



July 26, 2002
AEP:NRC:2741

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Amendment Request for One-Time Extension of
Essential Service Water System Allowed Outage Time

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant Units 1 and 2, proposes to amend Facility Operating Licenses DPR-58 and DPR-74. I&M proposes to add a license condition allowing a one-time 140-hour allowed outage time for the essential service water (ESW) system, to allow ESW pump replacement. During each ESW pump replacement, the ESW loop served by the pump being replaced and the opposite unit's cross-tied ESW loop will be inoperable.

Enclosure 1 to this letter provides an oath and affirmation affidavit pertaining to the proposed amendment. Enclosure 2 provides a detailed description and safety analysis to support the proposed amendment, an evaluation of significant hazards considerations pursuant to 10 CFR 50.92(c), and an environmental assessment. Attachments 1A and 1B provide the marked-up Operating License pages for Unit 1 and Unit 2 respectively. Attachments 2A and 2B provide the proposed Operating License pages with the changes incorporated for Unit 1 and Unit 2 respectively.

I&M requests approval of the proposed amendments by September 4, 2002, to allow the planned replacement of the ESW pumps to commence. I&M also requests a 20 day implementation period.

No previous submittals affect the license pages that are affected by these proposed amendments. If any future submittals affect these pages, I&M will coordinate the changes to the pages with the Nuclear Regulatory Commission

A 301

Project Manager to ensure proper page control when the associated license amendment requests are approved.

This letter contains no new commitments.

Should you have any questions or require additional information, please contact Mr. Gordon P. Arent, Manager of Regulatory Affairs, at (269) 697-5553.

Sincerely,



J. E. Pollock
Site Vice President

RV/dmb

Enclosures:

- 1 Affidavit
- 2 Evaluation of the Proposed Changes

Attachments

- 1A and 1B Marked-Up Proposed Operating License Changes
- 2A and 2B Proposed Operating License Pages
- 3 Commitment

c: K. D. Curry
J. E. Dyer
MDEQ – DW & RPD
NRC Resident Inspector
R. Whale

AFFIRMATION

I, Joseph E. Pollock, being duly sworn, state that I am Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

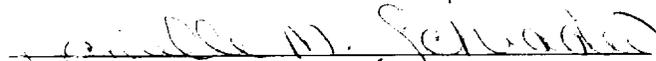
Indiana Michigan Power Company



J. E. Pollock
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 30 DAY OF July, 2002


Notary Public

My Commission Expires Apr 4, 2004

DANIELLE M. SCHRADER
Notary Public, Berrien County, MI
My Commission Expires Apr 4, 2004

**Application for License Amendment
One-Time Extension of Essential Service Water Allowed Outage Time**

1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2, proposes to amend Facility Operating Licenses DPR-58 and DPR-74. I&M proposes to add a license condition allowing a one-time 140-hour outage time for each pump in the Essential Service Water (ESW) system.

2.0 PROPOSED CHANGE

I&M proposes to add the following amendments to the Unit 1 and Unit 2 licenses.

Unit 1

2.C(11) During the essential service water pump replacement, a one-time extension of the Technical Specification 3.7.4.1 Action a and b requirement that an inoperable essential service water loop be restored to an operable status within 72 hours may be extended to 140 hours. This extension is applicable only during the preplanned replacement of an essential service water pump with a modified pump and may not be used when an essential service water pump is found to be inoperable. The extension is subject to the following conditions:

- This allowance may be invoked once for each essential service water pump to allow replacement of the pump with a modified pump.
- This allowance may be invoked once for each Unit 1 essential service water loop when the associated Unit 2 essential service water pump is being replaced. This will be done in accordance with Unit 2 Technical Specification 3.7.4.1 Action b.1.
- This allowance is applicable until January 31, 2003.
- When the essential service water loops are declared inoperable during the pump replacement, the systems supported by the essential service water system need not enter their limiting conditions for operation action statements.

Unit 2

2.C(3)(y) During the essential service water pump replacement, a one-time extension of the Technical Specification 3.7.4.1 Action a and b requirement that an inoperable essential service water loop be restored to an operable status within 72 hours may

be extended to 140 hours. This extension is applicable only during the preplanned replacement of an essential service water pump with a modified pump and may not be used when an essential service water pump is found to be inoperable. The extension is subject to the following conditions:

- This allowance may be invoked once for each essential service water pump to allow replacement of the pump with a modified pump.
- This allowance may be invoked once for each Unit 2 essential service water loop when the associated Unit 1 essential service water pump is being replaced. This will be done in accordance with Unit 1 Technical Specification 3.7.4.1 Action b.1.
- This allowance is applicable until January 31, 2003.
- When the essential service water loops are declared inoperable during the pump replacement, the systems supported by the essential service water system need not enter their limiting conditions for operation action statements.

