

ENCLOSURE TO AEP:NRC:0773J

STATUS REPORT

IMPLEMENTATION PLAN OF REGULATORY GUIDE 1.97, REVISION 3,  
FOR THE DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2

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TABLE OF CONTENTS

- I. Background
- II. Status Report
- III. Tables
- IV. Footnotes

## I. Background

AEPSA hired, in August 1984, the engineering consulting firm of DiBenedetto, Farwell & Hendricks in order to perform the detailed design study required to determine the Donald C. Cook Nuclear Plant (DCCNP) Units 1 & 2 compliance with Regulatory Guide 1.97, Revision 3. A final report on this subject is expected by June, 1985. This document presents preliminary findings that have resulted from our discussions with the consultant. This report may be modified at the time we receive the final report, and for that reason we are expecting to update this status report later this year.

The dates for modifications contained in this report are currently scheduled target dates. It must be recognized however, that equipment delivery delays, test difficulties, or other problems may cause delays in this schedule.

Certain requirements of Regulatory Guide 1.97 were judged to be unreasonable to backfit in an operating plant. Justification is provided for these requirements to which we take exception.

## II. Status Report

The table included with this enclosure contains information regarding instrument range, environmental qualification, seismic qualification, quality assurance, redundancy, power supply, location of display and required actions and schedule for each type A,B,C,D, and E variable listed in Regulatory Guide 1.97, Revision 3. This table is consistent in organization with Table 3 (PWR Variables) of Regulatory Guide 1.97, Rev. 3 dated May, 1983. In some instances, the Type B-E variables are duplicated by the Type A variable listing. In these instances, reference back to the Type A variable is made because the requirements for Type A variables are the most stringent. The schedule and status for each instrument indicates when the requirements of Regulatory Guide 1.97 as described in this enclosure will be met. Open items are indicated by TBD (To Be Determined). Deviations from the Regulatory Guide and justification for the deviations are given in the footnotes located at the end of this enclosure. The following general notes provide clarifications for each category of information requested by section 6.2 of Supplement 1 to NUREG 0737 with the exception of instrument range, which is self explanatory:

### 1. Sensor Location

The "sensor(s) location(s)" information requested in Section 6.2(e) of Supplement 1 to NUREG 0737 is assumed to mean the application and not physical plant location. This information is provided in the column labeled "variable."

### 2. Environmental Qualification

Instruments reported as environmentally qualified (marked "yes" in the column labeled "EQ") are planned to meet the provisions of 10 CFR 50.49. As allowed by 10CFR 50.49(k), original DCCNP instrumentation located in a potentially harsh environment has been qualified in accordance with the "DOR Guidelines". Equipment ordered after February 22, 1983, is to have environmental qualification in accordance with Category I of NUREG 0588 (For Comment) (i.e. IEEE Std 323-1974) unless there are sound reasons to the contrary. Consistent with 10CFR 50.49, DCCNP is not required to environmentally qualify equipment located in a mild environment.

3. Seismic Qualification

Instruments reported as seismically qualified (i.e., marked "yes" in the column labeled "SQ") are planned to meet the provisions of the DCCNP Updated FSAR p. 7.2-12 (i.e., protection grade equipment is designed such that for a design basis earthquake, the equipment will not lose its capability to perform its design objective; namely, shut the plant down and/or maintain the unit in a safe shutdown condition.) Typical equipment of this type originally installed at DCCNP was seismically tested by Westinghouse Electric Corporation as documented in WCAP-7397-L, "Topical Report Seismic Testing of Electrical and Control Equipment". No industry standards regarding seismic qualification existed at that time. Equipment ordered for Regulatory Guide 1.97 upgrading is planned for seismic qualification in accordance with Regulatory Guide 1.100 (i.e., IEEE Std. 344-1975) unless there are sound reasons to the contrary.

4. Quality Assurance

Instruments reported as meeting quality assurance requirements (i.e., marked "yes" in the column labeled "QA") are planned to meet the provisions of the DCCNP QA program as described in DCCNP Updated FSAR Section 1.7. This program, as described, satisfies the requirements of 10CFR 50, Appendix B. The implementation of specific Regulatory Guides and ANSI standards regarding quality assurance are consistent with the commitments of DCCNP FSAR Section 1.7 Appendix A.

