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November 29, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2
Braidwood Generating Station Units 1 and 2
Startup Tests
NRC Docket Nos. 50-454/455/456/457

Dear Mr. Denton:

This letter provides advance copies of revised Byron/Braidwood FSAR tables containing abstracts of startup tests. NRC review of these changes is necessary so that the test program can proceed. Attachment A to this letter describes the changes.

These revised tables will be incorporated into the FSAR in the next amendment. Testing will proceed in accordance with these revisions unless the NRC objects.

Please address comments and questions regarding this matter to this office.

One signed orignal and fifteen copies of this letter are provided for NRC review.

Very truly yours,

T. R. Tramm

T. R. Tramm
Nuclear Licensing Administrator

Enclosure

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ATTACHMENT A

DESCRIPTION OF STARTUP TEST REVISIONS

Table	Test	Change
14.2-64	Rod Position Indicators	The RPI's are being checked for accuracy through comparison with the position demand indicator in accordance with the Tech Spec surveillance requirement. If they do not agree, corrective maintenance is necessary. There are no calibration adjustments.
14.2-72	Water Chemistry	Test power levels were specified at NRC request (Q423.48)
14.2-75	Initial Criticality	The plant condition was changed from hot shutdown to hot standby.
14.2-81	Pseudo Rod Ejection	Acceptance criteria are specified more directly by referencing Table 15.4-3.
14.2-91	Turbine Trip from 20% Power	Test added to satisfy NRC request (Q423.45)

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TABLE 14.2-64

ROD POSITION INDICATORS

(Startup Test)

Plant Condition or Prerequisites

Prior to initial criticality, RCS at hot shutdown no load operating temperature and pressure.

Test Objective

To verify that the digital rod position indication system operates as designed.

Test Summary

Following core loading and installation of the rod mechanisms, the control rods will be operated over their full range of travel. The rod position indicators will be ~~calibrated~~ checked for accuracy over the rod full travel range. Also bank insertion alarms, deviation alarms and rod bottom setpoints and alarms will be demonstrated to be within limits specified in the FSAR.

Acceptance Criteria

The control rod position indicators are ~~calibrated~~ checked for accuracy in accordance with Subsection 7.7.1.3.2.

TABLE 14.2-72

WATER CHEMISTRY

(Startup Test)

Plant Condition of Prerequisites

Prior to heatup following core load, prior to criticality, at criticality, and during power level changes at approximately 30%, 50%, 75%, and 100% reactor power.

Test Objective

Chemical analyses of the reactor coolant are performed to verify that plant chemistry is within specification and can be maintained within specification.

Test Summary

Water for reactor coolant system fill and makeup will be analyzed for chloride, flouride, suspended solids, silica, aluminum, calcium, and magnesium in order to verify coolant purity.

Sampling ability and analysis techniques will be demonstrated. The ability to control RCS hydrogen, oxygen, and pH concentrations will be demonstrated.

Acceptance Criteria

Water chemistry is in accordance with Westinghouse PWR guidelines.

TABLE 14.2-75

INITIAL CRITICALITY

(Startup Test)

Plant Condition or Prerequisites

Plant at hot standby, and RCS boron concentration consistent with the shutdown margin requirements of technical specifications. Nuclear instrumentation aligned, and conservative reactor trip setpoints made.

Test Objective

To bring the reactor critical for the first time.

Test Summary

All rods will be withdrawn except the last controlling bank, which is left partially inserted for control after criticality is achieved. The all-rods-out boron conentration will be measured.

The following procedure limitations will be observed prior to and during the performance of the approach to critical test:

a. A neutron count rate of at least 1/2 count per second must be observed on the source range instrumentation channels with a signal-to-noise ratio greater than 2.

b. Predictions of critical boron concentration and control rod positions will be provided by the vendor in the initial core loading nuclear design report.

During the approach to initial criticality, RCC bank withdrawal and RCS boron concentration reduction will be accompanied by nuclear monitoring using inverse count rate ratio plots through which criticality can be predicted.

If nuclear monitoring data indicate that criticality will be achieved before the RCC banks are fully withdrawn, further bank withdrawal will be terminated. Bank withdrawal may be resumed after it has been verified that a continuation will not result in reducing the shutdown margin to a value less than Technical Specifications requirements.

TABLE 14.2-81

PSEUDO ROD EJECTION

(Startup Test)

Plant Condition or Prerequisites

Reactor is critical with the neutron flux level in the zero power physics testing range. RCS temperature and pressure are at hot no-load values. Testing will be repeated at 30% reactor power.

Test Objective

To verify hot channel factors and rod worth with a rod cluster control assembly (RCCA) withdrawn from its bank position.

Test Summary

Incore measurements will be made with the most reactive RCCA withdrawn from its bank position to determine the resulting hot channel factors. The worth of the most reactive RCCA will be verified to be conservative with respect to the accident analysis. Measurements will be made using the incore flux monitoring system. Tests will be run at hot zero power and at approximately 30% reactor power.

Acceptance Criteria

F_Q^T hot channel factors and rod worths are less than the values given in Table 15.4-3.

Amend 4

Table 14.2-91

Turbine Trip From 20% Power

(Startup Test)

Plant Condition or Prerequisites

Plant at 20% ± 3% of normal steady state full power condition with the auxiliary electrical loads supplied from the unit auxiliary transformer.

Test Objective

To verify the ability of the primary and secondary plant and the plant automatic control systems to sustain a trip from 20% power without the turbine bypass to condenser system available, and to bring the plant to a stable condition following the transient.

Test Summary

The plant will be brought to normal 20% steady state power conditions with the auxiliary loads supplied from the unit auxiliary transformer. The plant will be tripped by manually tripping the turbine from the turbine control station.

The parameters to be monitored will include nuclear flux; reactor coolant loop temperature; pressurizer pressure and level; steam generator level, steam flow, and feed flow; turbine trip operation; reactor trip breaker operaton; and controlling group rod position indication. The parameters will be selected to determine the response of the plant control systems.

Acceptance Criteria

The acceptance criteria that must be met to successfully complete the turbine test are:

a. The pressurizer safety valves shall not lift;

b. The pressurizer power operated relief valves shall not lift;

c. The steam generator power operated valves shall operate as designed to remove energy;

d. Safety injection shall not be initiated; and,

e. No unacceptable water hammer in the steam generators and/or feedwater system shall occur.