



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

OCT 22 1979

NOTE TO: R. A. Birkel

SUBJECT: DRAFT ATWS PROCEDURES FOR MCGUIRE NUCLEAR STATION

The following are our comments on the draft ATWS procedures for McGuire Station:

1.0 Symptoms

i) The procedure does not identify the initiating event. For example, would all rod bottom lights illuminate if the initiating event is loss of offsite power.

ii) The operator is not given any aid in knowing what the symptoms of ATWS events might be. Further the symptoms would depend on initiating event. It seems to me that they ought to carefully look at at least the following three events:

- a) Loss of Main Feedwater
- b) Loss of Offsite Power
- c) Stuck Open PORV

iii) The first item of importance is that the operator recognize that scram action was called for but did not occur.

2.0 Immediate Actions

2.1 Automatic - These statements don't say anything about an ATWS. As a matter of fact, item 2.1.2 may not occur at all if the scram breakers don't open. This section should discuss other automatic signals such as auxiliary feedwater actuation and emergency core cooling system actuation.

2.2 Manual - What is the time frame for these actions.

Item 2.2.3 - For what ATWS events would T_{av} decrease to 546°F for immediate action.

Why is there no discussion of auxiliary feedwater and HPSI actuation. These systems are critical during ATWS events. The auxiliary feedwater system is needed immediately and the flow should be verified.

3.0 Subsequent Actions

Provide time frame for these actions:

3.1 How can the operator verify that these parameters are normal. What is the operator to do if these parameters take on abnormal values as would be the case during an ATWS event.

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OCT 2 1979

R. A. Birkel

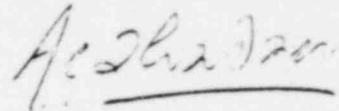
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3.2 Can this instruction be accomplished for loss of offsite power event. This comment applies to several subsequent instructions.

3.8 What is the role of this statement during an ATWS?

General Comment. After reading this procedure, I came to the conclusion that people who wrote this procedure probably don't have a good understanding of ATWS events. I recommend that you ask the utilities to:

- a) review ATWS analyses,
- b) combine procedures for those ATWS events where such combination is warranted by similar required actions (I believe two or three procedures should do it),
- c) keep in mind the comments on the draft procedure, and
- d) submit a revised set of procedures.



A. Thadani

Enclosure:

cc: S. Hanauer
T. Speis
S. Varga
R. Baer
M. Srinivasan
K. Parczewski
H. Vander Molen

DUKE POWER COMPANY
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WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

September 25, 1979

TELEPHONE AREA 704
373-4083

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

Attention: Mr. R. L. Baer, Chief
Light Water Reactors Project Branch No. 2

Re: McGuire Nuclear Station
Units 1 and 2
Docket Nos. 50-369, 50-370

Dear Mr. Denton:

Your letter of August 17, 1979, transmitted interim requirements for ATWS which must be satisfactorily implemented to support issuance of an operating license. The basic requirements were to:

- 1) Provide emergency procedures to provide for operator recognition of and proper response to an ATWS event, and
- 2) Provide operator training to assure proper implementation of these procedures.

The emergency procedures, in general, at McGuire consist of a general reactor trip procedure and a series of specific transient and accident procedures. In order to address ATWS concerns it is our intention to revise the reactor trip procedure to include specific indications which must be observed for a reactor trip followed by necessary mitigating operator actions in the event a trip does not occur. The specific transient procedures which require a reactor trip will also be revised to refer the operator to the reactor trip procedure if an ATWS event is identified. Attached for your review is a draft copy of the revised reactor trip procedure.

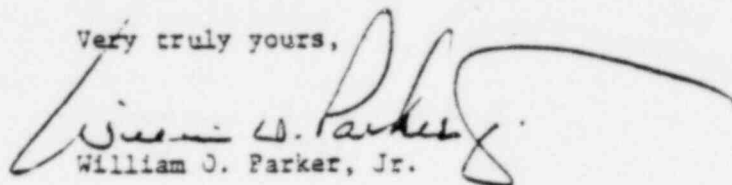


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Mr. Harold R. Denton, Director
September 25, 1979
Page Two

It is our intention to provide the necessary training to assure operator familiarity with the above ATWS provisions. If there are questions regarding this matter, do not hesitate to contact us.