5. Redundancy

Instruments reported as meeting the single failure criterion or redundancy requirements (i.e., marked "yes" in the column labeled "SF") are planned for a minimum of two (2) redundant, electrically independent channels up to and including any isolation device. The display may be a common multi-pen recorder or a dual indicator. The redundant channels are also physically separated in accordance with the DCCNP Updated FSAR p. 7.2-4. Physical separation requirements for redundant Post Accident Monitoring Instrumentation channels will be established in a manner consistent with the application of separation criteria to existing plant IE instrumentation & control circuits. The extent of conformance to Regulatory Guide 1.75 for D. C. Cook Plant IE systems was given in the answer to question 40.6 in FSAR Appendix Q, Unit 2 p.40.6-2. In some instances, redundancy will be provided by measurement of a diverse variable.

6. Power Supply

Instruments reported as meeting Class IE power supply requirements (i.e., marked "IE" in the column labeled "PS") are planned to be powered from IE power supplies such as the 120V AC instrument buses or the 250 V DC buses as described in the DCCNP Updated FSAR Sections 8.1 and 8.3.

7. Display Location

The display will be indicated either inside the control room or at another location as permitted by Regulatory Guide 1.97.

8. Schedule

The implementation schedule provided for each variable is the current best estimate of the completion of the final configuration for the associated instrument including

redundancy, final displays, power supplies, documentation of qualification and turnover to plant operations. The schedules are based on anticipated delivery and plant outage schedules. Equipment delivery delays, environmental qualification test difficulties, or other problems, however, may cause delays in these schedules beyond our reasonable control. Since the Consultant's engineering study has not yet been completed and a final report has not been issued, some items listed may require revision or deletion. In some instances equipment may be added to the list. The final configuration will not be determined until the EOP's and DCRDR program have been implemented and integrated with the Regulatory Guide 1.97 schedule. Considering these factors, our overall target date for completion of work undertaken in response to Regulatory Guide 1.97 is December, 1991.

Most variables presently listed are measured with fully operational instruments, however, the instruments are not considered complete for the purposes of this enclosure until they meet Regulatory Guide 1.97 requirements as described in this enclosure. Note that instruments previously reported to the staff as meeting the requirements of NUREG 0737 or IE Bulletin 79-01B do not, in all cases, meet all of the requirements of Regulatory Guide 1.97. The schedules provided in this enclosure for meeting Regulatory Guide 1.97 requirements are not intended to change any previous commitment regarding NUREG 0737 or 10CFR 50.49, whose requirements may be different.

### III.. TABLES

These tables represent the status of the Donald C. Cook Nuclear Plant when we have completed all of the requirements associated with Regulatory Guide 1.97, Rev. 3. It does not, nor is it intended to reflect the status of the plant as of the date of this letter.

Type A Variables: "those variables to be monitored that provide the primary information required to permit the control room operator to take specific manually controlled actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for design basis accident events. Primary information is information that is essential for the direct accomplishment of the specified safety functions; it does not include those variables that are associated with contingency actions that may also be identified in written procedures." Note: These variables are plant-specific and based on review of the D. C. Cook Nuclear Plant Emergency Operating Procedures (EOP's) plus anticipated future changes to the EOP's. The schedule and status for each instrument indicated is for when all of the requirements of Regulatory Guide 1.97, Rev 3 will be met.

Item No.	Purpose	Variable	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
A-1	Maintain Pressurizer Level during S/G Tube rupture	Centrifugal Chg Pump Flow	IFI-51,52,53,54	0-200 GPM	Y	Y	Y	Y	IE	Control Room Panel SIS	Replace, control room indicators with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-2	Manual Trip of RC Pumps based on RCS pressure	RCS Pressure (wide range)	NPS-121,122	0-3000psig	Y	Y	Y	Y	IE	Control Room Panel RHR	Replace control room recorder with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-3				NOT USED									
A-4	See footnote (n)	RCS Hot Leg Temperature	NTR-110,120,130,140	32-700°F	Y	Y	Y	Y	IE	Control Room Panel DTU	Replace recorders with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-5	Set makeup for automatic control	RCS Soluble Boron Concentration.	NSX-101,103	NA	NA	NA	NA	NA	NA	NA	See footnote (a)	NA	NA
A-6	See footnote (n)	RCS Cold Leg Temperature	NTR-210,220,230,240	32-700°F	Y	Y	Y	Y	IE	Control Room Panel DTU	Replace recorders with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage

