

**ATTACHMENT 2B**

**Markup of Proposed Operating License and Technical Specifications Pages**

**Byron Station, Units 1 and 2**

**Facility Operating License Nos. NPF-37 and NPF-66**

**REVISED OPERATING LICENSE AND TECHNICAL SPECIFICATIONS PAGES**

Operating License (Units 1 and 2), Page 3



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- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
  - (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. The license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and 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:
- (1) Maximum Power Level   
The licensee is authorized to operate the facility at reactor core power levels not in excess of ~~3586.6~~ megawatts thermal (100 percent power) in accordance with the conditions specified herein.
  - (2) Technical Specifications   
The Technical Specifications contained in Appendix A as revised through Amendment No. ~~160~~, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
  - (3) Deleted.
  - (4) Deleted.
  - (5) Deleted.
  - (6) The licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the licensee's Fire Protection Report, and as approved in the SER dated February 1987 through Supplement No. 8, 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.

- (3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, 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 are required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
  - (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. The license shall be deemed to contain and is subject to the conditions specified in the Commission's regulation set forth in 10 CFR Chapter I and 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:

(1) Maximum Power Level

The licensee is authorized to operate the facility at reactor core power levels not in excess of ~~3588.6~~ megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A (NUREG 1113), as revised through Amendment No. ~~169~~, and the Environmental Protection Plan contained in Appendix B, both of which are attached to License No. NPF-37, dated February 14, 1985, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Deleted.

(4) Deleted.

(5) Deleted.

## 1.1 Definitions

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PRESSURE AND  
TEMPERATURE LIMITS  
REPORT (PTLR)

The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits including heatup and cooldown rates, and the pressurizer Power Operated Relief Valve (PORV) lift settings for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6.

QUADRANT POWER TILT  
RATIO (QPTR)

3645

QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.

RATED THERMAL POWER  
(RTP)

RTP shall be a total reactor core heat transfer rate to the reactor coolant of ~~3586.6~~ Mwt.

REACTOR TRIP  
SYSTEM (RTS) RESPONSE  
TIME

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

RECENTLY IRRADIATED FUEL

Fuel that has occupied part of a critical reactor core within the previous 48 hours. Note that all fuel that has been in a critical reactor core is referred to as irradiated fuel.

## 2.0 SAFETY LIMITS (SLs)

### 2.1 SLs

#### 2.1.1 Reactor Core SLs

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Coolant System (RCS) highest loop average temperature, and pressurizer pressure shall not exceed the limits specified in the COLR; and the following SLs shall not be exceeded.

2.1.1.1 In MODE 1, the Departure from Nucleate Boiling Ratio (DNBR) shall be maintained  $\geq 1.24$  for the WRB-2 DNB correlation for a thimble cell and  $\geq 1.25$  for the WRB-2 DNB correlation for a typical cell.

2.1.1.2 In MODE 2, the DNBR shall be maintained  $\geq 1.17$  for the WRB-2 DNB correlation, and  $\geq 1.30$  for the W-3 DNB correlation.

2.1.1.3 In MODES 1 and 2, the peak fuel centerline temperature shall be maintained  $< 5080^{\circ}\text{F}$ , decreasing by  $58^{\circ}\text{F}$  per 10,000 MWD/MTU burnup.

#### 2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained  $\leq 2735$  psig.

and  $\geq 1.19$  for the ABB-NV DNB correlation for a thimble cell and a typical cell

cell,

1.13 for the ABB-NV correlation and  $\geq 1.18$  for the WLOP DNB correlation

### 2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

- LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature ( $T_{avg}$ ), and RCS total flow rate shall be within the limits specified below:
- Pressurizer pressure within the limit specified in the COLR;
  - RCS average temperature ( $T_{avg}$ ) within the limit specified in the COLR; and
  - RCS total flow rate  $\geq 380,000$  gpm and within the limit specified in the COLR.

386,000

-----NOTE-----

Pressurizer pressure limit does not apply during:

- THERMAL POWER ramp  $> 5\%$  RTP per minute; or
  - THERMAL POWER step  $> 10\%$  RTP.
- 

APPLICABILITY: MODE 1.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

RCS Pressure, Temperature, and Flow DNB Limits  
3.4.1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is within the limit specified in the COLR.	12 hours
SR 3.4.1.2	Verify RCS average temperature ( $T_{avg}$ ) is within the limit specified in the COLR.	12 hours
SR 3.4.1.3	Verify RCS total flow rate is $\geq 380,900$ gpm and within the limit specified in the COLR.	12 hours
SR 3.4.1.4	-----NOTE----- Not required to be performed until 7 days after $\geq 90\%$ RTP. -----	386,000
	Verify by precision heat balance that RCS total flow rate is $\geq 380,900$ gpm and within the limit specified in the COLR.	18 months

386,000

## 5.6 Reporting Requirements

### 5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

5. ComEd letter from D. Saccomando to the Office of Nuclear Reactor Regulation dated December 21, 1994, transmitting an attachment that documents applicable sections of WCAP-11992/11993 and ComEd application of the UET methodology addressed in "Additional Information Regarding Application for Amendment to Facility Operating Licenses-Reactivity Control Systems."
6. WCAP-16009-P-A, Revision 0, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," January 2005.
7. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code," August 1985.
8. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model using NOTRUMP Code," August 1985.
9. WCAP-10216-P-A, Revision 1, "Relaxation of Constant Axial Offset Control - F<sub>0</sub> Surveillance Technical Specification," February 1994.
10. WCAP-8745-P-A, "Design Bases for the Thermal Overpower  $\Delta T$  and Thermal Overtemperature  $\Delta T$  Trip Functions," September 1986;

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met; and

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

11. WCAP-14565-P-A, "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis," October 1999;