Very truly yours,

A handwritten signature in dark ink, appearing to read "William J. Parker, Jr.", with a long, sweeping horizontal stroke extending to the right.

William J. Parker, Jr.

GAC/sch

Attachment

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
REACTOR TRIP

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FOR INFORMATION
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*Identified by [unclear]
on [unclear]*

1.0 Symptoms

- 1.1 Any Alarm on Reactor Trip First Out Panel.
- 1.2 All rod bottom lights are illuminated.
- 1.3 Nuclear Instrumentation indicating a rapid decrease in Neutron flux.
- 1.4 If there is not a rapid drop in nuclear power and the control rods are not inserted, then this is an "Anticipated Transient Without Scram" event.

2.0 Immediate Action

2.1 Automatic

- 2.1.1 All rods drop into core.
- 2.1.2 Turbine-Generator trip.
- 2.1.3 Feedwater Isolation when Tavg decreases to 564°F.
- 2.1.4 Steam Dumps Arm-Actuate and/or PORV lift.

2.2 Manual

NOTE: Do not place systems in manual unless misoperation in automatic is apparent.

- 2.2.1 If all rods do not drop into the core then:
 - 2.2.1.1 Manually trip the reactor.
 - 2.2.1.2 If a reactor trip has not yet occurred, then manually trip the MG set Bkrs. locally.
 - 2.2.1.3 If a reactor trip has not yet occurred, immediately actuate safety injection
 - 2.2.1.4 If a reactor trip has not yet occurred, place the Control Rod Drive Bank Selector Switch in manual and insert rods.
- 2.2.2 If turbine generator did not trip, then:
 - 2.2.2.1 Manually trip turbine from Control Room or locally at the turbine.
 - 2.2.2.2 If a turbine trip has not yet occurred, then place DEH Control in manual, and manually close the Governor Valves.
- 2.2.3 If Feedwater Isolation does not occur when tavg decreases to 564°F, then:
 - 2.2.3.1 Close the main feedwater regulating valves and the bypass valves.

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- 2.2.3.2 If feedwater isolation has not yet occurred, the main Feedwater Containment Isol. Valves.
- 2.2.3.3 If feedwater isolation has not yet occurred, manually trip the feedwater pumps.

2.2.4 If steam dumps fail to arm-actuate and/or PORV's fail to lift, then:

- 2.2.4.1 Check steam pressure mode setting at 1090 psig and place in pressure mode control.
- 2.2.4.2 Close all PORV manual loaders and place PORV selector switch in manual. Regulate PORV's to maintain steam pressure as desired.

2.2.5 Secure all boron dilution operations.

3.0 Subsequent Action

- 3.1 Verify Pzr. level, NC Pressure, charging and letdown flow, Tav_g, S/G levels and S/G Pressures are normal.
- 3.2 If any pressurizer PORV's open on high pressurizer pressure, ensure reseating at 2315 psig decreasing.
NOTE: If PORV fails to close and pressure is less than 2315 psig, then close the associated PORV isolation valves.
- 3.3 Ensure the CA System is feeding the Steam Generators. If not, manually start the motor driven CA Pumps.
- 3.4 Announce occurrence over plant paging system.
- 3.5 Note the cause of the trip on the first out panel before resetting the alarm.
- 3.6 If all rods are not fully inserted, borate 150 ppm for each rod not inserted per OP/1/A/6150/09 (Boron Concentration Control).
- 3.7 Transfer NR-45 to one source range channel and one intermediate range channel for indication. Ensure a negative period and decaying count rate.
- 3.8 When the cause of the trip has been determined, withdraw the shutdown banks per OP/1/A/6150/08 (Rod Control).
- 3.9 Verify no load pzz. pressure and level are restored and maintained (2235 psig and 25% respectively).
- 3.10 Select "Reset" on the Moisture Separator Reheater Panel.
- 3.11 Transfer Aux. Steam Supply to Main Steam by opening LAS-12 (Unit 1 Mtr. Scm. to Aux. Scm. Hdr. Control Inlet Isolation) and close LAS-9 (Unit 1 "C" Htr. Bleed to Aux. Scm. Hdr. Isolation).
- 3.12 Transfer steam dump control to the "Pressure" mode and adjust controller as necessary to maintain Tave 557°F (approximately 1090 psig).

Also need
that information
no immediate action

See page 1 for
details of the
trip

CAUTION: Ensure Primary and Secondary Systems have stabilized before going to pressure mode.

