

Docket No. 50-336

Environmental Qualification
of
Safety Related Electrical Equipment

Northeast Nuclear Energy Company
Millstone Unit No. 2

August 18, 1983

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NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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August 18, 1983

Docket No. 50-336
A03174

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

- References: (1) W. G. Council letter to D. G. Eisenhut, dated May 20, 1983.
(2) R. A. Clark letter to W. G. Council, dated April 6, 1983.
(3) W. G. Council letter to R. A. Clark, dated April 25, 1983.

Millstone Unit No. 2
Environmental Qualification of Electrical Equipment
May 20, 1983 Response to 10 CFR 50.49, Supplemental Information

The most recent NRC requirements on the issue of environmental qualification of electric equipment were promulgated as 10CFR50.49, which became effective on February 22, 1983. Among its provisions was the requirement to provide a submittal on or before May 20, 1983, identifying the equipment to be qualified within the scope of the rule and the schedule for achieving full qualification. This information was provided to the Staff in Reference (1).

Due to the then relatively recent receipt (April 11, 1983) of the Millstone Unit No. 2 SER and corresponding Technical Evaluation Report (TER) via Reference (2), inadequate time had elapsed to complete the equivalent of the "90-day SER response" at the time of our Reference (1) transmittal. This document is therefore being submitted to fulfill the SER response requirement by responding to the questions raised by the Franklin Research Center (FRC) in Reference (2). Since our methods for identifying equipment pursuant to 10CFR50.49(b)(2), our interpretation of 10CFR50.49(b)(3), and a description of our preventative maintenance program were provided in Reference (1), these matters will not be reiterated in this submittal. Additionally, the Reference (2) concern regarding verification that the containment spray system is not subjected to a disabling single-component failure was addressed in Reference (3). As such, we consider this issue resolved.

Because of the volume of information being transmitted in this submittal, NNECO has adopted the following format of Attachments to facilitate the assimilation of this material.

A048
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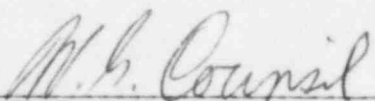
- Attachment 1: Chronology and References for Environmental Qualification of Electrical Equipment, Millstone Unit No. 2.
- Attachment 2: List of Electric Equipment Important to Safety Requiring Qualification.
- Attachment 3: Index to SCEW Sheet Package.
- Attachment 4: System Component Evaluation Work Sheets, Discrepant Equipment Summary Sheets (Including Justifications for Continued Operation), and SER/TER Review Sheets.

The Attachment 4 sets of SCEW sheets additionally identify qualification references for your use.

We trust the information supplied here satisfies the concerns of Reference (1) in accordance with the Final Rule on Environmental Qualification of Electrical Equipment, 10 CFR 50.49. Based on this submittal, we consider all open items regarding this issue resolved, recognizing that equipment upgrades identified in this submittal must be completed in accordance with the schedule contained in 50.49(g).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council
Senior Vice President

Attachments

Docket No. 50-336

Northeast Nuclear Energy Company

Millstone Unit No. 2

Attachment 1

Chronology and References

August 18, 1983

ENVIRONMENTAL QUALIFICATION OF
ELECTRICAL EQUIPMENT

MILLSTONE UNIT NO. 2

CHRONOLOGY AND REFERENCES

- (1) February 8, 1979 B. H. Grier letter to W. G. Council transmitting I&E Bulletin No. 79-01.
- (2) March 23, 1979 W. G. Council letter to R. W. Reid identifying unqualified SMLS.
- (3) April 6, 1979 W. G. Council letter to R. W. Reid identifying qualified SMLS to be installed prior to Cycle 3 startup.
- (4) April 18, 1979 W. G. Council letter to R. W. Reid identifying unqualified solenoid operating valves will have qualified solenoids by Cycle 3 startup.
- (5) May 8, 1979 W. G. Council letter to R. W. Reid identifying SMLS on Valves S1-G14, G24, G34, and G44 will not be replaced; justification provided.
- (6) June 6, 1979 B. H. Grier letter to W. G. Council transmitting I&E Bulletin No. 79-01A, regarding ASCO solenoid valves.
- (7) June 6, 1979 W. G. Council letter to N. C. Mosely transmitting response to I&E Bulletin No. 79-01.
- (8) September 4, 1979 W. G. Council letter to N. C. Mosely transmitting additional information in response to I&E Bulletin No. 79-01, June 6, 1979 letter.
- (9) September 5, 1979 W. G. Council letter to R. W. Reid identifying unqualified RTS's in containment - continued operation justified.
- (10) September 19, 1979 W. G. Council letter to R. W. Reid submitting followup report on September 5, 1979 letter.
- (11) January 9, 1980 W. G. Council letter to B. H. Grier transmitting response to I&E Bulletin No. 79-28/Defective Gaskets in NAMCO SMLS.

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- (12) January 14, 1980 B. H. Grier letter to W. G. Council transmitting I&E Bulletin No. 79-01B.
- (13) January 18, 1980 W. G. Council letter to N. C. Mosely transmitting update to original I&E Bulletin No. 79-01 response -additional information.
- (14) February 29, 1980 B. H. Grier letter to W. G. Council transmitting Supplement to I&E Bulletin No. 79-01B.
- (15) March 3, 1980 W. G. Council letter to B. H. Grier transmitting response to Items 1 - 3 to I&E Bulletin No. 79-01B.
- (16) March 31, 1980 W. G. Council letter to B. H. Grier transmitting update to March 3, 1980 letter, Items 1 - 3 of I&E Bulletin No. 79-01B.
- (17) April 17, 1980 W. G. Council letter to B. H. Grier transmitting update of original response to I&E Bulletin No. 79-01B, March 3, 1980 letter.
- (18) May 23, 1980 Commission issues Memorandum and Order requiring SER's by February 1, 1981 and total compliance by June 30, 1982.
- (19) July 14, 1980 NNECO representatives attend Region I clarification meeting.
- (20) July 16, 1980 W. G. Council letter to B. H. Grier update to original response to I&E Bulletin No. 79-01B, March 3, 1980 letter, addressing commitments made in the April 17, 1980 letter.
- (21) August 26, 1980 R. T. Carlson letter to W. G. Council discussing audit findings on selected components.
- (22) August 29, 1980 R. A. Clark letter to W. G. Council transmitting the Order for Modification of License requiring a response by November 1, 1980.
- (23) September 10, 1980 W. G. Council letter to B. Wolfe (GE) requesting expedited response regarding qualification documentation.

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- (24) September 19, 1980 D. G. Eisenhut letter to W. G. Council transmitting Revised Order for Modification of License.
- (25) September 30, 1980 NRC issues Supplement 2 to I&E Bulletin No. 79-01B.
- (26) October 1, 1980 D. G. Eisenhut letter to All Licensees of Operating Plants and Applicants for Operating Licenses and Holders of Construction Permits requesting pertinent information relative to environmental qualification testing.
- (27) October 9, 1980 W. G. Council letter to J. Blachly (Siemens-Allis, Incorporated) requesting expedited response regarding qualification documentation.
- (28) October 14, 1980 R. T. Carlson letter to W. G. Council discussing findings of audit regarding comparison of qualification documentation to plant components.
- (29) October 20, 1980 NNECO representative responds to request of NRC Project Manager to provide status of the response to the Order.
- (30) October 24, 1980 B. H. Grier letter to W. G. Council transmitting Supplement 3 to I&E Bulletin No. 79-01B.
- (31) October 24, 1980 R. A. Clark letter to W. G. Council transmitting an immediately effective order regarding modifications to the license and Technical Specifications.
- (32) October 31, 1980 W. G. Council letter to D. G. Eisenhut providing information, SCEW sheets, and qualification references fulfilling the requirements issued by the Order of Reference (22).
- (33) November 26, 1980 D. G. Eisenhut letter to W. G. Council, Generic Clarification of Documentation required which is associated with Central Qualification file.

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- (34) December 4, 1980 W. G. Council letter to H. R. Denton
requesting a hearing on the Order
issued by Reference (31).
- (35) January 16, 1981 D. G. Eisenhower letter to W. G. Council
holding hearing request in abeyance.
- (36) January 19, 1981 D. G. Eisenhower letter to All Licensees
clarifying Bulletin 79-01B
requirements.
- (37) January 20, 1981 W. G. Council letter to D. G. Eisenhower
identifying the lack of planned
Environmental Qualification testing.
- (38) January 30, 1981 W. G. Council letter to D. G. Eisenhower
concurring with 30 day holding of
hearing request.
- (39) January 30, 1981 W. G. Council letter to D. G. Eisenhower
updating October 31, 1980 submittal.
- (40) March 10, 1981 D. G. Eisenhower to all plants; staff
position that summary qualification
reports not adequate.
- (41) April 14, 1981 B. H. Grier to W. G. Council
transmitting Circular 81-06; potential
difficiencies in Foxboro transmitters.
- (42) April 14, 1981 T. M. Novak to W. G. Council; 10 day
letter requiring justification of
continued operation in light of
potential deficiencies.
- (43) April 30, 1981 W. G. Council to T. M. Novak; providing
justification for continued operation
in 10-day response.
- (44) May 27, 1981 R. A. Clark letter to W. G. Council;
transmitting the SER, for review and 90
day response.
- (45) June 4, 1981 W. G. Council to Hendrie requesting
extension of June 30, 1982 deadline.
- (46) June 12, 1981 D. G. Eisenhower to W. G. Council
allowing 90 days for hearing request
after date of issuance of SER.

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- (47) June 22, 1981 Industry Petition for extension of
deadline for compliance with CLI-80-21.
- (48) June 26, 1981 W. G. Council letter to D. G. Eisenhut,
commenting on anticipated usefulness of
July 7 - 10 meeting.
- (49) June 29, 1981 NRC response to industry petitions
postponing recommendation until July
31, 1981.
- (50) July 16, 1981 W. G. Council letter to H. R. Denton
providing feedback on July 7 - 10
environmental qualification meeting.
- (51) July 31, 1981 Staff position to the Commission
recommending one year extension to the
June 30, 1982 deadline.
- (52) August 14, 1981 W. G. Council letter to D. G. Eisenhut
documenting position on qualification
of replacement parts.
- (53) August 14, 1981 D. G. Eisenhut letter to W. G. Council
proposing additional delay on
affirmation or withdrawal of pending
requests.
- (54) August 20, 1981 W. G. Council letter to D. G. Eisenhut,
accepting Staff proposal of Reference
(53) regarding pending hearing
requests.
- (55) August 26, 1981 W. G. Council letter to D. G. Eisenhut,
discussing status of SER responses and
providing overview of NNECO perspective
on environmental qualification.
- (56) August 26, 1981 W. G. Council to D. G. Eisenhut
submitting the 90-day response to the
Staff's SER.
- (57) August 27, 1981 I & E Information Notice 81-29
regarding adverse test results.
- (58) September 30, 1981 W. G. Council to D. G. Eisenhut
providing minor editorial changes to
Reference (56).

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- (59) December 8, 1981 W. G. Council to R. C. Haynes, fulfilling commitments made in Reference (55) regarding resistance temperature detectors.
- (60) January 6, 1982 R. A. Clark letter to W. G. Council requesting that additional information be provided to FRC.
- (61) January 20, 1982 Federal Register notice (47FR2876) on a proposed rule regarding Environmental Qualification of Electrical Equipment.
- (62) February 9, 1982 W. G. Council letter to D. M. Crutchfield and R. A. Clark forwarding material requested in Reference (60).
- (63) February 10, 1982 W. G. Council letter to the Secretary of the Commission providing schedular comments on the proposed rule of Reference (61).
- (64) February 18, 1982 R. A. Clark letter to W. G. Council requesting submittal of certain reference information.
- (65) February 22, 1982 47FR7782: Proposed Revision I to Reg. Guide 1.89: Environmental Qualification of Electric Equipment for Nuclear Power Plants.
- (66) March 4, 1982 R. C. Haynes letter to all licensees transmitting Information Notice 82-03: "Environmental Tests of Electrical Terminal Blocks."
- (67) March 22, 1982 W. G. Council letter to Secretary of the Commission commenting on the Proposed revision to Reg. Guide 1.89.
- (68) May 13, 1982 W. G. Council letter to R. C. DeYoung providing notification of a Substantial Safety Hazard.
- (69) June 30, 1982 Federal Register Notice (28363) suspending the June 30 deadline for completion of Environmental Qualification of Safety Related Electrical Equipment by all operating nuclear power plants.

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- (70) July 1, 1982 W. G. Council letter to R. A. Clark submitting qualification information requested in Reference (64).
- (71) July 12, 1982 C. J. Crane (Franklin Research Center) letter to NRC stating that Millstone Unit No. 2 has provided (via Reference 70)) the information requested by Reference (64).
- (72) December 29, 1982 W. G. Council to R. A. Clark updating information on TMI Item II.F.1.5.
- (73) January, 1983 Union of Concerned Scientists (Petitioner) vs NRC and the USA (Respondents), and NUGEQ (Intervenor), Brief for Respondents on Petition for Review of a Final Rule on the NRC.
- (74) January 21, 1983 Federal Register, 48FR2729 issuing final rule on Environmental Qualification.
- (75) February 18, 1983..... Union of Concerned Scientists (Petitioner) vs NRC, et. al. (Respondent), NUGEQ (Intervenor), Petition for Review of a Rule of the NRC, Brief for Intervenor Nuclear Utility Group on Equipment Qualification.
- (76) February 22, 1983 W. G. Council letter to D. G. Eisenhower confirming date by which a determination must be made on a hearing request.
- (77) March 7, 1983..... NUGEQ (Petitioner) vs NRC (Respondent), Petition for Review.
- (78) March 18, 1983 W. G. Council letter to R. A. Clark and D. M. Crutchfield formally advising the Staff of NU's interpretation of the Final Rule on Environmental Qualification.
- (79) March 24, 1983 W. G. Council letter to D. G. Eisenhower conditionally withdrawing NU's request for a hearing.

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- (80) March 28, 1983 W. G. Council letter to R. A. Clark and D. M. Crutchfield reestablishing a submittal date for certain qualification information.
- (81) April 6, 1983 R. A. Clark letter to W. G. Council transmitting FRC's Technical Evaluation Report (TER).
- (82) April 25, 1983 W. G. Council letter to R. A. Clark submitting 30-day response to Reference (74).
- (83) April 15, 1983 W. G. Council letter to D. G. Eisenhut submitting NNECO's response to items of Generic Letter 82-33, (Supplement 1 to NUREG-0737).
- (84) May 18, 1983..... W. G. Council letter to R. A. Clark and D. M. Crutchfield, proposing to amend operating license DPR-65 incorporating revised Technical Specifications.
- (85) May 20, 1983 W. G. Council letter to D. G. Eisenhut, providing May 20, 1983 response to 10CFR50.49.
- (86) June 30, 1983 U. S. Court of Appeals (D. C. Circuit) decision on the Union of Concerned Scientists' petition for review of the Commission's interim regulation suspending the June 30, 1982 EEQ deadline.
- (87) July 8, 1983 Union of Concerned Scientists' petition before the U. S. Court of Appeals (D. C. Circuit) requesting an expedited briefing schedule for the Reference (86) decision.

A. INTRODUCTION AND CHRONOLOGY

Northeast Nuclear Energy Company (NNECO) was initially requested to address the issue of environmental qualification of electrical equipment for Millstone Unit No. 2 in the form of a docketed response by Reference (1). In accordance with the provisions of Item 4 of Reference (1), References (2) through (5) were submitted to notify the Commission that certain stem mounted limit switches were lacking the requisite qualification, and identified corrective action and justification for continued operation.

By Reference (6), the NRC issued I&E Bulletin No. 79-01A, regarding ASCO solenoid valves. NNECO's initial response to the provisions of Items 1 through 3 of Reference (1) was docketed by Reference (7) and supplemented by Reference (8). References (9) and (10) were submitted in conformance with Item 4 of Reference (1) and discussed the qualification status of resistance temperature detectors used to monitor containment air temperatures. Justification for continued operation was provided. Reference (11) docketed a response to I&E Bulletin No. 79-28 regarding NAMCO stem-mounted limited switches.

The issue of environmental qualification was escalated to a higher priority status upon issuance of Reference (12). An indication of the magnitude of this task can be obtained by reviewing the attached chronology. It is important to recognize that NNECO resources have been strained significantly, not merely because of the amount of equipment requiring qualification documentation, but also because of the numerous changes and conflicts in NRC guidance documents on this subject. To support this position, the attached chronology is discussed to specify instances where such conflicts have arisen and to identify the applicability of these reference documents as of this writing.

Supplemental information in the form of System Component Evaluation Work Sheets (SCEWS) was provided in Reference (13). For each component, information in the form of component description, description of the accident environment, the environment to which the equipment is qualified, the manner of qualification, and the identification of the specific supporting qualification documentation was provided. Resolution of the issues identified in Reference (6) was also provided by Reference (13).

The first supplement to Reference (1) was issued by Reference (14). The supplemental information was presented in the form of seventeen (17) generic questions and answers. Of particular significance was the response to Question 5, in which the Staff stated that TMI lessons-learned equipment was not to be addressed. The response to Question 9 is also of significance as the Staff states that the requirements and positions in NUREG-0588 are the same as those in NUREG-0578 in relation to

environmental qualification of electrical equipment and components. The response to Question 18 of Reference (25) discusses the differences between NUREG-0588 and NUREG-0578 regarding the calculation of radiation source terms.

By Reference (15), (16), and (17), NNECO responded to the specific provisions of Reference (12). The equipment qualification status, which is superseded by the docketing of Appendix II to this report, was presented to the extent it was available at that time. Reference (15) provided information regarding the radiation service conditions and temperature and pressure profiles which remain applicable as shown in Appendix II.

In Reference (18), the Commissioners issued the Memorandum and Order, which required the NRC Staff to issue Safety Evaluation Reports by February 1, 1981. It is NNECO's intention that the report will be the foundation for a favorable SER.

During the regional meetings on this subject (Reference (19)), additional changes in NRC requirements or new interpretations were provided. The Staff explained that there was no longer a need to address areas of the plant which remain at ambient conditions. The Staff also discussed the various qualification methods which are acceptable, and these included evaluation, analysis, and similarity considerations. Subsequent to the meeting, NNECO endeavored to restructure the program to respond to the new guidance.

By Reference (20), supplemental information to Reference (17) was provided. Commitments made in Reference (17) were fulfilled or new schedules were established.

The results of a corporate office audit conducted by the Office of Inspection and Enforcement were documented in Reference (21). No items of noncompliance were identified during the 16-hour verification inspection.

In Reference (22), the Staff issued the Order for Modification of License and required a response by November 1, 1980. Although eventually superseded by Reference (24), the principle purpose of this report is to respond to Reference (22).

NNECO has encountered numerous difficulties in obtaining some of the necessary qualification documentation. Several vendors are no longer in business supplying components for nuclear applications, others are no longer in existence, and still others express great reluctance in providing the requested data. Postulated reasons include difficulties in retrieval or commercial considerations. In attempting to deal with this dilemma, NNECO has resorted to letters such as References (23)

and (27) to expedite receipt of the necessary information. Although such efforts have been helpful, they have not resolved a remaining difficulty in obtaining the required qualification documentation.

In Reference (25), the Staff clarified its position on a number of requirements and escalated the scope of the review effort significantly. NNECO's exceptions and positions with respect to the requirements of this document were discussed in the forwarding letter. NNECO reemphasizes that extreme difficulties are encountered when the NRC issues documents which revise the scope of a major effort which are required by order to be submitted merely one month from the issuance of Reference (25).

By Reference (26), The Staff requested pertinent information regarding environmental qualification tests to be conducted within the next two years. We are endeavoring to supply the requested information, but did not receive this document until Tuesday, October 14, 1980. The current work load on individuals involved in environmental qualification will likely preclude a complete response by November 1, 1980, but NNECO intends to respond as soon as possible. No plans for qualification testing for NNECO have been identified as of this writing.

Reference (28) documents the results of a site audit conducted by the Office of Inspection and Enforcement. No items of non-compliance were identified. A response is provided as Appendix III to this report.

Reference (29) identifies a call between NNECO representatives and the NRC Project Manager for Millstone Unit No. 2 regarding the status of the response to the Order. The questions posed were suggestive of potential for changes/relaxations in certain portions of NRC requirements. The responses provided by NNECO are intended to demonstrate its continued position that the purpose of this effort is to demonstrate the adequacy of the current qualification status of safety-related electrical equipment, which is possible even if certain provisions of the qualification requirements cannot be fulfilled by documentation.

By Reference (30), the Staff transmitted Supplement 3 to I&E Bulletin No. 79-01B. This document delayed the schedule for submittal of all qualification documentation regarding TMI Action Plan equipment until February 1, 1981. Similarly, the qualification information for equipment required to achieve and maintain a cold shutdown condition is not required until February 1, 1981. NNECO's position regarding these changes is being provided now and will be supplemented by February 1, 1981.

By Reference (31), NNECO received an immediately effective Order which modified the license and the Technical Specifications. June 30, 1982 has been established in the license as the date by

which fully qualified safety-related electrical equipment must be installed. By December 1, 1980, NNECO must establish complete and auditable records and maintain them at central locations. Steps are being taken to comply with these requirements on schedule.

By Reference (32) NNECO provided information requested in Reference (24), consisting of qualification information for safety-related electrical equipment and accordance with the Commission's guidance in this matter. Where total qualification was not incorporated into this report, justification for continued operation until total conformance could be achieved was provided.

In Reference (33), D. G. Eisenhut addressed clarification of the October 24, 1980 Orders to all Licensees. The provision of the Orders requiring centrally located records did not call for creation of any records, per se, but the existence of a system which contained a complete set of documentation on Environmental Qualification.

Reference (34) requested that a hearing be held to determine the validity of NUREG-0588 requirements, specifically the requirement of meeting the June 30, 1982 deadline for qualification of all safety-related electrical equipment.

Reference (35), D. G. Eisenhut informed W. G. Council that the Commission intended to hold the Reference (34) hearing request in abeyance until 30 days after the issuance of the SERs for our facilities, thus, providing the option of reviewing the Safety Evaluations while still preserving our ability to seek a hearing. A response regarding the acceptability of this approach was requested by January 30, 1981.

Reference (36), from D. G. Eisenhut to all Licensees, provided information in response to licensee requests regarding certain requirements of Bulletin 79-01B, the Reference (18) memorandum, and the Reference (30) Order.

In Reference (37), W. G. Council informed D. G. Eisenhut that there are no plans for environmental qualification testing that are applicable to Millstone Unit No. 2.

Reference (38) forwarded W. G. Council's acceptance of D. G. Eisenhut's proposal to hold our hearing request in abeyance for 30 days following the issuance of the Safety Evaluations for our facilities with the qualification that the 30 days be counted as after the receipt of the last of the Safety Evaluation Reports for the three operating units in the NU System.

Reference (39) updated the Reference (32) submittal, providing updated SCEW sheets, a revised index listing all safety-related electrical equipment, and additional or replacement pages for

the Master Listing of Electrical Components. This submittal focused on equipment required exclusively to achieve cold shutdown, but did not totally reflect the Staff guidance contained in Reference (36).

Reference (40) forwarded D. G. Eisenhut's letter to all licensees, clarifying the NRC Staff requirements for a detailed explanation of test procedures and the results thereof. These detailed reports on Environmental Qualification of Class IE Electrical Equipment would be then considered proprietary.

Reference (41) (Circular 81-06) contained information on certain Foxboro 10-to-50 Milliampere Transmitters. Licensees were advised of the improper use of Teflon wire insulation and an unsuitable capacitor in the amplifier section of these transmitters.

In Reference (42), T. M. Novak transmitted the preliminary results of the Staff review of environmental qualification of safety-related electrical equipment in Millstone Unit No. 2. The Staff review resulted in the alleged identification of a number of potential deficiencies such that conformance to DOE guidelines could not be demonstrated. NNECO was required to respond within ten days, providing justification for continued operation in light of these alleged deficiencies.

Reference (43), W. G. Council provided the required justification for continued operation, pointing out a number of specific concerns with the content of Reference (42). NNECO suggested that the current status of the Staff's SER did not accurately reflect the qualification status of electrical equipment at Millstone Unit No. 2 and that the subject concerns should be evaluated in detail prior to the issuance of the final SER.

Reference (44) transmitted the Safety Evaluation Report (SER). The NRC Staff identified the information required, and the actions necessary to comply with Reference (31). NNECO was given the option of presenting alternatives to staff positions, however, all information was requested to be provided within 90 days. NNECO has encountered difficulties in discerning the bases for the alleged deficiencies in many instances.

In Reference (45), W. G. Council informed D. J. Hendrie of the substantial amounts of manpower and resources already expended on environmental qualifications, and that licensee evaluations found the NRC Staff requirements for a June 30, 1982 deadline for full compliance neither appropriate, realistic, nor attainable. NNECO requested relief from the June 30, 1982 deadline, in the form of extensions to a minimum of seventeen

months after SER issuance. Other issues mentioned were equipment in mild environments, replacement parts, aging requirements, and containment profiles. This document was subsequently appended to Reference (49).

In Reference (46), D. G. Eisenhut informed W. G. Council of the Staff's decision to extend the 30-day abeyance period granted in Reference (34) to 90 days. Within 90 days of the issuance of the SER for Millstone Unit No. 2, NNECO was requested to inform the Staff of its intentions regarding the hearing request of Reference (34), and of the specific issues to be raised in the proceeding.

In Reference (47), the law firm of Debevoise and Liberman filed a petition on behalf of 20 licensees seeking a thirteen month extension of the June 30, 1982 deadline established by CLI-80-21. The petition stated that few, if any, licensees could meet the deadline, and that the assumptions upon which CLI-80-21 was based have proven to be significantly understated in terms of the length of time needed for compliance.

Reference (48) informed the Staff that NNECO planned to have representatives present at the July 7 - 10, 1981 meeting on environmental qualification. Based upon speculation regarding the results of the meeting, NNECO also intended to propose dates for licensee-specific meetings on this issue.

Reference (49) informed the 20 petitioning licensees that the NRC Staff intended to postpone its decision on the Reference (47) petition until after the July 7 - 10, 1981 meeting on environmental qualification. Based upon speculation regarding the results of the meeting, NNECO also intended to propose dates for licensee-specific meetings on this issue.

Reference (49) informed the 20 petitioning licensees that the NRC Staff intended to postpone its decision on the Reference (47) petition until after July 7 - 10, 1981 meeting. NNECO had no objection to this course of action.

Reference (50) provided feedback on the July 7 - 10, 1981 meeting on environmental qualification. NNECO had a total of seven representatives in attendance at this meeting. While the meeting was of some benefit, additional dialogue on a plant-specific basis was determined to be necessary to resolve the numerous remaining questions. Specific comments on the meeting were provided as an attachment. General comments regarding resource expenditures adequacy and correctness of the SER, discrepancies between the SER and the TER, mild environments, and the June 30, 1982 deadline were also provided.

In Reference (51), the NRC Staff responded to the Reference (47) petition, recommending a one-year extension of the deadline to the Commission. Other options were discussed, but a one year extension was recommended. Additional extensions of time could be authorized by the Director, Division of Licensing, on a case-by-case basis for good cause shown.

Reference (52) established a written position on qualification of replacement parts to the provisions of NUREG-0588. NNECO stated that "sound reasons" for use of equipment lacking full qualification existed in numerous instances, and that such reasons are documented in the central qualification file.

Reference (53) forwarded D. G. Eisenhower's letter to W. G. Council proposing an additional delay in the Reference (37) hearing request, to allow NNECO to consider all recent or imminent developments. The staff expressed its intention to continue to pursue resolution of disputed technical issues.

In Reference (54), NNECO concurred with the Reference (53) proposal, agreeing to inform the Staff of NNECO's decision on the hearing request within 30 days of Commission disposition of the industry petition.

Reference (55) provided an overview of the environmental qualification issue in light of recent developments. The preferred methods to achieve resolution of disputed technical issues were discussed.

In Reference (56) W. G. Council provided a detailed synopsis of progress achieved to date toward meeting Environmental Qualification requirements docketing a detailed response to the Safety Evaluation Report for Millstone Unit No. 2 within the allotted 90 days; and demonstrating conclusively that continued operation of Millstone Unit No. 2 is consistent with public health and safety considerations.

Reference (57) R. C. Haynes to All Licensees, transmitted I&E Information Notice 81-29, which identifies adverse test results from testing of equipment, some of which were related to Environmental Qualification. The Staff does not require reporting of adverse test results, but pointed out that in some cases such results could be reportable under provisions of 10CFR50 or license requirements.

Reference (58) provided minor editorial changes to Reference (56).

In Reference (59) W. G. Council informed R. C. Haynes that NNECO would meet commitments made in Reference (55) by taking action to ensure continued reliable operation of existing RTD's at Millstone Nuclear Power Station No. 2.

In Reference (60), R. S. Clark requested that additional information be forwarded to the NRC's contractor, Franklin Research Center, to facilitate the review of the NNECO 90-day response on Environmental Qualification.

Reference (61) consists of a Federal Register notice (47FR2876) on proposed rulemaking regarding Environmental Qualification. The proposed rule would clarify the Commission's requirements and codify methods of qualification currently contained in national standards, regulatory guides, and certain NRC publications.

Reference (62) provided the material requested in Reference (60) to FRC, noting that much of the information is considered to be proprietary and also that much of it had been provided previously. Compliance with the intent and spirit of the Paperwork Reduction Act was also questioned.

W. G. Council submitted comments to the proposed rule on Environmental Qualification in Reference (63). Mr. Council supported Chairman Pallidino's concept of a revised deadline, also contending that the second refueling outage commencing after March 31, 1982 constituted an achievable deadline. Commissioner action on the schedule, independent of the technical requirements of the rule, was recommended.

In Reference (64), R. A. Clark requested that additional information on TMI Action Plan items included in NNECO's EQ central file be sent to FRC to facilitate their review of NNECO's 90-day EQ submittal. This information includes identification of all TMI Action Plan equipment installed as of January 1, 1981, all equipment with implementation dates after January 1, 1981, and numerous other items, many of which were previously submitted to the NRC.

Reference (65) consists of a Federal Register Notice (47FR7782) on the proposed Revision 1 to Regulatory Guide 1.89, "Environmental Qualification of Electric Equipment for Nuclear Power Plants." The proposed Revision 1 would describe procedures that would be acceptable to the NRC Staff for complying with the proposed regulations in Reference (61).

Reference (66) R. C. Haynes to all Licensees, transmitted I&E Information Notice 82-03 which reported results from tests conducted on electrical terminal blocks by Sandia Laboratories. The test results indicated that certain terminal blocks exhibited leakage currents when exposed to a chemical/steam environment. Although the Staff did not require action on this topic, it did note that licensees should assure that their preventative maintenance program considers the effect of maintenance activity in the cleanliness and integrity of

electrical terminations and terminal blocks.

Reference (67) submitted W. G. Council's comments on the Proposed Revision 1 to Regulatory Guide 1.89 (Reference (65)). Mr. Council noted that the proposed revisions did not recognize the adequacy of previously submitted evaluations and documentations. Additionally, the revision would impose new costs and obligations on utilities without establishing a basis for these costs and obligations. The proposed revisions had stated that "... no new costs or obligations ... (would be placed) on utilities."

Reference (68) provided notification to the Staff of the existence of a Substantial Safety Hazard (SSH) at Millstone Units 1 and 2. Two radioactive gas monitors were found to have unacceptable sensitivities in an input range of radioactive energies expected following an accident. The gas monitor supplier (Kaman) stated he will rectify the problem.

Reference (69) consists of a Federal Register Notice (47FR28363) which suspends the previously imposed June 30, 1982, deadline for completion of Environmental Qualification. The rule in 47FR28363 is to remain in effect until the NRC supersedes 10CFR50.49 with the Final Environmental Qualification rule.

Reference (70) provided the environmental qualification and TMI Action Plan information requested by Reference (64). Our submittal identified TMI Action Plan equipment installed as of January 1, 1981, and noted that some of the requested information had been previously submitted to the FRC on numerous occasions.

Reference (71), from the FRC to the NRC, acknowledged that NNECO had provided (via Reference (70) and numerous past submittals) the information requested by Reference (64).

Reference (72) updated the status of qualification testing on TMI item II.F.1.5, and provided NNECO's schedule for submittal of test reports.

In Reference (73) Petitioner, Union of Concerned Scientists, challenges U.S. NRC's Final Rule on Environmental Qualification suspending the June 30, 1982 deadline by which operators of nuclear power plants were to show that certain safety-related electrical equipment would operate under adverse conditions, (47FR28363).

In Reference (74) the NRC issued the Final Rule on Environmental Qualification of safety related electrical equipment, codifying methods and criteria to meet the Commission's requirements in this area.

In Reference (75) NUGEQ (intervenors) statement of support for NRC's position on interim rule on environmental qualification.

In Reference (76), W. G. Council re-affirmed Northeast Utilities' intention of making a determination on a hearing request by March 24, 1983.

In Reference (77) NUGEQ (Petitioner) vs NRC (Respondent), petition to review the final rule on Environmental Qualification, 10CFR50.49.

Via Reference (78) W. G. Counsil advised the NRC staff that NNECO interprets the Final Rule on Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants as superseding the 90-day responses requested in Reference (80). Additionally, schedules for the completion of qualification of electric equipment will be submitted by May 20, 1983.

Reference (79) withdraws NNECO's request for a hearing, based on certain interpretations of the final rule.

Reference (80) deferred submittal of documentation of qualification information for several weeks due to a determination that the vendor-supplied information was incomplete.

Reference (81), transmitted the Franklin Research Centers' TER for Millstone Unit 2, and the NRC's SER. Several items required responses on a 30 and/or 90 day schedule.

In Reference (82), NNECO provided responses to several items addressed in the Staff SER for Millstone 2 (Reference (74)). NNECO also stated that the FRC TER contains no proprietary information and it may be released for public disclosure. This submittal fulfilled the 30-day response requirement of Reference (81).

In Reference (83), NNECO provided responses to Supplement I to NUREG-0737, referred to as "basic requirements". Attachment Nos. 2 through 4 describe the current status of each of the five major areas (i.e., SPDS, CRDR, EOPs, Regulatory Guide 1.97, and ERFs) in Supplement I to revise NUREG-0737 for the Haddam Neck Plant, Millstone Unit No. 1, and Millstone Unit No. 2, respectively. Our interpretation of the implementation and qualification schedules of Supplement I to NUREG-0737 and 10CFR50.49 was provided.

In Reference (84), Revisions to the Technical Specifications were proposed to bring them into conformance with the Final Rule on Environmental Qualification, 10CFR50.49. The changes were proposed to delete the June 30, 1982 deadline date, and remove the requirement for a central qualification file.

Reference (85) provided the list of equipment and schedule for resolution of qualification deficiencies required by Reference (74). Due to the recent arrival (April 6, 1983) of Reference (81), a complete response to the Reference (81) questions will be provided by August 18, 1983.

By Reference (86), the U. S. Court of Appeals (D. C. Circuit) directed the Commission to provide an opportunity for public comment on the basis of the Commission's finding that extension of the July 30, 1982 EEQ deadline will not adversely impact public health and safety.

In Reference (87), the Union of Concerned Scientists petitioned the U. S. Court of Appeals (D. C. Circuit) and requested that an expedited briefing schedule be adopted for review of the extended EEQ deadline in the final EEQ rule.

Docket No. 50-336

Northeast Nuclear Energy Company

Millstone Unit No. 2

Attachment 2

List of Electric Equipment Important to Safety

August 18, 1983

FACILITY: Millstone Station

UNIT: Two

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EQUIPMENT ENVIRONMENTAL QUALIFICATION
 QUALIFICATION STATUS OF EQUIPMENT COVERED
 BY RULE 10CFR50.49

Page: 1
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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	Disagree	NUSCO TER ASSESSMENT		JCO Provided	Comment
							Modification	Pending		
2-A	Penetration	Conax	85	I.A	X					
3-A	T.B.'s	GE	83	I.A	X					
4-A	Cable	Anaconda	79	II.A		X				1
5-A	Cable	Kerite	78	I.A	X					
6-A	Cable	Cerro	71	II.A		X				1
6-Aa	Cable	Kerite	75	I.A	X					
7-A	H ₂ Recomb.	Westinghouse	86	I.A	X					
8-A	Recir.Fans	Westinghouse	93	II.A		X				1
9-A	P.I.R.Fans	Joy	92	II.A		X				1
10-A	Limit Sw.	Namco	63	II.A		X				1
11-A	Limit Sw.	Namco	64	II.A		X				2

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EQUIPMENT ENVIRONMENTAL QUALIFICATION
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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	NUSCO TER ASSESSMENT					Comment
						Disagree	Modification		JCO		
							Complete	Pending	Provided		
12-A	L.S. Conn.	Conax	42	I.A	X						
13-A	Set Screw Conn.	Ideal	35	I.A	X						
14-A	SOV	ASCO	16	I.A	X						
15-A	SOV	ASCO	28	II.A		X				1,2	
16-A	SOV	ASCO	16	I.A	X						
17-A	SOV	ASCO	-	-						3	
19-A	SOV	ASCO	30	I.A	X						
20-A	SOV	ASCO	30	I.A	X						
21-A	SOV	ASCO	27	I.A	X						

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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	NUSCO		TER ASSESSMENT		JCO Provided	Comment
					Agree	Disagree	Modification Complete	Pending		
23-A	MOV	Limitorque	95	III.A	X					
24-A	MOV	Limitorque	5	II.A		X				1
25-A	SOV	ASCO	30	I.A	X					
27-A	XMTR	FOXBORO	45	I.B	X			X	X	
28-A	XMTR	FOXBORO	56	I.B	- - - - -	- - - - -	- Deleted -	- - - - -	- - - - -	1
29-A	XMTR	FOXBORO	56	I.B	X			X		
30-A	XMTR	FOXBORO	54	I.B	X			X	X	
31-A	XMTR	FOXBORO	45	I.B	X			X		
32-A	XMTR	FOXBORO	45	I.B	X			X		

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EQUIPMENT ENVIRONMENTAL QUALIFICATION
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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	Disagree	NUSCO TER ASSESSMENT		JCO Provided	Comment
							Modification	Pending		
34-A	SOV	Valcor	31	II.C						
35-A	Connector	Litton	43	I.A	X					
36-A	Penetration	Conax	85	I.A	X					
37-A	Cable	Rockbestos	72	II.A		X				1
38-A	Term.Blk.	Weidm.	82	I.A	X					
1-B	Term.Blk	GE	84	I.A	X					
2-B	Cable	Gen.Cable	74	IV		X				1
3-B	Cable	Kerite	77	I.A	X					
4-B	Cable	Anaconda	80	II.A		X				1
5-B	Cable	Cerro	70	II.A		X				1
5-Ba	Cable	Kerite	76	I.A	X					

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SCEWS	Equipment Type	Manufacturer	1983 TFR No.	NRC Category	Agree	Disagree	TER ASSESSMENT		JCO Provided	Comment
							Modification	Pending		
7-B	MOV	Limitorque	1	II.A		X				1
8-B	MOV	Limitorque	1	II.A		X				1
9-B	MOV	Limitorque	1	II.A		X				1
10-B	MOV	Limitorque	10	II.A		X				1
11-B	MOV	Limitorque	2	II.A		X				1
12-B	MOV	Limitorque	2	II.A		X				1
13-B	MOV	Limitorque	4	II.A		X				1
14-B	MOV	Limitorque	14	II.C		X				1
15-B	MOV	Limitorque	3	II.A		X				1
16-B	MOV	Limitorque	8	II.C		X				1

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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	Disagree	NUSCO TER ASSESSMENT		JCO Provided	Comment
							Modification	Pending		
17-B	MOV	Limitorque	12	II.C		X				1
18-B	MOV	Limitorque	12	II.C		X				1
19-B	MOV	Limitorque	12	II.C		X				1
20-B	MOV	Limitorque	13	II.C		X				1
21-B	PP Motor	GE	88	II.A		X				1
23-B	Fan Motor	Joy	89	II.A		X				1
24-B	MO Damper	Raymond Cont.	-	-						3
25-B	PP Motor	Siemens/Allis	90	II.A		X				1

FACILITY: Millstone Station

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SCEMS	Equipment Type	Manufacturer	1983 TFR No.	NRC Category	NUSCO TER ASSESSMENT			JCO
					Agree	Disagree	Modification Complete Pending	
26-B	PP Motor	Siemens/Allis	91	II.A		X		1
29-B	PP Motor	GE	-	-				3
30-B	MCC	GE	87	II.A	- - - - -	- Deleted - - - - -	- - - - -	4
31-B	MCC	GE	-	-	- - - - -	- Deleted - - - - -	- - - - -	4
35-B	SOV	ASCO	29	I.A	X			
36-B	XMTR	GE/MAC	48	I.B	X		X	X
36-Ba	XMTR	GE/MAC	48	I.B	X		X	X
40-B	SOV	ASCO	21	I.B	X		X	
40-Ba	SOV	ASCO	24	I.B	X		X	
43-B	SOV	ASCO	17	I.A	X			
46-B	SOV	ASCO	15	I.A	X			
46-Ba	SOV	ASCO	15	I.A	X			

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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	NUSCO TER ASSESSMENT					Comment
						Disagree	Modification		JCO Provided		
							Complete	Pending			
47-B	SOV	ASCO	17	I.A	X						
49-B	L.S.	NAMCO	66	I.B		X				2	
50-B	SOV	ASCO	22	I.A	X						
51-B	L.S.	NAMCO	67	I.B		X				1	
52-B	SOV	ASCO	17	I.A	X						
53-B	SOV	ASCO	25	II.A		X				1	
54-B	L.S.	NAMCO	65	I.B		X	X			2	
55-B	L.S.	NAMCO	66	I.B	X		X				
56-B	SOV	ASCO	20	I.A	X						
57-B	L.S.	NAMCO	67	I.B		X				1	
58-B	SOV	ASCO	17	I.A	X						

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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	Disagree	TER ASSESSMENT			JCO Provided	Comment
							Complete	Pending			
66-B	SOV	ASCO	19	I.B	X			X	X		
66-Ba	SOV	ASCO	-	-				X	X		3
67-B	P.Sw.	Custom Comp.	-	-				X	X		3
68-B	SOV	ASCO	18	I.A	X						
68-Ea	SOV	ASCO	17	I.A	X						
69-B	L.S.	NAMCO	68	I.B	X		X				
69-Ba	L.S.	NAMCO	68	I.B	X		X				
70-B	SOV	ASCO	-	-				X	X		3
71-B	L.S.	NAMCO	-	-				X	X		3
72-B	SOV	ASCO	26	I.B	X			X	X		

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SCEWS	Equipment Type	Manufacturer	1983 TER No.	NRC Category	Agree	NUSCO TER ASSESSMENT					Comment
						Disagree	Complete	Modification Pending		JCO Provided	
83-B	MOV	Limitorque	11	II.A		X					1
84-B	MOV	Limitorque	7	II.A		X					1
85-B	PP Motor	Westinghouse	94	II.A		X					1
86-B	Vac.Sw.	Custom Comp.	-	-					X	X	3
89-B	MOV	Limitorque	9	II.A		X					1
91-B	XMTR	Foxboro	47	I.B	X		X				
940B	SOV	ASCO	23	I.A	X						
95-B	SOV	ASCO	18	I.A	X						
96-B	SOV	ASCO	22	I.A	X						

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SCEWS	Equipment Type	Manufacturer	1983 TFR No.	NRC Category	Agree	Disagree	TER ASSESSMENT		JCO Provided	Comment
							Modification	Pending		
97-B	SOV	ASCO	22	I.A	X					
98-B	SOV	ASCO	22	I.A	X					
99-B	SOV	ASCO	22	I.A	X					
100-B	SOV	ASCO	18	I.A	X					
102-B	SOV	ASCO	18	I.A	X					
106-B	SOV	ASCO	22	I.A	X					
107-B	SOV	ASCO	22	I.A	X					
108-B	SOV	ASCO	17	I.A	X					
110-B	SOV	ASCO	18	I.A	X					
112-B	L.S.	NAMCO	68	I.B	X			X		

FACILITY: Millstone Station

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EQUIPMENT ENVIRONMENTAL QUALIFICATION
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SCEWS	Equipment Type	Manufacturer	1983 TFR No.	NRC Category	Agree	Disagree	NUSCO TER ASSESSMENT			JCO Provided	Comment
							Modification				
							Complete	Pending			
113-B	L.S	NAMCO	68	I.B	X		X				
116-B	L.S	NAMCO	68	I.B	X		X				
119-B	L.S.	NAMCO	68	I.B	X		X				
120-B	L.S.	NAMCO	68	I.B	X		X				
121-B	XMTR	FOXBORO	46	I.B	X			X		X	
122-B	Cable	Rockbestos	73	II.A		X					1
1-C	MOV	Limitorque	5	II.A		X					1
2-C	XMTR	Foxboro	45	I.B	X			X		X	
5-C	E.T.D. Conn.	Rosemount	81	I.B	X			X		X	

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SCEWS	Equipment Type	Manufacturer	1983 TFR No.	NRC Category	NUSCO TER ASSESSMENT					JCO Provided	Comment
					Agree	Disagree	Modification		Pending		
							Complete				
8-C	XMTR	FOX BORO	55	I.B	X				X	X	
9-C	XMTR	FOX BORO	-	-	X				X	X	
14-C	Pr. Sw.	Cust. Comp	44	I.B	- - - - -	- - - - -	Deleted	- - - - -	- - - - -		1
15-C	Rad. Det.	General At.	34	II.A		X					1
16-C	XMTR	GEM	57	I.B		X					2
17-C	Accelometer	B&W	33	I.B	X				X	X	
18-C	Cable	B&W	69	I.B	X				X	X	
19-C	Preamp.	B&W	32	I.B	X				X	X	
20-C	JCT.BX.	B&W	-	-					X	X	3
22-C	H ₂ Anal.Rad. Monitor	BPC	-	-							3

EQUIPMENT ENVIRONMENTAL QUALIFICATION

QUALIFICATION STATUS OF EQUIPMENT

COVERED BY RULE 10 CFR 50.59

MILLSTONE UNIT 2

COMMENTS

1. Refer to SER/TER Review Sheet for justification.
2. Added qualification reference.
3. Equipment not evaluated in 1983 TER.
4. Equipment located in a mild environment.

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Northeast Nuclear Energy Company

Millstone Unit No. 2

Attachment 3

Index to SCEW Sheet Package

August 18, 1983

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21-B

13-B

15-B

24-A

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8-B

9-B

7-B

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24-A

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15-B

13-B

10-A, 23-A

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 12-B
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Valve HV4189, 4191, 4188		18-B, 20-B
Valve HV4250, 4251		57-B, 58-B
Valve HV4246, 4248		49-B, 50-B
Valve HV4217, 4221		40-B, 40-Ba
Valve HV4223, 4224 & PT-4223, 4224		36-B, 36-Ba
Valve HV4193, 4209		66-B, 66-Ba

Aux. Bldg. Ventilation

Fuel Handling Fan	MF20
Fuel Handling Damper	HV8141, 8275, 8326
E.S.F.G.D. Damper	HV8247, 8133, 8249,
D.C. Sw. Gr. Fan	MF54A & B
Batt. Rm. Exhaust Fan	MF112A & B

Ctmt. & Encl. Bldg. Vent

Cntmt. Air Fan	MF14A, B, C, D	8-A
Cntrt. Purge Fan	MF23	
Cntmt. Sample Fan	MF39A & B	
E.S.F.G.D. Air Unit	MF15A & B	23-B
Encl. Bldg. Fan	MF25A & B	
Post Incident Fan	MF18A & B	9-A
Cntmt. Rad. Mon. Valve	HV8121, 8122	
Cntmt. Purge Valve	HV8082	10-A
Purge Fan Iso-Damper	HV5050	
Cntmt. Purge Damper	HV8150, 8151	10-A, 17-A
Encl. Bldg. Damper	HV8079	
Encl. Bldg. Damper	HV8074	
Cntmt. Valve	HV8128	
Encl. Bldg. Damper	HV8153	
E.S.F.G.D. Damper	HV8306	24B
Fuel Handling Damper	HV8062	
E.B. Filt. Damper	HV8254	
E.G. Filt. Htr.	X61A, B	
Cntmt. Rad. Mon. Valve	HV8124	
Cntmt. Purge Valve	HV8125, 8080	10-A
Encl. Bldg. Damper	HV8081	
Cntmt. Purge Damper	HV8126	
Encl. Bldg. Damper	HV8127, 8073, 8070	
Encl. Bldg. Valve	HV8078	
Fuel Handling Damper	HV8143	
Encl. Bldg. Damper	HV8063	
E.S.F.G.D. Damper	HV8312	24B
H ₂ Purge Valve	HV8377, 8378, 8379, 8380	11-A, 21-A
H ₂ Recombiner	H29A & B	7-A
Steam Jet Damper	HV8654, 8695	
Cntmt. Leak Damper	HV8650, 8651	
Cntmt. Rad. Mon. Valve	HV8656	

Aux. HVAC

Cntl. Room Fan	MF21A & B
Cntl. Room Fan	MF31A & B
Cntl. Room Fan	MF32A & B
D.G. Room Fan	MF38A & B
Cntl. Room Damper Cntl.	
Vital Sw. Gr. Rm. Fan	MF51 & 52
Chilled Water Pump	MP122A & B
Chilled Water Pump Valves	HV8846, 8847, 8848, 8850
Chilled Water Pump Valves	HV8853, 8854, 8855, 8856
Cntl. Rm. Htrs.	X60A & B
Cntl. Rm. Compressor	MF22A & B
Cntl. Rm. Condenser	MF36A & B
Cntl. Rm. HVAC Ckts. Misc.	
Chiller	X169A & B
Sw. Gr. Room Valve	PV6925, 6926, 6927
Sw. Gr. Room Fan	MF133 & 134

Clean Liquid Radwaste

Prim. Drain Tank Valve HV9015, 9016, 9230	11-A, 19-A, 100-B, 119-B
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Gas & Aerated Liquid Radwaste

Waste Tank Valve HV9125, 9126	11-A, 19-A, 68-B, 69-B, 103-B
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Sampling System

Valve HV7690	68-Ba, 69-Ba
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Encl. & Aux. Bldg. Drains

Cntmt. Sump Valve HV9150, 9151	11-A, 19-A, 110-B
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Rx Trip Sw. GearDiesel Generator

D.G. Power & Cntl.
D.G. Unit Cntl.
D.G. Air Compressors

Boric Acid Heat TracingRadiation Monitoring

Hi Range Rad Detector RE8240, 8241	122-B, 15-C, 37A
Hi Range Effluent Monitor Rm 8168	See Note 1
Hydrogen Monitor	22C

Instrumentation

Pz. Pressure & Level	P100 & L110	27-A, 30-A
Pz. Pressure	P102	32-A
Pz. Pressure	P103 & P103-1	2-C, 1-D
Pz. Level	L103	2-D
Pz. Temp.	T101 & T109	3-D
Pz. Relief Valve Monitors	ZS200, 201, 402, 404	17-C, 18-C, 19-C, 20-C
Pz. Relief Valve Temp.	T106, 107, 108	
Quench Tank Pressure	P116	
Quench Tank Temp.	T116	
Quench Tank Level	L116	
RCP Loop Pressure Diff.	P111 & 121	
RCP Loop Temp.	T112 & 122	5-C
RCP Loop Temp.	T111, 115, 121 & 125	4-D, 5-D
RCP Loop Temp.	T103, 104 & 105	
S.G. Pressure	P1013 & 1023	31-A
S.G. Level	L1113 & 1123	29-A, 9-C
S.G. Level	L5271, 5272, 5273, 5274	28-A

Note: See pages 192 & 193 for S.G. Atmosphere Press. P-4223 & 4224.