3.0 BACKGROUND

Description of the Essential Service Water System

The ESW system supplies cooling water to the component cooling water heat exchangers, the containment spray heat exchangers, the emergency diesel generators, the control room air conditioners, and the auxiliary feedwater pump enclosure coolers. It also is an emergency water supply source for the auxiliary feedwater system.

The system consists of four ESW pumps, four duplex strainers, and associated piping and valves. The system piping is arranged in two independent headers, each serving components in each unit. The two headers are arranged such that a rupture in either header will not jeopardize the safety functions of the system. Each header is served by two ESW pumps. Two of the four pumps are sufficient to supply all service water requirements for unit operation, shutdown, refueling, or post-accident operation, including a loss-of-coolant accident in one unit and a simultaneous hot shutdown in the other unit.

The ESW pumps have recently experienced degradation on several occasions during unit operation, and they have required replacement. This degradation is attributed to the ESW pumps' design and construction.

I&M will be replacing the Unit 1 and Unit 2 ESW pumps with pumps modified to prevent the accelerated degradation that has been observed. The modifications to the pumps include changing the impeller design, the internal line shaft supports, and changing the material for

several pump subcomponents. During the replacement, both units will be in Technical Specification (TS) 3.7.4.1 Action a.

As part of the ESW pump replacement plan, two pumps, one modified as described above, and one refurbished to the current design, will be available for installation. I&M plans to begin the installation of the modified pumps following the approval of this license amendment to preclude forced entries into the TS action statements. Without ESW pump replacement, there is a potential for normally-occurring pump degradation to result in an ESW pump being declared inoperable. The replacement schedule will be predicated on a planned, controlled entry into the action statement prior to an ESW pump becoming inoperable because of degradation.

It is I&M's opinion that the modified ESW pump can be installed within the current allowed action time, and that it will perform satisfactorily. However, as a contingency, I&M is prepared to install the refurbished pump should it be necessary. The increase in the allowed outage time will allow I&M to implement the contingency plan without subjecting the reactor to a shutdown. Because of the degradation that has been observed on the ESW pumps, I&M plans to install the modified pumps as expeditiously as practical to minimize operation with the existing pumps.

Current Requirements

TS 3.7.4.1.a (both units) requires that two ESW loops be operable when the respective unit is in Modes 1 through 4. With only one ESW loop operable, the inoperable loop is to be restored to operable status within 72 hours or the unit is to be shut down. Additionally, the requirement to shut down within 72 hours is applicable to the opposite unit if the crosstie valve on the associated header is open.

Basis for Current Requirements

The operability of the ESW system ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions.

4.0 TECHNICAL ANALYSIS

The proposed license amendment allows a one-time limited duration increase in the allowed outage time for TS 3.7.4.1 Action a while an ESW pump is being replaced. The amendment does not modify any plant equipment or change the method of operation of any plant systems.

The ESW system provides cooling water to safety-related equipment required to mitigate the consequences of design basis accidents. The accident analysis assumes that only one ESW train is available, and TS 3.7.4.1 prohibits operation if no ESW loops are available. Thus, the accident analysis can be met with one ESW pump out of service.

Additionally, I&M has considered the risk implications of the proposed amendment. The evaluation determined that the risk associated with maintaining either unit at power for an additional 48 hours beyond the present TS allowed outage time with an ESW pump unavailable falls within the guidance of Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," of $1.0E-06$ for incremental core damage probability (ICDP), and $1.0E-7$ for incremental large early release probability (ILERP). The evaluation was performed using the updated 2001 version of the CNP probabilistic risk assessment (PRA) model in Safety MonitorTM. The evaluation used a zero test and maintenance "base case" version of the PRA model and assumed that one ESW pump was not available. No other equipment affecting risk was considered out of service or unavailable.

Using the Safety MonitorTM with one ESW pump unavailable, the core damage frequency (CDF) was determined to increase by $1.54E-07$ per day, while the large early release frequency (LERF) was determined to increase by $7.62E-09$ per day. The CDF and LERF for the Safety MonitorTM base case are $3.88E-05$ and $4.36E-06$ (Unit 1 limiting case), respectively. These changes in CDF and LERF were then used to estimate the ESW pump outage times that would result in an ICDP of $1.0E-06$ and an ILERP of $1.0E-07$. These ICDP/ILERP values are the recommended limits for temporary risk increases due to maintenance from NUMARC 93-01. NUMARC 93-01 guidance for risk control is accepted in Regulatory Guide 1.182. In this manner, acceptable outage duration for the ESW pump, based on the limiting case, was determined to be approximately 155 hours based on ICDP, and about 315 hours based on ILERP.

