TYPE OF SAMPLE: LIQUID
SAMPLE QUANTITY: 1.000000 UNITS: ML
SAMPLE GEOMETRY: 50 ML BOTTLE
EFFICIENCY FILE NAME: GELI2.EFF50,,

****

ACQUIRE DATE: 15-JAN-81 05:35:09	*	FWHM(1332)	2.528
PRESET TIME(LIVE): 500. SEC	*	SENSITIVITY:	5.000
ELAPSED REAL TIME: 653. SEC	*	SHAPE PARAMETER .	10.0 %
ELAPSED LIVE TIME: 500. SEC	*	NBR ITERATIONS:	5.

****

DETECTOR: GELI #2	*	LIBRARY:NUC.UPDAT2	
CALIB DATE: 06-JAN-81 15:24:54	*	ENERGY TOLERANCE:	2.000KV
KEV/CHNL: 0.4971793	*	HALF LIFE RATIO:	6.00
OFFSET: 0.6510380 KEV	*	ABUNDANCE LIMIT:	50.00%
Q. COEFF. : -2.101E-07 KEV/C**2	*		

****

IODINE EQUIVALENCE REPORT (V03)

NUCLIDE	ACTIVITY (UCI /UNIT)	EQUIVALENCE FACTOR	I-131 D.E. (UCI /UNIT)
I-131	7.6403E-01	1.0000	7.6403E-01
I-132	3.4248E-01	0.0361	1.2363E-02
I-133	1.1371E 00	0.2700	3.1240E-01
I-134	3.6530E-02	0.0169	6.1736E-04
I-135	6.9466E-01	0.0838	5.8213E-02

TOTAL I-131 DOSE-EQUIVALENT = 1.1476E 00 UCI /UNIT

NUCLIDE IDENTIFICATION SYSTEM (REV 5/80)
SUMMARY OF NUCLIDE ACTIVITY PAGE 11

TOTAL LINES IN SPECTRUM 105
LINES NOT LISTED IN LIBRARY 14
IDENTIFIED IN SUMMARY REPORT 118 112.38%

FORM 6913

FISSION GAS

NUCLIDE	SBHR	HLIFE	DECAY	UCI /UNIT	1-SIGMA ERROR	%ERR
XE-133	FG	5.29D	1.003	1.308E 0	3.649E -3	0.28
XE-133M	FG	2.26D	1.006	1.958E -2	6.190E -3	31.62
XE-135	FG	9.17H	1.037	2.914E -1	1.418E -3	0.49
XE-135M	FG	15.60M	3.531	1.637E 0	1.991E -2	1.22
KR-85M	FG	4.48H	1.076	3.374E -2	7.399E -4	2.19
KR-87	FG	76.31M	1.250	6.338E -3	2.583E -3	40.94
KR-88	FG	2.80H	1.125	4.625E -2	2.263E -3	4.89

ACTIVATION PRODUCT

NUCLIDE	SBHR	HLIFE	DECAY	UCI /UNIT	1-SIGMA ERROR	%ERR
CR-51	AP	27.72D	1.000	1.158E -1	1.493E -2	12.89
MN-54	AP	312.50D	1.000	3.764E -2	1.263E -3	3.35
MN-56	AP	2.59H	1.135	2.870E -2	1.256E -3	4.38
MO-99	AP	66.69H	1.005	6.497E -3	4.779E -4	7.36
CO-58	AP	71.30D	1.000	5.134E -2	1.175E -3	2.29
SE-75	AP	120.00D	1.000	**KEY LINE NOT PRESENT**		