Aux. id. Flow	F5277 & 5278	8-C
Cond. Storage TK Level	L5282	15-D
HPSI Pressure	P301	
LPSI Pressure	P302	9-D
Cntmt. Spray Pressure	P303	
HPSI & LPSI Flow	F311, 312, 321, 322	11-D
HPSI & LPSI Flow	F331, 332, 341, 342	11-D
Cntmt. Spray Flow	F3023 & 3024	
S.I. Tank Pressure	P-311, 321, 331, 341	
S.I. Tank Level	L-311, 321, 331, 341	
S.I. Tank Flow	F305	
Vol. Cntl. Tank Pressure	P225	7-D
Vol. Cntl. Tank (Letdown Temp.)	T224 & 225	
Vol. Cntl. Tank Level	L226	8-D
B.A. Tank Level	L206 & 208	
B.A. Pump Pressure	P206 & 208	
Charging Pressure & Flow	P212 & F212	6-D
Charging Temp.	T229 & 221	
Shutdown Cooling Temp.	T351	12-D
RWST Level	L-3000	
RBCCW Flow	F6034 & 6035	19-D, 20-D
Cntmt. Pressure	P8113, 8114, 8115, 8116	91-B
Cntmt. Pressure	P8117	
Cntmt. Temp.	T8096	
Cntmt. Humidity	H8064	
E.B.F.S. Pressure	P8071 & 8075	
E.B.F.S. Pressure	P8060	
E.B.F.S. Temp.	T8072 & 8076	
Charging Pump Cont.	PS224X, 224Y, 224Z	86-B
Containment Press.	PT8238, 8239	121-B
Cont. Sump Level	LT8242, 8243	16-C
RBCCW Pump Pressure	PS6119A, B, C	67-B

Reactor Protection

Turbine Trip	PS4597A, B, C & D
Nuclear Power	
S. G. Pressure	(see page 444)
Pz Pressure	(see page 420)
Pz Thermal Margin	(see page 436)
R.C. Lo Flow	(see page 433)
S.G. Level	(see page 447)
Ctmt. Pressure	(see page 477)
Mag Jack MG Ld Shed	

Control Elem. Assembly

CEDA Fans MF13A, B, C
 CRD PWR CEA 1 thru 69
 C.R. Reed Switch CEA 1 thru 69

Electrical Penetrations

CONAX	2-A, 36-A
Terminal Blocks	3-A, 1-B

Cable

Low Voltage Power	4-A, 4-B
Control	5-A, 3-B
Instrument (Cerro)	6-A, 5-B
Instrument (Kerite)	6-Aa, 5-Ba
Instrument (Coaxial)	37-A, 122-B
5000 V Power	2-B

Motor Control Centers

MCC B52	30-B
MCC B51, B61	31-B

Misc. Electrical Equipment

Terminal Blocks (Elect. Penetration)	3-A, 1-B
PAM (Weidmuller)	38-A
Electric Conductor Seal Assemblies (CONAX)	12-A
Set Screw Connectors (Ideal)	13-A

Instrumentation (Cold Shutdown Only)

Aux. Fd. PP Speed S4194A	13-D
Aux. Fd. PP Press. P5281, 5284, 5289	14-D, 16-D, 17-D
PMW Flow F210X, Y	
PMW Level L7277	
RBCCW Sd Htx Flow F6042, 6043	21-D, 22-D
RBCCW Sg Tank Level L6001, 6730	18-D, 24-D
RBCCW Hx Temp Ctl, TIC 6306, 7 & 8	23-D

Docket No. 50-336

Northeast Nuclear Energy Company

Millstone Unit No. 2

Attachment 4

System Component Evaluation Work Sheets

Discrepant Equipment Summary Sheets,

Including Justifications for Continued Operation

SER/TER Review Sheets

August 18, 1983

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual	Spec.	Qual.		
System: Various Plant ID No.:	Operating Time	Continuous	Continuous	1.	Passive Device Qualified By Design	See Qual. Box	
Component: Electrical Penetration Term. Blocks	Temperature (°F)	Profile 18	Note 2	D	4	Simultaneous Test	
Manufacture: General Electric Co.	Pressure (PSIA)	Profile 19	Note 2	D	4	Simultaneous Test	
Model Number: CR-151	Relative Humidity(%)	100	100	1.	4	Simultaneous Test	
Function: To terminate connections to electrical penetrations Accuracy: Not Required	Chemical Spray	2400 PPM Boron	Note 1	F	Note 1	Note 1.	
Service: Various circuits	Radiation	$9.4 \times 10^6 R$	$1.2 \times 10^7 R$	M	4	Analysis by literature search	
Location: Containment EL 14'-6"	Aging	40 yrs.	12×10^6 yrs	Plant Design Life	5	Arrhenius Analysis	
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Tech. Spec. 7604-E-34
- 2.
- 3.
4. GE Ltr. G-EH-8-15 dated 2/2/78
Term Block Locatest Forwarded
by G.E. Ltr. R.F. Thibault to R. Derosa dated 12/14/79
G.E. Ltr. G-EH-9-1-141 dated 10/18/79
5. Wyle Report 17436-48 dated 2/3/81

Notes: 1. Term. blocks are mounted in sealed boxes. No direct impingement. Protection considered adequate to prevent failure due to an accident.

2. Loca Qualification profiles from Doc. Ref. 4.

Temp °F	260	320	340	320	260
Press PSIG	21	75	103	75	21
RH %	100	100	100	100	100
Duration	1.5 Days	1.5 Hrs.	3 Hrs.	4.5 Hrs.	8 Days

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Electrical Plant ID No.:	Operating Time	Continuous	Continuous	1.	4,5,6,7,&8	Simultaneous Test	
Component: Low Voltage Power Cable	Temperature (°F)	Profile 18	Profile 2	D	4,5,6,7,&8	Simultaneous Test	
Manufacture: Anaconda	Pressure (PSIA)	Profile 19	Profile 2	D	4,5,6,7,&8	Simultaneous Test	
Model Number: EPR Insul, CSPE Jacket	Relative Humidity(%)	100	100	1	4,5,6,7,&8	Simultaneous Test	
Function: Wireways for Low Voltage Motors, D.C. Systems, Heater, etc.	Chemical Spray	2400 PPM Boron	3000 PPM Boron Note 1	F	4,5,6,7, & 8	Simultaneous Test	
Accuracy: Not Required	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	2	4,5,6,7,&8	Sequential Test	
Service: 480 V, 120 V AC, 125 VDC Circuits	Aging	40 Years	Simulated 40 Years	Plant Design Life	4,5,6,7, & 8	Sequential Test	
Location: Containment							
Flood Level Elev:(-)14'4"							
Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Technical Spec. 74-E-17
2. NUSCO Memo. D.W. Miller to R.J. DeRosa, NEE-79-E-281 Dated 5/21/72
4. FIRL Test Report F-C-4350-3, July 1976
5. FIRL Test Report F-C2525, Oct. 1969
6. Anaconda letter dated 4/20/72
7. Anaconda letter dated 4/14/72
8. Anaconda letter dated 2/14/72

Notes:

1. Chemical spray consists of:
3000 PPM Boron as Boric Acid
0.064 Molar Sodium Thiosulfate
Adjusted with Sodium Hydroxide to a PH of 10.5 at Room Temp.

SCEWS No. 4-A
1983 TER No. 79
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

- I) Summary of new information on SCEW sheet.
- 1) Deleted References 4a through f.
 - 2) Added new References 5, 6, 7, & 8.
- II) SER concerns: Equipment in NRC Category II.A
Response:

Same as III
- III) TER concerns: Equipment qualification not established
Response:

See attached
- IV) Proposed corrective action and schedule. N/A
- V) Justification for continued operation. N/A
- _____ Reaffirmed
- _____ Revised
- _____ New

SCEWS No.	4-A
1983 TER No.	79
Date	5/20/83

III) Response:

NNECO presented information on the SCEW Sheet indicating that the equipment is fully qualified for a harsh environment.

NNECO has noted that the FRC apparently misunderstood the referenced qualification documentation. The referenced specification (7604-E-17) required ethylene-propylene rubber insulation (EP) and chlorosulfonated polyethylene jacket (CSPE) materials. A proper evaluation of the qualification report and the specification indicates similarity between the installed and tested equipment.

In addition, NNECO has referenced additional documentation (references 5, 6, 7, & 8) which conclusively indicates complete qualification of the equipment.

NNECO also states that the documentation from the manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC Request For Additional Information (RAFI) dated January 6, 1982.

NNECO again reiterates that this equipment (cables) is qualified for its intended function and proper review of the documentation will unequivocally confirm the obvious.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Electrical Plant ID No.:	Operating Time	Continuous	Continuous	1.	4.(d)	Simultaneous Test	
Component: Control Cable	Temperature (°F)	Profile 18	Profile 3	D	4.(a)	Simultaneous Test	
Manufacture: Kerite	Pressure (PSIA)	Profile 19	Profile 3	D	4.(a)	Simultaneous Test	
Model Number: FR Insul FR Jacket	Relative Humidity(%)	100	100	1.	4.(a)	Simultaneous Test	
Function: Wireways for control & Low Level Pwr Ckts	Chemical Spray	2400 PPM Boron	3000 PPM Boron Note 1	F	4.(b)	Simultaneous Test	
Accuracy: Not Required	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	2.	4.(c)	Simultaneous Test	
Service: Various Control and Low Level Pwr Ckts.	Aging	40 Years	Simulated 40Yrs	1.	5.	Sequential Test	
Location: Containment							
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence N	NA	NA	NA	NA	NA	

*Documentation References:

- Bechtel Technical Spec. 7604-E-18
- NUSCO Memo. D.W. Miller to R.J. DeRosa
NEE-79-E-281 Dated 5/21/79
- FRIL Test Report F-C4020-1
 - Fig. 1
 - Page 3-1
 - Page 5-2
 - Page 6-1
- Kerite Engineering Memorandum 178A, May 1, 1979

Notes:

- Chemical Spray Consist of:
0.28 Molar H_3BO_3 (3000 PPM Boron)
0.064 Molar $Na_2S_2O_3$
N2OH to make a PH of 10.5 at 77°F

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Instrumentation Plant ID No.:	Operating Time	Continuous	Continuous	1.	2,3, & 4	Note 1	
Component: Instrument Cable	Temperature (°F)	Profile 18	Profile 4	D	2,3,& 4	Simultaneous Test *	
Manufacture: The Rockbestos Co. (CERRO)	Pressure (PSIA)	Profile 19	Profile 4	D	2, 3, & 4	Simultaneous Test *	
Model Number: XLPE Insul-Neoprene Jacket	Relative Humidity(%)	100	100	1.	2,3, & 4	Simultaneous Test *	
Function: Wireways for Instrumentation Ckts.	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F	2,3, & 4	Simultaneous Test *	
Accuracy: Not Required	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K.	2,3, & 4	Sequential Test *	
Service: General Instrumentation	Aging	40 Years	Simulated 40 Years	1.	2,3, & 4	Sequential Test *	
Location: Containment							
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Technical Spec. 7604-E-19A
2. CERRO Qualification Report F-C3798, March 1974
3. TWX #2798 from Cerro - Cable Construction
4. CERRO Cert. Report dated 2/1/77

Notes:

- * Insulation only
1. Cable involves low current only. Continuous operation is inherent.

SCEWS No. 6-A
1983 TER No. 71
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

- 1) Added References 2 and 3.
- 2) Delete References 4a through e.

II) SER concerns: Equipment in NRC Category II.A.

Response:

Same as III.

III) TER concerns: Equipment qualification not established.

Response:

See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

SCEWS No.	6A
1983 TER No.	71
Date	5/20/83

III) Response:

NNECO presented information on the SCEW Sheet indicating that the equipment is fully qualified for a harsh environment.

During the original (References 1 and 4) documentation review the licensee (NNECO) used engineering judgement concluding that the equipment is qualified. A review of the documentation and specification indicate that XLPE insulation was supplied and type tested by the manufacturer. In addition, NNECO has referenced additional documentation (References 2 and 3) which conclusively indicates complete qualification of the equipment.

NNECO also states that the documentation from the manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC Request For Additional Information (RFAI) dated January 6, 1982.

NNECO again reiterates that this equipment (cables) is qualified for its intended function and proper review of the documentation will unequivocally confirm the obvious.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Instrumentation Plant ID No.: Component: Instrument Cable Manufacture: Kerite Model Number: 600V Function: Wireways for Instrumentation Circuits Accuracy: Not Required Service: General Instrumentation Location: Containment Flood Level Elev: -14'4" Above Flood Level: YesX No	Operating Time	Continuous	Continuous	1.	3.d	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 3	D	3.a)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 3	D	3.a	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	3.a)	Simultaneous Test	
	Chemical Spray	2400 ppm	3000 ppm Boron Note 1	F	3.b)	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	2.	3.c)	Simultaneous Test	
	Aging	40 yrs.	Simulated 40 yrs.	1.	4.	Sequential Test	
	Submergence	N/A	N/A	N/A	N/A	N/A	

***Documentation References:**

1. NUSCO Standard Specification for Instrument Cable 600 volts SP-GEE-14
2. NUSCO memo D. W. Miller to R. J. DeRosa NEE-79-E-281 dated 5/21/79
3. FIRL Test Report F-C4020-1 dated March, 1975
 - a) Fig. 1
 - b) Page 3-1
 - c) Page 5-2
 - d) Page 6-1
4. Kerite Engineering Memorandum 178A, May 1979

Notes: 1. Chemical Spray consists of: 0.28 Molar H_3BO_3 (3000 ppm Boron)
0.64 Molar $Na_2S_2O_3$
NaOH to make a pH of 10.5 at 77°F

EQUIPMENT DESCRIPTION EE Sh. 252(H-29A) 253(H-29B)	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Post-Accident Hyd. Plant ID No.: Cont. H-29A, H-29B Component: Hydrogen Recombiner Manufacture: Westinghouse Model Number: Dwg. No. ME-7070-1 Function: To limit Hydrogen existing in the containment Accuracy: Not Required Service: Location: Containment EL14'-6" (H-29A) EL38'-6" (H-29B)	Operating Time	Continuous-ly one mon. or more	60 Days	1.	4.a)	Sequential Test	
	Temperature (°F)	Profile 18	Profile 5A	D	4.e) (See note 1.)	Sequential Test	
	Pressure (PSIA)	Profile 19	Profile 5	D	4.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	4.b)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	2500 PPM Boron	F	4.b)	Simultaneous Test	
	Radiation	1.5×10^8 R	2×10^8 R	2.	4.c)	Sequential Test	
	Aging	40 yrs.	40 yrs.	Plant Design Life	4.d)	Sequential Test	
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Tech. Spec. 7604-M-510, Page 3,4
2. NUSCO memo, D.W. Miller to R.J. DeRosa, NEE-79-E-281 dated 5/21/79.
- 3.
4. Westinghouse WCAP7709-L and Suppl 1-7
 - (a) Suppl 3, Par. 3.1.2
 - (b) Suppl 2, Page 3-24 (Test 2,3)
 - (c) Suppl 2, Par. 3.6.2
 - (d) Suppl 6, Par. 6.3.2
 - (e) Temp. vs time profile forwarded by Westinghouse ltr. NE U 3546 dated Oct. 1, 1980.

Notes:

1. Containment Temp diminishes to 200°F approx. ½ hour after a Loca: H. Recombiner is started 12 hours after a Loca
2. Spray consisted of 2500 PPM Boron as Boric acid with Sodium Hydroxide added to give a PH of 10

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
EESH. 206-209							
System: Cont. Air Recirc. Plant ID No.: F-14A, F-14B F-14C, F-14D Component: Containment Air Recirculation Fans	Operating Time	Note 2	1 Yr.	1.	4.d)	Sequential Test	
Manufacture: Westinghouse	Temperature (°F)	Profile 18	Table 2A, 2B	D	4.c)	Simultaneous Test	
Model Number: Westinghouse Syle No. 718007 Function: Cool Containment Air	Pressure (PSIA)	Profile 19	Table 2A, 2B	D	4.c)	Simultaneous Test	
Accuracy: Not Required Service: Containment Air Recirculation System- 460V Location: Containment El. 2'-0", 36'-0"	Relative Humidity(%)	100	100	1.	4.b)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	9.5 PH Spray Note 1	F	4.b)	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2X10 ⁸	K	4.a)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	4.e)	Sequential Test	
Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Technical Sepc. 7604-M-501
- 2.
- 3.
4. Westinghouse WCAP 7829
 - (a) Page 10,14
 - (b) Page 15, 37
 - (c) Page 33,35
 - (d) Page 3
 - (e) Page 16

Notes:

1. The chemistry environment was obtained using a water spray solution of 1.43 weight percent boric acid and adjusting PH to a value of 9.5 with sodium hydroxide. (2500 PPM Boron)
2. The units shall be designed to operate for 20 hrs. at peak incident conditions and 7 days at 15 PSIG, 200°F.

SCEWS No. 8-A
1983 TER No. 93
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

III) Response:

NNECO's response to FRC's comments:

- 1) Adequate similarity between equipment and test specimens established - Deficient.

NNECO has in its document files, for audit review, the link which establishes similarity.

- 2) Aging degradation evaluated adequately - Deficient

Aging has been adequately addressed and justified on the SCEW sheet which corresponds to WCAP-7829.

- 3) Qualified life or replacement schedule established - Deficient

Qualified life has been established of forty (40) years. There is no replacement schedule.

- 4) Criteria regarding aging simulation satisfied - Deficient

Aging simulation was done in accordance to IEEE-275 and IEEE-334 which is acceptable and meets qualification requirements.

- 5) Criteria regarding radiation satisfied - Deficient

Radiation requirement as indicated on SCEW sheet is 1.5E8. The equipment is qualified to 2E8 in WCAP-7829.

- 6) Equipment qualification not established - Deficient

Equipment qualification has been established under WCAP-7829. Equipment is considered fully qualified by NNECO.

NNECO responses to FRC's NOTE comments:

- 1) These motors are qualified for steam/pressure exposure, radiation, chemical spray and thermal aging per WCAP-7829.
- 2) These motors are Totally Enclosed Air Over (TEAO) and are used for short duration after the accident.
- 3) The motors lubrication (grease for bearings) are replaces as recommended by the manufacturer. Historically, manufacturer's requirements and replacement cycles are very conservative.

8/18/83

- 4) Since the motors are qualified under WCAP-7829 so are the motor lead splices. NNECO does not have to prove traceability to motor lead splices.
- 5) The motors are qualified for forty (40) years as specified in WCAP-7829 for both normal and accident environment.
- 6) Replacement schedules for grease, bearing, etc., does not establish qualification. These items are maintained as required by manufacturer's recommendation.
- 7) These motors are TEAO which means there are no open passages where outside air can enter the motor windings. Therefore, Beta emitter plate-out on the windings are not a concern because of the motor design.
- 8) Evidence of similarity between installed and tested unit is in NNECO qualification files and available for audit.

NNECO again reiterates that the equipment (motors) are qualified for their intended use and the qualification information is available in our files for audit.

EQUIPMENT DESCRIPTION EE SH. 217,218	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Plant ID No.: F-18A, F-18B	Operating Time	Continuous	1 yr.	1.	3.b)	simultaneous test	
Component: Post Incident Recirculation Fans	Temperature (°F)	Profile 18	Profile 25	D	3.b)	simultaneous test	
Manufacture: Joy Mfg. Co. (Reliance Electric Co. Motor)	Pressure (PSIA)	Profile 19	Profile 25	D	3.b)	simultaneous test	
Model Number: 24-17-5-3500 Special S/NGF15745, 15746	Relative Humidity(%)	100	100	1.	3.d)	simultaneous test	
Function: Containment Air Mixing	Chemical Spray	2400 PPM Boron	Note 1	F	3.c)	simultaneous test	
Accuracy: Not Required	Radiation	$1.5 \times 10^8 R$	$1 \times 10^9 R$	2.	3.e)	sequential test	
Service: Post Incident Recirculation - 460V	Aging	40 yrs.	40 yrs.	1.	3.a)	Sequential test	
Location: Containment El. 14'-6"							
Flood Level Elev:(-)14'4" Above Flood Level: YesX No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- Bechtel Technical Spec. 7604-M-507
- NUSCO memo, D. W. Miller to R. J. DeRosa, NEE-79-E-281 dated 5/21/79
- Joy Qualification Test Report X-604, 4/6/77, revised 3/20/80
 - page 5
 - page 12-17
 - appendix A, page 8
 - page 1.
 - appendix F, page 1

Notes:

- Chemical spray per IEEE 323, page 19 (3000 PPM Boron).

SCEWS No. 9-A
1983 TER No. 92
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A
Response:

Same as III

III) TER concerns: Equipment qualification not established.
Response:

Documentation of similarity is available for audit
in the file in accordance with I&E B79-01B.

IV) Proposed corrective action and schedule.

None

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Various Plant ID No.: Various	Operating Time	P	Continuous	P	5	Sequential Test	
Component: Stem mounted limit switches	Temperature (°F)	Profile 18	Profile 6	D	5.a)	Simultaneous Test	
Manufacture: NAMCO	Pressure (PSIA)	Profile 19	Profile 6	D	5.a)	Simultaneous Test	
Model Number: EA-180	Relative Humidity(%)	100	100	1.	5.b)	Simultaneous Test	
Function: Valve control, interlocks and position indication	Chemical Spray	2400 PPM Boron	Note 1	F	5.b)	Simultaneous Test	
Accuracy: Not Required	Radiation	$1.5 \times 10^8 R$	$2.04 \times 10^8 R$	4.	5.c)	Sequential Test	
Service: Various air operated and motor operated valves	Aging	40 yrs.	40 yrs. except gasket (2yrs.)	P.D.L.	2	Test & Analysis	Gasket replacement req. every 2 yrs.
Location: Inside Containment							
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- FSAR safety analysis (Amendment 20)
- Wyle Report 17436-3
-
- NUSCO memo, D. Miller to R. DeRosa, NEE-79-E-281 dated 5/21/79
- Vendor qual. report, plant file MRIR #1-26-79
 - Fig. 1, page 11 of 11
 - Page 9 of 11
 - Page 2 of 11
 - Page 3 of 11

Notes:

- The spray consisted of boric acid, water, sodium thioisulfate and sodium hydroxide-PH-10 (3000 PPM Boron).
- Model EA-180 limit switches replaced originally installed limit switches on the following valves:

CH-515	EB-88	SI-614	SI-618
CH-516	EB-89	SI-624	SI-628
CH-517	HV-8082	SI-634	SI-638
CH-518	HV-8125	SI-644	SI-648
CH-519			

11-1-80

SCEWS No. 10-A
1983 TER No. 63
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment Qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

1. CONAX connectors are utilized on all stem mounted limit switches listed on SCEWS 10A as indicated in the master listing of electrical components by system submitted to NRC in October, 1980. See SCEW Sheet 12A.
2. Aging Analysis was accomplished by Wyle utilizing activation energies and other data documented in their data files. FRC apparently did not review NNECO response to SER wherein it was documented that preventive maintenance and surveillance will periodically monitor this equipment.
3. NNECO take exception to Note 3 on Page 5g of Item No. 63 of the TER. NNECO provided the C of C for NAMCO EA180 series switches, which referenced the proper test report. The C of C does not reference the document listed on Page 5a, Item 63 of the TER as indicated by FRC. Their review should be done utilizing the proper reports which have been furnished to FRC previously. The Qualification Summary provided by Wyle is used solely for the aging parameter as noted on SCEW Sheet 10-A.
4. Operability time, as previously stated, for each switch listed on SCEWS 10-A is less than the qualified long term post accident duration listed on the SCEWS.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Various Plant ID No.: Various	Operating Time	P	Continuous	P	5	Sequential Test	
Component: Stem mounted limit switches	Temperature (°F)	Profile 18	Profile 7	D	5.a)	Simultaneous Test	
Manufacture: NAMCO	Pressure (PSIA)	Profile 19	Profile 7	D	5.a)	Simultaneous Test	
Model Number: EA-740	Relative Humidity(%)	100	100	1.	5.b)	Simultaneous Test	
Function: Valve control interlocks and position indication	Chemical Spray	2400 PPM Boron	Note 1	F	5.c)	Simultaneous Test	
Accuracy:							
Not required							
Service: Various air operated and motor operated valves	Radiation	$1.5 \times 10^8 R$	$2.04 \times 10^8 R$	4.	5.b)	Sequential Test	
Location:	Aging	40 yrs.	40 yrs. except gasket (2 yrs.)	P.D.L.	3	Test & Analysis	Gasket replacement req'd every 2 yrs.
Containment							
Flood Level Elev:(-)14'4"							
Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- FSAR safety analysis (Amendment 20)
-
- NAMCO Qual. Test Report QTR-111 Rev. 0 dated 10/1/81
- NUSCO memo, D. Miller to R. DeRosa, NEE-79-E-281 5-21-79
- Vendor qual. report, plant file MRIR #1-26-79
 - Fig. 1, Page 11 of 12
 - Page 7 of 12
 - Page 8 of 12
 - Page 3 of 1

Notes:

- The spray was composed of boric acid, water, sodium thiosulfate, and sodium hydroxide, PH between 10 & 11 (3000 PPM Boron).
- Model EA-740 limit switches replaced originally installed limit switches on the following valves:

HV-9230	HV-9151	HV-1060
HV-9125	HV-1064	HV-8380
CH-506	HV-1062	HV-8378

SCEWS No. 11-A
1983 TER No. 64
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Revised qualification reference for the parameter "Aging".

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

III) Response to TER Concerns:

- 1 - CONAX connectors are utilized on all stem mounted limit switches listed on SCEWS 11-A as indicated in the master listing of electrical components by system submitted to NRC in October 1980. See SCEWS 12-A.
- 2 - SCEWS 11-A revised to reflect new qualification reference for aging.
- 3 - FRC did not review the report referenced in the C of C for the EA740 switches, as stated in Note 3 of Item 64 page 5g. The report listed by FRC on page 5a and used in the evaluation on pages 5a-g, Item 64 is not the report referenced on SCEWS 11-A. (For all parameters with the exception of aging). See 2 above for aging qualification reference.
- 4 - Operability time, as previously stated, for each switch listed on SCEWS 11-A, is less than the qualified long term post accident duration listed on the SCEWS.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Various Plant ID No.:	Operating Time	P	Continuous	P	5.b)	Simultaneous Test	
Component: Electric Conductor Seal Assemblies for SMLS's and SV's Manufacture:	Temperature (°F)	Profile 18	Profile 8	D	5.b)	Simultaneous Test	
CONAX	Pressure (PSIA)	Profile 19	Profile 9	D	5.c)	Simultaneous Test	
Model Number: Part No. N-11001-32, N-11001-33 Function:	Relative Humidity(%)	100	100	1.	5.d)	Simultaneous Test	
Provide a sealed cable entrance for SMLS's/SV's Accuracy:	Chemical Spray	2400 PPM Boron	Note 2	F	5.d)	Simultaneous Test	
Not required Service:	Radiation	1.5X10 ⁸ R	1.5X10 ⁸ R	4.	5.a)	Sequential Test	
Valve limit switches and pilot operators Location:	Aging	40 Years	40 Years	PDL	6	Sequential Test	
Containment							
Flood Level Elev:(-)14"4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- FSAR safety analysis (Amendment 20)
-
-
- NUSCO memo D. Miller to R. DeRosa, NEE-79-E-281 dated 5/21/79
- CONAX qualification report IPS-409 dated 3-9-79
 - Par. 5.1
 - Par. 5.3.1 & 5.3.2
 - Par. 5.3.2.4
 - Par. 5.3.2.2
- CONAX Qualification Report IPS-325

Notes:

- All modules must be compatible with Fig. 5.3.1
The test data base configuration was subjected to the test profile given in Fig. 5.3.2.
- Chemical spray consisted of boron and NaOH with a PH of 10.5 (3000 PPM Boron)
- Assemblies were purchased under NUSCO P. O. 607 386 for qualified components

Facil : Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Electrical Plant ID No.:	Operating Time	Continuous	Continuous	Design Requirement	Passive Device Qualified By Design	See Qual. Box	
Component: Set screw Connectors	Temperature (°F)	Profile 18	3	D	3.	Simultaneous Test	
Manufacture: Ideal	Pressure (PSIA)	Profile 19	3	D	3.	Simultaneous Test	
Model Number: Cat. No. 30-210 and 30-211	Relative Humidity(%)	100	100	D	3.	Simultaneous Test	
Function: Splice Assemblies	Chemical Spray	2400 PPM Boron	2640 PPM Boron	F	3.	Simultaneous Test	
Accuracy: Not required	Radiation	$2.4 \times 10^7 R$	$3 \times 10^8 R$	4.	5.a)	Analysis	
Service: Valve limit switch circuits	Aging	40 yrs.	9366 yrs. at 120°F	Plant Design Life	5.a)	Analysis	
Location: Various Locations inside containment							
Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- 1.
- 2.
3. NUSCO memoranda GEE-79-214, GEE-78-358, GEE-79-271
4. NUSCO memo D. W. Miller to R. DeRosa
NEE-79-E-281 dated 5/21/79
5. WYLE Report 17436-1 dated Oct. 8, 1980
a) Page 21

Notes:

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem. & Vol. Control Plant ID No.: HY-518 HY-519 Component: Selenoid Operated Valves Manufacture: ASCO Model Number: Cat. No. NP-8320A-185V See Note 3 Function: Pilot Valves for Ch-518 and CH-519 Accuracy: Not Required Service: Charging Line Distr. Valves Location: Containment El. 8'-6"	Operating Time	P	Continuous	P	3.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	3.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	3.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	3.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	3.d)	Simultaneous Test	
	Radiation	1.5X10 ⁸ R	2 x 10 ⁸ R	4.	3.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	2	Sequential Test	Req. maint. performed every 20 yrs
Flood Level Elev.:(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- 1.
2. ASCO Test Report No. AQR-67368/Rev. 0
3. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D

Document Cont.:

4. NUSCO Memo D. W. Miller to R. DeRosa NEE-79-E-281, dated 5-21-79.

Notes:

1. Originally installed valves replaced during 8-8-79 outage.
2. SMLS Type EA-180
3. Viton Gaskets replaced with EP during 1983 refueling outage.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem. & Vol. Cont. Plant ID No.: HY-517	Operating Time	P	Continuous	P	3.a)	Simultaneous Test	
Component: Solenoid Operated Valve	Temperature (°F)	Profile 18	Profile 10	D	3.b)	Simultaneous Test	
Manufacture: ASCO	Pressure (PSIA)	Profile 19	Profile 10	D	3.b)	Simultaneous Test	
Model Number: Type NP 206-381-6RF	Relative Humidity(%)	100	100	D	3.c)	Simultaneous Test	
Function: Pilot Valve for CH-517	Chemical Spray	2400 PPM Boron	B	F	3.d)	Simultaneous Test	
Accuracy: Not Required							
Service: Aux. Spray	Radiation	1.5X10 ⁸ R	2 x 10 ⁸ R	4.	3.e)	Sequential Test	
Location: Containment El. 8'-6"	Aging					Sequential Test	Req. maint. performed every 20 yrs.
		40 Years	20 Years	PDL	2		
Flood Level Elev:(-)14"4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- 1.
2. ASCO Test Report No. AQR-67368/Rev. 0
3. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
4. NUSCO Memo D. W. Miller to R. DeRosa NEE-79-E-281, dated 5/21/79

Notes:

1. Originally installed valve replaced May, 1979 (Refer to W. G. Council letter to R. Reid dated 4/18/79)
2. SMLS Type EA-180

SCEWS No. 15-A
1983 TER No. 28
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Corrected Model Number typographical error. Added qualification reference and revised qualified life.

II) SER concerns: Equipment in NRC Category II.4
Response: Same as III

III) TER concerns: Equipment qualification not established.
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem & Vol. Control Plant ID No.: HV-515, HV-516 Component: Solenoid Operated Valves Manufacture: ASCO Model Number: Type NP- 8320A-185V See Note 3 Function: Pilot Valves for CH-515, CH-516 Accuracy: Not Required Service: Letdown system containment isolation Location: Containment El. 8'-6" Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Operating Time	Approx. 5 Sec. Following a Loca.	Continuous	5.	3.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	3.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	3.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	3.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	3.d)	Simultaneous Test	
	Radiation	1.5X10 ⁸ R	2 x 10 ⁸ R	4.	3.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	1	Sequential Test	Req. maint. performed every 20 yrs.
	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. ASCO Test Report No. AQR-67368/Rev. 0
3. ASCO Test Report No. AQS 21673/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
4. NUSCO Memo D. W. Miller to R. DeRosa NEE-79-E-281, dated 5/21/79
5. Tech. Spec. Table 2.6-2

Notes:

1. Originally installed valves replaced during October, 1979 outage
2. SMLS Type EA-180
3. Viton Gaskets replaced with EP during 1983 refueling outage.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Encl. Bldg. Filt. Sys. Plant ID No.: HV-8150, HV-8151 Component: Solenoid Operated Valves Manufacture: ASCO Model Number: Valve Type 206-381-3RVU See Note 3 Function: Pilot Valves for EB-88, EB-89 Accuracy: Not Required Service: Containment Rad. Mon. Isolation Location: Containment El. 38'-6" Flood Level Elev: (-) 14'4" Above Flood Level: Yes X No	Operating Time	Approx. 5 Sec. Following a Loca.	Continuous	5.	3.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	3.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	3.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	3.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	3.d)	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2 x 10 ⁸ R	4.	3.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	1	Sequential Test	Req. maint. performed every 20 yrs.
Flood Level Elev: (-) 14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. ASCO Test Report No. AQR-67368/Rev. 0
3. ASCO Test Report No. AQS 21678/ TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
4. NUSCO Memo D. W. Miller to R. DeRosa NEE-79-E-281, dated 5/21/79
5. Tech. Spec. 3.6-2

Notes:

1. Originally installed valves replaced during Oct. 1979 Outage
2. SMLS Type EA-180
3. Viton gasket replaced with EP during 1983 refueling outage.

SCEWS No. 17-A
1983 TER No. None
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

Revised qualified life, added Note 3 and Reference 1.

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Note 1. Plant ID No.: HV-9230, HV-9125, CH 506, HV-9151 Component: Solenoid Operated Valves Manufacture: ASCO Model Number: NP-206-381-6F Function: Pilot Valves for LRR 43.1, GR-11.1, CH-506, SSP-16.1 Accuracy: Not Required Service: Containment Isolation Location: Containment El. 3'-0", 3'-6", 8'-6", 2'-6"	Operating Time	Approx. 5 Sec. Following a Loca.	Continuous	2	1.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	1.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	1.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	1.d)	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2 x 10 ⁸ R	K	1.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	3	Sequential Test	Req. maint. performed every 20 yrs.
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- Tech. Spec. Table 3.6-2
- ASCO Test Report No. AQR-67368/Rev. 0

Notes:

- LRR-Clean Liquid Radwaste System
 GR-Gaseous Radwaste System
 CH-Chemical & Volume Control System
 SSP-Drain System
- Originally installed valves were replaced during October, 1979 outage
- SMLS Type EA-740

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.:HV-1064, HV-1062, HV-1060 Component: Solenoid Operated Valves Manufacture: ASCO Model Number: Valve Type 206-381-3F Function: Pilot Valves for RC-001, RC-002, RC-003 Accuracy: Not Required Service: R C Sample Valves Location: Containment	Operating Time	Approx. 5 Sec. Following a Loca.	Continuous	4	3.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	3.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	3.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	3.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	3.d)	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K	3.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	1	Sequential Test	Req. maint. performed every 20 yrs.
Flood Level Elev:(-)14'4" Above Flood Level: Yes No X	Submergence		NO		5		

*Documentation References:

1. ASCO Test Report No. AQR-67368/Rev. 0
3. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
4. Tech. Spec. Table 3-6-2
5. R.K. McCarthy letter to file dated 9-29-80 GEE-80-710

Notes:

1. Originally installed valves were replaced during October, 1975 outage
2. SMLS Type EA-740

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Encl. Bldg. Filtration Plant ID No.: HV-8380, HV-8378 Component: Solenoid Operated Valves Manufacture: ASCO Model Number: Valve Type NP-8344 B58V See Note 3 Function: Pilot Valves for EB-91, EB-100 Accuracy: Not Required Service: Hydrogen Purge Valves Location: Containment El. 38'-6" Flood Level Elev: (-)14'4" Above Flood Level: YesX No	Operating Time	P	Continuous	P	3.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	3.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	3.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	3.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	3.d)	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	4.	3.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	1	Sequential Test	Req. maint. performed every 20 yrs.
	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. ASCO Test Report No. AQR-67368/Rev. 0
3. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
4. NUSCO Memo D. W. Miller to R. DeRosa NEE-79-E-281, dated 5/21/79

Notes:

1. Originally installed valves replaced during October, 1979 outage
2. SMLS Type EA-740
3. Viton gaskets replaced with EP during 1983 refueling outage.

EQUIPMENT DESCRIPTION EE SH 40(S1614) 68(S1634) 66(S1624) 70(S1644)	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI 614, SI 624, SI 634, SI 644 Component: Valve Motor Operators Manufacture: Limitorque Model Number: Serial Nos. 157040, 157041, 157042, 157043 Function: Operators For SI-614, SI-624, SI-634 SI-644 Accuracy: Not Required Service: SI Tank Isolation Location: Containment El. 19'-3" Flood Level Elev: (-) 14'4" Above Flood Level: Yes X No	Operating Time	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	
	Temperature (°F)	Profile 18	Profile 11	D	4.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 11A	D	4.f)	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	4.a)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	Note 2.	F	4.d)	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2.04 \times 10^8 R$	K	4.c)	Sequential Test	
	Aging	40 Yrs.	Approx. 40 Yrs.	Plant Design Life	4.e)	Sequential Test	
Flood Level Elev: (-) 14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Technical Specs 7604-M-223A, 7604-E-40, 7604-E-11B
- 2.
- 3.
4. Limitorque Project Report 600456
 - a) Par. 3.4.2
 - b) Fig. 6
 - c) Par. 4.3
 - d) Par. 4.4.2
 - e) Par. 1.0
 - f) Fig. 5

Notes:

1. Not Applicable. Valves are administratively controlled open (accident position) - Tech Spec 3.5-1A
2. Table 1, IEEE Std. 382, Page 12

SCEWS No. 23-A
1983 TER No. 95
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None

Response:

III) TER concerns: Absence of FMEA Statement

Response:

Failure of this equipment will not affect other safety related equipment or cause an operator to be misled.

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION EE SH 39(S1651) 62(S1652)	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI-651, SI-652 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-2 S/N 155532, 155533 Function: Operators for SI-651, SI-652 Accuracy: Not Required Service: Shutdown Cooling Isolation Valves Location: Containment El. 0'-0", (-)1'-6" Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Operating Time	Continuous	Continuous		4.)	Sequential Test	
	Temperature (°F)	Profile 18	Profile 11	D	4.g)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 11A	D	4.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	4.a)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	Note 2.	F	4.d)	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2.04 \times 10^8 R$	K	4.c)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	4.f)	Sequential Test	
Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Bechtel Technical Specs. 7604-M-223A,
7604-E-40, 7604-E-11B
- 2.
- 3.
4. Limitorque Project Report 600456
 - a) Par. 3.4.2
 - b) Fig. 6
 - c) Par. 4.3
 - d) Par. 4.4.2
 - e) Par. 3.6
 - f) Par. 1.0
 - g) Fig. 5

Notes:

1. Valves are interlocked to prevent opening during operation (Ref. Logic Diagram 25203-28115, SH 47).
Long Term Requirement for Boron Precipitation Prevention.
2. Table 1, IEEE Std. 382, Page 12

SCEWS No. 24-A
1983 TER No. 5
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

III) Response to TER Concerns:

A) Model Number is included on SCEWS 24-A, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 39 & 62, as noted on SCEWS 24-A.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: HY618,628 638,648 Component: Solenoid Operated Valves Manufacture: ASCO Model Number: Valve Types NP-206-381-6RF Function: Pilot Valves for SI618,SI623,SI638 SI648 Accuracy: Not Required Service: Safety Injection Tank Test and Fill Valves Location: Containment El. 0'-0"	Operating Time	Within 5 Sec. After a Loca.	Continuous	2	1.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 10	D	1.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 10	D	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	D	1.c)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	B	F	1.d)	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2 x 10 ⁸ R	K	1.e)	Sequential Test	
	Aging	40 Years	20 Years	PDL	3	Sequential Test	Req. maint. performed every 20 yrs.
Flood Level Elev:(-)14'4" Above Flood Level: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- Tech. Spec. Table 3.6-2
- ASCO Test Report No. AQR-67368/ Rev. 0

Notes:

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.: PT-100X,Y	Operating Time	Continuous	Continuous	2	1	Simultaneous Test	
Component: Pressure Transmitter	Temperature (°F)	Profile 16, 18	318°F	D	1 Profile 34	Simultaneous Test	
Manufacture: Foxboro	Pressure (PSIA)	Profile 16, 19	90 PSI	D	1 Profile 34	Simultaneous Test	
Model Number: E-11GM	Relative Humidity(%)	100%	100%	D	1 Profile 34	Simultaneous Test	
Function: Pressurizer Heater Control	Chemical Spray	2400 PPM Boron		F			See summary sht. 27A
Accident Monitoring Accuracy: ±0.25% F.S.	Radiation	1.5 x 10 ⁸ R		K			See summary sht. 27A
Service: Pressurizer Pressure Monitoring	Aging	40 yrs.		P.D.L.			See summary sht. 27A
Location: Containment El. (-)5'-0"							
Flood Level Elev: (-)14'4"							
Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Foxboro Test Report Q9-6005
2. MPII FSAR Table 7.5.2

Notes:

5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: PT-100X, 100Y; PRESSURIZER PRESSURE, CONTROL MEASUREMENT CHANNELS

MANUFACTURER: FOXBORO Model E11GM S/N 2602021, 2602022

QUALIFICATION DISCREPANCY: These components lack documented qualification concerning their resistance to chemical spray, radiation and time/temperature aging.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

PT-100Y provides signal input for the post accident monitoring, subcooling margin monitor. Both these components initiate control signals which automatically energize or de-energize pressurizer heaters on a low or high pressurizer pressure condition. These components also provide control room pressurizer pressure indication.

The post accident subcooling margin monitor, will alarm a pressure input failure which indicates to the operator that this system should not be used for any safety related function. The automatic control of pressurizer heaters is a function which can be accomplished manually from the control room. An alternate method for determining primary plant pressure is provided by charging pump discharge pressure, and these components are not required for mitigation of a Chapter 15 Design Basis Event.

SCEWS No. 27-A
1983 TER No. 45
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification

Response: See IV below

IV) Proposed corrective action and schedule.

Equipment will be replaced with fully qualified equipment prior to the end of the second refueling outage after March 31, 1982. presently scheduled to commence in the first quarter of 1985.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

SCEWS No. 28A
1983 TER No. 56
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEW Sheet 28A is deleted. Safety function previously accomplished by LT5272 and LT5274 is now done with LT1113 and LT1123. See SCEWS 29A.

II) SER concerns: N/A
Response:

III) TER concerns: N/A
Response:

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: LT-1113A LT-1123A Component: Differential Pressure Transmitter Manufacture: Foxboro Model Number: N-E13DM Function: R.P.S. Input & Accident Monitoring Accuracy: 0.5% Service: Steam Generator Level Monitoring Location: Containment El. 16'-0"	Operating Time	Continuous	Continuous	4	1	Simultaneous Test	
	Temperature (°F)	Profile 18	350°F	D	1	Simultaneous Test	
	Pressure (PSIA)	Profile 19	85 psig	D	1	Simultaneous Test	
	Relative Humidity(%)	100%	100	D	1	Simultaneous Test	
	Chemical Spray	2400 ppm Boron	3000 ppm Boron	F	1	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2.0x10 ⁸ R.	K	1	Sequential Test	
	Aging	40 yrs.	1) 10 yrs. 2) 9 yrs.	P.D.L.	1	Sequential Test	See Notes 1 & 2
Flood Level Elev:(-)14'4" Above Flood Level: YesX No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Wyle Laboratories Report No. 45592-4 dated 8/18/83.
4. MPII FSAR Table 7.5.2

Notes:

1. Transmitter qualified life is 10 years.
2. Viton "O" Ring for transmitter cover is qualified for 9 years at 120°F, however, must be replaced each time cover is removed.

SCEWS No. 29-A
1983 TER No. 56
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEW Sheet 29-A revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.: LT-110X LT-110Y	Operating Time	Continuous	Continuous	2	1	Simultaneous Test	
Component: Differential Pressure Transmitter	Temperature (°F)	Profile 18	318°F	D	Profile 34	Simultaneous Test	
Manufacture: Foxboro	Pressure (PSIA)	Profile 19	90 PSI	D	Profile 34	Simultaneous Test	
Model Number: E-13DH	Relative Humidity(%)	100%	100%	D	Profile 34	Simultaneous Test	
Function: PZR Heater Control	Chemical Spray	2400 PPM Boron		F			See summary sht. 30A
Charging Pump Control Accident Monitoring Accuracy: 0.5% Span	Radiation	1.5 x 10 ⁸ R		K			See summary sht. 30A
Service: Pressurizer level monitoring	Aging	40 years		P.D.L			See summary sht. 30A
Location: Containment El. (-)5'-0"							
Flood Level Elev:(-)14'4" Above Flood Level: YesX No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Foxboro Test Report Q9-6005
2. MPIO FSAR Table 7.5.2

Notes:

5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Pressurizer level (control measurement channels) LT-110X, 110Y
differential pressure transmitters

MANUFACTURER: FOXBORO EI3DH S/N 2648245, 2648246

QUALIFICATION DISCREPANCY: These components lack documented qualification concerning their resistance to chemical spray, radiation and time/temperature aging.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

This equipment provides, charging pump control circuit input which de-energizes all but one charging pump on a high pressurizer level condition, and control room indication. These components also provide signals which energize or de-energize all pressurizer heaters on a high or low-low level condition respectively. A low pressurizer level signal from these components also provides a backup signal to start all charging pumps. This equipment provides control signals only and is not required for mitigation of a Chapter 15 Design Basis Event. The control functions described above can be manually performed from the control room in the event of a worse case component failure.

SCEWS No. 30-A
1983 TER No. 54
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification

Response: See IV below

IV) Proposed corrective action and schedule.

Equipment will be replaced with fully qualified equipment prior to the end of the second refueling outage after March 31, 1982, presently scheduled to commence in the first quarter of 1985.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No. PT-1013 A,B, C,D PT-1023 A,B,C,D Component: Pressure Transmitter Manufacture: Foxboro Model Number: N-E11GM Function: ESAS & RPS & Accident Monitoring Accuracy: 0.5% Span Service: Steam Generator Pressure Monitoring Location: Containment El. 16'-0"	Operating Time	Continuous	Continuous	2	1	Simultaneous Test	
	Temperature (°F)	Profile 18	350°F	D	1	Simultaneous Test	
	Pressure (PSIA)	Profile 19	85 psig	D	1	Simultaneous Test	
	Relative Humidity(%)	100%	100%	D	1	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 ppm Boron	F	1	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K	1	Sequential Test	
	Aging	40 yrs.	1) 10 yrs. 2) 9 yrs.	P.D.L.	1	Sequential Test	See Notes 1 & 2
Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Wyle Laboratories Report No. 45592-4 dated 5-18-83
2. MPII FSAR Table 7.5.2

Notes:

1. Transmitter qualified life is 10 years.
2. Viton "O" Ring for transmitter cover is qualified for 9 years at 120°F, however, must be replaced each time cover is removed.

SCEWS No. 31-A
1983 TER No. 45
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEW Sheet 31-A revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.: PT102 A, B, C, D Component: Pressure Transmitter Manufacture: Foxboro Model Number: N-E11GM Function: ESAS & Reactor Protective System and Accident Monitoring Accuracy: Service: Pressurizer pressure monitoring Location: Containment El. 7'-0" Flood Level Elev: (-) 14'4" Above Flood Level: Yes X No	Operating Time	Continuous	Continuous	2	1	Simultaneous Test	
	Temperature (°F)	Profile 16 18	350°F	D	1	Simultaneous Test	
	Pressure (PSIA)	Profile 16 19	85 psig	D	1	Simultaneous Test	
	Relative Humidity(%)	100%	100%	D	1	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 ppm Boron	F	1	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2 X 10 ⁸	K	1	Sequential Test	
	Aging	40 yrs.	1) 10 yrs. 2) 9 yrs.	P.D.L.	1	Sequential Test	See Notes 1 & 2
Flood Level Elev: (-) 14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

1. Wyle Laboratories Report No. 45592-4 dated 5/18/83
2. MPIO FSAR Table 7.5.2

Notes:

1. Transmitter qualified life is 10 years.
2. Viton "O" Rings for transmitter cover is qualified for 9 years at 120°F, however, must be replaced each time cover is removed.

SCEWS No. 32-A
1983 TER No. 45
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEW Sheet 32-A revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.: RC-422,414, 415,416,417,423,424,425 Component: Solenoid Valves Manufacture: VALCOR Model Number: V526-6042-3A V526-6043-3A Function: Reactor Head and Pressurizer Venting Accuracy: N/A Service: Location: CTMT 38'6" elev. Flood Level Elev(-)14'4" Above Flood Level: Yes X No	Operating Time	Continuous	Continuous	1	2	Sequential Test	
	Temperature (°F)	Profile 18	346°F	D	2c	Simultaneous Test	
	Pressure (PSIA)	Profile 19	113PSIG	D	2c	Simultaneous Test	
	Relative Humidity(%)	100	100	D	2c	Simultaneous Test	
	Chemical Spray	2400ppm Boron	2200 ppm Boron .06MNA ₂ S ₂ O ₃ Note 1	F	2c	Simultaneous Test	
	Radiation	1.5X10 ⁸ R	2X10 ⁸ R	K	2b	Sequential Test	
	Aging	40 years	40 years	PDL	2a,2b	Sequential Test	
Submergence	NA	NA	NA	NA	NA	NA	

***Documentation References:**

1. NUREG 0578 item 2.1.9
2. Valcor Engineering Qualification Test Report QR52600-515
 - a. Appendix I
 - b. Appendix III
 - c. Appendix IV

Notes:

1. The solution consisted of 2,200 ppm boron as boric acid (H₃BO₃) in solution with 0.064 molar sodium thiosulfate (NA₂S₂O₃) buffered with sodium hydroxide (NAOH) to make a ph of 10.5 at room temperature.

