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SUBJECT: Forwards summary of calculated voltages & currents determined by load flow program against measured voltages & currents at various points in ESF electrical distribution sys at plant during plant operation,per 921217 commitment.

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NRC-95-100

WISCONSIN PUBLIC SERVICE CORPORATION
600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

September 27, 1995

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Field Verification of the DAPPER Load Flow Model

References:
1) Letter from C. A. Schrock (WPSC) to Document Control Desk (NRC) dated December 17, 1992
2) Letter from C. W. Giesler (WPSC) to Dr. Harold R. Denton (NRC) dated March 8, 1984
3) Letter from Richard J. Laufer (NRC) to C. A. Schrock (WPSC) dated September 30, 1993

In Reference 1, Wisconsin Public Service Corporation (WPSC) committed to complete field verification of the DAPPER load flow model and provide a summary of results to the Nuclear Regulatory Commission (NRC) within two years of the approval of Proposed Amendment 110. The amendment was approved in reference 3.

The attached table provides a summary of calculated voltages and currents determined by the load flow program against measured voltages and currents at various points in the Engineered Safety Features (ESF) electrical distribution system at Kewaunee during plant operation.

These results show good agreement between calculated and measured voltages with a maximum error of less than 4%. The majority of errors are in the conservative direction due to over prediction of loads (current) in the calculation. The largest error in the non-conservative direction is less than 1%. Based on these results, we have concluded that the ability of our load

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flow program to conservatively calculate voltages at various locations in the ESF electrical system has been verified. Therefore, this program is appropriate for use in determining the undervoltage setpoints on the ESF buses.

If you have any questions or need additional information, please contact Mr. David Will at (414) 388-2560, extension 2244.

Sincerely,

Mark L. Marchi
Manager-Nuclear Business Group

DJW/jmf

Attach.

cc - US NRC Region III
US NRC Senior Resident Inspector

CALCULATED VERSUS MEASURED SAFEGUARDS BUS VOLTAGES AND CURRENTS-1995

	Voltages (in Volts)		Ratio		Currents (in Amperes)		Ratio	
Bus Name	Calculated	Measured	Calc/Measured		Calculated	Measured	Calc/Measured	
5	4236	4224	1.003		249	140	1.78	
51	494	493	1.002	(see **)	151	77	1.96	(see **)
52	475	492	0.965		(see *)	(see *)	(see *)	
MCC 52A	474	487.3	0.973		44	45.1	0.98	
MCC 52B	472	488.5	0.966		123	35.4	3.47	
MCC 52C	473	486.9	0.971		97	48.7	1.99	
MCC 52D	474	486.6	0.974		36	22.6	1.59	
MCC 52E	473	487.6	0.970		150	86	1.74	
MCC 52F	471	484.7	0.972		135	94.4	1.43	
MCC 5262	474	487.6	0.972		74	0.35	211.43	
BRA-105	202	210	0.962	(see ***)	112	5.94	18.86	(see ***)
6	4277	4265	1.003		239	134	1.78	
61	492	501	0.982	(see **)	143	68	2.10	(see **)
62	492	497	0.990		(see *)	(see *)	(see *)	
MCC 62A	491	494.6	0.993		27	18.9	1.43	
MCC 62B	492	492.4	0.999		0	0.82	0.00	
MCC 62C	490	492.1	0.996		155	55.7	2.78	
MCC 62D	490	493.5	0.993		31	5.14	6.03	
MCC 62E	490	493.1	0.994		193	122	1.58	
MCC 62G	502	499	1.006		241	222.8	1.08	
MCC 62H	491	NA	NA		2	NA	NA	
MCC 62J	491	494.7	0.993		26	21	1.24	
BRB-105	208	211.3	0.984	(see ***)	150	4.26	35.21	(see ***)

*Current values are for bus 51&52 combined and for bus 61&62 combined due to single ammeter.
**A 250 Hp CC Pump was assumed on for bus 61 and off for bus 51. The opposite occurred.
***A Design Change has removed load from these panels.