Item No.	Purpose	Variable	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
A-7	Determination of required core exit temperature by S/G Pressure (ruptured)	S/G Pressure	MPP-210,211, 212,220, 221,222, 230,231, 232,240, 241,242	0-1200psig	Y	Y	Y	Y	IE	Control Room Panel SG	Replace control room indicators with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-8	Determination of adverse containment	Containment Sump Level	NLA-310 NLI-311,320, 321	589.5 to 614 ft. elevation (bottom of sump to max flood level)	Y	Y	Y	Y	IE	Control Room Panel RHR	Replace control room indicators with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-9	Manual Reduction of ECCS Flow	S/G Level Narrow range	BLP-110,111, 112,120, 121,122, 130,131, 132,140, 141,142	29-137" wc	Y	Y	Y	Y	IE	Control Room Panel SG	Replace control room indicators and/or recorders with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-10	Manual Reduction of ECCS Flow	Pressurizer Level	NLP-151,152, 153	0-100% (essentially top to bottom not including rounded portions)	Y	Y	Y	Y	IE	Control Room Panel PZR (NLP-151 also HSD)	Replace control room indicators and/or recorders with seismically qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-11	See footnote (n)	Primary System Safety Relief Valve Position	QR-107 A,B, C,D	NA	Y	Y	Y	NA	IE	Control Room Panel RC	See footnote (b)	NA	NA



Item No.	Purpose	Variable	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
A-12	Determination of adverse containment	Containment Area Radiation Monitor High Range	VRA-1310, 1410, (Unit 1) 2310, 2410 (Unit 2)	1 R/HR to 1X10 <sup>7</sup> R/HR	Y	NA	Y	Y	IE	Control Room Panel RMS	See footnote (c)	NA	NA
A-13	Manually establish or trip containment spray	Lower Containment Pressure	PPP-300,311, 302,303	-5 to +12 psig	Y	Y	Y	Y	IE	Control Room Panel SPY	Replace transmitters, indicators with qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-14	Manually establish or trip containment spray	Upper Containment Pressure	PPA-310,311, 312,313	-5 to 36psig	Y	Y	Y	Y	IE	Control Room Panel SPY	Replace transmitters, indicators, recorders, with qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-15	Manual Reduction of ECCS Flow	Auxilliary Feedwater Flow	FFI-210,220, 230,240	0-250 KPPH	Y	Y	Y	Y	IE	Control Room Panel SC	Redundancy provided by diverse variable - S/G narrow range level which is qualified. Replace indicators with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-16	Manual Transfer to cold leg recirculation in low level in RWST	RWST Level	ILS-950,951	essentially Top to Bottom	NA	Y	Y	Y	IE	Control Room Panel SPY	Replace indicators, recorders with seismic qualified equipment. Also see footnote (d)	1987 re-fueling outage	1987 re-fueling outage
A-17	Manual Trip or reduction of Pressurizer Spray and ECCS Flow	Degrees Sub-cooling	NA	0-199°F sub-cooling 0-199°F Superheat	Y	NA	Y	NA	IE	Control Room Panel BA	See footnotes (b) and (c) which apply beyond the isolating devices	NA	NA
A-18	Control Makeup Flow During S/G Tube Rupture	Make up Flow-in	QFI-200	0-200 GPM	NA	Y	Y	Y	IE	Control Room Panel BA and HSD	Replace control room indicators with seismic qualified equipment (QFI-200). Add second redundant qualified channel	1988 re-fueling outage	1989 re-fueling outage