Consideration was also given to the opposite unit's risk. The evaluations indicate that there is minimal increased risk to the other unit while maintaining the affected unit in operation with the ESW train cross-ties open.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

I&M has evaluated whether or not a significant hazards consideration is involved with the proposed change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?

Response: No.

Probability of Occurrence of an Accident Previously Evaluated

The ESW system provides cooling water to safety-related components. This is a support function, and malfunctions of the ESW system are not initiators of accidents that have been

previously analyzed. The one-time extension of the allowed outage time for an ESW pump does not introduce any failure mechanisms that would initiate a previously analyzed accident.

Consequences of an Accident Previously Evaluated

The ESW pump provides cooling water to safety-related components, a support function. There are two ESW pumps per unit, and only one ESW pump per unit is required to meet the accident analysis. During the ESW pump replacement, the redundant ESW pump will be available to provide cooling water to the safety-related components. Thus, there is no increase in the consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The ESW system provides cooling water to safety-related components, a support function. The one-time extension of the allowed outage time facilitates the installation of an ESW pump, and of itself does not introduce any mechanisms that would initiate an accident not previously analyzed.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The one-time allowed outage time extension does not alter the function of the ESW pump, nor does it change the mode of plant operation. Only one ESW pump per unit is required to mitigate the consequences of an accident. The redundant ESW pump will be operable during the time that the ESW pump is being replaced. A risk assessment has been performed for an allowed outage time of 140 hours. The results of that evaluation demonstrate that the ICDP and ILERP associated with the increase in allowed outage time is within the NUMARC 93-01 guidelines. Therefore, the margin of safety is not significantly reduced.

5.2 Applicable Regulatory Requirements/Criteria

TS and Regulations

TS 3.7.4.1.a requires that two independent ESW loops be operable in Modes 1 through 4, and TS 3.7.4.1.b requires that at least one ESW flowpath associated with support of the opposite unit shall be available when the opposite unit is in Modes 1 through 4. When only one ESW pump is operable, two loops are required to be restored to operable status within 72 hours.

UFSAR/Licensing Basis Documents

UFSAR Chapter 9.8.3

6.0 ENVIRONMENTAL CONSIDERATIONS

I&M has evaluated these license amendment requests against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. I&M has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii), a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared concerning the proposed amendment.

ATTACHMENT 1A TO AEP:NRC:2741

LICENSE PAGES
MARKED TO SHOW PROPOSED CHANGES

REVISED PAGES
UNIT 1

- 1 of 6
- 2 of 6
- 3 of 6
- 4 of 6
- 5 of 6
- 6 of 6

DOCKET NO. 50-315

**DONALD C. COOK NUCLEAR PLANT, UNIT 1
FACILITY OPERATING LICENSE**

License No.: DPR-58

Amendment Nos.
12 and 33

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana and Michigan Electric Company (the licensee) dated October 15, 1975, and March 19, 1976, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. An environmental Statement or negative declaration need not be prepared in connection with the issuance of this amendment.

Amendment No.
33

2. Facility Operating License No. DPR-58, issued to the Indiana and Michigan Electric Company, is hereby amended in its entirety to read as follows:
 - A. This amended license applies to the Donald C. Cook Nuclear Plant, Unit 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by the Indiana and Michigan Electric Company. The facility is located in Berrien County, Michigan, and is described in the "Final Safety and Analysis Report" as supplemented and amended (Amendments 12 through 69), and the Environmental Report as supplemented and amended (Supplements 1 through 3).
 - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Indiana and Michigan Electric Company:
 - (1) Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use and operate the facility at the designated location in Berrien County, Michigan, in accordance with the procedures and limitations set forth in this license;
 - (2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

- (3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any by-product, source and special nuclear material as sealed neutron sources for reactor start-up, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess and use in amounts as required any by-product, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components;
- (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such by-product and special nuclear materials as may be produced by the operation of the facility.

C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

* 2.C(1) Maximum Power Level

Amendment No.
18

The licensee is authorized to operate the Donald C. Cook Nuclear Plant, Unit No. 1, at steady state reactor core power levels not to exceed 3250 megawatts (thermal).

* (2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment 269 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

* The following Amendments have been issued to paragraph 2.C(2):
Nos. 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 257, 259, 260, 261, 262, 263, 264, 266, 267, 268, and 269.

* Amendment No. 18 superceded Amendment No. 14.

