

QUALITY ASSURANCE REQUIREMENTS FOR ATWS  
EQUIPMENT THAT IS NOT SAFETY-RELATED

1.0 PURPOSE

The purpose of this procedure is to describe the limited Quality Assurance (QA) controls to be applied to the anticipated transient without scram (ATWS) mitigating systems actuation circuitry (AMSAC) equipment to meet the intent of 10CFR50.62.

2.0 SCOPE

The QA controls described herein apply to ATWS equipment identified by Division of Nuclear Engineering (DNE).

3.0 REFERENCE

- 3.1 NRC Generic Letter 85-06 dated April 16, 1985.
- 3.2 10CFR50.62, Requirements for Reduction of RISK from ATWS Events for Light-Water-Cooled Nuclear Power Plants
- 3.3 Memorandum from J. E. Law to Those listed dated August 26, 1985 (L16 850826 804)
- 3.4 NQAM Part I, Section 1.3, "Limited QA Program Requirements"
- 3.5 SQA189, Limited QA Program

4.0 REQUIREMENTS

4.1 Organization

The Plant Manager is responsible for implementing the QA program for ATWS devices at Sequoyah.

4.2 Program

Unique QA requirements are to be applied to ATWS devices when required by this procedure. Otherwise, the existing QA program is acceptable for ATWS devices.

4.3 Design Control

ATWS devices shall be designed by DNE in the same manner as other plant components, using established DNE procedures. Modification requests and implementation involving ATWS devices shall meet the applicable requirements of AI-19 (Part III and IV).

4.4 Procurement Document Control

Procurement documents for ATWS devices which interface with Class 1E equipment/piece parts (e.g. AMSAC initiation and actuation relays) shall be handled as QA items in accordance with the requirements of SQA45.

#### 4.0 REQUIREMENTS (continued)

##### 4.4 Procurement Document Control (continued)

Other ATWS devices may be classified as "Non-QA." Procurement documents for these devices shall also be prepared and processed in accordance with SQA45. Procurement documents for stock reorders shall specify the same technical and quality requirements as were included on the PR for the original equipment, unless alternate requirements are approved by the Plant Manager.

Procurement documents for ATWS devices shall receive the same reviews required by SQA45 to ensure that technical and quality requirements have been included.

##### 4.5 Instructions, Procedures, and Drawings

Activities affecting ATWS devices (except those that are within the skills of the qualified craftsman) shall be accomplished in accordance with approved instructions (e.g., workplans approved in accordance with AI-19 (Part IV), work requests/maintenance requests approved in accordance with SQM2, or instructions in accordance with AI-4) and/or drawings (AI-25).

##### 4.6 Document Control

Instructions, drawings, and other documents affecting ATWS devices shall be reviewed and approved in accordance with plant requirements (AI-4, SQA1, and AI-25) to assure that controlled instructions are available at the location where work is being performed.

##### 4.7 Control of Purchased Items and Services

ATWS devices shall be inspected upon receipt in accordance with AI-11 to assure conformance to procurement documents. For Non-QA devices or materials, this inspection may be performed by trained warehouse materials personnel with assistance from the cognizant engineer if required. The examination shall assure that any documentation required by the procurement document is received; that the item conforms to contract requirements, and that there is no shipping damage.

##### 4.8 Identification and Control of Purchased Items

ATWS devices shall be suitably identified in accordance with AI-36 and AI-11 to assure that acceptable items are used or installed.

#### 4.0 REQUIREMENTS (continued)

##### 4.9 Control of Special Processes

Special processes such as welding, NDE, and heat treatment shall be performed by qualified personnel using plant approved instructions. (SQM17, M&AI-1, M&AI-5, and/or TI-51).

##### 4.10 Inspection

Maintenance requests (MR), workplans or other plant approved documents shall include inspection requirements as appropriate, including acceptance criteria, to ensure the adequacy of work affecting ATWS devices. Such inspections may be performed by QC, the cognizant engineer or the supervisor as determined by the work planner.

##### 4.11 Testing

Work instructions (work requests (WRs)/MRs, workplans, MIs) shall specify post maintenance, post modification or functional testing as applicable/appropriate to demonstrate functionability of ATWS devices. The results of tests shall be evaluated by the cognizant engineer or supervisor to ensure test requirements and/or acceptance criteria were satisfied. Surveillance Instructions (SI) will require periodic inspection of ATWS devices to ensure reliability of the system.

##### 4.12 Control of Measuring and Test Equipment

M&TE shall be controlled in accordance with AI-31 and requires no additional controls for M&TE used on ATWS.

##### 4.13 Handling, Storage, and Shipping

ATWS devices shall be stored and maintained in accordance with AI-36 to prevent damage or degradation. Items with limited shelf-life shall be included in the plant limited shelf-life program.

##### 4.14 Inspection, Test and Operating Status

Plant approved documents shall contain signoffs which indicate the status of inspections or tests required by paragraph 4.10 and 4.11.

The operating status of ATWS devices will be maintained using the controls of AI-5.



#### 4.0 REQUIREMENTS (continued)

##### 4.15 Nonconformances

When ATWS devices are found to be in noncompliance with procurement document requirements, they shall be tagged as nonconforming and handled in accordance with AI-11.

##### 4.16 Corrective Action System

When conditions adverse to quality are identified they shall be documented and dispositioned in accordance with AI-12.

##### 4.17 Records

Design criteria documents which demonstrate compliance with design requirements of the ATWS rule, and the ECN package for new ATWS devices with the associated USQD shall be maintained as quality assurance records in accordance with AI-7.

##### 4.18 Audits

The DNQA Nuclear Audit and Evaluation Branch will perform audits to verify compliance with this procedure. Responding to audit deviations shall be handled in accordance with the requirements of SQA135.

## ATTACHMENT 2

### Human Factors Evaluation (HFE) For AMSAC

A human factor review of proposed AMSAC addition was performed by a HFE specialist and an SRO/Operations supervisor. The following list provides responses to the four aspects of human factor's specified in the SER:

- o The use of AMSAC information and equipment by operators during both normal and abnormal plant conditions.

The human factors review of the drawings for the AMSAC found that the (1) maintenance bypasses are adequately indicated in the control room, (2) operating bypasses are adequately indicated in the control room, (3) bypass switches (note: the design uses three switches) are adequately indicated in the control room except for the items below. These items will be incorporated into the final design. The review covered the logic as shown on 47W611-3-5 (Figure 1) and did not include the maintenance bypasses for the sensor or the level sensors. The following changes will be made as a result of the human factors evaluation:

1. The logic drawings will be revised to show the status light associated with XS-3-317 to be an indication of input sign and revise the status lights associated with XS-3-319, -320 and -311 to clearly show that they are output test indications.
  2. For the four junction boxes located in the auxiliary control room and auxiliary control instrument room white status lights will be added on the test switches to indicate they are in test position. This will improve human factor considerations.
- o Integration into emergency procedures. As is standard practice at SQN once the modification is implemented, Plant Operations will update procedures to reflect the new system.
  - o Integration into operator training. As with procedures (above) the Division of Nuclear Training will be notified of the incorporation of AMSAC design and appropriate supplemental operator training will occur.
  - o Prioritization of Alarms

As part of SQN's Detailed Control Room Design review (NUREG-0737, Supplement 1) all main control room annunciators will be reviewed for grouping and prioritization. As such, the AMSAC annunciators will be reviewed within the context of this major rework.

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