FISSION PRODUCT

NUCLIDE	SBHR	HLIFE	DECAY	UCI /UNIT	1-SIGMA ERROR	%ERR
TC-99M	FP	6.03H	1.056	7.668E -3	5.655E -4	7.36
RB-88	FP	2.80H	1.125	4.292E -2	4.493E -3	10.47
I-131	FP	8.04D	1.002	7.640E -1	2.471E -3	0.32
I-132	FP	2.28H	1.155	3.425E -1	2.187E -3	0.64
I-133	FP	20.80H	1.016	1.157E 0	3.126E -3	0.27
I-134	FP	53.20M	1.449	3.653E -2	2.909E -3	7.96
I-135	FP	6.70H	1.050	6.547E -1	7.151E -3	1.03
SR-91	FP	9.75H	1.034	2.486E -2	2.849E -3	11.46
SR-92	FP	2.71H	1.129	1.219E -2	1.151E -3	9.44
Y-91M	FP	49.70M	1.487	8.765E -3	2.030E -3	23.16
RH-106	FP	367.00D	1.000	8.883E -2	6.965E -3	7.85
CS-134	FP	2.06Y	1.000	4.656E -3	8.723E -4	18.74
CS-136	FP	13.00D	1.001	7.053E -3	9.075E -4	12.79
CS-137	FP	30.17Y	1.000	1.041E -2	9.138E -4	8.78
CE-144	FP	284.20D	1.000	9.501E -2	5.643E -3	5.94
CD-113M	FP	13.60Y	1.000	6.525E 0	6.801E -1	10.42
SN-113	FP	115.31D	1.000	1.225E -1	1.822E -2	14.87
CE-141	FP	32.50D	1.000	8.184E -3	9.045E -4	11.05

NATURAL PRODUCT

NUCLIDE	SBHR	HLIFE	DECAY	UCI /UNIT	1-SIGMA ERROR	%ERR
RA-226	NP	1602.00Y	1.000	1.857E -2	1.386E -3	7.46
PB-214	NP	26.80M	2.085	**KEY LINE NOT PRESENT**		

PEAK WIDTH = 3.00 FWHM. CONFIDENCE LEVEL = 4.66.

NUCLIDE	HALF-LIFE	UCI /UNIT	1-SIGMA ERROR	% ERROR	% MPC
AR-41	1.83H	< 4.756E-03	NUCLIDE NOT DETECTED		
XE-131M	11.90D	< 8.849E-02	NUCLIDE NOT DETECTED		
XE-133	5.29D	1.308E 00	3.649E-03	0.28	********
XE-133M	2.26D	1.958E-02	6.190E-03	31.62	********
XE-135	9.17H	2.914E-01	1.418E-03	0.49	********
XE-135M	15.60M	1.637E 00	1.991E-02	1.22	********
XE-138	14.50M	< 1.612E-01	NUCLIDE NOT DETECTED		
KR-85M	4.48H	3.374E-02	7.399E-04	2.19	********
KR-85	10.76Y	< 8.913E-01	NUCLIDE NOT DETECTED		
KR-87	76.31M	6.336E-03	2.593E-03	40.94	********
KR-88	2.80H	4.625E-02	2.263E-03	4.89	********
NA-24	15.03H	< 1.041E-03	NUCLIDE NOT DETECTED		
B69E-03	NUCLIDEDNOT	DETECTED2	NUCLIDE NOT DETECTEDNP-239		2.35D
CR-51	27.72D	1.158E-01	1.493E-02	12.89	********
W-187	23.90H	< 1.136E-02	NUCLIDE NOT DETECTED		
MN-54	312.50D	3.764E-02	1.263E-03	3.35	********
MN-56	2.59H	2.870E-02	1.256E-03	4.38	********
MO-90	5.67H	< 3.328E-03	NUCLIDE NOT DETECTED		
MO-99	66.69H	6.497E-03	4.779E-04	7.36	********
TC-99M	6.03H	7.688E-03	5.655E-04	7.36	76883.09
FE-59	44.60D	< 5.543E-03	NUCLIDE NOT DETECTED		
CO-57	270.00D	< 1.542E-03	NUCLIDE NOT DETECTED		

PEAK WIDTH = 3.00 FWHM. CONFIDENCE LEVEL = 4.66.