(3) Less than Four Loop Operation

The licensee shall not operate the reactor at power levels above P-7 (defined in Table 3.3-1 of Specification 3.3.1.1 of Appendix A to this license) with less than four reactor coolant loops in operation until (a) safety analyses for less than four loop operation have been submitted, and (b) approval for less than four loop operation at power levels above P-7 has been granted by the Commission by amendment of this license.

Amendment No.
31, 194, 208

- 2.C(4) Indiana Michigan Power Company shall implement and maintain, in effect, all provisions of the approved Fire Protection Program as described in the Updated Final Safety Analysis Report for the facility and as approved in the SERs dated December 12, 1977, July 31, 1979, January 30, 1981, February 7, 1983, November 22, 1983, December 23, 1983, March 16, 1984, August 27, 1985, June 30, 1986, January 28, 1987, May 26, 1987, June 16, 1988, June 17, 1988, June 7, 1989, February 1, 1990, February 9, 1990, March 26, 1990, April 26, 1990, March 31, 1993, April 8, 1993, December 14, 1994, January 24, 1995, April 19, 1995, June 8, 1995, and March 11, 1996, subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(5) Spent Fuel Pool Storage

Amendment No.
118, 136, 169

The licensee is authorized to store D. C. Cook Unit 1 and Unit 2 fuel assemblies, new or irradiated up to a total of 3613 fuel assemblies in the shared spent fuel pool at the Donald C. Cook Nuclear Plant subject to the following conditions:

Fuel stored in the spent fuel pool shall not have nominal enrichment greater than 4.95% Uranium-235

- (6) Deleted by Amendment 80.

(7) Secondary Water Chemistry Monitoring Program

The licensee shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall be described in the station chemistry manual and shall include:

Amendment No.
36

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
2. Identification of the procedures used to measure the values of the critical parameters;
3. Identification of process sampling points;
4. Procedure for the recording and management of data;
5. Procedures defining corrective actions for off control point chemistry conditions; and

6. A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective actions.

Amendment No. 169 (8) The provisions of Specification 3/4.9.7 are not applicable for loads being moved over the pool for the duration of the spent fuel pool reracking project. Control of loads moving over the spent fuel pool during the spent fuel pool reracking project shall comply with the criteria of NUREG-0612 "Control of Heavy Loads at Nuclear Power Plants." Administrative controls shall be in place to prevent any load not rigged in compliance with the criteria of NUREG-0612 from passing over the spent fuel pool with the crane interlocks, required by T/S 3/4.9.7, disengaged.

Amendment No. 227 2.C(9) The steam generator tube inspection surveillance requirements of Technical Specification 4.4.5.3 have been extended until the start of cycle 17, not to exceed January 31, 2001. In the event the steam generators are replaced prior to the start of cycle 17, the retired steam generators are exempted from further surveillance under T/S 4.4.5.3.

Amendment No. 265 2.C(10) Technical Specification surveillance requirements 4.6.5.3.1.b.3, 4.6.5.3.1.b.4, and 4.6.5.3.1.b.5 need not be performed until prior to ascension into Mode 4 at the completion of fuel cycle 18 refueling outage. If Unit 1 enters Mode 5 for sufficient duration prior to the fuel cycle 18 refueling outage, I&M will perform the surveillance testing required by TS 4.6.5.3.1.b.3, 4.6.5.3.1.b.4, and 4.6.5.3.1.b.5.

2.C(11) During the essential service water pump replacement, a one-time extension of the Technical Specification 3.4.7.1 Action a and b requirement that an inoperable essential service water loop be restored to an operable status within 72 hours may be extended to 140 hours. This extension is applicable only during the preplanned replacement of an essential service water pump with a modified pump and may not be used when an essential service water pump is found to be inoperable. The extension is subject to the following conditions:

- This allowance may be invoked once for each essential service water pump to allow replacement of the pump with a modified pump.
- This allowance may be invoked once for each Unit 1 essential service water loop when the associated Unit 2 essential service water pump is being replaced. This will be done in accordance with Unit 2 Technical Specification 3.7.4.1 Action b.1.
- This allowance is applicable until January 31, 2003.
- When the essential service water loops are declared inoperable during the pump replacement, the systems supported by the essential service water system need not enter their limiting conditions for operation action statements.