SCEWS No. 34-A
1983 TER No. 31
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None
Response:

III) TER concerns: Equipment in NRC Category II.C
Response: Valves are not continuously energized.

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed
_____ Revised
_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.: RC414,415, 416,417,422,423,424,425 Component: Electrical Connector Manufacture: LITTON Model Number: CIR06VI-20-15S Plug CIR02VI-20-15P Receptacle Function: Electrical Connector Accuracy: N/A Service: RCS Venting Solenoid Valves Location: CTMT 38'6" Flood Level Elev:(-) 14'4" Above Flood Level: Yes X No	Operating Time	Continuous	Continuous	2	1	Sequential Test	
	Temperature (°F)	Profile 18	340°F	D	Profile 33	Simultaneous Test	
	Pressure (PSIA)	Profile 19	105PSIG	D	Profile 33	Simultaneous Test	
	Relative Humidity(%)	100	100	D	Profile 33	Simultaneous Test	
	Chemical Spray	2400ppm Boron	3000ppm Boron	F	1c	Simultaneous Test	
	Radiation	1.5X10 ⁸ R	2X10 ⁸ R	K	1a	Sequential Test	
	Aging	40 years	40 years	PDL	1b	Sequential Test	
Submergence	NA	NA	NA	NA	NA	NA	

***Documentation References:**

1. Qualification Test of Electrical Connectors under A simulated LOCA/DBE be sequential exposure to environments of thermal aging, background radiation, containment pressurization, vibration, radiation (accident level), steam and chemical spray.
2. NUREG 0578 item 2.1.9
 - a. Appendix B
 - b. Paragraph 5.1 and 5.2
 - c. Paragraph 5.6

Notes:

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Containment Plant ID No.: ED3, ED8, ED9, WD3, WD8, WD9 Component: Instrumentation Electrical Penetrations Manufacture: CONAX Model Number: 7852-10000 Function: Maintain electrical continuity through the cont. struct. Accuracy: Not required Service: Various instrumentation circuits Location: Containment EL 14'6" Flood Level Elev (-): 14'4" Above Flood Level: Yes X No	Operating Time	Continuous	Continuous	1.	2.c)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 38	D.	2.d)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 38	D.	2.d)	Simultaneous Test	
	Relative Humidity (%)	100	100	1.	2.d)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	6200 PPM Boron	F.	2.e)	Simultaneous Test	
	Radiation	$9.4 \times 10^6 R$	$2.0 \times 10^8 R$	M.	2.b)	Sequential Test	
	Aging	40 Yrs.	>40 Yrs.	Plant Design Life	2.a)	Sequential Test	
Submergence		NA	NA	NA	NA	NA	

***Documentation References:**

- NUSCO Specification SP-GEE-45
- CONAX Qualification Test Report IPS 556.1
 - Par. 5.6.2.3 Page 13
 - Par. 5.6.1 Page 11
 - Par. 5.8.1.1 Page 21
 - Par. 5.8 Page 21
 - Par. 5.8.1.2 Page 23

Notes:

Unit: Two
Docket: 50-336

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Rad. Monitoring Plant ID No.: Z1RM8240/ B,C - Z2RM8241/B,C Component: Coaxial cable Manufacture: Rockbestos Co. Model Number: RSS 6-104 - 1081 Function: Rad monitoring cabling Accuracy: Not required Service: Low level signal circuits Location: Containment	Operating Time	Continuous	Continuous	System Design (P.A.M.)	1	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 39	D	1	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 39	D	1	Simultaneous Test	
	Relative Humidity(%)	100%	100%	Design Requirement	1	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F	1	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K,L	1	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	1	Sequential Test	
Flood Level Elev: (-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

***Documentation References:**

Rockbestos Qualification Test on Second Generation
 Solid Dielectric Coaxial Constructions and
 Cellular Dielectric Coaxial Constructions -
 Report #2806 dated 4/23/82

, Notes:

SCEWS No. 37-A
1983 TER No. 72
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

- 1) Deleted Notes 1 & 2 - no longer applicable.
- 2) Deleted old documentation Ref. 1 (Firewall III). Added new documentation, Ref. 1 (Second Generation Coaxial Cable 1081).
- 3) General changes.

II) SER concerns: Equipment is NRC Category II.A
Response: Same as III.

III) TER concerns: Equipment qualification not established.
Response: See attached.

IV) Proposed corrective action and schedule.
N/A

V) Justification for continued operation.
N/A

_____ Reaffirmed

_____ Revised

_____ New

SCEWS No.	37-A
1983 TER No.	72
Date	5/20/83

III) Response:

NNECO has presented new information on the SCEW Sheet indicating that the equipment is fully qualified for the environment in which it is required to function.

In response to the FRC deficiency NNECO states the following:

The original cable which had test anomalies identified by the radiation monitor manufacturer has been replaced in containment with the next generation (#1081) coaxial cable. The cable was replaced during Millstone Unit 2 1982 refueling outage.

In addition, report, data, specifications, and letters from the manufacturer which demonstrates qualification and/or similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC Request For Additional Information (RAFI) dated January 6, 1982.

NNECO again reiterates that this equipment (coaxial cable) is qualified for its intended function and proper review of the documentation will unequivocally confirm the obvious.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Post Accident Mon. Plant ID No.: T356, T357 Component: Terminal block Manufacture: Weidmuller Terminations Inc. Model Number: Type SAK4 Function: Termination of monitoring circuits Accuracy: Service: Containment sump level monitors Location: Containment	Operating Time	Continuous	Continuous	System Design (P.A.M.)	1.a)	Simultaneous Test	
	Temperature (°F)	Profile 18	Profile 40	D	1.a)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 40	D	1.a)	Simultaneous Test	
	Relative Humidity(%)	100	100	Design Requirement	1.a)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F	1.a)	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2.07 \times 10^8 R$	K,L	1.b)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	1.c), 2.	Sequential Test	
Flood Level Elev.(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

*Documentation References:

- FRC final report F-C5205-3
 - Page 4-7
 - Appendix C
 - Appendix B
- Weidmuller letter dated June 10, 1980

Notes:

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Various Plant ID No.: Component: Electrical Penetration Term. Blocks Manufacture: General Electric Company Model Number: CR-151 Function: To Terminate Connections to Electrical Penetrations Accuracy: Not Required Service: Various Location: Enclosure Bldg. EL 14'6" Zone A25, A26 Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	1.	Passive Device Qualified By Design	See Qual. Box	
	Temperature (°F)	Profile 26	Note 1.	3., A., I.	2.	Simultaneous Test	
	Pressure (PSIA)	H	Note 1.	3., A., I.	2.	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	2.	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	NA	NA	NA	NA	NA	
	Aging	40 yrs.	12x10 ⁶ yr	Plant Design Life	4	Arrhenius Analysis	
	Submergence						

*Documentation References:

- Bechtel Tech. Spec. 7604-E-34
- GE Ltrs. G-EH-8-16 Dated 2/2/78
G-EH-9-141 Dated 10/18/79
Term. Block Loca Test Forwarded by G.E. Ltr.,
R. F. Thibault to R. DeRosa Dated 12/14/79
- FSAR Amendment 17
- Wyle Report 17436-48 dated 2/3/81

Notes: 1. Qualification Profiles from Doc. Ref. 2.

Temp °F	260	320	340	320	260
Press PSIG	21	75	103	75	21
RH%	100	100	100	100	100
Duration	1.5 Days	1.5 Hrs.	3 Hrs.	4.5 Hrs.	8 Days

Facility : Millstone Nuclear Pr. Sta.
 Unit: Two
 Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Electric Plant ID No.:	Operating Time	Continuously	Continuously	1.	Passive Device Qualified by Design	See Qual. Box	
Component: 5000 V Power Cable	Temperature (°F)	Profile 24	Profile 35	A	2.a)	Simultaneous Test	
Manufacture: General Cable Corp.	Pressure (PSIA)	H	Profile 35 Note 1) Table 3	A	2.a)	Simultaneous Test	
Model Number: EPR insul. & Hypalon Jacket	Relative Humidity(%)	100	100	1.	2.a)	Simultaneous Test	
Function: Wireways for Medium Voltage Motors & Power Sources	Chemical Spray	NA	NA	NA	NA	NA	
Accuracy:	Radiation	1x10 ⁷ R	5x10 ⁷ R	1.	2.a)	Sequential Test	
Service: 4160 V Systems	Aging	40 yrs.	Greater than 40 years	Plant design life	3	Analysis	
Location: Various Plant Areas Outside Containment							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

Documentation References:

1. Bechtel Technical Spec. 7604-E-15
2. General Cable Corp. Report Dated 11/70
a) Table 4
3. Wyle Laboratories letter in response reference: 174365-018 dated October 24, 1980 and Telecon dated October 29, 1980

Notes:

There are no 5 Kv safety related cables in areas outside of containment that could be subjected to temperatures higher than 261°F during normal or accident conditions.

5/20/83

SCEWS No. 2-B
1983 TER No. 74
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

1. General changes to SCEW Sheet.
2. Note 1 has been rewritten for clarification.

II) SER concerns: Equipment in NRC Category II.A
Response:

Same as III

III) TER concerns:
Response: Equipment documentation not available.

See Attached.

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

SCEWS No.	2-B
1983 TER No.	74
Date	5/20/83

III) Response:

NNECO presented information on the SCEW Sheet indicating that the quipment is fully qualified for the environment in which it is required to function.

In response to the FRC deficiency NNECO states the following:

Report, data, specifications, and letters from the manufacturer which demonstrates qualification and/or similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC Request for Additional Information (RFAI) dated January 6, 1982.

NNECO again reiterates that this equipment (cable) is qualified for its intended function and proper review of the documentation will unequivocally confirm the obvious.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Electric Plant ID No.:	Operating Time	Continuous	Continuous	1.	2,3,4,5, & 6	Simultaneous Test	
Component: Low Voltage Power Cable	Temperature (°F)	Profile 20	Profile 2	A, D	2,3,4,5, & 6	Simultaneous Test	
Manufacture: Anaconda	Pressure (PSIA)	Note 1.	Profile 2	A	2,3,4,5, & 6	Simultaneous Test	
Model Number: EPR Insul. CSPE Jacket	Relative Humidity(%)	100	100	1.	2,3,4,5, & 6	Simultaneous Test	
Function: Wireways for Low Voltage Motors, D.C. Systems, Heaters, Accuracy: Etc. Not Required	Chemical Spray	NA	NA	NA	NA	Simultaneous Test	
Service: 480 V, 120 VAC, 125 VDC Circuits	Radiation	1x10 ⁷ R	2x10 ⁸ R	1.	2,3,4,5 & 6	Sequential Test	
Location: General Plant Areas Outside containment	Aging	40 yrs.	Simulated 40 Yrs.	1.	2,3,4,5,& 6	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-E-17
2. FIRL Test Report F-C4350-3, July 1976
3. FIRL Test Report F-C2525, October, 1969
4. Anaconda letter dated 4/20/72
5. Anaconda letter dated 4/14/72
6. Anaconda letter dated 2/14/72

Notes: 1. Environmental pressure is less than 2PSIG for about 13 sec. This is insignificant.

SCEWS No. 4-B
1983 TER No. 80
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

- I) Summary of new information on SCEW sheet.
- 1) Deleted References 2a through 2f.
 - 2) Added new References 3, 4, 5, & 6.
- II) SER concerns: Equipment in NRC Category II.A
Response: Same as III
- III) TER concerns: Equipment qualification not established.
Response: See attached.
- IV) Proposed corrective action and schedule. N/A
- V) Justification for continued operation. N/A
- _____ Reaffirmed
- _____ Revised
- _____ New

SCEWS No.	4-B
1983 TER No.	80
Date	5/20/83

III) Response:

NNECO presented information on the SCEW Sheet indicating that the equipment is fully qualified for a harsh environment.

NNECO has noted that the FRC apparently misunderstood the referenced qualification documentation. The referenced specification (7604-E-17) required ethylene-propylene rubber insulation (EP) and chlorosulfonated polyethylene jacket (CSPE) materials. A proper evaluation of the qualification report and the specification indicates similarity between the installed and tested equipment.

In addition, NNECO has referenced additional documentation (references 3, 4, 5, & 6) which conclusively indicates complete qualification of the equipment.

NNECO also states that the documentation from the manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC Request For Additional Information (RFAI) dated January 6, 1982.

NNECO again reiterates that this equipment (cables) is qualified for its intended function and proper review of the documentation will unequivocally confirm the obvious.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Instrumentation Plant ID No.:	Operating Time	Continuous	Continuous	1.	2,3, & 4	Note 1	
Component: Instrument Cable	Temperature (°F)	Profile 20	Profile 4	A, D	2,3,& 4	Simultaneous Test*	
Manufacture: Rockbestos Co. (Cerro)	Pressure (PSIA)	Note 2.	Profile 4	A	2,3, & 4	Simultaneous Test*	
Model Number: XLPE Insul-Neoprene	Relative Humidity(%)	100	100	1.	2,3, & 4	Simultaneous Test*	
Function: Jacket Wireways for Instrumentation Ckts	Chemical Spray	NA	NA	NA	NA	NA	
Accuracy: Not Required							
Service: General Instrumentation	Radiation	$8.60 \times 10^6 R$	$2 \times 10^8 R$	C,L	2,3,& 4	Simultaneous Test*	
Location: General Plant Areas Outside Containment	Aging	40 yrs.	Simulated 40 yrs.	1.	2, 3, & 4	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec 7604-E-19A
2. Cerro Cert. Report Dated 2/1/77
3. TWX #2798 from CERRO - cable construction.
4. CERRO Qualificaton Report F-C3798, March 1974

Notes:

* Insulation Only

1. Cable involves low current only. Continuous operation is inherent.
2. Environmental pressure is less than 2PSIG for about 13 sec. This is insignificant.

SCEWS No. 5-B
1983 TER No. 70
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

- I) Summary of new information on SCEW sheet.
- 1) Deleted References 2a through 2.
 - 2) Added References 3 & 4.
- II) SER concerns: Equipment in NRC Category II.A
Response: Same as III
- III) TER concerns: Equipment qualification not established.
Response: See attached.
- IV) Proposed corrective action and schedule. N/A
- V) Justification for continued operation. N/A
- _____ Reaffirmed
_____ Revised
_____ New

SCEWS No.	5-B
1983 TER No.	70
Date	5/20/83

III) Response:

NNECO presented information on the SCEW Sheet indicating that the equipment is fully qualified for a harsh environment.

During the original (References 1 & 2) documentation review, the licensee (NNECO) used engineering judgement concluding that the equipment is qualified. A review of the documentation and specification indicate that XLPE insulation was supplied and type tested by the manufacturer. In addition, NNECO has referenced additional documentation (References 3 & 4) which conclusively indicates complete qualification of the equipment.

NNECO also states that the documentation from the manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC Request For Additional Information (RAFI) dated January 6, 1982.

NNECO again reiterates that this equipment (cables) is qualified for its intended function and proper review of the documentation will unequivocally confirm the obvious.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Instrumentation Plant ID No.: Component: Instrument Cable Manufacture: Kerite Model Number: 600 V Function: Wireways for instrumentation circuits Accuracy: Not required Service: General instrumentation Location: General plant areas outside the cntmt. Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	1.	2.c)	Simultaneous Test	
	Temperature (°F)	Profile 20	Profile 3	A,D	2.a)	Simultaneous Test	
	Pressure (PSIA)	Note 1	Profile 3	A	2.a)	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	2.a)	Simultaneous Test	
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	
	Radiation	8.60×10^6 R	2×10^8 R	C,L	2.b)	Simultaneous Test	
	Aging	40 yrs.	Simulated 40 yrs.	1.	3.	Sequential Test	
Submergence							

*Documentation References:

1. NUSCO Standard Specificatin for instrument cable 600 volts SP-GEE-14
2. FIRL Test Report F-C 4020-1 dated March 1975
 - a) Fig. 1
 - b) Page 5-2
 - c) Page 6-1
3. Kerite Engineering Memorandum 178A, May 1979

Notes:

1. Environmental pressure is less than 2 PSIG for about 13 seconds. This is insignificant.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI615, SI625, SI635, SI645 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-1-25 S/N 137101, 137102, Function: 137103, 137104 Operators for SI615, SI625, SI635, SI645 Accuracy: Not Required Service: LPSI Flow Location: Encl. Bldg. EL.(-)5'0", W. Pipe Pent, Rm. Note 1	Operating Time	Must open and stay open - continuous	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	112°F max.	Profile 12	2. A	3.d)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 12	2. A	3.d)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.a)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	4.80x10 ⁶ R	2.04x10 ⁸ R	C,L	3.c)	Sequential Test	
	Aging	40 Yrs.	Simulated 40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M-780
- FSAR Amendment 17
- Limitorque Test Report B0003, 11-13-74 to 1-23-75
 - Par. 2.1.1
 - Par. 5.0
 - Par. 2.3
 - Fig. 1
 - Par. 2.1.3
- FSAR Sec. 6.3.3.1 & P & ID 25203-26015

Notes: 1.

	ZONE
SI 615	A18
SI 625	A18
SI 635	A18
SI 645	A18

SCEWS No. 7-B
1983 TER No. 1
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 7-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.

2 - Class E.

3 - No motor brake

4 - Not applicable

5 - Reliance

6 - Not applicable

7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 50-53.

8 - Not applicable

9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) At the time of the Limitorque Tests for IEEE 382 (72) and 323 (71) (Report B0003) the criteria for aging was not well established. Thermal, Mechanical, and Radiation Aging Programs were based on Limitorque's experience and sound engineering judgement. Documentation, as with "A" above, is and has been available for audit, which shows that Limitorque was appraised of the service conditions for the valves and that they are qualified by the report referenced. Also, as stated in the response to the 1981 SER, these valves are included in the Plant Surveillance and Preventive Maintenance Program.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI616, SI626, SI636, SI646 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-00-15 S/N 134075, 134077, 134079, 134081 Function: Operators for SI616, SI626, SI636, SI646 Accuracy: Not Required Service: HPSI Flow Location: Encl. Bldg. EL(-) 5'0", W. Pipe Pent Rm. Note 1	Operating Time	Must open and stay open - Continuous	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	112°F max.	Profile 12	2. A	3.d)	Simultaneous Test.	
	Pressure (PSIA)	H	Profile 12	2. A	3.d)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.a)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	4.80x10 ⁶ R	2.04x10 ⁸ R	C,L	3.c)	Sequential Test	
	Aging	40 Yrs.	Simulated 40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M-780
- FSAR Amendment 17
- Limatorque Test Report B0003, 11-13-74 to 1-23-75
 - Par. 2.1.1
 - Par. 5.0
 - Par. 2.3
 - Fig. 1
 - Par. 2.1.3
- FSAR Sec. 6.3.3.1,P & ID 25203-26015

Notes: 1.

ZONE	
SI 616	A18
SI 626	A18
SI 636	A18
SI 646	A18

SCEWS No. 8-B
1983 TER No. 1
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 8-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class B.
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 42-45.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

- B) At the time of the Limitorque Tests for IEEE 382 (72) and 323 (71) (Report B0003) the criteria for aging was not well established. Thermal, Mechanical, and Radiation Aging Programs were based on Limitorque's experience and sound engineering judgement. Documentation, as with "A" above, is and has been available for audit, which shows that Limitorque was appraised of the service conditions for the valves and that they are qualified by the report referenced. Also, as stated in the response to the 1981 SER, these valves are included in the Plant Surveillance and Preventive Maintenance Program.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI617, SI627, SI637, SI647 Component: Valve Motor Operator Manufacture: Limitorque Model Number: SMB-00-15 S/N134076, 134078, 134080, 134082 Function: Operators for SI617, SI627, SI637, SI647 Accuracy: Not Required Service: HPSI Flow Location: Encl. Bldg. EL.(-) 5'0", W. Pipe Pent. Rm. Note 1	Operating Time	Continuous Note 2	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	112°F max.	Profile 12	2. A	3.d)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 12	2. A	3.d)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.a)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	4.80x10 ⁶ R	2.04x10 ⁸ R	C,L	3.c	Sequential Test	
	Aging	40 Yrs.	Simulated 40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-780
2. FSAR Amendment 17
3. Limitorque Test Report B0003, 11-13-74 to 1-23-75
 - a) Par. 2.1.1
 - b) Par. 5.0
 - c) Par. 2.3
 - d) Fig. 1
 - e) Par. 2.1.3
4. FSAR Sec. 6.3.3.1, P & ID 25203-26015

Notes: 1.

ZONE

SI 617 A18
 SI 627 A18
 SI 637 A18
 SI 647 A18

2. Must open and stay open throughout the event.

SCEWS No. 9-B
1983 TER No. 1
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 9-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAT) dated January 6, 1982.
- 2 - Class B.
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 46-49.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

- B) At the time of the Limitorque Tests for IEEE 382 (72) and 323 (71) (Report B0003) the criteria for aging was not well established. Thermal, Mechanical, and Radiation Aging Programs were based on Limitorque's experience and sound engineering judgement. Documentation, as with "A" above, is and has been available for audit, which shows that Limitorque was appraised of the service conditions for the valves and that they are qualified by the report referenced. Also, as stated in the response to the 1981 SER, these valves are included in the Plant Surveillance and Preventive Maintenance Program.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem. & Vol. Plant ID No.: Control HV2524 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-000 S/N 174869 Function: Operator for CH-429 Accuracy: Not Required Service: Charging Pump Discharge Location: Encl. Bldg. EL. (-) 5'0", W. Pipe Pent. Rm. Zone A18 Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	112°F max.	Profile 13	2. A	3.c)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 13	2. A	3.c)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	1.65x10 ⁶ R	2.04x10 ⁸ R	C,L	3.a)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M-223A
- FSAR Amendment 17
- Limitorque Test Report 600376A, 4/26/72 to 8/30/72
 - Par. 2.1
 - Appendix C, F-C3441 Par. 4.0
 - F-C3441, Fig. 3
 - F-C3441, Par. 3.2, Page 3-3
 - F-C3441, Par. 3.3.3
- FSAR Fig. 9.2-2

Notes:

SCEWS No. 10-B
1983 TER No. 10
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 10-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 104.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: React.-Bldg.CCW Plant ID No.: HV6096, HV6095 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-000 S/N152851, 152849 Function: Operators for 2-RB30-1A, 2-RB30-1B Accuracy: Not Required Service: RBCCW to RC Pumps Location: Encl. Bldg. EL(-) 5'0" W. Pipe Pent. Rm Zone A18	Operating Time	Continuous	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	112°F max.	Profile 13	2. A	3.c)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 13	2. A	3.c)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	4.80x10 ⁶ R	2.04x10 ⁸ R	C,L	3.a)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-223A
2. FSAR Amendment 17
3. Limitorque Test Report 600376A 4/26/72 to 8/30/72
 - a) Par. 2.1
 - b) Appendix C, F-C3441 Par. 4.0
 - c) F-C 3441, Fig. 3
 - d) F-C 3441, Par. 3.2, Page 3-3
 - e) F-C 3441, Par. 3.3.3
4. FSAR Table 9.4-2, Fig. 9.4-2

Notes:

SCEWS No. 11-B
1983 TER No. 2
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 11-B see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 154 and 155.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: React. Bldg. CCW Plant ID No.: HV6108, HV-6106 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-000 S/N 152850, 152848 Function: Operators for 2-RB37 -2A, 2-RB37-2B Accuracy: Not Required Service: RC Pump Oil Clg. Water Disch. Location: Encl. Bldg. (-) 5'0" W. Pipe Pent. Rm. Zone A18	Operating Time	Continuous	Continuous	4.	3.)	Sequential Tests	
	Temperature (°F)	112°F max.	Profile 13	2. A	3.c)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 13	2. A	3.c)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	4.80x10 ⁶ R	2.04x10 ⁸ R	C,L	3.a)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-223A
2. FSAR Amendment 17
3. Limitorque Test Report 600376A 4/26/72 to 8/30/72
 - a) Par. 2.1
 - b) Appendix C, F-C3441 Par. 4.0
 - c) F-C 3441, Fig. 3
 - d) F-C 3441, Par. 3.2, Page 3-3
 - e) F-C 3441, Par. 3.3.3
4. FSAR Table 9.4-2, Fig. 9.4-2

Notes:

SCEWS No. 12-B
1983 TER No. 2
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 12-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 156 and 157.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

Facility: Millstone Nuclear Pt. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT		Note 1	DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI653, SI654, SI655, SI656 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-00 S/N 134084, 134083, 134085, 134228 Function: Operators for SI653, SI654, SI655, SI656 Accuracy: Not Required Service: HPSI Pump Discharge Location: Aux. Bldg. EL (-) 45' 6" Note 2	Operating Time	Continuous	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	112°F max.	Profile 12	2. A	3.d)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 12	2. A	3.d)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.a)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	3.33x10 ⁶ R	2.04x10 ⁸ R	C,L	3.c)	Sequential Test	
	Aging	40 Yrs.	Simulated 40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M-780
- FSAR Amendment 17
- Limitorque Test Report B0003 11/13/74 to 1/23/75
 - Par. 2.1.1
 - Par. 5.0
 - Par. 2.3
 - Fig. 1
 - Par. 2.1.3
- FSAR Fig. 6.1-1

Notes:

- SI653, SI654 must function in a radiation (only) environment.
- | | |
|--------|----|
| ZONE | |
| SI 653 | A3 |
| SI 654 | A3 |
| SI 655 | A2 |
| SI 656 | A2 |

5/20/83

SCEWS No. 13-B
1983 TER No. 4
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A
_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 13-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class B.
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 36, 37, 63, and 65.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

- B) At the time of the Limitorque Tests for IEEE 382 (72) and 323 (71) (Report B0003) the criteria for aging was not well established. Thermal, Mechanical, and Radiation Aging Programs were based on Limitorque's experience and sound engineering judgement. Documentation, as with "A" above, is and has been available for audit, which shows that Limitorque was appraised of the service conditions for the valves and that they are qualified by the report referenced. Also, as stated in the response to the 1981 SER, these valves are included in the Plant Surveillance and Preventive Maintenance Program.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION EE Sh. 114A, 115	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Aux. Feedwater Plant ID No.: HV5276 HV5275 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-00 S/N146658, 146659 Function: Operators for FW-43A, FW-43B Accuracy: Not Required Service: Aux. Feedwater Isolation Location: Turbine Bldg. EL. 14'6" Zone F10	Operating Time	Continuous	Continuous	Note 1	3.)	Sequential Test	
	Temperature (°F)	Profile 22	Profile 12	2. A, E	3.d)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 12	2. A	3.d)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.a)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	NA	2.04x10 ⁸ R	NA	3.c)	Sequential Test	
	Aging	40 Yrs.	Simulated 40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-407
2. FSAR Amendment 17
3. Limitorque Test Report B0003 11/13/74 to 1/23/75
 - a) Par. 2.1.1
 - b) Par. 5.0
 - c) Par. 2.3
 - d) Fig. 1
 - e) Par. 2.1.3, 2.2.1

Notes: 1. Must be continually operated in a throttle mode to control steam generator level.

SCEWS No. 14-B
1983 TER No. 14
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II. C

Response: Same as III

III) TER concerns: Qualified life not adequately addressed.

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model number is included on SCEWS 14-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class B.
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 115.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

- B) At the time of the Limitorque Tests for IEEE 382 (72) and 323 (71) (Report B0003) the criteria for aging was not well established. Thermal, Mechanical, and Radiation Aging Programs were based on Limitorque's experience and sound engineering judgement. Documentation, as with "A" above, is and has been available for audit, which shows that Limitorque was appraised of the service conditions for the valves and that they are qualified by the report referenced. Also, as stated in the response to the 1981 SER, these valves are included in the Plant Surveillance and Preventive Maintenance Program.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT Note 1			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI662, SI663 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SME-00 S/N 168874, 168875 Function: Operators for SI662, SI663 Accuracy: Not Required Service: Shutdown Heat Exchanger to HPSI Suction Location: Aux. Bldg. EL (-) 45'6" Zone A3(SI662) Zone A2((SI663)	Operating Time	Continuous	Continuous	4.	3.)	Sequential Test	
	Temperature (°F)	111°F max.	Profile 13	2. A	3.c)	Simultaneous Test	
	Pressure (PSIA)	H	Profile 13	2. A	3.c)	Simultaneous Test	
	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	3.33x10 ⁶ R	2x10 ⁸ R	C,L	3.a)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M-223E
- FSAR Ammendment 17
- Limitorque Test Report 600376A 4-26-72 to 8-30-72
 - Par. 2.1
 - Appendix C F-C3441 Par. 4.0
 - F-C 3441, Fig. 3
 - F-C 3441, Par. 3.2, Page 3-3
 - F-C 3441, Par. 3.3.3
- FSAR Fig. 6.1-1

Notes:

- These components must function in a radiation (only) environment.

SCEWS No. 15-B
1983 TER No. 3
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 15-B see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 38 and 64.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT Note 2			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: SI411, SI412 Component: Valve Motor Operators Manufacture: Limitorque Model Number: SMB-00 S/N 145934, 145933 Function: Operators for SI411, SI412 Accuracy: Not Required Service: HPSI Pump Suction Location: Aux. Bldg. EL (-) 45'6" Zone A4	Operating Time	Continuous	Continuous	6.	4.)	Sequential Test	
	Temperature (°F) NA						
	Pressure (PSIA) NA						
	Relative Humidity(%) NA						
	Chemical Spray NA						
	Radiation	5.13x10 ⁵ R	2.04x10 ⁸	C	5. Note 1.	Sequential Test	
	Aging	40 Yrs.	Simulated 40 Yrs.	Plant Design Life	4.a)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-223B
2. FSAR Amendment 17
4. Limitorque Test Report 600198 1/2/69 to 4/29/69
 - a) Page 5
 - b) Page 4
5. Limitorque Test Report 600376A 4/26/72 to 8/30/72 Par. 2.1
6. FSAR Fig. 6-1-1

Notes:

- 1) Report 600376A applies to Radiation Qualification Per Limitorque Telex 12/17/79
- 2) Valves must function in a radiation (only) environment.

5/20/83

SCEWS No. 16-B
1983 TER No. 8
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II. C
Response: Same as III

III) TER concerns: Qualified life not adequately addressed.
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 16-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - H. K. Porter
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 60 and 61.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

Facility : Millstone Nuclear Pt. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HV4218	Operating Time	Continuous	Continuous	Note 2	3.)	Sequential Test	
Component: Valve Motor Operator	Temperature (°F)	Profile 20	Profile 13	2. A, D	3.c)	Simultaneous Test	
Manufacture: Limitorque	Pressure (PSIA)	Note 1	Profile 13	2. A	3.c)	Simultaneous Test	
Model Number: SMB-000 S/N 156211	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
Function: Operator for MS-65A	Chemical Spray	NA	NA	NA	NA	NA	
Accuracy: Not Required	Radiation	NA	$2.04 \times 10^8 R$	NA	3.a)	Sequential Test	
Service: Steam Gen. No. 1 Main Steam Isolation Bypass	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Location: Encl. Bldg. EL 38'6" West Valve Rm. Zone A50							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M-223A
- FSAR Amendment 17
- Limitorque Test Report 600376A 4-26-72 to 8-30-72
 - Par. 2.1
 - Appendix C, F-C3440 Par. 4.0
 - F-C 3441, Fig. 3
 - F-C 3441, Par. 3.2, Page 3-3
 - F-C 3441, Par. 3.3.3 & 600376A Par. 3.1.2

Notes:

- The peak pressure environment is 1.6 psig for a duration of about 13 seconds.
- Used only during startup to warm turbine plant. If it were open during a main steam line break outside the containment it would receive a MSIS and must close and stay closed.

SCEWS No. 17-B
1983 TER No. 12
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.C
Response: Same as III

III) TER concerns: Qualified life not adequately addressed
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 17-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 177.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

E) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HV4191	Operating Time	Continuous	Continuous	Note 2	3.)	Sequential Test	
Component: Valve Motor Operator	Temperature (°F)	Profile 20	Profile 13	2. A, D	3.c)	Simultaneous Test	
Manufacture: Limitorque	Pressure (PSIA)	Note 1	Profile 13	2. A	3.c)	Simultaneous Test	
Model Number: SMB-000 S/N 155207	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
Function: Operator for MS-201	Chemical Spray	NA	NA	NA	NA	NA	
Accuracy: Not Required	Radiation	NA	2.04x10 ⁸ R	NA	3.a)	Sequential Test	
Service: Steam Gen. No. 1 to Aux. Feedwater Turbine	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Location: Encl. Bldg. EL-38'6" West Valve Rm. Zone A50							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-223A
2. FSAR AMmendment 17
3. Limitorque Test Report 600376A 4-26-72 to 8-30-72
 - a) Par. 2.1
 - b) Appendix C, F-C3440 Par. 4.0
 - c) F-C 3441, Fig. 3
 - d) F-C 3441, Par. 3.2, Page 3-3
 - e) F-C 3441, Par. 3.3.3 & 600376A Par. 3.1.2

Notes:

1. The peak presssure environment is 1.6 psig for a duration of about 13 seconds.
2. Must operate intermittently to supply steam to the aux. feed pump terry turbine.

SCEWS No. 18-B
1983 TER No. 12
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II. C

Response: Same as III

III) TER concerns: Qualified life not adequately addressed

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 18-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 180.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HV4222	Operating Time	Continuous	Continuous	Note 2	3.)	Sequential Test	
Component: Valve Motor Operator	Temperature (°F)	Profile 20	Profile 13	2. A, D	3.c)	Simultaneous Test	
Manufacture: Limitorque	Pressure (PSIA)	Note 1	Profile 13	2. A	3.c)	Simultaneous Test	
Model Number: SMB-000 S/N 156212	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
Function: Operator For MS-65B	Chemical Spray	NA	NA	NA	NA	NA	
Accuracy: Not Required	Radiation	NA	2.04x10 ⁸ R	NA	3.a)	Sequential Test	
Service: Steam Generator No. 2 Main Steam Isolation	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Location: Bypass Encl. Bldg. EL-38'6" East Valve Rm. Zone A51							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Bechtel Technical Spec. 7604-M0223A
- FSAR Amendment 17
- Limitorque Test Report 600376A 4-26-72 to 8-30-72
 - Par. 2.1
 - Appendix C, F-C3440 Par. 4.0
 - F-C 3441, Fig. 3
 - F-C 3441, Par. 3.2, Page 3-3
 - F-C 3441, Par. 3.3.3 & 600376A Par. 3.1.2

Notes:

- The peak pressure environment is 1.8 psig for a duration of about 13 seconds.
- Used only during startup to warm turbine plant. If it were open during a main steam line break outside the containment it would receive a MSIS and must close and stay closed.

SCEWS No. 19-B
1983 TER No. 12
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.C

Response: Same as III

III) TER concerns: Qualified life not adequately addressed

Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 19-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.

2 - Class RH

3 - No motor brake

4 - Not applicable

5 - Reliance

6 - Not applicable

7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 178.

8 - Not applicable

9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HV4189	Operating Time	Continuous	Continuous	Note 2	3.)	Sequential Test	
Component: Valve Motor Operator	Temperature (°F)	Profile 21	Profile 13	2. A, D	3.c)	Simultaneous Test	
Manufacture: Limitorque	Pressure (PSIA)	Note 1	Profile 13	2. A	3.c)	Simultaneous Test	
Model Number: SMB-000 S/N 156208	Relative Humidity(%)	100	100	1., 2. A	3.d)	Simultaneous Test	
Function: Operator for MS-202	Chemical Spray	NA	NA	NA	NA	NA	
Accuracy: Not Required	Radiation	NA	2.04x10 ⁸ R	NA	3.a)	Sequential Test	
Service: Steam Gen. No.2 to Aux. Feedwater Turbine	Aging	40 Yrs.	40 Yrs.	Plant Design Life	3.b)	Sequential Test	
Location: Encl. Bldg. EL 38'6" East Valve Rm. Zone A51							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-223A
2. FSAR Amendment 17
3. Limitorque Test Report 600376A 4-26-72 to 8-30-72
 - a) Par. 2.1
 - b) Appendix C, F-C3440 Par. 4.0
 - c) F-C 3441 Fig. 3
 - d) F-C 3441, Par. 3.2, Page 3-3
 - e) F-C 3441, Par. 3.3.3 & 600376A Par. 3.1.2

Notes:

1. The peak pressure environment is 1.8 psig for a duration of about 13 seconds.
2. Must operate intermittently to supply steam to the aux. feed pump terry turbine.

SCEWS No. 20-B
1983 TER No. 13
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.C
Response: Same as III

III) TER concerns: Qualified life not adequately addressed
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 20-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RAFI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 179.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RAFI dated January 6, 1982.

EQUIPMENT DESCRIPTION	ENVIRONMENT Note 2			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Containment Spray Plant ID No.: P-43A, P-43B Component: 4160V Pump Motor Manufacture: General Electric Company Model Number: S/N 8381499, 8381500 Function: Develop Containment Spray Accuracy: Not Required Service: Containment Spray Location: Aux. Bldg. EL-45'6" Zone A2(MP43A) A3(MP43B) Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continu- ous	Continuous 5 days	Note 1.	2.,4.a)	Sequential Test (Note 3.)	
	Temperature (°F)	NA	NA	NA	NA	NA	
	Pressure (PSIA)	NA	NA	NA	NA	NA	
	Relative Humidity(%)	NA	NA	NA	NA	NA	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	8.67x10 ⁵ R	1 x 10 ⁶ R	C,L	2.,4.b),3.	Sequential Test	
	Aging	40 yrs.	40 yrs.	1.	2.,4.c)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-E-10, 7604-M-53.
2. G.E. Ltr. O.A. Berquist to R.J. DeRosa, 9-22-80.
3. NUSCO memo, R.J. DeRosa to file, GEE-80-746, 10-10-80.
4. G.E. Topical Report, IEEE 323, Dec., 1978.
 - a) Section IV, Page 19
 - b) Section III, Page 6
 - c) Summary Par. a), Page iii

Notes: 1. FSAR Fig. 14.16-6. CS pumps are used to control containment pressure. Containment pressure is at 0 psig after 10⁶sec.(11.6 days).
 2. Pumps are subject to radiation (only) environment.
 3. A load test for this qualification was not conducted. Qualification based on no load test of similar motor.

SCEWS No. 21-B
1983 TER No. 88
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: Reference 2 on SCEWS 21-B already addresses and resolves FRC concern regarding low radiation thresholds of "Micamat" binder.

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Engr. Safeguard System: Room Air Recirc. Plant ID No.: F-15A, F-15B Component: 460V Fan Motor Manufacture: Joy Mfg. Co. (Reliance Electric Co. Motor) Model Number: 38-26.5-1170 SN-GF-15747 Motor No. Function: 600277-14 Fan Drive Accuracy: Not Required Service: Engr. Sfgd. Room Air Recirculation Fan Location: Aux. Bldg. EL(-)45'6" Zone A2(MF15A) Zone A3(MF15B) Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	1.	3.a)	sequential test	
	Temperature (°F)	111°F peak	250°C	2. A	3.b)	sequential test	
	Pressure (PSIA)	H	H	2. A	H	H	
	Relative Humidity(%)	100	100	1., 2. A	3.c)	sequential test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	8.60x10 ⁶ R	2.04x10 ⁸ R	C,L	3.d)	sequential test	
	Aging	40 yrs.	40 yrs. at 174.8°C	1.	3.e)	sequential test	
	Submergence						

*Documentation References:

1. Bechtel Technical Spec. 7604-M-507
2. FSAR Amendment 17
3. Reliance Electric Co. Summary Report
 NUC. 9, July 1, 1975
 - a) page 15
 - b) page 5
 - c) page 6
 - d) page 14
 - e) page 21

Notes:

SCEWS No. 23-B
1983 TER No. 89
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns:

Equipment in NRC Category II.A

Response:

Same as III

III) TER concerns:

Equipment qualification not established

Response:

Documentation of similarity is available for
audit in accordance with I&E B-79-01B.

IV) Proposed corrective action and schedule.

None

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION EE 229 & 247	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: CTMT & EB VENT Plant ID No.: HV 8306 HV8312 Component: Motor Operator Manufacture: Raymond Controls Model Number: MNQ-9-30-500 Function: Damper Motor Operator Accuracy: N/A Service: Engineered Safeguards Room Damper Location: Aux Bldg A2 Elev (-) 45'6"	Operating Time	P	6 years	P	1a,2	Sequential Test	
	Temperature (°F)						
	Pressure (PSIA)						
	Relative Humidity (%)						
	Chemical Spray						
	Radiation	$2.29 \times 10^6 R$	$1 \times 10^7 R$	C, L	1b	Sequential Test	
	Aging	40 years	6 years	PDL	1a, 2	Sequential Test	see note 2
Flood Level Elev: N/A Above Flood Level: Yes No	Submergence						

***Documentation References:**

- Wyle Test Report #44235-2
 - Page VII-1, 2, 3 and 4
 - Page III-1, Appendix I
- Memo to file GEE-82-350

Notes:

- This component is subject to a harsh radiation environment only.
- Test anomalies indicate the following maintenance schedule.
 - Seals 6 years
 - Limitswitches 6 years

EQUIPMENT DESCRIPTION EE Sheet 29(MP41A) 31(MP41B) 30(MP41C)	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: P-41A, P-41B, P-41C Component: 4160V Safety Injection Pump Motors Manufacture: Siemens-Allis Model Number: Motor S/N 8-5112-90191-1-2, 8-5112- Function: 90191-1-3, 8- 5112-90191-1-1 Pump Drive Accuracy: Not Required Service: High Pressure Safety Injection Location: EL-(-)45'6" Zone A2 (MP41A) A4 (MP41B) A5 (MP41C)	Operating Time	180 Days- Post Acc., 100 Hrs/Yr. Testing	8320 hrs.	3	4.	Analysis	
	Temperature (°F)	111°F max.	110.5°F	2. A	4., Note 1.	Analysis	
	Pressure (PSIA)	0.5 psig	H	2. A	H	Analysis	
	Relative Humidity(%)	100	100	1., 2. A	4., Note 2.	Analysis	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	3.12x10 ⁶ R	2 x 10 ⁸ R	C,L	4.	Sequential Tests	
	Aging	40 yrs.	40 yrs	1.	5	Analysis (Note 3)	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

***Documentation References:**

1. Bechtel Technical Spec. 7604-M-761
(Combustion Engineering Spec. No. 18767-PE-410)
2. FSAR Amendment 17
3. NUSCO memo, R.M. Kacich to R. DeRosa,
NEE-80-L-350 dated 8-7-80.
4. Siemen's-Allis inter-office correspondence
dated October 8, 1980. (revised October 16, 1980)
5. Wyle Report 17436-2, Rev. A dated 2-27-81

Notes: 1. The motors were designed for an ambient of only 0.5°F less than the spec. requirement. This difference is insignificant especially since the available data indicates the operating temp. rise is well below rated.

2. Insulation is class B, non-hygroscopic.
3. Motor surveillance intensified in Plant Preventive Maintenance Program.

SCEWS No. 25-B
1983 TER No. 90
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

III) Response to TER Concerns:

The motor was purchased prior to issuance of IEEE Standard 323-1971 and testing requirements were not required to that standard. Records available at the vendor indicate that the motor was constructed in accordance with the Combustion Engineering specification and that the insulation used is Class B, Non-Hygroscopic. The analysis was conducted on the material list supplied by the vendor for this class of motor. Detailed records were not retained to trace every constituent to the mine, as it was not required at that time. The unknown constituents are for portions of the insulation system only required for construction or detectable by periodic inspection. As stated in response to the 1981 TER this equipment will be incorporated into the plant surveillance and preventive maintenance program.

EQUIPMENT DESCRIPTION EE Sheet 32(MP42A) 33(MP42B)	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety Injection Plant ID No.: P-42A, P-42B Component: 4160V Safety Injection Pump Motors Manufacture: Siemens-Allis Model Number: Motor S/N 8-5717-90191-2-2, 8-5117- Function: 90191-2-1 Pump Drive Accuracy: Not Required Service: Low Pressure Safety Injection Location: Aux. Bldg. EL.(-)45'6" Zone A2(MP42A) A3(MP42B)	Operating Time	6 Hrs.Post Acc. 1000 Hrs/Yr. Testing	40,006 hrs.	Note 2.	3.	Analysis	
	Temperature (°F)	111°F max.	110.5°F	2. A	3., Note 1.	Analysis	
	Pressure (PSIA)	0.5 psig	H	2. A	H	Analysis	
	Relative Humidity(%)	100	100	1., 2. A	3., Note 3.	Analysis	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	4.1x10 ⁶ R	2 x 10 ⁸ R	C,L	3.	Sequential Test	
	Aging	40 yrs.	40 yrs.	1.	4	Analysis Note 4.	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

Note 4: Motor surveillance to be intensified in Plant Preventive Maintenance Program.

***Documentation References:**

1. Bechtel Technical Spec. 7604-M-762
(Combustion Engineering Spec. No. 18767-PE-410)
2. FSAR Amendment 17
3. Sieman's-Allis inter-office correspondence dated October 8, 1980. (revised October 16, 1980)
4. Wyle Report 17436-2, Rev. A dated 2-27-81

Notes: 1. The motors were designed for an ambient of only 0.5°F less than the spec. requirement. This difference is insignificant especially since the available data indicates the operating temp. rise is well below rated.

2. FSAR Sec. 6.2.3.1. Sump recirc. can start as early as 44 minutes into an accident for a large break. 6 Hrs. is estimated for smaller breaks. Pumps will not be subjected to a harsh environment until plant goes into recirc.
3. Insulation is class B, non-hygroscopic.

SCEWS No. 26-B
1983 TER No. 91
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment Qualification not established
Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

III) Response to TER Concerns:

The motor was purchased prior to issuance of IEEE Standard 323-1971 and testing requirements were not required to that standard. Records available at the vendor indicate that the motor was constructed in accordance with the Combustion Engineering specification and that the insulation used is Class B, Non-Hygroscopic. The analysis was conducted on the material list supplied by the vendor for this class of motor. Detailed records were not retained to trace every constituent to the mine, as it was not required at that time. The unknown constituents are for portions of the insulation system only required for construction or detectable by periodic inspection. As stated in response to the 1981 TER this equipment will be incorporated into the plant surveillance and preventive maintenance program.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Plant ID No.: MP11A, MP11B, MP11C Component: RBCCW Pump Motors Manufacture: General Electric Co. Model Number: 5K818847A129 S/N's LG8381496,7,8 Function: RBCCW Pump Drives Accuracy: Not Required Service: 4000V Location: Aux. Bldg. El. (-)25' 6" Zone A1B	Operating Time	Continuously	Continuously 5 days	Note 2.	3.,4.a)	Sequential Test (Note 1.)	
	Temperature (°F)	110°F max.	140°F	A,2	3.,5.	BY DESIGN	
	Pressure (PSIA)	H	H	A,2	H	H	
	Relative Humidity(%)	100	100	1.	3.,5.	TEST OF SIMILAR DESIGN	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	NA	NA	NA	NA	NA	
	Aging	40 yrs.	40 yrs.	1.	3.,4.b)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Bechtel Spec. 7604-E-10, 7604-M-41A.
2. FSAR Amendment 17.
3. G.E. Ltr. O.A. Berquist to R.J. DeRosa, dated Oct. 10, 1980 on RBCCW pump motors.
4. G.E. Topical Report, IEEE 323, Dec., 1978
a) Section IV. Page 19 b) Summary Par. a), Page iii
5. G.E. Ltr. O.A. Berquist to R.J. DeRosa on containment spray pump motors, Nov. 15, 1979

- Notes: 1. A load test for this qualification was not conducted. Qualification is based on no load test of similar motor.
2. Must operate continuously until maintenance can be performed on alternate pumps to supply cooling water to safety related components.

SCEWS No.	<u>30B, 31B</u>
1983 TER No.	<u>87, None</u>
Date:	<u>5/20/83</u>

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEW Sheets 30B and 31B are deleted. Equipment has been encapsulated and provided with HVAC such that it is now located in a mild environment.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III. TER Concern Response

Motor Control Centers previously noted on SCEWS 30-B and 31-B have now been encapsulated as previously committed. Each encapsulation is provided with non-Category 1E HVAC which maintains normal temperatures throughout the life of the MCC's. Temperature extremes calculated within the enclosures, assuming HVAC failure, are reached gradually and are within the design limits of the Motor Control Centers. Temperature sensors are installed within each cubicle which will alarm in the main control room upon elevated enclosure temperature.

These Motor Control Centers are now located in a mild environment.

Facility: Millstone Nuclear Pr. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: PV 4223, PV4224 Component: Solenoid Valve Manufacture: ASCO Model Number: NP-206-381-6F Function: Pilot Valve Accuracy: NA Service: Continuous #1 #2 Atmospheric Dumps Location: Aux. Bldg. EL. 36'6" Zone A50(PV4223) A51(PV4224)	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	324°F	Profile 10	Profile 20, A	1.b)	Simultaneous Test	
	Pressure (PSIA)	1.6 psig	Profile 10	A	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	N/A	2 x 10 ⁸ R	N/A	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
2. ASCO Test Report No. AQR-67368/Rev. 0

Notes:

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: PT 4223, Component: Pressure transmitter Manufacture: GE/MAC Model Number: 551 Function: Initiating signal for steam generator atmospheric dump Accuracy: Service: Steam Generator Pressure Location: Aux. Bldg. EL. 36'6" Zone A50	Operating Time	Continuous					See summary sheet 36Ba
	Temperature (°F)	324°F	185°F	Profile 21, A	1		See summary sheet 36B
	Pressure (PSIA)	1.6 psig		A			See summary sheet 36B
	Relative Humidity(%)	100%	100%	A	2		See summary sheet 36B
	Chemical Spray N/A						
	Radiation N/A						
	Aging	40 Years		P.D.L.			See summary sheet 36B
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. GE instruction 198-4532K11-001A
2. Not affected by exposure to MIL-E-5272 humidity test (24 hr. cycle, 68°F to 150°F at 100% relative humidity).

Notes:

SUMMARY SHEET NO. 36B, 36Ba

SCEW SHEET NO. 36B, 36Ba

Rev. 2 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: STEAM GENERATOR PRESSURE TRANSMITTERS
PT-4223, 4224

MANUFACTURER: GENERAL ELECTRIC MEASUREMENT AND CONTROLS
(GE/MAC)

QUALIFICATION DISCREPANCY: This equipment is discrepant because it lacks documented qualification test data.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

These components provide control loop input for automatic operation of the atmospheric dump valves. This subject was also discussed in the October 5, 1979 letter from W. G. Counsil to H. R. Denton. To date the staff has not responded negatively to this letter, thereby inferring concurrence with the conclusions presented therein. With the postulation of the most adverse failure of these components there is no effect upon the control room manual operation of the atmospheric dump.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 36-B
1983 TER No. 48
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response:

Same as III

III) TER concerns: Equipment qualification pending modification.

