



**Nuclear
Services
Integration
Division**

**Westinghouse
Technical Bulletin**

Attachment
LER 85-050-00
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An advisory notice of a recent technical development pertaining to the installation or operation of Westinghouse-supplied Nuclear Plant equipment. Recipients should evaluate the information and recommendation, and initiate action where appropriate.

P.O. Box 2728, Pittsburgh, PA 15230

Subject FLUX RATE TRIP SETPOINT		Number NSID-TB- 85-13	
System(s) NUCLEAR INSTRUMENTATION SYSTEM		Date May 28, 1985	
Affected Plants ALL PLANTS WITH FOUR BAY NIS		S.O.(s) 330	
References SRC-PI-85-004	Affects Safety Related Equipment	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Sheet 1 of 3

BACKGROUND INFORMATION

It has been brought to the attention of Westinghouse that some plants have used an incorrect value to align their Nuclear Instrumentation System Power Range Positive and Negative *Rate Trip bistables. The incorrect value used for the alignment is a result of misinterpretation of the value given in the Plant Precautions, Limitations, and Setpoint document and its relationship to the Nuclear Instrumentation System technical manual alignment procedure. A list of plants with negative flux rate trip instrumentation is attached.

The negative flux rate trip is used to provide protection in the event of one or more dropped rods. As detailed in WCAP-10297 "Dropped Rod Methodology for Negative Flux Rate Trip Plants", verification that the DNB design basis is met is only performed for those combinations of dropped rod(s) which do not result in a reactor trip via the negative flux rate trip signal. A DNB analysis is not required if a trip occurs because there is no return to power. The flux rate trip setpoint is used in determining the maximum undetected dropped rod worth which must be considered in a DNB analysis. Thus, if the flux rate trip setpoint is different than that assumed in the safety analysis, then there is a potential that the maximum undetected dropped rod worth will increase, requiring additional DNB analysis.

***Note:** The potential problem of incorrect calibration is also applicable to those plants that have a Dropped Rod Circuit and a Dropped Rod Bistable which is the same as the Rate Circuit and the Negative Rate Trip bistable respectively. The setpoints for these plants are different; however, the calibration procedure is the same.

Additional information, if Required, may be Obtained from the Originator. Telephone 412- 733-6349/4714 or (WIN) 286-6349 (LWG)

Originator
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Approval 284-4714 (RLH)

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Electrical & Instrumentation Svcs.

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An evaluation was performed for one utility using the setpoint methodology in WCAP-10297. An incorrect (higher) setpoint and plant measured rod drop times (approximately 1.7 seconds to top of dashpot) were included in the evaluation. The results showed that although the maximum undetected dropped rod worth increased, it was within the range of rod worths considered in the WCAP and in the safety analysis. Therefore, there were no unanalyzed dropped rod worths requiring additional DNB analysis (i.e., the DNB design basis was still met), and thus there were no safety concerns. The evaluation to determine the undetected rod worth was generic in nature. If plants have incorrectly calibrated the flux rate trip setpoint, it is expected that there is sufficient design margin within the DNB analysis limits to accommodate the incorrect setpoint (particularly those plants which have faster drop times than 1.7 sec).

RECOMMENDED ACTION

The flux rate trip instrumentation should be calibrated according to the following information. The plant flux rate trip setpoint and the Technical Specification rod drop times should not be revised.

The Power Range Detector A test signal is used to create a step signal which is input to the Power Range Rate Circuit (PRRC), NM311. The Positive and Negative Rate Trip bistables are aligned to trip on the spike value created at the PRRC output due to the step signal input. The Detector A test signal should be set numerically equivalent to the value of percent full power change given in the Plant Precautions, Limitation, and Setpoint document. Due to possible misinterpretation of the Nuclear Instrumentation System manual, plants may have doubled the Detector A test signal in order to compensate for the summing and level amplifier. The summing and level amplifier averages the two input detector signals and produces the Power Range channel percent power output signal, which drives the PRRC.

The following rule should be used to align the bistables:

Set the Detector A test signal; in power units or percent of full power detector current, to the value given in the P.L.S. document for the percent full power change for the rate trip.

For example, if the P.L.S. document requires a rate trip on a 5 percent change of full power, then the Detector A test signal should be set to 5 power units or 5 percent of detector A full power current. Note that this rule sets the test signal to 5 power units (which corresponds to 2.5% Reactor Thermal Power) to achieve the proper calibration for a 5% RTP trip setpoint.

The rule given above should be incorporated into the site Power Range alignment procedures in order to eliminate any future misinterpretation of the proper value to be used for alignment. Some plants have had the resistor in the negative trip bistable input filter changed from 10K to 1K. Recent circuit tests have shown that the above calibration rule is still valid for these plants.

NEGATIVE FLUX RATE TRIP PLANTS

Prairie Island 1 and 2 (NSP/NRP)
Kewaunee (WPS)
North Anna 1 and 2 (VRA/VGB)
Beaver Valley 1 and 2 (DLW/DMW)
Farley 1 and 2 (ALA/APR)
Summer (CGE)
Harris 1 (CQL)
Zion 1 and 2 (CWE/COM)
Cook 1 and 2 (AEP/AMP)
Trojan (POR)
Salem 1 and 2 (PSE/PNJ)
Sequoyah 1 and 2 (TVA/TEN)
Byron 1 and 2 (CAE/CBE)
Braidwood 1 and 2 (CCE/CDE)
McGuire 1 and 2 (DAP/DBP)
Catawba 1 and 2 (DCP/DDP)
Vogtle 1 and 2 (GAE/GBE)
Seabrook 1 and 2 (NAH/NCH)
Millstone 3 (NEU)
Marble Hill 1 and 2 (PBJ/PCJ)
Diablo Canyon 1 and 2 (PGE/PEG)
Callaway (SCP)
Wolf Creek 1 (SAP)
Comanche Peak 1 and 2 (TBX/TCX)
South Texas 1 and 2 (TGX/THX)
Watts Bar 1 and 2 (WAT/WBT)



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Document Control Manager:

In accordance with the criteria established by 10CFR50.73
entitled Licensee Event Reporting System, the following
report/s are being submitted:

RO 85-050-0

Sincerely,

W.G. Smith, Jr.
W.G. Smith, Jr.
Plant Manager

/cbm

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