*2.D Physical Protection

Amendment No. 122 The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Donald C. Cook Nuclear Plant Security Plan," with revisions submitted through July 21, 1988; "Donald C. Cook Nuclear Plant Training

and Qualification Plan," with revisions submitted through December 19, 1986; and Donald C. Cook Nuclear Plant Safeguards Contingency Plan," with revisions submitted through June 10, 1988. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

- E. Deleted by Amendment 80.
- ** 2.F. Deleted by Amendment 80.
- * 2.G In all places of this license, the reference to the Indiana and Michigan Power Company is deleted and all references to "the licensees" is amended to read "the licensee". The intent is to recognize the Indiana and Michigan Electric Company as the sole licensee of the Donald C. Cook Nuclear Plant.
- Amendment No. 33
- * 2.H System Integrity
- Amendment No. 49
- The licensee shall implement a program to reduce leakage from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident to as low a practical levels. The program shall include the following:
1. Provisions establishing preventive maintenance and periodic visual inspection requirements, and
 2. Integrated leak test requirements for each system at a frequency not to exceed refueling cycle intervals.
- * 2.I Iodine Monitoring
- Amendment No. 49
- The licensee shall implement a program which will ensure the capability to accurately determine the airborne concentration in vital areas under accident conditions. This program shall include the following:
1. training of personnel,
 2. Procedures for monitoring, and
 3. Provisions for maintenance of sampling and analysis equipment.
- Amendment No. 114 2.J In all places of this license, the reference to the Indiana and Michigan Electric Company is amended to read "Indiana Michigan Power Company."
- Amendment No. 175 2.K The licensee is authorized to use digital signal processing instrumentation in the reactor protection system.
- Amendment No. 157 3. This amended license is effective as of the date of issuance and shall expire at midnight October 25, 2014.
- * Amendment No. 70 superseded the following Amendments for numbering: Nos. 33, 45 and 49.
- ** 2.F represents the original Paragraph of "2.G" that was not included on the Amended License (Amendment No. 12) when issued.

FOR THE NUCLEAR REGULATORY COMMISSION

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosure:

Appendix A – Technical Specifications

Date of Issuance: March 30, 1976

ATTACHMENT 1B TO AEP:NRC:2741

LICENSE PAGES
MARKED TO SHOW PROPOSED CHANGES

REVISED PAGES
UNIT 2

6 of 11

7 of 11

8 of 11

9 of 11

v. Secondary Water Chemistry Monitoring Program

The licensee shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall be described in the station chemistry manual and shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
2. Identification of the procedures used to measure the values of the critical parameters;
3. Identification of process sampling points;
4. Procedure for the recording and management of data;
5. Procedures defining corrective actions for off control point chemistry conditions; and
6. A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective actions.

Amendment
No. 18

Amendment
No. 232

- w. The steam generator tube inspection surveillance maximum inspection interval of Technical Specification 4.4.5.3 is extended until the start of cycle 13, but no later than June 30, 2002.

Amendment
No. 234

- x. The emergency diesel generator engine Technical Specification surveillance requirements of 4.8.1.1.2.e.1 and 4.8.1.1.2.e.7 have been extended to allow their performance during refueling outage 13, but no later than December 31, 2001.

The station battery service testing Technical Specification surveillance requirements 4.8.2.3.2.d and 4.8.2.5.2.d have been extended to allow them to be performed during the refueling outage 13, but no later than December 31, 2001.

- y. **During the essential service water pump replacement, a one-time extension of the Technical Specification 3.7.4.1 Action a and requirement that an inoperable essential service water loop be restored to an operable status within 72 hours may be extended to 140 hours. This extension is applicable only during the preplanned replacement of an essential service water pump with a modified pump and may not be used when an essential service water pump is found to be inoperable. The extension is subject to the following conditions:**

- This allowance may be invoked once for each essential service water pump to allow replacement of the pump with a modified pump.
- This allowance may be invoked once for each Unit 2 essential service water loop when the associated Unit 1 essential service water pump is being replaced. This will be done in accordance with Unit 1 Technical Specification 3.7.4.1 Action b.1.
- This allowance is applicable until January 31, 2003.
- When the essential service water loops are declared inoperable during the pump replacement, the systems supported by the essential service water system need not enter their limiting conditions for operation action statements.

D. Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Donald C. Cook Nuclear Plant Security Plan," with revisions submitted through July 21, 1988; "Donald C. Cook Nuclear Plant Training and Qualification Plan," with revisions submitted through December 19, 1986; and "Donald C. Cook Nuclear Plant Safeguards Contingency Plan," with revisions submitted through June 10, 1988. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

E. Deleted by Amendment 63.

F. Deleted by Amendment 6.

**

G. System Integrity

The licensee shall implement a program to reduce leakage from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. This program shall include the following:

1. Provisions establishing preventive maintenance and periodic visual inspection requirements, and
2. Integrated leak test requirements for each system at a frequency not to exceed refueling cycle intervals.