Item No.	Purpose	Variable	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
A-19	Control Letdown Flow during S/G Tube Rupture	Letdown flow-out	QFI-301	0-200GPM	NA	Y	Y	Y	IE	Control Room Panel BA and HSD	Replace control room indicators with seismic qualified equipment (QFI-301). Add second redundant qualified channel	1988 re-fueling outage	1989 re-fueling outage
A-20	Manual Control of Seal injection flow to establish minimum charging flow	RCP Seal Injection Flow	QFA-210,220, 230,240	0-15 GPM	Y	Y	Y	Y	IE	Control Room Panel RCP	Replace transmitters with re-qualified equipment. Add redundant, qualified channels. Replace existing control room indicators with seismic qualified equipment	1990 re-fueling outage	1989 re-fueling outage
A-21	See footnote (n)	RHR Flow	IFI-310,311, 320,321,	0-8000 GPM	Y	Y	Y	Y	IE	Control Room Panel RHR	Replace control room indicators with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-22	See footnote (n)	Lower Containment Spray Flow	NA	NA	NA	NA	NA	NA	NA	NA	See footnote (e)	NA	NA
A-23	See footnote (n)	Intermediate Range Flux	N-35, N-36	NA	NA	NA	NA	NA	NA	NA	See footnote (f)	NA	NA
A-24	See footnote (n)	Reactor Coolant Inventory	NLI-110,111, 120,121, 130,131  141,142	Essentially Top to Bottom of Vessel	Y	Y	Y	Y	IE	Control Room Panel SIS	None required	NA	NA
A-25	Manual Reduction of ECCS Flow	Core Exit T/C's	T/C 1-65	200-2300°F	Y	Y	Y	Y	IE	Control Room Panel FI	All required cables, connectors, indicators, signal processing equipment to be replaced with qualified equipment	See footnote (g)	See footnote (g)

Item No.	Purpose	Variable	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
A-26	Determining Status of RCP during DBE and allow for manual trip if necessary	RCP Pump Status	Q1,Q2,Q3,Q4	0-1200A	NA	TBD	Y	Y	IE	Control Room Panel RCP	See footnotes (d), (k), & (m)	TBD	TBD
A-27	See footnote (n)	Pressurizer Heater Status	Group A1,A2,A3,C1,C2,C3	ON/OFF	NA	TBD	Y	Y	IE	Control Room Panel PZR	See footnotes (d) & (k)	TBD	TBD
A-28	Manual trip of RCP's	CCP Breaker Status	Pump 1E,IW	OPEN/CLOSE	NA	TBD	Y	Y	IE	Control Room Panel BA	See footnotes (d) & (k)	TBD	TBD
A-29	Manual trip of RCP's	SI Pump Breaker Status	Pump 1N,1S	OPEN/CLOSE	NA	TBD	Y	Y	IE	Control Room Panel SIS	See footnotes (d), (k), & (m)	TBD	TBD
A-30	Manual trip of RCP's	RCP Breaker Position	Q1,Q2,Q3,Q4	OPEN/CLOSE	NA	TBD	Y	Y	IE	Control Room Panel RCP	See footnotes (d), (k), & (m)	TBD	TBD
A-31	See footnote (n)	Lower CS Pump Breaker Position	Pump 1E,IW	OPEN/CLOSE	NA	TBD	Y	Y	IE	Control Room Panel SPY	See footnotes (d) and (k)	TBD	TBD
A-32	See footnote (n)	RHR Pump Breaker Position	Pump 1E,IW	OPEN/CLOSE	NA	TBD	Y	Y	IE	Control Room Panel RHR	See footnotes (d) and (k)	TBD	TBD
A-33	See footnote (n)	Valve Position Limit Switches (various)	TBD	OPEN/CLOSE OPEN/NOT OPEN CLOSE/NOT CLOSE	TBD	TBD	TBD	TBD	TBD	TBD	See footnote (k)	TBD	TBD
A-34	See footnote (n)	Safety Injection Pump Flow	IFI-260,266	0-200GPM	Y	Y	Y	Y	IE	Control Room Panel SIS	Replace control room indicators with seismic qualified equipment	1987 re-fueling outage	1987 re-fueling outage
A-35	See footnote (n)	S/G Blowdown Radiation	DRA-300,353	TBD	TBD	TBD	TBD	TBD	IE	Control Room Panel RMS	TBD	TBD	TBD
A-36	Manual Switchover to alternate water source on low level in CST	Condensate Storage Tank Level	CLI-113 CLR-110, 111	Essentially Top to Bottom	Y	Y	Y	Y	IE	Control Room Panel CP	Replace indicator with seismic qualified equipment See footnote (d)	1987 re-fueling outage	1987 re-fueling outage

Item No.	Purpose	Variable	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
A-37	See footnote (n)	Upper Contain- ment Spray Flow	IFI-330,331	0-2500 GPM	TBD	TBD	TBD	TBD	IE	Control Room Panel SPY	TBD	TBD	TBD



Type B Variables: "those variables that provide information to indicate whether plant safety functions are being accomplished. Plant safety functions are (1) reactivity control, (2) core cooling, (3) maintaining reactor coolant system integrity, and (4) maintaining containment integrity (including radioactive effluent control)." Note: The schedule and status of each instrument is for when all of the requirements of Regulatory Guide 1.97, Rev 3 will be met.