Response:

Justification for continued operation reviewed
and remains valid.

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified
equipment prior to the end of the 1983 refueling outage.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: PT-4224	Operating Time	Continuous					See summary sheet 36B
Component: Pressure transmitter	Temperature (°F)	326°F	185°F	Profile 20, A	1		See summary sheet 36Ba
Manufacture: GE/MAC	Pressure (PSIA)	1.8 psig		A			See summary sheet 36Ba
Model Number: 551	Relative Humidity(%)	100%	100%	A	2		See summary sheet 36Ba
Function: Initiating signal for steam generator atmospheric dump	Chemical Spray N/A						
Accuracy:							
Service: Steam Generator pressure	Radiation N/A						
Location: Aux. Bldg. Elev. 36' 6" Zone A51	Aging	40 Years		P.D.L.			See summary sheet 36Ba
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. GE instruction 198-4532KIL-001A
2. Not affected by exposure to MIL-E-5272 humidity test (24 hr. cycle, 68°F to 150°F at 100% relative humidity).

Notes:

SCEWS No. 36-Ba
1983 TER No. 48
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B
Response:

Same as III

III) TER concerns: Equipment qualification pending modification
Response: Justification for continued operation reviewed and remains valid.

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1983 refueling outage.

V) Justification for continued operation.

 X Reaffirmed
 Revised
 New

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: Various Component: Solenoid operated valves Manufacture: ASCO Model Number: NP8316E35E Function: Pilot solenoid valve Accuracy: NA Service: Main steam isolation trip valve pilot operator Location: Aux. Bldg. EL. 36'6" Zone A50	Operating Time	P	continuous	P	1	Simultaneous Test	
	Temperature (°F)	Profile 21	Profile 10	A	1	Simultaneous Test	
	Pressure (PSIA)	1.6 psig	Profile 10	A	1	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1	Simultaneous Test	
	Chemical Spray N/A						
	Radiation N/A						
	Aging	40 Years	40 years	P.D.L.	2	Sequential Test	
Flood Level Elev: N/A Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
2. ASCO Test Report No. AQR-67368/Rev. 0

Notes:

HY-4217 A1
HY-4217 B1
HY-4221 A1
HY-4221 B1

SCEWS No. 40-B
1983 TER No. 21
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 40-B revised to reflect fully qualified equipment installed.

II) SER concerns:

Response:

N/A

III) TER concerns:

Response:

N/A

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

_____ Reaffirmed

_____ Revised

_____ New

N/A

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: Various	Operating Time	P	continuous	P	1	Simultaneous Test	
Component: Solenoid operated valves	Temperature (°F)	Profile 20	Profile 10	A	1	Simultaneous Test	
Manufacture: ASCO	Pressure (PSIA)	1.8 psig	Profile 10	A	1	Simultaneous Test	
Model Number: NP8316E35E	Relative Humidity(%)	100	100	A	1	Simultaneous Test	
Function: Pilot solenoid valve	Chemical Spray N/A						
Accuracy: N/A	Radiation N/A						
Service: Main steam isolation trip valve pilot operator	Aging	40 Years	40 years	P.D.L.	2	Sequential Test	
Location: Aux. Bldg. El. 36' 6" Zone A51							
Flood Level Elev: N/A Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
2. ASCO Test Report No. AQR 67368/Rev. 0

Notes: HY-4217 A2
HY-4217 B2
HY-4221 A2
HY-4221 B2

SCEWS No. 40-Ba
1983 TER No. 24
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 40-Ba revised to reflect fully qualified equipment installed.

II) SER concerns:

Response:

N/A

III) TER concerns:

Response:

N/A

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

_____ Reaffirmed

N/A

_____ Revised

_____ New

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Safety Injection System: & Cmt. Spray Plant ID No.: HY-306 Component: Solenoid valve Manufacture: ASCO Model Number: NP-8320A177E Function: Pilot solenoid valve Accuracy: NA Service: Control shutdown cooling flow Bypass Location: Aux. Bldg. EL. (-) 45'6" LPSI Pump Room Zone A-2	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	111°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.5 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	$2.29 \times 10^6 R$	$2 \times 10^8 R$	C, L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR-67368/Rev. 0

Notes: This component subject to radiation (only) environment.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Feedwater Plant ID No.: HY-5419, Component: 5421 Solenoid valve Manufacture: ASCO Model Number: NP-8320A183E Function: Pilot solenoid valve Accuracy: NA Service: Continuous Location: Aux. Bldg. EL. 36'6" Zone A-50 Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	324°F	Profile 10	Profile 21, A	1.b)	Simultaneous Test	
	Pressure (PSIA)	1.6 psig	Profile 10	Note 1	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	N/A	2 x 10 ⁸ R	N/A	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR-67368/Rev. 0

Notes:

- The environmental pressure is less than 2 PSIG for a duration of about 13 seconds. This is considered insignificant.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Feedwater Plant ID No.: HY-5420, 5422 Component: Solenoid Valve Manufacture: ASCO Model Number: NP-8320A183E Function: Pilot solenoid valve Accuracy: N/A Service: Continuous Location: Aux. Bldg. El. 36' 6" Zone A-51	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	326°F	Profile 10	Profile 20, A	1.b)	Simultaneous Test	
	Pressure (PSIA)	1.8 psig	Profile 10	Note 1	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	N/A	2 x 10 ⁸ R	N/A	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR-67368/Rev. 0

Notes:

- The environmental pressure is less than 2 PSIG for about 13 seconds. This is considered insignificant.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Safety Injection System: & Ctmt. Spray Plant ID No.: HY-657 Component: Solenoid Valve Manufacture: ASCO Model Number: NP-8320A177E Function: Pilot solenoid valve Accuracy: NA Service: Continuous Location: Aux. Bldg. EL. (-)45'6" LPSI Pump Room Zone A-2 Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	111° F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.5 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	NA	B	NA	1.d)	Simultaneous Test	
	Radiation	2.38x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Submergence							

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
2. ASCO Test Report No. AQR-67368/Rev. 0

Notes: This component subject to radiation (only) environment.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: S/G Blowdown Plant ID No.: ZS-4246, 4248 Component: Limit switch Manufacture: NAMCO Model Number: EA740-20100 Function: Position Indication & Valve Control Accuracy: N/A Service: S/G Blowdown isolation valve Location: Aux. Bldg. El. (-) 5' 0" Zone A17 Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	P	1	Sequential Test	
	Temperature (°F)	112°F	Profile 7	A	1.a)	Simultaneous Test	
	Pressure (PSIA)	0.6 psig	Profile 7	A,H	1.a)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.b)	Simultaneous Test	
	Chemical Spray	NA	Note 2	NA	1.c)	Simultaneous Test	
	Radiation	8.41x10 ⁵ R	2.04x10 ⁸ R	C	1.b)	Sequential Test	
	Aging	40 yrs.	40 yrs. except gasket (7yrs.)	P.D.L.	2	Test & Analysis	Gasket replacement required every 7 yrs.
	Submergence						

*Documentation References:

- Vendor qual. report, plant file MRIR #1-26-79
 - Fig. 1, Page 11 of 12
 - Page 4 of 12
 - Page 8 of 12
- NAMCO Qualification Test Report QTR-111 dated 10/1/81

- Notes: 1. This component is subject to a radiation (only) environment.
- The spray was composed of boric acid, water, sodium thiosulfate, and sodium hydroxide, PH between 10 & 11 (3000 PPM Boron).

SCEWS No. 49-B
1983 TER No. 66
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Revised qualification reference for the parameter "Aging".

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment Qualification pending modification.
Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

1. The switches listed on SCEW Sheet 49-B is only required to be operable in mild and harsh radiological environments. Teflon taped seal is not required.
2. SCEW Sheet 49-B is revised to reflect new qualification reference for aging.
3. FRC did not review the report referenced in the C of C for the EA740 switches, as stated in Note 3 of Item 64, Page 5g. The report listed by FRC on Page 5a and used in the evaluation on Pages 5a-g, Item 64 is not the report referenced on SCEWS 49-B. (For all parameters with the exception of aging) See 2 above for aging qualification reference.
4. Operability times are referenced.

SYSTEM COMPONENT EVALUATION WORK SHEET

*Documentation References:

2. ASCO Test Report No. AQR-67368/Rev. 0

50-B

5/20/83

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem & Volume Cntl. Plant ID No.: ZS-2525	Operating Time	Continuous	Continuous	C	1	Sequential Test	
Component: Limit switch	Temperature (°F)	112°F	Profile 7	A	1.a)	Simultaneous Test	
Manufacture: NAMCO	Pressure (PSIA)	0.6 psig	Profile 7	A, H	1.a)	Simultaneous Test	
Model Number: EA180-11302	Relative Humidity(%)	100%	100	A	1.b)	Simultaneous Test	
Function: Position indication & valve control	Chemical Spray	NA	Note 2	NA	1.c)	Simultaneous Test	
Accuracy: NA	Radiation	1.64x10 ⁶ R	2.04x10 ⁸ R	C,L	1.b)	Sequential Test	
Service: Limit switch	Aging	40 yrs.	40 yrs. except gasket(2yrs)	P.D.L.	2	Test & Analysis	Gasket replacement required every 2 yrs.
Location: Aux. Bldg. piping penetration room Zone A-18							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Vendor qual. report, plant file MRIR #1-26-79
 - Fig. 1, Page 11 of 12
 - Page 4 of 12
 - Page 8 of 12
- Wyle Report 17436-3

Notes: 1. This component is subject to a radiation (only) environment.

- The spray was composed of boric acid, water, sodium thiosulfate, and sodium hydroxide, PH between 10 & 11 (3000 PPM Boron).

SCEWS No. 51-B
1983 TER No. 67
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment is NRC Category I.B
Response: Same as III

III) TER concerns: Equipment Qualification pending modification
Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

1. Switch listed on SCEW Sheet 51-B is only required to be operable in mild and harsh radiological environments. Teflon taped seal is not required.
2. Aging Analysis was accomplished by Wyle utilizing activation energies and other data documented in their data files. FRC apparently did not review NNECO response to SER wherein it was documented that preventive maintenance and surveillance will periodically monitor this equipment. PM on equipment does not indicate that equipment modification is required.
3. NNECO takes exception to Note 3 on Page 5g of Item No. 63 of the TER. NNECO provided the C of C for NAMCO EA180 series switches, which reference the proper test report. The C of C does not reference the document listed on Page 5a, Item 63 of the TER as indicated by FRC. Their review should be done utilizing the proper reports which have been previously furnished to FRC. The Qualification Summary provided by Wyle is used solely for aging parameter as noted on SCEW Sheet 51-B.
4. Operability times are referenced.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem & Volume Cntl Plant ID No.: HY-2525 Component: Solenoid valve Manufacture: ASCO Model Number: NP-8320A185E Function: Pilot solenoid valve Accuracy: NA Service: Continuous Location: Aux. Bldg. EL. (-) 5'0" West piping penetration room. Zone A-18 Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112° F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.64x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR 67368/Rev. 0

Notes:

This component is subject to a radiation (only) environment.

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RBCCW Plant ID No.: HY-6731	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
Component: Solenoid valve	Temperature (°F)	111°F	Profile 10	A	1.b)	Simultaneous Test	
Manufacture: ASCO	Pressure (PSIA)	0.5 psig	Profile 10	A, H	1.b)	Simultaneous Test	
Model Number: NP8320A-189E	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
Function: Pilot solenoid valve	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
Accuracy: NA	Radiation	8.59x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e	Sequential Test	
Service: Continuous	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Location: Aux. Bldg. EL. (-) 45'6" LPSI Pump Room Zone A-2							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D

2. ASCO Test Report No. AQR 67368/Rev. 0

Notes: This component is subject to a radiation (only) environment.

SCEWS No.	53-B
1983 TER No.	25
Date:	5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number

Added Qualification Reference and Revised Qualified Life

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Qualification not established
Response: See Item I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RBCCW Plant ID No.: ZS-6731	Operating Time	Continuous	Continuous	P	1	Sequential Test	
Component: Limit switch	Temperature (°F)	111°F	Profile 7	A	1.a)	Simultaneous Test	
Manufacture: NAMCO	Pressure (PSIA)	0.5 psig	Profile 7	A, H	1.d)	Simultaneous Test	
Model Number: EA740-20100	Relative Humidity(%)	100%	100	A	1.b)	Simultaneous Test	
Function: Position Indication & valve control	Chemical Spray	NA	Note 2	NA	1.c)	Simultaneous Test	
Accuracy: NA	Radiation	8.59x10 ⁶ R	2.04x10 ⁸ R	C,L	1.b)	Sequential Test	
Service: Limit switch	Aging	40 yrs.	40 yrs except gasket (12 yrs.)	P.D.L.	2	Test & Analysis	gasket replacement required every 12 yrs.
Location: Aux. Bldg. EL. (-) 45'6" LPSI pump room Zone A2	Submergence						
Flood Level Elev: Above Flood Level: Yes No							

*Documentation References:

- Vendor qual. report, plant file MRIR #1-26-79
 - Fig. 1, Page 11 of 12
 - Page 4 of 12
 - Page 8 of 12
- NAMCO Qualification Test Report No. QTR-111 dated 10/1/81

Notes: 1. CONAX connector installed 1982

- The spray was composed of boric acid, water, sodium thiosulfate, and sodium hydroxide, PH between 10 & 11 (3000 PPM Boron).

SCEWS No. 54-B
1983 TER No. 65
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Revised aging qualification reference.
Revised gasket maintenance interval.

II) SER concerns: Equipment in NRC Category I.B.
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

1. The switch listed on SCEW Sheet 54-B now utilizes a CONAX connector to seal the internals of the switch from the environment.
2. SCEW Sheet 54-B is revised to reflect new qualification reference for aging.
3. FRC did not review the report referenced in the C of C for the EA740 switches, as stated in Note 3 of Item 64, Page 5g. The report listed by FRC on Page 5a and used in the evaluation on Pages 5a-g, Item 64 is not the report referenced on SCEWS 54-B. (For all parameters with the exception of aging) See 2 above for aging qualification reference.
4. Operability times are referenced.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RBCCW Plant ID No.: ZS-6050	Operating Time	Continuous	Continuous	P	1	Sequential Test	
Component: Limit switch	Temperature (°F)	111°F	Profile 7	A	1.a)	Simultaneous Test	
Manufacture: NAMCO	Pressure (PSIA)	0.5 psig	Profile 7	A, H	1.a)	Simultaneous Test	
Model Number: EA740-20100	Relative Humidity(%)	100%	100	A	1.b)	Simultaneous Test	
Function: Position Indication & valve control	Chemical Spray	NA	Note 2	NA	1.c)	Simultaneous Test	
Accuracy: NA	Radiation	2.9 x 10 ⁵ R	2.04x10 ⁸ R	C,L	1.b)	Sequential Test	
Service: Limit switch	Aging	40 yrs.	40 yrs. except gasket (12 yrs.)	P.D.L.	2	Test & Analysis	Gasket replacement required every 12 yrs.
Location: Aux. Bldg. EL. (-) 45'6" LPSI pump room Zone A2							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Vendor qual. report, plant file MRIR #1-26-79
 - a) Fig. 1, Page 11 of 12
 - b) Page 4 of 12
 - c) Page 8 of 12
2. NAMCO Qualification Test Report QTR-111 dated 10/1/81

Notes: 1. CONAX connector installed 1982.

2. The spray was composed of boric acid, water, sodium thiosulfate, and sodium hydroxide, PH between 10 & 11 (3000 PPM Boron).

SCEWS No. 55-B
1983 TER No. 55
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Revised qualification reference for the parameter "Aging".

Revised gasket replacement interval.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

1. The switch listed on SCEW Sheet 55-B now utilizes a CONAX connector to seal the internals of the switch from the environment.
2. SCEW Sheet 55-B is revised to reflect new qualification reference for aging.
3. FRC did not review the report referenced in the C of C for the EA740 switches, as stated in Note 3 of Item 64, Page 5g. The report listed by FRC on Page 5a and used in the evaluation on Pages 5a-g, Item 64 is not the report referenced on SCEWS 55-B. (For all parameters with the exception of aging) See 2 above for aging qualification reference.
4. Operability times are referenced.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RBCCW Plant ID No.: HY-6050 Component: Solenoid valve Manufacture: ASCO Model Number: NP-8321A6E Function: Pilot solenoid valve Accuracy: NA Service: Continuous Location: Aux. Bldg. EL. (-)45'6" LPSI pump room Zone A-2	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	111°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.5 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	$2.9 \times 10^5 R$	$2 \times 10^8 R$	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR 67368/Rev. 0

Notes: This component is subject to a radiation (only) environment.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: ZS-4250, 4251 Component: Limit switch Manufacture: NAMCO Model Number: EA180-11302 Function: Position Indication & valve control Accuracy: NA Service: Limit switch Location: Aux. Bldg. EL. (-)5'0" West pipe penetration room Zone A18 Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	P	1	Sequential Test	
	Temperature (°F)	112°F	Profile 7	A	1.a)	Simultaneous Test	
	Pressure (PSIA)	0.6 psig	Profile 7	A, H	1.a)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.b)	Simultaneous Test	
	Chemical Spray	NA	Note 2	NA	1.c)	Simultaneous Test	
	Radiation	1.6 10 ⁶ R	2.04x10 ⁸ R	C.L	1.b)	Sequential Test	
	Aging	40 yrs.	40 yrs. except gasket (2yrs.)	P.D.L.	2	Test & Analysis	Gasket replacement required every 2 yrs.
	Submergence						

*Documentation References:

- Vendor qual. report, plant file MRIR #1-26-79
 - Fig. 1, Page 11 of 12
 - Page 4 of 12
 - Page 8 of 12
- Wyle Report 17436-3

Notes: 1. These components are subject to a radiation (only) environment.

- The spray was composed of boric acid, water, sodium thiosulfate, and sodium hydroxide, PH between 10 & 11 (3000 PPM Boron).

SCEWS No. 57-B
1983 TER No. 67
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification

Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

1. Switch listed on SCEW Sheet 57-B is only required to be operable in mild and harsh radiological environments. Teflon taped seal is not required.
2. Aging Analysis was accomplished by Wyle utilizing activation energies and other data documented in their data files. FRC apparently did not review NNECO response to SER wherein it was documented that preventive maintenance and surveillance will periodically monitor this equipment. PM on equipment does not indicate that equipment modification is required.
3. NNECO takes exception to Note 3 on Page 5g of Item No. 63 of the TER. NNECO provided the C of C for NAMCO EA180 series switches, which reference the proper test report. The C of C does not reference the document listed on Page 5a, Item 63 of the TER as indicated by FRC. Their review should be done utilizing the proper reports which have been previously furnished to FRC. The Qualification Summary provided by Wyle is used solely for aging parameter as noted on SCEW Sheet 57-B.
4. Operability times are referenced.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HY-4250, 4251 Component: Solenoid valve Manufacture: ASCO Model Number: NP-8320A185E Function: Pilot solenoid valve Accuracy: NA Service: Continuous Location: Aux. Bldg. EL. (-)5'0" West pipe penetration room Zone A-18 Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.6 x 10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D
2. ASCO Test Report No. AQR 673683/Rev. 0

Notes:

These components are subject to a radiation (only) environment.

ality: Allstone Nuclear Pr. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HY-4209,	Operating Time	Continuous					See Summary sheet 66B, 66Ba
Component: Solenoid operated valve	Temperature (°F)	326°F		Profile 20, A			See summary sheet 66B, 66Ba
Manufacture: ASCO	Pressure (PSIA)	1.8 psig		A			See summary sheet 66B, 66Ba
Model Number: WPTX-8320A184	Relative Humidity (%)	100%		A			See summary sheet 66B, 66Ba
Function: Pilot solenoid valve	Chemical Spray	NA		NA			See summary sheet 66B, 66Ba
Accuracy: NA	Radiation						See summary sheet 66B, 66Ba
Service: Main Steam Header Low Point Drains	Aging	40 yrs.		P.D.L.			See summary sheet 66B, 66Ba
Location: Aux. Bldg. EL. 36'6" EL. 14'6" Zone A51	Submergence						
Flood Level Elev: Yes Above Flood Level: Yes	No						

*Documentation References:

Notes:

SUMMARY SHEET NO. 66B

SCEW SHEET NO. 66B

Rev. 2 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: SOLENOID OPERATED VALVE
PILOT OPERATOR FOR MAIN STEAM HEADER LOW POINT DRAINS
HY-4209, 4193

MANUFACTURER: Automatic Switch Company (ASCO)

QUALIFICATION DISCREPANCY: These components are discrepant because of the lack of documented qualification data.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

These components are required to operate to isolate the main steam header low point drains on a main steam isolation signal. The failure of these components to perform this function is bounded by the existing accident analysis. Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 66-B
1983 TER No. 19
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B
Response:

Same as III

III) TER concerns: Equipment qualification pending modification
Response:

Justification for continued operation reviewed and remains valid.

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: HY-4193	Operating Time	Continuous					See Summary Sheet 66Ba
Component: Solenoid operated valve	Temperature (°F)	324°F		Profile 21, A			See summary sheet 66Ba
Manufacture: ASCO	Pressure (PSIA)	1.6 psig		A			See summary sheet 66Ba
Model Number: WPHTX-8320A184	Relative Humidity(%)	100%		A			See summary sheet 66Ba
Function: Pilot solenoid valve	Chemical Spray	NA		NA			See summary sheet 66Ba
Accuracy: N/A	Radiation						See summary sheet 66Ba
Service: Main Steam Header Low Point Drains	Aging	40 yrs.		P.D.L.			See summary sheet 66Ba
Location: Aux. Bldg. El. 36' 6" Zone A50							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

Notes:

SUMMARY SHEET NO. 66Ba

SCEW SHEET NO. 66Ba

Rev. 2

8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: SOLENOID OPERATED VALVE
PILOT OPERATOR FOR MAIN STEAM HEADER LOW POINT DRAINS
HY-4209, 4193

MANUFACTURER: Automatic Switch Company (ASCO)

QUALIFICATION DISCREPANCY: These components are discrepant because of the lack of documented qualification data.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

These components are required to operate to isolate the main steam header low point drains on a main steam isolation signal. The failure of these components to perform this function is bounded by the existing accident analysis.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 66-Ba
1983 TER No. -
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

Facility: Allstone Nuclear Pr. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RBCCW Plant ID No.: PS-6119 A, B, C Component: Pressure switch	Operating Time	Continuous	Continuous	P	1, 2	Simultaneous Test	
	Temperature (°F)	110°F	160°F	A	1, 2	Simultaneous Test	
	Pressure (PSIA)	0.4 psig	16.0 psia	A, H	1, 2	Simultaneous Test	
	Relative Humidity (%)	100%	100%	A	1, 2	Simultaneous Test	
Chemical Spray	N/A	NA		NA			
Radiation	N/A						
Aging		40 Years		P.D.L.			See summary sht. 67B
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. 10-13-80 letter from Theryn Eckstein, Custom Control Sensors, to R. K. McCarthy
2. Custom Component Switches, Inc., Test Report QTR 604-01

Notes:

67-B

11-1-80

SUMMARY SHEET NO. 67B

SCEW SHEET NO. 67B

Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Pressure Switches PS-6119, A, B, C

MANUFACTURER: Custom Component Switches (CCS)

QUALIFICATION DISCREPANCY: These components lack documented radiation and time/temperature aging qualification data.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

These components provide low suction header pressure protection for the reactor building closed cooling water pumps.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

Replacement is scheduled to be completed prior to start-up after the 1985 refueling outage.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Gas & Aerated System: Liquid Radwaste Plant ID No.: HY-9126, Component: Solenoid valve Manufacture: ASCO Model Number: NP-8321A5E Function: Pilot solenoid valve Accuracy: NA Service: Continuous Location: Aux. Bldg. EL. (-)5'0" West pipe penetration room Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100%	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.9 x 10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D

2. ASCO Test Report No. AQR 67368/Rev. 0

Notes: 1. This component must function in a radiation (only) environment.

Facility: Illstone Nuclear Pr. Sta.

Unit: TWO

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Gas & Aerated System: Liquid Radwaste Plant ID No.: HY-7690 Component: Solenoid valve Manufacture: ASCO	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 psig	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity (%)	100%	100	A	1.c)	Simultaneous Test	
Model Number: NP-8320A189E Function: Pilot Solenoid Valve Accuracy: N/A Service: Continuous	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.9 x 10 ⁶ R	2 x 10 ⁸ R	C, L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
	Submergence						
Location: Aux. Bldg. El. (-) 5' 0"							
Flood Level Elev: Above Flood Level: Yes No							

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D

2. ASCO Test Report No. AQR 67368/Rev. 0

Notes: 1. This component must function in a radiation (only) environment.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Gas & Aerated System: Liquid Radwaste Plant ID No.: ZS-9126, Component: Limit Switch Manufacture: NAMCO Model Number: EA740-20100 Function: Valve position indication & control circuitry Accuracy:NA Service:Waste Gas tank inlet isolation valve Location: Aux. Bldg. EL. (-) 5'0" West pipe penetration room Zone A17 Flood Level Elev: Above Flood Level: Yes No	Operating Time	Continuous	Continuous	P	1	Sequential Test	
	Temperature (°F)						
	Pressure (PSIA)						
	Relative Humidity(%)						
	Chemical Spray						
	Radiation	1.94x10 ⁶ R	2.04X10 ⁸ R	C,L	1	Sequential Test	
	Aging	40 Years	40 yrs. except gasket (7 yrs.)	P.D.L.	1	Sequential Test	Gasket replacement required every 7 yrs.
	Submergence						

*Documentation References:

1. NAMCO Qualification Test Report No. QTR-111 dated 10/1/81

Notes:

This component must function in a radiation (only) environment.

SCEWS No.	69-B
1983 TER No.	68
Date:	5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 69-B is revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Facility: 11stone Nuclear Pr. Sta.
 Unit: Two
 Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Gas & Aerated System: Liquid Radwaste Plant ID No.: ZS-7690 Component: Limit Switch Manufacture: NAMCO Model Number: EA740-20100 Function: Valve position indication & control circuitry Accuracy: N/A Service: Reactor coolant sample valve Location: Aux. Bldg. El. (-) 5' 0" Zone A18	Operating Time	Continuous	Continuous	P	1	Sequential Test	
	Temperature (°F)						
	Pressure (PSIA)						
	Relative Humidity(%)						
	Chemical Spray						
	Radiation	1.64x10 ⁶ R	2.04X10 ⁸ R	C,L	1	Sequential Test	
	Aging	40 Years	40 yrs. except gasket (7 yrs.)	P.D.L.	1	Sequential Test 7 Analysis	Gasket replacement required every 7 yrs.
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. NAMCO Qualification Test Report No. QTR-111 dated 10/1/81

Notes:

This component must function in a radiation (only) environment.

SCEWS No. 69-2a
1983 TER No. 68
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 69-Ba is revised to reflect fully qualified equipment installed.

- II) SER concerns: Equipment in NRC Category I.B
Response: Same as III
- III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Service Water Plant ID No.: 6307B TY-6308, 6307A, 6306 Component: Solenoid valve Manufacture: ASCO Model Number: HT-8320A-102 Function: Pilot solenoid valve Accuracy: NA Service: RBCCW Heat Exchanger Location: Aux. Bldg. EL. (-)25'6" Zone A1B	Operating Time	Continuous					See summary sheet 70B
	Temperature (°F)	110°F		A			See summary sheet 70B
	Pressure (PSIA)	0.4 psig		A, H			See summary sheet 70B
	Relative Humidity(%)	100%		A			See summary sheet 70B
	Chemical Spray	NA		NA			See summary sheet 70B
	Radiation N/A						See summary sheet 70B
	Aging	40 Years		P.D.L.			See summary sheet 70B
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

Notes:

SUMMARY SHEET NO.	70B
SCEW SHEET NO.	70B
Rev. 2	8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: SOLENOID OPERATED VALVES
Pilot operating valves for HU-6306, 6307A, 6307B, 6308

MANUFACTURER: Automatic Switch Company (ASCO)

QUALIFICATION DISCREPANCY: These components are discrepant because they lack documented qualification data.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

These components are required to open with a safety injection actuation signal. The catalog specifications for this equipment envelop the environmental parameters experienced by these components during the accident, hence the environment will not impair these components in the performance of their safety function. The manufacturer is currently reviewing the applicable components and the respective environmental profiles in order to provide documented assurance of component suitability to perform its safety function.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 70-B
1983 TER No. -
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed
 Revised
 New

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Service Water Plant ID No.: ZS-6306, 6307, 6308 Component: Limit Switch Manufacture: NAMCO Model Number: D-2400X Function: Position Indication & Control Circuit Accuracy: NA Service: Limit switch Location: Aux. Bldg. EL. (-)25'6" Zone A1B	Operating Time	Continuous					See summary sheet 71B
	Temperature (°F)	110°F		A			See summary sheet 71B
	Pressure (PSIA)	0.4 psig		A, H			See summary sheet 71B
	Relative Humidity(%)	100%		A			See summary sheet 71B
	Chemical Spray	NA		NA			See summary sheet 71B
	Radiation NA						See summary sheet 71B
	Aging	40 Years		P.D.L.			See summary sheet 71B
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

Notes:

SUMMARY SHEET NO. 71B

SCEW SHEET NO. 71B

Rev. 2 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: STEM MOUNTED LIMIT SWITCHES
ZS-6306, 6307, 6308 - Service Water Supply Isolation to the
RBCCW Heat Exchangers

MANUFACTURER: National Acme Corporation (NAMCO)

QUALIFICATION DISCREPANCY: This equipment lacks documented qualification data.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

This equipment provides contacts for control circuit input and position indication for containment isolation valves that function to mitigate a LOCA. They are all located outside the containment and are subject to an environment which is enveloped by the equipment catalog specifications.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 71-B
1983 TER No. -
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment
prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed
 Revised
 New

Facility: Millstone Nuclear Pr. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Service Water Plant ID No.: HY-6438, 6439 Component: 4 way solenoid valve Manufacture: ASCO Model Number: HT-834481 Function: Pilot solenoid valve Accuracy: NA Service: TBCCW HX inlet isolation Location: Turbine Bldg. EL. 14'6" Zone T10	Operating Time	Close & stay closed on SIAS & SLB outside cntnt.					See summary sheet 72B
	Temperature (°F)	155°F		Profile 22, A			See summary sheet 72B
	Pressure (PSIA)	0.5 psig		A, H			See summary sheet 72B
	Relative Humidity(%)	100%		A			See summary sheet 72B
	Chemical Spray	NA		NA			See summary sheet 72B
	Radiation NA						See summary sheet 72B
	Aging	40 Years		P.D.L.			See summary sheet 72B
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

Notes:

SUMMARY SHEET NO. 72B

SCEW SHEET NO. 72B

Rev. 1 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: SOLENOID OPERATED VALVES
Pilot Operators for Valve No. (HV-6438, 6439)
#1, 2 & 3 turbine building closed cooling water heat exchanger
inlet isolation valves

MANUFACTURER: Automatic Switch Company (ASCO)

QUALIFICATION DISCREPANCY: These components lack documented qualification data.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

These components function as pilot operating mechanisms for TBCCW valves outside containment. These valves are required to close on a SIAS. The catalog specifications for this equipment envelop the environmental parameters experienced by these components during a MSLB, therefore, the environment will not impair these components in performance of their safety function. The manufacturer is currently reviewing the subject components and the respective environmental profiles in order to provide documented assurance of component suitability to perform its safety function.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 72-B
1983 TER No. 26
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B
Response:

Same as III.

III) TER concerns: Equipment qualification pending modification.
Response: Justification for continued operation reviewed and remains valid.

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed
 Revised
 New

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: SI & CNTMT SPRAY Plant ID No.: HV3008, HV3009 Component: Valve Motor Operators Manufacture: Limatorque Model Number: SMB-1 S/N 152444, 152443 Function: Operators For CS 16.1A, 16.1B Accuracy: Not required Service: Containment sump recirculation Location: Aux. bldg. el. (-)45'6" Zone A2	Operating Time	Continuous	Continuous	Note 1	1	sequential test	
	Temperature (°F) NA						
	Pressure (PSIA) NA						
	Relative Humidity(%) NA						
	Chemical Spray NA						
	Radiation	8.6 x 10 ⁶ R	2.04x10 ⁸ R	C,L	2.a)	sequential test	
	Aging	40 Yrs.	simulated 40 yrs.	plant design life	1.b)	sequential test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Limatorque Test Report 600198 1/2/69 to 4/29/69 and Addendum 1
 - a) page 4
 - b) page 5
2. Limatorque Test Report 600376A, 4/26/76 to 8/30/72
 - a) Par. 2.1

Notes:

1. Valve must open on SRAS and stay open under radiation (only) environment. Ref. FSAR 6.2.3.1, sys. description.

SCEWS No. 83-B
1983 TER No. 11
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 83-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - H. K. Porter
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheets 54 and 55.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem. & Vol. Cntl Plant ID No.: CH 501	Operating Time	Continuous	Continuous	Note 1 & 2	1	sequential test	
Component: Valve Motor Operator	Temperature (°F) NA						
Manufacture: Limitorque	Pressure (PSIA) NA						
Model Number: SMB-00 S/N 134086	Relative Humidity (%) NA						
Function: Operator for CH501	Chemical Spray NA						
Accuracy: Not required							
Service: Volume control tank discharge valve	Radiation	8.32x10 ⁵ R	2.04x10 ⁸ R	C,L	1.b)	sequential test	
Location: Aux. Bldg. El. (-)25'6" Zone A9	Aging	40 yrs.	simulated 40 yrs.	plant design life	1.c)	sequential test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Limitorque Test Report B0003 11/13/74 to 1/23/75
 - par. 2.1.3
 - par. 2.3
 - par. 5.0

Notes:

- Valve must close and stay closed under radiation (only) environment.
- FSAR Sec. 9.2.3.4 & P & ID 25203-26017

SCEWS No. 84-B
1983 TER No. 7
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model Number, revised Operating Time: Specification, Qualification and Documentation.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 84-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class B.
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 83.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

- B) At the time of the Limitorque Tests for IEEE 382 (72) and 323 (71) (Report B0003) the criteria for aging was not well established. Thermal, Mechanical, and Radiation Aging Programs were based on Limitorque's experience and sound engineering judgement. Documentation, as with "A" above, is and has been available for audit, which shows that Limitorque was appraised of the service conditions for the valves and that they are qualified by the report referenced. Also, as stated in the response to the 1981 SER, these valves are included in the Plant Surveillance and Preventive Maintenance Program.

EQUIPMENT DESCRIPTION	ENVIRONMENT Note 3.			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem. & Vol. Cntl Plant ID No.: P18A, P18B, P18C Component: Pump Motors 460V Manufacture: Westinghouse Model Number: Cat. Type TCDP Function: Pump Drive Accuracy: Not required Service: Charging Pumps Location: Aux. Bldg. El. (-)25'6" Zone A9	Operating Time	2 hrs.max. Note 2	Note 4	Note 2	3.a)	sequential test	
	Temperature (°F) NA						
	Pressure (PSIA) NA						
	Relative Humidity(%) NA						
	Chemical Spray NA						
	Radiation	$5.25 \times 10^5 R$	$2 \times 10^8 R$	C,L	2.a)	sequential test	
	Aging	40 yrs.	40 yrs.	1.	2.b)	sequential test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Combustion Engineering Spec. 3072-PE-403 and SYS80 PE-403
- W Qual. Report MM-9112 (Prev. WCAP-9112)
Medium Motor ; Gear Riv. Class 1E
a) 2.10.5.2 Pg. 7, b) 2.10.8 Pg. 12 (Fig. 3, Pg. 11)
- Operating and Maintenance Instructions -
Reciprocating Charging Pump NP18-3.1 TFS
a) Sect. iii, Form A-2

Notes:

- Pump motor replacement completed.
replaced. Completion is planned for late 1981.
- Pumps must run until the boric acid tanks are empty (2 hrs. max.) Ref. W. G. Counsil to R. Reid letters 3/22/79 and 4/9/79.
- Motors must function in a radiation (only) environment.
- Motor is designed for continuous operation.
Temp. rise test duration was 5.5 hrs.

SCEWS No. 85-B
1983 TER No. 94
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet. (Rev. 8/11/83)

- 1) Note 1 changed to indicate all units (motors) replaced.
- 2) Documentation Reference 2 changed to indicate that WCAP 9112 has been superseded by Qual. Report MM 9112.

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III below

III) TER concerns: Equipment qualification not established.

Response: See attached.

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

III) Response:

NNECO responses to FRC's comments:

- 1) Adequate similarity between equipment and test specimen established - Deficient

NNECO has in its document files, for audit review, the purchase document and specification for the pump motors. The documentation indicates Class H insulation supplied by Westinghouse on the Class 1E motors. Qualification is under WCAP-9112 which has been changed to Qualification Report MM-9112.

Similarity has been established and is available for audit.

- 2) Aging degradation evaluated adequately - Deficient

Aging has been adequately addressed and justified on the SCEW sheet which corresponds to MM-9112 qualification report (previously WCAP-9112).

- 3) Qualified life or replacement schedule established - Deficient

Qualified life has been established of forty (40) years. There is no replacement schedule.

- 4) Criteria regarding aging simulation satisfied - Deficient

Aging simulation was done in accordance to the Arrhenius method and justified in W MM 9112 report.

- 5) Criteria regarding temperature/pressure exposure:
Duration adequate - Deficient

Temperature/pressure exposure requirements are not applicable because the equipment operate within the given temperature range and pressure is atmospheric to 10,000 feet. Both are specified under W mm 9112. Also, the SCEW sheet indicates N/A.

- 6) Criteria regarding radiation satisfied - Deficient

Radiation requirement as indicated on SCEW sheet is 5.25E5. The equipment is qualified to 2E8 in W MM 9112.

- 7) Equipment qualification not established - Deficient

Equipment qualification has been established under W MM 9912 (previously WCAP 9112). Equipment is considered fully qualified by NNECO.

NNECO responses to FRC's NOTE comments:

- 1) The installed motors and the tested motorettes are of the same insulation materials for Class H insulation which were qualified by Westinghouse MM 9112 (Prev. WCAP 9112).

The motors lubrication (grease for bearings) are replaced as recommended by the manufacturer. Historically, manufacturer's requirements and replacement cycles are very conservative. In addition, W MM 9112 address bearing and lubrication qualification.

- 2) The testing performed on the motorettes more than adequately address the manufacturer's motors as being qualified. The stress placed on the motorettes are greater than those in a completed motor.
- 3) The motor lead spiices and materials are qualified under W MM 9112 and are of the same type as that in the installed equipment.

The bearing and lubrication qualification has been addressed in number one (1) above in this set of responses.

NNECO again reiterates that the equipment (motors) are qualified for their intended use and the qualification information is avialable in our files for audit.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Chem. & Vol. Cntl. Plant ID No.: PS224X, PS224Y, PS224Z Component: Vacuum switches Manufacture: Custom Component Model Number: 604 VBI-351S Function: Valve/pump control Accuracy: Service: P18A,B,C suction header Location: Aux. Bldg. El. (-)25'6" Zone A1B	Operating Time	continuous	continuous		1, 2		
	Temperature (°F)	110°F	160°F	A	1, 2		
	Pressure (PSIA)	0.4 PSIG	16.0 PSIA	A,H	1, 2		
	Relative Humidity(%)	100	100%	A	1, 2		
	Chemical Spray N/A			NA	NA		
	Radiation N/A						
	Aging	40 Years		P.D.L.			See summary sheet 86B
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- 10-13-80 letter from Theryn Eckstein, Custom Control Sensors, to R. K. McCarthy
- Custom Component Switches, Test Report QTR 604-01

Notes:

SUMMARY SHEET NO. 86B

SCEW SHEET NO. 86B

Rev. 1 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Pressure Switches PS-224X, Y, Z
Charging Pump Suction Header Pressure

MANUFACTURER: Custom Component Switches (CCS)

QUALIFICATION DISCREPANCY: These components lack documented radiation and time/temperature aging qualification data.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

These component(s) provide low suction header pressure protection for the charging pumps.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 86-B
1983 TER No. -
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

X Reaffirmed
 Revised
 New

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT Note 2.			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: SIS & Cont. Spray Plant ID No.: HV3021 HV3022 Component: Valve Motor Operator Manufacture: Limitorque Model Number: SMB-0 S/N 145931 Function: Operator for CS 4.1A Accuracy: Not required Service: Cont. Spray Stop Valve Location: Aux. Bldg. El.(-)5'0" Zone A18 (HV3021), A17(HV3022)	Operating Time	Continuous	Continuous	Note 3. & 1	1.a)	sequential test	
	Temperature (°F) NA						
	Pressure (PSIA) NA						
	Relative Humidity(%) NA						
	Chemical Spray NA						
	Radiation	2.57x10 ⁶ R	2.04x10 ⁸ R	C,L	2.a)	sequential test	
	Aging	40 Yrs.	simulated 40 yrs.	plant design life	1.b)	sequential test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- Limitorque Test Report 600198 1/2/69 to 4/29/69 and Addendum 1
 - page 4
 - page 5
- Limitorque Test Report 600376A, 4/26/72 to 8/30/72
 - Par. 2.1

Notes:

- Valve must open and stay open. May require to close after containment spray is terminated.
- Valve must function in a radiation (only) environment.
- FSAR 6.4.3.1 & P & ID 25203-26017

SCEWS No. 89-B
1983 TER No. 9
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added Model No., Revised operating time, qualification and documentation.

II) SER concerns: Equipment in NRC Category II.A

Response: Same as III

III) TER concerns: Equipment qualification not established

Response: See attached

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation.

N/A

_____ Reaffirmed

_____ Revised

_____ New

8/18/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 89-B, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - H. K. Porter
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheets 58 and 59.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

Facility: Listone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Cntmt. Press. Plant ID No.: PT-8113, 8114, 8115, 8116 Component: Press. Transmitter Manufacture: Foxboro Model Number: N-E11DM Function: Accuracy: Service: Cntmt. Press. Location: Aux. Bldg. El. (-)5' 10" A17,A18	Operating Time	continuous	continuous	2	1	Sequential Test	
	Temperature (°F)						
	Pressure (PSIA)						
	Relative Humidity(%)						
	Chemical Spray						
	Radiation	2.22x10 ⁶ R	2 X 10 ⁸ R	C	1	Sequential Test	
	Aging	40 Years	1) 10 yrs. 2) 9 yrs.	P.D.L.	1	Sequential Test	See Notes 1 & 2
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. Wyle Laboratories Report No. 45592-4 dated 5/18/83
2. MPII FSAR Table 7.5.2

Notes: These components must function in a radiation (only) environment.

1. Transmitter qualified life is 10 years.
2. Viton "O" Ring for transmitter cover is qualified for 9 years at 120°F, however, must be replaced each time cover is removed.

SCEWS No. 91-B
1983 TER No. 47
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEW Sheet 91-B revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

Facility: Allstone Nuclear Pr. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Safety injection Plant ID No.: HY-659, HY-660 Component: Solenoid operated valve Manufacture: ASCO Model Number: NP-831655E Function: Pilot solenoid valve Accuracy: N/A Service: Safety injection pump discharge bypass header Location: Aux. Bldg. El. (-) 45' 6"	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	N/A	Profile 10	N/A	1.b)	Simultaneous Test	
	Pressure (PSIA)	N/A	Profile 10	N/A	1.b)	Simultaneous Test	
	Relative Humidity(%)	N/A	100	N/A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	6.37x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D

- ASCO Test Report No. AQR 67368/Rev. 0

Notes: This component is subject to a radiation only environment.

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Primary Makeup System: Water Plant ID No.: HY-7311 Component: Solenoid operated valve Manufacture: ASCO Model Number: NP-8321A5E Function: Pilot solenoid valve Accuracy: N/A Service: Primary makeup water to quench tank Location: Aux. Blg. El. (-) 5' 0" Zone A-18	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.94x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	1	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR 67368/Rev. 0

Notes:

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Cmt. Air System: Recirculation Plant ID No.: HY-6073, 6077 Component: Solenoid valve Manufacture: ASCO Model Number: NP-831655E Function: Pilot solenoid valve Accuracy: N/A Service: Cmt. air recirc cooled inlet Location: Aux. Bldg. El. (-) 5'0" Zone A-18	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	2.42x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR 67368/Rev. 0

Notes:

SYSTEM COMPONENT EVALUATION WORK SHEET

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B

a) Appendix A Par. 5	b) Appendix A Fig. 9.2
c) Appendix A Par. 8.1.3	d) Appendix A Par. 9.4.2.4.3
e) Appendix D	

5/20/83

Facility: Histon Nuclear Pr. Sta.

Unit: Two

Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Sample & Gas System: Effluents Plant ID No.: HY-6092 Component: Solenoid operated valves Manufacture: ASCO Model Number: NP-831655E Function: Pilot solenoid valve Accuracy: N/A Service: Sample & Gas effluent filter stop valve Location: Aux. Bldg. El. (-) 5' 0" Zone A-18	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.02X10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PML	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D

2. ASCO Test Report No. AOR 67368/Rev. 0

Notes:

Facility: Allstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Instrument Air Plant ID No.: HY-7003 Component: Solenoid Operated Valve Manufacture: ASCO Model Number: NP-8321A5E Function: Pilot valve Accuracy: N/A Service: Ctmt. instrument air block valve Location: Aux. Bldg. El. (-) 5"0" Zone A-18	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.65x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report No. AQR 67368/Rev. 0

Notes:

Facility: 11stone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Primary Drain Plant ID No.: HY-9016	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
Component: Solenoid operated valves	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
Manufacture: ASCO	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.c)	Simultaneous Test	
Model Number: NP-8321A5E	Relative Humidity(%)	100	100	A	1.d)	Simultaneous Test	
Function: Pilot valve	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
Accuracy: N/A	Radiation	2.12x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
Service: Primary drain tank discharge isol. valve	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Location: Aux. Bldg. El. (-) 5' 0" Zone A-18							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. ASCO Test Report No. AQS 21678/TR Rev. B
 - a) Appendix A Par. 5
 - b) Appendix A Fig. 9.2
 - c) Appendix A Par. 8.1.3
 - d) Appendix A Par. 9.4.2.4.3
 - e) Appendix D

2. ASCO Test Report No. AQR 67368/Rev. 0

Notes:

Facility: Millstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RCS Plant ID No.: HY-505 Component: Solenoid operated valves Manufacture: ASCO Model Number: NP-8321A5E Function: Pilot valve Accuracy: N/A Service: RCP Bleed Off Isolation valve Location: Aux. Bldg. El. (-)5' 0" Zone A-18	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	2.12x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D

Notes:

- ASCO Test Report No. AQR 67363/Rev. 0

Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Ctmt. Air Plant ID No.: HY-6080, 6088 Component: Solenoid operated valve Manufacture: ASCO Model Number: NP-831655 Function: Pilot valve Accuracy: N/A Service: Ctmt. air recirc cooler control valve Location: Aux. Bldg. El. (-) 5' 0" Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.94x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- ASCO Test Report AQR 67368/Rev. 0

Notes:

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Cmt. Air Plant ID No.: HY-6072, 6075 Component: Solenoid operated valve Manufacture: ASCO Model Number: NP-831655 Function: Pilot valve Accuracy: N/A Service: Cmt. Air recirc cooler inlet Location: Aux. Bldg. El. (-) 5'0" Zone A-17	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.16x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
	Flood Level Elev: Above Flood Level: Yes No	Submergence					

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D

Notes: This component must function in a radiation (only) environment.

- ASCO Test Report No. AQR 67368/Rev. 0

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: N ₂ Plant ID No.: HY-7312 Component: Pilot solenoid valve Manufacture: ASCO Model Number: NP-8320A189E Function: Pilot valve Accuracy: N/A Service: N ₂ stop valve to S.I tanks Location: Aux. Bldg. El. (-) 5'0" Zone A-17	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A,H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.94x10 ⁶ R	2 x 10 ⁸ R	C,L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D

- ASCO Test Report No. AQR 67368/Rev. 0

Notes: This component must function in a radiation (only) environment.

Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
Cntmt. Sump System: Plant ID No.: HY-9150 Component: Solenoid operated valve Manufacture: ASCO Model Number: NP-8321A5E Function: Pilot valve Accuracy: N/A Service: Cmtt sump isolation valve Location: Aux. Bldg El. (-) 5'0" Zone A-18 Flood Level Elev: Above Flood Level: Yes No	Operating Time	P	Continuous	P	1.a)	Simultaneous Test	
	Temperature (°F)	112°F	Profile 10	A	1.b)	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profile 10	A, H	1.b)	Simultaneous Test	
	Relative Humidity(%)	100	100	A	1.c)	Simultaneous Test	
	Chemical Spray	N/A	B	N/A	1.d)	Simultaneous Test	
	Radiation	1.57x10 ⁶ R	2 x 10 ⁸ R	C, L	1.e)	Sequential Test	
	Aging	40 Years	40 Years	PDL	2	Sequential Test	
	Submergence						

*Documentation References:

- ASCO Test Report No. AQS 21678/TR Rev. B
 - Appendix A Par. 5
 - Appendix A Fig. 9.2
 - Appendix A Par. 8.1.3
 - Appendix A Par. 9.4.2.4.3
 - Appendix D
- AXCO Test Report No. AQR 67368/Rev. 0

Notes:

This component must function in a radiation (only) environment.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Cntmt. Recirc Plant ID No.: ZS-6080, ZS-6084, ZS-6088, 6092 Component: Limit switch Manufacture: NAMCO Model Number: EA740-20100 Function: Position ind. valve control Accuracy: N/A Service: Cntmt. air recirc cooler control valve Location: Aux. Bldg. El. (-) 45'6" Zone A18	Operating Time	continuous	continuous	P	1	Sequential Test	
	Temperature (°F)						
	Pressure (PSIA)						
	Relative Humidity(%)						
	Chemical Spray						
	Radiation	2.12x10 ⁶ R	2.10X10 ⁸ R	C,L	1	Sequential Test	
	Aging	40 Years	40 years except gasket (7 yrs)	P.D.L.	1	Sequential Test	Gasket replacement required every 7 yrs.
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- NAMCO Qualification Test Report No. QTR-111 dated 10/1/81

Notes: This component must function in a radiation (only) environment.

SCEWS No.	<u>112-B</u>
1983 TER No.	<u>68</u>
Date:	<u>5/20/83</u>

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 112-B is revised to reflect fully qualified equipment installed.

II) SIR concerns: Equipment in NRC Category I.E
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Facility: Listone Nuclear P. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Primary Makeup Plant ID No.: ZS-7311	Operating Time	Continuous	continuous	P	1	Sequential Test	
Component: Limit switch	Temperature (°F)						
Manufacture: NAMCO	Pressure (PSIA)						
Model Number: EA740-20100	Relative Humidity(%)						
Function: Position ind. & valve control	Chemical Spray						
Accuracy: N/A							
Service: Quench tank makeup water cntmt. isolation valve	Radiation	1.94x10 ⁶ R	2.04X10 ⁸ R	C,L	1	Sequential Test	
Location: Aux. Bldg. El. (-)5' 0" Zone A18	Aging	40 Years	40 yrs. except gasket (7 Yrs)	P.D.L.	1	Sequential Test	Gasket replacement required every 7 yrs.
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. NAMCO Qualification Test Report No. QTR-111 dated 10/1/81

Notes: This component must function in a harsh radiation (only) environment.