Amendment
No. 109

Amendment
No. 34

- ** H. Iodine Monitoring
- Amendment No. 34 The licensee shall implement a program which will ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:
1. Training of personnel,
 2. Procedures for monitoring, and
 3. Provisions for maintenance of sampling and analysis equipment.
- Amendment No. 29 ** I. In all places of this license, the reference to the Indiana and Michigan Power Company is deleted and all references to "the licensees" is amended to read "the licensee". The intent is to recognize the Indiana and Michigan Electric Company as the sole licensee of the Donald C. Cook Nuclear Plant.
- Amendment No. 98 J. In all places of this license, the reference to the Indiana and Michigan Electric company is amended to read "Indiana Michigan Power Company."
- K. Steam Generator Repair Program
- Amendment No. 100 (1) The licensee is authorized to repair Unit 2 steam generators by replacement of major components. Repairs shall be conducted in accordance with the licensee's commitments identified in the Commission approved Donald C. Cook Nuclear Plant Unit No. 2 Steam Generator Repair Report dated November 7, 1986, as revised through Revision 6, and additional commitments identified in the staff's related Safety Evaluation dated march 8, 1988.
- ** Amendment 29 – Changed G to H, H to I, and added a new G; Amendment 34 – Changed H to 3, added a new H and K; Amendment 52 – Deleted G, Changed H to G, and K to H; Amendment 14 added H.
- (2) The Technical Specifications identified in Table 3.2-2 of the Steam Generator Repair Report dated November 7, 1986, as revised through Revision 6 dated February 18, 1988, will not be applicable during the repair program. For purposes of Technical Specification applicability, the Steam Generator Repair Project will begin when the last fuel assembly from the Unit 2 core is placed in the spent fuel pool and will end when the first fuel assembly is removed from the spent fuel pool to refuel the Unit 2 core.
- Amendment No. 160 L. The licensee is authorized to use digital signal processing instrumentation in the reactor protection system.
- Amendment No. 141 3. This license is effective as of the date of issuance and shall expire at midnight, December 23, 2017.

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Attachments:

1. Preoperational Tests, Start-up Tests
and Other Items Which Must be
Completed Prior to Proceeding to
Succeeding Operational Modes.
2. Appendix A – Technical Specifications

Date of Issuance: December 23, 1977

ATTACHMENT 2A TO AEP:NRC:2741

PROPOSED LICENSE PAGES

REVISED PAGES
UNIT 1

1 of 6

2 of 6

3 of 6

4 of 6

5 of 6

6 of 6

DOCKET NO. 50-315

**DONALD C. COOK NUCLEAR PLANT, UNIT 1
FACILITY OPERATING LICENSE**

License No.: DPR-58

1. The Nuclear Regulatory Commission (the Commission) has found that:
- A. The application for amendment by Indiana and Michigan Electric Company (the licensee) dated October 15, 1975, and March 19, 1976, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. An environmental Statement or negative declaration need not be prepared in connection with the issuance of this amendment.
2. Facility Operating License No. DPR-58, issued to the Indiana and Michigan Electric Company, is hereby amended in its entirety to read as follows:

Amendment Nos.
12 and 33

Amendment No.
33

- A. This amended license applies to the Donald C. Cook Nuclear Plant, Unit 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by the Indiana and Michigan Electric Company. The facility is located in Berrien County, Michigan, and is described in the "Final Safety and Analysis Report" as supplemented and amended (Amendments 12 through 69), and the Environmental Report as supplemented and amended (Supplements 1 through 3).
- B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Indiana and Michigan Electric Company:
 - (1) Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use and operate the facility at the designated location in Berrien County, Michigan, in accordance with the procedures and limitations set forth in this license;
 - (2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

- (3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any by-product, source and special nuclear material as sealed neutron sources for reactor start-up, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess and use in amounts as required any by-product, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components;
- (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such by-product and special nuclear materials as may be produced by the operation of the facility.

C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

* 2.C(1) Maximum Power Level

Amendment No.
18

The licensee is authorized to operate the Donald C. Cook Nuclear Plant, Unit No. 1, at steady state reactor core power levels not to exceed 3250 megawatts (thermal).

* (2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment 269 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

* The following Amendments have been issued to paragraph 2.C(2):
Nos. 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 257, 259, 260, 261, 262, 263, 264, 266, 267, 268, and 269.

* Amendment No. 18 superceded Amendment No. 14.

(3) Less than Four Loop Operation

The licensee shall not operate the reactor at power levels above P-7 (defined in Table 3.3-1 of Specification 3.3.1.1 of Appendix A to this license) with less than four reactor coolant loops in operation until (a) safety analyses for less than four loop operation have been submitted, and (b) approval for less than four loop operation at power levels above P-7 has been granted by the Commission by amendment of this license.