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
B-1	Reactivity Control	Neutron Flux	1	NE-41A,41B, 42A,42B, 43A,43B, 44A,44B	0-120% full power	NA	Y	Y	Y	IE	Control Room Panel NIS	See footnote (f)	NA	NA
B-2		Control Rod Position	3		Full in or not full in	NA	NA	NA	NA	NA	Control Room Panel	None required	NA	NA
B-3		RCS Soluble Boron Concentrate										See item A-5		
B-4		RCS Cold Leg Temperature										See item A-6		
B-5	Core Cooling	RCS Hot Leg Water Temperature										See item A-4		
B-6		RCS Cold Leg Water Temperature										See item A-6		
B-7		RCS Pressure										See item A-2		
B-8		Core Exit Temperature										See item A-25		
B-9		Coolant Inventory										See item A-24		
B-10		Degrees of Subcooling										See item A-17		

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
B-11	Maintaining RCS Integrity	RCS Pressure										See item A-2		
B-12		Containment Sump Water Level										See item A-8		
B-13		Containment Pressure										See items A-13 and A-14		
B-14	Maintaining Containment Integrity	Containment Isolation Valve Position (excluding check valves)	1	TBD	CLOSED - NOT CLOSED	TBD	TBD	TBD	TBD	TBD	TBD	Isolation Valve Limit Switch information and schedule will be provided with the update to this report to be issued as noted in the cover letter this enclosure	TBD	TBD
B-15		Containment Pressure										See items A-13 and A-14		



Type C Variables: "those variables that provide information to indicate the potential for being breached or the actual breach of the barriers to fission product releases. The barriers are (1) fuel cladding, (2) primary coolant pressure boundary, and (3) containment."  
 Note: The schedule and status for each instrument is for when all of the requirements of Regulatory Guide 1.97, Rev 3 will be met.

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
C-1	Fuel Cladding	Core Exit Temperature										See item A-25		
C-2		Radioactive concentration or Radiation Level in Circulating Primary Coolant	1	NSX-101,103	½ Tech Spec Limit to 100 Times Tech Spec Limit	NA	Y	Y	NA	NA	NA	See footnote (h)	NA	NA
C-3		Analysis of Primary Coolant (Gamma Spectrum)			10cm Ci/ml to 10cm Ci/m or TID - 14844 Source Term in Coolant Volume							See item C-2		
C-4	Reactor Coolant Pressure Boundary	RCS Pressure										See item A-2		
C-5		Containment Pressure										See items A-13 and A-14		
C-6		Containment Sump Water Level										See item A-8		
C-7		Containment Area Radiation										See item A-12		

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
C-8		Effluent Radioactivity-Noble gas Effluent from Condenser Air Removal System Exhaust	3	TBD	TBD	NA	NA	NA	NA		TBD	TBD	TBD	TBD
C-9	Containment	RCS Pressure										See item A-2		
C-10		Containment Hydrogen Concentration	1	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	See footnote (k)	TBD	TBD
C-11		Containment Pressure										See items A-13 and A-14		
C-12		Containment Effluent Radioactivity-Noble gases from identified release points	2	TBD	TBD	NA	NA	NA	NA	IE	Control Room Panel WDG	See footnote (d)	NA	NA

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
C-13		Effluent Radioactivity-Noble Gases (from buildings or areas where penetrations and hatches are located, eg, secondary containment and AUX buildings that are in direct contact with primary containment	2	TBD	TBD	TBD	NA	TBD	NA	TBD	TBD	See footnote (k)	TBD	TBD

Type D Variables: "those variables that provide information to indicate the operation of individual safety systems and other systems important to safety. These variables are to help the operator make appropriate decisions in using the individual systems important to safety in mitigating the the consequences of an accident." Note: The Schedule and Status for each instrument is for when all of the requirements of Regulatory Guide 1.97, Rev 3 will be met.