SCEWS No. 113-B
1983 TER No. 68
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 113-B is revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Facility: 1st Stone Nuclear Pr. Sta.
 Unit: Two
 Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: N ₂ Plant ID No.: ZS-7312	Operating Time	Continuous	Continuous	P	1	Sequential Test	
Component: Limit switch	Temperature (°F)						
Manufacture: NAMCO	Pressure (PSIA)						
Model Number: EA740-20100	Relative Humidity(%)						
Function: Position Indication & valve control	Chemical Spray						
Accuracy: N/A							
Service: N ₂ stop valve to S.I. tanks	Radiation	1.94x10 ⁶ R	2.04X10 ⁸ R	C,L	1	Sequential Test	
Location: Aux. Bldg. El. (-) 5'0" Zone A17	Aging	40 Years	40 yrs. except gasket (7 yrs.)	P.D.L.	1	Sequential Test	Gasket replacement required every 7 yrs.
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

- NAMCO Qualification Test Report No. QTR-111
 Dated 10/1/81

Notes: This component must function in a radiation (only) environment.

SCEWS No. 116-B
1983 TER No. 68
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 116-B is revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Facility: ilstone Nuclear Pr. Sta.
Unit: Two
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Primary Drain Plant ID No.: ZS-9016	Operating Time	Continuous	Continuous	P	1	Sequential Test	
Component: Limit switch	Temperature (°F)						
Manufacture: NAMCO	Pressure (PSIA)						
Model Number: EA740-20100	Relative Humidity (%)						
Function: Position indication & valve control Accuracy: N/A	Chemical Spray						
Service: Primary drain tank discharge isol	Radiation	1.94x10 ⁶ R	2.04X10 ⁸ R	C,L	1	Sequential Test	
Location: Aux. Bldg. El (-) 5'0" Zone A17	Aging	40 Years	40 yrs. except gasket (7 yrs.)	P.D.L.	1	Sequential Test & Analysis	Gasket replacement required every 7 yrs.
Flood Level Elev: Above Flood Level: Yes No	Submergence						

*Documentation References:

1. NAMCO Qualification Test Report
Nol QTR-111 dated 10/1/81

Notes: This component must function in a radiation (only) environment.

SCEWS No. 119-B
1983 TER No. 68
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 119-B is revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RCS Plant ID No.: ZS-505 Component: Limit switch Manufacture: NAMCO Model Number: EA740-20100 Function: Position indication & valve control Accuracy: N/A Service: RCP Bleed Off Isol. valve Location: Aux. Bldg. El. (-) 5'0" Zone A18	Operating Time	Continuous	Continuous	P	1	Sequential Test	
	Temperature (°F)						
	Pressure (PSIA)						
	Relative Humidity (%)						
	Chemical Spray						
	Radiation	2.12x10 ⁶ R	2.04X10 ⁸ R	C,L	1	Sequential Test	
	Aging	40 Years	40 yrs. except gasket (7 yrs.)	P.D.L.	1	Sequential Test & Analysis	Gasket replacement required every 7 yrs.
Flood Level Elev: Above Flood Level: Yes No	Submergence	NA	NA	NA	NA	NA	NA

Notes: This component must function in a radiation (only) environment.

*Documentation References:

1. NAMCO Qualification Test Report
No. QTR-111 dated 10/1/81

SCEWS No.	120-B
1983 TER No.	68
Date:	5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 120-B is revised to reflect fully qualified equipment installed.

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification
Response: See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Containment Press. Plant ID No.: PT-8238,8239 Component: Pressure Transmitter Manufacture: Foxboro Model Number: NE11GM-11C1-L-C-F Function: Wide range pressure indication Accuracy: 0.5% span Service: Post accident monitoring Location: Aux. Bldg. elev. (-)5'0" A17,A18	Operating Time	Continuous	Continuous		1,2,3	Sequential Test	
	Temperature (°F)	112°F	Profiles 28,31	A	1,3	Simultaneous Test	
	Pressure (PSIA)	0.6 PSIG	Profiles 28,31	A,H	1,3	Simultaneous Test	
	Relative Humidity(%)	100%	Profiles 28,31	A	1,3	Simultaneous Test	
	Chemical Spray	NA	Profile 15	NA	1	Simultaneous Test	
	Radiation	2.22x10 ⁶ R	2.2 x 10 ⁸ R	C	2	Sequential Test	
	Aging	40 years		P.D.L.			See summary sheet 121B
Flood Level Elev: Above Flood Level: Yes No	Submergence	NA	NA	NA	NA	NA	

***Documentation References:**

1. Foxboro Test Report T3-1013
2. Foxboro Test Report T3-1068
3. Foxboro Test Report T3-6061

Notes:

SUMMARY SHEET NO. 121B

SCEW SHEET NO. 121B

DATE: 8/21/81

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Containment Pressure Transmitters PT-8238, 8239

MANUFACTURER: Foxboro Model NE11GM-11C1-L-C-F

QUALIFICATION DISCREPANCY: These components lack documented radiation and time/temperature aging qualification.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

This equipment functions to provide wide range post accident indication of containment pressure.

Due to the present age of this equipment, and to the severity of the environmental test on this equipment in the as new condition, reasonable assurance is provided that the equipment will perform its design function.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices. Refer to Generic Replacement Schedule 2.

SCEWS No. 121-B
1983 TER No. 46
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification

Response: See III

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Rad Monitoring Plant ID No.: Z1RM8240/ B,C - Z2RMS241/B,C Component: Coaxial cable Manufacture: Rockbestos Co. Model Number: RSS 6-104 Function: Rad monitoring cable Accuracy: Not required Service: Low level signal circuits Location: Various areas outside containment	Operating Time	Continuous	Continuous	System Design (P.A.M.)	1.a)	Simultaneous Test	
	Temperature (°F)	Profile 20	Profile 39	A,D	1.a)	Simultaneous Test	
	Pressure (PSIA)	Note 1	Profile 39	A	1.a)	Simultaneous Test	
	Relative Humidity (%)	100%	100%	Design Requirement	1.a)	Simultaneous Test	
	Chemical Spray	NA	NA	NA	NA	NA	
	Radiation	NA	NA	NA	NA	NA	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	1.c)	Sequential Test	
Flood Level Elev: Above Flood Level: Yes No	Submergence						

***Documentation References:**

1. Rockbestos report "Qualification of Firewall III coaxial constructions dated January 18, 1978".
 - a) Page 2, Par. IV
 - c) Page 2, Par. II

Notes:

The HELB accident pressure in the west MSIV Room is less than 2 psig which lasts for less than thirteen (13) seconds. This environmental pressure/time parameter is considered insignificant regarding cable operability.

SCEWS No. 122-B
1983 TER No. 73
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

- I) Summary of new information on SCEW sheet.
- 1) Changed Note 1 for clarification.
 - 2) General changes
- II) SER concerns: Equipment in NRC Category II.A
Response: Same as III.
- III) TER concerns: Equipment qualification not established.
Response: See attached.
- IV) Proposed corrective action and schedule. N/A
- V) Justification for continued operation. N/A
- ☐ Reaffirmed
 - ☐ Revised
 - ☐ New

III) Response:

NNECO has reviewed the qualification test report (Firewall III, 2/18/78) and the test anomaly indicated by the radiation monitor manufacturer. Several meetings have been held with the cable manufacturer (Rockbestos Company) to discuss the operability of the coaxial cable in the west MSIV Room. The cable manufacturer has stated that due to the short time duration the cable would never reach the accident temperature (326°F).

A review of the accident profile of temperature versus time would conclude that the cable manufacturer is correct. The MSIV Room accident profile is #20. In the profile the peak temperature is 326°F which takes ten (10) seconds to reach, after this point it decays to 230°F in 50 seconds and to 200°F in 90 seconds.

The cable manufacturer has stated that the maximum limiting temperatures by type test is 230°F to 250°F. Being conservative and choosing 230°F as the limit, the temperature difference is only 94°F for a time duration of 50 seconds. Due to the overall thermal capacitance of the cable and other equipment in the area (heat sinks) the temperature difference and time duration is judged insignificant. Therefore, it is NNECO's engineering judgement that this cable is qualified for its intended safety function.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF ^a		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Cooling Plant ID No.: RC403, RC405 Component: Valve Motor Operations Manufacture: Limitorque Model Number: SMB-000 S/N's 156210, 156209, Order No. 363562A Function: Pressure relief isolation valve operators Accuracy: Not required Service: Porv block valve Location: Containment EL 38'6"	Operating Time	Continuous	Continuous	Note 2.	2.)	Sequential Test	
	Temperature (°F)	Profile 18	Profile 11	D	2.b)	Simultaneous Test	
	Pressure (PSIA)	Profile 19	Profile 11A	D	2.c)	Simultaneous Test	
	Relative Humidity(%)	100	100	1.	2.d)	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	Note 1.	F	2.e)	Simultaneous Test	
	Radiation	1.5×10^8	2.04×10^8 R	K, L	2.f)	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	Plant Design Life	2.9)	Sequential Test	
Flood Level Elev.(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

***Documentation References:**

- Bechtel Technical Spec. 7604-M-223A
7604-E-40, 7604-E-11B
- Limitorque Project Report 600456, June 7, 1974 to November 22, 1974
 - Page 25
 - Fig. 6
 - Fig. 5
 - Par. 3.4.2
 - Par. 4.4.2
 - Par. 4.3.
 - Par 3.1.1

Notes: 1. Table 1, IEEE STD 382, Page 12

- Must operate intermittently during a TMI type event to block and unblock porv as required.

SCEWS No. 1-C
1983 TER No. 5
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Revised qualified life and operability parameters. Added Model Number.

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III

III) TER concerns: Equipment qualification not established.
Response: See attached

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed
_____ Revised
_____ New

5/20/83

III) Response to TER Concerns:

A) Model Number is included on SCEWS 1-C, see Item I above.

The following is in response to Page 5f, FRC Item 5

- 1 - Letter from manufacturer which demonstrates similarity is and has been available for audit per the requirements of I & E Bulletin 79-01B. FRC did not request this information via NRC request for additional information (RFAI) dated January 6, 1982.
- 2 - Class RH
- 3 - No motor brake
- 4 - Not applicable
- 5 - Reliance
- 6 - Not applicable
- 7 - A.C. - This was included in the October, 1980 submittal, Appendix I, sheet 28A and B.
- 8 - Not applicable
- 9 - Revised qualified life/operability times. See Item I above.

In addition to these items, FRC should note that the equipment was type tested and determination of individual constituents is irrelevant. Also note that Teflon was used as "Field Cable" in certain Limitorque Tests.

B) Again, as with "A" above, details of the Radiation, Thermal and Mechanical Aging Programs is and has been available for audit in accordance with I&E Bulletin 79-01B. This information was not requested by FRC via NRC RFAI dated January 6, 1982.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Reactor Coolant Plant ID No.: PT-103 Component: Pressure Transmitter Manufacture: Foxboro Model Number: E11GM Function: Low range pressurizer press. Accuracy: $\pm 0.5\%$ Service: Location: CTMT (-) 5' rack C-140 C-5	Operating Time						
	Temperature (°F)	Profile 18	318°F	D	Profile 1,34	Simultaneous Test	
	Pressure (PSIA)	Profile 19	90 PSI	D	Profile 1,34	Simultaneous Test	
	Relative Humidity(%)	100	100%		Profile 1,34	Simultaneous Test	
	Chemical Spray	2400 PPM Boron		F			See summary sheet 2C
	Radiation	8.2x10 ⁶ R		K			See summary sheet 2C
	Aging	40 yrs.		P.D.L			See summary sheet 2C
Flood Level Elev: -14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

***Documentation References:**

1. Foxboro Test Report Q-9-6005

Notes: PT-103 S/N 2602027

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Low Range Pressurizer Pressure Transmitters PT-103

MANUFACTURER: Foxboro E-11GM

QUALIFICATION DISCREPANCY:

This equipment lacks documented qualification data concerning resistance to chemical spray and radiation exposure.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

PT-103 provides signal input for the post accident monitoring, subcooling margin monitor. This component serves as post accident low range pressurizer pressure monitor. This equipment also functions to provide overpressure protection for the shutdown cooling system.

The post accident subcooling margin monitor, will alarm a pressure input failure which indicates to the operator that this system should not be used for any safety related function.

The overpressure protection for the shutdown cooling system is provided for in the plant operating procedures and ensured through administrative controls. Wide range monitors are also available to provide operating personnel with pressurizer pressure indication for shutdown cooling system initiation.

SCEWS No.	<u>2-C</u>
1983 TER No.	<u>45</u>
Date:	<u>5/20/83</u>

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification

Response: See IV below.

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of 1983 refueling outage scheduled to commence in May 1983,

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: RCS Plant ID No.: TE112HA-D, TE122HA-D, TE112CA-D, TE122CA-D Component: Connection Head Manufacture: Rosemount Model Number: (TE112HC- 104ADA 104AFC-1) Function: RCS loop temp. RTD Cable Termination Accuracy: Service: Location: CTMT C-5	Operating Time	continuous					See summary sheet 5C
	Temperature (°F)	Profile 16, 18		D	1		See summary sheet 5C
	Pressure (PSIA)	Profile 16, 19		D	1		See summary sheet 5C
	Relative Humidity (%)	100%		D	1		See summary sheet 5C
	Chemical Spray	2400 ppm boron		F	1		See summary sheet 5C
	Radiation	1.5×10^{-8} R		K	1		See summary sheet 5C
	Aging	40 yrs.		P.D.L.			See summary sheet 5C
Flood Level Elev: (-)14'4" Above Flood Level: Yes x No	Submergence	N/A	N/A	N/A	N/A	N/A	

*Documentation References:

- 8-27-79 letter from J. Graham, Rosemount Engineering to R. K. McCarthy

Notes:

SUMMARY SHEET NO. 5C

SCEW SHEET NO. 5C

EQUIPMENT ENVIRONMENTAL QUALIFICATION

Rev. 2

8/18/83

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: RCS loop temperature RTD connection heads
TE-112CA-CD TE-112HA-HD
TE-122CA-CD TE-122HA-HD

MANUFACTURER: Rosemount

QUALIFICATION DISCREPANCY: These components lack documented qualification data.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

These components provide protection for the cable terminations of the referenced RTD's. These RTD's provide control room indication of the monitored parameters and RPS input for the thermal margin/low pressure trip setpoint determinations.

Reasonable assurance that these components will provide the required protection is provided by Reference 1 on system component evaluation work sheet.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices.

SCEWS No. 5-C
1983 TER No. 81
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification

Response: Justification for continued operation reviewed
and remains valid.

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the
end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
EE SH 454							
System: Aux. Feed Water Plant ID No.: FT-5277, 5278	Operating Time	Continuous	Continuous		1,2,3	Sequential Test	
Component: Differential pressure transmitter	Temperature (°F)	326°F	Profile 28,31	Profile 20A	1,3	Simultaneous Test	
Manufacture: Foxboro	Pressure (PSIA)	1.8 PSIG	Profile 28,31	A	1,3	Simultaneous Test	
Model Number: NE13DH	Relative Humidity(%)	100	Profile 28,31	A	1,3	Simultaneous Test	
Function: Aux. feed flow indication	Chemical Spray	NA	Profile 15	NA	1	Simultaneous Test	
Accuracy: =0.5%	Radiation		2.2 x 10 ⁸ R		2	Sequential Test	
Service:	Aging	40 yrs.		P.D.L.			See summary sheet 8C
Location: Zone A-51							
Flood Level Elev: Above Flood Level: Yes No	Submergence						

***Documentation References:**

1. Foxboro Test Report T3-1013
2. Foxboro Test Report T3-1068
3. Foxboro Test Report T3-6061

Notes:

SUMMARY SHEET NO. 8C

SCEW SHEET NO. 8C

DATE: 8/21/81

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Differential pressure transmitters for auxiliary feedwater flow indication FT-5277, 5278

MANUFACTURER: Foxboro Model NE-13DH

QUALIFICATION DISCREPANCY: These components lack documented radiation and time/temperature aging qualification.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

These components provide indication of auxiliary feedwater flow. An independent laboratory has been contracted by NUSCO to provide radiation and time/temperature aging analysis of this equipment.

Due to the present age of this equipment, and severity of the as new test, reasonable assurance is provided that the equipment will perform its function.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices. Refer to Generic Replacement Schedule 2.

SCEWS No. 8-C
1983 TER No. 55
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION
SER/TER REVIEW
Millstone Unit 2
Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response:

Same as III

III) TER concerns: Equipment qualification pending modification

Response:

See IV

IV) Proposed corrective action and schedule.

Equipment to be replaced with fully qualified equipment prior to the end of the 1985 refueling outage.

V) Justification for continued operation.

 X Reaffirmed

 Revised

 New

EQUIPMENT DESCRIPTION EEQ SH 450 452	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Main Steam Plant ID No.: LT-1113B,C,D LT-1123B,C,D Component: Differential pressure transmitter Manufacture: Foxboro Model Number: N-EI3DM Function: Steam genera- tor level Accuracy: 0.5% span Service: Location: CTMT 14'6" C-5	Operating Time	Continuous	Continuous	4	1	Sequential Test	
	Temperature (°F)	Profile 18	350°F	D	1	Simultaneous Test	
	Pressure (PSIA)	Profile 19	85 psig	D	1	Simultaneous Test	
	Relative Humidity(%)	100	100		1	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 ppm Boron	F	1	Simultaneous Test	
	Radiation	$8.2 \times 10^6 R$	$2.0 \times 10^8 R$	K	1	Sequential Test	
	Aging	40 yrs.	1) 10 yrs. 2) 9 yrs.	P.D.L.	1	Sequential Test	See Notes 1 & 2
Flood Level Elev.(-)14'4" Above Flood Level: Yes X No	Submergence	NA	NA	NA	NA	NA	

***Documentation References:**

- Wyle Laboratories Report No. 45592-4 dated 5/18/83
-
-
- MP11 FSAR Table 7.5.2

Notes:

- Transmitter qualified life is 10 years.
- Viton "O" Ring for transmitter cover is qualified for 9 years at 120°F, however, must be replaced each time cover is removed.

SCEWS No. 9-C
1983 TER No. -
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 9-C revised to reflect fully qualified equipment installed.

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule.

N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

SCEWS No. 14-C
1983 TER No. 44
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

SCEWS 14-C is deleted. See attached justification.

II) SER concerns: N/A
Response:

III) TER concerns: N/A
Response:

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT
ENVIRONMENTAL QUALIFICATION
Millstone Unit 2

Delete SCEW Sheet No. 14C

System: PRS
Plant ID: PS-4597 A, B, C, D
Component: Pressure Switch
MFGR: Custom Component
Model: CCS-604GR6-356S
FCTN: Turbine Trip Input to RPS
Location: T11

This equipment operates to input to the Reactor Protection System (RPS) a signal that the turbine generator has tripped, due to any cause. The harsh environment to which this equipment is exposed is caused by a high energy pipe break in the turbine building. This event would cause a turbine trip to be generated by the RPS, and failure of this equipment would not adversely affect the operation of any Class 1E equipment.

WHB/psn

5/10/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Radiation Monit. Plant ID No.: RE 8240, 8241 Component: High range radiation detector Manufacture: General Atomic Model Number: RD-23 Function: Accident/post accident radiation monitoring Accuracy: + 3% Service: Location: CTMT elev. 18'6" Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Operating Time	Continuous	Continuous	1	2a	Simultaneous Test	
	Temperature (°F)	Profile 18	340°F	D	2a	Simultaneous Test	
	Pressure (PSIA)	Profile 19	70 PSIG	D	2a	Simultaneous Test	
	Relative Humidity(%)	100%	100%	D	2a	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F	2a	Simultaneous Test	
	Radiation	1.5 x 10 ⁸ R	2.0 x 10 ⁸ R	K	2c	Test and Analysis	
	Aging	40 Yrs.	40 Yrs.	PDL	2b	Test and Analysis	
Submergence	NA	NA	NA	NA	NA	NA	NA

*Documentation References:

1. Millstone II FSAR Table 7.5.2
2. General Atomic Test Report, Class 1E
Testing of Analog High Range Radiation Monitor E-254-960.a)APDX1 b)APDX 4.
c)pg 20, Section 4.1...

III) Response to TER Concerns:

1. The Detector Assembly (RD-23) is identical to the test specimen. The connector/cable interface is an Amphenol 83-816-1000 HN connector and RSS-6-104 (1081) coaxial cable with WCSF-N Raychem tubing. The termination was made in accordance to General Atomic procedure as outlined in the test report and shown on page 12 of said report.

The cable has been requalified by the Rockbestos Company and is indicated on SCEW Sheet 37-A. Thermal aging of this cable has been addressed, (see SCEWS 37-A).

The connectors are all metal except for the insulator and gasket materials which are teflon. However, the entire connector cable assembly is covered with Raychem tubing as stated earlier. Therefore, aging and radiation is not considered to be significant due to the small quantities of teflon. The Raychem material has been qualified by type test.

Testing was performed on the connector/cable and Raychem tubing which is method four (4) page 11 of General Atomic Test Report.

2. The Detector Assembly (RD-23) is inorganic, refer to Table 3-1 Page 6 of General Atomic Test Report. The cable is not qualified by the manufacturer as second generation coaxial cable. The connector is all metal and the teflon material is used only in a static condition not subjected to any movement.
3. See response one above for connector aging justification.

NNECO has established the similarity link between equipment installed and test specimen. These pieces of equipment are considered fully qualified.

SCEWS No. 15-C
1983 TER No. 34
Date: 8/18/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category II.A
Response: Same as III.

III) TER concerns: Equipment qualification not established.
Response: See attached.

IV) Proposed corrective action and schedule.
N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

Unit: T
Docket: 50-336

SYSTEM COMPONENT EVALUATION WORK SHEET

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Post Accid. Monit. Plant ID No.: LT-8242, 8243 Component: Level Transmitter Manufacture: GEM Model Number: XM-54852 Function: Containment sump level indication Accuracy: Service: Post accident monitoring Location: CTMT elev. (-)22'6"-(-)15'6" Flood Level Elev: (-)14'4" Above Flood Level: Yes No X	Operating Time	Continuous	Continuous	1	1	Simultaneous Test	
	Temperature (°F)	Profile 18	381°F	D	1	Simultaneous Test	
	Pressure (PSIA)	Profile 19	60 PSIG	D	1	Simultaneous Test	
	Relative Humidity (%)	100%	100%	D	1	Simultaneous Test	
	Chemical Spray	2400 PPM Boron	3000 ppm Boron	F	1	Simultaneous Test	
	Radiation	$1.5 \times 10^8 R$	$2.0 \times 10^8 R$	K	1	Sequential Test	
	Aging	40 Yrs.	40 Yrs.	PDL	1	Sequential Test	
Submergence	14' 4"	14' 4"	78-771-162-GM			Sequential Test	

*Documentation References:

Notes:

- Wyle Qualification Test Report #45700-2, dated 12/14/82

SCEWS No. 16-C
1983 TER No. 57
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

Added documentation reference to complete qualification.

II) SER concerns: Equipment in NRC Category I.B

Response:

Same as III

III) TER concerns: Equipment qualification pending modification

Response:

See I above

IV) Proposed corrective action and schedule. N/A

V) Justification for continued operation. N/A

_____ Reaffirmed

_____ Revised

_____ New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
PZR relief valve System: monitors Plant ID No.: ZS200,201, 402,404 Component: Accelerometer Manufacture: Endevco Model Number: 2273AM20 Function: Post accident monitoring Accuracy: Service: Porv discharge line monitoring Location: CTMT C-5	Operating Time	Continuous	Continuous			Simultaneous Test	See Summary Sheet 17-C
	Temperature (°F)	Profile 16,18	Profile 41	D		Simultaneous Test	See Summary Sheet 17-C
	Pressure (PSIA)	Profile 16,19	Profile 42	D		Simultaneous Test	See Summary Sheet 17-C
	Relative Humidity(%)	100%	100%	D		Simultaneous Test	See Summary Sheet 17-C
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F		Simultaneous Test	See Summary Sheet 17-C
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K		Sequential Test	See Summary Sheet 17-C
	Aging	40 yrs.	To Be Determined	Plant Design Life		Sequential Test	See Summary Sheet 17-C
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence						

*Documentation References:

Notes:

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT:

Acoustic Monitor; Accelerometer

MANUFACTURER:

Endevco

QUALIFICATION DISCREPANCY:

Equipment qualification not established.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

See attached.

This equipment has been procured on a risk release basis pending completion of vendor qualification testing. To date Babcock & Wilcox (B&W) has gone through several qualification efforts without success. In light of all the various difficulties the B & W testing have encountered, NNECO has decided to install the Technology for Energy Corporation (TEC) Acoustic Valve-Position Indicator System.

The basic design of the systems are identical except for the Charge Amplifier and associated housing. Therefore, NNECO has a high degree of confidence that the present system would perform its safety related function in an accident scenario. The reason being that the actual test profile is much more severe than the plant's design accident profile. There is significant margin between profiles.

The equipment modification and/or change outs will be performed during the 1984 refueling outage. The qualification documentation references will be identified at that time and submitted to the NRC for review if required.

The qualified life for this equipment will be determined in accordance with IEEE 323-1974 guidelines.

The present equipment was installed as part of the TMI Action Plan under Item 2.1.3a and was required to be operational by 1/1/81.

SCEWS No. 17-C
1983 TER No. 33
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response:

Same as III

III) TER concerns: Equipment qualification pending modification

Response: Justification for continued operation added.

IV) Proposed corrective action and schedule.

Fully qualified equipment will be installed prior to the end of the 1983 refueling outage.

V) Justification for continued operation.

 Reaffirmed

 Revised

 X New

Unit: TWO
Docket: 50-336

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
PZR relief valve System: monitors Plant ID No.: ZS-200,201, 402,404 Component: Cable Manufacture: Harline Cable Endevco Model Number: 3075M6 Function: Post accident monitoring Accuracy: Service: Porv discharge line monitoring Location: CTMT C-5	Operating Time	Continuous	Continuous			Simultaneous Test	See Summary Sheet 18-C
	Temperature (°F)	Profile 16,18	Profile 41	D		Simultaneous Test	See Summary Sheet 18-C
	Pressure (PSIA)	Profile 16,19	Profile 42	D		Simultaneous Test	See Summary Sheet 18-C
	Relative Humidity (%)	100%	100%	D		Simultaneous Test	See Summary Sheet 18-C
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F		Simultaneous Test	See Summary Sheet 18-C
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K		Sequential Test	See Summary Sheet 18-C
	Aging	40 yrs.	To Be Determined	Plant Design Life		Sequential Test	See Summary Sheet 18-C
Flood Level Elev.(-)14'4" Above Flood Level: Yes X No	Submergence						

*Documentation References:

1. Babcock & Wilcox, valve monitoring system, test program 3-21-80.

Notes:

5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT:

Acoustic Monitor: Cable

MANUFACTURER:

Endevco

QUALIFICATION DISCREPANCY:

Equipment qualification not established.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

See attached.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

SUMMARY SHEET NO. 18-C
SCEW SHEET NO. 18-C
Rev. 3 5/20/83

This equipment has been procured on a risk release basis pending completion of vendor qualification testing. To date Babcock & Wilcox (B&W) has gone through several qualification efforts without success. In light of all the various difficulties the B & W testing have encountered, NNECO has decided to install the Technology for Energy Corporation (TEC) Acoustic Valve-Position Indicator System.

The basic design of the systems are identical except for the Charge Amplifier and associated housing. Therefore, NNECO has a high degree of confidence that the present system would perform its safety related function in an accident scenario. The reason being that the actual test profile is much more severe than the plant's design accident profile. There is significant margin between profiles.

The equipment modification and/or change outs will be performed during the 1984 refueling outage. The qualification documentation references will be identified at that time and submitted to the NRC for review if required.

The qualified life for this equipment will be determined in accordance with IEEE 323-1974 guidelines.

The present equipment was installed as part of the TMI Action Plan under Item 2.1.3a and was required to be operational by 1/1/81.

SCEWS No. 18-C
1983 TER No. 69
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B
Response: Same as III

III) TER concerns: Equipment qualification pending modification.
Response: Justification for continued operation added.

IV) Proposed corrective action and schedule.

Fully qualified equipment will be installed prior to the end of the 1983 refueling outage.

V) Justification for continued operation.

 Reaffirmed

 Revised

 X New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
PZR relief valve System: monitors Plant ID No.: ZS-200,201 402,404 Component: Preamplifier Manufacture: Unholtz- Dickie Model Number: 22CA-ZTR Function: Post accident monitoring Accuracy: Service: Porv discharge line monitoring Location: CTMT C-5	Operating Time	Continuous	Continuous			Simultaneous Test	See Summary Sheet 19-C
	Temperature (°F)	Profile 16,18	Profile 41	D		Simultaneous Test	See Summary Sheet 19-C
	Pressure (PSIA)	Profile 16,19	Profile 42	D		Simultaneous Test	See Summary Sheet 19-C
	Relative Humidity(%)	100%	100%	D		Simultaneous Test	See Summary Sheet 19-C
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F		Simultaneous Test	See Summary Sheet 19-C
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K		Sequential Test	See Summary Sheet 19-C
	Aging	40 yrs.	To Be Determined	Plant Design Life		Sequential Test	See Summary Sheet 19-C
Flood Level Elev.(-)14'4" Above Flood Level: Yes X No	Submergence						

*Documentation References:

Notes:

5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT:

Acoustic Monitors: Preamplifier

MANUFACTURER:

Unholtz-Dickie

QUALIFICATION DISCREPANCY:

Equipment qualification not established.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

See attached.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

SUMMARY SHEET NO.
SCEW SHEET NO.
Rev. 3

19-C
19-C
5/20/83

This equipment has been procured on a risk release basis pending completion of vendor qualification testing. To date Babcock & Wilcox (B&W) has gone through several qualification efforts without success. In light of all the various difficulties the B & W testing have encountered, NNECO has decided to install the Technology for Energy Corporation (TEC) Acoustic Valve-Position Indicator System.

The basic design of the systems are identical except for the Charge Amplifier and associated housing. Therefore, NNECO has a high degree of confidence that the present system would perform its safety related function in an accident scenario. The reason being that the actual test profile is much more severe than the plant's design accident profile. There is significant margin between profiles.

The equipment modification and/or change outs will be performed during the 1984 refueling outage. The qualification documentation references will be identified at that time and submitted to the NRC for review if required.

The qualified life for this equipment will be determined in accordance with IEEE 323-1974 guidelines.

The present equipment was installed as part of the TMI Action Plan under Item 2.1.3a and was required to be operational by 1/1/81.

SCEWS No. 19-C
1983 TER No. 32
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: Equipment in NRC Category I.B

Response: Same as III

III) TER concerns: Equipment qualification pending modification.

Response: Justification for continued operation added.

IV) Proposed corrective action and schedule.

Fully qualified equipment will be installed prior to the end of the 1983 refueling outage.

V) Justification for continued operation.

 Reaffirmed

 Revised

 X New

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: PZR relief valve monitors Plant ID No.: ZS-200,201 402,404 Component: Junction Box Manufacture: Hoffman Model Number: 8064 CHNESS Function: Post accident monitoring Accuracy: Service: Porv discharge line monitoring Location: CTMT C-5	Operating Time	Continuous	Continuous			Simultaneous Test	See Summary Sheet 20-C
	Temperature (°F)	Profile 16,18	Profile 41	D		Simultaneous Test	See Summary Sheet 20-C
	Pressure (PSIA)	Profile 16,19	Profile 42	D		Simultaneous Test	See Summary Sheet 20-C
	Relative Humidity(%)	100%	100%	D		Simultaneous Test	See Summary Sheet 20-C
	Chemical Spray	2400 PPM Boron	3000 PPM Boron	F		Simultaneous Test	See Summary Sheet 20-C
	Radiation	$1.5 \times 10^8 R$	$2 \times 10^8 R$	K		Sequential Test	See Summary Sheet 20-C
	Aging	40 yrs.	To Be Determined	Plant Design Life		Sequential Test	See Summary Sheet 20-C
Flood Level Elev:(-)14'4" Above Flood Level: Yes X No	Submergence						

*Documentation References:

Notes:

5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT:

Acoustic Monitors: Termination Box

MANUFACTURER:

Hoffman

QUALIFICATION DISCREPANCY:

Equipment qualification not established.

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

See attached.

**SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:**

SUMMARY SHEET NO. 20-C
SCEW SHEET NO. 20-C
Rev. 3 5/20/83

This equipment has been procured on a risk release basis pending completion of vendor qualification testing. To date Babcock & Wilcox (B&W) has gone through several qualification efforts without success. In light of all the various difficulties the B & W testing have encountered, NNECO has decided to install the Technology for Energy Corporation (TEC) Acoustic Valve-Position Indicator System.

The basic design of the systems are identical except for the Charge Amplifier and associated housing. Therefore, NNECO has a high degree of confidence that the present system would perform its safety related function in an accident scenario. The reason being that the actual test profile is much more severe than the plant's design accident profile. There is significant margin between profiles.

The equipment modification and/or change outs will be performed during the 1984 refueling outage. The qualification documentation references will be identified at that time and submitted to the NRC for review if required.

The qualified life for this equipment will be determined in accordance with IEEE 323-1974 guidelines.

The present equipment was installed as part of the TMI Action Plan under Item 2.1.3a and was required to be operational by 1/1/81.

SCEWS No. 20-C
1983 TER No. -
Date: 5/20/83

EQUIPMENT ENVIRONMENTAL QUALIFICATION

SER/TER REVIEW

Millstone Unit 2

Docket No. 50-336

I) Summary of new information on SCEW sheet.

None

II) SER concerns: None
Response:

III) TER concerns: None
Response:

IV) Proposed corrective action and schedule.

Fully qualified equipment will be installed prior to the end of the 1983 refueling outage.

V) Justification for continued operation.

_____ Reaffirmed

_____ Revised

☒ New

EQUIPMENT DESCRIPTION EE 413	ENVIRONMENT			DOCUMENTATION REF*		QUAL. METHOD	OUTSTANDING ITEMS
	Parameter	Spec.	Qual.	Spec.	Qual.		
System: Radiation Monitor Plant ID No.: C86, C87	Operating Time	Continuous		P			see Summary Sheet 22C
Component: H ₂ Analyzer	Temperature (°F)						
Manufacture: Bechtel	Pressure (PSIA)						
Model Number: 7604-M-442	Relative Humidity(%)						
Function: Monitor H ₂ Concentration	Chemical Spray						
Accuracy: ±5% of Scale							
Service:	Radiation	less than 9 X 10 ⁶		M			see Summary Sheet 22C
Location: Aux. Bldg. Elev. 14' 6" Fire Zone: A26	Aging	40 yrs.		PDL			see Summary Sheet 22C
Flood Level Elev: N/A Above Flood Level: Yes No	Submergence						

*Documentation References:

Notes:

EQUIPMENT ENVIRONMENTAL QUALIFICATION

DISCREPANT EQUIPMENT SUMMARY

MILLSTONE UNIT 2

EQUIPMENT: Hydrogen Analyzers
- sample equipment C87, C88

MANUFACTURER: Bechtel

QUALIFICATION DISCREPANCY: Lacks Radiation Qualifications

SAFETY FUNCTION AND JUSTIFICATION
FOR CONTINUED OPERATION:

This equipment is required to sample containment atmosphere for analysis as part of the Hydrogen Analyzers.

This equipment was assembled by Bechtel during plant construction and consists of solenoid valves, metal bellows pump and a refrigeration unit. The radiation sensitive electronics have been relocated to a mild environment.

The equipment which remains in a harsh radiation (only) environment is of good quality commercial grade. Utilization of this equipment is authorized by Reg. Guide 1.97

DOCUMENT REFERENCE LIST SUPPLEMENT

- A. Bechtel Nuclear Staff Calculation 532-27-11867 Rev. O: Computer Run x3022, 11/3/79.
- B. The Chemical solution consists of 3000 PPM Boron as Boric Acid in solution with 0.064 Molar Sodium Thiosulfate buffered with Sodium Hydroxide to a PH of between 9 and 10 at Room Temperature.
- C. NUSCO response to NUREG-0578-Section 2.1.6b, Attachment 2, Summary Sheets, W. G. Counsil to H. R. Denton, December 31, 1979.
- D. NUSCO memorandum C. J. Gladding to R. J. DeRosa GME-80-274 dated February 29, 1980.
- E. NUSCO memorandum C. J. Gladding to R. J. DeRosa GME-80-701 dated May 16, 1980.
- F. NUSCO memorandum S. J. Weyland to R. J. DeRosa GME-80-643 dated May 1, 1980.
- G.
- H. The peak pressure is less than 1 psig for a duration of about 13 seconds. This is considered insignificant.
- I. NUSCO memorandum C. J. Gladding to R. J. DeRosa GME-80-863 dated July 7, 1980.
- J.
- K. NUSCO memorandum D. Milier to R. J. DeRosa, NEE-79-E-281 dated May 21, 1979.
- L. NUSCO memorandum H. W. Siegrist to R. J. DeRosa NEE-80-RA-496 dated September 8, 1980.
- M. NUSCO memorandum H. W. Siegrist to R. J. DeRosa NEE-80-RA-519 dated September 16, 1980.
- N. NUSCO memorandum Ralph Bates to R. J. DeRosa dated September 11, 1980.
- P. "Operating Time" specification information is not noted either because it was not originally specified or could not be readily found. In all cases the qualified operating time adequately covers the equipment requirement.

MISCELLANEOUS ELECTRICAL DEVICES

A list of miscellaneous electrical devices has been developed from a review of the plant wireway drawings. The installed items have been inspected by plant walk-through for the purpose of specific identification and observation of conditions which could possibly cause circuit failure under accident conditions (Reference 2).

The types of equipment identified are:

- Ideal set screw connectors
- 3-M Scotch-Lok twist on type connectors
- General Electric type EB5 terminal blocks
- Compression and other type terminal blocks (unidentified)
- Safety switches
- Fuses
- Fuse Block
- Butt Splices

Environmental qualification considerations regarding the above equipment are as follows:

Ideal Set Screw Connectors

These devices are used inside and outside the containment. They are qualified inside the containment as shown on SCEW sheet 13A. Environmental conditions outside the containment can exceed the conditions inside the containment only with respect to temperature which could reach 326°F. (Containment temperature can reach a maximum of 279°F). The ideal set screw connectors are rated at 150°C (302°F) for an indefinite length of time (document reference 3. and 5. of SCEW sheet 13A). Outside the containment, the ambient temp. would only exceed the rated value for less than one minute and is, therefore, considered insignificant especially since the connectors are housed in metal enclosures and would likely never reach the ambient temperature.

3-M Scotch-Lok Connectors

These devices have been identified as being installed outside the containment only.

An independent laboratory has been retained by NUSCO to perform an analysis of environmental qualification of these connectors.

Continued plant operation is justified since all connectors are installed in metal enclosures and it is unlikely that their environment would ever reach destructive levels. The temperature transient is relatively short lived and diminishes to less than 200°F in two minutes. Also, the conclusion reached in the reference a) observation and stated judgement is that the 3-M Scotch-Lok connector, when compared with the Ideal Set Screw connector is a better device for mechanical integrity and lower circuit leakage.

Terminal Blocks - GE EB-5 and other types (unidentified)

These devices have been identified as being installed only outside the containment. No specific environmental qualification has been obtained. Continued plant operation is justified, however, because the walk-through inspection indicated that these blocks would have similar characteristics to ones that successfully withstood LOCA simulation tests while energized with 525 volts AC.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices Refer to Generic Replacement Schedule 1.

Butt Splices

These devices have been identified as being installed only inside the containment in one valve circuit. No specific qualification has been obtained thus far, however, continued plant operation is justified for the following reasons:

- a) Inspection disclosed that quality, spacing and enclosure of the splice would likely preclude circuit failure resulting from an accident.
- b) Any known failure mode will cause the valve to move to the safe position.

Due to the desirability of long term operability of this equipment and in conformance with existing license requirements, they will be replaced with fully qualified devices Refer to Generic Replacement Schedule 1.

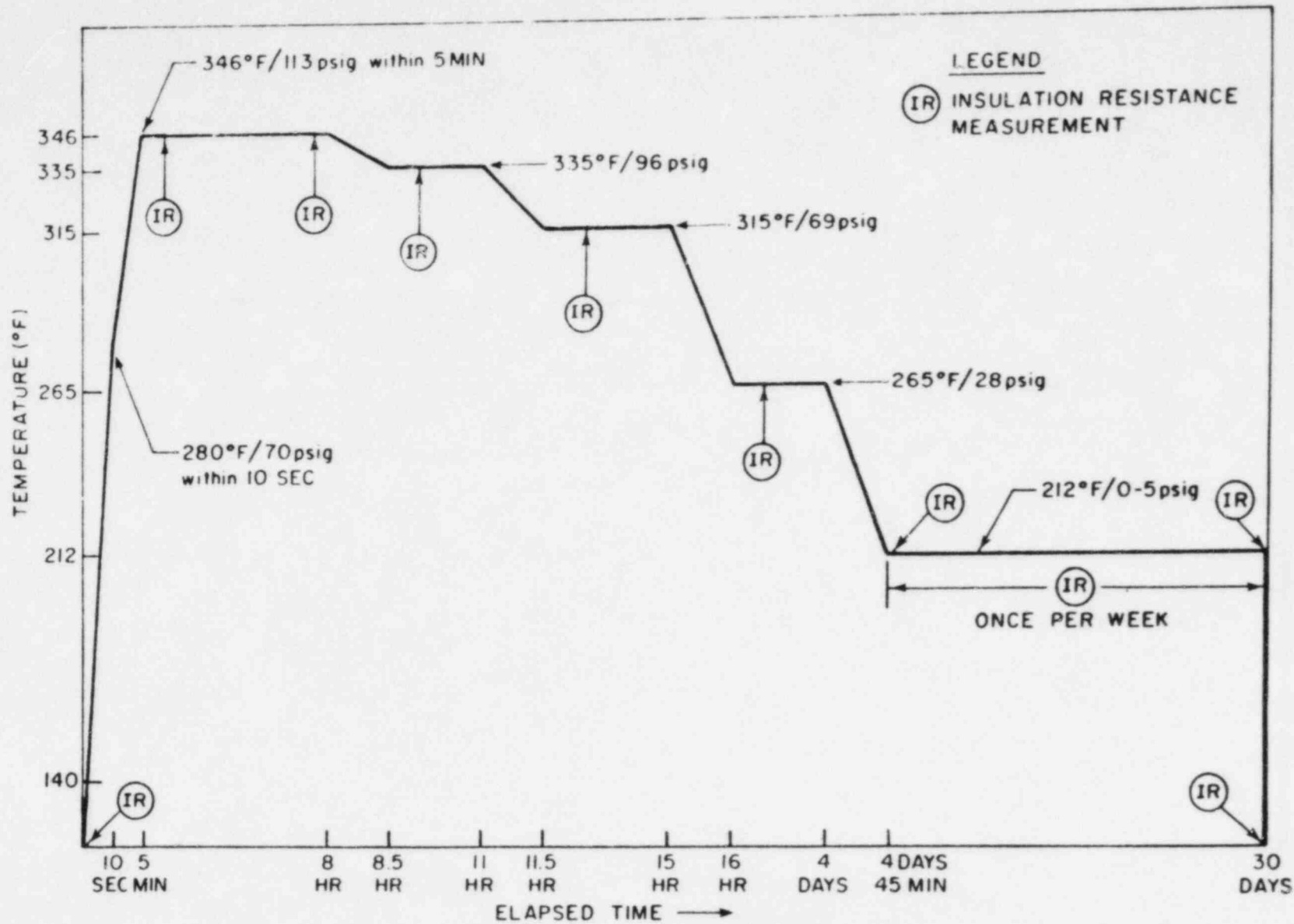
Safety Switches, Fuse Blocks and Fuses

These devices are all associated with charging pump MP18B1. They are required to be operable for two (2) hours into the event. They are exposed to a harsh radiological (only) environment of $5.25 \times 10^5 R$. - G.E. Test Report PAR 710-83-031 demonstrates qualification.

Reference a) NUSCO memorandum, J. M. Clark to R. J. DeRosa GRE-80-233 dated October 14, 1980.

8/18/83

Figure 2. Temperature/Pressure Profile for Simulation of Loss-of-Coolant Accident (LOCA) Environment



F-C4350-3

PROFILE 2

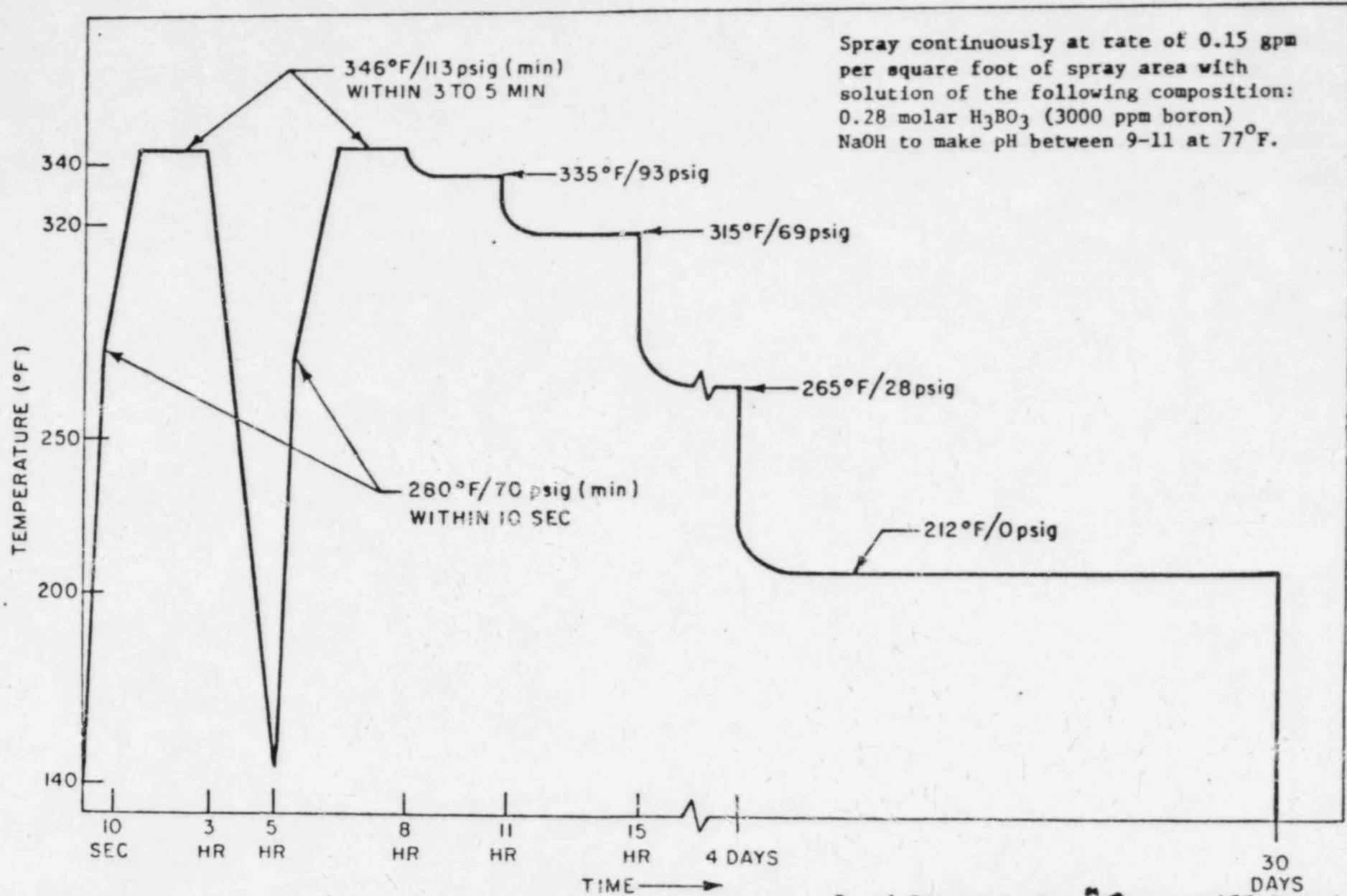
FIGURE 1. Specified temperature, pressure, and radiation test profile -
FIRL Test Report F-C4020-1

This profile has been designated by the vendor as "Confidential". Therefore, it has not been submitted with this package. It is available at Northeast Utilities for Audit, however.

PROFILE 3

11/1/80

LOCA Profile



LOCA PROFILE

9.