Amendment No.
31, 194, 208

- 2.C(4) Indiana Michigan Power Company shall implement and maintain, in effect, all provisions of the approved Fire Protection Program as described in the Updated Final Safety Analysis Report for the facility and as approved in the SERs dated December 12, 1977, July 31, 1979, January 30, 1981, February 7, 1983, November 22, 1983, December 23, 1983, March 16, 1984, August 27, 1985, June 30, 1986, January 28, 1987, May 26, 1987, June 16, 1988, June 17, 1988, June 7, 1989, February 1, 1990, February 9, 1990, March 26, 1990, April 26, 1990, March 31, 1993, April 8, 1993, December 14, 1994, January 24, 1995, April 19, 1995, June 8, 1995, and March 11, 1996, subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(5) Spent Fuel Pool Storage

Amendment No.
118, 136, 169

The licensee is authorized to store D. C. Cook Unit 1 and Unit 2 fuel assemblies, new or irradiated up to a total of 3613 fuel assemblies in the shared spent fuel pool at the Donald C. Cook Nuclear Plant subject to the following conditions:

Fuel stored in the spent fuel pool shall not have nominal enrichment greater than 4.95% Uranium-235

- (6) Deleted by Amendment 80.

(7) Secondary Water Chemistry Monitoring Program

The licensee shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall be described in the station chemistry manual and shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
2. Identification of the procedures used to measure the values of the critical parameters;
3. Identification of process sampling points;
4. Procedure for the recording and management of data;
5. Procedures defining corrective actions for off control point chemistry conditions; and

Amendment No.
36

6. A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective actions.

- Amendment No. 169 (8) The provisions of Specification 3/4.9.7 are not applicable for loads being moved over the pool for the duration of the spent fuel pool reracking project. Control of loads moving over the spent fuel pool during the spent fuel pool reracking project shall comply with the criteria of NUREG-0612 "Control of Heavy Loads at Nuclear Power Plants." Administrative controls shall be in place to prevent any load not rigged in compliance with the criteria of NUREG-0612 from passing over the spent fuel pool with the crane interlocks, required by T/S 3/4.9.7, disengaged.
- Amendment No. 227 2.C(9) The steam generator tube inspection surveillance requirements of Technical Specification 4.4.5.3 have been extended until the start of cycle 17, not to exceed January 31, 2001. In the event the steam generators are replaced prior to the start of cycle 17, the retired steam generators are exempted from further surveillance under T/S 4.4.5.3.
- Amendment No. 265 2.C(10) Technical Specification surveillance requirements 4.6.5.3.1.b.3, 4.6.5.3.1.b.4, and 4.6.5.3.1.b.5 need not be performed until prior to ascension into Mode 4 at the completion of fuel cycle 18 refueling outage. If Unit 1 enters Mode 5 for sufficient duration prior to the fuel cycle 18 refueling outage, I&M will perform the surveillance testing required by TS 4.6.5.3.1.b.3, 4.6.5.3.1.b.4, and 4.6.5.3.1.b.5.
- 2.C(11) During the essential service water pump replacement, a one-time extension of the Technical Specification 3.4.7.1 Action a and b requirement that an inoperable essential service water loop be restored to an operable status within 72 hours may be extended to 140 hours. This extension is applicable only during the preplanned replacement of an essential service water pump with a modified pump and may not be used when an essential service water pump is found to be inoperable. The extension is subject to the following conditions:
- This allowance may be invoked once for each essential service water pump to allow replacement of the pump with a modified pump.
 - This allowance may be invoked once for each Unit 1 essential service water loop when the associated Unit 2 essential service water pump is being replaced. This will be done in accordance with Unit 2 Technical Specification 3.7.4.1 Action b.1.
 - This allowance is applicable until January 31, 2003.
 - When the essential service water loops are declared inoperable during the pump replacement, the systems supported by the essential service water system need not enter their limiting conditions for operation action statements.
- *2.D Physical Protection
- Amendment No. 122 The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Donald C. Cook Nuclear Plant Security Plan," with revisions submitted through July 21, 1988; "Donald C. Cook Nuclear Plant Training

and Qualification Plan," with revisions submitted through December 19, 1986; and Donald C. Cook Nuclear Plant Safeguards Contingency Plan," with revisions submitted through June 10, 1988. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