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- 3.13 Secure any excess Condensate Booster Pumps and Hotwell Pumps.
- 3.14 Place Auto Start Defeat switches of Aux. Feedwater Pumps A & B to "Defeat".
- 3.15 Verify Volume Control Tank level is being maintained.
- 3.16 Reset H₁ Flux at Shutdown Alarm when neutron flux decreases below setpoint.
- 3.17 Notify Chemistry to obtain a NC System boron sample and perform a reactivity balance calculation and maintain a shutdown margin equal to or greater than 1.6% $\Delta k/k$ -per OP/O/A/6100/06 (Reactivity Balance Calculation).
- 3.18 Notify Plant Manager or Superintendent of Operations per Station Directive 3.1.6 (Reasons for Notifying the Manager or Superintendent of Operations).
- 3.19 If it is desired to supply Aux. Steam from the Electric Boilers, place the boilers in operation per OP/L/B/6250/07B (Electric Boilers).
 - 3.19.1 As LAS-120 (Aux. Elec. Blr. A & B to AS Isol.) is opened slowly throttle closed LAS-12 (Unit 1 SM to AS Hdr. Cont. Inlet Isol.).
- 3.20 Take manual control and close the following valves:
 - 1CF-32 (Steam Gen. 1A FDW Control)
 - 1CF-23 (Steam Gen. 1B FDW Control)
 - 1CF-20 (Steam Gen. 1C FDW Control)
 - 1CF-17 (Steam Gen. 1D FDW Control)
 - 1CF-104 (Steam Gen. 1A FDW Control Bypass Control)
 - 1CF-105 (Steam Gen. 1B FDW Control Bypass Control)
 - 1CF-106 (Steam Gen. 1C FDW Control Bypass Control)
 - 1CF-107 (Steam Gen. 1D FDW Control Bypass Control)
- 3.21 Reset Train A & B Feedwater Isolation.
- 3.22 Position the following valves:
 - S/G "A": Close 1CF-150 (CF Tempering Flow to S/G 1A, 1B, 1C, and 1D Aux. Feedwater Nozzle Isol.)
 - Open 1CF-126-B (S/G 1A CF to CA Nozzle Isol.)
 - Open 1CF-151-A (CF Tempering Flow to S/G 1A Aux. Feedwater Nozzle Isol.)

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- S/G "B": Open ICF-127-B (S/G 1B CF to CA Nozzle Isol.)
Open ICF-153-A (CF Tempering Flow to S/G 1B Aux. Feedwater Isol.)
- S/G "C": Open ICF-128-B (S/G 1C CF to CA Nozzle Isol.)
Open ICF-155-B (CF Tempering Flow to S/G 1C Aux. Feedwater Isol.)
- S/G "D": Open ICF-129-B (S/G 1D CF to CA Nozzle Isol.)
Open ICF-157-B (CF Tempering Flow to S/G 1D Aux. Feedwater Isol.)

- 3.23 Start a Feedwater Pump per OP/1/A/6250/01 (Condensate and Feedwater System) and secure Auxiliary Feedwater per OP/1/A/6250/02 (Auxiliary Feedwater System) when desired and maintained steam generator levels at no load values (~25%).
- 3.24 If an ATWS has occurred, bring the plant to cold shutdown within 30 hours.
- 3.25 Determine the cause of the reactor trip and correct the problem. If restart is desired, refer to OP/1/A/6100/05 (Reactor Trip Recovery). If shutdown is necessary, refer to OP/1/A/6100/02 (Controlling Procedure for Unit Shutdown).
- 3.26 After the count rate has decreased to .5 decade below the "Source Range High Flux Level at Shutdown" alarm setpoint, the shutdown banks may be inserted if desired.

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RSB READING

DEC 5 1979

NOTE TO: C. Stahle

FROM: Ashok Thadani

We have reviewed the ATWS emergency operating procedure submitted by TVA on October 17, 1979. The enclosed comments on this procedure are written in such a manner as to minimize the TVA effort required to develop acceptable ATWS procedure(s). I recommend that you request the Operator Licensing Branch to review the proposed TVA procedure and our comments. If requested, we will be pleased to discuss these comments with TVA.

Ashok Thadani
Reactor Systems Branch
Division of Systems Safety

cc: ATWS Task Force
S. Hanauer
T. Speis
S. Varga

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AThadani