NUCLIDE	HALF-LIFE		UCI /UNIT	1-SIGMA ERROR	% ERROR	% MFC
CO-58	71.30D		5.134E-02	1.175E-03	2.29	*********
CO-60	5.26Y	<	2.235E-03	NUCLIDE NOT DETECTED		
NI-65	2.52H	<	1.221E-02	NUCLIDE NOT DETECTED		
CO-64	12.71H	<	4.721E-01	NUCLIDE NOT DETECTED		
ZN-65	244.00D	<	5.192E-03	NUCLIDE NOT DETECTED		
AG-110M	253.00D	<	2.803E-03	NUCLIDE NOT DETECTED		
NB-94	1000.00Y	<	2.685E-03	NUCLIDE NOT DETECTED		
ZR-95	65.50D	<	4.287E-03	NUCLIDE NOT DETECTED		
NB-95	35.10D	<	2.714E-03	NUCLIDE NOT DETECTED		
ZR-97	17.00H	<	2.673E-03	NUCLIDE NOT DETECTED		
NB-97	17.00H	<	2.836E-03	NUCLIDE NOT DETECTED		
RB-88	2.80H		4.292E-02	4.493E-03	10.47	*********
RB-89	15.60M	<	9.392E-02	NUCLIDE NOT DETECTED		
BR-84	31.80M	<	2.827E-02	NUCLIDE NOT DETECTED		
I-131	8.04D		7.640E-01	2.471E-03	0.32	*********
I-132	2.28H		3.425E-01	2.187E-03	0.64	*********
I-133	20.80H		1.157E 00	3.126E-03	0.27	*********
I-134	53.20M		3.603E-02	2.909E-03	7.96	*********
I-135	6.70H		6.947E-01	7.151E-03	1.03	*********
SR-85	65.20D	<	3.839E-03	NUCLIDE NOT DETECTED		
SR-91	9.75H		2.486E-02	2.849E-03	11.46	*********
SR-92	2.71H		1.219E-02	1.151E-03	9.44	*********
Y-91M	49.70M		8.765E-03	2.030E-03	23.16	43824.04
Y-92	3.53H	<	2.430E-02	NUCLIDE NOT DETECTED		
RH-106	367.00D		8.869E-02	6.965E-03	7.85	*********
RU-103	39.60D	<	3.112E-03	NUCLIDE NOT DETECTED		
CS-134	2.06Y		4.656E-03	8.723E-04	18.74	*********
CS-136	13.00D		7.093E-03	9.075E-04	12.79	*********
CS-137	30.17Y		1.041E-02	9.138E-04	8.78	*********
CS-138	32.20M	<	1.340E-02	NUCLIDE NOT DETECTED		
BA-133	10.50Y	<	4.700E-03	NUCLIDE NOT DETECTED		
BA-139	82.71M	<	1.622E-02	NUCLIDE NOT DETECTED		
BA-140	12.79D	<	1.149E-02	NUCLIDE NOT DETECTED		
LA-140	40.22H	<	2.109E-03	NUCLIDE NOT DETECTED		
CE-144	284.20D		9.501E-02	5.643E-03	5.94	*********
CD-109	453.00D	<	3.818E-02	NUCLIDE NOT DETECTED		
CD-113M	13.60Y		6.525E 00	6.801E-01	10.42	*********
CE-139	137.20D	<	2.201E-03	NUCLIDE NOT DETECTED		
HG-203	46.76D	<	2.860E-03	NUCLIDE NOT DETECTED		
SN-113	115.31D		1.225E-01	1.822E-02	14.87	*********
K-40	99999.00Y	<	3.882E-02	NUCLIDE NOT DETECTED		
SB-122	2.72D	<	4.123E-03	NUCLIDE NOT DETECTED		
SB-124	60.20D	<	3.281E-03	NUCLIDE NOT DETECTED		
SB-125	2.73Y	<	8.104E-03	NUCLIDE NOT DETECTED		
SE-75	120.00D		1.000E 00	1.000E 00	100.00	*********
EU-152	13.20Y	<	1.615E-02	NUCLIDE NOT DETECTED		
RA-226	1602.00Y		1.857E-02	1.386E-03	7.46	*********
PB-214	26.80M		1.000E 00	1.000E 00	100.00	*********
BI-214	3.82D	<	6.138E-03	NUCLIDE NOT DETECTED		
U-235	2000.00Y	<	1.573E-02	NUCLIDE NOT DETECTED		
TE-132	78.00H	<	2.684E-03	NUCLIDE NOT DETECTED		
TH-232	99999.00Y	<	5.638E-03	NUCLIDE NOT DETECTED		
SC-46	83.80D	<	2.479E-03	NUCLIDE NOT DETECTED		
CE-141	32.50D		8.184E-03	9.046E-04	11.05	*********

PEAK WIDTH = 3.00 FWHM. CONFIDENCE LEVEL = 4.66.

NUCLIDE	HALF-LIFE	UCI /UNIT	1-SIGMA ERROR	% ERROR	% MPC

TOTAL ACTIVITY = 1.555E 01 UCI /UNIT; TOTAL % MPC =*******

FORM 6513