ROCKBESTOS CO. "QUALIFICATION
OF FIREWALL III CLASS IE
ELECTRIC CABLES DATED 2-1-77
PROFILE II

WCA P 7709 L
52112.2, 1110E 3-24 TEST 2,3

PROFILE 5

PR/A

21

60

30

40

20

20

10

0

SECONDS

10

100

1000

10000

100000

20HRS

2.8 HRS

TIME IN SECONDS

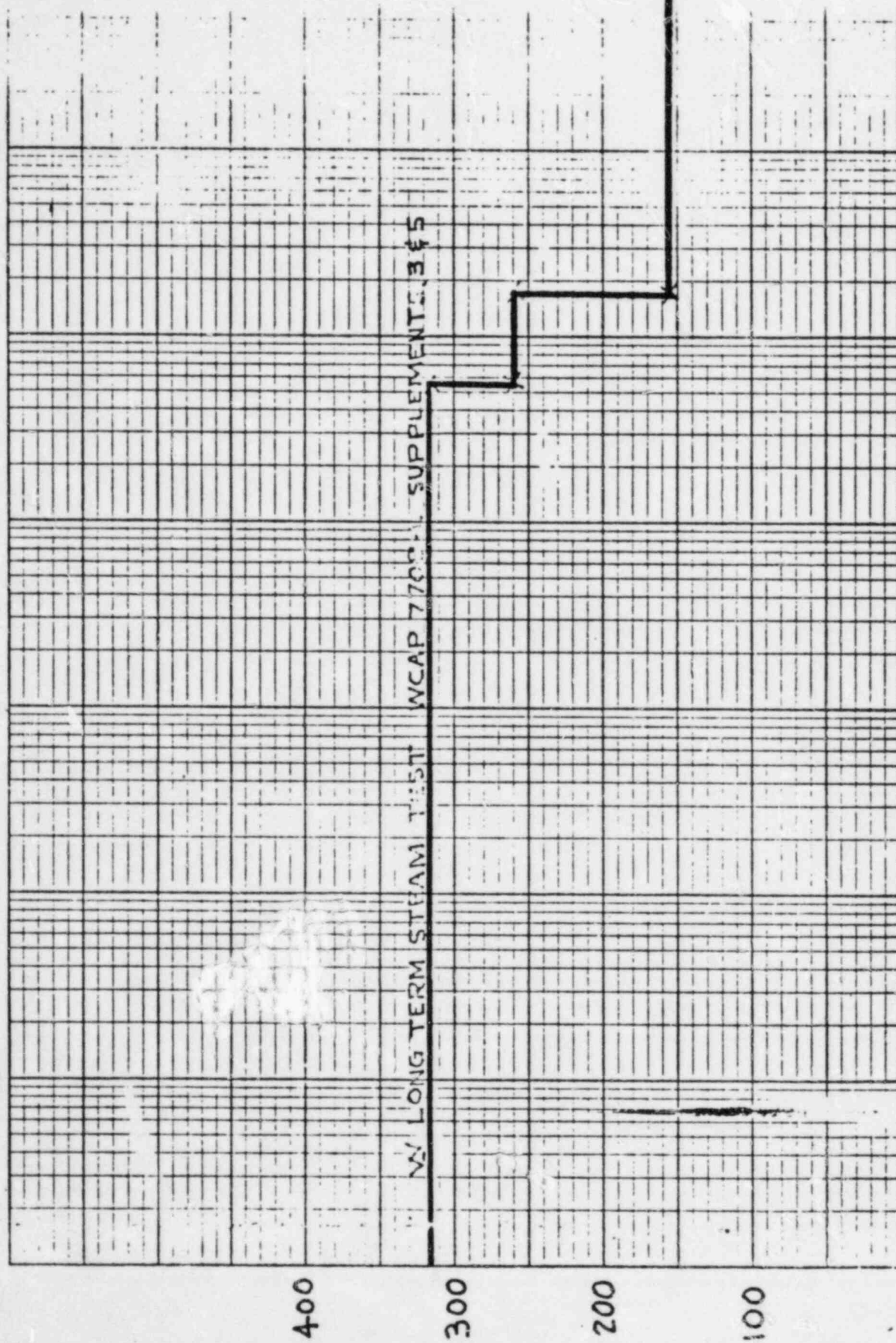
MODEL

DATE

33.2x10⁴

PROFILE 5A

W. H. RECOMBINER QUALIFICATION TESTING



SMD-TYPE 4-180

Page 11 of 11

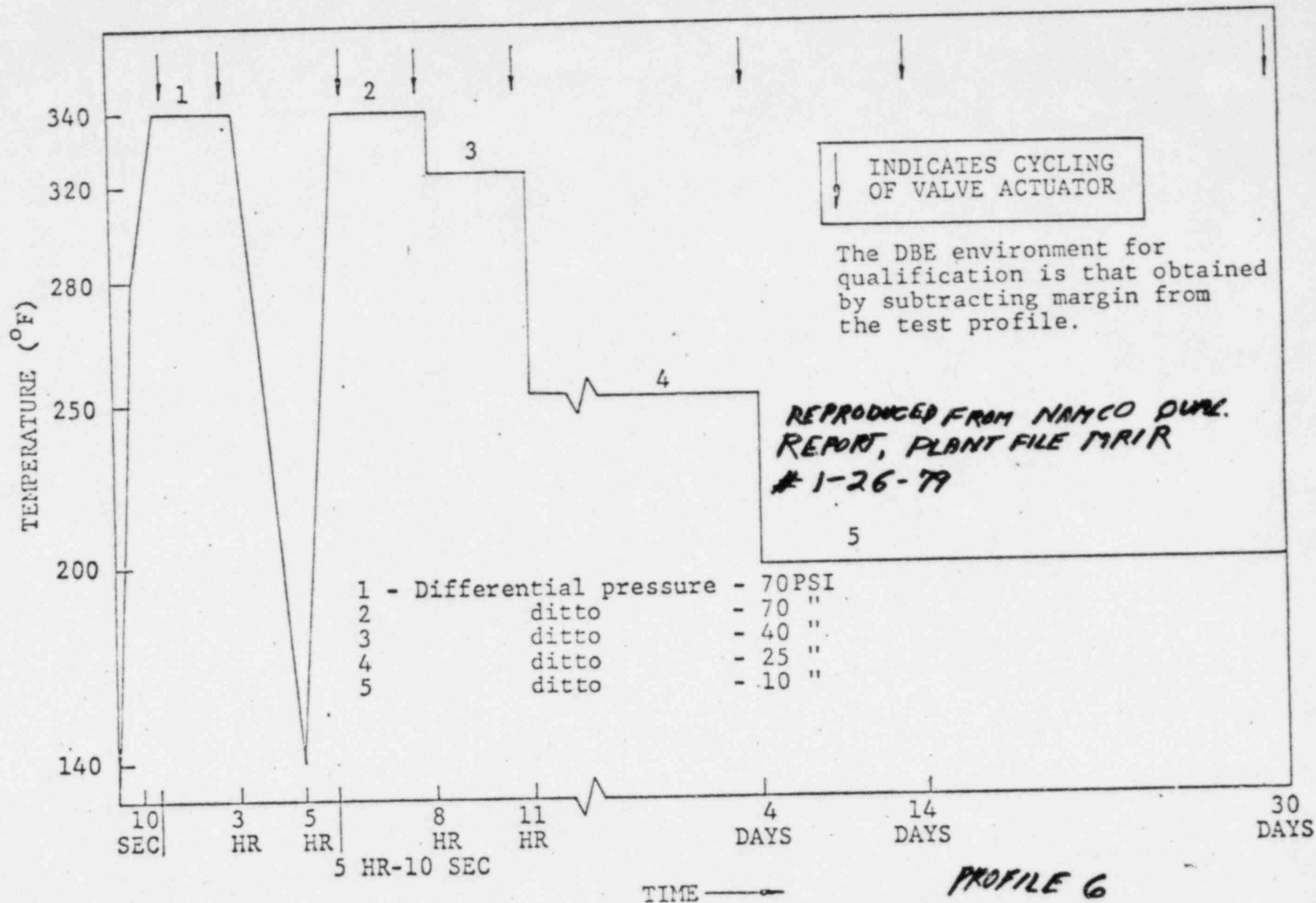


Fig 1
 Test Chamber Temperature Profile for Accident Environment Simulation
 (Taken from IEEE Standard 382-1972)

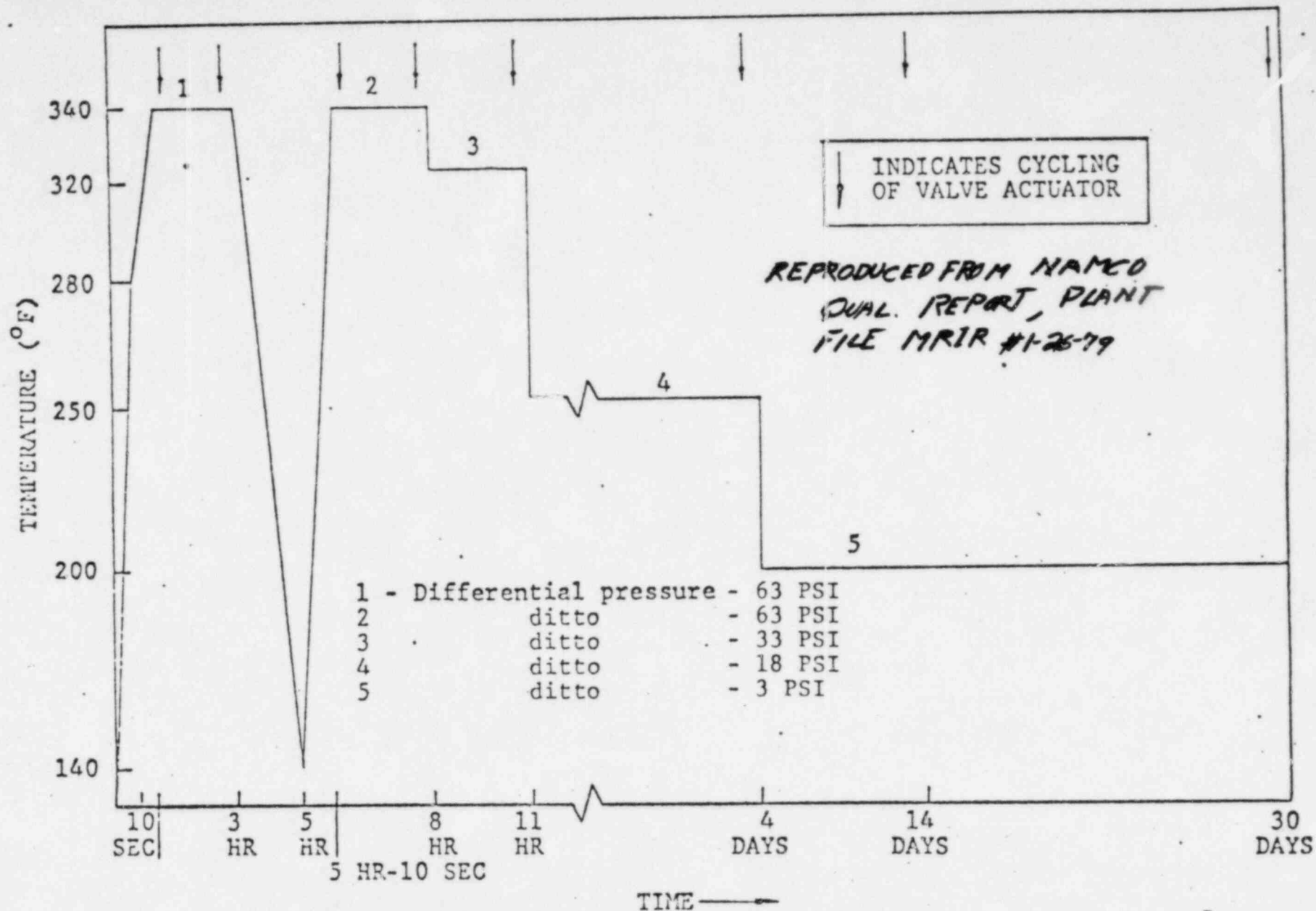


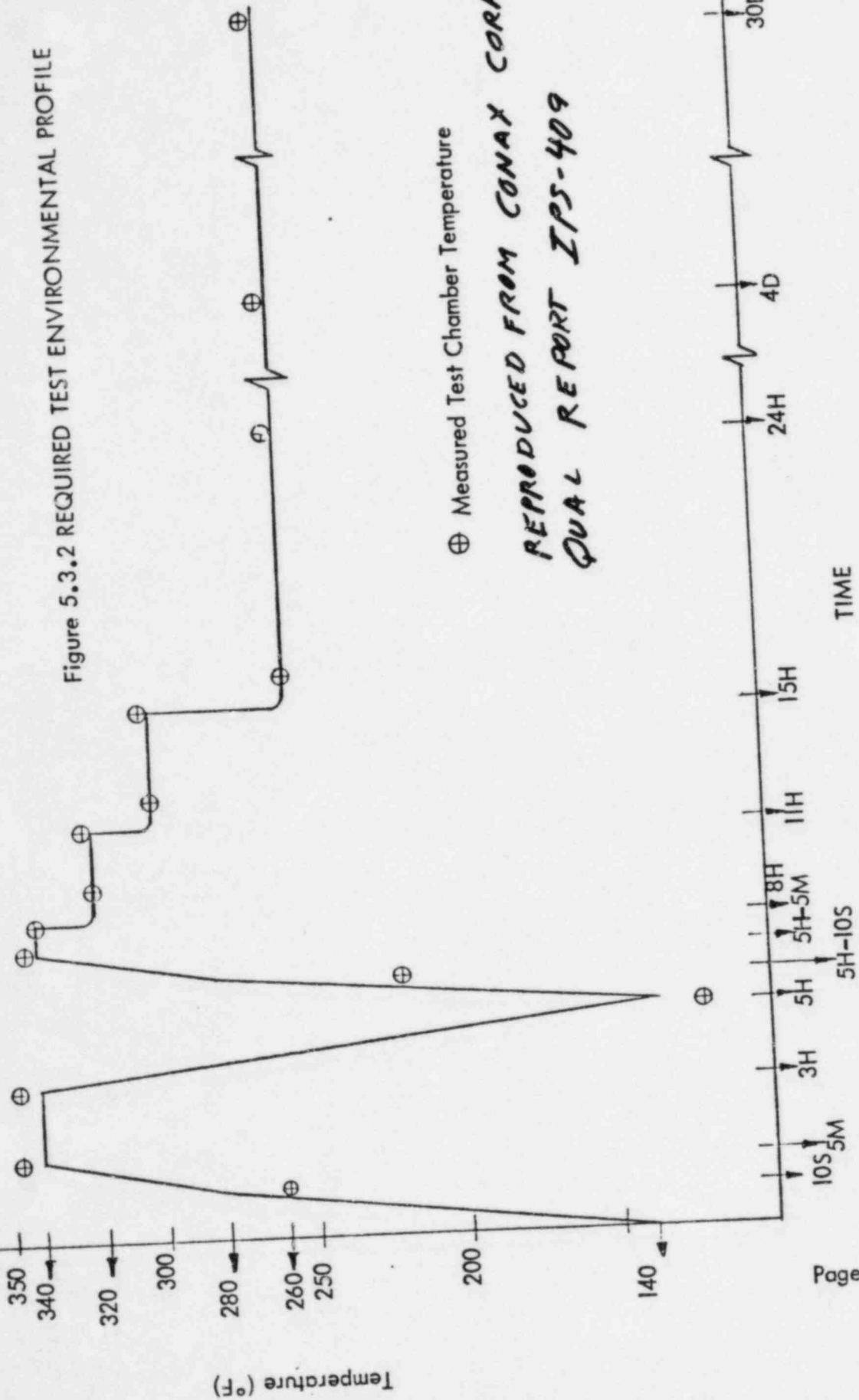
Fig 1
Test Chamber Temperature Profile for Accident Environment Simulation
(Taken from IEEE Standard 382-1972)

PROFILE 7

24 HR CHEMICAL SPRAY
EXPOSURE

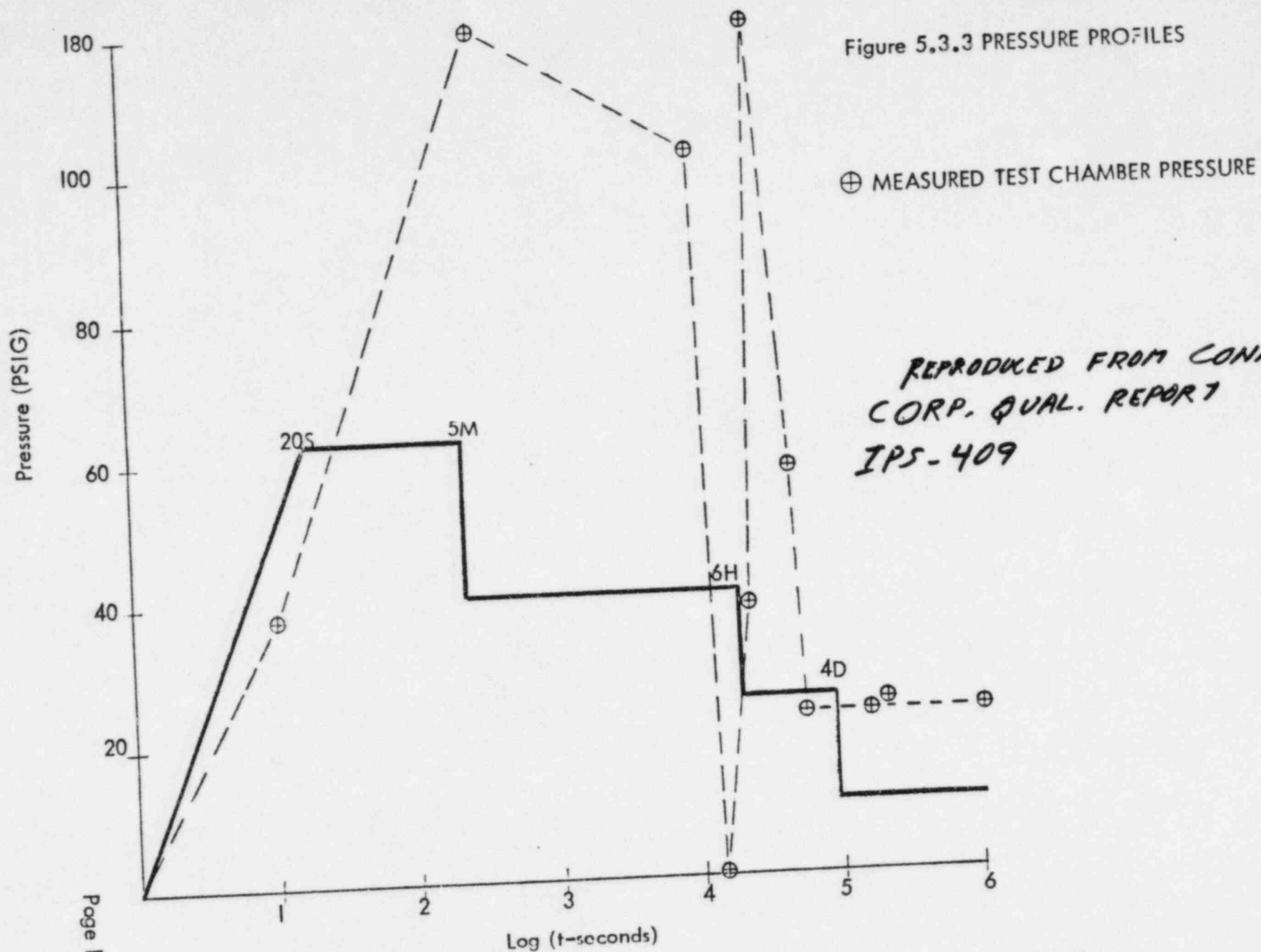
DEMINERALIZED
WATER SPRAY

Figure 5.3.2 REQUIRED TEST ENVIRONMENTAL PROFILE



REPRODUCED FROM CONAX CORP.
QUAL REPORT IPS-409

PROFILE 8



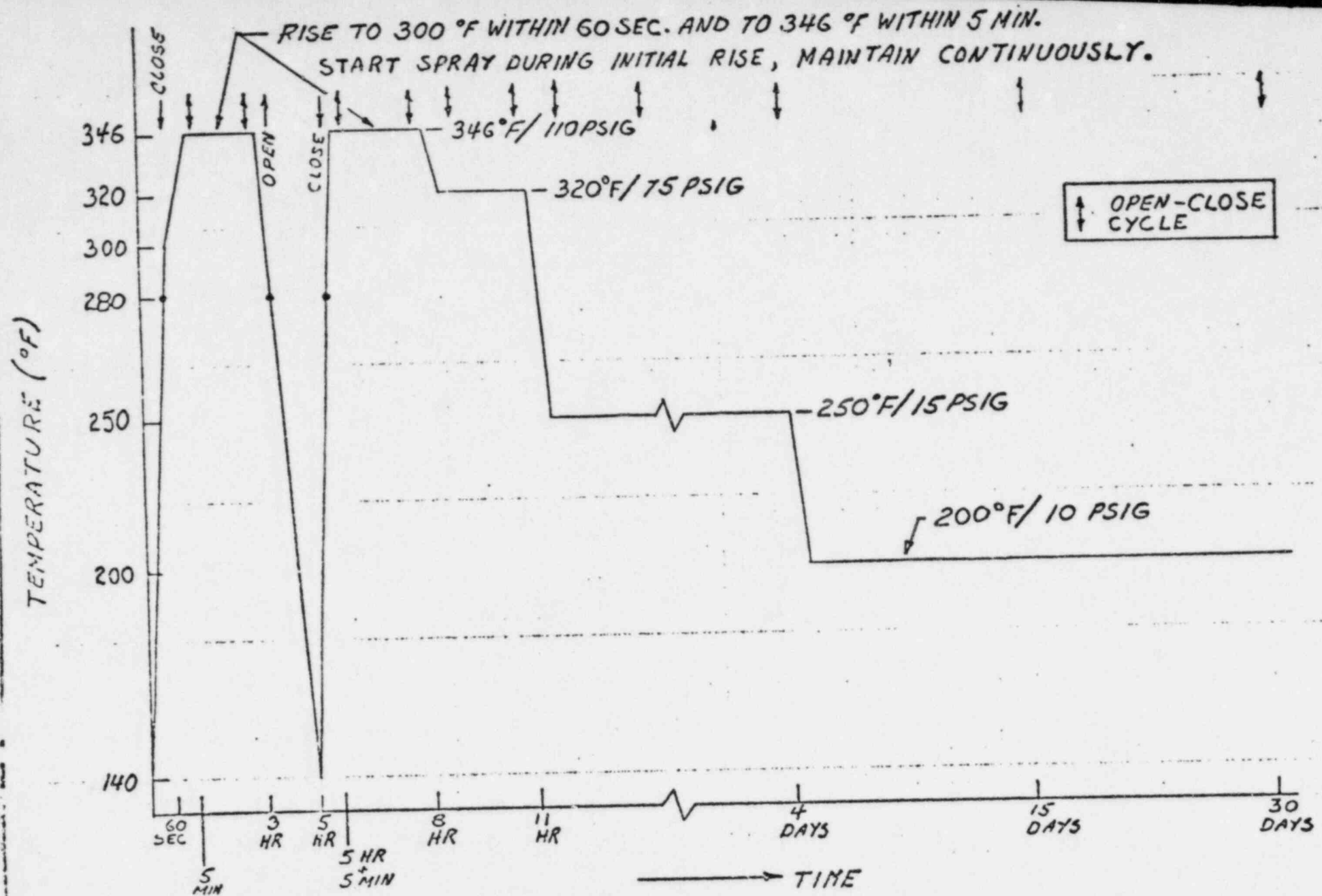


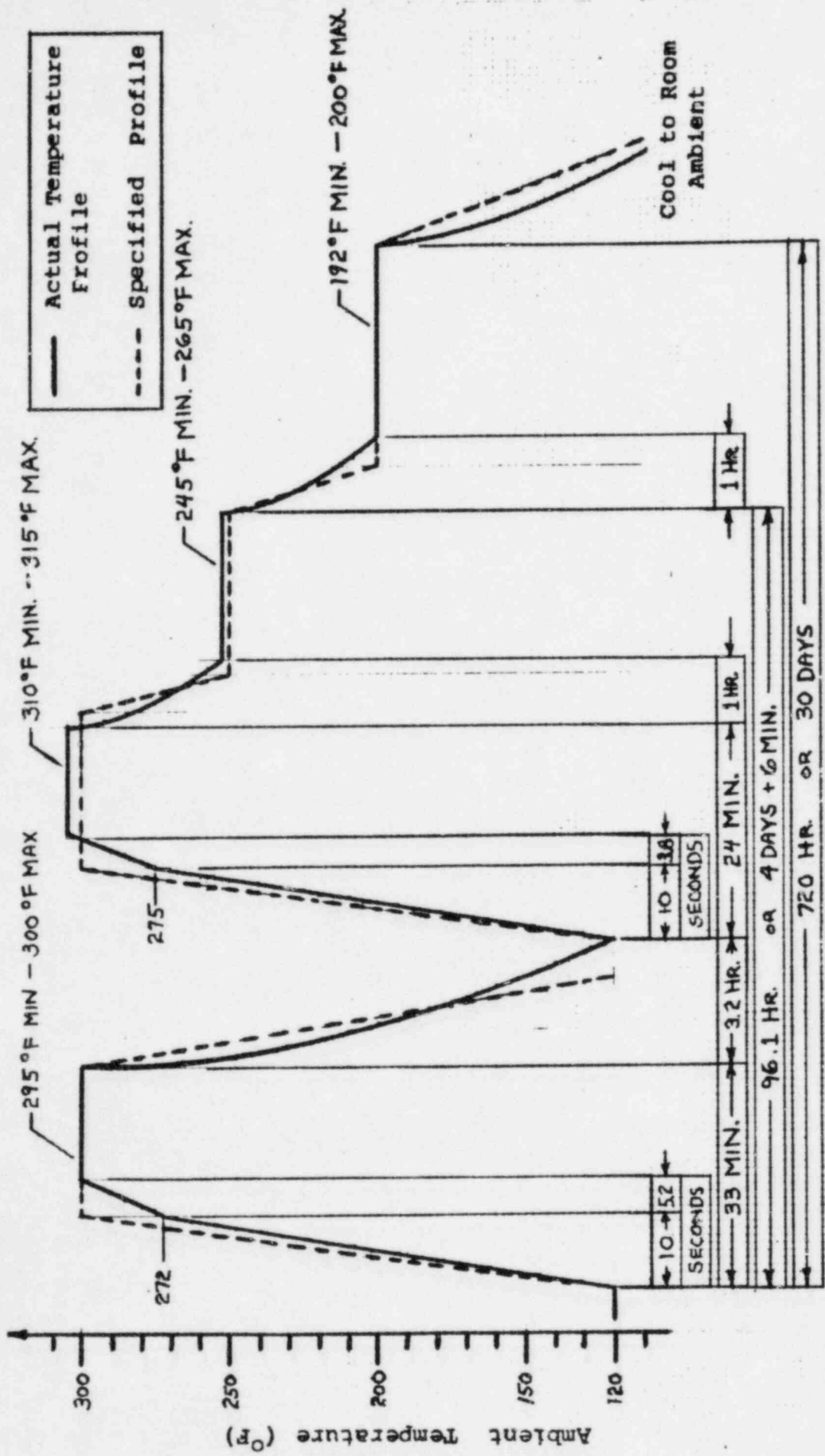
FIG. 9.2 ENVIRONMENTAL QUALIFICATION PARAMETERS FOR LOSS-OF-COOLANT ACCIDENT (LOCA) SIMULATION

REPRODUCED FROM ASCO TEST REPORT NO.
AQ5 21698/TR REV B

PROFILE 10

REPRODUCED FROM
LIMITORQUE PROJECT
REPORT # 600456

ACTUAL ACCIDENT PROFILE



3/11/75 W.S.

PROFILE II

F. JRE 6

REPRODUCED FROM
LIMITORQUE PROJECT
REPORT # 600456

Specified Accident Profile

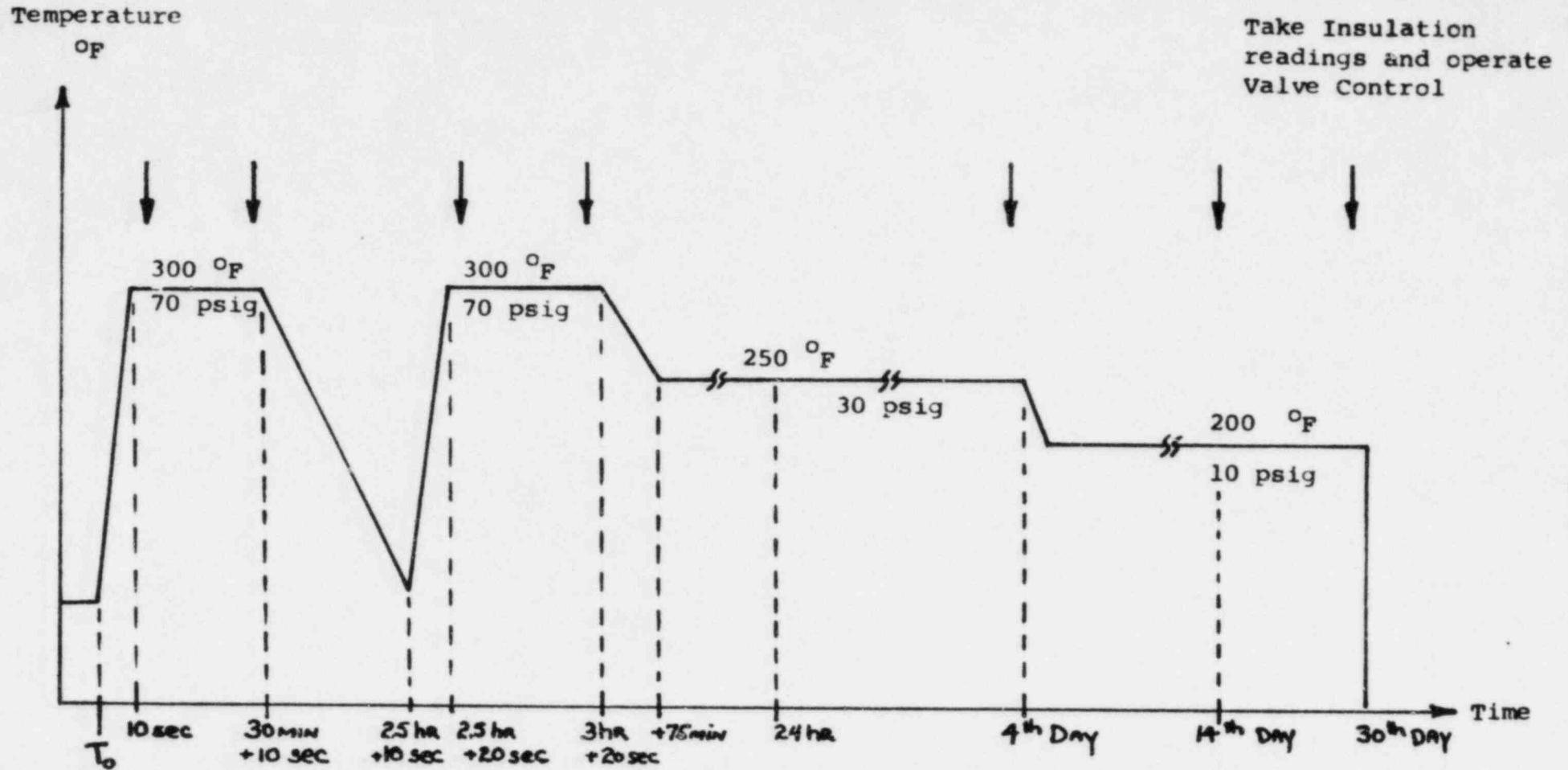


Figure 5

PROFILE 11A

TEMPERATURE PROFILE

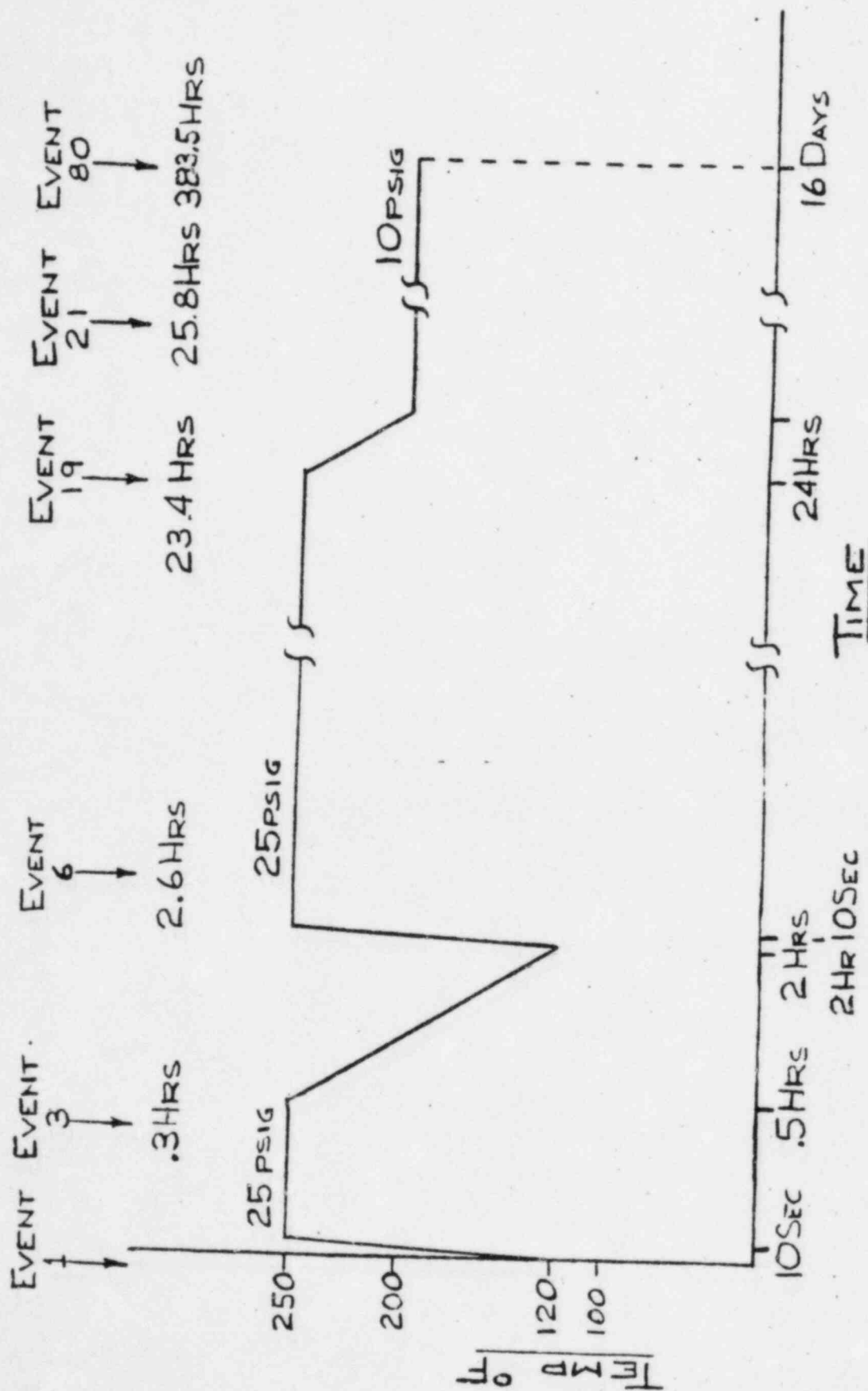
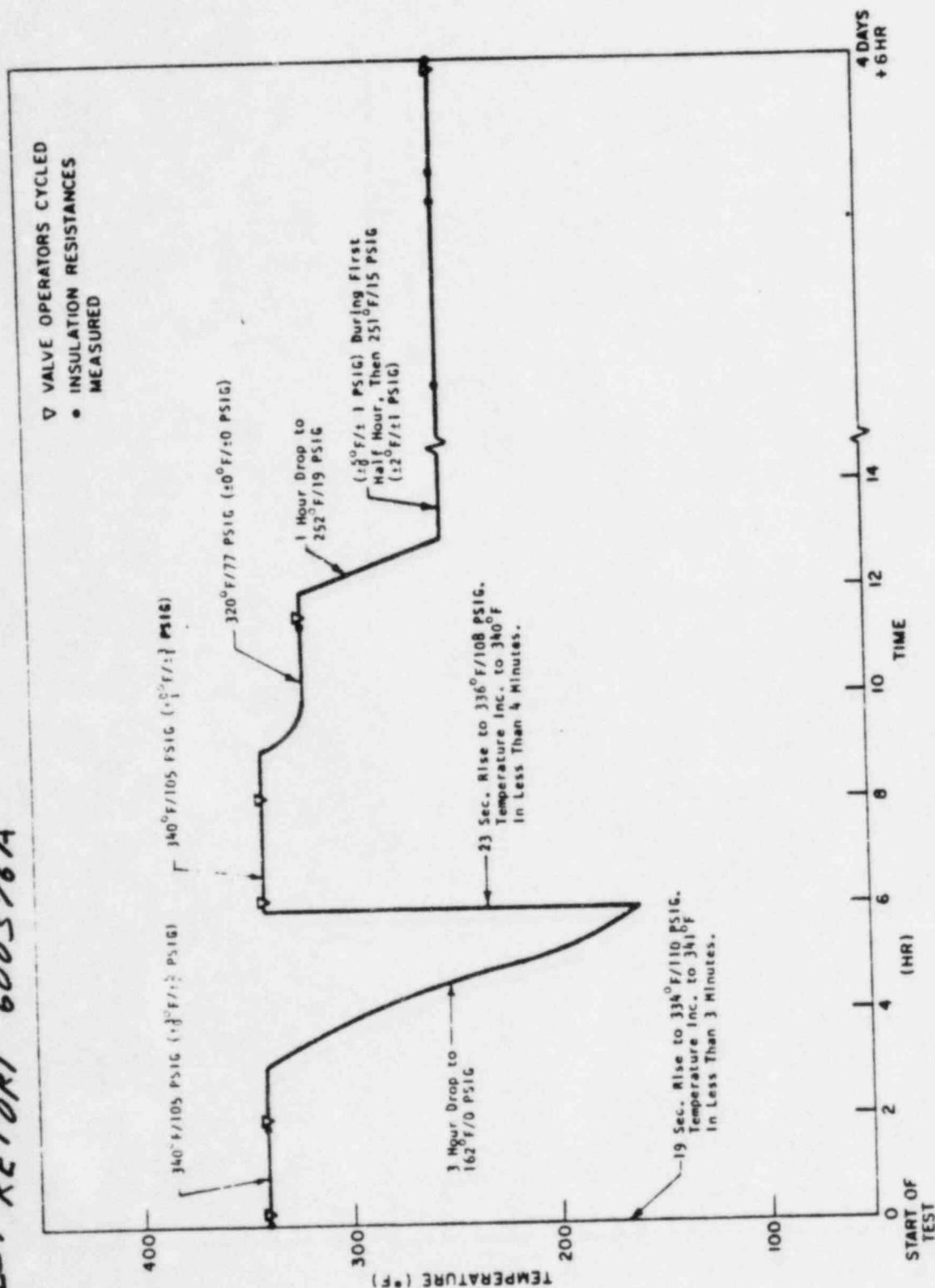


FIGURE 1

PRUFKE 12

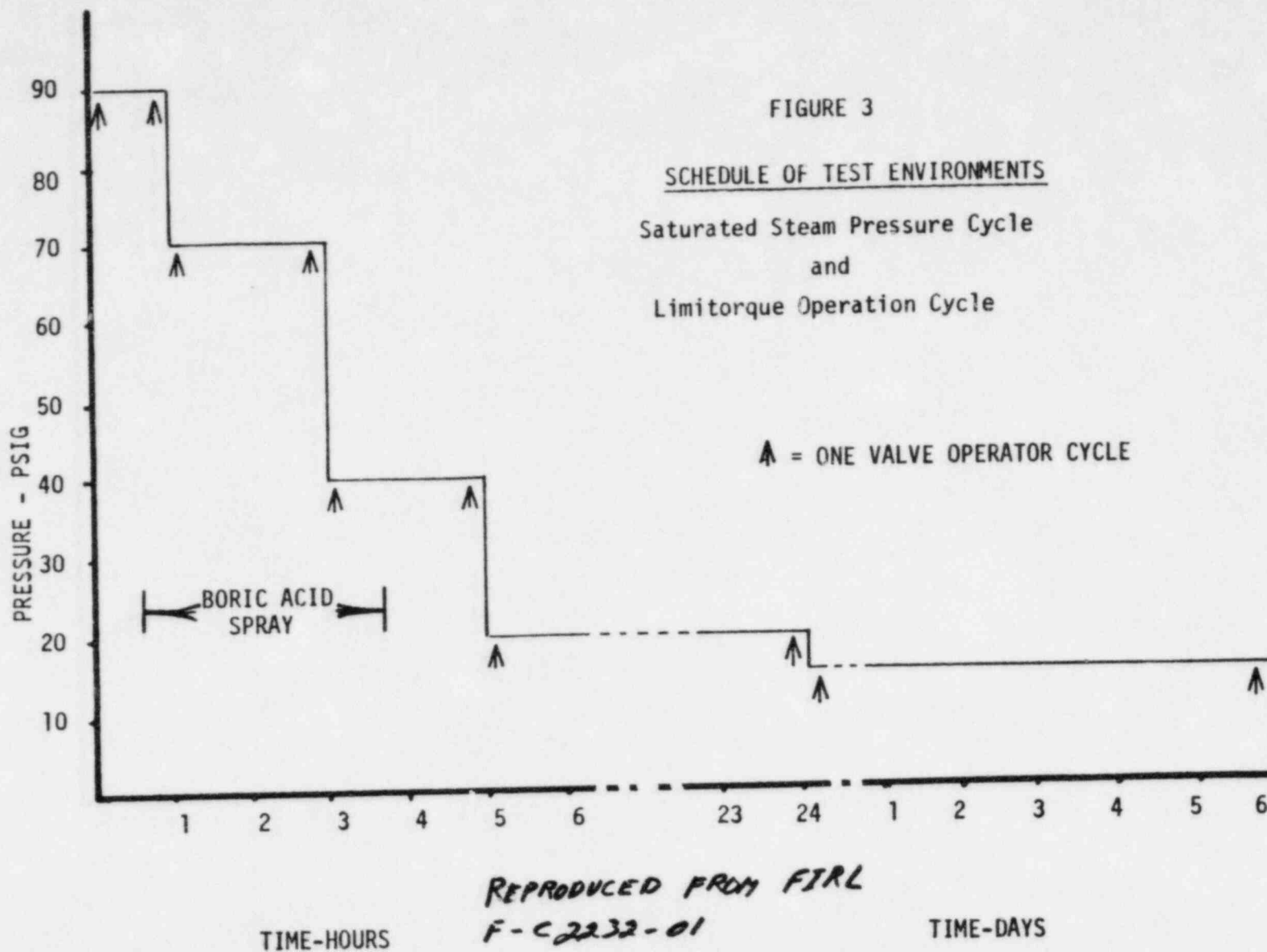
REPRODUCED FROM LIM/TORQUE-
TEST REPORT 600376A



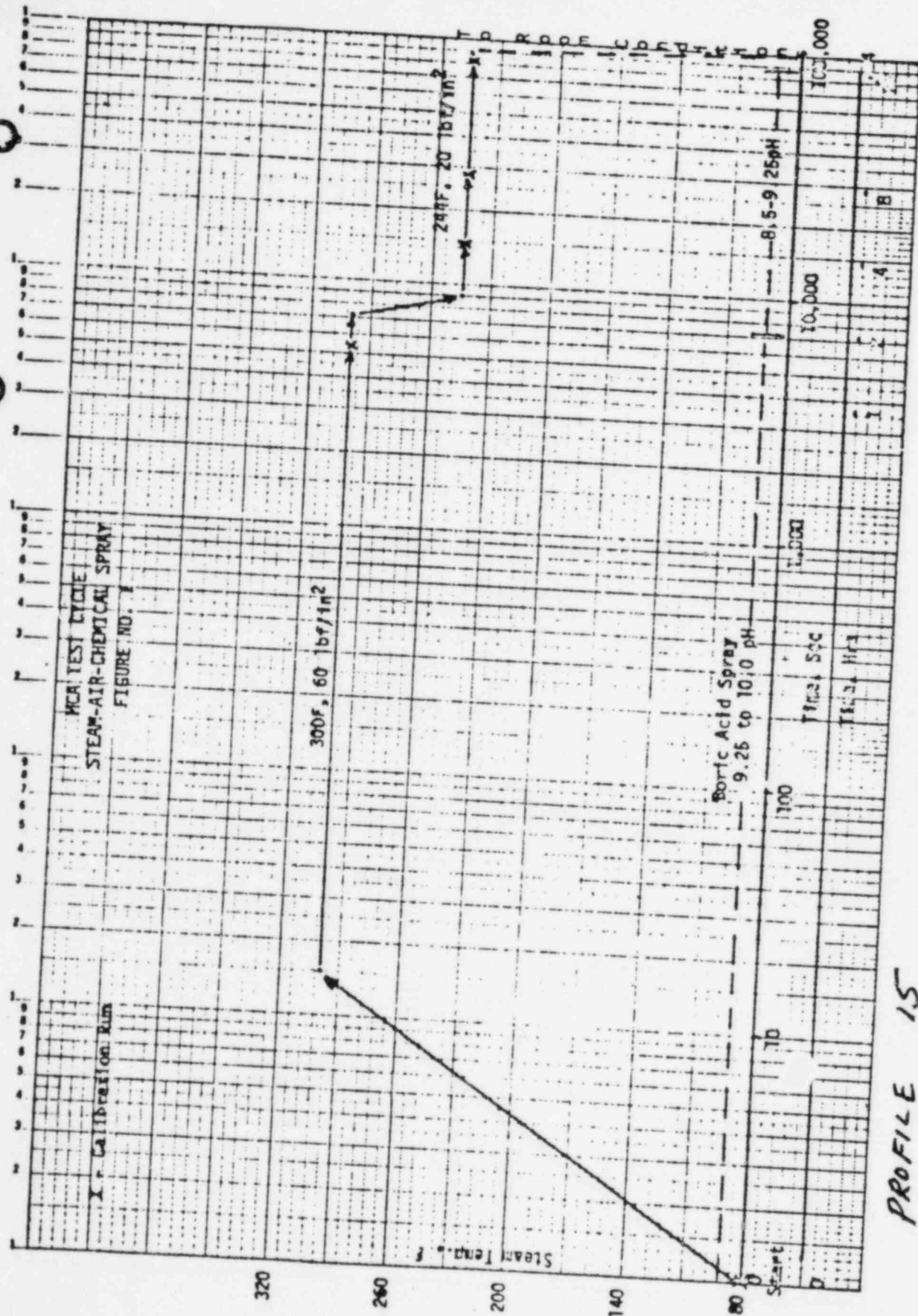
F-C3441

Figure 3. Actual Steam Exposure Profile

PROFILE 13



PROFILE 14



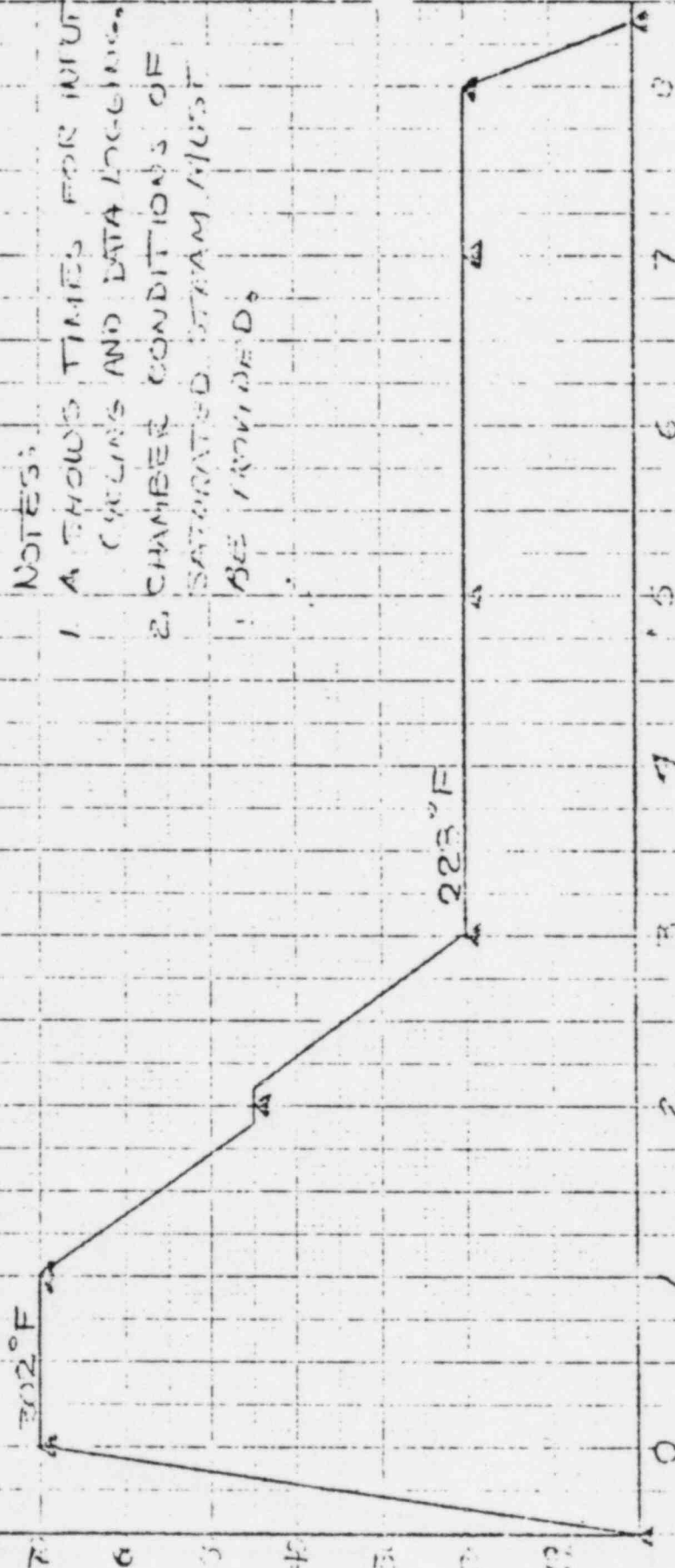
PROFILE 15

T3-1013

FIGURE 1

ENVIRONMENTAL TEST CONDITIONS FOR SAFETY
INJECTION FLOOD TRANSITIONERS

Test Pressure - PSIA



NOTES:

1. A SHOWS TIMES FOR INPUT CYCLING AND DATA LOGGING.
2. CHAMBER CONDITIONS OF SATURATED STEAM MUST BE PROVIDED.

TIME - HOURS

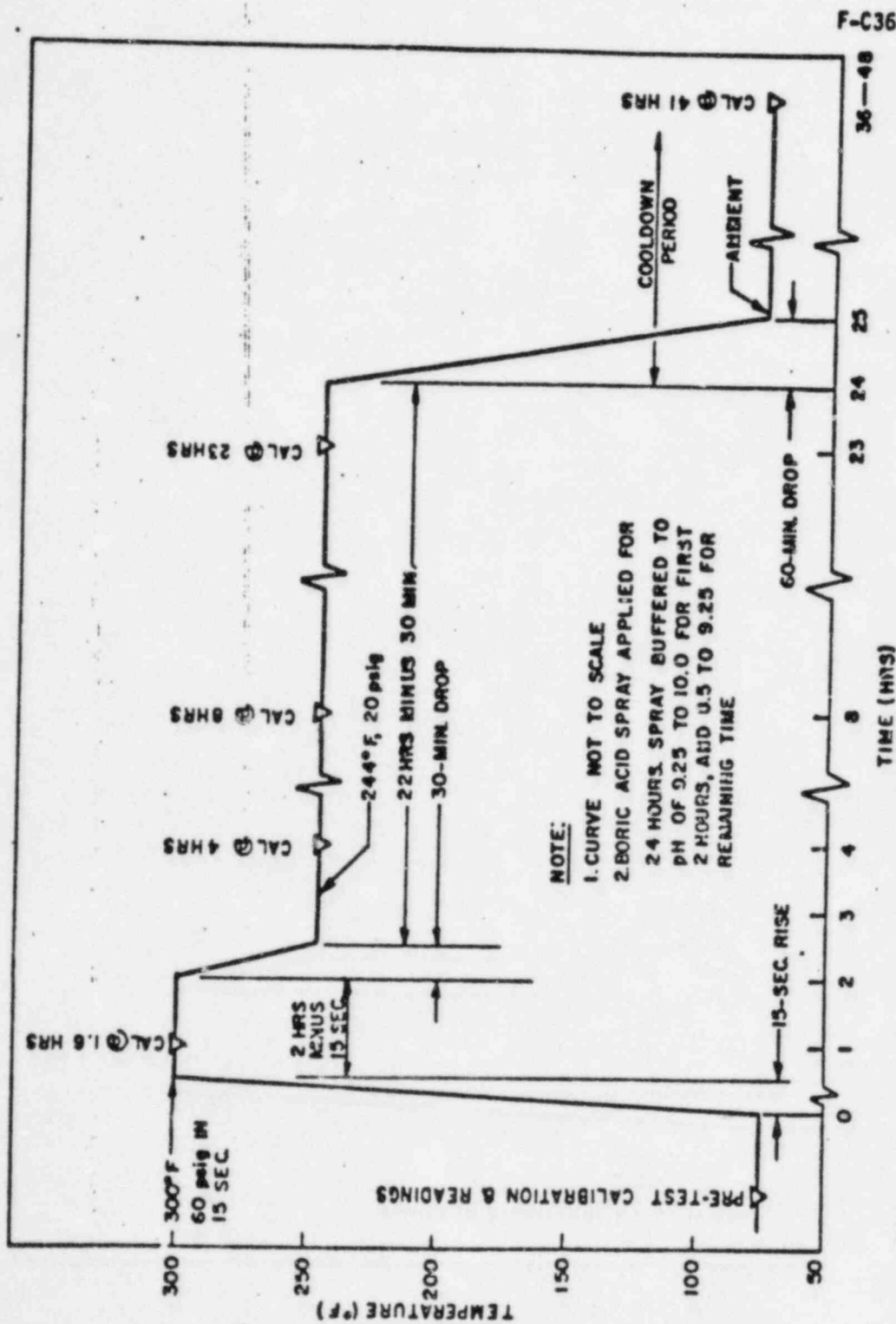
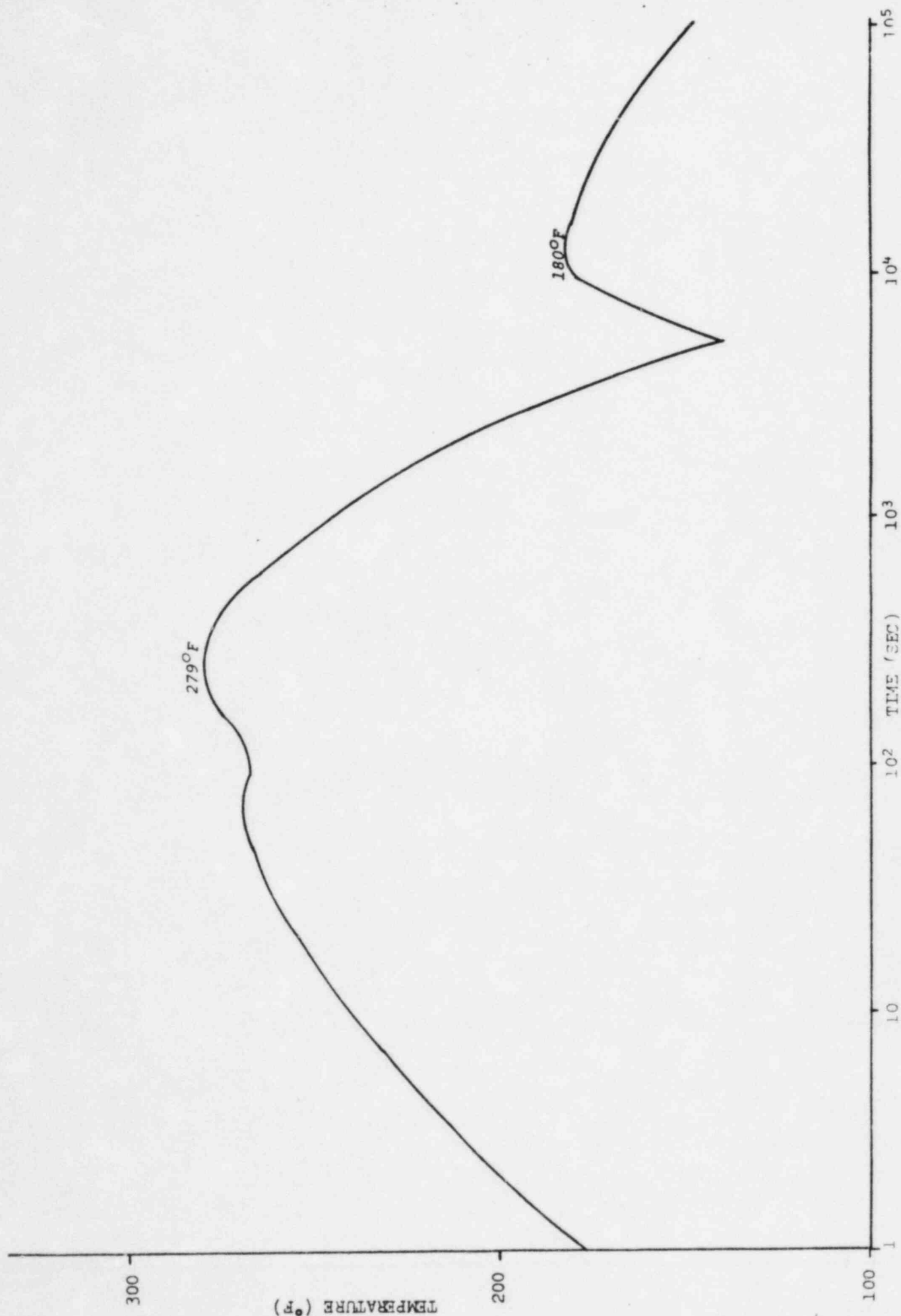


Figure A. Specified Temperature/Pressure Profile of Steam/Chemical-Spray Exposure

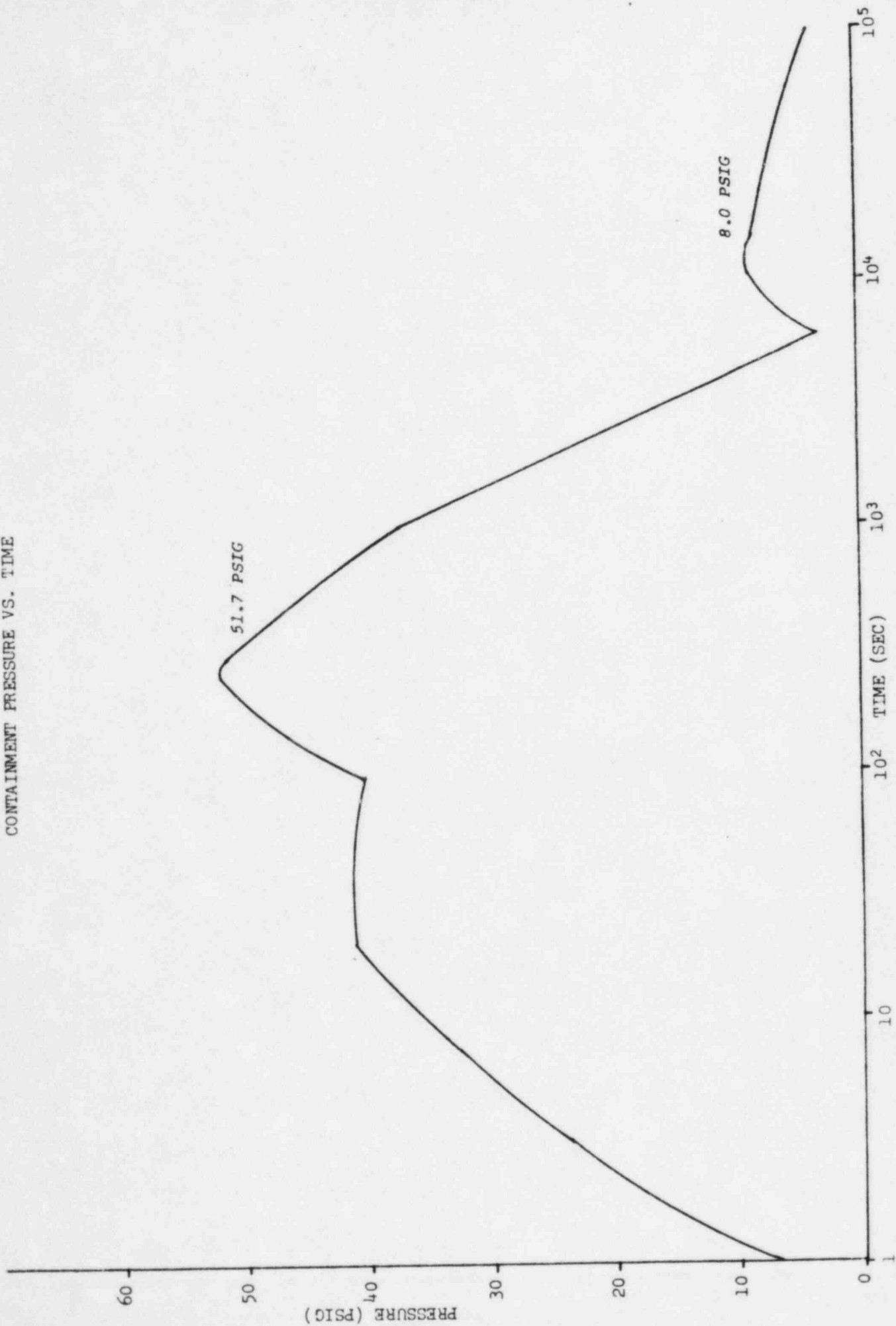
PROFILE 17
FIRL - F-C3635

CONTAINMENT TEMPERATURE VS. TIME



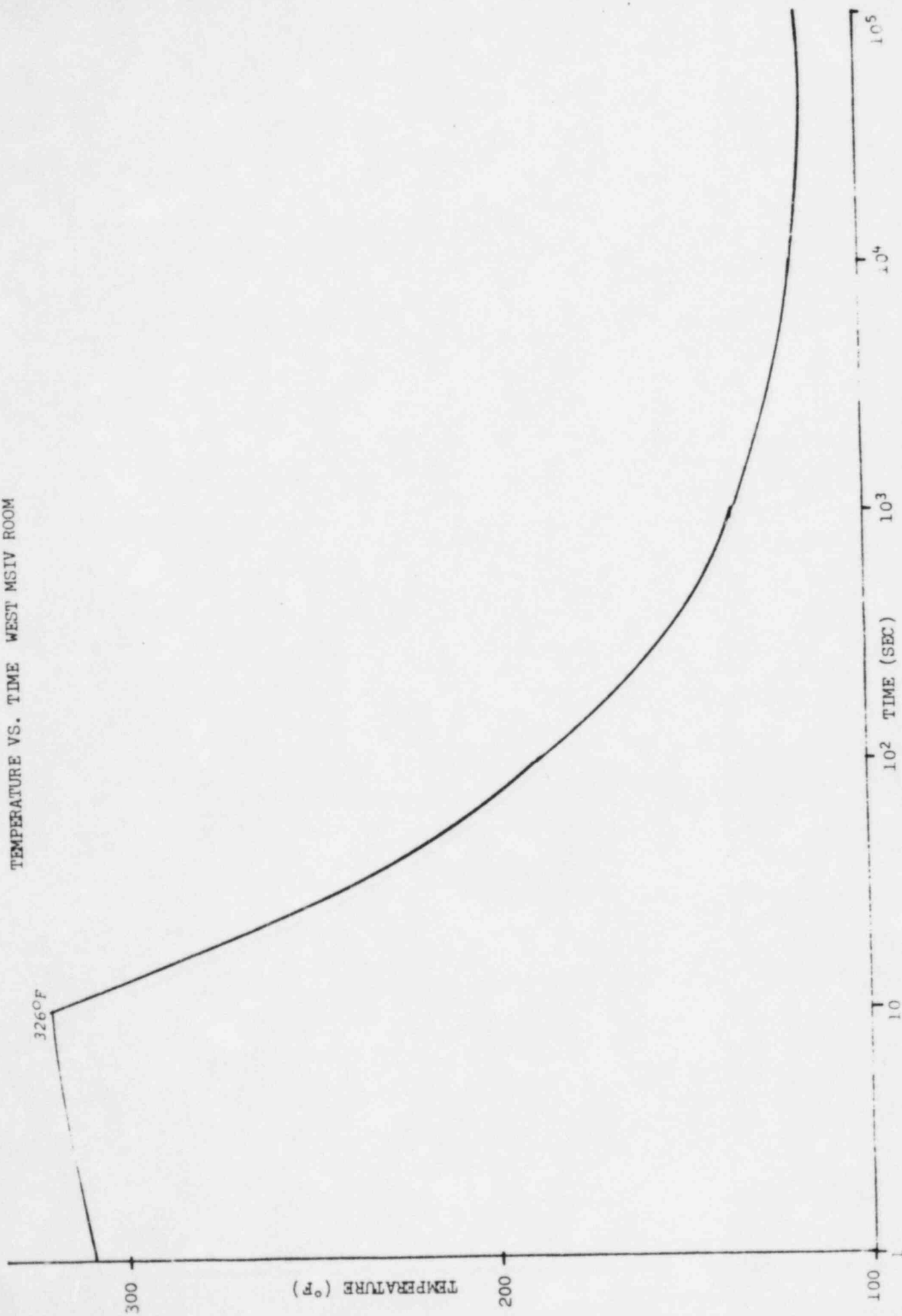
PROFILE 19

CONTAINMENT PRESSURE VS. TIME



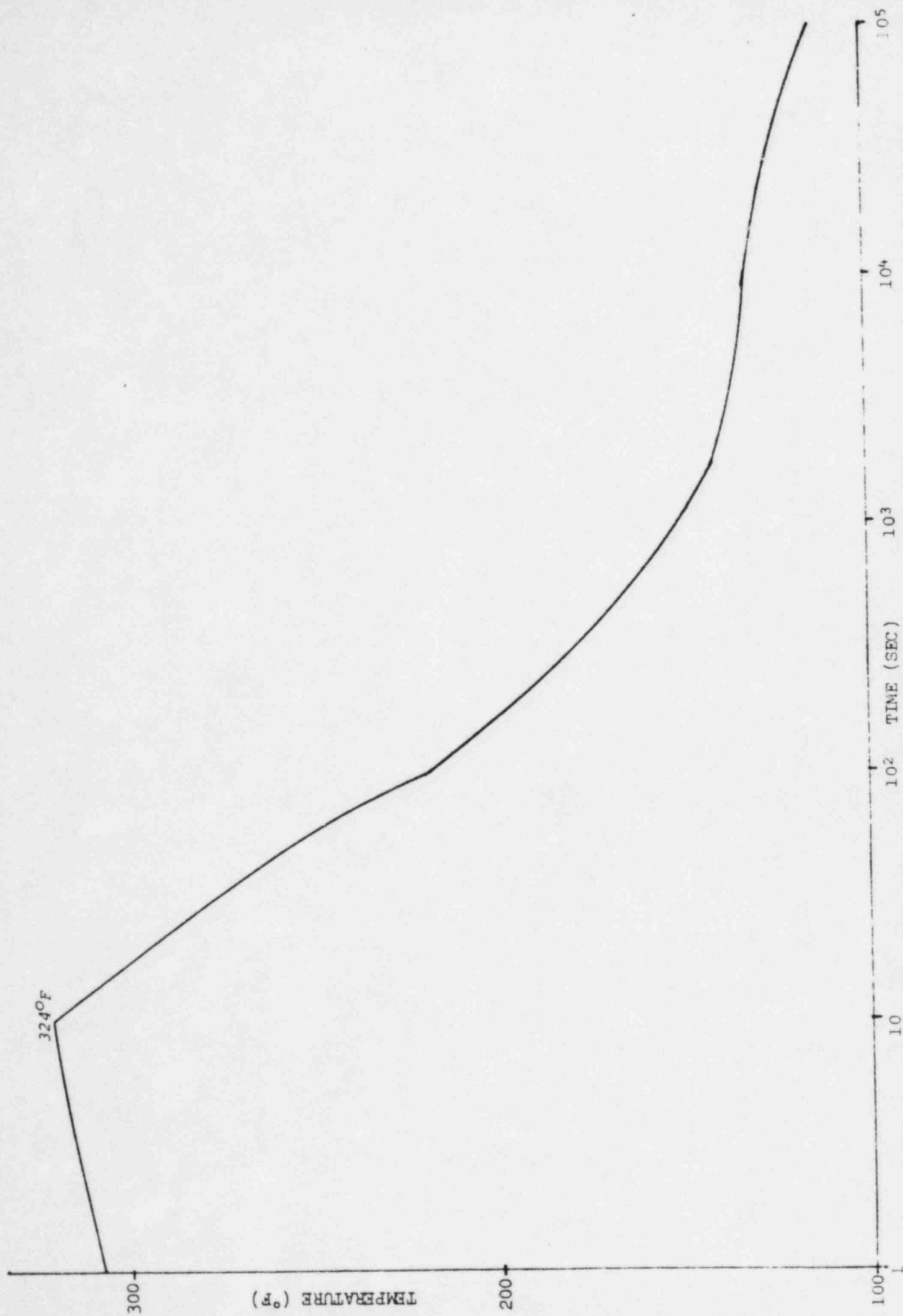
PROFILE 20

TEMPERATURE VS. TIME WEST MSIV ROOM



PROFILE 21

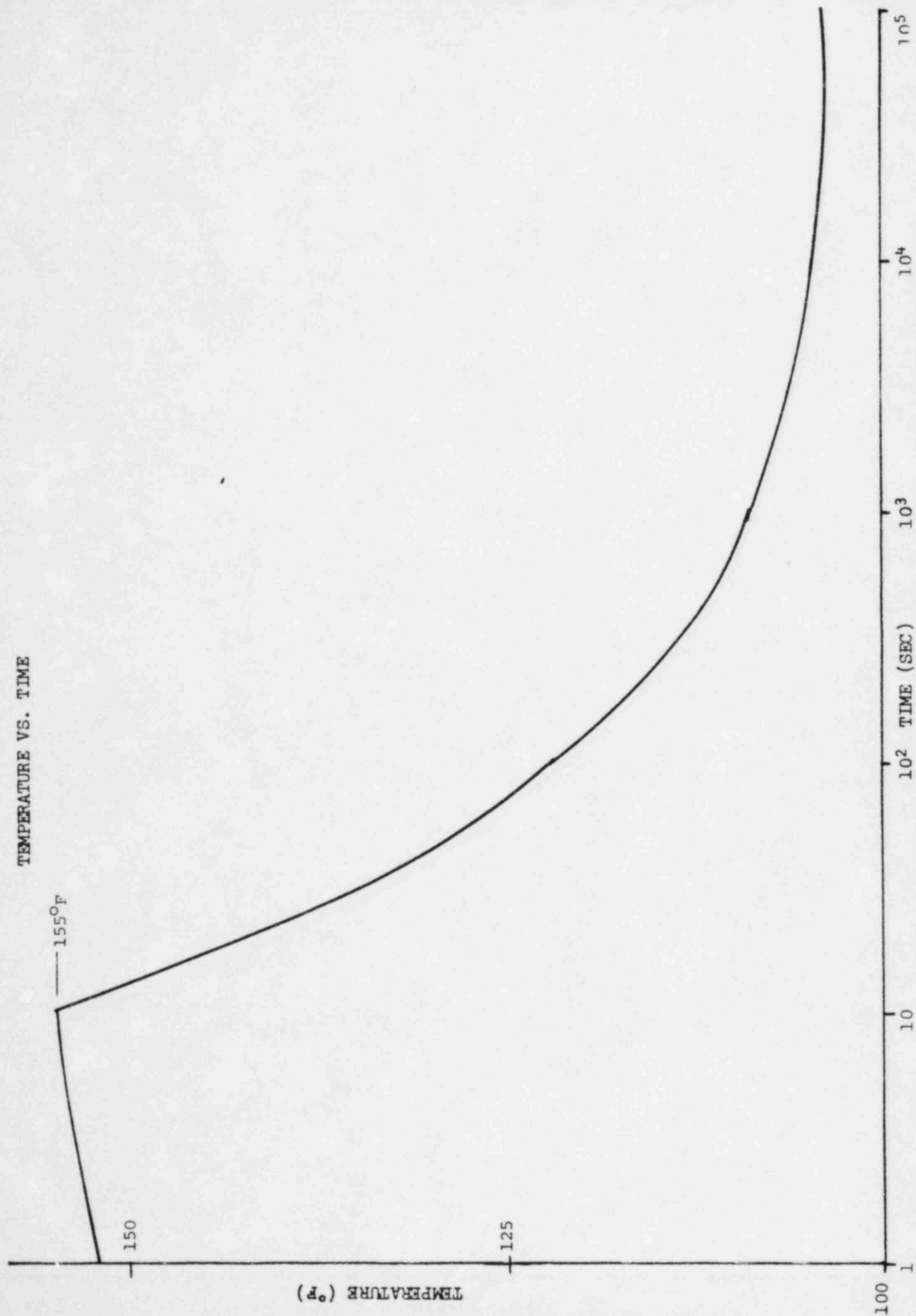
TEMPERATURE VS. TIME EAST MSIV ROOM



PROFILE 22

Turbine Bldg. El. 14' 6"

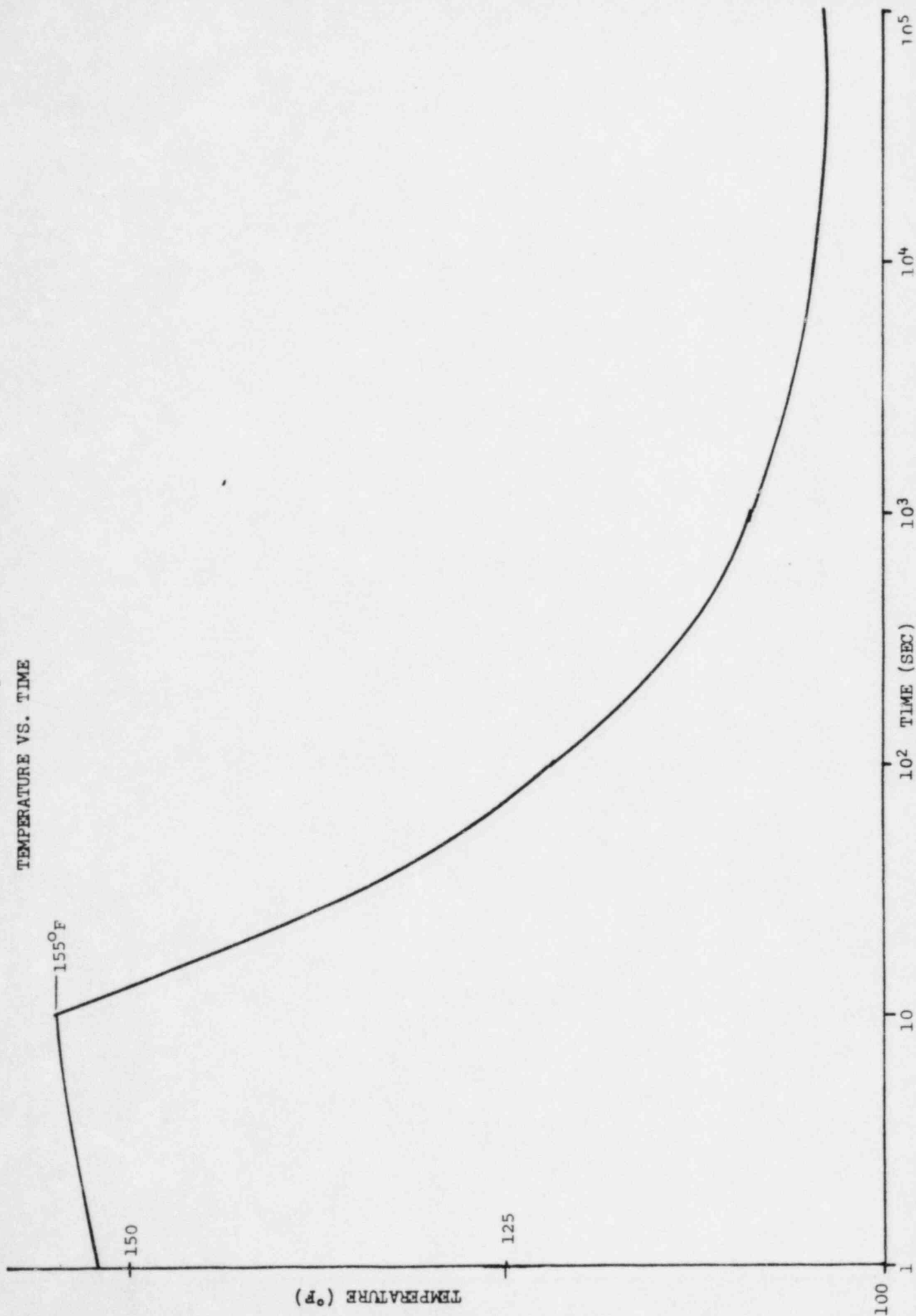
TEMPERATURE VS. TIME



PROFILE 23

Turbine Bldg., El 54' 6"

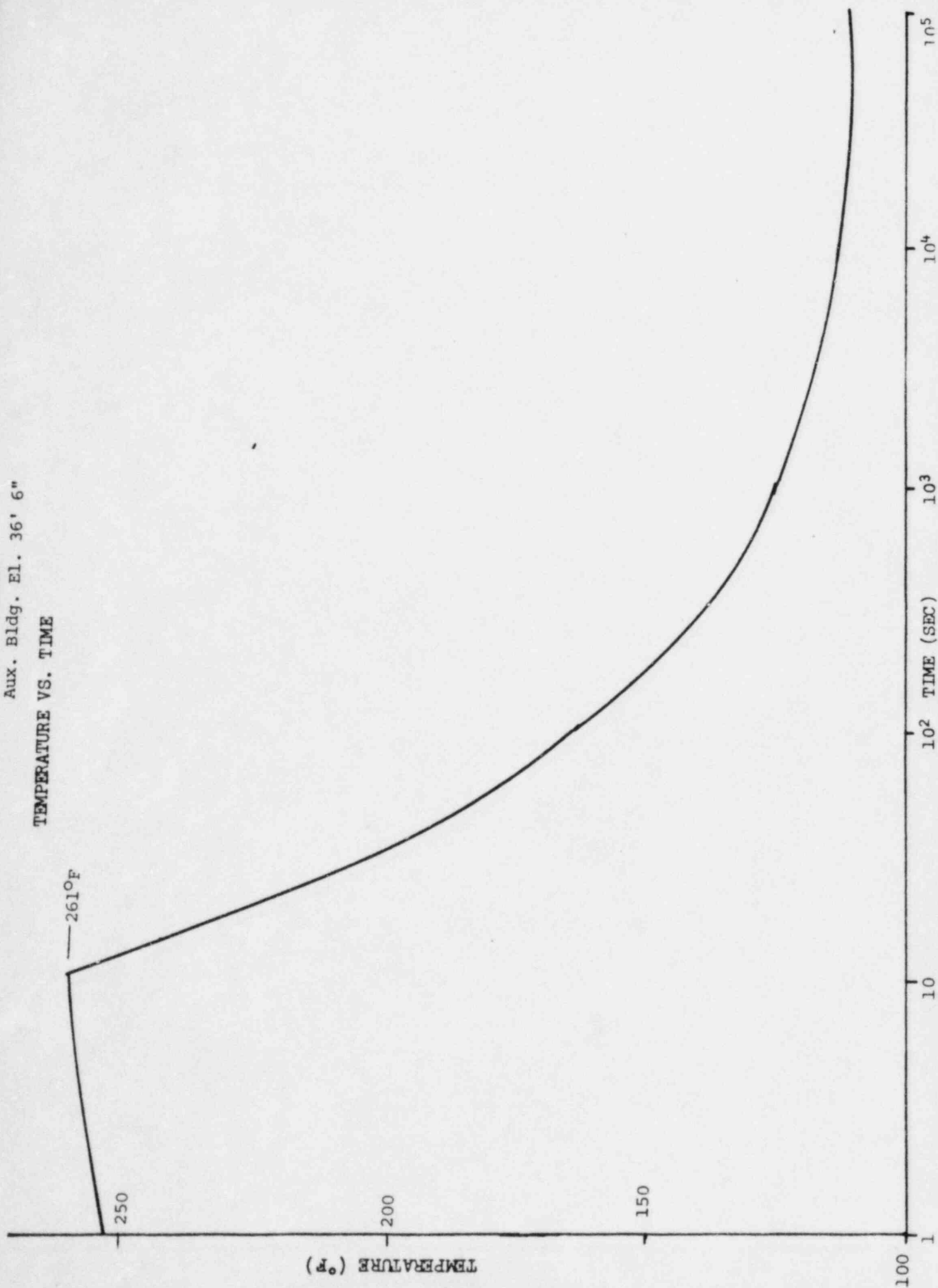
TEMPERATURE VS. TIME



PROFILE 24

Aux. Bldg. El. 36' 6"

TEMPERATURE VS. TIME



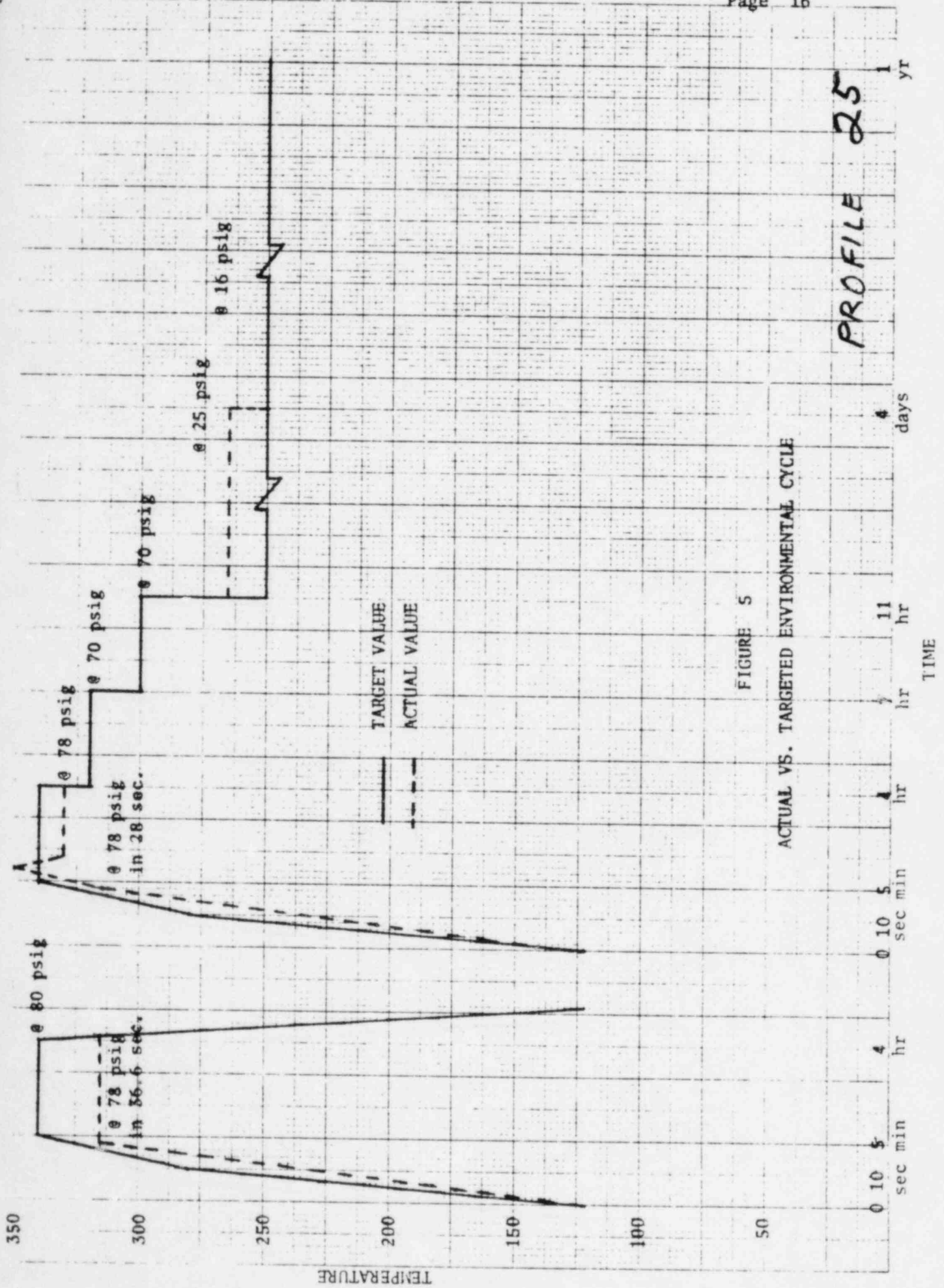
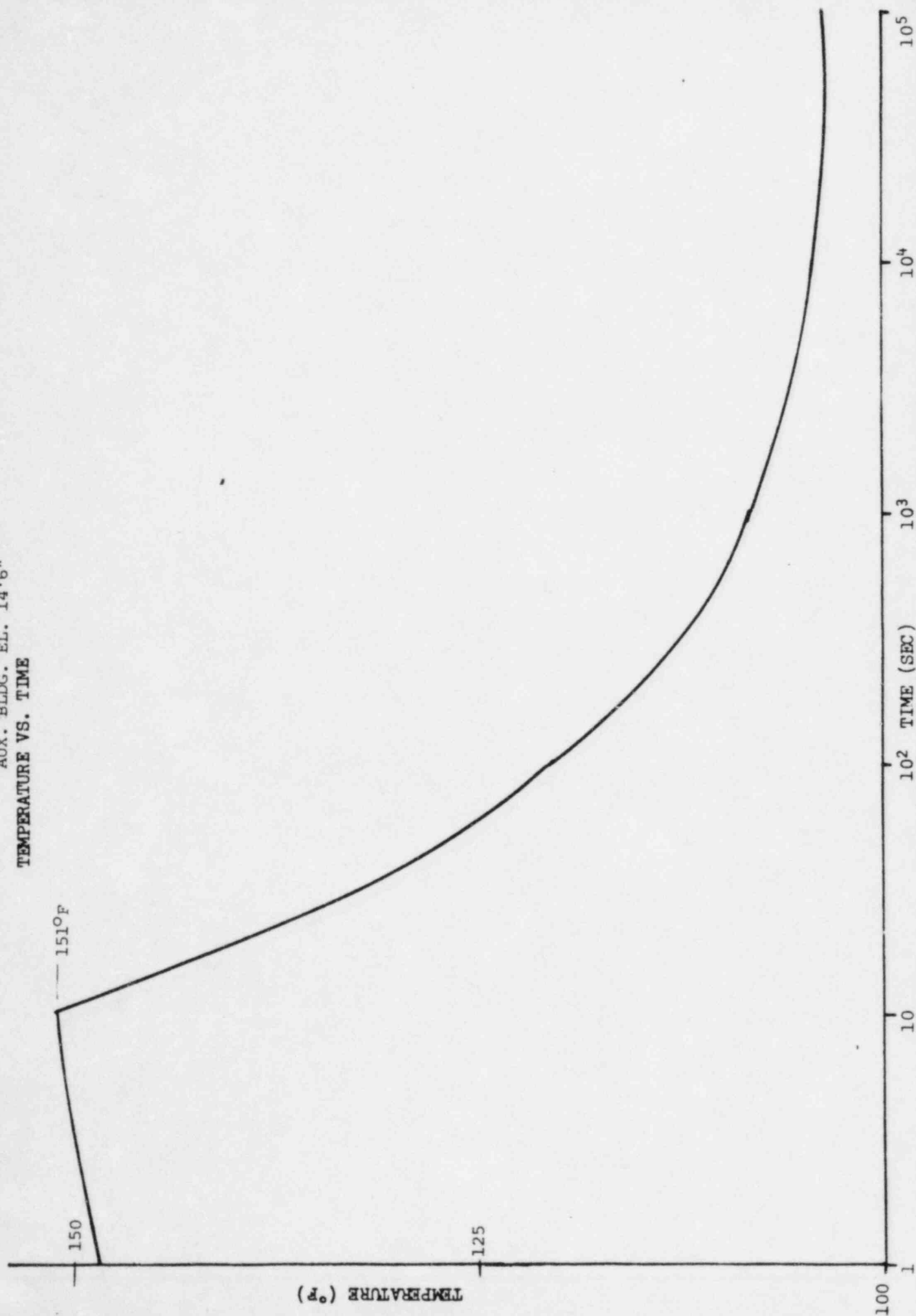


FIGURE 5
ACTUAL VS. TARGETED ENVIRONMENTAL CYCLE

PROFILE 26
ELECTRICAL PENETRATION RM.
AUX. BLDG. EL. 14'6"
TEMPERATURE VS. TIME



Page 27

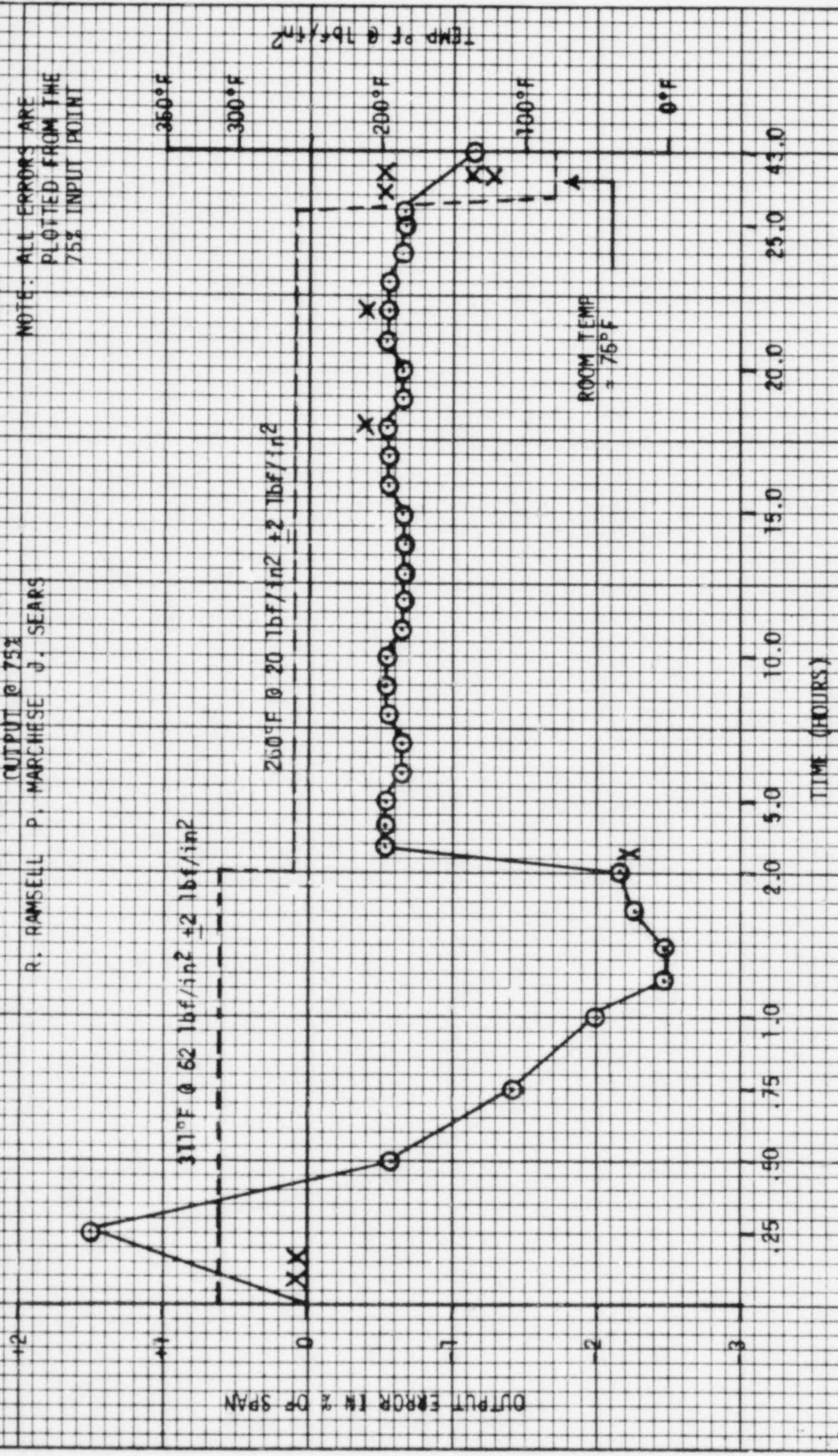
MAXIMUM CREDIBILITY
ACCIDENT

GRAPH NO. 4
OUTPUT ERROR & TEMP OF VS TIME (HRS)
E13DM-1SAMX O/P TRANS. S/N - 2692437
RANGE: 0-1100 °H2O WITH 100 1bf/in² STATIS
TB-1013 3/12/73
OUTPUT @ 75%
R. RAMSELL P. MARCHESI J. SEARS

LEDGER

X 1 RUN CALIBRATION
XX 3 RUN CALIBRATION

NOTE: ALL ERRORS ARE
PLOTTED FROM THE
75% INPUT POINT



10-1-62

MAXIMUM CREDIBILITY
ACCIDENT

GRAPH NO. 4

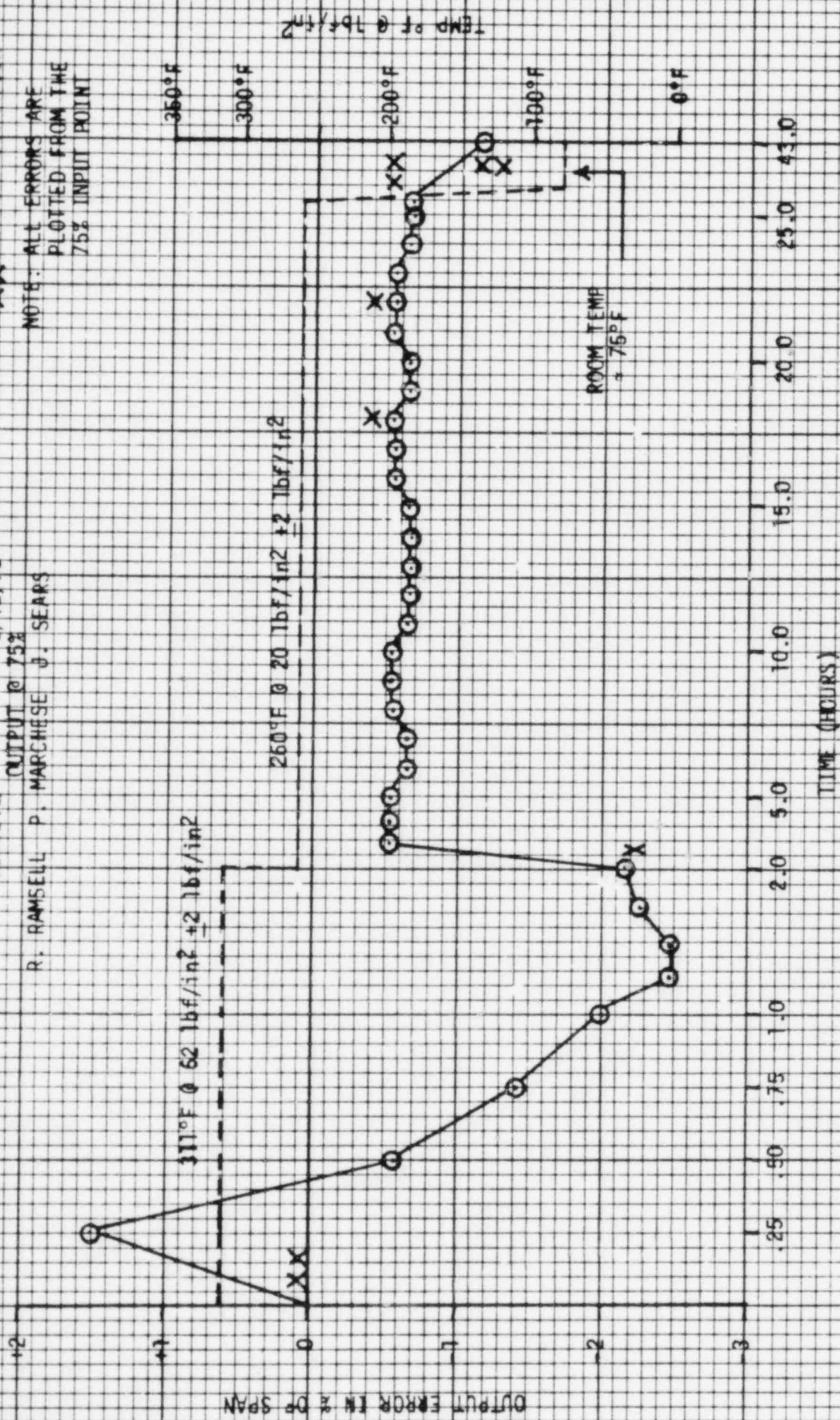
OUTPUT ERROR & TEMP OF VS TIME (HRS)
ET3DM-1SAMX Q/P TRANS. S/N - 2692437
RANGE: 0-100"H₂O WITH 100 lb_f/in² STATIS
TB-1013 3/12/73

R. RAMSELL P. MARCHESI J. SEARS

LEDGER

X 1 RUN CALIBRATION
XX 3 RUN CALIBRATION

NOTE: ALL ERRORS ARE
PLOTTED FROM THE
75% INPUT POINT



K-0-1027

MAXIMUM CREDIBILITY
ACCIDENT

GRAPH NO. 1

OUTPUT ERROR & TEMP OF VS TIME (HRS)

ELIOM-ISA82 TRANS. S/N - 2692438

RANGE: 0-1000 lb_f/in^2

TP-1013 3/12/73

Output $\pm 15\%$

R. RAMSELL P. MARCHESI J. SEAPS

LEDGER

X-1 RUN CALIBRATION

X-X-3 RUN CALIBRATION

O NOT CORRECTED FOR
AMBIENT PRESSURE

Δ CORRECTED FOR
AMBIENT PRESSURE

NOTE: ALL READINGS ARE PLOT-
TED FROM THE 75% INPUT
POINT

OUTPUT ERROR IN % OF SPAN

308°F @ 58 $\text{lb}_f/\text{in}^2 \pm 2 \text{ lb}_f/\text{in}^2$

266°F @ 21 $\text{lb}_f/\text{in}^2 \pm 2 \text{ lb}_f/\text{in}^2$

TEMP OF 100°F

ROOM TEMP
 $\approx 75^\circ\text{F}$

25.0

20.0

15.0

10.0

5.0

2.0

1.0

.75

.50

.25

TIME (HOURS)

25.0

20.0

15.0

10.0

5.0

2.0

1.0

.75

.50

.25

0.0

-1.0

-2.0

-3.0

-4.0

-5.0

-6.0

-7.0

-8.0

-9.0

-10.0

-11.0

-12.0

-13.0

-14.0

-15.0

-16.0

-17.0

-18.0

-19.0

-20.0

-21.0

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-195.0

-196.0

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-200.0

-201.0

-202.0

-203.0

-204.0

-205.0

-206.0

-207.0

-208.0

-209.0

-210.0

-211.0

-212.0

-213.0

-214.0

-215.0

-216.0

-217.0

-218.0

-219.0

-220.0

-221.0

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-223.0

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-225.0

-226.0

-227.0

-228.0

-229.0

-230.0

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-232.0

-233.0

-234.0

-235.0

-236.0

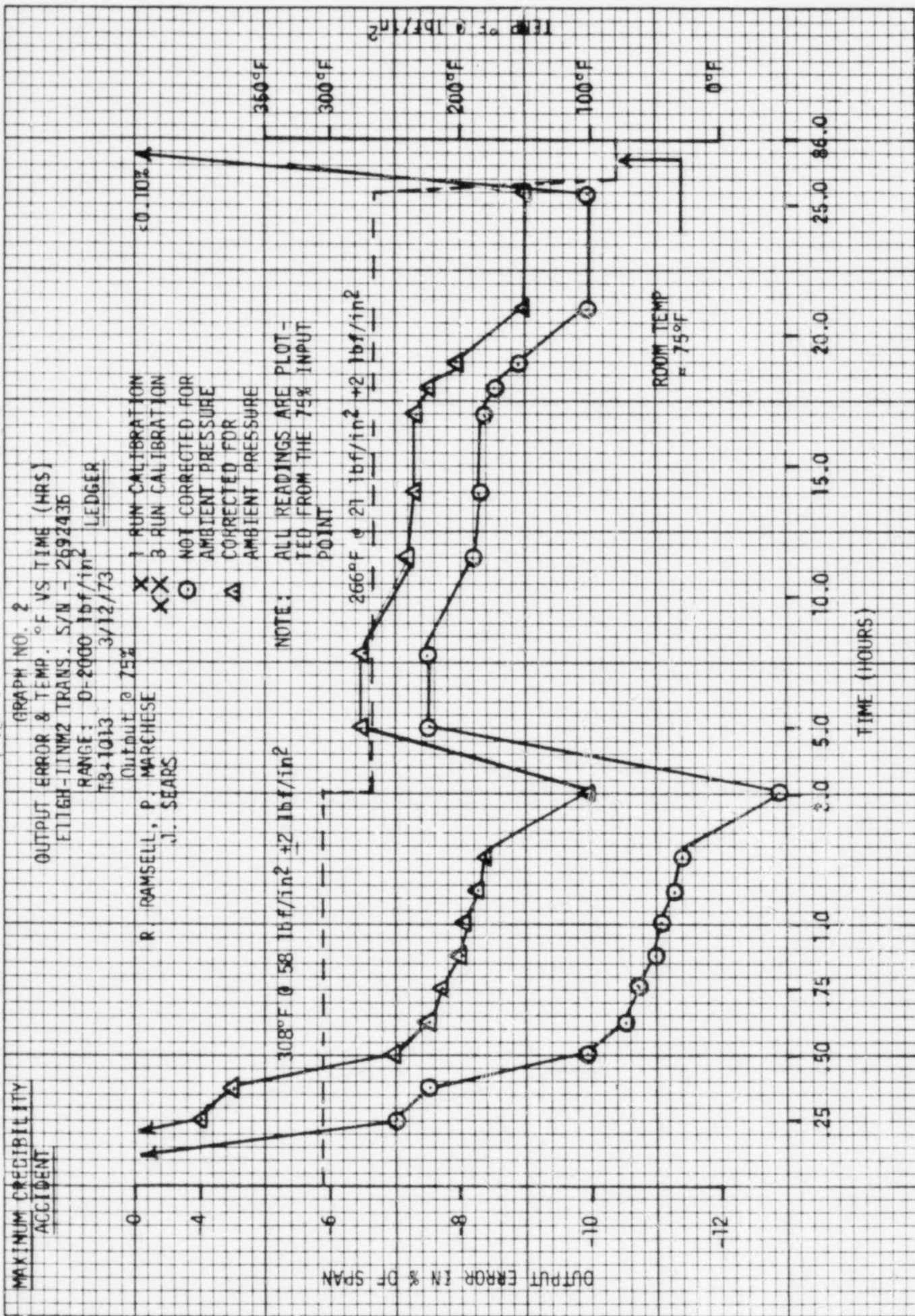
-237.0

-238.0

-239.0

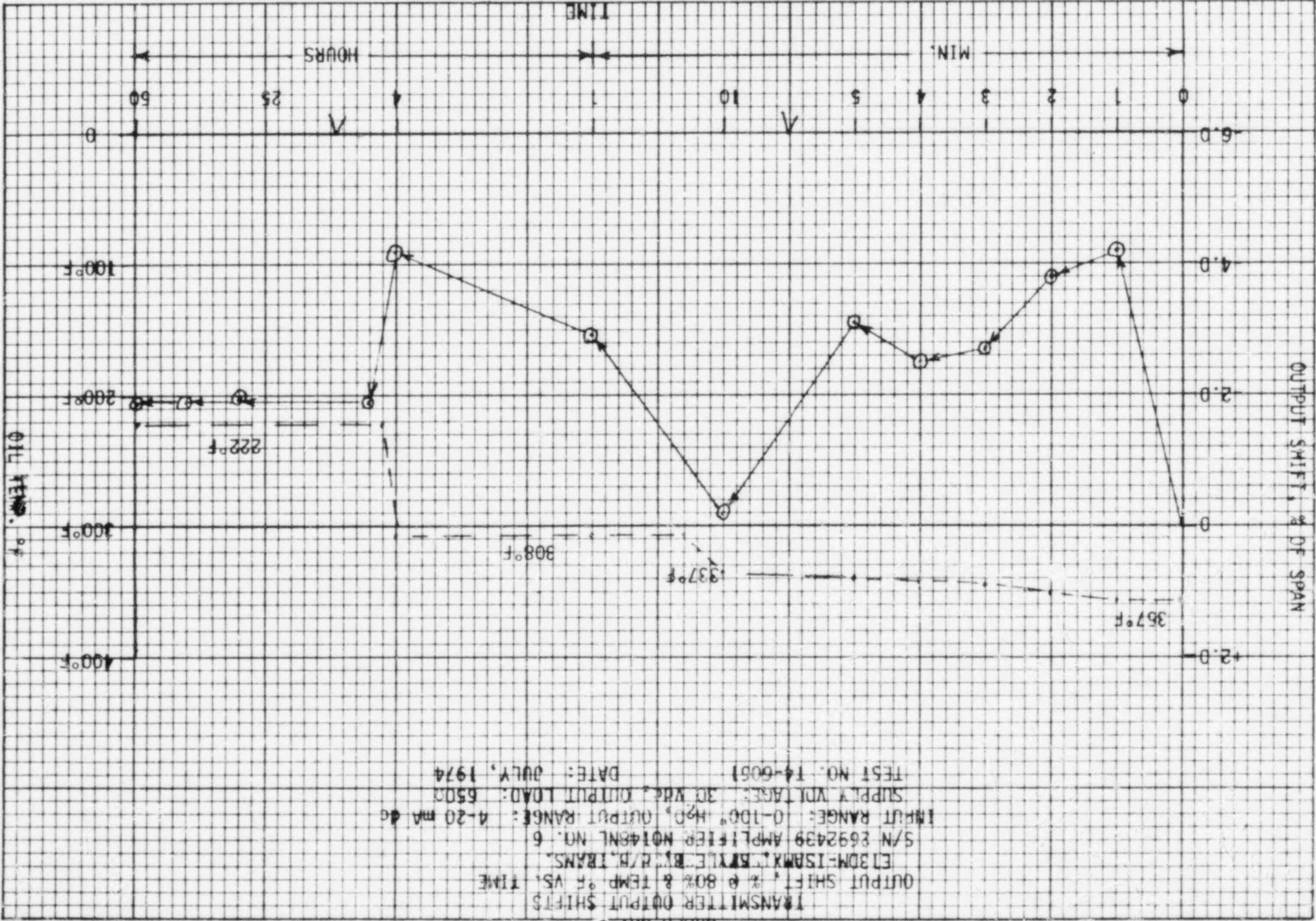
-240.0

Profile 30



Graph No. 3

TRANSMITTER OUTPUT SHIFTS
 OUTPUT SHIFT, % OF SPAN, TIME
 EL30M-15AMX1, STYLE B, D, TRANS.
 S/N 2692439 AMPLIFIER NO. 6
 INPUT RANGE: 0-100% H₂O, OUTPUT RANGE: 4-20 mA dc
 SUPPLY VOLTAGE: 30 Vdc, OUTPUT LOAD: 650Ω
 TEST NO. 14-6051
 DATE: JULY, 1974