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
D-1	RHR System	RHR System Flow										See item A-21		
D-2		RHR Heat Exchange Outlet Temp	2	ITR-311,321	TBD	NA	NA	Y	NA	IE	Control Room Panel RHR	See footnote (d)	NA	NA
D-3a	SI Systems	Accumulator Tank Level	2	ILA-110-,111 120,121, 130,131, 140,141	0-133" wc (wide range) 105.8 to 121.7 in. (narrow range)	Y	NA	Y	NA	IE	Control Room Panel SIS	Replace one transmitter / tank with env. qualified equipment and make wide range	1990 re-fueling outage	1989 re-fueling outage
D-3b		Accumulator Tank Pressure	2	IPA-110,111 120,121, 130,131, 140,141	0-800 psig	Y	NA	Y	NA	IE	Control Room Panel SIS	Replace one transmitter / tank with env. qualified equipment	1990 re-fueling outage	1989 re-fueling outage
D-4		Accumulator Tank Isolation Valve Position	2	TBD	Closed or Open	TBD	NA	TBD	NA	TBD	TBD	Isolation Valve limit switch information and schedule will be provided with the update to this report to be issued as noted in the cover letter to this enclosure	TBD	TBD
D-5		Boric Acid Charging Flow										See item A-18		
D-6		Flow in HPI System										See item A-1		
D-7		Flow in LPI System										See item A-21		

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
D-8		RWST Level										See item A-16		
D-9	Primary Coolant System	RCP Status										See item A-26		
D-10		Primary System Safety Relief Valve Positions or Flow Thru or pressure in Relief Valve Lines										See item A-11		
D-11		Pressurizer Level										See item A-10		
D-12		Pressurizer Heater Status										See item A-27		
D-13		Quench Tank Level	3	NLA-351	Top to Bottom	NA	NA	NA	NA	IE	Control Room Panel PZR	None required	NA	NA
D-14		Quench Tank Temperature	3	NTA-351	50-750°F	NA	NA	NA	NA	IE	Control Room Panel PRZ	Increase Range from 50°F to 300°F to required 50-750°F	1987 re-fueling outage	1987 re-fueling outage
D-15	Secondary System (Steam Generator)	S/G Level	1	BLI-110,120,130,140	Essentially from tube sheet to separators	Y	Y	Y	Y	IE	Control Room Panel SG	Relocate transmitters above containment floodup elevation. Replace indicators with seismic qualified equipment. See footnote (1)	1990 re-fueling outage	1989 re-fueling outage
D-16a		Safety/Relief Valve Positions	2	TBD	Closed-Not Closed	TBD	NA	TBD	NA	TBD	TBD	Valve Position limit switch information and schedule will be provided with the update to this report to be issued as noted in the cover letter to this enclosure	TBD	TBD

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
D-16b		Main Steam Flow	2	MFC-110,111, 120,121, 130,131, 140,141	0-4x10 <sup>6</sup> PPH	Y	NA	Y	NA	IE	Control Room Panel SG	None required	NA	NA
D-17		Main Feed-water Flow	3	FFC-210,211, 220,221, 230,231, 240,241	0-5x10 <sup>6</sup> PPH	NA	NA	NA	NA	IE	Control Room Panel BA	None required	NA	NA
D-18	Auxiliary Feed-water System	Aux Feed-water Flow										See item A-15		
D-19		Condensate Storage Tank Level										See item A-36		
D-20	Containment Cooling System	Containment Spray Flow										See item A-22 & 37		
D-21		Heat Removal by containment Heat Removal System										D. C. Cook Plant Units 1&2 do not have a Containment Heat Removal System, therefore this item does not apply	NA	NA
D-22		Containment Atmosphere Temperature	2	ETR-11,12,13, 14,15,16, 17,18,19, 20,21,22, 23,24,25, 26,27	-40 to 400°F	Y	NA	Y	NA	IE	Control Room Panel A-14	Replace RTD's with environmentally qualified equipment. Increase range from -40 to 300°F to as specified	1990 re-fueling outage	1989 re-fueling outage
D-23		Containment Sump Water Temperature	2									See footnote (j)		