- E. Deleted by Amendment 80.
- ** 2.F. Deleted by Amendment 80.
- * 2.G. In all places of this license, the reference to the Indiana and Michigan Power Company is deleted and all references to "the licensees" is amended to read "the licensee". The intent is to recognize the Indiana and Michigan Electric Company as the sole licensee of the Donald C. Cook Nuclear Plant.
Amendment No. 33
- * 2.H. System Integrity
The licensee shall implement a program to reduce leakage from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident to as low a practical levels. The program shall include the following:
 - 1. Provisions establishing preventive maintenance and periodic visual inspection requirements, and
 - 2. Integrated leak test requirements for each system at a frequency not to exceed refueling cycle intervals.Amendment No. 49
- * 2.I. Iodine Monitoring
The licensee shall implement a program which will ensure the capability to accurately determine the airborne concentration in vital areas under accident conditions. This program shall include the following:
 - 1. training of personnel,
 - 2. Procedures for monitoring, and
 - 3. Provisions for maintenance of sampling and analysis equipment.Amendment No. 49
- 2.J. In all places of this license, the reference to the Indiana and Michigan Electric Company is amended to read "Indiana Michigan Power Company."
Amendment No. 114
- 2.K. The licensee is authorized to use digital signal processing instrumentation in the reactor protection system.
Amendment No. 175
- 3. This amended license is effective as of the date of issuance and shall expire at midnight October 25, 2014.
Amendment No. 157
- * Amendment No. 70 superseded the following Amendments for numbering: Nos. 33, 45 and 49.
- ** 2.F represents the original Paragraph of "2.G" that was not included on the Amended License (Amendment No. 12) when issued.

FOR THE NUCLEAR REGULATORY COMMISSION

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosure:

Appendix A – Technical Specifications

Date of Issuance: March 30, 1976

ATTACHMENT 2B TO AEP:NRC:2741

PROPOSED LICENSE PAGES

REVISED PAGES
UNIT 2

6 of 11

7 of 11

8 of 11

9 of 11

v. Secondary Water Chemistry Monitoring Program

The licensee shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall be described in the station chemistry manual and shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
2. Identification of the procedures used to measure the values of the critical parameters;
3. Identification of process sampling points;
4. Procedure for the recording and management of data;
5. Procedures defining corrective actions for off control point chemistry conditions; and
6. A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective actions.

Amendment
No. 18

Amendment
No. 232

- w. The steam generator tube inspection surveillance maximum inspection interval of Technical Specification 4.4.5.3 is extended until the start of cycle 13, but no later than June 30, 2002.

Amendment
No. 234

- x. The emergency diesel generator engine Technical Specification surveillance requirements of 4.8.1.1.2.e.1 and 4.8.1.1.2.e.7 have been extended to allow their performance during refueling outage 13, but no later than December 31, 2001.

The station battery service testing Technical Specification surveillance requirements 4.8.2.3.2.d and 4.8.2.5.2.d have been extended to allow them to be performed during the refueling outage 13, but no later than December 31, 2001.

- y. During the essential service water pump replacement, a one-time extension of the Technical Specification 3.7.4.1 Action a and requirement that an inoperable essential service water loop be restored to an operable status within 72 hours may be extended to 140 hours. This extension is applicable only during the preplanned replacement of an essential service water pump with a modified pump and may not be used when an essential service water pump is found to be inoperable. The extension is subject to the following conditions:

- This allowance may be invoked once for each essential service water pump to allow replacement of the pump with a modified pump.
- This allowance may be invoked once for each Unit 2 essential service water loop when the associated Unit 1 essential service water pump is being replaced. This will be done in accordance with Unit 1 Technical Specification 3.7.4.1 Action b.1.
- This allowance is applicable until January 31, 2003.
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D. Physical Protection

Amendment
No. 109

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E. Deleted by Amendment 63.

F. Deleted by Amendment 6.

**

G. System Integrity

Amendment
No. 34

The licensee shall implement a program to reduce leakage from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. This program shall include the following:

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- (2) The Technical Specifications identified in Table 3.2-2 of the Steam Generator Repair Report dated November 7, 1986, as revised through Revision 6 dated February 18, 1988, will not be applicable during the repair program. For purposes of Technical Specification applicability, the Steam Generator Repair Project will begin when the last fuel assembly from the Unit 2 core is placed in the spent fuel pool and will end when the first fuel assembly is removed from the spent fuel pool to refuel the Unit 2 core.
- Amendment No. 160 L. The licensee is authorized to use digital signal processing instrumentation in the reactor protection system.
- Amendment No. 141 3. This license is effective as of the date of issuance and shall expire at midnight, December 23, 2017.

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Attachments:

1. Preoperational Tests, Start-up Tests
and Other Items Which Must be
Completed Prior to Proceeding to
Succeeding Operational Modes.
2. Appendix A – Technical Specifications

Date of Issuance: December 23, 1977