Roller 52

GRAPH NO. 4

TRANSMITTER OUTPUT SHIFTS

OUTPUT SHIFT, % @ 80% & TEMP. °F VS. TIME
 E130M-1SAMX, STYLE 2, d/p TRANSMITTER
 S/N 271311B, AMPLIFIER N0148NL NO. 5
 INPUT RANGE: 0-100" H₂O, OUTPUT RANGE: 4-20 mA dc
 SUPPLY VOLTAGE: 30 Vdc, OUTPUT LOAD: 660Ω
 TEST NO. 14-61061 DATE: JULY, 1978

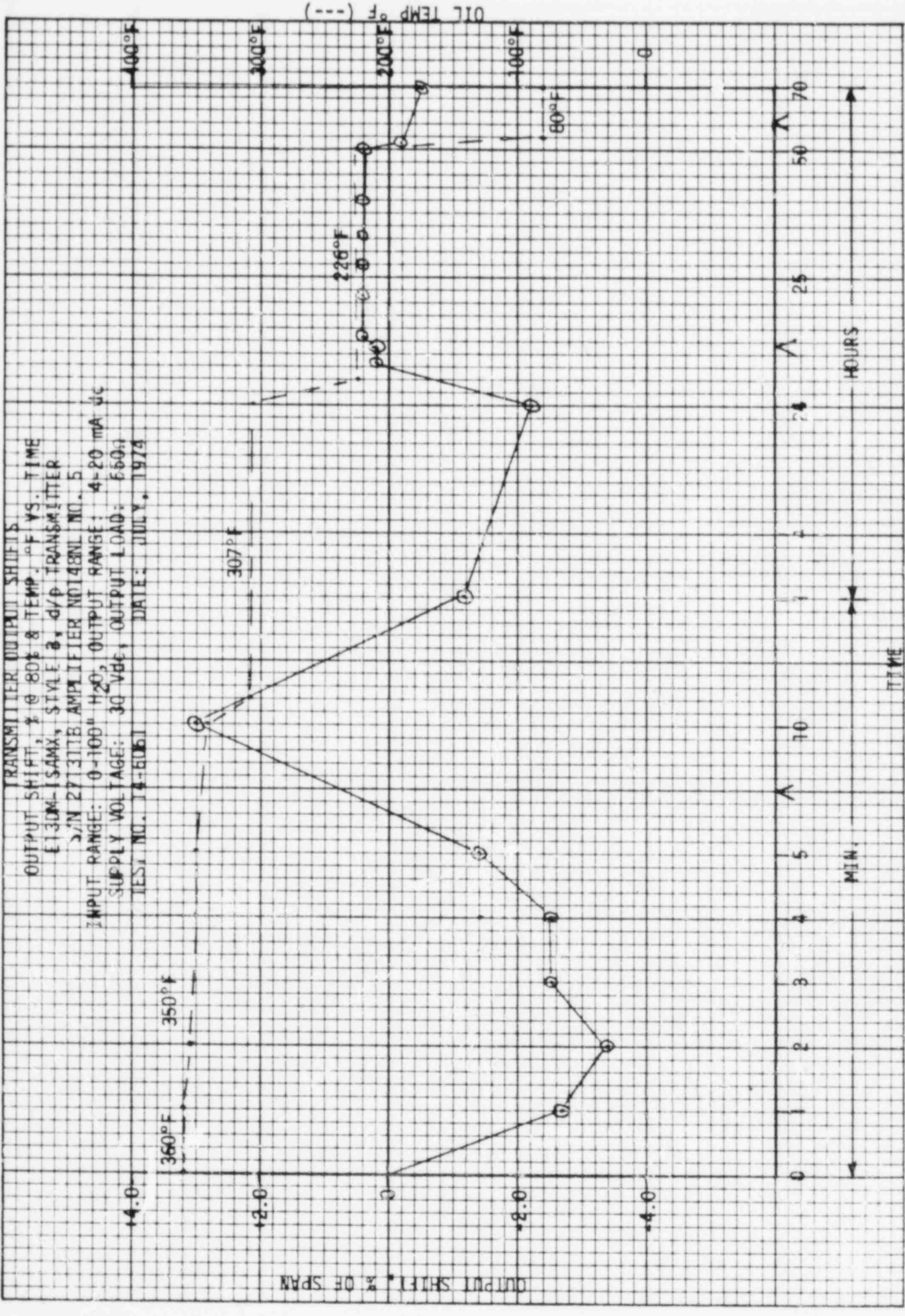


FIGURE 1

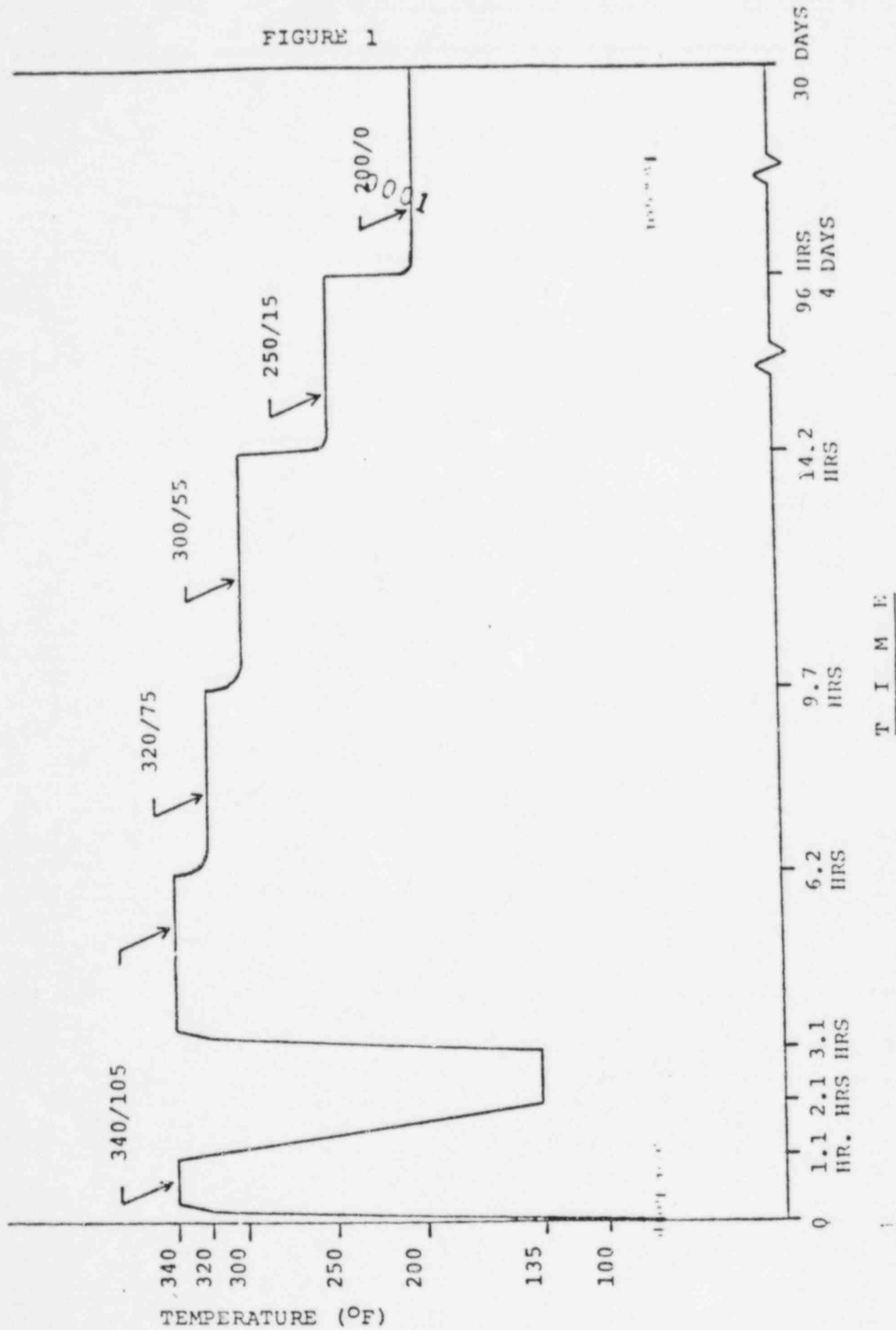
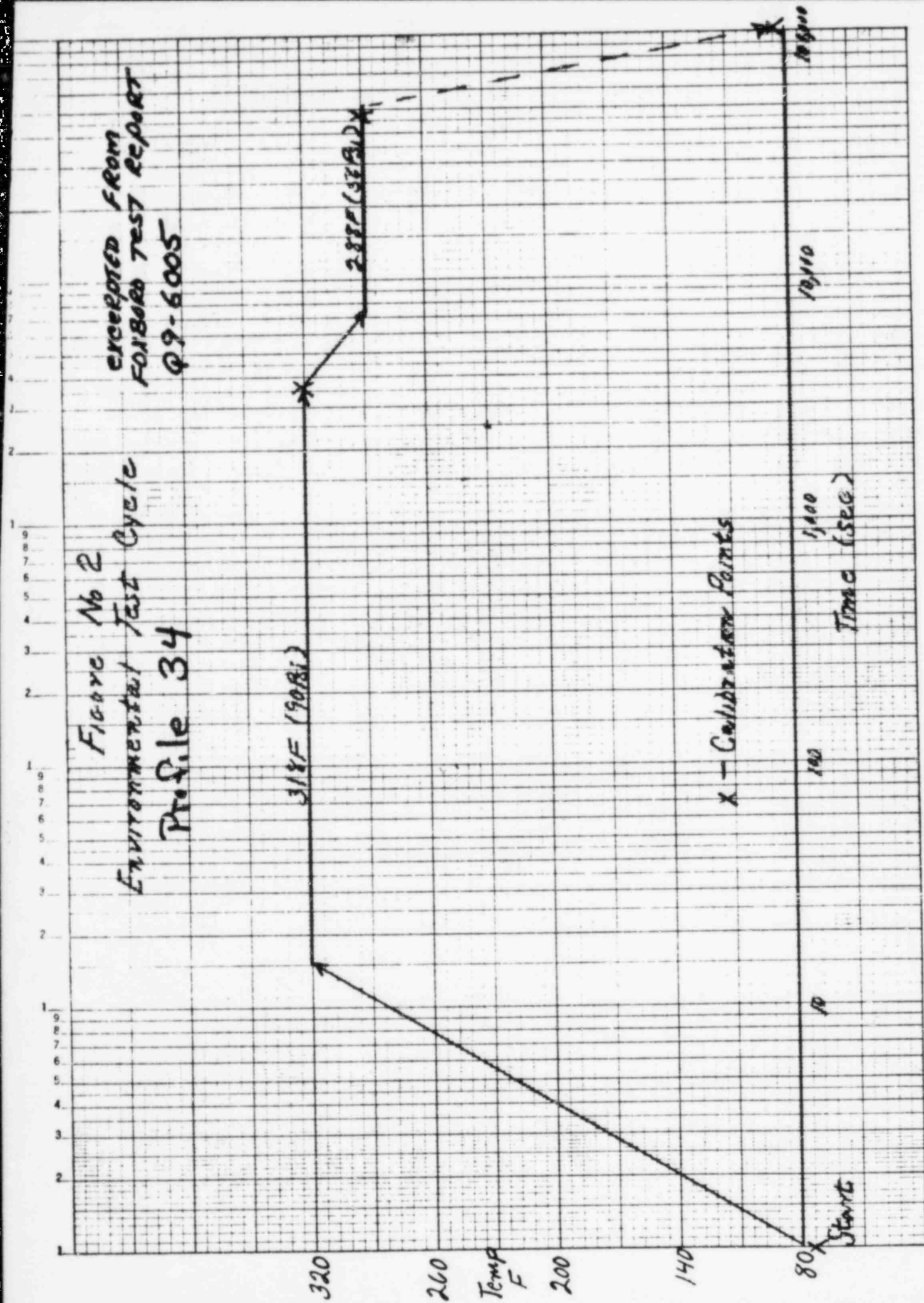
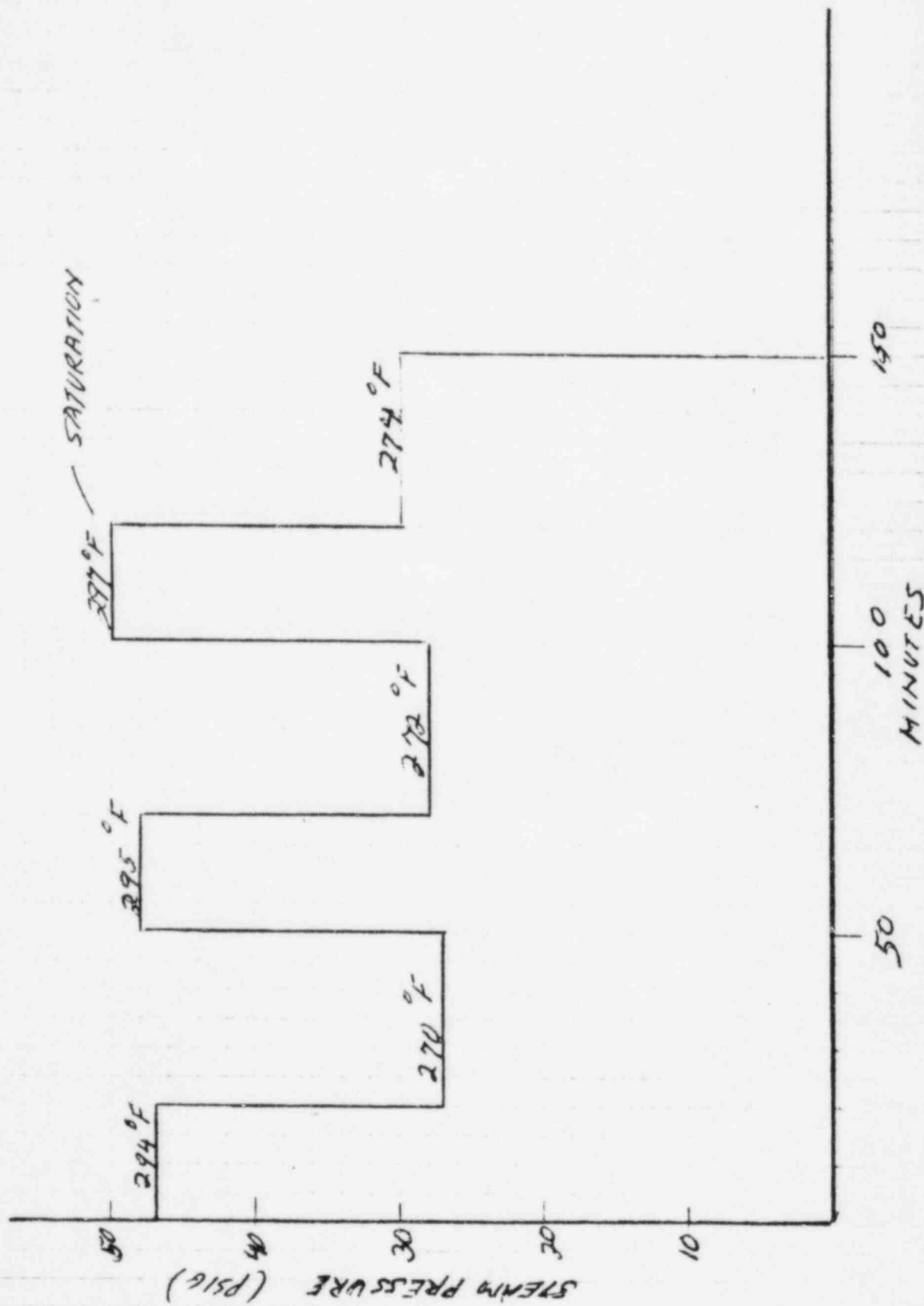


Figure No 2 Environmental Test Cycle Profile 34

EXCERPTED FROM
FOXBORO TEST REPORT
Q9-6005



PROFILE 35

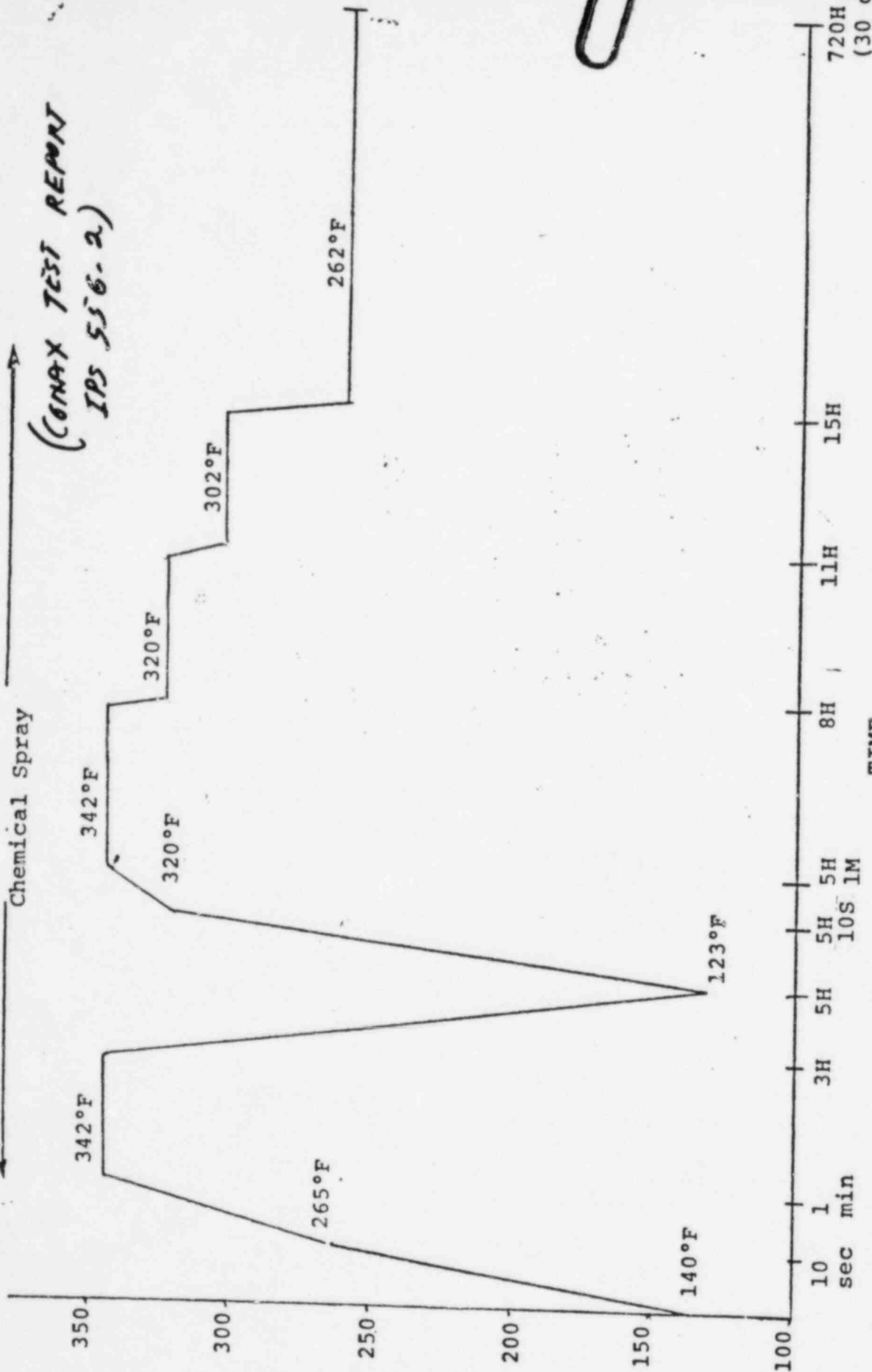


PROFILE 36

(CONAX TEST REPORT
IPS 556-2)

24 Hour

Chemical Spray



TEMPERATURE °F

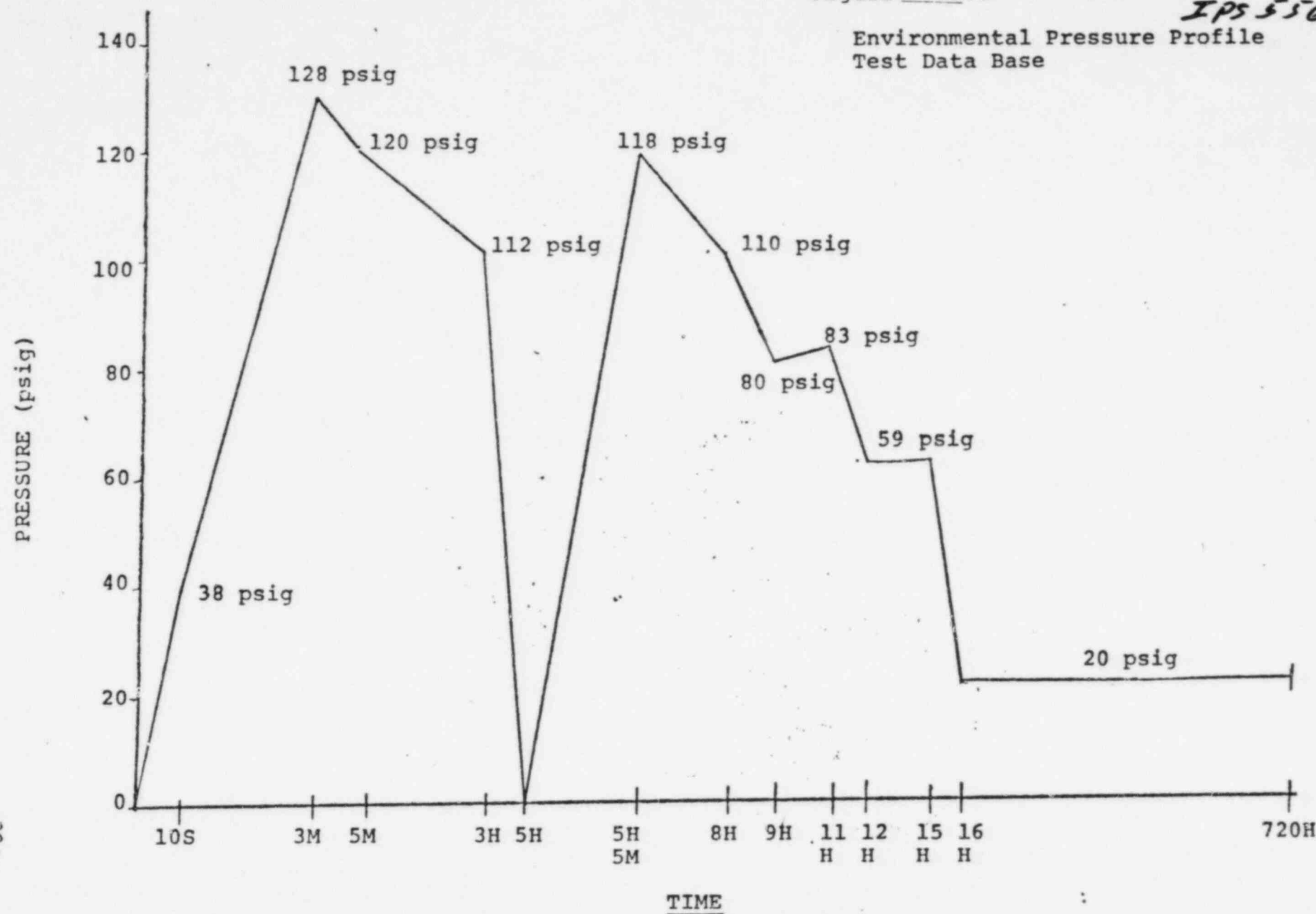
TIME

PROFILE 37

(CONAX TEST REPORT
IPS 556.2

Figure 5.12.2

Environmental Pressure Profile
Test Data Base

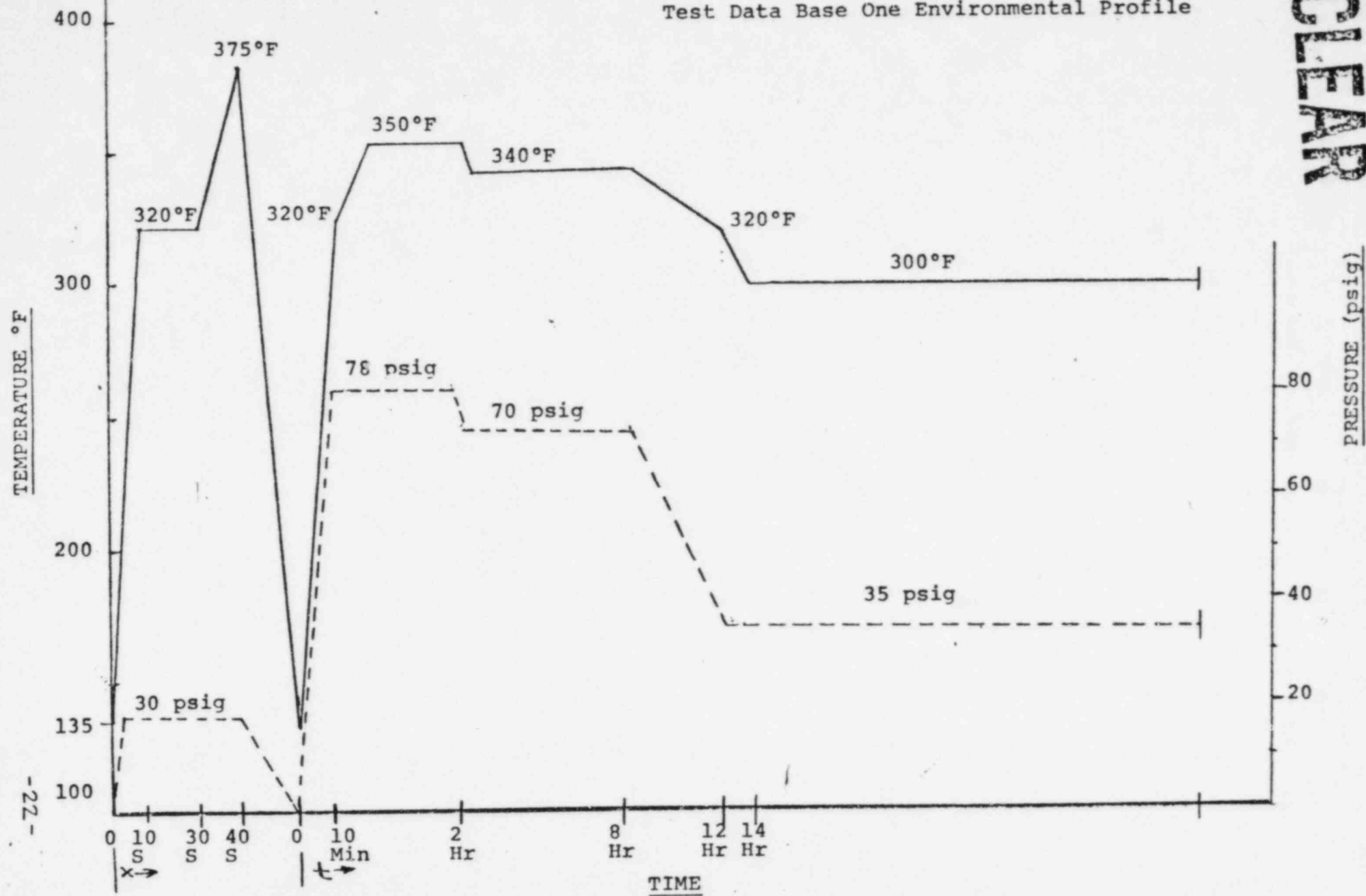


NUCLEAR

IPS-556.2

UGLEBY

Test Data Base One Environmental Profile



IPS-556-1

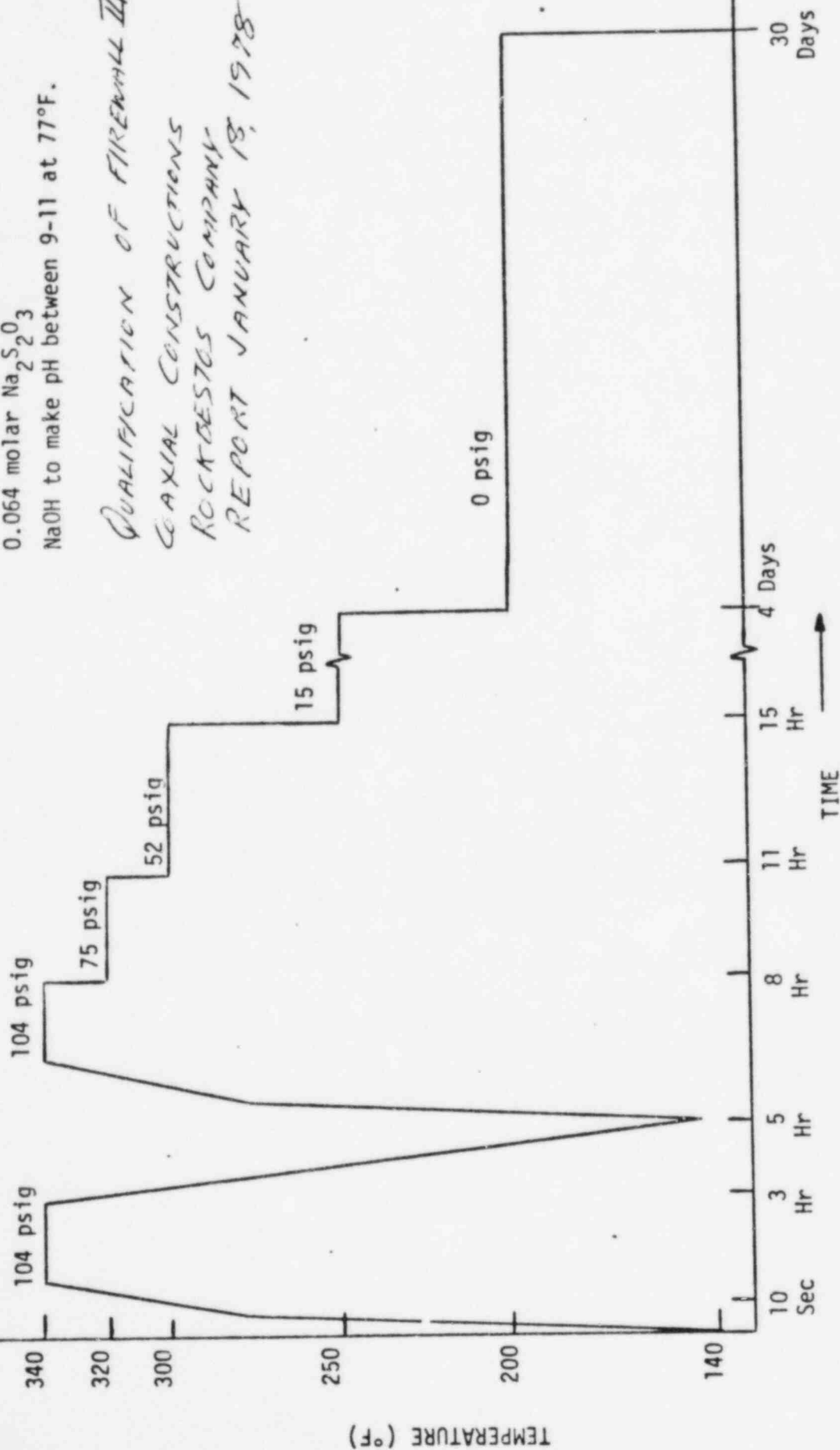
PROFILE 39

Spray for first 24 hrs. at rate of 0.15
gpm per square foot of spray area with
solution of the following composition:
0.28 molar H_3BO_3 (3000 ppm boron)

0.064 molar $Na_2S_2O_3$

NaOH to make pH between 9-11 at 77°F.

*QUALIFICATION OF FIREWALL III
COAXIAL CONSTRUCTIONS
ROCKWELL COMPANY
REPORT JANUARY 18, 1978*



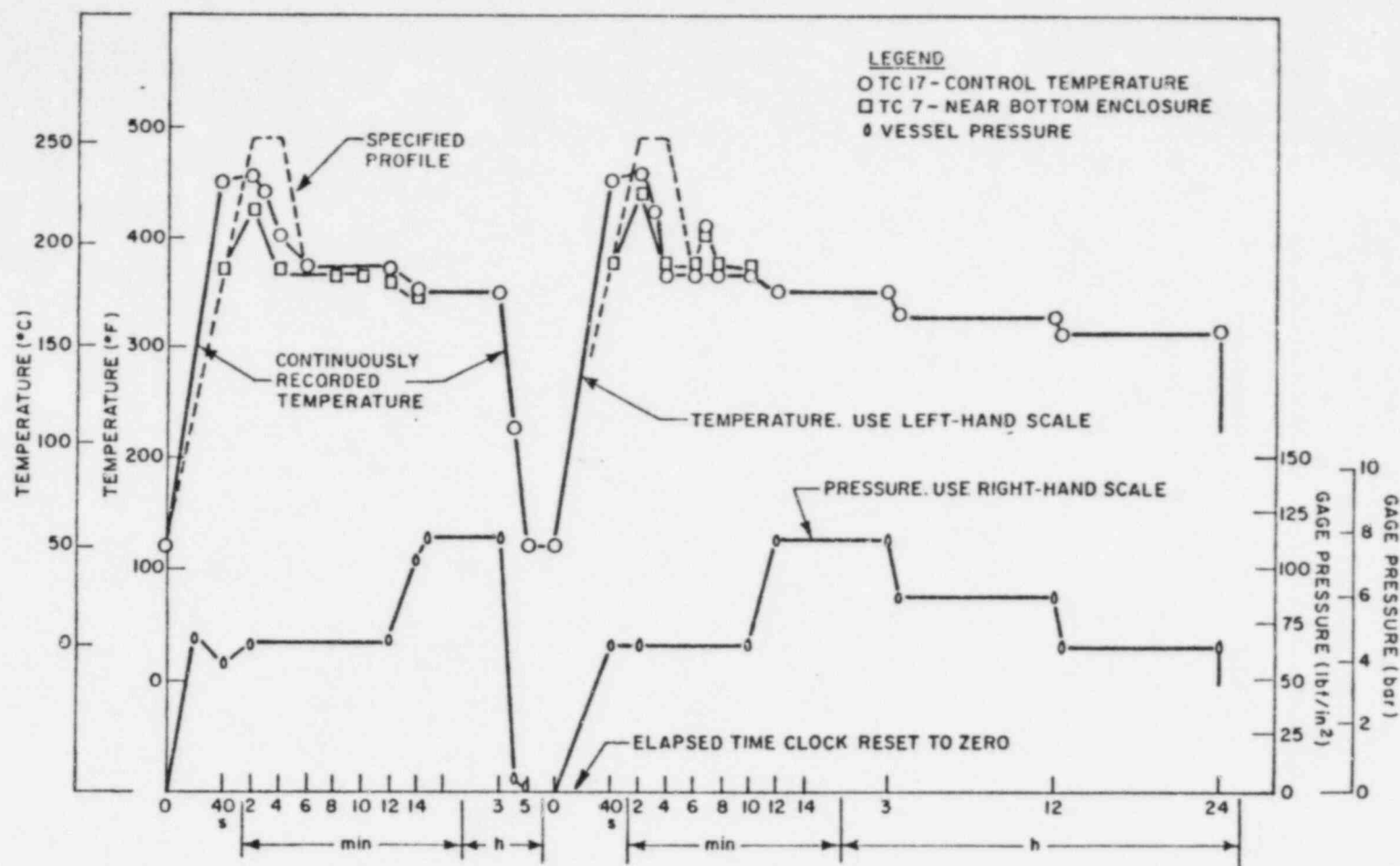
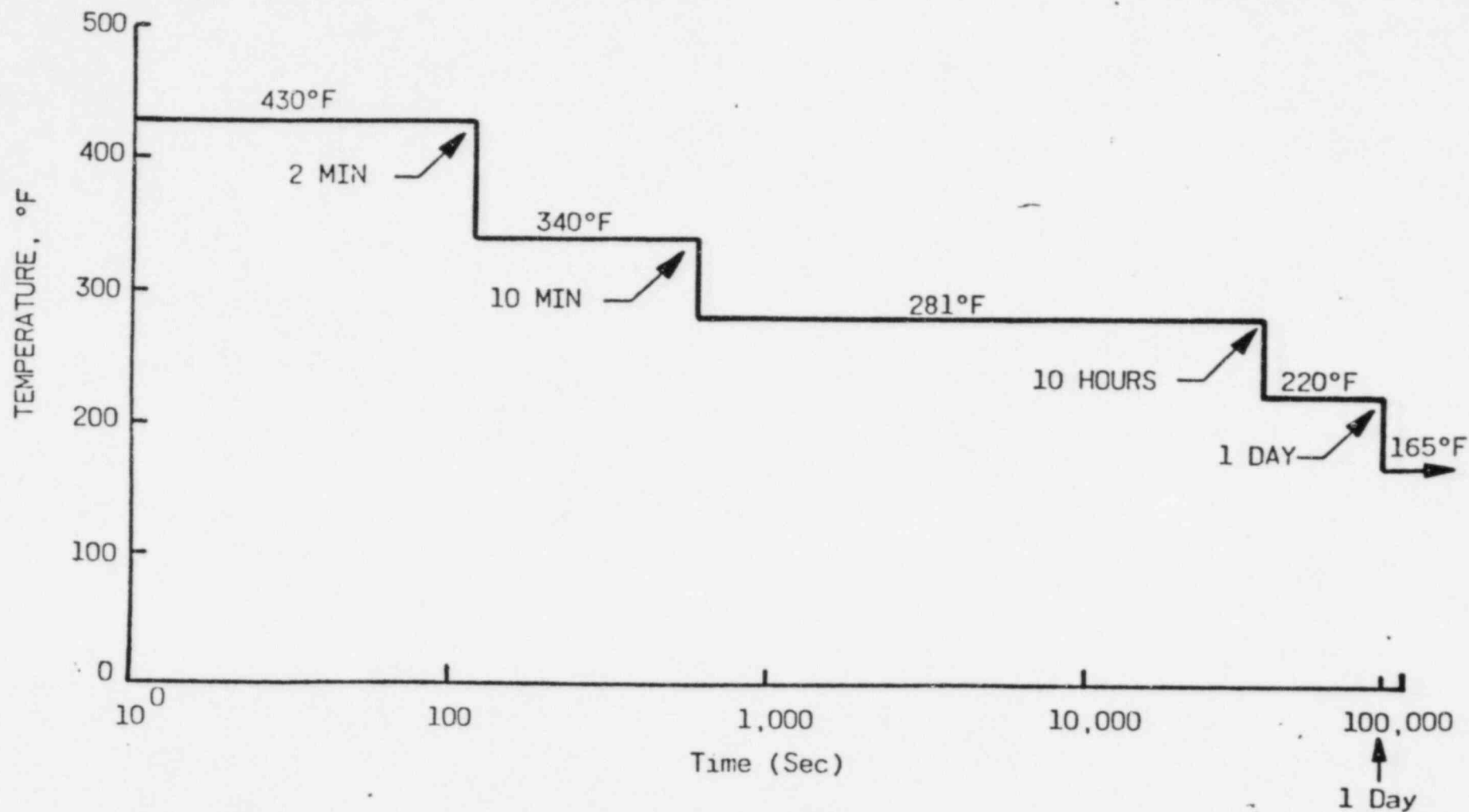


Figure 11. Temperature and Pressure Profile for S/C Exposure of Group II Specimens

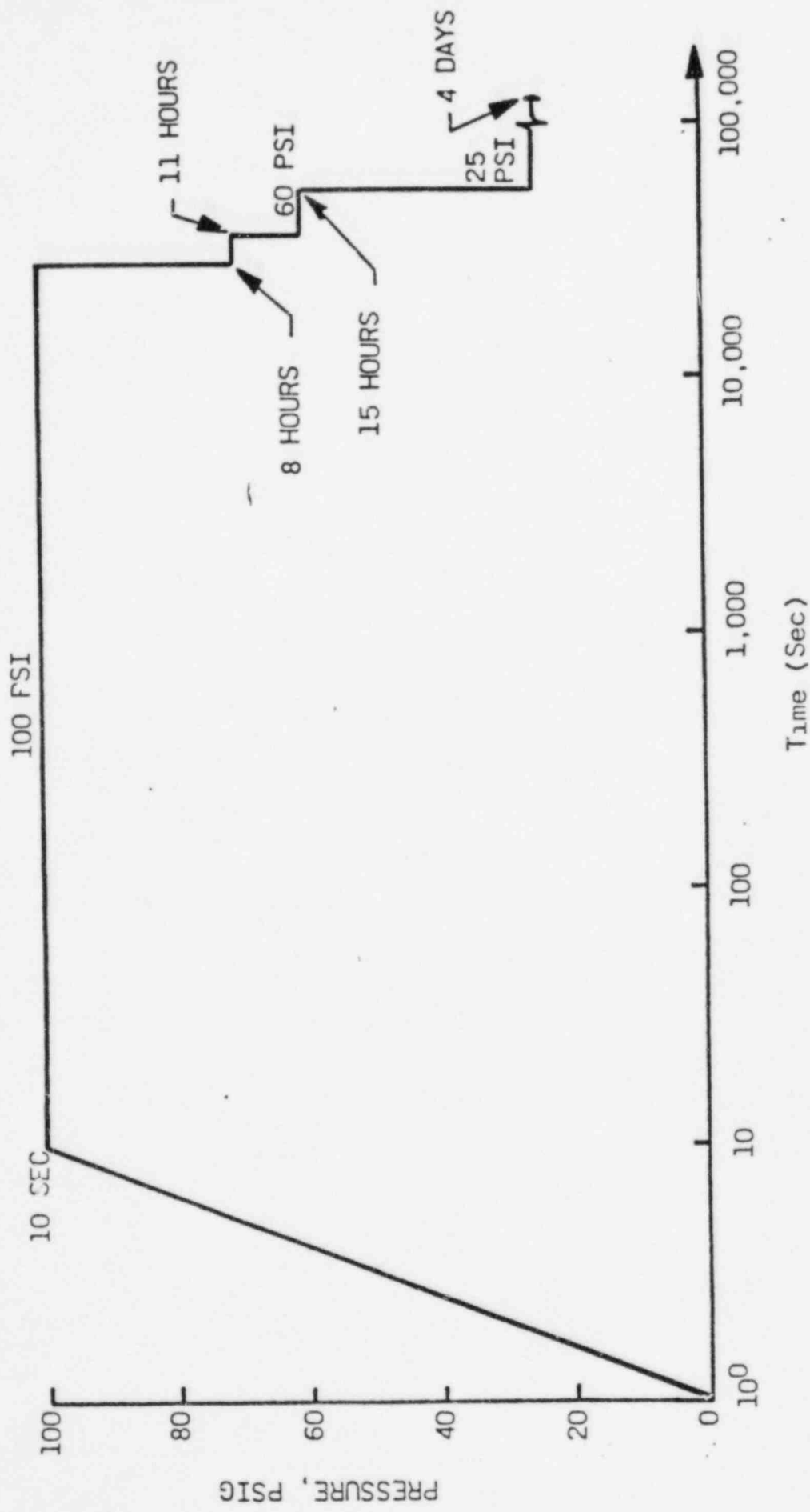
FROM BARBERE & W. LOCK
Value monitoring System
TEST PROGRAM 3-21-80

Temperature of Containment vs Time Envelope of Owners



Pressure in Containment vs. Time

Envelope of Owners



SECTION 7
RESULTS AND DISCUSSION

TABLE 16
SUMMARY OF TESTS WITH HEAT EXCHANGER

TABLE 16 SUMMARY OF TESTS WITH HEAT EXCHANGER		
A) Exposure Times: Motor Running		
		Hours
Time in high pressure steam (above 75 psig)		24
Total postaccident time (16 psig)		168
Time of chemical spray		24
Motor starts in steam	High pressure	9
(full load)	Low pressure	5
Number of rapid pressurizations		7
B) Post Exposure Tests		
	Before Steam Exposure	After Steam Exposure
1) Overpotential test (1280 volts rms, 60 Hz for 1 minute)	Not required	Passed, IR shown below taken immediately afterwards
2) Insulation resistance		
low speed	∞	80 megohms
high speed	∞	150 megohms
3) Vibration (max in.)	≤0.0017	≤0.0017
4) Shaft looseness, vertical	0.006 in.	0.006 in.
5) Coastdown time (minutes)		
low speed	8%	8%
high speed	12	12

TABLE 2A

TESTS WITHOUT HEAT EXCHANGER

A summary of data taken during the five high-pressure transients (21 hours above 75 psig) followed by seven days at 16 psig is given in Table 17.

Figure 18 shows how the motor enclosure pressure built up during the steam inrush. The pressure difference across the bearings was essentially zero thereafter.

Attention is called to the fact that saturation of steam temperatures were reached during each of the high-pressure cycles.

TABLE 17
SUMMARY OF OBSERVATIONS—TESTS WITHOUT HEAT EXCHANGER

A) Exposure Times: Motor Running

Time in high pressure steam (above 75 psig)	21 hours
Total postaccident time (16 psig)	7 days
Time of chemical spray	20 hours
Motor starts in steam	High pressure 9 starts
(full load)	Low pressure 5 starts
Number of rapid pressurizations	5

B) Inspection

	Before Steam Exposure	After Steam Exposure
1) Overpotential test (1280 volts rms, 60 Hz for 1 minute)	Not required	Passed
2) Insulation resistance		
low speed winding	1000 megohms	700 megohms
high speed winding	1000 megohms	700 megohms
3) Shaft looseness	0.006 in.	0.006 in.
4) Cooldown time (minutes)		
low speed	8%	8%
high speed	12	12

TABLE 2 B

TABLE 4

ORIGINAL AND IRRADIATED - STEAM EXPOSED ELECTRICAL TEST DATA OF EPR INSULATED
HYPALON JACKETED CABLES

	<u>Insulation Resistance Megohms/ft</u>	<u>Capacitance Picofarads per Foot</u>	<u>Power Factor (1000 Hz) %</u>
<u>Original</u>	11×10^6	51	1.6
<u>Irradiated Cables - 5×10^7 RADS after Steam Exposure*</u>			
<u>First Cycle</u>			
Room temperature	Infinity	51.7	1.23
47 psi steam	13,636	58.4	11.34
27 psi steam	5,910	55.8	7.80
<u>Third Cycle</u>			
48 psi steam	2,180	57.3	9.10
28 psi steam	2,090	55.7	7.40
<u>Fifth Cycle</u>			
50 psi steam	790	57.3	8.87
30 psi steam	1,000	56.0	7.39
Room temperature	90,190	53.1	1.61

*Steam-Exposure: 5 cycles of 20 minutes at 45 psi and 30 minutes at 30 psi per cycle.

REPRODUCED FROM
GENERAL CABLE CORP REPORT
DATED NOVEMBER 1970

TABLE 3