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
D-24	Chemical and Volume Control System	Make up Flow-In										See item A-18		
D-25	Letdown Flow-Out											See item A-19		
D-26		Volume Control Tank Level	2	QLC-451,452	0-70" wc (essentially top to bottom)	NA	NA	Y	NA	IE	Control Room Panel BA	See footnote (d)	NA	NA
D-27	Cooling Water System	CCW water Temperature to ESF System	2	CTR-410,415, 420,425	TBD	NA	NA	TBD	NA	TBD	Control Room Panel ESW	See footnote (d)	TBD	TBD
D-28		CCW Flow to ESF System	2	CFI-410,419, 420,429	TBD	NA	NA	TBD	NA	IE	Control Room Panel CCW	See footnote (d)	TBD	TBD
D-29	Radwaste Systems	High Level Radioactive Liquid Tank Level	3	RLS-255,256	Top to Bottom	NA	NA	NA	NA	IE	Control Room Panel WDG	None required	NA	NA
D-30		Radioactive Gas Holdup Tank Pressure	3	RPC-310,320, 330,340, 350,360, 370,380	TBD	NA	NA	NA	NA	IE	Control Room Panel WDG	None required	NA	NA
D-31	Ventilation System	Emergency Ventilation Damper Position	2	later	Open-Closed	TBD	NA	TBD	NA	TBD	TBD	Damper Position limit switch information and schedule will be provided with the update to this report to be issued as noted in the cover letter to this enclosure	TBD	TBD

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
	Power Supplies	Status of Standby Power and other Energy Sources Important to Safety												
D-32a		Diesel Gen Status	2	DGIAB DGICD	0-800A	NA	NA	Y	NA	IE	Control Room Panel SA	See footnote (d)	NA	NA
D-32b		4kv Safety Related Power Systems Status	2	Bus T11A, T11B, T11C, T11D	0-150V	NA	NA	Y	NA	IE	Control Room Panel SA	See footnote (d)	NA	NA
D-32c		250V Battery Power System Status	2	Battery AB Battery CD	0-300V	NA	NA	Y	NA	IE	Control Room Panel SA	See footnote (d)	NA	NA
D-32d		120VAC Safety Related Power System Status	2	Channel I,II, III, IV	0-150V	NA	NA	Y	NA	IE	Control Room Panel SA	See footnote (d)	NA	NA
D-32e		Instrument Air Status	2	XPI-100 XPI-50 XPI-20 XPI-85	0-150psig 0-100psig 0-60psig 0-160psig	NA	NA	Y	NA	NA	Control Room Panel SV	These are mechanical devices - no electrical components	NA	NA



Type E Variables: "those variables to be monitored as required for use in determining the magnitude of the release of radioactive materials and continually assessing such releases." Note: The schedule and status for each instrument is for when all of the requirements of Regulatory Guide 1.97, Rev. 3 will be met.

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
E-1	Containment Radiation	Containment Area Radiation High Range										See item A-12		
E-2	Area Radiation	Radiation Exposure Rate (inside Buildings or where areas of access is required to service equipment important to Safety)	3	TBD	TBD	NA	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-3a	Noble Gases and vent Flow Rate	Containment or Purge Effluent	2	TBD	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-3b		Reactor Shield Building Annulus	2	TBD	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-3c		Aux Building	2	TBD	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-3d		Condenser Air Removal System Exhaust	2	TBD	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-3e		Common Plant Vent	2	VRF-315	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
E-3f		Vent from S/G Safety Relief Valves	2	TBD	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-3g		Other identified release points	2	TBD	TBD	TBD	NA	NA	NA	TBD	TBD	See footnote (k)	TBD	TBD
E-4	Particulates and Halogens	All identified release points (except S/G Safety Relief valves and Condenser air removal System exhaust) Sampling and onsite analysis	3	NA	TBD	NA	NA	NA	NA	NA	NA	See footnote (k)	TBD	TBD
E-5a	Environ Radiation and Radioactivity	Airborne Radioactivity and Particulates sampling and analysis	3	NA	TBD	NA	NA	NA	NA	NA	NA	See footnote (k)	TBD	TBD
E-5b		Plant and Environs Radiation (Portable)	3	NA	TBD	NA	NA	NA	NA	NA	NA	See footnote (k)	TBD	TBD
E-5c		Plant and Environs Radioactivity (Portable)	3	NA	TBD	NA	NA	NA	NA	NA	NA	See footnote (k)	TBD	TBD
E-6	Meteorology	Wind Direction	3	EFR-410,411, 420,421	0-360°	NA	NA	NA	NA	non Control Room -IE Panel Fix		None required	NA	NA

Item No.	Purpose	Variable	Cat.	Tag No.s	Range	E Q	S Q	Q A	S F	P S	Display Location	Remarks/Action Req'd	U-1 Schedule	U-2 Schedule
E-7		Wind Speed	3	EFR-400,401, 402,403	0-100 mph	NA	NA	NA	NA	NON	Control Room -1E Panel Flx	None required	NA	NA
E-8		Estimation of Atmospheric Stability	3	ETR-400,401, 402,403	TBD	NA	NA	NA	NA	NON	Control Room -1E Panel Flx	None required	NA	NA
E-9a	Accident Sampling Primary Coolant and Sump	Gross Activity	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-9b		Gamma Spectrum	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-9c		Boron Content	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-9d		Chloride Content	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-9f		Dissolved H <sub>2</sub> or total gas	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-9g		Dissolved O <sub>2</sub>	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-9h		pH	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-10a	Containment Air	H <sub>2</sub> Content	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-10b		O <sub>2</sub> Content	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA
E-10c		Gamma Spectrum	3	TBD	TBD	NA	NA	NA	NA	NA	NA	None required	NA	NA

#### IV. FOOTNOTES DESIGNATING EXCEPTIONS TO REGULATORY GUIDE 1.97, REV. 3

(a) The automatic injection of boric acid into the RCS by the safety injection system following a postulated LOCA/HELB will be monitored and verified through the use of qualified instrumentation. In addition, since all sources of water for the safety injection system (Accumulators, Boric Acid Storage Tanks and Refueling Water Storage Tanks) are required by Technical Specifications to contain boric acid solution of a minimum concentration, the proper operation of the ECCS system ensures an adequate boron concentration in the reactor coolant to achieve and maintain the safe shutdown of the reactor core. The RCS soluble boron content is not expected to change rapidly, if at all, following the initial borating during the SI phase of an accident. Periodic analysis of RCS samples would detect any significant changes in boron concentration. Instrumentation to continuously monitor RCS soluble boron concentration is not required since periodic analysis of RCS grab samples is adequate for verification of reactivity control.

(b) Redundancy not required per NUREG 0737 requirements.

(c) Seismic qualification not required per NUREG 0737 requirements.

(d) All equipment is located in mild environment, therefore environmental qualification is not required.

(e) Lack of lower containment spray flow monitoring instrumentation will not deter the operator's ability to determine adverse containment conditions (ACC). ACC can be monitored by looking at items such as containment pressure. If we see containment pressure conditions different than what is expected, then we can confirm whether ACC is due to a lack of spray flow by the monitoring of containment spray pump discharge pressure.

(f) The neutron flux monitors are not required for LOCA/HELB mitigation, therefore their environmental qualification is not required. Following a LOCA/HELB, reactivity control to accomplish reactor shutdown is automatically achieved and maintained by a reactor SCRAM and the injection of boric acid by ECCS. This can be verified through control rod position indications and analysis of RCS grab samples. Footnote (h) is also applicable.

(g) Scheduled for upgrade as described in AEP:NRC: 0761 C

(h) Instrumentation to continuously monitor RCS radioactivity is not required. Periodic analysis of RCS grab samples is adequate to detect deterioration of fuel cladding. Indicative of an inadequate core cooling (ICC) event, fast deterioration of fuel cladding could be detected by sensing the ICC conditions through diverse instrumentation (i.e., RVLIS, CET's, TSAT meter).

(i) Redundancy is accomplished by the measurement of diverse variables with fully qualified equipment. Auxiliary Feedwater Flow is backed up by S/G level (narrow range).

(j) Containment Sump Water Temperature will give no information required to mitigate and determine the consequences of an accident. Containment Sump Level, Atmosphere Temperature and pressure are adequate for operators to determine containment conditions. Therefore, measurement of Containment Sump Water Temperature is not required.

(k) This information will be provided with our update to this report to be issued as noted in the cover letter to this enclosure.

(l) INTENTIONALLY LEFT BLANK

(m) Redundancy is accomplished by verifying pump flow from qualified instrumentation.

(n) This item may be deleted from the Type A variable list after further review of the DCCNP EOP's. If this occurs, the variable will be recategorized accordingly and the appropriate actions taken. The update to this report, to be submitted as noted in the cover letter to this enclosure, will reflect any changes of this nature.

